

# Eagle Lake (REE, U)

## SUMMARY

The following assessment report discusses the results of recent exploration work at the Eagle Lake Property, owned by Eagle Plains Resources Ltd. (EPL), located in north-central Saskatchewan, Canada, approximately 200km north of La Ronge and 35km southeast of Cameco's Key Lake uranium mine.

Eagle Lake Uranium Sample	
	The report covers exploration work completed on the properties in September and October of 2009. The property comprises 6 mineral claims that cover 14295 Ha of ground over 2 historical uranium occurrences, which were discovered in the 1950's to 1970's.

The property is underlain by rocks of the Proterozoic Wollaston Domain comprising ortho- and paragneisses, including Archean gneissic domes (basement), and minor younger intrusive bodies including abundant pegmatite bodies, and is being explored for its uranium potential based upon historical uranium occurrences, several of which were confirmed by sampling in 2006-2008, that indicate the potential for identifying structurally-hosted uranium mineralization and/or intrusive (pegmatite) hosted uranium mineralization.

In the fall of 2009, Bootleg Exploration Ltd, a wholly owned subsidiary of Eagle Plains Resources Ltd, completed a two phase program of line cutting, ground geophysics, soil and rock geochemistry and mapping. All work occurred in the northernmost dispositions:

PHASE A: Established a 7.1 line-km cut grid at the Great Plains Showing.

The grid was surveyed for magnetics, soil geochemistry, and scintillometer by Highrock Resources Ltd, of LaRonge, SK, which included historical uranium showings that were verified by Bootleg Geologists in 2006-2007. 148 soil samples were collected on the grid, and submitted to SRC labs in Saskatoon, SK.

PHASE B: Bootleg geologists and geotechs concentrated on the new Red October Uranium Showing, discovered in 2008, with a grid based program of geochemical, magnetic and scintillometer surveys. The significant anomalous 2008 results (up to 1% U<sub>3</sub>O<sub>8</sub>) required detailed follow-up, including prospecting, channel sampling and grid based mapping. At the Red October Showing, a total of 34 rock samples were collected, including 9 channel samples and 8 chip samples. Radon surveys included the analysis of

85 insitu soil samples for Radon and Thoron, and 4 water samples from bogs and creeks for Radon.

### **Location and Tenure Description**

The Eagle Lake property is located in the vicinity of Upper Foster Lake in northern Saskatchewan, centered on latitude 56° 48' 20" N and longitude 105° 26' 48" W. The six mineral dispositions comprising the property (Table 1) are located approximately 190km north of La Ronge and approximately 45km southeast of the Key Lake Mine. The claims were staked in May and November. The claims have not been surveyed and their boundaries are currently marked by blazed lines located by hand-held GPS.

Within the EAGLE LAKE property area, two historical showings are reported in the Saskatchewan Mineral Deposit Index:

**SMDI 1009** – Kunk Lake occurrence: defined by several trenches containing yellow stain in pegmatite on the east side of a small lake (Kunk Lake) at the north end of Kevin (or Flavel) Lake,

**SMDI 1012** – ToJo occurrence: defined by mineralized pegmatite boulder train, with trenching and drilling, in the vicinity of two small lakes (Twin Laks and D&G Lake) centered 3.2 km southwest of Kevin (Flavel) Lake.

The mineral claims are 100% owned by Eagle Plains Resources, and currently under option to Sandstorm Resource Ltd. of Vancouver, BC. Dispositions of the Eagle Lake Property are not subject to any underlying royalties or encumbrances.

The mining regulations of Saskatchewan require annual exploration expenditures of \$12/ha in order to maintain mineral claims in good standing for years 2- to 10 after staking, and \$25/ha thereafter.

At present there are no known mineral reserves or resources on the Eagle Lake property, which is in the early stages (“grass roots” level) of exploration.

### **Accessibility, Climate, Local Resources, Infratructure and Physiography**

The Eagle Lake property was accessed in 2009 by way of float plane based out of La Ronge, Saskatchewan. The property is located approximately 190 km north of the town of La Ronge, which represents a flying time of approximately 1 hour by Twin Otter aircraft or slightly longer by smaller aircraft. La Ronge is the main staging point for exploration work conducted in northern Saskatchewan and is well equipped to provide all the needs of modern mineral exploration. La Ronge can be accessed by road and by regularly scheduled commercial airline flights from Saskatoon, and other locations.

Access to the property can also be achieved in the winter utilizing ski-equipped aircraft, helicopters and snow machines. Cameco’s Key Lake mine road is located approximately 30km to the east of the property and could act as a staging area for the mobilization of equipment and supplies in the future. There is no other infrastructure in the vicinity of the property.

The climate in the vicinity of the property is typical of the northern Canadian plains. Daytime temperatures in the summer range between +20 and +25°C (June - August) and drop to minimums of -20 to -30°C in the winter (December – February). Generally, the larger lakes suitable for use by float planes are free of ice between May and late October

and are frozen to the extent that ice landings can be attempted between December and March.

The topography of the area is typical of the Canadian Shield with subdued relief that rarely exceeds 30m. Lakes, and their connecting rivers and streams, are abundant and account for roughly 30% of the total area, with muskeg and swamp accounting for another 10-20% of the area. The remainder consists of land comprising Boreal Forest with a mixture of closed forest and lichen woodland. In some areas, vast tracts of forest burned due to forest fire at least 10-15 years ago. This is particularly apparent in the vicinity of SMDI 1012. As much as 10-30% of the total land surface may consist of exposed or shallow, bedrock. The majority of this is in the Boreal Forest areas and along lake shores, but rare outcrops are also found in the muskeg.

### **History**

Within the property area, two showings of interest are reported in the Saskatchewan Mineral Deposit

i) **SMDI 1009** – Kunk Lake occurrence: defined by several trenches containing yellow stain in pegmatite on the east side of a small lake (Kunk Lake) at the north end of Kevin (or Flavel) Lake.

ii) **SMDI 1012** – ToJo occurrence: defined by mineralized pegmatite boulder train, with trenching and drilling, in the vicinity of two small lakes (Thin Lake and D&G Lake) centered 3.2 km southwest of Kevin (Flavel) Lake.

In 1969, the Great Plains Development Company of Canada Ltd. conducted an airborne radiometric survey, and follow-up ground prospecting program over its Permit No. 9 in the Upper Foster Lake area. Anomalies identified in that survey led to the discovery and subsequent work conducted at the above showings within the property area.

Exploration by Great Plains at SMDI 1009 from 1969 to 1970 identified anomalous areas along the north, west and south shore of Kunk Lake. Follow-up prospecting revealed several areas of interest, most notably near the contact of pegmatitic granite and pelite/metaarkose supracrustal rocks west of Kunk Lake. Four trenches gave assays up to 0.063% U<sub>3</sub>O<sub>8</sub> (trench 1), 0.113% U<sub>3</sub>O<sub>8</sub> (trench 2), 0.112% U<sub>3</sub>O<sub>8</sub> (trench 3) and 0.064% U<sub>3</sub>O<sub>8</sub> (trench 4).

Work ceased in the area until 1978, when the showing was staked by E & B Explorations Ltd as MPP 1029 (formerly: Moss Lawson Permit No. 2). E & B completed airborne EM, magnetic and radiometric surveys over the prospecting permit. A program of lake water and sediment sampling was completed in the same year.

Exploration by Great Plains at SMDI 1012 from 1969 to 1971 identified a boulder train 1.5 kilometres in length. The boulders consisted of white pegmatite containing uranium stain as well as uranium/copper mineralization in sheared graphitic material. Four boulders reported assays of 0.19, 0.32, 0.56, and 0.50% U<sub>3</sub>O<sub>8</sub>. These boulders (known as the Tojo and Joe Boulders) are adjacent to a prominent north - south trending lineament interpreted to represent a fault structure. Associated with the uranium and copper mineralization on the property was the presence of very high Radon 222 readings obtained from soil and water sampling.

From 1970 to August 1971 Great Plains carried out extensive surveys and limited diamond drilling. Three winkie drill holes totaling 425 ft (129.5 m) drilled in 1970 did not intersect significant mineralization. In the same year 3 trenches were blasted in the area that returned assays up to 0.042% U<sub>3</sub>O<sub>8</sub>. In 1971, 3 AX holes totaling 970 ft (295.7 m) and 8 Winkie holes totaling 812 ft (247.5 m) were drilled. Drilling indicated the presence of intense alteration and shearing, but no significant mineralization was intersected. In addition to drilling and trenching, prospecting, magnetometer, electromagnetic, radon-in-water, radon-in-soil gas and geological mapping surveys were carried out. The very high Radon 222 values obtained were not explained nor were the bedrock source of the boulders identified. The property sat idle until 1979.

In 1979, Bonn Energy Corporation staked the ToJo showing area as CBS 5097. In this year, Bonn completed an airborne INPUT and magnetic survey and follow-up prospecting in the immediate showing area. Work on the property resulted in the discovery of pitchblende mineralization in veins associated with fault structures, approximately 1.85 km northeast of the Tojo Boulder Showing (Figure 2), however, it should be noted that the report contains no mention of any samples being collected or analyzed from this occurrence.

In 1980, Bonn Energy completed detailed prospecting and biogeochemical sampling over the ToJo boulder area including anomalies identified in the previous year to the north. Newson (1980a) reported that “considerable uranium mineralization is present on the property” and that “the probability that this mineralization reflects the presence of a uranium deposit is sufficiently high that work should continue”. A comprehensive program was recommended to further develop the property, but was never carried out.

The Geological Survey of Canada had been undertaking regional airborne radiometric surveys over shield areas throughout Canada. In 2002, the GSC released Open File 4253 entitled “Airborne Gamma-Ray Spectrometry Compilation Series, Wollaston Lake, Saskatchewan” that covered the majority of the exposed Wollaston Domain rocks in northern Saskatchewan, including the area of the Eagle Lake Property, and extended west to cover the eastern portion of the Athabasca Basin. There is an interesting radiometric anomaly located immediately northeast of the ToJo occurrence (SMDI 1012). Of particular interest is large (4-5km long) north-trending linear radiometric anomaly that lies adjacent to the Kunk Lake occurrence (SMDI 1009) and extends off the north end of the property (Brown 2009). The northern radiometric anomaly intersects at a shallow angle a northwest-trending fault identified by regional mapping. These anomalies require further investigation on the ground.

### **Historical Work by Eagle Plains Resources**

Fieldwork and airborne geophysical surveys were completed by Eagle Plains’ staff during the 2006 and 2007 field seasons. Both known showings had cursory examinations in 2006 with more detailed prospecting, soil sampling and Radon surveys completed in 2007.

Fugro Airborne Surveys Inc. conducted airborne magnetic and electromagnetic (GEOTEM®) geophysical surveys over parts of the property on September 25 and October 9, 2006. A total of 955 line-km flown over the Eagle Lake property area, with

200 m spaced flight lines oriented 122 degrees perpendicular to the prevailing NE-oriented lithological fabrics.

Recommendations in 2007 were for drilling activities at the TOJO showing. Due to budget constraints, drilling activities were not completed.

In September 2008, Highrock Contracting Ltd, of LaRonge, Sk, was engaged to complete a program of line cutting, ground magnetic survey, and soil/scintillometer survey at the new Red October Showing. The Red October Showing was discovered during a reconnaissance traverse into an area directed by significantly elevated airborne radiometric signatures. Prospecting revealed dominantly granitic outcrops with lesser biotite gneiss. Very high scintillometer readings were subsequently discovered near a granite- biotite gneiss contact zone that appears to be associated with bands of amphibolite with calcsilicate/ diorite/pegmatite hosted U-mineralization. Three subcrop grab samples taken from the area.

Samples JBELR054-056 returned up to 1.02% U<sub>3</sub>O<sub>8</sub>. The host rocks to mineralization are generally magnetic due to the presence of fine- to medium-grained disseminated magnetite. Also located 480 meters to the northeast along strike, was a radioactive swamp which returned a very anomalous Radon-in-water result (JBELW006).

## **GEOLOGICAL SETTING**

### **Regional Geology**

The Eagle Lake property lies entirely within the Wollaston Domain, a northeast trending, tightly folded, linear belt of supracrustal rocks, and interfolded remobilized granitoids that form a core of gneissic dome structures along the Trans-Hudson Orogen. The supracrustal rocks in the property region, known formally as the Wollaston Group, feature a basal, graphitic pelitic unit overlain and in part intercalated with arkose, subordinate conglomerate, quartzite, and calcareous sediments (Ray, 1977). The granitoids give Archean and Hudsonian ages, while the supracrustals have yielded Archean and Hudsonian dates.

The 50 to 80 km wide Wollaston Domain passes transitionally westwards into the Mudjatik Domain, which is dominated by felsic gneisses of general granitoid aspect that range from Archean to Proterozoic in age. Supracrustal rocks, of presumed Early Proterozoic age, include psammitic to pelitic and amphibolitic gneisses, marble and iron formation, and minor ultramafic intrusions. The Wollaston and Mudjatik Domains comprise the eastern majority of the Hearn Province, interpreted as the remobilized ensialic miogeoclinal zone to the Trans-Hudson Orogen. To the southeast, the Wollaston Domain is sharply bounded by mylonites of the Needle Falls Shear zone, demarcating the western boundary of the Reindeer zone.

The present day margin of the Athabasca Basin occurs approximately 80 km north northeast of the property area. The basin hosts predominantly Proterozoic sandstone lithologies, which lie unconformably above the Wollaston and Mudjatik Domains. The world class uranium mines such as Key Lake, McArthur River, Cigar Lake, and Eagle Point are all spatially associated with this unconformity, and host significant resources found in the 'basement' lithologies of the Wollaston and Mudjatik Domains

Four main phases of deformation are recognized in the Wollaston rocks in the Karin Lake region – 10 kilometers NE of the Eagle Lake property. The first phase (D1) resulted in the development of isoclinal folds (F1) and regional axial planar foliation (S1) producing schistose and gneissic textures. This deformational phase may have occurred in association with the development of subvertically inclined, elongate mantled basement gneiss domes. D2 produced doubly-plunging northeast-southwest trending upright folds (F2) with a weak, steeply dipping to sub-vertical axial planar foliation (S2). Late D2-associated reverse faulting explains abrupt changes in metamorphic grades in the eastern part of the region. D3 deformation gave rise to open, upright, northwest trending folds and crenulations (F3). This deformation locally produced complex fold interference but was relatively weak and had little effect on region structural trends. Late brittle-ductile D4 faulting produced steeply dipping to subvertical sinistral faults that appear to postdate all fold-forming events. Metamorphic grades increase westwards from lower amphibolite to granulite facies. Two mineral-forming events are notable, and are likely correlatable to D1 and D2 deformation episodes. Mineral paragenesis documents relatively high T, low P metamorphic conditions.

### **Eagle Lake Property Geology**

In 1971, the Great Plains Development Company completed grid-scale geologic mapping at SMDI 1012. Mapping was completed at a scale of 1 inch to 100 feet, over the southeast section of the D&G Lake grid. Rock types identified include:

Pegmatite (1): pink; coarse grained; feldspar 70%, quartz 25%, biotite>10%; usually concordant with foliation of metamorphic host rocks; including:

1a) White pegmatite: white to buff; coarse grained; feldspar 70%, quartz 25%, biotite 5%.

1b) White Mineralized Pegmatite (boulder): white to dirty gray, light green; quartz 55%, Feldspar 35%, altered hornblende>10%; occasionally in contact with biotite gneiss; disseminated uranium; sulphide minerals and graphite (?).

Hornblende Gneiss (2): grayish green; medium grained; weak foliation and shows banded felsic and mafic minerals; feldspar 60%, quartz 20%, hornblende 15%; biotite >5%, accessory minerals: epidote, calcite, trace pyrite.

Biotite Gneiss (3): light to dark gray; fine to medium grained; well foliated; feldspar 40- 50%, quartz 25%, biotite 20%, hornblende >5%.

3a) with quartz and feldspar augen structured; well foliated; gradational contact with biotite gneiss.

The rock units in the property exhibit foliations with strikes ranging between 025 degrees and 045 degrees, with dips between 70 degrees and 85 degrees to the southeast. A major interpreted fault (Thin Lake fault) was identified from lineaments on airphotographs with several minor east-west cross lineaments.

In 1979 Newson visited the property for five days with the intent to look for a potential source of the mineralized boulders on the property, and to verify the geological interpretations of previous works. In principle he agreed with mapping as presented by Johnson and Ko in 1972, with some minor exceptions: “The area mapped as hornblende

gneiss is largely felsic gneiss, with some interlayers of hornblende and biotite gneiss. The area mapped as biotite gneiss is largely biotite gneiss, with interlayers of felsic gneiss.”

The Eagle Lake property is underlain by arkosic and pelitic metasediments of the Wollaston Group with intercalated granitoids and pegmatitic granitoids of varying geometry including dyke- silland stock- like bodies, as well as many discontinuous pods and lenses. In the majority of cases it is difficult to distinguish localized anatectic or migmatitic granitoid phases from true igneous bodies. This is a consequence of the high metamorphic grades of the region. In rarer occasions, later stage granitoids with sharp margins are discernable.

### **Eagle Lake Mineralization**

Mineralization at SMDI 1012 was discovered during prospecting traverses in 1970 as a follow-up to the 1969 Radiometric survey conducted by Great Plains Development Company. During this survey, the “Tom” and “Joe” (ToJo) boulders were discovered. The boulders consist of white hornblende-bearing pegmatite that is slightly calcareous and silicified and appears to be weakly sheared. The boulders reportedly exhibit a contact relationship between hornblende-biotite gneiss and white pegmatite. Radiometric measurements utilizing a SRAT SPP-2 scintillometer exceeded 7000 counts/s. The boulders exhibited visible uranium stain (yellow uranium oxides), chalcopyrite and associated malachite stain, with assay values of 0.189% U<sub>3</sub>O<sub>8</sub>, 0.04% Th, and 0.606% Cu.

In 1979 Newson reported one outcrop area that contains rocks similar in appearance to the Tom and Joe boulders. Small exposures of white pegmatoid material were located along the cliff face intersected by line coordinates L30SW/300SE, L40SW/800SE, and L44SW/1000SE. Scintillometer counts greater than twice background were reported. Traverses by Eagle Plains staff in 2006, encountered anomalous counts in this area. One location gave a scintillometer reading of 650 counts/second in a blocky outcrop of white equigranular, coarse-grained leucogranite. A grab sample from this location returned 0.013% U<sub>3</sub>O<sub>8</sub>.

In 1980, Newson reported 31 occurrences of white quartzofeldspathic boulders that registered greater than 2000 counts/second on a Scintrex BGS-4. Most of these are in two boulder fields on opposite shores of D&G Lake. In the same year, the “Pitchblende” showing was located in outcrop, north of Thin Lake and due west of the south end of Missi Lake. It is described as occurring “at the intersection of the Thin Lake Fault and some cross fractures...(Newson 1980a)”. Despite its potential for verifying *in situ* mineralization along the Thin Lake fault, no reported follow-up work has occurred at the Pitchblende showing.

In 2006, Eagle Plains staff examined the ToJo showing (SMDI 1012) and noted several boulder occurrences situated near Thin Lake, along a north northeast trend for approximately 500 metres. The boulders consist of mixed assemblages of white and red-stained pegmatite, with variable gneissic sediment contents from zero to 15%. The boulders are found in clusters in marshy lowlands, directly adjacent to hill forming outcrops of biotite- and amphibole-bearing gneissic metasediments, with subordinate intercalated pods of pegmatite and coarse-grained granitoids. Boulders exhibiting yellow uranium oxide staining returned values up to 0.401% U<sub>3</sub>O<sub>8</sub>. An attempt was made, but

the pitchblende outcrop reported by Newson was not located by Eagle Plain's staff in 2006 or 2007.

At SMDI 1009, prospecting began the same summer as at D&G Lake. Geology in the area is characterized by medium grained biotite gneiss and pink to light grey meta-arkose with significant intercalated pink pegmatite bodies of varying size and orientation. Background total counts, using a SRAT SPP-2 scintillometer, varied from 75 c/s in the metasediments to 500 in the pegmatites, with highs up to 3500 c/s. One assay (sample: GB-69-22) returned 0.49% U<sub>3</sub>O<sub>8</sub>. Most anomalous counts recorded came from fractures crosscutting pegmatite or along contact boundaries between the pegmatite and metasediments. In 1970, four trenches were excavated in the area returning uranium values of up to 0.113% U<sub>3</sub>O<sub>8</sub>.

The Red October Showing, located on Lucky Lake - 3.5 km north of SMDI 1009, was discovered in 2008 during a reconnaissance traverse into an area with significantly elevated airborne radiometric signatures. Prospecting revealed dominantly granitic outcrops with lesser biotite gneiss. Very high scintillometer readings were subsequently discovered near a granite- biotite gneiss contact zone that appears to be associated with bands of amphibolite with calcsilicate/diorite/pegmatite hosted U-mineralization. Three grab samples taken in 2008 (JBELR054-056) returned up to 1.02% U<sub>3</sub>O<sub>8</sub>. The host rocks to mineralization are quite magnetic due to varying quantities and coarseness of disseminated magnetite. Also located 480 meters to the northeast along strike, was a radioactive swamp which returned a very anomalous Radon-in-water result (JBELW006)

## **2009 WORK PROGRAM**

A two phase program was recommended and carried out in mid to late September of 2009:

PHASE A: Establish a 7.1 line-km cut grid at the Great Plains Showing (SMDI 1009). The grid was surveyed for magnetics, soil geochemistry, and scintillometer by Highrock Resources Ltd, of LaRonge SK, which included historical uranium showings that were verified by Bootleg Geologists in 2006-2007.

PHASE B: Bootleg geologists and geotechs concentrated on the new Red October Uranium Showing, discovered in 2008, resulting from a successful 2008 program of prospecting, and a grid based program of geochemical, magnetic and scintillometer surveys. The significant anomalous results (up to 1% U<sub>3</sub>O<sub>8</sub>) required detailed follow-up, including prospecting, channel sampling and grid based mapping.

Links to PDF files with results of mapping and sampling at the Red October are located in the right column of the Eagle Lake Project page. These maps are titled, Grid Geology Map, Grid Rock Sample Map and Grid Scintillometer Map.

At the Red October Showing, a total of 34 rock samples were collected, including 9 channel samples and 8 chip samples. Radon surveys included the analysis of 85 insitu soil samples for Radon and Thoron, and 4 water samples from bogs and creeks for Radon.

The HighRock crew attempted to collect B1- horizon soil samples over the entire grid at 25 meter intervals. A total of 148 out of a potential 230 soil samples were collected. Sampling was restricted by outcrop areas and by a few small muskegs and swampy ground near lakeshores and creeks.

Field work in 2009 by Bootleg personnel was restricted to the Red October grid area from September 12 through to September 20, 2009. The crew consisted of 3 geologists: Jarrod Brown, P.Geo., of Nelson BC, Bronwen Wallace, M.Sc., of Edmonton AB, and Alexia Greschner, B.Sc., of Crowsnest Pass, AB. Geotechnical and logistical assistance was provided by Brad Robison of Cranbrook BC, and Harry Roberts of Stanley Mission, SK.

## **Program Results**

### *Red October Showing – Grid Area*

Mapping, prospecting and radon-in-soil analysis in 2009, started on line 15 east (L15E) at the 2008 discovery mineralized subcrop site (Figure 3). Fieldwork quickly outlined a NE-SW trending, 130 m wide mineralized train of subcrop and float boulders. From west to east, results include L12E: 1220 ppm U (AGELR007); L15E: 8700 ppm U (JBELR056); L16E: 772 ppm U (JBELR059); L17+50E: 1890 ppm U; L18+75E: 2250 ppm U (JBELR061) (Figure 4). The 800+ meter long boulder-train led workers to an insitu swarm of mineralized dykes and host rock between lines 19 and 21E.

Mapping and a detailed scintillometer survey reveals that the dyke swarm is 80 to 150+ meters wide, and consists of magnetic pegmatite and host psammopelite or diorite. Individual dykes may exceed greater than 10 m in width, with typical dyke widths of 60 cm. Two of the dykes returned exceptional uranium assays:

- 1) a 1 m yellow-stained chip sample returned 1.56% U<sub>3</sub>O<sub>8</sub> (13400 ppm U: AGELR008) and
- 2) a grab sample of a yellow-stained black alteration selvage returned 2.24% U<sub>3</sub>O<sub>8</sub> (19300 ppm U: JBELR063).

Between lines 19 and 20 it appears that several pegmatite dykes coalesce into a radioactive stock-sized body. Nine channel samples over 9 m were collected across one such body. Channel samples BRELR005 to BRELR013 returned an average of 360 ppm U, including 0.52 m at 1390 ppm U (BRELR013), and 1.5 m at 615 ppm U (BRELR006+007). The ultimate size of the stock-like body is unknown due to overburden cover and is a prime candidate for future trenching.

### *GP showing area at Kunk Lake (SMDI 1009)*

The 2007 and 2009 soil survey at the GP (Kunk Lake) showing indicated that uranium soil anomalies are detectable proximal to the known workings. Two adjacent anomalous stations located 300 and 400m south of the workings, along a regional fault, warranted further investigation. The area appears to be underlain dominantly by intrusive lithologies, but mineralization is generally structurally controlled, with best assays and scintillometer counts coming from intersecting fracture systems. Pegmatitic lithologies in one trench exhibit some of the most impressive hematite alteration seen at the KL and EL properties, piquing interest in the showing. The regional airborne radiometrics for the showing and to the north and south are impressive, indicating that more prospecting is

warranted. The area also lies within a broad zone of high conductance as indicated in the 2006 airborne EM data.

Results of the magnetic ground survey indicate a pronounced magnetic high lineation which coincides with the entire 1.5 kilometer 0130 trending baseline. In general it appears that the known showings and anomalous scintillometer survey results are spatially associated with the flanks of the magnetic high features (Historical trenching results from 1970 returned up to 0.113% U<sub>3</sub>O<sub>8</sub>). The grid scintillometer survey also indicates a pronounced increase in gamma radiation within the northern 1/3 of the grid area. The broad distribution of elevated counts per seconds suggests a lithology change, but several very anomalous stations suggest possible mineralized zones that require follow-up.

Soil geochemistry results at the GP grid indicate a strong positive uranium anomaly over the known showing area trenches. There is good agreement between the six 2007 soil samples, located in a line just north of line 18N, to those collected in 2009. Average of the four best 2007 uranium results is 20.3 ppm. Average of the 4 most proximal 2009 U results is 9.3 ppm. Six out of eight of all the samples proximal to the known trenches are greater than the 95th percentile U of 5.6 ppm. Projections of U soil anomalies to the north and south of the known trenches near line 18N are apparent. Weak anomalies along magnetic/schistose strike direction occur to the north on line 19, and to the south on line 17. More pronounced anomalies occur starting approximately 280m south of the trenched area along the eastern limit of the main magnetic anomaly between lines 15 and 11.

A less pronounced U soil anomaly is also present near the north end of the grid at Line 24N 0+25E. This one station anomaly is significant because it coincides with high scintillometer readings and occurs along the east margin of a major magnetic discontinuity.

The soil geochemical response in the vicinity of the known workings is markedly anomalous only in uranium. This is despite the fact that molybdenite has been observed in rocks of the trenches.

Other elements that were of notable interest at the nearby Red October showing are Co, and Zn. The soil geochemistry of these elements on the GP grid is included in Figures 6b, 6c. The spatial distribution of Co anomalies is of interest in that linear anomalies do tend to coincide with the marginal breaks of magnetic discontinuities and along a trend projecting north of the workings, although spotty sampling due to marsh precludes a definitive linear geochemical trend there.

The impression left is that Co could be demarking unconformities, either fault-related or along lithological breaks. The spatial distribution of Zn anomalies generally coincides with the Co anomalies, although the contrast from high to low is less pronounced.

### **High Grade Uranium Sample from Red October Showing**



## **CONCLUSIONS**

### **Red October Showing**

The 2008-2009 work at the Red October showing has uncovered a significant radioactive pegmatite dyke swarm (80 to 150+ meters wide) with associated mineralization along alteration selvages and in associated quartz-pyroxene veins in shear structures projected along strike to the NE. The best sample assay returned this year is 2.24% U<sub>3</sub>O<sub>8</sub>. The exposed strike length of the mineralized pegmatite swarm exceeds 275 m and remains open in both NE and SW directions. Exposure to the SW is hampered by relatively thin overburden (est. 15 cm to 1.5 m), whereas exposure to the north and east is unknown due to time (budget) constraints of the 2009 program.

A Radon-in-soils survey was completed over the 2008 discovery showing area between Lines 13E and 17E. The survey does indicate a cohesive NE trending anomaly between lines 13E to 16E centred on the known mineralized subcrop showing on L15E (at samp# JBELR056). The distribution of Radon anomalies does indicate that this technique is useful over the current property area and should be administered over the remainder of the grid in a future program.

Work completed to date has revealed that uranium mineralization at the Red October Showing is consistently found in moderately to highly magnetic lithologies. These lithologies are pegmatite and host psammopelite containing fine- to medium-grained disseminated magnetite. As such, the ground magnetic survey results have proven to be extremely useful in outlining prospective areas. Interestingly, lithologies at the Red October Showing that contain the non-magnetic iron-oxide mineral ilmenite, are consistently devoid of uranium mineralization. Both showings, at L15E and L19-21E, plot on or immediately adjacent to high ground magnetic responses, with a string of magnetic high features apparent between the two showings, suggesting the possibility of a continuous mineralized structure over more than 1 km. Future trenching along this trend is highly recommended to verify continuity of the mineralized trend. Several other magnetic lineaments are apparent on the Red October grid. In areas of poor outcrop exposure, magnetic lineaments that coincide with anomalous Radon or soil geochemical results should see additional work.

Data compilation and follow-up prospecting resulted in the discovery of the new Red October Showing in 2008. The exposed strike length of the mineralized pegmatite swarm exceeds 275 m and remains open in both NE and SW directions. Exposure to the SW is hampered by relatively thin overburden (est. 15 cm to 1.5 m), whereas exposure to the north and east is unknown due to time (budget) constraints of the 2009 program. The north and eastwards projection of the mineralization continues beyond the current extent of the grid. As such, lines 17 E to 23 E should be extended northwards by an additional 300 m in order to capture the projection of the mineralized trend with the possibility of encountering additional strike parallel mineralized dyke sets. As per the fall 2008 program, the new grid should have soil geochemical and radon surveys, a magnetic geophysical survey, and a detailed scintillometer survey. Trenching is proposed for several existing targets and new targets that are expected to be encountered during the grid extension survey.

#### **GP Showing at Kunk Lake (SMDI 1009)**

Six out of eight of all the soil geochemical samples proximal to the known trenches are greater than the 95th percentile U of 5.6 ppm. Projections of U soil anomalies to the north and south of the known trenches near line 18N are apparent. Weak anomalies along magnetic/schistose strike direction occur to the north on line 19, and to the south on line 17. More pronounced anomalies occur starting approximately 280m south of the trenched area along the eastern limit of the main magnetic anomaly between lines 15 and 11.

A less pronounced U soil anomaly is also present near the north end of the grid at Line 24N 0+25E. This one station anomaly is significant because it coincides with high scintillometer readings and occurs along the east margin of a major magnetic discontinuity.

Magnetic and scintillometer data, when plotted relative to the known workings, does indicate several promising spot locations and trends that require ground follow-up. This property is only 3 km south of the Red October grid area and shares many similarities in terms of geology, mineralization and geophysical signatures. Reconnaissance field work completed between the 2 grids in 2008 did indicate the presence of similar radioactive pegmatites and some very anomalous Radon in water results. Recommendations for the G.P grid would be to complete the same tasks that were just completed at the Red October Showing, namely grid geological mapping, radon-insoil sampling, and select channel sampling at the best showings. Reconnaissance prospecting and mapping should also continue in areas between the G.P. and Red October Showings.

Results of the 2005-2009 program at the GP showing, in conjunction with recent airborne data and historical trenching and prospecting work, has led to the proposal for follow-up of the 2009 grid based geophysical and geochemical program. This would include a grid based mapping, a radon-in-soils survey and limited detailed scintillometer survey, plus hand trenching and channel/chip sampling.

#### **RECOMMENDATIONS**

Historic work by Eagle Plains has successfully identified the Eagle Lake property as hosting three styles of uranium mineralization. Based on the widespread nature and grade of uranium associated with favorable geology and structure, it is believed the property has the potential to host a uranium deposit.

The author recommends a two phase exploration program for the project.

Phase 1 recommendations include:

**TOJO showing:** Follow up of airborne, geologic mapping, radon and scintillometer surveys to locate source of mineralized boulder train

**GP showing:** Grid based mapping, a radon-in-soils survey and limited detailed scintillometer survey, plus hand trenching and channel/chip sampling to better define mineralization.

**Red October showing:** Extend soil geochemical, radon, magnetic geophysics and detailed scintillometer grid 300m north to cover projected strike length of Red October mineralization follow up trenching of selected targets.

Phase 2:

Contingent on favorable results from Phase 1, a diamond drilling program should be undertaken to test the highest priority targets. This should include drilling at the Red October and TOJO showings, as well as other areas identified as favorable targets by the Phase 1 interpretation.

Updated March 25, 2010