

IMPLEMENTING AGREEMENT
UNDER THE ARRANGEMENT FOR THE EXCHANGE OF TECHNICAL INFORMATION
AND COOPERATION IN NUCLEAR REGULATORY AND SAFETY MATTERS
BETWEEN
THE AMERICAN INSTITUTE IN TAIWAN
AND
THE TAIPEI ECONOMIC AND CULTURAL REPRESENTATIVE OFFICE
IN THE UNITED STATES
ON THERMAL-HYDRAULIC
CODE APPLICATIONS AND MAINTENANCE

WHEREAS subject to the availability of personnel, material, and appropriated funds, the American Institute in Taiwan (hereinafter referred to as "AIT"), through its designated representative, U.S. Nuclear Regulatory Commission (hereinafter referred to as "USNRC"), is carrying out research programs on thermal-hydraulic code applications and maintenance;

WHEREAS the Taipei Economic and Cultural Representative Office in the United States (hereinafter referred to as "TECRO"), and its designated representative the Atomic Energy Council of Taiwan, has an interest in access to information which has been developed and continues to arise from these programs and wishes to collaborate with AIT by exchanges of reports and data and by sponsoring the assignment of individuals to these programs;

Considering that AIT and TECRO, hereinafter referred to as the Parties,

1. Have a mutual interest in cooperation in the field of reactor and plant systems research with the objective of improving and helping ensure the safety of reactors internationally;
2. Recognize a need to equitably share both the resources resulting from this research and the effort required to develop those resources;
3. Have cooperated, since June 30, 1994, in the thermal-hydraulic code applications and maintenance program (i.e., CAMP) under an agreement between AIT and TECRO, last renewed on December 13, 2004 for an additional five year period through December 13, 2009, and have a mutual interest in renewing this cooperation;
4. Recognize 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 (the

Arrangement), which was signed on January 4, 2011, for 5 years, and this cooperation is an implementation thereof;

The Parties have AGREED, in this Implementing Agreement, as follows:

ARTICLE I - PROGRAM COOPERATION

The Parties, in accordance with the provisions of this Implementing Agreement and subject to applicable domestic laws and regulations in force in their respective countries, will join together for cooperative research in the area of thermal hydraulic research for a period of five years. This Implementing Agreement is not an international agreement and does not give rise to international legal rights or obligations.

ARTICLE II - FORMS OF COOPERATION

Cooperation between the Parties may take the following forms:

- A. Exchange of information in the form of technical reports, experimental data, correspondence, newsletters, visits, joint meetings, and such other means as the Parties or their designated representatives agree.
- B. Temporary assignment of personnel of the designated representative of one Party or of the designated representative's contractors to the laboratory or facilities owned by the designated representative of the other Party or in which the designated representative of the other Party sponsors research. Each assignment shall be considered on a case-by-case basis and may be the subject of a separate attachment-of-staff arrangement between the Parties.
- C. Execution of joint programs and projects, including those involving a division of activities between designated representatives of the Parties. Each joint program and project will be considered on a case-by-case basis and may be the subject of a separate agreement, if determined to be necessary by either of the Parties to this Implementing Agreement or their designated representatives. Otherwise, it will be accomplished by the exchange of letters between the designated representatives of the Parties, subject at least to the terms and conditions of this present Implementing Agreement.
- D. Use by the designated representative of one Party of facilities that are owned by, or in which research is being sponsored by, the designated representative of the other Party. Use of facilities may be subject to commercial terms and conditions.
- E. If either Party, or designated representative, wishes to visit, assign personnel, or use the facilities owned or operated by entities other than the Parties to this Implementing Agreement, the Parties recognize that prior approval by such entities will, in general, be required regarding the terms upon which such visit, assignment, or use shall be made.
- F. Any other form agreed between the Parties.

ARTICLE III - SCOPE OF IMPLEMENTING AGREEMENT

A. Program Objectives:

1. Share experience on code errors and inadequacies and cooperate in resolving the deficiencies and maintaining a single, internationally recognized code version. Software quality assurance procedures will be followed and code configuration control will be maintained. Standard programming language will be applied and code portability will be maintained.
2. Share user experience on code scaling, applicability, and uncertainty studies.
3. Share a well documented code assessment data base.
4. Share experience on full scale power plant safety-related analyses performed using the code. These include analyses of operating reactors, advanced light water reactors, transients, risk-dominant sequences including the front-end of severe accident sequences, and accident management and operator procedures-related studies.
5. Maintain and improve user expertise and document user guidelines for applying the code.

B. AIT Scope of Responsibility

Subject to the availability of appropriated funds, AIT's designated representative will provide over the duration of this Implementing Agreement the following specified goods and services:

1. **Coordination and Program Management.** CAMP will be coordinated by AIT's designated representative. Program information will be documented and circulated via newsletters and NUREG/IA documents. A Technical Program Committee (TPC) comprised of individuals from the Parties or their designated representatives will meet regularly to report on code errors and modeling deficiencies, and recommend and assign rankings to code correction and improvement needs, including approaches to resolution. Error corrections and model improvements will be made, within the limits of available resources allocated for each code, taking into account a priority list recommended by TPC. TPC will also exchange information on applications and assessment results. TPC meetings will be held twice per year, once in the U.S. and once abroad.
2. **Reactor Systems Simulation Codes.** RELAP5 and TRACE will be maintained. Code updates will be available in source form on machine-readable media. Complete available documentation will be maintained consisting of: code manuals, models and correlations document, developmental assessment document, user guidelines document, and independent assessment documents. Code configuration control will be maintained to provide an internationally recognized code version.

3. AIT's designated representative will provide to TECRO's designated representative the TRACE code, including the Purdue Advanced Reactor Core Simulator (PARCS) code. AIT's designated representative will also provide subsequent updates of the code and associated documentation that are released during the Implementing Agreement period.
4. AIT's designated representative will provide to TECRO's designated representative the RELAP5 code and associated documentation. AIT's designated representative will also provide subsequent updates of the code and associated documentation that are released during the Implementing Agreement period.
5. Symbolic Nuclear Analysis Package (SNAP). SNAP is a graphical user interface and provides a computational environment currently with pre-processor capabilities that assist the user in the development of RELAP5 and TRACE input decks and in running the code. SNAP will be provided. Subsequent updates of SNAP and associated documentation that are released during the Implementing Agreement period will also be provided.

C. TECRO Scope of Responsibility

1. Cash contribution for Code Maintenance and Improvements. At the time this Implementing Agreement is signed and on the anniversary of that date each year thereafter, TECRO will contribute US \$35,000.00, through AIT, for continued participation in the CAMP Program.
2. In-Kind Contribution. TECRO's designated representative shall submit to AIT's designated representative two code assessment reports per year or other work products of equivalent value. The assessment reports shall contain assessment information on the codes released through this Implementing Agreement by AIT's designated representative. The content of assessment reports is defined in NUREG-1271. AIT's designated representative will have the nonexclusive right to publish these assessment reports containing nonproprietary information as NUREG/IA reports with proper reference to the source of the reports.

D. Code Applications Analyses to be Exchanged by the Parties

1. Code Scaling, Applicability, and Uncertainty Evaluations. An example of such studies was documented in NUREG/CR-5249.
2. Issue Resolution. Issues may arise requiring that information be developed to determine whether a particular problem exists. Examples include pressurized thermal shock, interfacing systems LOCA, and long term cooling following a LOCA. TECRO's designated representative will assure that any non-proprietary safety issue analyses performed using the codes specified in Section B of Article III will be exchanged.

ARTICLE IV - ADMINISTRATION OF THE IMPLEMENTING AGREEMENT

- A. The designated representatives of AIT and TECRO will each designate one individual to coordinate and determine the detailed implementation of this Implementing Agreement. These individuals may, at their discretion, delegate this responsibility to the appropriate technical staff with respect to a given issue. The designated individual will be referred to as an Administrator of this Implementing Agreement. Any notices required under this Implementing Agreement will be addressed to the Administrators using the most efficient communication method.
- B. This Implementing Agreement sets forth in Article V restrictions concerning dissemination of proprietary, confidential, or privileged information. Other information that may be restricted includes matters related to organization, budget, personnel, or management.
- C. The designated representatives of AIT and TECRO will endeavor to select technical personnel for assignment to these cooperative programs who can contribute positively to the programs. The designated technical personnel assigned for extended periods will be considered visiting scientists (nonsalaried) within the programs in this Implementing Agreement and will be expected to participate in the conduct of the analysis and/or experiments as necessary.
- D. Each Party to this Implementing Agreement will have access to all nonproprietary reports written by the other Party's technical personnel assigned to the respective programs that derive from its participation in this Implementing Agreement.
- E. Administrative details concerning questions such as security, indemnity, and liability related to the assignees or trainees will be addressed in personnel assignment agreements between the respective Parties and their designated representatives.
- F. Travel costs, living expenses and salaries of visiting technical personnel or personnel participating in program review meetings shall be borne by the respective organization that incurs them unless specified otherwise.

ARTICLE V - EXCHANGE AND USE OF INFORMATION AND INTELLECTUAL PROPERTY

A. General

The Parties support the widest possible dissemination of information provided or exchanged under this Implementing Agreement, subject to the need to protect proprietary and other confidential or privileged information which is protected from public disclosure under the laws and regulations of the country of the Party providing the information, or is otherwise restricted by the provider. The exchange and use of information provisions contained in Article III of the Arrangement (including the Annex: Protection and Distribution of Intellectual Property Rights and Other Rights of a Proprietary Nature which it references) will govern this Implementing Agreement.

B. Other Considerations

1. Nothing contained in this Implementing Agreement will preclude a Party from using or disseminating information received without restriction by a Party from sources outside of this Implementing Agreement.
2. All AIT designated representative's computer codes disseminated under this Implementing Agreement are to be considered privileged information unless otherwise noted, are protected as such by the designated representatives of AIT, and shall be treated likewise by the designated representatives of TECRO. They are, in particular, subject to all the provisions of this Article prior to dissemination, with the exception that they need not be marked with the restrictive designation. The codes are subject to this protection in both object and source forms and as recorded in any media.
3. AIT's designated representative's codes and other related analytical techniques covered under this Implementing Agreement and any improvements, modifications, or updates to such codes or techniques, are for the purpose of reactor and plant systems safety research and licensing and will not be used for commercial purposes or for other benefits not related to the study of reactor safety without the prior consent of AIT and its designated representative.
4. Among the code uses that will be permitted under this Implementing Agreement are those related to research in the reactor safety area and analyses performed by the Parties' designated representatives, or their contractors that can assist regulators and plant personnel in assessing the safety of the plant, analyzing operating events, and training of operators. Specific examples of permitted analyses include design basis accidents (e.g., loss-of-coolant accidents), anticipated transients, accident management and emergency operating procedures, mid-loop operation, analyses to support probabilistic risk assessment success criteria, power uprates and reload, and severe reactor accidents.

Prohibited uses of the code include (1) analyses to develop a new reactor design and (2) analyses to support power uprates and reload in the territory of the authorities represented by AIT unless performed by a subsidiary of AIT's designated representative.

5. AIT's designated representative's codes and other related analytical techniques will not be advertised directly or by implication to obtain contracts related to the construction or servicing of nuclear facilities, nor will advertising imply that AIT's designated representative has endorsed any particular analyses or techniques.
6. All reports published within the scope of this Implementing Agreement and all meetings held will be in English.

ARTICLE VI - DISPUTES AND WARRANTY OF INFORMATION

- A. All costs arising from implementation of this Implementing Agreement will be borne by the designated representative of the Party that incurs them except when specifically agreed to otherwise by both Parties. It is understood that the ability of the Parties and their designated representatives to carry out their obligations is 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 and their designated representatives at the time of signature.
- D. AIT and its designated representative make no warranties, whatsoever, for the ability or suitability of any code or other analytical technique to perform in any particular manner for any particular purpose or to accomplish any particular task. AIT and its designated representative accept no liability for damages of any type that may result from the use of codes or other analytical techniques provided under this Implementing Agreement.
- B. Cooperation under this Implementing Agreement will be in accordance with the laws and regulations applicable in the respective territories represented by AIT and TECRO. Any dispute or questions between the Parties concerning the interpretation or application of this Implementing Agreement arising during its term will be settled by mutual agreement of the Parties
- C. Information furnished by one Party to the other under this Implementing Agreement will be accurate to the best knowledge and belief of the Party supplying the information. However, the application or use of any information exchanged or transferred between the Parties under this Implementing Agreement will be the responsibility of the Party receiving the information, and the Transmitting Party does not warrant the suitability of the information for any particular use or application.

ARTICLE VII - FINAL PROVISIONS

- A. This Implementing Agreement will enter into force upon signature and shall remain in effect for a period of 5 years. This Implementing Agreement may be extended for an additional period of time, upon mutual agreement of the Parties.
- 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 the expiration date; however, all information protected by provisions of this Implementing Agreement as proprietary, confidential, privileged, or otherwise subject to restriction on disclosure will 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 180 days in advance. The Party not terminating will notify the terminating Party before the effective date of termination if termination will result in the terminating Party receiving a disproportionate share of the expected benefit

from this Implementing Agreement. Both Parties will 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 its 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 revised to substitute research of equivalent programmatic interest upon mutual agreement of the Parties.

IN WITNESS WHEREOF, the Parties have signed the present Implementing Agreement.

FOR THE AMERICAN INSTITUTE
IN TAIWAN:

BY: *Barbara J. Sennass*

NAME: Barbara J. Sennass
(PRINT)

TITLE: Managing Director

DATE: 4/19/2011

PLACE: Washington, D.C.

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

BY: *Ta-Tung J. Chang*

NAME: Ta-Tung J. Chang
(PRINT)

TITLE: Deputy Representative

DATE: August 3, 2011

PLACE: Washington, D.C.