

Original Landfill Update

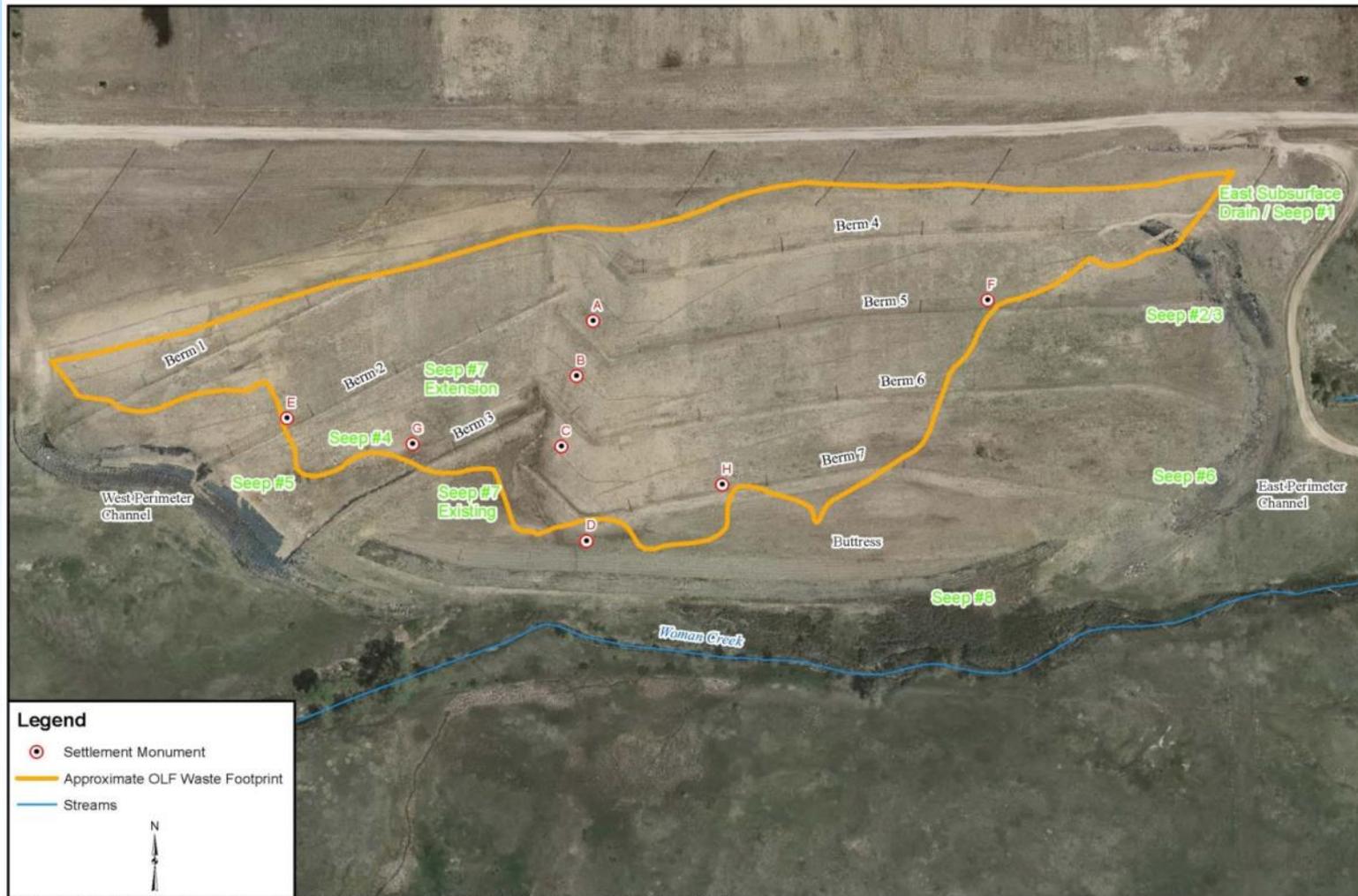
April 4, 2016



U.S. DEPARTMENT OF
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Original Landfill (OLF)



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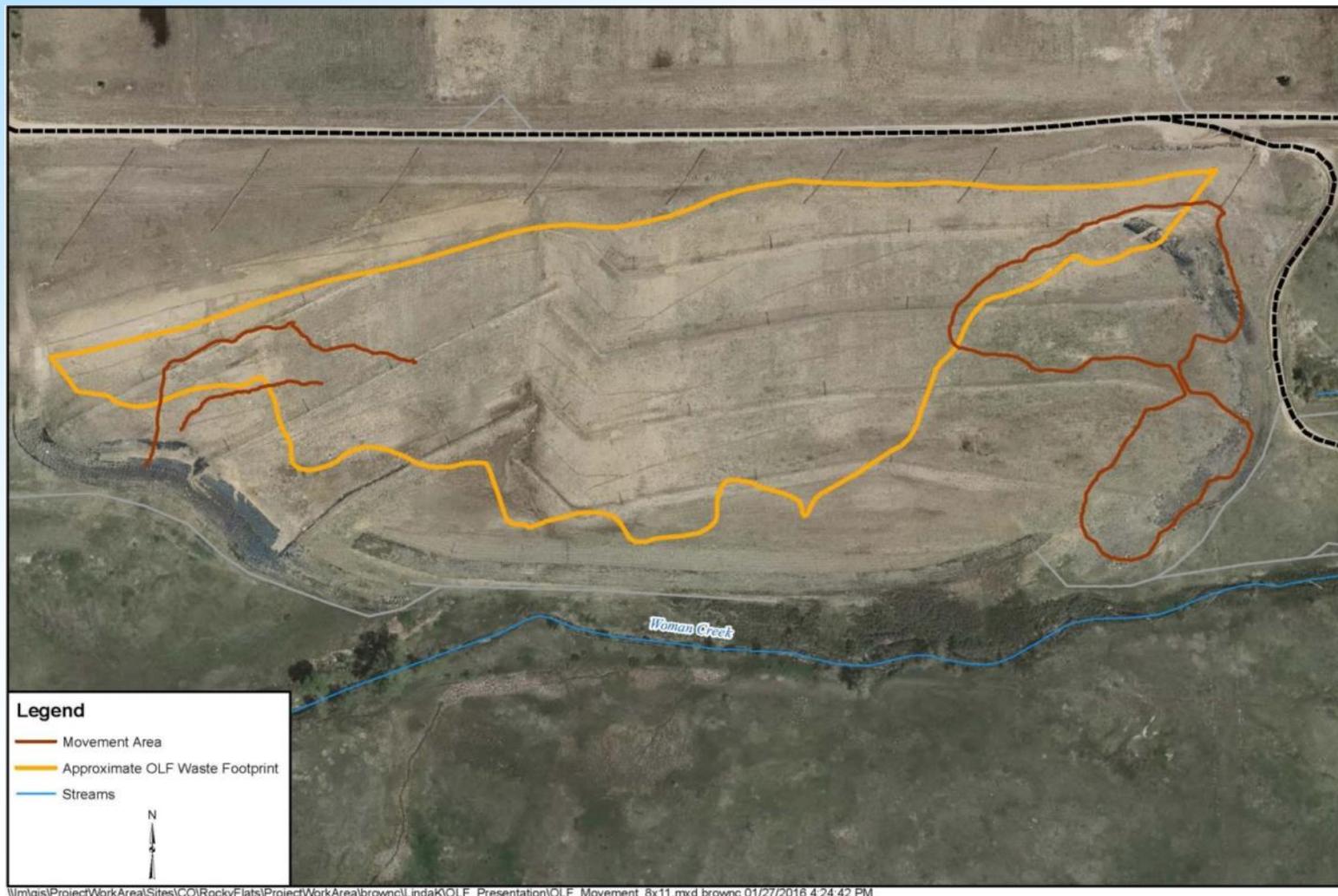


2015 Events Recap

- Extended heavy precipitation from mid-February through mid-July
- Cracking and slumping in areas along eastern and western edges of the waste footprint (mostly outside waste footprint)
- Subsequent water ponding in areas affected by cracking and slumping
- East perimeter channel (EPC) experienced significant slumping
- Most of the landfill area did not experience cracking, slumping, or movement



2015 Movement



2015 Events Recap (continued)

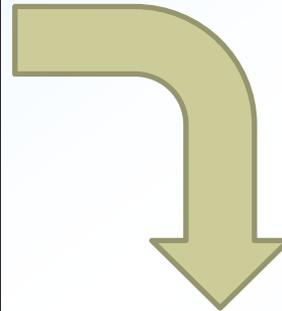
- Contact Record 2015-03 (May 26, 2015), approved immediate response
 - Drain and divert surface water and groundwater
 - Excavation below 3 feet (if needed)
- Contact Record 2015-06 (July 28, 2015), approved interim action to re-establish surface-water management
 - Regrading to fill cracks and smooth irregularities
 - Installing aboveground drain pipes
 - Designed berm heights and cover thickness might not be maintained in some areas



2015 Events Recap



from this



to this



Interim action completed September 22, 2015.



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Regraded Area – October 2015



Path Forward Evaluation

- Engineer evaluating technical alternatives to increase slope stability and enhance water-management features
 - Review previous geotechnical investigations
 - Review remedial action decision documents
 - Review observations and experience since 2005 closure



Reviewed Information Examples

- 1996** Geotechnical investigation into stability of slopes (Operable Unit 5)
- 2004** Integrated flow and volatile organic compound fate and transport modeling for OLF
- 2004** Geotechnical investigation stability analysis for OLF
- 2005** Accelerated action design for OLF
- 2008** OLF geotechnical investigation report
 - Field seismic and resistivity investigations
 - Test pits and bore holes
 - Piezometer and inclinometer recommendations
 - Slope stability analysis compared field results to original design
 - Slope stability modeling did not indicate large scale instability but predicted localized failures



Draft Options Analysis Report

- Factors contributing to slope instability
 - Naturally weak soils underlying the OLF
 - Slope angle sufficiently steep that soils can mobilize downslope
 - Water that is introduced into the already weak soils from sources including:
 - Surface water run-on and runoff
 - Precipitation and infiltration
 - Groundwater



Draft Options Analysis Report (continued)

- Geotechnical subcontractor has identified a set of options to be evaluated individually and combined, as appropriate, to address slope instability
 - Options for addressing naturally weak soils
 - Consideration of slope angle
 - Options for water management
 - Berm redesign
 - Groundwater control



Options Evaluation

- Geotechnical subcontractor has provided preliminary evaluation of options
- The U.S. Department of Energy (DOE) will select a subset of these options (individually or in combination) for more detailed evaluation



OLF Final Interim Measures/Interim Remedial Action (2005)

- Remedial action objectives (RAO)
 - Prevent direct contact with landfill soil and commingled waste
 - Control erosion caused by storm water run-on and runoff
- Remedy components necessary to address RAOs
 - Uranium-contaminated surface soils removal (completed July 2004)
 - Stable landfill cover to prevent direct contact with landfill soil or debris
 - Landfill cover that adequately controls erosion caused by storm water run-on and runoff
 - Institutional controls



DOE Evaluation

- Evaluation consideration for each option or combination of options:
 - Satisfy the RAOs
 - Maintain protectiveness to human health and the environment
 - Effectively contribute to reducing one or more factors contributing to slope instability
 - Technical effectiveness
 - More effective than current design
 - Minimize effect on other areas
 - Industrial area plume
 - Stable portions of the landfill
 - Provide reasonable cost/benefit
 - Safe implementation
 - Regulatory approval

