

Abstract Submitted  
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**High pressure x-ray diffraction of uranium oxide formed by natural oxidation of uranium**<sup>1</sup> HYUNCHAE CYNN, WILLIAM J. EVANS, BRUCE J. BAER, Lawrence Livermore National Laboratory, SIMON MACLEOD, Atomic Weapons Establishment, MAGNUS J. LIPP, ZSOLT JENEI, J.H. PARK KLEPEIS, Lawrence Livermore National Laboratory, YUE MENG, STANISLAV SINOGEIKIN, HP-CAT, APS — Naturally oxidized uranium has been compressed using a diamond anvil cell. Although X-ray diffraction shows the anisotropic nature in the pressure dependent changes to the lattice parameters of pure uranium as previously recorded, uranium oxide appears stable at high pressure in the fluorite structure with no clear evidence of a phase transition observed above the transition pressure previously measured for bulk uranium oxide. The lattice parameters of uranium oxide formed by natural surface oxidation have been determined along with those of the underlying pure uranium employing Rietveld refinement. We will discuss the seemingly unexpected findings about uranium oxide.

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