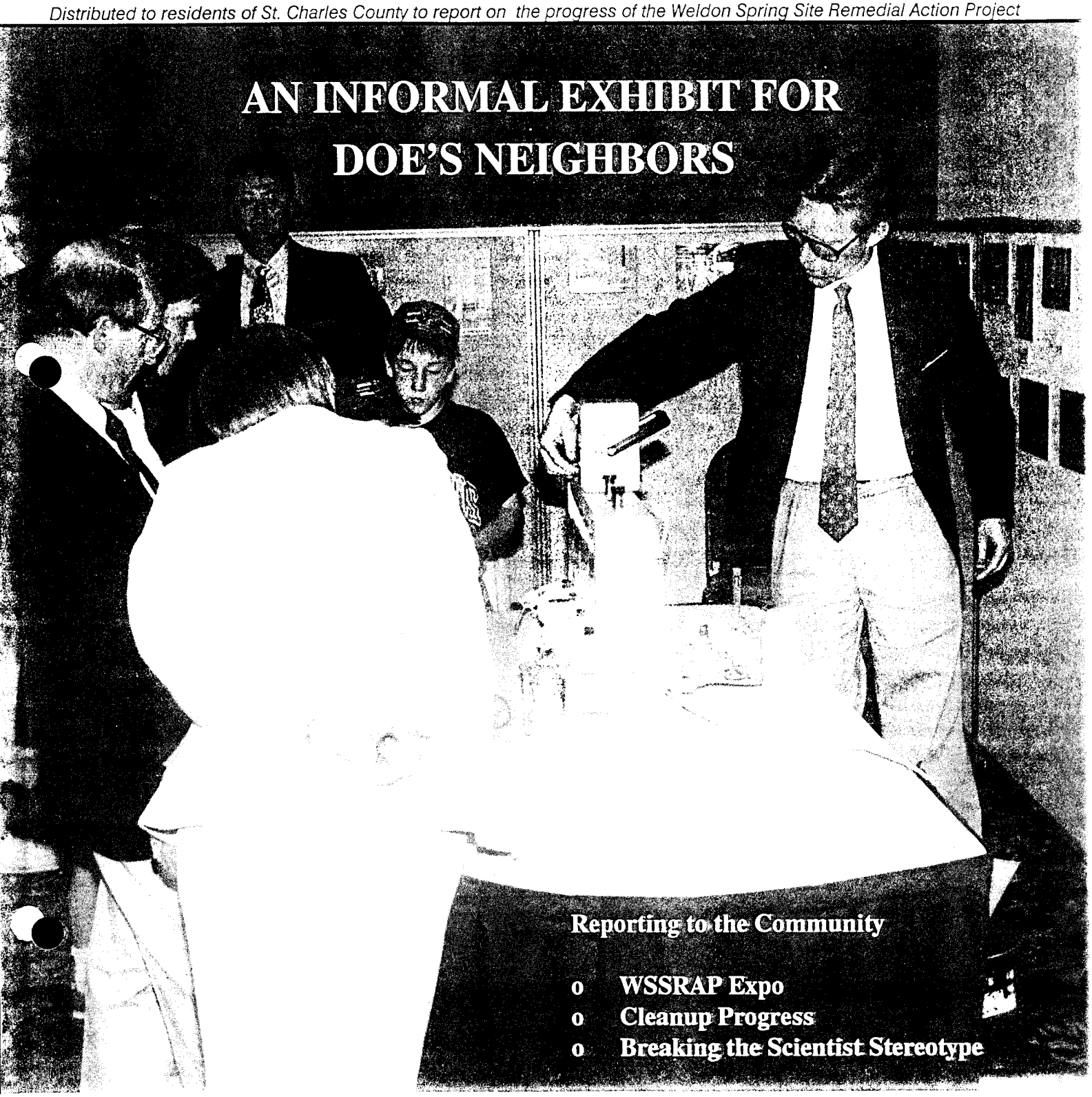
WSSRAP

UPDATE

VOL. 3 NO. 2 JUNE 1992

Distributed to residents of St. Charles County to report on the progress of the Weldon Spring Site Remedial Action Project



AN INFORMAL EXHIBIT FOR DOE'S NEIGHBORS

Reporting to the Community

- WSSRAP Expo
- Cleanup Progress
- Breaking the Scientist Stereotype

WSSRAP Expo

The Emergency Response Team at the WSSRAP is ready to respond to any emergency that might occur during cleanup activities. Safety Technician, Sandy Serra helps a few Expo attendees try out some of the equipment used by the team.

Some 100 citizens of St. Charles and St. Louis counties attended WSSRAP EXPO, an informal exhibition prepared by the United States Department of Energy, held in the conference center of the St. Peters Holiday Inn on the evening of May 12.

Stephen H. McCracken, DOE Site Project Manager, says the exhibition was part of the continuing effort to encourage public participation in the decision-making process involving the cleanup.

"We expect to be issuing proposals for the final site cleanup this summer," Mr. McCracken says. "So we thought this event would provide a good opportunity for people to become reacquainted with the project."

Forty-five members of the DOE and project management staffs answered questions and explained the various cleanup technologies planned or underway.

At the Expo there were exhibits on water treatment, emergency response, history of the site, building dismantlement, environmental safety and health, environmental documentation, geology of the site, waste treatment technology, bulk waste, waste management, Partners in Education program, and biology studies.

Water Treatment

Starting this year, WSSRAP will operate two water treatment plants to remove contaminants from water impounded in the Weldon Spring Quarry and in ponds, raffinate pits and storage areas at the former chemical plant.

The water treatment display demonstrated how metals will be removed from water. A copper sulfate solution was prepared, to which lime was added. This cased the pH of the solution to increase. Since metals are generally not soluble at a high pH, the copper began to separate from the solution and form solid particles. The solid particles settle to the bottom and are collected.

In the demonstration a polymer was added to enhance settling of the solids. Other metals such as uranium, thorium, radium, arsenic, and maganese can be removed using the same method. The metal-free water is then ready for treatment to remove non-metal contaminants.

Emergency Response

The emergency response organization consists of 20-25 site employees from various departments on site. Health physics, industrial hygiene, construction operation and safety are some of the departments that are represented.

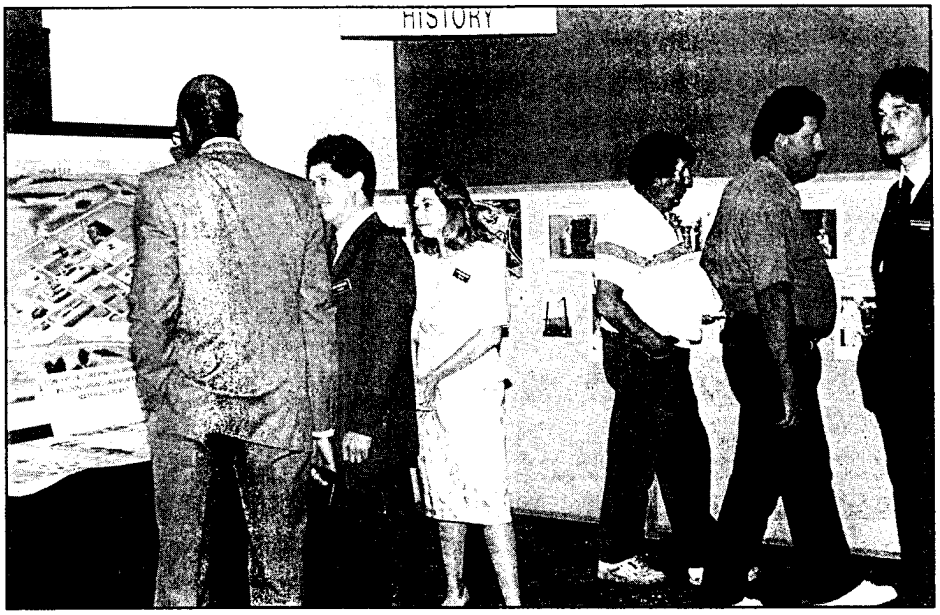
The team has a large inventory of emergency medical, spill control, sampling and monitoring equipment. On display were some of the items readily available at the site and quarry, including a self-contained breathing apparatus, level B encapsulating suit, back board, head restraint, drum and tank repair kits, tyvex suits, gloves and various types of respirators.

History of the Site

Pictures and displays of equipment used during the operating days of the Army's

Weldon Spring Ordnance Plant and the Atomic Energy Commission's uranium processing plant focused on former working day experiences in Weldon Spring.

Between the years 1941 and 1944, the Department of Army occupied the property and operated 20 production lines across the area manufacturing nitrate-based explosives for the Allied Forces during World War II. In 1955, 205 acres of the former ordnance property was transferred to the Atomic Energy commission for the Weldon Spring Uranium Feed Materials Plant, which operated until 1966.



The Weldon Spring Site is deeply rooted in St. Charles County history. Many visitors to the Expo were curious to see some historical photos taken during the Uranium Processing Plant's production days (1955-1966), and of the Ordnance Plant that operated in the area producing TNT and DNT during World War II (1941-1944).

Building Dismantlement

Since the Chemical Plant operation ceased in 1965, the buildings on site deteriorated considerably. Broken windows, separated walls, damaged floors and leaky roofs present potential safety hazards to on-site personnel. And as deterioration continues, contamination could be released off-site through wind dispersal and surface water run-off. Decontamination and dismantlement of these structures will reduce this possibility.

Displayed at the Expo were charts showing the criteria that explain the process used to ready the project to dismantle buildings. On the table were photo books from the three demolition projects. Site representatives on hand explained the process to inspect, prepare and clean the buildings. They also explained the process to remove asbestos and equipment, the actual demolition and the sorting and temporary storage of the building material.

Environmental Safety and Health (ES&H)

The ES&H display centered around two primary themes of that department's program at the WSSRAP Personnel Protection and Environmental Protection.

The Environmental Safety and Health Department utilizes a variety of monitoring devices to help ensure the protection of human health and the environment. Site representatives were on hand to demonstrate the equipment and explain the ongoing monitoring activities at the site.

The Personnel Protection display consisted of photos of ongoing monitoring and protection activities that are routinely performed at the site. These include both industrial hygiene and health physics monitoring. The display also included equipment routinely used in monitoring and assuring the health and safety of on-site workers.

The Environmental Protection display consisted of photos of environmental protection and monitoring activities, including air and water monitoring. Copies of monitoring reports and plans were also available.

Environmental Documentation

Because the WSSRAP cleanup is regulated by a number of Federal laws, a special display

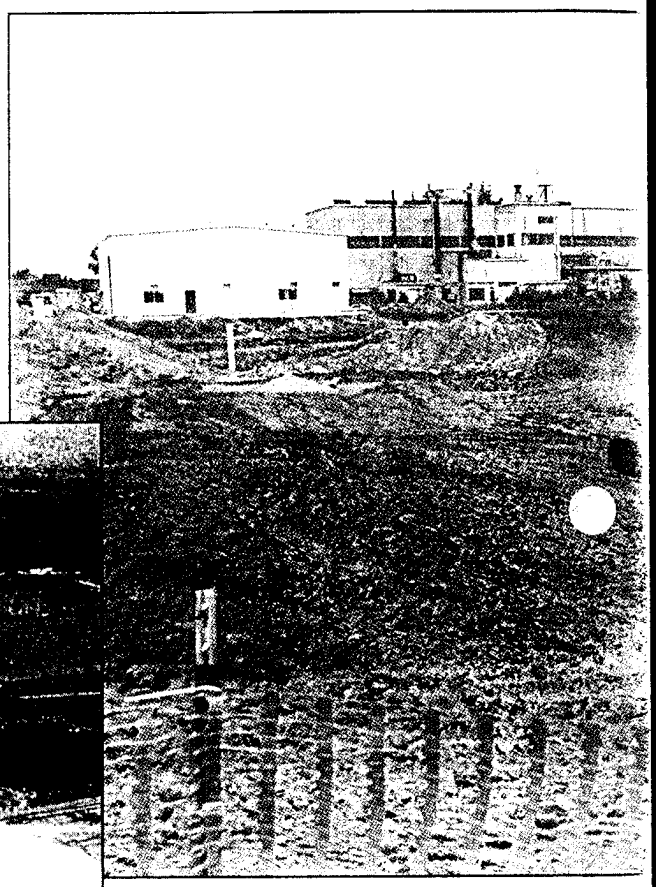
(Continued on page 6)

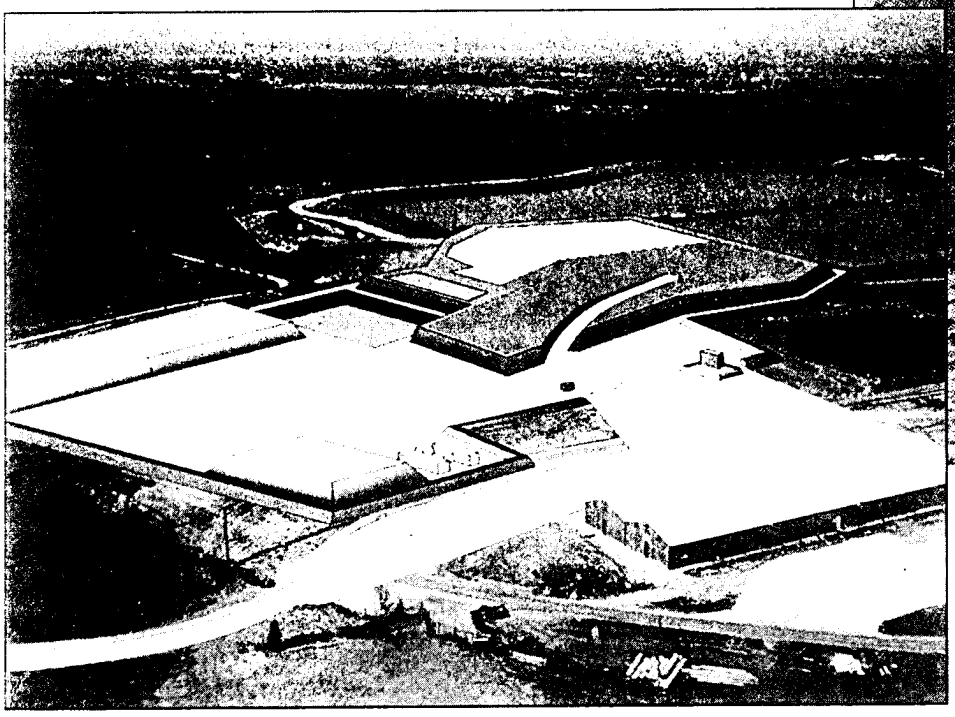
Managing waste at WSSRAP

Bulk waste from the Weldon Spring Quarry, waste from dismantled structures and waste water accompanying the waste comprise a large part of the WSSRAP cleanup activity.

It is expected that a decision for final waste treatment and disposal will be made next year. Until then, the quarry waste will be placed in the Temporary Storage Area and chemical plant building debis will be placed in the Materials Staging Area.

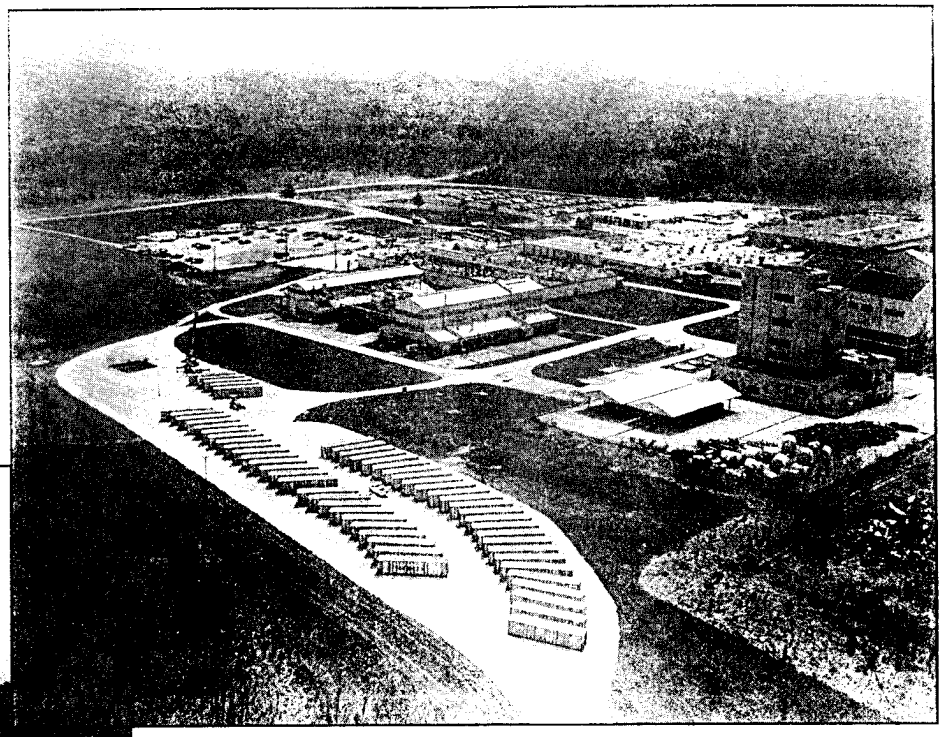
Water used in cleaning transport equipment and protective clothing, water collected at the storage areas and water from ponds and pits will be managed in the Site Water Treatment Plant now under construction.

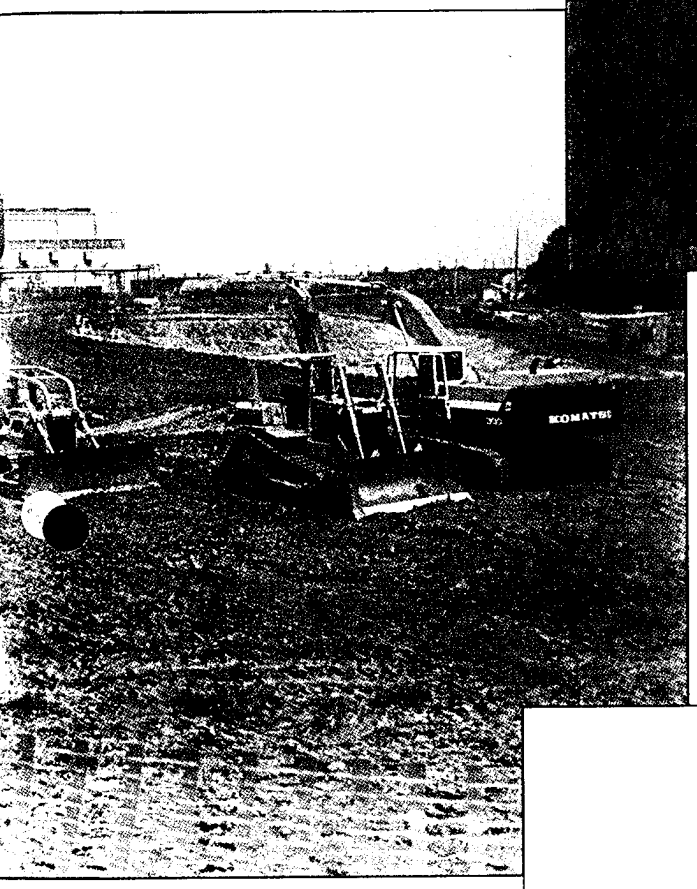




(Above) Bulk waste from the Weldon Spring Quarry will be transported to the 11-acre Temporary Storage Area (TSA) now under construction at the plant site. This conceptual air view illustrates how the waste will be placed. The unit at top center will contain sludge surrounded by quarry rubble. Nitroaromatic rubble will be placed between that section and the surface impoundment basin, which will hold stormwater for treatment. Structural debris and equipment will be placed at the extreme left of the TSA with chipped wood material in the near corner.

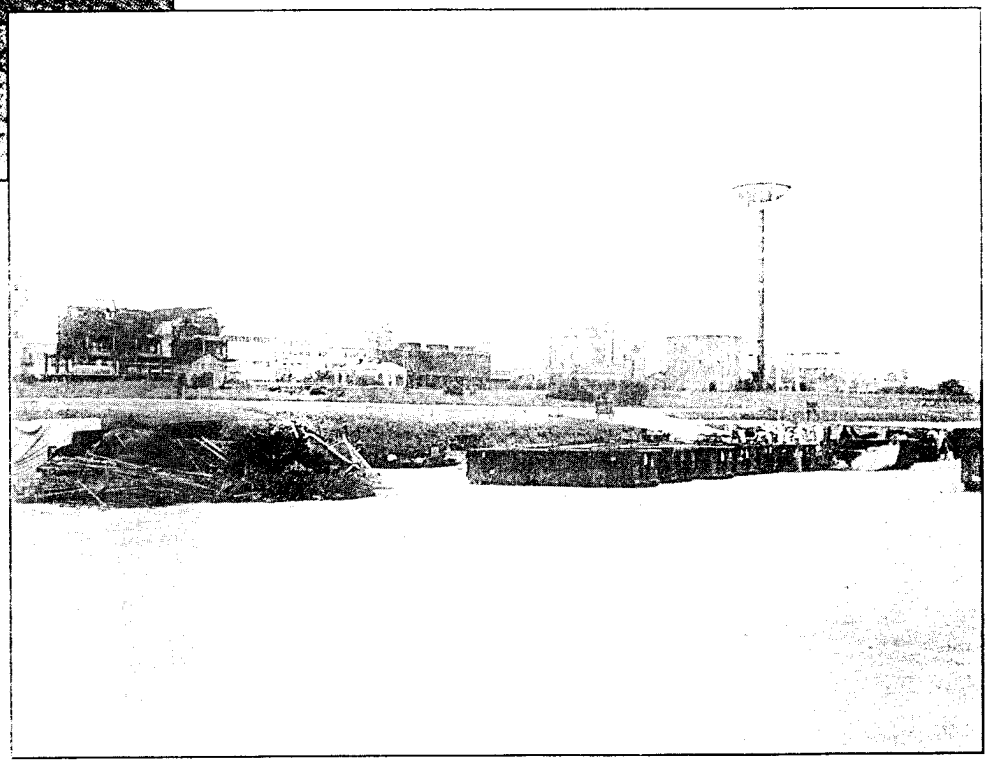
(Right) These 60 containers will be used to store asbestos removed from the process buildings during dismantling. Approximately 5,000 cubic yards of loose asbestos and 4,700 cubic yards of asbestos-containing building materials must be managed prior to disposal. Each container is 40 feet long, and has a capacity of 90 cubic yards.





(Left) Work is proceeding on the Site Water Treatment plant that will treat approximately 200 million gallons of water impounded on the site in the next 10 years. The facility will be similar to the quarry water treatment plant. Two treated water (effluent) basins, with a capacity of 1.2 million gallons each, will be constructed in the foreground. An equalization basin, with a capacity of 1.7 million gallons, will occupy the land in the right background along with a siltation basin that will allow soil to settle from stormwater runoff. The white building will house the water treatment process equipment.

(Right) The three-acre Materials Storage Area (MSA) --engineered to safely store building debris and other waste awaiting treatment--has been enlarged to eight acres. For environmental protection, the MSA is lined with geotextile fabric and is landscaped to drain to metal pipes that lead to a one-acre holding pond.



WSSRAP Expo

(Continued from page 3)

at the Expo was set up to answer questions from the public about the documentation processes for the project.

Two of the main laws driving the cleanup at the site are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Environmental Policy Act (NEPA). These laws provide a structual process for selecting a safe cleanup alternative.

Many of the documents written for the site in compliance with these laws were on display during the Expo, and site representatives fielded numerous questions from the public about the documentation and public participation process.

Geology of the Site

Various agencies have studied the geology of the Weldon Spring site since the 1940s. The complexity of the geology has required the resources and expertise of the U.S. Geological Survey, the Missouri Department of Natural Resources, Division of Geology and Land Survey, the U.S. Department of Energy, and numerous Department of Energy contractors.

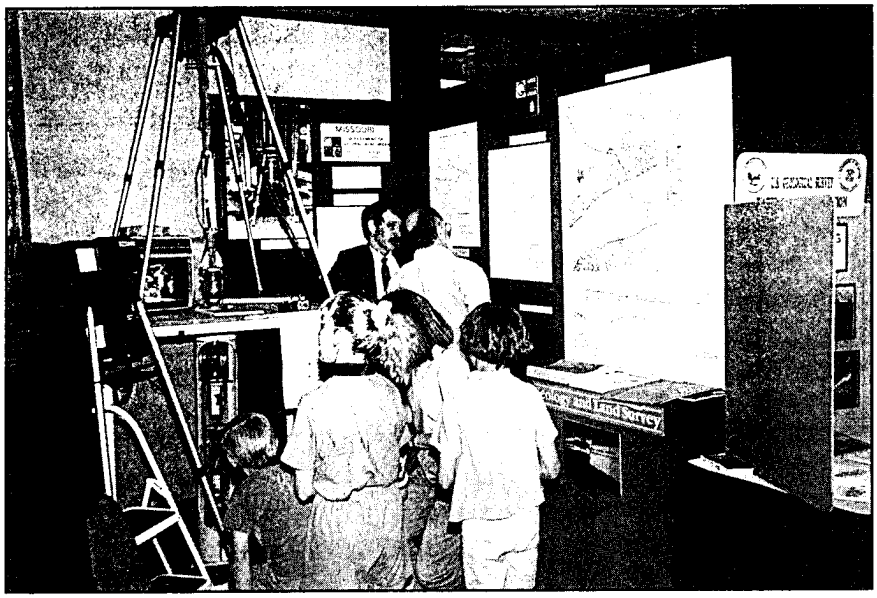
The geology display at the Expo contained several samples of the different geological formations under the site, and many posters showed much of what is known about the site's geology.

Waste Treatment Technologies

A scale model and cross section poster of a typical disposal facility were the center piece of the Technologies exhibit. Also featured were samples of waste treatment technologies.

Treatment and disposal technologies are key issues in the decision-making process for final cleanup of the site. The specific technologies have yet to be determined. Selected waste media will be treated prior to disposal into either an on-site or off-site facility. At present, the preferred treatment appears to be narrowing down to chemical solidification/stabilization or vitrification.

There are four alternatives being considered for permanent disposal of the waste from the site: on-site; off-site within a 100-mile radius; transport the treated waste



Peter Price of the Missouri Department of Natural Resources (MDNR), Division of Geology explains some of the geological studies conducted at the WSSRAP by his department. In the foreground children attending the Expo view a downhole camera used by MDNR in their investigations.

SITE ACTIVITIES SCHEDULED FOR 1992-93

- **Begin operations of the Quarry Water Treatment Plant**
- **Initiate Quarry Bulk Waste Removal**
- **Complete construction of the Site Water Treatment Plant and begin operation**
- **Continue dismantling of buildings**
- **Complete construction of support facilities**
- **Issue the Draft Site Feasibility Study-Environmental Impact Statement to the public for review (This is the study that would outline the proposal for final cleanup and disposal)**

to a DOE facility in Hanford, Wash.; or transport to a commercial facility in Clive, Utah.

Bulk Waste

Bulk waste from the Weldon Spring Quarry includes chemically and radioactively contaminated solids, sludge, damaged equipment and structural debris amounting to about 95,000 cubic yards. This material will be safely stored at the chemical plant site in a temporary storage area (TSA) engineered to protect human health and the environment.

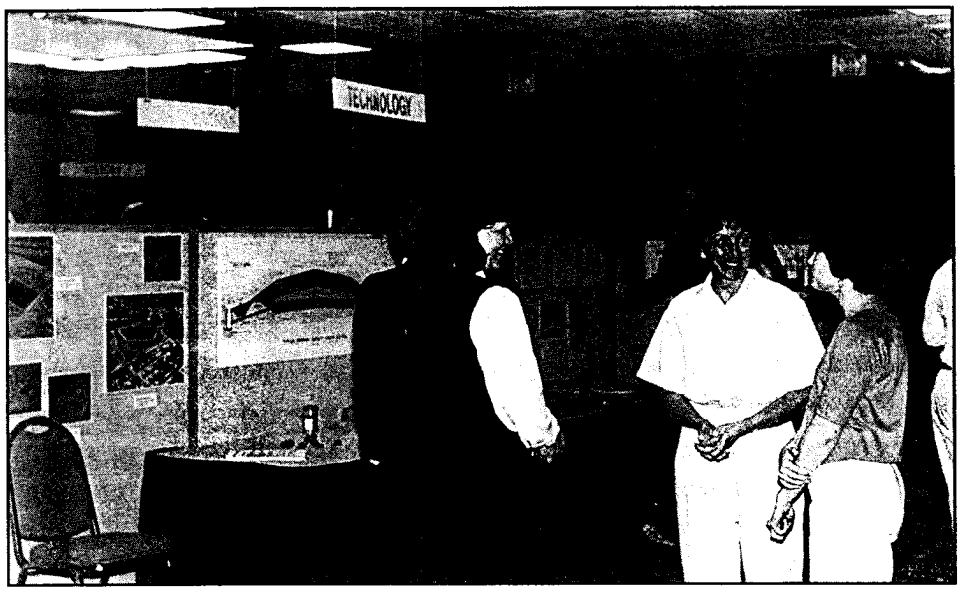
The TSA will be an 11-acre structure surrounded by a four to six-foot earthen dike. Its free-form shape takes advantage of all the available land to gain maximum storage area.

It will have a base of compacted clay, covered by a high-density polyethylene liner that will extend over the dike. A one-acre impoundment basin capable of holding 1.1 million gallons will collect storm water drainage and hold it for the site water treatment plant.

Waste Management

The mission of the Waste Management Program at the WSSRAP is to conduct remedial actions that eliminate the potential hazards to the public and the environment.

The focus of the program and of the exhibit at the Expo is on waste characterization, interim waste storage, waste minimization and waste tracking. Photos showing the material staging area (MSA) and a computerized conceptual photo of the temporary storage area (TSA) were among the many photos in this display. The MSA and TSA provide facilities for storing contaminated material during remediation of the chemical plant and removal of the quarry bulk waste, respectively . These areas are not designed for and will not be a permanent depository. Removal of wastes to a permanent facility will begin once the decision for final waste treatment and disposal is reached next year.



A cross -section and model of a typical disposal facility were the focal points of the Technologies exhibit. The display also contained samples and photos of the two waste treatment technologies being considered for final disposal.

Partners in Education

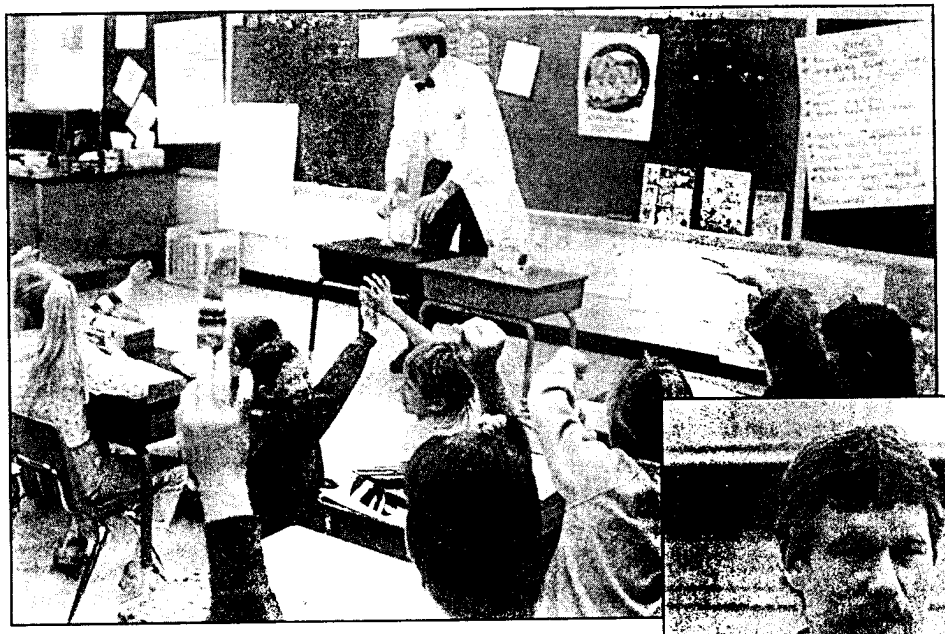
The Partners in Education (PIE) display provided attendees at the Expo with information about the site's partnership with area schools. Photos showed some of the program's many different facets, including science fair mentoring for area high school students, classroom presentations and career shadowing possibilities. It was emphasized that this program is open to all grade levels, from kindergarten to high school. Even local colleges and universities are encouraged to take advantage of the many guest speakers that could be provided for their classroom.

Biology Studies

This Biology display was subdivided into six categories including Environmental Monitoring, Environmental Impact Analysis, Ecological Risk Assessment, Endangered Species Protection, Habitat Trusteeship and Restoration and Bioremediation.

The ecological aspect of the project was the heart of this display. Photos and equipment from fish sampling activities, small mammal studies and even a stuffed hawk told the story of biological studies at the site. A microscope gave visitors a look at the use of organisms like white rot fungus to compost contaminated wood, a process known as bioremediation.

Scientists aren't nerds



(Left) Ken Meyer performs his "Nerd Scientist" routine for second graders at Fairmount Elementary School.

(Below) Mr. Meyer when not in costume.

Who is this strangely dressed man? Is it the mad professor? Dr. Jekyll? Mr. Hyde? No, this is none other than WSSRAP's own "Nerd Scientist," Ken Meyer.

Mr. Meyer, through the site's Partners in Education (PIE) program with area schools, dons this "nerd" facade and then "transforms" into a "regular" person in order to show students that scientists are not nerds.

Following his transformation act, Mr. Meyer treats the students to several fun experiments demonstrating that science is all around them, and that they and their parents use science every day.

Through the PIE program WSSRAP volunteers are invited into the classrooms to talk to students on a variety of subjects ranging from "Radiation in Every Day Life" and "This is WSSRAP," to "Ecology."

Mr. Meyer explains that the idea of the "Nerd Scientist" presentation came about because "So many kids today are not showing an interest in science. They don't think it's cool."

This isn't helped by all the stereotypes depicting scientists as these eccentric people with lab coats, says Mr. Meyer. "Children think scientists are strange over-organized people who are pale because they never see the outside of a laboratory. This is not how it is at all.

"If this is their mental image of scientists," explains Mr. Meyer, "then their desire to pursue a science based career goes way down. I want to change that image and increase their desire to become scientists."

During his presentation to the students Mr. Meyer points out that the scientists and engineers at the WSSRAP dispute the claim that their job keeps them inside. In fact, much of their work involves being out in the field collecting and evaluating data, and the general attire is a polo shirt and jeans.

The popularity of this program is evident from the numbers. To date over 600 area elementary students have been treated to the presentation.

WSSRAP Update

Published by the
Community Relations Department of WSSRAP,
a U.S. Department of Energy Project in
St. Charles County, Missouri.

Address all inquiries to:
WSSRAP Update
Community Relations Department
7295 Highway 94 South
St. Charles, Missouri 63304
Telephone (314) 441-8086

DOE Project Manager — Stephen H. McCracken
PMC Project Director — James R. Powers
Community Relations Department — Jim McKee
Metha Sizemore
Linda Meyer
Air Photos — Louis Bopp
Graphic Artist — Gregg Nadler