

Form 2

Technology Information	
Area	2
Title	Treatment of Contaminated Water
Submitted by	Fluor Federal Services, Inc.
<p>1. Overview of Technologies (features, specification, functions, owners, etc.)</p> <p>Proposed technologies and approaches to meet the requirements for tritium removal</p> <ul style="list-style-type: none"> • Evaporation pond/system • Funnel, gate, and treat system • Phytoremediation • Natural attenuation with recycle loop injection • In situ techniques, such as semi-permeable barriers, chemical injection barriers, redox manipulation, phytoremediation, etc. <p>Proposed technologies and approaches to meet the requirements for treatment</p> <ul style="list-style-type: none"> • Water distillation separation • Thermal treatment techniques • Evaporation and evapotranspiration • Ex situ techniques, such as evaporation, phytoremediation • Reuse techniques, such as using lightly contaminated water for decontamination of more highly contaminated materials, using contaminated water in grout mixtures for waste management activities; cooling water 	
<ul style="list-style-type: none"> - Notes (Please provide following information if possible.) - Technology readiness level (including cases of application, not limited to nuclear industry, time line for application) <ul style="list-style-type: none"> • Fluor, as the Hanford Site Groundwater Remediation contractor, implemented the following treatment studies: <ul style="list-style-type: none"> - Inject micron-size iron into redox barrier to treat chromium contamination - Field test electrocoagulation for accelerated cleanup of chromium contamination - In situ biostimulation of groundwater - Strontium-90 treatability demonstration of phytoremediation - Sequestration of strontium-90 subsurface contamination by surface infiltration of an apatite solution - Uranium stabilization through polyphosphate injection • Fluor has implemented phytoremediation to successfully treat tritium. • Treatment techniques will likely require site and condition-specific testing prior to implementation. - Challenges <ul style="list-style-type: none"> • Unknowns in water chemistry and site geology, hydrogeology, and hydrology can delay analysis and implementation of treatment options • Treatment systems can have secondary waste issues - Others (referential information on patent if any) 	