



**Department of Energy**

Oak Ridge Operations  
Weldon Spring Site  
Remedial Action Project Office  
7295 Highway 94 South  
St. Charles, Missouri 63304

February 1997

Enclosed is the latest edition of the WSSRAP Update which will be a Sunday insert in the St. Charles County Journal.

If you have any questions or address updates, please contact Metha Sizemore, Community Relations at the site, 314-441-8086.

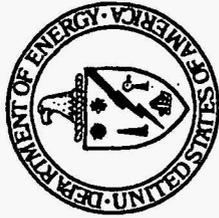
Sincerely,

A handwritten signature in cursive script that reads "Jerry S. Van Fossen".

Jerry S. Van Fossen  
Deputy Project Manager  
Weldon Spring Site  
Remedial Action Project

# WSSRAP

UPDATE



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## PROGRESS

## A Decade Of Progress At The WSSRAP

In 1986, the Department of Energy established a project office on the Weldon Spring site and cleanup activities began. Ten years later, the visible results are evidence of our progress. Groundbreaking for the disposal facility is scheduled for the spring of 1997. As work progresses, protection of human health and the environment will continue to be the most important priority of the Weldon Spring Site Remedial Action Project (WSSRAP).



**COVER PHOTO:**  
Raffinate pit debris  
consolidation activities  
(Pages 4 and 5)

## Future Use Plans For WSSRAP

The mission of the WSSRAP has always been to eliminate potential hazards to the environment and public and to rehabilitate the area for other uses. As the project enters the final phase of remediation during which waste treatment and disposal facilities will be constructed, a group has been created to oversee the transition of ownership of site property from the Department of Energy (DOE) to future users.

The DOE has ownership of 9 acres at the quarry site and approximately 220 acres at the chemical plant. After the disposal facility is constructed, excess property will remain. The Transition Planning Group's mission is to develop

and oversee a strategy for this property that is responsive to the needs of all stakeholders.

Initial members of the Transition Planning Group include representatives of the DOE, Department of Army, Corps of Engineers, Environmental Protection Agency, Missouri Departments of Natural Resources and Conservation, Weldon Spring Citizens Commission, Francis Howell School District, and the WSSRAP Project Management Contractor.

The group will continue to meet through project completion in order to oversee developments as property is released.

# Storm Water Contaminants Down

Since 1987, the WSSRAP has collected monthly samples of storm water runoff which leaves the site. This sampling satisfies one of the requirements of the National Pollutant Discharge Elimination System (NPDES) permit issued to the WSSRAP by the Missouri Department of Natural Resources (MDNR).

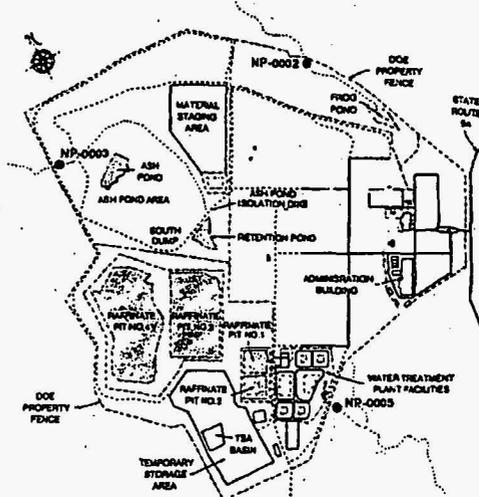
The discharge permit requires that monthly storm water runoff samples be collected and analyzed from the major points of off-site discharge, called outfalls. Figure 1 shows the location of the three main storm water outfalls. The results of this sampling are used to monitor cleanup activities and assure that discharges from the site are being adequately controlled. These results are also submitted to MDNR for their review.

Figure 2 shows that annual average uranium concentrations for the three major storm water outfalls have generally trended downward over the last eight years. There are several reasons for the decrease:

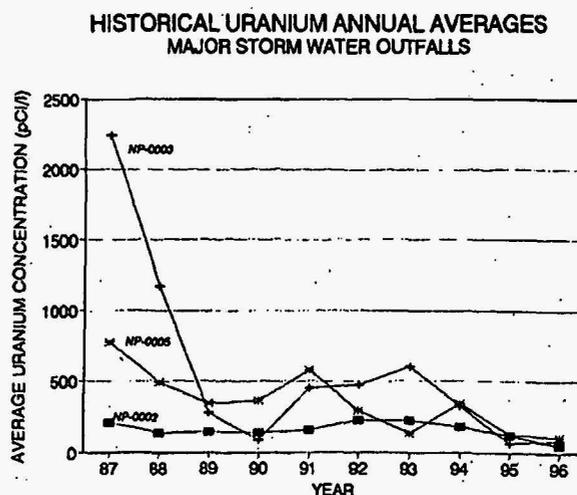
- Diversion channels have been constructed on site to reduce the amount of runoff that flows through areas of soil contamination.
- Some soil areas containing elevated uranium levels have been temporarily capped with other soil to reduce contact with runoff.
- Three major sedimentation basins have been constructed which dramatically reduce the amount of solids in the runoff at major outfalls (uranium is sometimes bound to such solids).
- Extensive soil cleanup activities have recently taken place which removed contaminated soil from the outfall watersheds.

In the past, uranium concentrations at the outfalls have fluctuated with precipitation patterns, cleanup activities, and remedial efforts. However, with continued cleanup of the site, this downward trend in uranium discharge is expected to continue and finally stabilize at very low levels.

**Figure 1, Storm Water Outfalls**



**Figure 2, Average Uranium Concentrations**



## Raffinate Pit Debris Consolidation Complete

During operational days at the Weldon Spring Uranium Feed Materials Plant (1958-1967), four unlined pits were built to store waste products from the uranium refining process. These wastes (called raffinates) were placed in the pits in liquid and fine-grained red sludge forms. In addition, thousands of drums and hundreds of tons of rubble from the Army's earlier decontamination activities at the chemical plant were disposed of primarily in the fourth pit.

Removal of the debris was the first step in the overall cleanup of the raffinate pits. It was necessary to remove the debris so that the underlying sludge can be accessed and removed. As the sludges are removed, they will be treated in the Chemical Stabilization/Solidification (CSS) plant and the resulting grout-like product will eventually be placed in the WSSRAP disposal facility. After the sludge is removed, the pit bottoms will be



*The four raffinate pits cover approximately 26 acres in the southwest portion of the Weldon Spring site.*



*Debris consolidation activities were completed in December, 1996. Raffinate sludge excavation and treatment is the next step in the remediation of the raffinate pits.*

characterized to determine the level of excavation necessary to meet site cleanup standards.

Debris consolidation activities were conducted from April to December, 1996. During this time, approximately 3,385 cubic yards of debris were removed from the pits, including approximately 6,130 drums. Many of the drums recovered contained wastes such as PCB-contaminated oils, asbestos insulation, uranium wastes, magnesium compounds, graphite and sediment. The drums were sampled, repackaged and placed in appropriate storage.

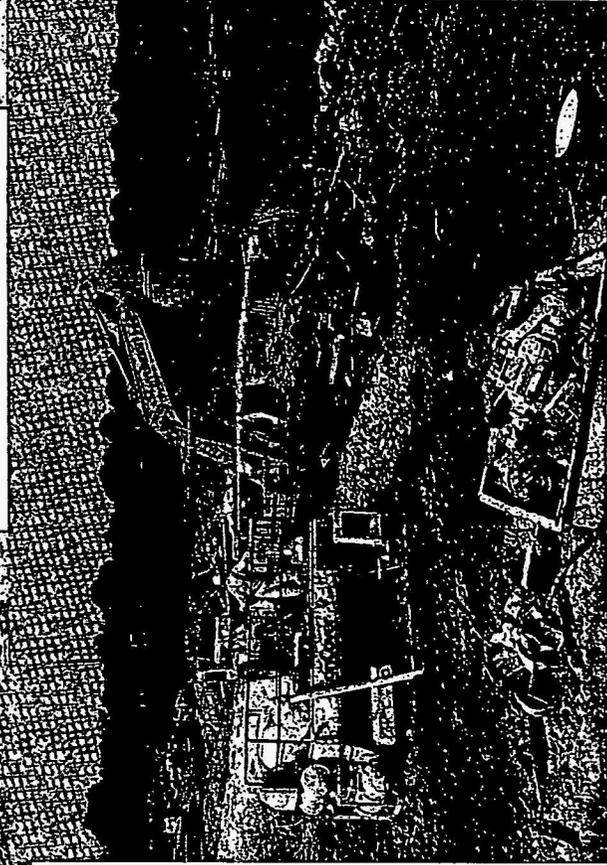
Other wastes removed from the pits included wood and metal debris, process equipment, piping and construction materials. After removal, the debris was sorted and sized for volume reduction. Sizing consists of drum crushing, pipe splitting and shearing, tank and plate cutting, concrete breaking, and trash compacting.

The debris removed from the pits is stored in several interim storage areas located within the Weldon Spring Site awaiting final placement in the site's disposal facility.

*(Right) Raffinate pit #4 in February, 1996 prior to debris consolidation activities. Thousands of drums were unearthed during cleanup of the waste pits.*



*(Left) Heavy equipment was used to remove debris from the north section of raffinate pit #4. The debris included equipment from the interiors of major process buildings at the Weldon Spring Uranium Feed Materials Plant. This section contained an extremely dense tangle of wastes greater than six feet high and fifty feet wide in some places.*



*(Right) Loose contamination was removed from the debris before being sized for volume reduction and placed in storage.*

## Soil Cleanup Confirmation

Since the completion of building dismantlement, cleanup efforts have focused on removal of the concrete foundations and surrounding contaminated soil. The extent to which these contaminated soil areas are excavated is based upon previous characterization data and historical process knowledge.

After the contaminated soil is removed, the remaining soil must be sampled and analyzed to determine if cleanup requirements have been met. This process is referred to as "soil cleanup confirmation."

The area of the chemical plant where the buildings once stood was divided into 116 confirmation units, each approximately 2000 square meters, or approximately .5 acres. After a review of characterization data and historical process information, a list of possible contaminants of concern was developed for each confirmation unit. Workers collect soil samples which are then analyzed for these contaminants. Results are compared to the cleanup standards presented in the *Record of Decision for Remedial Action at the Chemical Plant Area of the Weldon Spring Site (ROD)*. If the soil data show that contaminant levels are below the specified standards, the excavations are backfilled with clean soil. If the soil data reveal contaminant levels above the specified standards, further soil removal is



*Workers will collect over 3,000 soil samples during the soil confirmation effort. The samples will be tested to confirm that contaminants of concern have been removed to meet pre-established cleanup standards.*

necessary and the confirmation process is repeated.

As of December 31, 1996, 92 of 116 confirmation units have been confirmed clean. This effort is scheduled to be complete in August, 1997. The first of several scheduled milestones was met in November which will allow initial construction activities on the disposal facility to begin in the spring.

## WSSRAP Computers Donated To Francis Howell School District

The Department of Energy donated used computer equipment to the Francis Howell School District through a Federal Gift Agreement. Donated equipment included 286 and 386 model computers, monitors, printers and various accessory equipment used at the WSSRAP for administrative purposes. The equipment transfers took place in August and November of 1996.

Presidential Executive Orders, signed by Presidents Clinton and Bush, allow and encourage government agencies to transfer/donate education related equipment to schools for the purpose of enhancing the math and science curricula, as well as technical and scientific education and research studies. The WSSRAP is located in the Francis Howell School District, approximately one-quarter mile from Francis Howell High School.

# Water Treatment Operations Continue To Be Successful

The first batch of treated water was released from the Site Water Treatment Plant in May, 1993. As of December 31, 1996, over 116,800,000 gallons of water, in 93 batches, have been successfully treated and released.

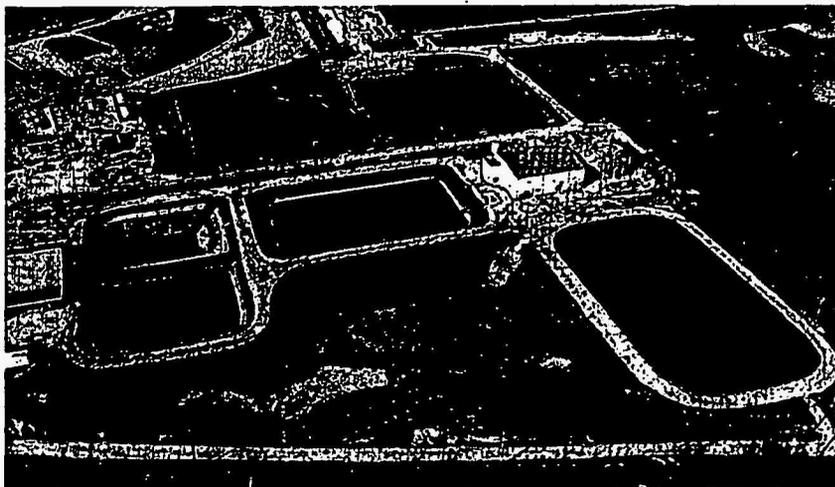
Cleanup activities at the WSSRAP necessitate that water used during decontamination activities and water already impounded at the Chemical Plant area be treated to meet standards set by the State of Missouri before being released.

Two treatment systems, referred to as Train 1 and Train 2, are being used to treat water at the Site Water Treatment Plant.

Train 1 is designed to treat water from a variety of site sources including runoff from the Temporary Storage Area, equipment decontamination water, and raffinate pit water with a low nitrate content. Since nitrate removal requires a different treatment process, Train 2 was designed to treat water from the raffinate pits with high nitrate concentrations.

**Train 1 operations:** The initial dewatering of raffinate pit 4 was coordinated in conjunction with debris consolidation activities (see pages 4 and 5). Millions of gallons of contaminated water were treated and discharged during this two year effort without a single gallon requiring retreatment. The dewatering was completed in October of 1996, six months ahead of schedule. This schedule was met by improving plant capacity from 100 to 120 gallons per minute and implementing an effective maintenance program which helped minimize plant downtime.

**Train 2 operations:** During the first long term operation of Train 2, 2.2 million gallons of raffinate pit 3 water were successfully treated and discharged. This operation was conducted from August to October, 1996. Also, over 100,000 gallons of hazardous waste brine, resulting from train 2 operations was stabilized in cement. The waste will be stored until final placement in the disposal facility.



*Site Water Treatment Plant - Prior to release, contaminated water is treated at the plant and stored in one or more of the four available effluent ponds. It is then tested to determine compliance with the requirements of the site discharge permit granted by the State of Missouri. Following receipt and verification of test results, the treated water is released through a pipeline to the Missouri River.*

## Weldon Spring Citizens Commission Provides Information Link

The Weldon Spring Citizens Commission was established in 1995 through a federal grant to St. Charles County, to provide citizen oversight of the Weldon Spring Site Remedial Action Project (WSSRAP). Seven members, representing a cross-section of the county's population, were selected to monitor project activities and serve as an information resource for the St. Charles County community.

The Commission meets frequently with Department of Energy (DOE) officials at the WSSRAP to review progress and discuss ongoing activities at the project. The Commission also meets on the third Thursday of every month in Room 107 of the old St. Charles County Courthouse. The meetings begin at 7:00 p.m. and are open to the public.

## Information Resources

The WSSRAP has established a public information telephone line to provide updates on site activities. The WSSRAP Public Information Line can be reached at (314) 926-7027. Site representatives are available at (314) 441-8086 Monday through Friday, during regular business hours, to provide further information.

In addition, the WSSRAP has established an internet website and an E-mail address to provide on-line information about site history, cleanup activities and future plans for the project.

WSSRAP internet website:  
<http://www.em.doe.gov/wssrap>

WSSRAP e-mail: [wssrap@inlink.com](mailto:wssrap@inlink.com)

### Weldon Spring Citizens Commission

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**WSSRAP Update**

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