

Reload licensing of Non-GNF Fuel

Mixed Core Analysis Report (MCAR)

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Overview

Standard Reload Licensing Process

Thermal Hydraulic Modeling Reports

Mixed Core Analysis Report (MCAR) Description



GNF does not “license” Non-GNF Fuel

Non-GNF fuel is already licensed for operation by “legacy” fuel vendor

GNF methodology used to assure operation meets licensed technical specifications

GNF methodology needs legacy fuel vendor input

- > Thermal Hydraulic - Model
- > Nuclear - Qualify
- > Thermal Mechanical – Apply
- > CCFL for LOCA – Apply



Reports are issued to document legacy fuel thermal hydraulic modeling

GEXL correlation developed to model legacy fuel critical power performance – **Issue report to NRC for approval**

Model legacy fuel flow / pressure drop in fuel assemblies – **Issue compatibility report to Utility**

- > Mixed core varying legacy / GNF fuel split
- > Acceptance Criteria – GNF fuel introduction does not significantly degrade legacy fuel performance in the core from a thermal hydraulic perspective



Mixed Core Analysis Report (MCAR) scope

Nuclear Parameter Qualification – Lattice / Core

Thermal Mechanical Limits Application

Reference Loading Pattern (RLP)

Safety Limit Minimum Critical Power Ratio
(SLMCPR)

Safety Evaluations – Transients, LOCA, Stability

Supplemental Reload Licensing Report (SRLR)



ECCS Analysis for Legacy Fuel

GEXL correlation

RCCH inputs

Fuel thermal-mechanical inputs

LHGR limits

Gamma smearing coefficients

CCFL coefficients

Radiation coefficients

} Same as core
design, AOO



All other licensing methodology is directly applicable using normal process

