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Savannah River Operations Office
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DOE/EA-0943-SA-1

Supplement Analysis for the Installation of a Domestic Water Line to Central Sanitary Wastewater Treatment Facility (CSWTF)

Introduction

The U.S. Department of Energy (DOE) has prepared this Supplement Analysis (SA) to evaluate an existing environmental assessment (EAs) (listed below) in light of changes that could have bearing on the potential environmental impacts previously analyzed. Based on the analysis in DOE/EA-0943, Domestic Water Supply Upgrades and Consolidation on the Savannah River Site (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:

- *Domestic Water Supply Upgrades and Consolidation on the Savannah River Site (DOE/EA-0943)*, <https://www.srs.gov/general/pubs/envbul/DOE-EA-0943.pdf>

Changes to Proposed Action or New Circumstances or Information

This SA was prepared in order to include the installation of a domestic water line to the Central Sanitary Wastewater Treatment Facility (CSWTF) and removal of a groundwater well from use.

This project connects the CSWTF to the SRS consolidated Domestic Water System and retires the existing groundwater well that serves the CSWTF. The existing domestic water source at the CSWTF is an aged and corroded well. Approximately 7,000 linear feet (LF) of piping will be installed along an existing right-of-way (ROW) from a 6-inch header northwest of 782-27G routing parallel to Burma Road down to the CSWTF. The existing well serving the CSWTF will no longer be needed after the connection to the main domestic water loop and will be removed from service.

Background

The casing of the current domestic water well, 905-136G, has started to deteriorate from corrosion and has compromised the domestic water supply to the CSWTF area. A new domestic water line extension will be installed to provide CSWTF domestic water from the Site's main domestic water loop. The existing well will be abandoned per South Carolina Department of Health and Environmental Control (SCDHEC) R.61-58 State Primary Drinking Water Regulations.

The Final EA assessed the potential environmental impacts of consolidating 10 of the 28 existing water systems at the time to form two new systems. The actions included well modifications to correct deficiencies, chemical treatment facility construction and upgrades, distribution system upgrades, new looped domestic water supply lines (both inter-area and intra-area), new domestic water tie-in-lines, and new elevated water storage tanks. This action installed 24 miles of looped underground piping to connect A, B, C, F, H, N, S, and Z Area, and the SRS Forest Station (SRFS) drinking water systems into one consolidated loop system. Approximately 1.6 miles of piping connected the D and T Area systems into a single consolidated system. Piping was installed along existing SRS ROWs).

Table 4.1 - Comparison of Potential Environmental Impacts

Resource Area	Summary of Potential Impacts in DOE/EA-0943 Domestic Water Supply Upgrades and Consolidation on the Savannah River Site	Summary of Potential Impacts as a Result of Changes to the Proposed Action	Difference in Potential Impacts
Land Use and General Site Description	Installation of approximately 24 miles of looped underground piping to connect A, B, C, F, H, N, S, Z and the SRFS drinking water systems into one consolidated loop system. Approximately 1.6 miles of piping connected the D and T Area systems into a single consolidated system. New piping installed along existing SRS ROWs.	Estimated 1.3 miles (7,000) LF of piping to be installed within existing ROWs, approximately 5% more than in the original project. No land clearing is required for this project.	Negligible difference in potential impact
Biological Resources	Construction: No threatened and endangered species would be affected by the proposed project. Highly unlikely that any aspect of the proposed project would affect SRS biotic resources as all project actions would occur within the fenced confines of previously developed and operational industrial areas, and along the ROW of existing SRS roadways, steam lines, and powerlines. Operation: N/A	Construction: No threatened and endangered species documented near proposed domestic water line installation. The proposed project area is located within previously disturbed areas and represents low quality habitat for threatened and endangered species. Operation: No impact	No difference in potential impact
Water Resources	Construction: Installation of two elevated water storage tanks on the consolidated loop. Construction of a new domestic water chemical treatment facility in A Area and upgrade to the treatment facility in B Area to serve as a backup. The proposed A-Area water treatment facility would be capable of providing a maximum flow rate of 3,000 gallons per minute (gpm), and the B-Area water treatment facility would be upgraded to provide 1,000 gpm flow. Operation: The increased usage of the A Area wells did not represent a real increase in usage of the Middendorf Aquifer. Under normal circumstances, as the usage rate of the A-Area wells increase, there would be a reciprocal decrease in water usage rates by the wells located in the Areas to be supported by the consolidated systems.	Construction: Due to the area of land disturbance expected for this project (<1 acre), Construction Stormwater Permitting will not be required. BMPs (e.g., sediment tubes, rock check dams, silt fencing, permanent grassing, etc.) will be implemented for sediment and erosion control as needed. Operation: CSWTF demand represents less than 0.5% of the permitted withdrawal limit for the loop system. The CSWTF discharges to G-10, which is a permitted National Pollutant Discharge Elimination System outfall. While there will be a new source of domestic water (CSWTF), the demand in the facility should not change. No change is anticipated in wastewater generated by the CSWTF; and therefore, no change is anticipated in the discharge at the G-10 outfall.	Negligible difference in potential impact
Floodplain/Wetland	Construction: A Floodplain /Wetlands Assessment was prepared for those areas encompassed by the proposed pipelines. The Assessment determined that wetlands did exist along the proposed pipeline route and delineated the best possible routes to minimize impact on the floodplain/wetlands at SRS. The Assessment stated that the project could be expected to cause a temporary increase in the	Construction: Based on visual observations, it was determined that jurisdictional waters do not occur on or near the project site. The proposed water line route does not cross floodplains. Operation: No impact	No difference in potential impact

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	<p>sediment load levels of impacted SRS streams less than that experienced due to a rainstorm. Operation: No impact</p>		
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. Operation: The project would install a 30kW back-up diesel-driven generator at the proposed A-Area water treatment facility to provide power in the event of an outage or required maintenance. The existing domestic water diesel-driven generators which are in place across the SRS in the individual operational areas would remain in place to support the area firewater systems.</p> <p>Greenhouse Gas (GHG): Not previously assessed</p>	<p>Construction: Negligible emissions from standard materials utilized for facility construction (e.g., backhoe, dump truck, etc.). 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). Operation: Basic facility maintenance and upkeep of water lines will have negligible impact on air quality.</p> <p>GHG: The proposed action would result in a temporary increase in emissions from construction activities. Emissions from operations would be similar to current conditions since the existing diesel-driven generator would continue operations as usual. The construction-related increase would be negligible and would not meaningfully impact the level of emissions from the SRS operations.</p>	Negligible difference in potential impact
Waste Generation	<p>Construction: Generation of some construction related debris composed primarily of soil and rubble disposed in the SRS sanitary landfill or an erosion control pit. Contaminated soil generated during construction would be disposed of onsite in waste disposal areas in accordance with applicable regulations and site procedures. Soils contaminated with hazardous materials would be handled and disposed of in accordance with Resource Conservation and Recovery Act (RCRA) regulations. Operation: N/A</p>	<p>Construction: Disturbed soils will be returned to excavation area. Construction-related debris, including soil/rubble, will be disposed as needed at 632-G C&D Landfill or disposed as non-hazardous waste. Operation: Basic maintenance and upkeep of water lines will have negligible difference on construction related debris waste generated.</p>	Negligible difference in potential impact from construction related debris
Cultural Resources	<p>Construction: Cultural resources at SRS are managed under the terms of a Programmatic Memorandum of Agreement (PMOA). Survey conducted to ensure no cultural resources infringed upon. Operation: N/A</p>	<p>Construction: Savannah River Archaeological Research Program (SRARP) completed an archaeological survey for the proposed domestic water piping, and no archaeological resources were identified.</p>	No difference in potential impact

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<p>Socioeconomic Resources</p>	<p>Construction: When viewed in light of the present SRS employment of about 21,000 workers, the socioeconomic effect of a construction work force of 100 workers, is negligible. The proposed action was examined for any potential transportation impacts on air quality, traffic load, or traffic flow and no impacts are expected.</p> <p>Operation: Proposed facilities operated by existing trained and certified personnel currently employed by SRS.</p> <p>Environmental Justice: Not previously assessed</p>	<p>Operation: No impact</p> <p>Construction: Peak construction workforce is estimated to consist of approximately 6 personnel. SRS total workforce is approximately 10,000. Socioeconomic impacts of construction are negligible.</p> <p>Operation: Addition of CSWTF to the domestic water loop would not result in an increase or decrease to the SRS workforce. No socioeconomic impacts 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>	<p>Negligible difference in potential impact</p>
<p>Cumulative Impacts</p>	<p>The principal cumulative impact of the proposed project would be the potential for erosion/sediment transport into SRS streams and waterways. However, this potential pollutant source would be minimized by following an approved pollution prevention plan that meets all South Carolina Land Resources Commission and SCDHEC requirements prior to beginning any construction activity. There would be no adverse impact on the local groundwater levels from the increased usage of the A-Area wells for the consolidated system. No cumulative impacts to the environment would be expected as a result of the proposed action.</p>	<p>Construction: 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.</p> <p>Operation: No change</p>	<p>Negligible difference in potential impact</p>

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 impacts based on this analysis, DOE determined, consistent with the Final EA, that no additional 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 the CSWTF to the SRS consolidated Domestic Water System and to abandon the existing CSWTF groundwater well 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 the Final EA, properly takes the environmental impacts resulting from the connection of the main water line and associated temporary construction disturbances 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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