Property FC
092GNW052

000552

TRI-SIL MINERALS INC.

SECHELT WOLLASTONITE PROJECT

REVIEW OF FINDINGS TO DATE

OCTOBER 9, 1987

A wollastonite (Ca Si03) occurence found on claims named the "Mineral Hill #1 and #2, and eight included reverted crown grants is owned by Tri-Sil Minerals Inc. This occurence, located 8 Km northwest of the town of Sechelt, has been the focus of deposit definition work involving the following activities.

1. Tri-Sil Minerals commissioned a detailed surface mapping and drilling program involving the completion of eight (8) diamond drill holes.

2. Tri-Sil Minerals in completing access road construction exposed an extensive exposure of high grade wollastonite.

The drill program results including whole rock analyses that confirm the mineral of interest is Wollastonite, is adequately reported upon by Arctex Engineering Services in a report dated May 19, 1987.

Following this work, Canamin Resources Ltd. commissioned studies of a benefication nature with B.C. Research to access the potential of producing a market acceptable product for distribution throughout the Pacific Rim. B.C. Research performed the following (results of some of which are not available yet):

(a) - crushing, milling and dry screening to produce five (5) size fractions from +8 mesh to -48 mesh:

(b) commissioned Ore Sorters Inc. of Colorado to perform magnetic separation tests on 5 Kg samples of each size fraction.

The author performed the optical mineralogical work on mill fractions and later on magnetic separation products. The results of which are here included.

This report will serve to briefly report on Canamin initiated studies to tie this work to that of Tri-Sil.

Box 69, Sechelt, B.C. V0N 3A0 Telephone (604) 885-9824

Drilling Result Summary

Eight holes totalling 742.3 metres of core were drilled to test known wollastonite targets of two mineralogical types or assemblages, namely the limestone (marble)- wollastonite and the calc-silicate assemblage of garnet-diopside and wollastonite. A review of the logs in Arctec's report indicate that wollastonite occurs in grades varying from 0% to 80% in these two assemblages in blocks and sleeves or slices in proximity to andesite dykes and underlying diorite intrusives.

The author re-logged the eight holes with the view of developing an appreciation for the distribution and volume of high grade potential mill feed material similar to the material supplied to B.C. Research. Appreciable thickness of mineable grade wollastonite are to be found in holes number 3 and number 8. In hole #3 a very significant 44.8 metres (147 feet) of 70 to 80% wollastonite material is found within 10 metres of surface. This zone was again tested in drill hole #8 (see geology map in Artec's report) and was here found to have been cut by numerous andesite dykes and minor diorite intrusives. As a result of this intrusive activity the ore zone is now represented by a zone of 60% wollastonite 3.8 metres thick within 7.5 metres of surface, and by a 3.8 metre zone of 80% material at a depth of 50.9 metres. Table #1 presents a summary of potential wollastonite ore zones in all holes regardless of thickness.

Milling and Magnetic Separation Tests

Canamin Resources contracted B.C. Research to undertake benefication tests on a 52.8 Kg sample of material obtained from Tri-Sil Minerals and to report on its findings. Fine crushing and dry screening produced nearly equal percentages of five (5) size fractions ranging from +8 mesh to -48 mesh. The author performed optical mineralogical composition analyses on each size fraction, the results of which are here included. The high wollastonite grade of the mill feed (70% to 90%) indicated that the material was collected from the high grade zone found in outcrop along the road above the core shack.

Samples consisting of 5 Kg bags of each of the five (5) size fractions were forwarded to Ore Sorters Inc. in Lakewood, Colorado for magnetic separation tests. (The results of which are here attached). In order to assess the completeness of separation and/or purity of separation product, the author again performed optical mineralogical composition analyses on each returned product fraction. (The results of this work are here attached).

Ore Sorters Inc. ran two (2) magnetic separation tests on each size fraction that involved passing milled material at a specific rate over a magnetic belt. Non-magnetic material is thrown off the belt while weakly magnetic material such as garnet and diopside tended to cling weakly to the belt for later removal. Not all magnetic material could be separated in one pass and as a result three passess were performed on each sample before a product was accepted. Apparent within Ore Sorter's findings is the fact that a penalty in the form of reduced product volumes is to be expected when a slower belt speed and a reduced feed rate are required to produce a high purity market acceptable product. (See optical analyses). The price is not great, however, as a 10% drop in yield resulted in a significantly cleaner product.

A study of reject material revealed a large proportion of the reject is wollastonite that has been removed because of its grain boundary links to minor garnet and/or diopside grains. It is this product entrainment that explains why a test feed over 80% wollastonite produces a reduced volume of product (see Ore Sorter's letter).

Whiteness and brightness, two quality parameters important to consumers, are to be tested by B.C. Research as part of its ongoing program. Optically, the Sechelt material returned as "non-magnetic" product by Ore Sorters can be classed as high in both whiteness and brightness. Analytical work performed on wollastonite samples confirms less than 1% iron oxide; the major wollastonite contaminant and whiteness modifier.

It must be remembered that material delivered to B.C. Research was selectively collected and representative of high grade outcrops. A trial mine operation will undoubtedly be selective in nature also but any increase in scale will result in a decrease in marketable product volume as lower grade feed is to be expected. This reduction in Wollastonite product volume may be insignificant, however, if by-product garnet and limestone were to be marketed as well.

The market acceptability of an acicular wollastonite characteristically white and bright is favorable in light of growing markets for asbestos substitutes, performance fillers and ceramic tiles.

R.B. Anderson
Consultant

TABLE 1

SECHELT WOLLASTONITE ORE ZONE SUMMARY

	Thick @			Grade	Contaminants
Hole #1	.45 m	37.6	m	75%	20%G, 5%D
Hole #2	2.08 m	@ 15.8	m	50%	20%G, 30% Marble
	3.72 m	@ 17.88	m	30%	30%G, 20% Marble, 10%D
	0.50 m	@ 21.6	m	60%	20%G, 20%D
	4.54 m	@ 23.06	m	50%	Marble and Minor G,D
	0.3 m	@ 51.5	m	100%	
Hole #3	44.8 m	@ 9.75	m	70-80%	occ. thin marble and garnet layer
	0.5 m	@ 62.0	m	50%	G&D
	1.8 m	@ 62.5	m	30%	G&D
Hole #4	1.8 m	@ 12.5	m	60%	G&D
	19.2 m	@ 26.5	m	30%+	Marble
		sfe			
Hole #5	14.3 m	@ 1.5	m	Van15-40% An 25%	G&D, Marble
Hole #6	2.0 m	@ 29.0	m	50%	50%G
	1.1 m	@ 34.4	m	40%	G&D
Hole #7	0.62 m	@ 14.9	m	50%	Marble
	0.6 m	@ 23.1	m	50%	Silic. Ls.
	0.85 m	@ 23.76	m	35%	Silic. Ls.
	0.3 m	@ 57.6	m	60%	
	1.55 m	@ 92.7	m	70%	
	1.5 m	@110.0	m	60%	G&D
	.25 m	@112.0	m	60%	G&D
	.45 m	@132.75	m	50%	G&D
	7.5 m	@133.4	m	80%	
Hole #8	7.5 m	@ 2.2	m	60%	25% Marble
	.20 m	@ 10.15	m	50%	25%G, 20%D, 5%ls.
	1.53 m	@ 10.97	m	40%	60%D
	1.05 m	@ 47.5	m	80%	G,D and ls.
	3.8 m	@ 50.9	m	80%	10%G, 5%D, 5%ls.
	1.94 m	@ 55.05	m	70%	30%ls.

MINERAL HILL CLAIM GROUP - DRILL CORE RELOGGED BY R.B.A.

Hole No. 1

0- 3.65 m	Casing
3.65- 9.0 m	Marble
9.0 - 9.84 m	Andesite dyke
9.84-10.05 m	Wollastonite - 100% $CaSiO_3$ @ dyke contact - gradational reduction to lower marble
10.05-13.0 m	Silicified marble
13.0 -13.6 m	Diopside rimmed garnet (hor. thick. 0.40 m) - contact 30° C.A.
13.6 -17.07 m	Marble with include G-D-W clustered along remnant compositional layering - Wollastonite = 10% - garnet layer - 16.21 - 16.27
17.07-17.27 m	Garnet with sulphide (arsenopyrite?) on contact
17.27-17.8 m	Marble
17.8 -18.9 m	Dionite
18.9 -25.75 m	G-W-D skarn "mottle rock" with marble - less than 5% $CaSiO_3$ 20.61-20.64 - 100% garnet 20.85-20.90 - $CaSiO_3$ in marble
25.75-27.76 m	Garnet
27.76-32.6 m	Marble with layered G-D-W skarn
32.6 -33.7 m	Marble with wollastonite blebs and small crystal clusters
33.7 -35.37 m	Garnet with 20 to 30% Diopside - highly sheared
35.37-37.84 m	Marble
37.34-37.64 m	Garnet
37.64-38.1 m	Wollastonite 75% with Garnet 20%, Diopside 5%
38.1 -38.19 m	Garnet
38.19-42.7 m	Marble with 20% Wollastonite distributed as small evenly distributed crystal clusters
42.7 -43.5 m	Garnet
43.5 -48.0 m	Marble with small patches of wollastonite rimmed garnet (Wollastonite approximately 10%) 30% Wollastonite from 45.0 to 45.26 20% Wollastonite from 45.26 to 48.01
48.01-50.9 m	Garnet
50.9 -52.6 m	Marble
52.6 -53.5 m	Garnet

53.5 -57.0 m	Marble with 10% Wollastonite as thin stringers
57.0 -58.5 m	Marble with 10% Wollastonite
58.5 -59.3 m	G-D-W Skarn (30% Wollastonite)
59.3 -60.2 m	Marble
60.2 -60.5 m	Garnet
60.5 to E.O.H.	Dionite with included diopside alteration
@ 93.6	

Hole No. 2

0 - 3.6 m	Casing
3.6 - 8.1 m	Diorite intensely epidote altered
8.1 -12.8 m	Garnet with minor wollastonite and 20% diopside
12.8 -15.8 m	Garnet with 10% Wollastonite as irregular patches and pods in diopside rich skarn - highly fractured
15.8 -17.88 m	Skarn - 50% Wollastonite 20% Garnet 30% Marble
17.88-21.6 m	Skarn - 30% Wollastonite, 20% Marble 30% Garnet, and 10% Diopside some thin 100% Wollastonite streaks parallel layering at 30° C.A.
21.6 -22.1 m	Skarn - 60% Wollastonite 30% Garnet, 10% diopside
22.1 -23.06 m	Diorite - altered intrusive with epidote coating both upper and lower contacts.
23.06-27.6 m	Wollastonite Skarn/Marble - 50% Wollastonite in marble
27.6 -29.0 m	Skarn - mixed G-D-W and 10% Marble - Wollastonite minor
29.0 -35.93 m	Marble with numerous garnet layers and occasional thin Wollastonite layers - silicified from 35.67 to 35.93.
35.93-40.2 m	Marble with irregular blebs and pods of Wollastonite and principal layering at 30° C.A.
40.2 -42.0 m	Garnetite (Garnet-Diopside and minor Wollastonite)
42.0 -42.82 m	Silicified Marble
42.82-47.0 m	Marble with numerous short lengths of Garnet and Wollastonite in layers no thicker than 0.3 m - bedding at 30° C.A.

47.0 -47.37 m	Silicified marble
47.37-49.1 m	Marble - with minor Wollastonite clusters
49.1 -50.6 m	Garnet-Diopside skarn - highly sheared
50.6 -51.5 m	Marble
51.5 -51.8 m	Wollastonite Skarn - Minor G&D
51.8 -58.8 m	Marble - with occasional small Wollastonite crystal clusters - layering 20 to 30% C.A. - pyrite crystals common
58.1 -51.1 m	Garnet-Diopside-Wollastonite skarn - 10% Wollastonite
51.1 -60.5 m	Marble
60.5 -62.5 m	Silicified Andesite dyke
62.5 -66.14 m	Marble - solution cavities common - 5% Wollastonite
66.14-67.05 m	Garnet
67.05-70.7 m	Hornblende Dionite - chilled margins
70.7 -85.6 m	Garnet - minor diopside - garnet in two forms - a dark purple blown crystalline form and a fine grained light brown earthy form.
85.6 -87.5 m	Silicified Marble
87.5 -121.0 m	Garnet - minor Diopside - minor Wollastonite
121.0-121.2 m	Andesite dyke
121.2-138.9 m	Garnet - minor Diopside - minor Wollastonite
138.5-140.5 m	Silicified Marble
140.5-E.O.H. @ 152.5	Diorite

Hole No. 3

0 - 9.7 m	Surface rubble
9.7 -54.6 m	Wollastonite
	-13.4 - 10% Diopside and 10% Garnet
(44.8 m - 70-80% Wollastonite)	24.3 - 26.8 30% Diopside
	28.3 - 28.6 Garnet
	32.0 - 35.9 - 0.6 m recovery
	35.9 - 37.5 - G - 25%, D - 25%
	46.9 - 51.8 - 40% Marble
	54.25-54.30 - Andesite dyklet
54.6 -59.6 m	Marble
	55.47-55.56 - Andesite dyke
	56.08-56.15 - Andesite dyke
59.6 -60.3 m	Garnet Diopside Wollastonite Skarn
60.3 -62.0 m	G-D Skarn - 5% Wollastonite
62.0 -62.5 m	Wollastonite 50% - Garnet 30% - Diopside 20%

62.5 -64.2 m	W-G-D Skarn - Wollastonite 30%
64.2 -64.35 m	Andesite dyke - chilled margins
64.35-90.2 m	Garnetite - Andesite dyke 67.05-66.65 Andesite dyke 77.7 -77.9
90.2 -94.2 m	Intensely silicified limestone and G-D-W Skarn
94.2 -E.O.H.	Mixed garnetite/instrusive - margin phase
@ 98.5	

Hole No. 4

0 -11.58 m	Diorite chilled margin @ base
11.58-12.48 m	Marble with occ. py and cpy specks
12.48-14.32 m	W-G-D - dense hard 30° C.A. - W = 60%
14.32-15.84 m	Sand?? Oxidized sand - Fault?
15.84-26.5 m	Marble with minor occasional conc. of Wollastonite along bedding and blebs. Banding (meta-bedding?). Difficult to estimate Wollastonite in this matter (sampled).
26.5 -45.72 m	Wollastonite Marble and 30% Wollastonite sample

Hole No. 5

0 - 1.5 m	OB
1.5 -15.8 m	Wollastonite-Garnet-Diopside-Marble Wollastonite variable 15 to 40%.
15.8 -40.5 m	Diorite and various instrusions to E.O.H. @ 40.5 m. Appears similar to a leucogranite. Contains knots of garnet inclusions and zones of silica in a white f.gr. form.

Hole No. 6

0 - 3.35 m	Surface boulders of Diorite
3.35- 9.15 m	Garnet with minor Diopside and Wollastonite
5.4 - 6.01 m	Andesite dyke
9.15-13.56 m	Diorite intrusive
15.56-31.3 m	"Mottle Rx" - Garnet with Diopside and Wollastonite in varying concentrations up to 15%. Note chalcopyrite and sphalerite. First good know of pure Wollastonite on the end of this sample. Between 22.25 and 22.86 - Wollastonite 45%. Around 2.90 to 31.0 m rock changes to a 50%G, 50%W.

31.31-32.46 m	Andesite dyke
32.46-37.5 m	"Mottled rock" - G,D,W = 10%W. @ - 34.4 - 35.5 m W upgrades to about 40%.
37.5 -39.6 m	Silicified andesite dyke containing small knots of garnet inclusions.
39.6 -42.0 m	Mottle Rx - silicified contains minor 10% Wollastonite but this Rx is very hard and likely difficult to grind.
42.0 -42.45 m	Andesite dyke
42.45-43.58	Silicified Mottle Rx - extremely hard; no visible Wollastonite
43.59-43.89 m	Wollastonite Mottle Rx - 40% Wollastonite
43.89-45.4 m	Silicified Mottle Rx - no visible Wollastonite
45.4 -48.76 m	Diorite intrusive - chilled margin for first metre = 3% pyrite
48.76-60.8 m	Silicified ls. with G&D - pyrite rich; no visible Wollastonite except as coatings on joints and fractures. Looks like a silic. contact zone. Thin andesite dykes @ 52.5 to 52.65 and 58.5.
60.8 -64.9 m	Diorite

Hole No. 7

0 - 5.48 m	Mixed Ls. and Andesite Rubble
5.48- 7.62 m	Andesite dyke
7.62-12.8 m	Silic. Ls. Breccia - Vuggy
12.8 -14.93 m	Andesite dyke contains blebs of silichs
14.93-15.55 m	Wollastonite Marble - 50% Wollastonite
15.55-22.16 m	Marble and mottled skarn - mixed short sections of Ls. and garnetite skarn. Wollastonite no more than 5%. Occasional wispy Andesite stringers. Vuggy sections
22.16-22.56 m	Marble
23.16-23.76 m	Wollastonite Marble - 50% Wollastonite - 50% Silic. Ls.
23.76-24.61 m	Wollastonite Marble - 30 - 40% Wollastonite
24.61-28.35 m	Marble - no Wollastonite two thin (.04m) andesite dykes
28.35-29.85 m	Andesite dyke
29.85-31.35 m	Marble
29.85-31.56 m	Andesite dyke

31.65-33.69 m	Wollastonite Marble - limestone (marble) with about 30% included Wollastonite knots
33.69-34.89 m	Andesite dyke
34.89-36.16 m	Marble
36.16-36.26 m	Andesite dyke
36.26-36.36 m	Marble
26.36-38.10 m	Andesite dyke
38.10-40.15 m	Marble to 50% Wollastonite as small (1"-2" blebs)
40.15-40.19 m	Andesite
40.19-40.28 m	Wollastonite Marble
40.28-40.35 m	Andesite
40.35-40.65 m	Wollastonite Marble - 20 - 30% Wollastonite in small included crystal masses
40.65-42.09 m	Andesite dyke
42.09-42.91 m	Marble to 5% Wollastonite in small xtal group clusters
42.91-49.83 m	Andesite
49.83-51.51 m	Mixed Andesite-Garnetite
51.51-52.10 m	100% Silica replaced Ls.
52.16-52.19 m	Andesite dyke
52.19-52.57 m	100% Silicia replaced Ls.
52.57-52.78 m	Wollastonite skarn - 50% Wollastonite with Garnet
53.78-53.03 m	100% Silicia replaced Ls.
53.03-80.5 m	Garnetite - rich in garnet. Contains a short 0.3 m section of 60% Wollastonite @ 57.60 m. The average Wollastonite for this section is probably 5% to 10% - difficult to liberate from the garnet. 67.1 m - 70.1 m Marble with included breccia masses of Garnetite. Admixed small masses of Diorite appear to be mixed in towards base.
80.5 -84.8 m	Diorite
84.8 -92.6 m	Wollastonite Garnetite. 20% Wollastonite, 60% Garnet, 20% Diopside
92.6 -92.75 m	Andesite dyke
92.75-94.3 m	Wollastonite 70%, Garnet 25%, Diopside 5%
94.3 -95.5 m	Massive Sulphide (split) Sphalerite and 2% Chalco
95.5-108.5 m	Garnetite "Mottle Rx" Average Composition: Garnet 50%, Diopside 30%, Wollastonite 20% Occasional very short (0.05) sections of 100% Wollastonite included but usually Wollastonite is low.

108.5-110.0 m	Garnet - cut by numerous thin chalcopyrite veinlets
110.0-111.5 m	W. Garnetite - Wollastonite 60%, Garnet 30%, Diopside 10%
111.5-112.0 m	Wollastonite Garnetite - Wollastonite 60%, Diopside 5%, Garnet 35%
112.25-112.9m	W. Garnetite - Garnet 50%, Wollastonite 20%, Diopside 30%
118.9 -119.40m	Garnet
119.40-120.70m	Andesite dyke - chilled margins @ 70° C.A.
120.70-132.3 m	Garnet Skarn - Diopside and Garnet bands @ 30° C.A. Occasional 0.2 m silica bands. Harder than door knockers
132.3 -132.75m	Diorite dyklet
132.75-133.2 m	Wollastonite Skarn - Wollastonite 50%, Garnet 40%, Diopside 10%
133.2 -133.4 m	Banded Garnet skarn
133.4 -133.9 m	Wollastonite skarn - Wollastonite 80%, Garnet 15%, Diopside 5%
133.9 -E.O.H.	Garnetite - Garnet 80%, Wollastonite 10%, Diopside 10%
(139.0 m)	

Hole No. 8

0 - 2.28 m	Casing
2.28- 9.75 m	Wollastonite skarn ore - 60% Wollastonite, 25% ls., minor G&D. (Often difficult to distinguish ls. from Wollastonite.)
9.75-10.15 m	Andesite (chilled)
10.15-10.35 m	Wollastonite skarn - 50% Wollastonite, 25% Garnet, 20% Diopside, 5% ls.
10.35-10.97 m	Diopside skarn
10.97-12.5 m	Wollastonite-Diopside Skarn - 40% Wollastonite, 60% Diopside
12.5 -13.4 m	Wollastonite Diopside - 20% Wollastonite, 80% Diopside
13.4 -47.5 m	Diorite
47.5 -48.55 m	Wollastonite Skarn - Wollastonite 80%, Garnet 15%, Diopside 3%, Marble 2%
48.55-50.9 m	Andesite dyke
50.9 -54.7 m	Wollastonite Marble - Wollastonite 80%, Garnet 10%
54.7 -55.05 m	Diopside Skarn - 90% Diopside, 10% Wollastonite
55.05-56.99 m	Wollastonite Marble - 70% Wollastonite Marble, 30% Limestone

56.99-74.8 m	Marble with about 15% Wollastonite
74.8 -75.6 m	Garnet
75.6 -79.0 m	Skarn - Garnet 30%, Wollastonite 10%, Diopside 10%, Limestone 50%
78.0 -105.15m	Garnet ("Mottle Rx") skarn - less than 5% Wollastonite with marble from 88.1 to 89.0
105.15-107.60m	Diorite
E.O.H.	

TABLE 2

MILL FEED TESTS - SECHELT WOLLASTONITE

Size Fraction

4 x 8 mesh

Composition - +80% Wollastonite
up to 10% Garnet
5% Diopside
1% Limestone or less

Sample 10% reactive to HCI of which Limestone constituted about 10%. 1% Limestone maximum.

Mineralogy

Wollastonite - long acicular grains

Garnet - small circular brownish growing as individual crystals and small crystal aggregates.

Diopside - medium size large green individual crystals within Wollastonite.

1. Calcite appears to cement Wollastonite, Garnet, Diopside grains.

2. In IONHCI Limestone reactive - dissolved leaving liberated Wollastonite, Garnet, Diopside.

Size Fraction

8 x 8 mesh

Composition - up to 90% Wollastonite
about 8% Garnet
1% Diopside
1% Limestone

Wollastonite - long acicular crystals as long or longer than in the 4 x8 mesh sample, but thinner (aspect 10 to 15:1).

Garnet - small dark circular grains.

Diopside - greenish intergrown structureless and medium size grains.

As in 4 x 8 mesh sample the Limestone appears as a grain coating cement only in about 9% of the grains. Interesting association - one grain consisted of Garnet and Limestone and when HCI was added fell into a Garnet grit (Sandpaper?).

Note: a Standard hand magnet did not raise any grains.

Hole No. 3

18 x 30 mesh

Composition - up to 90% Wollastonite
about 8% Garnet
1% Diopside
1% Limestone

Wollastonite - acicularity reduced to that of the 4 x 8 mesh sample but a noted improvement in liberation of Garnet.

Diopside - grains appear cross cutting and therefore only about 50% liberated at this mesh.

7% of grains appears to be HCI reactive at 18 x 30 mesh suggesting that more of the cemented material stays in larger size fraction.

30 x 48 mesh

Composition - +90% Wollastonite
+ 5% Garnet
+ 3% Diopside
2% Limestone

Numerous minute grains reactive in HCI.

Both Garnet and Diopside are at least 75% liberated from the Wollastonite occurring as individual grains or clumps of welded (cemented) grains (Garnet only).

Aspect ratio again UP about 10+ to 1 as it was @ 8 x 18 mesh, a few (5%) of the grains were easily up to 30:1.

Occasional small grains of coal and wood fragments attest to a dirty mill.

+48 x 100 mesh

Composition - Much as before with Wollastonite appearing to be completely free of Garnet but still attached to the odd diopside.

Grain - reactive x 10% of the grains, especially those Garnet clumps cemented with Limestone.

Acicularity has improved at this size so that 15:1 appears common with up to 50:1 occasionally.

In Water, Garnet was magnetic and Diopside weakly so.

TABLE 3

WOLLASTONITE - MAGNETIC SEPARATION PRODUCTS

Fraction 4 x 8	Pass #1, AT1, NM3
Composition	Large (in 4 x 8) equigranular grains of Wollastonite. Each grain contains both Garnet and Diopside in minute proportions. Grains occurring as either admixtures or individual very small grains. Wollastonite - translucent white Garnet - light brown Diopside - light green
Ratio	80% Wollastonite 15% Garnet 5% Diopside average some grains 100% $CaSiO_3$
Crystal Form	Wollastonite both as intergrown acicular crystals and so small equigranular clusters of xtals. Usually with Garnets. When tested with HCI (dilute) neither type effervesced therefore Limestone does not appear to be associated to any one xtal form. Weak reactions were noted in garnet zones only. Therefore knots of Wollastonite free carbonate is not present.

PASS #2, AT2, NM3

As above in all respects

Fraction 8 x 18	Pass #1, BT1, NM3 no free magnetics. As in the 4 x 8 fraction Diopside and Garnet grains are found as clusters or individual grains within only those

Wollastonite grains displaying the equigranular makeup. Those grains that are dominantly acicular do not contain any impurities and appear to offer the best aspect ratio.

Composition

Wollastonite ±85%
Garnet ±5 to 10%
Diopside 3% to 5%

Acicularity very pronounced in some grains.

PASS #2, BT2 NM3

As above except that the sample appears to be 2 or 3% cleaner.

The Diopside to Garnet ratio has dropped off to 1 in 2 where it was 1 in 10 above.

The Garnets are very small inclusions requiring considerable grinding to remove.

Fraction 18 x 30

CT1, NM3

As in large size fraction both Garnet and Diopside occur as either clots or individual grains within Wollastonite grains. Very few Wollastonite grains contain more than one grain of impurity, however, and optically 60 to 70% of all grains are pure Wollastonite.

Grains of Garnet and Wollastonite are still no bigger than the point of a needle.

Overall acicularity has increased in this size fraction with 5 to 7 average

- some grains, however are more like 15:1 (20%).

Compared to the control sample of 18 x 30 material a marked drop in Diopside and Garnet is noted accompanied by an increase in whiteness

18 x 30

Pass #2 CT2, NM3

Pass #2 is decidedly cleaner than #1 with a further 50% reduction in Garnet and near complete elimination of Diopside.

Fraction 30 x 48

Pass #1, DT1, NM3

Smaller grains obviously but improved acicularity.

Wollastonite 95+% - 10% of which contain needle point sized Garnet grains.

Rare Diopside grains are usually three times the size of Garnet grains and tend to occur as small grains on the end of Wollastonite xtals.

Difficult to distinguish optically much improvement in $CaSiO_2$ content over CT2, NM3 but a very obvious reduction in Garnet and Diopside is apparent over the control original material.

PASS #2, DT2, NM3

An improvement in Garnet reduction apparent as now Garnet does not exceed 1 to 2% occurring as individual grains

(needle point size) distributed along the Wollastonite grains.

Diopside grains now exceedingly rare - only six small grains were counted over the area of a petri dish 3" diameter (this should equate to less than 0.01%).

A very pronounced improvement is noted when DT2, NM3 is compared to the control sample of pre-test material.

Fraction 48 x 100

ET1, NM3

At this size free garnet is noted for the first time as Garnet grains appear to have been fully liberated from the Wollastonite but not separated magnetically and, in fact, the DT2, NM3 appears to be almost cleaner of Garnet than this size sample. Despite its presence Garnet is still a very small constituent comprising what appears to be less than 0.1% (Fe %?)

Only two small grains of Diopside were found over a sample covering a petri dish 3" diameter.

ET2, NM3

Same as above - no apparent visual difference between this and the previous sample but a decided difference between this and the control was noted.

WOLLASTONITE REJECT MATERIAL

A1-1 - Course grains 50% Garnet, Wollastonite with Diopside 90% Wollastonite, 10% Diopside.

A1-2 - Same - more Garnet = 60%

A1-3 - Garnet 40%, Diopside 10%, Wollastonite 50% - both on Wollastonite grains.

A2-1 - Wollastonite 55%, Garnet 40%, Diopside 5%

A2-2 - Course grains of Wollastonite speckled with Garnet grains and clusters. Wollastonite 70%, 25% Garnet, 5% Diopside.

A2-3 - Like above except more Wollastonite appears included.

B1-1 - 60% Garnet, 10% Diopside, 30% Wollastonite

B1-2 - 50% Garnet, 10% Diopside, 40% Wollastonite

B1-3 - 30% Garnet, 10% Diopside, 60% Wollastonite

The same general pattern exists through the C, D and E runs - in each case the third reject was higher in Wollastonite content than the first but each reject appears to contain the same proportion of Diopside.

It may be just illusionary but the finest fraction appears to contain relatively more Wollastonite in the reject than was the case in courser size fractions. This obviously is a function of entrainment of fine Wollastonite by heavier magnetic diopside and garnet as they separate. Apparently, a size reduction results in a concomittant loss of product Wollastonite.