Phase equilibria modelling and LASS monazite petrochronology: \(P–T–t\) constraints on the evolution of the Priest River core complex, northern Idaho

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**Figure S1**: X-ray compositional maps of garnet porphyroblasts.

**Figure S2**: X-ray compositional maps of monazite and xenotime grains.

**Figure S3**: Garnet REE LA-ICP-MS porphyroblast traverses, REE patterns, and Lu\(_N\)/Gd\(_N\) plots.
Figure S1. Mg Kα and Mn Kα X-ray compositional maps of garnet porphyroblasts, electron microprobe analysis locations, and quantitative traverses. Mg and Mn maps are representative of zoning in garnet porphyroblasts. For compositional maps, warmer colors correspond to higher concentrations. (a) PR-10-004. (b) PR-11-034. (c) PR-11-033B. (d) PR-10-055. (e) PR-11-040.
Figure S2. Monazite and xenotime X-ray grain maps showing locations of LASS ICP-MS analyses for (a) PR-10-004, (b) PR-11-034, (c) PR-11-033B, (d) PR-10-055, and (e) PR-11-040. Maps are Y X-ray maps, unless zoning is better captured by another element. $^{208}$Pb/$^{232}$Th dates are given, as are analysis identification numbers for reference to LASS ICP-MS data (Tables S3 & S4). All analyses are shown with a 10 μm spot size.
(b) PR-11-034 Monazite & Xenotime, continued.

(c) PR-11-033B Monazite & Xenotime

**Figure S2.** Continued.
(d) PR-10-055 Monazite & Xenotime

(e) PR-11-040 Monazite & Xenotime

Figure S2. Continued.
Figure S3. Garnet REE LA-ICP-MS porphyroblast traverses shown on Mg Kα X-ray compositional maps (as in Fig. S1), REE patterns, and Lu₄/Gd₄ plotted as traverses. Garnet traverses were collected as 600 μm laser ablation tracks, which are simplified to dots on the Mg X-ray maps. See Fig. S1 for photomicrographic examples of laser ablation tracks. (a) PR-10-004. (b) PR-11-034. (c) PR-11-033B. (d) PR-10-055. (e) PR-11-040. The Lu₄/Gd₄ traverse for PR-11-040 is dashed to indicate that the traverse did not capture the inclusion-rich core.