IMPLEMENTING AGREEMENT

RELATING TO

PARTICIPATION IN THE RADIATION PROTECTION

COMPUTER CODE ANALYSIS AND MAINTENANCE PROGRAM

BETWEEN

THE AMERICAN INSTITUTE IN TAIWAN

AND

THE TAIPEI ECONOMIC AND CULTURAL REPRESENTATIVE OFFICE

IN THE UNITED STATES

The American Institute in Taiwan (hereinafter referred to as "AIT") and the Taipei Economic and Cultural Representative Office in the United States (hereinafter referred to as "TECRO");

Considering that AIT and TECRO (hereinafter individually referred to as a "Party" and collectively referred to as the "Parties") and their designated representatives, the United States Nuclear Regulatory Commission (hereinafter referred to as "NRC") for AIT and the Atomic Energy Council of Taiwan (hereinafter referred to as the "AEC") for TECRO:

1. Have a mutual interest in cooperation in the field of radiation protection research, with the objective of improving and helping ensure the safety of radioactive material internationally;

2. Recognize a need to share equitably both the resources resulting from this research and the effort required to develop those resources; and

3. Desire to cooperate in implementation of the Arrangement Between the American Institute in Taiwan and the Taipei Economic and Cultural Representative Office in the United States for the Exchange of Technical Information and Cooperation in Nuclear Regulatory and Safety Matters, signed at Arlington, Virginia on May 10, 2021 and at Washington, D.C. on May 14, 2021 (the Arrangement), and any successor arrangement thereto. This Implementing Agreement replaces the Implementing Agreement signed January 15, 2016 and extended on January 28 and 29, 2019, and again on February 6 and 11, 2020;

Have AGREED as follows:

ARTICLE I - PROGRAM COOPERATION

The Parties, in accordance with the provisions of this Implementing Agreement and subject to applicable laws and regulations in force in the respective territories of the authorities they represent, agree to join together, through their designated representatives, for cooperative research in radiation protection research programs sponsored by the Parties, through their designated representatives. Cooperation under this Implementing Agreement shall be subject

to and governed by the Arrangement, and in the event of any conflict between the provisions of this Implementing Agreement and the Arrangement, the Arrangement shall prevail.

ARTICLE II - FORMS OF COOPERATION

Cooperation between the Parties, through their designated representatives, may take the following forms:

A. Exchange of information in the form of executable computer codes, (listed in the Appendix), documentation, technical reports, experimental data, correspondence, newsletters, visits, joint meetings, and such other means as the Parties agree.

B. Execution of joint programs and projects, including those involving a division of activities between the Parties' designated representatives.

C. Temporary assignment of personnel of one Party or designated representative or of either's contractors to laboratories or facilities owned by the other Party or designated representative or in which either sponsors research. Each assignment shall be considered on a case-by-case basis.

D. Use by one Party or its designated representative of facilities that are owned by the other Party or its designated representative or in which research is being sponsored by the other Party or its designated representative. Use of these facilities may be subject to commercial terms and conditions.

E. Visits or assignment of personnel, or use of the facilities owned or operated by entities other than the Parties or their designated representatives. The Parties recognize that prior approval by such entities shall in general be required regarding terms upon which such visit, assignment, or use should be made.

F. Any other form coordinated between the Parties through their designated representatives.

ARTICLE III - SCOPE OF IMPLEMENTING AGREEMENT

A. Program Objectives:

1. Share user experience on code maintenance, development, benchmarking and uncertainty studies for radiation protection and dose assessment codes;

2. Share experience on code errors and inadequacies and cooperate in resolving the deficiencies and maintaining a single, internationally recognized version of each code;

3. Share experience on dose assessment analyses performed using the codes. These include analyses of generating a source term, environmental fate and transport and internal and external dosimetry assessment. This also includes accident management and operator procedures-related studies;

4. Maintain and improve user expertise and document user guidelines for applying the codes.

B. AIT Scope of Responsibility

Subject to the availability of appropriated funds, AIT, through its designated representative, shall provide over the duration of this Implementing Agreement the following specified goods and services:

1. *Coordination and Program Management of RAMP*: The Radiation Protection Code Analysis and Maintenance Program (RAMP) shall be coordinated by AIT, through its designated representative. Program information shall be documented and circulated via websites, newsletters and NUREG/IA documents, where applicable. Error corrections and model improvements shall be made within the limits of available resources allocated for each code, taking into account a priority list as administered by AIT's designated representative. The input on priorities for code modifications of contributing countries with existing RAMP agreements shall be solicited by AIT's designated representative and considered when establishing priorities.

2. *Code and Documentation*: AIT, through its designated representative, shall provide to TECRO's designated representative codes listed in Appendix A, and associated documentation, if applicable. Code updates shall be supplied by AIT's designated representative during the agreement period and shall be available on machine-readable media and code configuration control shall be maintained to provide an internationally recognized version of each code.

3. *Code Support*: AIT, through its designated representative, shall provide to TECRO's designated representative the ability to submit code-related questions to AIT's designated representative list serve email groups for the particular code and receive answers in a timely manner. AIT's designated representative also shall accommodate reasonable requests for assistance from TECRO's designated representative for support in their implementation and use.

4. AIT's designated representative shall grant permission for personnel sponsored by TECRO's designated representative to participate in technical program review and progress meetings except for those meetings concerned with administrative and fiscal matters.

C. TECRO Scope of Responsibility

Monetary Contribution for Code Maintenance and Improvements: On the date this Implementing Agreement enters into force, and on the anniversary of that date each year for the duration of this Implementing Agreement, TECRO shall transmit to AIT $20,000.

ARTICLE IV - ADMINISTRATION OF THE IMPLEMENTING AGREEMENT

A. The Parties, through their designated representatives, shall each designate one administrator to coordinate and determine the detailed implementation of this cooperation. These administrators may, at their discretion, delegate this responsibility to the appropriate technical staff with respect to a given issue. The single individual shall be referred to as the administrator of this Implementing Agreement. With the exception of notice of intent to terminate the Implementing Agreement, notices required under this Implementing Agreement shall be addressed to the administrators using the most efficient communication

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method.   The Administrators shall consult with the Parties as appropriate.

B. The Parties, through their designated representatives, shall endeavor to select technical personnel for assignment in the program who can contribute positively to the program. Technical personnel assigned to the program shall be considered visiting scientists (non-salaried) within the program and shall participate in the conduct of the analyses and experiments of the program as mutually agreed.

C. Each Party shall have access, through their designated representatives, to all non-proprietary reports written by the other Party's designated representative's technical personnel assigned to the respective programs that derive from its participation in the Implementing Agreement.

D. Administrative details concerning questions such as security, indemnity, and liability related to the assignees or trainees shall be addressed in personnel assignment agreements between the Parties.

E. Travel costs, living expenses, and salaries of visiting technical personnel or personnel participating in program review meetings shall be borne by the Party, through its designated representative, that incurs them, unless specified otherwise in writing.

ARTICLE V - EXCHANGE AND USE OF INFORMATION AND INTELLECTUAL PROPERTY

A. <u>General</u>

The Parties support the widest possible dissemination of information provided, created or exchanged under this Implementing Agreement, subject to the requirements of each Party's laws, regulations and policies and the need to protect proprietary and other sensitive or privileged information, and subject to the terms of the Intellectual Property Rights Annex to the Arrangement, or any successor Intellectual Property Rights Annex to the Arrangement (the "Intellectual Property Rights Annex").

B. <u>Definitions</u>

The Parties acknowledge that the definitions, document marking procedures, information dissemination restrictions, notification requirements, and information identification procedures contained in the Arrangement, or any successor to the Arrangement, as well as the Intellectual Property Rights Annex are incorporated in this Implementing Agreement, and the Parties shall abide by those terms.

ARTICLE VI - DISPUTES AND WARRANTY OF INFORMATION

A. All costs arising from this Implementing Agreement shall be borne by the Party, through its designated representative that incurs them except when specifically agreed to otherwise. The activities of the Parties under this Implementing Agreement are subject to the availability of funds.   It is also understood that the terms herein agreed to represent feasible commitments according to the best understanding regarding resources and costs of the Parties at the time of signature.

B. Cooperation under this Implementing Agreement shall be in accordance with the applicable laws and regulations of the respective territories the Parties represent. Any dispute or questions between the Parties concerning the interpretation or application of the Implementing Agreement shall be settled by mutual agreement.

C. Information furnished by one Party or its designated representative to the other under this Implementing Agreement shall be accurate to the best knowledge and belief of the Party or designated representative supplying the information. However, the application or use of any information exchanged or transferred between the Parties or their designated representatives under this Implementing Agreement shall be the responsibility of the Party or designated representative receiving the information, and the Party or designated representative supplying the information does not warrant the suitability of the information for any particular use or application.

D. Neither AIT nor its designated representative makes any warranties whatsoever for the ability or suitability of any AIT's designated representative's code or other analytical technique to perform in any particular manner for any particular purpose, or to accomplish any particular task. Neither AIT nor its designated representative accepts any liability for damages of any type that may result from the use of its codes or other analytical techniques provided under this Implementing Agreement.
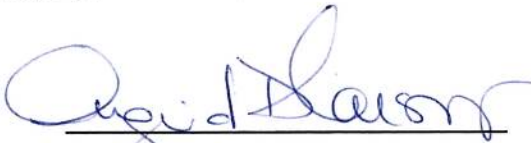
ARTICLE VII - FINAL PROVISIONS

A. This Implementing Agreement shall enter into force upon the date of last signature, with effect from January 9, 2021, and shall remain in force for a three-year period, provided that the Arrangement, or any successor thereto, remains in force. If the Arrangement expires and is not extended or superseded before this Implementing Agreement terminates, this Implementing Agreement shall be suspended until such time as the Arrangement is extended or superseded. If the terms of the Arrangement are at any time amended, and those amended terms conflict with the terms of this Implementing Agreement, the terms of the Arrangement will prevail. This Implementing Agreement may be extended for an additional period upon mutual agreement of the Parties, provided that the Arrangement remains in force. Should this Implementing Agreement expire, or be suspended or terminated, the Parties shall continue to adhere to the terms of the Intellectual Property Rights Annex to the Arrangement as it applies to information and intellectual property exchanged or used pursuant to this Implementing Agreement.

B. The Parties enter into this Implementing Agreement with the understanding that reasonable allowances for normal delays will be made in completing the work. The Parties have the right to utilize information provided under this Implementing Agreement after its termination; however, all information protected by provisions of this Implementing Agreement as proprietary, confidential, privileged, or otherwise subject to restriction on disclosure shall, to the extent permitted by applicable laws and regulations, remain so protected indefinitely unless mutually agreed to in writing.

C. A Party may terminate this Implementing Agreement after providing the other Party written notice of its intent to terminate at least 180 days in advance. The Party not terminating shall notify the terminating Party before the effective date of termination if termination would result in the terminating Party receiving a disproportionate share of the expected benefit from this Implementing Agreement. Both Parties shall endeavor to reach an equitable

settlement of the matter through negotiation.

D. The Parties to this Implementing Agreement reserve the right to modify or extend the specific activities described in Article III within the intended scope of the Implementing Agreement upon written concurrence of their administrators.

E. If the portion of the research program of any Party that is pertinent to this Implementing Agreement is substantially reduced or eliminated, the technical scope described in Article III may be adjusted to substitute research of equivalent programmatic interest upon mutual agreement of the Parties.

FOR THE AMERICAN INSTITUTE
IN TAIWAN

BY: _____

NAME: Ingrid D. Larson

TITLE: Managing Director

DATE: June 11, 2021

PLACE: Arlington, Virginia

FOR THE TAIPEI ECONOMIC AND
CULTURAL REPRESENTATIVE OFFICE
IN THE UNITED STATES:

BY: _____

NAME: Robin J.C. Cheng

TITLE: Deputy Representative

DATE: 06/14/2021

PLACE: Washington, D.C.

Appendix A
Description of Codes in
The Radiation Protection Computer Code Analysis and Maintenance Program

RASCAL   The RASCAL computer code is used for making dose projections for atmospheric releases during radiological emergencies.   It is the premier computer code used by AIT's designated representative's emergency operations center. (INTERRAS is the International Version of the RASCAL Code.)

RADTRAD   The RADTRAD computer code is used to assess occupational radiation exposures, typically in the control room; to estimate site boundary doses; and to estimate dose attenuation due to modification of a facility or accident sequence. RADTRAD models the accident dose consequences resulting from the release and transport of fission products and it is used by AIT's designated representative in the evaluation of licensees' amendment requests to assess dose consequences of design basis accidents.

HABIT   The HABIT computer code is an integrated set of computer programs used mainly to estimate chemical exposures that personnel in the control room of a nuclear facility would be exposed to in the event of an accidental release of toxic chemicals.

DandD   The DandD computer code is used by AIT's designated representative licensees to demonstrate in an application for decommissioning a materials license (and AIT's designated representative to verify) that residual soil or building contamination at the licensed site following decontamination and decommissioning complies with the radiological dose criteria for license termination in 10 CFR Part 20, Subpart E.   The computer code was designed to simplify decommissioning in cases where low levels of contamination exist.

VARSKIN   The VARSKIN computer code is used to perform confirmatory calculations of licensees' submittals regarding skin dose (from both beta and gamma sources) estimates at any skin depth or skin volume, with point, disk, cylindrical, spherical, or slab (rectangular) sources, and even enables users to compute doses from multiple sources.

PIMAL   The PIMAL humanoid phantom models are considered an efficient and accurate tool for developing exposure models and performing dosimetry calculations for radiation workers and exposed members of the public.   PIMAL is a graphical user interface.

Radiological Toolbox   The Radiological Toolbox provides ready access to data of interest in radiation protection of workers and members of the public.   The data include dose coefficients for intakes of radionuclides, exposure to radionuclides distributed in the environment, and for exposures to photon and neutron radiation fields. Other supportive data include interaction coefficients for alpha, electron, photon and neutron radiations, nuclear decay data, biological and physiological data,

and supplemental information on various topics.

GALE   The gaseous and liquid effluent (GALE) codes, for a pressurized-water reactor (PWR) and a boiling-water reactor (BWR), estimates the quantities of radioactivity released by a plant through liquid and atmospheric discharges during routine operations.

GENII   GENII is a set of programs for estimating radionuclide concentrations in the environment and dose to humans from acute or chronic exposures from radiological releases to the environment or initial contamination conditions. It is part of a set of quality-assured and configuration-controlled safety analysis codes managed and maintained for the United States Department of Energy's Safety Software Central Registry and the U.S. Nuclear Regulatory Commission.

MILDOS   The MILDOS-AREA computer code calculates the radiological dose commitments received by individuals and the general population within an 80-km radius of an operating uranium recovery facility. In addition, air and ground concentrations of radionuclides are estimated for individual locations, as well as for a generalized population grid. Extra-regional population doses resulting from transport of radon and export of agricultural produce are also estimated.

Atmospheric Codes   The U.S. Nuclear Regulatory Commission uses several atmospheric transport and diffusion codes to model radiological dispersion in its licensing of existing and new reactors. Three of these codes are currently planned to be entered into RAMP. The codes include:

- XOQDOQ, an atmospheric dispersion code used for routine operational releases,

- PAVAN, an atmospheric dispersion code used in design basis accident releases to the exclusion area boundary and outer boundary of the low population zone, and

- ARCON96, an atmospheric dispersion code used for design basis accident releases to the control room and technical support center.