

**Table S9. Whole rock
geochemical data (wt%)**

| Sample No. | VAE161 |
|--------------------------------|--------|
| SiO ₂ | 59.0 |
| Al ₂ O ₃ | 12.0 |
| Fe ₂ O ₃ | 2.7 |
| TiO ₂ | 1.4 |
| MgO | 3.6 |
| CaO | 4.1 |
| Na ₂ O | 2.3 |
| K ₂ O | 0.3 |
| MnO | 0.1 |
| P ₂ O ₅ | 0.0 |
| LOI | 13.2 |
| Sum | 98.9 |

**Table S10. TC and TOC
(wt%)**

| Sample No. | VAE161 |
|------------|--------|
| TC | 12.5 |
| TOC | 12.7 |