

The Nuclear Materials Management and Safeguards System (NMMSS)



2015 Annual
Users
Training
Meeting

Accuracy

Accountability

Performance



May 11-14, 2015

Las Vegas, NV

Highlights of the Industry Working Group on the Global Cylinder Identification and Monitoring System (GCIMS)

Jessica White-Horton
Oak Ridge National Laboratory



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GCIMS Overview



- Nonproliferation Objectives
 - Enhance the IAEA's capability to detect:
 - Diversion of declared cylinders
 - Misuse of declared cylinders and
 - Undeclared production scenarios involving undeclared cylinders
 - Significantly shorten the time to reconcile shipments between countries
 - Provide a capability to shorten detection times as appropriate

- Acceptance Objectives
 - Must not negatively impact plant safety and operations
 - Must not compromise proprietary information
 - Should be beneficial to industry



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GCIMS Overview, Continued



- Build on industry momentum to move towards a globally standardized, machine-readable identifier for UF₆ cylinders
 - WNTI working group
- Work with IAEA to identify and understand the safeguards benefits from a globally standardized, machine-readable identifier
 - Authentication technologies
- Plan for a proof-of-concept demonstration of a standardized, machine-readable identifier with authentication
 - 2016 in an operating facility (location – to be determined)



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UF₆ Cylinder Stakeholder Meeting Washington DC, April 29-30, 2014

■ ~35 attendees

➤ Industry

- Areva
- Cameco
- EDF
- INVAP
- NAC International
- TAM
- URENCO
- Worthington

➤ Regulators

- NRC
- CNSC

➤ NNSA

➤ Inspectorates

- ABACC
- IAEA (SGTS, SGOC)



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Outcomes from Stakeholder Meeting



- A shared understanding among participating stakeholders
 - IAEA and industry are interested in a system that could reduce inspector burden
- Obtained stakeholder feedback on NNSA efforts
 - Growing interest in a uniform cylinder identification format
 - Further concerns about both the upfront and maintenance costs
- Identified path forward and future engagement to include:
 - Creation of Industry Working Group via the World Nuclear Transport Institute (WNTI)
 - Investigate practical, cost-effective methods for authentication
 - Continue stakeholder engagement
- **No show stoppers associated with the concept expressed at the meeting**



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Follow-up Activities with WNTI



- WNTI President approves Working Group - May 2014
- Kick-off conference call – September 26, 2014
 - Selected 2 Co-chairs (Charette & Whitaker)
 - Approved WG title: WG on UF₆ Cylinder Identification
 - Drafted work scope & objective
 - Identified additional members to invite
- 2nd Conference call - November 4, 2014
 - Preparations for Dec 9 meeting



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WNTI Background



- WNTI was founded in 1998 by British Nuclear Fuels (BNFL), [now International Nuclear Services (INS), (UK)], COGEMA [now AREVA (France)], and the Federation of Electric Power Companies (FEPC), (Japan)
- WNTI is the only body dedicated to presenting the industry point of view on radioactive materials transport matters from an international perspective.
- WNTI works to maintain a strong engagement for promoting the safety and security standards and practices applied to the international transport of radioactive materials, via partnerships with the key UN bodies involved in the establishment of the regulatory framework (e.g., IAEA, IMO, ICAO and the UN Sub-Committee of Experts on the Transport of Dangerous Goods)



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WNTI Members



Founding Members:

- [Areva](#)
- International Nuclear Services Limited
- Federation of Electric Power Companies of Japan

Associate Members

- BHP Billiton Ltd
- [Cameco Corporation](#)
- Centrus Energy
- [Columbiana Hi-Tech](#)
- ConverDyn
- [Daher-NCS](#)
- Direct Rail Services Ltd.
- DLA Piper UK LLP
- [Electricite de France](#)
- EnLog Strategic Services
- ENUSA Industrias Avanzadas SA
- GEODIS Wilson/STSI
- GNS Gesekschaft fur Nuklear-Service mbH
- [Global Nuclear Fuel](#)

Associate Members, Cont.

- Hitachi Zosen Corporation
- [Industrias Nucleares do Brasil \(INB\)](#)
- [Japan Nuclear Fuel Ltd.](#)
- J.S.C. Engineering Center for Nuclear Containers
- J.S.C. St Petersburg IZOTOP
- [J.S.C. Technabexport \(TENEX\)](#)
- Low Level Waste Repository Lrd
- Marubeni Corporation
- [Nantong CIMC Tank Equipment Co., Ltd](#)
- [NNSA](#)
- NTP of South Africa Ltd
- Nuclear Fuel Industries, Ltd
- [Nuclear Fuel Transport Co., Ltd](#)
- Nuclear Risk Insurers, Ltd
- Nuclear Waste Management Organization
- Pacific Nuclear Transport Ltd
- PacTec Inc

Associate Members, Cont.

- Rio Tinto Uranium Ltd
- RSB Logistic Projektspedition GmbH
- RSB Logistic Projektspedition GmbH
- Sellafield Ltd
- Sojitz Corporation
- Svensk Karnbranslehantering AB
- Swiss Nuclear Fuel Commission
- TAM International Inc
- TN International
- Transnuclear Inc.
- Transport Logistics International, Inc
- Sa TRANSRAD nv
- Uranium Companies United, LLC
- [Urenco Ltd](#)
- [Westinghouse Electric Company, LLC](#)
- [Worthington Industries, Inc.](#)



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WNTI WG Meeting- 9 December 2014, London, England



- Initial Meeting of Working Group
 - Number of Attendees ~20
 - Project Overview
 - Scope for the Working Group
 - Industry's approach for standardized ID
 - Potential Benefits for the IAEA

- Scope
 - Establish an industry-wide identification format that provides for uniquely identifying UF₆ cylinders and investigate methods for making the unique identifier machine-readable (e.g., barcode) and independently verifiable by the IAEA



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WNTI Working Group on UF₆ Cylinder Identification



■ Overall Objectives Post-meeting

- Establish a standard format (or set of formats) for the ID number engraved on the nameplates or a supplementary plate affixed to model 30B and 48Y cylinder
- Develop a requirements document for applying a machine readable standard identification number to model 30B and 48Y cylinders
- Investigate methods for adding a machine readable identification number onto the cylinders
- Work with IAEA on an application method that may also satisfies IAEA requirements



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WNTI Working Group Key Outcomes



- Best Practices/Guidelines Document
 - Draft out Outline: January
 - Chapter writing assignments: Feb – June
 - Interim meeting(s): June - August
 - Complete draft of Guidelines to WG for review: Sept
 - Group review meeting: December (London)

- Proof-of-concept Demonstration
 - Establish test objectives and establish test plan: Sept-oct
 - Review test plan: December 2015
 - Conduct demonstration: March-May 2016



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Progress Since the December Meeting



NNSA



- Conference Call Dates
 - 28 January 2015
 - 15 April 2015
- Team Meeting- July INMM 2015
 - Facility Operations/International Safeguards: UF6 Cylinder Identification at Nuclear Facilities
- Annual Meeting- December WNTI 2015



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Summary



- Early development of functional and performance requirements created the foundation for concept design via engagement with stakeholders
- WNTI working group is leading effort on UID format and machine-readable capability
- WNTI working group is continuing to grow in membership, and through the proposed documentation, is giving industry a voice in the proposed GCIMS project

