



WM2023 Superior Paper Award Winners

WMS established the “Superior Paper” recognition at WM2015 with the objective to recognize authors and co-authors for distinguished contributions to the advancement of radioactive waste and radioactive material management. 74 papers have been chosen for 2023.

23008 “A Feasibility Study on the use of Chrysoidine G for the in situ Detection of Common Fission Products in the Nuclear Industry”

Authors: Thomas Johnson, Clint Sharrad, 23028 Simon Watson, University of Manchester; Thomas Carey, NNL

23021 “Optimisation Processes for Facility Closure Engineering and Design and Operation at the UK’s Low Level Waste Repository”

Authors: Alan Paulley, George Towler, Quintessa, Ltd; Amy Huntington, Richard Cummings, Tony Buchanan, Garan Comley, Michael Anderson, Nuclear Waste Services; Paul Tulip, Andrew Baker, Eden Nuclear and Environment Ltd

23028 “Tank-Side Cesium Removal System: The First Year of Operations”

Authors: Laura Cree, Blake Chamberlain, David Houghton, WRPS

23030 “French HLW Vitrification Processes Major Breakthroughs”

Authors: Regis Didierlaurent, Arnaud Gay, Renaud Liberge, Helene Pablo, Olivier Drouvot, Celine Roussel, Orano; Emilien Sauvage, Jean Francois Hollebecque, Alain Ledoux, CEA

23039 “Design, Construction, and Commissioning of Hanford Tank Farm’s Low Activity Waste Feed Delivery System Supporting WTP”

Author: JP Witherspoon, WRPS

23048 “Developing a Single-Shell Tank Performance Assessment Model for Hanford Tank Farms”

Authors: Kearn Lee, David Watson, Marcel Bergeron, WRPS; Trevor Budge, Mart Oostrom, INTERA, Inc.

23068 “Penetration of Cs and Sr into Cracked Dry Carbonated Mortar Considering the Contamination History of Fukushima Daiichi NPP”

Authors: Kazuo Yamada, National Institute for Environmental Studies; Yasumasa Tojo, Hokkaido University; Haruka Aihara, Yoshikazu Koma, JAEA; Sayuri Tomita, Hideyuki Hokora, Taiheiyo Consultant Co., Ltd; Go Igarashi, Nogoya University; Yoshifumi Hosokawa, Taiheiyo Cement Corporation; Ippei Maruyama, University of Tokyo

23080 “Characterization of Catch Tank 241-C-301 at Hanford”
Authors: Jacob Reynolds, Thom Myer, Melissa Holm, Andrew Cockrell, Marcel Bergeron, WRPS

23087 “Critical Reviews of Sellafield Redundant Facilities Decommissioning Mandates”

Author: Stephen, Murdock, Sellafield Ltd

23091 “Approaches and Tools to Assess Pump-and-Treat Performance and Endpoints”

Authors: Christian Johnson, Inci Demirkanli, PNNL

23100 “Help is on the Way! Emerging Solutions for PFAS-Impacted Liquids”

Authors: Jeff McDonough, Jason Hnatko, Jesse Guillet, Scott Lang, Jennifer Byrd, ERM

23102 “Applying the Industrial Metaverse”

Authors: Kaleb Houck, Maria Eduarda Montezzo Coelho, Troy Burnett, INL

23117 “Applied Studies and Technology Program Offers Solutions to Long-Term Stewardship Challenges”

Authors: Mark Kautsky, Deborah Barr, US DOE; Nicholas Kiusalaas, RSI En Tech LLC

23120 “Grimsel Test Site in Switzerland - Update on the Current Research, Development & Demonstration Program”

Authors: Ingo Blechschmidt, Andrew Martin, Florian Kober, Raphael Schneeberger, Thomas Spillmann, Emiliano Stopelli, Herwig Muller, Irina Gaus, Nagra

23123 “FDLPhysics-Informed Surrogate Modeling for Supporting Climate Resilience at Groundwater Contamination Sites”

Authors: Aurelien Meray, Applied Research Center – FIU; Lijing Wang, Stanford University; Takuya Kurihana, University of Chicago; Ilijana Mastilovic, University of Wisconsin; Satyarth Praveen, LBNL; Zexuan Xu, LBNL; Alexander Lavin, Pasteur Labs & ISI; Milad Memarzadeh, NASA Ames Research Center; Haruko Wainwright, Massachusetts Institute of Technology

23131 “UP1 Reprocessing Plant: Overview of the UP1 Spent Fuel Reprocessing Facility Dismantling Project in Marcoule”

Authors: Jean-Francois Weiss; Pierre Marty, Hugues Chifflet, Erik Navarro, CEA Marcoule

23137 “Magnesium Potassium Phosphate Cement: A Promising Binder for the Conditioning of Aluminum-Magnesium Alloys Waste”

Authors: Gabriel Poras, Hugo Danis, Celine Cau dit Coumes, Pascal Antonucci, Stephane Perrin, CEA; Celine Cannes, Sylvie Delpech, University of Paris, Saclay

23144 “Orano Decommissioning Portfolio and Life Cycle Cost Optimization Approach”

Authors: Stephanie Laurier, Jean-Michel Chabeuf, Philippe Valbuena, Orano

23166 “SMR LEU+ Very Long-Lived Once-through Fuel Cycle Spent Fuel Inventory Reduction Verification”

Authors: John Bess, Gray Chang, Mie Hiruta, Julie Foster, JFoster and Associates, LLC (JFA)

23170 “Calcine Retrieval Project Integrated Mockup Retrieval Technology”

Authors: Jon Orton, Taylor Sandow, Idaho Environmental Coalition - ICP

23183 “Attract, Develop and Above all Retain Talent while Ensuring Generational Renewal”

Author: Fabrice Puyade, Andra

23194 “Factorial Kriging for Mapping the Geochemical Background from Gamma Dose Rate Data Downstream of a Former Uranium Mine”

Authors: Mathieu Le Coz, Alkiviadis Gourgiotis, Pascale Blanchart, Arnaud Mangeret, ISRN

23195 “Manche Disposal Facility Storage Centre After Twenty-Five Years of Post-Closure Monitoring”

Authors: Patrice Torres, Albert Marchiol, Andra

23207 “Use of 3D Printing to Perform Operations which Present Risks of Contamination in Leak-proof Conditions”

Authors: Alexis Engrand, Pierre Le Goff, Benoit Reneaume, CEA; Frederic Sandras, Lorie Rakoto, Cedric Landry, Altrad Endel

23208 “Preliminary Considerations on Spent Nuclear Fuel and High-Level Radioactive Waste Resulting from Advanced Nuclear Reactors”

Authors: Jo Jo Lee, Bret Leslie, US Nuclear Waste Technical Review Board

23217 “Evaluation of a Short-duration, Unfiltered Ventilation 700-C Fan Test at the Waste Isolation Pilot Plant”

Authors: Anderson Ward, US DOE; Punam Thakur, ORNL; Ashley Urquidez, Amentum

23219 “Modelling of the Release of Radiolysis Hydrogen Bubbles from Bituminized Waste Products (BWPs) Under External Thermal Stress”

Authors: Paul Jourda, Pierre Vigneron CEA; Alexis Coppale, CORIA

23227 “Upgrading of the Dismantling Workshop: Towards a 4.0 Dismantling Workshop”

Authors: Emilie Bosse, Benoit Reneaume, Christophe Martinage, Benoit Tankoano, Nolwenn Kammerer, Claude Androit, Pierre Le Goff, CEA

23246 “Robotic Automation for Surplus Plutonium Disposition Packaging”

Authors: Nick Spivey, Tanner Goins, Michael Tomlin, SRNL

23256 “Implementation of Revised DOE Standard 5506 on Preparation of Safety Basis Documents for TRU Waste Facilities”

Authors: Larry Perkins, Brenda Hawks, Amanda Anderson, Robert Nelson, US DOE

23259 “Using a High Purity Germanium Imaging System in Support of D&D Planning for Nuclear Facilities”

Authors: Adam Caswell, Mickey Tunstall, UCOR

23262 “Implementation of the Nitric-Glycolic Acid Flowsheet at the Defense Waste Processing Facility”

Authors: Aubrey Silker, William Holtzscheiter, SRMC; Matthew Siegfried, SRNL

23263 “Development of Particulate Foam Flotation for Remediation of Radioactive Contaminated Soils”

Authors: Sylvain Faure, Fabien Frances, Christelle Latrille, Maxime Fournier, Anne Fornier, CEA; Malvina Renesson, Orano; Alain Vinas, Veolia; Marc Messalier, ECI-MECA; Pierre Chagvardieff, Experconnect

23266 “Heat-generating Radionuclide Waste Transport Modeling for Potential Borehole Disposal in the Negev Desert, Israel”

Authors: Katherine Swager, Dolan Lucero, Hakim Boukhalfa, Michelle Bourret, Gilles Bussod, Phillip Stauffer, LANL; Noa Balaban, Ofra Klein BenDavid, NRCN; Martin Dangelmayr, University of Wisconsin, Milwaukee; Rani Calvo, Itay Reznik, Ravid Rosenzweig, Geological Survey of Israel

23268 “Use of 811 Call Before You Dig State Programs Serves as an Additional Layer of Site Protections”

Authors: Tiffany Drake, Melissa Lutz, US DOE Office of LM; Greg Lupton, Julian Caballero, RSI EnTech, LLC

23272 “Approach of Changing the Defense Waste Processing Facility Process Antifoam and Performance to Date”

Author: Jeremiah Ledbetter, SRMC

23276 “Tools to Support Informed Participation in Consent-based Siting of Spent Nuclear Fuel and High-Level Waste”

Authors: Mark Abkowitz, Vanderbilt University; Robert Claypool, Kanini Software Solutions; Sara Hogan, Juan Uribe, US DOE Office of NE; Natalia Saraeva, Erica Bickford, US DOE; Steven Maheras; PNNL

23298 “LASSO Reconstruction Scheme to Predict Radioactive Source Distributions inside Reactor Building Rooms: Theory & Demonstration”

Authors: Wei Shi, University of Tokyo; Masahiko Machida, Susumu Yamada, Koji Okamoto, JAEA; Toru Yoshida, Yukihiro Hasegawa, Research Organization for Information Science and Technology

23302 “Borosilicate Glass HLW Stability During Long-term Interim Storage”

Authors: Vincent Janin, Celine Roussel, Victor Piovesan, Orano; Sylvain Peugeot, CEA Marcoule

23309 “Using Probable Maximum Precipitation to Assess the Climate Resilience of Waste Disposal Cells at the Department of Energy’s Legacy Sites”

Authors: Connor Geudeker, University of California, Berkeley; Zexuan Xu, Kenneth Williams, LBNL; Haruko Wainwright, Massachusetts Institute of Technology; Emily Fabricatore, Carol Eddy-Dilek, SRNL

23311 “Safety Approach Developed for the Control of the Fire Hazard at the Cigéo Deep Geological Disposal Facility in France”

Authors: Jean-Michel Hoorelbeke, David Claudel, Francois Laumann, Maxime Foucard, Andra

23322 “Gas Generation by Radiolysis in Nuclear Waste Packages: an Overview of the French Approach to the Safety Assessment”

Authors: Elisa Leoni, Stephane Esnouf, Muriel Ferry, Frederic Chupin, Pierre Vigneron, CEA; Coralie Chapuzet, Victor Piovesan, Adrien Rooses, Orano

23328 “Monitoring of Abandoned Mines and Structures Using a Handheld Laser Scanning System and Body Mounted Radiation Detectors”

Authors: Matthew Ryan Tucker, Thomas Scott, University of Bristol

23333 “Waste Remediation on a UK Decommissioning Site using in-situ real-time LRGS and HRGS”

Author: Sasha Philips, Mirion Technologies (Canberra)

23360 “Sustainable Management of Contaminated Metals from Nuclear Installations in France and Worldwide”

Authors: Laurent Auge, Arne Larsson, Cyclife; Fabrice Mousset, EDF; Mathieu Roubertie, Socodei

23362 “Advances on LWRs Plutonium Multirecycling Solutions”

Authors: Cecile Evans, Orano; Pierre-Henri Louf, Yolanda Rugama, Framatome; Guillaume Vaast, Herve Billat, EDF; Francois Sudreau, Christine Chabert, CEA

23364 “Impact of Simulated Radionuclide Release Location on Culebra Transport for WIPP PA Calculations”

Authors: James Bethune, Piru Associates; Seth King, Sarah Brunell, SNL

23367 “Filling in the Blanks: Controlled Source Audio Magnetotelluric (CSAMT) Geophysics to aid Groundwater Well Placement”

Author: Kevin Day, Navarro Research and Engineering, Inc.

23370 “Thermal Analysis of Aged Nitric Acid-soaked Kitty Litter in TRU Waste Drums”

Authors: Michael Hobbs, Michael Kaneshige, David Rosenberg, SNL; Phillip Britt, ORNL; Michael Minette, Jon Schwantes, PNNL; Jessica Mintz, Audrey Williams, LLNL; Frank Pennebaker, Robert Pierce, SRNL; David Hobbs, Retired Consultant

23393 “Advancing SMRs Using a Development Strategy from the Past”

Author: Kevin Taylor, AECOM

23394 “Opticlean: Developing Future Technologies for Laser Cleaning and Characterisations”

Authors: David Megson-Smith, John Day, Thomas Scott, Jacek Wasik, University of Bristol

23402 “Development of a Tank Dome Core Cutting System”

Authors: Shannon Callahan, Peter Rhoades, Ben Hemphill, James Fisher Technologies, LLC; Joan Connolly, Tyler Goodnight, WRPS

23408 “Leveraging Machine Learning and Imaging Technologies for Autonomous Container Inspection”

Authors: Steve Lukow, Ross Lee, David Grow, Joseph Hafen, Jonathan Gigax, LANL

23409 “State of the Practice: Lessons Learned from Two Decades of PFAS Investigations”

Authors: Rosa Gwinn, Vasanta Kalluri, Elizabeth Wyatt, AECOM

23429 “Clarifying What “Screening” means in EPA’s Superfund Approach for Risk Assessment”

Author: Stuart Walker, US EPA

23432 “Examining the Criticality and Dose Rate Aspects of Spent PBR Fuels in Storage and Transportation”

Authors: Jonathan Wing, Ivan Maldonado, University of Tennessee; Gordon Petersen, Robert Joseph, INL

23439 “The DOE-EM ALTEMIS Program: Innovative Approaches to Improve the Efficacy of Monitoring Systems for Complex Radioactive Groundwater Plumes”

Authors: Carol Eddy-Delik, Hansell Gonzalez Raymat, Thomas Danielson, Emily Fabricatore, SRNL; Haruko Wainwright, Massachusetts Institute of Technology, Brian Quiter, Zexuan Xu, LBNL; Tim Johnson, PNNL; Miles Denham, Panoramic Environmental Consulting

23442 “Interaction of Hydroxyapatite and Uranium in Groundwater at the Old Rifle Site to Facilitate Site Remediation”

Authors: Olivia Bustillo, Ravi Gudavalli, Applied Research Center – FIU; Hansell Gonzalez Raymat, SRNL

23443 “Improving Nuclear Waste Drum Inspection with Automated Inspection Stand”

Authors: Ernst Esch, Luke Strebe, Jessica Cooke, Elena Gonzales, Eric Larson, LANL; Julian Martinez, Olivia Cantrell, New Mexico Institute of Mining and Technology; Sachi Mitchell, University of Wisconsin, Madison

23467 “An Integrated Strategy for all of Canada’s Radioactive Waste”

Author: Karine Glenn, NWMO

23473 “Next-Generation Solvent for Caustic-Side Solvent Extraction of Cesium from Supernatant Tank Waste”

Authors: Bruce Moyer, Nathan Bessen, ORNL

23474 “Factors Controlling Contaminant Migration in Zones Created by Attenuation-Based Strategies to Improve Long-term Monitoring”

Authors: Hansell Gonzalez Raymat, Carol Eddy-Dilek, SRNL; Miles Denham, Panoramic Environmental Consulting, LLC

23479 “Remotely Deployable 3D Radiation Mapping and Visualization for Nuclear Power, Decommissioning, and Emergency Response”

Authors: Andrew Haefner, Erika Suzuki, Ryan Pavlovsky, David Rigie, Patrick Yan, Philippe Proctor, Logan Peterson, Seth DuBridge, Justin Oshiro, Gamma Reality, Inc.

23484 “Detection and Localization of Concealed Mercury Using a Handheld CZT Spectrometer and Moderated Cf-252 Source”

Authors: Steven Brown, Christopher Meert, Sienna Fratila, James Mason, David Goodman, Willy Kaye, H3D, Inc.; Dawson Stec, US Military Academy

23493 “Reclassification of Intermediate Level Waste Employing the ANTECH UDASS”

Authors: John Mason, Marc Looman, Antony Towner, Henry Turner, Matt Piotrowski, ANTECH Corporation; Nick Troughton, Alan Lewis, A.N. Technology Ltd.

23506 “Radiological Characterization of High-Dose Items from D&D of the LLNL Pool-Type Reactor”

Authors: Brant Hancock, Dilsherpreet Sidhu, Reginald Gaylord, LLNL

23508 “Savannah River Site Liquid Waste Tank Storage: Tank 48H History and Recent Waste Characterization Results”

Authors: Fred Angel, Sarah Bauske, Eric, Barrowclough, SRMC

23509 “National Nuclear Security Administration (NNSA) Waste Optimization Approach”

Authors: Carl Martinez, Ed Mignardot, David Rast, US DOE NNSA Enterprise Waste Management Division

23522 “Overall SRS Liquid Waste Operations Performance with a Fully Integrated Flow Sheet”

Authors: Thomas Burns, John Gregory, SRMC

23532 “Graphitech, the EDF-Veolia Joint Venture to Meet the Challenge of Dismantling Graphite Reactors”

Authors: Stephane Beguin, GRAPHITECH; Matthew Cole, Veolia Nuclear Solutions

23539 “Versatile, Innovative Modular Water Treatment Systems”

Authors: Ben Garrett, Paul Sylvester, Nicephore Bonnet, Nicephore Bonnet, Jean-christophe Piroux, Veolia Nuclear Solutions

23553 “Radiological Screening Levels and Gamma Survey Methodologies for Characterization of US DOE Legacy Uranium Mining Sites -An Update”

Authors: Steven Brown, SHB INC.; Ian Shafer, US DOE Office of LM

23559 “High-Level Waste Glass Processing over Broad Range of Alternative Feed Compositions”

Authors: John Vienna, Xiaonan Lu, Pavel Ferkl, Jose Marcial, Matthew Fountain, PNNL; Michaela Trenidad, Robert Hanson, Bechtel National; Michael Britton, Laura Cree, WRPS; Wahed Abdul, US DOE

23564 “Use of a Novel Cost-effective Indoor 3D Radiological Survey System in Support of Licensed Site Decommissioning”

Authors: Stephan Owe, Scott Hay, Michael Winters, Cabrera Services, Inc.