

# CERCLA Waste Disposal Capacity for the Oak Ridge Reservation

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## Presentation to the Oak Ridge Site Specific Advisory Board



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Laura O. Wilkerson  
Portfolio Federal Project Director for Y-12 Projects  
Oak Ridge Office of Environmental Management

# On-Site ORR CERCLA Waste Disposal Facility (aka EMWMF): Background

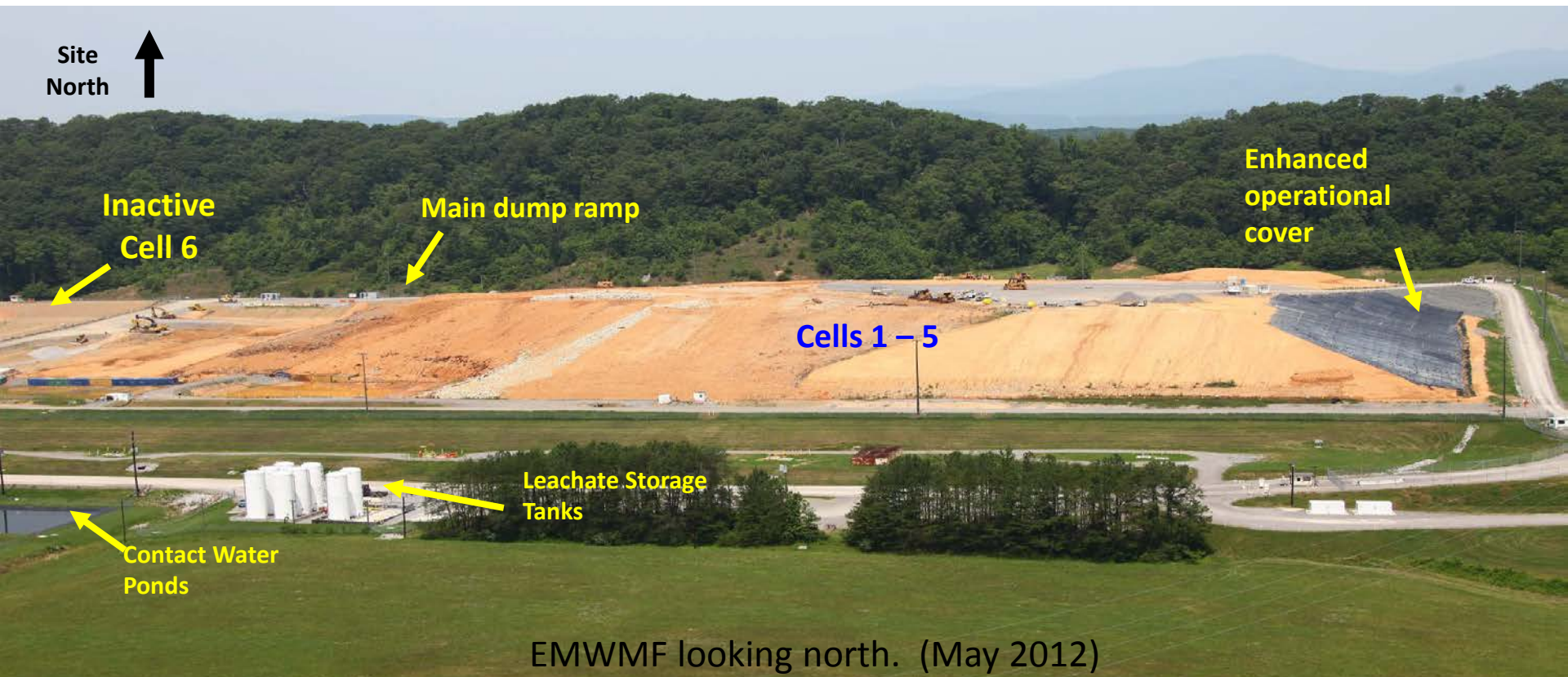
- The on-site EMWMF was selected remedy for disposal of wastes from cleanup of the U.S. Department of Energy (DOE) Oak Ridge Reservation (ORR) and associated sites
- Provides safe, compliant, and cost-effective disposal of remediation waste on-site
- Primarily receives building demolition debris and soils (higher contamination waste is disposed of off-site)



# EMWMF: Status

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- Safe and compliant operation for more than 10 years
- Build-out to maximum capacity (2.18 M yd<sup>3</sup>) completed in 2011
- Approximately 63% full as of the end of FY 2013
- Enables accelerated and cost effective risk reduction (e.g., demolition of K-33, K-25, etc.)



# On-Site disposal supports efficient cleanup

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- Has avoided an estimated half a billion dollars in off-site disposal costs
- Optimizes use of available funding for cleanup
- Reduces transportation risk and carbon emissions
- Allows control of waste disposal availability
- Groundwater monitoring indicates waste is being contained



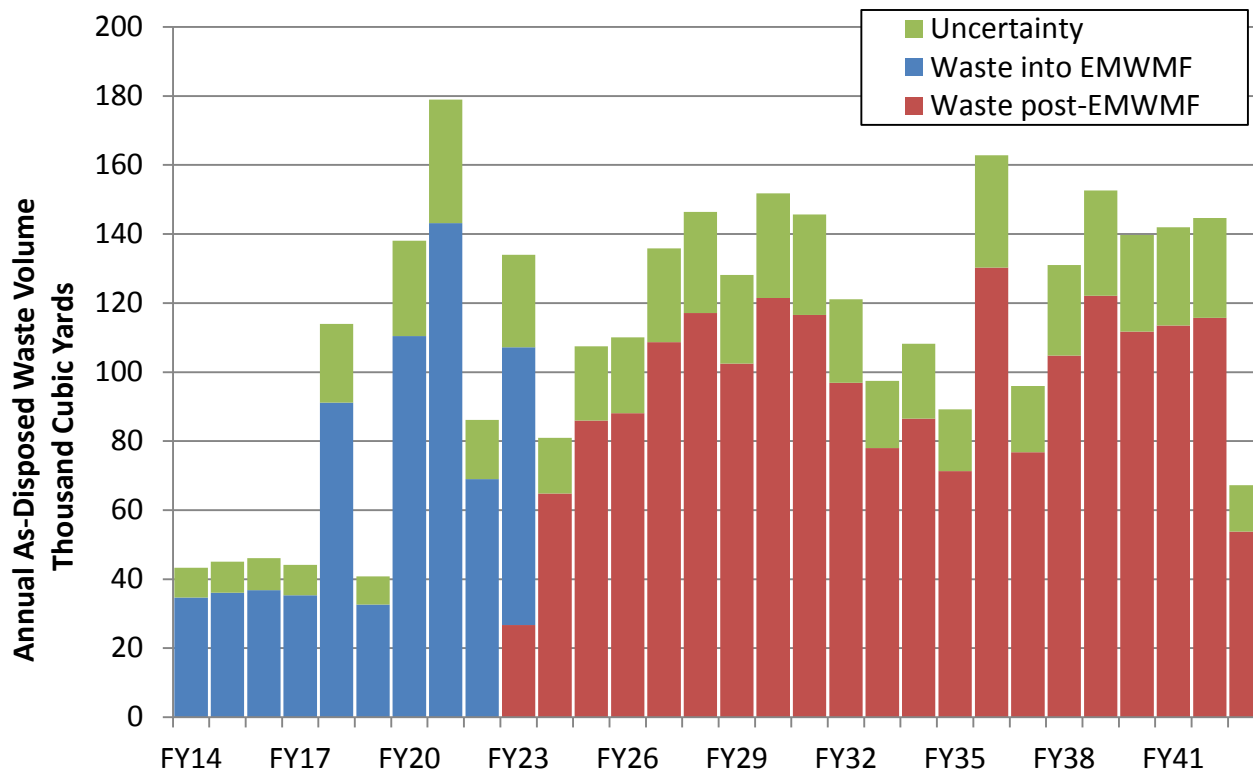
K-25 Building - Before



Last of K-25 Building being demolished,  
Demolition completed Dec. 2013

# DOE evaluates the future needed additional disposal capacity

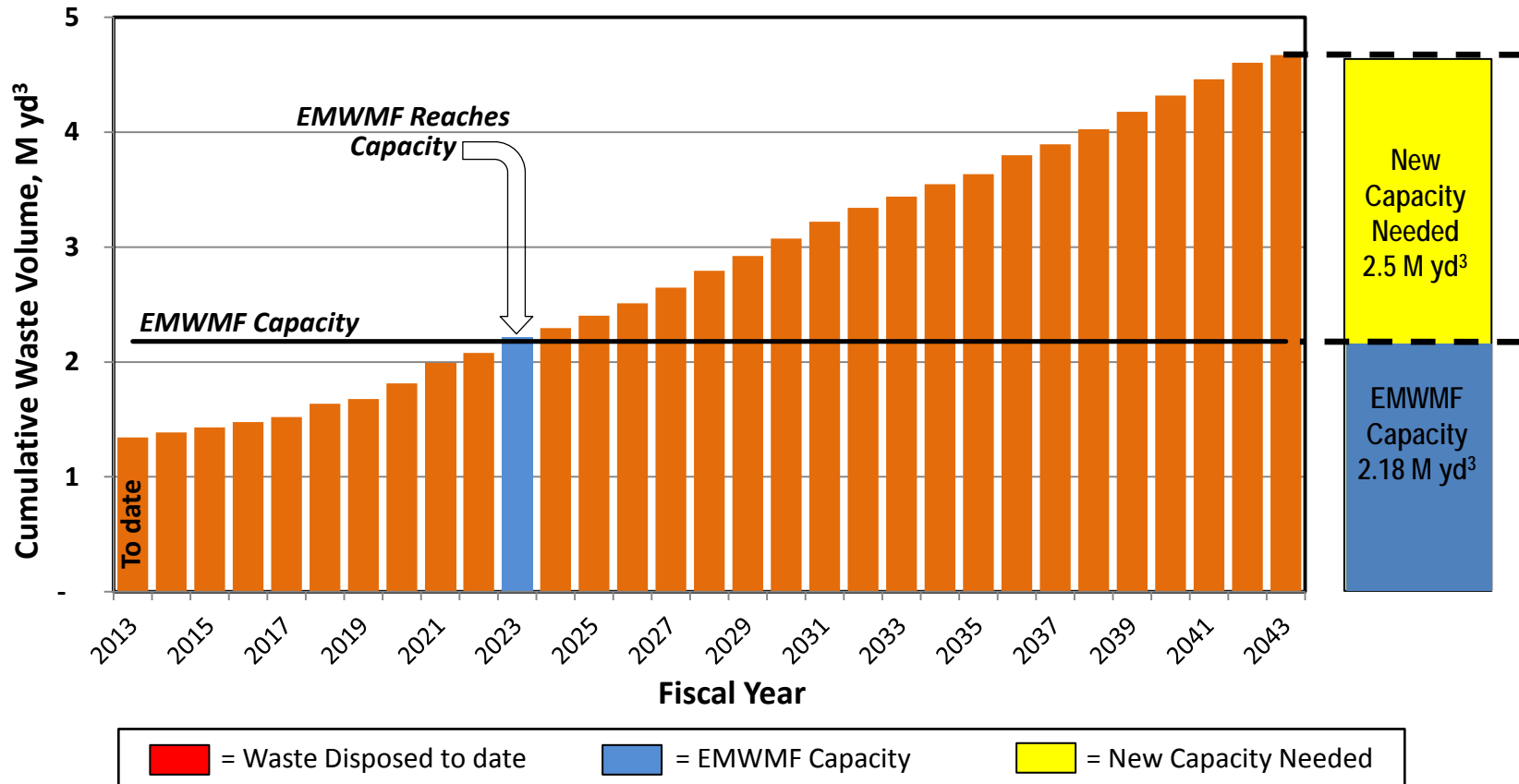
- Cleanup Projects are scheduled and sequenced throughout OREM Program Lifecycle
- Waste volumes to be generated by each project are estimated and sequenced
- 25% uncertainty is added to the waste volume estimates to assure the capacity estimate is conservative
- Annual total waste volumes are analyzed and “placed” in EMWMF until full; new disposal capacity is scheduled as needed



\*Based on a \$420M annual funding planning scenario

# Additional disposal capacity is needed to complete Oak Ridge Cleanup Program

- Sequencing of most recent Oak Ridge Environmental Management baseline waste forecast indicates EMWMF capacity is reached in Fiscal Year 2023
- Based on funding assumption of \$420M/yr
- New disposal capacity (2.5 M yd<sup>3</sup>) needed to support completion of clean-up at ORR sites



# Where do we go from here?

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- Planning for additional disposal capacity initiated
- CERCLA process is being followed:
  - Remedial Investigation/Feasibility Study (RI/FS) ongoing
    - D2 RI/FS submitted June 2013
    - Regulator comments being addressed
    - Significant comments concerning site of proposed disposal facility
  - Proposed Plan and Record of Decision (ROD) are scheduled to follow RI/FS approval
- Public and stakeholder involvement and consultation will continue through the process until a decision is reached



Alpha 5 at Y-12



Central Campus at ORNL

# DOE is evaluating disposal alternatives in the RI/FS for waste to be generated in the future

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- No action
  - No ORR-wide coordinated disposal strategy
  - CERCLA waste disposal determined on an individual project basis
- On-site disposal
  - Construct and operate a new on-site landfill [aka **Environmental Management Disposal Facility (EMDF)**] proposed in East Bear Creek Valley, east of existing EMWMF
- Off-site disposal
  - Transportation to approved off-site disposal facilities (Nevada National Security Site (NNSS) and *Energy Solutions* facility in Utah)





# Alternative Analysis

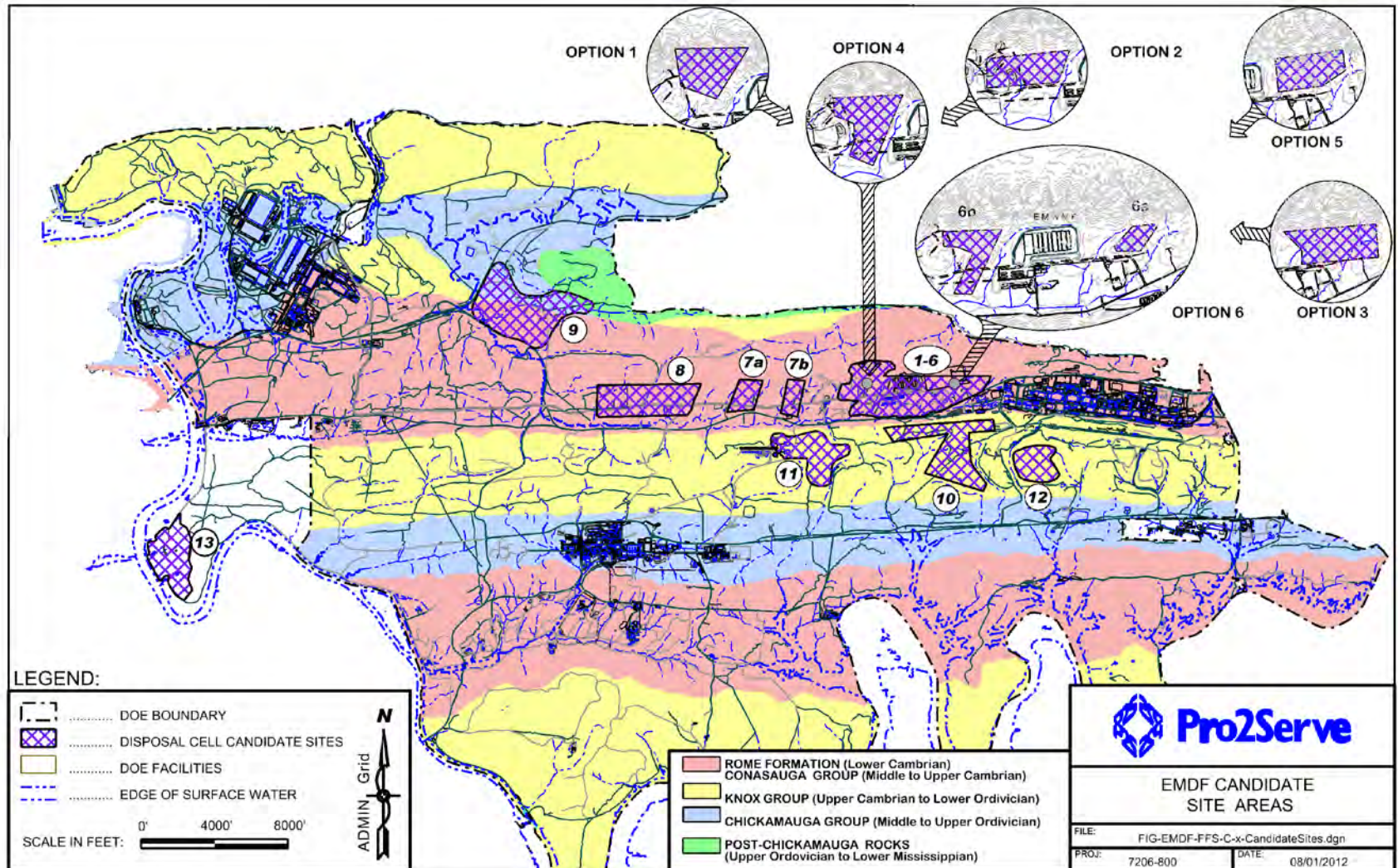
## Preliminary Conclusions

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- **No Action**
  - Does not support timely and efficient cleanup
- **On-site and Off-site Disposal Alternatives**
  - Support timely cleanup
  - Protective of human health and the environment long-term by disposal of waste in a landfill designed for site-specific conditions
  - ✓ **On-site Disposal Alternative (EMDF)**
    - Permanent commitment of land for waste disposal and impact to environment
    - Lower cost (\$817 M lifecycle cost)
    - Requires a Record of Decision by FY 2016 to provide capacity when needed by FY 2022
  - ✓ **Off-site Disposal Alternative**
    - Could isolate the wastes more effectively due to the arid climate and fewer receptors at facilities in western states
    - Reliance on off-site facilities introduces uncertainty
    - Higher risk due to transportation
    - Higher cost (\$2.4 B vs. \$817 M)

# 13 ORR sites evaluated as part of initial screening for on-site disposal site

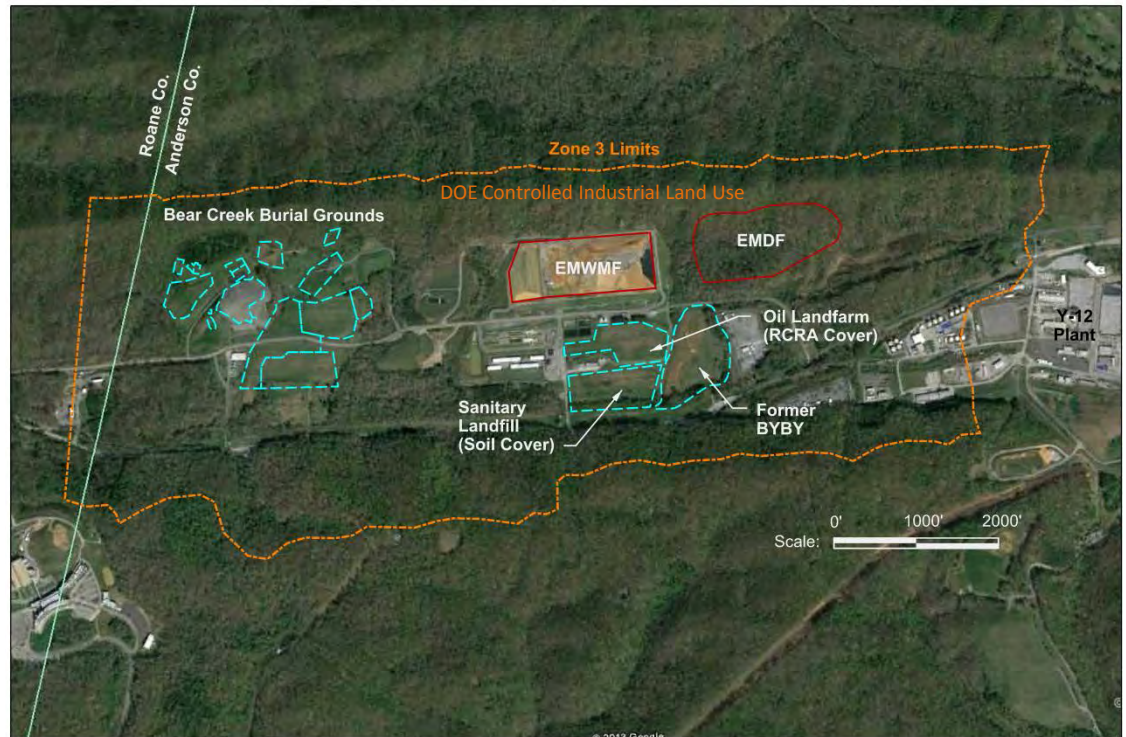
Siting considerations: topography and hydrology, available capacity, future land use



# Focus of site evaluation narrowed to East Bear Creek Valley

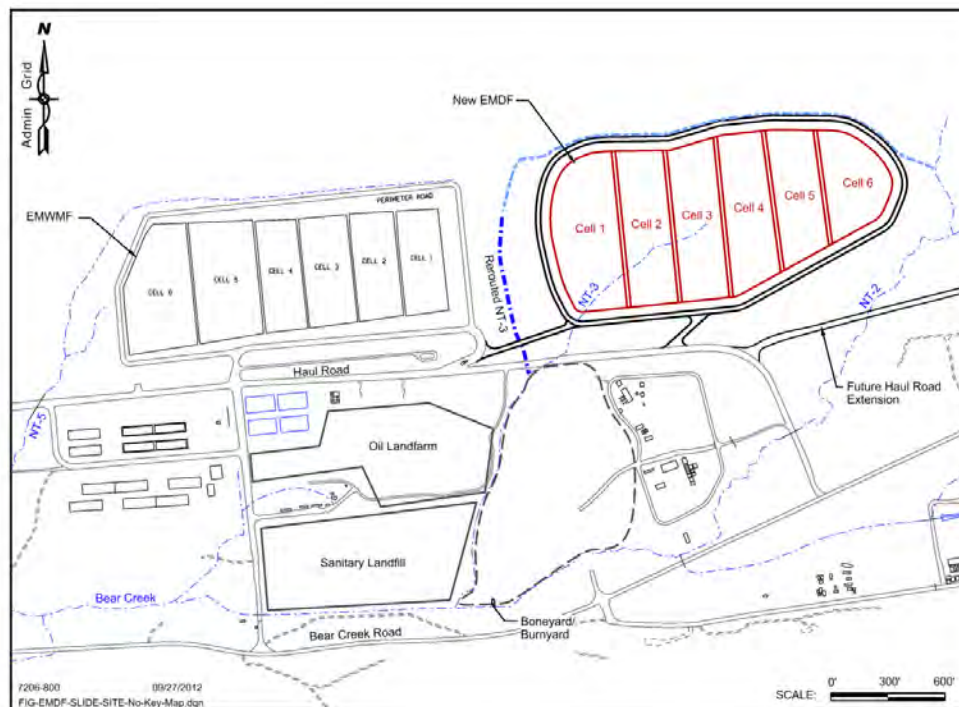
## Previous conclusions about East Bear Creek Valley hold true for future siting

- Historic and current waste management area
- Most compatible with future land use
- Most favorable for isolation from the public
- Restricted access reduces vehicular impacts to local community
- Consistent with stakeholder input during siting of EMWMF



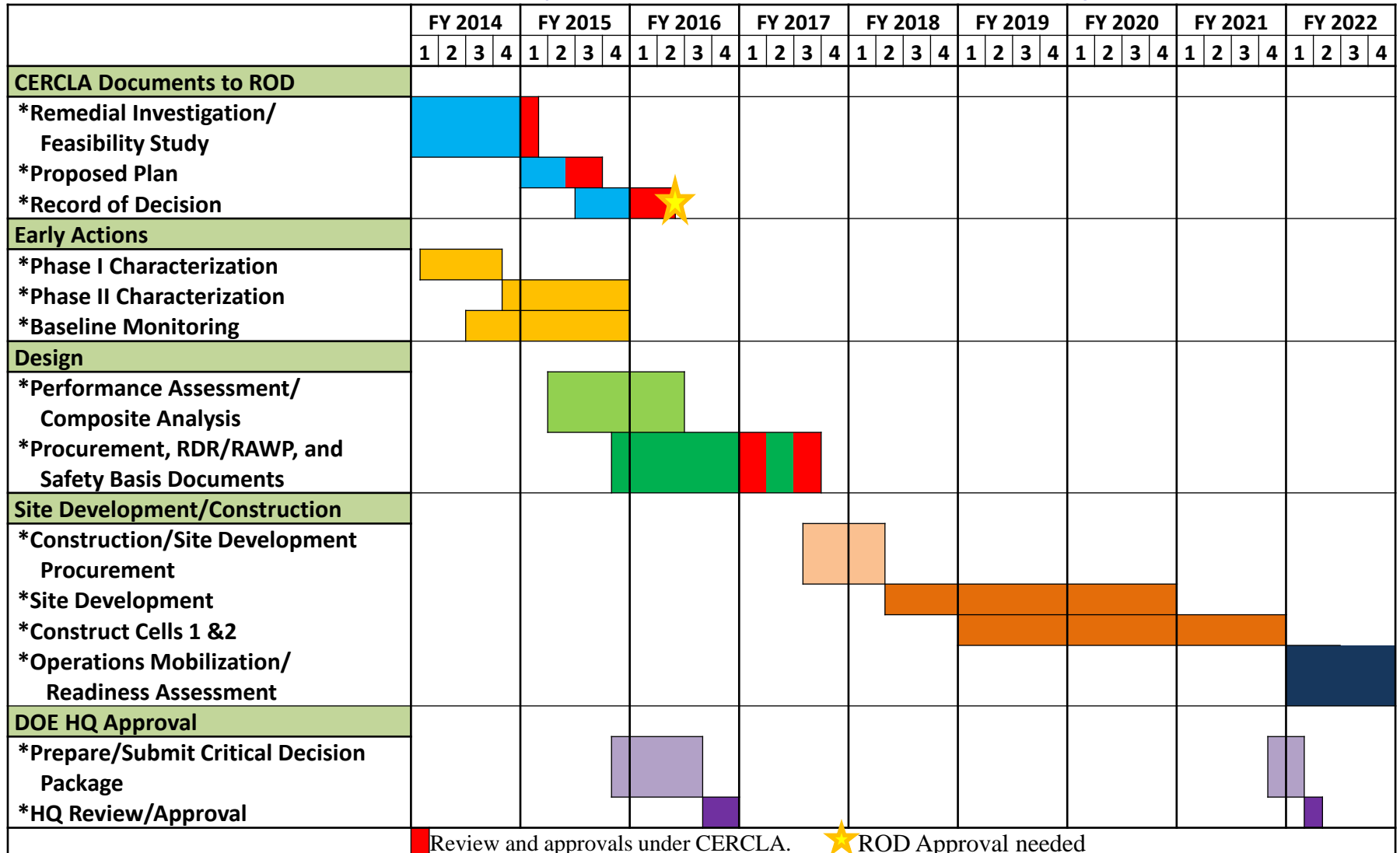
# Initial analysis results – best alternative site is East Bear Creek Valley

- Sufficient capacity for projected volumes (phased construction)
- Proximity to existing EMWMF infrastructure and dedicated Haul Road
- Adjacent to a brownfield area and compatible with future land use plans
- Conceptual design accommodates hydrology of site using engineered features to control surface water and ground water
- Operational start needed by FY 2022



# Planning Schedule

Projected activity dates are dependent on funding availability, regulatory approvals, and adjustments for operational capacity needs



# Summary

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- On-site disposal has allowed the Oak Ridge Cleanup work to proceed safely and efficiently over the last decade
- Additional capacity will be needed to support future cleanup activities
- On-site disposal is still safer and more cost effective than off-site disposal
- Many potential locations for a new disposal facility on the ORR considered
- Preferred location is in an area of past and current waste management operations/brownfield, adjacent to Y-12, and utilizes existing infrastructure
- ROD needed by FY 2016 to allow for un-interrupted on-site disposal
- Public and stakeholder involvement and consultation will continue to be a key part of the process