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**RECOMMENDATIONS ON REPAIR OF DAMAGED SOUTH PLUME  
RECOVERY WELL SCREENS**

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REPORT



**Department of Energy**  
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Mr. James A. Saric, Remedial Project Manager  
 U. S. Environmental Protection Agency  
 Region V-5HRE-8J  
 77 W. Jackson Blvd  
 Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager  
 Southwest District Office  
 Ohio Environmental Protection Agency  
 401 East Fifth Street  
 Dayton, Ohio 45402-2086

Dear Mr. Saric and Mr. Schneider:

#### **RECOMMENDATIONS ON REPAIR OF DAMAGED SOUTH PLUME RECOVERY WELL SCREENS**

This letter provides the Department of Energy, Fernald Area Office (DOE-FN) recommendations on the repair of the damaged well screens in South Plume Recovery Wells 3924 and 3926. During pump replacement activities in the South Plume Well Field conducted in the Fall of 1994, holes were discovered in the screens of Recovery Wells 3924, 3926, and 3928. An investigation was conducted to determine the cause of the screen damage, but no definitive cause could be identified. It is suspected that the damage was caused by mechanical impact that occurred during well development or pump installation activities. There are no plans to repair Recovery Well 3928 at this time since it is not needed to capture the 20ug/L uranium plume. However, Recovery Wells 3924 and 3926 must be repaired to prevent pump damage and interruption of South Plume recovery operations.

In order to address the holes found in the screen sections of Recovery Wells 3924 and 3926, an evaluation was conducted to find the most cost effective permanent fix possible for the situation. After considering a number of alternatives, three were selected for further evaluation.

#### **ALTERNATIVE 1 - Replace Wells**

Replacing the wells represents the most permanent fix to the problem, but also represents the most costly solution.

**ALTERNATIVE 2 - Patch Holes**

In order to patch the wells a technology currently being used to perform point repairs in sewer lines would be modified and applied to the well screens. A felt patch impregnated with an epoxy resin is fitted on a packer and lowered to the target elevation. The packer is then inflated with circulating hot water to press the patch into the well screen and assist in curing the resin. This technology has never been used for this application and the longevity of this repair is unknown.

**ALTERNATIVE 3 - Place New Screens In Wells**

This alternative involves telescoping new screens within the existing damaged well screens. The new screen would be held in place by a K-Packer assembly at the top of the well screen. Since the new screen will reduce the inside diameter of the well, new pumps will have to be purchased to fit the smaller screen. This option will provide a permanent fix and allow for retrieval of the telescoped screens for maintenance if necessary.

Based on the cost and technical information available, the DOE-FN will proceed forward with implementing Alternative 3. It provides a permanent fix and is substantially cheaper than Alternative 1. Alternative 2 is not recommended based on its experimental nature.

If you have any questions, please contact Robert Janke at (513) 648-3124, or John Kappa at 648-3149.

Sincerely,

*for*   
Jack R. Craig  
Fernald Remedial Action  
Project Manager

FN:Kappa

cc:

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