

ADVANCED NUCLEAR FUELS CORPORATION

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FUEL ENGINEERING &
TECHNICAL SERVICES

September 13, 1988
RAC:055:88

Dr. S. L. Wu
Reactor Systems Branch
Division of Engineering and System Technology
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Dr. Wu:

Subject: ANF Topical Report Submittals in FY 1989

Ref.: Letter, R. A. Copeland (ANF) to M. W. Hodges (USNRC), "ANF Topical Report Submittals", dated May 19, 1988 (RAC:030:88)

The referenced letter presented a listing of the ANF topical reports currently under review by the NRC and of the ANF topical reports scheduled for submittal to the NRC in the remainder of Fiscal Year 1988 and in Fiscal Year 1989. Based on our telephone conversation on August 17, 1988, I have updated the submittal lists in the referenced letter. Attached is the revised list.

If there are questions, or if I can provide more information, please contact me.

Sincerely yours,

Bob Copeland

R. A. Copeland
Manager, Reload Licensing

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Attachment

cc: Mr. M. W. Hodges (NRC)
Mr. T. E. Collins (NRC)
Mr. R. C. Jones (NRC)
Mr. L. E. Phillips (NRC)

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ACTIVE NRC REVIEWS

<u>TOPICAL REPORT</u>	<u>SUBMITTAL DATE</u>	<u>SER REQUEST DATE</u>	<u>COMMENTS</u>
XN-NF-79-71(P), Rev. 2 "Plant Transient Methodology for BWRs (COTRANSA)"	Nov 1981		COTRANSA2 intended as replacement for COTRANSA.
XN-NF-84-67 "Stability Evaluation Methodology for BWR Cores"	July 1984		COTRANSA2 stability model.
XN-NF-84-73(P), Rev. 1, "Exxon Nuclear Methodology for Pressurized Water Reactors Analysis of Chapter 15 Events"	Aug 1984	Nov 1988	Procedure for the disposition of PWR transient events.
XN-NF-84-73(P), Rev. 2, Appendix A, "Exxon Nuclear Methodology for Pressurized Water Reactors Analysis of Chapter 15 Events"	Mar 1986	Nov 1988	Procedures for analysis of transients in Westinghouse designed plants. ANF is currently responding to NRC questions in September 1988.
ANF-84-73(P), Rev. 3, Appendix B "Advanced Nuclear Fuels Methodology for Pressurized Water Reactors Analysis of Chapter 15 Events"	May 1988	Nov 1988	Procedures for the analysis of transients in CE designed reactors. Analogous to the Appendix A for Westinghouse designed plants. This appendix will be used on the Millstone 2 submittal in late 1988.
XN-NF-84-93(P) "RELAP5 Steamline Break Methodology"	Nov 1984	Nov 1988	Submitted to analyze asymmetric flows.
ANF-84-93(P), Supp. 1 "Steamline Break Methodology for PWRs"	June 1988	Nov 1988	Replaces RELAP5/MOD1 with ANF-RELAP in Steamline Break Methodology. The modified methodology is being used on the Millstone 2 submittal in late 1988.

ACTIVE NRC REVIEWS

<u>TOPICAL REPORT</u>	<u>SUBMITTAL DATE</u>	<u>SER REQUEST DATE</u>	<u>COMMENTS</u>
XN-NF-84-117(P) "Generic LOCA Break Spectrum Analysis, BWR3 and 4 with Modified Low Pressure Coolant Injection Logic	Dec 1984		Approved for Susquehanna, not approved generically.
XN-NF-929(P) "Spray Heat Transfer Coefficients for Jet Pump BWRs with Water Rods"	Sept 1986	Feb 1988	ANF responding to NRC questions by November 1988.
ANF-1125(P) "Critical Power Correlation - ANFB"	Feb 1988	Dec 1988	CHF correlation for 8x8 and 9x9 BWR fuel designs. NRC has contracted with PNL for review.
ANF-913(P) Vol.1 and Vol. 1 Supp. 1 "COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analysis"	May 1988	Jul 1989	COTRANSA2 is planned to be alternative for COTRANSA in approved ANF transient methodology. The licensing basis transient analysis to be provided by December 1988. This code is planned to be used with the Grand Gulf sub- mittal in 1990.
ANF-1161(P) "ANNA: Advanced Neutron Noise Analysis Software System"	Apr 1988	Dec 1988	Methodology for calculating BWR decay ratios based on incore instrumentation signals. Currently being proposed for utility use.
ANF-81-58(P), Rev. 2, Supplement 3 "RODEX2 Fuel Rod Thermal Mechanical Response Evaluation Model"	Sep 1988	Mar 1989	Demonstrates RODEX2 by benchmarking against higher exposure data. The models are unchanged. This report is used to support the high exposure cases in the Millstone 2 submittal in late 1988.

ACTIVE NRC REVIEWS

<u>TOPICAL REPORT</u>	<u>SUBMITTAL DATE</u>	<u>SER REQUEST</u>	<u>COMMENTS</u>
ANF-88-133(P), "Qualification of Advanced Nuclear Fuels PWR Design Methodology for Rod Burnup of 62 GWd/MTU"	Sep 1988	Mar 89	Revises the PWR high burnup report to exposure limits consistent with revised RODEX2 limits. Includes sample problems and supporting corrosion data. This report is used to support the high exposure cases for the Millstone 2 submittal in late 1989.

ANF SUBMITTALS PLANNED FOR
REMAINDER OF FY1988 AND
FOR FY1989

<u>SUBMITTALS</u>	<u>SUBMITTAL DATE</u>	<u>SER NEED DATE</u>	<u>COMMENT</u>
<u>9x9-5 BWR Fuel Design</u>			
			Needed for the Grand Gulf submittal in 1990.
--CHF Report	Apr 1989	Nov 1989	Modification to ANF-1125, ANFB CHF Correlation to correspond to 9x9-5 design.
--Mechanical Design	Dec 1988	Jul 1989	Supplement to XN-NF-85-67(P), Rev. 1. Extension of the mechanical design evaluation to 9x9-5 design.
--Bypass/Water Rod Model	Apr 1989	Nov 1989	Changes in the BWR Thermal hydraulic codes to account for the increased bypass and water rod design in the 9x9-5 design. May not require NRC review.
<u>9x9-IX BWR Fuel Design</u>			
			Currently being proposed by ANF. First potential use in 1991.
--CHF Report	Jul 1989	Jan 1990	CHF Correlation to correspond to 9x9-IX design.
--Mechanical Design	Jul 1989	Jan 1990	The mechanical design evaluation to 9x9-IX design.
--LOCA Review	Apr 1990	Dec 1990	Review of LOCA codes to determine modifications necessary to properly represent the 9x9-IX design.

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<u>SUBMITTALS</u>	<u>SUBMITTAL</u> <u>DATE</u>	<u>SER NEED</u> <u>DATE</u>	<u>COMMENT</u>
<u>PWR High Thermal Performance (HTP) Spacer/Intermediate Mixer</u>			
--DNB Report	Jan 1989	Dec 1989	PWR DNB correlation for designs using the ANF HTP spacers with and without intermediate mixers. Based on ANF DNB testing.
--Mechanical Design Report	Jan 1989	Dec 1989	Mechanical design of the high thermal performance (HTP) spacer/intermediate mixer designs. Focused on assembly since the rod designs unchanged.
<u>Mechanical Design</u>			
Generic BWR Mechanical Design Criteria	Sep 1988	Mar 1989	ANF BWR mechanical design criteria for generic review instead of individual mechanical design reports.
<u>Neutronics</u>			
MICROBURN-B Supplement to ANF BWR Neutronics Methodology	Dec 1988	May 1989	Supports CASMO/MICROBURN as replacement for XFYRE/XTGBWR. Rest of neutronics methodology is unchanged. Includes benchmarks to plant neutronics data. Currently being proposed by ANF. Provides updated neutronic modeling capability for advanced BWR designs.

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<u>SUBMITTALS</u>	<u>SUBMITTAL</u> <u>DATE</u>	<u>SER. NEED</u> <u>DATE</u>	<u>COMMENT</u>
<u>Transients</u>			
ANF-RELAP for Transients	Feb 1989	Dec 1989	Benchmarks ANF version of RELAP5/MOD2 as alternative for PTSPWR2 and SLOTRAX-ML in PWR plant transient methodology. ANF-RELAP provides a more mechanistic model.
Generic Analysis of Loss of Feedwater Heating Transient for BWRs 4, 5 and 6	Jun 1989	Jun 1990	Generic analysis to allow reduction of analytical and review resources.
RELAP5/MOD2 PWR Transient Methodology	Sep 1989	Mar 1990	Revises PWR transient methodology to incorporate appropriate input biases for transient analyses when using ANF-RELAP.
Automatic Rod Control Methodology	Sep 1989	Jun 1990	Methodology for the analysis of plants using automatic rod control. Uses the ANF plant transient codes. Currently being proposed by ANF for application in 1990.
Statistical Westinghouse Setpoint Methodology	Sep 1989	Sep 1990	Methodology for the statistical analysis of Westinghouse setpoints. Uses the ANF plant transient codes.