



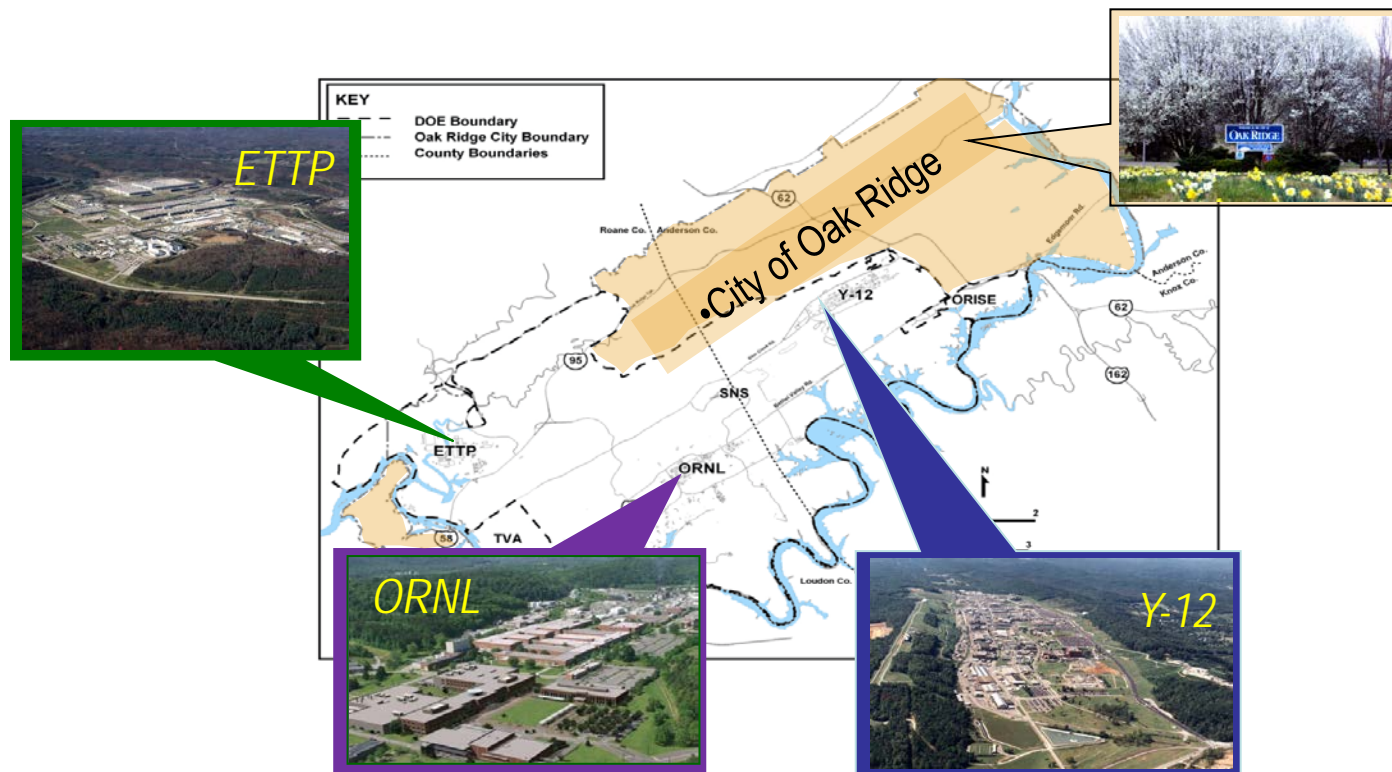
# Developing a Comprehensive Groundwater Strategy for the Oak Ridge Reservation



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# ORR Setting

- The ORR is a large National Priorities List cleanup site.
  - Three government facilities across 33,750 acres of land
  - Many contaminant sources and complex geology
- Due to past mission activity, groundwater in some areas has become contaminated.



# Need for ORR Groundwater Strategy

- Many remedial actions to address sources of contamination have been completed. However, ORR cleanup is projected to take another 30+ years.
  - Site-wide groundwater investigations were completed in the 1990s.
  - Many data gaps need to be filled to:
    - improve understanding of plume sources and migration,
    - identify potential early actions, and
    - reach final groundwater decisions.



*Tank W-1A in Bethel Valley being removed from the ground*

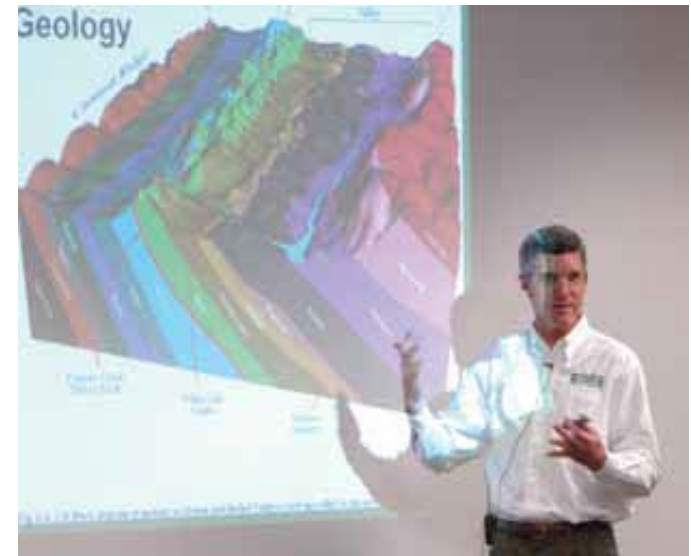
# Partnership: DOE, EPA, and TDEC



- An ORR Groundwater Strategy Team convened in 2013:
  - Included DOE, EPA, and TDEC representatives and contractor personnel.
  - A U.S. Geological Survey representative served as an interface with the Oak Ridge Site-Specific Advisory Board (ORSSAB).
- Team charter objective:
  - *Develop an interagency strategic approach to identify, manage, and pursue any potential onsite and offsite groundwater public health threats and to protect and restore DOE-ORR groundwater resources to beneficial use.*

# How the Process Worked

- **A series of 6 workshops:**
  - Conceptual site models were reviewed.
  - 35 groundwater plumes were evaluated.
  - Data gaps and uncertainties were identified.
  - Candidate projects were ranked.
  - Groundwater use restrictions were discussed.
  - A groundwater project (FY14-FY16) was selected.
- **Public meetings:**
  - Dan Goode, U.S. Geological Survey, provided updates to the ORSSAB on progress.



# How the Process Worked (cont.)

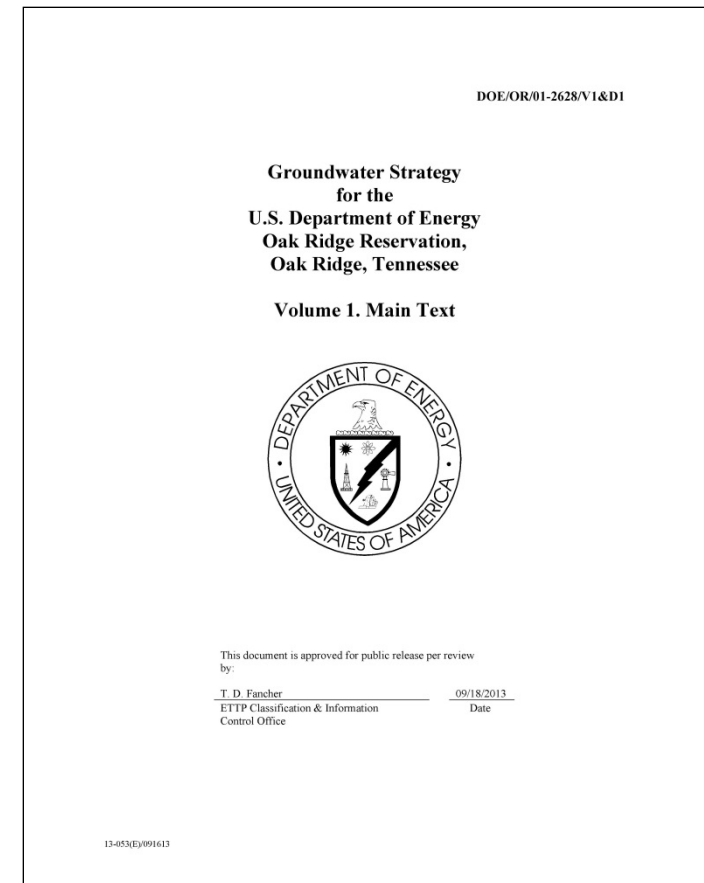
- Potential off-site migration was one of the focus areas:
  - Sporadic detection of low concentrations of radionuclides and VOC has occurred.
  - There are no known health impacts for contaminants detected off-site to date.
  - Groundwater use restrictions are in place for some residents.



•Monitoring of off-site wells

# Key areas of consensus

- Consensus among the FFA parties was reached on the need for:
  - Additional off-site monitoring to assess potential off-site risks (selected project).
  - An ongoing ORR Groundwater Program.
- Recommendations are documented in the draft ORR Groundwater Strategy.



# Path Forward

- The Off-site Groundwater Quality Assessment Project is being conducted as a tri-party effort.
  - Development of a work plan is underway.
  - Groundwater at over 50 off-site wells and springs will be sampled and analyzed starting in 2015.
  - Results will be evaluated to determine if follow-on actions may be needed.





# Path Forward (cont.)

- A new ORR Groundwater Program will systematically prioritize and investigate groundwater plumes and data gaps.
  - A multi-year groundwater modeling effort has been initiated.
  - Other project scopes will be developed and prioritized, such as:
    - groundwater investigations to improve conceptual models,
    - technology development, and
    - early actions.



*Sampling groundwater in Bethel Valley*

# Path Forward (cont.)

- Off-site Groundwater Quality Assessment results and ORR Groundwater Program findings will be used to:
  - Reevaluate initial plume and project ranking results
  - Identify interim measures that may be warranted
  - Support future groundwater decisions and remediation



*Installing monitoring wells along Raccoon Creek*

# ORR Groundwater Strategy



**Questions?**