

PGDP Groundwater Modeling Support Activities Update

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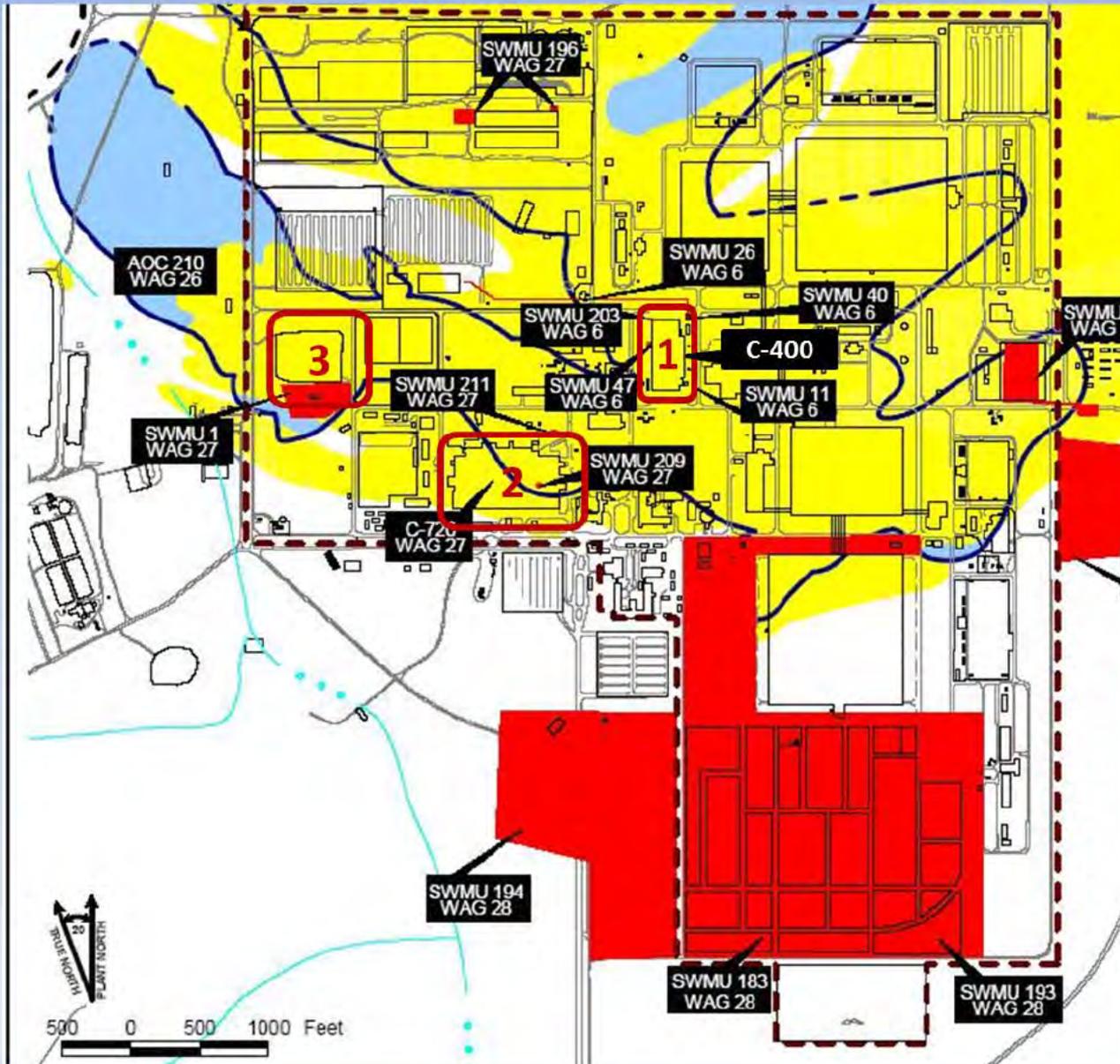
PGDP Groundwater Modeling Support Activities

- Tasks
 - 1. Provide independent verification of the PGDP MODFLOW groundwater flow and MT3D transport models dated 2008.
 - 2. Complete fate and transport scenario simulations Specified in Property Acquisition Study for Areas near the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, dated April 2007.

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Major Source Areas



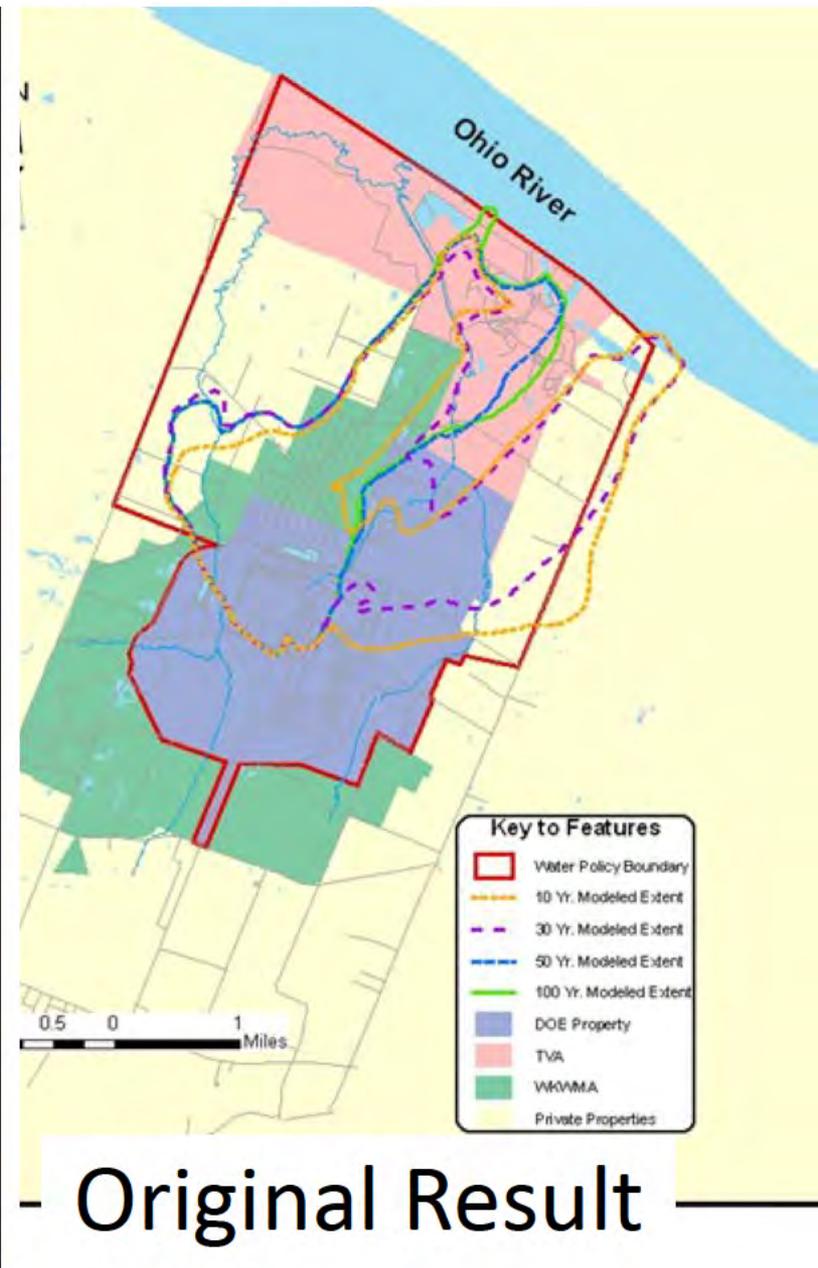
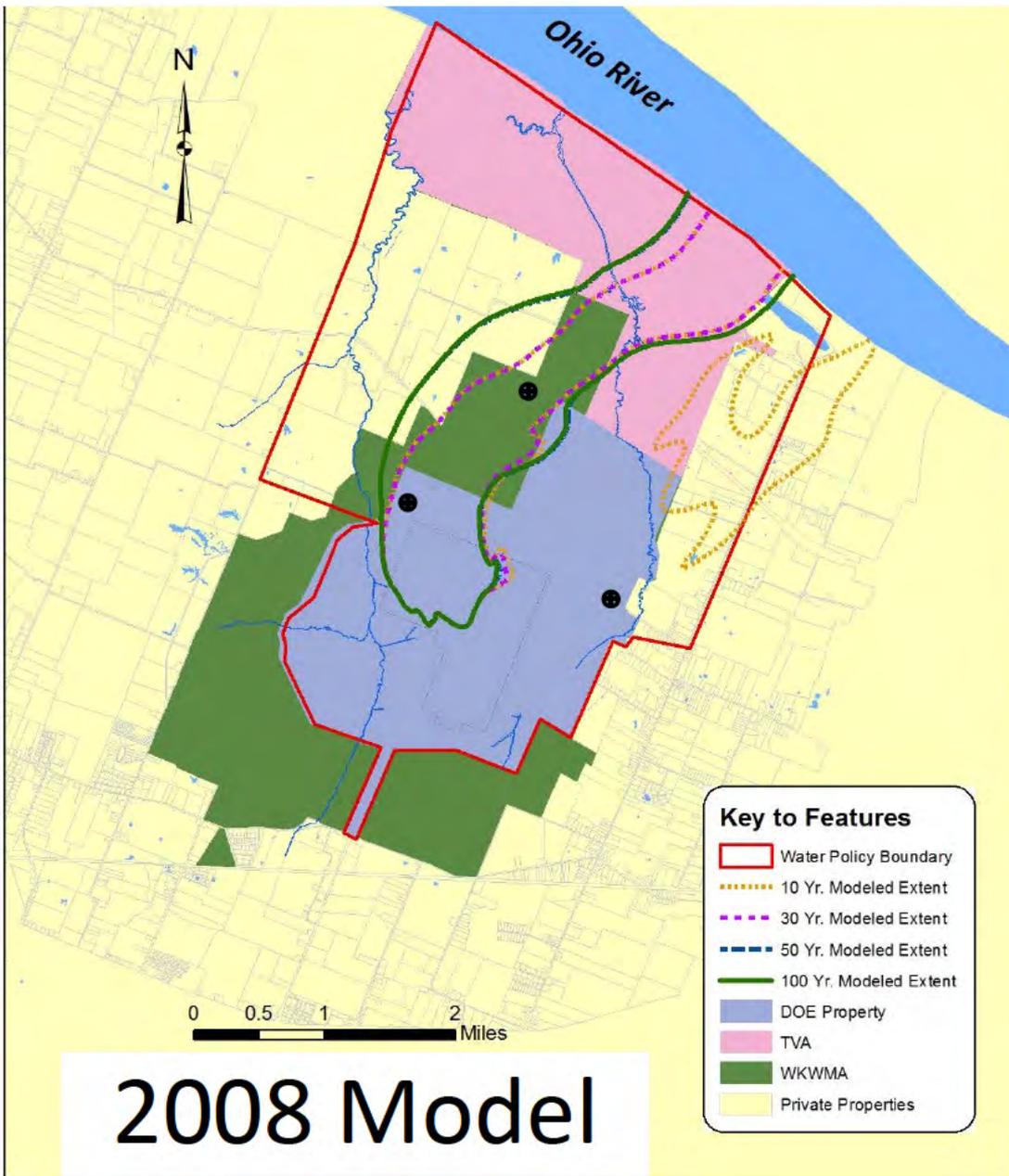
- Location 1: C-400 Building. The areas near C-400 building are believed as the major sources of the TCE plumes
- Location 2: C-720 building.
- Location 3: SWMU 1 and SWMU 4.
- It's suspected TCE sources exist in many other areas within the facility.

POTENTIAL RESPONSE ACTION SCENARIOS

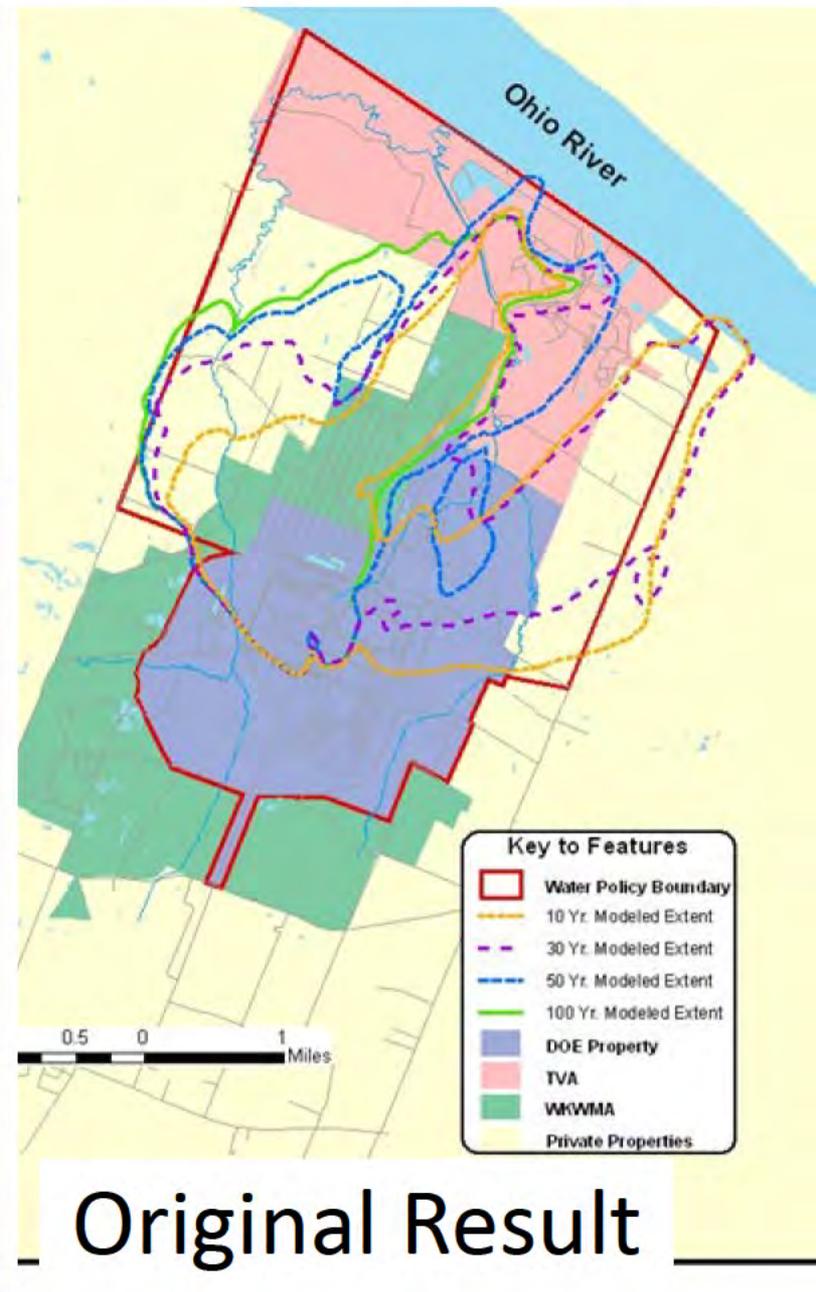
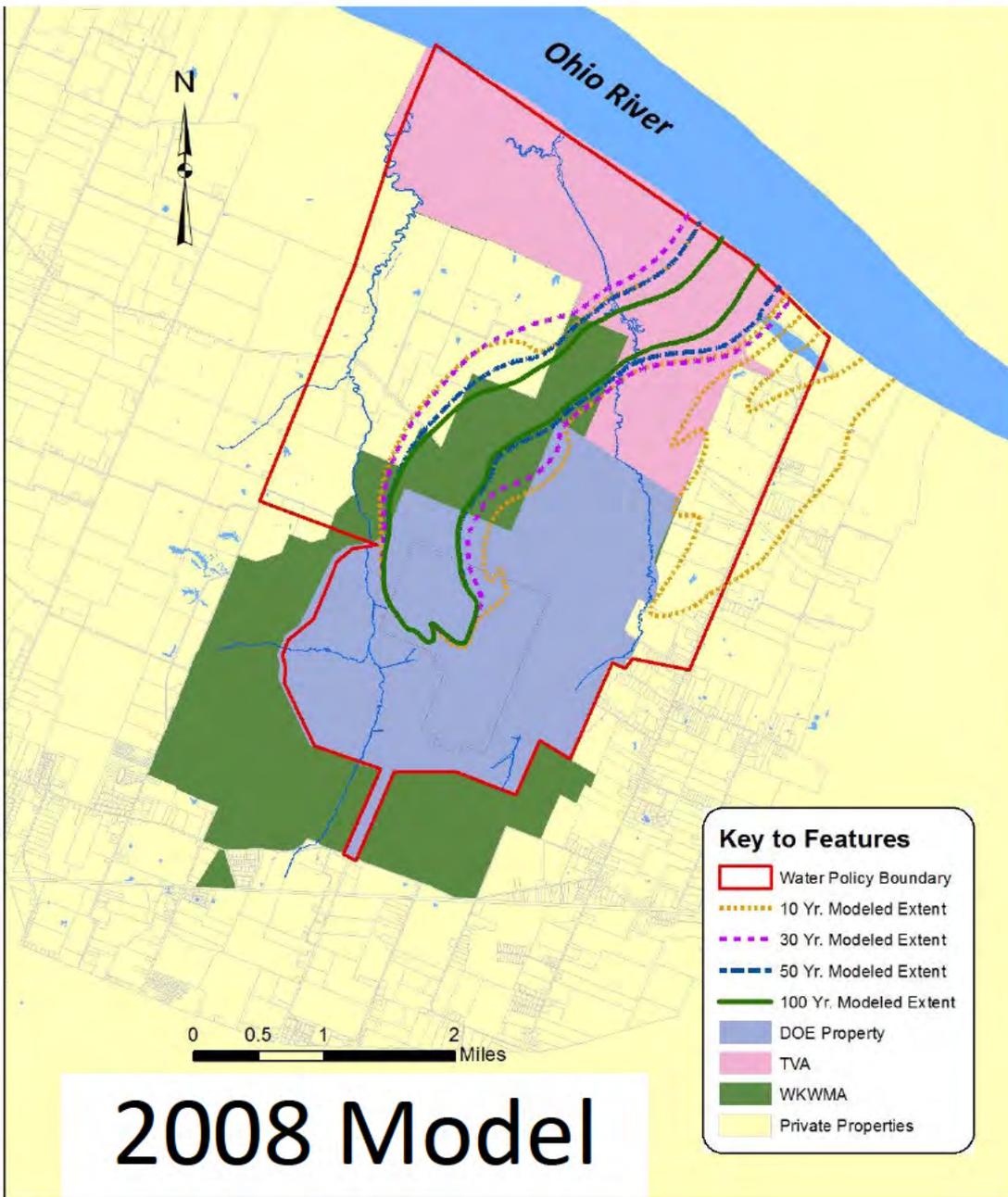
Scenario	Proposed Remediation Method	Assumed TCE Concentration Reduction		
		C-400	C-720	SWMU1,4
1	Pump & Treat (existing)	0%	0%	0%
2	Direct Heating	*97%	0%	0%
3	a) Direct Heating b) Ozonation Technology	*97%	95%	95%
4	a) Direct Heating b) Ozonation Technology c) Permeable Treatment Zone	*97%	95%	95%

* In the Property Acquisition Study: 99% removal of TCE in RGA and 95% in UCRS

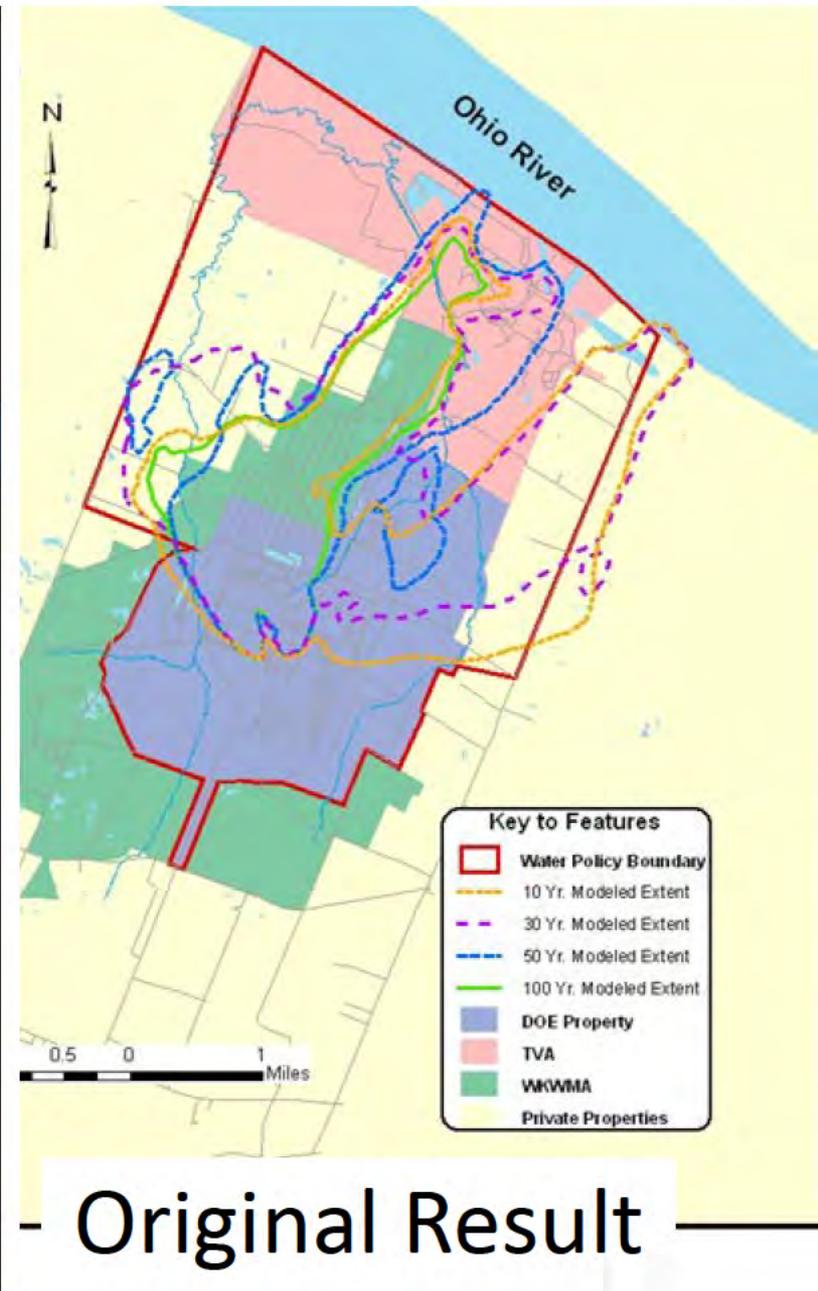
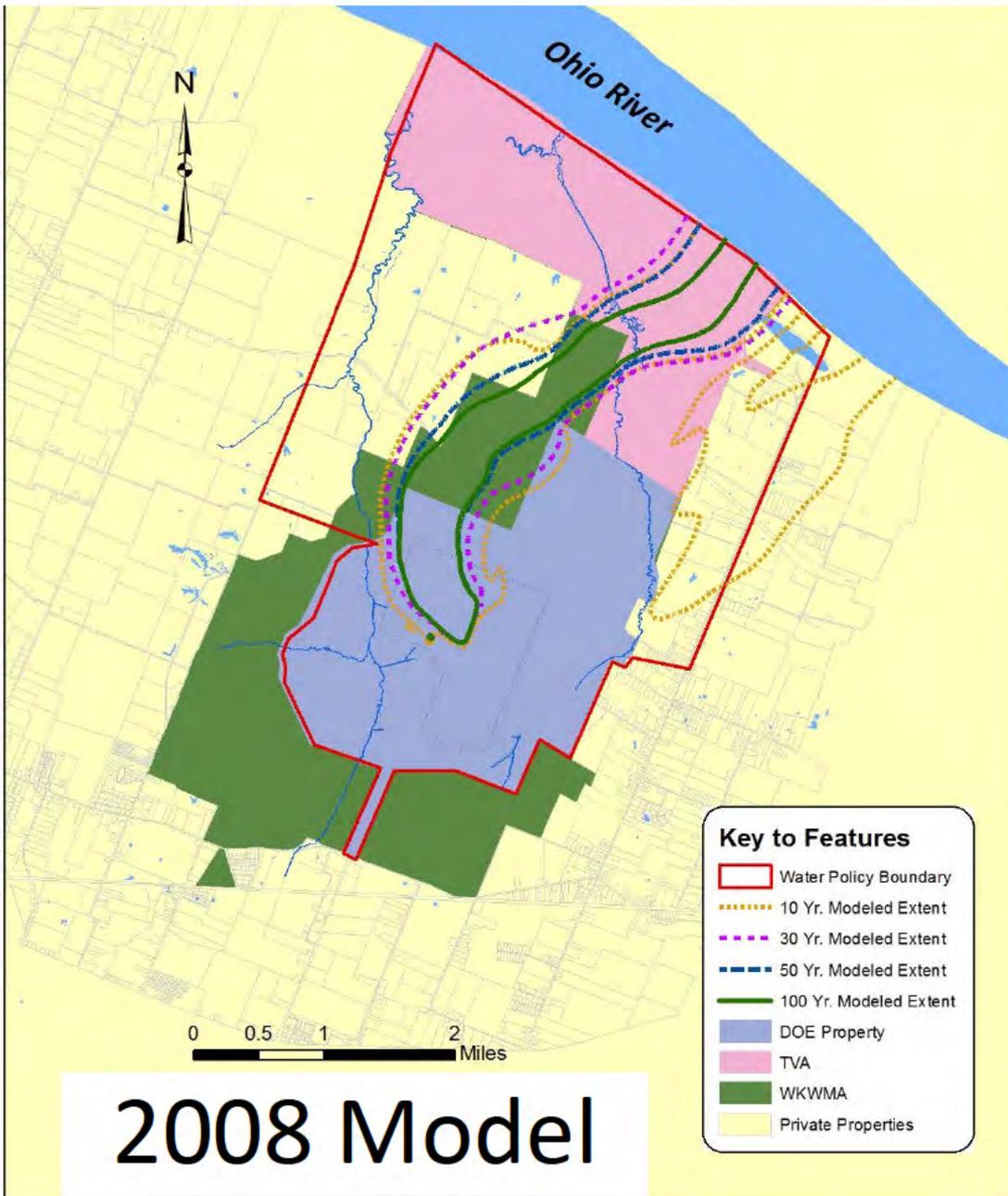
Scenario 1: Pump & Treat



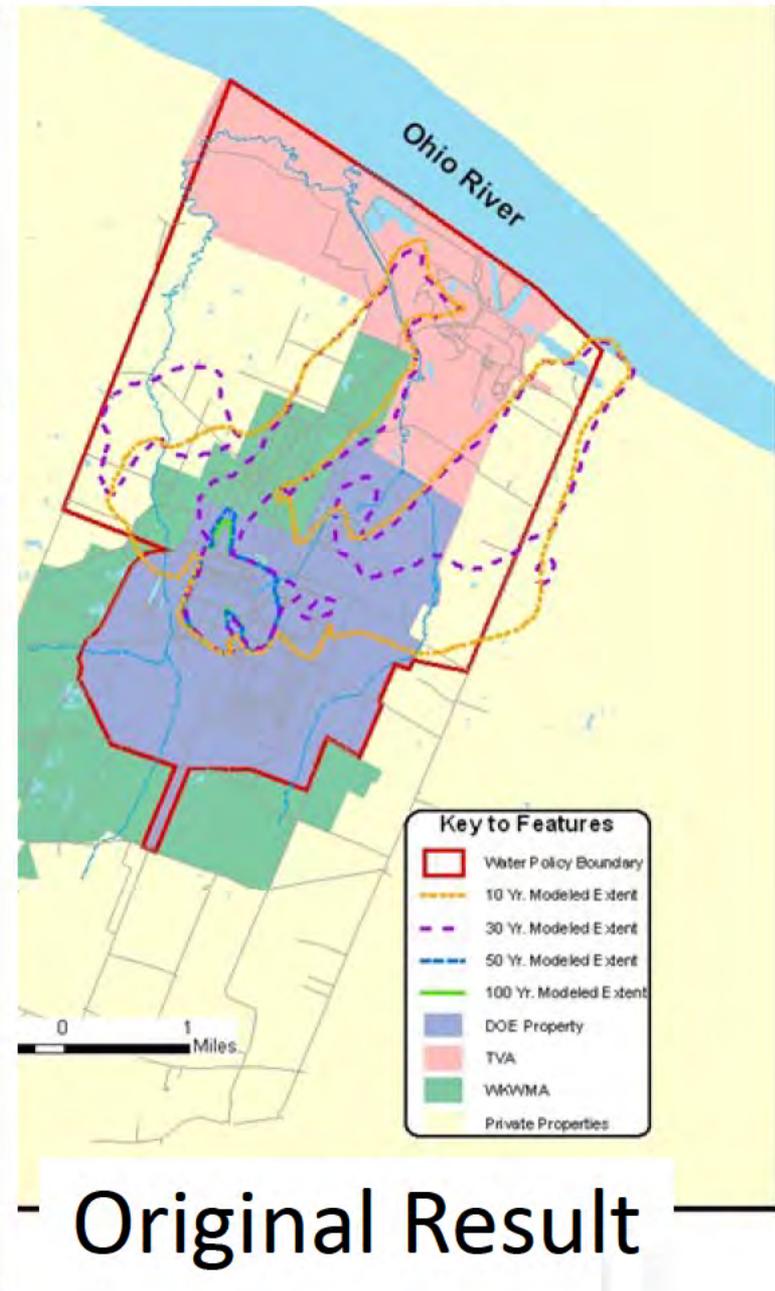
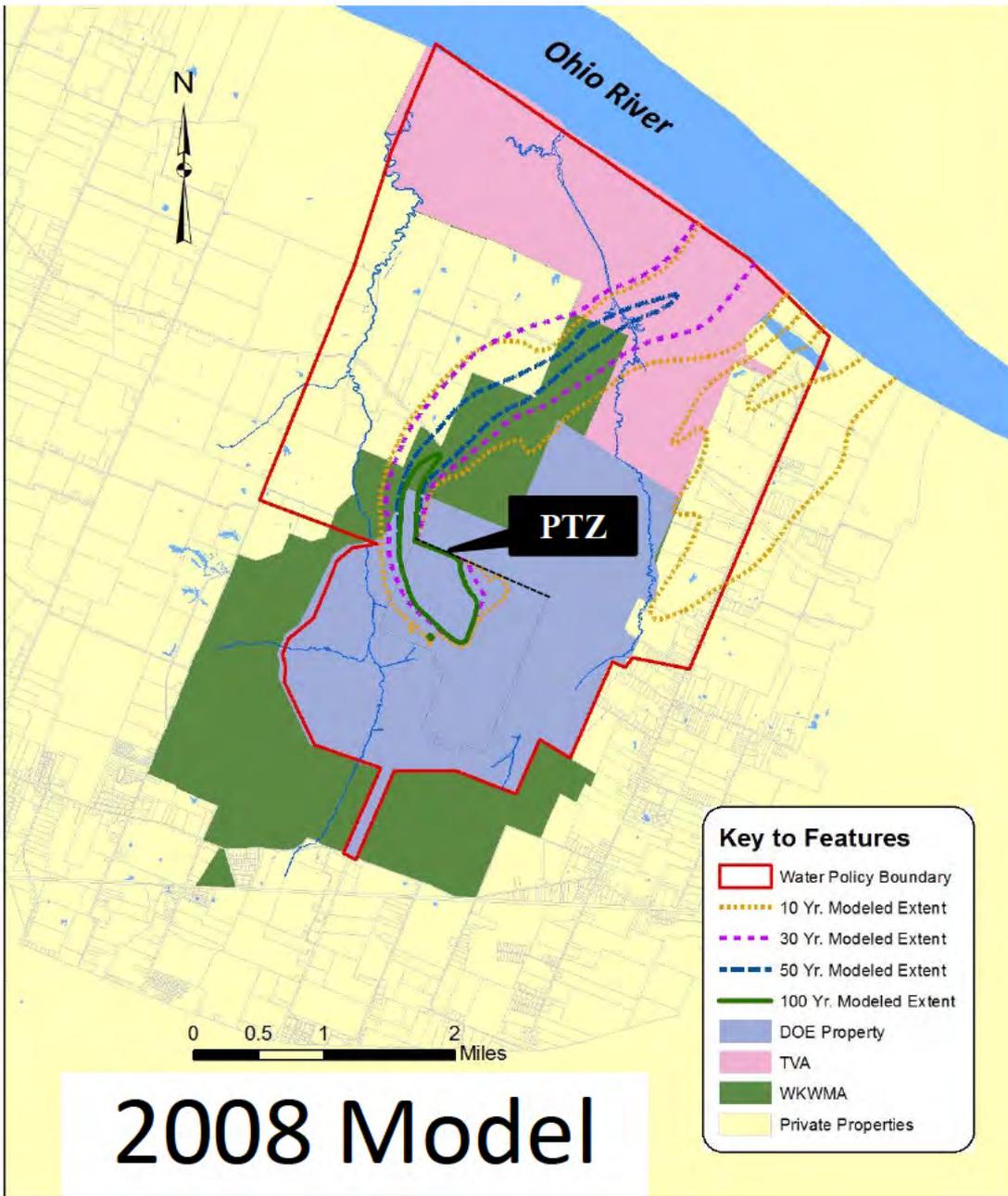
Scenario 2: Remove 97% of TCE source near C-400



Scenario 3: Scenario 2 plus removal of 95% of TCE source C-720, SWMU1, 4

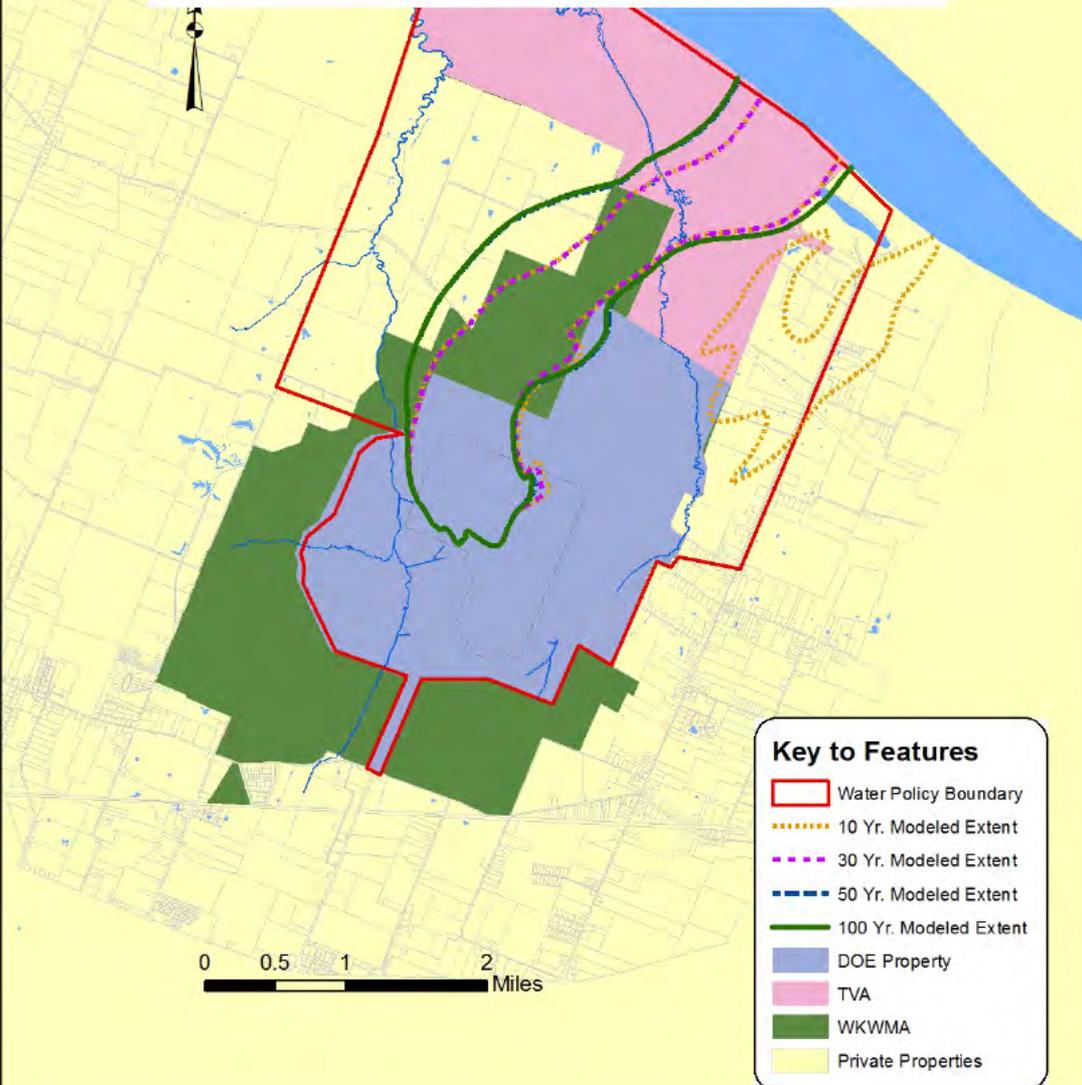


Scenario 4: Scenario 3 plus PTZ along north side of the security fence

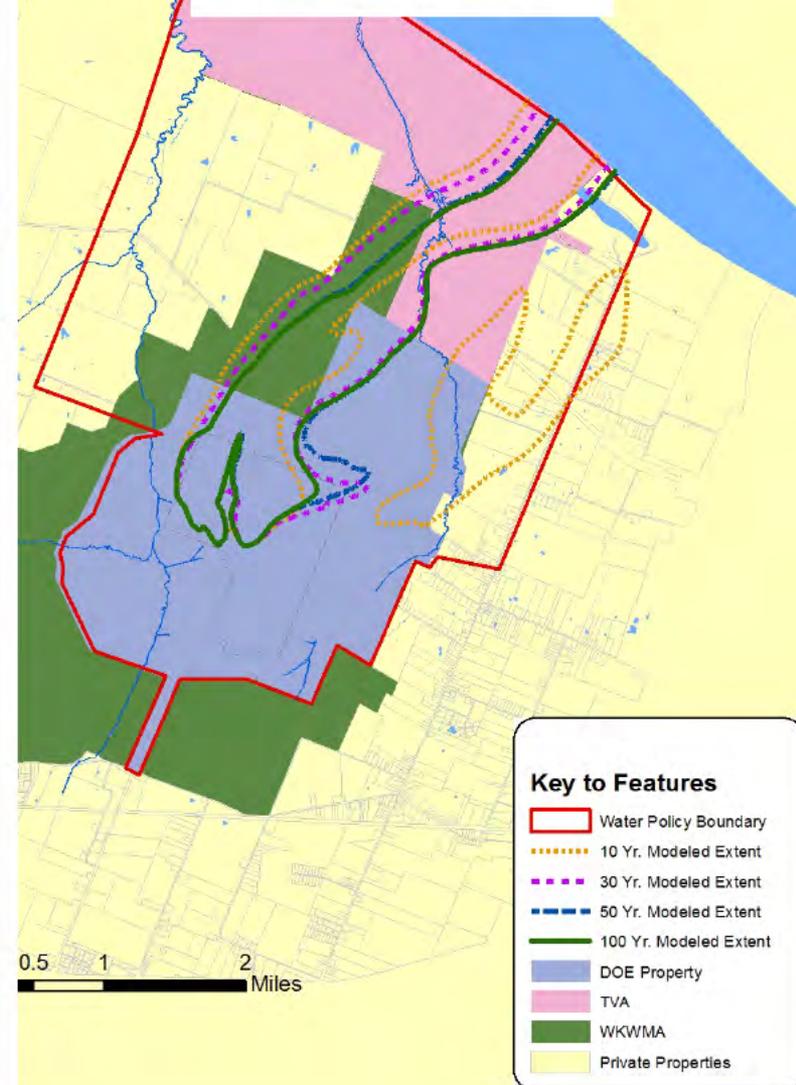


Scenario 1: Pump & Treat

Continued Operation

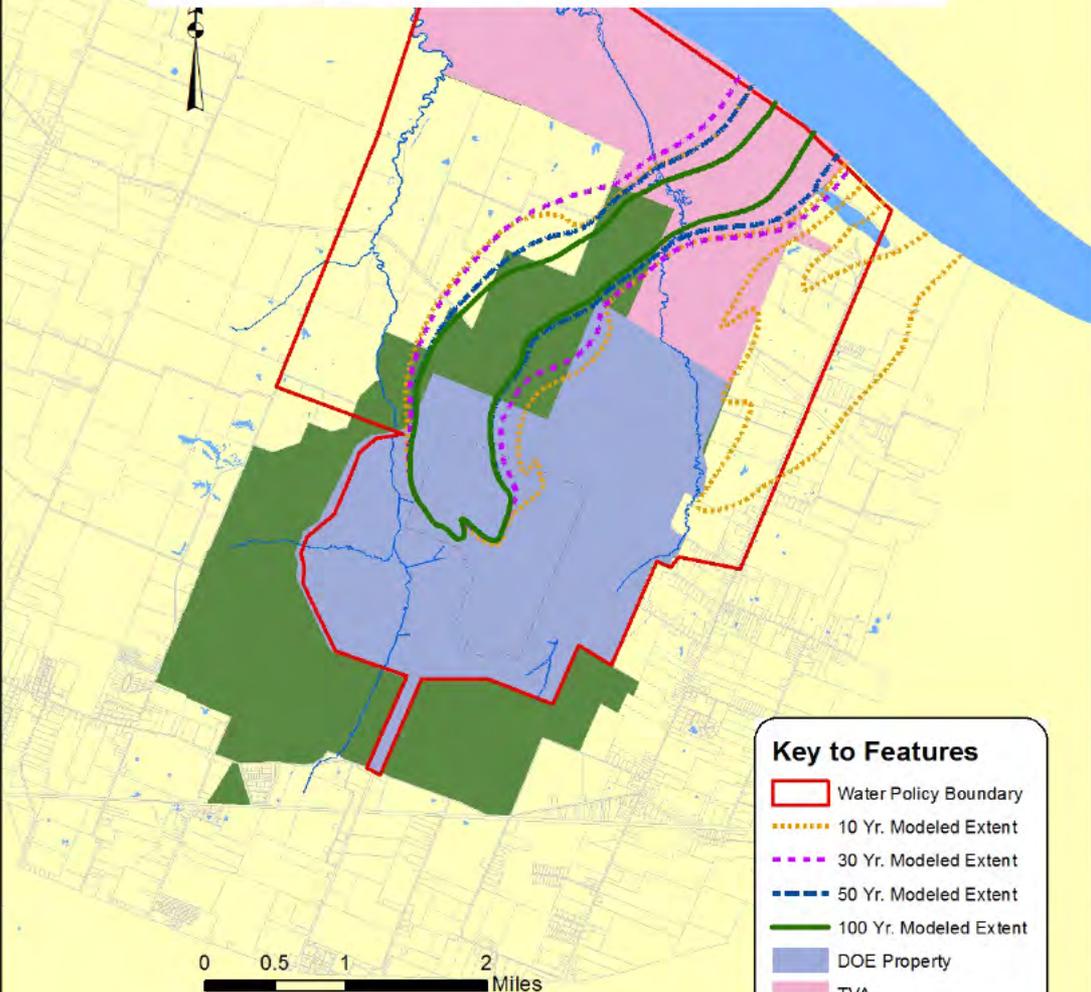


Shutdown



Scenario 2: Remove 97% of TCE source near C-400

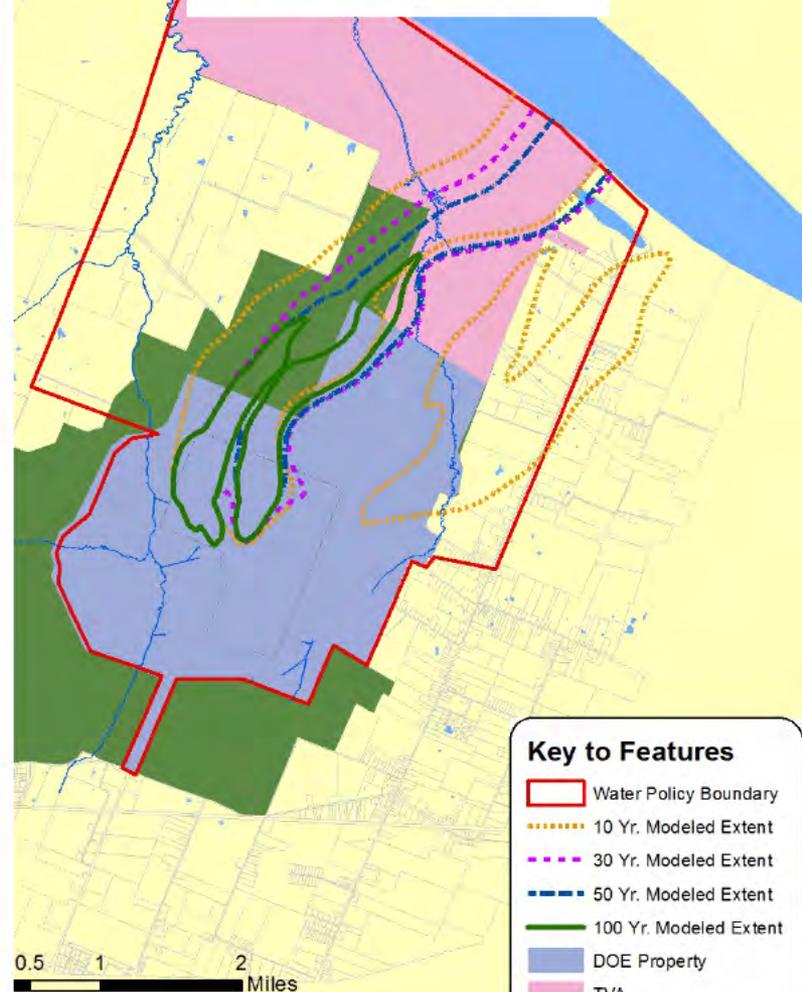
Continued Operation



Key to Features

- Water Policy Boundary
- 10 Yr. Modeled Extent
- 30 Yr. Modeled Extent
- 50 Yr. Modeled Extent
- 100 Yr. Modeled Extent
- DOE Property
- TVA
- WKWMA
- Private Properties

Shutdown

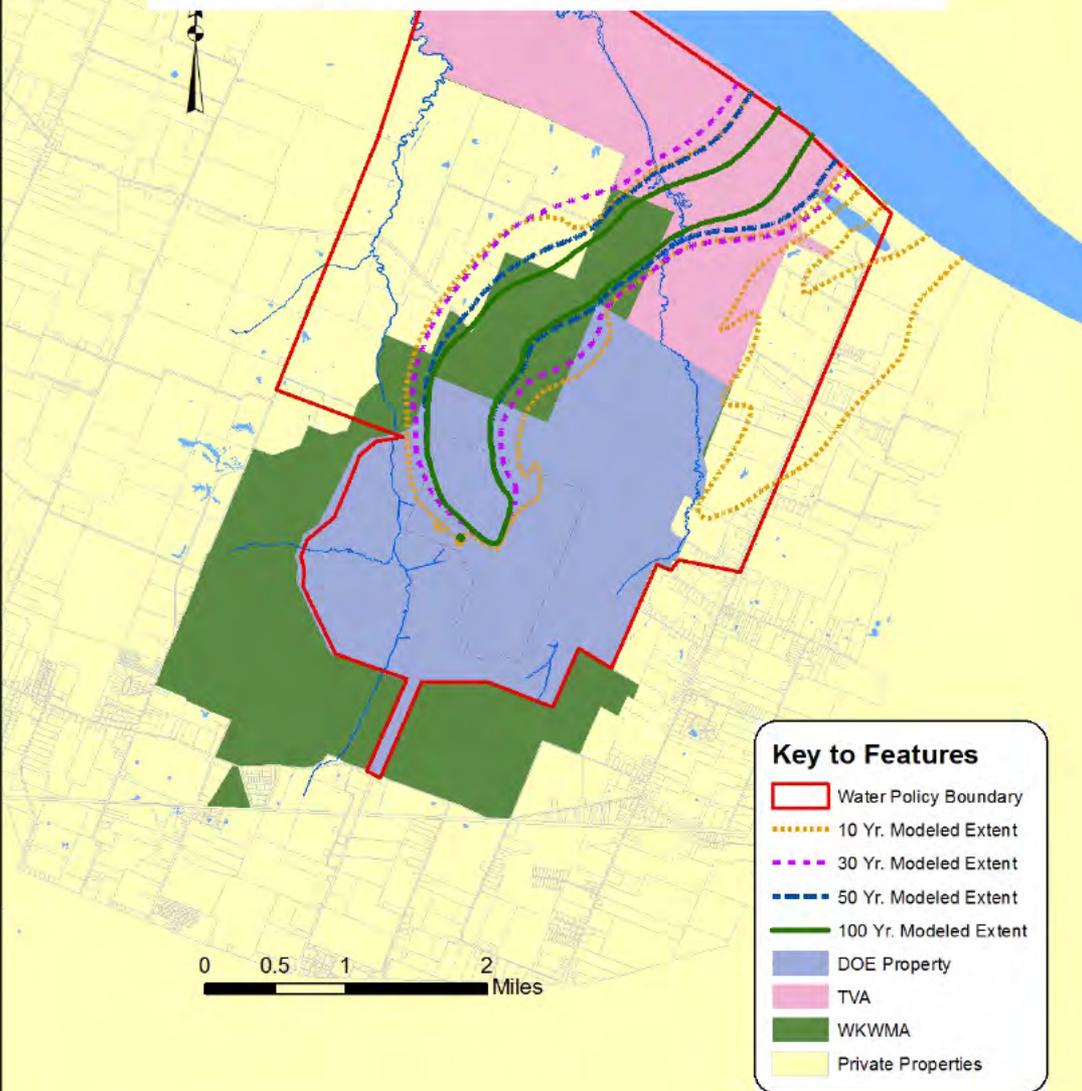


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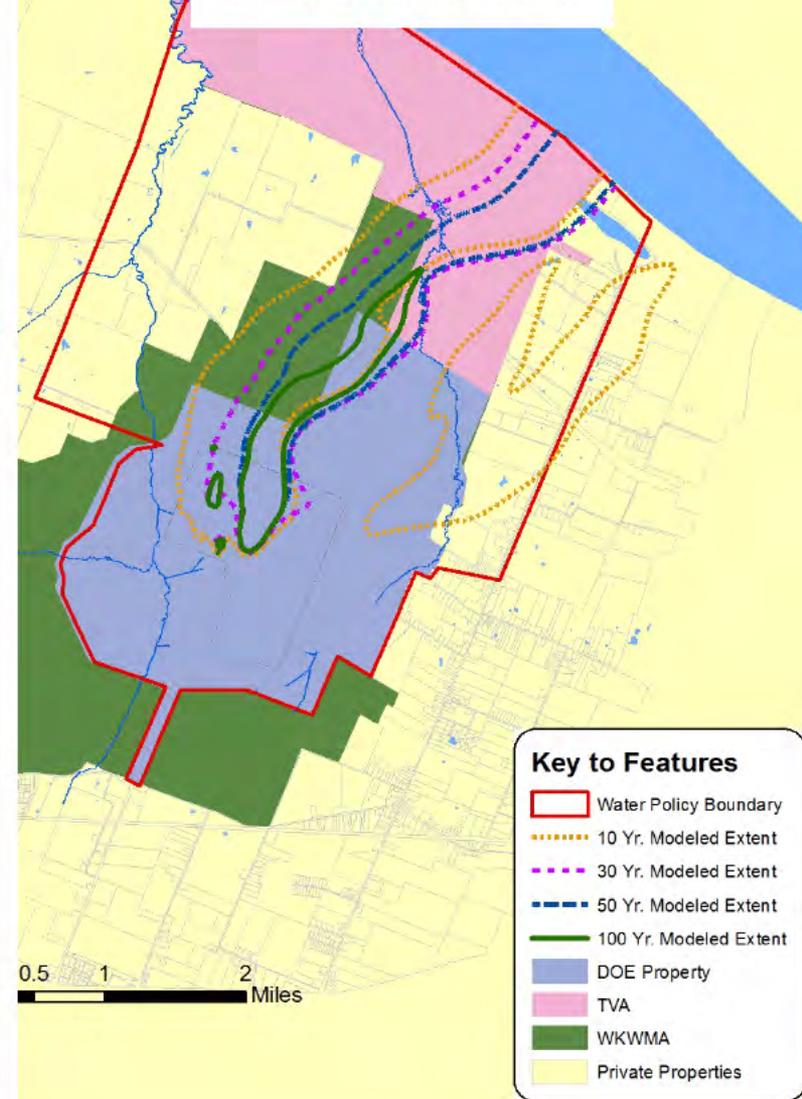
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Scenario 3: Scenario 2 plus removal of 95% of TCE source C-720, SWMU1, 4

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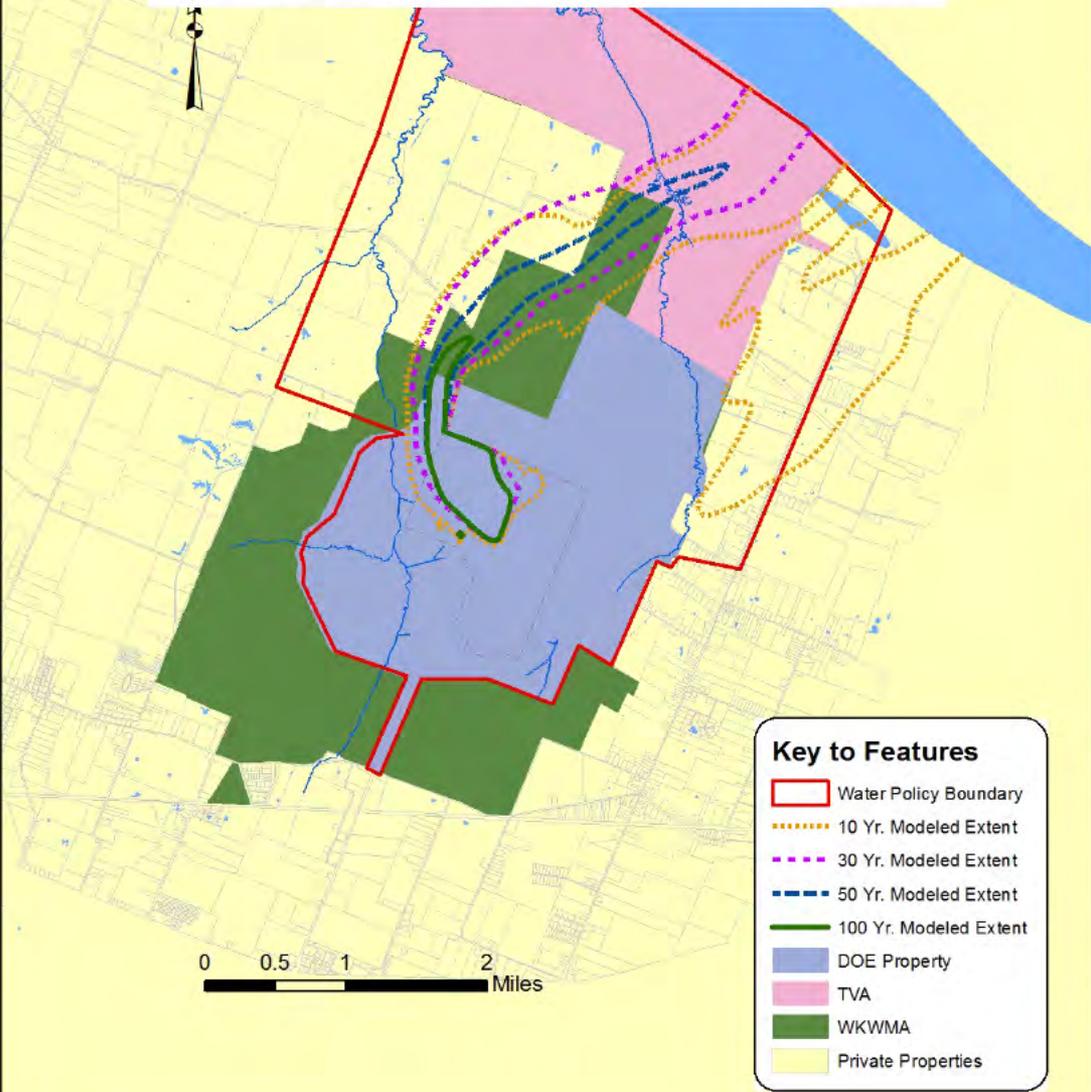


Shutdown

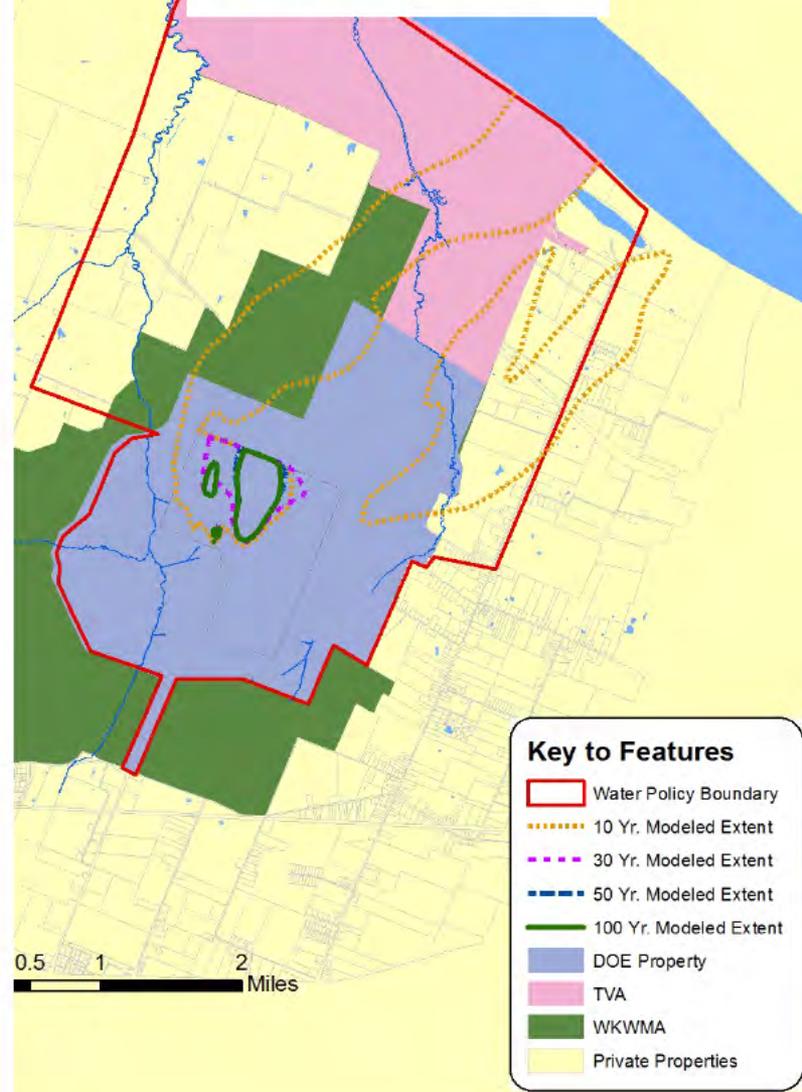


Scenario 4: Scenario 3 plus PTZ along north side of the security fence

Continued Operation



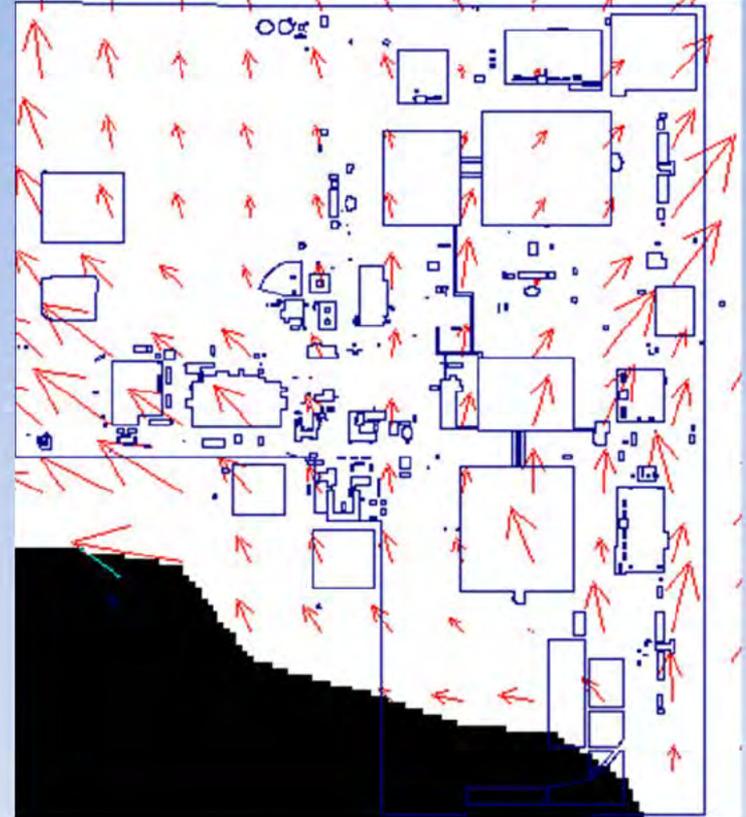
Shutdown



Groundwater Flow Direction and Speed

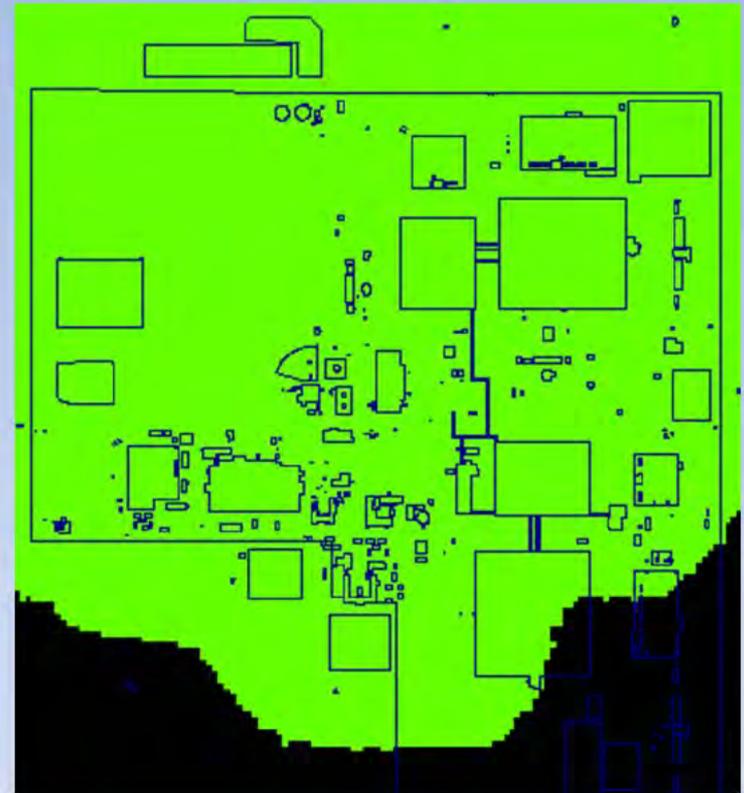
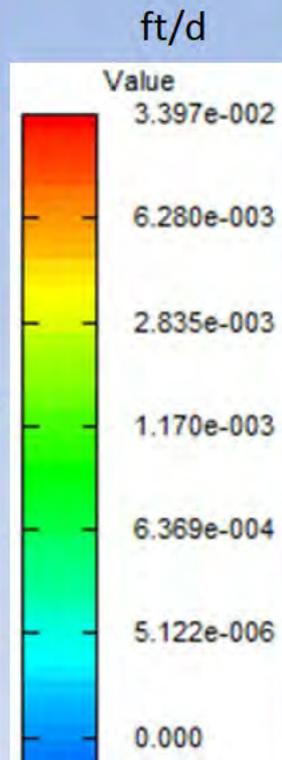


Continued Operation



Shutdown

Anthropogenic Recharge



840 GPM

230 GPM

Continued Operation

Shutdown

Remarks of Task 2

- under the continued operation scenario even with the most aggressive action (response action 4), the plumes will still impact large areas between the Ohio River and the plant for more than 50 years. Under the plant shutdown scenario only the response action 4 appears to be effective in preventing the plume migrating out of the plant site.
- The anthropogenic recharge appears driving the northwest plume westward and expediting plume migration.