

We are committed to providing [accessible customer service](#).

If you need accessible formats or communications supports, please [contact us](#).

Nous tenons à améliorer [l'accessibilité des services à la clientèle](#).

Si vous avez besoin de formats accessibles ou d'aide à la communication, veuillez [nous contacter](#).

Exploration Report for 2020 - Selim Fluorite Occurrence

December 10, 2021

Sonya O'Brien, prospector license# 2001169, client# 10004057

Mark O'Brien, prospector license# 2001168, client# 10003292

Location

The Selim Fluorite Occurrence is located in Lahontan Township, approximately 7 km east of Rosspoint, Ontario or approximately 1.7 km west of the historic railway siding of Selim, see Figure 1. Fluorite mineralization can be observed in outcrops that span the north side of Lakeshore Road from approximately 600 to 750 m east of the intersection of Lakeshore Road with Highway 17.

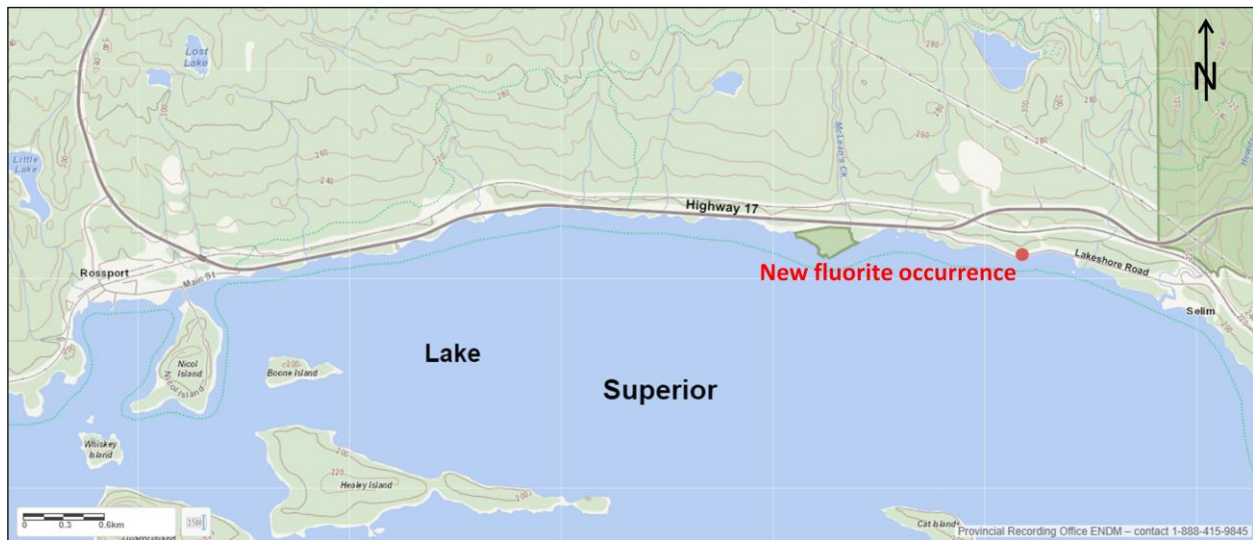


Figure 1 - Location of Selim Fluorite Occurrence

Exploration - 2019 and 2020

While walking near the west end of the sandy beach on September 22, 2019 a rock was observed in the sand that contained some splashes of purple. This location is noted as site 1 on Figure 2. Upon thorough washing, the rock was determined to contain fluorite and barite within a matrix of medium grained granite. This rock measures ~27cm x 19cm x 10cm. The angular nature of the rock suggested that the beach location was not far from its source. Further investigation along the north side of Lakeshore Road resulted in the discovery of fluorite mineralization in a low bedrock ridge at 48° 50' 14"N and 87° 25' 31"W. This location is noted as site 2 on Figure 2 and is located ~12 m east of the memorial erected in memory of Steven Giguere, see Figure 3A and Figure 3B. The rock sample, Figure 4, and a picture of the outcrop, Figure 5, were collected at this time. Upon researching the Mineral Deposit Inventory and consultation with the staff of the Resident Geologist Program in Thunder Bay it was confirmed that fluorite mineralization had not previously been documented in the Selim area. Consequently, the authors returned to the area on August 31, 2020 to investigate further. Additional fluorite mineralization was observed in outcrops ~150m west of the original outcrop, site 3 on Figure 2. The host rock to the fluorite mineralization is a fractured medium grained granite, observed westerly to site 4. To the west this granite transitions to a porphyritic granite with no observed fluorite mineralization, sites 5-8. To the east the fractured medium grained granite persists with no observed fluorite or quartz veins. The mineralization is currently not within a registered mining claim; the MLAS cell id is 42D14E392 and 42D14E372. Exploration completed in the 2020 field season is depicted in Figure 2.



Figure 2 - locations of exploration completed in 2020, southeast Lahontan Township



Figure 3A - monument erected in memory of Steven Giguere



Figure 3B - discovery outcrop

Geology

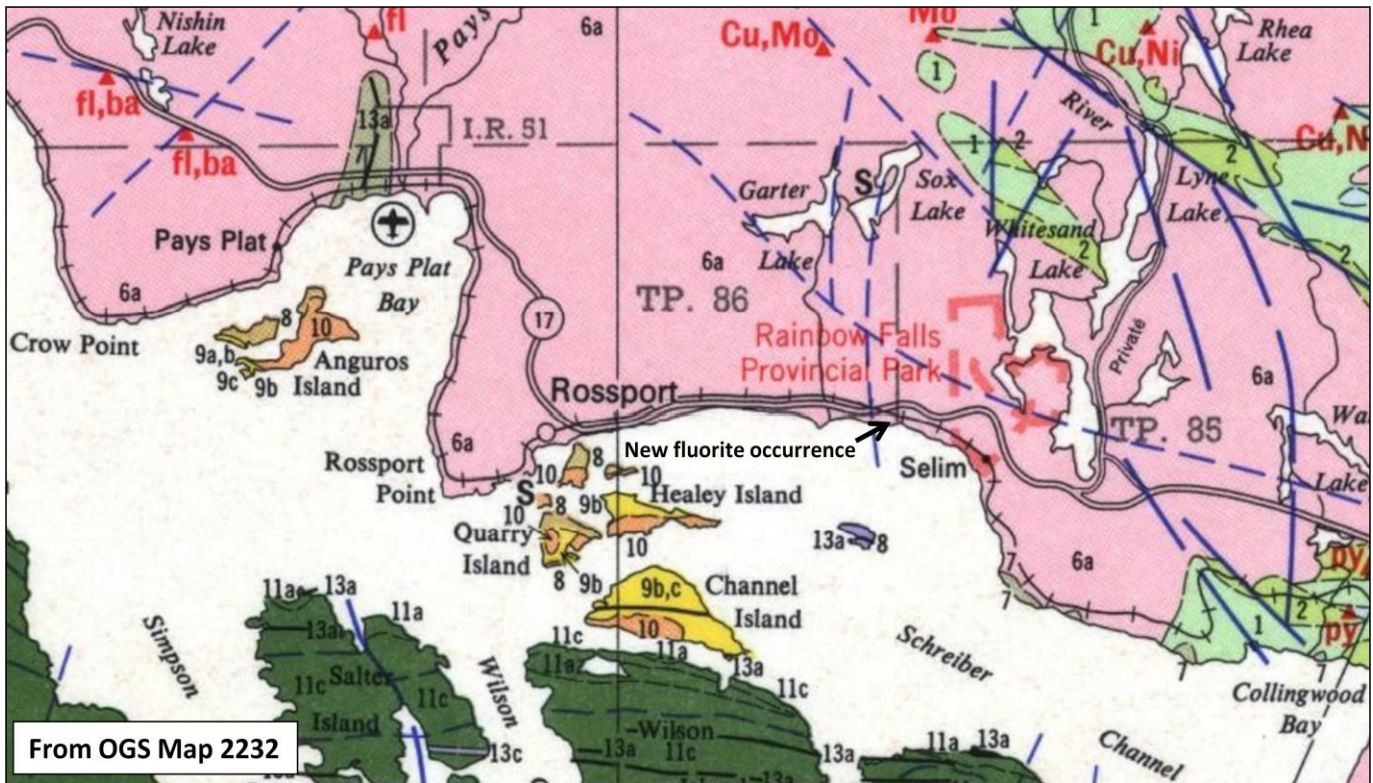
Lahontan Township, specifically the Selim siding area, has not been recently mapped in any detail by the Ontario Geological Survey (OGS). The area is depicted on compilation map 2232 (figure 6) to be underlain by Archean granitic rocks with a regional lineament noted to the west and north of the Selim area. Such lineaments are indicated on map 2232 near known fluorite prospects to the west at Cavers; it is reasonable to extrapolate that these structures were zones of crustal weakness that allowed the emplacement of quartz, barite and fluorite rich fluids. It is understood that both mapped and unmapped lineaments and/or fault zones are prospective for fluorite mineralization in the area.



Figure 4 - discovery hand sample

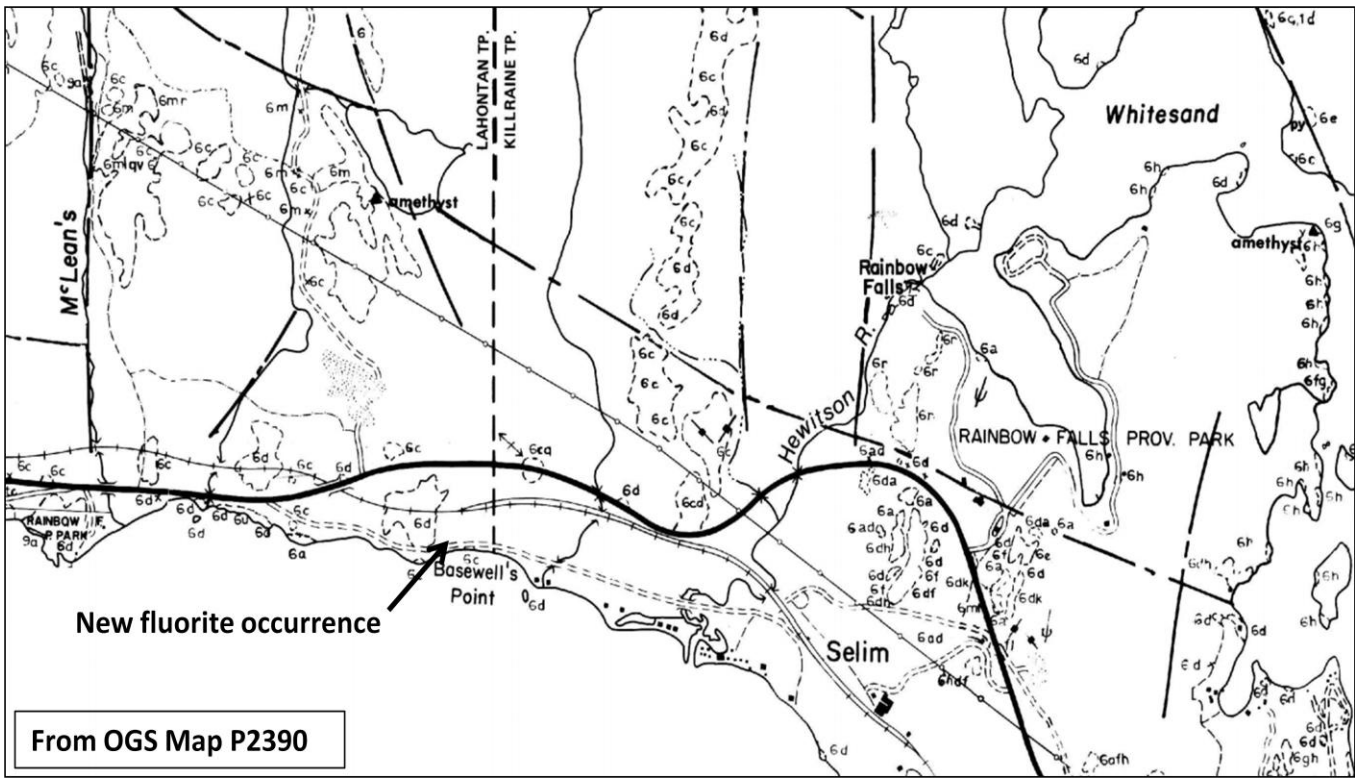


Figure 5 - close-up of discovery outcrop



From OGS Map 2232

Figure 6 - regional geology



From OGS Map P2390

Figure 7 - detailed geology

The area was mapped at one inch equal to one quarter mile scale by M.W. Carter of the Ontario Geological Survey in 1981; preliminary map P2390 (Figure 7) depicts the area to be underlain by hornblende-biotite granite (map unit number 6c) and porphyritic granite (map unit number 6d) with no structures denoted in the fluorite discovery area. Photos of

the lichen covered outcrops of the medium grained granite are shown in Figure 3A and Figure 3B. A photo of a non-weathered outcrop of porphyritic granite is shown in Figure 8. According to P2390 mineral occurrences are sparse in the Selim area. Two amethyst occurrences are noted; one is located in Rainbow Falls Provincial Park near the south shore of Whitesand Lake, some ~3.7 km northeast of the fluorite discovery area. The other amethyst occurrence is located near the southwest shore of an unnamed heart shaped lake 1.3 km north of the area.

The fluorite mineralization discovered by the authors in 2019 and 2020 occurs along with barite and quartz in veins and vuggy breccia zones that have been traced in low outcrops of blocky medium grained granite for approximately 150 m along Lakeshore Road. Fluorite cubes vary from less than 1 mm to 2 mm with numerous cubes lining small vugs that are less than 5 cm across. The colour varies from very dark to medium purple. Some crystals of fluorite are glassy in appearance. Barite crystals occur as small cream to pink coloured blades up to 2 cm in length. Some skeletal barite crystals appear within a fluorite groundmass. Quartz also occurs in the veins and breccia zones; it varies in colour from clear through white and yellow. To date, no amethystine quartz has been confirmed in the area.



Figure 8 - porphyritic granite

Biographies of the Authors

Mark O'Brien has been a prospector since 1982 when he moved to Northwestern Ontario. He retired from the Ontario Public Service in 2019. Prior to this public service, he worked for mineral exploration companies in Ontario, Manitoba and Saskatchewan concentrating on gold exploration; he also worked for Lakehead University as a Liaison Officer after his graduation with an HBS (Geology) in 1985. He was a data folio geologist, regional resource geologist and project leader with the Ontario Geological Survey from November of 1987 until January of 2004 when he became a mineral development officer with the Mineral Development and Lands Branch. In this position he assisted with sustainable mineral development across Northwest Ontario in service to the general public, mineral exploration companies, mining companies, prospectors, indigenous communities, as well as federal, provincial and municipal government representatives. He has been a member of the PDAC, OPA and NWOPA for over 25 years.

Map for 2020 Exploration - Selim Fluorite Occurrence



Prospecting is a relatively new hobby for Sonya O'Brien, though she has had an interest in rocks and minerals her entire life. Accompanying husband Mark in the great outdoors seemed like an interesting way of starting out their retirement together, as well as gleaning an education of the geology of Northwestern Ontario. Sonya graduated from Lakehead University in 1993 with concurrent BA/BEd degrees.

References

Title: Map 2332, Nipigon-Schreiber, geological compilation series, Thunder Bay District, 1973

Author(s): McIlwaine, W.H., Carter, M.W., Wisbey, P.A. - Ontario Geological Survey

Scale: 1 : 253 440

Title: Map P2390, Precambrian geology of the Schreiber area, west part, Thunder Bay District, 1981

Author(s): Carter, M.W. - Ontario Geological Survey

Scale: 1 : 15 840