

Appendix J

LCRS/Train 3 Treatment Contingency Plan

This page intentionally left blank

J1.0 Contingency Plan Overview

J1.1 Background

The disposal cell at the Weldon Spring Site generates approximately 114 gallons of leachate per day, as of December 2007. The LCRS sump capacity is approximately 11,000 gallons, or 96 days of storage at the current flow rate. The uranium activity in the leachate is currently below the discharge goal stated in the NPDES permit; however, the leachate is currently being hauled to the Metropolitan St. Louis Sewer District (MSD) Bissell Point Treatment Plant after being pretreated at the LCRS facility to reduce the uranium concentration. The leachate is hauled by a commercial hauler for disposal and final treatment under an approval granted to DOE on December 21, 2001, by the MSD. The original agreement expired on December 21, 2006 and was renewed with an expiration date of December 14, 2011.

The contingency plan for managing leachate is to use the dedicated pipeline to the NPDES permitted outfall at the Missouri River. The original plan to manage leachate was to treat the leachate on-site and then discharge the treated leachate through a dedicated pipeline to an NPDES permitted outfall at the Missouri River. This original plan was required because of Manganese concentrations above the NPDES permit limits. However, during final construction of the LCRS facility the MSD approved disposal of the leachate at their facility and construction was suspended on the then LCRS (formerly known as Train 3 treatment) facility. A metal industrial building was already under construction, and the major equipment required for the treatment process had already been purchased. The DOE decided to complete the building construction and store or surplus the process equipment that remained. The original contingency plan was to treat the leachate in the event that the primary leachate management option (i.e., hauling to the MSD treatment facility) was no longer available. The objective was to use as much of the existing equipment as possible in a configuration that would support a rapid start-up, if needed.

Prior to August 2004, the leachate was hauled to MSD without any pretreatment requirements. Beginning in September 2004, the Weldon Spring Site initiated a pretreatment process to reduce the uranium concentration in the leachate to below 30 $\mu\text{g/L}$. This was in order to comply with a new MSD requirement for the uranium concentration in the leachate to be below drinking water standards prior to acceptance. The treatment process includes filtration and ion exchange. The process successfully reduces uranium to below the MSD acceptance criteria. The Weldon Spring Site anticipates continuing to pretreat the leachate until uranium concentrations consistently fall below 20 pCi/L for shipment to MSD, should the contingency plan be implemented the pretreatment of leachate would continue to be required by the NPDES permit.

J1.2 Current State

The LCRS support building is completed and operational. The building is heated, and roof-mounted ventilation fans are installed and operational. There is adequate electrical service to support all operational needs. No potable water is supplied to the building. The building currently houses electrical equipment to support the LCRS operation, four fiberglass reinforced plastic (FRP) tanks (1,250, 4,500, 4,500, and 7,600 gallon), two ion exchange vessels, four

cartridge filter housings, and miscellaneous related equipment. The tanks (with the exception of the 1,250 gallon FRP tank) were anchored in their permanent locations during the building construction. The ion exchange vessels and cartridge filter housings were recovered from other treatment processes that were used at WSS and are in good condition. Ion exchange resin and filter cartridges are stocked in the building. There is no compressed air supply in the building (an air compressor is rented to provide an air supply when needed). One Ion Exchange vessel and two filter housings have been used to assemble the current treatment system as described in section J1.1 and operational procedures are detailed in Appendix I.

The building was modified to facilitate haul truck loading of leachate by installing piping that penetrates the south wall and is equipped with a quick disconnect fitting that is compatible with the leachate haulers hoses. This piping connects the leachate influent piping located inside the building to the exterior of the building.

The building is visited routinely by Weldon Spring staff currently pump water biweekly from the burrito. Purge water generated from certain monitoring wells is passed through granular activated carbon and then transferred to the leachate sump after treatment for ultimate disposal at MSDs facility.

J1.3 Operational Philosophy

The original treatment process for the leachate was designed for removal of manganese and uranium prior to discharge to waters of the state under an NPDES permit. With leachate flows, manganese and uranium levels rapidly declining the option to haul the leachate to MSD was selected and continues to be used. The current contingency plan, should MSD no longer be willing to accept the leachate, is to discharge to the Missouri River, through the existing pipeline, under the NPDES permit. Because the leachate flows and manganese and uranium levels have been greatly reduced the treatment used would be the currently used pretreatment system that consists of a two unit filter, an ion exchange unit and effluent tanks. If the contingency plan is implemented, and uranium levels of untreated leachate are consistently under the permitted limit, consideration may be given to requesting that the permit be revised to allow bypassing of the ion exchange unit.

J1.4 Process Overview

The treatment process will be accomplished by pumping leachate from the sump with an air-driven diaphragm pump. The leachate will be pumped through the two-unit filter followed by the ion exchange unit and into the storage tank in one continuous process. This equipment is currently set up and operating in this scenario so there would be no setup required for the treatment. The treated leachate would then be discharged through the effluent pipeline to the Missouri River in accordance with the NPDES permit. Connection of the effluent line to the effluent storage tank will be required.

J1.5 Process Startup

Because the treatment system is currently set up and in operation the only task requiring completion is connection to the effluent pipeline to allow discharge to the Missouri River. Piping to connect the effluent tank to the effluent pipe must be installed. A flow meter may be required to measure discharge if measuring tank volumes is not sufficient. A pump may also be required if the tank will not gravity drain. Appendix I contains the procedure for operation of the existing treatment plant.

J1.6 Transfer of Treated Leachate to the Missouri River (Tentative)

The procedure for pumping water to the Missouri River is located in Appendix I – Procedures.

This page intentionally left blank