

The St. Louis Sites

Formerly Utilized Sites Remedial Action Program • Winter 2015

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St. Louis Formerly Utilized Sites Remedial Action Program Activities

Recent Remedial Construction Activities at the St. Louis Downtown Sites

Remedial action (RA) construction activities at the St. Louis Downtown Sites (SLDS) are continuing at the Mallinckrodt property beneath the former Building 101 footprint in Plant 6 West Half. Restoration was recently completed for two properties – the DT-2 City of St. Louis Vicinity Property (VP) east of the Mississippi River Flood Protection Levee near the foot of Destrehan Street, the Kiesel property located at the northeast corner of Hall and Branch Streets, and adjacent City of St. Louis and Gunther Salt parcels. The remediation of the DT-2 City Property, east of the Levee, required approximately 38,200 cubic yards of excavation from January 2011 to August 2014 in six excavation areas, and the remediation of the Kiesel Hall Street and adjacent properties required approximately 10,500 cubic yards of excavation from May 2013 to August 2014 in ten excavation areas.

Excavation beneath Mallinckrodt's former Bulk Shipping Center (Building 101) footprint continues and approximately 25,000 cubic yards of contaminated soil have been removed with an additional volume of approximately 5,700 cubic yards of soil removed in excavation layback areas. This excavation required the removal of several abandoned concrete foundations and utilities from historical Manhattan Engineer District/Atomic Energy Commission (MED/AEC) buildings that have significantly impacted excavation progress. Backfill authorization for much of the eastern area has now been issued, and the backfilling of these approved portions is underway.



Building 101 looking west from the northeast corner - SLDS

Sheet pile shoring previously installed around most of the perimeter of the building footprint is being modified for some of the deeper excavation areas. After RA of the eastern portion of the building footprint is completed, the western portion excavation will begin prior to the scheduled completion of the total building footprint area in the fourth quarter of 2015.

The restored surfaces of the Kiesel Hall Street and adjacent properties included approximately 94,000 square feet of gravel and approximately 6,700 square feet of asphalt pavement. The restored surfaces of the DT-2 City Property east of the Levee included the replacement of approximately 430 lineal feet of asphalt pavement for the St. Louis Riverfront Trail, re-vegetation of approximately 57,000 square feet of River bank area, and restoration of approximately 24,000 square feet of rip rap slope protection.



Restored area looking south at DT-2 - SLDS

Upcoming Events

Information Releases: Summer Newsletter – July 2015

This newsletter is issued twice a year.

Upcoming Meetings: St. Louis Oversight Committee meeting:
January 29, 2015, 7:00 - 9:00 pm, Hazelwood Civic Center, 8969
Dunn Road, Hazelwood, MO 64042

Check <http://bit.ly/FUSRAPstl> for updates.



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North St. Louis County Sites

The USACE is supporting construction by the St. Louis Metropolitan Sewer District (MSD) for a wet-weather storage tank facility on the eastern portion of VPs 57

and 58, and Pershall Road: South Ditch, south of Pershall Road, and west of Coldwater Creek (CWC), in the City of Hazelwood, Missouri. To provide the MSD with the necessary utility support for construction, the USACE is sampling and remediating approximately seven acres along the Pershall Road South Ditch, and eastern portions of VPs 57 and 58. This work is being performed on a very fast-track basis. In order to assist the MSD with their construction efforts, the USACE has already excavated over 9,000 cubic yards of materials in the area and the work continues. The USACE will start remedial activities in the west bank of CWC adjacent to VPs 57 and 58. This area is also needed by MSD to complete the construction of the storage tank facility.

In 2014, 10 properties in North County were returned for beneficial use. In the past few months, the USACE initiated sampling at Latty Avenue and Pershall Road. CWC sampling continues from Frost Avenue to the St. Denis Bridge including the creek, creek banks, and ten-year flood plain. The USACE anticipates completion of this part of CWC in mid 2015. The USACE anticipates initiating



Pershall Road sampling - SLAPS VP

remedial activities in CWC at the McDonnell Bridge after completing remedial activities at VPs 57 and 58, as well as the CWC west bank.

Monitoring the Sites

Since beginning the process of remediation, the USACE has also been monitoring the St. Louis Downtown and North County sites to determine the environmental impact of remediation. USACE monitors four main areas – air, excavation water, CWC, and ground water – and develops an annual Environmental Monitoring Implementation Plan (EMICY) for each site. The results of this monitoring are collected in an Environmental Monitoring Data and Analysis Report (EMDAR).

Air Monitoring

There are three types of radiological air monitoring that occur at the St. Louis FUSRAP sites: gamma radiation, airborne radioactive particulates, and airborne radon.

Gamma radiation is emitted from natural, cosmic, and manmade sources. USACE uses thermoluminescent dosimeters to measure the overall gamma radiation at the sites.

Airborne radioactive particulates are a result of radionuclides in soils that become suspended in the air. These radionuclides include naturally occurring as well as radioactive particles resulting from manmade activities. Airborne radioactive particulates are measured by drawing air through a filter membrane with an air sampling pump placed approximately three feet above the ground, and then analyzing the material contained on the filter. The results of the analysis are compared to the amount of air drawn through the filter and reported as radioactive contaminant concentrations.

Airborne radon or Rn-222, is a naturally occurring radioactive gas found in the Uranium-238 (U-238) decay series. A fraction of the radon produced from U-238 diffuses from soil and rock into the atmosphere, accounting for natural background airborne radon concentrations. Additional radon is produced from the above background concentrations of radioactive materials present on the St. Louis Formerly Utilized Sites Remedial Action Program (FUSRAP) sites. Radon alpha track detectors (ATDs) are used to measure alpha particles emitted from radon and its associated decay products. Besides the outdoor ATDs, ATDs are also placed in locations within applicable structures to monitor for indoor radon exposure.

Air monitoring occurs in several locations at both sites. However, as gamma radiation, airborne radioactive particulates, and airborne radon occur naturally, USACE also performs air monitoring at another location in order to determine background concentrations.

Excavation Water

Excavation water is storm water and groundwater that accumulates in excavations that are present at the St. Louis FUSRAP sites as a result of remedial actions. The purpose of excavation water discharge sampling at each of the sites is to maintain compliance with the specific discharge requirements for each site. Monitoring results obtained from these activities are presented and compared with the various authorization letters or permit-equivalent limits as provided by the MSD Special Discharge Approval letters and National Pollutant Discharge Elimination System permits. Excavation water that does not meet these requirements is filtered prior to being discharged. Waste water produced by the USACE owned and operated laboratory located within the Latty Site

in North County is also considered to fall within excavation water and has its own permits and regulations.

Coldwater Creek

CWC surface water and sediment is sampled twice yearly in six locations along the creek. Starting in October of 2014, USACE began sampling an additional two locations downstream of the North County sites. The purpose of this sampling is to monitor and document the effect on the creek by the remedial actions in North County and provide additional data to assess whether CWC is being measurably affected by contamination migration from the shallow groundwater aquifer. Water quality parameters measured include pH, temperature, dissolved oxygen, specific conductivity, oxidation reduction potential, and turbidity. In addition, a sample of sediment and a sample of surface water are tested for radioactivity and other contaminations of concern as established by the North County Record of Decision (ROD). All samples taken from the CWC semi-annual monitoring have been below regulatory goals.

Ground Water

Several monitoring wells are strategically placed in both the St. Louis Downtown and North County sites. While the majority of these wells are screened in the shallow ground water aquifer, a few wells are screened in the deeper aquifers. As the shallow-most aquifer is not considered to be a viable source of drinking water, the purpose of ground



Coldwater Creek - SLAPS VP

water monitoring is to maintain the protectiveness of CWC and of the lower aquifers.

Static water levels of the monitoring wells are measured quarterly. Field parameters and water samples are taken according to an analysis of previously recorded data. Field parameters include pH, temperature, dissolved oxygen, specific conductivity, oxidation reduction potential, and

Keeping in Touch

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If you have any suggestions, questions, or comments, please contact us.

turbidity. Water samples are tested for either radioactive or inorganic contaminations of concern as established by the appropriate ROD. Monitoring wells are sampled a minimum of once every three years.

Review of Historical Documents

A thorough review of historical documents is included throughout the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, from the initial identification of a site until final site closure. The most comprehensive review takes place during the preliminary assessment. The purpose of the assessment is to determine whether a site is releasing, or has the potential to release, hazardous substances, pollutants, or contaminants into the environment. This includes compiling and evaluating available information on the potential sources of hazardous substances, pollutants, or contaminants. For the FUSRAP sites, this included research into the uranium refining process that was conducted at the SLDS to evaluate what types of waste materials may have been transported and stored at the SLAPS, and later at the Hazelwood Interim Storage Site. This review also included the inventory records, transportation information, regulatory documents and submittals, and other pertinent correspondence that may contain details regarding the origin of waste materials. All of the information gathered during the review is used to plan and execute the remedial investigation, propose alternatives for remediation of the wastes, and select the remedy for the site. The documentation reviewed throughout the CERCLA process is contained in the Administrative Record for the Site. The Administrative Record for the North St. Louis County Sites may be viewed at the USACE Project Office, 8945 Latty Avenue, in Berkeley, Missouri or at the St. Louis Public Library, Government Information Room, 1302 Olive Street, St. Louis, Missouri 63103.

Educational Information

Q: What is the Uranium-containing sand from Japan that is referred to in the Federal Facilities Agreement (FFA) between DOE and EPA? Are the radiological contaminants of concern different than those from other sources/materials stored at SLAPS?

A: The material referred to in the FFA has had various descriptions, depending upon the source document. Descriptions include "Japanese precipitates" (ROD, p.2-3), "Japanese uranium precipitates" (FS, Table 2-1), "Japanese uranium-containing sand" (Historical Summary, p.3), and "captured Japanese uranium."

Regardless of the description, the references describe approximately 60 tons of material that was captured and transported and stored at SLAPS in 1954. Of the total 60 gross tons, approximately 0.2 tons was inventoried as uranium. The radionuclides contained in the precipitates, or sands, are the same that are in other FUSRAP wastes, namely uranium, thorium and radium. Therefore, the methods and techniques used throughout the FUSRAP investigation, remediation, and verification processes will detect the radionuclides if present. The Remedy selected for the North St. Louis County Sites was chosen based on these radionuclides, and is protective of human health and the environment.

Q: Was SLAPS used to store plutonium (or other transuranic isotopes)?

A: The work performed by Mallinckrodt for the AEC was related to the refining of uranium ore to produce uranium metal and uranium oxide. This material was then shipped to other locations for uranium enrichment (primarily Oak Ridge, TN) and plutonium production (Hanford, WA). Transuranic compounds, such as plutonium, are chemical elements with atomic numbers greater than that of uranium (92) and are unstable elements that do not occur naturally. Rather, they are artificially generated via nuclear reaction or particle accelerators. Therefore, transuranic compounds would not be contained in the waste residues from the refinement of uranium ore that occurred at the SLDS.

Transuranic compounds were not stored at the SLAPS. The sampling data collected during the investigation phase confirms that transuranic elements were not at the SLAPS.

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