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WM2013 Theme: International Collaboration and Continuous Improvement

Due August 17, 2012

February 24-February 28, 2013

PHOENIX CONVENTION CENTER PHOENIX, ARIZONA

480-557-0263 www.wmsym.org



NON-PROFIT ORGANIZATION DEDICATED TO EDUCATION AND OPPORTUNITY IN WASTE MANAGEMENT





# **WM2013 CONFERENCE**

International Collaboration and Continuous Improvement

# February 24 – 28, 2013 Phoenix Convention Center, Phoenix, Arizona www.wmsym.org 480-557-0263

The annual Waste Management Conference, presented by WM Symposia (WMS), is widely regarded as the premier international conference for the management of radioactive materials and related topics. WMS is a non-profit organization dedicated to education and opportunity in waste management. It was founded to provide a forum for discussing and seeking cost-effective and environmentally responsible solutions for the safe management and disposition of radioactive waste and radioactive materials.

Supporting organizations include the American Nuclear Society (ANS), the International Atomic Energy Agency (IAEA), the International Framework for Nuclear Energy Cooperation (IFNEC) and the Organization for Economic Co-operation and Development/Nuclear Energy Agency (OECD/NEA). The conference is also organized in cooperation with the US Department of Energy (DOE), the US Nuclear Regulatory Commission (NRC), the US Environmental Protection Agency (EPA) and the US Department of Defense (DoD).

WM2013 will include papers describing research, development and operational experience over the complete spectrum of nuclear waste activities. Proposed topics are categorized into general Tracks (see listing in this document). More detailed information on topics and subtopics, as well as session organizers' contact names, can be found at www.wmsym. org. Tracks 2, 3 and 4 pertain to specific waste type issues. Topics that relate to several waste types are included in Tracks 1, 5, 6, 7, 8 and 9. Session topics include both national and multinational subjects, unless stated otherwise. If the listed topics are too restrictive, submit the abstract under a "non-specified abstracts" topic in any track, numbers 1 - 9. If you are still having trouble assigning your abstract to a topic, then submit the abstract to Topic 10 and it will be assigned to a track by WMS.

Abstracts are to be submitted online at **www.wmsym.org** by August 17, 2012 utilizing the abstract submittal form which contains the following information: 1) a descriptive title that will reflect the paper and presentation content (define all acronyms); 2) a summary of the work conducted, problem history and your results; 3) all authors contact information including mailing address, email addresses and phone numbers; and 4) a brief description of the importance of the work (what problem it addresses/solves) and its application/benefit to others. It is very important to include all contact information for all authors listed on the abstract.

Abstracts should be between **400 - 800 words** and comply with the criteria stated below. Results have shown that brief abstracts that fully and effectively convey the substance and their importance have the highest ranking. Background information irrelevant to an abstract's merits may dilute the substance and lower the ranking. The evaluation criteria on the "Abstract Rating Form" is posted on the WM website **www.wmsym.org** under the Presenters tab as a guide for authors. Insufficient information for the reviewers may result in session misplacement, lower ranking or abstract rejection.

Please Note: The primary contact you select will be designated to represent the abstract, draft, final paper and collect the copyright forms for all authors. This primary contact will receive all email correspondence related to the paper and the conference. The primary contact may or may not be an Author. Abstract submission is limited to two (2) abstracts per Presenter. There is no limit on the number of abstracts one person can co-author.

Upon submission, abstracts will be made available on the WM website with restricted access given to Program Advisory Committee (PAC) members and other volunteers. The PAC members will critically review and rank each

abstract according to the acceptance criteria. Abstracts submitted after the due date or not meeting the acceptance criteria may not be approved for WM2013. Track Co-Chairs, with the advice of the abstract reviewers, will rank and assign approved abstracts to an oral or poster session. The criteria for determining conference placement are designed to ensure that each abstract is ranked and assigned to the best Track/Session for its content, format and anticipated audience interaction.

Upon approval of the abstract, a complete draft paper must be submitted for review for both oral and poster presentations by November 9, 2012. Papers must be revised, if requested, according to the designated paper reviewer's instructions and submitted with all signed copyright forms by January 11, 2013. Approved oral and poster papers will be published on a CD-ROM and on the WM website after the WM2013 Conference. The proceedings will be distributed to all technical registrants of the conference electronically. Papers that are either not revised as required by the designated paper reviewer, missing copyright forms from any author, or not presented at the WM2013 conference will not be published on the final conference proceedings.

Please note that all authors, presenters and panelists are required to register and pay to attend the conference.

#### **SUBMISSION DATE DETAILS**

August 17, 2012 October 12, 2012 November 9, 2012 November 30, 2012 January 11, 2013 Abstract Submission Deadline
Authors Notified of Acceptance
Full-length Draft Papers Due
Reviewer Comments to Authors
Final Full-Length, Approved Papers Due
with signed copyright authorization from
all authors listed on paper.

## LETTER OF INVITATION / VISA REQUESTS

Should you require a Letter of Invitation / Request for Visa from WM Symposia, please email onlinereg@wmarizona.org by November 9, 2012 with your full name, abstract #, mailing address, country and passport #. A letter of invitation with the conference dates and location will be signed by the Managing Director and sent to your attention in PDF format by December 14, 2012 to ensure ample time to secure a Visa for entry into the United States. For more information on securing a Visa to attend the WM2013 conference, please visit http://www.travel.state.gov/visa/visa\_1750.html.

## **REQUESTS FOR FINANCIAL AID**

All Presenting Authors and Co-Authors attending are required to register and pay registration fees. Should you wish to request financial aid to participate as an author/attendee for the WM2013 conference, please go to the WMS website at www.wmsym.org under the "Presenters" tab to download the Financial Aid request form and send it back to us by November 9, 2012, the same day that draft papers are due. More information will be available on the website. All deadlines for authors must be met to be eligible for financial aid. Please note that the WM Symposia does not offer financial aid to cover travel costs. Attendees may request a reduced or waived registration fee as well as housing during the conference. A limited number of requests are granted for each conference and are reviewed by the Managing Director and WMS Board. Recipients will be notified by email by December 14, 2012 to ensure time to secure travel arrangements before the Early Bird discount deadline for registration. Financial aid is given onsite at the conference, not prior to – attendees are responsible for their own transportation costs.

#### WM2013 THURSDAY TOPICAL SESSIONS

As part of the WM2013 conference, WM Symposia will present a special Thursday afternoon panel on "The Blue Ribbon Commission Report - One Year Later & Worldwide Activities Supporting Disposal or Storage of HLW." By WM2013, it will be approximately one year since the President's Blue Ribbon Commission issued its report containing a number of recommendations to address the facility siting, storage and disposal of spent nuclear fuel. While the BRC recommended creation of a Federal Corporation to be responsible, the US DOE is still the primary US Federal agency implementing the recommendations. During the past year, DOE responded with its own plans and this workshop will provide a forum to discuss America's path forward. There have also been a number of key actions taking place outside of the US in addressing the same issues. The session will provide the current status of those various worldwide activities and will consist of both US and non-US representatives, followed by an evening reception.

WM2013 will also feature an additional week-long embedded topical theme on Waste Incidental to Processing (WIR) that will culminate in a full day workshop on Thursday to explore and communicate Lessons Learned. It will link the management, technical, regulatory, legal, and stakeholder involvement in the process to determine certain radioactive wastes to be "not High-Level radioactive Waste" (HLW) and to determine whether those radioactive wastes are suitable for shallow land disposal. Waste determinations are critical actions at several DOE sites. International actions to decontaminate and dispose of materials and equipment that are contaminated by HLW and their related polices will also be presented.

#### TOPIC LISTING - WM2013

Listed below are the proposed topics for WM2013. The topics are grouped by the nine primary WM tracks plus a tenth track for unassigned abstracts. If you can identify the relevant track but not a specific topic for your subject, assign it to the primary track number as a non-specified abstract (1, 2, 3, 4, etc.). If the primary tracks do not cover your topic or you are unsure of the correct topic assignment, designate it for Topic 10. The WM2013 Program Advisory Committee (PAC) Chair reassigns the abstracts in Topic 10 to the most appropriate topic listed in one of the other nine tracks.

The topics listed in the tracks below are only for those areas we are seeking abstracts. There are nearly 40 invited panel and paper sessions not listed in this Call for Abstracts but in the Topic Listing that will be added to the WM2013 program. This includes the Monday featured country session on Canada; the Tuesday featured DOE site of Idaho; the Wednesday featured DOE site of West Valley, NY and special sessions on Waste Incidental to Reprocessing. We also have special reserved sessions on Procurement and Contracting; Safety; Clean-up of Legacy Sites Worldwide; IAEA Topics and many more subjects detailed in the Topic Listing available on our website at www.wmsym.org. The ten tracks are:

- **Track 1 Crosscutting Policies and Programs**
- Track 2 High-Level Radioactive Wastes, Spent Nuclear Fuel/Used Nuclear Fuel and Long-Lived Alpha/Transuranic Radioactive Waste
- Track 3 Low-Level, Intermediate Level, Mixed Waste, NORM, & TENORM
- Track 4 Nuclear Power Plant Waste & On-Site SNF Management
- Track 5 Packaging and Transportation
- Track 6 Decontamination & Decommissioning
- Track 7 Environmental Remediation
- Track 8 Communication Of Technical Issues and Impacts, Education and Training
- Track 9 Special Topics and Multi-Track Cross Cutting Technology Topics
- Track 10 Miscellaneous: Unassigned & Late Abstracts,

& Non-Paper Posters

## 1 - CROSSCUTTING POLICIES AND PROGRAMS (CPP)

John Coffman, DeNuke Contracting Services, Inc. (Lead Co-Chair),

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This Track includes overall crosscutting policies and major programs. Similar topics that are not Track crosscutting and thus specific to a single waste type (e.g. HLW, SNF, LLW, etc.) or program (e.g. ER, D&D, etc.) should be submitted to the specific Track for that waste type or program. Presentations of waste management programs and policies at the national, multinational and international level are particularly encouraged. Other potential crosscutting or general topics include crosscutting regulatory issues, contracting, legal aspects, permitting (licensing) and compliance activities, criteria and standards development, privatization issues, legislation, US Price-Anderson Act, Paris Conventions, enforcement agency and state issues (including multiparty agreements), interface, and other high level crosscutting issues that involve multiple waste types/programs or Tracks.

- 1. Crosscutting Policies and Programs Non-specified Abstracts
- 1.0 Crosscutting Policies and Programs Posters
- 1.1 Student Posters: The Next Generation Industry Leaders of Tomorrow
- 1.2 Worldwide Perspectives of Radioactive Waste Management
   Challenges and Solutions
- 1.3 Worldwide Waste Management Regulatory and Oversight Crosscutting Programs
- 1.4 Waste Management Issues of Small Modular Reactors
- 1.5 Issues Related to Waste Incidental to Reprocessing (WIR)

# 2 – HIGH-LEVEL RADIOACTIVE WASTES (HLW), SPENT/ USED NUCLEAR FUEL (SNF/UNF) AND LONG- LIVED ALPHA/TRANSURANIC RADIOACTIVE WASTE (TRU)

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Roger Nelson, US DOE (Co-Chair), V: +1 (575) 234-7213,

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Tom Brouns, Pacific Northwest National Laboratory (Co-Chair),

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This Track covers all long-lived alpha/TRU waste, SNF and HLW operations from generation and storage through characterization, treatment and disposal. It also covers associated technology development and deployment; recycling/reprocessing strategies and technologies; periodic progress updates oriented to specific achievements in waste removal and disposal activities, and overlapping issues including: interim and final disposition strategies for SNF and HLW, associated environmental permitting and monitoring of stored waste, waste processing alternatives, waste form, deep geologic disposal and operating facility performance and risk assessment, and the impacts of directly associated regulations and standards. As the final disposition of NRC Greater-than-Class-C (GTCC) waste evolves, Tracks 2 and 3 will work together to accommodate abstracts dealing with this waste.

- 2. HLW, SNF/UNF and Long-lived Alpha/TRU Waste Non-specified Abstracts
- 2.0 HLW, SNF/UNF and Long-lived Alpha/TRU Waste Posters
- 2.1 HLW, SNF/UNF and Long-lived Alpha/TRU Programs and Policies
- 2.2 Storage and Retrieval of Spent/Used Nuclear Fuel
- 2.3 Storage and Retrieval of HLW
- 2.4 Storage and Retrieval of TRU
- 2.5 Storage and Retrieval of Other Non-LLW Long-Lived Radioactive Materials
- 2.6 Reprocessing/Recycling and Separation of HLW, SNF/UNF and Long-lived Alpha/TRU
- 2.7 Stabilization/Immobilization of HLW, SNF/UNF and Longlived Alpha/TRU
- 2.8 Transmutation and Other Topics Involving HLW, SNF/UNF and Long-lived Alpha/TRU
- 2.9 Geologic Disposal of HLW, SNF/UNF and Long-lived Alpha/TRU
- 2.10 Closure and Monitoring of HLW, SNF/UNF and Long-lived Alpha/TRU Facilities
- 2.11 Performance Confirmation Strategies for Geologic Repositories

# 3 - LOW-LEVEL WASTE (LLW). INTERMEDIATE LEVEL WASTE (ILW), MIXED WASTE (MW), BY PRODUCT MATERIAL, TENORM, NORM RESIDUES AND DEPLETED URANIUM (DU)

Gabriele Bandt, TÜV NORD EnSys Hannover (Lead Co-Chair), V: +49-511-986-1551, Email: gbandt@tuev-nord.de Bob Hiergesell, Savannah River National Laboratory (Co-Chair), V: +1 (803) 725-5219, Email: robert.hiergesell@srnl.doe.gov Colleen Owens, DeNuke Contracting Services, Inc. (Co-Chair), V: +1 (303) 638-9283, Email: cowens@denuke.com

The LLW, ILW, MW (radioactive & hazardous), Naturally Occurring Radioactive Material (NORM) and Technologically Enhanced NORM (TENORM) Track encompasses: Operations from generation through treatment and disposal; Technology development, demonstration, and deployment; Overlapping issues including waste minimization, waste characterization and analysis, effluent monitoring, waste form and facility performance assessment, regulations and standards; and for all types of facilities from hospitals, accelerators, research reactors, government facilities, disposal sites, etc. This Track covers waste management of uranium or thorium ores as well as "Greater than Class C - LLW", byproducts or tailings, NORM residues and waste, and TENORM. This track also includes radioactive materials, articles and consumer products. (NPP operational waste is covered in Track 4. TRU and similar alpha waste is covered in Track 2.)

- LLW, ILW, MW, NORM and TENORM Non-specified Abstracts
- 3.0 LLW, ILW, MW, NORM and TENORM - Posters
- 3.1 Regulatory and Programmatic Issues and Solutions for LLW, ILW, MW, NORM and TENORM & Depleted Uranium
- 3.2 Recent Changes Among LLW, ILW, MW, NORM and TENORM **Classification and Disposal Regulations**
- Pollution Prevention/Waste Minimization for LLW, ILW, MW, 3.3 **NORM and TENORM**
- 3.4 Waste Characterization for LLW, ILW, MW, NORM and TENORM
- 3.5 **Emerging Treatment Technologies for LLW, ILW, MW, NORM** and TENORM
- 3.6 Operating Experience in the Treatment and Storage of LLW, ILW, MW, NORM & TENORM
- Waste Certification, Acceptance and Disposal for LLW, ILW, 3.7 MW, NORM and TENORM
- 3.8 Performance of Disposal Systems, Facilities and Sites for LLW, ILW, MW, NORM and TENORM
- The Uranium Industry Current Topics and Issues
- **Selected Key Topics in US Commercial LLW Management**

# 4 - NUCLEAR POWER PLANT (NPP) WASTE **MANAGEMENT**

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C. Clint Miller, Pacific Gas & Electric (Co-Chair), V: +1 (805) 545-4582, Email: CCM1@pge.com

The Nuclear Power Plant (NPP) Waste Management Track encompasses waste characterization and minimization, treatment, packaging and management of NPP operational wastes and NPP SNF storage and management.

- Nuclear Power Plant (NPP) Waste Management -4. **Non-specified Abstracts**
- 4.0 Nuclear Power Plant (NPP) Waste Management - Posters
- 4.1 **Management of Nuclear Power Plant Dry Waste**
- Management of Nuclear Power Plant Liquid and Wet Waste 4.2
- 4.3 **Nuclear Power Plant Material Characterization and Onsite SNF/UNF Storage**
- 4.4 **Nuclear Renaissance- New Nuclear Plants Hot Topics**

#### 5 - PACKAGING AND TRANSPORTATION

Olaf Oldiges, WAK GmbH (Lead Co-Chair), V: +49-7247-88-1374, Email: Olaf.Oldiges@wak-gmbh.de

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The Packaging and Transportation Track includes all activities and issues related to the safe, secure, and economical packaging and transportation of radioactive materials. This includes HLW, TRU, LLW, ILW and MW; fresh and irradiated nuclear fuel; contaminated media and debris; isotopes and radioactive sources; uranium hexafluoride, etc. Topic areas include: International regulatory activities, issues, and initiatives; packaging development and related issues; logistics and transportation operations, including large items from decommissioning; integrated planning and scheduling; status and issues for large shipping campaigns; and stakeholder and public interactions and issues.

- 5. Packaging and Transportation - Non-specified Abstracts
- 5.0 **Packaging and Transportation - Posters**
- Packaging and Transportation of Radioactive Material, Radioactive and Hazardous Waste and Spent/Used **Nuclear Fuel**
- 5.2 **Radioactive Material Packaging and Transportation Regulatory Issues**
- 5.3 Safe Transport of Radioactive Materials Within and Between Countries, Especially Fukushima
- 5.4 State, Tribal & Regional Groups Involvement in Resolving **Radiological Transportation Issues**

## 6 - DECONTAMINATION AND DECOMMISSIONING (D&D)

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This Track includes all aspects of D&D from shutdown and planning to license termination and/or greenfield, including characterization, decontamination, dismantling, demolition, waste handling, final survey, and associated new technology development for both government and commercial nuclear power and non-power facilities. It also includes decommissioning technologies and program strategies worldwide, as well as the regulatory aspects.

- **D&D Non-specified Abstracts**
- 6.0 **D&D - Posters**
- **D&D** of Nuclear Contaminated Facilities (Non-Power 6.1 Generating Facilities/Large and Small Nuclear Facilities)
- 6.2 **D&D** of US DOE Facilities
- **D&D** of Nuclear Power Plants 6.3
- Waste Optimization/Minimization and Harmonization 6.4 **During D&D**
- 6.5 Application of Innovative D&D Technologies
- Accelerated Deactivation and Decommissioning of **Facilities**
- 6.7 **Graphite and Decommissioning of Graphite Containing** Reactors

# 7 - ENVIRONMENTAL REMEDIATION [ER]

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This Track includes all activities associated with the assessment, cleanup, and closure of contaminated sites. The topics will explore how to restore and protect human health and the environment through investigation, cleanup, closure, and long-term site management. The focus is on above and below ground remedial actions and cleanup activities including site inspection, characterization and evaluation; sampling and analysis; compliance monitoring; resolving regulatory issues that impact cleanup; aquifer and soil remediation; managing waste resulting from cleanup activities; remedial design and implementation; accelerating cleanup through technological or process improvements; closure; sustainable green remediation processes and legacy management/ long-term stewardship.

- 7. Environmental Remediation Non-specified Abstracts
- 7.0 Environmental Remediation Posters
- 7.1 Environmental Remediation Progress Toward Closure of Contaminated Sites
- 7.2 Technical Innovations in Environmental Remediation and Site Closure
- 7.3 Innovative Field Monitoring for Environmental Remediation
- 7.4 ER Challenges Alternative Approaches to Achieving End State
- 7.5 ER Post Closure Challenges and Long Term Stewardship/ Legacy Management
- 7.6 US Formerly Utilized Sites Remedial Action Program
  (FUSRAP) and Other US Army Corp of Engineers Projects
- 7.7 Groundwater Remediation Projects
- 7.8 Lessons Learned in Environmental Remediation Projects
- 7.9 Deep Vadose Zone Characterization & Remediation Technologies
- 7.10 Sustainable Green Remediation Processes
- 7.11 Lessons Learned in Environmental Remediation Projects in Canada
- 7.12 Experiences in ER of Radioactively Contaminated Sites in Urban and Suburban Areas

# 8 – COMMUNICATION OF TECHNICAL ISSUES AND IMPACTS, EDUCATION AND TRAINING (CE&T)

W.T. (Sonny) Goldston, EnergySolutions (Lead Co-Chair),
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This track is divided into multiple diverse topics including techniques for communicating technical issues, education and training, social justice and equity, intergovernmental and sustainability issues, knowledge management, public involvement and risk communications, preserving cultural resources while demolishing aging facilities and infrastructure. This Track incorporates a broad range of issues that shape decisions involving waste management, including cultural, equity, social, environmental, policy, communications, training and education. This track also addresses environmental assessment issues (Environmental Impact Statements) in the context of National Environmental Policy regulations.

- 8. Communications, Involvement, Education and Training -Non-specified Abstracts
- 8.0 Communications, Involvement, Education and Training Posters
- 8.1 Communication of Technical Issues
- 8.2 Engaging Citizens Lessons Learned From Around the World
- 8.3 The Stakeholder's Voice Involvement on Issues Related to Waste Incidental to Reprocessing Issues
- 8.4 Visitor Centers and Other Public-Education Tools
- 8.5 Information Communication Technology, Knowledge Management, and Other Approaches for Sharing Environmental/WM Data, Cleanup Progress
- 8.6 Preservation of Cultural Resources and Historic Artifacts
- 8.7 The Importance of Communicating and Sharing Nuclear Licensing and Environmental Regulations Knowledge of Waste Disposal Across the Globe
- 8.8 Information Management: Retrieval and Evaluation of Historical Data Including Inter-Generational Issues
- 8.9 Crisis Communication Post Fukushima Lessons Learned and Challenges

- 8.10 Early Communication and Ongoing Involvement in Deployment of Advanced Technologies from Remediation to Reactors (Small Modular Reactors)
- 8.11 The Effectiveness of Advisory Boards; the DOE-EM Site Specific Advisory Board (SSAB) Experience

# 9 - SPECIAL TOPICS AND MULTI-TRACK CROSS CUTTING TECHNOLOGY TOPICS (ST)

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This Track includes all Special Topics including the aspects of US and non-US International Safety, Security, and Safeguards and US Homeland and international security issues. It also includes technical track crosscutting topics or special WM topics on programs associated with orphan and sealed sources, Integrated Risk Management, modeling, compliance activities, criteria and standards development, Natural Resource Damage Assessment (NRDA), technology deployment, instruments, filtration, advanced technologies, extreme environment operations enabling technologies, technology driven program implications and drivers, and/or other technical crosscutting issues that involve multiple waste forms or radioactive materials.

- Special Topics and Track Cross Cutting Technology Topics -Non-specified Abstracts
- 9.0 Special Topics and Track Cross Cutting Technology Topics Posters
- 9.1 Worldwide Management of Spent and Disused Radioactive Sealed Sources, HEU, and Orphan Radioactive Materials & Control
- 9.2 Emerging Safeguards, Security, Counter-Terrorism Requirements and Mandate Impacts
- 9.3 Radiological Dispersion Devices and other Nuclear Weapons of Mass Destruction: Detection, Response, Decontamination and Recovery
- 9.4 Advances in Nuclear Safety Management
- 9.5 Crosscutting Subsurface Mass Transport and Environmental Assessment of Geological Disposal Systems
- 9.6 Crosscutting Filtration Systems in the Nuclear Industry
- 9.7 Project Management Improvements-Planning through Completion-Scope, Cost, & Schedule Control
- 9.8 Crosscutting Performance Assessments Risk Management, and Modeling
- 9.9 Will There be a Thorium Based Fuel Cycle in the Future?

# 10 - MISCELLANEOUS AND NON-SPECIFIED ABSTRACTS PENDING TOPIC OR TRACK ASSIGNMENT (MISC)

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Linda Lehman, CH2M HILL PRC (Co-Chair), V: +1 (509) 376-1473, Email: llehman@wmarizona.org

This Track serves two independent miscellaneous functions. First, authors unsure of the best topic number can assign their abstract to Track 10. where it will be reviewed and reassigned by the WM PAC Chair to the appropriate topic. The second function is to assimilate late abstracts for the only WM poster topic (10.0) besides the Student Poster topic (1.1) that doesn't require a full paper. It will also accept abstracts where the authors do not want to prepare a paper or are delinquent in meeting the deadlines. All other poster topics will require an accompanying paper.

- 10. Miscellaneous and Non-specified Abstracts Pending Topic or Track Assignment
- 10.0 Non-Paper Poster Topic for Emerging Issues and Late Abstracts

For more information or clarification on any topic, contact the listed Lead Organizer found on the Topic Listing on the WMS website, the Additional Organizers, the Track Co-Chairs, or Gary Benda, the PAC Chair at +1 (803) 345-2170, Email: gbenda@wmarizona.org.

#### WM2013 PAC CHAIR

Gary Benda, Bartlett Services, Inc.

#### **WM2013 DEPUTY PAC CHAIR**

Linda Lehman, CH2M HILL PRC

**TRACK CO-CHAIRS & TRACK NUMBER** Kim Auclair, KD Auclair & Assoc. - 9 Harry Babad, Consultant - 2 Del Baird, CDM, - 7 Gabriele Bandt\*, TÜV NORD EnSys Hannover - 3 Tom Brouns, PNNL – 2 John Coffman, DeNuke Contracting Services – 1
Judy Connell, Fluor Gov. Group - 8
John Dalton\*, UK NDA – 8
Jas Devgun, Sargent & Lundy – 6, 7
James Fiore, Fiore Consulting - 1 Albert Freitag, Mitsubishi Nuclear Energy Systems - 6 W.T. (Sonny) Goldston, EnergySolutions - 8 Bob Hiergesell, SRNL – 3 Guenter Hillebrand\*, Nuclear Engineering Seibersdorf GmbH - 9 Angie Jones, AMEC Earth & Env. -7 Paul Jones, DeNuke - 5 Paul Jones, DeNuke - 5
Mark Lewis, EnergySolutions - 4
John Mathieson\*, UK NDA – 1
Ella McNeil, US DOE - 5
C. Clint Miller, PG&E – 4
Keith Miller\*, Nat'l Nuclear Laboratory - 2
Roger Nelson, US DOE - 2
Olaf Oldiges\*, WAK-GmbH - 5
Colleen Owens, DeNuke Contracting
Services – 3
Fred Sheil\*, Sheil Consulting, Ltd. - 6
Wolfgang Steinwarz\*, Siempelkamp
Nukleartechnik GmbH –4
Joe Tarantino, USEC – 9
Tjalle (Chuck) Vandergraaf\*,
Providence University College - 7

**ADDITIONAL PAC MEMBERS** Sue Aggarwal, New Millennium **Nuclear Technologies** Ed Alperin, Solutions – IES, Inc. Anthony Banford\*, NNL Linda Beach, Waste Control Specialists Helen Belencan, US DOE Ed Bentz, E J Bentz & Associates Remi Bera\*, AREVA Federal Svcs Robert Berry\*, Foxfire Scientific Ned Bibler, Consultant Jennifer Biedscheid, Washington TRU Solutions Dale Bignell, URS
Enrique Biurrun\*, DBE Tech. GmbH
Dick Blauvelt, Portage, Inc.
Elizabeth Bowers, Consultant
Paul Bredt, PNNL Paul Bredt, PNNL
Frazier Bronson, Canberra Industries
Steve Brown, SENES Consultants Ltd
Lisa Burns, Consultant
Connie Callan, National Educational
Technology Solutions
Larry Camper, US NRC
Chris Chadwick\*, Porvair Filtration Grp
Grant Charters, New Millennium
Nuclear Technologies Nuclear Technologies
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