

**TECHNICAL REPORT**  
**on the**  
**PRESTON PROJECT**  
**Northern Saskatchewan Canada**  
**National Instrument 43-101**

**NTS Map Areas 74F-5 through 74F-12**  
**UTM NAD83 (Z12) 610,885 E 6,353,628 N**  
**Longitude -107°13' Latitude 57°23'**

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February 5, 2016

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**Certificate of Qualified Person is found on pages 72 and 73**

## 1.0 SUMMARY

The Preston Technical report was prepared for Skyharbour Resources and Athabasca Nuclear by Dave Billard, B.Sc., P.Geo. (the Author) of Cypress Geoservices Ltd. as a Qualified Person (QP) responsible for the content of this report based upon historical public and confidential reports.

The Preston uranium property (Figure 1) is located in northwestern Saskatchewan, centred 90 km north of the town of LaLoche, SK, 30 km south of the Patterson Lake Uranium project of Fission Uranium Corp. and 35 km south of the Athabasca Basin. The property comprises thirty four contiguous mineral claims in good standing and totaling 121,148 ha straddling the Cluff Lake Mine road (Highway 955). As of the date of this report, Skyharbour Resources and Athabasca Nuclear each maintain a 50% interest in the property. The property is accessible by various trails and roads as well as by float and wheel equipped fixed wing aircraft and helicopter. No environmental or other liabilities are known to exist on the property.

The property lies at an elevation of 500 to 550 m above sea level, and is variously affected by glacial features including the Cree Lake moraine. Outcrop exposure is limited, generally 5%. Vegetation, weather conditions and seasons are typical of northern Saskatchewan.

The claims were not extensively explored until 2013 although the G.S.C. and Saskatchewan Government geological surveys have mapped portions of the area since the late 1930's. A brief period of exploration did occur in the area by several companies during the late 1970's to early 80's, but no significant mineralized zones were identified.

The Preston Uranium Project is located 30 km southwest of the southwest margin of the Athabasca Basin and is underlain by basement rocks of the Lloyd Domain, Rae Province and Clearwater domain. The property can be subdivided into three general lithostructural domains from west to east: moderately foliated, intermediate to mafic gneisses and intercalated felsic intrusive; similar intrusives with locally graphitic metasedimentary units and; orthogneiss and granite with local calc-silicates.

In 2013, Noka Resources Inc., Lucky Strike Resources Ltd., Athabasca Nuclear Corp. and Skyharbour Resources Ltd flew airborne EM-Magnetic and radiometric surveys and carried out a prospecting survey on targets identified in historic reports. Additional ground follow-up of the newly identified airborne conductor corridors and radiometric anomalies, was carried out by systematic lake-bottom sediment sampling and lake-bottom water radon sampling surveys; which in turn were followed by soil, biogeochemical and radon-in-soil sampling surveys. In 2014, ground gravity and horizontal loop electromagnetic [HLEM] surveys were followed up by RadonEx radon-in-water and -soil sampling surveys, which were followed up by a diamond drilling

program consisting of 9 holes in 4 target areas totaling 1,571 m. Subsequent to the 2014 exploration program, Noka and Lucky Strike terminated their Option in the partnership. Work in 2015 included a gravity and horizontal loop electromagnetic survey (HLEM) in conjunction with a RadonEx radon-in-water and radon-soil sampling survey, followed up by 1,318 m of diamond drilling in five holes.

Over 300 km of VTEM conductor segments, some approaching 10 km in length, along with prospective magnetic signatures were interpreted in the eastern blocks of the Preston project. Cross-cutting structural features and flexures affecting the conductor traces were identified to be of particular interest as prospective follow-up targets. An Airborne Radiometric, Magnetic and VLF-EM survey further defined these features. Follow up geological mapping, prospecting, lake sediment and soil sampling, biogeochemical and various radon sampling surveys further refined many of the targets only some of which were followed up. Ground gravity surveys were carried out over upgraded EM targets of interest, with the gravity lows suggesting areas of potential alteration. Horizontal Loop EM surveys were then used to, further refine the EM conductors in the gravity lows. Examples of some of the targets identified were LCA-LCB-LCC, LCD-LCE “Canoe” zone, Clearwater South Zone (CSA- CSB-CSC), CLA-CLB-CLC, Clearwater Limb Zone (CHA), Clearwater Hinge Zone, Fin South Zone (FSA-FSB), FIN, Dixon, and Depper.

The diamond drilling programs in 2014 (1571 m, 9 holes) and 2015 (1,318 m, 5 holes) saw fourteen holes drilled with 2 holes abandoned prior to testing the main target. Seven holes were drilled on the Swoosh target, three hole holes on the Canoe Lake target, two holes on FSA, one on the Fin and one on the Clearwater.

Several significant uranium deposits occur in the western Athabasca Basin including Areva’s Cluff Lake Uranium Mine (currently closed), UEX/Areva’s Shea Creek and the newly discovered Triple R of Fission Uranium; Arrow Zone of Nexgen Energy and Spitfire Zone of Cameco-Areva-Purepoint. The latter three lie roughly equidistant from one another, approximately 20 to 25 km north of the Preston Property.

The Preston Uranium Project had seen little concerted exploration until 2013 when Skyharbour Resources Ltd. and Athabasca Nuclear Corp. began to successfully identify a series of highly prospective exploration targets in a large regional land package

Preliminary airborne VTEM, Magnetic and Radiometric geophysical surveys, followed up by geological mapping and various geochemical sampling programs (soil, lake sediment, radon) identified eight lithostructural corridors of note on the Preston Uranium Property. Follow up ground gravity programs were able to better define several highly prospective and previously untested exploration targets. Likewise, HLEM surveys successfully refined the airborne VTEM conductors as evidenced by the general success of the subsequent drilling programs. The results of the various radon surveys carried out

subsequent to the first stage of exploration were rather enigmatic in that tangible results from the data were not readily apparent from the drilling results.

Follow up diamond drilling on several of the target areas (Swoosh, Clearwater, Fin, Canoe and FSA) within the various lithostructural corridors is at an early stage; however the results to date indicate that there is great potential for the discovery of significant uranium mineralization. Graphitic and non-graphitic metapelitic gneisses and felsic intrusive rocks were intersected by the drilling and were frequently affected by significant structural disruption, hydrothermal alteration and prospective geochemical signatures within many of the holes that were drilled.

Diamond drilling at the Swoosh S6 target intersected felsic to mafic orthogneisses and graphitic and non-graphitic metasedimentary units that were affected by intense structural disruption and accompanied by silicification and illitic clays. Anomalous Ag, Mo, As, Co, Cu, Ni and REE were identified. The initial hole on the Swoosh S3 target intersected felsic and mafic orthogneisses and pegmatite, major fault gouge and altered mylonite/cataclastic zone. This hole was prematurely abandoned. The single hole in the Hinge CHA target area tested uranium and radon anomalies and intersected intermediate and felsic gneisses affected by broad zones of cataclastic deformation, with two strong brittle fault gouges containing disseminated graphite and strong chlorite, epidote, talc and clay alteration. The hole in the West Fin FSA-B target area tested favourable geophysics and significant deformation and uranium mineralization from surface samples. Intermediate to felsic intrusives overlying 5 m of moderately to strongly altered pelitic gneiss was intersected, where the hole was lost due to driller incompetence.

The FSA target drilling intersected an extensive package of graphitic and non-graphitic pelitic metasedimentary gneiss and pegmatite. The graphitic conductors that were intersected were well-defined, hydrothermally altered, sulphide rich and structurally disrupted. In PN15005, nearly the entire hole was altered and sheared with sulphides in a 25 m wide graphitic unit. Anomalous pathfinder elements such as Ag, Au, Cu, B, Li and Mo were intersected.

The Canoe target drilling intersected highly prospective lithologies including graphitic and non-graphitic metapelitic packages as well as felsic and intermediate orthogneisses and pegmatite, and significant alteration. A minimum of three well defined, hydrothermally altered and structurally disrupted graphitic conductors were intersected, along with geochemical values of up to 7 ppm U, 371 ppm Th, and 357 ppm Cu, with 480 ppb Ag and 15 ppb Au. Anomalous radioactivity and sulphide mineralization accompanied by strong hematite-chlorite-sericite-clay alteration proximal to graphitic conductors, along with anomalous geochemistry is common in the alteration halo of many Athabasca Basin uranium deposits.

The drilling carried out to date on targets within the eight lithostructural corridors on the property has identified several of the lithological, structural and geochemical features required for the formation of a basement hosted, structurally controlled uranium deposit. The best targets that have been identified to date by drilling are the FSA and Canoe targets, followed by the Swoosh S-6 and Hinge CHA targets. The West Fin FSA-B and Swoosh S-3 drill holes remain untested by drilling.

The Author recommends further work to be carried out on the property. A two phase program is recommended.

Phase One would consist of a 2,000 m helicopter supported summer diamond drilling program on the various targets identified to date. There are sufficient drill targets to warrant a program heavily weighted to helicopter supported drilling with geological mapping prospecting and geochemical sampling supported by the same helicopter. The drilling should focus approximately 60% on the Canoe and FSA target areas. Additional drilling should be carried out on the various Swoosh targets that have been identified and the West Fin FS-B target. Other areas that may be drill tested at this time include the Depper Lake targets and Clearwater CS targets. The boulder prospecting and geochemical sampling program can be carried out in conjunction with the diamond drilling program utilizing the drill helicopter. There are numerous follow up targets that require attention. The anticipated budget for the Phase I exploration program is \$1,210,000 including \$100,000 for prospecting and geochemistry, \$1,000,000 for diamond drilling and a 10% overhead.

Phase Two would be anticipated to be carried out the following year should results of Phase One be successful. To that end a significantly larger helicopter supported diamond drilling program of 3,500 m is recommended, accompanied by additional HLEM and Gravity surveys to assist in additional target definition where warranted. The cost of this Phase Two program is anticipated to be \$2,200,000 with \$125,000 for linecutting and HLEM, \$75,000 for Gravity, \$1,800,000 for diamond drilling and a 10% overhead.

An additional recommendation would be to give the eight lithostructural corridors specific names (Alpha, Bravo etc, west to east) to simplify the location of the various targets and target areas.



A handwritten signature in black ink, appearing to be "D.L. Billard", written in a cursive style.



## **2.0 INTRODUCTION**

The Preston Technical report was prepared for the purposes of Skyharbour Resources' and Athabasca Nuclear's ongoing continuous disclosure policy and to illustrate the uranium exploration potential of the Preston property for uranium mineralization. The technical report has been written in compliance with National Instrument 43-101 following the guidelines specified by the instrument.

Dave Billard, B.Sc., P.Geo. (the Author) of Cypress Geoservices Ltd. is the qualified person responsible for the content of this report. Cypress Geoservices is a Saskatoon based firm that provides geoscientific consulting services to the mining industry. Mr. Billard is an independent Qualified Person and wholly responsible for the preparation of this report.

This report is based upon publicly-available assessment reports and unpublished reports and data provided by TerraLogic Exploration of Cranbrook B.C., supplemented by publicly-available scientific and government publications. The author personally visited the property on February 21, 2014 but no significant geological observations were made due to winter conditions.

## **3.0 RELIANCE ON OTHER EXPERTS**

To complete the property evaluation, the Author relied on information from data collected by TerraLogic Exploration for Skyharbour Resources and Athabasca Nuclear, as well as other historical reports on the Property. A detailed list of reports is cited in the text and listed in Section 18. The Author has reviewed the material and believes that this data has been collected in a careful and conscientious manner and in accordance with the standards set out in NI 43-101. The interpretations and observations presented in this report are largely based on data collected by TerraLogic while carrying out the field exploration programs as well as from historic data. TerraLogic Exploration is a wholly owned independent consultant to Skyharbour Resources and Athabasca Nuclear and is independent of Cypress Geoservices Ltd..

## **4.0 PROPERTY DESCRIPTION AND LOCATION**

### **4.1 Property Location**

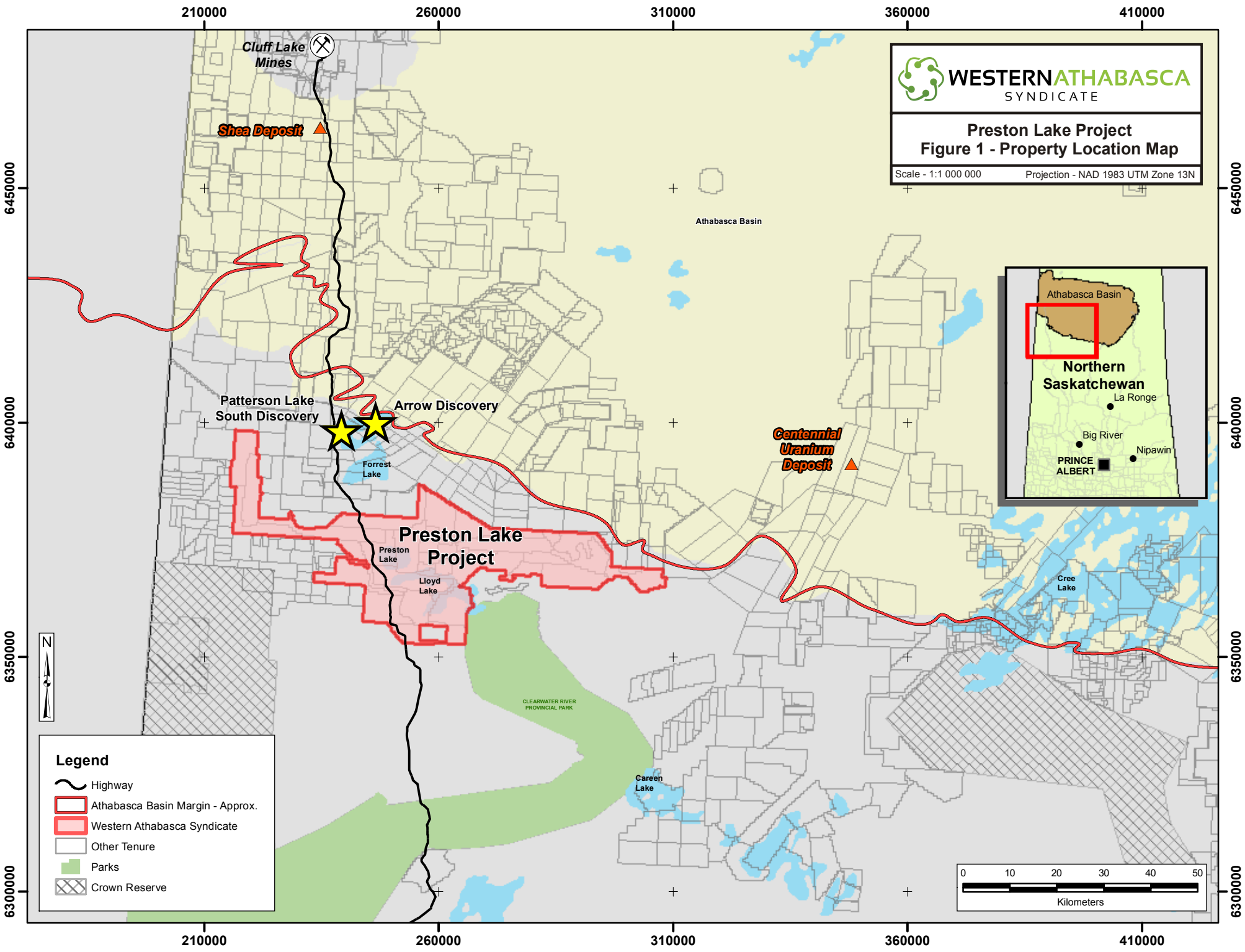
The Preston uranium property (Figure 1) is located in northwestern Saskatchewan, centred 90 km north of the town of LaLoche, SK, 30 km south of the Patterson Lake Uranium project of Fission Uranium Corp. and 35 km south of the Athabasca Basin. The property comprises 121,148 ha and is approximately 32 km long in a northerly direction straddling the Cluff Lake Mine road (Highway 955) between kilometer markers 76 km and 151 km; and is 92 km wide extending 62 km east and 30 km west of highway 955. It

is centred around UTM NAD 83 Zone 12, 610,885m East, 6,353,628m North in the Northern Mining District of Saskatchewan in NTS topographic sheets 74F05 through 74-F12 inclusive. The nearest communities to the property are the towns of La Loche, 120 km by road and Buffalo Narrows 220 km by road. The City of Saskatoon is approximately 725 km by road from the property.

#### 4.2 Property Description

The Preston property comprises thirty four contiguous mineral claim totaling 121,148 ha acquired by the current MARS (Mineral Administration Registry Saskatchewan) online staking system. (Table 1, Figure 2). Initial staking of the northern Preston property was completed by Athabasca Nuclear, and included 37 contiguous claim totaling 125,373.2 ha, staked between Dec 24, 2012 and February 2, 2013. Additional staking by Skyharbour Resources south and west of Lloyd Lake included an additional 44 claim totaling 156,992.5 ha staked between March 4, 2013 and March 22, 2013. To consolidate ownership, all of the Preston property tenures were transferred to Athabasca Nuclear Corporation in the fall of 2014 and are registered as such in the MARS system. Between December 2014 to March 2015, 56% of the original claim were allowed to lapse with the remaining claim forming the basis for this report. As of the date of this report, Skyharbour Resources and Athabasca Nuclear each maintain a 50% interest in the property, with Skyharbour deemed the operator

There are no known environmental liabilities associated with the property and there are no other significant factors and risks that may affect access, title, or the right or ability to perform work on the property. All the necessary permits for surface exploration on the property are in place and current. No significant difficulty is foreseen for the approval of any new exploration permits that may be required.



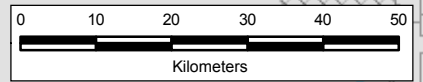
**Preston Lake Project**  
**Figure 1 - Property Location Map**

Scale - 1:1 000 000      Projection - NAD 1983 UTM Zone 13N



**Legend**

- Highway
- Athabasca Basin Margin - Approx.
- Western Athabasca Syndicate
- Other Tenure
- Parks
- Crown Reserve



220000

240000

260000

280000

300000

6400000

6400000

6380000

6380000

6360000

6360000

**WESTERNATHABASCA**  
SYNDICATE

**Preston Lake Project**  
**Figure 2 - Tenure Map**

Scale - 1:250 000    Projection - NAD 1983 UTM Zone 13N

Patterson Lake

Forrest Lake

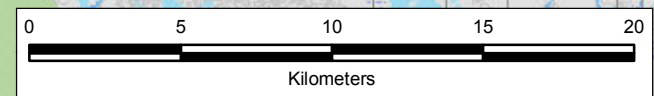
Preston Lake

Lloyd Lake

CLEARWATER RIVER PROVINCIAL PARK

**Legend**

- Highway
- Athabasca Basin Margin - Approx.
- Western Athabasca Syndicate
- Tenure Boundary
- Park
- Crown Reserve



220000

240000

260000

280000

300000

MC00000243

MC00000246

MC00000247

MC00000145

MC00000144

MC00000149

MC00000248

MC00000167

MC00004198

MC00000146

MC00000147

MC00000250

MC00000166

MC00000148

MC00000249

MC00000293

MC00000245

MC00000353

MC00000335

MC00000164

MC00000163

MC00004196

MC00000293

MC00000245

MC00000165

MC00000292

MC00000338

MC00000336

MC00004195

MC00000345

MC00000374

MC00000294

MC00000395

MC00000392

Table 1 Disposition Status

<b>Disposition #</b>	<b>Type</b>	<b>Status</b>	<b>Holder(s)</b>	<b>Total Area (ha)</b>	<b>Issuance Date</b>	<b>Assessment Pending</b>	<b>Work Required</b>	<b>Available Expenditures</b>	<b>Good To Date*</b>
MC00000144	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5991.9	12/24/2012	Yes	\$89,878.85	\$13,764.13	Mar 23, 2016
MC00000145	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5984.5	12/24/2012	Yes	\$89,767.86	\$0.02	Mar 23, 2016
MC00000146	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5240.5	12/24/2012	Yes	\$78,607.02	\$157,214.05	Mar 24, 2018
MC00000147	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	1982.6	12/24/2012	Yes	\$29,738.69	\$29,738.69	Mar 23, 2017
MC00000148	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	3861.6	12/24/2012	Yes	\$57,924.74	\$57,924.75	Mar 23, 2017
MC00000149	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5177.1	12/24/2012	Yes	\$77,656.64	\$176,017.42	Mar 24, 2018
MC00004195	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	311.6	12/27/2012	Yes	\$4,674.02	\$4,736.92	Mar 27, 2018
MC00000163	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	1652.9	12/27/2012	Yes	\$24,793.86	\$99,175.45	Mar 26, 2020
MC00000164	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	511.5	12/27/2012	Yes	\$7,672.26	\$7,672.26	Mar 26, 2017
MC00000165	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	524.0	12/27/2012	No	\$7,859.30	\$23,577.90	Mar 26, 2020
MC00000166	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4675.5	12/27/2012	No	\$70,131.90	\$350,659.50	Mar 27, 2022
MC00000167	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	790.5	12/27/2012	Yes	\$11,858.03	\$11,858.04	Mar 26, 2017

<b>Disposition #</b>	<b>Type</b>	<b>Status</b>	<b>Holder(s)</b>	<b>Total Area (ha)</b>	<b>Issuance Date</b>	<b>Assessment Pending</b>	<b>Work Required</b>	<b>Available Expenditures</b>	<b>Good To Date*</b>
MC00000243	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4660.2	2/1/2013	Yes	\$69,902.90	\$24,098.17	May 1, 2016
MC00000245	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4068.8	2/1/2013	No	\$61,031.61	\$184,590.46	May 1, 2020
MC00000246	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4701.7	2/1/2013	Yes	\$70,524.98	\$0.00	May 1, 2016
MC00000247	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4508.1	2/1/2013	Yes	\$67,621.95	\$0.03	May 1, 2016
MC00000248	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5297.7	2/1/2013	No	\$79,466.00	\$83,008.95	May 2, 2018
MC00000249	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	2090.6	2/1/2013	Yes	\$31,358.33	\$62,716.67	May 2, 2018
MC00000250	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5755.5	2/1/2013	Yes	\$86,332.70	\$166,669.61	May 2, 2017
MC00000291	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4465.5	2/20/2013	Yes	\$66,982.29	\$66,982.29	May 20, 2017
MC00000292	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	2885.4	2/20/2013	No	\$43,281.66	\$129,844.98	May 21, 2019
MC00000293	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	1895.8	2/20/2013	No	\$28,437.65	\$88,423.01	May 21, 2019
MC00000294	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4103.0	2/20/2013	Yes	\$61,544.63	\$0.00	May 20, 2016
MC00004198	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	1,622.8	2/20/2013	No	\$24,342	\$48,840.18	May 20, 2018
MC00000335	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5989.6	3/4/2013	Yes	\$89,844.09	\$0.00	Jun 2, 2016
MC00000336	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	628.7	3/4/2013	Yes	\$9,431.24	\$4,047.57	Jun 2, 2016
MC00000338	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	1016.8	3/4/2013	Yes	\$15,251.72	\$0.00	Jun 2, 2016

<b>Disposition #</b>	<b>Type</b>	<b>Status</b>	<b>Holder(s)</b>	<b>Total Area (ha)</b>	<b>Issuance Date</b>	<b>Assessment Pending</b>	<b>Work Required</b>	<b>Available Expenditures</b>	<b>Good To Date*</b>
MC00004196	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	2,793.6	3/6/2013	No	\$41,904	\$84,163.29	Jun 4, 2018
MC00004197	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	1,550	3/6/2013	No	\$23,250	\$46,963.98	Jun 4, 2018
MC00000345	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5834.0	3/6/2013	No	\$87,509.90	\$262,529.70	Jun 5, 2019
MC00000353	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5088.2	3/10/2013	Yes	\$76,322.27	\$0.00	Jun 8, 2016
MC00000374	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5382.1	3/14/2013	Yes	\$80,731.43	\$0.00	Jun 12, 2016
MC00000392	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	4526.8	3/15/2013	Yes	\$67,902.05	\$0.01	Jun 13, 2016
MC00000395	Mineral Claim	Active	Athabasca Nuclear Corp. 100%	5579.0	3/15/2013	Yes	\$83,684.51	\$0.00	Jun 13, 2016
<b>Totals:</b>	<b>34</b>			<b>121,148.1 ha</b>			<b>\$1,817,221.02</b>		

\* *Good-to-date* is inclusive of available expenditures according to MARS February 4, 2016, Yes to pending assessment indicates that additional assessment credits have been submitted and are awaiting approval by the MARS administrators.

In order to conduct any significant ground work at the property, the operator must be registered with the Saskatchewan government and comply with the Saskatchewan Environment Exploration Guidelines and hold the appropriate Temporary Work Camp Permit, Timber Permit and Aquatic Habitat Alteration Permits. The operator must also comply with the Federal Department of Fisheries and Oceans that administers its own Guidelines for the Mineral Exploration Industry. The environmental liabilities associated with the activities to date are consistent with low impact exploration activities. The mitigation measures associated with these impacts are accounted for within the current surface exploration permits and authorizations.

Exploration and mining in Saskatchewan is governed by the Mineral Tenure Registry Regulations, and administered by the Mines Branch of the Saskatchewan Ministry of the Economy. Mineral claims are acquired using an online mineral staking system (MARS) and by submitting a recording fee of \$0.60 per ha. A mineral claim does not grant the holder the right to mine minerals except for exploration purposes. Subject to completing necessary expenditure requirements, mineral claims can be renewed for a maximum of twenty one years. Beginning in the second year, and continuing to the tenth anniversary of staking a claim, the annual expenditure required to maintain claim ownership is fifteen dollars per hectare. In order to mine minerals, the mineral claim must be converted to a mineral lease by applying to the mining recorder. Surface rights for the mining operations are Crown owned and must have a surface lease from the Province of Saskatchewan. A surface lease is issued for a maximum of 33 years, and may be extended as required.

## **5.0 ACCESSIBILITY, CLIMATE, INFRASTRUCTURE AND PHYSIOGRAPHY**

The Preston property is accessible by road from the town of La Loche (approximately 1-1.5 hrs. driving). There are well-maintained gravel roads and trails that extend into the Preston tenure between the 76 km and 151 km markers along highway 955, leading to various sized lakes, making much of the central portions of the property accessible by truck, boat or combinations there-of. The property can also be accessed via fixed wing aircraft out of Fort McMurray, AB, or Buffalo Narrows, SK, located approximately 170 km to the southwest and south, respectively. Numerous lakes are available for amphibious landings, with additional all-season dirt airstrips available at Bolton Lake Wilderness Retreat (15 km north of the Preston property limit) and at Lloyd Lake Lodge (within the property located on the south shores of Lloyd Lake). Both Bolton Lake and Lloyd Lake lodges are well equipped with shop, fuel cache, accommodations, kitchen facilities and helipad.

The nearest towns of significance are at La Loche and Buffalo Narrows, which are serviced by paved roads and grid power. Some services are available in La Loche, including a hospital, gas station and freighting companies. Services available in Buffalo Narrows,



include an airstrip, hotels, groceries and vehicle repairs. Access to water resources is excellent throughout the region.

A ready supply of labour is available from communities throughout northern Saskatchewan. Mines in the region typically utilize a week in – week out schedule thus reducing the negative impacts of creating company town sites. Saskatchewan is the focus of Canada’s uranium mining and exploration industry and as such is well positioned to provide whatever services the industry may require. The mineral extractive industry in Saskatchewan has a high level of acceptance and support throughout the provincial population, as well as by local and provincial governments.

The property lies at an elevation of 500 to 550 m above sea level, with the confluence of the Mirror and Clearwater Rivers located near the north-central property boundary. The Clearwater River transects the east-central portion of the property, and flows into Lloyd Lake in the central property area. A rugged 2-3 km wide recessional moraine (Cree Lake Moraine) with up to 80 m of relief form a prominent topographic feature and form a natural sets of dam on the west shores of Lloyd, Preston, Forrest and Patterson Lakes. Areas either side of the north-northwest-trending moraine comprise dominantly extensive sand plain-esker complexes, with lesser interspersed topographically elevated boulder till. Bedrock ridges and round hills rise up to 60 m above the sand plains constituting less than 5% of the land surface west of highway 955, up to 10% from highway 955 to the Clearwater River, and 10-20% east of the Clearwater River. Immature jackpine, spruce, birch and poplar interspersed with bog occurs through much of the area, with jackpine predominating on sand plains. A significant part of the area has been affected by fire over the years, with varying ages of burn found throughout.

The climate is considered to be sub-arctic with warm summers and cold winters. Summer temperatures may exceed 30<sup>0</sup> C occasionally but are typically in the low to mid 20’s, while winter temperatures of -30<sup>0</sup> to -45<sup>0</sup> C are not unusual. During the period of freeze up, from December to April, accessibility in the area is enhanced by frozen muskegs and lakes. Break up typically begins in April and ends approximately mid to late May. The operating season at the Preston is close to year round depending on the type of work that is proposed. While geological mapping, prospecting and certain geochemical sampling are only feasible when there is no snow cover, typically between late May to October, other operations such as geophysical surveys and diamond drilling can be completed during the freeze up period stated above.

## **6.0 HISTORY**

### **6.1 Government Surveys**

Much of the area has been mapped at varying scales by the Geological Survey of Canada and the Saskatchewan Geological Survey since 1937, when D.L. Downie and J.C.

Sproule carried out a 1:250,000 scale mapping program for the G.S.C. Additional geological mapping surveys by Johnson, Wallis, Sibbald, Scott, Crocker and Collerson, Carolan and Collerson, Carolan et al (1989) have covered portions of the property but not in its entirety and were focused primarily on investigating specific map sheets, not the geology of the area as a whole. Regional 1:250k geological mapping completed by Scott (1985) and surficial mapping (Schreiner, 1984), covers most of the property area. More recently, a more integrated approach was taken by the respective government entities, with recent work by Card and Bosman (2007), Card et al (2008), Card (2009 and 2012) focused on the geology of the Virgin River and Lloyd Domain and the Virgin River shear zone in their entirety. In addition the entire area was covered by a regional airborne aeromagnetic and radiometric survey as part of a larger Athabasca Basin initiative (Buckle et al, 2010) by the Saskatchewan Survey and GSC

## 6.2 Mineral Exploration

Prior to the acquisition of the Preston by Skyharbour and Athabasca Nuclear, the property had been periodically explored by various companies beginning in 1969 through to 1990, with the bulk of the work carried out in the 1970's through 1980. No significant historical resource or production has ever been identified on the property.

In 1969, Canada Southern Petroleum Ltd. and Magellan Petroleum Corp. completed a core drilling program based on an interpretation of aeromagnetic data in the Athabasca Sandstone north of the Preston property. No significant radioactivity was intersected

Northwood Mining Ltd. completed a regional airborne radiometric and electromagnetic survey in 1970. The survey identified relatively large conductors just west of Lloyd Lake and Clearwater River with minor variations attributed to faulting and contacts, but the airborne radiometric survey did not identify any significant targets. Consolidated Nicholson Ltd also flew an airborne radiometric survey in the Lloyd Lake area and identified eight anomalies of significance. Ground follow up determined the sources to be radioactive felsic intrusive boulders and outcrops.

Uranerz Exploration and Mining Ltd. completed an extensive regional quaternary geological study in 1974 within NTS map areas 74B – 74G. The study concluded that sampling of lake-bottom sediments in the area followed by gamma spectrometer surveys could be used to successfully delineate structural trends and radiometric anomalies. In 1976, Uranerz carried out geological mapping, radiometric prospecting, and lake sediment sampling between Kelic Lake and Forrest Lake. a few anomalous lake sediment uranium values up to 0.7 ppm  $U_3O_8$  were noted but no further work was performed.

In 1977, Wyoming Mineral Corporation completed a geological evaluation on their Mirror River properties within NTS map sheet 74F10. The program consisted of lake water and lake sediment sampling, radon-in-water analysis, and geological mapping and

prospecting. Only 3 anomalous lake sediment samples were identified (1 to 2 ppm  $U_3O_8$ ), with one water sample yielding 0.08 ppb uranium. Radiometric prospecting identified 300 to 400 cps in hematized metasediments west of Two Dog Lake and east of Embryo Lake.

During the summer of 1978, Hudson Bay Exploration and Development Company Ltd. completed airborne EM and magnetic surveys over the western portion of the rim of the Athabasca Basin. Isolated and well-defined anomalies were interpreted from both the EM and magnetic airborne surveys. Hudson Bay also completed a largely unsuccessful geochemical lake sediment and water survey that year in the Richardson River area, approximately 129 km north of La Loche.

In 1978, Denison Mines Ltd. completed an extensive exploration program within NTS map sheet 74F08 consisting of line cutting, regional mapping and prospecting, airborne EM and radiometrics surveys, followed by detailed ground scintillometer surveying, radon-in-soil surveys, and VLF-EM, magnetometer, and geochemical surveys. Denison identified northwest and northeast trending faults with graphitic metasedimentary boulders located around Silvius Lake, as well as graphitic biotite-garnet granulite in outcrop at the tip of Anonymous Lake. The best radioactive response ( $>1,000$  cps) was east of Esker Lake from a granite outcrop with yellow uranium staining, brick red feldspars, and magnetite. Geochemical sampling of stream and lake sediments revealed a couple of uranium and nickel anomalies in the vicinity of Montgrand Lake, associated with an airborne conductor and a magnetic contact.

North Sask Ventures Ltd. completed a geological exploration and geochemical sampling program over permit 1062 in 1980 (Clearwater River region 74F-06-011) with a ground EM program initiated but not completed. Lake bottom sediments and water sampling identified a few anomalous lake sediment values up to 4.4 ppm  $U_3O_8$  while prospecting located fracture and shear related radioactive showings with 1200-2000 cps associated within metasediments and granite.

In 1980, Denison Mines Ltd. completed VLF-EM, magnetometer, and gamma-ray spectrometer ground surveys. Two conductors that trend north-east through Kelic Lake and Montgrand Lake were revealed. A small radon-in-water survey was also completed around the Five Island Lake area with elevated readings located north of the lake. Extensive prospecting was also carried out between Five Island Lake and Mushroom Lake. A 20m by 40m anomalous area of radioactive pegmatite and granite boulders up to 750 cps, was identified 1 km north-northwest of Mushroom Lake. Follow-up ground geophysics in 1981 identified a magnetic low associated with conductors that correlated well with weak to moderate radon-in-water anomalies.

Rio Algom Exploration Inc. completed a diamond drill hole in 1990 on their Mirror River project in NTS map sheet 74F09. The hole targeted EM lineaments and intersected locally chloritized and hematized quartzo-feldspathic gneiss, bands of altered pegmatite as well as interleaved felsic and mafic gneiss. No significant uranium values were intersected, however anomalous values of Au (342 ppb), Ni (529 ppm), Co (169 ppm) and Cu (1050 ppm), were identified.

## **7.0 GEOLOGY**

### **7.1 Regional Geology**

The Preston Uranium Project is located 30 km southwest of the southwest margin of the Athabasca Basin and is underlain primarily by crystalline basement rocks of the Lloyd Domain or the Rae Province though the westernmost part of the property is transected by the eastern margin of the Clearwater domain. (Figure 3 and 4). The ensuing text draws extensively from Armitage, 2013

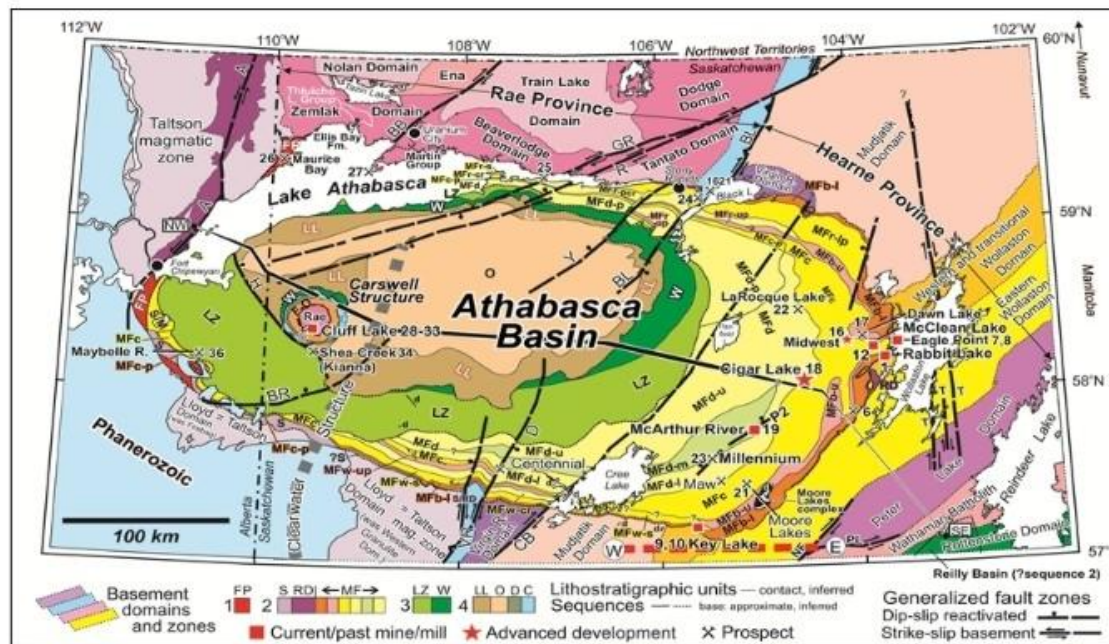
The Athabasca Basin is of Helikian age and occurs within the southwestern part of the Churchill Structural Province of the Canadian Shield. The 100,000 square km basin is filled by unmetamorphosed sediments dominated by, variably hematized siliciclastic, conglomeratic sandstone. In the western centre of the basin around the Carswell meteorite impact structure a sequence of dolostones and basement granitoids to granitoid gneisses are exposed. A maximum depth of 1,500 m has been established through diamond drilling. The Athabasca Basin is interpreted to have been filled over a 200 Ma period in four major depositional sequences coalescing into a single basin (Ramaekers et al., 2007). The Athabasca Basin unconformably overlies northeast-trending Archean to Paleoproterozoic crystalline basement rocks (Figure 3). The unconformity is relatively flat-lying with a gentle dip towards the centre of the basin in the east and a steeper dip in the north, south and west portions of the basin.

The Archean to Paleoproterozoic crystalline basement underlying and extending outside of the Athabasca Basin form part of the Churchill craton affected the Hudsonian Orogeny (Lewry and Sibbald, 1977, 1980; Annesley, et.al., 1997, 1999, 2005). Three major lithotectonic zones; the Talston Magmatic Zone, the Rae Province and the Hearne Province form the basement assemblage with the Rae and Hearne Provinces dominating.

The Talston Magmatic Zone underlies the Athabasca Basin on its far west side, extends from northern Alberta to Great Slave Lake in the Northwest Territories and is dominated by a variety of plutonic rocks and older basement. The Rae Province is comprised of five domains as well as the Carswell meteorite impact structure. The Zemplin Domain is dominantly comprised of highly deformed and metamorphosed migmatitic gneisses, the

Beaverlodge Domain of greenschist to amphibolite facies supracrustal rocks and metaigneous rocks, while the Tantato Domain is separated into a southern psammitic to pelitic migmatite and mafic granulite succession and a northern series of tonalite and granitic orthogneiss to the west (Hanmer, 1997)

Figure 3 Regional Geology (from Jefferson et al 2007)



The Lloyd Domain consists mainly of granodioritic orthogneiss with lesser psammopelite to pelite, intercalated psammite, quartzite, amphibolites and ultramafics (Lewry and Sibbald, 1977; Card, 2002). Rocks of the Clearwater Domain are largely unexposed but drilling indicates they K-feldspar rich granite and granitoid gneiss (Sibbald, 1974; Card, 2002). The Carswell impact structure is characterized by a core of granitoid gneiss, pelitic diatexite, pegmatite and mafic gneiss.

The Hearne Province is made up of the Wollaston, Mudjatik and Virgin River domains, including the Mudjatik-Wollaston Transition zone (WMTZ) with the Hearne and Rae provinces are separated by the northeast trending Virgin River shear zone. The Virgin River and Mudjatik domains are lithologically similar, comprised of interbedded psammitic to pelitic gneisses and granitoid gneiss with lesser mafic granulite, quartzite, calc-silicate and iron formation and are separated based on differing structural styles. Linear structures dominate the Virgin River Domain and dome and basin structures dominate the Mudjatik Domain, however Card recommends that the distinction between domains be largely abandoned (Card, 2012). An increased proportion of metasedimentary rocks separates the Wollaston Domain from the Mudjatik Domain (Yeo and Delaney, 2007) as does a change from dome and basin structures to linear structures (Lewry and

Sibbald, 1977). The Wollaston Domain is comprised of variably graphitic Paleoproterozoic metasedimentary gneiss and Archean granitoid gneiss.

Major fault zones in the basement are generally northeast to east-trending and include the Snowbird tectonic zone, Grease River shear zone, Black Bay fault, Cable Bay shear zone, Beatty River shear zone and Tabbernor fault zone. Faulting causes offsets in all lithologies of all ages, with normal and reverse faults occurring in the Wollaston and Athabasca Groups. The most recognizable faults belong to the Tabbernor fault system and have a north-northeast trend. Northeast-trending faults are present, but are difficult to recognize because of their coincidence with the regional foliation and glacial trends.

## 7.2 Property Geology

The geological mapping and prospecting work to date has been used in tandem with the available airborne datasets, to generate an interpreted geological map of the Preston Property north of Lloyd Lake (Figure 4 and 5) (Brown, 2014). Resistant lithologies such as intrusive gneisses and leucogranite have generated positive topographic relief and dominate the lithologies mapped. Surficial metasedimentary rocks are only located along the west side of a major magnetic low near the western limit of the Swoosh target. Diamond drilling in 2014 (Brown, 2014 and 2015), verified that the Swoosh, CHA, FSA, and Canoe targets are all underlain by thick recessive metasedimentary sequences exhibited by magnetic lows and EM conductors. Based on a synthesis of airborne geophysical surveys and geological mapping completed in 2013, the property area north of Lloyd Lake can be subdivided into three general lithostructural domains (Figure 5).

The western third of the property, including the entire “Fin” region, up to and including the Clearwater hinge and limb target zones, is characterized by a west to east succession of relatively high magnetic lithologies comprising moderately foliated, intermediate to mafic gneisses and intercalated pink leucogranites transitioning eastwards into subordinate granodiorite and tonalite gneisses with moderate to low magnetic response.

The central lithostructural zone starts east of the Clearwater hinge and limb target and exhibits the same general pattern as the western zone with the eastern portions underlain by broad magnetic lows as found in the central Swoosh target. The Careen Lake Group of metasediments was identified in one location there and is intruded by an extensive quartz diorite suite. The suite is pyroxene bearing quartz diorite to diorite, gradational into pyroxene-bearing tonalite. The Careen Lake Group is known to contain graphitic rich horizons likely responsible for EM-conductors identified by the 2013 VTEM survey.

The easternmost lithostructural zone exhibits a consistently strong magnetic signature dominated by intermediate to mafic orthogneiss and lesser magnetite bearing porphyritic granite to granodiorite. Occasional calc-silicate gneiss occurs in this region as well but as a minor component.

### 7.3 Mineralization

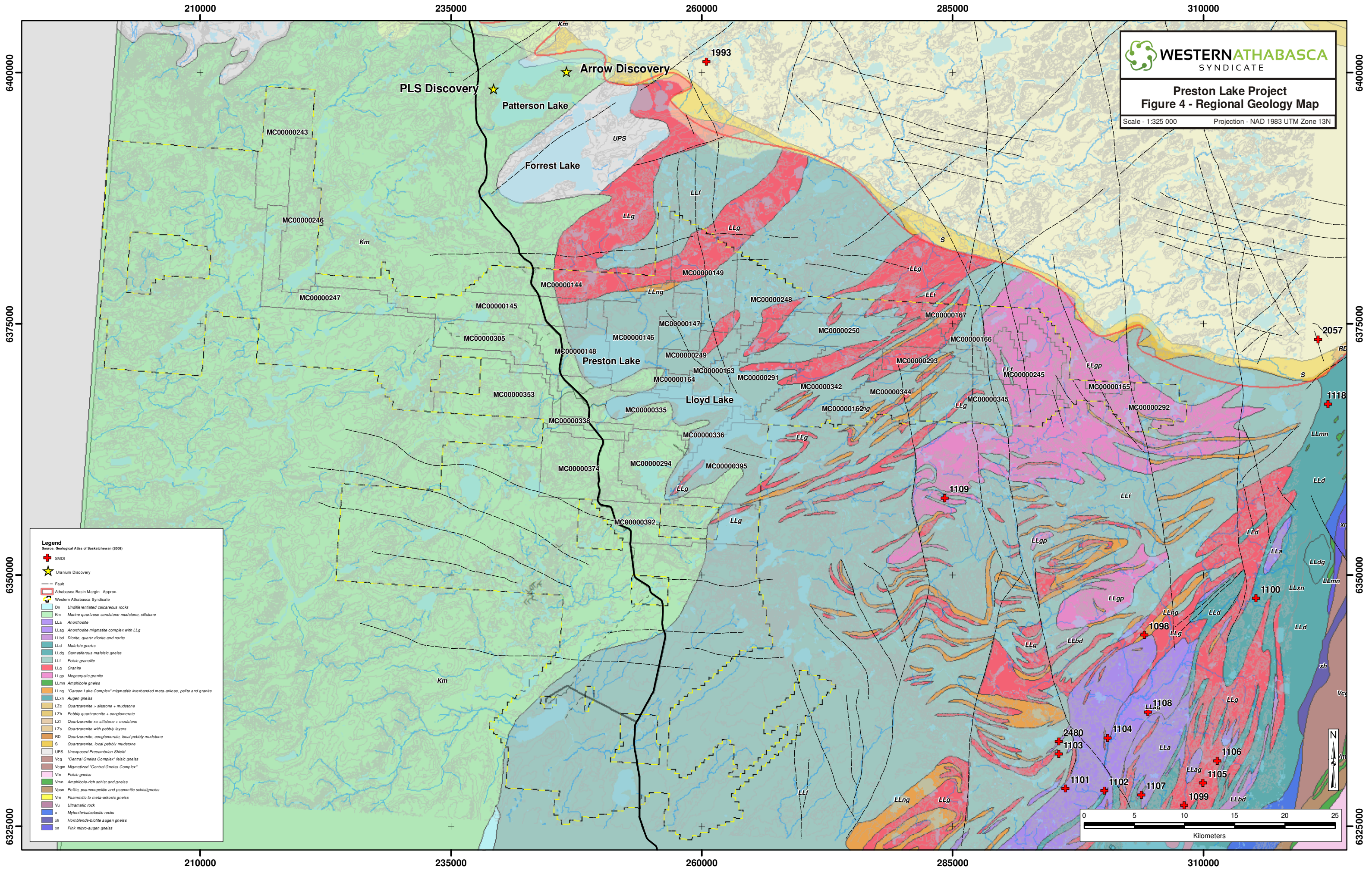
No significant zones of uranium mineralization have been identified on the property to date. There are however, several sub-economic base and precious metals occurrences near and within the property. These showings are summarized in Table 3 with detailed descriptions available in the Saskatchewan Mineral Database Index (SMDI) [http://www.economy.gov.sk.ca/SMDI\\_search](http://www.economy.gov.sk.ca/SMDI_search) and Geological Atlas of Saskatchewan ([http://www.infomaps.gov.sk.ca/website/SIR\\_Geological\\_Atlas/viewer.htm](http://www.infomaps.gov.sk.ca/website/SIR_Geological_Atlas/viewer.htm)).


Table 2 Mineral Showings of Interest

*within, or surrounding, the Preston tenure. All showings are identified in the Saskatchewan Mineral Database Index (SMDI); coordinates are given in UTM Zone 12N NAD 83.*

<b>SMDI</b>	<b>Name</b>	<b>Location</b>	<b>UTM E</b>	<b>UTM N</b>	<b>Commodity</b>	<b>Assessment</b>	<b>Description</b>
4757	Drillhole SAM-17	Fin – Preston Lake tenure	619,085	6,379,207	Cu, Zn	74F13-0014	Only mineral occurrence in Preston Lake tenure; felsic Intrusion-hosted copper anomaly.
4756	Drillhole SAM-16	N of Fin – Taltson Domain	619,085	6,382,639	Cu, Zn	74F13-0014	Felsic intrusion-hosted copper anomaly.
4744-46	Drillholes KL-3, -8, -5	NW of Swoosh – Athabasca Basin	661,700	6,374,715	U, Th	74F08-0012	Unconformity-associated uranium +/- polymetallic.
3259	Sample 7811-0023	NW of Swoosh – Athabasca Basin	656,458	6,377,772	REE, Th, Ti	N/A	Paleoplacer – hematitic pebble of Manitou Falls Formation.
4749	Drillhole MR-90-1A	NW of Swoosh – Taltson Domain	653,338	6,376,524	Au, Co, Cu, Ni	74F09-0034	Mafic-ultramafic intrusion-hosted magmatic Ni-Cu-PGE anomaly.
3079	Drillhole MIR-20	N of Swoosh – Athabasca Basin	648,035	6,379,519	Cu, Ni, U	74F10-0028	Unconformity-associated uranium +/- Polymetallic mineralization






**WESTERNATHABASCA**  
 SYNDICATE

**Preston Lake Project**  
**Figure 4 - Regional Geology Map**

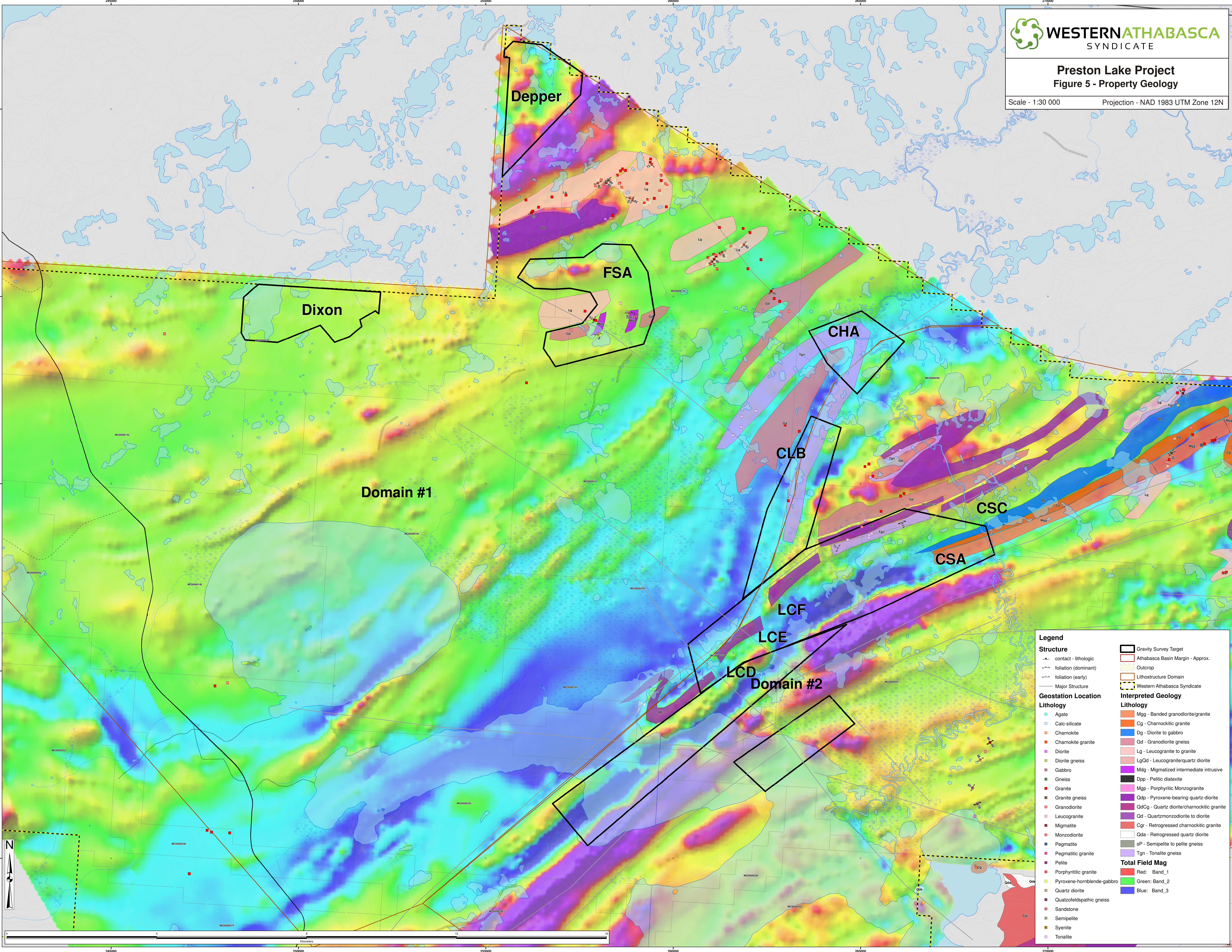
Scale - 1:325 000      Projection - NAD 1983 UTM Zone 13N

**Legend**

Source: Geological Atlas of Saskatchewan (2008)

- + SMDI
- ★ Uranium Discovery
- Fault
- Athabasca Basin Margin - Approx.
- Western Athabasca Syndicate
- Dn Undifferentiated calcareous rocks
- Km Marine quartzose sandstone, mudstone, siltstone
- LLa Anorthosite
- LLag Anorthosite migmatite complex with LLg
- LLbd Diorite, quartz diorite and norite
- LLd Metafelsic gneiss
- LLdg Garnetiferous mafelsic gneiss
- LLf Felsic granulite
- LLg Granite
- LLgp Megacrystic granite
- LLmn Amphibole gneiss
- LLng "Careen Lake Complex" migmatitic interbedded meta-arkose, pelite and granite
- LLxn Augen gneiss
- LZc Quartzarenite + siltstone + mudstone
- LZh Pebbly quartzarenite + conglomerate
- LZi Quartzarenite + siltstone + mudstone
- LZs Quartzarenite with pebbly layers
- RD Quartzarenite, conglomerate, local pebbly mudstone
- S Quartzarenite, local pebbly mudstone
- UPS Unexposed Precambrian Shield
- Vcg "Central Gneiss Complex" felsic gneiss
- Vcgm Migmatized "Central Gneiss Complex"
- Vfn Felsic gneiss
- Vmn Amphibole-rich schist and gneiss
- Vpn Pelitic, psammopelitic and psammitic schist/gneiss
- Vm Psammitic to meta-arkose gneiss
- Vu Ultramafic rock
- x Mylonite/cataclastic rocks
- xh Hornblende-biotite augen gneiss
- xn Pink micro-augen gneiss





**Legend**

**Structure**

- contact - lithologic
- foliation (dominant)
- foliation (early)
- Major Structure

**Geostation Location**

- Agate
- Calc-silicate
- Chamokite
- Charnokite granite
- Diorite
- Diorite gneiss
- Gabbro
- Gneiss
- Granite
- Granite gneiss
- Granodiorite
- Leucogranite
- Migmatite
- Monzodiorite
- Pegmatite
- Pegmatitic granite
- Pelite
- Porphyritic granite
- Pyroxene-hornblende-gabbro
- Quartz diorite
- Quartzofeldspathic gneiss
- Sandstone
- Semipelite
- Syenite
- Tonalite

**Interpreted Geology**

- Mgg - Banded granodiorite/granite
- Cg - Charnokitic granite
- Dg - Diorite to gabbro
- Gd - Granodiorite gneiss
- Lg - Leucogranite to granite
- LgOd - Leucogranite/quartz diorite
- Mdg - Migmatized intermediate intrusive
- Dpp - Pelitic diatexite
- Mgp - Porphyritic Monzogranite
- Qdp - Pyroxene-bearing quartz-diorite
- QdCg - Quartz diorite/charnockitic granite
- Qd - Quartzmonzodiorite to diorite
- Cgr - Retrogressed charnockitic granite
- Qda - Retrogressed quartz diorite
- sP - Semipelite to pelite gneiss
- Tgn - Tonalite gneiss

**Total Field Mag**

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3

**Other Legend Items:**

- Gravity Survey Target
- Athabasca Basin Margin - Approx.
- Outcrop
- Lithostructure Domain
- Western Athabasca Syndicate

## 8.0 DEPOSIT TYPES

The main deposit type being explored for is a basement-hosted, unconformity-related, structurally-controlled deposit similar to those found at Cameco Corporation's Eagle Point Mine, and "02" Zone of McArthur River, as well as the newly discovered Triple R, Arrow and Spitfire deposits on the western side of the Athabasca Basin.

The Athabasca Basin arguably hosts the world's largest and richest known uranium deposits including McArthur River and Cigar Lake. McArthur River has a total proven and probable reserve of 385.5 million pounds  $U_3O_8$  (1,062,200 tonnes @ 16.46%  $U_3O_8$ ) and production of 230.5 million pounds  $U_3O_8$  since 2000 (Bronkhorst et al, 1012), while Cigar Lake has proven and probable reserves of 537,100 tonnes grading 18.3%  $U_3O_8$  for a total of 216.7 million pounds  $U_3O_8$  (Bishop et al, 2012).

The deposits are typically located at the sub-Athabasca unconformity, and are hosted in both the Athabasca Group sandstones above the unconformity, and in the Paleoproterozoic metamorphic supracrustal rocks and intrusives of the Archean Hearne Craton basement. Surficial indicators such as radioactive boulders, geochemical anomalies, and geophysical signatures were responsible for the initial discoveries in the 1960s and 1970s. With the development of these early deposits, an exploration model based on targeting electromagnetic conductors related to graphitic metasedimentary rocks and structural complexity was developed.

The uranium zones are structurally controlled both with relation to the sub-Athabasca unconformity, and the basement fault and fracture-zones. Uranium deposits in the Athabasca Basin that occur in proximity to the Athabasca unconformity can be characterized as polymetallic (U-Ni-Co-Cu, Pb, Zn and Mo) or monometallic (Jefferson et al., 2007). Examples of polymetallic deposits include the Key Lake, Cigar Lake, Collins Bay A, Collins Bay B, McClean, Midwest, Sue and Cluff Lake deposits. Monometallic deposits are completely or partially basement-hosted deposits localized in, or adjacent to, faults in graphitic gneiss and calc-silicate units. Monometallic deposits contain traces of metals besides uranium and include completely basement-hosted deposits developed for up to 500 m below the unconformity or deposits that may extend from the unconformity downward along faults in, or adjacent to, graphitic gneiss and/or calc-silicate units such as the McArthur River and Eagle Point deposits (Jefferson et al., 2007). Since the Preston Project lies entirely out of the Athabasca Basin, a basement-hosted monometallic or poly metallic uranium deposit is the most likely type of uranium deposit to be discovered.

Figure 6 Structurally Hosted Athabasca Basin Uranium Model (from Jefferson et al., 2007)

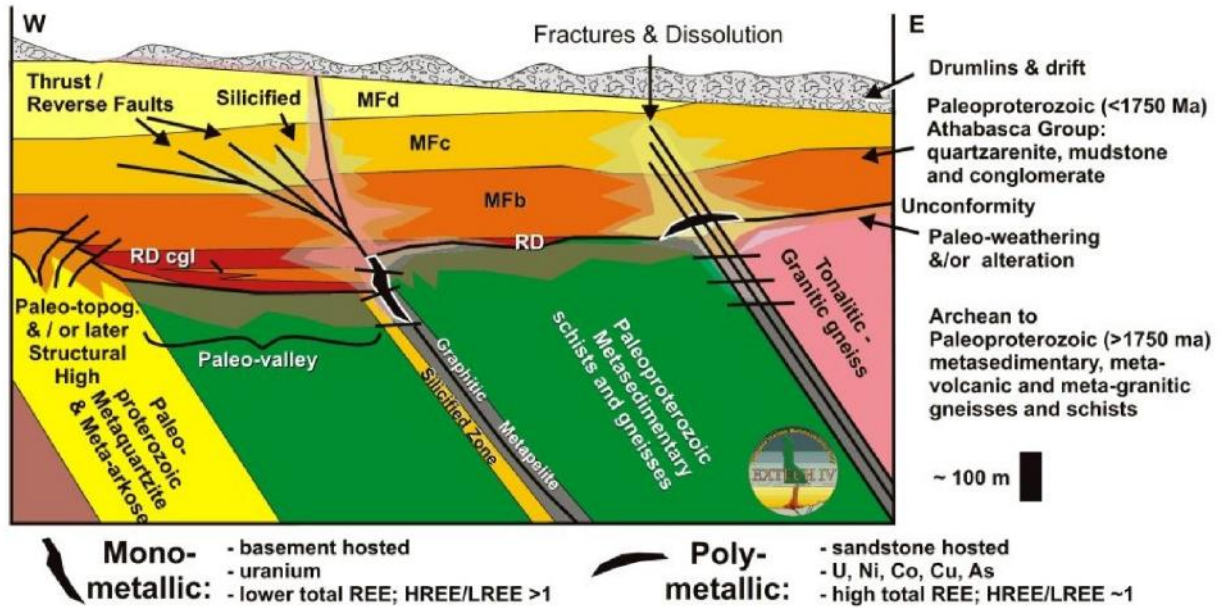
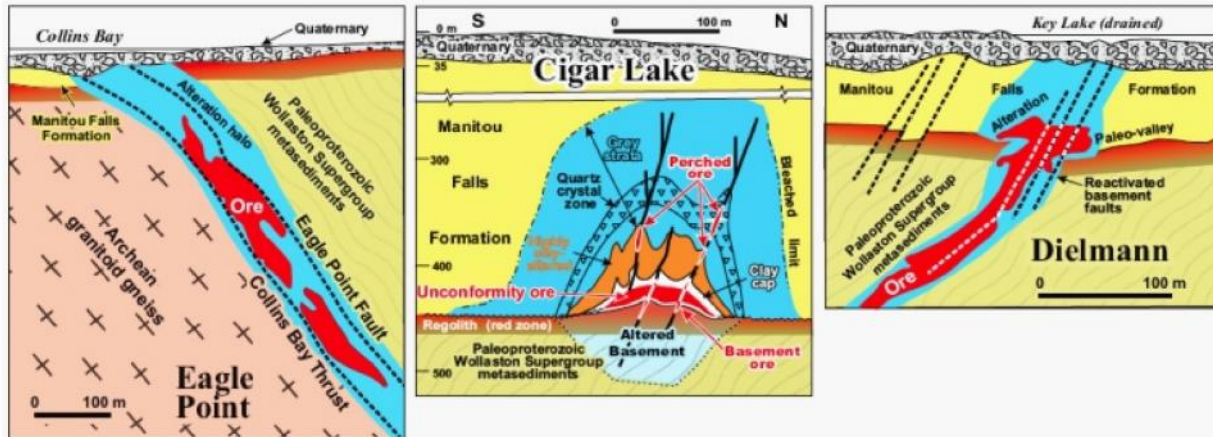


Figure 7 Comparison of Athabasca Basin Deposits (from Jefferson et al 2007)



(Eagle Point– Basement Hosted Mineralization; Cigar Lake– Sandstone Hosted Mineralization; Key Lake Dielmann– Sandstone and Basement Hosted Mineralization)

## 9.0 EXPLORATION

### 9.1 Introduction

The following exploration discussion relies extensively on assessment reports submitted to the Government of Saskatchewan by TerraLogic Exploration for the Western Athabasca Syndicate (WAS) in Brown 2013, 2014 and 2015.

In 2013, Noka Resources Inc., Lucky Strike Resources Ltd., Athabasca Nuclear Corp. and Skyharbour Resources Ltd. operating as the Western Athabasca Syndicate, carried out a three phase exploration program on the Preston Property (Brown, 2014). The program consisted of airborne EM-Magnetic and radiometric surveys and follow-up prospecting of historic assessment targets. Additional ground follow-up of EM conductor corridors and radiometric anomalies was carried out by systematic lake-bottom sediment and lake-bottom water radon surveys in turn followed by soil, biogeochemical and radon-in-soil surveys.

The 2014 exploration program (Brown 2015) included a ground gravity survey and a horizontal loop electromagnetics [HLEM] survey followed by RadonEx radon-in-water and -soil surveys. These 3 surveys were completed in advance of a 2014 diamond drilling program which consisting of 9 holes in 4 target areas totaling 1,571 m.

The 2015 work program (Brown, 2015) included a gravity and horizontal loop electromagnetic survey (HLEM), in conjunction with a RadonEx radon-in-water and radon-soil survey. The results of these surveys were used to prioritize targets for a summer drilling program which consisted of 1,318 m of diamond drilling in five holes. Prior to the 2015 exploration program, Noka and Lucky Strike withdrew their interest in the Western Athabasca Syndicate, leaving Skyharbour and Athabasca Nuclear as equal 50% participants.

### 9.2 Airborne VTEM<sup>plus</sup> Survey

Between June 20<sup>th</sup> and July 17<sup>th</sup>, 2013, a 5,162 line-km combined *versatile* time-domain electromagnetic (VTEM<sup>plus</sup>) and aeromagnetic survey was completed by Geotech Ltd over six blocks of the Preston property as illustrated in Figure 8. The survey areas were flown at 200 to 300 m line spacings with tie lines at 1,000 m and the resulting data interpreted by Phil Robertshaw of Robertshaw Geophysics. Over 300 km of conductor segments, some approaching 10 km in length, occur in the combined eastern blocks of the Preston VTEM coverage. Basement aeromagnetic trends in the furthest western block are oriented northwest-southeast, while those of the eastern blocks are E-NE which is similar to the dominant basement strike orientation at Fission's Patterson Lake South ("PLS") high-grade uranium discovery area. Cross-cutting structural features and flexures affecting the conductor traces were identified to be of particular interest as prospective

follow-up targets. The VTEM results are best illustrated on Figure 8 and will not be discussed in detail here.

### 9.3 Airborne Radiometric, Magnetic and VLF-EM Survey

A Goldak high resolution radiometric survey was flown to locate uranium boulder trains, in-situ uranium mineralization and alteration associated with uranium mineralization. The airborne Radiometric, Magnetic and VLF-EM survey was flown over one large block extending up to 60 km east-west and up to 36 km north-south flown at 50m above surface. A total of 8,273 line-km on 200 m line spacing was flown on lines at 155°/335°. Instrumentation included three cesium vapor, digitally compensated magnetometers, a 1024 channel spectrometer with of 50.4 litres of downward looking NaI detectors and 8.4 liters of upward looking detectors, a dual channel VLF receiver, a GPS real-time and post-corrected differential positioning system, a flight path recovery camera, digital titling and recording system, as well as radar and barometric altimeters.

The airborne radiometric spectrometer coverage mapped a significant number of enhanced radioactive locations that were classified into contributions from uranium, thorium and potassium sources. Interpretation of the radiometric data identified areas with elevated uranium counts that can be correlated along and between multiple lines potentially indicating the presence of radioactive boulder trains or in situ uranium mineralization. These radiometric features, particularly where co-incident with prospective EM conductors, were given high priority for follow-up ground work. The anomalous areas are illustrated on Figures 8 and 9.

### 9.4 Geological Mapping and Prospecting

Geological outcrop mapping and identification of boulders and/or boulder terrains was completed over geochemical survey grids (at 200 m line spacing) and on prospecting traverses while ground truthing geophysical anomalies (Figures 8 and 9). Geological traversing and mapping and sampling of the various rock types were aided by ground radiometric surveying with a RS-125 gamma-ray spectrometer (GRS) using 1000 counts/s used as a cut-off for sample designation. A handheld Garmin GPS unit with sub 5 m accuracy was used for ground locating the traverses and samples.

Outcrop exposure is less than 5% within the Preston tenure. The dominant topographic features are mostly the result of glacial deposition in the form of eskers and drumlins. Areas with high topography, were chosen for geological mapping traverses based on coinciding airborne radiometric anomalies and strong EM conductors.

Geological outcrop and structural mapping was completed at a scale of 1:5,000 in selected areas just north of the Clearwater and in the East Fin regional targets. The dominant lithology was moderately to steeply dipping, northeast trending, weakly to

moderately foliated granite. There are a dominant foliation dips steeply (60-80 degrees southeast) along a north-east strike (040-070 degrees). Fracture sets in the Clearwater and East Fin can be divided into 3 groups 1) north-south-trending; 2) parallel to sub-parallel to foliation; and 3) northwest-trending. A northwest-trending fracture set tends to be radioactive, and occasionally at intersections between the northwest-trending and north-trending fractures.

At the Clearwater/East Fin, where a northeast-trending fault was mapped, and the radioactive fracture (inferred) trends may represent splay fractures whereby radioactive (U and Th) elements have been remobilized. Prospecting and mapping traverses in the Fin-S target area (grid FSA) revealed significant exposure of medium grained pink granite to the west and gneissic granite/diorite and granodiorite prevalent to the east. Elevated uranium values (up to 45.7 ppm U) were identified in the area.

A mapping traverse focused on the northeast-trending magnetic low just north of the “Swoosh” target, identified magnetic garnetiferous semi-pelitic gneiss/mylonite in contact and/or intercalated with granite-tonalite to the east and gabbro-diorite to the west. Multiple sets of steeply dipping northeast-striking cross-cutting fractures also occur through both units. These are brittle fractures, often hematite-stained locally .

Multiple mapping traverses north and north-east of Lloyd Lake revealed mostly tonalite and granite to granodiorite to diorite gneiss. coincident with a northeast-southwest strong, consistent EM conductor. Further to the northeast, to the extent of the Preston tenure boundary, diorite to gabbro and granite to granodiorite outcrops are mapped along the same intermediate airborne magnetic northeast-trend. Radioactive pegmatites (>2000 cps) intrude granite to granodiorite to the north-east.

#### 9.5 Lake Sediment Samples

Lake-bottom water and sediment sampling were regularly collected together at the same site. Samples of lake sediment were collected using a tubular steel Hornbrook torpedo, fitted with a butterfly valve that opens on impact with the sediment and closes as the sample is retrieved, and trapping the containing sediment. The sampler is designed so that once retrieved, it can be inverted and the contained sediment poured into a sample bag. The rope used for retrieving the sample is marked at 1 meter intervals to permit estimate of the lake depth at the point of sampling both lake water and lake sediment. Sample control was by Garmin GPS with sub 5 m accuracy.

Thematic plotting was completed for As, Au, Co, Cu, Li, Mo, Pb, U, Th, Y, Zn and assessed for spatial associations with known geological, radon and geophysical features. A plot for U is illustrated in Figure 8 Statistics for select elements of interest are tabulated in Table 3 below.

Table 3 Select Lake Sediment Statistics

<i>n=260</i>	<i>U_ppm</i>	<i>Pb_ppm</i>	<i>Pb206_ppm</i>	<i>Co_ppm</i>	<i>Au_ppb</i>	<i>Y_ppm</i>
<b>max</b>	<b>2.60</b>	<b>19.74</b>	<b>4.66</b>	<b>42.90</b>	<b>7.30</b>	<b>39.49</b>
min	0.05	0.55	0.13	0.50	0.10	0.65
average	0.63	3.31	0.83	8.10	0.50	8.01
stdev	0.46	2.31	0.57	6.47	0.78	7.09
50%ile	0.50	2.81	0.70	6.20	0.30	5.66
78%ile	0.80	4.02	1.03	11.01	0.70	11.08
90%ile	1.20	5.35	1.40	16.19	1.10	16.84
95%ile	1.71	6.60	1.62	20.98	1.51	22.47
99%ile	2.20	12.66	3.12	29.42	3.30	33.79

For the uranium lake-bottom sediment results (Figure 10a), a total of 7 out of 260 samples collected in 2013 are above the 99<sup>th</sup> percentile. 5 of these 99<sup>th</sup> percentile samples plot along, and downstream of the Swoosh target. This cluster of samples is also strongly anomalous in Co, Cu, Nb, Y, and Zn. Other spot uranium anomalies are apparent in the Fin-W area, and Montgrande Lake area to the far east; the former has a Co association, while the latter has a Cu association.

#### 9.6 Soil Sampling

Regional soil sampling grids were completed, for the most part, between 200 m and 400 m line spacing and 100 m – 200 m sample spacing orthogonal to EM conductors and/or radiometric anomalies. An overview of geochemical coverage completed in 2013 is presented in Figures 10 to 12.. Over 700 B-horizon samples were collected with sampling generally avoiding muskeg. The soil profile comprises 0-15cm of moss or pine needles covering a thin 0.1to 1cm organic humus layer, then into a generally beige to white coloured unconsolidated pebbly sand. The B-horizon selected for sampling was identified in the field as an abrupt transition from the above beige or white sand, to a brown or orange sand typically occurring between 15 cm and 85 cm depth. Samples were collected in labeled Kraft bags and dried prior to sending to the lab.

Thematic plotting was completed for Ag, As, Au, Ce, Co, Cu, Li, Mo, Pb, U, Th, Y, Zn and assessed for spatial associations with known geological, radon and geophysical features. Plots for U are included in Figure 11. Statistics for select elements and Pb isotopes are tabulated in Table 4 below.

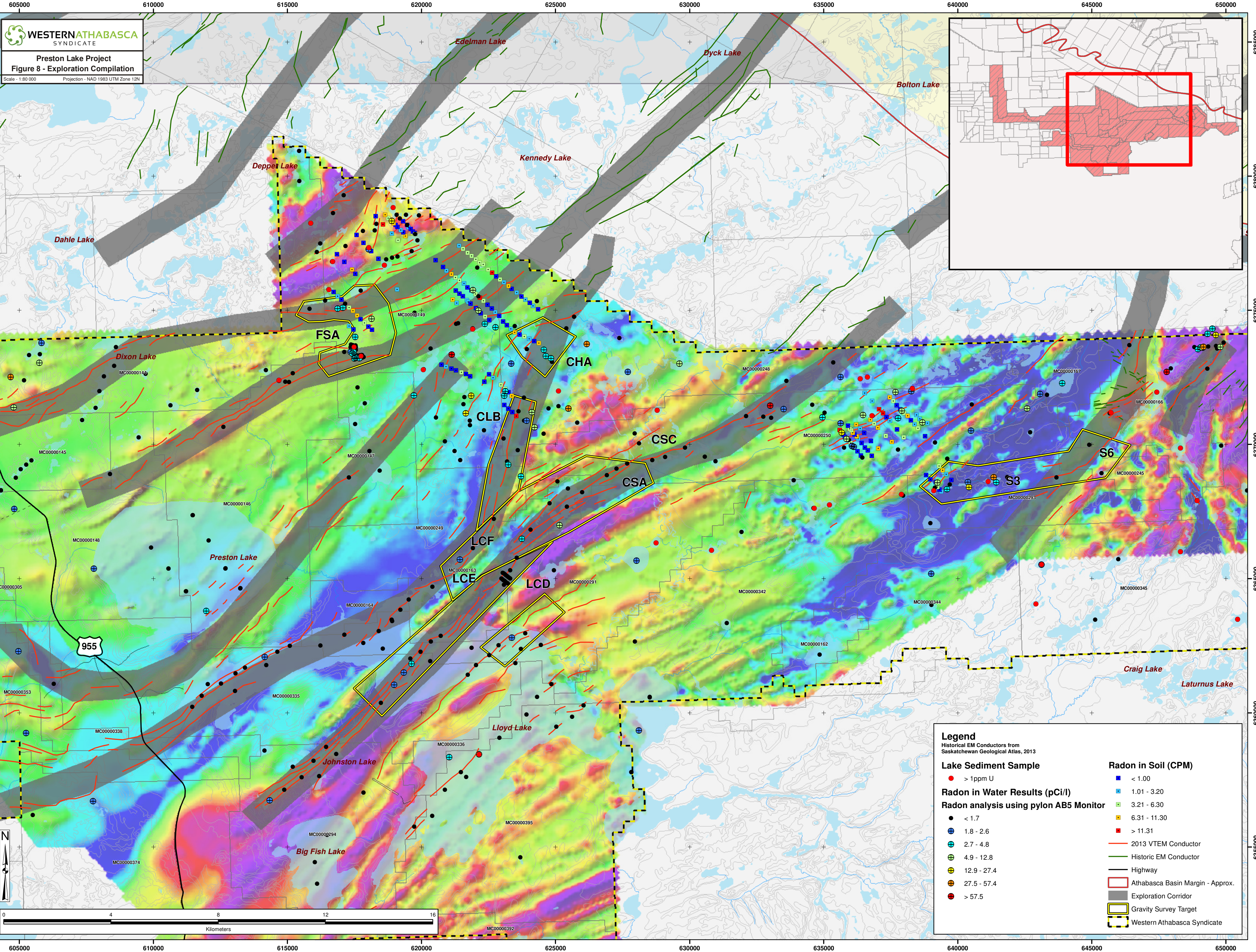


Table 4 Select Soil Result Statistics

	<i>U ppm</i> <i>PD*</i>	<i>U ppm</i> <i>TD*</i>	<i>Pb</i> <i>ppm</i>	<i>Co</i> <i>ppm</i>	<i>Au ppb</i> <i>FA</i>	<i>Pb206/</i> <i>Pb207</i>	<i>Pb206/</i> <i>Pb204</i>	<i>Pb206/</i> <i>Pb208</i>
max	<b>7.89</b>	<b>9.71</b>	<b>14.80</b>	<b>9.24</b>	<b>76.00</b>	<b>1.61</b>	<b>93.80</b>	<b>0.63</b>
min	0.06	0.52	0.50	0.01	2.00	1.04	14.10	0.34
average	0.284	1.45	2.81	0.97	8.36	1.21	17.40	0.49
stdev	0.460	0.71	1.44	1.00	11.56	0.08	3.32	0.03
50%ile	0.22	1.37	2.59	0.72	4.00	1.20	17.00	0.49
78%ile	0.31	1.62	3.52	1.22	9.00	1.26	18.09	0.51
90%ile	0.38	1.89	4.50	1.80	18.00	1.32	18.92	0.52
95%ile	0.49	2.19	5.26	2.55	31.00	1.36	19.75	0.53
99%ile	1.19	3.21	7.40	5.20	70.35	1.47	21.91	0.56
correl U	1.00	0.75	0.18	0.14	0.12	0.15	0.06	0.14
%>LOD	100%	100%	100%	100%	27%	100%	100%	100%

\*PD=partial digestion; TD=total digestion; LOD=analytical limit of detection

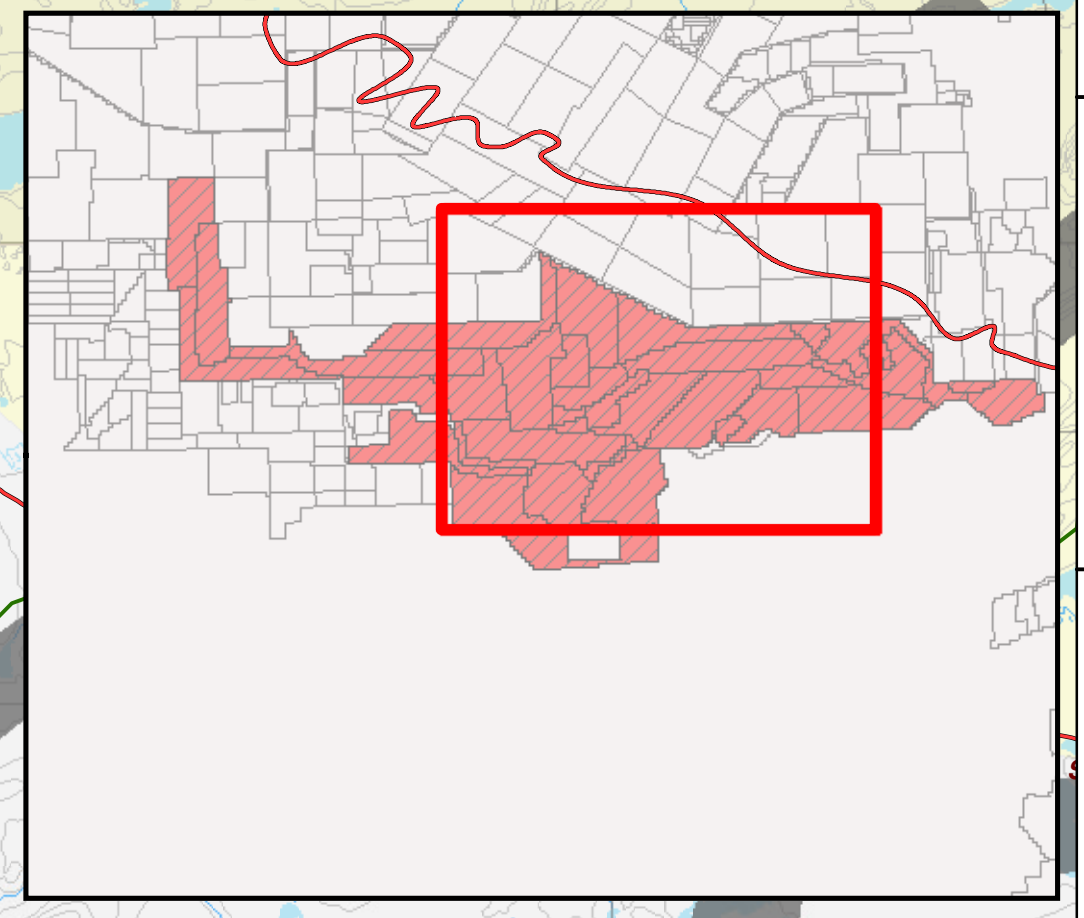
Uranium anomalies in soils are generally limited to 1 or 2 adjacent station anomalies. Two of the most significant multi-station soil anomalies in the north-west to north-central Fin area, are spatially associated with mapped granitoid outcrops with significant topographic relief. In the Fin-south target area, three >85th percentile U results on adjacent lines are apparent within an interpreted antiform that is similarly cored by a granitoid body and associated with anomalous Th. One of the most interesting soil anomalies occurs near the very southern limit of the Fin-S target. This sample contains 1.81 ppm U and greater than 95<sup>th</sup> percentile values for As, Cu, Co, and Pb, with positive Pb isotope systematics. Other notable anomalies occur in the Clearwater hinge zone northeast of gravity target CHA. The best sample here returned 1.71 ppm U with adjacent samples exhibiting >95<sup>th</sup> percentile values for Co, Cu, Pb, and Au. The highest U value for 2013 came from the west-central portion of the Swoosh target, adjacent to the projected map extension of pelitic sediments. This sample returned 7.90 ppm U with >95<sup>th</sup> percentile values for Cu and Y, and greater than 80<sup>th</sup> percentile As and Pb, and positive Pb isotope systematics.



**WESTERNATHABASCA**  
SYNDICATE

**Preston Lake Project**  
**Figure 8 - Exploration Compilation**

Scale - 1:80,000 Projection - NAD 1983 UTM Zone 12N

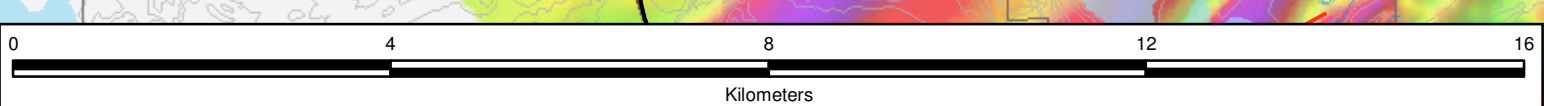


**Legend**

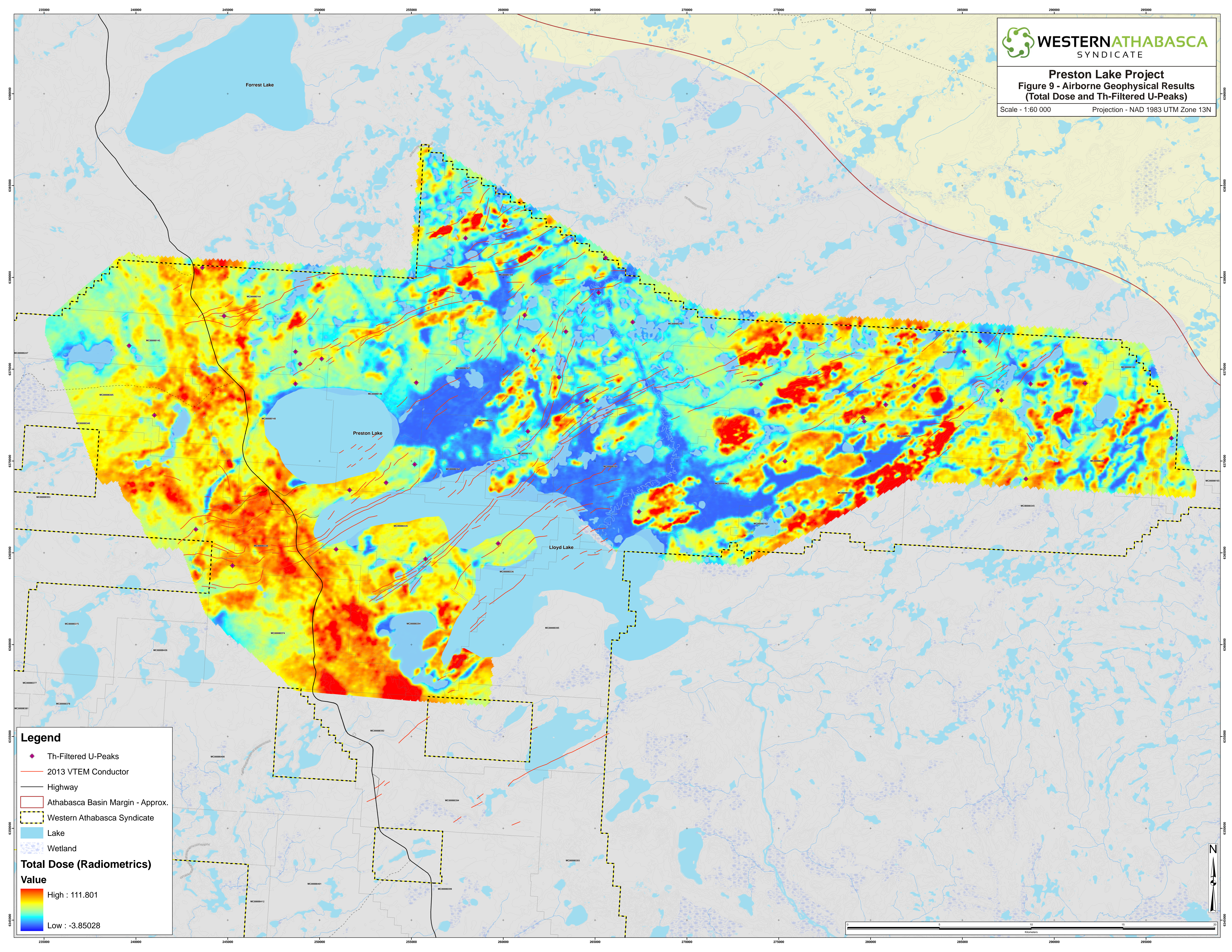
Historical EM Conductors from Saskatchewan Geological Atlas, 2013

<b>Lake Sediment Sample</b>	<b>Radon in Soil (CPM)</b>
● > 1ppm U	■ < 1.00
	■ 1.01 - 3.20
	■ 3.21 - 6.30
	■ 6.31 - 11.30
	■ > 11.31

<b>Radon in Water Results (pCi/l)</b>	<b>Radon analysis using pylon AB5 Monitor</b>	<b>2013 VTEM Conductor</b>
● < 1.7	⊕ 1.8 - 2.6	— Historic EM Conductor
⊕ 1.8 - 2.6	⊕ 2.7 - 4.8	— Highway
⊕ 2.7 - 4.8	⊕ 4.9 - 12.8	□ Athabasca Basin Margin - Approx.
⊕ 4.9 - 12.8	⊕ 12.9 - 27.4	■ Exploration Corridor
⊕ 12.9 - 27.4	⊕ 27.5 - 57.4	□ Gravity Survey Target
⊕ 27.5 - 57.4	⊕ > 57.5	□ Western Athabasca Syndicate



Map labels include: Edelman Lake, Dyck Lake, Bolton Lake, Deppet Lake, Kennedy Lake, Dahle Lake, Dixon Lake, Preston Lake, Lloyd Lake, Johnston Lake, Big Fish Lake, FSA, CHA, CLB, CSC, CSA, LCF, LCE, LCD, S3, S6, and Highway 955.

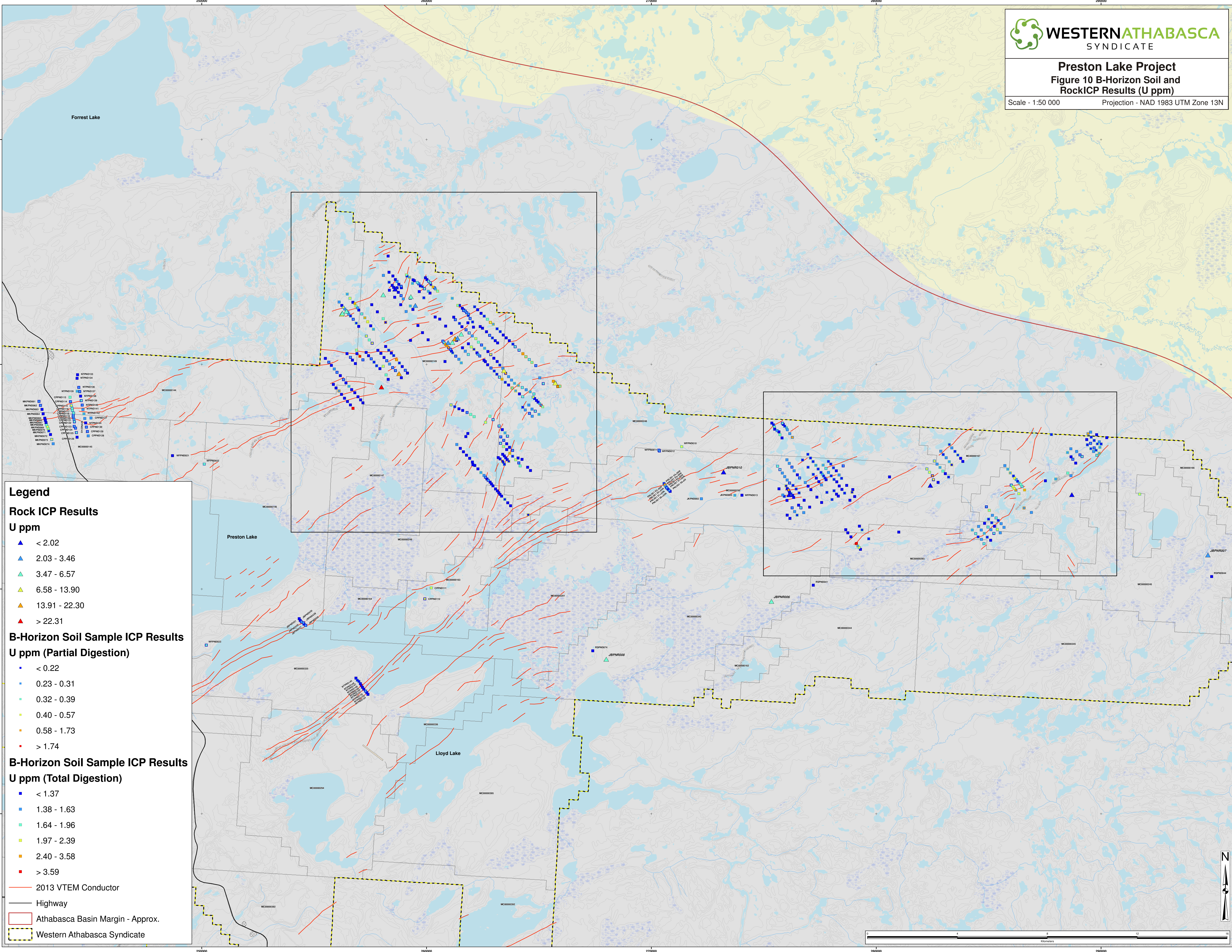


**Legend**

- ◆ Th-Filtered U-Peaks
- 2013 VTEM Conductor
- Highway
- Athabasca Basin Margin - Approx.
- - - Western Athabasca Syndicate
- Lake
- Wetland

**Total Dose (Radiometrics)**  
**Value**

High : 111.801  
Low : -3.85028



**Legend**

**Rock ICP Results**  
**U ppm**

- ▲ < 2.02
- ▲ 2.03 - 3.46
- ▲ 3.47 - 6.57
- ▲ 6.58 - 13.90
- ▲ 13.91 - 22.30
- ▲ > 22.31

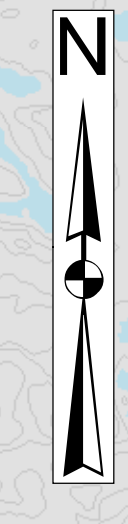
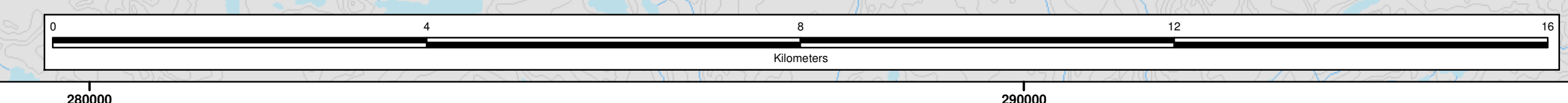
**B-Horizon Soil Sample ICP Results**  
**U ppm (Partial Digestion)**

- < 0.22
- 0.23 - 0.31
- 0.32 - 0.39
- 0.40 - 0.57
- 0.58 - 1.73
- > 1.74

**B-Horizon Soil Sample ICP Results**  
**U ppm (Total Digestion)**

- < 1.37
- 1.38 - 1.63
- 1.64 - 1.96
- 1.97 - 2.39
- 2.40 - 3.58
- > 3.59

- 2013 VTEM Conductor
- Highway
- Athabasca Basin Margin - Approx.
- Western Athabasca Syndicate



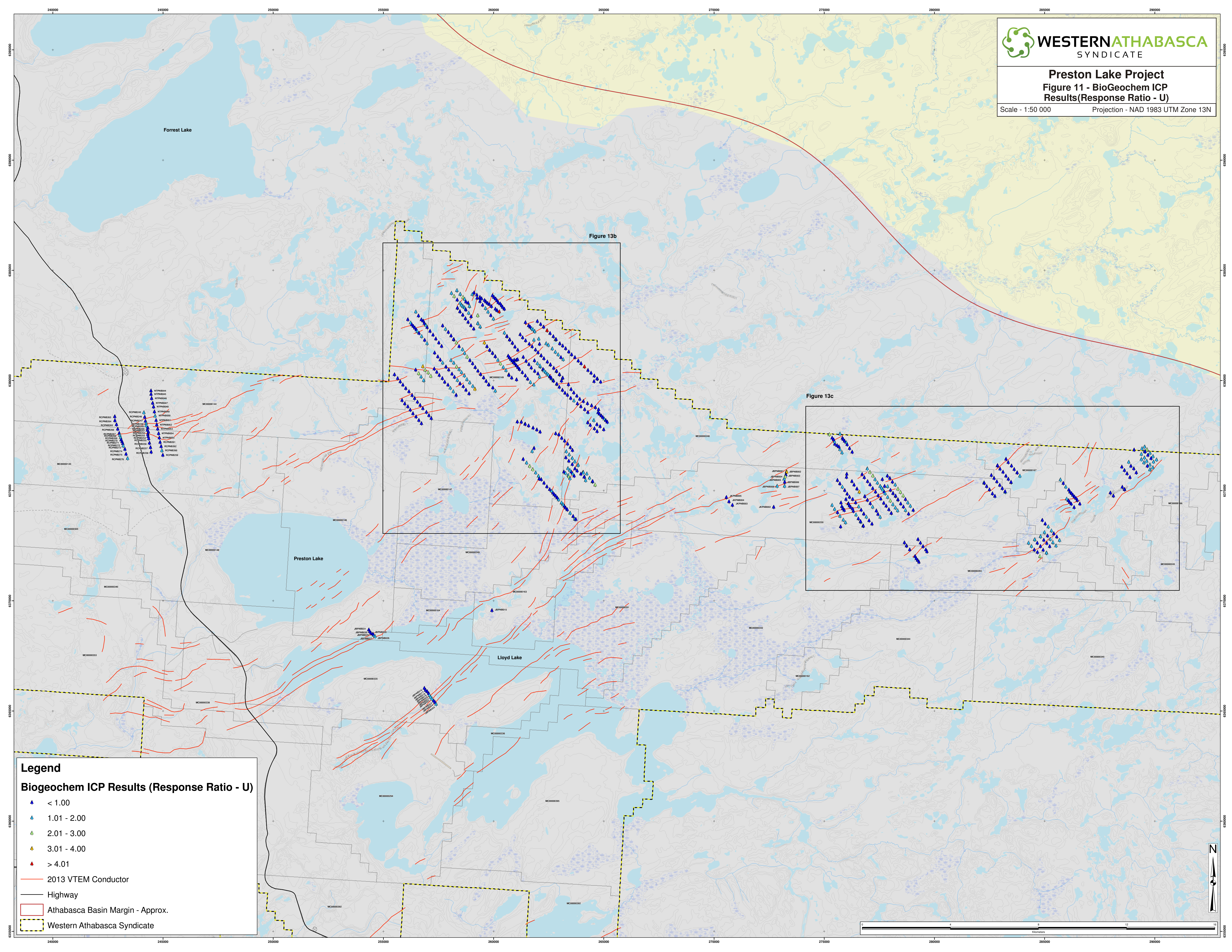
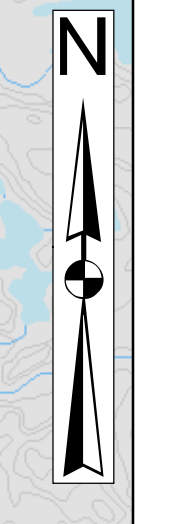
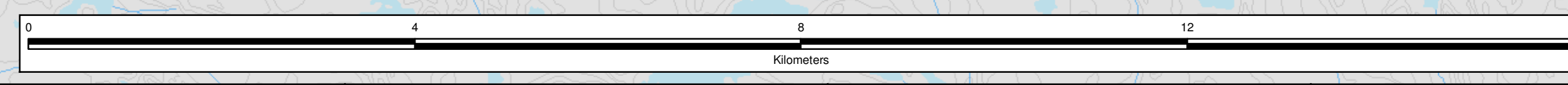


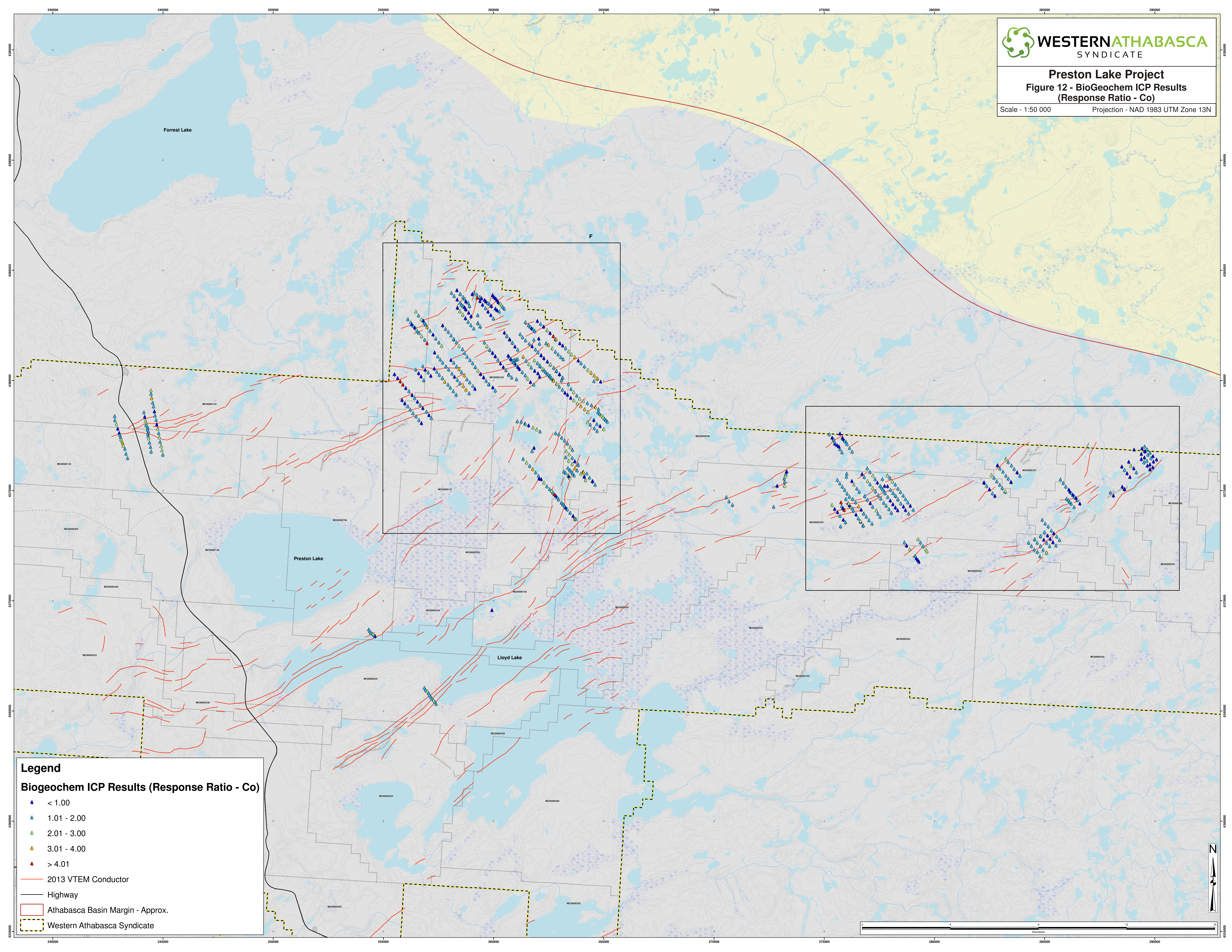
Figure 13b

Figure 13c

**Legend**  
**Biogeochem ICP Results (Response Ratio - U)**






- ▲ < 1.00
- ▲ 1.01 - 2.00
- ▲ 2.01 - 3.00
- ▲ 3.01 - 4.00
- ▲ > 4.01
- 2013 VTEM Conductor
- Highway
- Athabasca Basin Margin - Approx.
- Western Athabasca Syndicate








**Legend**


**Biogeochem ICP Results (Response Ratio - Co)**

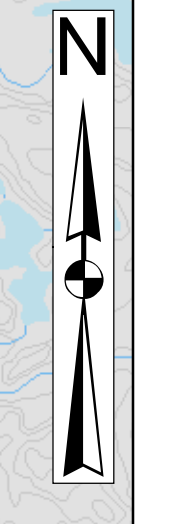
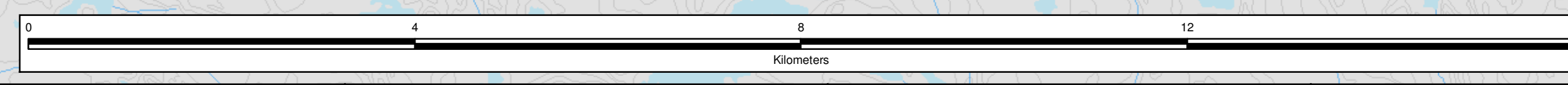
-  < 1.00
-  1.01 - 2.00
-  2.01 - 3.00
-  3.01 - 4.00
-  > 4.01

 2013 VTEM Conductor

 Highway

 Athabasca Basin Margin - Approx.

 Western Athabasca Syndicate



## 9.7 Biogeochemical Samples

Regional biogeochemical sampling was completed on geochemical survey grids in conjunction with soil sampling. Black spruce was selected as the preferred vegetation medium due to its proven ability to concentrate many elements (Dunn 1983; 2007) and widespread availability in both well- drained and poorly drained areas. Previous studies by Dunn (1983; 2007) also identified Jack pine as a suitable biogeochemical medium. This species was selected as a secondary target vegetation type, due to its widespread distribution in the property area. White spruce (*Picea glauca*) was also collected at approximately 5% of sample sites when no other species was present.

Field procedures for twig sampling were similar for both species types. Twigs with attached needles were collected from around the circumference of an individual tree within 20 m of each soil sampling site. Approximately 5-8 twigs (~25 cm lengths, each representing 7-10 years of growth) were obtained from a single tree, and placed in 5.5” x 8.5” cloth bags (spun-bonded polypropylene ‘Sentry II’ bags), with polished drawstring closures. Numerous field parameters were collected including tree height, twig length and diameter, soil moisture conditions, slope, aspect and any other factors that would affect sample quality. The tree species was clearly labelled on each bag to aid in subsequent lab preparation procedures prior to analysis.

The three different tree species have differing background values on an element by element basis, so it is critical that plots showing biogeochemical results be levelled to account for these differences. Plotted biogeochemical results by element (Figure 11 and 12) have been levelled using response ratio calculations, normalizing each element by the 25<sup>th</sup> percentile value calculated for a given tree species (Table 5). For some elements that were too close to lower limits of detection (i.e. As, U), the response ratios were normalized using the 50<sup>th</sup> percentile value.

Table 5 Biogeochemical Percentiles for Response Ratio Calculations

	<i>n</i>	<i>Co_ppm</i>	<i>La_ppm</i>	<i>Li_ppm</i>	<i>U_ppm</i>	<i>Y_ppm</i>	<i>Zn_ppm</i>	<i>Pb_ppm</i>
LLD*		0.1	0.1	0.1	0.05	0.01	0.1	0.1
Percentile		25	25	25	50	25	25	25
Jack Pine	524	2.30	0.70	3.25	0.050	0.40	1465	4.4
B-Spruce	192	2.70	2.85	4.30	0.20	1.51	1993	11.8
W-Spruce	47	2.20	1.70	3.30	0.110	0.81	2023	13.0

\*ACMELabs 1F-package lower limit of detection

Response ratio calculations were completed for Ag, Au, B, La, Ce, Co, Li, Mo, Pb, U, Y and Zn and thematically plotted to assess spatial geochemical patterns. Plots for U are included in Figure 11. Uranium results proved problematic as results in pine were invariably below detection. As a result, spruce only results for uranium were responsive, accounting only for about 1/3<sup>rd</sup> samples collected and resulting in no reliable anomalies.

Cobalt (Figure 12) does however exhibit several anomaly clusters. The Fin-S and Jarrod-1 targets have several anomalous sites associated with significant EM high corridors. Less pronounced anomalies are present in the Clearwater Limb and Hinge zones, but are significant in their spot associations with coincident EM and gravity-low anomalies.

### 9.8 Soil and Water Radon Surveys

*In situ* radon-in-soil measurements were taken adjacent to the site of soil sample (hole), using a 154 vacuum soil probe with the Pylon AB-5 portable radiation monitor and pylon 300A Lucas cells (scintillation cells). A hand operated auger was used to drill a hole approximately 2.5 cm in diameter to a depth of approximately 65 cm. The Lucas cells are evacuated prior to use with a vacuum pump and then connected to the tube to proceed with pumping air (gas) from the soil hole through the cell. Using an AB-5 portable radiation monitor immediately after pumping, a blank sample was taken followed by 3 successive 1-minute intervals that were counted. Net radon results are given in counts per minute (cpm) with calculations used to separate radon-222 from thoron derived by the Morse Method. This method gives real-time data collection and allows for the discounting of Thoron anomalies vs Uranium anomalies but does not work in bogs and muskeg. Radon-in-soil analysis were completed at a total of 181 sample sites, most of which have corresponding soil sampling completed for ICP analysis. Results of the radon-in-soil survey are shown in Figure 12. Values for radon ranged between 0 and 26 counts per minute (CPM Rn222). In most areas, the spacing and sample density was too low to establish significant anomalies when viewing the soil-in-radon data alone. The one exception is the Jarrod-1 target area in the north central property area, where a clustering of anomalous values associated with airborne conductor lineaments offers a promising target.

Lake-bottom water samples were collected using a horizontal alpha water sampler just above the lake bottom. The water was then immediately poured into Bernardin 250-ml, preserving jars with snap lids and excluding air bubbles. Radon gas was scrubbed from the water samples into a Lucas cell using a Pylon model WG-1001 vacuum water degassing system and the Pylon 300A Lucas cells analyzed for alpha-decay activity using the Pylon AB-5 portable radiation monitor. The sample methodology and data reduction follows the *Morse* method whereby after degassing into the Lucas cells, 2 successive 5-minute intervals were counted. Results were corrected for radon decay between the time



of sample collection and the time of measurement. Net radon results are given in counts per minute (cpm); calculations give the radon-222 activity in pCi/L.

Radon-in-water samples were collected: 1) from lake-bottom, at the same time and location as lake-bottom sediment samples for ICP analysis and; 2) from standing surface waters (small lakes and bogs). The results of statistical analysis indicate that the surface waters have a significantly higher base level of radon than deeper water. The 50<sup>th</sup> percentile value for the surface waters is 1.70 pCi/l Rn, whereas the 50<sup>th</sup> percentile value of the deep water results is 0.30 pCi/l Rn. Response ratios were generated by normalizing Rn values to the 50<sup>th</sup> percentile values for their respective sample and a levelled dataset plotted (Figure 9).

Highly anomalous but intermittent Rn results were identified in the Clearwater Limb and Hinge zones. The Swoosh target area has two highly anomalous Rn results downstream of proposed drilling locations tested in 2014.

#### 9.9 RadonEx Soil and Water Surveys

RadonEx Exploration Management Ltd. (RadonEx) completed electret ionization chamber (EIC) radon in lake water (RIW) and radon flux monitor (RFM) surveys for areas deemed most likely to be drilled in 2014 and 2015. At all locations RFM's were placed 25cm above the snow/soil interface. RadonEx crewmembers used a snow shovel and measuring stick to achieve consistent deployment depths. Once RFM deployment is complete, the electret is threaded into the top of the hemispheric chamber with the exposed/charged surface facing the interior of the chamber. The electrets are measured in the morning, before going into the field, and are collected in the afternoon. Ideally, pick-up occurs 5-6 hours after initial deployment. Poor access and reduced daylight hours meant exposure times of less than five hours during the Preston RFM survey. Electret voltages are read in the evening, and radon flux results were calculated. The voltage discharge rate of the electret is a measure of the radon flux.

The RIW (Radon in Water) survey was completed by augering a hole through the ice and measuring the depth of the water using digital sonar. The water sample was taken at 1 m above the lake bottom and transferred into a 4 oz. glass jar and labelled. An S-Type radon-in-air test unit loaded with a live electret was suspended in each jar. The jar was then sealed and numbered. Each water sample was exposed to the electret for 2 days. Following a 2-day exposure time electrets were read using the RadElec Electret Voltage Reader. The difference in initial voltage and final voltage on the electret surface is recorded. This difference is directly related to the amount of ionization caused by radon gas to which the electret has been exposed. A Bluelab BLU2210 pH pen was used to test for pH of lake water at selected stations throughout

the survey. pH testing is done in order to monitor the possibility of elevated uranium dissolution at pH levels above 7.5. Elevated uranium dissolution levels will likely result in slightly higher radon-in-water levels. For these tests, independent water samples were taken specifically for this purpose. The pH meter was thoroughly rinsed between each use and calibrated using pH 4 and 7 buffer solutions. All RIW values are measured in picocuries per liter (pCi/L). All RIW data has been adjusted to allow for any diurnal changes. Adjustments to the RIW dataset were completed using Daily Median Normalization (DMN).

In 2014 RadonEx collected samples from five areas within the boundaries of the Preston Project, with a total of 228 RIW samples, 101 RFM samples, and 14 pH measurements.

The results for radon-in-water (RIW) and radon flux monitor (RFM) are illustrated in Table 6 and Figures 14 to 20. Radon survey grids were made in predetermined target areas, based on 2013 exploration results (specifically good VTEM conductors with anomalous geochemistry – lake sediments, biogeochemistry, radon-in-soil, and radon-in-water). The placement of the RadonEx grids in these targets was refined using results of the gravity survey.

Table 6 RadonEx Result Summary Statistics by Target

	<u>Radon-in-Water (pCi/L)</u>				<u>Radon Flux Monitor (pCi/m<sup>2</sup>/s)</u>			
	<b>Average</b>	<b>Max</b>	<b>Min</b>	<b>Stdev</b>	<b>Average</b>	<b>Max</b>	<b>Min</b>	<b>Stdev</b>
<b>CHA</b>	1.8	9.1	0.0	3.84	0.15	0.32	0.04	0.07
<b>CLB-CLC</b>	5.1	107.7	0.0	18.8	0.07	0.28	0.02	0.06
<b>LCD-LCE</b>	9.4	139.0	0.0	22.3	N/A	N/A	N/A	N/A
<b>CSA-</b>								
<b>S3-S6</b>	N/A	N/A	N/A	N/A	0.06	0.34	0.00	0.06

In 2105 additional follow-up RadonEx surveys were carried out in the Depper (FIN), Dixon, FSA, Canoe-N and Canoe-S (LCE+LCD) (Figure 9). Summary statistics on a per grid basis is tabulated below in Table Table 7 and illustrated by Figures 14 to 20

Table 7 Radon by RadonEx - Summary of Results

<b>Grid</b>	<b># of readings</b>	<b>Max Value</b>	<b># of anomalous readings</b>	<b>% anomalous<sup>t</sup></b>
FSA	48	0.40 pCi/m2/sec*	3	6%
Dixon-A	14	0.22 pCi/m2/sec*	1	7%
Dixon-B	21	0.26 pCi/m2/sec*	5	<b>24%</b>
FIN-N	28	10.36 pCi/l**	3	<b>11%</b>
FIN-S	12	6.54 pCi/l**	3	<b>25%</b>
Canoe- LCD	43	2.24 pCi/l**	2	5%
Canoe- LCE	62	2.62 pCi/l**	12	<b>19%</b>
Canoe-N	44	1.38 pCi/l**	0	0%
<b>Totals:</b>	<b>272</b>		<b>29</b>	<b>11%</b>

\*radon in soil results

\*\*radon in water results

<sup>t</sup> anomalous defined as >0.15 pCi/m2/sec for soil results; and >1.5 pCi/l for water results

#### 9.10 Ground Gravity Surveys

The ground gravity surveys in 2014 and 2015 were completed using a Lacoste & Romberg electronic land gravity meter and a Ashtech ProMark 500/ProFlex500 GPS receiver. Gravity meter level checks were performed before the start and periodically during the survey. Base readings (before and after measurements) and in-field terrain corrections were made before final data was processed. These targets were selected for land-based gravity surveying based on favourable geology and structure, coincident geochemical survey (lake-sediment, radon-in-water, radon-in-soil, and/or biogeochem) and airborne geophysical survey results from the 2013 exploration program (Figure 8). The selection of areas for gravity survey assessment was weighted heavily towards areas of strong conductance and magnetic low lineaments as determined by the 2013 airborne geophysical survey. Interpretation of the gravity data was completed by Robertshaw Geophysics. Prioritization of targets was made in conjunction with the other known geophysical and geological results of phases 1-3. Prioritization was given to discrete sub-kilometric ovoid gravity lows potentially associated with desilicification, clay alteration and other alteration typically found in uranium deposits.

In January 2014, MWH Geo-Surveys Ltd. completed a ground-based gravity survey consisting of gravity stations collected on survey lines spaced at 400m with a station spacing of 50m. The ground gravity surveys returned encouraging results, showing multiple gravity lows in each of the target areas (Figure 13). The results are best illustrated by Figure 7.

In Mar 2015, MWH Geo-Surveys Ltd. completed ground-based gravity surveys at the FIN, Dixon, and FSA targets with equidistant station spacing at 75 or 100m which resulted in the generation of 1306 gravity data points in the three target areas. The work is summarized best by Figures 13 and 21 to 25.

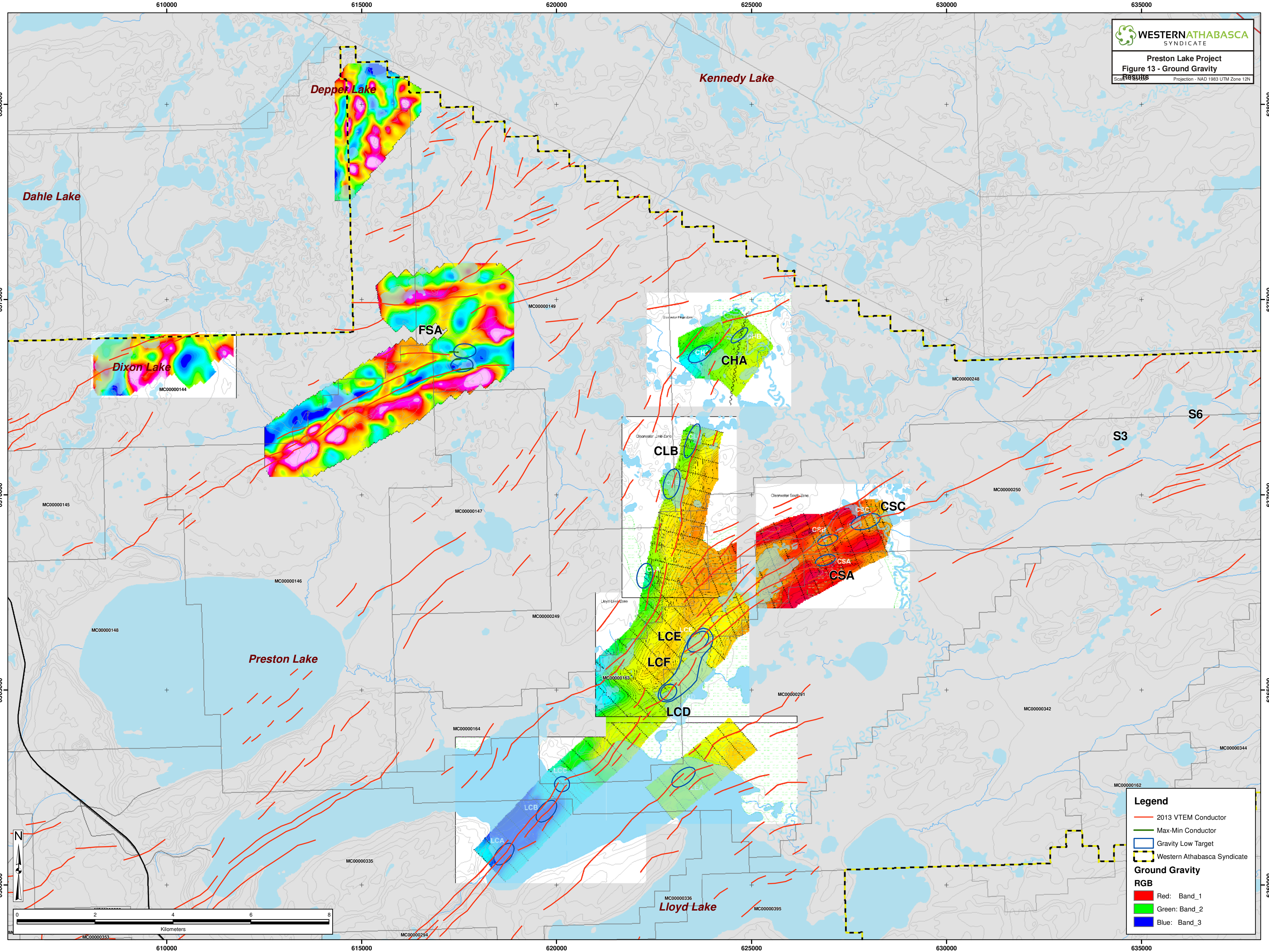
#### 9.11 Horizontal Loop Electromagnetic Survey (HLEM)

Patterson Geophysics Inc. was contracted to perform all line cutting and a horizontal loop electromagnetic (HLEM) “Max-Min” on the Preston property in March and April of 2014 and 2015. The HLEM surveys were completed using an Apex Parametrics Max-Min I-9 slingram unit and MMC data acquisition computer. For the duration of the program, the receiving and transmit coils were held horizontal while collecting HLEM data (horizontal coplanar mode). In-phase (I/P) and out-of-phase (O/P) component HLEM survey data were acquired using a 100, 200 and 300 m transmitter-receiver coil separations employing the following transmit frequencies: 220, 440, 1760, 3520 Hz, 3520 and 7040 Hz at 25m or 50 m stations, depending on the cable separation used.





The targets were selected for HLEM surveying to more accurately define airborne VTEM conductors of interest refined by the geological, geochemical and gravity results. The majority of the uranium deposits in northern Saskatchewan are associated with post-Hudsonian reactivated graphitic faults, and therefore EM surveys are critical in identifying conductors, which historically has been used to delineate uranium deposits in the basin.

The 2014 HLEM survey was carried out over the S6 and S3 (Swoosh), CHA, and FSA targets on the Preston Property. Survey data were acquired on the four grids using a 100 m transmitter-receiver coil separation with Grid S6 re-surveyed using a 200 m transmitter-receiver coil separation to increase the depth of investigation. In total, 17.3line-km of multi-frequency HLEM survey data were recorded at 50 m station intervals employing: 220, 440, 1760, and 3520 Hz for 100 m coil separation and 440, 1760, and 3520 Hz for 200m coil separation coverage. The results are illustrated on Figure 14 to 25.

The HLEM results showed Max-Min EM conductors at the S6, CHA, and FSA Grids, but not the S3 Grid. The S6 grid shows three EM conductors that trend north-east at 50 to 75m depth, dipping 45 to 70 degrees northeast coincident to the airborne magnetic low and coincident to a gravity. The two northern most conductors transect anomalous







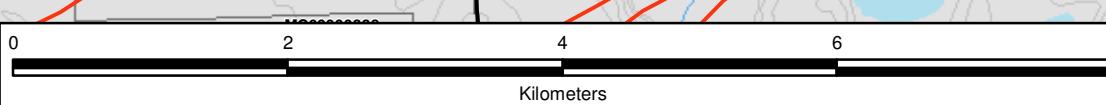
**Legend**

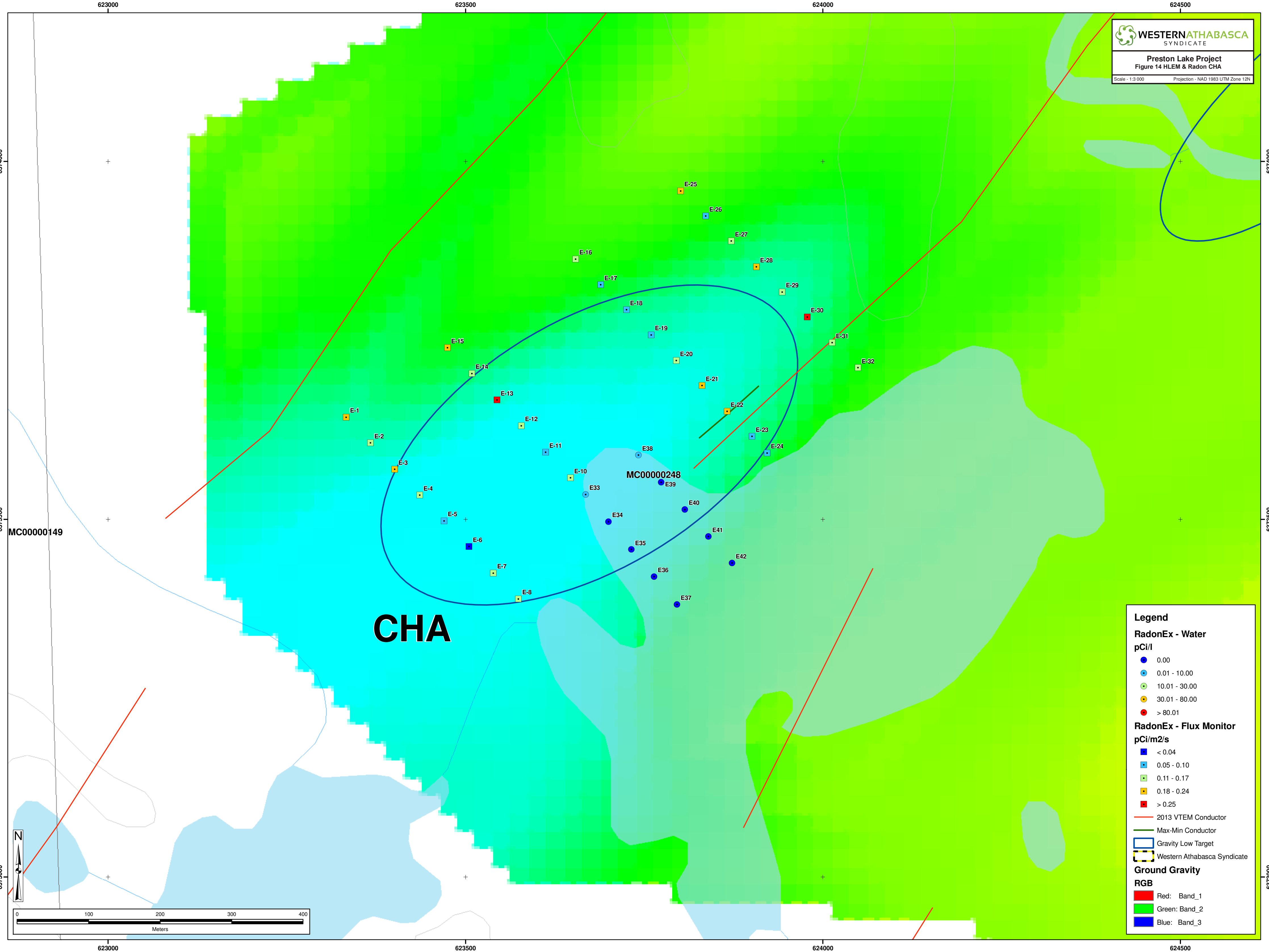
-  2013 VTEM Conductor
-  Max-Min Conductor
-  Gravity Low Target
-  Western Athabasca Syndicate

**Ground Gravity**

**RGB**

-  Red: Band\_1
-  Green: Band\_2
-  Blue: Band\_3

  
  
 0 2 4 6 8  
 Kilometers



MC00000149

MC00000248

**CHA**

**Legend**

**RadonEx - Water**  
pCi/l

- 0.00
- 0.01 - 10.00
- 10.01 - 30.00
- 30.01 - 80.00
- > 80.01

**RadonEx - Flux Monitor**  
pCi/m<sup>2</sup>/s

- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

— 2013 VTEM Conductor

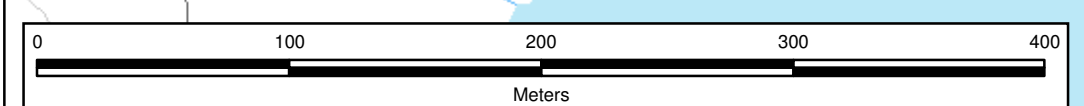
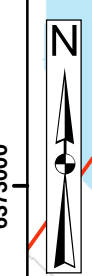
— Max-Min Conductor

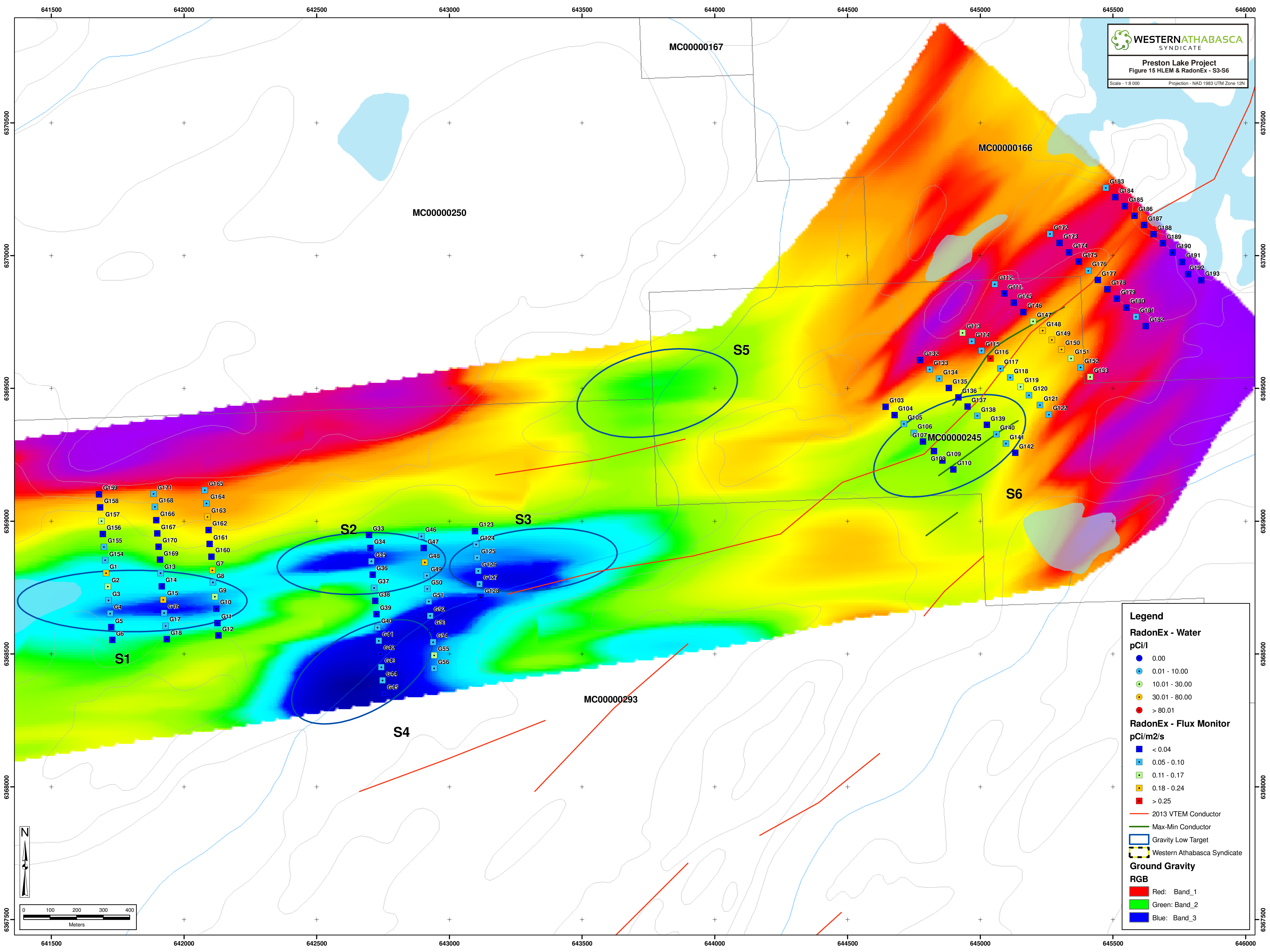
□ Gravity Low Target

▭ Western Athabasca Syndicate

**Ground Gravity**  
RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3





**Legend**

**RadonEx - Water**  
pCi/l

- 0.00
- 0.01 - 10.00
- 10.01 - 30.00
- 30.01 - 80.00
- > 80.01

**RadonEx - Flux Monitor**  
pCi/m2/s

- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

— 2013 VTEM Conductor

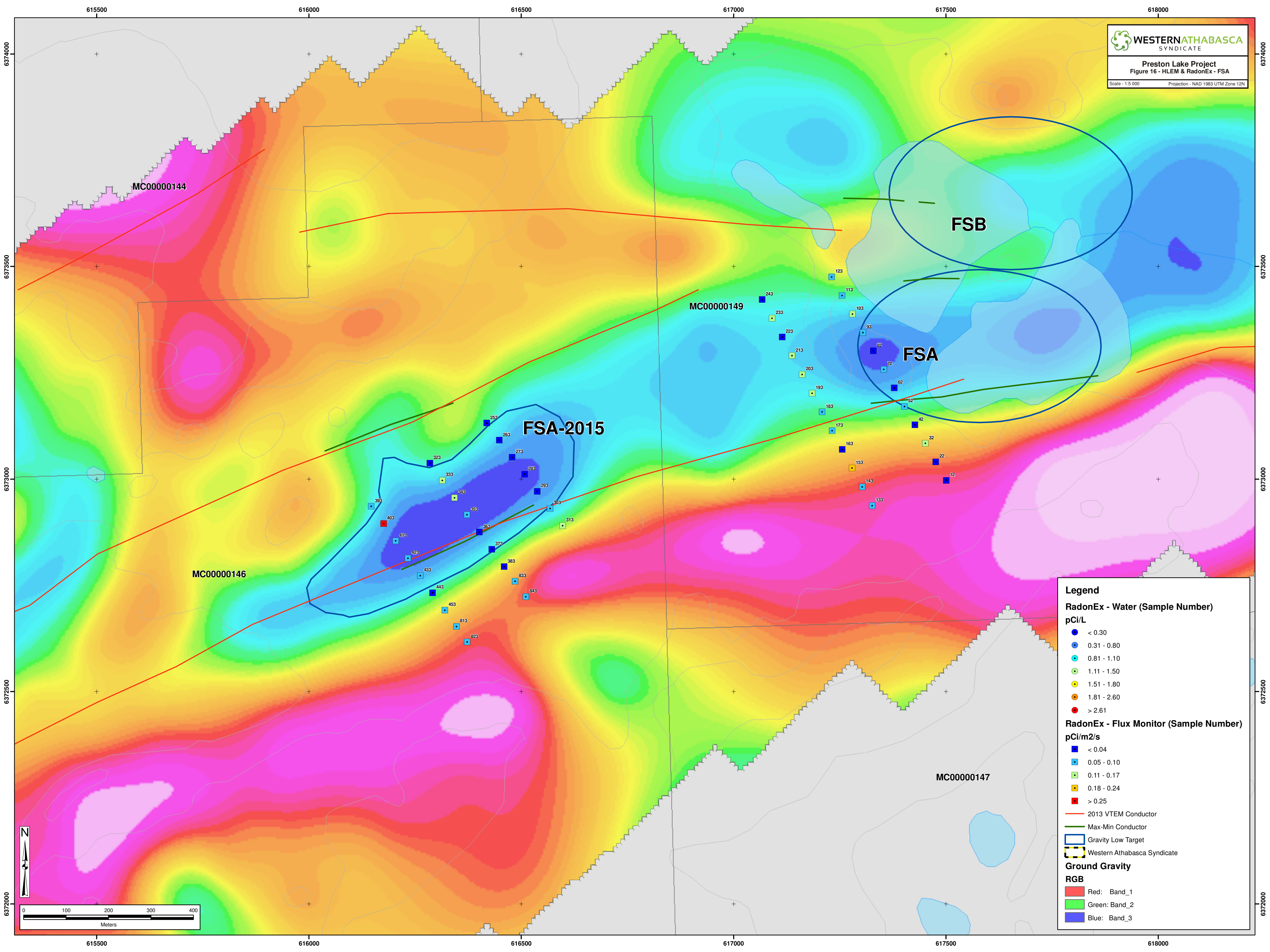
— Max-Min Conductor

□ Gravity Low Target

▭ Western Athabasca Syndicate

**Ground Gravity**  
RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3



**Legend**

**RadonEx - Water (Sample Number)**  
pCi/L

- < 0.30
- 0.31 - 0.80
- 0.81 - 1.10
- 1.11 - 1.50
- 1.51 - 1.80
- 1.81 - 2.60
- > 2.61

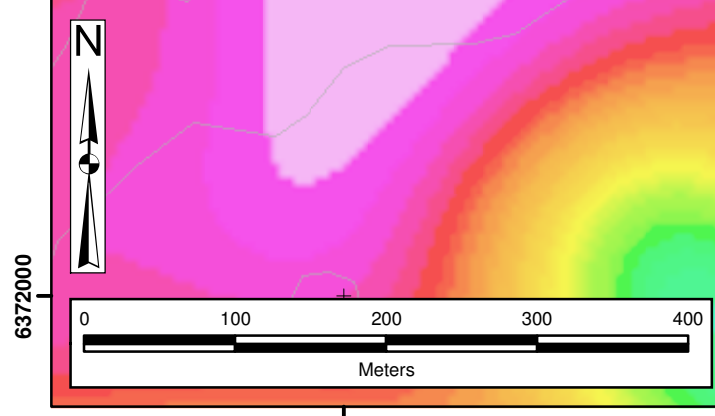
**RadonEx - Flux Monitor (Sample Number)**  
pCi/m2/s

- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

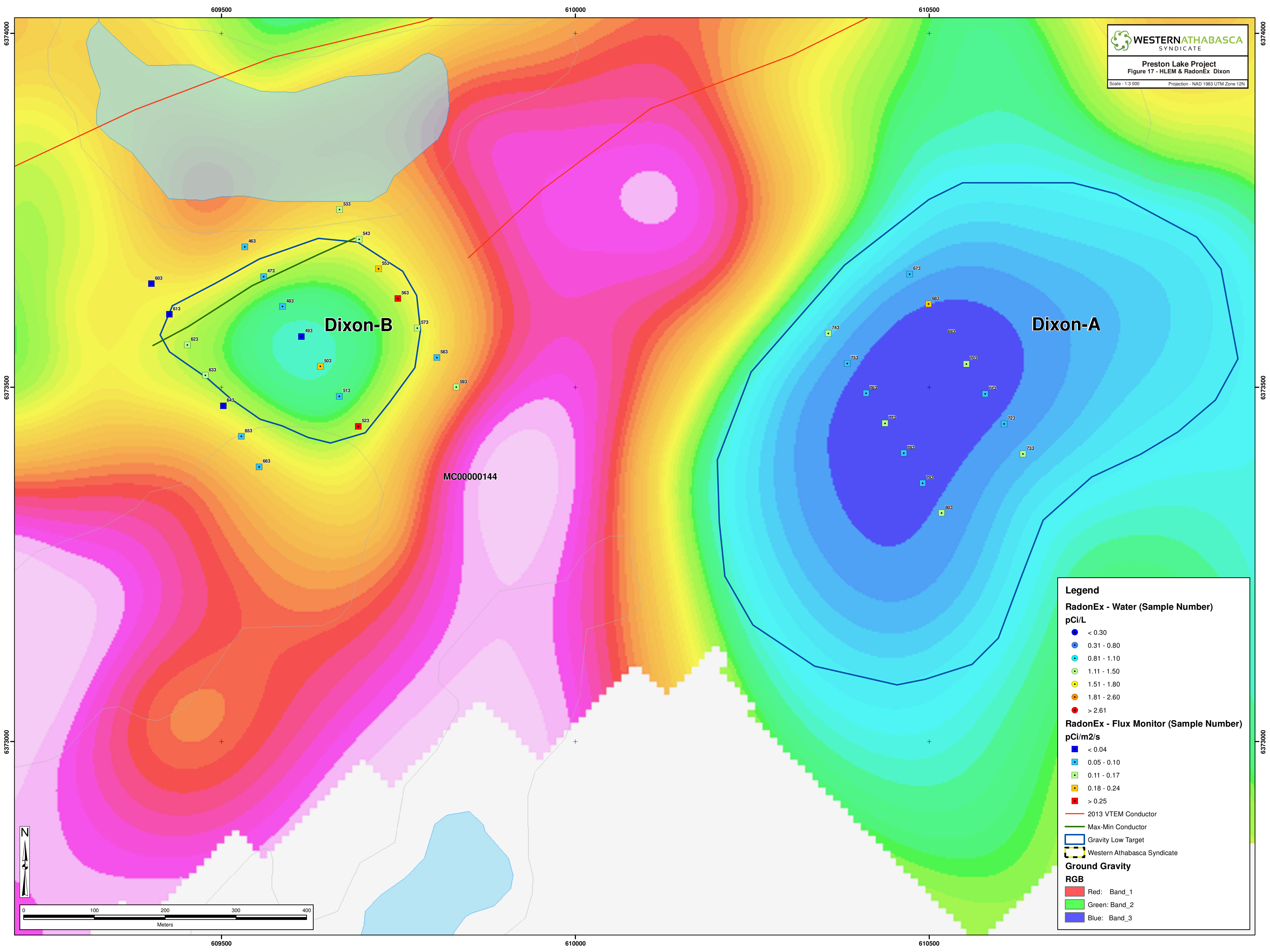
— 2013 VTEM Conductor  
— Max-Min Conductor  
□ Gravity Low Target  
▭ Western Athabasca Syndicate

**Ground Gravity**  
RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3







**Legend**

**RadonEx - Water (Sample Number)**  
pCi/L

- < 0.30
- 0.31 - 0.80
- 0.81 - 1.10
- 1.11 - 1.50
- 1.51 - 1.80
- 1.81 - 2.60
- > 2.61

**RadonEx - Flux Monitor (Sample Number)**  
pCi/m<sup>2</sup>/s

- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

— 2013 VTEM Conductor

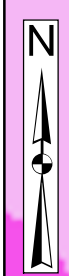
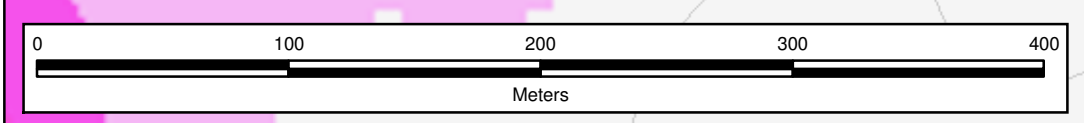
— Max-Min Conductor

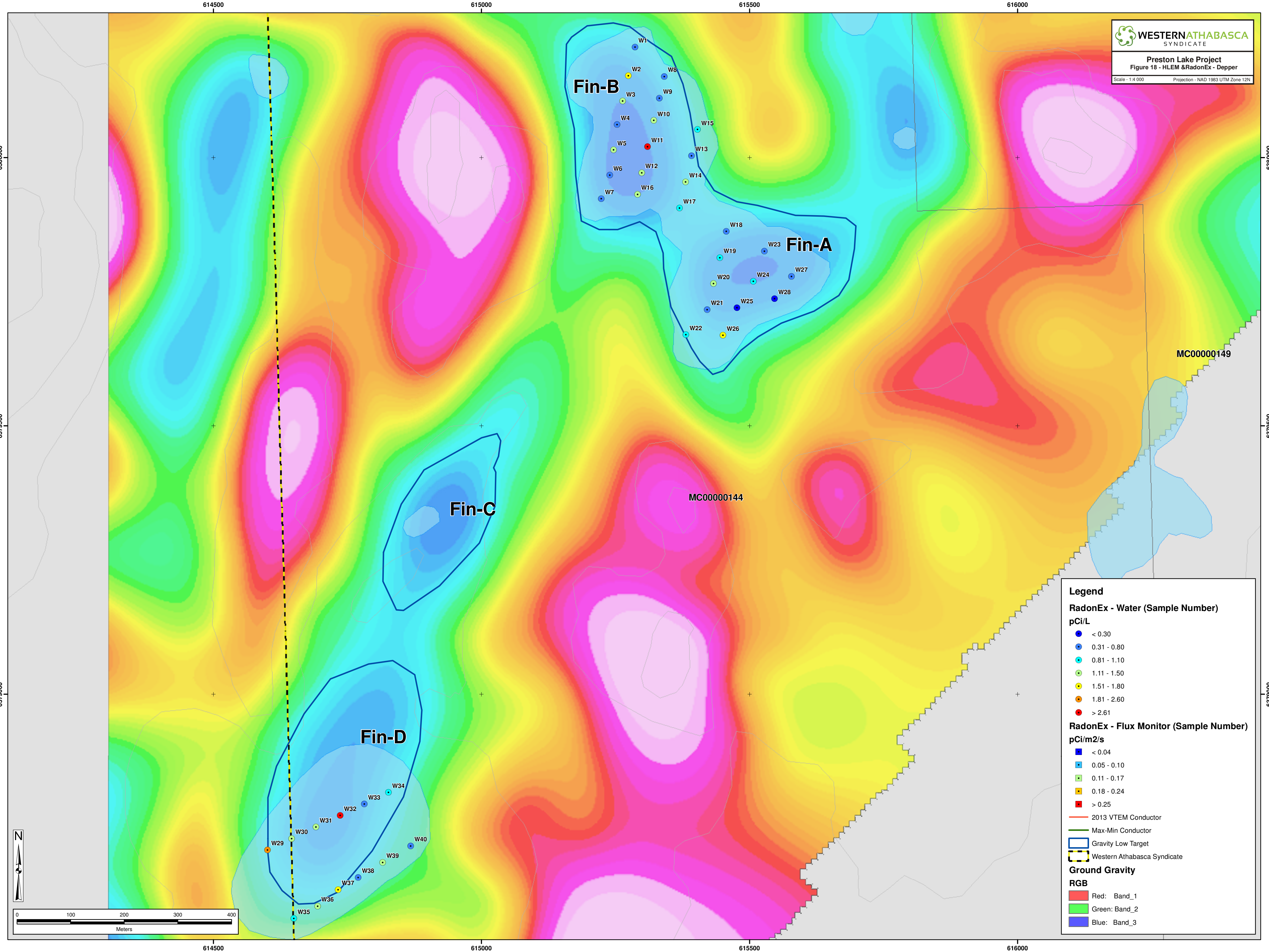
□ Gravity Low Target

▣ Western Athabasca Syndicate

**Ground Gravity**  
RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3





**Legend**

**RadonEx - Water (Sample Number)**  
 pCi/L

- < 0.30
- 0.31 - 0.80
- 0.81 - 1.10
- 1.11 - 1.50
- 1.51 - 1.80
- 1.81 - 2.60
- > 2.61

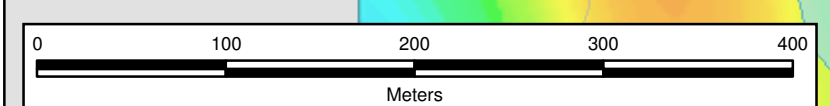
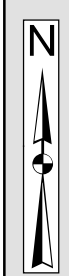
**RadonEx - Flux Monitor (Sample Number)**  
 pCi/m<sup>2</sup>/s

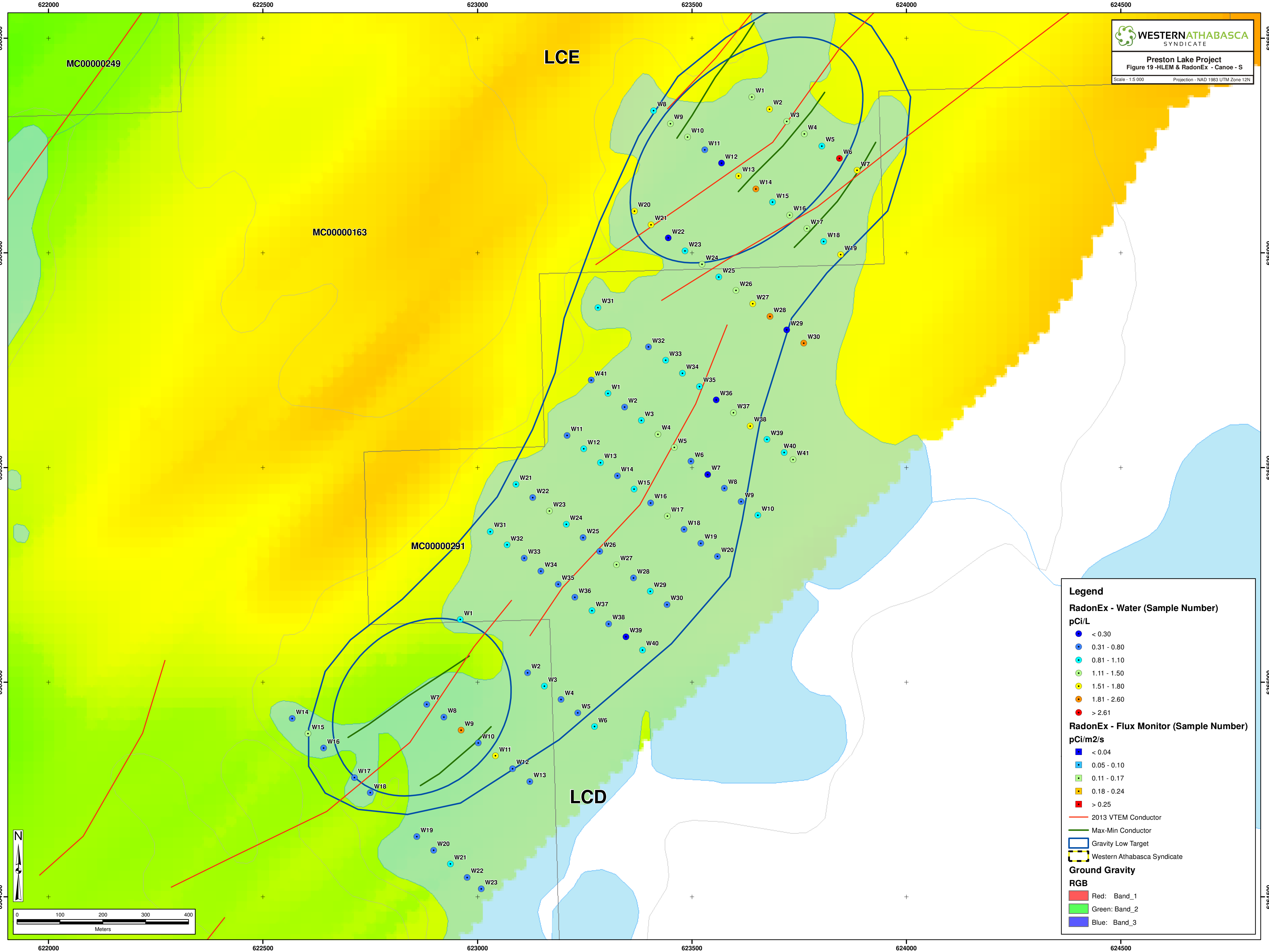
- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

— 2013 VTEM Conductor  
 — Max-Min Conductor  
  Gravity Low Target  
  Western Athabasca Syndicate

**Ground Gravity**  
 RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3





**Legend**

**RadonEx - Water (Sample Number)**  
 pCi/L

- < 0.30
- 0.31 - 0.80
- 0.81 - 1.10
- 1.11 - 1.50
- 1.51 - 1.80
- 1.81 - 2.60
- > 2.61

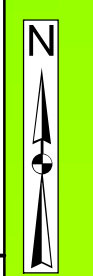
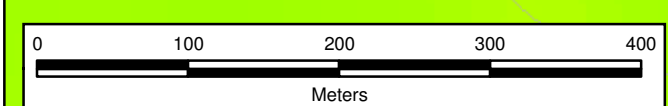
**RadonEx - Flux Monitor (Sample Number)**  
 pCi/m<sup>2</sup>/s

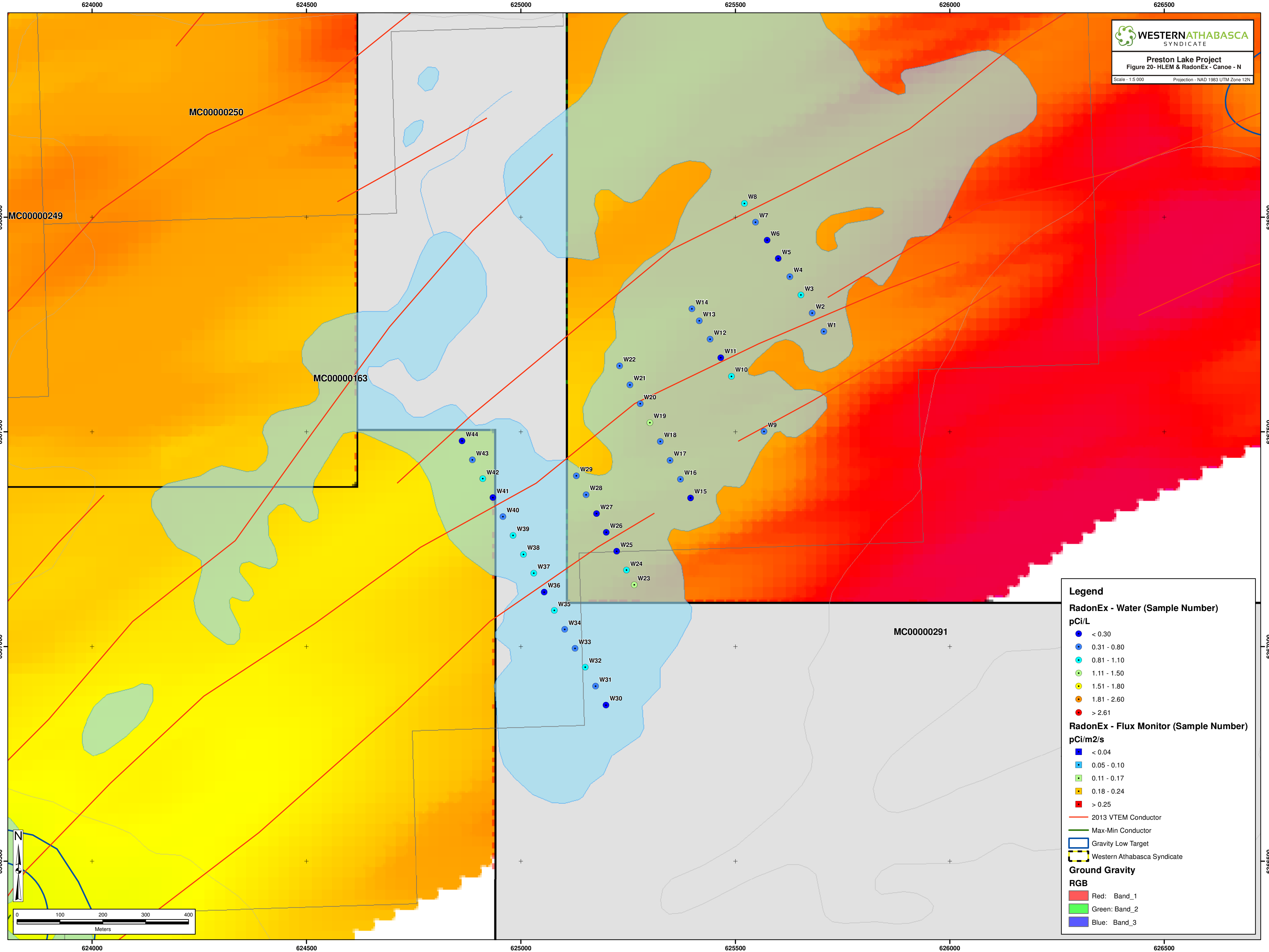
- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

— 2013 VTEM Conductor  
 — Max-Min Conductor  
 □ Gravity Low Target  
 □ Western Athabasca Syndicate

**Ground Gravity**  
 RGB

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3





**Legend**

**RadonEx - Water (Sample Number)**  
pCi/L

- < 0.30
- 0.31 - 0.80
- 0.81 - 1.10
- 1.11 - 1.50
- 1.51 - 1.80
- 1.81 - 2.60
- > 2.61


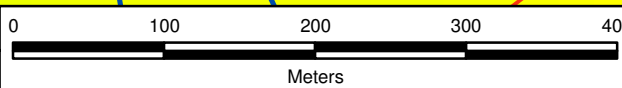
**RadonEx - Flux Monitor (Sample Number)**  
pCi/m<sup>2</sup>/s

- < 0.04
- 0.05 - 0.10
- 0.11 - 0.17
- 0.18 - 0.24
- > 0.25

— 2013 VTEM Conductor  
 — Max-Min Conductor  
 □ Gravity Low Target  
 □ Western Athabasca Syndicate

**Ground Gravity**  
**RGB**

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3

  
  
 0 100 200 300 400  
 Meters

radon-in-ground and biogeochemical samples, and are also up north-east (up structure) of a series of high-U lake-sediment results along the same trend.

One Max-Min EM conductor was identified at CHA, the Clearwater Hinge Zone (Figure 14), within the gravity low anomaly. The CHA conductor trends north-east and dips between 20-30 degrees at approximately 50m depth to the southeast and transects anomalous radon-in-ground and Li and Co biogeochemical samples on surface.

There are four identifiable Max-Min EM conductors at the FSA target (Figure 16), all within the two gravity low anomalies. They trend E-W and are dipping almost vertical to 80 degrees at depths between 28 to 40m.

In March and April of 2015, 16.1 line km of line cutting and a 14.45 line-kilometer horizontal loop electromagnetic (HLEM) “Max-Min” survey were completed over the FSA, Dixon, Depper (Fin-N, Fin-S) and Canoe (LCD,LCE) targets. These targets were selected for HLEM surveying to provide better resolution of the airborne VTEM conductors prior to final drill site micro-selection. Survey parameters by grid are tabulated below (Table 5), with conductor axes illustrated by.

The FSA and Canoe grids were surveyed with a 100 m transmitter-receiver coil separation at 25m stations utilizing transmission frequencies of 440, 1760, and 3520 Hz. HLEM coverage on the Fin and Dixon grids was completed using a 300m cable separation on 50m stations with transmission frequencies of 440, 1760, 3520 and 7040 Hz.

At LCE 3 strong conductors were identified dipping at 60 degrees to the southeast and at a depth of 60 m. The FSA target verified two good conductors dipping steeply to the southeast at a depth of 25 to 35 m. Dixon provided a shallow dipping conductor at 40 degrees southwest at a depth of 20 to 30 m, At LCD a poorly resolved EM conductor at a depth of 90 m, dipping 60 degrees southeast was identified.

## **10.0 DRILLING**

Two diamond drilling program were carried out in 2014 and 2015 based on the results of the various geological, geophysical and geochemical surveys that had been performed on the property. As the targets were upgraded, it became apparent that a new naming convention to group the various areas into regional entities was required. To this end then the following target names were adopted: Swoosh- S6 and S3); West Fin- FSA and FSB; Hinge CHA and CHB; Limb- CLA, CLB and CLC; Canoe- LCD, LCE and LCF; Lloyd- LCA, LCB and LCC, Depper- FIN, Canoe North- LCE and Canoe south- LCD, with the Dixon target retaining its original nomenclature.

The holes were located by GPS as described in sections 10.1 and 10.2, using the UTM co-ordinate system, is datum NAD83 Zone 12N. All holes were tested for orientation either half-way to target depth, and again at target depth or else every 50m to target depth using a Flexit survey tool. Downhole gamma probing was conducted using a Mount Sopris 2500 winch, Matrix II logger and Mt. Sopris 2SP-1000 total gamma probe. Measurements were made in the drill rods at 0.05 m increments from top to bottom and again from bottom to top. A comparison was made of the two surveys to rule out spurious results.

The drill core was descriptively logged by the geologist on site for lithology, alteration, mineralization structure and other geological attributes with the pertinent data entered into a database. Handheld RS-125 and RS-230 spectrometers were used to measure the radioactivity of the drill core and aided in the selection of zones for sampling. The core was sampled based on radioactivity, alteration and structure of the core with sample intervals typically 0.5 to 1 m in length, “Pucks” of core were collected periodically for PIMA analysis at the geologist discretion. The core was subsequently photographed prior to sample slitting.

Drill core samples were split longitudinally using a manual splitter. One half of the sample was placed in an appropriately labelled sample bag. After the completion of each sample, the core splitter, catchment trays and table were cleaned of any dust or rock debris to avoid contamination. The sample bags were placed in 25 l rice sacks and held for shipment to the Saskatchewan Research Council (SRC).

#### 10.1 **2014 Diamond Drilling**

The 2014 DDH program was designed to test targets chosen based on a combination of airborne geophysical and geochemical methods carried out during Phases 1 to 3 in 2013, which were then further refined by the 2014 ground HLEM and gravity geophysical survey results. A total of 1571.2 m was completed in 9 NQ size holes between March, 15, 2014 and May, 16, 2014 (Figures 21 to 23, Table 8). Valiant Drilling of Vancouver BC was the designated drilling contractor. Camp and logging facilities were maintained at Bolton Lake Lodge, located 10-20 km north of the drilling areas. Access to the drill sites from Bolton Lake lodge was entirely helicopter supported using an Astar B-2 helicopter provided by Access Helicopters of Red Deer, AB.

A Trimble DGPS was utilized to locate all drill hole locations at sub-meter accuracy. Geological logging and sampling was completed on site. All drill core is located in a storage area on site at Bolton Lake Lodge (UTM Z12N: 636462 E/6383600 N).

Table 8 2014 Diamond Drill Hole Collar Information

DDH Number	Zone	Pad	Length (m)	Azimuth	Dip	Easting	Northing	Elevation (m)
PN14001	Swoosh	S6-A	210.28	135.00	-50	645121.4	6369821	488.873
PN14002	Swoosh	S6-B	200.97	135.00	-50	644944	6369427	490.239
PN14003	Swoosh	S6-C	272.75	135.00	-50	644866.6	6369567	489.712
PN14004	Swoosh	S3-A	214.84	347.00	-45	643171.7	6368827	485.856
PN14005	Swoosh	S3-B	87.51	347.00	-45	643221.6	6368652	486.2
PN14006	Swoosh	S6-D	225.51	135.00	-50	644741.3	6369419	488.839
PN14007	Swoosh	S6-E	359.6	135.00	-50	644821.1	6369618	490.668
PN14008	Clearwater	CHA-A	181.33	315.00	-45	623915	6373601	480.6
PN14009	Fin	FSA-B	150.3	345.00	-45	617465	6373075	498.7

### Target S6

Five holes at gravity target S6 were drilled to test a minimum of two parallel northeast trending conductors centred within a magnetic low lineament and discreet 650m x 350m gravity low anomaly.

The three main lithologies intersected from hangingwall to footwall (west to east) are: pink felsic to intermediate orthogneiss with distinctive blue and white quartz; graphitic psammopelite to pelitic metasediments intercalated with intermediate to mafic gneisses; and, grey to pink felsic tonalitic to granodioritic granulite. The units are cut by late k-feldspar rich pegmatite cutting at high angles to the predominant foliation.

Deformation is common in the uppermost units, especially the metasedimentary units, typically mylonitic with a moderately dipping gneissosity at 65° cut by quartz-carbonate-chlorite fractures at 45° to core axis, all cut by late brittle rusty chloritic fractures at 25° to core axis. Hole 3 intersected a sooty graphite breccia zone bracketed by 1-3 m zones of intense silicification. Alteration of the metasediments is extensive with chloritization of mafic minerals and hematization of felsic minerals. Zones of brecciation and late brittle fracturing may contain epidote, silicification and/or fine clay alteration.

PIMA results verified extensive presence of chlorite (mostly Fe-Mg chl) and significant illite+- kaolinite, but no associated B-bearing minerals (i.e. dravite). Illite is notable in holes PN14001 and 005, with frequency and intensity is highest in the PN14001 the northeastern most hole as is very anomalous Ag, Mo, As, Co, Cu, Ni and

REE. Radioactivity in the S6 zone is uniformly Th-rich. The best sample intercept out of 125 samples returned 8.82 ppm U and 360 ppm Th over 0.5m in hole PN14003.

### Target S3

Two holes were drilled at gravity target S3 was designed to drill a fence across the S3 gravity anomaly near the termination of an E-W trending airborne EM conductor. Felsic orthogneiss of granitic to granodioritic composition and diorite gneiss, all cut by pegmatite were the dominant lithologies intersected. Local fault gouge bracketed by cataclastic textures in PN14004 was intersected along with elevated chlorite, talc and clay minerals. Drilling at PN14005 was abandoned at 87 m prior to reaching the target zone, due to melting muskeg. The best sample intercept out of 11 samples returned 2.18 ppm U and 268 ppm Th over 0.5m in hole PN14004.

### Target CHA

Hole PN14008 was designed to test this EM-conductor near the hinge of a major fold structure in an area of broad elevated U and Rn geochemical anomalies. This hole collared in gabbroic/dioritic gneiss, transitioned downhole into granodiorite gneiss and finished in feldspathic orthogneiss. Broad zones of cataclastic deformation are prevalent in the upper and lowermost units. The mafic unit near the top of the hole hosts 2 strong brittle fault gouges associated with disseminated graphite and strong chlorite, epidote, talc and clay alteration. Radioactivity in the CHA zone is similarly Th-rich. The best sample intercept out of 13 samples returned 4.25 ppm U and 62 ppm Th over 1.0m in hole PN14008.

### Target FSA

Hole PN14009 was designed to test the south-eastern conductor within the Kin-West zone. In addition to favourable geophysics, this target is well endowed with surface exposure of deformation associated with uranium mineralization in rock grab samples. This hole collared in a monotonous sequence of diorite to granodiorite gneiss before intercepting a mylonitic metapelitic gneiss at 145.2 m depth. Shearing is intense starting at 146.4m and strongly chlorite altered with weak to moderate hematite, silica and clay alteration. The hole was abandoned at 150.30m after intersecting a bluish-grey clay infilled fracture, and prior to intersecting the interpreted metasedimentary units. The best sample intercept out of 16 samples returned 5.84 ppm U and 19.5 ppm Th over 1.0 m.

## 10.2 **2015 Diamond Drilling**

The 2015 Diamond Drilling program was designed to test targets chosen based on a combination of airborne geophysical and geochemical methods carried out during Phases 1 to 3 in 2013 (Brown, 2014), and further refined by the 2014 and 2015 ground HLEM,



gravity and RadonEx results. A total of 1318 m was drilled in 5 NQ holes between August 20, 2015 and September 5, 2015 (Figure 24 and 25, Table 9). Bryson Drilling of Archerwill, SK was the designated drill contractor. Camp and logging facilities were maintained at Lloyd Lake Lodge, located 5-10 km south of Canoe Lake. Access to the drill sites from Lloyd Lake Lodge was by boat and ATV to LCE (Canoe Targets) with the remainder entirely helicopter supported using an Astar B-2 helicopter provided by Access Helicopters of Red Deer, AB.

Drill hole locations were determined using a handheld Garmin GPS with 3-5 m accuracy. Canoe target holes (PN15001 to 003) were cross stacked and stored in the field adjacent to pad PN15003 at UTM 623880E, 6366720N (Z12N, NAD83). FSA target holes (PN15004, 005) were cross stacked and stored at the east limit of the Lloyd Lake Lodge airstrip (UTM 619169E, 6356920N).

Table 9 2015 Diamond Drill Hole Collar Information

DDH Number	Zone	Pad	Length (m)	Azimuth	Dip	Easting	Northing	Elevation (m)
PN15001	Canoe	LCE-A	389	313.00	-45	624041	6366192	479
PN15002	Canoe	LCE-C	335	313.00	-45	623946	6365828	476
PN15003	Canoe	LCE-F	170	315.00	-50	623877	6366665	~475
PN15004	FSA	F4-A	212	337.00	-45	617565	6373065	~475
PN15005	FSA	F5-A	150	328.00	-45	616405	6372749	~475

### Canoe Target

The 3 holes drilled at the Canoe Lake target intersected a package of granodiorite to tonalitic gneisses overlying psammopelitic to pelitic gneisses and graphitic pelitic gneisses which in turn overlie a quartz diorite gneiss. The 3 holes drilled at the Canoe Lake target indicate a general increase in deformation, alteration and radiometric response in both a northerly direction and in the westernmost conductor. Deformation is notable in all 3 holes, but most pronounced in Holes PN15001 and 003. The general pattern of deformation includes brittle fracturing and gouge formation within and along margins of graphitic units, bracketed by cataclastic +-breccia and mylonitic fabrics in the surrounding metasedimentary or metaplutonic rocks. Hydrothermal alteration is notable to varying degrees in all holes, but strongest in PN15003. Chlorite-sericite alteration was the most notable with hematite, quartz and clay alteration picking up in zones of more intense alteration. Clay alteration was the most obvious in and around the faulted graphitic units. Secondary flake graphite-after-biotite was notable in holes 1-3 typically in psammopelite or granulite intervals proximal to the main graphitic-pelite units. Silica alteration occurred as diffuse flooding, but was more commonly observed as quartz veining fracture filling with some notable associations with pyrite and chalcopyrite and

assay results of up to 532 ppm Cu and 1.52 ppm Ag. Pyrite was almost always present in the graphite horizons between 3-10% as smeared disseminations and semi-massive fracture fill. Radiometric responses in hole 3 returned values up to 7ppm U, 371ppm Th, and 357ppm Cu with 480 ppb Ag and 15 ppb Au.

#### Target FSA

The drilling intersected a package of graphitic pelitic gneisses, pelitic to psammo-pelitic gneisses and locally intercalated gneissic granodiorite. Deformation is notable in both holes, though more pronounced in PN15005. The general pattern of deformation includes brittle fracturing and gouge formation within and along margins of graphitic units, bracketed by cataclastic +-breccia and mylonitic fabrics in the surrounding metasedimentary or metaplutonic rocks. Hydrothermal alteration is notable to varying degrees in all holes, but strongest in PN15005. Chlorite-sericite alteration was the most notable with hematite, quartz and clay alteration picking up in zones of more intense alteration. Clay alteration was the most obvious in and around the faulted graphitic units. Secondary flake graphite-after-biotite was notable in PN15004 typically in psammopelite or granulite intervals proximal to the main graphitic-pelite units. Silica alteration occurred as diffuse flooding, but was more commonly observed as quartz veining fracture filling with some notable associations with pyrite and chalcopyrite and assay results of up to 532 ppm Cu and 1.52 ppm Ag. Pyrite was almost always present in the graphite horizons between 3-10% as smeared disseminations and semi-massive fracture fill

Analytical results from the eastern FSA hole (PN15004) returned best results from variable samples of up to 1.8 ppm U, 36 ppm Th, and 65 ppm Cu with 1120 ppb Ag. Despite the low uranium results, the elevated deformation, alteration and sulphide and silver contents suggest that significant fluid flow did affect the FSA structure. Alteration and sulphide mineralization is even more pronounced in hole PN15005 located along the same conductor 1 km to the west. Results from this hole returned up to 1520 ppb Ag, 18 ppb Au, and 532 ppm Cu from silica and sulphide enriched zones adjacent to the main graphite horizon.

283000 283500 284000 284500 285000

**WESTERNATHABASCA**  
SYNDICATE

**Preston Project**  
**Figure 21 - S3/S6 DDH Location**

Scale - 1 : 6 500      Projection - NAD 1983 UTM Zone 12N

6373000

6373000

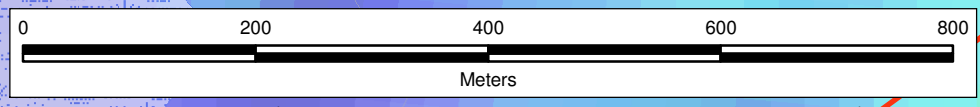
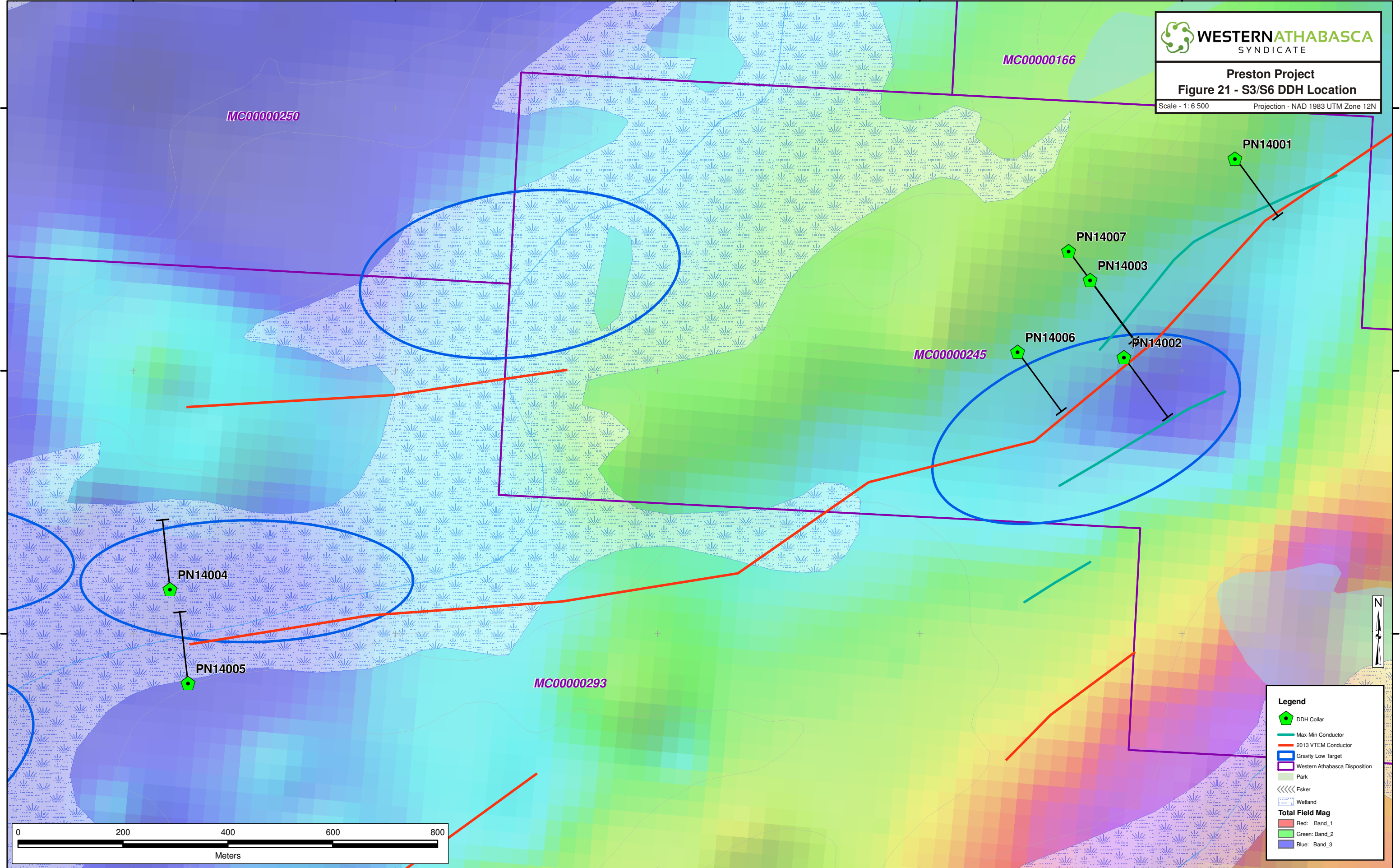
6372500

6372500

6372000

6372000

283000 283500 284000 284500 285000



**Legend**

- DDH Collar
- Max-Min Conductor
- 2013 VTEM Conductor
- Gravity Low Target
- Western Athabasca Disposition
- Park
- Esker
- Wetland

**Total Field Mag**

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3



263500

264000

264500

265000

6379000

6379000

6378500

6378500

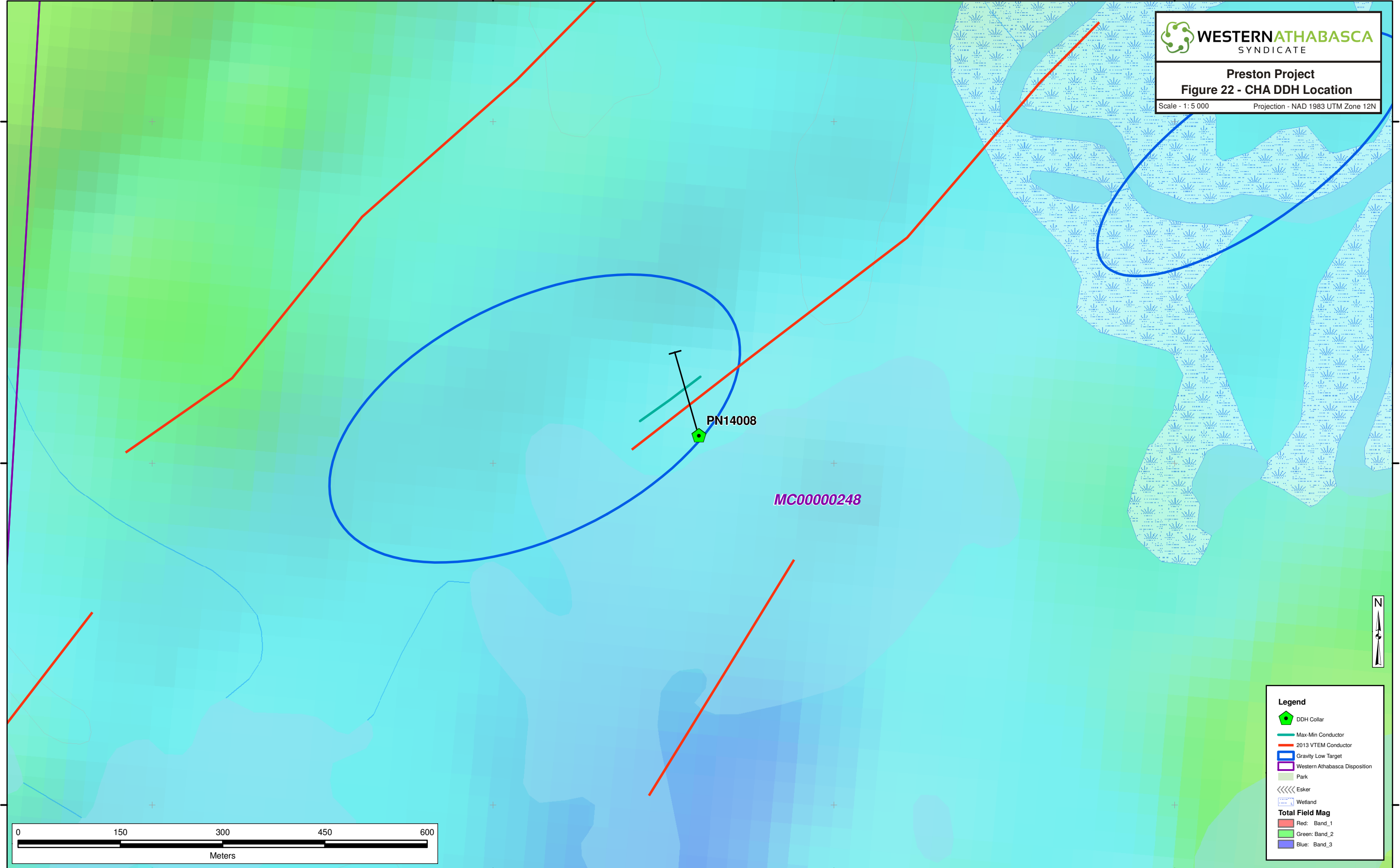
6378000

6378000

**WESTERNATHABASCA**  
SYNDICATE

**Preston Project**  
**Figure 22 - CHA DDH Location**

Scale - 1 : 5 000      Projection - NAD 1983 UTM Zone 12N



MC00000248

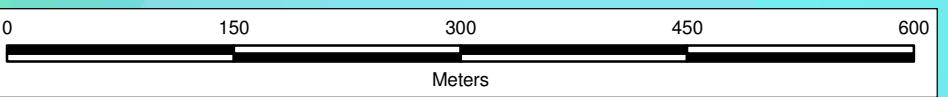
PN14008

**Legend**

- DDH Collar
- Max-Min Conductor
- 2013 VTEM Conductor
- Gravity Low Target
- Western Athabasca Disposition
- Park
- Esker
- Wetland

**Total Field Mag**

- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3



263500

264000

264500

265000

257500

258000

258500

259000

6379500

6379500

6379000

6379000

6378500

6378500

257500

258000

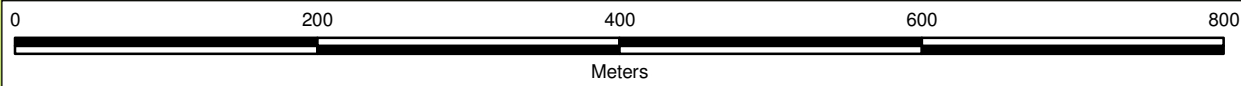
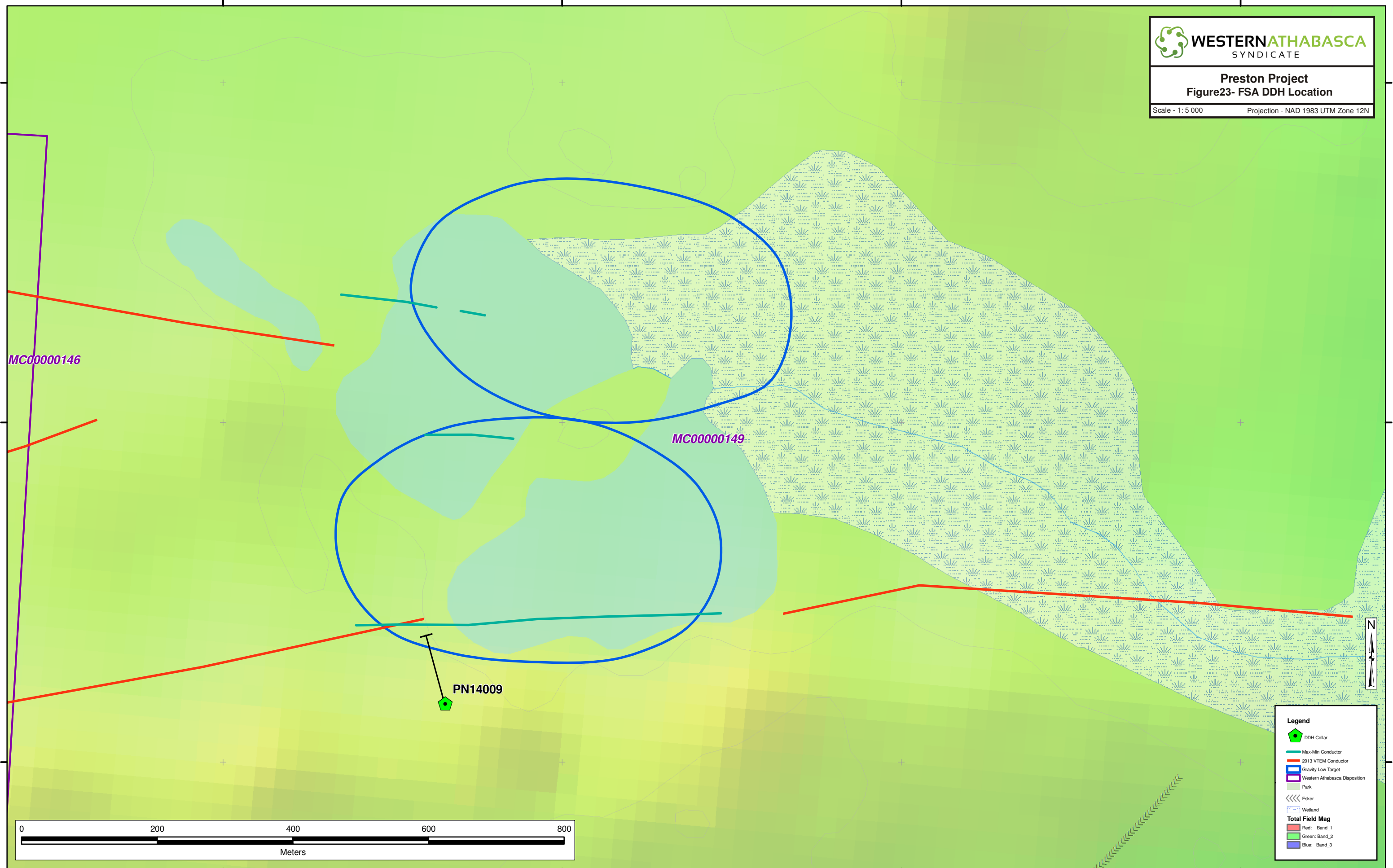
258500

259000

**WESTERNATHABASCA**  
SYNDICATE

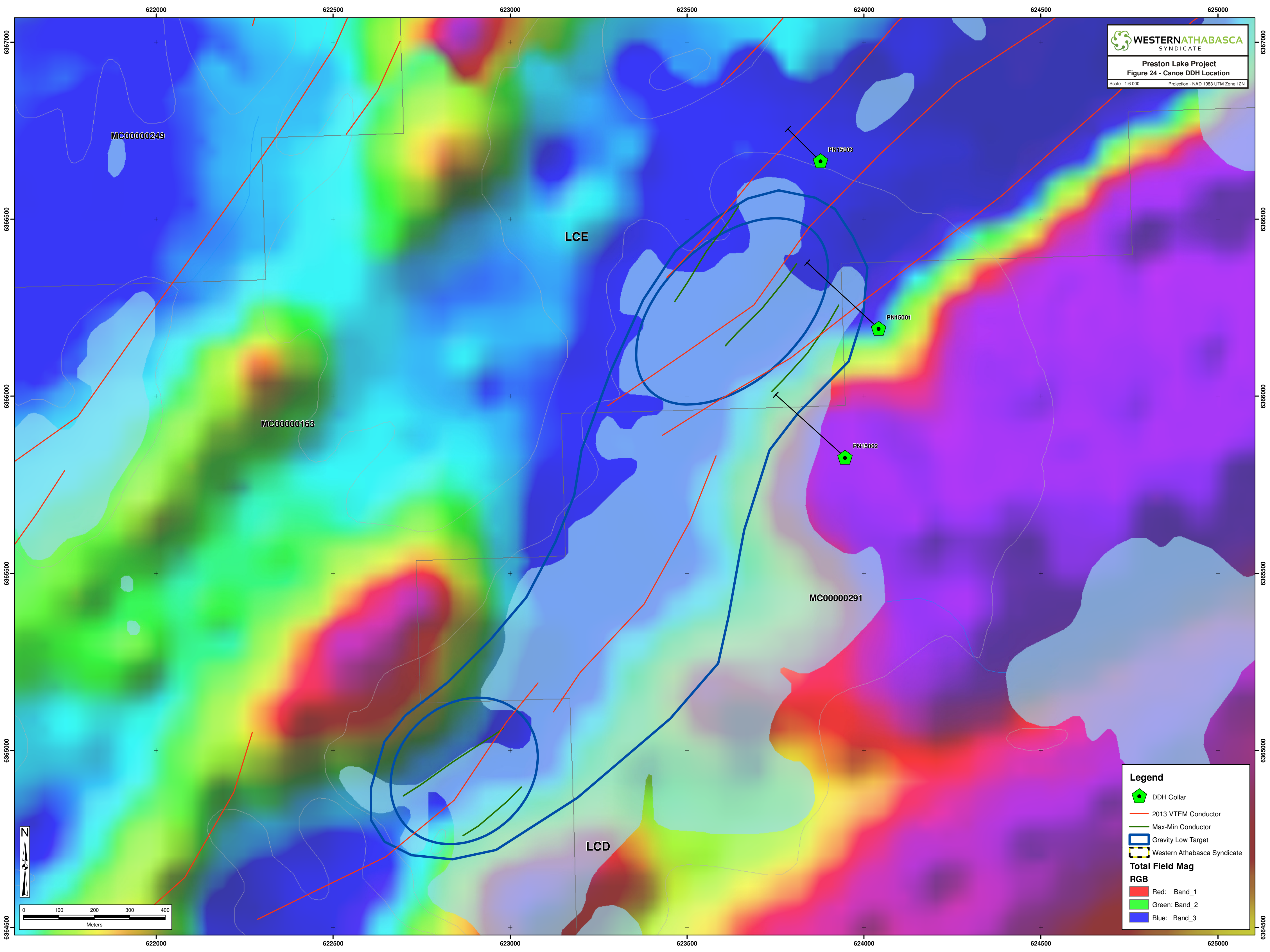
**Preston Project**  
**Figure23- FSA DDH Location**

Scale - 1: 5 000      Projection - NAD 1983 UTM Zone 12N








**Legend**

- DDH Collar
- Max-Min Conductor
- 2013 VTEM Conductor
- Gravity Low Target
- Western Athabasca Disposition
- Park
- Esker
- Wetland
- Total Field Mag**
- Red: Band\_1
- Green: Band\_2
- Blue: Band\_3







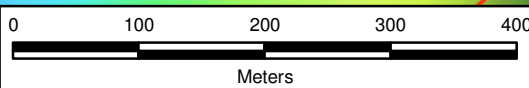
**Legend**

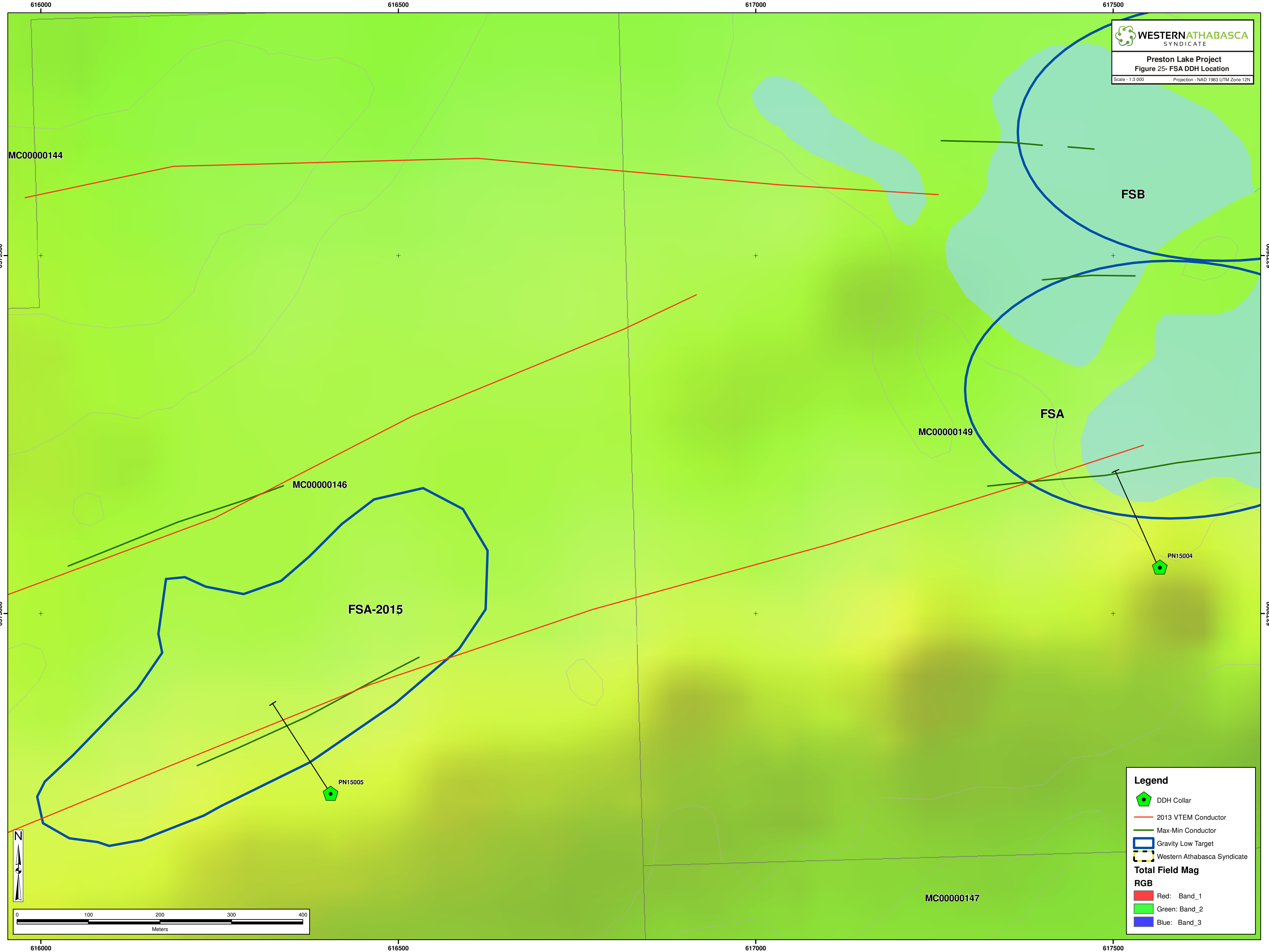
-  DDH Collar
-  2013 VTEM Conductor
-  Max-Min Conductor
-  Gravity Low Target
-  Western Athabasca Syndicate

**Total Field Mag**






**RGB**

-  Red: Band\_1
-  Green: Band\_2
-  Blue: Band\_3

  
  
 0 100 200 300 400  
 Meters






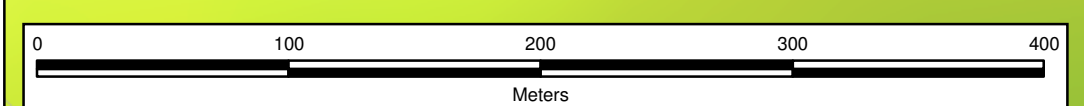
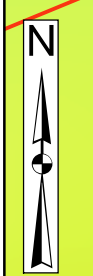
**Legend**

-  DDH Collar
-  2013 VTEM Conductor
-  Max-Min Conductor
-  Gravity Low Target
-  Western Athabasca Syndicate

**Total Field Mag**

**RGB**

-  Red: Band\_1
-  Green: Band\_2
-  Blue: Band\_3



MC00000144  
 MC00000146  
 MC00000147  
 MC00000149  
 FSA  
 FSA-2015  
 FSB  
 PN15004  
 PN15005

## **11.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY**

The collected samples were assembled at TerraLogic's camp sample assembly area or core logging facility and placed into 25 litre rice sacks, the notes for each sample transcribed into an Access database and the bags sealed prior to shipment to the respective analytical lab. In the case of the soil, silt and biogeochemical samples, the samples were air dried prior to packing. TerraLogic employees were not involved in any sample preparation beyond the sample collection and assembly stage. No special security measures were enforced during the transport of samples apart from those set out by Transport Canada.

All samples were then prepared for analysis by ACMELabs and the SRC upon arrival at their respective facilities. In the opinion of the Author sample preparation, security and the analytical procedures are of the highest standards. All of the analytical laboratories involved (ACMELabs, SRC) are independent of Skyharbour Resources Resources, Athabasca Nuclear and TerraLogic Exploration.

### **11.1 Core, Rocks, Soils and Lake Sediments**

Core, rock and soil samples were transported directly to the Saskatchewan Research council in Saskatoon, Saskatchewan The SRC is certified and operates in accordance with ISO/IEC 17025:2005 (CAN-P-4E), General Requirements for the Competence of Mineral Testing and Calibration Laboratories.

All lake sediment and biogeochemical samples were sent to ACMELabs in Vancouver British Columbia. ACMELabs is compliant with the International Standards Organization (ISO) 9001 Model for Quality Assurance and ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

Summaries of the procedures as below are taken from the respective laboratory literature.

At the SRC samples are dried and jaw crushed, a subsample split out using a sample riffler and the subsample pulverized using a puck and ring grinding mill. The pulp was transferred to a labeled plastic snap top vial. Rock samples were subjected to method ICP1 total and partial multi-element analysis as well as AU1 method and soil samples subjected to the ICPMS-2 multi-element method with lead isotopes. Rock samples with >1000 ppm U or REE were to be assayed for their respective Au or REE contents.

In method ICP-MS2, aqua regia digestion is used, whereby an aliquot of pulp is dissolved in a mixture of concentrated HCl:HNO<sub>3</sub> in a boiling water bath then topped up with deionized water. The instruments in the analysis were calibrated using certified commercial solutions. The instruments used were PerkinElmer Optima 300DV, Optima



4300DV or Optima 5300DV. A quality control sample was prepared and analyzed with each batch of samples. One in every 40 samples was analyzed in duplicate. All quality control results must be within specified limits otherwise corrective action is taken.

For AU1 samples prepared as before with the grinding mills were cleaned between samples using steel wool and compressed air or silica sand. The pulp was transferred to a labeled plastic snap top vial. An aliquot of sample pulp was mixed with standard fire assay flux in a clay crucible and a silver inquart is added. The mixture was fused. The fusion melt was poured into a form and cooled. The lead bead was recovered and cupelled until only the precious metal bead remains. The bead was then parted in a solution heated in a boiling water bath until the silver dissolves. The solution was decanted leaving the gold in the test tube. Aqua Regia was added to the gold in the test tube and heated in a boiling water bath until the gold dissolves. The sample was then diluted to volume and analyzed by Atomic Absorption Spectrometry (AAS) (Perkin Elmer). The detection limit for Au using this method is 2 ppb. Quality control measures and data verification procedures applied include the analysis of certified reference materials after every 20 samples analyzed, a blank sample, and a replicate sample analysis after every 40 samples analyzed.

## 11.2 Lake Sediment and Biogeochemical Samples

Lake sediment and Biogeochemical Samples were analyzed at ACMELabs for multi-element analysis as described in their literature and summarized below.

Lake sediment samples are dried at 60°C and -80 mesh. Sieves cleaned by brush and compressed air between samples. Soils are pulverized to -100 mesh ASTM with an a ceramic pulverizer.

Lake sediment samples were analyzed at ACMELabs and subjected to Method 1F-04 where the prepared sample is digested with a modified Aqua Regia solution of equal parts concentrated HCl, HNO<sub>3</sub> and DI H<sub>2</sub>O for one hour in a heating block or hot water bath. The sample is then made up to volume with dilute HCl and analyzed according to Method 1F-04 with ICP-MS.

The biogeochemical plant material is dried and milled to 1 mm and the vegetation is ashed by heating to 475° C. The samples are then washed with Type-1 water and dried at 60° C prior to analysis.

Biogeochemical samples were subjected to method 1VE where the sample is cold leached with nitric acid then digested in a hot water bath. After cooling a modified Aqua Regia solution of equal parts concentrated HCl, HNO<sub>3</sub> and DI H<sub>2</sub>O are added to each sample to leach in a heating block of hot water bath. Sample is made up to volume with dilute HCl then filtered. Sample splits of 1g or 5g can be analyzed. The samples are then

analyzed by ICP-MS.

Quality control measures and data verification procedures for lake sediments and biogeochemical samples include the analysis of certified reference materials, a blank sample, and a replicate sample analysis after every 34 to 36 samples analyzed.

## **12.0 DATA VERIFICATION**

At this early stage of exploration on the property, no formal Quality Assurance/Quality Control (QA/QC) protocol has been established by the company, although as noted in the previous section the individual analytical labs have their own QA/QC procedures and the TerraLogic crew did insert periodic blank samples in their sample shipments. It should be noted that the bulk of the surface samples were collected for the purposes of geophysical and drill targeting and are not considered to be quantitative in any way. In the case of the drill core, no significant zones of mineralization were identified so these samples would likewise not be seen as quantitative in any significant fashion. In the opinion of the Author, results are well within the expected range of variability for the type of sample taken. In the opinion of the Author the sample preparation, security and analytical procedures was carried out on the samples collected was of a very high standard and was adequate for the current stage of exploration.

## **13.0 ENVIRONMENTAL STUDIES, PERMITTING AND COMMUNITY IMPACT**

In order to conduct any significant ground work at the property, the operator must be registered with the Saskatchewan government and comply with the Saskatchewan Environment Exploration Guidelines and hold the appropriate Temporary Work Camp Permit, Timber Permit and Aquatic Habitat Alteration Permits. The operator must also comply with the Federal Department of Fisheries and Oceans that administers its own Guidelines for the Mineral Exploration Industry.

The environmental liabilities associated with the activities to date are consistent with low impact exploration activities. The mitigation measures associated with these impacts are accounted for within the current surface exploration permits and authorizations. Because of these factors, no formal environmental studies have been carried out to date although informal observations have been made as a function of good exploration practice.

The most likely community impact for exploration on the project would be positive employment effects at all stages of exploration. At a more advanced stage, mines in the region typically utilize a week in – week out schedule reducing the negative impacts of creating company town sites. The mineral extractive industry in Saskatchewan has a high

level of acceptance and support throughout the provincial population, as well as by local and provincial governments.

#### **14.0 ADJACENT PROPERTIES**

Several significant uranium deposits occur in the western Athabasca Basin with Areva's Cluff Lake Uranium Mine (currently closed) the sole producer to date with production of 62 million pounds  $U_3O_8$ . However there are several advanced projects that are being explored at this time in the region including: Shea Creek (Anne and Collette, NI 43-101 compliant, 63.6 million lbs  $U_3O_8$  indicated and 24.5 million lbs  $U_3O_8$  inferred) of UEX and Areva; Patterson Lake South (Triple R, NI 43-101 compliant, 81.1 million lbs  $U_3O_8$  indicated and 27.2 million pounds  $U_3O_8$  inferred) of Fission Uranium; Arrow Zone of Nexgen Energy (no resource reported) and Spitfire Zone of Cameco-Areva-Purepoint (no resource reported). The latter three lie roughly equidistant from one another on a northeast trend, with the Triple R the southernmost and Spitfire the northernmost. These prospects are the most relevant deposits to the Preston Lake project as they lie north of the project by approximately 20 to 25 km.

The Triple R was the first discovery made in the area, identified by systematic tracing of a radioactive boulder train to a postulated source that was proximal to well defined EM conductors associated with major structural zones. In November of 2012, the Triple R joint venture intersected 8.5 m of 1.07%  $U_3O_8$  in what turned out to be the discovery diamond drill hole. A recently completed 43-101 Technical Report and Preliminary Economic Assessment (PEA) by Rosco Postle and Associates (RPA, Cox et al 2015) estimated Mineral Resources for the Triple R deposit using drill hole data available as of July 28, 2015. At cut-off grades of 0.20%  $U_3O_8$  for open pit and 0.25%  $U_3O_8$  for underground, the Indicated Mineral Resources are estimated to total 2,011,000 tonnes at an average grade of 1.83%  $U_3O_8$  containing 81.1 million pounds of  $U_3O_8$ . Inferred Mineral Resources are estimated to total 785,000 tonnes at an average grade of 1.57%  $U_3O_8$  containing 27.2 million pounds of  $U_3O_8$ . There are, in addition to the Triple R deposit, other targets on the property to be drill tested.

To date, uranium mineralization has been discovered in four additional target areas on the PLS Property; R600W, R00E, R780E, and R1620E. The R600W, R00E, and R780E mineralized zones all occur within a corridor of variably graphitic pelitic gneiss flanked to the north and south by semi-pelitic gneiss over a 2.3 km strike length of the PLG-3B EM conductor. The R1620E zone is currently intersected by only two drill holes and is located on the PLG-3C EM conductor which, based on geology, is considered to be the eastern extension of the PLG-3B EM conductor. The deposit is considered to be open in several directions with significant potential for expansion of the resource (Cox et al, 2015). Drilling is currently ongoing as of the date of this report.

The Arrow zone was discovered in the winter of 2014 with the drilling of hole AR-14-01 which contained several intercepts with strong radioactivity. This zone consists of at least three steeply dipping and steeply plunging mineralized horizons with uranium occurring as semi-massive to massive veins, fracture linings and disseminations of pitchblende and coffinite. The mineralization is typically associated with hematitization, chloritization, and pervasive clay alteration (dravite and sudoite). An example of the high grade nature of the Arrow Zone is hole AR-15-49c2 which intersected 12.01%  $U_3O_8$  over 50 m, including 18.0 m of 20.55%  $U_3O_8$  and 4.5 m of 40.64%  $U_3O_8$ . As of November, 2015 the Arrow zone has been defined over a strike length of 645 m, width of 235 m and depth of 920 m vertical, starting at a depth of 100 m. The Arrow Zone appears to be open in all directions and at depth. (McNutt, 2015). Drilling is currently ongoing as of the date of this report.

The most recent discovery is that of Cameco (39.5%) Areva (39.5%) and Purepoint (21%) and is called the Spitfire Zone. In the spring of 2014 Purepoint Uranium (<http://www.purepoint.ca/uraniumprojects/hooklake.php>) as operator of the project intersected a relatively low grade uranium intercept of 0.32%  $U_3O_8$  over 6.2 m, including 1.1%  $U_3O_8$  over 0.5 m from strongly chloritized and sheared quartz-rich pelitic gneiss at a downhole depth of 208 m. Follow up drilling in the winter of 2015 intersected 2.8 m of 2.23%  $U_3O_8$  including 12.90%  $U_3O_8$  over 0.4 m, 240 m northeast of the original discovery hole and at a depth of 390 m. The mineralization identified to date is associated with a semi-brittle structure that is coincident with the upper contact of a thick, strongly sheared graphitic-pyritic pelitic gneiss unit. Exploration of the Spitfire Zone is ongoing as of the time of this report. (Purepoint News Release, January 21, 2015).

The Author has not been able to verify the information that has been provided with respect to the Shea Creek, Triple R, Arrow and Spitfire prospects. This information is not necessarily indicative of mineralization on the Preston Uranium Project

## **15.0 OTHER RELEVANT DATA AND INFORMATION**

There is no other relevant data or information available necessary to make the technical report understandable and not misleading. To the Authors' knowledge, there are no significant risks or uncertainties that could reasonably be expected to affect the exploration potential of the Preston Property.

## **16.0 INTERPRETATIONS AND CONCLUSIONS**

The Preston Uranium Project had seen little concerted exploration until 2013 when extensive exploration efforts, prompted by local discoveries, were begun by Skyharbour Resources Ltd. and Athabasca Nuclear Corp. as part of the Western Athabasca Syndicate (WAB). This ongoing work has successfully identified a series of highly prospective exploration targets in a large regional land package. In the opinion of the Author the Preston Uranium Property remains a highly prospective mineral exploration property.

Preliminary airborne VTEM, Magnetic and Radiometric geophysical surveys, followed up by geological mapping and various geochemical programs (soil, lake sediment, radon) identified eight lithostructural corridors of note on the Preston Uranium Property. Follow up ground gravity program were able to identify several highly prospective, previously untested exploration targets which formed the basis of the identified exploration targets. HLEM surveys successfully refined the airborne VTEM conductors as evidenced by the general success of the subsequent drilling program. The results of the various radon surveys carried out subsequent to the first stage of exploration were rather more enigmatic in that tangible results from the data were not readily apparent from the drilling results.

Follow up diamond drilling on several of the target areas (Swoosh, Clearwater, Fin, Canoe and FSA) within the various lithostructural corridors is at an early stage; however the results to date indicate that there is great potential for the discovery of significant uranium mineralization. Graphitic and non graphitic metapelitic gneisses and felsic intrusive rocks were intersected by the drilling and were frequently affected by significant structural disruption, hydrothermal alteration and prospective geochemical signatures within many of the holes that were drilled.

Diamond drilling at the Swoosh S6 target intersected felsic to mafic orthogneisses and graphitic and non-graphitic metasedimentary units that were affected by intense structural disruption and accompanied by silicification and illitic clays. Anomalous Ag, Mo, As, Co, Cu, Ni and REE have been identified in the drilling to date with the best sample intercept being 8.82 ppm U and 360 ppm Th.

The initial hole on the Swoosh S3 target intersected felsic and mafic orthogneisses and pegmatite with major fault gouge within a mylonite/cataclastic zone accompanied by significant chlorite and clay alteration. This hole was prematurely abandoned which left the main target untested.

At the Hinge area, the single hole in the CHA target tested uranium and radon anomalies within a folded EM conductor. Intermediate and felsic gneisses affected by broad zones of cataclastic deformation are prevalent including two strong brittle fault gouges in the

upper part of the hole, associated with disseminated graphite and strong chlorite, epidote, talc and clay alteration.

The hole in the West Fin FSA-B target tested favourable geophysics and significant deformation and uranium mineralization from surface samples. Intermediate to felsic intrusives overlying 5 m of moderately to strongly chlorite and clay altered mylonitic pelitic gneiss was intersected, terminating in a promising blue grey clay interval. This hole was lost immediately thereafter due to driller incompetence.

The FSA target drilling intersected an extensive package of graphitic and non-graphitic pelitic metasedimentary gneiss and pegmatite. The graphitic conductors that were intersected were well-defined, hydrothermally altered, sulphide rich and structurally disrupted. Of particular interest is PN15005, where nearly the entire hole was altered, sheared and contained sulphide mineralization including a 25 m wide graphitic unit. The holes returned anomalous pathfinder elements such as Ag, Au, Cu, B, Li and Mo, but generally low U values of up to 1.8 ppm.

The Canoe target drilling intersected highly prospective lithologies including graphitic and non-graphitic metapelitic packages as well as felsic and intermediate orthogneisses and pegmatite, and significant alteration. A minimum of three well defined, hydrothermally altered and structurally disrupted graphitic conductors were intersected, along with geochemical values of up to 7 ppm U, 371 ppm Th, and 357 ppm Cu, with 480 ppb Ag and 15 ppb Au. Anomalous radioactivity and sulphide mineralization accompanied by strong hematite-chlorite-sericite-clay alteration proximal to graphitic conductors, along with anomalous geochemistry is common in the alteration halo of many Athabasca Basin uranium deposits

The drilling carried out to date on targets within the eight lithostructural corridors on the property has identified several of the lithological, structural and geochemical features required for the formation of a basement hosted, structurally controlled uranium deposit. The best targets that have been identified to date by drilling are the FSA and Canoe targets, followed by the Swoosh S-6 and Hinge CHA targets. Unfortunately the West Fin FSA-B and Swoosh S-3 drill holes were not completed, leaving the main target untested by drilling.

## **17.0 RECOMMENDATIONS**

The results of the exploration efforts to date have been positive as evidenced by the success of the diamond drilling program. In light of these results the Author has no hesitation in recommending further work to be carried out on the property. A two phase program is recommended.

Phase One would consist of a 2,000 m helicopter supported summer diamond drilling program on the various targets identified to date. There are sufficient drill targets to warrant a program heavily weighted to helicopter supported drilling with geological mapping prospecting and geochemical sampling supported by the same helicopter.

The drilling completed in the Canoe and FSA target areas has intersected geological features that are commonly associated with uranium mineralization. The holes are situated on major lithostructural corridors containing extensive graphitic EM conductors that extend for many km along strike. These two target areas alone could easily absorb the entire Phase One budget, but at this time it is recommended that only approximately 60% of the proposed drilling budget be used to test them in Phase One.

Additional drilling should be carried out on the various Swoosh targets that have been identified, as should follow up drilling on the Swoosh targets that have been tested to date, especially at Swoosh S-3, where the hole was abandoned prior to intersecting the conductor. Similarly, the West Fin FS-B target requires follow up drilling to complete the hole that was abandoned prematurely in highly prospective geology. Other areas that may be drill tested at this time include the Depper Lake targets and Clearwater CS targets.

The boulder prospecting and geochemical sampling program can be carried out in conjunction with the diamond drilling program utilizing the drill helicopter. There are numerous follow up targets including but not restricted to the Swoosh targets, the north central region which includes the Clearwater LC and CS targets as well as numerous others on the property.

The anticipated budget for the Phase I exploration program is \$1,210,000 including a 10% overhead allowance as detailed in Table 10.

Table 10 Phase 1 Exploration Budget

Activity	Amount	Unit Cost	Total Cost
Prospecting and geochemistry	100 mandays	\$1,000	\$100,000
Diamond Drilling (helicopter)	2,000 m	\$500	\$1,000,000
Overhead	10%		\$110,000
<b>Total</b>			<b>\$1,210,000</b>

An additional recommendation would be to give the eight lithostructural corridors specific names (Alpha, Bravo etc, west to east) to simplify identification of the various targets and target areas.

Phase Two would be anticipated for the following year should results of Phase One be successful. It would be anticipated that the project will have advanced sufficiently that an expanded exploration program would be warranted. To that end a significantly larger helicopter supported diamond drilling program of 3,500 m is recommended, accompanied by additional HLEM and Gravity surveys to assist in additional target definition where warranted. This program would be to follow up the anticipated positive results of the Phase One program as well as any other untested targets of significance on the property.

The cost of this Phase Two program is anticipated to be \$2,200,000 including 10% overhead as outlined in Table 11 below.

Table 11 Phase 2 Exploration Budget (tentative)

Activity	Amount	Unit Cost	Total Cost
Linecutting	50 km	\$1,000	\$50,000
HLEM	50 km	\$1,500	\$75,000
Gravity			\$75,000
Diamond Drilling	3600 m	\$500	\$1,800,000
Overhead	10%		\$200,000
<b>Total</b>			<b>\$2,200,000</b>



## 18.0 REFERENCES

### 18.1 Scientific References

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**Certificate of Qualified Person (QP)****Dave Billard, B.Sc., P.Geo.**

To Accompany the Report titled "Technical Report on the Preston Exploration Project, Northern Saskatchewan, Canada", dated February 5, 2016 (the "Technical Report").

I, Dave Billard, B.Sc., P.Geo. of 115 Bottomley Avenue North, Saskatoon, Saskatchewan, Canada hereby certify that:

1. I am currently a consulting geologist, owner and President of Cypress Geoservices Ltd. a geoscientific consulting firm with offices at 60 - 158 2<sup>nd</sup> Avenue North, Saskatoon, Saskatchewan, Canada, S7K 2B2
2. I am a graduate of the University of Saskatchewan, having obtained the degree of Bachelor of Science -Advanced in Geology in 1983.
3. I have been continuously employed as a geologist since 1983. I worked with Cameco Corporation in Saskatchewan and the western U.S. from 1986 through 1998 and JNR Resources Inc. from 1999 to 2013, most recently as Vice President Exploration and Chief Operating Officer until JNR's acquisition by Denison Mines in January 2013.
4. I have been involved in mineral exploration for uranium, gold, copper, lead, zinc, and diamonds in Canada (Saskatchewan, British Columbia, Yukon, Newfoundland and Labrador) and the United States (Wyoming, Nebraska, Texas, South Dakota) at the grass roots to advanced exploration stage, including resource estimation for In-situ recoverable uranium deposits in the United States.
5. I am a member of the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS) and use the title of Professional Geoscientist (P.Geo.)
6. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI43-101") and certify that by reason of my education, affiliation of my professional association and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI-43-101.

7. I am responsible for the preparation, compilation of data and contents of the Report titled "*Technical Report on the Preston Exploration Project, Northern Saskatchewan, Canada*".
8. I was last present on the property on February 21, 2014 but did not make any formal observations.
9. I have not had prior involvement with the property that is the subject of the Technical Report.
10. I am independent of Skyharbour Resources Ltd. and related companies as defined by Section 1.5 of NI 43-101.
11. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

