

Update on CERCLA* Waste Disposal Capacity for the Oak Ridge Reservation

Presentation to the Oak Ridge Site Specific Advisory Board



February 11, 2015

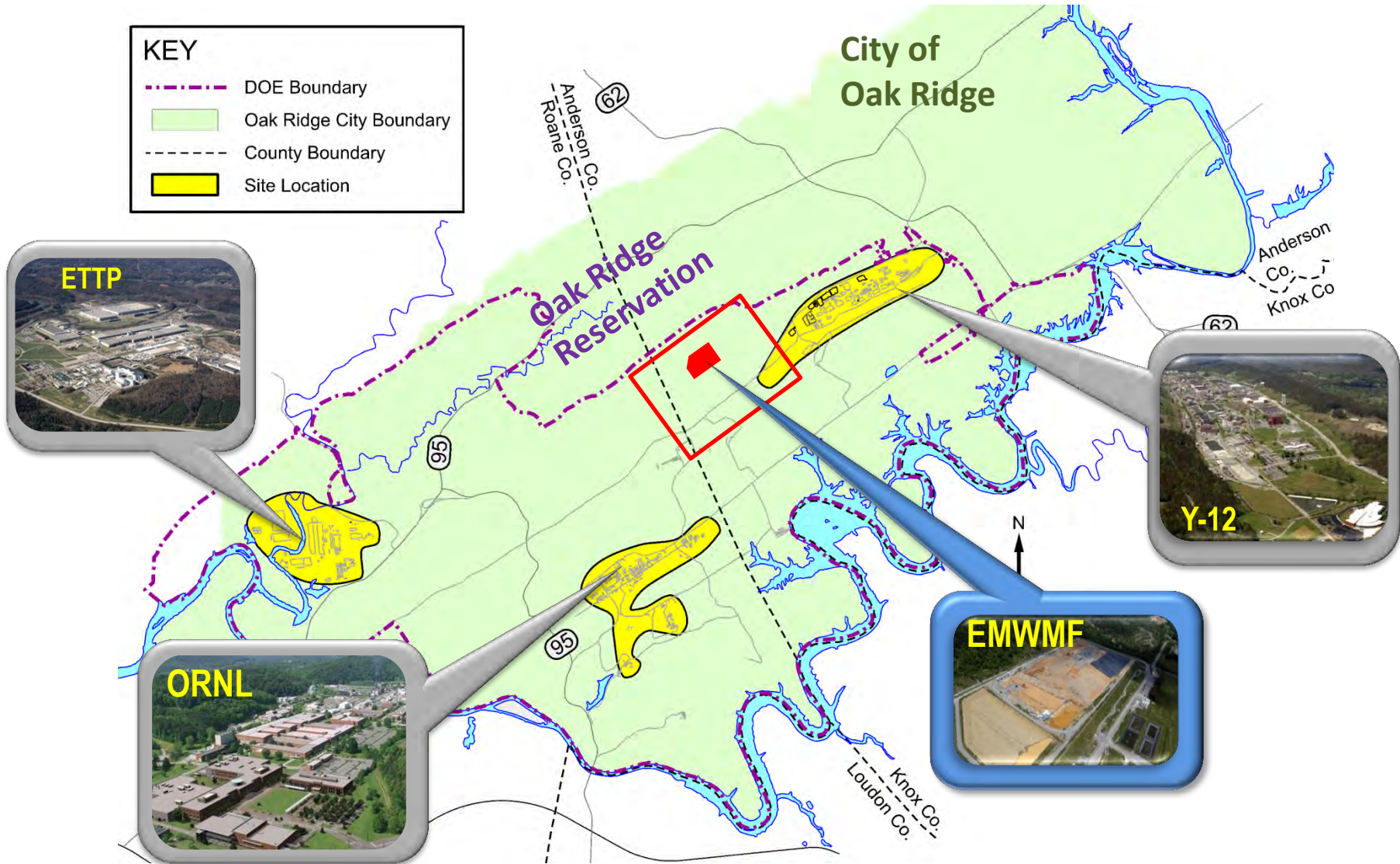
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*Comprehensive Environmental Response, Compensation, and Liability Act of 1980

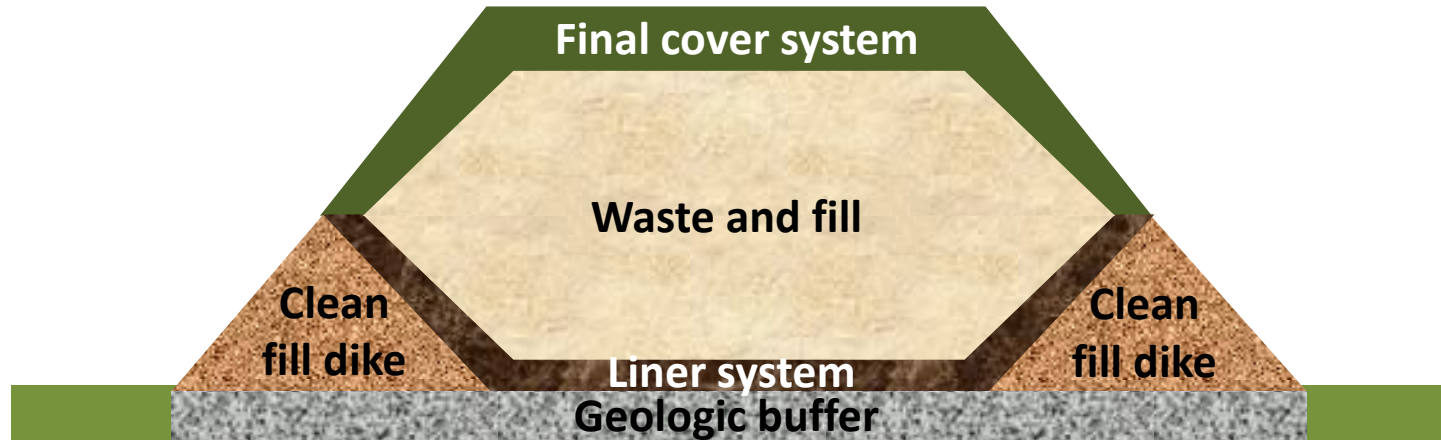
Oak Ridge Reservation

KEY

- DOE Boundary
- Oak Ridge City Boundary
- County Boundary
- Site Location

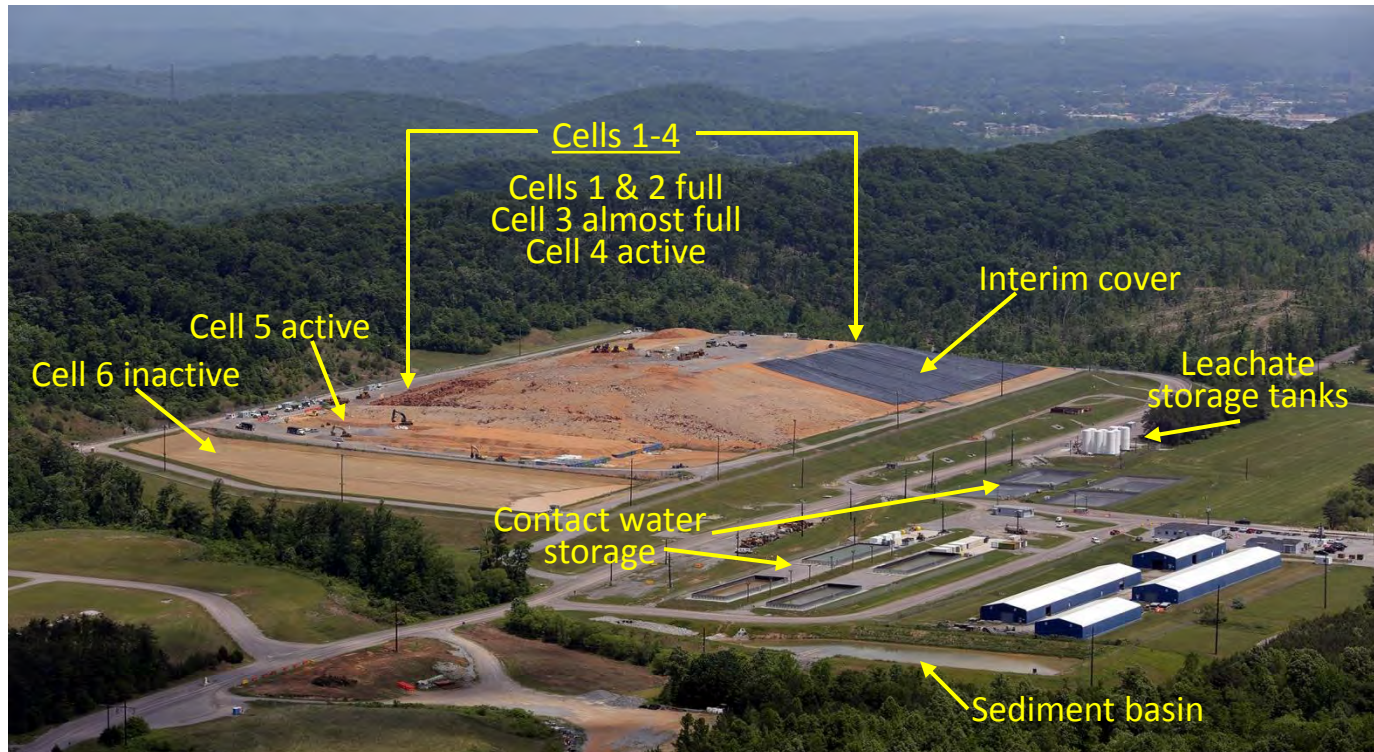


On-site disposal facility (aka EMWMF)



- **Engineered landfill with six disposal cells**
- **Capacity 2.18 million cubic yards (equivalent to ~872,000 pickup truck loads)**
- **43 acre footprint under final cover**

- Remaining ETTP cleanup projected to fill EMWMF
- Future Y-12 and ORNL facilities cleanup will require disposal capacity approximately equivalent to that of EMWMF
- Safe and compliant operation of EMWMF for almost 13 years, since 2002
 - No detected migration of contaminants throughout 13 years of quarterly groundwater monitoring



On-Site CERCLA disposal is key to safe, cost effective remediation

- **Provided capacity for disposal of ETTP cleanup debris and soils**
 - K-25 (44 acre building); K-33 (32 acre building), etc.
- **Cost effectiveness**
 - Avoided an estimated half a billion dollars in off-site disposal costs to date
 - Maintains jobs in East Tennessee
- **Public, environmental, and worker risk reduction**
 - Eliminated 130,000,000 driving miles
 - Reduces greenhouse gas emissions
 - Reduces waste handling needs and thus worker exposures



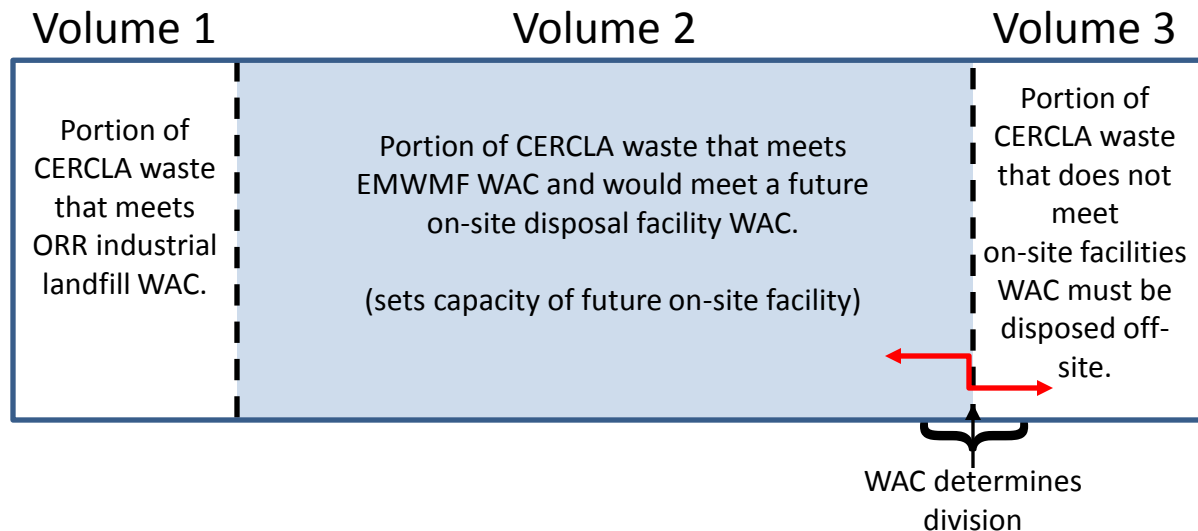
K-25 Building before demolition



After demolition

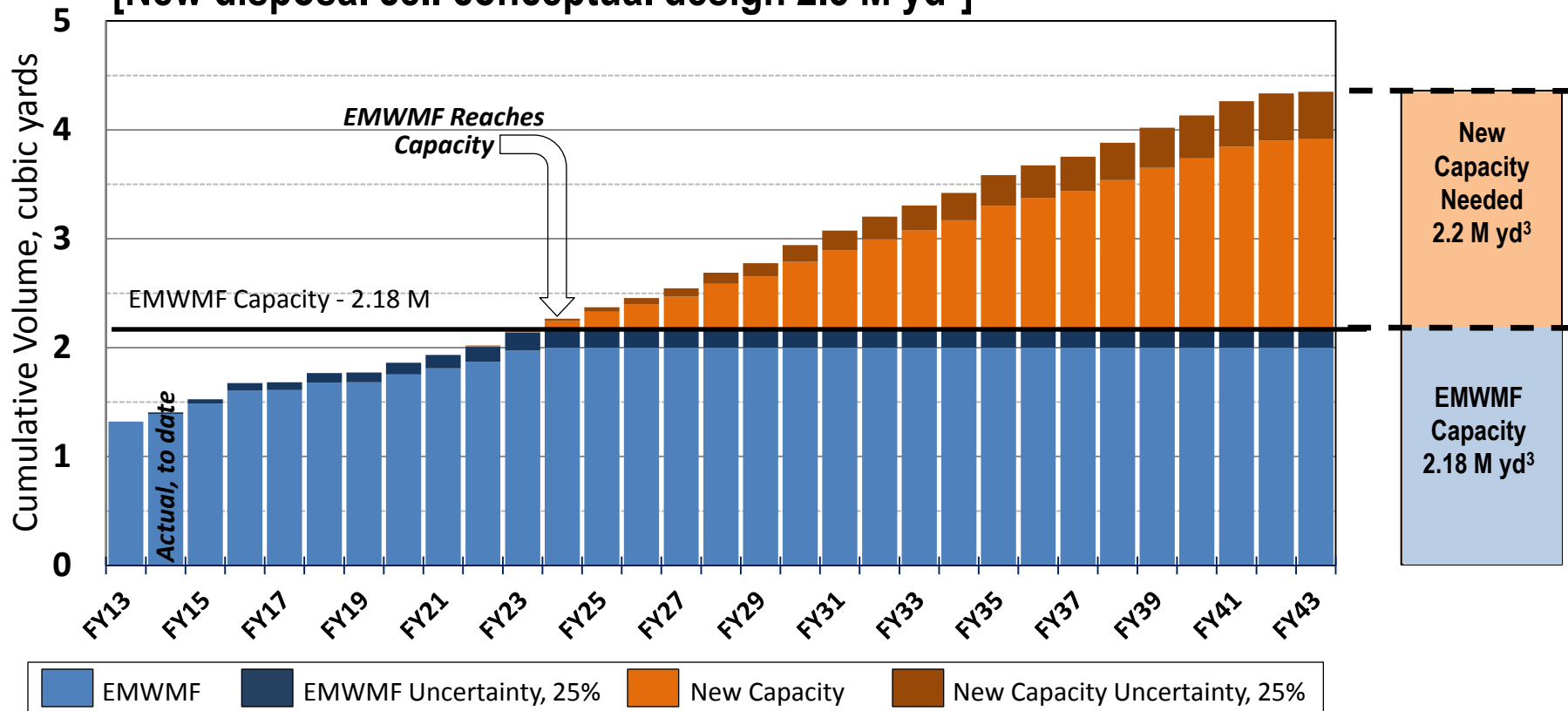
Waste that is acceptable in an on-site facility

Waste acceptable for on-site disposal	Waste not acceptable for on-site disposal
<ul style="list-style-type: none"> • Low level radioactive waste (LLW) • LLW mixed with hazardous constituents • Asbestos, PCBs • Building demolition debris • Scrap equipment • Personal protective equipment • Classified waste 	<ul style="list-style-type: none"> • Higher activity LLW; High level waste • Waste from non-ORR generators • Spent fuel • Transuranic waste • Liquids • Other waste that does not meet an on-site waste acceptance criteria (WAC)



Additional disposal capacity is needed to complete Oak Ridge Cleanup Program

- Sequencing of baseline waste forecast indicates EMWMF at capacity in Fiscal Year 2024
- Based on program funding assumption of \$420M/yr
- New disposal capacity (2.2 M yd³) needed to support completion of cleanup [New disposal cell conceptual design 2.5 M yd³]



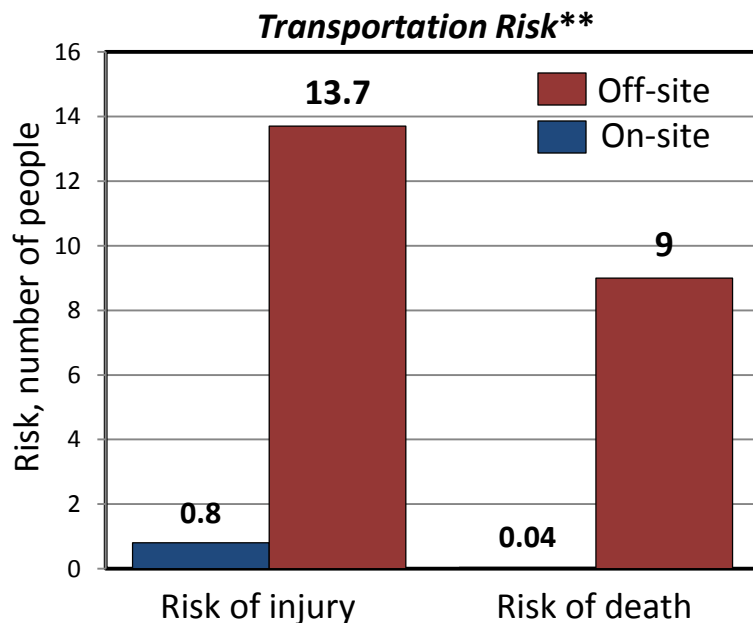
DOE is evaluating future waste disposal alternatives in RI/FS

- **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)**]
- **Off-site disposal**
 - Transportation to approved off-site disposal facilities (Nevada National Security Site [NNSS] and *Energy Solutions* facility in Utah)



Benefits of on-site waste disposal

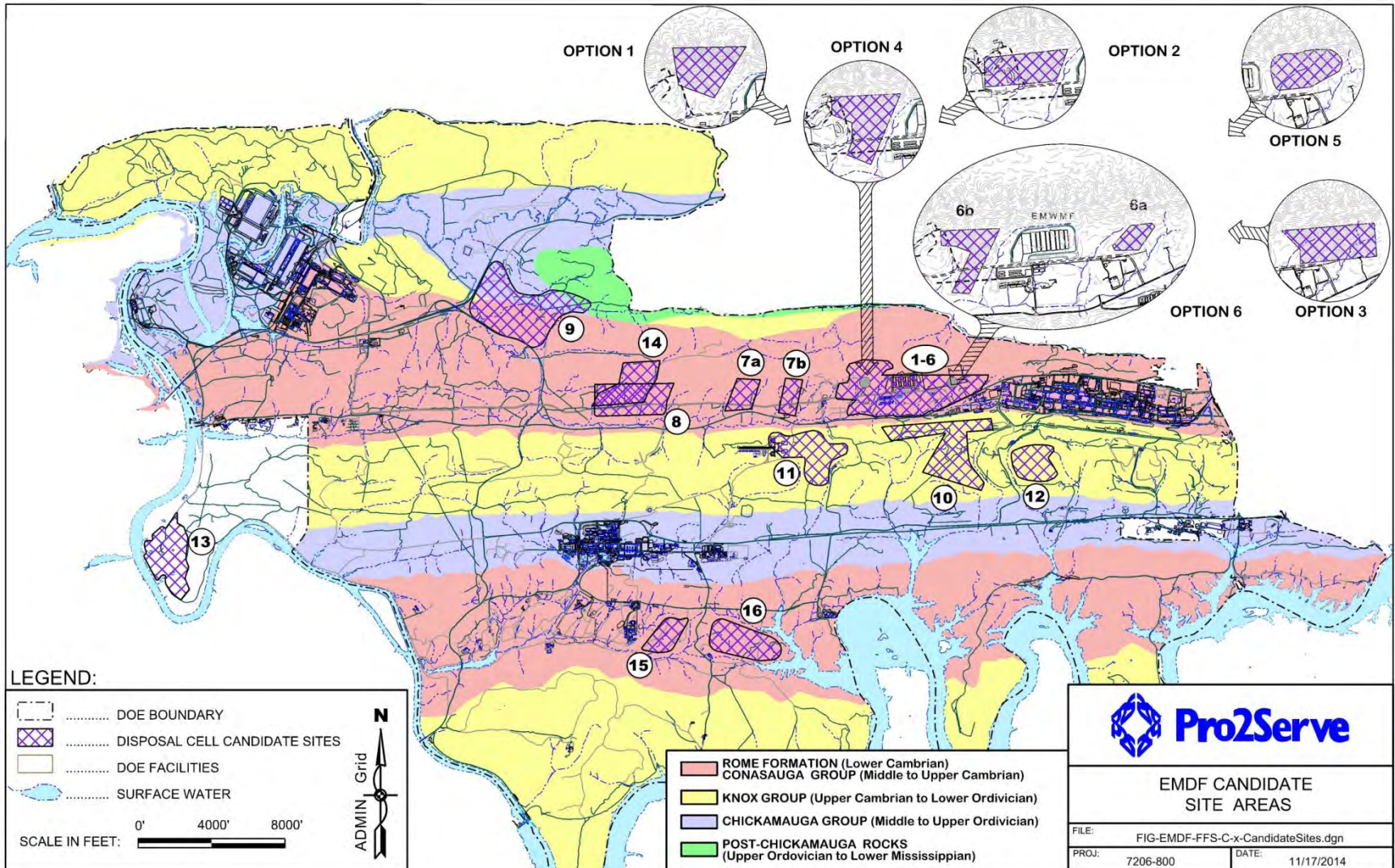
- **COST SAVINGS:** Projected ~ \$1 billion* in savings for on-site disposal versus off-site disposal over lifecycle
- **ACCELERATES CLEANUP:** Allows more funds to be directed to cleanup
- **REDUCES PUBLIC RISK:** Reduces transportation risk and carbon emissions
- **REDUCES PROGRAM RISK:** Allows control of waste disposal availability (not relying on multiple states to allow pass through, continued waste acceptance by, and operation of, off-site facilities)



*Based on preliminary D3 RI/FS results; *Based on D2 RI/FS Statistics

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

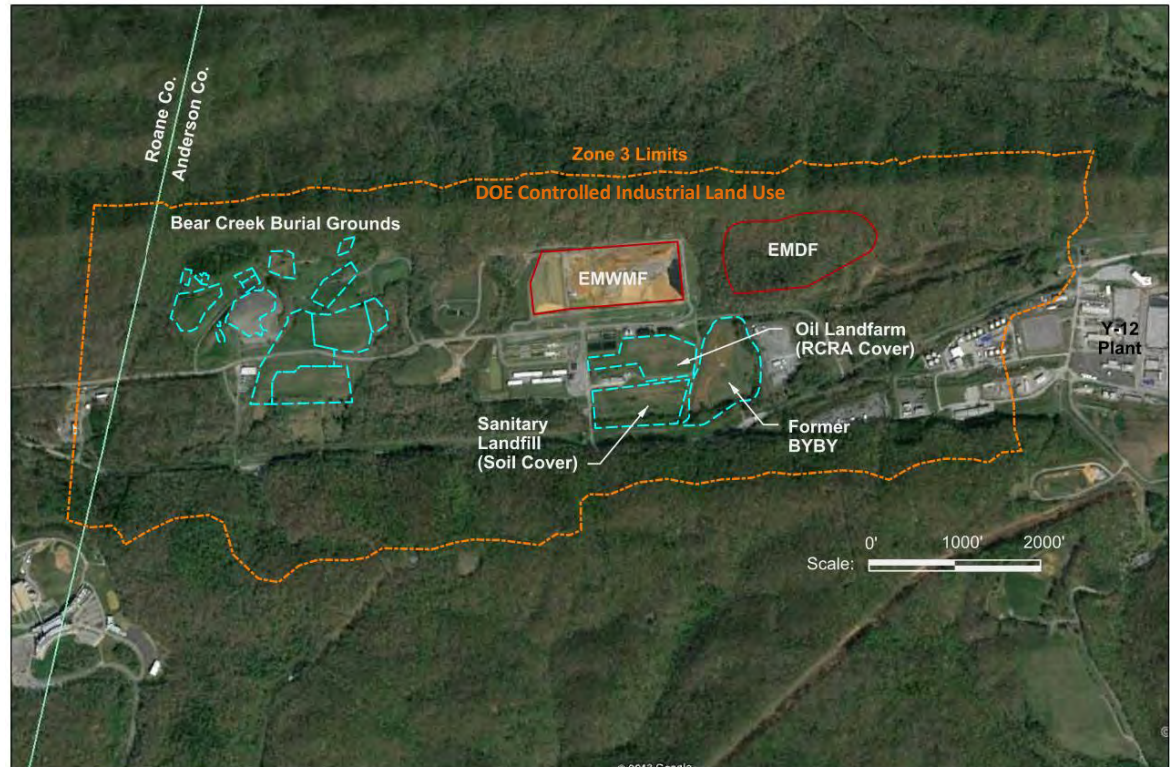
Siting considerations: topography and hydrology, available capacity, future land use



Focus of site evaluation narrowed to East Bear Creek Valley

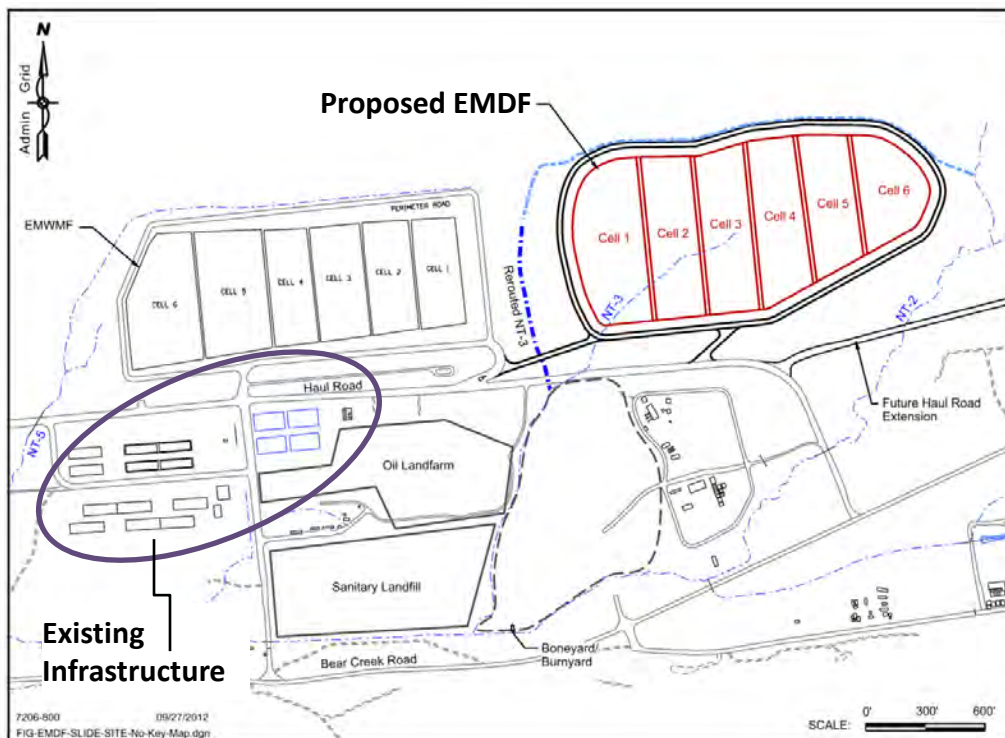
Previous conclusions about East Bear Creek Valley hold true for future siting

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



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

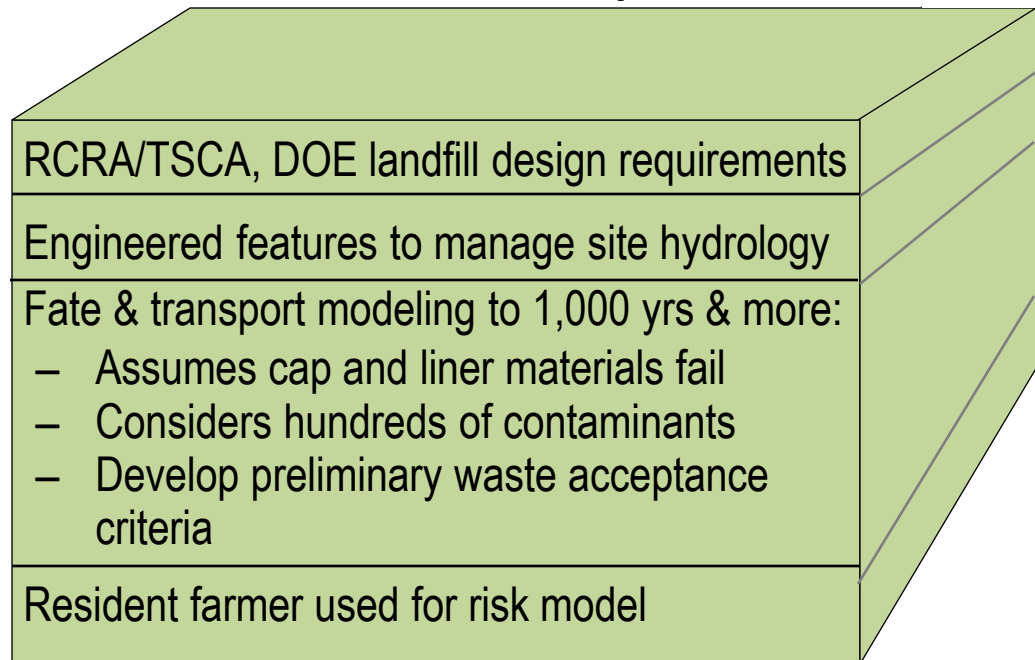
- Sufficient capacity for projected volumes (phased construction will allow for a reduction in footprint if necessary)
- Proximity to existing EMWMF infrastructure and dedicated Haul Road is cost effective
- Located adjacent to brownfield areas and compatible with future land use plans
- Conceptual design accommodates hydrology of site using engineered features to control surface water and ground water
- Operational start needed by FY 2022; allows for 2 years of overlapping operation with existing EMWMF



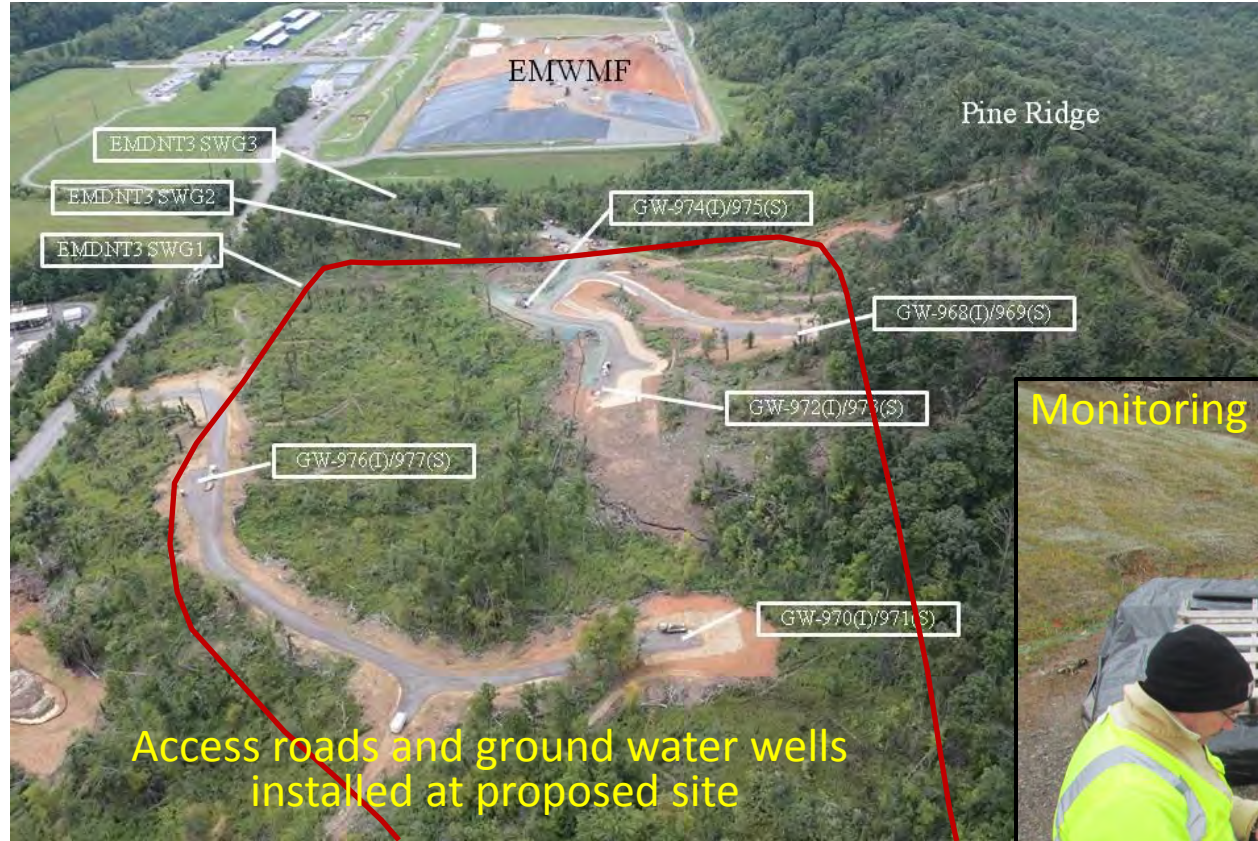
Proposed on-site disposal facility protectiveness features

- **Environmental protectiveness through:**
 - **Siting requirements**
 - **Design/construction/closure regulations**
 - **Waste acceptance criteria**
 - **Operations plans**
 - **Path to closure**

*Layers of conservatism ensure
additional protectiveness*



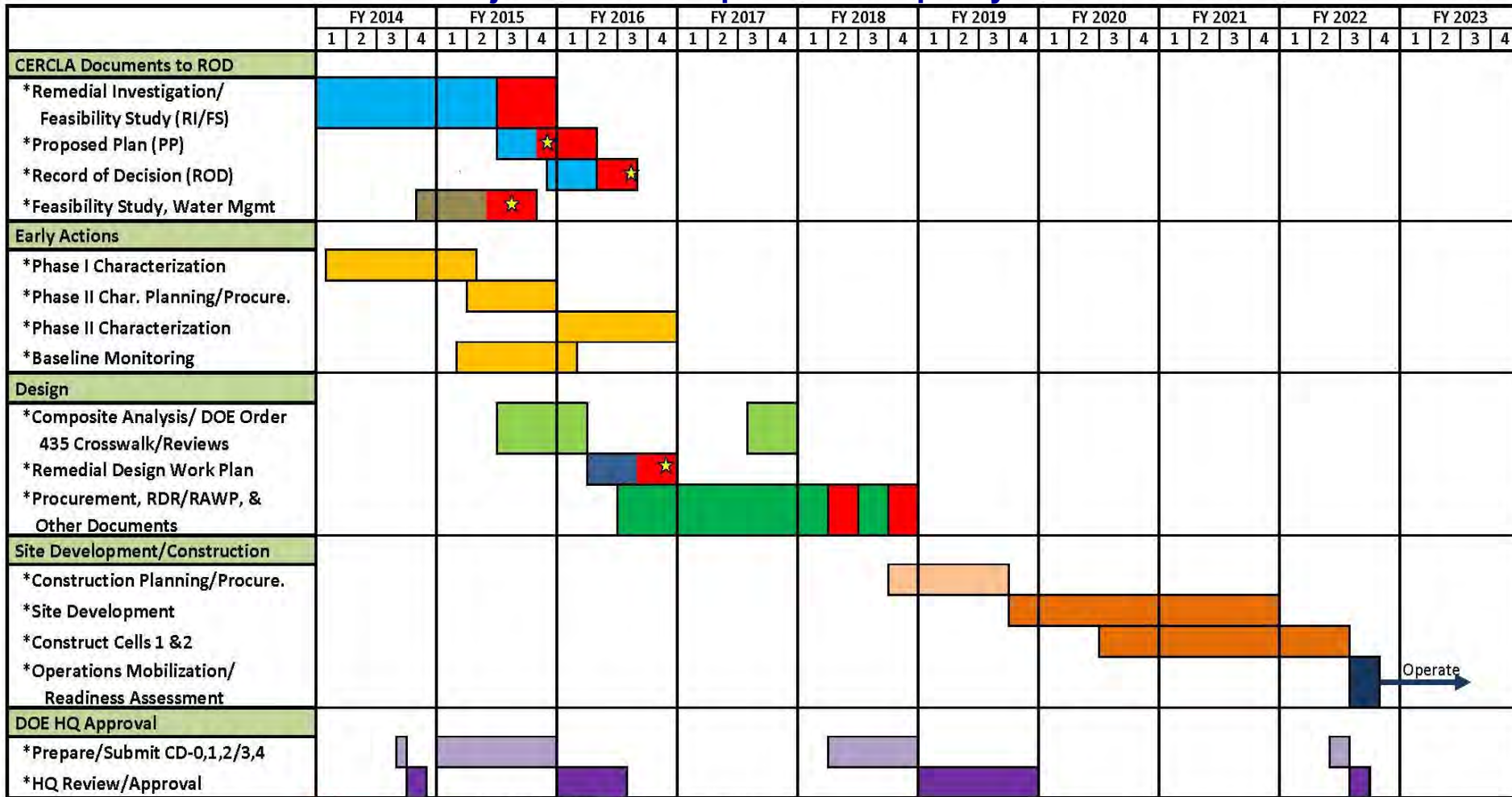
Limited Phase I characterization ongoing at proposed EMDF site



Data to be reported in RI/FS and used in RI/FS modeling

Planning Schedule

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



█ Review and approvals under CERCLA. ☆ Appendix E milestones.

- **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, isolated from public, 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**