UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 26, 2022

MEMORANDUM TO: Kimberly A. Webber, Director
Division of Systems Analysis
Office of Nuclear Regulatory Research

FROM: Louise Lund, Director
Division of Engineering
Office of Nuclear Regulatory Research

John B McKirgan
McKirgan, John signing on behalf of Lund, Louise on 08/26/22

SUBJECT: TECHNICAL LETTER REPORT (TLR-RES/DE/REB-2022-05) "ADVANCED MANUFACTURING TECHNOLOGY COMPONENTS FOR ADVANCED FUEL ASSEMBLIES"

The technical letter report "Advanced Manufacturing Technology Components for Advanced Fuel Assemblies" has been completed and is to be published on the Agencywide Documents Access and Management System (ADAMS) under ADAMS accession number ML22236A549. The report was completed as a part of work aimed at providing technical support for applications of advanced manufacturing technology (AMT) for advanced fuel assemblies, at the request of your predecessor in 2020.

The report reviews advanced manufacturing technologies and processes including additive manufacturing and coating technologies. The report also explores the use of artificial intelligence and machine learning in component design and manufacturing process control. The opportunities and challenges for AMT in light-water reactors and advanced non-light-water reactors are summarized, including opportunities in thermal-hydraulic and neutronic performance.

Staff representatives from the Division of Systems Analyses have reviewed a draft of this TLR, and the enclosed final TLR reflects the resolution of their comments. Nonetheless, please feel free to notify the responsible RES contact if you have any questions concerning the impending public release of this TLR.

CONTACT: Christopher J. Ulmer, RES/DE/REB
301-415-3883

RES has established an online quality survey to collect feedback from user offices on the usefulness of RES products and services. This survey can be found online at the hyperlink: RES Quality Survey. I would appreciate the responsible manager completing this short survey within the next 10 working days to present your office's views of the delivered RES product. Please share any concerns with me or the Division of Engineering contact listed below, so that they may be addressed.

Enclosure:
TLR-RES/DE/REB-2022-5, "Advanced Manufacturing Technology Components for Advanced Fuel Assemblies"

SUBJECT: TECHNICAL LETTER REPORT (TLR-RES/DE/REB-2022-5) “ADVANCED MANUFACTURING TECHNOLOGY COMPONENTS FOR ADVANCED FUEL ASSEMBLIES” DATED August 26, 2022

DISTRIBUTION:
R. Furstenau, RES
S. Coffin, RES
L. Lund, RES/DE
J. McKirgan, RES/DE
R. Iyengar, RES/DE
K. Webber, RES/DSA
T. Lalain, RES/DSA
H. Esmail, RES/DSA/FSCB
A. Buford, NRR/DNRL/EVIB
M. Hayes, NRR/DANU/UTB1
S. Philpott, NRR/DANU/UTB2
R. Lukes, NRR/DSS/SFNB
S. Ruffin, RES/DE/MEB
E. Focht, RES/DE/MEB
R. Tregoning, RES/DE
D. Rudland, NRR/DNRL

ADAMS Package Accession Number: ML22236A549 via-email

OFFICE	RES/DE/REB	RES/DE/REB	RES/DE
NAME	C. Ulmer	R.Iyengar	L. Lund
DATE	08/25/22	08/25/22	08/26/22

TLR-RES/DE/REB-2022-05 "Advanced Manufacturing Technology Components for Advanced Fuel Assemblies" DATE August 26, 2022

DISTRIBUTION:
RFurstenau, RES
SCoffin, RES
LLund, RES/DE
JMcKirgan, RES/DE
RIyengar, RES/DE/CIB
KWebber, RES/DSA
TLalain, RES/DSA
HEsmaili, RES/DSA/FSCB
MHayes, NRR/DANU/UTB1
SPhilpott, NRR/DANU/UARP
RLukes, NRR/DSS/SFNB
SRuffin, RES
EFocht, RES/DE/CMB
RTregoning, RES/DE
DRudland, NRR/DNRL

ADAMS Accession No.: ML22236A549; ML22236A551

OFFICE	RES/DE/REB	RES/DE/CIB	RES/DE	
NAME	CUlmer *CU*	RIyengar *RI*	LLund JMcKirgan for *JM*	
DATE	Aug 25, 2022	Aug 25, 2022	Aug 26, 2022	

OFFICIAL RECORD COPY