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95-583

# Department of Energy

Oak Ridge Operations
P.O. Box 2001
Oak Ridge, Tennessee 37831—8723

October 27, 1995

Mr. Daniel Wall
Site Assessment and Federal
Facility Section - Superfund Branch
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Mr. Wall:

**QUARTERLY PROGRESS REPORT FOR THE PERIOD JULY - SEPTEMBER 1995 FOR THE FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM (FUSRAP) ST. LOUIS SITE**

The following items represent the significant activities and achievements related to the FUSRAP St. Louis Site for the period July through September 1995:

- There were no Federal Facility Agreement (FFA) milestones scheduled during this period; however, all other FFA-required activities were completed as necessary. The Department of Energy (DOE) submitted a proposed schedule to the Environmental Protection Agency (EPA) for providing a revised Feasibility Study/Proposed Plan and a draft Record of Decision.

  In addition, the EPA, DOE, and Missouri Department of Natural Resources (MDNR) project managers met on a monthly basis to address technical, cost, and schedule issues related to the St. Louis Site.

- During July, DOE initiated a removal action at the St. Louis Downtown Site (SLDS) to remediate the Plant 10 area (City Block 1201). FUSRAP's soil excavation commenced following Mallinckrodt's completion of dismantlement of three buildings in Plant 10.

  The excavated soil was loaded into trucks at the Plant 10 site and transported to the east side of SLDS (Plant 7) where the soil was loaded into rail gondola cars for transport to Envirocare. The excavation work was completed in early October; the amount of contaminated soil, rubble and debris excavated from Plant 10 was approximately 15,000 cubic yards. This volume exceeded the pre-job estimate of the amount of material to be removed. During the excavation work, buried foundations and sub-surfaces lenses of contaminated soil and rubble, ranging in depth from 3-10 feet beneath the surface, were uncovered. In addition, five subterranean concrete vaults (approximately 5'x5'x4' in size) were unearthed -- each vault containing a variety of debris apparently dating back to demolition of AEC structures in the 1950s.

Of the 15,000 cubic yards of material excavated, approximately 11,500 cubic yards have been shipped for commercial disposal; 2500 cubic yards remain staged adjacent to the rail spur in Plant 7. The other 1000 cubic yards consisted of concrete debris, which had little or no contamination, that was crushed into a fine gravel-like material, analyzed to confirm that the material was below the volumetric release criteria, and then used as backfill in the restoration of the site.

Shipment and disposal of the 2500 cubic yards staged at the east end of SLDS has been deferred until Spring -- pending passage of a federal budget that will provide FUSRAP with funding to complete this shipping and disposal activity.

During the Plant 10 removal action, a rock crusher was shipped from another FUSRAP site in New York to SLDS. Upon receipt of the rock crusher at SLDS, site personnel discovered a small amount of residual crushed debris in the crusher from the previous site. It was determined that this debris contained leachable barium above TCLP limits; as such, the material (approximately 1/2 cubic yard) was removed and segregated for storage and treatment. DOE has kept MDNR apprised of plans and arrangements for the treatment and ultimate disposal of the material as a non-hazardous, low-level radioactive waste.

- In early September, DOE initiated a removal action on two Latty Avenue vicinity properties. Actual remediation work on these properties, designated as 3L and 6L (also known as the Quaker State property and the Rykoff-Sexton property, respectively) was completed by the end of September, and the final cleanup verification surveys and property restoration took place during October. Approximately 1500 cubic yards of soil were excavated and loaded onto gondola cars for shipment and disposal at Envirocare.

- The St. Louis Site Remediation Task Force held meetings in July and September. Several task force working group subcommittees also continued to meet to evaluate specific areas of interest to the task force. The significant conclusions drawn by the task force to date are listed in Enclosure 1 to this report.

  The Task Force also provided DOE with a list of its funding priorities for FY96 and FY97 work. The recommendations (also described in Enclosure 1) were prepared by the Task Force's Near-Term Priorities Working Group -- which includes representatives from the airport authority, City of Berkeley, multiple utility companies, and the Coalition for the Environment. It is notable that both the working group and the entire task force have engaged in candid discussion over whether to use available funding to ship wastes for commercial disposal, or whether to maximize the progress of actual cleanup by avoiding shipping and disposal costs through storage of generated soils locally. The Near-Term Priorities Working Group is currently considering alternatives that would facilitate expedited cleanup of North County vicinity properties by providing interim storage of contaminated soils in North County. The group is awaiting the findings of an expert, "blue-ribbon" panel that is evaluating the effects of contamination at SLAPS on surrounding areas.

The "blue ribbon" panel of experts in geology/hydrogeology was assembled at the request of the Task Force to address potential impacts of SLAPS on Coldwater Creek and the deep groundwater beneath the site. The panel is chaired by noted geologist David Miller (of Geraghty and Miller, Inc.) and includes senior representatives from the University of Missouri-Rolla, the U.S. Geologic Survey, MDNR's Division of Geologic Land Survey, and other organizations. The panel expects to provide the conclusions from its review to the Task Force in November.

At its July meeting, the Task Force created a communications working group to develop a strategy to better inform the public about Task Force activities.

During the fourth quarter, the Task Force is scheduled to meet on October 10, November 14, and December 12.

- The FUSRAP Committee of DOE's Environmental Management Advisory Board (EMAB) met on August 22 and 23 in Tonawanda, New York. The two-day meeting focused on FUSRAP cleanup standards, dose/risk assessments, treatability studies, community involvement, and creative remedial alternatives based on future land use. Sally Price, Chairperson of the St. Louis Site Remediation Task Force is a committee member and is representing St. Louis stakeholders.

  The committee expects to meet several more times over the next 6-12 months prior to making recommendations to the full EMAB and to the DOE Assistant Secretary.

- DOE is currently evaluating the impacts of budget cuts -- both real and proposed -- resulting from Congressional efforts to reduce the federal budget deficit. The FY96 budget for the St. Louis sites is currently projected to be in the range of $13M-$15M; however, the final budget will not be determined until a federal budget has been approved.

- DOE finalized an agreement with MDNR to provide funding for their participation in review of technical documents, ongoing work activities, and involvement in stakeholder activities leading to a remedy selection.

- Discussions have been continuing between DOE and state officials in an effort to resolve the notice of violation (NOV) issued by the state regarding stormwater discharge monitoring at SLAPS. In June 1994, DOE and the City of St. Louis each received a second NOV from the State of Missouri because neither party had submitted an application for a stormwater discharge permit for SLAPS to the state. Both DOE and the City of St. Louis maintain that they are not legally obligated to obtain a stormwater permit. In a July 1994 letter from senior DOE-HQ management to the state, DOE made clear its intent to conduct periodic monitoring of the site, but not to obtain a stormwater discharge permit for the site.

- A FUSRAP emergency response drill was conducted at SLDS on July 25. The drill, conducted in conjunction with Mallinckrodt personnel, was successful and proved the effectiveness of the emergency response capability of the FUSRAP personnel at the St. Louis sites.

- Representatives from the Stone Container Corporation, tenants on property 2L adjacent to HISS, advised that they plan to expand the parking lot at their facility. This will involve relocating approximately 12"-24" of soil from the southwest quadrant of the property to allow sufficient regrading for parking lot construction. Much of this soil is contaminated above the accepted cleanup guidelines; and Stone Container expects to place these soils, projected to range in volume from 1000-2000 cubic yards, into a covered, engineered pile at the rear of the property.

- FUSRAP continued routine community relations activities at the DOE Information Center in Hazelwood.

  On September 15, 1995, all three shifts of employees at Graham Packaging Co. (approximately 120 people) were briefed about work underway at the Quaker State property. A fact sheet describing the work and the nature of the contamination was distributed as a handout.

  A fact sheet describing radiological sampling activities that commenced in late September was distributed to businesses along Frost Avenue in North County.

During this quarterly period, environmental sampling conducted by FUSRAP consisted of routine surveillance, radiological surveys, and sampling associated with ongoing site remediation activities. A summary of these sampling/surveying activities and the analytical results received to date is enclosed. As always, all raw data and analyses are available for EPA review and inspection to the extent that you request.

During the fourth quarter of 1995, there are no scheduled FFA milestones. In the interim, DOE will continue to work with EPA and MDNR to implement appropriate interim removal actions and to facilitate the process of selecting the final cleanup remedy.

Please advise if you have questions or comments regarding this quarterly report.

David G. Adler, Site Manager
Former Sites Restoration Division

Enclosure

cc w/enclosure:
R. Geller, MDNR

Enclosure 1

## SIGNIFICANT CONCLUSIONS OF THE ST. LOUIS SITE REMEDIATION TASK FORCE

The significant conclusions drawn by the task force to date include:

- A general agreement that the cleanup criteria (5/15 pCi/g for radium and thorium, 50 pCi/g for uranium-238) are protective and represent appropriate standards for St. Louis Site remediation;

- A consensus that the cleanup of SLDS Plant 10 is a beneficial interim removal action contributing positively to the overall St. Louis Site cleanup objectives;

- A consensus that cleanup of the pile of radioactively contaminated soil on Latty Avenue vicinity property 3L is (was) a prudent interim removal action;

- A consensus that additional site stabilization activities at the St. Louis Airport Site are appropriate, including upgrading the fence and revegetating areas prone to erosion. While the Task Force originally supported an EPA recommendation to mitigate the exposure of a radiological hot spot along the northern fenceline, it concluded that the hot spot posed no imminent health risk and subsequently withdrew support for a removal action that would have shielded the hot spot and reduced the fenceline dose rates by a factor of twenty. EPA and MDNR subsequently agreed it would be appropriate to shift the funds for this activity to other St. Louis remediation work.

- A consensus that any additional FY-95 funding available for St. Louis cleanup work should be directed toward vicinity properties -- including completion of remediation of Property 3L (Quaker State property).

- A consensus on the budget priorities for FY96 and FY97 that recommends approximate spending allocations as follows:

  - $200,000/yr to evaluate local disposal options;
  - $200,000/yr to evaluate suitable locations for an in-state disposal cell;
  - $4,000,000/yr to remove contaminated soils from haul route properties;
  - $4,000,000/yr to restore/stabilize Airport-owned properties;
  - $4,000,000/yr to continue cleanup efforts at SLDS;
  - $200,000/yr to continue soil treatability investigations.

Enclosure 2

# Summary of Third Quarter 1995 Sampling and Analysis

The following is a summary of environmental data collected for FUSRAP sites in St. Louis, Missouri, during the third quarter. Samples were collected and analyzed in support of environmental surveillance and characterization of the sites. During the third quarter, a total of **500** samples were collected and analyzed for various radiological and non-radiological analyses. **Twenty-eight** radon detectors, **96** radon flux measurements, and **54** TETLDs were also collected and analyzed. In addition, **160** direct and transferable surface contamination readings were taken on the floor and walls in building 116. Analytical results for these analyses have been compiled and validated, with the exception of radon flux, TETLDs, and soil characterization samples from several SLAPS vicinity properties, which will be reported in the fourth quarter summary. Preliminary evaluation of the data indicate results generally consistent with past characterization and environmental surveillance findings at the sites. However, during remediation, there were significant changes from the previously determined boundaries of contamination at SLDS Plant 10.

## Radon

**Thirteen** radon detectors were collected from HISS, **10** from SLDS, and **5** from SLAPS in support of routine environmental surveillance activities. The maximum concentration of radon detected at the boundary was 0.30 pCi/L at HISS and 0.60 pCi/L at SLAPS. The maximum concentration of radon detected at SLDS was 1.10 pCi/L. Radon concentrations at all three sites were well below the DOE radon guideline of 3.0 pCi/L for occupied or habitable structures.

In the third quarter of 1995, radon flux measurements were taken at HISS using large-area activated-charcoal canisters placed at 7.6-m (25-ft) intervals across the surface of each pile A and B for a 24-hour exposure period. Measurement of radon flux provides an indication of the rate at which radon is emitted from a surface. The results of these radon flux measurements are not available for the third quarter report but will be provided in the fourth quarter report.

## External Gamma Radiation

A total of 54 tissue equivalent thermoluminescent dosimeters (TETLD) were collected from HISS, SLAPS, and SLDS to determine the external gamma radiation exposure rates in support of routine environmental surveillance activities. The results of the external gamma radiation measurements are not available for the third quarter report but will be provided in the fourth quarter report

## Groundwater

As part of a special study, three groundwater samples were collected from the deep aquifer on SLAPS. The samples were filtered and both the filtrate and filter were analyzed for isotopic uranium, isotopic thorium, and radium-226. The maximum concentrations in the filtrate were 0.34 pCi/L of Ra-226, < 0.19 pCi/L of Th-230, < 0.22 pCi/L of Th-232, 11.0 pCi/L of U-234, < 0.47 pCi/L of U-235, and 4.8 pCi/L of U-238. The maximum concentrations on the filter were < 0.20 pCi/L of Ra-226, < 0.25 pCi/L of Th-230, < 0.22 pCi/L of Th-232, < 0.40 pCi/L of U-234, < 0.42 pCi/L of U-235, and 0.20 pCi/L of U-238.

## Stormwater Surveillance

Four stormwater samples were collected at HISS and analyzed for settleable solids to comply with the requirements delineated in the NPDES permit number MO-0111252. The concentration of settleable solids was less than 0.50 mL/L/hr, well below the 1.0 mL/L/hr permit requirement.

## Environmental Surveillance Summary

The above radionuclide concentrations were less than the DOE derived concentration guide (DCG) reference values for all groundwater samples collected in the third quarter of 1995. The DCG is a reference value calculated in DOE Order 5400.5, "Radiation Protection of the Public and the Environment." The DCGs (for ingested water) for the radionuclide analytes included in the third quarter are: radium-226, 100 pCi/L; radium-228, 100 pCi/L; thorium-230, 300 pCi/L; thorium-232, 50 pCi/L; lead-210, 30 pCi/L; and total uranium, 600 pCi/L.

Characterization Samples - SLDS

Sixteen samples were collected from previously containerized waste at SLDS building 116 and at SLDS Lot 7S and analyzed for radioactive and chemical parameters. The maximum concentrations were 84.3 pCi/g for uranium-238, 4.8 pCi/g for radium-226, 55.3 pCi/g for thorium-230, and 2.1 pCi/g for thorium-232. Review of the results of the chemical analyses indicate no presence of RCRA material. In addition, 4 waste samples were collected from SLDS building 116 for asbestos analyses, the results for which were nondetect.

Twelve characterization samples were collected along the railroad track adjacent to SLDS Lot 7S and analyzed for radioactive and chemical parameters. The maximum concentrations were 16 pCi/g for uranium-238, 5.8 pCi/g for radium-226, 42.9 pCi/g for thorium-230, and 1.5 pCi/g for thorium-232. Review of the results of the chemical analyses indicate no presence of RCRA material.

To gather data in support of the on-going remedial action at SLDS Plant 10, 257 soil samples were collected and analyzed by the on-site gamma spectroscopy system. The maximum concentration of uranium-238 was 11,000 pCi/g. However, the typical concentrations of contaminated soil ranged from 100 - 200 pCi/g. The results of the soil sample analyses modified the previously determined boundaries of contamination.

Characterization Samples - North County

Thirty-five additional soil samples were collected and analyzed to further characterize the HISS vicinity properties 3L and 6L. The maximum concentrations were 13.6 pCi/g for uranium-238, 1.7 pCi/g for radium-226, 13.5 pCi/g for thorium-230, and 1.5 pCi/g for thorium-232. In addition, two soil samples were collected from property 6L for chemical analyses. Review of the results of the chemical analyses indicate no presence of RCRA material.

Eleven soil samples were collected from the area of a railroad track spur near SLAPS vicinity property 16. The maximum concentrations were 5.8 pCi/g for uranium-238, 2.9 pCi/g for radium-226, 9.3 pCi/g for thorium-230, and 1.2 pCi/g for thorium-232. In addition, four of the soil samples were analyzed for chemical parameters. Review of the results of the chemical analyses indicate no presence of RCRA material.

Fourteen soil samples were collected and analyzed to further characterize the SLAPS vicinity properties 26, 27, 30, and 48. The maximum concentrations were 2.6 pCi/g for uranium-238, 1.0 pCi/g for radium-226, 6.6 pCi/g for thorium-230, and 1.3 pCi/g for thorium-232. In addition, samples were collected from additional SLAPS vicinity properties in late September to further delineate the boundaries of contamination. Final data are not available for the third quarter report but will be provided in the fourth quarter report

Post-Remedial Action Samples

Seventy post-remedial action composite samples were collected and analyzed from the SLDS Plant 10 site during the third quarter. The maximum concentration of uranium-238 was 33.5 pCi/g, below the 50 pCi/g site specific

release criteria. Additional post-remedial action samples have been collected since the end of the third quarter. Data for these samples will be provided in the fourth quarter report.

Seventy-two post-remedial action composite samples were collected and analyzed from the HISS vicinity properties 3L and 6L. The maximum concentrations were 2.7 pCi/g for uranium-238, 2.4 pCi/g for radium-226, 8.8 pCi/g for thorium-230, and 2.1 pCi/g for thorium-232. All results were below the criteria for subsurface soil, greater than 6 inches deep. Additional post-remedial action samples have been collected since the end of the third quarter. Data for these samples will be provided in the fourth quarter report.

SLDS Building 116

At SLDS, 160 direct surface contamination readings were taken on the floor and walls in building 116. The survey was conducted as part of a routine biannual surveillance of building 116. The survey is used to determine if contamination is changing in the building as a result of stored materials or other activities.
The interior of the building has been cleaned and repainted during the last year, resulting in significantly less surface contamination. The following table contains a summary of the data obtained from this activity.

| Survey Type | Number of Readings | Maximum dpm/100 $cm^2$ | Average dpm/100 $cm^2$ |
|---|---|---|---|
| Transferable Alpha | 40 | 5 | < 2 |
| Transferable Beta-Gamma | 40 | 56 | < 41 |
| Direct Alpha | 40 | 683 | 70 |
| Direct Beta-Gamma | 40 | 8842 | 1565 |

The DOE Surface Residual Contamination Guidelines are:
5000 dpm/100 $cm^2$ for Average Direct Readings
15000 dpm/100 $cm^2$ for Maximum Direct Readings
1000 dpm/100 $cm^2$ for Transferable Readings

Formerly Utilized Sites Remedial Action Program (FUSRAP)

# ADMINISTRATIVE RECORD

## for the St. Louis Site, Missouri

U.S. Department of Energy