

# **U.S. Nuclear Regulatory Commission Public Meeting on the Westinghouse Columbia Fuel Fabrication Facility**

November 08, 2018

**Division of Fuel Cycle Safety, Safeguards, and Environmental Review**

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# Agenda

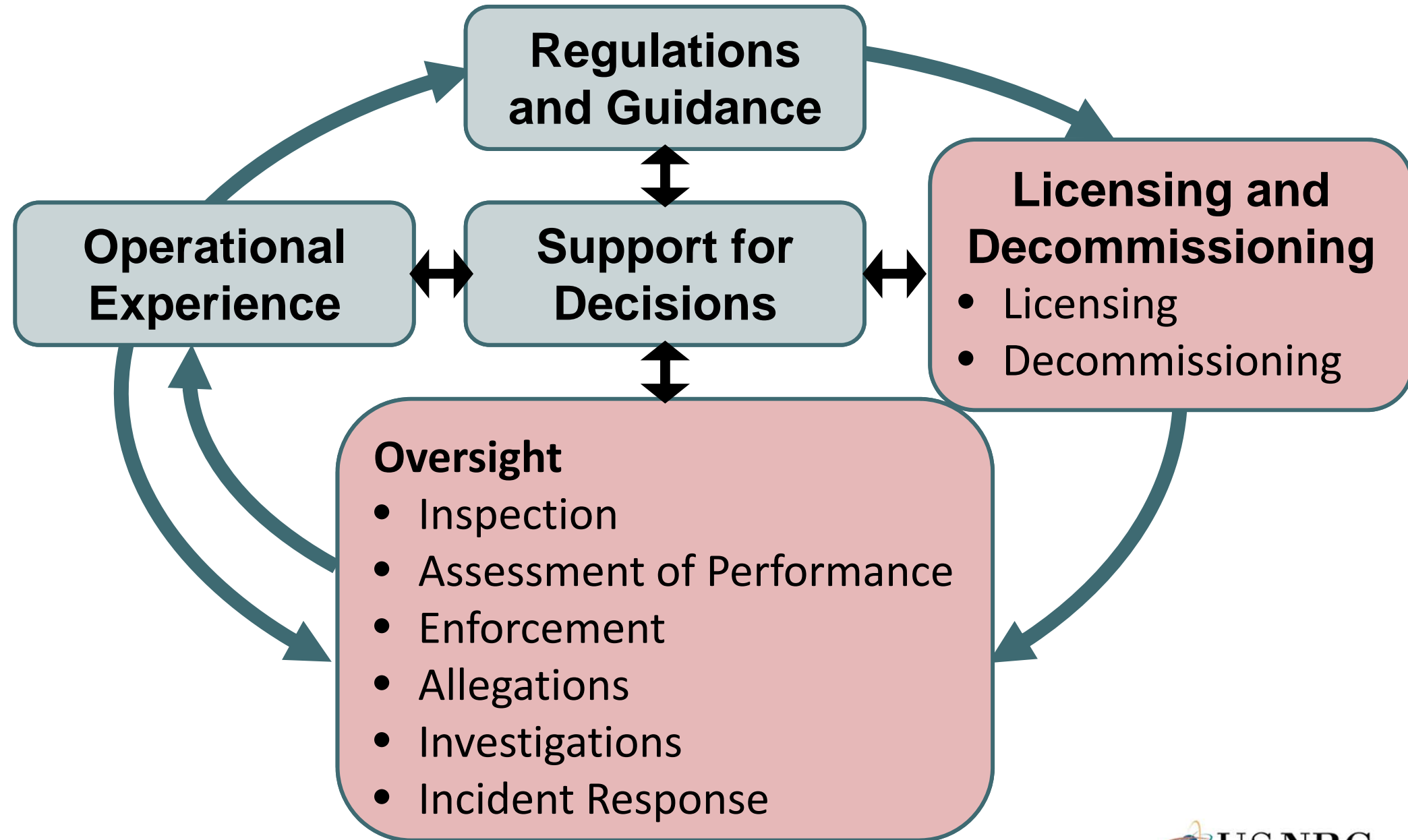
- NRC Introduction
- Westinghouse and Fuel Fabrication
- License Renewal Process
  - Safety Review
  - Environmental Review
- NRC Oversight
  - Inspection and Enforcement
  - Leaks in 2008, 2011, and 2018

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# NRC Mission

The NRC licenses and regulates the Nation's civilian use of radioactive materials to provide reasonable assurance of adequate protection of public health and safety, and to promote the common defense and security, and to protect the environment.

# Who We Are and What We Do

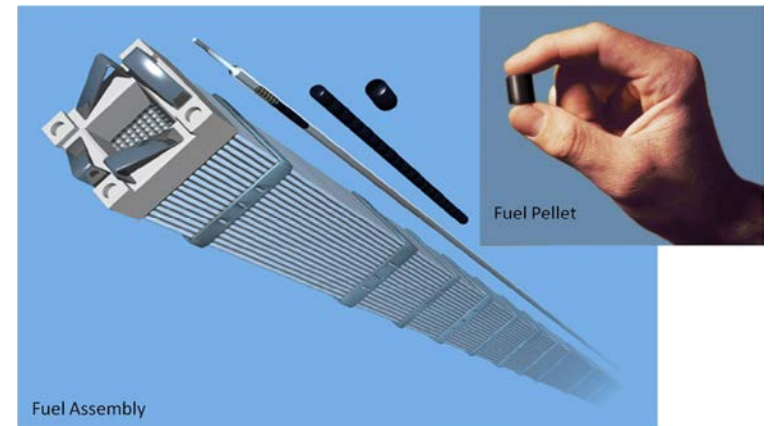


# Columbia Fuel Fabrication Facility

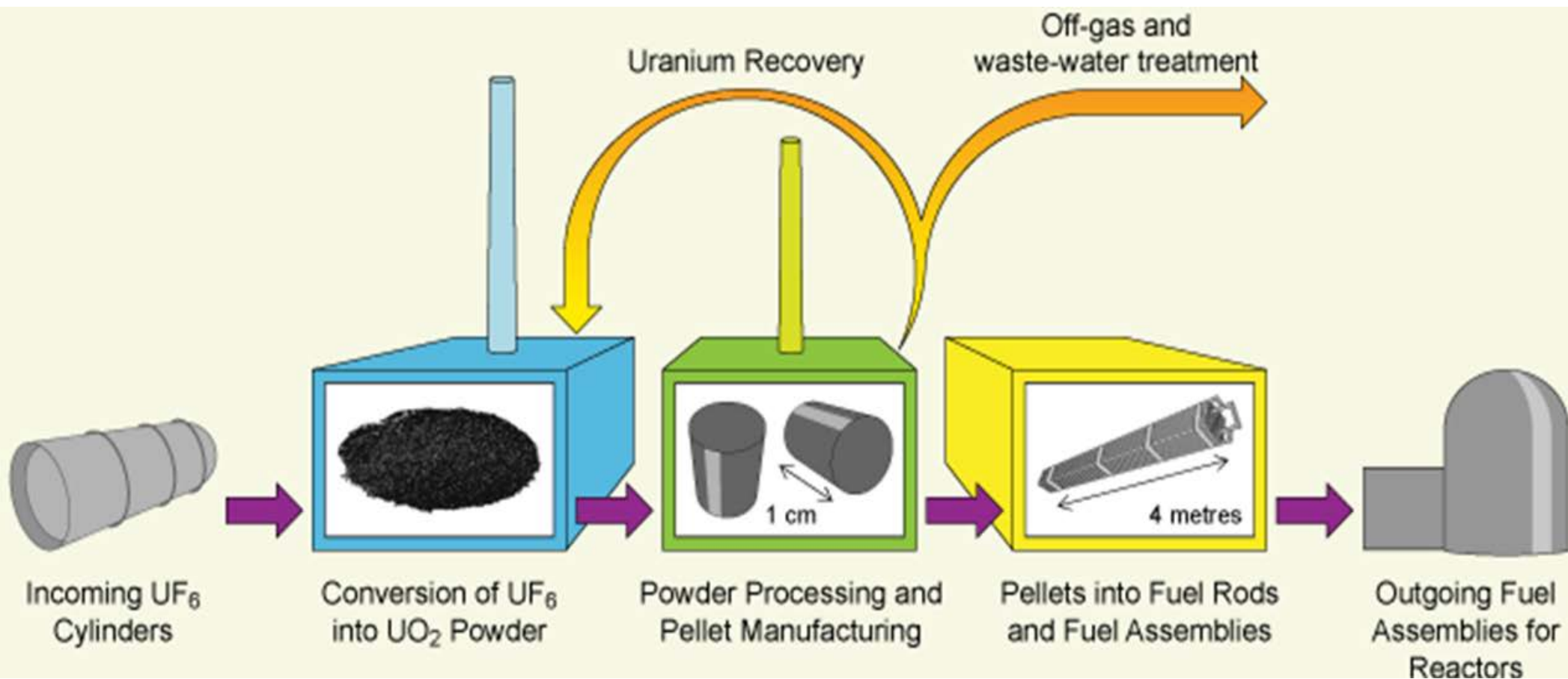


- Located in Hopkins, SC
- 1969: Original license issued
- License renewed 4 times
- 2027: Current license expires
- 5<sup>th</sup> license renewal currently under review

- Manufactures fuel assemblies for use in commercial nuclear power plants

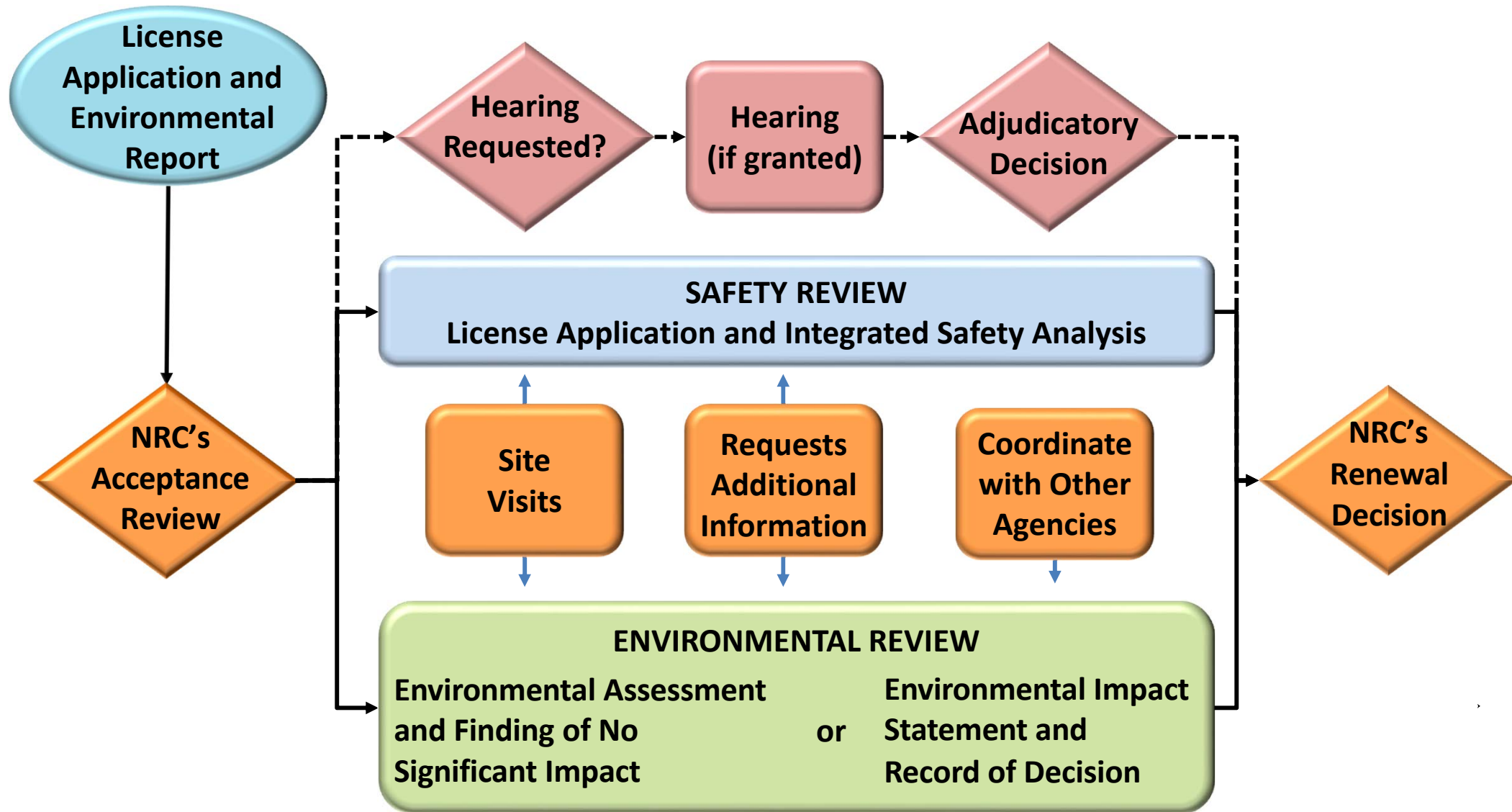


# Fuel Fabrication Process



[\\*http://www.world-nuclear.org/info/nuclear\\_fuel\\_fabrication-inf127.html](http://www.world-nuclear.org/info/nuclear_fuel_fabrication-inf127.html)

# License Renewal Process





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# Safety Review

Program Elements	
General Information	Emergency Management
Organization and Administration	Environmental Protection
Integrated Safety Analysis	Decommissioning
Radiation Protection	Management Measures
Criticality Safety	Material Control and Accounting
Chemical Process Safety	Fire Safety
Physical Protection	



# National Environmental Policy Act (NEPA) Review



Air Quality

Land use

Noise and Aesthetics

Ecology

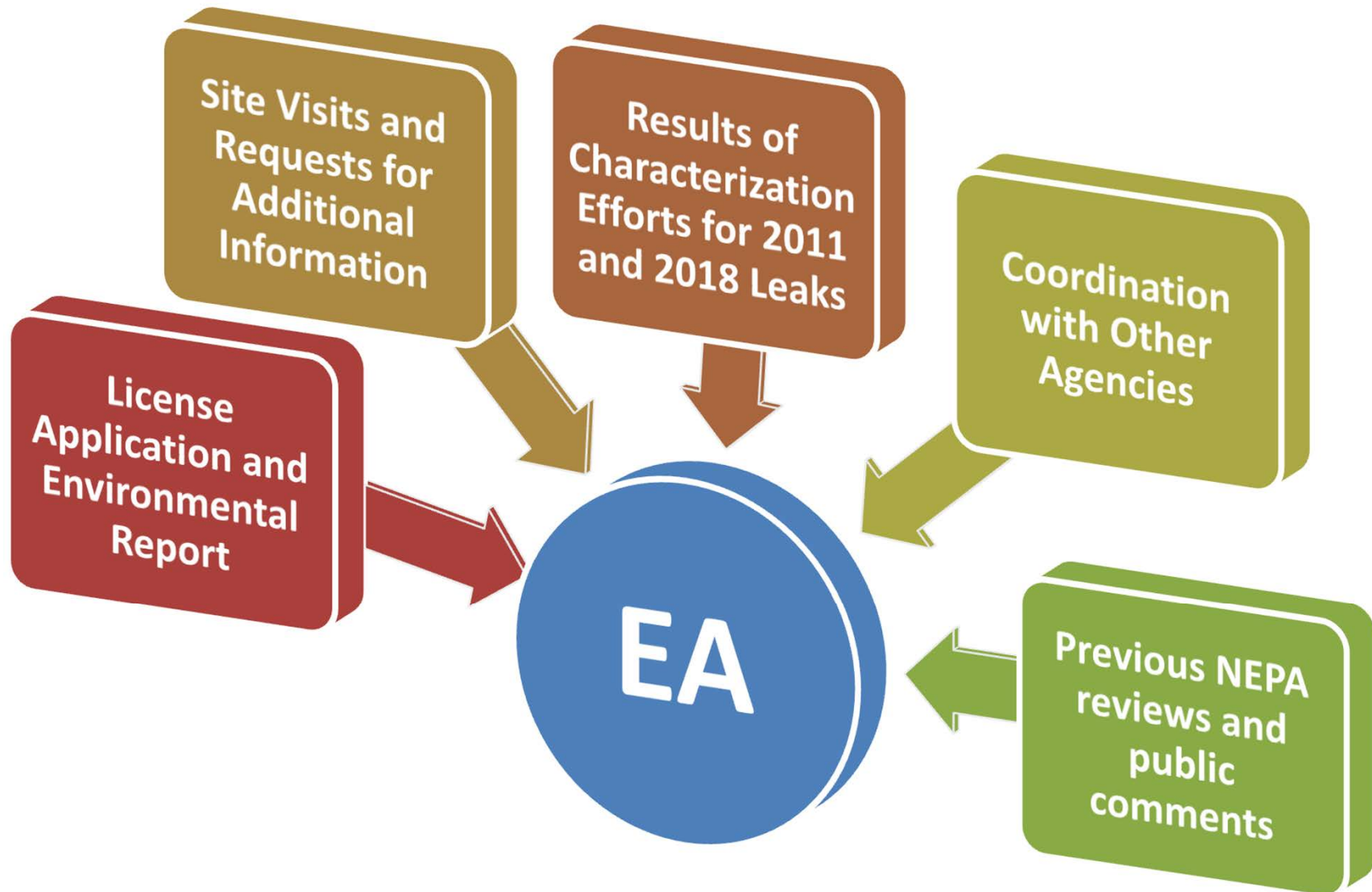
Socioeconomics

Transportation

Water Quality and Use

- Evaluate the environmental effects of the facility operating for another 40 years
- Document results in an Environmental Assessment (EA)
- Re-open the NEPA review due to leaks
  - Will issue draft EA for public review and comment

# NEPA Review



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# Environmental Justice (EJ)

- Analyze for “disproportionately high and adverse human health and environmental effects” on low-income and minority populations
- NRC has a Policy Statement that provides guidance for performing EJ analyses
- Previous EAs did not include EJ analysis because there were no significant impacts
- Decision to conduct EJ analysis will follow process outlined in the Policy Statement

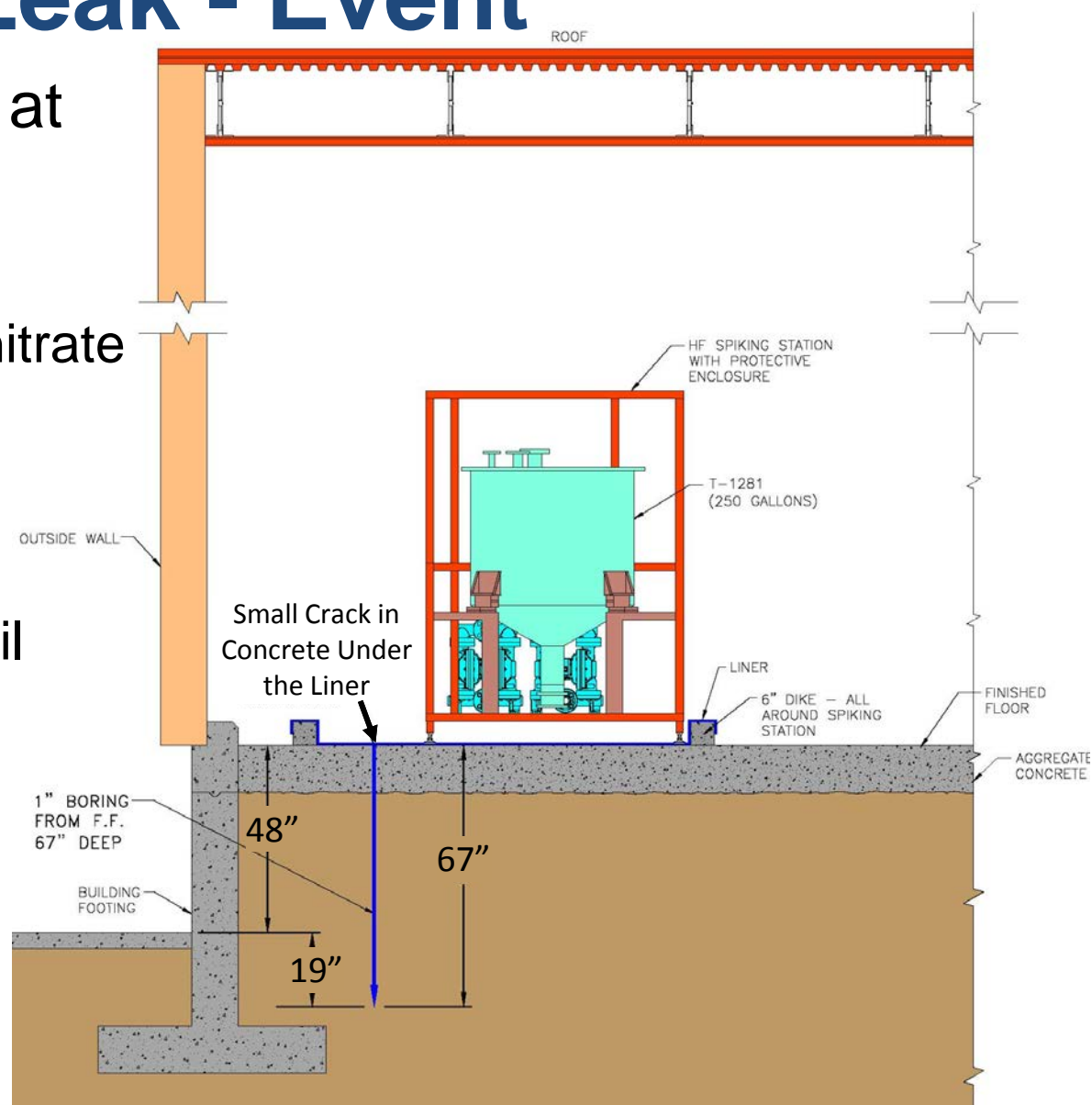
# Oversight

- Verify Westinghouse is meeting the regulatory requirements as described in their license
- Assess the overall safety performance of the facility by reviewing trends
- Issue violations if regulatory requirements are not met
  - Level of violation (severity) ranges from I to IV



# 2018 Leak - Event

- June 2018: Leak occurred at Spiking Station #2
  - Pipe coupling leak
  - Hydrofluoric acid and uranyl nitrate
  - No workers injured
  - Damage to liner and concrete floor
  - Chemicals seeped into the soil
- July 2018: NRC and SC Department of Health and Environmental Control (DHEC) notified



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# 2018 Leak – Response

- NRC completed an inspection September 18-21, 2018, and issued a Level IV violation
  - Westinghouse responded to violation on November 2, 2018
- Westinghouse completed an apparent cause evaluation, implemented compensatory measures, and continues to take corrective actions
- Westinghouse is still determining the extent of the leak into the subsurface and coordinating with DHEC for further actions
  - Remediation plan submitted to DHEC to remove contaminated soil below the Spiking Station to a depth of approximately 9 feet

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# 2018 Leak – Next Steps

- DHEC approved Westinghouse Soil Sampling Plan
  - Phase I (completed): Conduct 12 borings and collect samples from the area under the dike to a depth of up to 5 feet and analyze results for contamination levels
  - Phase II (completed): Conduct additional borings and collect samples down to approximately 12 feet
  - Phase III (if necessary): Obtain ground water samples below the dike for analysis
- Compensatory measures put in place for operating Hydrogen Fluoride Spiking Station #1:
  - Hourly piping leak checks
  - Protective mats placed on liner if an operator needs to walk on liner
  - Following any entry to diked area, the liner integrity check will be completed
  - Liner integrity check frequency changed from annual to quarterly
- DHEC well water sample results: Uranium concentration well below MCL limits



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# 2008/2011 Leaks

- Westinghouse found leaks in 2008 and 2011 in an underground piping system that goes from the facility to the wastewater treatment plant
- Westinghouse implemented corrective actions:
- 2008: Piping header was repaired
- 2011:
  - Re-routed acidic and/or caustic solutions
  - Portions of the line inside the building were re-routed above ground
  - Piping was re-lined

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# 2008/2011 Leaks – Next Steps

- January 2018: Westinghouse initiated an effort to further characterize and determine the extent of the leaks
  - Drilled temporary wells to obtain water samples to determine the extent of the contamination, if any
  - Efforts are ongoing
  - NRC will evaluate the results in the license renewal review

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# 2008/2011 Leaks – Characterization

- Results from the temporary well water samples:
  - 2 of 9 temporary wells show uranium above the drinking water limit in an area approximately 30 feet from the plant building
  - The remaining 7 temporary wells were below the drinking water limits
  - No other permanent or temporary wells show results above drinking water limits for uranium
- No impact to off-site groundwater
- Westinghouse met with DHEC on October 31 to discuss results and path forward

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# Decommissioning

- Westinghouse is required to decommission the site once operations have ceased and clean up to allow for unrestricted use
- NRC reviews and approves Westinghouse's decommissioning funding plan every 3 years
- NRC's Decommissioning Planning Rule

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# Closing Remarks

- **License renewal review is ongoing**
  - Draft EA will be published for public comment
  - Safety Evaluation Report will document the conclusions of the safety review
- **Oversight and Inspection**
  - Completed the inspection and issued a violation
  - Westinghouse must respond to the violation
  - Westinghouse continues to investigate the leaks

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# For More Information

- Visit the NRC's website at <https://www.nrc.gov/info-finder/fc/westinghouse-fuel-fab-fac-sc-lc.html>
- Find documents online in the Agencywide Documents Access and Management System at <https://www.nrc.gov/reading-rm/adams.html>
- Contact NRC staff
  - [Matthew.Bartlett@NRC.gov](mailto:Matthew.Bartlett@NRC.gov) or 301.415.7154
  - [Jessie.Quintero@NRC.gov](mailto:Jessie.Quintero@NRC.gov) or 301.415.7476

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# Acronyms

DHEC	Department of Health and Environmental Control
EA	Environmental Assessment
EJ	Environmental Justice
NEPA	National Environmental Policy Act
SC	South Carolina