

## **Stabilization of Explosives and Propellants in Soil**

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IT has completed remediation work at the Umatilla Army Depot and the Sunflower Army Ammunition Plant. The former burn area of the Umatilla site was contaminated with explosives and metals. The Sunflower site had ditches and ponds contaminated with propellants and lead. At both of these sites, thermal treatment options were ruled out for the remedial action due to public opposition. Soil washing and bioremediation were demonstrated to be ineffective, based on treatability testing. Therefore, organic stabilization was selected for the remedial action. The primary goals of the remediation were to limit the solubility of the chemicals of concern, both organic and inorganic, to minimize their leachability. The remedial action involved excavation of the impacted soils, stabilization treatment of the impacted soils, and disposal of the treated soil in a non-hazardous landfill. The presentation will describe the design and implementation of the organic stabilization at these two projects and discuss operational metrics of the full-scale treatment systems.