



US DOE / UK NDA Bilateral Agreement

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**Waste Management Symposium
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Bilateral Agreement/Statement of Intent

- **What is it ?**
 - An agreement between UK NDA and US DOE to share information and lessons learned in the fields of nuclear technology, legacy waste management, spent fuel management, D&D, contracting approaches, geological disposal
- **Why does it exist?**
 - Scale and scope of respective programs are similar
 - Technical issues and challenges are similar
 - Reducing budgets are driving the need for collaboration, cooperation and a renewed focus on ‘lessons learned’ and information sharing



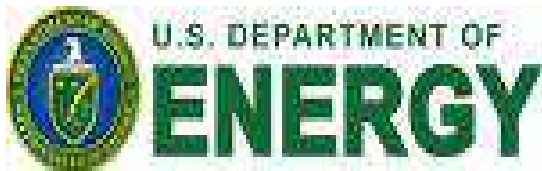
Focal Points to Date

- **Because of the similarities in the programs, there are numerous possibilities for collaboration**
- **Focus to date has been on a relatively small number which offer the greatest potential to both parties**
 - **Spent fuel management**
 - Aging facilities management
 - Non standard fuels disposition
 - Fuel drying technologies and dry storage
 - **Plutonium management**
 - **D&D approaches and technologies**
 - Decontamination technologies e.g. Decon Gel
 - α -plant decommissioning
 - In situ decommissioning
 - Sodium Passivation



Focal Points to Date

- **Waste Management and Stabilization**
 - **Alternative Thermal Treatment Technologies**
 - GeoMelt, HIP
 - **PJM/Black cell operations**
 - **Glass chemistry/formulation**
 - **Tank corrosion and structural integrity**
 - **Ion exchange resin disposal**
 - **Sludge retrieval**
- **Other**
 - **Supply chain management**
 - **Contracting/Partnering approaches**
 - **Site security approaches and technologies**



Typical Process

- **Identify and agree topic area**
- **Conference call with interested parties to share information, identify areas of overlap and complementarity**
- **Form smaller, focused teams on specific areas of interest**
- **Exchange information/reports etc via email**
- **Hold regular conference calls until it makes sense to engage person-to-person**
- **Arrange mutual visits and/or workshops**
- **Facilitate relationships between parties to develop joint Task Plan**
- **Support the process until it becomes self-sustaining**



Measuring Success

- **Tangible benefits**
 - Joint R&D programs
 - R&D leveraging
 - Technical input which obviates the need for R&D
- **Intangible benefits**
 - Development of technical communities
 - Formal and informal information exchange which improve operations, avoid expenditure etc



Example: Spent Fuel Management

- **“Spent Fuel Management” topic area identified in September 2009**
- **Calls held every 6-8 weeks**
- **Workshop arranged in Washington DC, Sept 2010**
 - DOE HQ, DOE SR, DOE ID, NDA, UK NNL, Regulators
- **Identified four key areas**
 - Aging facilities management
 - Non standard fuel disposition
 - Fuel drying and dry storage
 - Plutonium management



Example: Plutonium Management

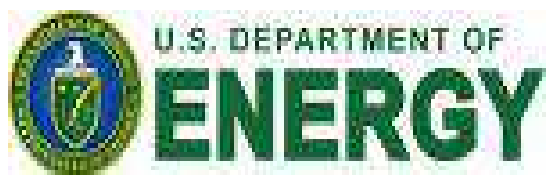
- **Initial Plutonium Management call held December 2010**
- **Multiple areas of overlap and interest identified**
- **Classified Technical Exchange Meeting held April 2011**
 - **DOE, NDA, SRNL, PNNL, NNL, Sellafield Ltd, ONR**
- **Top priority topics agreed**
- **Leveraged programs developed**
 - **Area 1**
 - **DOE has funded Phase 1 work and shared the results with NDA**
 - **NDA is about to fund complementary scope of work which has been developed with DOE input and will share results with DOE**



Example: Plutonium Management

– Area 2

- DOE has been taking an experimental approach whereas NDA has been taking a modeling approach
- DOE has shared experimental data to help NDA refine its model and NDA has made model available to DOE
- **Both parties get double the benefit from the same level of individual expenditure**
- **“Routine” calls continue on a ~bimonthly basis to monitor progress and to develop additional leveraged programs**



Example: Aging Facilities Management

- Initial AFM call held in January 2011
- NDA had just commissioned a report to identify possible issues and remedies in long term asset management
- Multiple calls were held during the report development to share data generated to date and to solicit DOE input
- Generated multiple areas of collaboration
 - Sampling data from decommissioned basins in the US and its relevance to longevity predictions in the UK
 - In situ inspection of fuel bundles
 - Pond/basin construction and integrity management
 - Integrity of fuel and fuel cans during and after long term storage
 - Retrieval, inspection and repackaging approaches and experience
 - Non intrusive monitoring technologies and approaches



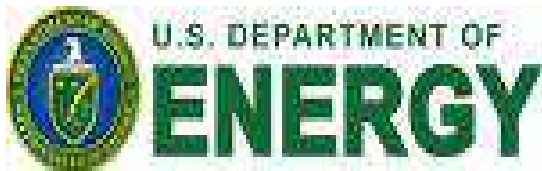
Observations

- **It is a time-consuming, labor intensive process**
 - **2-3 years to make any significant progress**
 - **Takes time for each side to really understand the similarities and differences between their respective programs**
- **Topic areas start very general, then become a little more specific and then very specific**
 - **Each level takes a similar amount of time and effort to develop and to build the relationships as they involve ‘new’ participants**



Observations

- **Greatest success is achieved when there is a clear “driving force” on both sides**
- **Need a dedicated, committed protagonist on both sides**
- **Generally, participation is an “in addition to” assignment**
- **Commercial sensitivities and lack of available funding can impede progress**



Summary of Results

- **Excellent progress has been made**
- **Joint R&D activities are underway**
- **Leveraged funded programs have been developed and have demonstrated tangible, financial benefits to both parties**
- **Numerous information exchange activities have been completed or are underway in multiple topic areas**
- **Strong “Communities of Practice” forming across the board at all levels**
 - **DOE, NDA**
 - **Prime contractors – Sellafield Ltd, CWI, Babcock, Dounreay Site Restoration Ltd**
 - **National Labs – NNL, INL, SRNL, PNNL**
 - **Universities – Sheffield, Manchester**



Summary of Results

- Numerous face-to-face information exchange visits have been completed between key technical experts
 - Idaho: HIP
 - West Valley/Hanford: Remediation/D&D/Change management
 - WIPP: Stakeholder engagement
 - Sellafield: PJM/Black cell operations
 - Sellafield: Contracting
 - Dounreay: Spent fuel management
 - Idaho and SRS: MOX, new generation reactor



Next Steps

- **Continue to develop current topic areas to further leverage expertise, experience and funding**
- **Identify and add more topic areas as the need arises**
- **Begin the process of comparing R&D plans to identify common issues and leveraging opportunities**

