

Description of the Additional Supplementary Files

Supplementary Data 1: Summary of all individual data points used in this work including laser conditions, probing times, pressures, phases present, cell parameters for solid, and shock fraction for liquid.

Supplementary Data 2: Summary of liquid diffraction analysis including pressure and temperature for all data points, density, coordination number and interatomic distance.

Supplementary Data 3: Electron Microprobe Analysis for Fe_2O_3 and $\text{Fe}+4.5\text{FeO}$ sample.

Supplementary Data 4: Structure factor and pair distribution functions calculated in this study.