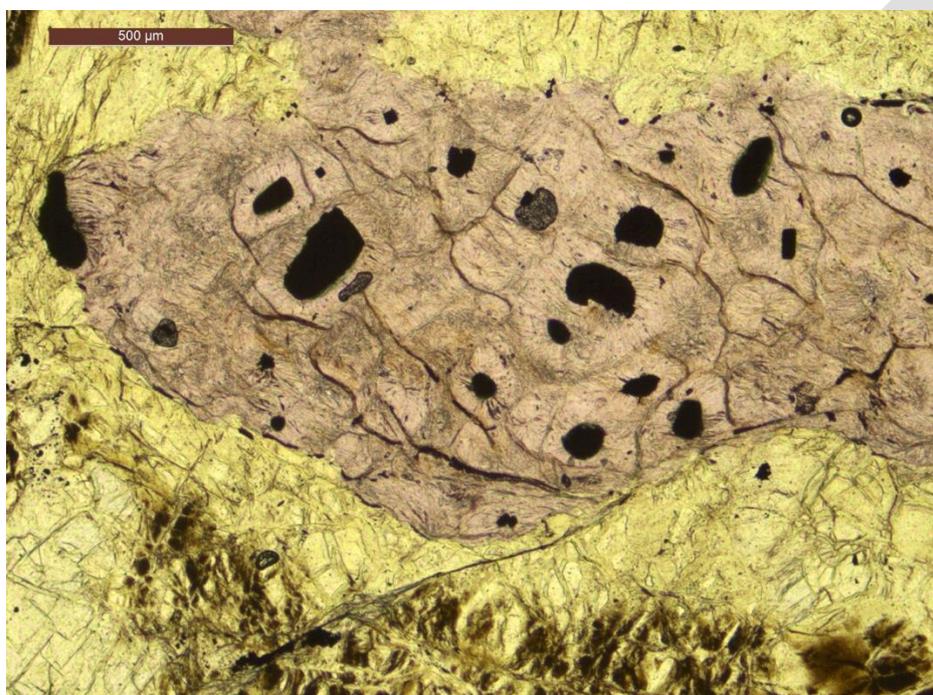


Mineral Resources Tasmania

Laboratory Report
LJN2019-100

MINERALOGICAL / GEOCHEMICAL ANALYSES, NODDY CREEK



An unpublished Mineral Resources
Tasmania Report for:

R Reid

By: R.S. Bottrill
Date: 26 September 2022

Mineral Resources Tasmania

SUMMARY

The sample contains Stichtite in Serpentinite, replacing chromite; there was no asbestos detected and there should be no potential environmental issues with this product

INTRODUCTION

Rob Reid collected several random samples from a mine dump in the Noddy Creek prospect, near Birches Inlet (Table 1), to determine its mineralogy.

Table 1: Sample Details.

Reg. No	Location	Process	Description
G409102	Noddy Ck	XRD, XRF, CSA	Stichtite/serpentine

SAMPLE DESCRIPTIONS

Under the stereomicroscope the sample is an attractive mottled green serpentine with angular, irregular lenticular patches of mixed stichtite and serpentine, up to about 10 mm long (Fig. 1). There are small veinlets and patched of deeper green serpentine.

In thin section (Figs 2 – 5) there are irregular, elongate, deformed and boudinaged blebs of lilac, fibrous stichtite, enclosing and largely replacing rounded chromite grains, hosted in net-textured pale green serpentine (lizardite and chrysotile). The serpentine contains dark brown patches of fine grained magnetite, but this is depleted in a halo around the stichtite (Fig. 2), indicating local, low temperature re-equilibration

Mineral Resources Tasmania



Figure 1. G409102: Purple stichtite in mottled serpentine, FOV ~80mm.

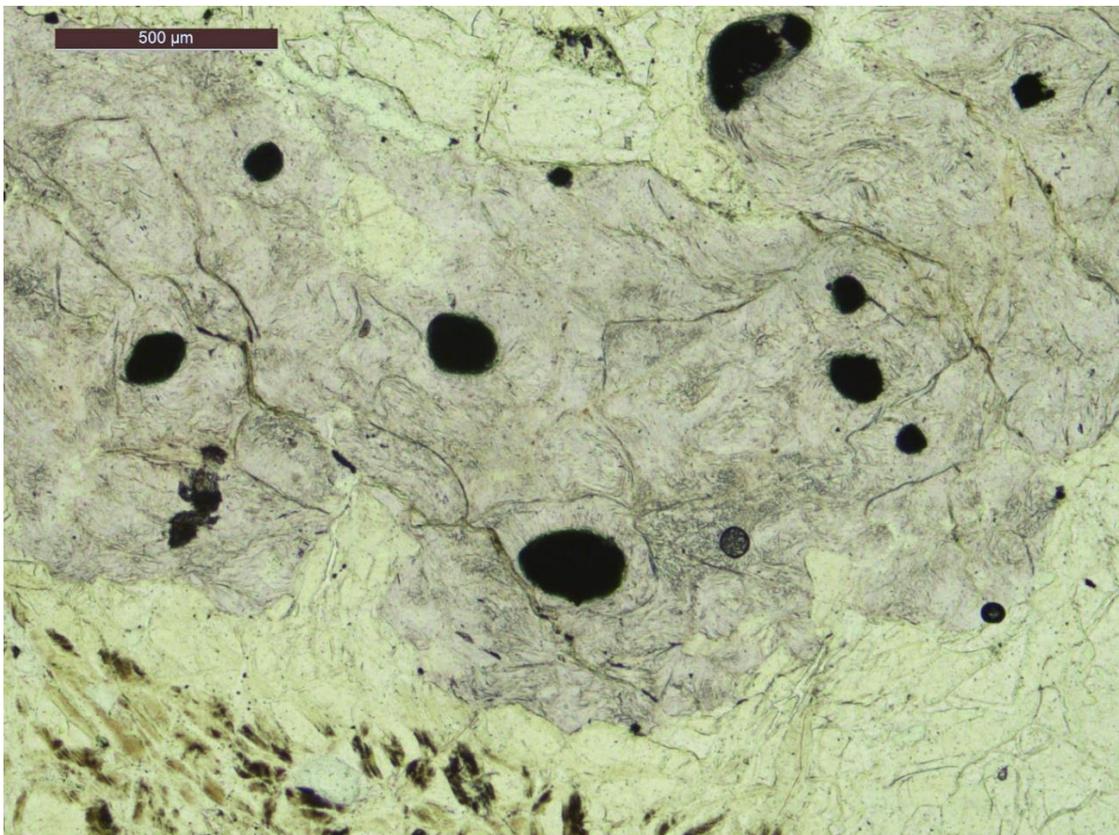


Figure 2. Sample G409102: Irregular blebs of lilac stichtite, enclosing and replacing rounded chromite grains, hosted in net-textured pale green serpentine (lizardite and chrysotile). Plane polarised transmitted light (PPTL).

Mineral Resources Tasmania

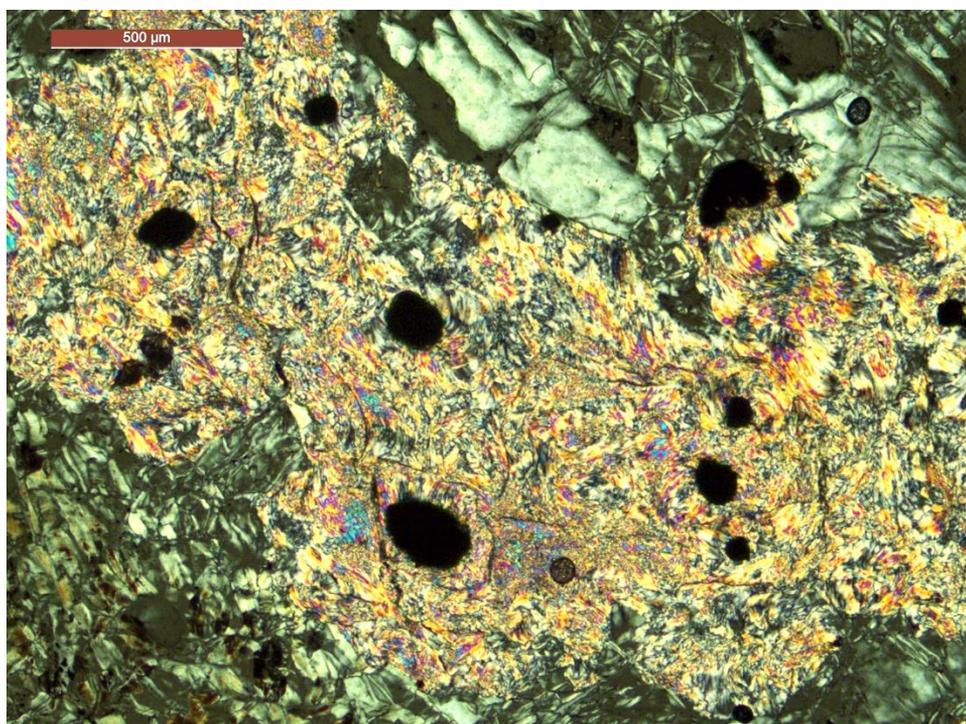


Figure 3. Sample G409102: Same area as Fig. 2. Irregular blebs of fibrous, high birefringent stichtite, enclosing and replacing black chromite grains, hosted in grey-green serpentine (lizardite and chrysotile). Cross polarised transmitted light (XPTL).

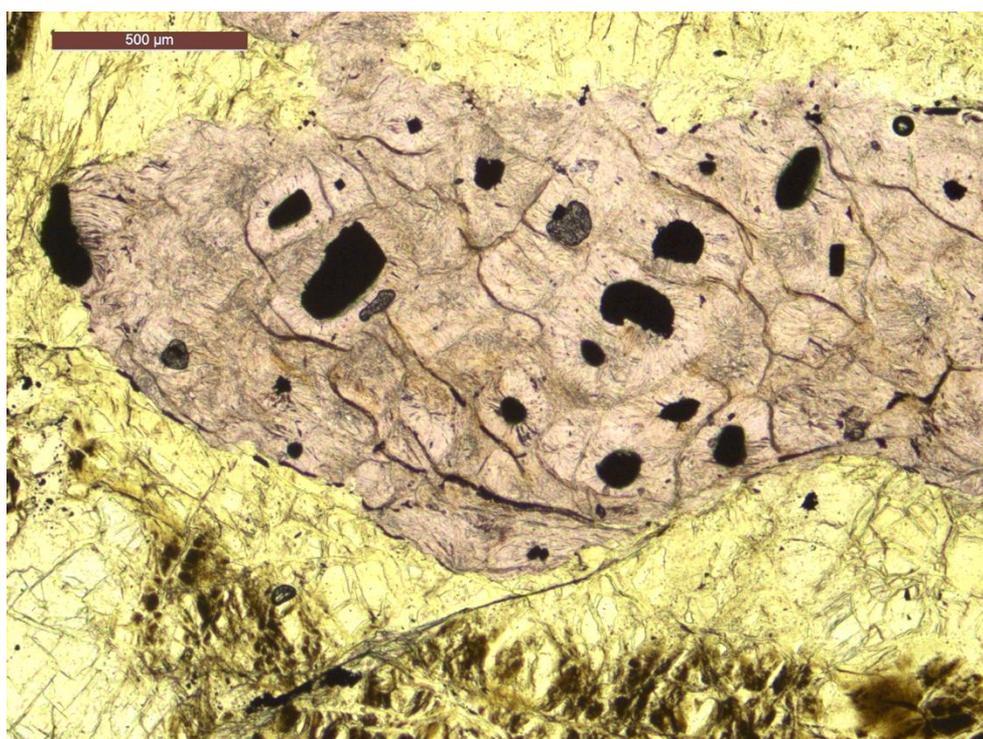


Figure 4. Sample G409102, Irregular blebs of lilac stichtite, enclosing and replacing rounded chromite grains, hosted in pale green serpentine. (PPTL).

Mineral Resources Tasmania

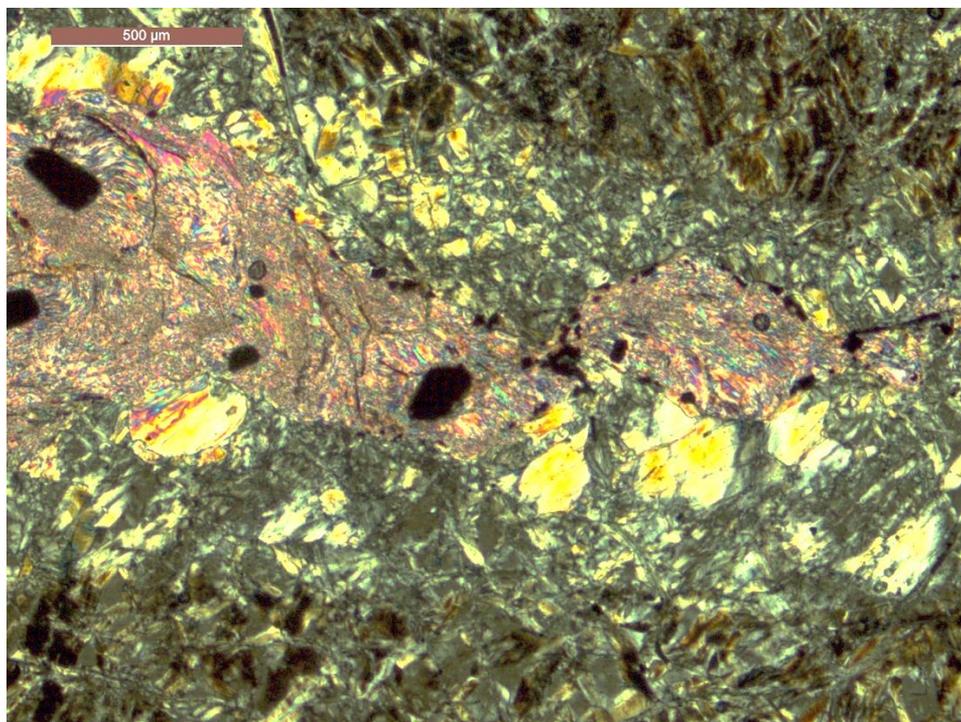


Figure 5. Sample G409102, Irregular, deformed blebs of fibrous, high birefringent stichtite, enclosing and replacing black chromite grains, hosted in granular serpentine and orthopyroxene. Cross polarised transmitted light (XPTL).

SEM/EDAX ANALYSES

The sample was analysed by SEM-EDS, in the CSL, University of Tasmania, with analytical conditions shown in Appendix 1. The results are given in Appendix 2, and the back-scattered electrons (BSE) images shown below with analysis points.

Minerals analysed

Chromite

Six grains were analysed, with the average composition: $(Mg_{0.5} Fe_{0.5})(Cr_{1.5} Al_{0.4} Fe^{3+}_{0.1})O_4$, and is aluminous magnesiochromite.

Serpentine

Fourteen grains were analysed, with the average composition: $(Mg_{3.0})(Si_{1.9} Fe_{0.1})O_5(OH)_4$, probably ferroan lizardite.

Stichtite

Eight grains were analysed, with the average composition: $(Mg_{6.1})(Cr_{1.6} Fe^{3+}_{0.2} Si_{0.1})(CO_3)OH_{16.4}H_2O$, which is ferroan stichtite.

Mineral Resources Tasmania

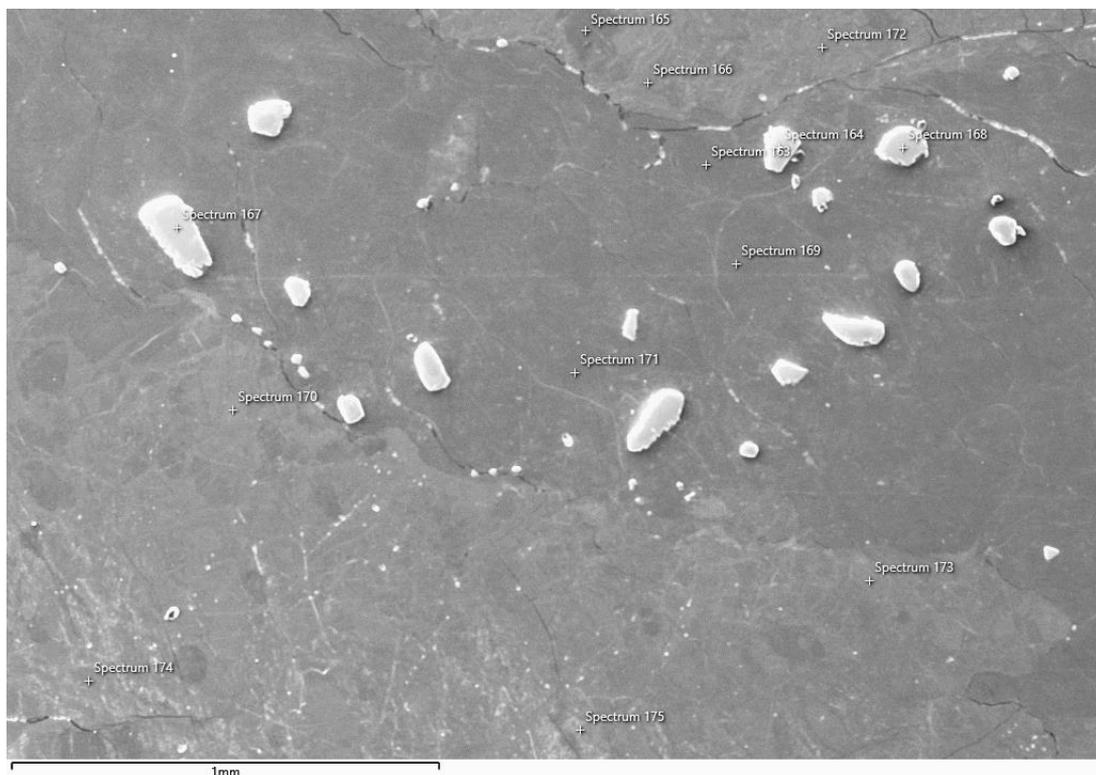


Fig. 6. G409102. Serpentine (lower area: mottled medium-dark grey, with fine bright magnetite inclusions) with the upper area mostly brecciated chromite (bright grey), replaced by stichtite (dark grey). BSE Image.

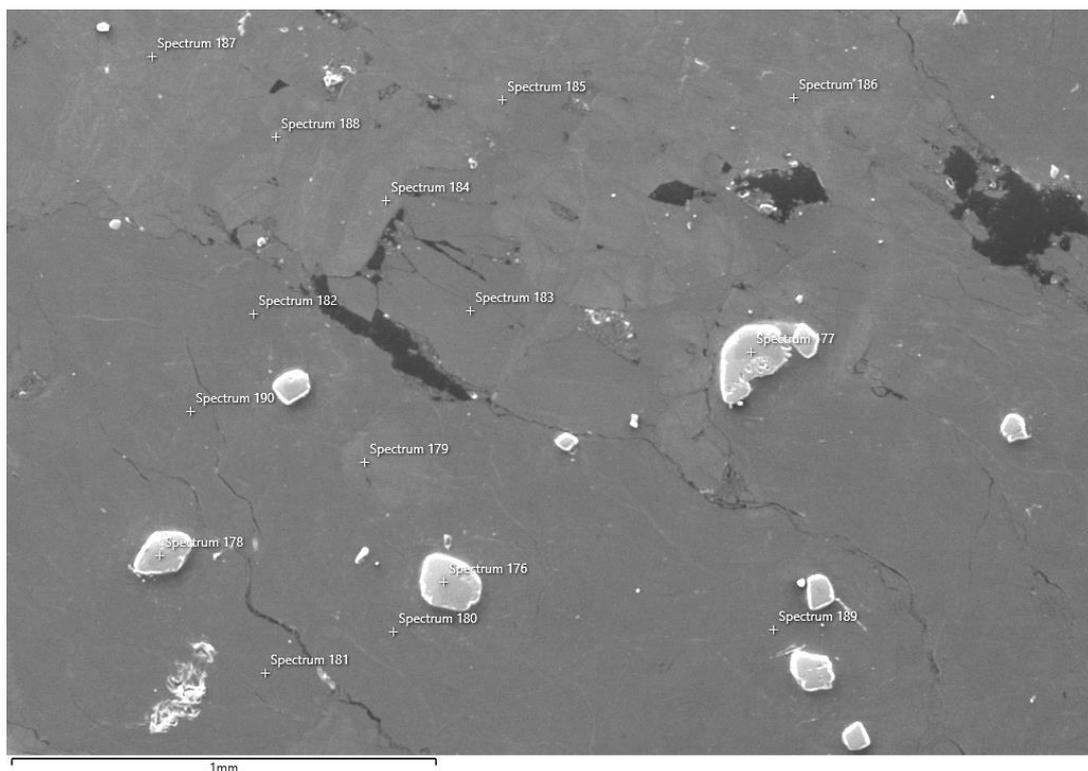


Fig. 7. G409102. Serpentine (mottled medium-dark grey, with fine magnetite inclusions; upper area); the lower area contains brecciated chromite (bright grey, with a dark pyroxene inclusion), replaced by stichtite (dark grey). BSE Image.

Mineral Resources Tasmania

SUMMARY AND DISCUSSION

The sample is a serpentinite containing some relict orthopyroxene and diffuse, very fine-grained magnetite, hosting small patches of highly altered chromite. The chromite has altered mostly to stichtite and was subsequently deformed and remobilised slightly.

R.S. Bottrill
MINERALOGIST/PETROLOGIST

L Unwin
TECHNICAL OFFICER

Disclaimers

While every care has been taken in the preparation of this report, no warranty is given as to the correctness of the information and no liability is accepted for any statement or opinion or for any error or omission. No reader should act or fail to act on the basis of any material contained herein. Readers should consult professional advisers. As a result the Crown in Right of the State of Tasmania and its employees, contractors and agents expressly disclaim all and any liability (including all liability from or attributable to any negligent or wrongful act or omission) to any persons whatsoever in respect of anything done or omitted to be done by any such person in reliance whether in whole or in part upon any of the material in this report.

This and other data collected in MRT laboratories may enter the MRT databases but every attempt will be made to ensure it remains closed file and not be available externally, unless at your request.

Mineral Resources Tasmania

Appendix 1: MRT Laboratory Report

Client: R Reid, MRT

Sample Location: Noddy Ck

Job Number: LJN2019-100

Analyses: Approximate Mineralogy

Methods: SEM/EDS

Analyst: R Bottrill

Date: 21/7/2021

Table 1: Stichtite, G409102, formulae to 8 cations

Label	Mg	Al	Si	Cr	Fe
181	6.13	0.00	0.04	1.59	0.24
163	6.11	0.00	0.05	1.64	0.21
180	6.08	0.00	0.07	1.66	0.19
182	6.10	0.00	0.07	1.57	0.26
169	6.15	0.00	0.00	1.63	0.21
171	6.11	0.00	0.00	1.67	0.22
189	6.14	0.00	0.00	1.67	0.18
190	6.05	0.00	0.13	1.56	0.25
ave.	6.11	0.00	0.05	1.62	0.22

Table 2: Serpentine, G409102, formulae to 5 cations

Label	Cl	Mg	Al	Si	Cr	Fe
166	0.02	3.04	0.00	1.72	0.13	0.11
179	0.00	2.98	0.00	1.76	0.14	0.11
186	0.00	2.96	0.00	1.86	0.06	0.10
172	0.01	2.98	0.00	1.85	0.06	0.12
183	0.00	2.92	0.00	1.92	0.10	0.06
173	0.00	2.94	0.00	1.92	0.05	0.09
175	0.01	2.94	0.00	1.92	0.02	0.11
184	0.00	2.95	0.00	1.94	0.02	0.09
170	0.00	2.94	0.00	1.94	0.02	0.09
188	0.00	2.94	0.00	1.95	0.03	0.08
165	0.00	2.93	0.00	1.95	0.04	0.08
185	0.00	2.93	0.00	1.96	0.02	0.08
187	0.00	2.92	0.00	1.97	0.04	0.07
174	0.00	2.93	0.00	1.96	0.03	0.08
ave.	0.00	2.95	0.00	1.90	0.05	0.09

Mineral Resources Tasmania

Table 3: Chromite, G409102, formulae to 3 cations

Label	Cr	Al	Fe ³⁺	Fe ²⁺	Mg
164	1.53	0.37	0.10	0.46	0.54
167	1.55	0.35	0.10	0.46	0.53
168	1.56	0.36	0.08	0.47	0.53
176	1.54	0.36	0.10	0.46	0.54
177	1.54	0.36	0.10	0.48	0.52
178	1.54	0.37	0.10	0.46	0.54
Ave.	1.54	0.36	0.10	0.46	0.53