ADDENDUM

to

MEMORANDUM OF UNDERSTANDING

between

U.S. NUCLEAR REGULATORY COMMISSION

and

ELECTRIC POWER RESEARCH INSTITUTE, INC.

on

COOPERATIVE NUCLEAR SAFETY RESEARCH

Maintenance, Support, and Distribution of the xLPR Version 2 Code

I.   Introduction

This legally binding Addendum to the Memorandum of Understanding on Cooperative Nuclear Safety Research (the MOU) is entered into by and between the U.S. Nuclear Regulatory Commission (NRC) and the Electric Power Research Institute, Inc. (EPRI) (collectively, the Parties) effective as of the date of signature of the last of the Parties to execute this Addendum (the Effective Date). The NRC and EPRI are parties to the MOU signed on September 30, 2016. Pursuant to the MOU, the Parties agreed to encourage cooperation in nuclear safety research, which provides benefits to the NRC, the nuclear power industry (the Industry), and the public.

This Addendum is authorized pursuant to Section 31 of the Atomic Energy Act (AEA) of 1954, as amended, and/or Section 205 of the Energy Reorganization Act of 1974, as amended. The roles, responsibilities, terms, and conditions of this Addendum should not be interpreted in a manner inconsistent with and shall not supersede applicable laws and regulations.

This Addendum describes a cooperative effort to maintain, support, and distribute the xLPR Version 2 computer code (the "Code"). This Addendum supersedes the original Addendum titled "Maintenance, Support, and Distribution of the xLPR Version 2 Code," dated September 4, 2018. The Parties jointly developed the Code under a separate addendum to the MOU titled "Extremely Low Probability of Rupture (xLPR) V2" which expired on December 31, 2016.

II.   Objectives

The objective of this Addendum is to establish a framework through which the Parties will jointly provide for maintenance, support, and distribution of the Code in its entirety.

III. Scope

A. Maintenance, Support, and Distribution

1. Maintenance

(a) Maintenance includes, but is not limited to: configuration management of the Code and associated documentation, modifications to the Products outlined in Section III.B to correct identified problems, improve performance or maintainability, keep the Products usable in a changed or changing environment, and detect and correct latent faults; documentation, tracking, and processing of maintenance activities; testing necessary to ensure proper functionality of the Code following maintenance-related changes; and electronic storage of the Products.

(b) Maintenance activities shall be governed by a quality assurance plan, which will be developed by the Parties. This plan shall be an extension of the quality assurance plan used for Code development. It shall, at a minimum, address version control, file back-up, and corrective action procedures.

(c) All changes to the Products shall be subject to the joint approval of the Project Contacts designated in accordance with Article V. The Project Contacts shall oversee and prioritize all changes and shall render decisions about each change with consideration of the overall costs and benefits and input from the User's Group members.

2. Support

(a) Support includes, but is not limited to, activities such as providing technical assistance to users regarding installation, licensing, and reporting and correction of issues in the Products. Users may separately procure services for modeling and analysis support.

(b) A User's Group shall be established and supported to facilitate collaboration and Code application activities among users. User's Group activities may include, but are not limited to, distribution of the Controlled Elements of the Code, issuing communications and announcements, preparing and delivering training, planning and holding periodic meetings and workshops, and facilitating online discussion forums. The Project Contacts shall oversee and steer the User's Group activities. The User's Group may also undertake

Development and Maintenance activities as allowed by the charter under which it is established.

3. Distribution

    (a) End User License Agreements (EULAs) issued by NRC or EPRI for the Open Elements

        (i) The EULA shall require that any individual end user be either:

            (A) a U.S. citizen

            (B) a noncitizen national of the U.S. Noncitizen nationals are persons born in outlying possessions of the U.S. (i.e., American Samoa and Swains Island).

            (C) have been lawfully admitted to the U.S. for permanent residence (i.e., in possession of a currently valid Alien Registration Receipt Card I-551, or other legal verification of such status)

            (D) a citizen of an Approved non-U.S. Destination

        Individuals on U.S. temporary or student visas, as well as refugees and asylees, are not eligible.

        (ii) The EULA may be with:

            (A) a legally recognized U.S. entity

            (B) a legally recognized foreign regulatory entity or its technical support organization

            (C) a foreign educational institution

            (D) a foreign commercial entity (defined as an entity where 75 percent or more of the voting interest is owned by non-U.S. citizens)

        (iii) Each requester shall be required to properly execute an EULA before being provided access to the Open Elements. Required EULA terms and conditions are specified in Exhibit A.

        (iv) The Party issuing the EULA shall be as follows:

            (A) either Party in the case of a legally recognized U.S. entity

            (B) either Party in the case of a legally recognized foreign regulatory entity or its technical support organization

            (C) EPRI in the case of a foreign commercial entity

        (D)   either Party in the case of a foreign educational institution

  (b)   Approved Destinations

     (i)   Distribution of the Products is generally authorized in the U.S. and the countries identified in Exhibit B.

     (ii)   To effect a change to the list of Approved non-U.S. Destinations (other than pursuant to immediate statutory requirement, executive order, or Department of State directive consistent with U.S. export laws and regulations), a requesting Party's Senior Management Contact (as defined in the MOU) shall provide at least 15 days written notice to the other Party's Senior Management Contact of the intent to implement the change. The receiving Party shall provide written confirmation of the change and the effective date thereof to the requesting Party. In the event that an immediate change is required, the requesting Party shall provide notice to the other Party as soon as practicable.

  (c)   Distribution Pathways

     (i)   All distribution activities described herein shall comply with all U.S. export laws and regulations.

     (ii)   The Open Elements (defined below) may be distributed by either Party, subject to the requirements described in paragraph III.A.3 and subject to a separately executed (cross) license agreement granting such rights.

     (iii) The Parties will work together to identify a framework for distribution of the Controlled Elements, which shall be performed under a structured distribution process that provides a mechanism for User problem reporting, enhancement requests, communication, and configuration management.

B. Product Classes

The products pertaining to the Code are herein classified as either Open Elements or Controlled Elements. They shall also include new and derivative works as may be produced and incorporated into the Code pursuant to the terms of this Addendum.

  1. Open Elements

    (a)   Executable Code

    The Executable Code is the set of files comprising the executable program to run the Code on a computer.

(b)   User Manual

The User Manual includes the documents that provide instructions to the user for installation and operation of the Code.

(c)   Data Libraries

The Data Libraries provide sets of inputs in the required format for use in running the Code.

2.   Controlled Elements

(a)   Source Code

Source Code is the collection of statements or declarations written in human-readable computer programming language, which is primarily used as input to a process that produces an executable program to run the Code on a computer.

(b)   Configuration Control Documents

The Configuration Control Documents are, but are not limited to, those documents pertaining to the Code software requirements, software design, software testing; other documents that support the technical basis for the Code and its intended applications; and the quality assurance plan required by paragraph III.A.1(b).

(c)   Reference Products

The Reference Products include other files and documents not covered under paragraphs III.B.1 through III.B.2(b) that were created as part of the joint NRC-EPRI developmental effort of the Code or through the joint activities described in this Addendum. Examples include, but are not limited to, reports, records, training materials, meeting minutes, presentations, technical papers, test files, inputs, and results.

C. Rights and Licensing

1.   Source Code and Executable Code

(a)   EPRI Rights

(i)   EPRI possesses title to the following Source Code and Executable Code elements:

(A)   Crack Coalescence Module

(B)   In-Service Inspection Module

(C)   K Calculator for Circumferential and Axial Part-Through-Wall Cracks Module

(D)   K Calculator for Circumferential and Axial Through-Wall Cracks Module

(E)   Fatigue Crack Initiation Module

(F)   Primary Water Stress Corrosion Crack Initiation Module

(G)   Primary Water Stress Corrosion Cracking and Fatigue Crack Growth Rate Module

(H)   Thermal Stress Intensity Factors for Any Coolant History (TIFFANY) Module

(ii)   The EPRI products listed in paragraph III.C.1(a)(i) are protected by intellectual property rights including, without limitation, by U.S. copyright laws and by international treaty provisions. EPRI has unlimited rights to use, disclose, reproduce, and prepare derivative works of these products; to distribute copies to the public; and to perform publicly and display publicly in any manner and for any purpose, and to have or permit others to do so.

(iii)   The rights in paragraph III.C.1(a)(ii) are hereby agreed to apply to any derivative works of the products listed in paragraph III.C.1(a)(i) as may be produced through the activities described in this Addendum.

(iv)   EPRI does hereby exercise its rights and grants the NRC a nonexclusive, nontransferable, worldwide, irrevocable, paid-up (cross) license to use, reproduce, distribute, prepare derivative works, and perform publicly and display publicly the products listed in paragraph III.C.1(a)(i), or any portions thereof. EPRI shall also extend to the NRC the same rights to derivative works of these products or any portions thereof as may be produced under this Addendum.

(b)   NRC Rights

(i)   Non-Copyrighted Products

(A)   The following Source Code and Executable Code elements were either developed by NRC employee(s) during the course of their Federal employment or first produced during performance of services procured by the NRC under contract:

(1)   Preprocessor

(2)   Axial Through-Wall Crack Opening Displacement Module

(3)   Circumferential Through-Wall Crack Combined Tension and Bending Crack Opening Displacement Module

(4)   Axial Crack Stability Module

(5)   Through-Wall Crack Axial Stability Module

(6)   Circumferential Through-Wall Crack Stability Module

(7)   Crack Transition Module

(8)   Leakage Rate Module, excluding third-party-developed source code used to determine the thermodynamic properties of water.

(B)   The NRC has unlimited rights to the products identified in paragraph III.C.1(b)(i)(A). The NRC may use, disclose, reproduce, and prepare derivative works of these products; distribute copies to the public; and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so.

(C)   The rights in paragraph III.C.1(b)(i)(B) are hereby agreed to apply to any derivative works of the products listed in paragraph III.C.1(b)(i)(A) as may be produced through the activities described in this Addendum.

(D)   The NRC does hereby exercise its rights and grants EPRI a nonexclusive, nontransferable, worldwide, irrevocable, paid-up (cross) license to use, reproduce, distribute, prepare derivative works, and perform publicly and display publicly the products listed in paragraph III.C.1(b)(i)(A), or any portions thereof. The NRC shall also extend to EPRI the same rights to derivative works of these products or any portions thereof as may be produced under this Addendum.

(ii)   Copyrighted Products

(A)   The current operator of Sandia National Laboratories under contract to the Department of Energy possesses copyrights to the following Source Code and Executable Code elements:

(1)   GoldSim Model

(2)   GoldSim Player

(3)   Inputs Set

(4)   Graphical User Interface

(5)   Dynamic Link Libraries for Licensing

(6)   Dynamic Link Library Module Wrappers

(7)   Circumferential Surface Crack Stability Module

(B)   The NRC has unlimited rights to the products listed in paragraph III.C.1(b)(ii)(A). The NRC may use, disclose, reproduce, and prepare derivative works of these products; distribute copies to the public; and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so.

(C)   The rights in paragraph III.C.1(b)(ii)(B) are hereby agreed to apply to any derivative works of the products listed in paragraph III.C.1(b)(ii)(A) as may be produced through the activities described in this Addendum.

(D) The NRC does hereby exercise its rights and grants EPRI a nonexclusive, nontransferable, worldwide, irrevocable, paid-up (cross) license to use, reproduce, distribute, prepare derivative works, and perform publicly and display publicly the products listed in paragraph III.C.1(b)(ii)(A) or any portions thereof. The NRC shall also extend to EPRI the same rights to derivative works of these products or any portions thereof as may be produced under this Addendum.

2. Configuration Control Documents and Reference Products

   (a) The NRC and EPRI agree that both Parties have unlimited rights to use, disclose, reproduce, and prepare derivative works of the products identified in paragraphs III.B.2(b) and III.B.2(c) and shall have the rights to distribute copies of those products to the public, to perform publicly and display publicly in any manner and for any purpose, and to have or permit others to do so provided both EPRI and the NRC include any applicable copyright or other intellectual property notices. For the avoidance of doubt, the rights discussed in this paragraph will be granted through the (cross) licensing actions discussed in paragraph III.C.1. No rights are transferred herein.

   (b) The rights in paragraph III.C.2(a) shall also apply to any derivative works of the products listed in paragraphs III.B.2(b) and III.B.2(c) as may be produced through the activities described in this Addendum.

D. Development

   1. Definition

   Development includes modifications that significantly expand the functional capabilities of the Code.

   2. Third Party Developments

   Any Developments from non-NRC and non-EPRI sources ("Third Party Developments") may be incorporated into the Code subject to approval as described in paragraph III.A.1(c).

   3. NRC and EPRI Development

   Joint NRC and EPRI Developments and related activities are not authorized under this Addendum. The Parties may separately pursue developmental activities, and the results of those activities may be proposed for incorporation into the Code in the same manner as for Third Party Developments. The Parties agree not to claim that such Developments are part of the co-developed "xLPR" Code and to be responsible for any variation thereof.

4. User Group Development

The User Group may undertake Development as hereby allowed per paragraph III.A.2(b).

E. Promotional Activities

1. NRC

The NRC, as an independent regulatory agency, does not have statutory promotional authority; therefore, it will not engage in any joint promotion or advertising of the Code. The NRC may, however, provide factual information about the Code.

2. EPRI

EPRI is free to promote the Code provided that it does not claim or publish any statements that indicate the NRC's approval or endorsement of the Code unless approved by the NRC as specified in the Subarticle 1.3, Paragraph (f) of the MOU.

IV. <u>Effective Period</u>

The effective period of this Addendum will be from the Effective Date through September 30, 2021, to be extended in writing if mutually agreeable to EPRI and the NRC's Office of Nuclear Regulatory Research.

V. <u>Project Direction and Coordination</u>

Designated points of contact for each Party (the Project Contacts) shall have the joint authority to plan, coordinate, direct, oversee, monitor, and make decisions concerning activities within the scope of this Addendum. Technical meetings to coordinate this effort and to discuss progress will be arranged through the respective Project Contacts. The Project Contacts are:

NRC:	EPRI:
Matthew Homiack, Materials Engineer Component Integrity Branch Division of Engineering Office of Nuclear Regulatory Research U.S. Nuclear Regulatory Commission Washington, DC 20555 301-415-2427 Matthew.Homiack@nrc.gov	Craig Harrington, Technical Leader, Principal Materials Reliability Program Electric Power Research Institute Mandalay Tower III 201 East John Carpenter Freeway, Suite 800 Irving, TX 75062 817-897-1433 charrington@EPRI.com

Each Party is free to change its respective Project Contact without the consent of the other Party; however, any such change shall be communicated in writing to the other Party's Project Contact.

VI. <u>Costs and Schedule</u>

A. Costs

The NRC and EPRI shall seek to balance the net total costs for implementing this Addendum through in-kind resource contributions and User Group funding to the extent practical. The net total costs are the gross total costs minus any fees collected from User Group participants. The NRC and EPRI are responsible for their respective share of the net total costs. This Addendum does not obligate any funds and is subject to the availability of appropriated funds.

B. Fees

1. Open Elements

Both Parties may collect a fee to cover handling costs and basic installation assistance, provided that the fee is assessed to all users and prominently displayed to requestors.

2. Controlled Elements and User's Group Membership

Membership in the User's Group and access to the Controlled Elements and related services may be subject to fees in addition to any fee pursuant to paragraph VI.B.1. The Parties shall determine the amount of the fee, provided that the anticipated costs of supporting the User's Group activities shall be considered. The terms of User's Group memberships shall be outlined by the Parties and subject to NRC and EPRI approval.

3. EPRI Member and International Regulatory Counterpart Fees

ERPI members and International Regulators shall pay the full fee set pursuant to paragraphs VI.B.1 and VI.B.2, as applicable.

4. Fee Collection

The distributing Party or User Group administrator shall collect all fees set pursuant to paragraphs VI.B.1 and VI.B.2 and use those fees to offset costs pursuant to Section VI.A.

C. Schedule

No specific milestones have been established because of the ongoing nature of the activities outlined in this Addendum. The Parties shall deem the work complete when the effective period ends as specified in Article IV, to include any subsequent extensions.
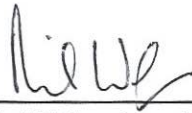
VII. Dispute

If a dispute arises out of or relating to this Addendum or any breach thereof, the Parties will first attempt to settle the dispute through direct negotiation between the Project Contacts. If the Project Contacts cannot settle such a dispute, the dispute shall be submitted to the Senior Management Contacts (as defined in the MOU) for resolution.

AGREEMENT

Stephanie M. Coffin
Digitally signed by Stephanie M. Coffin
Date: 2020.04.20 06:51:17 -04'00'

_____

Raymond V. Furstenau
Director of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission

Date: _____ 4-20-2020 _____

_____

Neil Wilmshurst
Vice President & Chief Nuclear Officer
Electric Power Research Institute, Inc.

Date: ____ 4-20-2020 ____

Exhibit A

End User License Agreement (EULA) Required Terms and Conditions

This Exhibit describes the required elements of the EULA.

1. Defined terms:

    a. "Licensee" shall be an individual or a legally recognized entity.

    b. "User" shall be an individual with access to the Code, either as an individual Licensee or as an employee or third-party consultant performing work on behalf of an entity Licensee.

    c. "Code" means the Executable Code or executable version of the xLPR Version 2 computer code funded by EPRI and the NRC.

    d. "Source Code" means the collection of statements or declarations written in human-readable computer programming language, which is primarily used as input to a process that produces an executable program to run the Code on a computer.

    e. "xLPR" means the computer Code for Extremely Low Probability of Rupture, Version 2.

2. Prior to obtaining access to the Products, each individual Licensee applicant or an authorized representative of an entity Licensee, as applicable, shall execute a license agreement containing the terms and conditions described herein (and any additional terms as agreed to by the Parties).

3. Applicant attestation to the following (as applicable) is required. Otherwise the request must be handled by exception.

    a. The applicant is:

        i. a legally recognized U.S. entity

        ii. a legally recognized foreign regulatory entity or its technical support organization

        iii. a foreign educational institution

        iv. where the EULA is issued by EPRI, a foreign commercial entity (defined as an entity where 75 percent or more of the voting interest is owned by non-U.S. citizens)

b. Any individual end user is:

    i. a U.S. citizen

    ii. a noncitizen national of the U.S. Noncitizen nationals are persons born in outlying possessions of the U.S. (i.e., American Samoa and Swains Island).

    iii. have been lawfully admitted to the U.S. for permanent residence (i.e., in possession of a currently valid Alien Registration Receipt Card I-551, or other legal verification of such status)

    iv. a citizen of an Approved non-U.S. Destination

Individuals on U.S. temporary or student visas, as well as refugees and asylees, are not eligible.

4. Prohibited uses of the Code by foreign entities include commercial use in the development of a new reactor design, commercial use in the U.S. unless performed by its U.S. subsidiary, or undisclosed uses in furtherance of its military.

5. Each Licensee of the Open Elements shall be granted a non-supported, internal use, nonexclusive, nontransferable license to use the Code in accordance with the terms and conditions herein. No sale, lease, loan, or transfer of the Code may be granted.

6. A Licensee of the Controlled Elements may use the Code for external use. The Licensee may not provide the Controlled Elements to any affiliate or other third party, other than its employees and third party consultants or contractors performing work for the benefit of such Licensee, provided that any such third party is a U.S. Citizen, a U.S. Permanent Resident or a U.S. entity, or a citizen of an Approved non-U.S. Destination, and agrees to be bound by the terms and conditions of the license agreement.

7. A Licensee may improve, modify, or otherwise make derivative works of the Code only in accordance with the following restrictions:

a. Licensee shall provide NRC and EPRI with the source code for all derivative works of the Code, along with a written description of all improvements or modifications and a summary of their impact on the representative Code calculations.

b. Licensee shall grant to the U.S. Government, and EPRI a non-exclusive, perpetual, irrevocable, royalty-free, copyright license to copy, modify, create derivative works, publicly display, disclose, distribute, sublicense, incorporate, and otherwise use the modifications, including derivative works thereto, for any and all purposes.

c. Licensee may only distribute such derivative works under the same conditions provided in the license agreement for distribution of the Open and Controlled Elements.

d. Licensee shall not call a derivative work of the Code "xLPR" or any derivative name.

8. The Code shall be provided "as-is." EPRI, the U.S. Government nor any agency thereof, nor any of their employees makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any use, or the results of such use, or of any information, product, or process included in or calculated by the Code, or represents that use of the Code would not infringe privately-owned rights.

9. The Code, Source Code, any related documentation, and any derivative works created by Licensee shall be considered confidential information and may not be released to any third party, except as permitted by the license agreement.

10. Licensee shall notify EPRI and the NRC of any public safety problem that may be uncovered through the use of the Code. Information on how to report a safety concern to the NRC is available on its public Web site at www.nrc.gov.

11. Licensee shall not use the Code or Source Code in a manner that is inconsistent with either the mission of the NRC or the mission of EPRI.

12. Licensee shall be required to communicate any Code errors to the NRC and EPRI.

13. Licensee shall be solely responsible for obtaining any assistance needed to implement or use the Code. Neither EPRI nor the NRC will provide support for the Code.

14. In no event shall the NRC and its contractors and EPRI and its contractors, be liable for consequential, indirect, incidental, or special damages. The NRC's and EPRI's liability to any licensee shall be limited to the initial cost to purchase the license.

15. Licensee shall indemnify, defend and hold the NRC and EPRI harmless from and against all damages, costs and fees arising from licensee's use or misuse of the Code and/or breach of Licensee's obligations under any license agreement.

16. Licensee shall acknowledge that the NRC and EPRI neither endorse products or services, nor allow the data or other results of NRC or EPRI work to be used as an endorsement. Licensee shall further agree that it will not, whether explicitly or through implication, use the NRC's name, EPRI's name, the Code, any license agreement, or the results of work from the Code for advertising or other promotional purposes, raising of capital, recommending investments, or in any way that states or implies endorsement by NRC or EPRI. Any exceptions will require the advanced written approval of the NRC and EPRI, which may be withheld at the NRC or EPRI's sole discretion.

17. Licensee shall acknowledge and agree that third party software is required in order to run the Code, including, but not limited to, Microsoft Windows, Microsoft Excel, and GoldSim or the GoldSim Player and that such software is not included as part of the license.

Exhibit B

Approved non-U.S. Destinations

This Exhibit identifies the Approved non-U.S. Destinations.

Argentina
Australia
Belgium
Bulgaria
Canada
Croatia
Czech Republic
Finland
France
Germany
Greece
Hungary
Indonesia
Italy
Japan
Lithuania
Morocco
Netherlands
Poland
Republic of Korea
Romania
Slovakia
Slovenia
South Africa
Spain
Sweden
Switzerland
Taiwan
Turkey
United Arab Emirates
United Kingdom
Vietnam