

Appendix III, Table 4

SPINEL ANALYSES FROM HARE BAY AND BAY OF ISLANDS

| | 1 | 2 | 3 | 4 | 7 | 8 | 9 | 10 |
|--|--------|--------|--------|-------|--------|--------|--------|-------|
| Al ₂ O ₃ | 54.67 | 53.45 | 53.90 | 53.50 | 48.38 | 51.09 | 57.97 | 63.19 |
| Cr ₂ O ₃ | 12.90 | 13.60 | 13.99 | 14.40 | 19.26 | 17.41 | 10.19 | 4.45 |
| MgO..... | 19.39 | 17.73 | 19.07 | 19.35 | 17.57 | 18.54 | 19.46 | 19.59 |
| FeO..... | 11.13 | 13.28 | 11.71 | 10.86 | 13.04 | 11.92 | 11.66 | 11.93 |
| Fe ₂ O ₃ | 1.78 | 1.30 | 2.14 | 1.63 | 2.67 | 1.21 | 1.18 | .37 |
| TiO ₂ | .14 | .07 | .07 | .05 | .18 | .10 | .07 | .02 |
| Total..... | 100.01 | 99.59 | 100.87 | 99.78 | 100.30 | 100.27 | 100.53 | 99.55 |
| Al..... | 13.53 | 13.45 | 13.32 | 13.32 | 12.35 | 12.84 | 14.13 | 15.22 |
| Cr..... | 2.14 | 2.29 | 2.32 | 2.40 | 3.13 | 2.93 | 1.67 | .72 |
| Fe ³⁺ | .28 | .23 | .34 | .26 | .47 | .19 | .18 | .06 |
| Ti..... | .02 | .01 | .01 | .01 | .03 | .02 | .01 | .00 |
| Mg ₂ | 6.07 | 5.64 | 5.96 | 6.09 | 5.67 | 5.89 | 6.00 | 5.96 |
| Fe ₂ | 1.95 | 2.37 | 2.05 | 1.92 | 2.36 | 2.13 | 2.02 | 2.04 |
| MgAl ₂ O ₄ %..... | 75.8 | 70.5 | 74.5 | 76.1 | 70.9 | 73.6 | 74.9 | 74.6 |
| FeAl ₂ O ₄ %..... | 8.7 | 13.6 | 8.8 | 7.1 | 6.3 | 6.6 | 13.4 | 20.6 |
| MgCr ₂ O ₄ %..... | .0 | .0 | .0 | .0 | .0 | .0 | .0 | .0 |
| FeCr ₂ O ₄ %..... | 13.4 | 14.3 | 14.5 | 15.0 | 19.5 | 18.3 | 10.4 | 4.5 |
| Fe ₂ TiO ₄ %..... | .3 | .1 | .1 | .1 | .4 | .2 | .1 | .0 |
| FeFe ₂ O ₄ %..... | 1.8 | 1.5 | 2.1 | 1.6 | 2.9 | 1.2 | 1.2 | .4 |
| Cr/Cr+Al(x100)..... | 13.66 | 14.58 | 14.82 | 15.29 | 20.20 | 18.60 | 10.54 | 4.51 |
| Mg/Mg+Fe ²⁺ (x100)..... | 75.64 | 70.40 | 74.38 | 76.06 | 70.60 | 73.48 | 74.84 | 74.53 |
| Fe ³⁺ /Fe ³⁺ -Cr-Al(x100)..... | 1.76 | 1.46 | 2.11 | 1.62 | 2.93 | 1.21 | 1.15 | .35 |
| Fe ²⁺ /Mg..... | .32 | .42 | .34 | .31 | .42 | .36 | .34 | .34 |
| | 11A | 11B | 13 | 14 | 15 | 17 | 18 | 19 |
| Al ₂ O ₃ | 55.45 | 52.53 | 60.24 | 40.96 | 40.10 | 36.09 | 29.85 | 30.18 |
| Cr ₂ O ₃ | 11.94 | 14.74 | 8.40 | 26.50 | 29.08 | 32.84 | 37.15 | 39.63 |
| MgO..... | 18.47 | 18.25 | 18.89 | 16.19 | 14.60 | 15.10 | 15.62 | 14.92 |
| FeO..... | 12.82 | 12.65 | 12.85 | 13.54 | 15.65 | 14.37 | 12.15 | 13.73 |
| Fe ₂ O ₃ | 1.95 | 2.18 | .11 | 2.13 | .00 | .72 | 3.07 | 1.71 |
| TiO ₂ | .07 | .11 | .02 | .02 | n.d. | n.d. | .00 | .01 |
| Total..... | 100.78 | 100.46 | 100.51 | 99.34 | 99.23 | 99.12 | 97.84 | 99.18 |
| Al..... | 13.69 | 13.14 | 14.61 | 10.90 | 10.80 | 9.86 | 8.42 | 8.44 |
| Cr..... | 1.98 | 2.47 | 1.37 | 4.73 | 5.25 | 6.02 | 7.03 | 7.25 |
| Fe ³⁺ | .31 | .35 | .02 | .36 | .00 | .13 | .55 | .31 |
| Ti..... | .01 | .02 | .00 | .00 | - | - | .00 | .00 |
| Mg..... | 5.77 | 5.77 | 5.79 | 5.45 | 4.94 | 5.21 | 5.57 | 5.28 |
| Fe ₂ ⁺ | 2.25 | 2.25 | 2.21 | 2.56 | 2.99 | 2.79 | 2.43 | 2.73 |
| MgAl ₂ O ₄ %..... | 72.1 | 72.2 | 72.4 | 68.1 | 61.5 | 61.6 | 52.6 | 52.8 |
| FeAl ₂ O ₄ %..... | 13.5 | 10.0 | 18.9 | .0 | 5.8 | .0 | .0 | .0 |
| MgCr ₂ O ₄ %..... | .0 | .0 | .0 | .0 | .0 | 3.6 | 17.0 | 13.2 |
| FeCr ₂ O ₄ %..... | 12.4 | 15.5 | 8.5 | 29.6 | 32.7 | 34.0 | 26.9 | 32.1 |
| Fe ₂ TiO ₄ %..... | .1 | .2 | .0 | .0 | - | - | .0 | .0 |
| FeFe ₂ O ₄ %..... | 1.9 | 2.2 | .1 | .3 | .0 | .8 | 3.5 | 1.9 |
| Cr/Cr-Al(x100)..... | 12.62 | 15.84 | 8.55 | 30.26 | 32.72 | 37.90 | 45.49 | 46.19 |
| Mg/Mg-Fe ²⁺ (x100)..... | 71.97 | 72.00 | 72.73 | 68.06 | 62.28 | 65.18 | 69.62 | 65.94 |
| Fe ³⁺ /Fe ³⁺ -Cr-Al(x100)..... | 1.92 | 2.18 | .11 | 2.27 | .00 | .78 | 3.46 | 1.91 |
| Fe ²⁺ /Mg..... | .39 | .39 | .38 | .47 | .60 | .53 | .44 | .52 |

11A INTERSTITIAL TO SILICATES
11B INCLUSION IN OPTICALLY ACTIVE

Appendix III, Table 4 (cont'd)

SPINEL ANALYSES FROM HARE BAY AND BAY OF ISLANDS

| | 20 | 22 | 25A | 25B | 26 | 27 | 29 | 30 |
|--|-------|-------|--------|--------|--------|--------|-------|-------|
| Al ₂ O ₃ | 21.97 | 11.95 | 35.08 | 37.13 | 32.28 | 31.41 | 44.93 | 18.70 |
| Cr ₂ O ₃ | 46.23 | 58.57 | 31.64 | 30.70 | 34.61 | 34.84 | 19.16 | 50.38 |
| MgO..... | 13.41 | 12.49 | 15.19 | 17.28 | 13.01 | 12.82 | 16.96 | 14.01 |
| FeO..... | 14.55 | 14.80 | 14.43 | 11.49 | 17.24 | 17.57 | 13.67 | 13.58 |
| Fe ₂ O ₃ | 2.48 | 1.56 | 3.84 | 3.52 | 2.92 | 3.27 | 4.85 | 2.70 |
| TiO ₂ | .00 | .14 | .05 | .01 | n.d. | .19 | .48 | .19 |
| Total..... | 98.64 | 99.51 | 100.22 | 100.12 | 100.06 | 100.10 | 99.98 | 99.56 |
| Al..... | 6.44 | 3.65 | 9.54 | 9.91 | 9.01 | 8.80 | 11.69 | 5.50 |
| Cr..... | 9.09 | 11.99 | 5.77 | 5.49 | 6.47 | 6.55 | 3.34 | 9.93 |
| Fe ³⁺ | .46 | .30 | .67 | .60 | .52 | .58 | .81 | .51 |
| Ti..... | .00 | .03 | .01 | .00 | - | .03 | .08 | .04 |
| Mg..... | 4.97 | 4.82 | 5.22 | 5.83 | 4.59 | 4.54 | 5.56 | 5.20 |
| Fe ²⁺ | 3.00 | 3.21 | 2.78 | 2.17 | 3.41 | 3.49 | 2.52 | 2.83 |
| MgAl ₂ O ₄ %..... | 40.3 | 22.8 | 59.6 | 61.9 | 56.3 | 55.0 | 69.5 | 34.3 |
| FeAl ₂ O ₄ %..... | .0 | .0 | .0 | .0 | .0 | .0 | 3.6 | .0 |
| MgCr ₂ O ₄ %..... | 21.9 | 37.5 | 5.7 | 10.9 | 1.1 | 1.8 | .0 | 30.7 |
| FeCr ₂ O ₄ %..... | 35.0 | 37.5 | 30.4 | 23.4 | 39.4 | 39.2 | 20.9 | 31.3 |
| Fe ₂ TiO ₄ %..... | .0 | .3 | .1 | .0 | - | .4 | 1.0 | .4 |
| FeFe ₂ O ₄ %..... | 2.9 | 1.9 | 4.2 | 3.7 | 3.3 | 3.7 | 5.0 | 3.2 |
| Cr/Cr+Al(x100)..... | 58.52 | 76.67 | 37.69 | 35.67 | 41.83 | 42.65 | 22.24 | 64.37 |
| Mg/Mg+Fe ²⁺ (x100)..... | 62.15 | 60.06 | 65.23 | 72.83 | 57.35 | 56.52 | 68.87 | 64.77 |
| Fe ³⁺ /Fe ³⁺ +Cr+Al(x100)..... | 2.90 | 1.90 | 4.17 | 3.74 | 3.25 | 3.67 | 5.08 | 3.18 |
| Fe ²⁺ /Mg..... | .61 | .66 | .53 | .37 | .74 | .77 | .45 | .54 |

25A DISSEMINATED
25B MASSIVE

| | 31 | 32 | 33 | 34 | 35 | 36 | 37A | 37B | 38 |
|--|-------|--------|--------|-------|-------|-------|--------|-------|-------|
| Al ₂ O ₃ | 6.58 | 66.56 | 29.58 | 35.82 | 38.76 | 31.36 | 47.56 | 45.77 | 52.51 |
| Cr ₂ O ₃ | 58.84 | 2.04 | 37.07 | 28.50 | 26.55 | 34.16 | 17.70 | 18.63 | 6.93 |
| MgO..... | 7.76 | 22.50 | 16.22 | 14.58 | 14.86 | 12.90 | 15.56 | 14.65 | 13.57 |
| FeO..... | 20.80 | 8.82 | 12.39 | 14.76 | 15.38 | 17.31 | 15.91 | 16.88 | 19.34 |
| Fe ₂ O ₃ | 3.96 | 2.15 | 5.09 | 4.23 | 4.31 | 3.63 | 3.44 | 3.43 | 6.59 |
| TiO ₂ | .22 | .04 | .35 | .07 | .03 | .23 | .11 | .21 | .15 |
| Total..... | 98.16 | 102.11 | 100.70 | 97.96 | 99.89 | 99.58 | 100.28 | 99.57 | 99.09 |
| Al..... | 2.16 | 15.36 | 8.14 | 9.93 | 10.45 | 8.82 | 12.32 | 12.06 | 13.65 |
| Cr..... | 12.92 | .32 | 6.84 | 5.30 | 4.80 | 6.44 | 3.07 | 3.29 | 1.21 |
| Fe ³⁺ | .83 | .32 | .89 | .75 | .74 | .65 | .57 | .58 | 1.09 |
| Ti..... | .05 | .01 | .06 | .01 | .01 | .04 | .02 | .04 | .02 |
| Mg..... | 3.21 | 6.56 | 5.64 | 5.11 | 5.06 | 4.59 | 5.10 | 4.88 | 4.46 |
| Fe ²⁺ | 4.83 | 1.44 | 2.42 | 2.90 | 2.94 | 3.45 | 2.92 | 3.16 | 3.57 |
| MgAl ₂ O ₄ %..... | 13.5 | 82.0 | 50.9 | 62.1 | 63.3 | 55.1 | 63.7 | 61.0 | 55.7 |
| FeAl ₂ O ₄ %..... | .0 | 13.9 | .0 | .0 | 2.0 | .0 | 13.3 | 14.4 | 29.6 |
| MgCr ₂ O ₄ %..... | 26.7 | .0 | 19.7 | 1.8 | .0 | 2.2 | .0 | .0 | .0 |
| FeCr ₂ O ₄ %..... | 54.1 | 2.0 | 23.1 | 31.3 | 30.0 | 38.1 | 19.2 | 20.6 | 7.5 |
| Fe ₂ TiO ₄ %..... | .6 | .1 | .8 | .2 | .1 | .5 | .2 | .4 | .3 |
| FeFe ₂ O ₄ %..... | 5.2 | 2.0 | 5.6 | 4.7 | 4.6 | 4.1 | 3.6 | 3.6 | 6.8 |
| Cr/Cr+Al(x100)..... | 85.71 | 2.01 | 45.66 | 34.79 | 31.48 | 42.20 | 19.97 | 21.44 | 8.13 |
| Mg/Mg+Fe ²⁺ (x100)..... | 39.94 | 81.97 | 70.00 | 63.76 | 63.26 | 57.05 | 63.55 | 60.73 | 55.56 |
| Fe ³⁺ /Fe ³⁺ +Cr+Al(x100)..... | 5.21 | 1.98 | 5.64 | 4.68 | 4.64 | 4.09 | 3.56 | 3.62 | 6.86 |
| Fe ²⁺ /Mg..... | 1.50 | .22 | .43 | .57 | .58 | .75 | .57 | .65 | .80 |

37A SPINEL IN CLINOPYROXENITE
37B SPINEL IN WHEELITE

Appendix III, Table 4 (cont'd)

SPINEL ANALYSES FROM HARE BAY AND BAY OF ISLANDS

| | 43 | 44 | 44B | 47 | 48 | 52A | 52B |
|--|-------|-------|-------|--------|-------|-------|--------|
| Al ₂ O ₃ | 24.27 | 23.71 | 23.52 | 47.05 | 29.76 | 43.84 | 40.95 |
| Cr ₂ O ₃ | 34.87 | 26.81 | 21.84 | 21.34 | 35.44 | 19.79 | 22.08 |
| MgO..... | 9.90 | 7.75 | 4.99 | 18.27 | 10.76 | 14.55 | 11.76 |
| FeO..... | 21.31 | 24.81 | 28.79 | 11.87 | 20.27 | 16.39 | 20.87 |
| Fe ₂ O ₃ | 7.38 | 12.49 | 16.49 | 1.86 | 3.02 | 3.58 | 4.34 |
| TiO ₂ | 1.14 | 2.01 | 1.87 | .19 | .20 | .25 | .32 |
| Total..... | 98.87 | 97.57 | 97.50 | 100.58 | 99.45 | 98.40 | 100.31 |
| Al..... | 7.22 | 7.26 | 7.37 | 11.99 | 8.55 | 11.75 | 11.12 |
| Cr..... | 6.95 | 5.51 | 4.59 | 3.65 | 6.83 | 3.56 | 4.02 |
| Fe ³⁺ | 1.40 | 2.44 | 3.30 | .30 | .55 | .61 | .75 |
| Ti..... | .22 | .39 | .37 | .03 | .04 | .04 | .06 |
| Mg..... | 3.72 | 3.00 | 1.98 | 5.89 | 3.91 | 4.93 | 4.04 |
| Fe ²⁺ | 4.50 | 5.39 | 6.40 | 2.15 | 4.13 | 3.56 | 4.02 |
| MgAl ₂ O ₄ %..... | 45.1 | 37.5 | 24.7 | 73.6 | 48.8 | 61.6 | 50.5 |
| FeAl ₂ O ₄ %..... | .0 | 7.9 | 21.3 | 1.4 | 4.6 | 11.8 | 19.0 |
| MgCr ₂ O ₄ %..... | 1.4 | .0 | .0 | .0 | .0 | .0 | .0 |
| FeCr ₂ O ₄ %..... | 42.0 | 34.4 | 28.7 | 22.8 | 42.7 | 22.2 | 25.1 |
| Fe ₂ TiO ₄ %..... | 2.7 | 4.9 | 4.7 | .4 | .5 | .5 | .7 |
| FeFe ₂ O ₄ %..... | 8.7 | 15.3 | 20.6 | 1.9 | 3.5 | 3.8 | 4.7 |
| Cr/Cr+Al(x100)..... | 49.07 | 43.13 | 38.37 | 23.32 | 44.40 | 23.24 | 26.56 |
| Mg/Mg+Fe ²⁺ (x100)..... | 45.29 | 35.76 | 23.60 | 73.28 | 48.61 | 61.27 | 50.10 |
| Fe ³⁺ /Fe ³⁺ +Cr+Al(x100)... | 8.99 | 16.05 | 21.62 | 1.90 | 3.48 | 3.85 | 4.73 |
| Fe ²⁺ /Mg..... | 1.21 | 1.80 | 3.24 | .36 | 1.06 | .63 | .99 |

44B EDGE OF GRAIN · 52A INCLUSION IN CLINOPYROXENE
52B INTERSTITIAL TO OLIVINE

MAGNETITE ANALYSES

| | 53 | 55 | 56 |
|---|-------|-------|--------|
| Al ₂ O ₃ | 3.29 | 3.61 | 3.94 |
| Cr ₂ O ₃ | 3.39 | 3.38 | .15 |
| MgO..... | .61 | .13 | .26 |
| FeO..... | 32.82 | 34.35 | 37.58 |
| Fe ₂ O ₃ | 56.60 | 54.04 | 51.48 |
| TiO ₂ | 2.51 | 3.40 | 6.69 |
| Total..... | 99.22 | 98.91 | 100.10 |
| Al..... | 1.17 | 1.29 | 1.39 |
| Cr..... | .81 | .81 | .04 |
| Fe ³⁺ | 12.88 | 12.34 | 11.57 |
| Ti..... | .57 | .78 | 1.50 |
| Mg..... | .27 | .06 | .12 |
| Fe ²⁺ | 8.30 | 8.72 | 9.39 |
| MgAl ₂ O ₄ %..... | 3.4 | .7 | 1.4 |
| FeAl ₂ O ₄ %..... | 3.9 | 7.3 | 7.2 |
| FeCr ₂ O ₄ %..... | 5.1 | 5.1 | .2 |
| Fe ₂ TiO ₄ %..... | 7.1 | 9.7 | 18.8 |
| FeFe ₂ O ₄ %..... | 80.5 | 77.2 | 72.3 |