

MEMORANDUM OF UNDERSTANDING

BETWEEN

**SAVANNAH RIVER NUCLEAR SOLUTIONS, LLC
As Managing and Operating Contractor for the
SAVANNAH RIVER NATIONAL LABORATORY**

AND

**THE FEDERAL INSTITUTE FOR MATERIALS RESEARCH AND TESTING, BAM
(BUNDESANSTALT FÜR MATERIALFORSCHUNG UND-PRÜFUNG)**

**SUBJECT: Technical Cooperation on Issues Associated with the Backend of the Nuclear
Fuel Cycle**

This Memorandum of Understanding (MOU) is between Savannah River Nuclear Solutions, LLC (SRNS) as Managing and Operating Contractor for the U.S. Department of Energy's (US DOE) Savannah River National Laboratory (SRNL) under Contract No. DE-AC09-08SR22470, and The Federal Institute for Materials Research and Testing, (BAM). BAM and SRNS may individually be referred to as a "Participant" or collectively as the "Participants".

INTRODUCTION

BAM and SRNS desire to strengthen their research and development capabilities and explore opportunities for collaboration. BAM is a senior scientific and technical Federal Institute with responsibility to the Federal Ministry of Economics and Technology (BMWi). The particular remit of the BAM is to advance safety in technology and chemistry, to test materials and systems (thereby analyzing the test results based on the applied principles of physics and chemistry and providing reference methods and reference materials), to promote the transfer of knowledge and technology in its key fields of research, to collaborate on the development of statutory regulations (e.g., safety standards and threshold limits) and to advise the German government, industry and international organizations on materials science and chemistry. SRNL is the applied research and development laboratory for the US DOE's Office of Environmental Management. Both Participants are known for their innovative, practical applications of strategies and technologies designed to address major issues affecting national and international environmental issues. In view of these common interests and objectives, the Participants desire to foster scientific and technical collaboration in areas of mutual interest by:

- Information exchange
- Visiting the other Participant's facilities
- Conducting and participating in joint scientific conferences, workshops or similar meetings;

- Authoring joint publications and presentations
- Other activities as are mutually agreed

As these efforts develop and grow, the Participants intend to evaluate the formation of alliances between them and their affiliated institutions, to more broadly support important initiatives in the principal focus areas mentioned above. The Participants plan to conclude separate written agreements when collaborative opportunities are identified to address, among other items, the specific object of cooperation, funding, and protection and allocation of any intellectual property shared or developed. This Memorandum of Understanding (MOU) documents the relationship between the Participants to promote information exchange and jointly seek the development of research programs with a primary focus on advanced technologies associated with the back end of the nuclear fuel cycle. Main aspects are the long term integrity and safety of transport and storage packages for radioactive materials with an emphasis on the integrity of container sealing system components (both polymeric and metallic materials), and their anticipated performance for the long term storage and transportation. Aging mechanisms that may result in degradation of these materials are affected by temperature, radiation, and air/gas exposure environments. Similarly, polymeric neutron shielding materials (polyethylene or epoxy resins) can degrade under the similar environmental exposure conditions to cause, for example, hydrogen release and other chemical and physical changes to the material. The investigation and characterization of these materials under conditions of extended storage and transportation are the areas of collaborative effort between SRNS and BAM.

Initial efforts are planned for independent R&D work leading to the collaboration of data sharing to advance the safety of storage and transportation of nuclear and radioactive materials, as determined by SRNS and BAM. Joint activities will include periodic meetings to facilitate information exchange and discuss priorities in research.

The Participants intend to notify each other of projects on which they can collaborate and provide each other with the necessary information and support reasonably requested by the other Participant to facilitate fulfillment of the objectives of the MOU.

ADMINISTRATION and GENERAL CONSIDERATIONS

1. Cooperation under this MOU may commence upon signature by both Participants, continue for an initial period of five (5) years, and may be extended for additional periods by the Participants' mutual consent in writing.
2. The Participants may revise this MOU at any time by mutual consent in writing.
3. The Participants may discontinue this MOU at any time by mutual consent in writing. Alternatively, a Participant that wishes to discontinue its participation in this MOU should endeavor to provide at least sixty (60) days advance written notice to the other Participant. In the event of discontinuation, all ongoing joint activities not completed as of the discontinuation date may continue to their completion under the terms of this MOU.
4. The Participants intend to pursue the goals and purposes of this MOU in good faith.

5. The Participants intend to exchange information in accordance with the information protection requirements set forth in SRNS's contract with US DOE and BAM's operating directives. The Participants acknowledge that neither can undertake activities which are inconsistent with their individual contractual obligations.
6. During the course of this MOU, the Participants may wish to exchange information of a proprietary nature. Any such exchange should be made under a separate written nondisclosure agreement specific to the subject matter being discussed. No classified information is permitted to be exchanged under this MOU or a subsequent nondisclosure agreement. The Participants understand that information shared with SRNS may be subject to public release in accordance with the Freedom of Information Act (FOIA), 5. U.S.C. 552a.
7. No work or funds are committed under this MOU. Any commitment of work or funds is to be made under a separate agreement following the contracting requirements of each Participant.
8. Each Participant is responsible for all costs, risks and liabilities arising from its conduct of the activities contemplated by this MOU. Implementation of this MOU is subject to the availability of funding, personnel, and other resources.
9. Information and reports of collaborative activities that are non-proprietary in nature should be made publicly available, in accordance with applicable laws, regulations or a Participant's internal policies. The publication of any such materials by a Participant may be made upon expiration of a thirty (30) day period of review. A Participant should not unreasonably refuse to incorporate revisions to such materials suggested by the other Participant during the said period of review.
10. Each Participant should conduct the activities contemplated by this MOU in accordance with applicable laws and regulations to which it is subject, including export control laws.
11. This MOU may be transferred from SRNS to US DOE or a US DOE designee without prior approval from BAM. In the event such a transfer becomes imminent SRNS will notify BAM as soon as practicable; BAM will have the right to extraordinary termination of this MOU should such a transfer occur.
12. Conflicts or issues that may arise during implementation of this MOU should be resolved by consultations between the Participants.
13. For BAM:
Name: Dr. Holger Völzke
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For SRNS:

Name: Kerry Dunn

Savannah River Site

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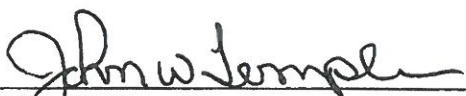
Email: kerry.dunn@srnl.doe.gov

Telephone: (803)725-3772

14. This MOU has been written in English; to the extent any translated version of this MOU conflicts with the English version the Participants acknowledge that the English version will govern.

Signed in duplicate.

SAVANNAH RIVER NUCLEAR SOLUTIONS, LLC:

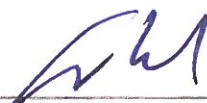


John W. Temple

Senior Vice President, Contracts Management

Date: 4/2/2013

THE FEDERAL INSTITUTE FOR MATERIALS RESEARCH AND TESTING, BAM



Dr. Anton Erhard

Head of Department 3 Containment Systems for Dangerous Goods

Date: 04. April 2013