RadonEx

EXPLORATION MANAGEMENT

EIC Radon Survey Report

For

Carlincore Resources Inc.

Highrock Lake Project

Saskatchewan

June 2017

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Summary

At the request of Carlincore Resources Inc., RadonEx Ltd. has completed an electret ionization chamber radon flux survey at the Highrock Lake Project.

The Highrock Lake Project is located just east of the southeastern corner of the Athabasca Basin, approximately 10 kilometers east of the Key Lake Mine. The project area covers Wollaston Domain metasedimentary and intrusive basement rocks.

The initial request from the client was for 1,000 radon flux test stations on one grid on NNW-oriented lines at 200m spacings, with 50m stations. After elimination of lakes and on-site modifications the final survey covered 808 stations, of which 712 were surveyed.

The grid area is located a 15-minute helicopter flight northeast of the field crew accommodations at Costigan Lake Lodge. The work was successfully completed in 7 field days plus one day lost due to no-fly conditions, in spite of helicopter size and fuel placement issues causing daily delays in crew deployment and pick-up.

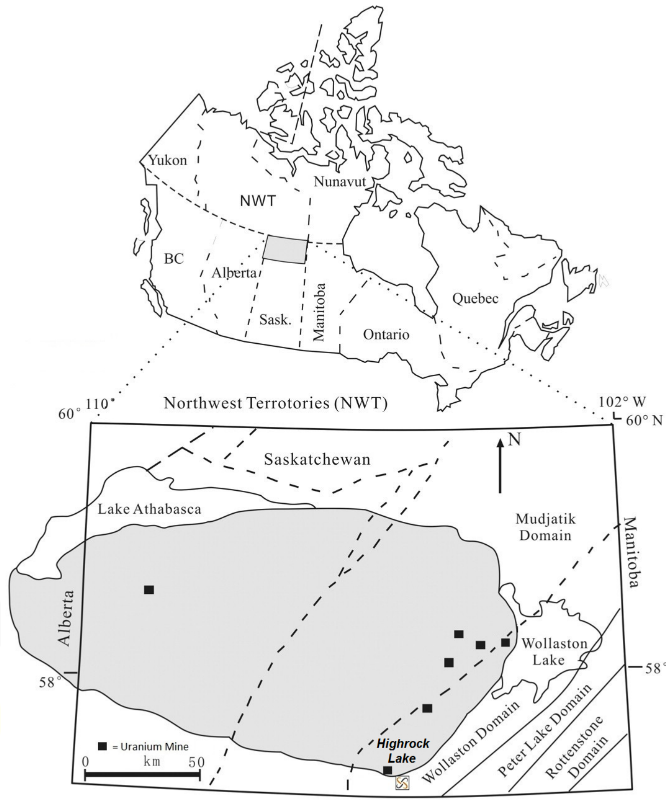

Figure 1 - Location Map

1. Introduction

RadonEx Ltd. (RadonEx) was contracted by Carlincore Resources Inc. (the "Client"), to complete a 1,000 station electret ionization chamber (EIC) radon flux monitor (RFM) survey at the Highrock Lake Project. The grid layout and station locations were selected by the Client, in consultation with RadonEx. RadonEx proposed the use of EIC radon testing equipment (described in Appendix A) to complete this survey.

Upon elimination of survey points on lakes, the survey size was reduced to 879 land points. As the survey progressed, the Client, in consultation with RadonEx subtracted selected portions of the survey grid due to budgetary constraints. In the end 808 stations were covered by the survey, 96 of these being in very wet unsurveyable ground conditions (muskegs and swamps), leaving 712 stations surveyed.

2. Reliance on Other Experts

The authors have relied on technical data and information provided by the Client. The authors have not verified this information and take no responsibility for its accuracy or completeness. The authors do not offer any opinion concerning legal, title, environmental, political or issues unrelated to this survey that may be relevant to the Highrock Lake Project.

3. Logistics

The RadonEx crew was comprised of Linden Charlton (crew chief), Stephen Osborne (assistant crew chief), Daniel MacDonald, Elwin Lemaigre, Jack Charlton, and Ajay Hoffer-Hollowbow. Four of the RadonEx crew members travelled from Montreal and Toronto to Saskatoon SK on June 12. There they met a 5th member, then drove to Prince Albert on June 13 to meet the 6th crew member. On June 13 the six proceeded north via Pinehouse Lake. Near the Costigan Lake turn-off they met the Client representative, geologist Linglin Chu, and another geologist, Yongxing Liu, as well as representatives of the Lodge. They convoyed north to the Costigan Lake landing. From there they were transported by boat to the lodge, a 35-minute boat ride.

During the work program, the crew was provided with accommodations and food by Costigan Lake Lodge.

At the lodge they were met by the Arrowhead Helicopters pilot and an initial overflight of the property was made. A Bell 206B helicopter was utilized for the work program. The survey grid is a 15 minute flight northeast from the lodge, at the north end of Highrock Lake. Arrowhead, who were contracted by the Client, had set out a fuel cache at the km 176 airstrip near the Key Lake Road - a 15 minute flight west from the lodge. No fuel was stored at the lodge or in the work area.

Due to the small size of the helicopter and fuel vs. weight considerations, each day three trips both out to and back from the survey grid area were required to transport the RadonEx crew and equipment plus the two geologists. Refueling at the km 176 airstrip was necessary following each two such trips. This situation resulted in daily delays in both start times and pick-up times for the RadonEx crews.

The final day of field work was June 21. The crew demobilized out of the lodge on the morning of June 22, and drove back to Saskatoon via Prince Albert.

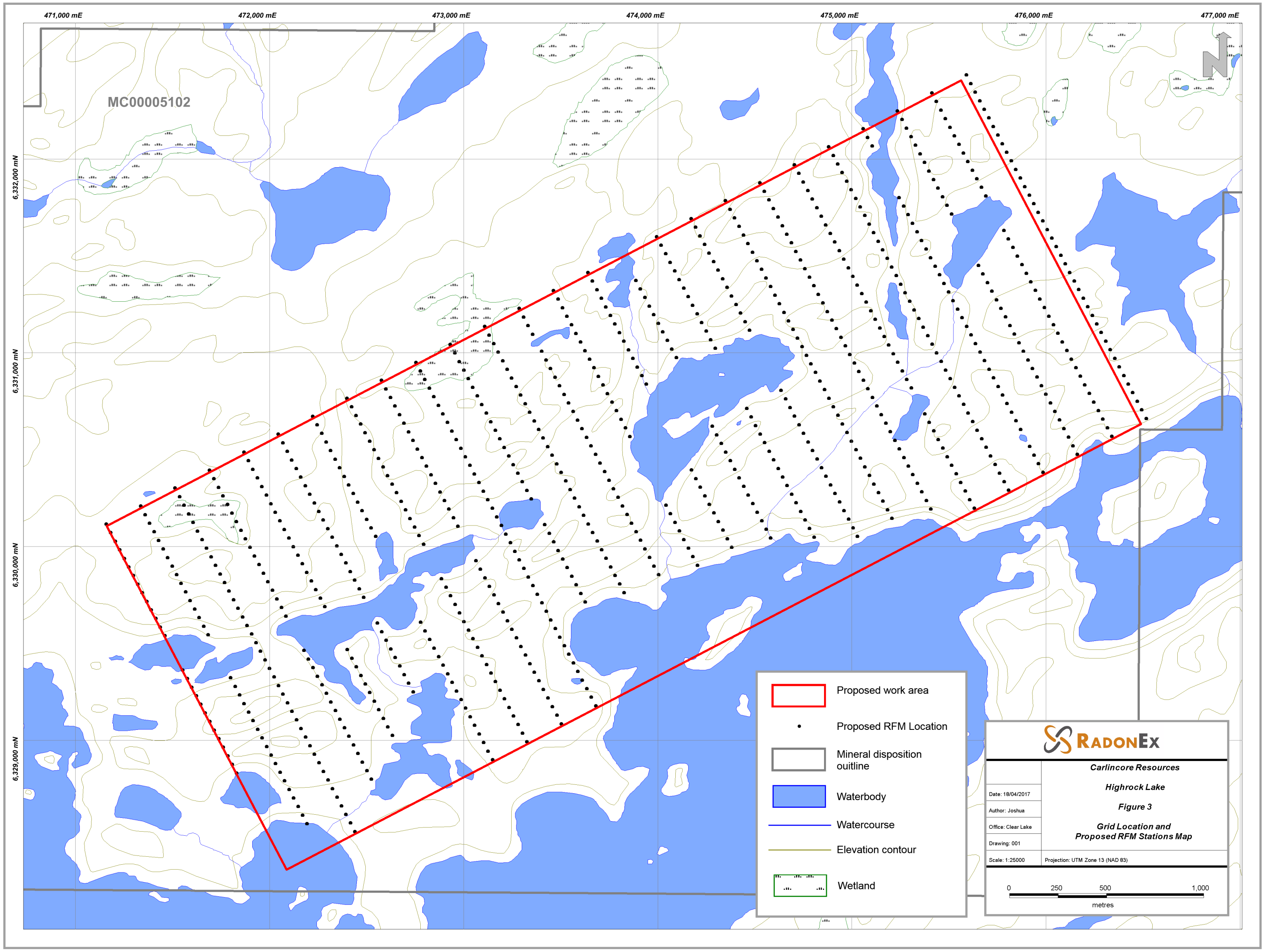

Figure 2 – Highrock Lake Grid Location and RFM Survey Plan

4. Work Program and Terrain Description

The Highrock Lake Project area is located in northeastern Saskatchewan east of the Key Lake Mine. It is an isolated area that has undergone two past episodes of uranium exploration. Access is by way of helicopter or fixed-wing aircraft. The region has a cool continental climate characterized by long cold winters and cool summers. Elevations range from approximately 530m to 570m. Much of the terrain is difficult to traverse due to muskegs, ridges, and thick forest. The boreal forest is dominated by dense black spruce, open black spruce muskeg, open jackpine, and some mixed (black spruce, birch, poplar). 30-40% of the surveyed area had been burnt out fairly recently.

The weather was an unseasonably cool variety of sun, cloud, scattered showers, and light drizzle. The RadonEx crews managed to work seven of eight days while on site. One day (June 17) was lost due to low-lying fog-no fly conditions (Table 1). Daily temperatures ranged from a low of 4^{o}C to a high of 22^{o}C. A complete detailed log of weather information was recorded in excel format from the RadonEx weather station, which was set up near the lodge - recording air temperature, barometric pressure, wind speed and direction, and precipitation. RadonEx also set out three stationary RFM control stations which were monitored daily (Table 3).

Table 1 - Weather Information

Date		Morning	Afternoon	Evening
17-06-12	Day 1	Partly cloudy, breezy	Partly cloudy, breezy	Partly cloudy, breezy
17-06-13	Day 2	Partly cloudy, windy	Overcast, very light drizzle, windy	Partly cloudy, windy
17-06-14	Day 3	Partly cloudy	Partly cloudy	Partly cloudy
17-06-15	No-fly Day	Heavy fog	Heavy fog	Overcast
17-06-16	Day 4	Clear skies	Showers with hail	Isolated thunderstorms
17-06-17	Day 5	Partly cloudy	Scattered showers	Scattered showers
17-06-18	Day 6	Sunny with breeze	Sunny with breeze	Overcast with wind
17-06-19	Day 7	Overcast	Overcast, very light drizzle, windy	Overcast

Bush conditions included a mix of open to stunted black spruce muskeg; densely forested rocky ridges; open, burnt-out, jackpine parkland; and local tangles of alder swamp. The Wollaston Domaine terrain is characterized by a strong northeast-trending structural-stratigraphic-topographic grain - the survey lines running across this topographic fabric. Outcrop and subcrop cover about 10% of the grid area, usually occurring in the form of northeast-trending ridges, hills, and low cliffs. About 20% of the rectangular grid outline is water-covered (Figure 2).

Because of helicopter landing inaccessibility, it was decided to make 5 helicopter pads at pre-selected points on the survey area. The Costigan Lake Lodge manager was contracted to do this work by the Client. The pads helped greatly in getting the work completed on time, on budget.

Once lake stations were subtracted from the initial 1,000 station estimate, the original sampling plan called for the measurement of radon flux at 879 sites (See Figure 2). Following two working days, the Client decided to modify the survey coverage due to an unanticipated helicopter cost over-run. In the end 808 survey stations were covered and a total of 712 radon flux measurements were made. Of the 808 there were a total of 96 stations occurring in the middle of muskegs or swamps where, due to the wet conditions, radon flux is not readily measurable. A Progress Calendar is included as Table 2. Where stations occurred near the edges of such obstacles, measurements were made at the nearest dry point in relation to the initial point and GPS location recorded accordingly.

Table 2: Progress Calendar

Date	Activity	RFMs Collected	Stations Covered	Comments
17-06-12	Travel	n/a	n/a	Linden, Jack, Stephen, Ajay and Elwin arrive in Saskatoon. Pack gear and shopping
17-06-13	Travel	n/a	n/a	Whole crew drives up, picking up Daniel in PA, and get into camp. Crew sets up shop
17-06-14	Day 1	85	101	2 Teams of 3 sampling, both crews land in bogs and cut pads to fly out of.
17-06-15	Day 2	82	90	2 Teams of 3 sampling. Gary cuts 5 helicopter pads
17-06-16	Day 3	117	127	2 Teams of 3 sampling.
17-06-17	No-fly Day	n/a	n/a	Chopper can't fly due to heavy fog.
17-06-18	Day 4	108	131	3 Teams of 2 sampling
17-06-19	Day 5	99	116	3 Teams of 2 sampling
17-06-20	Day 6	113	131	3 teams of 2 sampling
17-06-21	Day 7	108	112	3 teams of 2 sampling
	TOTAL	**712**	**808**	

A small portion (20 stations) of the survey was dedicated to a mini-grid which encompasses the area around the Roberts bedrock-hosted uranium showing.

Data compilation, drafting and report preparation were completed by Stephen Osborne, Jack Charlton, and Joshua Owen.

The metric system is used for all units of measure mentioned in this report and all dollar amounts are in Canadian funds unless otherwise stated. All maps presented in this report are plotted in map projection UTM NAD 83, Zone 13 unless otherwise stated. All sample sites were recorded with Garmin GPS Map 64CSX receivers in the NAD 83, Zone 13 map projection and plotted on the appropriate RadonEx-generated maps included in this report.

6. Survey Methodology

The survey comprised the following sampling methods and data collection:

- Radon Flux Monitoring (RFM) – using the EPERM electret ionization system, described below, and in greater detail in Appendix A;
- Control Point Monitoring;
- Spectrometer Survey – using RS-125 handheld spectrometers;
- Detailed site notes;
- Weather cataloguing

Radon Flux Monitor

For the radon flux monitoring (RFM) technique, an electret is threaded into the top of a hemispheric chamber with the exposed charged surface facing the interior of the chamber. The flat side of the hemispheric chamber is covered by a charcoal coated Tyvek sheet, which acts as a filter for thoron and small particulate matter. On the underside of the chamber there is a steel collar which is inserted into the ground in order to regulate the surface area the chamber is monitoring. The chamber is vented by four filtered vents so that it will not accumulate radon, such that when the chamber is placed on a radon-emanating surface, the radon enters through the diffusion window, collects in the chamber, and exits through the vents.

The semi-equilibrium radon concentration, which develops inside the chamber, is representative of the flux from the surface. Flux emanation from the ground is not disturbed because of the established equilibrium between the radon from the ground and radon from outside air through the vents. A measure of the semi-equilibrium radon concentration is a measure of the radon flux.

Picture 1 – Radon Flux Monitor in place

The electrets are measured in the morning before going into the field, are deployed in RFMs at predetermined locations, and are collected in the afternoon. Electret voltages are read in the evening, and results are calculated. The voltage discharge rate of the electret is, in turn, a measure of the radon flux.

RFM Control Points (Table 3)

Each work day three RFMs were deployed in the same three positions acting as controls for the survey data. Results provided in this report are normalized using the control data.

Table 3 - Control Sample Data

	CTRL1 (pCi/m²/s)	CTRL2 (pCi/m²/s)	CTRL3 (pCi/m²/s)
DAY 1	0.53	0.64	0.51
DAY 2	0.67	0.59	0.54
DAY 3	0.35	0.46	0.35
DAY 4	0.42	0.72	0.53
DAY 5	0.46	0.64	0.58
DAY 6	0.46	0.70	0.60
DAY 7	0.53	0.68	0.62

Scintillometer Survey

While crews completed the task of gathering the primary data – radon flux measurements – scintillometer readings were recorded at every sample site. This information is under the CPS (counts per second) column of the RFM results master sheet.

Complimentary Data

Sample site notes were taken at each measurement location. Soil composition and moisture, topographic data and any useful observations were recorded. This information is under the “Conditions” column of the RFM results master sheet, which has been provided to the Client separately.

7. Survey Results

All results have been submitted to Client in a MS Excel spreadsheet master file.

All RFM results have been submitted in 2 forms:

1) Raw Unadjusted Data
2) Control Normalized Data

RFM Control Normalized contoured results are shown on Figure 3.

All radon results are in units of picoCuries per square meter per second (pCi/m^2/sec). Normalization methods are described in Appendix B.

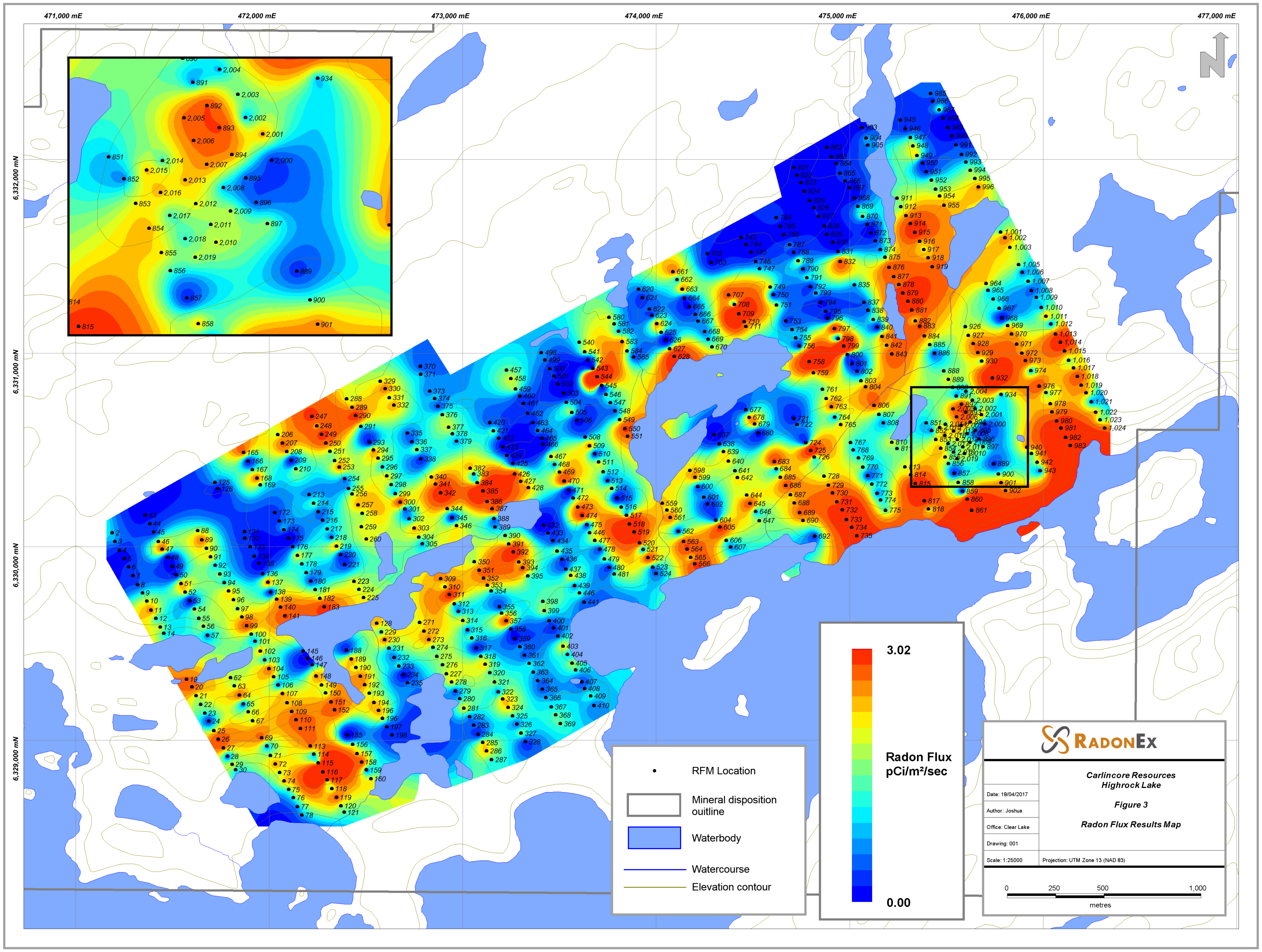

Figure 3 – Highrock Lake Survey Results

8. Observations

Any control point results which fall outside of 2 standard deviations from a given control point's mean for the entire project is omitted from the population, and not used to calculate the adjustment factor for the field data. No such erratic control point readings were obtained at Highrock. When control point data for all 3 controls is averaged there is good correlation to atmospheric pressure fluctuations.

The main factor influencing the control point measurements, and the results in general, are the daily fluctuations in atmospheric pressure. Therefore, the control point data has been used to normalize the results for the project. Project data could also be normalized using barometric pressure variations.

Radon flux measurements were all done according to protocol. There are several radon flux measurements that were completed under moist or wet conditions. Such conditions tend to subdue radon flux. Note that site conditions should be considered in any interpretation.

The RFM survey at Highrock Lake was successful in finding several anomalous radon flux trends possibly indicative of uranium mineralization co-occurring with interpreted structure and stratabound uranium mineralization.

In the event of future work here, thought should be given to the use of fixed wing aircraft on floats. All parts of the grid are accessible from float-plane-usable lakes. Alternatively, consideration should be given to setting out a helicopter fuel cache on the property along a sandy bay on the northwest shore of Highrock Lake.

APPENDIX A:

A BRIEF DESCRIPTION OF EIC RADON FLUX MEASUREMENT TECHNOLOGY

EIC Radon Survey Technology

RadonEx Ltd. utilizes several permutations of the E-PERM™ System as developed by Rad Elec Inc. of Frederick, Maryland. The E-PERM™ System is currently the most used and accurate EPA-listed technology in the radon monitoring industry. RadonEx Ltd. has collaborated extensively with Rad Elec Inc. in adapting E-PERM™ technology to field conditions for uranium exploration.

The E-PERM™ System is based on the electret ion chamber (EIC) - a passive integrating ionization monitor consisting of a stable electret mounted inside a small chamber made of electrically conducting plastic. The electret is a round charged Teflon disc, which can be screwed tightly into the chamber with the charged surface exposed within the chamber. The electret serves both as a source of the electrostatic field and as a sensor. Radon gas passively diffuses into the chamber through filtered inlets. The alpha particles emitted by the decay process ionize air molecules. Ions produced inside the chamber collect onto the electret, causing a reduction in the surface charge on the electret. The reduction in charge is a function of the total ionization occurring during a specific monitoring period and the specific chamber volume. This change in electret voltage is measured using the SPER-1 Electret Voltage Reader.

Principal components of the EIC System: At left electret with exposed white Teflon™ surface and cap; RFM with stainless steel collar; standard H Chamber; SPER-1 electret reader.

The electret voltage reader is an electric-field sensor with a special receptacle into which the electret is placed. When the shutter is opened the sensor reads the voltage on the electret surface without touching it. Pre- and post-measurement readings of electret voltages provide an absolute number for quantitative determination of ion collection by the electret due to the presence of radon in the chamber.

Radon Flux Monitoring (RFM)

For the radon flux monitoring (RFM) technique, the E-PERM™ H electret ion chamber has been modified to feature a large, round 180 cm2, electrically conducting diffusion window on the flat surface. The electret is threaded into the top of the hemispheric side with the exposed charged surface facing the interior of the chamber. The chamber is vented by four filtered vents so that it will not accumulate radon, such that when the chamber is placed on a radon-emanating surface, the radon enters through the diffusion window, collects in the chamber, and exits through the vents. Such chambers are referred to as radon flux monitors (RFM's).

The semi-equilibrium radon concentration, which develops inside the chamber, is representative of the flux from the surface. Flux emanation from the ground is not disturbed because of the established equilibrium between the radon from the ground and radon from outside air through the vents. A measure of the semi-equilibrium radon concentration is a measure of the radon flux. The voltage discharge rate of the electret is, in turn, a measure of the radon flux. The discharge rate of the electret is the voltage drop divided by the exposure time in hours.

Radon in Water (RIW)

Radon in water testing uses the same principle as other survey methods. The variation is in the testing procedure and calculation of results:
Water samples are collected in 68ml water sample bottles. Care must be taken to ensure that no air remains in the bottle with the water to be tested. The samples are then carefully discharged into individual 3.92 liter glass jars; S-Type radon in air E-PERM™ test units are suspended in the jars; and the jars are sealed. Test duration is determined besed on the anticipated concentration of radon, but is usually limited to 2 days. After the exposure time, electrets are read using the SPER-1 Electret Voltage Reader, and data is entered into a calculation spreadsheet that translates the electret voltage drop into pCi/l or into SI units (Bq/m^3).

Radon in Water Test Kit

APPENDIX B

DESCRIPTION OF DATA NORMALIZATION METHODS

RFM Median Normalization Method
(RFM_MN)

The RFM Median Normalization Method **(RFM_MN)** compares the median of results taken on a given day **(D_0_M_RFM)** to the median of results taken throughout the entire project **(P_M_RFM)**. An Adjustment Factor **(AF_0)** for each day is calculated and then applied to each individual value **(RFM)** in the respective day's dataset. The Median Normalized Results **(MN_RFM)** render the daily medians equal to the project's median.

$$\mathbf{AF_0} = \frac{\mathbf{P\_M\_RFM}}{\mathbf{D_0\_M\_RFM}}$$

$$\mathbf{MN\_RFM} = \mathbf{AF_0} \times \mathbf{RFM}$$

RFM Control Normalization Method
(RFM_CN)

The RFM Control Normalization Method **(RFM_CN)** compares a control point taken on a given day **($CTRL1_0$)** to the mean of control points taken throughout the entire project **(P_ CTRL)**. A Control Specific Adjustment Factor for each day **(CTRL_AF_0)** is calculated based on this comparison. The means of each day's Control Specific Adjustment Factors are then used as Adjustment Factors **(AF_0)** - these are applied to each individual value **(RFM)** in the respective day's dataset to obtain the Control Normalized Results **(CN_RFM)**.

$$\mathbf{CTRL1\_AF_0} = = \frac{\mathbf{P\_CTRL}}{\mathbf{CTRL1_0}}$$

$$\mathbf{AF}_0 = \frac{(\mathbf{CTRL1_0AF}) + (\mathbf{CTRL2_0AF}) + (\mathbf{CTRL3_0AF}) + \cdots}{3 + \cdots}$$

$$\mathbf{CN\_RFM} = \mathbf{AF_0} \times \mathbf{RFM}$$

Note: Control points that fall outside of 2 standard deviations are deemed unreliable and are excluded from the calculation.