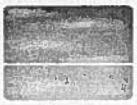

Fw: NEPA for German Fuel
Herbert Crapse to: Lee Fox 10/28/2014 09:55 AM

Herbert Crapse Fw: NEPA for German Fuel

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From: Maxcine Maxted/DOE/Srs
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Cc: Drew Grainger/DOE/Srs@srs
Date: 09/28/2014 02:05 PM
Subject: NEPA for German Fuel

Jean and Bert-

Can you confirm/markup this section of the NEPA EA? If possible we need it by Thursday to get back to the NEPA contractor.

1.1.1.1 *High-Level Radioactive Waste*

The F- and H-Area tank farms have received over 150 million gallons (570 million liters) of HLW liquid waste from SRS operations **[DOE TO CONFIRM VOLUMES AND CHARACTERIZATION]** (SRR 2014b). Currently, approximately 37 million gallons (140 million liters) of waste containing about 287 million curies of radioactivity are stored in 45 underground tanks (SRR 2014a, 2014b). Approximately 2.3 million gallons (8.7 million liters)

of operational working capacity remains in the F- and H-Area tank farms (SRR 2014b).

DOE is using a process involving deliquification, dissolution, and adjustment to treat certain salt waste, with additional processing of salt waste using the Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (SRNS 2009a). The treatment process results in a high-activity, low-volume HLW liquid waste stream that is vitrified at DWPF and a low-activity, high-volume LLW liquid waste stream (salt solution) that is disposed of onsite after processing at the Z-Area Saltstone Facility. After completion of the Salt Waste Processing Facility, expected to become operational in 2018 (SRR 2014a), additional salt waste treatment capacity will be available. After treatment operations are completed, approximately 223 million curies of salt waste will have been removed from the F- and H-Area tank farms (71 FR 3834; WSRC 2007a).

DWPF was constructed to solidify liquid HLW stored in the F- and H-Area tank farms into a vitrified form for eventual geologic disposal, which would then allow the HLW tanks to be closed. DWPF began operating in March 1996, and is projected to complete vitrification of the HLW in the F- and H-Area tank farms by 2039 (SRR 2014b). Operations consist of mixing a sand-like borosilicate glass (called frit) with the waste, melting the mixture, and pouring it into stainless steel canisters to cool and harden. Each canister is 10 feet (3 meters) tall and 2 feet (0.6 meters) in diameter and has a filled weight of about 5,000 pounds (2,300 kilograms). Filled canisters are taken from DWPF to one of two adjacent Glass Waste Storage Buildings. The estimated storage capacity for the two storage buildings is approximately 4,590 canisters (SRR 2014a). Construction of additional storage is planned. The canisters will remain in safe, secure storage pending decisions on a long-term solution for management of HLW and used nuclear fuel. DOE has terminated the program for a geologic repository for used nuclear fuel and HLW at Yucca Mountain, in Nevada. Notwithstanding the decision to terminate the Yucca Mountain program, DOE remains committed to meeting its obligations to manage and ultimately dispose of used nuclear fuel and HLW. DOE established the Blue Ribbon Commission on America's Nuclear Future to conduct a comprehensive review and evaluate alternative approaches for meeting these obligations. The Commission report to the Secretary of Energy of January 26, 2012 (BRCANF 2012) provided a strong foundation for the development of the Administration's January 2013 Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste (DOE 2013a). This

Strategy provides a framework for moving toward a sustainable program to deploy an integrated system capable of transporting, storing, and disposing of used nuclear fuel and high-level radioactive waste from civilian nuclear power generation, defense, national security, and other activities. The link to the strategy is http://energy.gov/downloads/strategy-management-and-disposal-used-nuclear-fuel-and-high-level-radioactive-waste. Full implementation of this Strategy will require legislation. Through December 31, 2013, 3,754 canisters of waste containing about 52 million curies had been poured at DWPF (SRR 2014b).

1.1.1.2 *Low-Level Radioactive Waste*

Both liquid and solid LLW are treated at SRS. Most aqueous LLW streams are sent to the F- and H-Area Effluent Treatment Project (formerly called the Effluent Treatment Facility) and treated by pH adjustment, organic removal, reverse osmosis, and ion exchange to remove chemical and radioactive contaminants other than tritium. This facility is designed to process 100,000 to 250,000 gallons (380,000 to 950,000 liters) of low-level radioactive wastewater daily. The maximum permitted facility capacity is 430,000 gallons (1.6 million liters) per day, or about 160 million gallons (590 million liters) per year. Actual processing is approximately 20 million gallons (76 million liters) of wastewater per year, or 55,000 gallons (210,000 liters) per day (WSRC 2006a, 2006b, 2007b). After treatment, the effluent is discharged to Upper Three Runs through an NPDES permitted outfall. The treatment residuals are concentrated by evaporation and stored in the H-Area tank farm for eventual treatment in the Z-Area Saltstone Facility where wastes are immobilized with grout for onsite disposal (DOE 1999b; SRR 2012).

LLW is primarily disposed of in engineered trenches and slit trenches. As of February ~~2012~~ 2014 **[DOE – ANY UPDATES ON THIS INFORMATION?]**, about ~~18,000~~ 96,000 cubic yards (~~14,000~~ 75,000 cubic meters) of disposal space remained in the engineered trenches and about ~~30,000~~ 230,000 cubic yards (~~23,000~~ 180,000 cubic meters) of disposal space remained in ~~the two active~~ slit trenches (SRNS 2012a). ~~Although some disposal capacity remains in~~ Concrete vaults located in E-Area~~, these vaults~~ are used primarily ~~to stage LLW prior to shipment for off-site disposal and~~ to dispose of the higher radioactive fraction of the LLW generated at SRS. Although most solid LLW is

disposed of on site at SRS, some LLW is shipped off site for disposal at DOE's Nevada National Security Site and commercial facilities (SRNS 2009a).

The Z-Area Saltstone Facility solidifies and disposes of low-activity liquid wastes including liquid waste from the Effluent Treatment Project and salt solution separated from HLW. Saltstone is solidified grout formed by mixing liquid waste with cement, fly ash, and furnace slag, and disposing of the mixture as LLW within large concrete vaults (SRR 2012).

1.1.1.3 *Hazardous Waste*

Hazardous waste is nonradioactive waste that SCDHEC regulates under RCRA and corresponding state regulations. Hazardous waste is accumulated at the generating location or stored in U.S. Department of Transportation (DOT)-approved containers in E-Area. ~~A section of the TRU waste storage pads (e.g., TRU Pad 26-E) has been permitted to store MLLW and hazardous waste and has a storage capacity of 390 cubic yards (296 cubic meters).~~ Most hazardous waste is shipped off site to commercial RCRA-permitted treatment and disposal facilities using DOT-certified transporters (DOE 1999b). DOE also recycles, reuses, or recovers certain hazardous wastes such as metals, excess chemicals, solvents, and chlorofluorocarbons (DOE 2002).

1.1.1.4 *Nonhazardous Waste*

Solid nonhazardous waste is sent to the Three Rivers Regional Landfill, which is located within the SRS site boundary (DOE 2002) and serves as a regional municipal landfill for Aiken, Allendale, Bamberg, Barnwell, Calhoun, Edgefield, McCormick, Orangeburg, and Saluda Counties. The Three Rivers Regional Landfill has a 300-acre (120-hectare) footprint with a remaining capacity in excess of 38 million cubic yards (29 million cubic meters) of waste as of 2014 (LRSWA 2014). Although the landfill is permitted to annually receive up to 550,000 tons (500,000 metric tons) of nonhazardous solid waste **[DOE – PLEASE PROVIDE UPDATES ON VOLUMES]** (SRNS 2012a), it typically annually receives about 250,000 tons (230,000 metric tons) of waste (TRSWA 2014). Construction and demolition debris is disposed of in an onsite landfill (DOE 2012b).

Thanks,
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