



Department of Energy
Savannah River Operations Office
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DOE/EA-0878-SA-1

Supplement Analysis for the Connection of K-Area to the Central Sanitary Wastewater Treatment Facility (CSWTF)

Introduction

The U.S. Department of Energy (DOE) has prepared this supplemental analysis (SA) to evaluate an existing environmental assessment (EA) (listed below) in light of changes that could have bearing on the potential environmental impacts previously analyzed. Based on the analysis in DOE/EA-0878, *Centralization and Upgrading of the Sanitary Wastewater System at the Savannah River Site (SRS)* (Final EA), DOE determined that the proposed action was not a major federal action significantly affecting the quality of the human environment within the context of National Environmental Policy Act (NEPA); therefore, the preparation of an Environmental Impact Statement (EIS) was not required. This SA provides sufficient information for DOE to determine whether the existing Final EA remains adequate, whether to prepare a new EA, revise the Finding of No Significant Impact (FONSI), or prepare an EIS, as appropriate.

Existing EA evaluated in this SA:

- *Centralization and Upgrading of the Sanitary Wastewater System at the Savannah River Site* (DOE/EA-0878), <https://www.srs.gov/general/pubs/envbul/DOE-EA-0878.pdf>

Changes to Proposed Action or New Circumstances or Information

This SA was prepared in order to include the connection of K-Area to the Central Sanitary Wastewater Treatment Facility (CSWTF) and closure of the existing K-Area Wastewater Treatment Plant (WTP).

This project connects the existing K-Area sanitary sewer collection system to the CSWTF and retires the existing K-Area WTP. Sanitary wastewater will be routed from lift station 607-1K from inside the K-Area Entry Control Facility 2 fence, north through the outer area fence then along the K-Area entrance road. Lift station 607-3K will be added outside K-Area to transport the sewage. The force main piping is proposed to be routed along Road 6, along Road 5, toward C-Area, finally tying into an existing manhole near the 607-85G lift station. The installation will require approximately 22,000 feet of gravity and forced main piping.

Electrical power for the lift station will be obtained from the 13.8kV line within K-Area and will require new power poles, lines, and a transformer. A new right-of-way (ROW) will be established and will require minimal tree clearing.

The K-Area WTP will be decommissioned and demolished. The existing wastewater and sludge material at the K-Area WTP will be collected and transferred to the CSWTF for treatment and disposal. Any surplus chemicals in the K-Area WTP will be transferred to the CSWTF for future use. All connections to the collection system in K-Area and the K-12 Outfall will be cut and

capped. All flows will halt to the K-12 Outfall, and it will be removed from SRS's Industrial Wastewater (IWW) National Pollutant Discharge Elimination System (NPDES) Permit (SC0000175).

The end state will have all equipment, buildings, and structures demolished and removed. No pads, basins, or above ground piping will remain, and the area will be returned to usable footprint. The main buildings to be demolished and removed are as follows: 607-16K Surge Tank, 607-17K Sewage Treatment Plant, and 607-18K Chemical Feed Building. All auxiliary equipment and pads associated with the buildings will also be demolished and removed. Lift station 607-1K will remain as the primary lift station (in addition to 607-3K) serving the new connection to the CSWTF.

Background

The K-Area WTP was originally installed in 1982 to process the sanitary waste from the area and was designed to have a service life of 30 years. The plant is experiencing severe corrosion due to accumulation of sour gas, age, and exposure. Many of the steel structures are no longer safe to support weight. The WTP requires extensive repairs or replacement.

K-Area currently has approximately 250 employees and averages approximately 1,529 gallons per day (GPD) of sanitary wastewater (based on 2022 flow data). Over the next five years, the number of employees is expected to double to approximately 500 as a result of future planned missions. It is anticipated that the sanitary wastewater would increase proportionally to approximately 3,100 GPD.

The Final EA assessed the potential environmental impacts of centralizing and upgrading the sanitary wastewater collection and treatment systems by closing fourteen treatment facilities spread across SRS and replacing with a new central treatment facility (CTF) and connecting them with a new eighteen-mile primary sanitary sewer collection system. The CSWTF began operation in 1995 and treats sanitary wastewater from all areas of SRS except K-Area and L-Area. It is currently operating at approximately 180,000 GPD on average (based on 2022 flow data) well below its design capacity of 1.05 million gallons per day (MGD).

Table 1 - Comparison of Potential Environmental Impacts

Resource Area	Summary of Potential Impacts in DOE/EA-0878 <i>Centralization and Upgrading of the Sanitary Sewer System at the SRS</i>	Summary of Potential Impacts as a Result of Changes to the Proposed Action	Difference in Potential Impacts
Land Use and General Site Description	Routing of proposed 18-mile collection system predominantly within existing road and utility ROWs.	The proposed sewer line and lift station installation will predominantly occur within existing road ROWs or other previously disturbed areas.	Negligible difference in potential impact
Biological Resources	Construction: No threatened and endangered species documented near proposed location for CTF. Only low quality habitat for threatened and endangered species present. Operation: N/A	Construction: No threatened and endangered species documented near proposed sewer line installation. The proposed project area is primarily located within previously disturbed areas. The remaining areas represent low quality habitat for threatened and endangered species. Operation: No impact	No difference in potential impact
Water Resources	Construction: N/A Operation: Installation of 50 gallons per minute (GPM) water well into Congaree aquifer to provide domestic and process water. Projected withdrawal rate of 20,000 GPD would represent approximately 0.19 percent of daily groundwater usage rate for SRS. NPDES permit modification for 1.05 MGD discharge to Fourmile Branch. Overall stream quality expected to improve based on cleaner effluent than that of C-, F-, and H-Area package plants being closed.	Construction: An NPDES Construction Stormwater Permit is required due to total area of disturbance exceeding 1 acre. A SWPPP will be developed, and standard BMPs (e.g., sediment tubes, rock check dams, silt fencing, permanent grassing, etc.) will be implemented as warranted for sediment and erosion control. Operation: As noted in the Final EA, the CSWTF is permitted to treat 1.05 MGD of sanitary wastewater. Treated wastewater discharges to Outfall G-10 and into Fourmile Branch. Based on 2022 flow data, SRS averaged approximately 180,000 GPD. The proposed action will result in an approximately 1% increase (approximately 1,529 GPD) for a new total of approximately 181,529 GPD or less than 20% of the permitted flow. Even if planned missions in K-Area double the 2022 flow input from K Area, the total flow would remain less than 20% of the permitted treatment capacity. Water use at the CSWTF well will not increase as a result of the proposed action. Discharge to Outfall K-12, approximately 0.001 MGD average, will be eliminated, and the outfall will be removed from the IWW NPDES permit.	Negligible difference in potential impact
Floodplain/Wetland	Construction: Floodplain/Wetlands Assessment conducted for areas encompassed by trunkline routes. Wetlands located along route north of Upper Three Runs and crossing Fourmile Branch. Construction in these areas minimized and silt fencing utilized. Fourmile Branch crossing aboveground. Operation: Final design approved by SCDHEC to minimize potential for spill of untreated sewage.	Construction: Proposed new sewer line will be installed in the existing road fill over culverts where jurisdictional waters were determined to be present, thereby avoiding jurisdictional water impacts. No jurisdictional waters were identified in areas where sewer line will be installed outside existing road fill. The sewer line route does not cross floodplains. Operation: No impact	No difference in potential impact

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Air Quality and Climate Change	<p>Construction: Dust emissions during construction minimized by sprinkling or other standard control measures. Standard materials utilized for facility construction.</p> <p>Operation: No hazardous chemicals released to atmosphere from CTF. Standby 350kW diesel generator would provide back-up power to CTF.</p> <p>Greenhouse Gas (GHG): Not previously assessed</p>	<p>Construction: Dust emissions during construction would be minimized by sprinkling or other standard control measures. Standard materials utilized for facility construction (e.g., backhoe, dump truck, etc.).</p> <p>The proposed action is considered plant upkeep. It is exempt from construction permitting and not required to be listed on SRS's Title V Insignificant Activities (IA) list based on SCDHEC construction exemption list (10/23/2020) and Title V IA list (4/23/21).</p> <p>Operation: No new or increased use of existing chemicals are anticipated at CSWTF. No change to the existing diesel generator is anticipated.</p> <p>GHG: The proposed action would result in temporary increase in emissions from construction activities. However, this increase would be negligible and would not meaningfully impact the level of emissions from the broader SRS area.</p>	Negligible difference in potential impact
Waste Generation	<p>Construction: Approximately 30,000 cubic yards of construction related spoil disposed in onsite landfill.</p> <p>Operation: Approximately 175 cubic yards per year of dry sludge initially trucked offsite for disposal, followed by onsite land application.</p>	<p>Construction: Disturbed soil will be returned to excavation area. Construction-related debris will be disposed at 632-G C&D landfill or disposed as non-hazardous solid waste.</p> <p>Operation: Currently, sludge from the K-Area WTP is transferred to CSWTF. When operation of K-Area WTP ceases and sanitary wastewater is transferred directly to CSWTF, the difference in sludge generation is anticipated to be negligible.</p>	Negligible difference in potential impact from construction related debris
Cultural Resources	<p>Construction: Cultural Resources managed under terms of a Programmatic Memorandum of Agreement (PMOA). Comply with all stipulations of the PMOA for all activities related to construction and operation. Survey conducted and no evidence of archaeological resources were found. By constructing the trunklines within the existing ROWs, there would be little potential for impacting sites.</p> <p>Operation: N/A</p>	<p>Construction: Savannah River Archaeological Research Program (SRARP) completed an archaeological survey for the proposed sewer line and lift station, and no archaeological resources were identified.</p> <p>Operation: No impact</p>	No difference in potential impact
Socioeconomic Resources	<p>Construction: Peak construction workforce estimated to be 120 persons. When compared to total SRS workforce of 21,000 persons, socioeconomic</p>	<p>Construction: Peak construction workforce is estimated to consist of approximately seven personnel. SRS total workforce is approximately 10,000.</p>	Negligible difference in potential impact

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	<p>impacts of construction workforce of 120 is negligible.</p> <p>Operation: Operation of CTF would require a staff of six persons which would be relocated from existing treatment facilities. No socioeconomic impact from normal operations.</p> <p>Environmental Justice: Not previously assessed</p>	<p>Socioeconomic impacts of construction are negligible.</p> <p>Operation: Addition of K-Area sanitary sewer wastewater to CSWTF would not increase the workforce at CSWTF. No socioeconomic impact from normal operations.</p> <p>Environmental Justice: The proposed action will not result in offsite impacts; therefore, there would be no disproportionate and adverse effects on communities with environmental justice concerns.</p>	
Cumulative Impacts	<p>Loss of six acres of planted pine forests habitat but less than 0.003 percent of existing forest habitat on SRS. No adverse impacts on groundwater or surface water resources. Facility operation would result in an expected increase or improvement of surface water quality in Upper Three Runs Creek and Fourmile Branch. Sludge will be used onsite for fertilizer and soil conditioner. Facility operations would result in no adverse environmental impacts as a result of hazardous chemical or material use.</p>	<p>Loss of forests is anticipated to be minimal. Primary loss of planted pines will occur due to slight adjustments of the tree line. Total clearing is estimated to be approximately three and one-half acres. No adverse impacts on groundwater, surface water, or air resources would result from construction or operation. No health or safety concerns would be created. No cumulative impacts to the environment are expected as a result of the proposed action.</p>	Negligible difference in potential impact
Existing Facilities	<p>Decommission and abandon in place 14 existing facilities. Clean and salvage all equipment possible and clean out and fill wastewater treatment tanks with soil.</p>	<p>Decommission and demolish the K-Area WTP. All equipment will be cleaned and disposed via existing waste streams and will represent a negligible increase in waste generation at SRS. Wastewater and sludge material will be collected and transferred to the CSWTF for treatment and disposal. Basins will be demolished and removed. Underground piping will be cut and capped. The area will be restored to grass lawn condition to match the surrounding area and returned to usable footprint.</p>	Negligible difference in potential impact; Facilities to be removed would have required extensive renovation if not replaced.

Mitigation

Because the new circumstances are similar in nature to the existing potential environmental impacts based on this analysis, DOE determined, consistent with the Final EA, that no mitigation measures are required.

Determination

In accordance with DOE's NEPA implementing regulations, and consistent with the *NEPA Recommendations for the Supplement Analysis Process*, 2nd Edition, DOE prepared this SA to evaluate whether the existing Final EA remains adequate or whether the proposal to connect K-Area to the CSWTF requires DOE to prepare a new EA, revise the existing FONSI, or prepare an EIS. DOE concludes that the environmental analysis that relates to the potential impacts to resource areas stemming from the proposed action in Final EA, properly takes the environmental impacts resulting from the connection of K-Area to the CSWTF and associated temporary construction disturbance into consideration, given the *de minimis* nature of the impacts as delineated in this SA. DOE concludes that the changes to the Project described in this SA do not require a new EA, revised FONSI, or preparation of an EIS. No further NEPA documentation is required.

For questions about this SA or the Final EA, please contact:

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Issued in Aiken, South Carolina, this 28th day of June 2023

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