



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**

# Groundwater Strategy Status

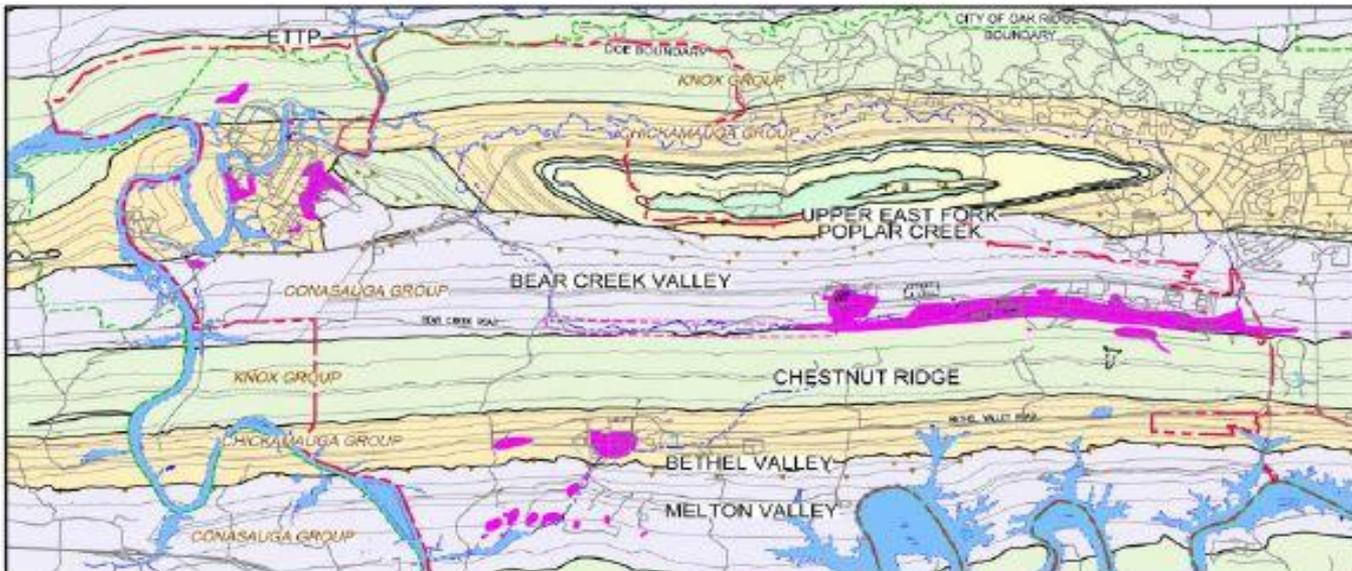
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# Groundwater Strategy documents the path forward for managing legacy groundwater challenges

- Workshops held with regulators in 2013
- DOE/EPA/TDEC agreement on Groundwater Strategy in 2014



## 35 “plumes” defined

- major constituents of potential concern: tritium, strontium-90, technetium-99, uranium, nitrate, VOCs, and mercury
- shallow (<100 ft), intermediate, and deep (>400 ft) contamination
- data gaps and uncertainties

## 36 candidate projects

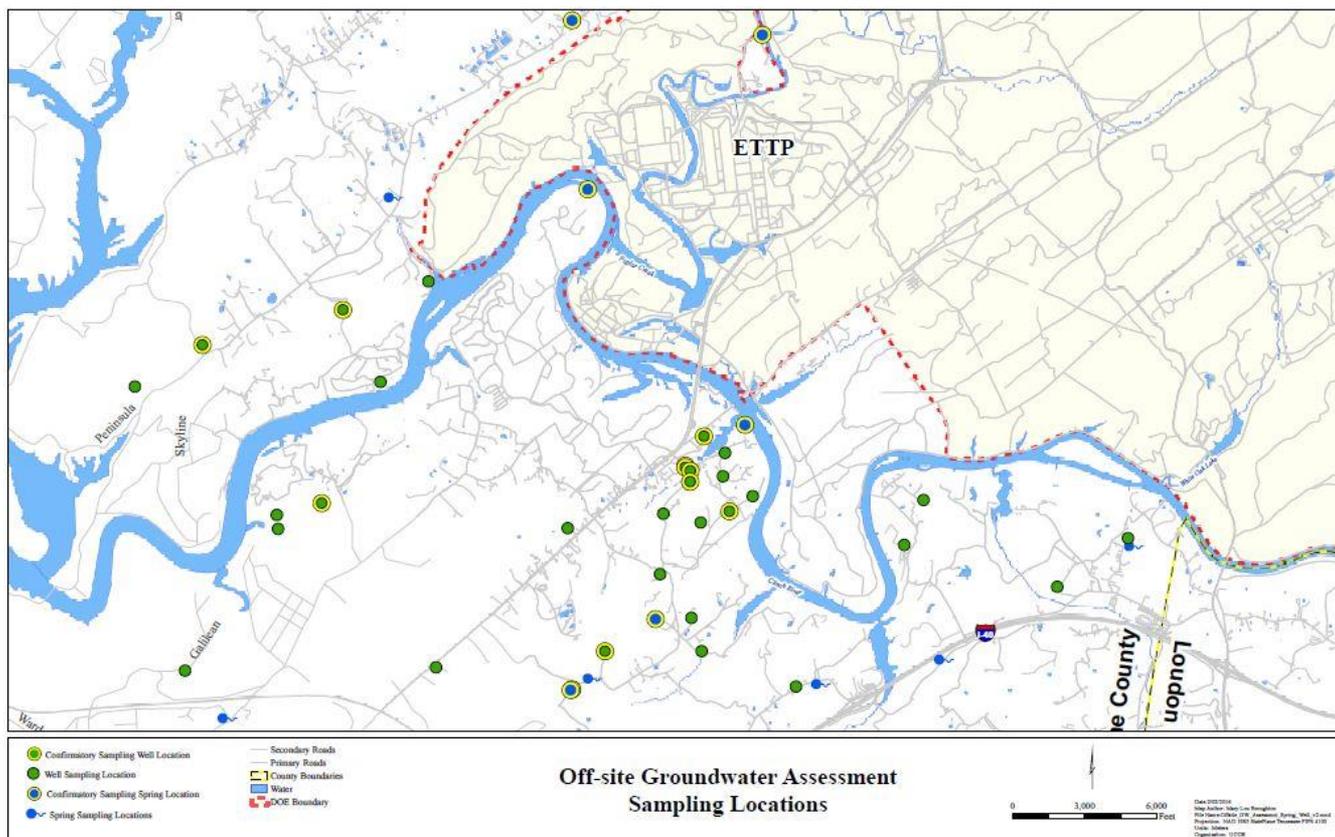
- projects address one or more plumes
- investigations
- early actions
- other projects to be identified based on findings

## Groundwater Program was put in place to implement the strategy

- Resources assigned and program initiated in 2014
  - Systematically prioritize and investigate plumes and data gaps, identify actions that may be warranted, and support CERCLA decisions
  - Full time hydrogeologist plus technical support
  - 1<sup>st</sup> project: Off-Site Groundwater Assessment
  - Regional groundwater model



- Top-ranked project: Off-site Groundwater Assessment
- Remedial Site Evaluation Work Plan approved in 2014
  - Anions, metals, radioactive constituents, volatile organics, general chemistry, and field parameters
- Conducted site visits and obtained access agreements



## All groundwater sampling events have been completed

- First Sampling Event FY2015 Q2 (43 locations)
  - Three locations showed exceedances of U.S. EPA National Primary Drinking Water Standards (lead at one location, lead and gross alpha activity (another location), and combined radium -226 and -228 activity (at third location))
- Second Sampling Event in FY2015 Q4 (49 locations)
  - No exceedances of U.S. EPA National Primary Drinking Water Standards
- Third Event (Confirmatory Sampling) FY2016 Q2 (18 locations)
  - Completed 1<sup>st</sup> week of February 2016



- Meeting between DOE/EPA/TDEC/Tennessee Department of Health to evaluate results
- Remedial Site Evaluation Report milestone November 15, 2016

	FISCAL YEAR															
	14				15				16				17			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Off-site Groundwater Assessment</b>																
Gather data/DQO	■	■														
RSE Work Plan		■	■	■												
FY 2015 Q2 Sampling						■										
FY 2015 Q4 Sampling								■								
FY 2016 Q2 Confirmatory Sampling										■						
RSE Report (D1 and D2)										■	■	■	◆	■	■	

◆ FFA Milestone (D1 RSE Report)

# Development of a regional groundwater flow model is a key recommendation of the Groundwater Strategy

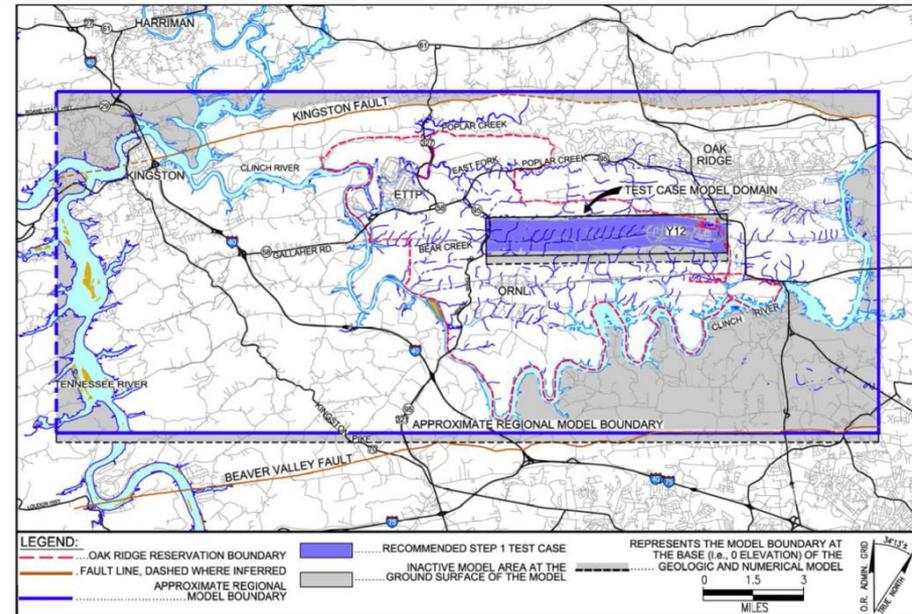
- The model will be used to support future cleanup decisions and development of site-specific models
  - help predict flowpaths
  - optimize investigations

## FY 2014

- A Technical Advisory Group (TAG) was formed and data was collected.
- Model software and boundaries were identified and construction of a Test Case model began

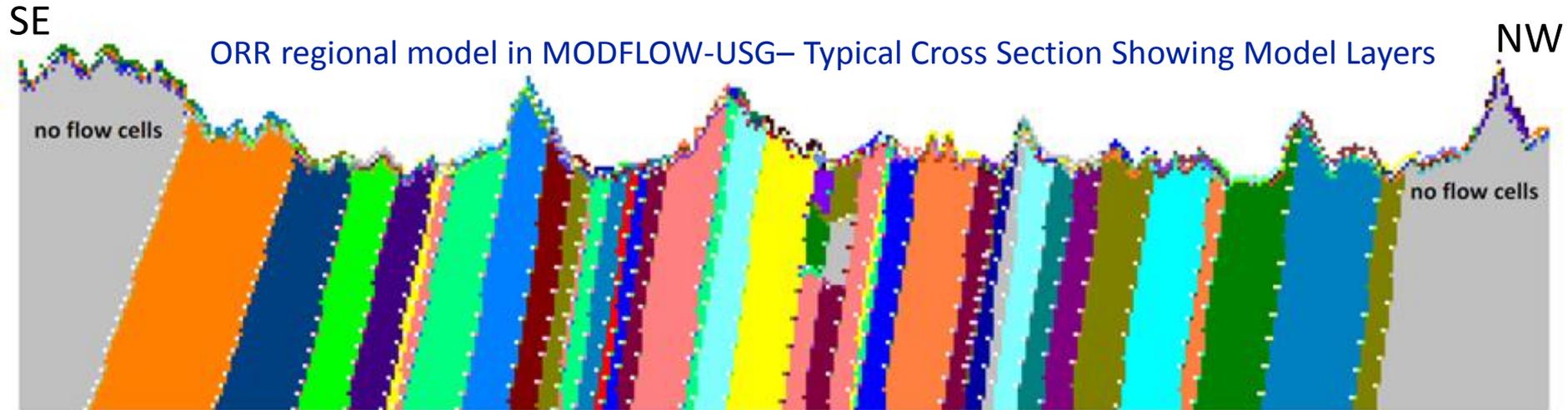
## FY 2015

- Testing of the Test Case model and geologic framework for the regional model were completed



## FY 2016

- The geologic framework has been successfully imported into the flow model
- Initial test runs of uncalibrated model and preparation for model calibration are ongoing
- A draft report about the calibrated flow model will be prepared



Vertical Exaggeration = 10

Questions?