

**U.S. NUCLEAR REGULATORY COMMISSION
NOTICE OF GRANT/ASSISTANCE AWARD**

1 GRANT/AGREEMENT NO NRC-04-98-056	2 MODIFICATION NO. 20	3. PERIOD OF PERFORMANCE FROM 8/24/98 TO 08/31/2004	4 AUTHORITY Pursuant to Section 31a and 141b of the Atomic Energy Act of 1954, as amended
5 TYPE OF AWARD <input type="checkbox"/> GRANT <input checked="" type="checkbox"/> COOPERATIVE AGREEMENT	6 ORGANIZATION TYPE	7. RECIPIENT NAME AND ADDRESS University of Maryland Department of Materials & Nuclear Engineering, Building 090 College Park, MD 20742	
8 PROJECT TITLE Probabilistic Assessment and Applications			
9 PROJECT WILL BE CONDUCTED PER GOVERNMENT'S/RECIPIENT'S PROPOSAL(S) DATED AND APPENDIX A-PROJECT GRANT PROVISIONS	10. TECHNICAL REPORTS ARE REQUIRED <input checked="" type="checkbox"/> PROGRESS AND FINAL <input type="checkbox"/> FINAL ONLY <input type="checkbox"/> OTHER (Conference Proceedings)	11. PRINCIPAL INVESTIGATOR(S) NAME AND ADDRESS University of Maryland Materials & Nuclear Engineering Dept. ATTN: Prof. Mohammad Modarres 2100 Marie Mount Hall College Park, MD 20742 College Pa	
12. NRC PROGRAM OFFICE (NAME, ADDRESS) U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research ATTN: Roy Woods Washington, DC 20555 301-415-6622	13 ACCOUNTING APPROPRIATION DATA APPN NO 31X0200.260 BB NO 26015110203 JOB CODE: K6007 BOC NO 4110 OFFICE ID NO RES-C02-050	14 METHOD OF PAYMENT <input type="checkbox"/> ADVANCE BY TREASURY CHECK <input type="checkbox"/> REIMBURSEMENT BY TREASURY CHECK <input type="checkbox"/> LETTER OF CREDIT <input checked="" type="checkbox"/> OTHER (SPECIFY) ACH (See Attach. 30 in Appendix A - "Electronic Payment")	
15 NRC OBLIGATION FUNDS THIS ACTION _____ PREVIOUS OBLIGATION \$1,604,936.00 TOTAL \$1,604,936.00	16 TOTAL FUNDING AGREEMENT NRC \$1,802,740.00 This action provides funds for Fiscal Year 03 in the amount of \$.00 RECIPIENT 0 TOTAL \$1,802,740.00		
17. NRC ISSUING OFFICE (NAME AND ADDRESS) U.S. Nuclear Regulatory Commission Division of Contracts Attn: T-7-I-2 Contract Management Center 2 Washington DC 20555			
18. RECIPIENT <u>Monique Anderson</u> 3/21/03 (Signature) Monique Anderson, Contract Manager (Date) NAME (TYPED) Research Administration & Advancement TITLE _____ TELEPHONE NO _____	19. NRC CONTRACTING OFFICER <u>Robert B Webber</u> 2/24/03 (Signature) Robert B Webber (Date) NAME (TYPED) Robert B Webber TITLE Contracting Officer TELEPHONE NO 301-415-7314		
20 PAYMENT INFORMATION Payment will be made within thirty (30) days after receipt of the billing unless the bill is improper or the recipient has failed to comply with the program objectives, award conditions, Federal reporting requirements or other conditions specified in OMB Circular A-110. Payment will be made by: _____ Vouchers should be submitted in an original and three (3) copies on form 270 to: U.S. Nuclear Regulatory Commission Office of the Chief Financial Officer Attn: GOV/COM Acctng. Section T-9H4 Washington, DC 20555			
21. Attached is a copy of the "NRC General Provisions for Grants and Cooperative Agreements Awarded to Institutions of Higher Education and Other Nonprofit Organizations". Acceptance of these terms and conditions is acknowledged when Federal funds are used on this project.			
22. ORDER OF PRECEDENCE In the event of a conflict between the recipient's proposal and this award, the terms of the Award shall prevail			
23 By this award, the Recipient certifies that payment of any audit-related debt will not reduce the level of performance of any Federal Program			

U.S. NUCLEAR REGULATORY COMMISSION
COOPERATIVE AGREEMENT
NRC-04-98-056
MODIFICATION NO. 20

The purpose of Modification No. 20 to the Cooperative Agreement is to: (1) identify the extended period of performance for Task Nos. 4, 5, 6, and 7; and (2) identify the period of performance for the Cooperative Agreement. Accordingly, the agreement is modified as follows:

1. **Task 4 - Thermal Hydraulic Uncertainty Evaluation and Propagation**

The period of performance for Task 4 is December 31, 2000 through November 30, 2003.

Task 5 - High-Resolution Experimental Measurement of Turbulent Mixing

The period of performance for Task 5 is February 9, 2003 through August 31, 2003.

Task 6 - AP1000 LBLOCA Uncertainty Analysis

The period of performance for Task 6 is November 30, 2002 through August 31, 2003.

Task 7- Improved Methods for Performing Importance Analysis

The period of performance for Task 7 is December 31, 2002 through August 31, 2003.

2. The expiration date for this agreement is identified as August 31, 2004.

All other terms and conditions of this agreement remain unchanged.