

MEMORANDUM OF UNDERSTANDING  
BETWEEN

United States Nuclear Regulatory Commission Advisory  
Committee on Reactor Safeguards

AND

United States Army Corps of  
Engineers, Omaha District

**Fact-Finding Exchange on Flood Hazard  
Assessment**

**A. PURPOSE**

This Memorandum of Understanding (MOU) is entered into between the United States Nuclear Regulatory Commission (NRC) Advisory Committee on Reactor Safeguards (ACRS) and the United States Army Corps of Engineers (USACE), Omaha District (the "Parties") to establish a fact finding exchange concerning USACE's flood hazard assessments related to dam operation and failure in support of NRC's Fukushima Lessons Learned activities.

**B. AUTHORITIES**

The ACRS was established as a statutory Committee to the Atomic Energy Commission (AEC) by a 1957 amendment to the Atomic Energy Act of 1954. The functions of the Committee are described in Sections 29 and 182b of the Act. The Energy Reorganization Act of 1974 transferred the AEC licensing functions to the NRC, and the Committee has continued in the same advisory role to the NRC.

The ACRS reports directly to the Commission. It provides the Commission with independent reviews of, and advice on, the safety of proposed or existing NRC licensed facilities and the adequacy of proposed safety standards. The ACRS reviews power reactor and fuel cycle facility license applications for which the NRC is responsible as well as the safety- and risk-significant NRC regulations and guidance relating to these facilities. On its own initiative, the ACRS may conduct reviews of specific generic matters including nuclear facility safety and risk-significant items. The Committee also advises the Commission on safety and risk-significant technical issues, and performs other duties as the Commission may request.

ACRS operations are governed by the Federal Advisory Committee Act (FACA), which is implemented through NRC regulations at 10 CFR Part 7. ACRS operational practices encourage the public, industry, state and local governments, and other stakeholders to become involved in Committee activities.

## C. SCOPE

1. The scope of this MOU involves the ACRS developing an understanding of the methods used by the USACE in the flood hazard assessments they are developing in support of NRC's efforts to reevaluate flood hazards at operating nuclear facilities. The assessments involve determining peak potential water surface elevations in the vicinity of nuclear power plant sites resulting from dam operation and failure. Understanding the sources and treatment of uncertainties is of special interest to the ACRS. The vehicle for this process will be to select one, or two at the most, nuclear power plants within the USACE's watershed as examples and to work through the process that the USACE uses for hazard assessment to better understand the flood/dam failure scenarios considered, the assumptions used for the scenarios, and the modeling methods and assumptions. Based on initial discussions with USACE staff, the Cooper and Ft. Calhoun nuclear power plants have been identified as suitable examples of plants representative of the full scope of the hazard assessment.
2. This fact-finding exchange will consist of ACRS members visiting a USACE office where a hazard assessment has been or is being performed. One or more meetings may be held. The location, time, duration, and topics to be discussed during each meeting will be mutually agreed upon by both the USACE and ACRS in advance of each meeting. ACRS members also will be provided technical letter reports (TLRs), upon request, for review in accordance with the terms of this MOU regarding the safeguarding of sensitive and/or classified information.
3. The topics covered by this MOU include technical discussions regarding the probable maximum precipitation and probable maximum floods; river basin hydrologic and hydraulic models; evaluation of hydrologic, seismic, and sunny day dam failures; and the resulting time-series stage, velocity, and discharge hydrographs.
4. This MOU does not obligate any funds.

## D. INTERAGENCY COMMUNICATIONS

1. To provide for consistent and effective communication between the ACRS and the USACE, each party shall appoint a principal representative to serve as its central point of contact on matters relating to this MOU.
2. Except as otherwise indicated, NRC and USACE will ensure open technical exchange related to specific technical issues while, at the same time, maintaining each organization's requirements to safeguard sensitive information. The ACRS members and ACRS staff engineer in attendance will follow USACE protocol for handling information (i.e., proprietary and security-related material). Documents reviewed by the ACRS members will not be removed from the USACE site unless specifically authorized by the USACE.
3. ACRS member Dr. Ronald Ballinger and two other ACRS members and an ACRS staff member will visit a location where hazard assessment has been or is being performed in order to become familiar with the evaluation process, including the detailed calculations, including assumptions, which may be required during the process.

**E. COORDINATION BETWEEN THE ACRS AND USACE**

Brad Harvey will serve as the interface for the NRC and ACRS; Christopher Fassero will serve as the interface for the USACE.

**F. AMENDMENT AND TERMINATION:** This Memorandum of Understanding may be modified or amended by written agreement between both parties by the issuance of a written amendment signed and dated by all parties prior to the implementation of any changes to the scope of the Memorandum of Understanding being performed. Either party may terminate this Memorandum of Understanding by providing written notice to the other party. The termination shall be effective upon the sixtieth calendar day following notice, unless a later date is set forth.

**G. EFFECTIVE DATE:** This Memorandum of Understanding shall become effective as of the date of the final signature.

**H. SIGNATURES**

3/1/2016  
(Date)

  
DENNIS BLEY, Chairman  
Advisory Committee on Reactor  
Safeguards  
United States Nuclear Regulatory  
Commission

17 MAR 16  
(Date)

  
JOHN W. HENDERSON  
EN Commanding, Omaha District  
United States Corps of Engineers

## MEMORANDUM OF UNDERSTANDING

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United States Nuclear Regulatory Commission Advisory Committee on Reactor Safeguards

AND

United States Army Corps of Engineers, Omaha District

### Fact-Finding Exchange on Flood Hazard Assessment

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**H. SIGNATURES**

20 July 2015  
(Date)

  
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John Stetkar, Chairman  
Advisory Committee on Reactor  
Safeguards  
United States Nuclear Regulatory  
Commission

20 JUL 15  
(Date)

  
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JOEL R. CROSS, Colonel  
EN Commanding, Omaha District  
United States Corps of Engineers