Supporting Information for

Arsenic in Groundwater in the Grand Canyon Region and an Evaluation of Potential Pathways for Arsenic Contamination of Groundwater from Breccia Pipe Uranium Mining

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This Supporting Information provides additional material relevant to the investigation of arsenic in groundwater in areas of breccia pipe uranium deposits in the Grand Canyon region of the United States. This material includes:

- **Fig A.** Boxplots comparing absolute difference in arsenic concentration between environmental and replicate groundwater samples in the Grand Canyon study area for different ranges of arsenic concentration.
- **Fig B.** Relation between maximum arsenic concentration at a groundwater site and select water-quality properties and constituents for all sites (top group) and only sites with maximum arsenic concentrations greater than the maximum contaminant level (MCL) of 10 µg/L (bottom group).
- **Fig C.** Relation between maximum arsenic concentration and uranium concentrations at all groundwater sites at which both results were available.
- **Fig D.** Map of the maximum arsenic concentration observed at 2,343 groundwater sites in the State of Arizona outside the Grand Canyon study area.
- **Fig E.** Boxplots comparing the distributions of maximum arsenic concentrations at groundwater sites in the Grand Canyon study area and groundwater sites in the rest of Arizona.
- Available replicate and blank quality-assurance results for arsenic, pH, dissolved oxygen, sulfate, iron, total dissolved solids, tritium, and uranium analyses (Table A in S1 Tables).
- Site information for 230 groundwater sites (182 springs and 48 wells) in the Grand Canyon study area (Table B in S1 Tables).
- Dissolved arsenic and available uranium, pH, dissolved oxygen, sulfate, iron, total dissolved solids, and tritium results for 652 groundwater samples collected between 1977 and September 30, 2022 in the Grand Canyon study area (Table C in S1 Tables).
**Fig A.** Boxplots comparing absolute difference in arsenic concentration between environmental and replicate groundwater samples in the Grand Canyon study area for different ranges of arsenic concentration.
Fig B. Relation between maximum arsenic concentration at a groundwater site and select water-quality properties and constituents for all sites (top group) and only sites with maximum arsenic concentrations greater than the maximum contaminant level (MCL) of 10 µg/L (bottom group).
Fig C. Relation between maximum arsenic concentration and uranium concentrations at all groundwater sites at which both results were available. Note broken vertical axis and changed scale.
Fig D. Map of the maximum arsenic concentration observed at 2,343 groundwater sites in the State of Arizona outside the Grand Canyon study area. Basemap images from the public domain USGS National Map [9].
**Fig E.** Boxplots comparing the distributions of maximum arsenic concentrations at groundwater sites in the Grand Canyon study area and groundwater sites in the rest of Arizona. Note broken vertical axis and changed scale.