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**Mineralogical Analyses of Anomalous  
Till Samples from Northern Nova Scotia**

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Regional till geochemical surveys were conducted in northern Nova Scotia during the 1980s with the purpose of spurring mineral exploration in the region. Stea *et al.* (1986), Turner and Stea (1987a, b, c; 1988a, b, c; 1989a, b) and Stea (1990) summarized the geochemical results of the survey, identifying several regions with potential for mineralization, including gold and silver, base metals, barite and tin. The raw data have also been published as Open File Maps and Reports listed in the references that accompany this report. Several areas in northern Nova Scotia feature regionally consistent patterns of multi-element anomalies in the clay-size fraction.

In an effort to determine if mineral phases relating to these clay fraction anomalies could be identified in the heavy mineral fraction, 43 till samples were sent to the Atlantic Coal Institute (ACI) for mineralogical analysis. The sample list is given in Table 1. These samples are from various rock terranes, with background as well as anomalous trace element levels. Labile sulphide minerals were not identified in the heavy mineral fraction corresponding to Cu, Pb and Zn clay fraction anomalies (Table 1). This is a result of sampling till within the weathering zone less than 2 m below surface. However, economically interesting, resistant mineral phases, including chromite, tin and barite, were identified in some of the samples also featuring base metal anomalies (Table 1).

This report includes the complete mineralogical reports (ACI-87-240 Vol. 1-3, ACI 88-270 Vol. 1, 2) of the Atlantic Coal Institute. The mineralogical analysis includes scanning electron microscopy, and X-ray micro-analysis. Further information on these and all till samples in northern Nova Scotia can be obtained from the Open File Reports and Maps in the reference list or through the public access geographic information system, available in the library of the Nova Scotia Department of Natural Resources, and on the Natural Resources Web Site (<http://www.gov.ns.ca/natr/meb/pubs3.htm>).

**Table 1.1.** Sample list and locations for till samples submitted to the Atlantic Coal Institute.

Sample No.	Location	Latitude	Longitude	Map Sheet 1:50 000; (1:100 000)	Anomalies in clay fraction ( $< 2\mu$ )	Economic minerals identified in report
T-82-001	Ragged Point	45.67384	64.48281	21H/10 (9)	-	-
T-82-093	Kelly Road	-	-	21H/10(9)	-	-
T-84-055	South British Lake	45.48352	63.99615	11E/10 (10)	-	-
T-84-165	Macdonald Brook	45.56769	62.41492	11E/09 (12)	-	-
T-84-166	MacLean Brook	45.55634	62.52433	11E/09 (12)	-	-
T-82-062	Dows Brook	45.43007	64.60829	21H/07 (9)	-	-
T-82-114	Partridge Island	-(Lat Not available)	-	(9)	-	-
T-82-119	Minudie	-	-	-	-	-
T-84-179	Sample not in database					
T-84-188	Sample not in database - - - -					
T-82-154	East Mapleton	45.55306	64.1056	21H/09E (10)	-	-
T-82-328	British Lake	45.56371	63.96267	11E/12 (10)	-	-
T-84-116	Trafalgar	45.28542	62.65438	11E/07 (12)	-	-
T-82-295	Saltsprings Brook	45.4791	63.57993	11E/05E (10)	-	-
T-82-305	Gleason Brook	45.56189	63.72265	11E/12 (10)	-	-
T-84-155	MacFarlan Brook	45.44822	62.36496	11E/09 (12)	-	-

Sample No.	Location	Latitude	Longitude	Map Sheet 1:50 000; (1:100 000)	Anomalies in clay fraction ( $< 2\mu$ )	Economic minerals identified in report
21A9-5109	South Mountain Batholith	- See (Boner <i>et al.</i> , 1990)	-	21A/09	-	-
21A9-5120	South Mountain Batholith	-	-	21A/09	-	-
21A9-5121	South Mountain Batholith	-	-	21A/09	-	-
Anomalous Samples (Report-AC1-87-240)						
T-82-271	Bass River	45.45974	63.77203	11E/05W (10)	Cu, Pb, Zn	-
T-82-288	Spencers Brook	45.49083	63.65049	11E/05E (10)	Cu, Pb, Zn	Chromite
T-82-326	Chain Lake Stream	45.5098	63.92284	11E/12 (10)	Zn, W	-
T-82-316	Sugar Loaf Mtn	45.57406	63.80362	11E/12 (10)	Sn	-
T-84-017	Farmington South	45.57206	63.90179	11E/12 (11)	Cu, Pb, Zn	Cassiterite
T-84-027	Byers lake	45.58616	63.41947	11E/11 (10)	Pb, Zn	-
T-84-029	East Branch	45.58616	63.41947	11E/11 (10)	Ag, Pb, Zn	Cassiterite
T-84-030	East Branch	45.60817	63.50697	11E/12 (10)	Pb, Zn	-
T-84-050	Widow Point	45.72771	62.65488	11E/10 (12)	Ba	Barite
T-84-056	Lynn Road	45.5467	64.07206	21H/09E (10)	Pb, Zn	-
T-84-060	Christie Pt	45.67145	62.68487	11E/10 (12)	Pb, Zn	-
T-86-006	Doctor Brook	45.25702	61.82816	(13)	Ag	-

Sample No.	Location	Latitude	Longitude	Map Sheet 1:50 000; (1:100 000)	Anomalies in clay fraction ( $< 2\mu$ )	Economic minerals identified in report
T-86-124	Nickerson L.	-	-	(13)	Cu, Zn, Ni	Barite
T-86-135	Roachvale	45.36368	61.58123	(13)	Ag, Cu, Pb, Zn	Cassiterite
T-86-144	Double Farm Lk	45.25599	61.41626	(13)	Cu, Pb	-
T-86-205	3/4 lake	45.17368	61.58334	(13)	Ag, Cu, Pb, Zn, Ni	-
Anomalous samples from Report ACI-88-270						
T-85-053	Rocky Mountain North	45.41333	62.25803	(12)	-	-
T-85-055	Willowdale	45.39526	62.19744	(12)	-	-
T-85-057	Greens Brook	45.39526	62.19744	(12)	-	-
T-85-062	West Mount	45.47392	62.34107	(12)	-	Barite
T-85-070	Donny Brook	45.42467	62.1202	(12)	-	Barite
T-85-082	Woodfield	45.5033	62.36661	(12)	-	-
T-85-085	Barneys River	45.53639	62.31359	(12)	-	-
T-85-087	Marsh South	45.50945	62.26097	(12)	Zn	Barite
T-85-094	Cameron Brook	45.33062	62.59997	(12)	Zn	Barite

**Note: 1:100 000 sheets are NSDNR Open File Maps (see references), sheets (maps) 9-13.  
Latitude-Longitude in decimal degrees.**

## References

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