

## Chevkinite-(Ce), A confirming New Hampshire specimen

Tom Mortimer

An early June, 2021 phone call from Don Dallaire reported that he had acquired a specimen of chevkinite-(Ce) from Stark, New Hampshire. Don said he was the winning bidder at an on-line auction. Don was most fortunate to acquire this 3 cm specimen at a surprisingly low price.... I would have gone ten times higher, if necessary.

Chevkinite-(Ce) has been on my NH species list since the inception of my mindatnh.org web site in 2009. My reference source was a personal communication from Janet Cares. This is the first example that I have seen. A web search turned up a 1956 *American Mineralogist* article on the Devil's Slide Stark, NH occurrence: [www.minsocam.org/ammin/AM41/AM41\\_474.pdf](http://www.minsocam.org/ammin/AM41/AM41_474.pdf). The AM article begins:

*"Chevkinite, a titano-silicate of the cerium earths, occurs as a well-crystallized accessory mineral in fayalite-quartz syenite of the Devil's Slide ring dike near stark, New Hampshire."* And continues *"Chevkinite, a titano-silicate of the cerium earths, occurs as a well crystallized accessory mineral in fayalite-quartz syenite of the Devil,s Slide ring dike just northwest of the village of Stark, New Hampshire. This is the third occurrence of chevkinite in this country"*

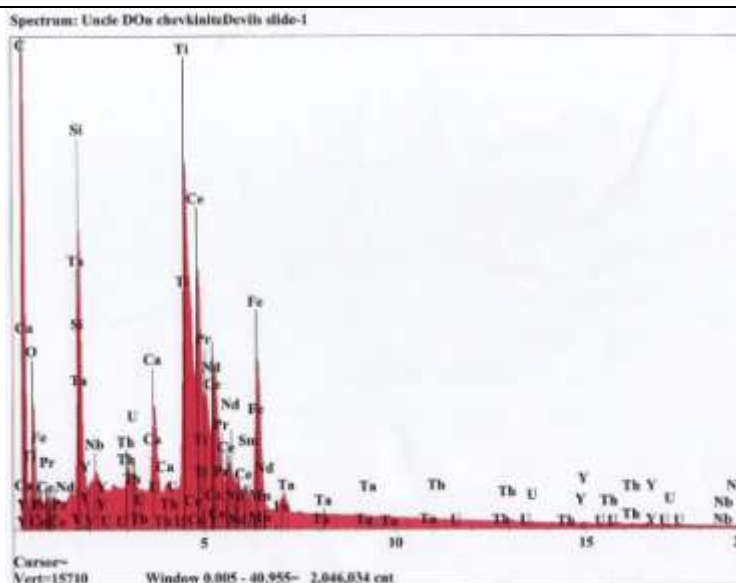
Chevkinite-(Ce) chemistry (mindat.org) is:  $(\text{Ce},\text{La},\text{Ca},\text{Th})_4(\text{Fe}^{2+},\text{Mg})(\text{Fe}^{2+},\text{Ti},\text{Fe}^{3+})_2(\text{Ti},\text{Fe}^{3+})_2(\text{Si}_2\text{O}_7)_2\text{O}_8$   
Webmineral lists an empirical chemistry as:  $\text{Ce}_{1.7}\text{La}_{1.4}\text{Ca}_{0.8}\text{Th}_{0.1}\text{Fe}^{2+}_{1.8}\text{Mg}_{0.2}\text{Ti}_{2.5}\text{Fe}^{3+}_{0.5}\text{Si}_4\text{O}_{22}$ .  
This is a most complex chemistry and allows for a large range of ion substitutions.

Don, being of the "trust but verify" mineral buyer persuasion, enlisted Al Falster of the Maine Mineral Museum lab to perform an Energy Dispersive Spectroscopy (EDS) analysis on his specimen. Al's analysis (below) confirmed Chevkinite-(Ce).

Seeing that the chevkinite-(Ce) chemistry allowed the inclusion of thorium (Th), I checked Don's specimen with my gamma radiation sensitive scintilometer. I could detect no elevated radiation level from the specimen.



**Chevkinite-(Ce)** – black in matrix. 3 cm specimen  
Devil's Slide, Stark, NH



EDS spectrum plot of Stark, NH Chevkinite-(Ce)