



**Returning the Crane Clean  
Energy Center to an  
Operating License Basis**

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A Licensing Perspective



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## Restarting a Nuclear Power Plant Under NRC Regulatory Framework

- Two certifications are required by 10 CFR 50.82(a)(2), “Termination of License” related to plant shutdown:
  - Certification of Permanent Cessation of Operations
  - Certification of Permanent Fuel Removal
- Can these certifications be rescinded?
  - *“Upon docketing of the certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel, or when a final legally effective order to permanently cease operations has come into effect, the 10 CFR part 50 license no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel.”* 10 CFR 50.82(b)
  - *“The licensee would have to apply to the NRC to authorize operation and demonstrate that they meet all of the 10 CFR part 50 requirements.”* 2016 NEIS Letter

***“While current regulations do not specify a particular mechanism for reauthorizing operation of a nuclear power plant after both certifications are submitted, there is no statute or regulation prohibiting such action.”*** 2021 Denial of Petition for Rulemaking

## Crane Plant Overview

- Unit 1 commenced commercial operation in 1974
- License renewal granted in October 2009 with the current Operating License expiring in 2034
- Reactor shut down for retirement on September 20, 2019
- Prior to retirement, Unit 1 was one of the strongest performing plants in the industry
  - In its last year of operation, the unit capacity factor was over 99 percent
  - Annual payroll of about \$60 million while employing more than 600 full-time workers
  - Over 1,000 highly skilled, mostly union craftspeople, supported the unit's biennial refueling outages
- On September 20, 2024, Constellation announced its intention to restore Three Mile Island, Unit 1, to commercial service and that the facility was renamed Crane Clean Energy Center
  - NRC approved the name change on May 13, 2025



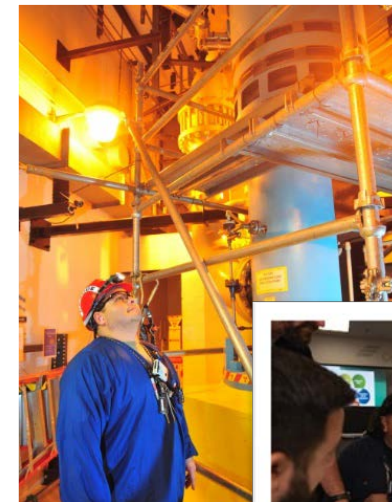
## Plant Status

- All fuel removed from fuel pool and placed in dry cask storage
- Spent fuel pool - drained with cover in place
- Protected Area – appropriate to plant status
- Equipment Status
  - Most major plant systems have been drained and deenergized
  - No major plant components have been removed
  - Main generator inspections completed and placed in long term layup
  - Main power transformers inspection complete (procurement of new transformers req'd)
- Steam Generators were replaced in 2009 and inspected in Spring 2024
  - Performed in compliance with Technical Specifications, EPRI Guidelines, and In-Service Inspection program requirements
  - No abnormal conditions identified
  - NRC Region I observed inspection activities
  - Steam Generator Inspection Report provided to NRC – Dec 2024



## Plant Restoration

- Process developed to evaluate restoration activities against expected licensing and design basis requirements
- Return to service plans were created to identify and prioritize activities for safe and reliable plant operation
- Return to service plans include items such as:
  - Component level and system reviews, maintenance, and testing to establish functionality
  - Technical Specification surveillance testing to re-establish full operability of all SSCs
  - Restoration of regulatory required programs (ISI, IST, Fire Protection, Aging Management, and others)
- When necessary, changes are evaluated under 10 CFR 50.59 and/or 10 CFR 50.54 to determine if the change requires prior NRC approval



## Understanding the Current License Basis – What’s the Licensing starting point?

- Entering into the termination of license process:
  - 10 CFR 50.82(a)(2), “Termination of License” submitted to NRC
  - 10 CFR 50.82(a)(1) certifications submitted to NRC
    - plant shutdown, fuel removed
  - Post-Shutdown Decommissioning Plan (PSDAR)
  - Quality Assurance Plan -> Decommissioned Quality Assurance Plan
- Operating -> Post-Defueled -> Decommissioned
  - Amended Operating License and Technical Specifications
  - Submitted Exemptions
  - Updated Final Safety Analysis Report (UFSAR) -> Decommissioned Safety Analysis Report (DSAR)
  - Training Programs scaled back to only those essential for Decommissioning (e.g. Radiation Protection)
  - Referenced Plant Simulator no longer required
  - Most Engineering and Regulatory Programs no longer required
  - Physical Security Plan (PSP) and Emergency Plans (E-Plan) -> ISFSI Only PSP and E-Plans

***“A facility that has permanently ceased operations and removed fuel from the reactor vessel and is being decommissioned maintains the same license that it had during operations.” 2016 NRC Letter to NEIS***

## The Regulatory Path - Restoring to an Operating Reactor License Basis (ORLB)

*“When a licensee submits a request for exemption from the requirements of 10 CFR § 50.82 to allow placing fuel in the reactor vessel and authorizing operation of the reactor, the Restart phase of the reactor facility inspection program can begin.”*

IMC 2562

- Initial Communications -> Public Announcement and NRC Notification, Public Meeting, Regulatory Path Letter (November 2024)
- Developed Restoration Quality Assurance Plan and Submitted to NRC for Information under 10 CFR 50.54(a)(3), “Conditions of Licenses”
- Submitted Licensing Actions:
  - 50.82(a)(2), “Termination of License,” exemption request to allow for rescinding 50.82(a)(1) certifications (November 2024)
  - License Amendment Requests (LARs):
    - Operating License and Technical Specifications to reflect resumption of power operations (July 2025)
    - Site Emergency Plan to revert from an ISFSI Only Emergency Plan to the operating plant Emergency Plan (October 2025)
    - Site Physical Security Plan (PSP) to incorporate requirements of operating plant with the existing ISFSI Only PSP (October 2025)
  - Rescind decommissioning exemptions
- LARs were bundled with the 50.82 exemption request, posted in Federal Register (Feb 2026), with a single opportunity for hearing

## The Regulatory Path – Restoring to an Operating Reactor License Basis (ORLB)

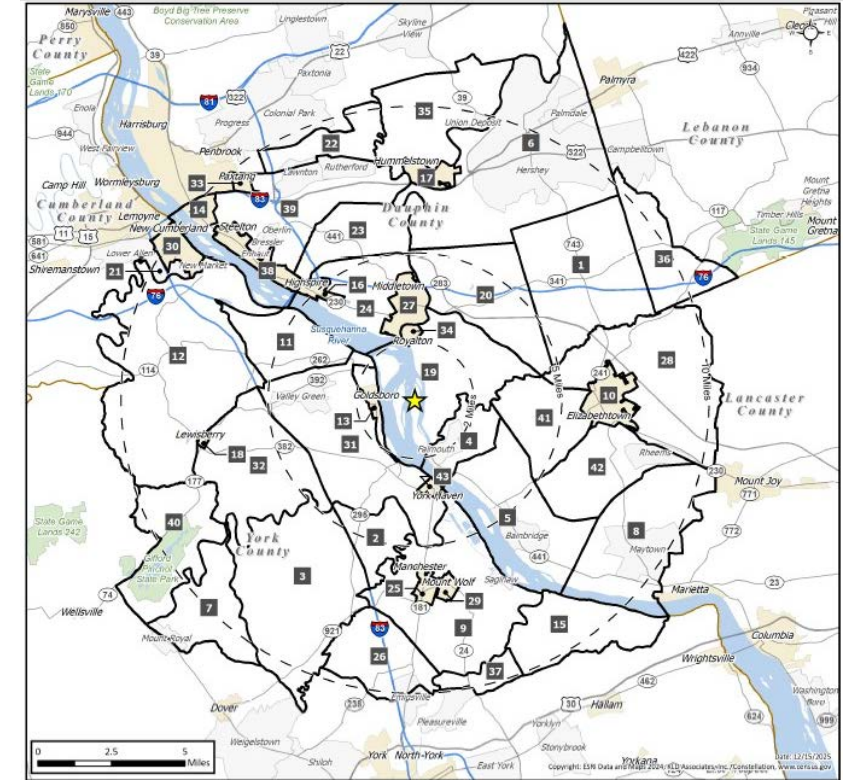
- Submitted Environmental Report (ER) to support NRCs Environmental Assessment (EA)
  - Licensing Actions tied to NRCs EA
  - Working with State and Local agencies to restore required permits



- Simulator Certification and restoration of training programs and qualifications
  - NRC Inspection of the Simulator to ensure simulator was in the as certified condition for Licensed Operator Training
  - Constellation Training implemented plan to restore training programs and earn Institute of Nuclear Power Operations (INPO) Accreditation
- Restoring Engineering and Regulatory Programs, examples include:
  - (Operating) Design change processes - 10 CFR 50.59
  - In-Service Inspection / In-Service Testing (ISI/IST) - 10 CFR 50.55a,
  - FLEX as required by 10 CFR 50.155
  - Fitness for Duty Programs - Work Hour Rule 10 CFR 26.205

# The Regulatory Path – Restoring to an Operating Reactor License Basis (ORLB)

- Emergency Preparedness Restoration
  - Emergency Plan (E-plan) - Primarily restores the Crane Emergency Plan to the approved E-plan at the time of shutdown
  - Other Considerations:
    - Facilities and Facility Equipment, such as computers, phone lines, dedicated connection to the Emergency Response Data System (ERDS)
    - Alert and Notification System (ANS) and updating (FEMA approved) ANS Design Report
    - Offsite Response Organization (ORO) Emergency Preparedness
      - Evacuation Time Estimate (ETE) -> ORO Emergency Plans
      - FEMA review of ORO Emergency Plans
    - NRC and FEMA evaluated exercise necessary for final approval (February 2027)
- Reestablishing Site Physical Security
  - LAR primarily restores the Crane PSP to the approved PSP prior to shutdown
  - Security changes, included in LAR, will be implemented, reviewed and inspected by NRC prior to returning to the ORLB



## Transition to the Operating Reactor License Basis

- Licensing action approvals -> NRC Audit (LIC-111) Process
- NRC Inspections
- NRC/FEMA Emergency Plan Exercise
- Physical Security Plan is restored and inspected as required
- Submit Operational Readiness Letter
  - Status and schedule for remaining restoration activities
- LAR “Bundle” Approval
  - “Green Light” to allow rescinding 10 CFR 50.82(a)(1) certifications
- Rescind 10 CFR 50.82 (a)(1) certifications
  - Necessary to allow emplacement and retention of fuel in the reactor vessel and subsequent plant operation



## Licensing Best Practices for Restart



Communicate frequently with NRC Project Managers and Restart Panel



Engage FEMA and Offsite Response Organizations early and often to remain aligned on actions required for recovery of the Emergency Plan



Align inspection schedule with site restoration activities



Identify opportunities to perform 'baseline' inspection activities



Maintain Security posture commensurate with need



Manage Design Control (10 CFR 50.59) based on a "proposed" design basis.



Identify Licensing actions that occurred during decommissioning and will remain in the Operating License Basis