Westinghouse Columbia Fuel Fabrication Facility (CFFF)

Frequently Asked Questions (FAQ)

1. **Who owns Westinghouse Electric Company LLC (Westinghouse)?**

   Brookfield Renewable Partners L.P., a publicly traded limited partnership that owns and operates renewable power assets, and headquartered in Toronto, Ontario, Canada is the majority owner of Westinghouse Electric Company LLC. As of the end of May 2024, Brookfield Renewable owned the following assets in operation: 8.300 MW of hydro, 11,300 MW of wind, 7,200 MW of solar and 5,700 MW of distributed energy and storage – totaling almost 200,000 MW of renewable power assets. The minority owner, Cameco Corporation, is one of the world's largest global providers of the uranium fuel needed to energize a clean-air world and based in Saskatoon, Saskatchewan, Canada. Cameco's operations span the nuclear fuel cycle from exploration to fuel services, which include uranium production, refining, uranium dioxide (UO_2) and uranium hexafluoride (UF_6) conversion services and CANDU fuel manufacturing for heavy water reactors. Cameco sells uranium and fuel service products to nuclear utilities in fifteen countries.

2. **What does Westinghouse do?**

   Westinghouse is an American nuclear power company formed in 1999 from the nuclear power division of the original Westinghouse Electric Corporation. It offers nuclear products and services to utilities internationally, including nuclear fuel, service and maintenance, instrumentation and control and design of nuclear power plants. Westinghouse's world headquarters are in the Pittsburgh suburb of Cranberry Township, Pennsylvania.

3. **What does Westinghouse do at its Hopkins, SC location?**

   Westinghouse owns and operates a nuclear fuel fabrication facility in Hopkins, South Carolina. This facility, commonly referred to as the Columbia Fuel Fabrication Facility (CFFF), fabricates fuel and components for nuclear power plants worldwide to generate electricity. The site is not a power plant and does not generate electricity. The facility is approximately 550,000 square feet on 1,156 acres and has been in operation since 1969. Nuclear power plants supply 21% of the electricity generated in the United States, and roughly half of that, or 10% of the nation's electricity, comes from the nuclear fuel produced in CFFF.

4. **Who regulates the operations of the CFFF?**

   CFFF operates in compliance with the requirements of many federal, state and county regulators. The site must comply with regulations from the Nuclear Regulatory Commission (NRC), the South Carolina Department of Environmental Services (SC-DES), the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Department of Transportation (DOT), Richland County and more. Our site is regularly visited by regulators such as the NRC and SC-DES.

5. **What effluents are generated by CFFF operations?**

   CFFF operations generate radiological and chemical gaseous and liquid effluents. Radiological effluents are regulated by NRC and its rules (10CFR20) as detailed in the site's NRC license, SNM-1107. Chemical effluents are regulated by SC-DES in accordance with a state-approved NPDES permit (Permit No. SC0001848) for discharges to the Congaree River and a state-approved Minor Source Operating Permit (Permit No. OP-1900-0050). Both NRC and SC-DES perform inspections of these programs to assure CFFF continues to comply with all regulatory requirements.

   Radiological effluent data is publicly available in semi-annual discharge reports to the NRC. Radiological dose to the public and the environment from CFFF operations is less than 1% of regulatory limits.

   Chemical effluent data for discharges into the Congaree River is submitted monthly to the SC-DES through Discharge Monitoring Reports. Gaseous effluents have been tested for regulated chemical air pollutants to confirm site emissions meet "Minor Source" requirements. CFFF is not classified as a "Major Source" and thus is exempt from the requirement of a Title V Operating Permit.

6. **How does Westinghouse monitor the site to make sure that the community and the environment are safe?**

   CFFF has an extensive environmental monitoring program, examining both radiological and non-radiological constituents that could be released into the environment from ongoing operations. The program requires that the site collect and analyze samples of environmental media on various frequencies. This includes liquid and gaseous effluents, surface water, groundwater, stormwater, soil, sediment, vegetation, and fish. Sampling is performed on-site, along the site perimeter and on the Congaree River. The minimum requirements are specified in the CFFF's various state permits and NRC license. This sample data is analyzed and trended as results are received from certified laboratories. Low-level limits have been established to investigate results and respond to any data that deviates from what is normal or expected with the goal of identifying and resolving issues at the lowest level of consequence.

   With respect to legacy impacts, Westinghouse entered into a Consent Agreement with the SC-DES in February 2019 to complete a comprehensive Remedial Investigation (RI) and clean-up historic impacts at the site following the EPA Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. CFFF has completed the RI phase of the process, and the report, which characterized the source, nature, and extent of historic impacts, was approved by the SC-DES in March 2023. Based on the comprehensive environmental investigation, the legacy impacts are on-site and not a risk to public health and safety.

   Legacy CFFF operations have impacted on-site groundwater, surface water and soils/sediments. This data is publicly available on the Westinghouse, SC-DES and NRC websites. As part of the Consent Agreement, CFFF is currently working on a Feasibility Study to evaluate ways to clean-up these impacts. The initial report describing potential cleanup alternatives is due to the SC-DES by November 30, 2024.

7. **What wastes are generated by current CFFF operations?**

   CFFF is a large quantity generator of hazardous waste and a small quantity generator of universal waste. CFFF also generates landfill waste, low-level radioactive waste, and mixed waste. CFFF strives to minimize the waste it generates and to recycle and reuse materials. All wastes are disposed of at permitted facilities following applicable state and federal regulations. SC-DES and NRC perform routine inspections of these programs to assure CFFF operates in compliance with regulatory requirements.

8. **How does the CFFF respond to emergencies?**

   The CFFF has a qualified Emergency Response Organization (ERO) and emergency brigade to respond to all types of events that could occur at the site. The site also has a qualified security force who coordinate with the ERO. Routine training and emergency exercises are planned to assure that site personnel maintain their qualifications. These include training with outside agencies such as the SC-DES, Richland County Emergency Services, Columbia Fire and Technical Rescue, PRISMA Richland Hospital, Richland County Police Department and more. The NRC performs an inspection of these exercises every two years, and the results are available in inspection reports available to the public.

9. **What types of accidents could occur at the facility?**

   CFFF has procedures and plans to place to respond to the types of accidents that could occur at the site. The types of events that could occur include industrial safety accidents, chemical and radiological releases, fires, a nuclear criticality accident and transportation incidents. The ERO and on-site personnel are trained and qualified to respond to these events. The site has also evaluated and planned for accident scenarios from natural phenomena such as earthquakes, floods, tornadoes, and hurricanes.

10. **What is a nuclear criticality accident?**

    The CFFF manufactures nuclear fuel for nuclear power plants. At nuclear power plants, this fuel is placed into a reactor to create a sustained, nuclear reaction called a criticality. This controlled criticality produces large quantities of heat used to make electricity, and the associated radiation is safely contained within the power plant. An accidental nuclear criticality is a criticality that occurs in a location where it is unplanned and uncontrolled.

    There has never been a criticality event in the history of U.S. commercial fuel manufacturing. However, there is a very small chance that a criticality accident could occur. A nuclear criticality accident at the CFFF would create heat and radiation over a short amount of time, usually less than a second, and for a short distance. The radiation released from an accidental criticality would likely be lethal at distances within a few feet of the accident. However, radiation would be below measurable levels within a few hundred feet. Therefore, there would be no off-site public or environmental impacts.

    The CFFF nuclear fuel manufacturing processes incorporate multiple layers of defenses and controls to prevent such accidents. These controls include both engineered controls, which

require no human intervention to work, and administrative controls, which rely on trained and qualified personnel to perform tasks in certain ways. In accordance with the site's NRC nuclear material license, credible nuclear criticality accident scenarios have been evaluated and appropriate controls selected to ensure that an accidental criticality is at least highly unlikely at the CFFF.

11. How will local residents be informed if a major event occurs at the Columbia Fuel Fabrication Facility?

In the unlikely scenario of an event at the CFFF with potential offsite impacts, the CFFF ERO would activate and follow its plans and procedures for responding to emergency events. CFFF is required to notify state and county personnel within 15 minutes of an event that could have offsite impacts. Local residents would be notified by Richland County personnel of any actions needed to respond to the event.

The CFFF ERO would also designate an individual responsible for communicating information related to the event to the media and public. Local television, radio and electronic media outlets could also be used.

12. If the plant were to shut down, what is the plan for decommissioning?

Under NRC regulations, the CFFF maintains a Decommissioning Cost Estimate and a Decommissioning Funding Plan (DFP), which is sufficiently funded to complete removal of radiological materials and radiological clean-up at the site. The DFP is updated and submitted to the NRC every three years for review and approval. NRC has direct access to the funds, if needed.

13. What action is Westinghouse taking to preserve burial grounds on the site?

Westinghouse completed refurbishment of the African American Denley Cemetery in 2007 and has been maintaining the grounds ever since. Westinghouse heard cultural resource concerns expressed by members of the public during its most recent license renewal and initiated a study of the site by professional archeologists in 2021, including reassessment of the cemetery using the latest Ground Penetrating Radar (GPR) survey equipment and mapping tools.

CFFF received approval of the report, including an appendix dedicated to the Denley Cemetery in May 2022, from the State Historic Preservation Office (SHPO). CFFF also submits annual reports to the SHPO detailing whether any cultural resources work has been undertaken or planned at the site, including a status update on the Denley Cemetery. Westinghouse will continue to preserve the cemetery, and visits to the cemetery are arranged upon request. CFFF also has procedures and training in place should any indications of a historic or cultural resource be found on the site.

14. Has Westinghouse incorporated any plans to address climate-change related flooding, or an event such as the Columbia October 2015 flood?

The potential impacts of flooding are thoroughly evaluated in the CFFF Safety Program and Integrated Safety Analysis (ISA) as required by the NRC. Shortly after the historic floods of

October 2015, Westinghouse contracted with a service to provide detailed aerial photographs of the Westinghouse property. The photos clearly showed that the flood waters stayed below the bluff and away from CFFF operations.

15. Westinghouse recently announced that a Center of Excellence for Low Enriched Uranium Plus (LEU+) fuel manufacturing would be created at CFFF. What is LEU+ fuel and what does that mean for the site?

LEU+ fuel is a higher enriched product that allows commercial nuclear power plants to increase power generation capabilities while reducing the number of outages needed, ultimately reducing costs for the consumer. LEU+ fuel is more highly enriched than CFFF currently produces, and manufacturing it will require changes to the CFFF NRC license as well as its SC-DES permits.

Westinghouse has a team dedicated to the design, construction, and start-up of this new facility. As part of CFFF's commitment to the public, there will be opportunities for stakeholder input throughout the new facility design, engineering, and implementation processes.

16. What has Westinghouse done to reduce its potential impacts on the environment?

Westinghouse has invested a significant amount of funding and resources to implement projects that reduce the risk of potential impacts on the environment from its ongoing operations at the CFFF. These include:

- Recycle and disposal of legacy uranium-impacted materials contained in sixty-two intermodal shipping containers,
- Remediation and closure of the 500,000-gallon East Lagoon,
- Elimination of hazardous chemicals in operations, such as anhydrous ammonia and perchloroethylene,
- Elimination of a nickel-plating operation and its associated chemicals, such as hydrochloric acid, nickel chloride and boric acid, and hazardous waste generation,
- Completion of seismic upgrades to six tanks that store uranium recycle material eliminating a potential failure of these tanks in a seismic event,
- Removal of radiologically impacted equipment from the roof,
- Completion of an agreement with EPA to recycle uranium in legacy drums containing perchloroethylene,
- Completion of a Remedial Investigation to fully characterize legacy site impacts under the Consent Agreement with the SC-DES, and
- Implementation of an underground piping integrity program.

Westinghouse never stops improving. Continuous improvement in safety and risk reduction is expected year-over-year in plant operations.

17. How is Westinghouse engaged with the local community?

Westinghouse revamped its community engagement efforts in 2019 to focus on needs in the Lower Richland area. CFFF hired a Community Engagement Coordinator and created a

Community Engagement Board. Other improvements included refocusing CFFF's commitment to the community in support of education, health and safety initiatives, veterans, and more.

CFFF employees have supported activities such as community meetings, engaged with neighbors and community leaders, participated in educational activities with local schools, technical colleges, Historically Black Colleges and Universities, etc. and supported community events. Westinghouse has sponsored scholarships, summer camps and local events like the Lower Richland Sweet Potato Festival, the South East Rural Community Outreach (SERCO) Swamp Fest at the historic Harriet Barber House and the Congaree National Park, Tri-City Visionaries Senior Day and Luncheon, the SC-Disabled American Veterans Holiday celebration and many other activities. The site has also partnered with organizations such as the Hopkins Community Awareness and Crime Watch, the Lower Richland National Association for the Advancement of Colored People (LR-NAACP), the Gadsden Community Association, Disabled American Veterans and 100 Black Men of Columbia.

18. **Whom can I contact to answer additional questions or to discuss opportunities for community engagement?**
    For additional information on community engagement please reach out to the CFFF Community Engagement Coordinator, Ms. Candice Simons, at the link below.

    Link: https://www.westinghousenuclear.com/contact-us/

19. **How does the NRC regulate the CFFF?**
    The NRC's mission is to license and regulate the Nation's civilian use of radioactive materials, to provide reasonable assurance of adequate protection of public health and safety, to promote the common defense and security, and to protect the environment.

    As such, the CFFF submits its plans for operating the CFFF in a safe and secure manner in accordance with NRC regulations. NRC reviews and approves these plans through the licensing process and issues a license that is specific to CFFF programs and processes. Safety oversight of ongoing operations is provided by the NRC through their inspection program, routine assessment of CFFF performance, and enforcement. Additional information can be found in the link below.

    Link: https://www.nrc.gov/materials/fuel-cycle-fac.html