

MEMORANDUM OF UNDERSTANDING  
between  
U.S. NUCLEAR REGULATORY COMMISSION  
and  
U.S. DEPARTMENT OF ENERGY  
on  
COOPERATION IN THE AREA OF OPERATING EXPERIENCE AND APPLICATIONS OF  
DATA ANALYTICS

**I. APPLICABILITY**

This Memorandum of Understanding (MOU) applies solely to cooperation between the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) (together referred to in this MOU as the “Parties” and individually as a “Party”) in the area of operating experience and applications of data analytics in the analysis of operating experience and safety data. This MOU does not establish a precedent for other understandings, matters, or agreements, including any other existing or future agreements, between the DOE and NRC, and does not revoke, suspend, restrict, or otherwise affect any other understandings, matters, or agreements that have been agreed to or are now in effect between the DOE and the NRC.

**II. AUTHORITY**

DOE enters into this MOU under the authority of Section 646 of the Department of Energy Organization Act (Public Law 95-91, as amended; 42 U.S.C. 7256). The NRC enters into this MOU under the authority of Section 205(c) of the Energy Reorganization Act of 1974 (Public Law 93-438, as amended; 42 U.S.C. 5845(c)).

**III. PURPOSE**

The NRC and DOE each collect operating experience and safety data, analyze the data for trends of operational events, and develop tools to analyze the data. The NRC collects and analyzes operating experience and safety data to obtain independent information for use in making regulatory assessments; anticipating and resolving potential safety significant issues; and developing technical bases to support regulatory positions. DOE collects and analyzes operating experience and safety data to support continuous improvements in environment, health, safety, and security; track safety indicators of DOE contractor operations; and resolve safety significant issues.

The Parties have a common interest in the development of tools and techniques to analyze operating experience and safety experience data. Accordingly, to efficiently use resources and to avoid needless duplication of effort, it is in the best interest of both Parties to cooperate by sharing data, technical information, lessons learned and, in some cases, the costs related to the development of approaches and tools, whenever such cooperation and cost sharing may be done in a mutually beneficial fashion.

This MOU may result in a variety of collaborative activities (including information exchange meetings, exchange of data and access to developed tools, exchange of lessons learned,

support of expert panels, establishment of an advisory group composed of government civil servants, and jointly sponsored activities) aimed at achieving the specified objectives.

#### **IV. TECHNICAL AREAS OF COOPERATION; OBJECTIVES**

##### **A. Technical Areas of Cooperation.**

Both Parties support a number of activities aimed at improving visualization and analysis of operating experience data, and both parties use and develop data analytics methods and tools. The technical areas for collaboration may include:

- Operating experience and safety data collection and analysis, including:
  - Operational events;
  - Occupational injuries;
  - Hazardous substance releases;
  - Nuclear safety;
  - Radiation protection;
  - Equipment failure;
  - Accidents and accident precursors;
  - Trending analysis; and
  - Risk-informed decision-making.
  
- Applications of data analytics in the analysis of operating experience and safety data, including:
  - Data visualization and analysis;
  - Artificial intelligence, machine learning, natural language processing, predictive analytics, and other advanced techniques;
  - Model development and use of risk information;
  - Data analytics tools development, user interface design, and deployment; and
  - Decision-making using data analytics tools.

##### **B. Objectives.**

1. The overall objectives of this effort are to avoid unnecessary duplication of tasks between the Parties and enable the exchange of information and sharing of lessons learned in the technical areas of cooperation listed above. This includes collaboration on development of data analytics approaches, methods, tools, data and applications, and sharing technical information useful to DOE and NRC.
  
2. This MOU has the following specific objectives with respect to cooperation between the Parties within the areas of operating experience and applications of data analytics with operating experience data:
  - Timely exchange of information (e.g., objectives, milestones, tools demonstrations, etc.) on planned and ongoing activities;
  - Sharing data collected by DOE and NRC programs;
  - Sharing analysis approaches, methods, tools, and lessons learned; and

- Assessing the capabilities of tools and methods.

## **V. ROLES AND RESPONSIBILITIES**

1. The NRC and DOE Points of Contact (as designated in Section IX of this MOU) will confer, either via conference call or in meetings as needed throughout the year, and will meet at least once a year to: a) review the status and progress of ongoing technical areas of cooperation; b) review potential new technical areas of cooperation; c) agree on priority, terms and conditions of new cooperative initiatives; and d) provide direction on continued work, termination or other matters, as necessary.
2. Coordination contacts (as designated by each Party's Point of Contact) are responsible for coordinating information exchange meetings; determining the frequency of meetings; identifying meeting topics of interests; determining the need for access to data analytics tools and data exchanges; and coordinating discussions with management.
3. When a potential cooperative initiative is identified, it may be pursued under an interagency agreement entered into between the Parties. The interagency agreement should specify the technical requirements of the project, including the objectives, scope, technical approach, quality assurance requirements, acceptable contract terms, and the roles and responsibilities of each Party (e.g., contracting responsibility, financial contribution, payment arrangements, documentation of results, management, terms, etc.).

## **VI. GENERAL PROVISIONS**

1. This MOU does not alter the authorities or independence of the NRC and DOE or their abilities to fulfill their responsibilities. Nothing in this MOU shall be interpreted as limiting, superseding, or otherwise affecting a Party's ability to conduct its normal operations or make decisions in carrying out its mission and duties. This MOU does not limit or restrict the Parties from participating in any activity with other public or private agencies, organizations or individuals.
2. This MOU is entered into solely for the management and planning purposes of each of the Parties. This MOU does not constitute a binding commitment upon either Party, or create any legal rights or obligations for either Party, and this MOU is not legally enforceable. In addition, this MOU shall not be construed to provide a private right of action for or by any person or entity.
3. This MOU does not support an obligation of funds. All activities pursuant to this MOU are subject to the availability of appropriated funds and each Party's budget priorities. Goods or services may be provided under this MOU only after an interagency agreement has been entered into by the Parties under the Economy Act.
4. All activities under this MOU are subject to and will be carried out in compliance with all appropriate laws, regulations and other legal requirements. Each party is responsible for its own compliance with any applicable statutory or regulatory data protection, export control or security restrictions regarding any information or materials resulting from this MOU. DOE and the NRC may coordinate their efforts, as appropriate, to fulfill these responsibilities.

**VII. COMMENCEMENT, MODIFICATION AND TERMINATION**

1. Subject to the provisions of paragraph 2 of this Section VII, this MOU will be effective upon the date of the last signature from both Parties and will remain in full force and effect for a period of five (5) years.
2. This MOU may be renegotiated and amended, extended, or otherwise modified upon written agreement of the Parties. Notwithstanding the foregoing, either Party may terminate its participation in this MOU upon 30 days written notice to the other Party.

**VIII. SEVERABILITY**

If any provision of this MOU, or the application of any provision to any person or circumstances, is or becomes invalid, the remainder of this MOU and the application of such provisions to other persons or circumstances shall not be affected.

**IX. POINTS OF CONTACT**

The following positions are designated as the Points of Contact between the Parties for purposes of this MOU.

Director, Office of Environmental Protection and ES&H Reporting  
Office of the Associate Under Secretary for Environmental, Health, Safety and Security  
U.S. Department of Energy

Director, Division of Risk Analysis  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission

NRC Authorizing Official:

DOE Authorizing Official:

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

Todd N. Lapointe  
Deputy Associate  
Under Secretary for Environment,  
Health and Safety  
U.S. Department of Energy

Date: \_\_\_\_\_

Date: \_\_\_\_\_

**ADAMS** Accession No.: **ML21069A328**

**\*Concurred via eConcurrence**

<b>OFFICE</b>	RES	RES	RES:TA	RES:BC
<b>NAME</b>	MHumberstone	KJohnson	NDifrancesco	MReisiFard
<b>DATE</b>	03/17/2021	03/31/2021	03/31/2021	04/23/2021
<b>OFFICE</b>	OGC (NLO)	RES/DRA:OD	RES:D	
<b>NAME</b>	RBaum	MThaggard	RFurstenau	
<b>DATE</b>	05/21/2021	04/26/2021	05/26/2021	

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