

MEMORANDUM OF UNDERSTANDING
BETWEEN
THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA
AND
THE NATIONAL COMPANY OF RADIOACTIVE WASTE OF SPAIN
CONCERNING
COOPERATION IN THE FIELD OF USED NUCLEAR FUEL
AND
RADIOACTIVE WASTE MANAGEMENT

The Department of Energy of the United States of America and the National Company of Radioactive Waste of Spain (Empresa Nacional de Residuos Radiactivos), hereinafter collectively the "Participants,"

NOTING the Agreement for Cooperation in the Peaceful Uses of Nuclear Energy Between the United States of America and the European Atomic Energy Community, signed at Brussels November 7, 1995, and March 29, 1996;

NOTING the Participants' desire to enhance communication and cooperation on the safe, effective and economic handling, storage, transportation, geological disposal, and potential retrieval of used nuclear fuel and radioactive waste products, as well as environmental remediation and deactivation and decommissioning of contaminated nuclear facilities; and

RECOGNIZING the contribution that such cooperation can make in protecting the environment, while furthering the safe and economic application of nuclear energy,

Have reached the following understanding:

Section 1 OBJECTIVE

The objective of this Memorandum of Understanding (Memorandum) is to establish a framework for cooperation between the Participants in the management of used nuclear fuel and radioactive wastes.

Section 2 PLANNED AREAS OF COOPERATION

1. Specific areas of cooperation under this Memorandum may include, but are not limited to, the exchange of publicly available information and ideas on:
 - A. Used nuclear fuel and radioactive waste:
 - Processing pre-treatment and immobilization
 - Separation technologies
 - Long-term behavior in geological conditions
 - B. Deactivation and decommissioning approaches:
 - Justification of site-specific safety and disposal technologies
 - Deactivation, decontamination, and decommissioning technologies and equipment
 - Closed structure monitoring and sensor development
 - Risk-informed decision-making and effective communication on this process
 - End state identification including entombment
 - C. Groundwater and soil remediation:
 - Field characterization and laboratory testing
 - Remediation of soil contaminated with radionuclides or toxic metals
 - In-situ soil treatment technologies and equipment
 - Modeling and visualization
 - D. Studies for a geological repository
 - Design and experiments in underground laboratories
 - Advanced simulation capability for environmental management, including uncertainties treatment, codes benchmarking, and coupling
 - Monitoring of an underground repository, geological media, and the environment
 - Special engineering barriers
 - E. Records, knowledge and memory:
 - Preservation of data
 - Environmental data management
 - F. Environmental and regulatory compliance:
 - Public acceptance

- External stakeholder outreach
 - Development of standards for and implementation of the clearance process for contaminated items that are below the radiation level established by the regulatory authority
- G. Used nuclear fuel and radioactive waste management:
- Preparation and packaging
 - On-site transfer and handling of packages
 - Long-term storage, packaging, and transport issues
 - Off-site transportation of waste
 - Optimization of decommissioning waste management
- H. Generic disposal in geologic formations
- Design: architecture, transportation, and transfer systems
 - Engineered systems
 - Long-term safety demonstration
 - Operational safety and safety management
 - Disposal operations
 - Disposition planning and policy
 - Implementation and management of a repository
- I. Surface interim storage of used nuclear fuel and low-level waste
- Nuclear material disposition
 - Used nuclear fuel management and storage technologies
- J. Site-specific surface and subsurface storage and disposal of radioactive wastes
- Design, in particular related to safety objectives (including long-term safety issues)
 - Waste acceptance criteria in relation to safety objectives, special hazardous waste management, and large disused items management
 - Waste acceptance process in disposal facilities
 - Radioactive waste inventory management
 - Closure of disposal facilities (strategy for capping and monitoring)
- K. Government authorities
- Governmental organizations responsible for radioactive waste management activities
 - Governmental interactions with waste generators, stakeholders, and local/regional/national constituencies
 - Government communication with communities, local authorities, and other relevant stakeholders
- L. Such other areas as may be decided in writing by the Participants.

Section 3
FORMS OF COOPERATION

1. The forms of cooperation in the framework of this Memorandum may include:
 - A. Exchange of students, scientists, engineers, and other professionals, including those from industry and other non-government sectors, pursuant to appropriate written arrangements between the sending and host institutions;
 - B. Exchange of publicly available information on scientific, technical, and public acceptance matters, and results of research development and social impact studies;
 - C. Organization of seminars, workshops, and other meetings on mutually determined topics;
 - D. Visits by a Participant's specialist teams or experts to the radioactive waste management facilities of the other Participant; and
 - E. Sharing of information on analytic studies.

Section 4
GENERAL CONSIDERATIONS

1. This Memorandum does not create any legal rights or obligations.
2. Each Participant should implement this Memorandum in accordance with the laws, regulations, and other requirements of its respective country and international agreements to which its government is party.
3. Any questions relating to this Memorandum arising during its term should be resolved by consultations between the Participants.
4. Each Participant is to be responsible for the costs of its participation in all cooperative activities carried out in the framework of this Memorandum, unless the Participants determine otherwise in writing. Each Participant's participation in the cooperative activities is to be subject to the availability of funds, resources, and personnel.

Section 5
INTELLECTUAL PROPERTY; BUSINESS-CONFIDENTIAL INFORMATION

The Participants do not anticipate the generation of intellectual property arising from activities under this Memorandum, or the exchange of business-confidential information. If either Participant decides that a particular activity may lead to the creation of intellectual

property or the exchange of business-confidential information, the Participants should consult and make appropriate written arrangements for the protection and allocation of such intellectual property and the protection of such business-confidential information. If a written arrangement cannot be made within three months of the date of the initiation of the consultations, cooperation on the project in question may be discontinued at the request of either Participant.

Section 6
COMMENCEMENT, MODIFICATION, AND DISCONTINUATION

1. Cooperation under this Memorandum is expected to commence upon signature, and continue unless discontinued in accordance with paragraph 3 of this Section.
2. The Participants may modify this Memorandum in writing at any time by mutual consent.
3. The Participants may discontinue this Memorandum at any time by mutual consent in writing. A Participant that wishes to discontinue its participation in the activities under this Memorandum should endeavor to provide at least 90 days advance written notice to the other Participant.

Signed in duplicate.

FOR THE DEPARTMENT OF ENERGY
OF THE UNITED STATES OF AMERICA:

David H. Hays
Moussa C. Rezakhat

Place: Washington

Date: *March 19, 2014*

FOR THE NATIONAL COMPANY OF
RADIOACTIVE WASTE OF SPAIN:

J. L. Lugo

Place:

Date:

Madrid, Spain
April 2, 2014