

Decommissioning, Decontamination and Reutilization Topical Meeting 2012

(DD&R 2012)

**Chicago, Illinois, USA
24 - 28 June 2012**

ISBN: 978-1-62748-012-3

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by the American Nuclear Society
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the American Nuclear Society
at the address below.

American Nuclear Society
555 North Kensington Avenue
LaGrange Park, Illinois 60526

Phone: (800) 323-3044
(708) 352-6611
Fax: (708) 352-0499

www.ans.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Table of Contents

Technology Track—I

Cochairs: *John Hays (NRC), John Bowen (Mega-Tech Services)*

- Removal of Operational Waste from BUGEY 1 Gas-Cooled Reactor** 1
Luc Lafanechere, Christophe Dorier, Thierry Balon, Antoine Delort (EDF), Jean-Louis Quirante, Alain Gagnor (AREVA/STMI)
- Remote Decontamination of Ventilation Ducting Contaminated with Residual HLW** 5
J. P. Cizel, F. Chambon, (AREVA)
- Policy Document on Monitored Natural Attenuation of Metals and Radionuclides in Groundwater** 8
Stuart Walker, Dave Bartenfelder, Matt Charsky, Ron Wilhelm (EPA)

Regulatory, Lessons Learned Track—I

Cochairs: *Larry Boing (ANL), Leonel Lagos (Florida International Univ)*

- Dismantling and Replacement of a Lifting Unit in Hot Cell** 10
F. Dominjon, C. Beretti, N. De Seroux, Herve Duport (CEA)

Technology Track—II

Cochairs: *Nadia Glucksberg (Haley & Aldrich), Jay Peters (Haley & Aldrich)*

- Adapting Low-Cost Infrared Cameras for Use in Harsh Decommissioning Environments** 12
Kevin L. Young, Mike Hart (Communication Designs, Inc.), Kirk J. Dooley, Jeffrey D. Jones, (CWI),
- Decontamination Experiment for Floor of Fukushima Daiichi Reactor Building** 14
Fumihiko Kanayama, Takechiro Hayashi, Shinji Kawatsuma (JAEA)
- Evolution of Segmentation Tooling for Use in Radiologically Contaminated Facilities** 16
Michael Anderson (Siempelkamp Nuclear Services)
- The Fall of Germany's Nuclear Program—Decontamination for Decommissioning** 18
Christoph Stiepani (AREVA GmbH), Kayla Harper (AREVA Inc),

Technology Track—III

Cochairs: *Nadia Glucksberg (Haley & Aldrich), Jay Peters (Haley & Aldrich)*

Using ISOCS Mathematical Efficiency Calibration Software to Design a Versatile Sample Assay Geometry and to Compute the Efficiency Assay Uncertainty 20
Frazier Bronson (Canberra)

Data Analysis and Sampling Optimization for Radiological Characterization: Geostatistical and Statistical Complementarity 24
Yvon Desnoyers (GEOVARIANCES), Didier Dubot (CEA)

Spectral Based Radiological Survey System for Depleted Uranium 26
Charles Jones, Jay McCown, Donna Rogers, Ronald Unz, Charles Waggoner (Mississippi State Univ)

Project Track—I

Cochairs: *Stuart Walker (EPA), Randall Ridgeway (AECL)*

Zion Station Decommissioning Outreach Experience 30
Pauline Jones, Patrick Daly (ZionSolutions)

ZionSolutions Dry Cask Storage Project Fuel Transfer Preparatory Activities 34
William J. Szymczak, Frederick N. Williams (ZionSolutions LLC)

Zion Station D&D: The First Eighteen Months 38
D. M. Brown, R. C. Woodard (ZionSolutions, LLC)

Heavy Lift System Requirements Development for the Zion Decommissioning Project 39
Kenneth Bentley (ZionSolutions)

Project Track—II

Cochairs: *Stuart Walker (EPA), Randall Ridgeway (AECL)*

Segmentation of Zion Stations Reactor Vessel Internals 43
Michael Anderson (Siempelkamp Nuclear Services), invited

Decommissioning Projects at the Chalk River Laboratories Over the Next 5 Years 45
J. McKenna, K. Schruder, A. Winter (AECL)

Decommissioning of the University of Illinois TRIGA Research Reactor 47
Thomas Gilmore, Scott LaBuy (LVI Services, Inc.), Corey DeWitt, Kurt Colborn (ENERCON), Kevin Taylor (AECOM)

Project Track—III

Cochairs: *Mark Lewis (Energy Solutions), Dustin Miller (Enercon Services)*

CENDRILLON Decontamination and Dismantling of Transfer Systems for Radioactive Liquid Solutions 49
Michel Jeanjacques, Frederic Masure (CEA)

From Concept to Reality: “In-Situ Decommissioning” of the P and R Reactors at the Savannah River Site (SRS) 52

John C. Musall, John K. Blankenship, William B. Griffin (Savannah River Nuclear Solutions)

Complex Sampling Operations in French Gas-Cooled Reactors 54

Fredéric Tardy, Maud Sellier (EDF/CIDEN)

New Materials Developed to Meet Regulatory and Technical Requirements Associated with In-situ Decommissioning of Nuclear Reactors and Associated Facilities 55

John K. Blankenship, Christine A. Langton, John C. Musall, William B. Griffin (Savannah River Nuclear Solutions)

Project Track—IV

Cochairs: Mark Lewis (Energy Solutions), Dustin Miller (Enercon Services)

Development and Underwater Testing of a 12 Axis Heavy-Duty Cutting Machine 57

Jonathan D. Eder (In-Place Machining Company, Inc.)

Decommissioning Project of JAEA Uranium Refining and Conversion Plant 59

Noritake Sugitsue, Nobuo Takahashi, Yasuyuki Morimoto (JAEA)

Decommissioning Experience of Destroyed Nuclear Facilities and Sites in Iraq 63

Adnan Saleem Jarjies, Fouad Al-Musawi (Ministry of Science and Technology)

Regulatory, Lessons Learned Track—II

Cochairs: William Austin (Savannah River Nuclear Solutions), Michel Jeanjacques (CEA)

State Regulatory Issues That Can Affect Decommissioning—A Utah Perspective 66

Sean J. McCandless (EnergySolutions)

Radiological Emergency Response to Fukushima Daiichi Accident—Teleoperation and Robotics of JAEA 67

Mineo Fukushima, Shinji Kawatsuma, Takashi Okada (JAEA)

Year One and the Toshiba “Core Team”— Successes in US Teamwork with Japan 69

William Franz (Babcock & Wilcox International Technical Services, Inc.), Thomas L. Nauman (Shaw Global Services, LLC), Pete Leombruni (Westinghouse), David J. Carlson (Exelon Nuclear)

Regulatory, Lessons Learned Track—III

Cochairs: William Austin (Savannah River Nuclear Solutions), Michel Jeanjacques (CEA)

French Atomic Energy Commission Decommissioning Programme and Feedback Experience 71

J. G. Nokhamzon, Ph. Guiberteau (CEA)

Lessons Learned from Large Decommissioning Projects 79

Juan Luis Santiago, Alejandro Rodriguez (ENRESA)

Project Track—V

Cochairs: *Dennis Reisenweaver (Alion Science and Technology), Jean-Guy Nokhamson (CEA)*

- The Dismantling of José Cabrera Nuclear Power Plant (Spain)** 83
Manuel Rodriguez Silva (ENRESA)
- Heavy Water Components Test Reactor Decommissioning** 85
William E. Austin (Savannah River Nuclear Solutions), Donald S. Brinkley (Newport News Shipbuilding)
- Bringing Project Management Institute Principles to Decommissioning Work** 87
Ronald J. Richards (ZionSolutions)
- The Regulators View for the Successful Research Reactor Decommissioning** 89
Bruce A. Watson, John B. Hickman, Theodore B. Smith (NRC)

Technology Track—IV

Cochairs: *Dennis Reisenweaver (Alion Science and Technology), Jean-Guy Nokhamson (CEA)*

- Monitoring Particulates in Process-Water Effluent from an Industrial Nuclear Installation** 90
David R. Lee (AECL), Michael Lloyd (ChemIndustrial Systems)
- Evaluation of Site Remediation after Decommissioning the Uranium Conversion Plant** 91
Sang Bum Hong, Doo Seong Hwang, Ki Won Lee, Jae Kwon Moon (KAERI)
- Modelling of Contamination Migration in Concrete: Case of the French CEA/Grenoble's Site Decommissioning** 93
M. A. Berton (CEA)

Technology Track—V

Cochairs: *Douglas Davis (Bechtel Marine Propulsion), Frazier Bronson (Canberra Industries)*

- Revisions to U.S. EPA Superfund Risk and Dose Assessment Models and Guidance** 95
Stuart Walker (EPA)
- Treatment of Irradiated Graphite from French UNGG Reactor** 97
Gérard Laurent (EdF), Thomas Brown (Studsvik)
- RCRA Closure of the EBR-II Reactor Sodium Systems, Part II** 99
Jeffrey Jones, Kirk Dooley, Dave Tolman, Rodney Campbell, Travis Stoor (CH2M-WG Idaho, LLC)
- Improvements in the Selectivity of Digital Autoradiography** 101
Pascal Fichet, Anumajja Leskinen, Florence Goutelard (CEA)

Technology Track—VI

Cochairs: *Douglas Davis (Bechtel Marine Propulsion), Frazier Bronson (Canberra Industries)*

Development of a Remote Platform for Remote Removal of Strippable Coatings—A Feasibility Study 103

Leonel E. Lagos, Peggy Shoffner (Florida International University), Sam Maggio, Blake Fall-Conroy (International Climbing Machines)

Electrokinetic Decontamination of Cementitious Materials 105

S. Ben Hadj Hassine (Atomic Energy and Alternative Energies Commission/INSA/Bouygues Construction), H. Peycelon (Atomic Energy and Alternative Energies Commission), M. Carcasses (INSA), P. Gégout (Bouygues Construction)

Analysis of Dismantling Activities of Rotary Kiln for Benchmark Tests 107

Mitsuo Tachibana, Sari Izumo, Noritake Sugitsue (JAEA), Seung-Kook Park (KAERI)

Poster Session

Installation of a Single-Failure-Proof Crane at the Savannah River Site to Support Facility Deactivation 111

Joseph K. Santos, Mort Khazrai (Savannah River Nuclear Solutions, LLC)

Model for Correlating Real-Time Survey Results to Contaminant Concentrations 112

Stuart Walker (EPA)

Decommissioning of the University of Arizona TRIGA Research Reactor 114

Thomas Gilmore, Scott LaBuy (LVI Services, Inc.), Corey DeWitt, Dustin Miller, Kurt Colborn (ENERCON), Kevin Taylor (AECOM)

Pre-Decommissioning Cleanout—University at Buffalo 116

Dustin G. Miller, Kurt Colborn (ENERCON)

Cleansing and Dismantling of CEA-Saclay Nuclear Licensed Facilities; PROJECT PERIMETER 118

Michel Jeanjacques, Gilbert Fady, Jean Louis Martin (CEA)

Cleansing and Dismantling of CEA-Saclay Nuclear Licensed Facilities; LW PLANT PROGRAM 120

Michel Jeanjacques, Rebecca Glévarec (CEA)

Cleansing and Dismantling of CEA-Saclay Nuclear Licensed Facilities; LHA PROGRAM 122

Michel Jeanjacques, Isabelle Delaire (CEA)

EFCOG Best Practices and Lessons Learned 124

Heidi Henderson, Lee Brady, Peggy Shoffner, Leonel E. Lagos (Florida International Univ)

Service Oriented Architecture Based Framework for D&D Knowledge Management 126

Himanshu Upadhyay, Leonel Lagos, Walter Quintero (Florida International Univ)

Experience Gained in the Decommissioning of the Uranium Conversion Plant 128

Doo Seong Hwang, Sang Bum Hong, Jae Kwon Moon (KAERI)

D&D Plan: Objectives, Methodology and Results for APM 130

Daniel Seisson, Jean-Luc Gerber (CEA)

Deriving a Default Screening Value for Ag-108m

133

Dustin G. Miller (ENERCON), Jim Berger (DeNuke Contracting Services, Inc.)

Autoradiography in Localization of Beta Contamination in Facilities under Dismantling Process

135

Anumaija Leskinen, Pascal Fichet, Florence Goutelard (CEA)