

**2004 Summary Report -  
Water Quality Testing  
of  
The Tsa da Glisza Project Area,  
Yukon Territory, Canada**

submitted in partial fulfillment of  
ARD Management Program  
to  
Yukon Mining Recorder  
YTG Energy, Mines and Resources  
Watson Lake, Yukon Territory

October 31, 2004

True North Gems Inc.  
500-602 West Hastings Street  
Vancouver, BC  
V6B 1P2

Greg Davison, P.Geo.  
Project Manager  
Regal Ridge Project  
True North Gems Inc.

Twila Skinner  
Exploration Geologist  
Regal Ridge Project  
True North Gems Inc.



## 2004 Water Testing Program and Summary of Results

During the 2004 field season, three sets of water samples were taken from twelve stations throughout the Regal Ridge property and the surrounding area.

These samples were chosen based on proximity to the Property, any runoff from the Property and any water sources that could potentially come in contact with activities associated with mining/exploration on or surrounding the Property. The stations are numbered WS Station 1 through WS Station 12 inclusive and are located on the following tabulation (shown in UTM NAD83 Zone 9 coordinates) and appended topographic map. WS Station 12 was located at the mine portal; sampling was limited to August as the area was covered by snow in June and no runoff was present in September, 2004.

Water samples were taken on June 23, 2004, August 10, 2004 and September 15, 2004. All water samples are tested for CCME total metals and WS Station 6 through WS Station 12 inclusive were tested for total suspended solids. The results of analysis for all the samples for 2004 are provided on the four attached certificates.

<b>Name</b>	<b>Easting</b>	<b>Northing</b>
WS Station 1	415873	6794937
WS Station 2	415526	6795235
WS Station 3	415630	6795053
WS Station 4	415509	6794996
WS Station 5	415438	6794959
WS Station 6	415248	6795047
WS Station 7	415228	6795072
WS Station 8	412509	6798588
WS Station 9	412229	6798640
WS Station 10	412220	6792941
WS Station 11	414140	6793828
WS Station 12	414714	6794508

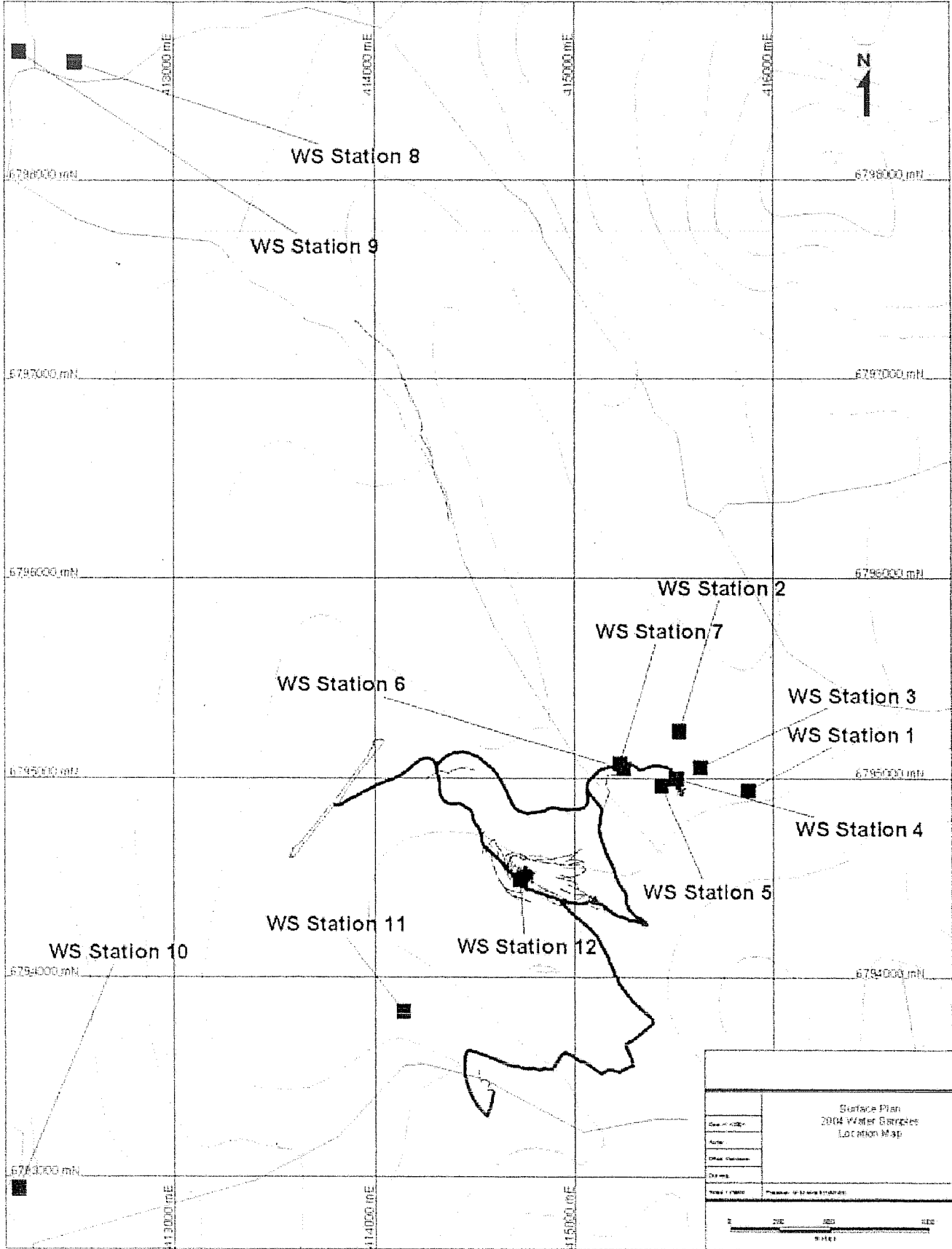
Respectfully submitted,

Greg Davison, P. Geo.  
Project Manager  
Regal Ridge Project  
True North Gems Inc.



Twila Skinner  
Exploration Geologist  
Regal Ridge Project  
True North Gems Inc.





# CHEMICAL ANALYSIS REPORT

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**Date:** July 13, 2004

**ALS File No.** U4976

**Report On:** Regal Ridge Water Analysis

**Report To:** **True North Gems Inc.**  
Suite 500-602 West Hastings St.  
Vancouver, BC  
V6B 1P2

**Attention:** **Ms. Bonnie Pemberton**

**Received:** June 26, 2004

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## ALS ENVIRONMENTAL

per:

Scott P. Hoekstra, B.Sc. - Project Chemist  
Brent C. Mack, B.Sc. - Section Coordinator

File No. U4976

**RESULTS OF ANALYSIS - Water**

Sample ID	WS04-01	WS04-02	WS04-03	WS04-04	WS04-05
Sample Date	04-06-23	04-06-23	04-06-23	04-06-23	04-06-23
Sample Time	08:23	08:47	08:37	09:00	09:10
ALS ID	1	2	3	4	5

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**Physical Tests**

Hardness	CaCO3	37.7	16.9	25.6	22.3	21.8
Total Suspended Solids		-	-	-	-	-

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Results are expressed as milligrams per litre except where noted.  
< = Less than the detection limit indicated.

**RESULTS OF ANALYSIS - Water**

Sample ID		WS04-01	WS04-02	WS04-03	WS04-04	WS04-05
Sample Date		04-06-23	04-06-23	04-06-23	04-06-23	04-06-23
Sample Time		08:23	08:47	08:37	09:00	09:10
ALS ID		1	2	3	4	5
<b>Total Metals</b>						
Aluminum	T-Al	0.0120	0.0317	0.0130	0.0092	0.0266
Antimony	T-Sb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium	T-Ba	0.101	<0.020	0.054	0.038	<0.020
Beryllium	T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth	T-Bi	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	T-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium	T-Ca	9.02	4.87	5.82	5.41	5.60
Chromium	T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	T-Co	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper	T-Cu	<0.0010	<0.0010	<0.0010	<0.0010	0.0032
Iron	T-Fe	0.045	<0.030	<0.030	<0.030	<0.030
Lead	T-Pb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium	T-Li	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	T-Mg	3.69	1.15	2.70	2.14	1.91
Manganese	T-Mn	0.0130	0.00071	0.00082	<0.00030	0.00062
Mercury	T-Hg	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel	T-Ni	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Phosphorus	T-P	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium	T-K	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon	T-Si	1.20	1.25	1.04	1.19	1.49
Silver	T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium	T-Na	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium	T-Sr	0.188	0.0209	0.118	0.0850	0.0372
Thallium	T-Tl	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	T-U	0.00092	0.00034	0.00053	<0.00020	<0.00020
Vanadium	T-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

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**RESULTS OF ANALYSIS - Water**

Sample ID	WS04-06	WS04-07	WS04-08	WS04-09	WS04-10
Sample Date	04-06-23	04-06-23	04-06-23	04-06-23	04-06-23
Sample Time	09:20	09:28	15:39	15:33	15:25
ALS ID	6	7	8	9	10

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**Physical Tests**

Hardness	CaCO3	18.8	18.8	32.8	41.4	30.2
Total Suspended Solids		4.7	<3.0	<3.0	<3.0	<3.0

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Results are expressed as milligrams per litre except where noted.  
< = Less than the detection limit indicated.

**RESULTS OF ANALYSIS - Water**

Sample ID		WS04-06	WS04-07	WS04-08	WS04-09	WS04-10
Sample Date		04-06-23	04-06-23	04-06-23	04-06-23	04-06-23
Sample Time		09:20	09:28	15:39	15:33	15:25
ALS ID		6	7	8	9	10
<b>Total Metals</b>						
Aluminum	T-Al	0.0511	0.0243	0.0187	0.0361	0.0199
Antimony	T-Sb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium	T-Ba	<0.020	<0.020	0.021	0.042	<0.020
Beryllium	T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth	T-Bi	<0.20	<0.20	<0.20	<0.20	<0.20
Boron	T-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050	<0.000050	0.000109	<0.000050
Calcium	T-Ca	4.88	4.90	7.55	10.6	7.62
Chromium	T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	T-Co	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper	T-Cu	0.0013	<0.0010	0.0020	<0.0010	0.0012
Iron	T-Fe	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	T-Pb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium	T-Li	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	T-Mg	1.60	1.59	3.39	3.62	2.71
Manganese	T-Mn	0.00120	0.00182	0.00038	0.00930	0.00044
Mercury	T-Hg	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel	T-Ni	<0.0010	<0.0010	0.0017	0.0043	<0.0010
Phosphorus	T-P	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium	T-K	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silicon	T-Si	1.06	1.06	2.23	2.35	2.64
Silver	T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium	T-Na	<2.0	<2.0	<2.0	<2.0	<2.0
Strontium	T-Sr	0.0361	0.0361	0.0494	0.0605	0.0361
Thallium	T-Tl	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	T-U	<0.00020	<0.00020	<0.00020	0.00178	0.00361
Vanadium	T-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050	<0.0050	0.0150	<0.0050

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

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**RESULTS OF ANALYSIS - Water**

Sample ID WS04-11

Sample Date 04-06-23

Sample Time 14:30

ALS ID 11

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**Physical Tests**

Hardness CaCO<sub>3</sub> 28.4

Total Suspended Solids <3.0

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Results are expressed as milligrams per litre except where noted.  
< = Less than the detection limit indicated.

File No. U4976

**RESULTS OF ANALYSIS - Water**

Sample ID WS04-11

Sample Date 04-06-23

Sample Time 14:30

ALS ID 11

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**Total Metals**

Aluminum	T-Al	0.0272
Antimony	T-Sb	<0.00050
Arsenic	T-As	<0.00050
Barium	T-Ba	<0.020
Beryllium	T-Be	<0.0010
Bismuth	T-Bi	<0.20
Boron	T-B	<0.10
Cadmium	T-Cd	<0.000050
Calcium	T-Ca	7.18
Chromium	T-Cr	<0.0010
Cobalt	T-Co	<0.00030
Copper	T-Cu	0.0010
Iron	T-Fe	<0.030
Lead	T-Pb	<0.00050
Lithium	T-Li	<0.0050
Magnesium	T-Mg	2.54
Manganese	T-Mn	0.00142
Mercury	T-Hg	<0.000050
Molybdenum	T-Mo	<0.0010
Nickel	T-Ni	<0.0010
Phosphorus	T-P	<0.30
Potassium	T-K	<2.0
Selenium	T-Se	<0.0010
Silicon	T-Si	2.25
Silver	T-Ag	<0.000020
Sodium	T-Na	<2.0
Strontium	T-Sr	0.0371
Thallium	T-Tl	<0.00020
Tin	T-Sn	<0.00050
Titanium	T-Ti	<0.010
Uranium	T-U	0.00399
Vanadium	T-V	<0.030
Zinc	T-Zn	<0.0050

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Results are expressed as milligrams per litre except where noted.  
< = Less than the detection limit indicated.

## Appendix 1 - METHODOLOGY

Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

### Conventional Parameters in Water

These analyses are carried out in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (USEPA), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (BCMOE), and/or "Standard Methods for the Examination of Water and Wastewater" (APHA). Further details are available on request.

### Metals in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:

Sample:	6 months
Reference:	EPA
For more detail see:	ALS "Collection & Sampling Guide"

### Mercury in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

Recommended Holding Time:

Sample:	28 days
Reference:	EPA
For more detail see	ALS Environmental "Collection & Sampling Guide"

### Solids in Water

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total dissolved solids (TDS) and total suspended solids (TSS) are determined by filtering a sample

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**Appendix 1 - METHODOLOGY - Continued**

through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius, TSS is determined by drying the filter at 104 degrees celsius. Total solids are determined by evaporating a sample to dryness at 104 degrees celsius. Fixed and volatile solids are determined by igniting a dried sample residue at 550 degrees celsius.

Recommended Holding Time:

Sample: 7 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

**Results contained within this report relate only to the samples as submitted.**

**This Chemical Analysis Report shall only be reproduced in full, except with the written approval of ALS Environmental.**

**End of Report**



# CHEMICAL ANALYSIS REPORT

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Date: August 26, 2004

ALS File No. U6857

Report On: Regal Ridge Water Analysis

Report To: **True North Gems Inc.**  
Suite 500-602 West Hastings St.  
Vancouver, BC  
V6B 1P2

Attention: **Ms. Twila Skinner**

Received: August 12, 2004

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**ALS ENVIRONMENTAL**

per:

Scott P. Hoekstra, B.Sc. - Project Chemist  
Heather A. Ross-Easton, B.Sc. - Project Chemist

## RESULTS OF ANALYSIS - Water



Sample ID	WS04-12	WS04-13	WS04-14	WS04-15	WS04-16
Sample Date	04-08-23	04-08-23	04-08-23	04-08-23	04-08-23
Sample Time	20:42	21:03	20:55	21:11	21:30
ALS ID	1	2	3	4	5

**Physical Tests**

Hardness	CaCO <sub>3</sub>	71.4	51.7	64.5	56.9	38.8
Total Suspended Solids		-	-	-	-	-

**Total Metals**

Aluminum	T-Al	0.0055	0.0188	0.0092	0.0411	0.0179
Antimony	T-Sb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium	T-Ba	0.152	<0.020	0.109	0.112	0.023
Beryllium	T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron	T-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium	T-Ca	16.5	14.8	14.0	12.9	9.79
Chromium	T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt	T-Co	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper	T-Cu	<0.0010	<0.0010	<0.0010	0.0013	0.0084
Iron	T-Fe	<0.030	<0.030	<0.030	<0.030	<0.030
Lead	T-Pb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium	T-Li	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	T-Mg	7.33	3.56	7.20	5.98	3.48
Manganese	T-Mn	0.00542	0.00250	<0.00030	0.00236	0.00152
Mercury	T-Hg	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010	0.0011	<0.0010	<0.0010
Nickel	T-Ni	<0.0010	<0.0010	0.0010	<0.0010	0.0044
Potassium	T-K	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	T-Ag	<0.000020	<0.000020	<0.000020	0.000037	<0.000020
Sodium	T-Na	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium	T-Tl	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	T-U	0.00245	0.00210	0.00291	0.00073	0.00024
Vanadium	T-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

## RESULTS OF ANALYSIS - Water



Sample ID	WS04-17	WS04-17A	WS04-18	WS04-18A	WS04-19
Sample Date	04-08-23	04-08-23	04-08-23	04-08-23	04-08-23
Sample Time	21:42	21:42	21:48	21:48	17:54
ALS ID	6	7	8	9	10

**Physical Tests**

Hardness	CaCO <sub>3</sub>	43.8	-	51.1	-	56.3
Total Suspended Solids		-	<3.0	-	4.6	-

**Total Metals**

Aluminum	T-Al	0.0097	-	0.0150	-	0.0096
Antimony	T-Sb	<0.00050	-	<0.00050	-	<0.00050
Arsenic	T-As	<0.00050	-	<0.00050	-	<0.00050
Barium	T-Ba	0.031	-	0.025	-	0.030
Beryllium	T-Be	<0.0010	-	<0.0010	-	<0.0010
Boron	T-B	<0.10	-	<0.10	-	<0.10
Cadmium	T-Cd	<0.000050	-	<0.000050	-	<0.000050
Calcium	T-Ca	11.7	-	14.3	-	13.3
Chromium	T-Cr	<0.0010	-	<0.0010	-	<0.0010
Cobalt	T-Co	<0.00030	-	<0.00030	-	<0.00030
Copper	T-Cu	0.0021	-	0.0017	-	<0.0010
Iron	T-Fe	<0.030	-	0.039	-	<0.030
Lead	T-Pb	<0.00050	-	<0.00050	-	<0.00050
Lithium	T-Li	<0.0050	-	<0.0050	-	<0.0050
Magnesium	T-Mg	3.55	-	3.76	-	5.61
Manganese	T-Mn	0.00489	-	0.00535	-	<0.00030
Mercury	T-Hg	<0.000050	-	<0.000050	-	<0.000050
Molybdenum	T-Mo	<0.0010	-	<0.0010	-	<0.0010
Nickel	T-Ni	0.0013	-	<0.0010	-	0.0014
Potassium	T-K	<2.0	-	<2.0	-	<2.0
Selenium	T-Se	<0.0010	-	<0.0010	-	<0.0010
Silver	T-Ag	<0.000020	-	<0.000020	-	<0.000020
Sodium	T-Na	<2.0	-	<2.0	-	<2.0
Thallium	T-Tl	<0.00020	-	<0.00020	-	<0.00020
Tin	T-Sn	<0.00050	-	<0.00050	-	<0.00050
Titanium	T-Ti	<0.010	-	<0.010	-	<0.010
Uranium	T-U	0.00038	-	0.00036	-	<0.00020
Vanadium	T-V	<0.030	-	<0.030	-	<0.030
Zinc	T-Zn	<0.0050	-	<0.0050	-	<0.0050

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

**RESULTS OF ANALYSIS - Water**

Sample ID	WS04-19A	WS04-20	WS04-20A	WS04-21	WS04-21A
Sample Date	04-08-23	04-08-23	04-08-23	04-08-23	04-08-23
Sample Time	17:54	17:45	17:45	17:40	17:40
ALS ID	11	12	13	14	15

**Physical Tests**

Hardness	CaCO3	-	69.2	-	50.0	-
Total Suspended Solids		<3.0	-	9.3	-	14.6

**Total Metals**

Aluminum	T-Al	-	0.0235	-	0.0184	-
Antimony	T-Sb	-	<0.00050	-	<0.00050	-
Arsenic	T-As	-	<0.00050	-	<0.00050	-
Barium	T-Ba	-	0.065	-	<0.020	-
Beryllium	T-Be	-	<0.0010	-	<0.0010	-
Boron	T-B	-	<0.10	-	<0.10	-
Cadmium	T-Cd	-	0.000138	-	<0.000050	-
Calcium	T-Ca	-	18.0	-	13.0	-
Chromium	T-Cr	-	<0.0010	-	<0.0010	-
Cobalt	T-Co	-	<0.00030	-	<0.00030	-
Copper	T-Cu	-	<0.0010	-	0.0012	-
Iron	T-Fe	-	<0.030	-	<0.030	-
Lead	T-Pb	-	<0.00050	-	<0.00050	-
Lithium	T-Li	-	<0.0050	-	<0.0050	-
Magnesium	T-Mg	-	5.88	-	4.28	-
Manganese	T-Mn	-	0.00751	-	0.00108	-
Mercury	T-Hg	-	<0.000050	-	<0.000050	-
Molybdenum	T-Mo	-	<0.0010	-	<0.0010	-
Nickel	T-Ni	-	0.0051	-	<0.0010	-
Potassium	T-K	-	<2.0	-	<2.0	-
Selenium	T-Se	-	<0.0010	-	<0.0010	-
Silver	T-Ag	-	<0.000020	-	<0.000020	-
Sodium	T-Na	-	<2.0	-	<2.0	-
Thallium	T-Tl	-	<0.00020	-	<0.00020	-
Tin	T-Sn	-	<0.00050	-	<0.00050	-
Titanium	T-Ti	-	<0.010	-	<0.010	-
Uranium	T-U	-	0.00383	-	0.00988	-
Vanadium	T-V	-	<0.030	-	<0.030	-
Zinc	T-Zn	-	0.0175	-	<0.0050	-

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

**RESULTS OF ANALYSIS - Water**

Sample ID	WS04-22	WS04-22A	WS04-23
Sample Date	04-08-23	04-08-23	04-08-24
Sample Time	17:18	17:18	11:05
ALS ID	16	17	18

**Physical Tests**

Hardness	CaCO <sub>3</sub>	60.9	-	333
Total Suspended Solids		-	<3.0	-

**Total Metals**

Aluminum	T-Al	0.0071	-	0.776
Antimony	T-Sb	<0.00050	-	0.00077
Arsenic	T-As	<0.00050	-	<0.00050
Barium	T-Ba	<0.020	-	<0.020
Beryllium	T-Be	<0.0010	-	<0.0010
Boron	T-B	<0.10	-	<0.10
Cadmium	T-Cd	<0.000050	-	0.000070
Calcium	T-Ca	15.9	-	85.9
Chromium	T-Cr	<0.0010	-	0.0089
Cobalt	T-Co	<0.00030	-	0.0291
Copper	T-Cu	0.0011	-	0.0423
Iron	T-Fe	<0.030	-	0.652
Lead	T-Pb	<0.00050	-	0.00248
Lithium	T-Li	<0.0050	-	0.0537
Magnesium	T-Mg	5.15	-	28.7
Manganese	T-Mn	0.00106	-	0.290
Mercury	T-Hg	<0.000050	-	<0.000050
Molybdenum	T-Mo	0.0015	-	0.0017
Nickel	T-Ni	<0.0010	-	0.0872
Potassium	T-K	<2.0	-	3.2
Selenium	T-Se	<0.0010	-	0.0022
Silver	T-Ag	<0.000020	-	0.000026
Sodium	T-Na	<2.0	-	15.0
Thallium	T-Tl	<0.00020	-	<0.00020
Tin	T-Sn	<0.00050	-	<0.00050
Titanium	T-Ti	<0.010	-	0.010
Uranium	T-U	0.0193	-	0.00074
Vanadium	T-V	<0.030	-	<0.030
Zinc	T-Zn	<0.0050	-	0.0092

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

## Appendix 1 - QUALITY CONTROL - Replicates



Water	WS04-13	WS04-13
	04-08-23 21:03	QC # 400691

**Physical Tests**

Hardness	CaCO3	51.7	52.5
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**Total Metals**

Aluminum	T-Al	0.0188	0.0184
Antimony	T-Sb	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050
Barium	T-Ba	<0.020	<0.020
Beryllium	T-Be	<0.0010	<0.0010
Boron	T-B	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050
Calcium	T-Ca	14.8	15.1
Chromium	T-Cr	<0.0010	<0.0010
Cobalt	T-Co	<0.00030	<0.00030
Copper	T-Cu	<0.0010	<0.0010
Iron	T-Fe	<0.030	<0.030
Lead	T-Pb	<0.00050	<0.00050
Lithium	T-Li	<0.0050	<0.0050
Magnesium	T-Mg	3.56	3.57
Manganese	T-Mn	0.00250	0.00247
Mercury	T-Hg	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010
Nickel	T-Ni	<0.0010	<0.0010
Potassium	T-K	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010
Silver	T-Ag	<0.000020	<0.000020
Sodium	T-Na	<2.0	<2.0
Thallium	T-Tl	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010
Uranium	T-U	0.00210	0.00218
Vanadium	T-V	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050

Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.



Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

### **Conventional Parameters in Water**

These analyses are carried out in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (USEPA), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (BCMOE), and/or "Standard Methods for the Examination of Water and Wastewater" (APHA). Further details are available on request.

### **Metals in Water**

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:

Sample:	6 months
Reference:	EPA
For more detail see:	ALS "Collection & Sampling Guide"

### **Mercury in Water**

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

Recommended Holding Time:

Sample:	28 days
Reference:	EPA
For more detail see	ALS Environmental "Collection & Sampling Guide"

### **Solids in Water**

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total dissolved solids (TDS) and total suspended solids (TSS) are determined by filtering a sample

File No. U6857

**Appendix 2 - METHODOLOGY - Continued**



through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius, TSS is determined by drying the filter at 104 degrees celsius. Total solids are determined by evaporating a sample to dryness at 104 degrees celsius. Fixed and volatile solids are determined by igniting a dried sample residue at 550 degrees celsius.

Recommended Holding Time:

Sample: 7 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

**Results contained within this report relate only to the samples as submitted.**

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**End of Report**



# CHEMICAL ANALYSIS REPORT

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Date: October 6, 2004

ALS File No. U8295

Report On: Regal Ridge Water Analysis

Report To: **True North Gems Inc.**  
Suite 500-602 West Hastings St.  
Vancouver, BC  
V6B 1P2

Attention: **Ms. Twila Skinner**

Received: September 17, 2004

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**ALS ENVIRONMENTAL**

per:



Brent C. Mack, B.Sc. - Section Coordinator  
Scott P. Hoekstra, B.Sc. - Project Chemist

File No. U8295

**REMARKS**



Please note that the detection limits for certain Total Metals have been increased for some of the samples reported in the following data tables due to sample matrix interferences.

## RESULTS OF ANALYSIS - Water



Sample ID	WS04-24	WS04-25	WS04-26	WS04-27	WS04-28
Sample Date	04-09-15	04-09-15	04-09-15	04-09-15	04-09-15
Sample Time	13:42	13:58	13:29	14:41	14:35
ALS ID	1	2	3	4	5

**Physical Tests**

Hardness	CaCO <sub>3</sub>	78.0	51.6	63.5	57.7	43.4
Total Suspended Solids		-	-	-	-	-

**Total Metals**

Aluminum	T-Al	<0.0050	0.0058	0.0614	0.0696	0.0113
Antimony	T-Sb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium	T-Ba	0.163	<0.020	0.090	0.088	<0.020
Beryllium	T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron	T-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Calcium	T-Ca	17.6	14.6	13.2	12.4	9.98
Chromium	T-Cr	<0.0010	<0.0010	0.0019	0.0016	<0.0010
Cobalt	T-Co	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper	T-Cu	<0.0010	<0.0010	<0.0010	0.0011	0.0024
Iron	T-Fe	<0.030	<0.030	0.061	0.038	<0.030
Lead	T-Pb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00065
Lithium	T-Li	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	T-Mg	8.28	3.66	7.44	6.46	4.49
Manganese	T-Mn	0.00286	0.00080	0.00102	0.00176	<0.00030
Mercury	T-Hg	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010	0.0012	0.0011	<0.0010
Nickel	T-Ni	<0.0010	<0.0010	0.0014	<0.0010	0.0019
Potassium	T-K	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	T-Ag	<0.000020	<0.000020	0.000049	0.000027	<0.000020
Sodium	T-Na	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium	T-Tl	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	T-U	0.00279	0.00207	0.00511	0.00209	0.00040
Vanadium	T-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050

Remarks regarding the analyses appear at the beginning of this report.  
 Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.

File No. U8295  
**RESULTS OF ANALYSIS - Water**



Sample ID	WS04-29	WS04-30	WS04-31	WS04-32	WS04-33
Sample Date	04-09-15	04-09-15	04-09-15	04-09-15	04-09-15
Sample Time	14:24	14:14	11:17	11:11	11:02
ALS ID	6	7	8	9	10

**Physical Tests**

Hardness	CaCO3	44.5	53.3	53.4	70.5	49.5
Total Suspended Solids		13.3	5.3	<3.0	<3.0	9.3

**Total Metals**

Aluminum	T-Al	0.0083	0.0279	0.0103	0.0161	0.0805
Antimony	T-Sb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Barium	T-Ba	0.035	0.022	0.025	0.060	<0.020
Beryllium	T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron	T-B	<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050	<0.000050	0.000137	<0.000050
Calcium	T-Ca	11.7	14.9	12.3	18.1	12.7
Chromium	T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	0.0011
Cobalt	T-Co	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Copper	T-Cu	0.0014	0.0015	<0.0010	<0.0010	0.0028
Iron	T-Fe	<0.030	0.085	<0.030	<0.030	0.110
Lead	T-Pb	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Lithium	T-Li	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	T-Mg	3.72	3.91	5.52	6.12	4.33
Manganese	T-Mn	0.00400	0.00580	<0.00030	0.0103	0.00757
Mercury	T-Hg	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel	T-Ni	<0.0010	<0.0010	0.0015	0.0056	<0.0010
Potassium	T-K	<2.0	<2.0	<2.0	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Silver	T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium	T-Na	<2.0	<2.0	<2.0	<2.0	<2.0
Thallium	T-Tl	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium	T-U	0.00046	0.00044	<0.00020	0.00462	0.0173
Vanadium	T-V	<0.030	<0.030	<0.030	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050	<0.0050	0.0209	<0.0050

Remarks regarding the analyses appear at the beginning of this report.  
 Results are expressed as milligrams per litre except where noted.  
 < = Less than the detection limit indicated.



## Appendix 1 - QUALITY CONTROL - Replicates



Water	WS04-31	WS04-31
	04-09-15 11:17	QC # 406968

**Physical Tests**

Hardness	CaCO <sub>3</sub>	53.4	52.6
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**Total Metals**

Aluminum	T-Al	0.0103	0.0099
Antimony	T-Sb	<0.00050	<0.00050
Arsenic	T-As	<0.00050	<0.00050
Barium	T-Ba	0.025	0.022
Beryllium	T-Be	<0.0010	<0.0010
Boron	T-B	<0.10	<0.10
Cadmium	T-Cd	<0.000050	<0.000050
Calcium	T-Ca	12.3	12.0
Chromium	T-Cr	<0.0010	<0.0010
Cobalt	T-Co	<0.00030	<0.00030
Copper	T-Cu	<0.0010	<0.0010
Iron	T-Fe	<0.030	<0.030
Lead	T-Pb	<0.00050	<0.00050
Lithium	T-Li	<0.0050	<0.0050
Magnesium	T-Mg	5.52	5.46
Manganese	T-Mn	<0.00030	<0.00030
Mercury	T-Hg	<0.000050	<0.000050
Molybdenum	T-Mo	<0.0010	<0.0010
Nickel	T-Ni	0.0015	0.0015
Potassium	T-K	<2.0	<2.0
Selenium	T-Se	<0.0010	<0.0010
Silver	T-Ag	<0.000020	<0.000020
Sodium	T-Na	<2.0	<2.0
Thallium	T-Tl	<0.00020	<0.00020
Tin	T-Sn	<0.00050	<0.00050
Titanium	T-Ti	<0.010	<0.010
Uranium	T-U	<0.00020	<0.00020
Vanadium	T-V	<0.030	<0.030
Zinc	T-Zn	<0.0050	<0.0050

Remarks regarding the analyses appear at the beginning of this report.  
Results are expressed as milligrams per litre except where noted.  
< = Less than the detection limit indicated.

## Appendix 2 - METHODOLOGY



Outlines of the methodologies utilized for the analysis of the samples submitted are as follows

### Conventional Parameters in Water

These analyses are carried out in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (USEPA), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (BCMOE), and/or "Standard Methods for the Examination of Water and Wastewater" (APHA). Further details are available on request.

### Metals in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:

Sample:	6 months
Reference:	EPA
For more detail see:	ALS "Collection & Sampling Guide"

### Mercury in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

Recommended Holding Time:

Sample:	28 days
Reference:	EPA
For more detail see	ALS Environmental "Collection & Sampling Guide"

### Solids in Water

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total dissolved solids (TDS) and total suspended solids (TSS) are determined by filtering a sample

File No. U8295

**Appendix 2 - METHODOLOGY - Continued**



through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius, TSS is determined by drying the filter at 104 degrees celsius. Total solids are determined by evaporating a sample to dryness at 104 degrees celsius. Fixed and volatile solids are determined by igniting a dried sample residue at 550 degrees celsius.

Recommended Holding Time:

Sample: 7 days

Reference: APHA

For more detail see ALS Environmental "Collection & Sampling Guide"

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**End of Report**