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

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Enclosure

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ENCLOSURE

Summary of First Quarter 1995
Sampling and Analysis

The following is a summary of environmental data collected for FUSRAP sites in St. Louis, Missouri during the first quarter of 1995. Samples were collected and analyzed in support of environmental surveillance and characterization of the sites. In addition to the collection of radon detectors and TETLDs, a total of 229 samples were collected, 116 of which were analyzed for various radiological and non-radiological parameters during the quarter. Analytical results for these analyses have been compiled and validated. Evaluation of the data indicate results consistent with past characterization and environmental surveillance findings at the sites. Additional characterization sampling around the Plant 10 area at the St. Louis Downtown Site (SLDS) have refined the previously determined boundaries of contamination.

Radon

Radon detectors (24 total) were collected from HISS, SLAPS, and SLDS-Building 116 in support of routine environmental surveillance activities. The maximum concentrations of radon detected at HISS, SLAPS, and SLDS were 0.4, 1.0, and 1.1 pCi/L, respectively, well below the DOE radon guideline of 3.0 pCi/L for occupied or habitable structures.

External Gamma Radiation

A total of twenty one (21) tissue equivalent thermoluminescent dosimeters (TETLD) were collected from HISS, SLAPS, and SLDS-Building 116 to determine the external gamma radiation exposure rates in support of routine environmental surveillance activities. The maximum net exposure rates detected at HISS, SLAPS, and SLDS were 123, 2470, and 0 mR/yr above background, respectively. The annual dose to the hypothetical maximally exposed individual from direct gamma exposure, calculated using average exposure rates and realistic exposure scenarios, are 0.13 and 3.8 mrem/yr for HISS and SLAPS, respectively, well below the DOE guideline for the annual radiation dose (excluding radon) of 100 mrem/yr above natural background.

Stormwater Surveillance

The result of one (1) stormwater sample, collected from the St. Louis Airport Site (SLAPS) during the fourth quarter of 1994 and analyzed for radioactive parameters, was not available for the fourth quarter report and is provided here along with the results for the two (2) stormwater samples collected from SLAPS during the first quarter of 1995.

SLAPS Stormwater Sampling Results

	location 001 4th qtr 1994		location 001 1st qtr 1995		location 002 1st qtr 1995	
gross alpha	1122.7	pCi/L	250.4	pCi/L	140.3	pCi/L
gross beta	431.3	pCi/L	127.5	pCi/L	70.8	pCi/L
lead-210	10	pCi/L	< 3.6	pCi/L	3.2	pCi/L
radium-226	3.2	pCi/L	0.78	pCi/L	1.5	pCi/L
radium-228	4.9	pCi/L	< 1.2	pCi/L	< 1.4	pCi/L
thorium-230	90.4	pCi/L	2.4	pCi/L	16.5	pCi/L
thorium-232	< 0.54	pCi/L	< 0.06	pCi/L	0.28	pCi/L
total uranium	1495	µg/L	467.8	µg/L	224.9	µg/L

At HISS, five (5) stormwater samples were collected from the two outfalls to comply with the requirements delineated in the NPDES permit number MO-0111252. Samples are taken and analyzed monthly for settleable solids and quarterly for chemical and radioactive contaminants. The concentration of settleable solids was less than 0.50 mL/L/hr, well below the 1.0 mL/L/hr permit requirement. The concentrations of total organic halides and total organic carbon ranged from 9 to 32.9 µg/L and 4.6 to 4.7 mg/L respectively.

The maximum concentrations of radioactive constituents were 32.4 pCi/L of gross alpha, 13.6 pCi/L of gross beta, 23.9 pCi/L of total uranium, 13.8 pCi/L of thorium-230, < 0.27 pCi/L of thorium-232, and 0.90 pCi/L of radium-226.

Summary of Environmental Surveillance

The radionuclide concentrations were less than the DOE derived concentration guide (DCG) reference values for all groundwater, surface water, and stormwater samples collected in the first quarter of 1995. One (1) stormwater sample collected in the fourth quarter of 1994 at SLAPS exceeded the DCG for total uranium. 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 first quarter environmental surveillance are: 100 pCi/L of radium-226; 100 pCi/L of radium-228; 300 pCi/L of thorium-230; 50 pCi/L of thorium-232; 30 pCi/L of lead-210; and 600 pCi/L of total uranium.

Characterization Samples

To further delineate the boundary of contamination in the SLDS Plant 10 area, 203 soil samples were collected. Eighty-four (84) samples were analyzed for radioactive parameters and 6 for chemical parameters. The remaining 113 soil samples have been archived for possible future analysis. The radioactive contaminant concentrations ranged from 0.66 to 148.9 pCi/g for uranium-238, 0.06 to 6.2 pCi/g for radium-226, 0.32 to 1.7 pCi/g for radium-228, 0.58 to 5.8 pCi/g for thorium-230, and 0.33 to 1.6 pCi/g for thorium-232. The results of the soil sample analyses have been used to refine the previously determined boundaries of contamination. Preliminary review of the results of the chemical analyses indicate no presence of RCRA hazardous material.

One (1) groundwater sample was collected for analysis for radioactive contaminants. The results were 0.29 pCi/L for uranium-238, 0.24 pCi/L for radium-226, < 0.36 pCi/L for thorium-230, and < 0.36 pCi/L for thorium-232.

Seven (7) samples of roofing material were collected -- 5 for asbestos determination and 2 for analysis for radioactive contaminants. The roofing material tested positive for asbestos and contained a maximum of 13.8 pCi/g for uranium-238, 2.0 pCi/g for radium-226, 0.87 pCi/g for radium-228, 2.9 pCi/g for thorium-230, and 0.69 pCi/g for thorium-232.

In addition, one (1) sample of resin stained wood was collected from utility poles and one (1) sample of wood and muddy soil was collected from railroad ties. These samples were analyzed for chemical contaminants; preliminary review of the results indicate no presence of RCRA material.

At Latty Avenue vicinity property 3L, a total of 9 samples were taken to characterize the onsite pile for waste management purposes. The results indicate the maximum concentrations of radionuclides were 5.8 pCi/g U-238, 1.7 pCi/g U-234, 0.14 pCi/g U-235, 1.3 pCi/g Ra-226, 4.9 pCi/g Th-228, 1.5 pCi/g Th-230, and 5.0 pCi/g Th-232. Preliminary review of the chemical data indicates there are no RCRA concerns.