

**ATAC RESOURCES LTD**

**RAU PROJECT**

***ENVIRONMENTAL DATA UPDATE***

June and July, 2012

***June and July 2012 – Rau Project Environmental Data Update***

At the request of ATAC Resources, water quality monitoring frequency was increased to monthly at stations monitoring the Tiger Zone and potential waste rock storage areas.

Existing Stations RAU #9, RAU #4 and RAU #3 as well as three new sites at Stations RAU #11, RAU #12 and RAU #13 (see attached site map) and the Beaver River receiving waters at Station RAU #10 were increased to monthly.

ATAC Resources also requested water level data loggers be installed at the new sites.

All other existing stations will remain at a quarterly monitoring frequency.

Stations are on the attached site map.

**June 14 Survey**

Water quality monitoring continued at monthly stations (RAU #3, 4, 9, 10, 11, 12, 13) on June 14.

Water quality data collection consisted of samples for total metals, dissolved metals, total organic carbon and routine chemistry.

Quality Control samples were taken at Station RAU#4.

Annual stream sediment samples (three reps) were taken at Stations RAU#1 and RAU #4.

Hydrology data collection consisted of water level data logger downloads and stream flow volume measurements at monthly Stations RAU # 4, 9, 11, 12 and 13.

Monthly Station RAU#3 (no data logger) had stream flow volume measured.

Quarterly Station RAU#1 had the water level data logger downloaded and stream flow volume measured.

The weather station logger at the airstrip was checked – operational and logging

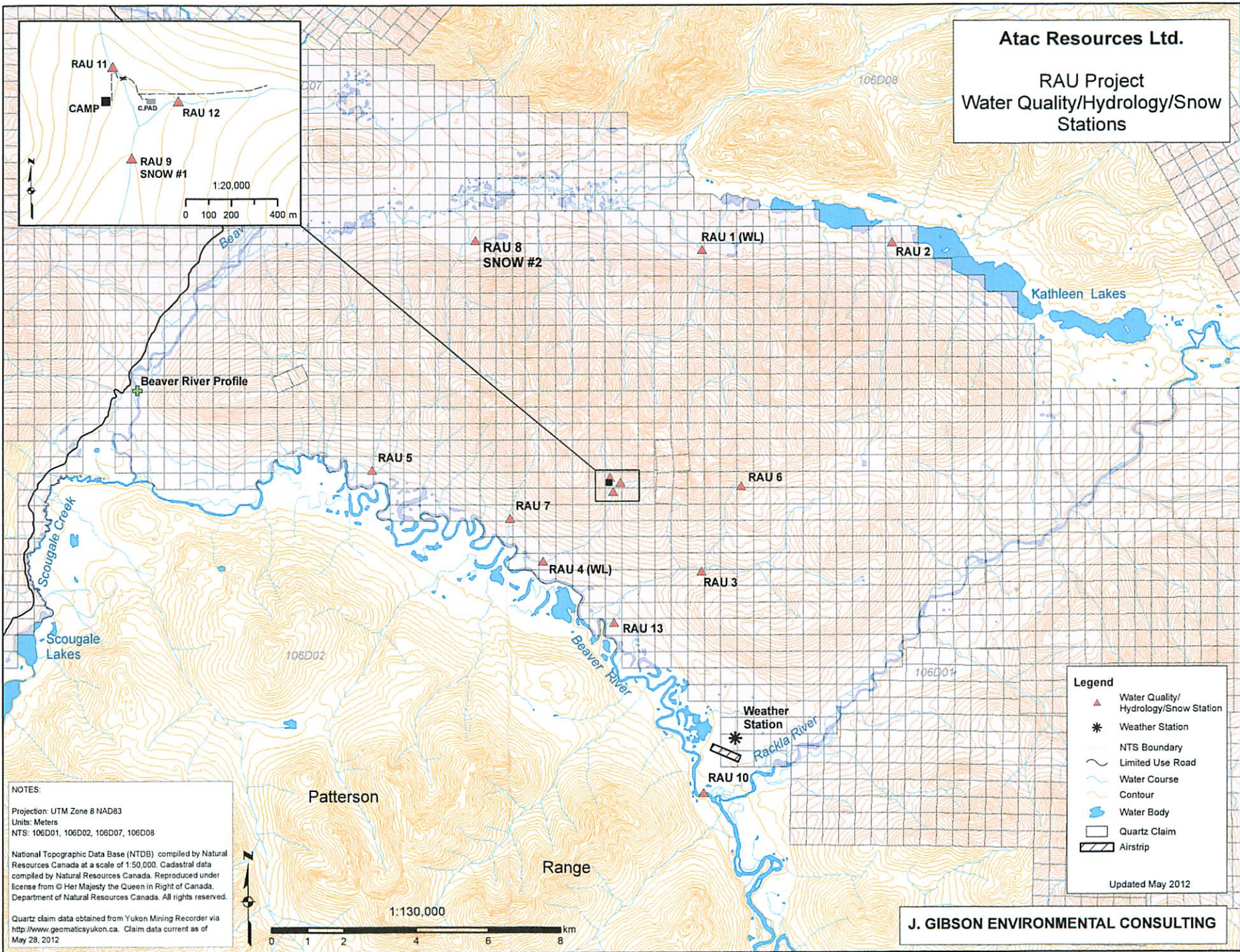
**July 17 Survey**

Water quality sampling was done at all RAU monthly stations.

No Quality Control samples were taken this survey.

**Atac Resources Ltd.**

**RAU Project**  
**Water Quality/Hydrology/Snow**  
**Stations**



**NOTES:**

Projection: UTM Zone 8 NAD83  
 Units: Meters  
 NTS: 106D01, 106D02, 106D07, 106D08

National Topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Cadastral data compiled by Natural Resources Canada. Reproduced under license from © Her Majesty the Queen in Right of Canada, Department of Natural Resources Canada. All rights reserved.

Quartz claim data obtained from Yukon Mining Recorder via <http://www.geomaticsyukon.ca>. Claim data current as of May 28, 2012

- Legend**
- ▲ Water Quality/Hydrology/Snow Station
  - \* Weather Station
  - NTS Boundary
  - ~ Limited Use Road
  - ~ Water Course
  - ~ Contour
  - Water Body
  - Quartz Claim
  - Airstrip
- Updated May 2012

**J. GIBSON ENVIRONMENTAL CONSULTING**

### ***June and July 2012 – Rau Project Environmental Data Update***

Hydrology data collection consisted of water level data logger downloads and stream flow volume measurements at monthly Stations RAU # 4, 9, 11, 12 and 13.

Quarterly Station RAU#1 had the water level data logger downloaded and stream flow volume measured.

The RAU airstrip weather station was downloaded. A logger status report is attached in Appendix 2.

## **Data Results**

### **Hydrology**

On June 14 all RAU sites were under late freshet / mid stage flow conditions with volumes in all smaller stream channels showing increased volume from May 2012. The exception was Station RAU#13 showing a decrease in volume from May. Station RAU#13 is located at the mouth of the larger south facing watershed draining the property. The Beaver River was at “bank full” freshet stage.

On July 17, all stations show a decrease from May volumes within a range of RAU#9 at 43% of June to RAU#3 at 82% of June.

Flow measurement results are listed in Table 1 (June) and Table 7 (July) with Routine Chemistry.

A summary of stream flow volumes from June 2009 to July 2012 are listed in Table 6.

All water level data loggers were downloaded and level surveyed with results to be reported at end of open water season.

Flow volume measurement calculation sheets are attached in Appendix 2.

### **Water Quality**

Water quality data is listed in the following tables:

**Table 1.** June (Monthly Stations) - Routine Chemistry analysis results, field measurements and flow volumes

**Table 2.** June (Monthly Stations) - Total Metals ICP/MS analysis results

**Table 3.** June (Monthly Stations) - Dissolved Metals ICP/MS analysis results

***June and July 2012 – Rau Project Environmental Data Update***

**Table 4.** June Quality Control Analysis Results - Total and Dissolved Metals RAU#4

**Table 5.** June Stream Sediments – Total Metals ICP/MS analysis results

**Table 6.** Flow Measurement Summary – RAU Station June 2009 to July 2012

**Table 7.** July (Monthly Stations) - Routine Chemistry analysis results, field measurements and flow volumes

**Table 8.** July (Monthly Stations) - Total Metals ICP/MS analysis results

**Table 9.** July (Monthly Stations) - Dissolved Metals ICP/MS analysis results

**Table 10.** Camp Drinking Water Supply – Analysis results.

Listed with the water quality analysis results are the ***Canadian Water Quality Guideline*** values for the Protection of Aquatic Life for waters with a pH > 6.5 and a total hardness value of > 180 mg/L as CaCO<sub>3</sub>.

Also listed are the ***Canadian Drinking Water Guideline*** Maximum Acceptable Concentrations (MAC's) for applicable parameters.

All ***Guideline*** metal values are for total metals.

Analysis values that exceed either ***Guideline*** limit are highlighted in yellow.

Laboratory Analytical Reports for June and July are contained in Appendix 1.

A data summary for each station is on the attached disc.

**Table 1. ATAC Resources - RAU Claims June, 2012.**  
**Routine Chemistry and Field Measurement Results**

Parameter	Unit	STATIONS							Detection Limit	DWQ* G.lines	Aquatic** G.lines
		RAU #1	RAU #2	RAU #3	RAU #4	RAU #5	RAU #6	RAU #7			
pH (field)	ru			8.25	8.14						
pH (lab)	ru			8.18	8.28					6.5-8.5	6.5-9
Electrical Conductivity (lab)	uS/cm			308	370				1		
Water temperature	C			4.2	4.5						
Flow Volume(field)	cms	0.629		0.422	0.115						
Organic Carbon Total	mg/L			3.2	1.5				0.5		
Cyanide Total	mg/L			<0.002	<0.002				0.002	0.2	0.005
Phosphorus Total	mg/L			0.014	0.017				0.003		
Phosphorus Total Dissolved	mg/L			0.014	0.016				0.003		
Ammonia - N	mg/L			<0.01	<0.01						1.37-2.2
Nitrate - N	mg/L			0.15	0.36				0.01	10	
Nitrite - N	mg/L			<0.005	<0.005				0.005	1	0.06
T-Alkalinity	mg/L			154	199				5		
Chloride	mg/L			0.05	0.11				0.05	<250	
Sulfate (SO4)	mg/L			19.5	28				0.5		
Hardness	mg CaCO3/L			174	213				5	<500	
Hardness Total	mg/L			170	207				1		
Total Suspended Solids	mg/L			<2	4				2		
Total Dissolved Solids	mg/L			166	208				5	<500	

*All results and limits in mg/L unless noted otherwise. Nr = no sample/reading*

*DWQ\* Guidelines are Maximum Acceptable Concentrations according to*

*Canadian Drinking Water Quality*

*Aquatic\*\* Guidelines are for protection of aquatic life in waters with pH >6.5 and Hardness as CaCO3 >180 mg/L*

*Canadian Water Quality Guidelines*

**Table 1. ATAC Resources - RAU Claims June, 2012.**

**Routine Chemistry and Field Measurement Results**

**STATION:**

Parameter	Unit	RAU #8	RAU#9	RAU#10	RAU#11	RAU#1	RAU#11	Detection Limit	1 WQ* C lines	Aquatic** G.lines
pH (field)	ru		7.75	8.21	8.11	8.08	7.97			
pH (lab)	ru		8.24	8.15	8.22	8.28	8.27		5-8.5	6.5-9
Electrical Conductivity (lab)	µS/cm		320	230	303	334	367	1		
Water temperature	C		2.7	1.3	2.3	2.9	4.8			
Flow Volume (field)	cms		0.043	ir	0.035	0.0103	0.474			
Organic Carbon Total	mg/L		1.2	2	1.2	1.2	2.8	0.		
Cyanide Total	mg/L		<0.002		0.002	<0.002	<0.002	0.002	0.2	0.005
Phosphorus Total	mg/L		0.011	0.08	0.01	0.012	0.031	0.003		
Phosphorus Total Dissolved	mg/L		0.01	0.107	0.009	0.011	0.03	0.003		
Ammonia - N	mg/L		<0.01		<0.01	<0.01	<0.01			1.37-2.2
Nitrate - N	mg/L		0.3	0.07	0.2	0.46	0.2	0.01	10	
Nitrite - N	mg/L		<0.005	<0.005	0.005	<0.005	<0.005	0.005	1	0.06
T-Alkalinity	mg/L		164	139	160	178	176	5		
Chloride	mg/L		0.01	0.22	0.12	0.08	1.39	0.01	250	
Sulfate (SO4)	mg/L		18.1	31.9	17.4	19.2	35.3	0.		
Hardness	mg CaCO3/L		182	147	174	190	208	5	500	
Hardness Total	mg/L		174	146	166	188	212	1		
Total Suspended Solids	mg/L		<2	4	<2	<2	6	2		
Total Dissolved Solids	mg/L		176	154	176	196	214	5	500	

*All results and limits in mg/L unless noted otherwise. Nr = no sample/reaching*

*DWQ\* Guidelines are Maximum Acceptable Concentrations according to*

*Canadian Drinking Water Quality*

*Aquatic\*\* Guidelines are for protection of aquatic life in water with pH: 6.5 and Hardness as CaCO3 >1.0 mg/L*

*Canadian Water Quality Guidelines*

**Table 2. ATAC Resources - RAU Claims June, 2012**

**Total Metals Analysis Results.**

Parameter	Units	RAU #1	RAU #2	RAU #3	RAU #4	RAU #5	RAU #6	RAU #7	Detection Limit	DWQ* G.Lines	Aquatic** G.Lines
Calcium	mg/L			47.1	53				0.05		
Iron	mg/L			0.043	0.074				0.01	0.3	0.3
Magnesium	mg/L			12.6	18.2				0.05		
Manganese	mg/L			<0.005	0.006				0.005	0.05	
Potassium	mg/L			0.9	0.8				0.1		
Silicon	mg/L			2.07	2.15				0.05		
Sulfur	mg/L			6.2	8.2				0.1		
Sodium	mg/L			0.64	0.53				0.02	<200	
Titanium	mg/L			<0.001	0.002				0.001		
Aluminum	mg/L			0.012	0.031				0.005		0.1
Antimony	mg/L			<0.0002	<0.0002				0.0002	0.006	
Arsenic	mg/L			<0.0002	0.0017				0.0002	0.01	
Barium	mg/L			0.085	0.149				0.001	1	
Beryllium	mg/L			<0.00004	<0.00004				0.00004		
Bismuth	mg/L			<0.001	<0.001				0.001		
Boron	mg/L			<0.005	<0.005				0.004		
Cadmium	mg/L			0.00005	<0.00001				0.00001	0.005	0.0018
Chromium	mg/L			<0.0004	<0.0004				0.0004	0.05	0.002
Cobalt	mg/L			0.00014	0.00013				0.00002		
Copper	mg/L			<0.001	<0.001				0.001	1	0.004
Lead	mg/L			<0.0001	0.0002				0.0001		
Lithium	mg/L			0.001	0.001				0.001		
Molybdenum	mg/L			0.0024	0.0013				0.0001		
Nickel	mg/L			0.001	0.001				0.001		0.15
Selenium	mg/L			0.0013	<0.0006				0.0006	0.01	0.001
Silver	mg/L			<0.00001	<0.00001				0.00001		0.0001
Strontium	mg/L			0.061	0.074				0.001		
Tellurium	mg/L			0.0003	0.0003				0.0001		
Thallium	mg/L			<0.00001	<0.00001				0.00001		
Thorium	mg/L			<0.0004	<0.0004				0.0004		
Tin	mg/L			0.0384	0.0014				0.0001		
Uranium	mg/L			0.0021	0.0025				0.0004	0.02	
Vanadium	mg/L			0.0001	0.0003				0.0001		
Zinc	mg/L			0.001	0.009				0.001	<5	0.03
Zirconium	mg/L			0.0002	<0.0001				0.0001		

nr=no sample or analysis done

Exceeds either Guideline Limit

**Table 2. ATAC Resources - RAU Claims June, 2012**  
**Total Metals Analysis Results.**

Parameter	Units	RAU #8	RAU#9	RAU#10	RAU #11	RAU#12	RAU#13	Detection Limit	DWQ* G.Lines	Aquatic** G.Lines
Calcium	mg/L		46	36.1	41.7	52.4	59.8	0.05		
Iron	mg/L		0.011	0.198	<0.01	<0.01	0.354	0.01	0.3	0.3
Magnesium	mg/L		14.4	13.5	15	13.8	15.3	0.05		
Manganese	mg/L		<0.005	0.028	<0.005	<0.005	0.018	0.005	0.05	
Potassium	mg/L		0.5	0.5	0.2	0.9	1.3	0.1		
Silicon	mg/L		1.72	1.9	1.61	1.81	2.24	0.05		
Sulfur	mg/L		5.8	10.9	5.6	5.9	10.6	0.1		
Sodium	mg/L		0.32	1.04	0.4	0.41	1.36	0.02	<200	
Titanium	mg/L		<0.001	0.003	<0.001	<0.001	0.002	0.001		
Aluminum	mg/L		<0.005	0.074	<0.005	<0.005	0.092	0.005		0.1
Antimony	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.006	
Arsenic	mg/L		0.002	<0.0002	<0.0002	0.0062	0.0014	0.0002	0.01	
Barium	mg/L		0.202	0.046	0.275	0.141	0.089	0.001	1	
Beryllium	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	0.00004		
Bismuth	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	0.001		
Boron	mg/L		<0.005	<0.005	<0.005	<0.005	0.008	0.004		
Cadmium	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.005	0.0018
Chromium	mg/L		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004	0.05	0.002
Cobalt	mg/L		0.00004	0.00036	0.00004	0.00006	0.00033	0.00002		
Copper	mg/L		<0.001	0.001	<0.001	<0.001	0.002	0.001	1	0.004
Lead	mg/L		<0.0001	0.0005	<0.0001	<0.0001	0.0003	0.0001		
Lithium	mg/L		<0.001	0.003	<0.001	<0.001	0.002	0.001		
Molybdenum	mg/L		0.0013	0.0005	0.0012	0.0017	0.0029	0.0001		
Nickel	mg/L		<0.001	0.003	<0.001	<0.001	0.011	0.001		0.15
Selenium	mg/L		<0.0006	<0.0006	<0.0006	<0.0006	0.0019	0.0006	0.01	0.001
Silver	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001		0.0001
Strontium	mg/L		0.054	0.113	0.039	0.074	0.1	0.001		
Tellurium	mg/L		0.0002	0.0002	0.0002	0.0001	<0.0001	0.0001		
Thallium	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00001		
Thorium	mg/L		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004		
Tin	mg/L		0.0011	0.0013	0.001	0.0038	0.0018	0.0001		
Uranium	mg/L		0.0014	0.0007	0.0014	0.0016	0.0035	0.0004	0.02	
Vanadium	mg/L		<0.0001	0.0004	<0.0001	<0.0001	0.0006	0.0001		
Zinc	mg/L		0.004	0.006	0.003	0.003	0.037	0.001	<5	0.03
Zirconium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001		

nr=no sample or analysis done

Exceeds either Guideline Limit

**Table 3. ATAC Resources - RAU Claims June, 2012.**

<b>Dissolved Metals Analysis Results</b>									<b>Detection</b>
<b>Parameter</b>	<b>Units</b>	<b>RAU #1</b>	<b>RAU #2</b>	<b>RAU #3</b>	<b>RAU #4</b>	<b>RAU #5</b>	<b>RAU #6</b>	<b>RAU #7</b>	<b>Limit</b>
Calcium	mg/L			48.1	53.9				0.1
Iron	mg/L			0.023	<0.005				0.005
Magnesium	mg/L			13.1	19.1				0.1
Manganese	mg/L			<0.001	<0.001				0.001
Potassium	mg/L			1	0.8				0.1
Silicon	mg/L			2.12	2.19				0.05
Sodium	mg/L			0.6	0.4				0.1
Sulfur	mg/L			6.7	9.7				0.2
Aluminum	mg/L			<0.005	<0.005				0.005
Antimony	mg/L			0.0003	<0.0002				0.0002
Arsenic	mg/L			0.0004	0.0023				0.0002
Barium	mg/L			0.078	0.137				0.001
Beryllium	mg/L			<0.00004	<0.00004				0.00004
Bismuth	mg/L			<0.001	<0.001				0.001
Boron	mg/L			0.005	<0.004				0.004
Cadmium	mg/L			<0.00001	<0.00001				0.00001
Chromium	mg/L			0.001	0.0012				0.0004
Cobalt	mg/L			0.00005	0.00037				0.00002
Copper	mg/L			<0.001	<0.001				0.001
Lead	mg/L			<0.0001	<0.0001				0.0001
Lithium	mg/L			0.001	<0.001				0.001
Molybdenum	mg/L			0.0018	0.001				0.0001
Nickel	mg/L			<0.001	<0.001				0.001
Selenium	mg/L			0.0009	<0.0006				0.0006
Silver	mg/L			<0.00001	<0.00001				0.00001
Strontium	mg/L			0.057	0.07				0.001
Titanium	mg/L			<0.01	<0.01				0.01
Tellurium	mg/L			<0.0001	<0.0001				0.0001
Thallium	mg/L			<0.00001	<0.00001				0.00001
Thorium	mg/L			<0.0004	<0.0004				0.0004
Tin	mg/L			<0.0001	<0.0001				0.0001
Uranium	mg/L			0.002	0.0024				0.0004
Vanadium	mg/L			0.0003	0.0003				0.0001
Zinc	mg/L			<0.001	0.007				0.001
Zirconium	mg/L			<0.0001	<0.0001				0.0001

**Table 3. ATAC Resources - RAU Claims June, 2012.**

<b>Dissolved Metals Analysis Results</b>								<b>Detection</b>
<b>Parameter</b>	<b>Units</b>	<b>RAU #8</b>	<b>RAU #9</b>	<b>RAU #10</b>	<b>RAU #11</b>	<b>RAU #12</b>	<b>RAU #13</b>	<b>Limit</b>
Calcium	mg/L		47.5	36	43.2	52.7	58.3	0.1
Iron	mg/L		0.009	0.027	0.01	0.006	0.186	0.005
Magnesium	mg/L		15.4	14	16	14.3	15.2	0.1
Manganese	mg/L		<0.001	0.004	<0.001	<0.001	0.007	0.001
Potassium	mg/L		0.5	0.6	0.2	1	1.3	0.1
Silicon	mg/L		1.76	1.89	1.65	1.86	2.2	0.05
Sodium	mg/L		0.3	1.1	0.2	0.4	1.3	0.1
Sulfur	mg/L		6.4	12.2	6.1	6.6	11.7	0.2
Aluminum	mg/L		<0.005	0.014	<0.005	<0.005	0.014	0.005
Antimony	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	mg/L		0.0028	0.0003	0.0002	0.007	0.0019	0.0002
Barium	mg/L		0.192	0.041	0.262	0.127	0.075	0.001
Beryllium	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Boron	mg/L		<0.004	<0.004	<0.004	<0.004	0.007	0.004
Cadmium	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	0.00009	0.00001
Chromium	mg/L		0.001	0.0009	0.0011	0.001	0.0009	0.0004
Cobalt	mg/L		0.00008	0.00018	0.00005	0.00007	0.0002	0.00002
Copper	mg/L		<0.001	<0.001	<0.001	<0.001	0.001	0.001
Lead	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Lithium	mg/L		<0.001	0.002	<0.001	<0.001	0.002	0.001
Molybdenum	mg/L		0.0009	0.0001	0.0008	0.0012	0.0024	0.0001
Nickel	mg/L		<0.001	0.003	<0.001	<0.001	0.009	0.001
Selenium	mg/L		<0.0006	<0.0006	<0.0006	<0.0006	0.0019	0.0006
Silver	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Strontium	mg/L		0.051	0.108	0.039	0.069	0.092	0.001
Titanium	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Tellurium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Thallium	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001
Thorium	mg/L		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004
Tin	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Uranium	mg/L		0.0014	0.0007	0.0014	0.0014	0.0034	0.0004
Vanadium	mg/L		0.0002	0.0003	0.0002	0.0002	0.0004	0.0001
Zinc	mg/L		0.003	0.004	0.003	0.004	0.033	0.001
Zirconium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001

**Table 4. Quality Control Samples June 2012, Rau Claims**  
**Total and Dissolved Metals Analysis - Duplicate Samples**

Parameter	Units	RAU #4	RAU #4 Duplicate	Parameter	Units	RAU #4	RAU #4 Duplicate
Total Metals				Dissolved Metals			
Calcium	mg/L	53	52.9	Sulfur	mg/L	9.7	9.8
Iron	mg/L	0.074	0.049	Aluminum	mg/L	<0.005	<0.005
Magnesium	mg/L	18.2	18	Antimony	mg/L	<0.0002	<0.0002
Manganese	mg/L	0.006	<0.005	Arsenic	mg/L	0.0023	0.0023
Potassium	mg/L	0.8	0.7	Barium	mg/L	0.137	0.135
Silicon	mg/L	2.15	2.14	Beryllium	mg/L	<0.00004	<0.00004
Sulfur	mg/L	8.2	8.4	Bismuth	mg/L	<0.001	<0.001
Sodium	mg/L	0.53	0.53	Boron	mg/L	<0.004	<0.004
Titanium	mg/L	0.002	<0.001	Cadmium	mg/L	<0.00001	<0.00001
Aluminum	mg/L	0.031	0.022	Chromium	mg/L	0.0012	0.0011
Antimony	mg/L	<0.0002	<0.0002	Cobalt	mg/L	0.00037	0.00006
Arsenic	mg/L	0.0017	0.0016	Copper	mg/L	<0.001	<0.001
Barium	mg/L	0.149	0.146	Lead	mg/L	<0.0001	<0.0001
Beryllium	mg/L	<0.00004	<0.00004	Lithium	mg/L	<0.001	<0.001
Bismuth	mg/L	<0.001	<0.001	Molybdenum	mg/L	0.001	0.0009
Boron	mg/L	<0.005	<0.005	Nickel	mg/L	<0.001	0.005
Cadmium	mg/L	<0.00001	<0.00001	Selenium	mg/L	<0.0006	<0.0006
Chromium	mg/L	<0.0004	<0.0004	Silver	mg/L	<0.00001	<0.00001
Cobalt	mg/L	0.00013	0.00009	Titanium	mg/L	<0.01	<0.01
Copper	mg/L	<0.001	<0.001	Strontium	mg/L	0.07	0.068
Lead	mg/L	0.0002	0.0001	Tellurium	mg/L	<0.0001	<0.0001
Lithium	mg/L	0.001	0.001	Thallium	mg/L	<0.00001	<0.00001
Molybdenum	mg/L	0.0013	0.0013	Thorium	mg/L	<0.0004	<0.0004
Nickel	mg/L	0.001	0.001	Tin	mg/L	<0.0001	<0.0001
Selenium	mg/L	<0.0006	<0.0006	Uranium	mg/L	0.0024	0.0024
Silver	mg/L	<0.00001	<0.00001	Vanadium	mg/L	0.0003	0.0003
Strontium	mg/L	0.074	0.073	Zinc	mg/L	0.007	0.005
Tellurium	mg/L	0.0003	0.0002	Zirconium	mg/L	<0.0001	<0.0001
Thallium	mg/L	<0.00001	<0.00001				
Thorium	mg/L	<0.0004	<0.0004				
Tin	mg/L	0.0014	0.002				
Uranium	mg/L	0.0025	0.0025				
Vanadium	mg/L	0.0003	0.0002				
Zinc	mg/L	0.009	0.006				
Zirconium	mg/L	<0.0001	<0.0001				

Denote >10% variation between samples

**Table 5 . Atac Resources. RAU Project - Stream Sediment Analysis. June 2012**

<i>Parameter</i>	<i>Units</i>	<b>RAU #1</b>			<b>RAU #4</b>			<i>Detection</i>
		<i>REP#1</i>	<i>REP#2</i>	<i>REP#3</i>	<i>REP#1</i>	<i>REP#2</i>	<i>REP#3</i>	<i>Limit</i>
<b>Sieve 75 micron</b>	<b>%Ret</b>	34.7	34.9	39	59.2	44	55.5	0.1
<b>Texture</b>		Fine-Grained	Fine-Grained	Fine-Grained	Coarse-Grained	Fine-Grained	Coarse-Grained	
Aluminum	ug/g	7940	7800	8170	11300	11300	11100	1
Antimony	ug/g	2.2	2	2	2.2	1.8	2.4	0.5
Arsenic	ug/g	13.5	13.3	14.7	61.9	63.9	108	0.2
Barium	ug/g	451	440	450	938	942	965	0.03
Beryllium	ug/g	0.4	0.38	0.41	0.35	0.33	0.37	0.02
Bismuth	ug/g	1.5	1.7	2	0.8	2.4	2.7	0.5
Cadmium	ug/g	2.2	1.9	2.2	1.3	1.2	1.6	0.05
Calcium	ug/g	101000	101000	101000	48800	50300	46800	2
Chromium	ug/g	16.5	15.9	16.9	28.3	28.6	28.3	0.04
Cobalt	ug/g	5.68	5.17	5.83	10.8	11	10.7	0.05
Copper	ug/g	16	14.8	16.3	21.1	26.8	22.5	0.05
Iron	ug/g	16100	15500	16800	27900	28400	28000	1
Lead	ug/g	23.3	22	23.6	21.5	21.9	22	0.3
Lithium	ug/g	16.3	16.4	16.9	14	14.1	13.6	0.1
Magnesium	ug/g	50200	51900	51000	23600	23900	21400	10
Manganese	ug/g	631	557	648	576	578	639	0.3
Molybdenum	ug/g	1.5	1.4	1.5	2	1.9	2.1	0.05
Nickel	ug/g	24.8	23.2	25.6	36.2	35.8	36.6	0.1
Phosphorus	ug/g	595	554	604	1030	1020	1020	0.5
Potassium	ug/g	706	690	694	988	960	992	5
Selenium	ug/g	<0.2	<0.2	<0.2	<0.25	<0.25	<0.25	0.3
Silver	ug/g	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	0.2
Sodium	ug/g	128	127	124	142	136	136	1
Strontium	ug/g	64.1	62.2	63.6	58.9	60.1	59	0.02
Sulfur	ug/g	746	725	754	777	726	798	1
Thallium	ug/g	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	0.3
Tin	ug/g	1.2	1.4	1.2	0.2	0.3	0.72	0.4
Titanium	ug/g	226	233	224	497	508	472	0.05
Vanadium	ug/g	31.4	30.1	32	46.6	47.2	48.3	0.2
Zinc	ug/g	320	322	336	331	341	373	0.1
Zirconium	ug/g	1.6	1.6	1.7	1.7	1.7	1.8	0.05

**Table 6. ATAC RESOURCES - Summary of Rau Project Stations Flow Volumes 2009-2012**  
*(Cubic meters per second)*

Station	Date																	
	Jun-09	Jul-09	Oct-09	Mar-10	Jun-10	Jul-10	10-Sep	Mar-11	May-11 May-03	May-11 May-28	Jul-11	Aug-11	Oct-11	Mar-12 €	Apr-12	May-12	Jun-12	Jul-12
Rau #1	0.747	0.129	0.147	nr	0.536	0.51	0.18	0.059	0.046	1.084 1.153	0.626	0.443	0.261	0.01	nr	0.5253	0.6291	0.3773
Rau #2	0.287	0.053	nr	nr	0.281	0.20	0.064	nr	nr	0.815	0.411	0.166	0.091	nr	nr	nr		
Rau #3	0.461	0.129	0.192	nr	0.449	0.418	0.187	nr	nr	0.774	0.485	0.317	nr	0.02		nr	0.4218	0.3497
Rau #4	0.066	0.069	0.079	nr	nr	0.088	0.068	0.004	0.032	0.093 0.093	0.072	0.081	0.064	0.008	0.0473	0.0976	0.1152	0.0895
Rau #5	0.023	0.022	nr	nr	.06(E)	0.024	0.018	nr	nr	0.036	0.039	0.034	0.018	0.0		0.0728		
Rau #6	.01 (E)	0.003	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr		
Rau #7	0.039	0.017	0.024	nr	0.058	0.029	0.018	0.008	0.011	0.069	0.046	0.035	0.031	0.006		0.0229		
Rau #8	0.374	0.087	0.108	nr	0.326	0.298	0.104	0.006	0.04	0.371	0.413	0.313	0.137	0.005		0.1557		
Rau #9	nr	0.019	nr	.015 (E)	0.039	0.017	0.019	0.002	0.001 E	0.031	0.021	0.033	0.009	0.002	0.0052	0.0186	0.0463	0.0199
Rau #10	nr	11.85	nr	4.753	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	12.31	nr		
Rau #11															<0.0001	<0.0001	0.0354	0.0092
Rau #12															0.00086	0.0045	0.0103	0.0076
Rau #13															0.0784	0.5546	0.474	0.3597

**Table 7. ATAC Resources - RAU Claims July, 2012.**  
**Routine Chemistry and Field Measurement Results**

Parameter	Unit	STATIONS							Detection Limit	DWQ* G.lines	Aquatic** G.lines
		RAU #1	RAU #2	RAU #3	RAU #4	RAU #5	RAU #6	RAU #7			
pH (field)	ru			7.94	8.2						
pH (lab)	ru			8.16	8.26					6.5-8.5	6.5-9
Electrical Conductivity (lab)	uS/cm			352	398				1		
Water temperature	C			3.6	5.7						
Flow Volume(field)	cms	0.377		0.35	0.089						
Organic Carbon Total	mg/L			3.5	2.2				0.5		
Cyanide Total	mg/L			nr	nr				0.002	0.2	0.005
Phosphorus Total	mg/L			0.013	0.013				0.003		
Ammonia - N	mg/L			<0.01	<0.01						1.37-2.2
Nitrate - N	mg/L			0.09	0.31				0.01	10	
Nitrite - N	mg/L			<0.005	<0.005				0.005	1	0.06
T-Alkalinity	mg/L			177	198				5		
Chloride	mg/L			0.06	0.12				0.05	<250	
Sulfate (SO4)	mg/L			24.8	31.1				0.5		
Hardness	mg CaCO3/L			202	228				5	<500	
Total Suspended Solids	mg/L			4	12				2		
Total Dissolved Solids	mg/L			206	234				5	<500	

*All results and limits in mg/L unless noted otherwis. Nr = no sample/reading*

*DWQ\* Guidelines are Maximum Acceptable Concentrations according to*

*Canadian Drinking Water Quality*

*Aquatic\*\* Guidelines are for protection of aquatic life in waters with pH >6.5 and Hardness as CaCO3 >180 mg/L*

*Canadian Water Quality Guidelines*

**Table 7. ATAC Resources - RAU Claims July, 2012.**  
**Routine Chemistry and Field Measurement Results**

Parameter	Unit	STATIONS						Detection Limit	DWQ* G.lines	Aquatic** G.lines
		RAU #8	RAU#9	RAU#10	RAU#11	RAU#12	RAU#13			
pH (field)	ru		8.18	7.83	8.01	8.11	7.72			
pH (lab)	ru		8.18	8.17	8.11	8.18	8.15		6.5-8.5	6.5-9
Electrical Conductivity (lab)	uS/cm		347	327	329	356	412	1		
Water temperature	C		5.3	10.8	3.3	3.7	3.5			
Flow Volume(field)	cms		0.019	nr	0.009	0.008	0.359			
Organic Carbon Total	mg/L		1.4	1.9	1.1	1.4	3.2	0.5		
Cyanide Total	mg/L		nr	nr	nr	nr	nr	0.002	0.2	0.005
Phosphorus Total	mg/L		0.006	0.006	0.008	<0.003	0.018	0.003		
Ammonia - N	mg/L		0.04	<0.01	<0.01	<0.01	0.04			1.37-2.2
Nitrate - N	mg/L		0.24	0.06	0.14	0.4	0.14	0.01	10	
Nitrite - N	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005	0.005	1	0.06
T-Alkalinity	mg/L		177	135	162	179	191	5		
Chloride	mg/L		0.1	0.33	0.08	0.07	1.79	0.05	<250	
Sulfate (SO4)	mg/L		19.5	42.6	19.3	20.2	42.4	0.5		
Hardness	mg CaCO3/L		195	176	181	198	236	5	<500	
Total Suspended Solids	mg/L		<2	4	<2	<2	6	2		
Total Dissolved Solids	mg/L		184	180	166	194	254	5	<500	

*All results and limits in mg/L unless noted otherwis. Nr = no sample/reading*

*DWQ\* Guidelines are Maximum Acceptable Concentrations according to*

*Canadian Drinking Water Quality*

*Aquatic\*\* Guidelines are for protection of aquatic life in waters with pH >6.5 and Hardness as CaCO3 >180 mg/L*

*Canadian Water Quality Guidelines*

**Table 8. ATAC Resources - RAU Claims July, 2012**

**Total Metals Analysis Results.**

Parameter	Units	RAU #1	RAU #2	RAU #3	RAU #4	RAU #5	RAU #6	RAU #7	Detection Limit	DWQ* G.Lines	Aquatic** G.Lines
Calcium	mg/L			55.7	58.1				0.05		
Iron	mg/L			0.14	0.28				0.01	0.3	0.3
Magnesium	mg/L			15.1	20.2				0.05		
Manganese	mg/L			0.009	0.01				0.005	0.05	
Potassium	mg/L			1	0.9				0.1		
Silicon	mg/L			2.28	2.42				0.05		
Sulfur	mg/L			8.2	10.3				0.1		
Sodium	mg/L			0.72	0.64				0.02	<200	
Titanium	mg/L			0.004	0.007				0.001		
Aluminum	mg/L			0.065	0.151				0.005		0.1
Antimony	mg/L			<0.0002	<0.0002				0.0002	0.006	
Arsenic	mg/L			0.0006	0.0025				0.0002	0.01	
Barium	mg/L			0.096	0.153				0.001	1	
Beryllium	mg/L			<0.00004	<0.00004				0.00004		
Bismuth	mg/L			<0.001	<0.001				0.001		
Boron	mg/L			0.006	<0.005				0.004		
Cadmium	mg/L			0.00006	0.00007				0.00001	0.005	0.0018
Chromium	mg/L			0.0005	0.0006				0.0004	0.05	0.002
Cobalt	mg/L			0.00012	0.00022				0.00002		
Copper	mg/L			0.001	0.001				0.001	1	0.004
Lead	mg/L			0.0002	0.0004				0.0001		
Lithium	mg/L			0.002	0.002				0.001		
Mercury	mg/L			<0.00001	<0.00001				0.00001	0.001	
Molybdenum	mg/L			0.0026	0.0014				0.0001		
Nickel	mg/L			0.002	0.002				0.001		0.15
Selenium	mg/L			0.0012	0.0008				0.0006	0.01	0.001
Silver	mg/L			<0.00001	<0.00001				0.00001		0.0001
Strontium	mg/L			0.075	0.088				0.001		
Tellurium	mg/L			<0.0001	<0.0001				0.0001		
Thallium	mg/L			<0.00001	<0.00001				0.00001		
Thorium	mg/L			<0.0004	<0.0004				0.0004		
Tin	mg/L			<0.0001	<0.0001				0.0001		
Uranium	mg/L			0.0024	0.003				0.0004	0.02	
Vanadium	mg/L			0.0003	0.0008				0.0001		
Zinc	mg/L			0.003	0.012				0.001	<5	0.03
Zirconium	mg/L			0.0002	<0.0001				0.0001		

nr=no sample or analysis done

Exceeds either Guideline Limit

**Table 8. ATAC Resources - RAU Claims July, 2012**  
**Total Metals Analysis Results.**

Parameter	Units	RAU #8	RAU#9	RAU#10	RAU #11	RAU#12	RAU#13	Detection Limit	DWQ* G.Lines	Aquatic** G.Lines
Calcium	mg/L		49.8	41.8	44	51.9	64.4	0.05		
Iron	mg/L		0.01	0.142	<0.01	<0.01	0.336	0.01	0.3	0.3
Magnesium	mg/L		15.3	16.5	15.7	14.6	16.5	0.05		
Manganese	mg/L		<0.005	0.011	<0.005	<0.005	0.016	0.005	0.05	
Potassium	mg/L		0.5	0.5	0.2	0.8	1.5	0.1		
Silicon	mg/L		1.78	1.89	1.64	1.81	2.34	0.05		
Sulfur	mg/L		6.4	13.9	6.5	6.6	14	0.1		
Sodium	mg/L		0.42	1.61	0.52	0.5	1.72	0.02	<200	
Titanium	mg/L		0.002	0.004	0.002	<0.001	0.005	0.001		
Aluminum	mg/L		0.014	0.072	<0.005	<0.005	0.086	0.005		0.1
Antimony	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	0.006	
Arsenic	mg/L		0.0037	0.0005	0.0003	0.0067	0.0029	0.0002	0.01	
Barium	mg/L		0.199	0.052	0.296	0.141	0.093	0.001	1	
Beryllium	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	0.00004		
Bismuth	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	0.001		
Boron	mg/L		<0.005	<0.005	<0.005	<0.005	0.01	0.004		
Cadmium	mg/L		0.00003	0.00006	0.00006	0.00003	0.00035	0.00001	0.005	0.0018
Chromium	mg/L		<0.0004	<0.0004	<0.0004	<0.0004	0.0004	0.0004	0.05	0.002
Cobalt	mg/L		0.00005	0.00024	0.00005	0.00009	0.00031	0.00002		
Copper	mg/L		<0.001	<0.001	<0.001	<0.001	0.002	0.001	1	0.004
Lead	mg/L		0.0001	0.0002	<0.0001	<0.0001	0.0002	0.0001		
Lithium	mg/L		<0.001	0.004	<0.001	<0.001	0.003	0.001		
Mercury	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.001	
Molybdenum	mg/L		0.0014	0.0006	0.0012	0.0019	0.0034	0.0001		
Nickel	mg/L		<0.001	0.004	<0.001	<0.001	0.013	0.001		0.15
Selenium	mg/L		<0.0006	<0.0006	<0.0006	<0.0006	0.0021	0.0006	0.01	0.001
Silver	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001		0.0001
Strontium	mg/L		0.066	0.145	0.045	0.08	0.123	0.001		
Tellurium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		
Thallium	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00001		
Thorium	mg/L		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004		
Tin	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001		
Uranium	mg/L		0.0015	0.001	0.0014	0.0016	0.004	0.0004	0.02	
Vanadium	mg/L		<0.0001	0.0003	<0.0001	<0.0001	0.0006	0.0001		
Zinc	mg/L		0.004	0.008	0.006	0.005	0.052	0.001	<5	0.03
Zirconium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0001		

nr=no sample or analysis done

Exceeds either Guideline Limit

**Table 9. ATAC Resources - RAU Claims July, 2012.**

<b>Dissolved Metals Analysis Results</b>									<b>Detection</b>
<b>Parameter</b>	<b>Units</b>	<b>RAU #1</b>	<b>RAU #2</b>	<b>RAU #3</b>	<b>RAU #4</b>	<b>RAU #5</b>	<b>RAU #6</b>	<b>RAU #7</b>	<b>Limit</b>
Calcium	mg/L			56.3	58.4				0.1
Iron	mg/L			0.031	0.009				0.005
Magnesium	mg/L			14.9	20				0.1
Manganese	mg/L			0.004	<0.001				0.001
Potassium	mg/L			1	0.8				0.1
Silicon	mg/L			2.27	2.34				0.05
Sodium	mg/L			0.6	0.5				0.1
Sulfur	mg/L			8.1	10.2				0.2
Aluminum	mg/L			<0.005	<0.005				0.005
Antimony	mg/L			<0.0002	<0.0002				0.0002
Arsenic	mg/L			0.0006	0.0021				0.0002
Barium	mg/L			0.094	0.14				0.001
Beryllium	mg/L			<0.00004	<0.00004				0.00004
Bismuth	mg/L			<0.001	<0.001				0.001
Boron	mg/L			<0.004	<0.004				0.004
Cadmium	mg/L			0.00005	0.00005				0.00001
Chromium	mg/L			0.0007	0.0006				0.0004
Cobalt	mg/L			0.00012	0.00003				0.00002
Copper	mg/L			<0.001	<0.001				0.001
Lead	mg/L			<0.0001	<0.0001				0.0001
Lithium	mg/L			0.001	0.001				0.001
Molybdenum	mg/L			0.002	0.0008				0.0001
Nickel	mg/L			0.001	<0.001				0.001
Selenium	mg/L			0.0016	0.0008				0.0006
Silver	mg/L			<0.00001	<0.00001				0.00001
Strontium	mg/L			<0.01	<0.01				0.001
Titanium	mg/L			0.068	0.078				0.01
Tellurium	mg/L			<0.0001	<0.0001				0.0001
Thallium	mg/L			<0.00001	<0.00001				0.00001
Thorium	mg/L			<0.0004	<0.0004				0.0004
Tin	mg/L			<0.0001	<0.0001				0.0001
Uranium	mg/L			0.0024	0.0029				0.0004
Vanadium	mg/L			0.0002	0.0002				0.0001
Zinc	mg/L			<0.001	0.004				0.001
Zirconium	mg/L			<0.0001	<0.0001				0.0001

**Table 9. ATAC Resources - RAU Claims July, 2012.**

<b>Dissolved Metals Analysis Results</b>								<b>Detection</b>
<b>Parameter</b>	<b>Units</b>	<b>RAU #8</b>	<b>RAU #9</b>	<b>RAU #10</b>	<b>RAU #11</b>	<b>RAU #12</b>	<b>RAU #13</b>	<b>Limit</b>
Calcium	mg/L		52.3	43.3	46.1	54.8	66.8	0.1
Iron	mg/L		<0.005	0.017	<0.005	<0.005	0.181	0.005
Magnesium	mg/L		15.6	16.6	16	15	16.8	0.1
Manganese	mg/L		<0.001	0.005	<0.001	<0.001	0.014	0.001
Potassium	mg/L		0.5	0.6	0.2	0.8	1.3	0.1
Silicon	mg/L		1.88	1.92	1.76	1.92	2.37	0.05
Sodium	mg/L		0.3	1.2	0.2	0.3	1.5	0.1
Sulfur	mg/L		6.4	14	6.6	6.9	14	0.2
Aluminum	mg/L		<0.005	0.012	<0.005	<0.005	0.012	0.005
Antimony	mg/L		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	mg/L		0.0037	0.0003	0.0002	0.0068	0.0028	0.0002
Barium	mg/L		0.2	0.051	0.29	0.14	0.088	0.001
Beryllium	mg/L		<0.00004	<0.00004	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Boron	mg/L		<0.004	<0.004	<0.004	<0.004	0.007	0.004
Cadmium	mg/L		0.00001	0.00003	0.00006	0.00003	0.0003	0.00001
Chromium	mg/L		0.0007	<0.0004	0.0006	0.0006	0.0007	0.0004
Cobalt	mg/L		<0.00002	0.00011	<0.00002	0.00002	0.0002	0.00002
Copper	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Lead	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Lithium	mg/L		<0.001	0.003	<0.001	<0.001	0.002	0.001
Molybdenum	mg/L		0.0008	0.0002	0.0006	0.0013	0.0026	0.0001
Nickel	mg/L		<0.001	0.003	<0.001	<0.001	0.012	0.001
Selenium	mg/L		<0.0006	<0.0006	<0.0006	<0.0006	0.0025	0.0006
Silver	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Strontium	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	0.001
Titanium	mg/L		0.061	0.131	0.041	0.073	0.11	0.01
Tellurium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Thallium	mg/L		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Thorium	mg/L		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	0.0004
Tin	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Uranium	mg/L		0.0015	0.001	0.0013	0.0016	0.0039	0.0004
Vanadium	mg/L		0.0001	0.0001	0.0001	0.0001	0.0004	0.0001
Zinc	mg/L		0.001	0.002	0.004	0.003	0.041	0.001
Zirconium	mg/L		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001

**Table 10. RAU Claims - Camp Drinking Water Supply**

Parameter		Jul-10 Rau#9	May-11 May-28	Jul-11 Rau#9	Aug-11 Rau#9	Oct-11 Rau#9	Mar-12 Rau#9	Apr-12 Rau#11	May-12 Rau#11	Jun-12 Rau#11	Jul-12 Rau#11	Detection Limit	DWQ* MAC's
pH	ru	8.26	8.2	8.2	8.23	8.09	8.12	7.5	6.54	8.22	8.11		6 to 8.5
Conductivity	uS/cm	356	286	315	327	358	345	153	10	303	329	1	
Chloride	mg/L	0.37	0.36	0.14	<0.5	<0.5	<0.5	1.5	0.08	0.12	0.08	0.02	<250
Nitrate	mg/L	0.15	0.3	0.37	0.24	0.3	0.36	0.33	<0.01	0.2	0.14	0.01	1
Nitrite	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	10
T.Diss.Solids	mg/L	220	142	174	196	198	162	122	26	176	166	5	500
T.Susp.Solids	mg/L	<2	<2	<2	<2	<2	<2	23	<2	<2	<2	1	
Hardness	mg/L	204	165	187	212	219	195	83	8	166	174	1	<500
Alkalinity total	mg/L	179	150	168	175	178	183	80	<5	160	162	5	
<b>Total Metals</b>													
Aluminum	mg/L	0.057	0.011	0.012	0.008	<0.005	0.054	0.108	0.005	<0.005	<0.005	0.005	
Antimony	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	0.0002	0.006
Arsenic	mg/L	0.0038	0.0048	0.0028	0.0032	0.0043	0.0106	0.0008	<0.0002	<0.0002	0.0003	0.0002	0.01
Barium	mg/L	0.214	0.148	0.209	0.224	0.189	0.156	0.128	0.007	0.275	0.296	0.001	1
Boron	mg/L	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	0.004	5
Cadmium	mg/L	0.00004	0.00002	0.00002	0.00002	0.00003	0.00003	0.00044	0.00002	<0.00001	0.00006	0.00001	0.005
Calcium	mg/L	55.2	43.2	49.3	56.2	59	54.6	23.4	1.55	41.7	44	0.05	
Chromium	mg/L	0.0007	0.0008	0.0007	0.0009	0.0005	<0.0004	0.0009	<0.0004	<0.0004	<0.0004	0.0004	0.05
Cobalt	mg/L	0.00006	0.00004	0.00008	0.00004	0.00005	0.00014	0.00019	<0.00002	0.00004	0.00005	0.00002	
Copper	mg/L	<0.001	<0.001	<0.001	<0.001	0.024	<0.001	0.003	<0.001	<0.001	<0.001	0.001	1
Iron	mg/L	0.096	0.014	0.012	0.069	0.041	0.303	0.195	0.012	<0.01	<0.01	0.01	0.3
Lead	mg/L	0.0003	<0.0001	<0.0001	<0.0001	0.0005	0.0003	0.0009	0.0002	<0.0001	<0.0001	0.0001	0.01
Lithium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	
Magnesium	mg/L	16	12	15.6	16.9	17.4	16.4	6.97	0.33	15	15.7	0.05	
Manganese	mg/L	0.0052	<0.005	<0.005	<0.005	0.008	0.042	0.014	<0.005	<0.005	<0.005	0.0002	0.05
Mercury	mg/L									<0.00001	0.00001	0.00001	0.001
Molybdenum	mg/L	0.0014	0.0014	0.0014	0.0016	0.0015	0.0018	0.0003	<0.0001	0.0012	0.0012	0.0001	
Sulfur	mg/L	6.9	5	6.6	7.2	7.6	7.9	2.1	<0.1	5.6	6.5	0.1	
Selenium	mg/L	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	0.0006	0.01
Strontium	mg/L	0.068	0.061	0.057	0.064	0.069	0.079	0.025	0.002	0.039	0.045	0.001	
Silicon	mg/L	1.99	1.54	1.82	1.84	1.85	1.99	1.42	0.11	1.61	1.64	0.05	
Sodium	mg/L	0.29	0.27	0.3	0.3	0.58	0.38	0.66	0.13	0.4	0.52	0.02	<200
Titanium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.008	<0.001	<0.001	0.002	0.001	
Uranium	mg/L	0.0016	0.0013	0.0015	0.0015	0.0015	0.0019	<0.0004	<0.0004	0.0014	0.0014	0.0004	0.02
Zinc	mg/L	0.006	0.003	0.004	0.004	0.017	0.008	0.08	0.004	0.003	0.006	0.001	<5

DWQ\* = Canadian Drinking Water Quality Guideline

MAC = Maximum Acceptable Concentration

## **Water Quality Summary**

### **June 14**

Station RAU #3 exceeds the *Aquatic Guidelines* for selenium.

Station RAU #13 exceeds the *Aquatic Guidelines* for selenium and zinc as well as the *Drinking Water Guidelines* for iron.

### **July 17**

Station RAU #3 exceeds the *Aquatic Guidelines* for selenium.

Station RAU #4 exceeds the *Aquatic Guidelines* for aluminum.

Station RAU #13 exceeds the *Aquatic Guidelines* for iron, selenium and zinc; and exceeds the *Drinking Water Guidelines* for iron.

Stations RAU #9, #10, #11 and #12 met all *Guideline* limits.

### **Drinking Water Supply**

Station RAU #11 is the Rau Camp freshwater supply source.

The Rau exploration camp was opened in early May and closed temporarily in June.

The June and July, 2012 analysis results are listed in Table 10.

All parameters tested in June and July have concentrations below the *Drinking Water Quality Guideline (December 2010)* Maximum Acceptable Concentration.

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### **Weather Station Data Logger**

The weather station / data logger was downloaded on July 17, 2012.

All logger systems were functioning. A download summary/status is attached in Appendix 2.

## **Appendix #1**

### **Laboratory Analytical Reports**

**June 14, 2012 (Water Quality and Stream Sediments)**

**July 17, 2012 (Water Quality)**



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-1	876462-2	876462-3	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #4 Duplicate / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Dissolved</b>						
Sulfur	Dissolved	mg/L	6.7	9.7	9.8	0.2
Aluminum	Dissolved	mg/L	<0.005	<0.005	<0.005	0.005
Antimony	Dissolved	mg/L	0.0003	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0004	0.0023	0.0023	0.0002
Barium	Dissolved	mg/L	0.078	0.137	0.135	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Dissolved	mg/L	0.005	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Chromium	Dissolved	mg/L	0.001	0.0012	0.0011	0.0004
Cobalt	Dissolved	mg/L	0.00005	0.00037	0.00006	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.001	<0.001	<0.001	0.001
Molybdenum	Dissolved	mg/L	0.0018	0.001	0.0009	0.0001
Nickel	Dissolved	mg/L	<0.001	<0.001	0.005	0.001
Selenium	Dissolved	mg/L	0.0009	<0.0006	<0.0006	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Titanium	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Strontium	Dissolved	mg/L	0.057	0.070	0.068	0.001
Tellurium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Uranium	Dissolved	mg/L	0.0020	0.0024	0.0024	0.0004
Vanadium	Dissolved	mg/L	0.0003	0.0003	0.0003	0.0001
Zinc	Dissolved	mg/L	<0.001	0.007	0.005	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
<b>Metals Total</b>						
Calcium	Total	mg/L	47.1	53.0	52.9	0.05
Iron	Total	mg/L	0.043	0.074	0.049	0.01
Magnesium	Total	mg/L	12.6	18.2	18.0	0.05
Manganese	Total	mg/L	<0.005	0.006	<0.005	0.005
Potassium	Total	mg/L	0.9	0.8	0.7	0.1
Silicon	Total	mg/L	2.07	2.15	2.14	0.05
Sulfur	Total	mg/L	6.2	8.2	8.4	0.1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-1	876462-2	876462-3	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #4 Duplicate / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Total - Continued</b>						
Sodium	Total	mg/L	0.64	0.53	0.53	0.02
Titanium	Total	mg/L	<0.001	0.002	<0.001	0.001
Aluminum	Total	mg/L	0.012	0.031	0.022	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	<0.0002	0.0017	0.0016	0.0002
Barium	Total	mg/L	0.085	0.149	0.146	0.001
Beryllium	Total	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Total	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Total	mg/L	<0.005	<0.005	<0.005	0.004
Cadmium	Total	mg/L	0.00005	<0.00001	<0.00001	0.00001
Chromium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Cobalt	Total	mg/L	0.00014	0.00013	0.00009	0.00002
Copper	Total	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Total	mg/L	<0.0001	0.0002	0.0001	0.0001
Lithium	Total	mg/L	0.001	0.001	0.001	0.001
Molybdenum	Total	mg/L	0.0024	0.0013	0.0013	0.0001
Nickel	Total	mg/L	0.001	0.001	0.001	0.001
Selenium	Total	mg/L	0.0013	<0.0006	<0.0006	0.0006
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Total	mg/L	0.061	0.074	0.073	0.001
Tellurium	Total	mg/L	0.0003	0.0003	0.0002	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Total	mg/L	0.0384	0.0014	0.0020	0.0001
Uranium	Total	mg/L	0.0021	0.0025	0.0025	0.0004
Vanadium	Total	mg/L	0.0001	0.0003	0.0002	0.0001
Zinc	Total	mg/L	0.001	0.009	0.006	0.001
Zirconium	Total	mg/L	0.0002	<0.0001	<0.0001	0.0001
<b>Routine Water</b>						
pH	at 25 °C		8.18	8.28		
Electrical Conductivity		µS/cm at 25 C	308	370		1
Calcium	Dissolved	mg/L	48.1	53.9	54.3	0.1
Iron	Dissolved	mg/L	0.023	<0.005	0.011	0.005
Magnesium	Dissolved	mg/L	13.1	19.1	19.3	0.1
Manganese	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Potassium	Dissolved	mg/L	1.0	0.8	0.8	0.1

## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

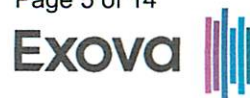
		Reference Number	876462-1	876462-2	876462-3	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #4 Duplicate / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Routine Water - Continued</b>						
Silicon	Dissolved	mg/L	2.12	2.19	2.22	0.05
Sodium	Dissolved	mg/L	0.6	0.4	0.5	0.1
Bicarbonate		mg/L	188	242		5
Carbonate		mg/L	<6	<6		6
Hydroxide		mg/L	<5	<5		5
T-Alkalinity	as CaCO <sub>3</sub>	mg/L	154	199		5
Chloride	Dissolved	mg/L	0.05	0.11		0.05
Sulfate (SO <sub>4</sub> )	Dissolved	mg/L	19.5	28.0		0.5
Hardness	as CaCO <sub>3</sub>	mg/L	174	213	215	5
Hardness	Total	mg CaCO <sub>3</sub> /L	170	207		1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-1	876462-2	876462-4	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #9 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>						
Organic Carbon	Total Nonpurgeable	mg/L	3.2	1.5	1.2	0.5
Cyanide	Total	mg/L	<0.002	<0.002	<0.002	0.002
Phosphorus	Total	mg/L	0.014	0.017	0.014	0.003
Phosphorus	Total Dissolved	mg/L	0.014	0.016	0.010	0.003
Ammonia - N		mg/L	<0.01	<0.01	<0.01	
Nitrate - N		mg/L	0.15	0.36	0.30	0.01
Nitrite - N		mg/L	<0.005	<0.005	<0.005	0.005
<b>Physical and Aggregate Properties</b>						
Solids	Total Suspended	mg/L	<2	4	<2	2
Solids	Total Dissolved	mg/L	166	208	176	5



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-4	876462-5	876462-6	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #9 / Surface	Rau #10 / Surface	Rau #11 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Dissolved</b>						
Sulfur	Dissolved	mg/L	6.4	12.2	6.1	0.2
Aluminum	Dissolved	mg/L	<0.005	0.014	<0.005	0.005
Antimony	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0028	0.0003	0.0002	0.0002
Barium	Dissolved	mg/L	0.192	0.041	0.262	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Chromium	Dissolved	mg/L	0.0010	0.0009	0.0011	0.0004
Cobalt	Dissolved	mg/L	0.00008	0.00018	0.00005	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	<0.001	0.002	<0.001	0.001
Molybdenum	Dissolved	mg/L	0.0009	0.0001	0.0008	0.0001
Nickel	Dissolved	mg/L	<0.001	0.003	<0.001	0.001
Selenium	Dissolved	mg/L	<0.0006	<0.0006	<0.0006	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Titanium	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Strontium	Dissolved	mg/L	0.051	0.108	0.039	0.001
Tellurium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Uranium	Dissolved	mg/L	0.0014	0.0007	0.0014	0.0004
Vanadium	Dissolved	mg/L	0.0002	0.0003	0.0002	0.0001
Zinc	Dissolved	mg/L	0.003	0.004	0.003	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
<b>Metals Total</b>						
Calcium	Total	mg/L	46.0	36.1	41.7	0.05
Iron	Total	mg/L	0.011	0.198	<0.01	0.01
Magnesium	Total	mg/L	14.4	13.5	15.0	0.05
Manganese	Total	mg/L	<0.005	0.028	<0.005	0.005
Potassium	Total	mg/L	0.5	0.5	0.2	0.1
Silicon	Total	mg/L	1.72	1.90	1.61	0.05
Sulfur	Total	mg/L	5.8	10.9	5.6	0.1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-4	876462-5	876462-6	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #9 / Surface	Rau #10 / Surface	Rau #11 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Total - Continued</b>						
Sodium	Total	mg/L	0.32	1.04	0.40	0.02
Titanium	Total	mg/L	<0.001	0.003	<0.001	0.001
Aluminum	Total	mg/L	<0.005	0.074	<0.005	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0020	<0.0002	<0.0002	0.0002
Barium	Total	mg/L	0.202	0.046	0.275	0.001
Beryllium	Total	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Total	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Total	mg/L	<0.005	<0.005	<0.005	0.004
Cadmium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Chromium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Cobalt	Total	mg/L	0.00004	0.00036	0.00004	0.00002
Copper	Total	mg/L	<0.001	0.001	<0.001	0.001
Lead	Total	mg/L	<0.0001	0.0005	<0.0001	0.0001
Lithium	Total	mg/L	<0.001	0.003	<0.001	0.001
Molybdenum	Total	mg/L	0.0013	0.0005	0.0012	0.0001
Nickel	Total	mg/L	<0.001	0.003	<0.001	0.001
Selenium	Total	mg/L	<0.0006	<0.0006	<0.0006	0.0006
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Total	mg/L	0.054	0.113	0.039	0.001
Tellurium	Total	mg/L	0.0002	0.0002	0.0002	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Total	mg/L	0.0011	0.0013	0.0010	0.0001
Uranium	Total	mg/L	0.0014	0.0007	0.0014	0.0004
Vanadium	Total	mg/L	<0.0001	0.0004	<0.0001	0.0001
Zinc	Total	mg/L	0.004	0.006	0.003	0.001
Zirconium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
<b>Routine Water</b>						
pH	at 25 °C		8.24	8.15	8.22	
Electrical Conductivity		µS/cm at 25 C	320	260	303	1
Calcium	Dissolved	mg/L	47.5	36.0	43.2	0.1
Iron	Dissolved	mg/L	0.009	0.027	0.01	0.005
Magnesium	Dissolved	mg/L	15.4	14.0	16.0	0.1
Manganese	Dissolved	mg/L	<0.001	0.004	<0.001	0.001
Potassium	Dissolved	mg/L	0.5	0.6	0.2	0.1

## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

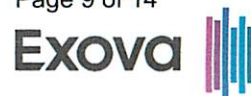
		Reference Number	876462-4	876462-5	876462-6	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #9 / Surface	Rau #10 / Surface	Rau #11 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Routine Water - Continued</b>						
Silicon	Dissolved	mg/L	1.76	1.89	1.65	0.05
Sodium	Dissolved	mg/L	0.3	1.1	0.2	0.1
Bicarbonate		mg/L	200	133	195	5
Carbonate		mg/L	<6	<6	<6	6
Hydroxide		mg/L	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	164	109	160	5
Chloride	Dissolved	mg/L	0.08	0.22	0.12	0.05
Sulfate (SO4)	Dissolved	mg/L	18.2	34.9	17.4	0.5
Hardness	as CaCO3	mg/L	182	147	174	5
Hardness	Total	mg CaCO3/L	174	146	166	1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-5	876462-6	876462-7	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #10 / Surface	Rau #11 / Surface	Rau #12 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>						
Organic Carbon	Total Nonpurgeable	mg/L	2.0	1.2	1.2	0.5
Cyanide	Total	mg/L		<0.002	<0.002	0.002
Phosphorus	Total	mg/L	0.108	0.010	0.012	0.003
Phosphorus	Total Dissolved	mg/L	0.007	0.009	0.011	0.003
Ammonia - N		mg/L		<0.01	<0.01	
Nitrate - N		mg/L	0.07	0.20	0.46	0.01
Nitrite - N		mg/L	<0.005	<0.005	<0.005	0.005
<b>Physical and Aggregate Properties</b>						
Solids	Total Suspended	mg/L	14	<2	<2	2
Solids	Total Dissolved	mg/L	154	176	196	5



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-7	876462-8	
		Sample Date	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	
		Sample Location			
		Sample Description	Rau #12 / Surface	Rau #13 / Surface	
		Matrix	Water	Water	
Analyte		Units	Results	Results	Nominal Detection Limit
<b>Metals Dissolved</b>					
Sulfur	Dissolved	mg/L	6.6	11.7	0.2
Aluminum	Dissolved	mg/L	<0.005	0.014	0.005
Antimony	Dissolved	mg/L	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0070	0.0019	0.0002
Barium	Dissolved	mg/L	0.127	0.075	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.001	<0.001	0.001
Boron	Dissolved	mg/L	<0.004	0.007	0.004
Cadmium	Dissolved	mg/L	<0.00001	0.00009	0.00001
Chromium	Dissolved	mg/L	0.001	0.0009	0.0004
Cobalt	Dissolved	mg/L	0.00007	0.00020	0.00002
Copper	Dissolved	mg/L	<0.001	0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	<0.001	0.002	0.001
Molybdenum	Dissolved	mg/L	0.0012	0.0024	0.0001
Nickel	Dissolved	mg/L	<0.001	0.009	0.001
Selenium	Dissolved	mg/L	<0.0006	0.0019	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	0.00001
Titanium	Dissolved	mg/L	<0.01	<0.01	0.01
Strontium	Dissolved	mg/L	0.069	0.092	0.001
Tellurium	Dissolved	mg/L	<0.0001	<0.0001	0.0001
Thallium	Dissolved	mg/L	<0.00001	0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0004	<0.0004	0.0004
Tin	Dissolved	mg/L	<0.0001	<0.0001	0.0001
Uranium	Dissolved	mg/L	0.0014	0.0034	0.0004
Vanadium	Dissolved	mg/L	0.0002	0.0004	0.0001
Zinc	Dissolved	mg/L	0.004	0.033	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	0.0001
<b>Metals Total</b>					
Calcium	Total	mg/L	52.4	59.8	0.05
Iron	Total	mg/L	<0.01	0.354	0.01
Magnesium	Total	mg/L	13.8	15.3	0.05
Manganese	Total	mg/L	<0.005	0.018	0.005
Potassium	Total	mg/L	0.9	1.3	0.1
Silicon	Total	mg/L	1.81	2.24	0.05
Sulfur	Total	mg/L	5.9	10.6	0.1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-7	876462-8	
		Sample Date	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	
		Sample Location			
		Sample Description	Rau #12 / Surface	Rau #13 / Surface	
		Matrix	Water	Water	
Analyte		Units	Results	Results	Nominal Detection Limit
<b>Metals Total - Continued</b>					
Sodium	Total	mg/L	0.41	1.36	0.02
Titanium	Total	mg/L	<0.001	0.002	0.001
Aluminum	Total	mg/L	<0.005	0.092	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0062	0.0014	0.0002
Barium	Total	mg/L	0.141	0.089	0.001
Beryllium	Total	mg/L	<0.00004	<0.00004	0.00004
Bismuth	Total	mg/L	<0.001	<0.001	0.001
Boron	Total	mg/L	<0.005	0.008	0.004
Cadmium	Total	mg/L	<0.00001	<0.00001	0.00001
Chromium	Total	mg/L	<0.0004	<0.0004	0.0004
Cobalt	Total	mg/L	0.00006	0.00033	0.00002
Copper	Total	mg/L	<0.001	0.002	0.001
Lead	Total	mg/L	<0.0001	0.0003	0.0001
Lithium	Total	mg/L	<0.001	0.002	0.001
Molybdenum	Total	mg/L	0.0017	0.0029	0.0001
Nickel	Total	mg/L	<0.001	0.011	0.001
Selenium	Total	mg/L	<0.0006	0.0019	0.0006
Silver	Total	mg/L	<0.00001	<0.00001	0.00001
Strontium	Total	mg/L	0.074	0.10	0.001
Tellurium	Total	mg/L	0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	0.00002	0.00001
Thorium	Total	mg/L	<0.0004	<0.0004	0.0004
Tin	Total	mg/L	0.0038	0.0018	0.0001
Uranium	Total	mg/L	0.0016	0.0035	0.0004
Vanadium	Total	mg/L	<0.0001	0.0006	0.0001
Zinc	Total	mg/L	0.003	0.037	0.001
Zirconium	Total	mg/L	<0.0001	0.0002	0.0001
<b>Routine Water</b>					
pH	at 25 °C		8.28	8.27	
Electrical Conductivity		µS/cm at 25 C	334	367	1
Calcium	Dissolved	mg/L	52.7	58.3	0.1
Iron	Dissolved	mg/L	0.006	0.186	0.005
Magnesium	Dissolved	mg/L	14.3	15.2	0.1
Manganese	Dissolved	mg/L	<0.001	0.007	0.001
Potassium	Dissolved	mg/L	1.0	1.3	0.1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876462-7	876462-8	
		Sample Date	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	
		Sample Location			
		Sample Description	Rau #12 / Surface	Rau #13 / Surface	
		Matrix	Water	Water	
Analyte		Units	Results	Results	Nominal Detection Limit
<b>Routine Water - Continued</b>					
Silicon	Dissolved	mg/L	1.86	2.20	0.05
Sodium	Dissolved	mg/L	0.4	1.3	0.1
Bicarbonate		mg/L	218	215	5
Carbonate		mg/L	<6	<6	6
Hydroxide		mg/L	<5	<5	5
T-Alkalinity	as CaCO <sub>3</sub>	mg/L	178	176	5
Chloride	Dissolved	mg/L	0.08	1.39	0.05
Sulfate (SO <sub>4</sub> )	Dissolved	mg/L	19.2	35.3	0.5
Hardness	as CaCO <sub>3</sub>	mg/L	190	208	5
Hardness	Total	mg CaCO <sub>3</sub> /L	188	212	1

## Analytical Report

Bill To:	J. Gibson & Associates	Project:		Lot ID:	<b>876462</b>
Report To:	J. Gibson & Associates	ID:	ATAC Resources	Control Number:	A216802
	Box 20913	Name:	RAU Project	Date Received:	Jun 18, 2012
	Whitehorse, YT, Canada	Location:		Date Reported:	Jun 26, 2012
	Y1A 6P2	LSD:		Report Number:	1744930
Attn:	John Gibson	P.O.:			
Sampled By:	J Gibson	Acct code:			
Company:					

Reference Number	876462-8
Sample Date	Jun 14, 2012
Sample Time	NA
Sample Location	
Sample Description	Rau #13 / Surface
Matrix	Water

Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>						
Organic Carbon	Total Nonpurgeable	mg/L	2.8			0.5
Cyanide	Total	mg/L	<0.002			0.002
Phosphorus	Total	mg/L	0.031			0.003
Phosphorus	Total Dissolved	mg/L	0.030			0.003
Ammonia - N		mg/L	<0.01			
Nitrate - N		mg/L	0.20			0.01
Nitrite - N		mg/L	<0.005			0.005
<b>Physical and Aggregate Properties</b>						
Solids	Total Suspended	mg/L	6			2
Solids	Total Dissolved	mg/L	214			5

Approved by:   
Mathieu Simoneau  
Operations Manager

## Methodology and Notes

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876462</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216802
Box 20913	Name: RAU Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 26, 2012
Y1A 6P2	LSD:	Report Number: 1744930
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water	APHA	* Alkalinity - Titration Method, 2320 B	19-Jun-12	Exova Surrey
Alk, pH, EC, Turb in water	APHA	* Conductivity, 2510 B	19-Jun-12	Exova Surrey
Alk, pH, EC, Turb in water	APHA	* pH - Electrometric Method, 4500-H+ B	19-Jun-12	Exova Surrey
Ammonia-N in Water	APHA	* Titrametric, 4500-NH3 C	19-Jun-12	Exova Surrey
Anions by IEC in water (Surrey)	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	18-Jun-12	Exova Surrey
Carbon Organic (Total) in water (TOC)	APHA	* High-Temperature Combustion Method, 5310 B	19-Jun-12	Exova Edmonton
Cyanide (Total) in water	US EPA	* US EPA method, 335.3	22-Jun-12	Exova Edmonton
Metals SemiTrace (Dissolved) in water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	19-Jun-12	Exova Surrey
Metals SemiTrace (Total) in Water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	19-Jun-12	Exova Surrey
Nitrogen - nitrite+nitrate-N	APHA	* Automated Cadmium Reduction Method, 4500-NO3- F	19-Jun-12	Exova Surrey
Phosphorus - total (low level)	APHA	* Preliminary Acid Hydrolysis, Ascorbic Acid Reduction Method, 4500-P B,E	21-Jun-12	Exova Surrey
Phosphorus - total dissolved (low level)	APHA	* Preliminary Acid Hydrolysis, Ascorbic Acid Reduction Method, 4500-P B,E	21-Jun-12	Exova Surrey
Solids Dissolved (Total, Fixed and Volatile)2	APHA	* Total Dissolved Solids Dried at 180 C, 2540 C	19-Jun-12	Exova Surrey
Solids Suspended (Total, Fixed and Volatile)	APHA	* Total Suspended Solids Dried at 103-105°C, 2540 D	19-Jun-12	Exova Surrey
Trace Metals (dissolved) in Water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	19-Jun-12	Exova Surrey
Trace Metals (dissolved) in Water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	19-Jun-12	Exova Surrey
Trace Metals (Total) in Water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	19-Jun-12	Exova Surrey
Trace Metals (Total) in Water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	19-Jun-12	Exova Surrey

\* Reference Method Modified

## References

US EPA	US Environmental Protection Agency Test Methods
APHA	Standard Methods for the Examination of Water and Wastewater

## Methodology and Notes

Bill To:	J. Gibson & Associates	Project:		Lot ID:	<b>876462</b>
Report To:	J. Gibson & Associates	ID:	ATAC Resources	Control Number:	A216802
	Box 20913	Name:	RAU Project	Date Received:	Jun 18, 2012
	Whitehorse, YT, Canada	Location:		Date Reported:	Jun 26, 2012
	Y1A 6P2	LSD:		Report Number:	1744930
Attn:	John Gibson	P.O.:			
Sampled By:	J Gibson	Acct code:			
Company:					

---

## Comments:

- Due to instrument issues total phosphorus and total dissolved phosphorus could not be reported on sample 876462-3.
- Analysis was performed on samples 876462-1, 2, 4 to 8 that exceeded the recommended holding time for Water Nitrate analysis.
- Some total metal results were less than dissolved metal results for 876462. The results were verified and are within expected measurement uncertainty.
- pH analysis was performed past the recommended holding time of 15 minutes from sample collection.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

The test report shall not be reproduced except in full, without the written approval of the laboratory.

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## Report Transmission Cover Page

Bill To:	J. Gibson & Associates	Project:		Lot ID:	<b>883079</b>
Report To:	J. Gibson & Associates	ID:	ATAC Resources	Control Number:	A244850
	Box 20913	Name:	Rau Project	Date Received:	Jul 20, 2012
	Whitehorse, YT, Canada	Location:		Date Reported:	Jul 31, 2012
	Y1A 6P2	LSD:		Report Number:	1755116
Attn:	John Gibson	P.O.:			
Sampled By:	J. Gibson	Acct code:			
Company:					

Contact & Affiliation	Address	Delivery Commitments
John Gibson	, Box 20913	On [Lot Verification] send
J. Gibson & Associates	Whitehorse, Yukon Territory Y1A 6P2	(COA) by Email - Single Report
	Phone: (867) 633-4522	On [Report Approval] send
	Fax: (867) 668-6895	(COC, Test Report) by Email - Multiple Reports
	Email: <a href="mailto:ludditegibson@gmail.com">ludditegibson@gmail.com</a>	On [Report Approval] send
		(Test Report) by Email - Multiple Reports
		On [Report Approval] send
		(Test Report, COC) by Email - Multiple Reports
		On [Report Approval] send
		(Test Report) by Email - Multiple Reports
		On [Lot Approval and Final Test Report Approval] send
		(Invoice) by Email - Single Report

### Notes To Clients:

- Report was re-issued to correct the sampling date. Report 1755116 replaces report 1753132.
- Some total metal results were less than dissolved metal results for lot 883079. The results were verified and are within expected measurement uncertainty.

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## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

		Reference Number	883079-1	883079-2	883079-3	
		Sample Date	Jul 17, 2012	Jul 17, 2012	Jul 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #9 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>						
Organic Carbon	Total Nonpurgeable	mg/L	3.5	2.2	1.4	0.5
Phosphorus	Total	mg/L	0.013	0.013	0.006	0.003
Phosphorus	Total Dissolved	mg/L	0.011	0.006	0.005	0.003
Ammonia - N		mg/L	<0.01	<0.01	0.04	
Nitrate - N		mg/L	0.09	0.31	0.24	0.01
Nitrite - N		mg/L	<0.005	<0.005	<0.005	0.005
<b>Metals Dissolved</b>						
Sulfur	Dissolved	mg/L	8.1	10.2	6.4	0.2
Aluminum	Dissolved	mg/L	<0.005	<0.005	<0.005	0.005
Antimony	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0006	0.0021	0.0037	0.0002
Barium	Dissolved	mg/L	0.094	0.140	0.200	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	0.00005	0.00005	0.00001	0.00001
Chromium	Dissolved	mg/L	0.0007	0.0006	0.0007	0.0004
Cobalt	Dissolved	mg/L	0.00012	0.00003	<0.00002	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.001	0.001	<0.001	0.001
Molybdenum	Dissolved	mg/L	0.0020	0.0008	0.0008	0.0001
Nickel	Dissolved	mg/L	0.001	<0.001	<0.001	0.001
Selenium	Dissolved	mg/L	0.0016	0.0008	<0.0006	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Titanium	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Strontium	Dissolved	mg/L	0.068	0.078	0.061	0.001
Tellurium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Uranium	Dissolved	mg/L	0.0024	0.0029	0.0015	0.0004
Vanadium	Dissolved	mg/L	0.0002	0.0002	0.0001	0.0001
Zinc	Dissolved	mg/L	<0.001	0.004	0.001	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

		Reference Number	883079-1	883079-2	883079-3	
		Sample Date	Jul 17, 2012	Jul 17, 2012	Jul 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #9 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Total</b>						
Calcium	Total	mg/L	55.7	58.1	49.8	0.05
Iron	Total	mg/L	0.140	0.280	0.010	0.01
Magnesium	Total	mg/L	15.1	20.2	15.3	0.05
Manganese	Total	mg/L	0.009	0.01	<0.005	0.005
Potassium	Total	mg/L	1.0	0.9	0.5	0.1
Silicon	Total	mg/L	2.28	2.42	1.78	0.05
Sulfur	Total	mg/L	8.2	10.3	6.4	0.1
Sodium	Total	mg/L	0.72	0.64	0.42	0.02
Titanium	Total	mg/L	0.004	0.007	0.002	0.001
Aluminum	Total	mg/L	0.065	0.151	0.014	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0006	0.0025	0.0037	0.0002
Barium	Total	mg/L	0.096	0.153	0.199	0.001
Beryllium	Total	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Total	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Total	mg/L	0.006	<0.005	<0.005	0.004
Cadmium	Total	mg/L	0.00006	0.00007	0.00003	0.00001
Chromium	Total	mg/L	0.0005	0.0006	<0.0004	0.0004
Cobalt	Total	mg/L	0.00012	0.00022	0.00005	0.00002
Copper	Total	mg/L	0.001	0.001	<0.001	0.001
Lead	Total	mg/L	0.0002	0.0004	0.0001	0.0001
Lithium	Total	mg/L	0.002	0.002	<0.001	0.001
Mercury	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Molybdenum	Total	mg/L	0.0026	0.0014	0.0014	0.0001
Nickel	Total	mg/L	0.002	0.002	<0.001	0.001
Selenium	Total	mg/L	0.0012	0.0008	<0.0006	0.0006
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Total	mg/L	0.075	0.088	0.066	0.001
Tellurium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Uranium	Total	mg/L	0.0024	0.0030	0.0015	0.0004
Vanadium	Total	mg/L	0.0003	0.0008	<0.0001	0.0001
Zinc	Total	mg/L	0.003	0.012	0.004	0.001
Zirconium	Total	mg/L	0.0002	<0.0001	<0.0001	0.0001



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

		Reference Number	883079-1	883079-2	883079-3	
		Sample Date	Jul 17, 2012	Jul 17, 2012	Jul 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #3 / Surface	Rau #4 / Surface	Rau #9 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Physical and Aggregate Properties</b>						
Solids	Total Suspended	mg/L	4	12	<2	2
Solids	Total Dissolved	mg/L	206	234	184	5
<b>Routine Water</b>						
pH	at 25 °C		8.16	8.26	8.18	
Electrical Conductivity		µS/cm at 25 C	352	398	347	1
Calcium	Dissolved	mg/L	56.3	58.4	52.3	0.1
Iron	Dissolved	mg/L	0.031	0.009	<0.005	0.005
Magnesium	Dissolved	mg/L	14.9	20.0	15.6	0.1
Manganese	Dissolved	mg/L	0.004	<0.001	<0.001	0.001
Potassium	Dissolved	mg/L	1	0.8	0.5	0.1
Silicon	Dissolved	mg/L	2.27	2.34	1.88	0.05
Sodium	Dissolved	mg/L	0.6	0.5	0.3	0.1
Bicarbonate		mg/L	216	242	215	5
Carbonate		mg/L	<6	<6	<6	6
Hydroxide		mg/L	<5	<5	<5	5
T-Alkalinity	as CaCO3	mg/L	177	198	177	5
Chloride	Dissolved	mg/L	0.06	0.12	0.10	0.05
Sulfate (SO4)	Dissolved	mg/L	24.8	31.1	19.5	0.5
Hardness	as CaCO3	mg/L	202	228	195	5
Hardness	Total	mg CaCO3/L	201	228	187	1

## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

		Reference Number	883079-4	883079-5	883079-6	
		Sample Date	Jul 17, 2012	Jul 17, 2012	Jul 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #10 / Surface	Rau #11 / Surface	Rau #12 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>						
Organic Carbon	Total Nonpurgeable	mg/L	1.9	1.1	1.4	0.5
Phosphorus	Total	mg/L	0.006	0.008	<0.003	0.003
Phosphorus	Total Dissolved	mg/L	<0.003	0.008	<0.003	0.003
Ammonia - N		mg/L	<0.01	<0.01	<0.01	
Nitrate - N		mg/L	0.06	0.14	0.40	0.01
Nitrite - N		mg/L	<0.005	<0.005	<0.005	0.005
<b>Metals Dissolved</b>						
Sulfur	Dissolved	mg/L	14.0	6.6	6.9	0.2
Aluminum	Dissolved	mg/L	0.012	<0.005	<0.005	0.005
Antimony	Dissolved	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Dissolved	mg/L	0.0003	0.0002	0.0068	0.0002
Barium	Dissolved	mg/L	0.051	0.290	0.140	0.001
Beryllium	Dissolved	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Dissolved	mg/L	<0.004	<0.004	<0.004	0.004
Cadmium	Dissolved	mg/L	0.00003	0.00006	0.00003	0.00001
Chromium	Dissolved	mg/L	<0.0004	0.0006	0.0006	0.0004
Cobalt	Dissolved	mg/L	0.00011	<0.00002	0.00002	0.00002
Copper	Dissolved	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Lithium	Dissolved	mg/L	0.003	<0.001	<0.001	0.001
Molybdenum	Dissolved	mg/L	0.0002	0.0006	0.0013	0.0001
Nickel	Dissolved	mg/L	0.003	<0.001	<0.001	0.001
Selenium	Dissolved	mg/L	<0.0006	<0.0006	<0.0006	0.0006
Silver	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Titanium	Dissolved	mg/L	<0.01	<0.01	<0.01	0.01
Strontium	Dissolved	mg/L	0.131	0.041	0.073	0.001
Tellurium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Dissolved	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Dissolved	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Uranium	Dissolved	mg/L	0.0010	0.0013	0.0016	0.0004
Vanadium	Dissolved	mg/L	0.0001	0.0001	0.0001	0.0001
Zinc	Dissolved	mg/L	0.002	0.004	0.003	0.001
Zirconium	Dissolved	mg/L	<0.0001	<0.0001	<0.0001	0.0001



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

		Reference Number	883079-4	883079-5	883079-6	
		Sample Date	Jul 17, 2012	Jul 17, 2012	Jul 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #10 / Surface	Rau #11 / Surface	Rau #12 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Total</b>						
Calcium	Total	mg/L	41.8	44.0	51.9	0.05
Iron	Total	mg/L	0.142	<0.01	<0.01	0.01
Magnesium	Total	mg/L	16.5	15.7	14.6	0.05
Manganese	Total	mg/L	0.011	<0.005	<0.005	0.005
Potassium	Total	mg/L	0.5	0.2	0.8	0.1
Silicon	Total	mg/L	1.89	1.64	1.81	0.05
Sulfur	Total	mg/L	13.9	6.5	6.6	0.1
Sodium	Total	mg/L	1.61	0.52	0.50	0.02
Titanium	Total	mg/L	0.004	0.002	<0.001	0.001
Aluminum	Total	mg/L	0.072	<0.005	<0.005	0.005
Antimony	Total	mg/L	<0.0002	<0.0002	<0.0002	0.0002
Arsenic	Total	mg/L	0.0005	0.0003	0.0067	0.0002
Barium	Total	mg/L	0.052	0.296	0.141	0.001
Beryllium	Total	mg/L	<0.00004	<0.00004	<0.00004	0.00004
Bismuth	Total	mg/L	<0.001	<0.001	<0.001	0.001
Boron	Total	mg/L	<0.005	<0.005	<0.005	0.004
Cadmium	Total	mg/L	0.00006	0.00006	0.00003	0.00001
Chromium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Cobalt	Total	mg/L	0.00024	0.00005	0.00009	0.00002
Copper	Total	mg/L	<0.001	<0.001	<0.001	0.001
Lead	Total	mg/L	0.0002	<0.0001	<0.0001	0.0001
Lithium	Total	mg/L	0.004	<0.001	<0.001	0.001
Mercury	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Molybdenum	Total	mg/L	0.0006	0.0012	0.0019	0.0001
Nickel	Total	mg/L	0.004	<0.001	<0.001	0.001
Selenium	Total	mg/L	<0.0006	<0.0006	<0.0006	0.0006
Silver	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Strontium	Total	mg/L	0.145	0.045	0.080	0.001
Tellurium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Thallium	Total	mg/L	<0.00001	<0.00001	<0.00001	0.00001
Thorium	Total	mg/L	<0.0004	<0.0004	<0.0004	0.0004
Tin	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001
Uranium	Total	mg/L	0.0010	0.0014	0.0016	0.0004
Vanadium	Total	mg/L	0.0003	<0.0001	<0.0001	0.0001
Zinc	Total	mg/L	0.008	0.006	0.005	0.001
Zirconium	Total	mg/L	<0.0001	<0.0001	<0.0001	0.0001

## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

		Reference Number	883079-4	883079-5	883079-6	
		Sample Date	Jul 17, 2012	Jul 17, 2012	Jul 17, 2012	
		Sample Time	NA	NA	NA	
		Sample Location				
		Sample Description	Rau #10 / Surface	Rau #11 / Surface	Rau #12 / Surface	
		Matrix	Water	Water	Water	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
<b>Physical and Aggregate Properties</b>						
Solids	Total Suspended	mg/L	4	<2	<2	2
Solids	Total Dissolved	mg/L	180	166	194	5
<b>Routine Water</b>						
pH	at 25 °C		8.17	8.11	8.18	
Electrical Conductivity		µS/cm at 25 C	327	329	356	1
Calcium	Dissolved	mg/L	43.3	46.1	54.8	0.1
Iron	Dissolved	mg/L	0.017	<0.005	<0.005	0.005
Magnesium	Dissolved	mg/L	16.6	16.0	15.0	0.1
Manganese	Dissolved	mg/L	0.005	<0.001	<0.001	0.001
Potassium	Dissolved	mg/L	0.6	0.2	0.8	0.1
Silicon	Dissolved	mg/L	1.92	1.76	1.92	0.05
Sodium	Dissolved	mg/L	1.2	0.2	0.3	0.1
Bicarbonate		mg/L	165	198	218	5
Carbonate		mg/L	<6	<6	<6	6
Hydroxide		mg/L	<5	<5	<5	5
T-Alkalinity	as CaCO <sub>3</sub>	mg/L	135	162	179	5
Chloride	Dissolved	mg/L	0.33	0.08	0.07	0.05
Sulfate (SO <sub>4</sub> )	Dissolved	mg/L	42.6	19.3	20.2	0.5
Hardness	as CaCO <sub>3</sub>	mg/L	176	181	198	5
Hardness	Total	mg CaCO <sub>3</sub> /L	172	174	190	1



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

Reference Number 883079-7  
 Sample Date Jul 17, 2012  
 Sample Time NA  
 Sample Location  
 Sample Description Rau #13 / Surface  
 Matrix Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit
<b>Inorganic Nonmetallic Parameters</b>					
Organic Carbon	Total Nonpurgeable	mg/L	3.2		0.5
Phosphorus	Total	mg/L	0.018		0.003
Phosphorus	Total Dissolved	mg/L	<0.003		0.003
Ammonia - N		mg/L	0.04		
Nitrate - N		mg/L	0.14		0.01
Nitrite - N		mg/L	<0.005		0.005
<b>Metals Dissolved</b>					
Sulfur	Dissolved	mg/L	14.0		0.2
Aluminum	Dissolved	mg/L	0.012		0.005
Antimony	Dissolved	mg/L	<0.0002		0.0002
Arsenic	Dissolved	mg/L	0.0028		0.0002
Barium	Dissolved	mg/L	0.088		0.001
Beryllium	Dissolved	mg/L	<0.00004		0.00004
Bismuth	Dissolved	mg/L	<0.001		0.001
Boron	Dissolved	mg/L	0.007		0.004
Cadmium	Dissolved	mg/L	0.00030		0.00001
Chromium	Dissolved	mg/L	0.0007		0.0004
Cobalt	Dissolved	mg/L	0.00020		0.00002
Copper	Dissolved	mg/L	<0.001		0.001
Lead	Dissolved	mg/L	<0.0001		0.0001
Lithium	Dissolved	mg/L	0.002		0.001
Molybdenum	Dissolved	mg/L	0.0026		0.0001
Nickel	Dissolved	mg/L	0.012		0.001
Selenium	Dissolved	mg/L	0.0025		0.0006
Silver	Dissolved	mg/L	<0.00001		0.00001
Titanium	Dissolved	mg/L	<0.01		0.01
Strontium	Dissolved	mg/L	0.110		0.001
Tellurium	Dissolved	mg/L	<0.0001		0.0001
Thallium	Dissolved	mg/L	<0.00001		0.00001
Thorium	Dissolved	mg/L	<0.0004		0.0004
Tin	Dissolved	mg/L	<0.0001		0.0001
Uranium	Dissolved	mg/L	0.0039		0.0004
Vanadium	Dissolved	mg/L	0.0004		0.0001
Zinc	Dissolved	mg/L	0.041		0.001
Zirconium	Dissolved	mg/L	<0.0001		0.0001



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

Reference Number 883079-7  
 Sample Date Jul 17, 2012  
 Sample Time NA  
 Sample Location  
 Sample Description Rau #13 / Surface  
 Matrix Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit
<b>Metals Total</b>					
Calcium	Total	mg/L	64.4		0.05
Iron	Total	mg/L	0.336		0.01
Magnesium	Total	mg/L	16.5		0.05
Manganese	Total	mg/L	0.016		0.005
Potassium	Total	mg/L	1.5		0.1
Silicon	Total	mg/L	2.34		0.05
Sulfur	Total	mg/L	14.0		0.1
Sodium	Total	mg/L	1.72		0.02
Titanium	Total	mg/L	0.005		0.001
Aluminum	Total	mg/L	0.086		0.005
Antimony	Total	mg/L	<0.0002		0.0002
Arsenic	Total	mg/L	0.0029		0.0002
Barium	Total	mg/L	0.093		0.001
Beryllium	Total	mg/L	<0.00004		0.00004
Bismuth	Total	mg/L	<0.001		0.001
Boron	Total	mg/L	0.010		0.004
Cadmium	Total	mg/L	0.00035		0.00001
Chromium	Total	mg/L	0.0004		0.0004
Cobalt	Total	mg/L	0.00031		0.00002
Copper	Total	mg/L	0.002		0.001
Lead	Total	mg/L	0.0002		0.0001
Lithium	Total	mg/L	0.003		0.001
Mercury	Total	mg/L	<0.00001		0.00001
Molybdenum	Total	mg/L	0.0034		0.0001
Nickel	Total	mg/L	0.013		0.001
Selenium	Total	mg/L	0.0021		0.0006
Silver	Total	mg/L	<0.00001		0.00001
Strontium	Total	mg/L	0.123		0.001
Tellurium	Total	mg/L	<0.0001		0.0001
Thallium	Total	mg/L	0.00002		0.00001
Thorium	Total	mg/L	<0.0004		0.0004
Tin	Total	mg/L	<0.0001		0.0001
Uranium	Total	mg/L	0.0040		0.0004
Vanadium	Total	mg/L	0.0006		0.0001
Zinc	Total	mg/L	0.052		0.001
Zirconium	Total	mg/L	0.0002		0.0001

## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

Reference Number 883079-7  
 Sample Date Jul 17, 2012  
 Sample Time NA  
 Sample Location  
 Sample Description Rau #13 / Surface  
 Matrix Water

Analyte	Units	Results	Results	Results	Nominal Detection Limit
<b>Physical and Aggregate Properties</b>					
Solids	Total Suspended	mg/L	6		2
Solids	Total Dissolved	mg/L	254		5
<b>Routine Water</b>					
pH	at 25 °C		8.15		
Electrical Conductivity		µS/cm at 25 C	412		1
Calcium	Dissolved	mg/L	66.8		0.1
Iron	Dissolved	mg/L	0.181		0.005
Magnesium	Dissolved	mg/L	16.8		0.1
Manganese	Dissolved	mg/L	0.014		0.001
Potassium	Dissolved	mg/L	1.3		0.1
Silicon	Dissolved	mg/L	2.37		0.05
Sodium	Dissolved	mg/L	1.5		0.1
Bicarbonate		mg/L	232		5
Carbonate		mg/L	<6		6
Hydroxide		mg/L	<5		5
T-Alkalinity	as CaCO3	mg/L	191		5
Chloride	Dissolved	mg/L	1.79		0.05
Sulfate (SO4)	Dissolved	mg/L	42.4		0.5
Hardness	as CaCO3	mg/L	236		5
Hardness	Total	mg CaCO3/L	229		1

Approved by:   
 Mathieu Simoneau  
 Operations Manager

## Methodology and Notes

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>883079</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A244850
Box 20913	Name: Rau Project	Date Received: Jul 20, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jul 31, 2012
Y1A 6P2	LSD:	Report Number: 1755116
Attn: John Gibson	P.O.:	
Sampled By: J. Gibson	Acct code:	
Company:		

## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Alk, pH, EC, Turb in water	APHA	* Alkalinity - Titration Method, 2320 B	23-Jul-12	Exova Surrey
Alk, pH, EC, Turb in water	APHA	* Conductivity, 2510 B	23-Jul-12	Exova Surrey
Alk, pH, EC, Turb in water	APHA	* pH - Electrometric Method, 4500-H+ B	23-Jul-12	Exova Surrey
Ammonia-N in Water (Surrey)	APHA	* Titrametric, 4500-NH3 C	24-Jul-12	Exova Surrey
Anions by IEC in water (Surrey)	APHA	* Ion Chromatography with Chemical Suppression of Eluent Cond., 4110 B	21-Jul-12	Exova Surrey
Carbon Organic (Total) in water (TOC)	APHA	High-Temperature Combustion Method, 5310 B	24-Jul-12	Exova Edmonton
Mercury Low Level (Total) in water	EPA	* Mercury in Water by Cold Vapor Atomic Fluorescence Spectrometry, 245.7	24-Jul-12	Exova Surrey
Metals SemiTrace (Dissolved) in water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	23-Jul-12	Exova Surrey
Metals SemiTrace (Total) in Water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	23-Jul-12	Exova Surrey
Nitrogen - nitrite+nitrate-N	APHA	* Automated Cadmium Reduction Method, 4500-NO3- F	23-Jul-12	Exova Surrey
Phosphorus - total (low level)	APHA	* Preliminary Acid Hydrolysis, Ascorbic Acid Reduction Method, 4500-P B,E	23-Jul-12	Exova Surrey
Phosphorus - total dissolved (low level)	APHA	* Preliminary Acid Hydrolysis, Ascorbic Acid Reduction Method, 4500-P B,E	23-Jul-12	Exova Surrey
Phosphorus - total dissolved (low level)	APHA	* Preliminary Acid Hydrolysis, Ascorbic Acid Reduction Method, 4500-P B,E	24-Jul-12	Exova Surrey
Solids Dissolved (Total, Fixed and Volatile)2	APHA	* Total Dissolved Solids Dried at 180 C, 2540 C	23-Jul-12	Exova Surrey
Solids Suspended (Total, Fixed and Volatile)	APHA	* Total Suspended Solids Dried at 103-105°C, 2540 D	23-Jul-12	Exova Surrey
Trace Metals (dissolved) in Water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	23-Jul-12	Exova Surrey
Trace Metals (dissolved) in Water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	23-Jul-12	Exova Surrey
Trace Metals (Total) in Water	US EPA	* Determination of Trace Elements in Waters and Wastes by ICP-MS, 200.8	23-Jul-12	Exova Surrey
Trace Metals (Total) in Water	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	23-Jul-12	Exova Surrey

\* Reference Method Modified

## References

APHA	Standard Methods for the Examination of Water and Wastewater
US EPA	US Environmental Protection Agency Test Methods

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## Methodology and Notes

Bill To:	J. Gibson & Associates	Project:		Lot ID:	<b>883079</b>
Report To:	J. Gibson & Associates	ID:	ATAC Resources	Control Number:	A244850
	Box 20913	Name:	Rau Project	Date Received:	Jul 20, 2012
	Whitehorse, YT, Canada	Location:		Date Reported:	Jul 31, 2012
	Y1A 6P2	LSD:		Report Number:	1755116
Attn:	John Gibson	P.O.:			
Sampled By:	J. Gibson	Acct code:			
Company:					

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## Comments:

- Report was re-issued to correct the sampling date. Report 1755116 replaces report 1753132.
- Some total metal results were less than dissolved metal results for lot 883079. The results were verified and are within expected measurement uncertainty.

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

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## Report Transmission Cover Page

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876511</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216804
Box 20913	Name: Rau Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 22, 2012
Y1A 6P2	LSD:	Report Number: 1744993
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

Contact & Affiliation	Address	Delivery Commitments
John Gibson	, Box 20913	On [Lot Verification] send
J. Gibson & Associates	Whitehorse, Yukon Territory Y1A 6P2	(COA) by Email - Single Report
	Phone: (867) 633-4522	On [Report Approval] send
	Fax: (867) 668-6895	(COC, Test Report) by Email - Multiple Reports
	Email: <a href="mailto:ludditegibson@gmail.com">ludditegibson@gmail.com</a>	On [Report Approval] send
		(Test Report) by Email - Multiple Reports
		On [Lot Approval and Final Test Report Approval] send
		(Invoice) by Email - Single Report

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## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876511</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216804
Box 20913	Name: Rau Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 22, 2012
Y1A 6P2	LSD:	Report Number: 1744993
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876511-1	876511-2	876511-3	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location	Stream Sed.	Stream Sed.	Stream Sed.	
		Sample Description	Rau #1 Rep 1 / Stream Sed.	Rau #1 Rep 2 / Stream Sed.	Rau #1 Rep 3 / Stream Sed.	
		Matrix	Soil	Soil	Soil	
Analyte	Units	Results	Results	Results	Nominal Detection Limit	
<b>Particle Size Analysis - Wet Sieve</b>						
75 micron sieve	% Retained	% by weight	34.7	34.9	39.0	0.1
Texture		Fine-Grained	Fine-Grained	Fine-Grained		
<b>Metals</b>						
Aluminum	ug/g	7940	7800	8170	1	
Antimony	ug/g	2.2	2.0	2.0	0.5	
Arsenic	ug/g	13.5	13.3	14.7	0.2	
Barium	ug/g	451	440	450	0.03	
Beryllium	ug/g	0.40	0.38	0.41	0.02	
Bismuth	ug/g	1.5	1.7	2.0	0.5	
Cadmium	ug/g	2.2	1.9	2.2	0.05	
Calcium	ug/g	101000	101000	101000	2	
Chromium	ug/g	16.5	15.9	16.9	0.04	
Cobalt	ug/g	5.68	5.17	5.83	0.05	
Copper	ug/g	16.0	14.8	16.3	0.05	
Iron	ug/g	16100	15500	16800	1	
Lead	ug/g	23.3	22.0	23.6	0.3	
Lithium	ug/g	16.3	16.4	16.9	0.1	
Magnesium	ug/g	50200	51900	51000	10	
Manganese	ug/g	631	557	648	0.3	
Molybdenum	ug/g	1.5	1.4	1.5	0.05	
Nickel	ug/g	24.8	23.2	25.6	0.1	
Phosphorus	ug/g	595	554	604	0.5	
Potassium	ug/g	706	690	694	5	
Selenium	ug/g	<0.2	<0.2	<0.2	0.3	
Silver	ug/g	<0.15	<0.15	<0.15	0.2	
Sodium	ug/g	128	127	124	1	
Strontium	ug/g	64.1	62.2	63.6	0.02	
Sulfur	ug/g	746	725	754	1	
Thallium	ug/g	<0.25	<0.25	<0.25	0.3	
Tin	ug/g	1.2	1.4	1.2	0.4	
Titanium	ug/g	226	233	224	0.05	
Vanadium	ug/g	31.4	30.1	32.0	0.2	
Zinc	ug/g	320	322	336	0.1	
Zirconium	ug/g	1.6	1.6	1.7	0.05	



## Analytical Report

Bill To: J. Gibson & Associates	Project:	Lot ID: <b>876511</b>
Report To: J. Gibson & Associates	ID: ATAC Resources	Control Number: A216804
Box 20913	Name: Rau Project	Date Received: Jun 18, 2012
Whitehorse, YT, Canada	Location:	Date Reported: Jun 22, 2012
Y1A 6P2	LSD:	Report Number: 1744993
Attn: John Gibson	P.O.:	
Sampled By: J Gibson	Acct code:	
Company:		

		Reference Number	876511-4	876511-5	876511-6	
		Sample Date	Jun 14, 2012	Jun 14, 2012	Jun 14, 2012	
		Sample Time	NA	NA	NA	
		Sample Location	Stream Sed.	Stream Sed.	Stream Sed.	
		Sample Description	Rau #4 Rep 1 / Stream Sed.	Rau #4 Rep 2 / Stream Sed.	Rau #4 Rep 3 / Stream Sed.	
		Matrix	Soil	Soil	Soil	
Analyte		Units	Results	Results	Results	Nominal Detection Limit
Particle Size Analysis - Wet Sieve						
75 micron sieve	% Retained	% by weight	59.2	44.0	55.5	0.1
Texture			Coarse-Grained	Fine-Grained	Coarse-Grained	
Metals						
Aluminum		ug/g	11300	11300	11100	1
Antimony		ug/g	2.2	1.8	2.4	0.5
Arsenic		ug/g	61.9	63.9	108	0.2
Barium		ug/g	938	942	965	0.03
Beryllium		ug/g	0.35	0.33	0.37	0.02
Bismuth		ug/g	0.8	2.4	2.7	0.5
Cadmium		ug/g	1.3	1.2	1.6	0.05
Calcium		ug/g	48800	50300	46800	2
Chromium		ug/g	28.3	28.6	28.3	0.04
Cobalt		ug/g	10.8	11.0	10.7	0.05
Copper		ug/g	21.1	26.8	22.5	0.05
Iron		ug/g	27900	28400	28000	1
Lead		ug/g	21.5	21.9	22.0	0.3
Lithium		ug/g	14.0	14.1	13.6	0.1
Magnesium		ug/g	23600	23900	21400	10
Manganese		ug/g	576	578	639	0.3
Molybdenum		ug/g	2.0	1.9	2.1	0.05
Nickel		ug/g	36.2	35.8	36.6	0.1
Phosphorus		ug/g	1030	1020	1020	0.5
Potassium		ug/g	988	960	992	5
Selenium		ug/g	<0.25	<0.25	<0.25	0.3
Silver		ug/g	<0.15	<0.15	<0.15	0.2
Sodium		ug/g	142	136	136	1
Strontium		ug/g	58.9	60.1	59.0	0.02
Sulfur		ug/g	777	726	798	1
Thallium		ug/g	<0.25	<0.25	<0.25	0.3
Tin		ug/g	0.2	0.3	0.72	0.4
Titanium		ug/g	497	508	472	0.05
Vanadium		ug/g	46.6	47.2	48.3	0.2
Zinc		ug/g	331	341	373	0.1
Zirconium		ug/g	1.7	1.7	1.8	0.05

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## Analytical Report

Bill To:	J. Gibson & Associates	Project:		Lot ID:	<b>876511</b>
Report To:	J. Gibson & Associates	ID:	ATAC Resources	Control Number:	A216804
	Box 20913	Name:	Rau Project	Date Received:	Jun 18, 2012
	Whitehorse, YT, Canada	Location:		Date Reported:	Jun 22, 2012
	Y1A 6P2	LSD:		Report Number:	1744993
Attn:	John Gibson	P.O.:			
Sampled By:	J Gibson	Acct code:			
Company:					

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Approved by:   
Mathieu Simoneau  
Operations Manager

## Methodology and Notes

Bill To:	J. Gibson & Associates	Project:		Lot ID:	<b>876511</b>
Report To:	J. Gibson & Associates	ID:	ATAC Resources	Control Number:	A216804
	Box 20913	Name:	Rau Project	Date Received:	Jun 18, 2012
	Whitehorse, YT, Canada	Location:		Date Reported:	Jun 22, 2012
	Y1A 6P2	LSD:		Report Number:	1744993
Attn:	John Gibson	P.O.:			
Sampled By:	J Gibson	Acct code:			
Company:					

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## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
Metals in solids	US EPA	* Metals & Trace Elements by ICP-AES, 6010C	20-Jun-12	Exova Surrey
Particle Size by Wet Sieve	ASTM	* Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing, C 117-04	20-Jun-12	Exova Edmonton

\* Reference Method Modified

## References

Carter	Soil Sampling and Methods of Analysis.
US EPA	US Environmental Protection Agency Test Methods

## Comments:

Please direct any inquiries regarding this report to our Client Services group.

Results relate only to samples as submitted.

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## **Appendix 2**

### **DATA LOGGER STATUS**

**July, 2012**

### **Stream Flow Volume Calculations**

**June and July. 2012**

**Atac Resources - Water Level Elevation Surveys****Station: RAU #1 - No Survey June14**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
BM#2				
Top Staff Gauge				
Reset				
Top Staff Gauge				
BM#1				

**Station: RAU #11 - June 14, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		101.667	1.667	
BM#2	1.512			100.155
Top Staff Gauge	1.419			100.248
Reset				
Top Staff Gauge		101.733	1.485	
BM#1	1.731			100.001

**Station: RAU #13 - June 14, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		100.980	0.980	
BM#2	1.338			99.642
Top Staff Gauge	1.913			99.067
Reset				
Top Staff Gauge		100.976	1.913	
BM#1	0.975			100.001

**Staff Gauge reinstalled Jun14 - taken out by floating log  
New TSG and Gauge Zero.**

**Station: RAU #4 - June 14, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		100.891	0.891	
BM#2	1.085			99.806
Top Staff Gauge	0.941			99.950
Reset				
Top Staff Gauge		100.418	0.918	99.500
BM#1	0.420			99.998

**Station: RAU #12 - June 14, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		101.497	1.497	
BM#2	2.182			99.315
Top Staff Gauge	1.646			99.851
Reset				
Top Staff Gauge		101.467	1.616	99.851
BM#1	1.469			99.998

## Data Logger Status

Site: Atac Resources - RAU Property

Date: June 14, 2012

	RAU#1 WL and BARO	RAU#4 WL and BARO	RAU#11 WL and BARO	RAU#12 WL	RAU#13 WL
Time	1615 hrs 14-Jun-12	1350 hrs 14-Jun-12	1200 hrs 14-Jun-12	1018 hrs 14-Jun-12	1430 hrs 14-Jun-12
Saved As:	EauWL#1Jun14 RauWL#1BJun14	RauWL4Jun14 RauWLB4Jun14	Rau11WLJun14 RauWLBJun14	Rau12WLJun14	Rau13WLjun14
Battery	Good 3.4 V	Good 3.4V	Good	Good 3.48V	100%
Memory Used	21%	19%	20%	19%	0%
Sample Interval	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes
Current Status	Launched and Logging	Launched and Logging	Launched and Logging	Launched and Logging	Launched and Logging
Current readings	WLAP=92.270at1615 BAP=92.403at1620	WLAP=93.665 BAP=93.553	WLB- WLfull/no relaunch	WLAP=89.346	
Survey Water level	SG=0.147m1628	SG=0.236m1350	SG=0.092m 1205	0.178m0925	0.324m1430
Flow (cms)	0.6291	0.1152	0.0354 Launch Problem?	0.0103	0.474 Launch Problem?

**RAUWeather**

<b>Time</b>	1740 hrs 14-Jun-12
<b>Saved as:</b>	op check-L+I.
<b>Memory Used</b>	
<b>Battery</b>	100%
	Wrap around enabled
	Wrap count 0
<b>Sample Interval</b>	4m 0 s
<b>Logging Interval</b>	0h 15m 0s
<b>Current Status</b>	Launched+ Logging relay open
<b>Current readings</b>	
Srad	
Temp	
RH	
Dew Point	
Wind Speed	
Gust Speed	
Wind Direction	

logging on departure

**Atac Resources - Water Level Elevation Surveys****Station: RAU #1 - Jul 17, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		100.298	0.294	
BM#2	0.660			99.638
Top Staff Gauge	0.753			99.545
Reset				
Top Staff Gauge		100.299	0.744	
BM#1	0.292			99.998

**Station: RAU #11 - July 17, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		101.895	1.895	
BM#2	1.695			100.2
Top Staff Gauge	1.646			100.249
Reset				
Top Staff Gauge		101.887	1.638	
BM#1	1.888			99.999

**Station: RAU #13 - July 17, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		101.048	1.048	
BM#2	1.373			99.675
Top Staff Gauge	1.932			99.116
Reset				
Top Staff Gauge		101.044	1.928	
BM#1	1.042			100.002

**Staff Gauge reinstalled Jun14 - taken out by floating log****New TSG and Gauge Zero.****Station: RAU #4 - July 17, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
		100.932	0.932	
BM#2	1.16			99.772
Top Staff Gauge	0.967			99.965
Reset				
Top Staff Gauge		100.926	0.961	
BM#1	0.926			100.000

**Station: RAU #12 - July 17, 2012**

<i>Point</i>	<i>FS (m)</i>	<i>HI (m)</i>	<i>BS (m)</i>	<i>Elevation (m)</i>
BM#1				100.000
BM#2		NO SURVEY		
Top Staff Gauge				
Reset				
Top Staff Gauge				
BM#1				

## Data Logger Status

Site: Atac Resources - RAU Property

Date: July 17, 2012

	RAU#1 WL and BARO	RAU#4 WL and BARO	RAU#11 WL and BARO	RAU#12 WL	RAU#13 WL
Saved As:	RauWL#1Jul17.hobo RauWL#1BJul17.hobo	RauWL4Jul17.hobo RauWLB4Jul17.hobo	Rau11WLJul17.hobo Rau11BJul17.hobo	Rau12WLJul17.hobo	Rau13WLJul17.hobo
Battery	Good 3.4 V	Good 3.4V	Good	Good 3.48V	Good
Memory Used	WL=100% Baro=38%	WL=38% Baro=38%	data to Jun 19 Baro=40%	Logger FULL	Data to May 23 RELAUNCHED
Sample Interval	15 minutes	15 minutes	15 minutes	15 minutes	15 minutes
Current Status	Launched and Logging	Launched and Logging	WL=RELAUNCHED Baro = L+L	Logger Pulled	RELAUNCHED
Current readings	Logger full				
WL logger	AP=23.026 at 1455 Temp=398.664 Volts=839.68	AP=93.953 at 1117 Temp=11.041 Volts=3.40	AP+89.117 at 1400 Temp=12.013 Volts=3.48	AP=21.269 TEMP=398.664 Volts=839.68	no readings
Baro	AP=92.592 Temp=19.377 Volts=3.43	AP=93.834 at 1113 Temp=19.092 Volts=3.43	AP=89.086 Temp=15.664 Volts=3.48		
Survey Water level	SG= 0.112 m at 1505 SG= 0.115 m at 1540	SG=0.256 at 1126 SG=0.248 at 1145	SG=0.058	SG=0.166 at 1300 SG=0.166 at 1330	SG=0.291 at 0940 SG=0.292 at 1010
Flow (cms)	0.3773	0.0895	0.0092	0.0076	0.3597

## RAUWeather

<b>Saved as:</b>	RauWeatherjul17.dtf
<b>Memory Used</b>	74%
<b>Battery</b>	100%
Wrap around enabled	
	Wrap count 0
<b>Sample Interval</b>	4m 0 s
<b>Logging Interval</b>	0h 15m 0s
<b>Current Status</b>	Launched+ Logging relay open
<b>Current readings</b>	
Srad	498.1
Temp	17.439
RH	54.7
Dew Point	8.2
Wind Speed	3.53
Gust Speed	6.31
Wind Direction	294.8

logging on departure

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 14Jun,2012  
1610 hrs

**Site:** RAU#1

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
1.03	0	0.135	0	0	0
1.3	0.26	0.335	0.331	0.087	0.0288
1.7	0.08	0.35	0.902	0.028	0.0253
2	0.26	0.3	0.315	0.078	0.0246
2.3	0.24	0.3	1.352	0.072	0.0973
2.6	0.29	0.3	1.151	0.087	0.1001
2.9	0.26	0.25	0.944	0.065	0.0614
3.1	0.21	0.25	0.966	0.053	0.0507
3.4	0.16	0.3	0.221	0.048	0.0106
3.7	0.23	0.3	0.845	0.069	0.0583
4	0.21	0.3	0.66	0.063	0.0416
4.3	0.16	0.3	0.615	0.048	0.0295
4.6	0.19	0.3	0.644	0.057	0.0367
4.9	0.18	0.3	0.376	0.054	0.0203
5.2	0.15	0.3	0.705	0.045	0.0317
5.5	0.14	0.205	0.423	0.029	0.0121
5.61	0	0.055	0	0.000	0.0000

4.58      4.58      **0.6291**

All velocity readings at 0.6 depth

Staff Gauge 0.147 at 1628 hrsm  
0.146 @ 1649 hrs

Data logger reading: AbsPress= 92.270 at 1615 hrs

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 14Jun,2012  
1350 hrs

**Site:** RAU#4

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
0.93	0	0.06	0	0	0
1.05	0.17	0.11	0.442	0.019	0.0083
1.15	0.12	0.1	0.825	0.012	0.0099
1.25	0.16	0.1	0.705	0.016	0.0113
1.35	0.18	0.1	0.705	0.018	0.0127
1.45	0.17	0.1	0.69	0.017	0.0117
1.55	0.18	0.1	0.601	0.018	0.0108
1.65	0.18	0.1	0.495	0.018	0.0089
1.75	0.18	0.1	0.508	0.018	0.0091
1.85	0.16	0.1	0.406	0.016	0.0065
1.95	0.16	0.125	0.644	0.020	0.0129
2.1	0.12	0.125	0.376	0.015	0.0056
2.2	0.11	0.1	0.339	0.011	0.0037
2.3	0.1	0.075	0.495	0.008	0.0037
2.35	0	0.025	0	0.000	0.0000

1.42      1.42      **0.1152**

All velocity readings at 0.6 depth

SG=0.236 m@1350 hrs

Logger: AbPress=93.665

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau

**Date:** Jun14,2012

**Site:** RAU#3

Point (m)	Depth (meters)	Width (meters)	Velocity (m/sec)	Area (m sq)	Volume (cms)
1.61	0	0.095	0	0	0
1.8	0.32	0.245	0.472	0.078	0.0370
2.1	0.27	0.25	0.66	0.068	0.0446
2.3	0.31	0.2	0.629	0.062	0.0390
2.5	0.34	0.2	0.564	0.068	0.0384
2.7	0.36	0.15	0.564	0.054	0.0305
2.8	0.36	0.1	0.66	0.036	0.0238
2.9	0.42	0.1	0.752	0.042	0.0316
3	0.23	0.1	0.805	0.023	0.0185
3.1	0.33	0.1	0.676	0.033	0.0223
3.2	0.42	0.1	0.451	0.042	0.0189
3.3	0.41	0.1	0.331	0.041	0.0136
3.4	0.42	0.1	0.508	0.042	0.0213
3.5	0.42	0.1	0.752	0.042	0.0316
3.6	0.36	0.1	0.966	0.036	0.0348
3.7	0.12	0.135	0.99	0.016	0.0160
3.87	0	0.085	0	0.000	0.0000

2.26

2.26

**0.4218**

All velocity readings at 0.6 depth

Staff Gauge No SG

Data logger reading:no logger

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 14Jun,2012  
1045 hrs

**Site:** RAU#9

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
0.83	0	0.035	0	0	0
0.9	0.12	0.085	0.049	0.010	0.0005
1	0.19	0.1	0.046	0.019	0.0009
1.1	0.22	0.1	0.182	0.022	0.0040
1.2	0.22	0.1	0.196	0.022	0.0043
1.3	0.24	0.1	0.204	0.024	0.0049
1.4	0.2	0.1	0.231	0.020	0.0046
1.5	0.16	0.1	0.369	0.016	0.0059
1.6	0.19	0.1	0.339	0.019	0.0064
1.7	0.17	0.1	0.315	0.017	0.0054
1.8	0.19	0.1	0.226	0.019	0.0043
1.9	0.2	0.11	0.231	0.022	0.0051
2.02	0	0.06	0	0.000	0.0000

1.19	1.19	0.0463
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All velocity readings at 0.6 depth

SG=no SG

**Logger:** No logger

**Channel under ice?** no channel ice

**Method:** Price Velocity meter/ TS Wading Rod

**Measurement By:** J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 14Jun,2012  
1205 hrs

**Site:** RAU#11

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
1.19	0	0.055	0	0	0
1.3	0.06	0.105	0.081	0.006	0.0005
1.4	0.2	0.1	0.145	0.020	0.0029
1.5	0.22	0.1	0.034	0.022	0.0007
1.6	0.21	0.1	0.564	0.021	0.0118
1.7	0.11	0.1	0.027	0.011	0.0003
1.8	0.1	0.1	0.922	0.010	0.0092
1.9	0.12	0.1	0.376	0.012	0.0045
2	0.12	0.15	0.122	0.018	0.0022
2.2	0.1	0.2	0.099	0.020	0.0020
2.4	0.11	0.185	0.057	0.020	0.0012
2.57	0	0.085	0	0.000	0.0000

1.38      1.38      0.0354

All velocity readings at 0.6 depth

Staff Gauge 0.092 m

Data logger reading:

Channel under ice?    no ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 14Jun,2012  
0925 hrs

**Site:** RAU#12

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
1.44	0	0.03	0	0	0
1.5	0.09	0.08	0.095	0.007	0.0007
1.6	0.11	0.1	0.064	0.011	0.0007
1.7	0.1	0.1	0.045	0.010	0.0005
1.8	0.1	0.1	0.048	0.010	0.0005
1.9	0.12	0.1	0.059	0.012	0.0007
2	0.13	0.1	0.06	0.013	0.0008
2.1	0.16	0.1	0.064	0.016	0.0010
2.2	0.17	0.1	0.116	0.017	0.0020
2.3	0.17	0.1	0.155	0.017	0.0026
2.4	0.06	0.095	0.145	0.006	0.0008
2.49	0	0.045	0	0.000	0.0000

1.05      1.05      **0.0103**

All velocity readings at 0.6 depth

SG=0.178 m@0925 hrs

Logger: AbPress=89.346

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 14Jun,2012  
1430 hrs

**Site:** RAU#13

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
0.77	0	0.115	0	0	0
1	0.16	0.265	0.139	0.042	0.0059
1.3	0.26	0.3	0.182	0.078	0.0142
1.6	0.32	0.3	0.17	0.096	0.0163
1.9	0.42	0.3	0.155	0.126	0.0195
2.2	0.43	0.3	0.462	0.129	0.0596
2.5	0.42	0.25	0.383	0.105	0.0402
2.7	0.46	0.2	0.406	0.092	0.0374
2.9	0.49	0.2	0.69	0.098	0.0676
3.1	0.52	0.2	0.902	0.104	0.0938
3.3	0.48	0.2	0.66	0.096	0.0634
3.5	0.44	0.2	0.398	0.088	0.0350
3.7	0.26	0.175	0.369	0.046	0.0168
3.85	0.08	0.13	0.415	0.010	0.0043
3.96	0	0.055	0	0.000	0.0000

3.19      3.19      **0.4740**

All velocity readings at 0.6 depth

Staff Gauge 0.235m

0.235m      Logger reinstalled - knocked down  
by floating debris - re surveyed

Data logger reading:

Channel under ice?      no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

# Stage Discharge Calculations

Project: Atac Resources - Rau Date: 17 July,2012  
1505 hrs

Site: RAU#1

Point (m)	Depth (meters)	Width (meters)	Velocity (m/sec)	Area (m sq)	Volume (cms)
0.82	0	0.09	0	0	0
1	0.23	0.215	0.158	0.049	0.0078
1.25	0.14	0.25	0.383	0.035	0.0134
1.5	0.06	0.25	0.615	0.015	0.0092
1.75	0.24	0.25	0.087	0.060	0.0052
2	0.27	0.25	0.944	0.068	0.0637
2.25	0.14	0.25	0.69	0.035	0.0242
2.5	0.26	0.25	0.483	0.065	0.0314
2.75	0.28	0.25	0.629	0.070	0.0440
3	0.11	0.25	0.576	0.028	0.0158
3.25	0.13	0.25	1.014	0.033	0.0330
3.5	0.3	0.25	0.451	0.075	0.0338
3.75	0.14	0.25	0.36	0.035	0.0126
4	0.13	0.25	0.644	0.033	0.0209
4.25	0.12	0.25	0.786	0.030	0.0236
4.5	0.16	0.25	0.564	0.040	0.0226
4.75	0.15	0.3	0.158	0.045	0.0071
5.1	0.12	0.295	0.254	0.035	0.0090
5.34	0	0.12	0	0.000	0.0000
4.52		4.52			<b>0.3773</b>

All velocity readings at 0.6 depth

Staff Gauge 0.112 mat 1505 hrs  
0.146 @ 1649 hrs

Data logger reading: AbsPress= 23.026 at1455 hrs ????

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau **Date:** July 17,2012

**Site:** RAU#3

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
1.56	0	0.07	0	0	0
1.7	0.21	0.17	0.288	0.036	0.0103
1.9	0.24	0.2	0.423	0.048	0.0203
2.1	0.2	0.2	0.495	0.040	0.0198
2.3	0.33	0.2	0.339	0.066	0.0224
2.5	0.35	0.175	0.462	0.061	0.0283
2.65	0.36	0.15	0.451	0.054	0.0244
2.8	0.38	0.15	0.531	0.057	0.0303
2.95	0.35	0.15	0.644	0.053	0.0338
3.1	0.33	0.15	0.531	0.050	0.0263
3.25	0.36	0.15	0.541	0.054	0.0292
3.4	0.41	0.125	0.226	0.051	0.0116
3.5	0.42	0.1	0.615	0.042	0.0258
3.6	0.41	0.1	0.769	0.041	0.0315
3.7	0.41	0.145	0.601	0.059	0.0357
3.89	0	0.095	0	0.000	0.0000

2.33 2.33 0.3497

All velocity readings at 0.6 depth

Staff Gauge No SG

Data logger reading:no logger

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 17 July,2012  
1125 hrs

**Site:** RAU#4

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
0.96	0	0.07	0	0	0
1.1	0.14	0.12	0.676	0.017	0.0114
1.2	0.12	0.1	0.735	0.012	0.0088
1.3	0.12	0.1	0.495	0.012	0.0059
1.4	0.13	0.1	0.644	0.013	0.0084
1.5	0.15	0.1	0.845	0.015	0.0127
1.6	0.17	0.1	0.805	0.017	0.0137
1.7	0.14	0.1	0.615	0.014	0.0086
1.8	0.09	0.1	0.576	0.009	0.0052
1.9	0.1	0.1	0.369	0.010	0.0037
2	0.1	0.1	0.442	0.010	0.0044
2.1	0.09	0.1	0.2	0.009	0.0018
2.2	0.08	0.1	0.339	0.008	0.0027
2.3	0.06	0.09	0.415	0.005	0.0022
2.38	0	0.04	0	0.000	0.0000

1.42      1.42      0.0895

All velocity readings at 0.6 depth

SG=0.256 m@1126 hrs  
0.248 at 1145 hrs

**Logger:** AbPress=93.953 at 1117 hrs

**Channel under ice?** no channel ice

**Method:** Price Velocity meter/ TS Wading Rod

**Measurement By:** J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau **Date:** 17 July,2012

**Site:** RAU#9

Point (m)	Depth (meters)	Width (meters)	Velocity (m/sec)	Area (m sq)	Volume (cms)
1	0	0.05	0	0	0
1.1	0.05	0.1	0.166	0.005	0.0008
1.2	0.05	0.1	0.162	0.005	0.0008
1.3	0.18	0.1	0.066	0.018	0.0012
1.4	0.2	0.1	0.033	0.020	0.0007
1.5	0.16	0.1	0.212	0.016	0.0034
1.6	0.12	0.1	0.217	0.012	0.0026
1.7	0.14	0.1	0.221	0.014	0.0031
1.8	0.14	0.1	0.166	0.014	0.0023
1.9	0.15	0.1	0.155	0.015	0.0023
2	0.16	0.13	0.128	0.021	0.0027
2.16	0	0.08	0	0.000	0.0000

1.16 1.16 0.0199

All velocity readings at 0.6 depth

SG=no SG

Logger: No logger

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 17-Jul-12  
1400 hrs

**Site:** RAU#11

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
0.46	0	0.07	0	0	0
0.6	0.02	0.12	0	0.002	0.0000
0.7	0.05	0.1	0	0.005	0.0000
0.8	0.08	0.1	0.531	0.008	0.0042
0.9	0.08	0.1	0.495	0.008	0.0040
1	0.06	0.09	0.185	0.005	0.0010
1.08	0	0.04	0	0.000	0.0000

0.62      0.62      0.0092

All velocity readings at 0.6 depth

Staff Gauge 0.058 at 1400 hrs m

Data logger reading: AP=89.086 @1405 hrs

Channel under ice? no ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau      **Date:** 17 July, 2012  
1300 hrs

**Site:** RAU#12

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
1.73	0	0.085	0	0	0
1.9	0.11	0.135	0.016	0.015	0.0002
2	0.12	0.1	0	0.012	0.0000
2.1	0.12	0.1	0.014	0.012	0.0002
2.2	0.1	0.1	0	0.010	0.0000
2.3	0.1	0.1	0.027	0.010	0.0003
2.4	0.07	0.1	0.03	0.007	0.0002
2.5	0.14	0.1	0.069	0.014	0.0010
2.6	0.17	0.1	0.08	0.017	0.0014
2.7	0.18	0.1	0.099	0.018	0.0018
2.8	0.08	0.09	0.368	0.007	0.0026
2.88	0	0.04	0	0.000	0.0000

1.15      1.15      0.0076

All velocity readings at 0.6 depth

SG=0.166 m@1300 hrs  
0.166 m @ 1330

**Logger:** Logger pulled - not operating, would not launch

**Channel under ice?** no channel ice

**Method:** Price Velocity meter/ TS Wading Rod

**Measurement By:** J.Gibson

### Stage Discharge Calculations

**Project:** Atac Resources - Rau

**Date:** 17 July, 2012  
0940 hrs

**Site:** RAU#13

<b>Point (m)</b>	<b>Depth (meters)</b>	<b>Width (meters)</b>	<b>Velocity (m/sec)</b>	<b>Area (m sq)</b>	<b>Volume (cms)</b>
0.48	0	0.16	0	0	0
0.8	0.16	0.31	0.044	0.050	0.0022
1.1	0.25	0.3	0.166	0.075	0.0125
1.4	0.27	0.25	0.124	0.068	0.0084
1.6	0.3	0.2	0.155	0.060	0.0093
1.8	0.34	0.2	0.217	0.068	0.0148
2	0.36	0.2	0.315	0.072	0.0227
2.2	0.41	0.2	0.333	0.082	0.0273
2.4	0.46	0.15	0.344	0.069	0.0237
2.5	0.48	0.1	0.369	0.048	0.0177
2.6	0.48	0.1	0.442	0.048	0.0212
2.7	0.45	0.1	0.72	0.045	0.0324
2.8	0.46	0.1	0.902	0.046	0.0415
2.9	0.44	0.1	0.922	0.044	0.0406
3	0.43	0.1	0.752	0.043	0.0323
3.1	0.42	0.1	0.588	0.042	0.0247
3.2	0.41	0.15	0.308	0.062	0.0189
3.4	0.38	0.155	0.162	0.059	0.0095
3.51	0	0.055	0	0.000	0.0000
3.03		3.03			0.3597

All velocity readings at 0.6 depth

Staff Gauge 0.291 at 0940 hrsm  
0.292 @ 1015 hrs

Data logger reading: no reading

Channel under ice? no channel ice

Method: Price Velocity meter/ TS Wading Rod

Measurement By: J.Gibson