**Abstract**

The Tungsten Queen Mine is located in Vance Co., NC, USA. The mine produces tungsten, fluorite, and galena. The study aimed to evaluate the potential of the tailings as a silica resource.

**Study objectives**

- Evaluate potential of tailings as a source of high purity quartz.
- Determine if a high purity quartz concentrate could be produced.
- Assess the implications for silica resource development.

**Methodology**

- Sample collection from the tailings fan surface.
- Petrographic examination of light (<2.9 S.G.) and heavy (>2.9 S.G.) fractions.
- SEM-EDS analysis for mineralogy and impurity levels.
- Leaching experiment to remove impurities.

**Results**

- The tailings contain quartz, feldspar, mica, iron oxide, and other minerals.
- High purity quartz concentrate was produced using bench-scale beneficiation methods.
- Impurities such as feldspar and mica were removed through flotation.

**Conclusions**

- The tailings have potential as a high purity quartz resource.
- Further research is needed to optimize the beneficiation process.

**References and suggested readings**

- Petrography of fractions.