

- 121
131
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**NMSS Topical Areas and Questions Regarding
the PBMR/IRIS/AP1000 and Certified Designs**

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W. Gleaves

Enrichment

What is the proposed uranium enrichment of the new reactor fuel?
What are the isotopic species in the new fuel? (Types and abundances)
Will MOX fuel be used? If so, will it use weapons-grade or reactor-grade plutonium?
Where would the fuel enrichment be done? By whom? To what enrichment?

Fuel

What is the proposed fuel design? Has this design been used before? Where? How long?
What is the chemical type of the fuel? UO₂? Other?
What is the proposed burnup or depletion of the fuel?
What are the isotopic species in the new & spent fuel? (Types and abundances)
What is the quality of the fuel? What quality is needed in the coatings or cladding?
How would the quality of the fuel be verified?
Where would the fuel be made? How would it be transported?

Transmutation

Is transmutation part of the fuel process?
Is it related to the plant operation?

Storage

What are the thermal physical characteristics of the spent fuel?
Where would waste be stored? How? For how long?
Would new storage, transportation, or burial cask design approvals be needed? When?

Waste

What are the differences in types and quantities of low-level waste compared to LWRs?
Would any high-level, non-fuel waste be created? What is it?
What wastes are produced from the fuel enrichment and fuel fabrication processes? How are they handled?
Will waste be stored on the plant site? How will this be done?

Construction Inspection/Licensing

Will a new fuel enrichment or fabrication facility be needed? When?

Possible Regulations Impacted

Proposed 10 CFR Part 63, "Disposal of High-level Radioactive Wastes in a Proposed Geologic Repository at Yucca Mountain, Nevada" - MOX fuel may have a significantly longer half-life than assumed in the proposed rule - This information has not yet been confirmed.

NMSS Special Staffing Needs

Although the staff has good knowledge of carbide fuel technology, additional experience is needed in the following areas: Production of PBMR fuel (coatings, quality of materials, formation of TRISO particles, mechanical operations, impurities); long term storage of PBMR fuel; unique Material Control & Accounting applications for PBMR; and Nondestructive Assay of PBMR fuel.

Q/17