



US Army Corps  
of Engineers®  
Buffalo District

# Harshaw Chemical Company Site Modeled Extent of Groundwater Contamination

Groundwater samples collected annually at the Harshaw Chemical Company Site from 2003 to 2017 define site groundwater conditions and the extent of contamination from the Manhattan Engineer District/Atomic Energy Commission activities.

Groundwater characterization activities (e.g., water-level measurements and well sampling) identified an eastward groundwater flow pattern across the majority of the site and the following constituents of potential concern for groundwater: total uranium and thorium-230.

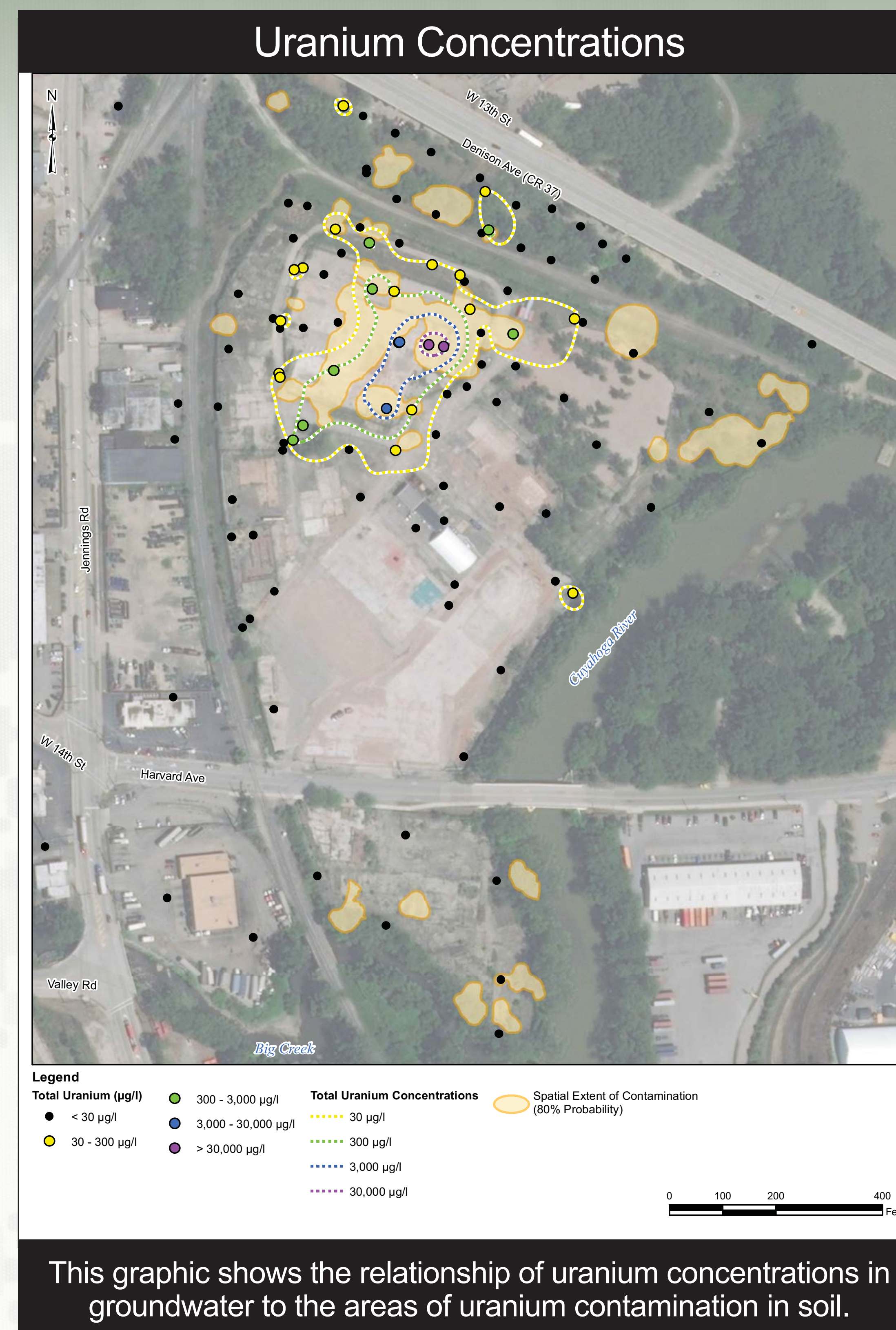
Elevated uranium concentrations, the main constituent of concern in groundwater, are centered under and around the former location of Building G-1. The site groundwater in general is not a drinking water resource.

A site-wide numerical groundwater flow and solute-transport model was compiled by the Corps of Engineers' Buffalo District to predict near-term and future risks to groundwater from site contaminants.

The contaminant transport analysis indicates the current uranium plume near the former location of Building G-1 will migrate slowly towards the Cuyahoga River over a 900-year period. However, the uranium movement is slowed by soil adsorption (uranium clinging to soil), geochemical conditions that lower uranium solubility, and dispersion in the water-bearing zone during migration to the river (dilution in the groundwater).

These combined factors, along with the removal of the soil sources for uranium near the former location of Building G-1, minimize the movement of uranium in groundwater and ensure the Cuyahoga River water passing the site reflects background conditions throughout the 1,000-year performance period.

Under OU-1 Alternative 2, these combined factors, along with site access controls, minimize the movement of uranium in groundwater, yet the remaining uranium source in soil will promote a plume that may impact Cuyahoga River if site erosion occurs between the river and plume during the 1,000-year performance period.

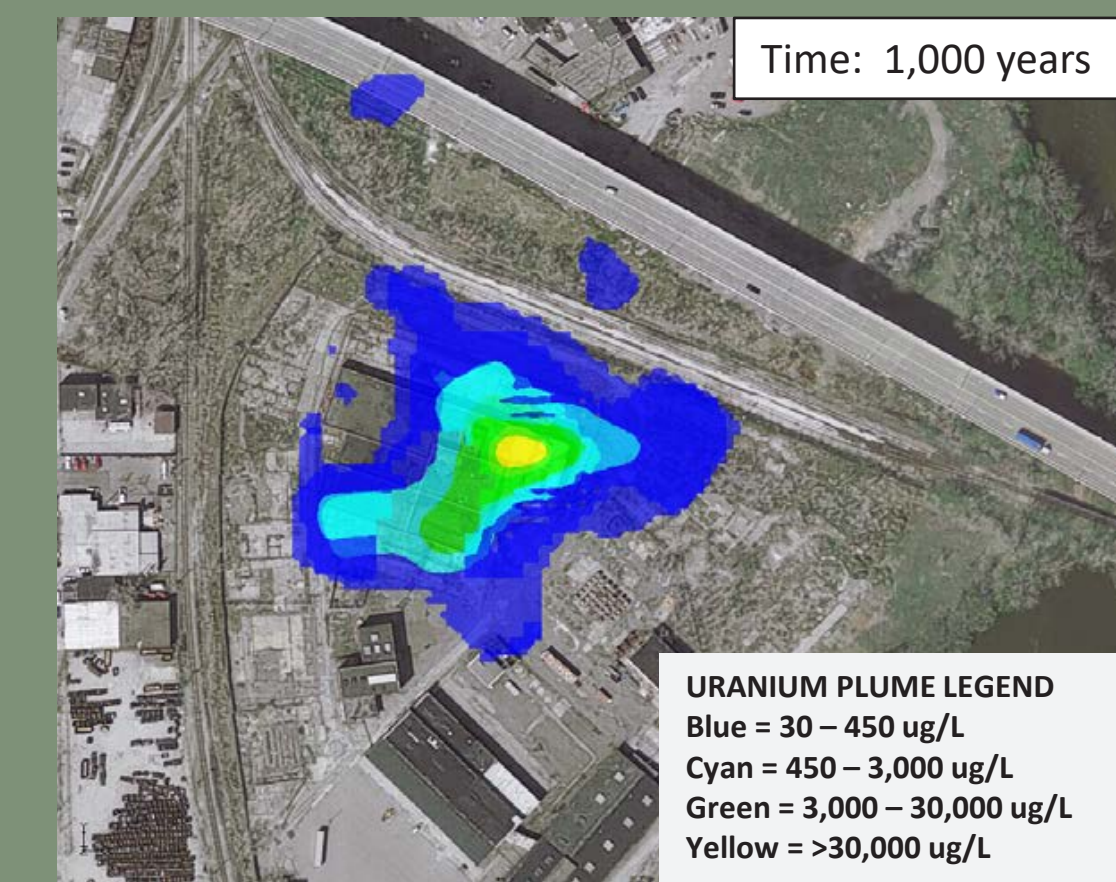
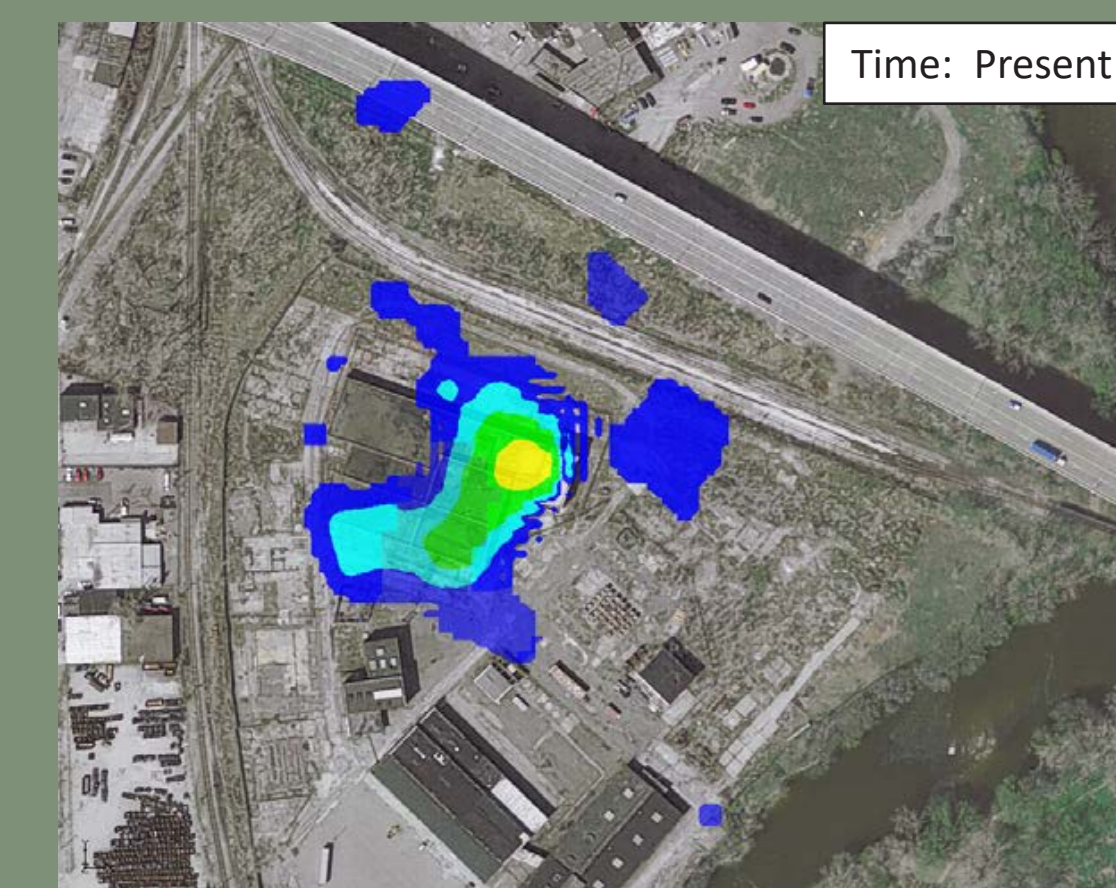


The alternative remains protective, but is less protective than Alternative 3 for OU 1.

Under OU-1 Alternative 3 (the preferred alternative), these combined factors, along with the removal of the soil sources for uranium near Building G-1, minimize the movement of uranium in groundwater and ensure the Cuyahoga River water passing the site reflects background conditions throughout the 1,000-year performance period.

## Predicted Uranium Plume Migration Operable Unit 1

### Under Alternatives 1 and 2



### Under Alternative 3

