

## The East Kemptville tin-zinc-copper-indium deposits, Nova Scotia, Canada

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The East Kemptville property, a former tin-zinc-copper producer, is located 55 km east of Yarmouth, Nova Scotia. Tin mineralization was discovered in 1978 by Shell Canada Resources as a follow-up to regional geochemical till sampling. The mine operated for six years from 1985 at 10 000 tonnes per day open pit mine with production of tin, zinc, and copper concentrates. Operations ceased largely due to low tin prices. The site was closed except for ongoing environmental remediation work. Avalon Rare Metals Inc. first acquired mineral rights in 2006 and is now completing a Preliminary Economic Assessment.

On mine closure, the reserves were by no means exhausted, and Avalon has estimated that there remains an Indicated Mineral Resource of 18.47 million tonnes averaging 0.176% tin, 0.173% zinc and 0.064% copper and an estimated Inferred Mineral Resource of 16.95 million tonnes averaging 0.148% tin, 0.122% zinc and 0.062% copper at a 0.10% tin cutoff grade. Indium was not analyzed for historically but significant levels of indium are associated with the sphalerite mineralization.

The project is within the Meguma Terrane. Mineralization is found in greisen associated with late phases of the Devonian–Carboniferous South Mountain Batholith. The mineralization is similar to that found in the metallogenic belt of Variscan/Hercynian age tin deposits that stretch from the Erzgebirge in Germany, through Cornwall and Spain.

Tin and base-metal mineralization is primarily associated with northeast-trending, subvertical and zoned, quartz-topaz, sulphide-bearing greisens veins and stockworks that occur primarily in the altered (sericitization, silicification, topazification) portions of the leucogranite near its contacts with the surrounding metasedimentary rocks. Mapping in the early 1990s suggests that structural controls related to a major shear zone may control some of the higher-grade mineralization. There is potential to increase resources at depth, on strike, in the sediment hosted Duck Pond Tin Deposit and tin intercepts in drill holes outside the known deposits that were not followed up in the past.

Avalon has completed drill programs (2014 and 2015), environmental work and metallurgical testing. The drill programs have verified the historic drill data, upgraded the resources and provided metallurgical sample. The paper will present the results to date of the drill programs, challenges of the project and potential plans for re-development.