

February 25, 2000

DISTRIBUTION

7<sup>th</sup> NONDESTRUCTIVE ASSAY WASTE CHARACTERIZATION CONFERENCE -  
GKB-64-00

The 7th Nondestructive Assay Waste Characterization Conference is scheduled for May 23 - 25, 2000 at the Little America Hotel in Salt Lake City, UT (<http://id.inel.gov/nda/overview.htm>). Enclosed is the preliminary program for the conference and it can be reviewed on the conference web page at <http://id.inel.gov/nda/agenda.html>. Also available on the web page is general conference information including hotel accommodations and registration information. Attendees are asked to pre-register by April 18, 2000. I look forward to having you attend this informative conference.

Information regarding local events and maps is enclosed but additional information can be obtained through the Salt Lake City Visitor Information web page at <http://www.slctravel.com/>.

For administrative questions, e.g., registration, contact Jodi Townsend at [joi@inel.gov](mailto:joi@inel.gov), phone: 208-526-7818. Questions concerning technical content or special case requests are to be directed to Greg Becker at [gkb1@inel.gov](mailto:gkb1@inel.gov), phone: 208-525-0684. Technical paper manuscripts are to be submitted no later than April 5, 2000.

Sincerely



Greg Becker  
Conference Chairman

Enclosure

It



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# Schedule

## Tuesday, May 23, 2000

- 7:30 AM      *Registration/Continental Breakfast*
- 8:00 AM      **Welcoming Statement** Greg K. Becker (Idaho National Engineering and Environmental Laboratory)
- 8:10 AM      **Opening Remarks** William A. Owca (U.S. Department of Energy Idaho Operations Office)

### **Session A: Programmatic/Compliance Demonstration – Ballroom A**

- 8:30 AM      **Authorization Basis of the Waste Isolation Pilot Plant - The Keystone for Establishing the Limits Imposed by Revision 7 of the Waste Acceptance Criteria** Michael R. Brown (U.S. Department of Energy Carlsbad Area Office)
- 9:00 AM      **An Upper Limit for Total Measurement Uncertainty - Do We Need One for Transuranic Waste?** Dan Taggart (Los Alamos National Laboratory)
- 9:30 AM      **Is your 10% Data 20% Uncertain? The Effect of Bias on Nuclear Criticality Calculations for WIPP TRUPACT-II Shipments** Larry Blackwood, Yale D. Harker (Idaho National Engineering and Environmental Laboratory)
- 10:00 AM      *Break*
- 10:20 AM      **Summary of System Performance in the WIPP NonDestructive Assay Performance Demonstration Program** Charles J. Marcinkiewicz (Consolidated Technical Services, Inc.)

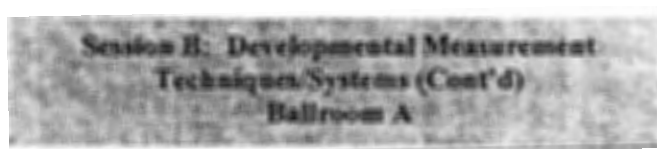
### **Session B: Developmental Measurement Techniques/Systems – Ballroom A**

- 10:50 AM      **Calibration of the Crated Waste Assay Monitor (CWAM) for the Low-Level Waste Measurement for the Y-12 Plant** Sheila Melton, Robert Estep, Earl Peterson (Los Alamos National Laboratory)
- 11:20 AM      **'IBIS' - The Integrated Box Interrogation System** D. B. Syme, Stephen Croft, Robert McElroy, Joseph Wachter, Bruce Gillespie, David Martancik (Canberra Industries, Inc.)
- 11:50 AM      *Lunch (on your own)*
- 1:00 PM      **Multi-Purpose Crate Counter for the RFETS** Randy Lucero, Stephanie Jones (BNFL Instruments, Inc.)

- 1:30 PM**      **The SuperHENC Mobile Passive Neutron Measurement System for Counting Plutonium in Standard Waste Boxes**  
Howard Menlove, J. M. Boak, M. L. Collins, Doug Mayo, C. D. Rael (Los Alamos National Laboratory), C.M. Brown, J. B. Franco, D. J. Santi (Rocky Flats Environmental Technology Site)
- 2:00 PM**      **Multi-Detector Analysis System** Ed L. Reber,  
R. Aryaeinejad, J. D. Cole, M. W. Drigert, J. K. Jewell  
(Idaho National Engineering and Environmental Laboratory)
- 2:30 PM**      **Break**
- 2:50 PM**      **Absolute Gamma Ray Assay of TRU Waste Container Using the Passive Gamma Ray Technique and an Analytical Method of Container Specific Efficiency Curve Generation** Yale D. Harker, Charles V. McIsaac,  
Woo Y. Yoon, Leonard Van Ausdeln (Idaho National Engineering and Environmental Laboratory)
- 3:20 PM**      **Corrected Passive Gamma Ray Spectroscopy**  
Charles V. McIsaac (Idaho National Engineering and Environmental Laboratory)
- 3:50 PM**      **Peeling the Onion? The Gamma-Ray Spectroscopy of TRU Waste** R. J. Gehrke, Y. D. Harker, L. V. East,  
G. W. Twedell, J. K. Hartwell, C. V. McIsaac, D. M. May, J. V. Seamans, E. W. Killian (Idaho National Engineering and Environmental Laboratory)
- 4:20 PM**      **Transuranic Optimized Measurement System (TOMS)**  
Penny S. Haskins, J. E. McKisson, J. P. Oliver (Radiation Technologies, Inc.)
- 5:30-6:30 PM**      **No-Host Bar/Reception – Wyoming Room**

**Wednesday, May 24, 2000**

- 7:30 AM**      **Continental Breakfast (Ballroom A Foyer)**



- 8:00 AM**      **Enhanced Imaging Algorithms for the APNEA System** Jens Gregor (University of Tennessee),  
David C. Hensley (NorthWest Nuclear, LLC)
- 8:30 AM**      **Three-Dimensional Imaging of Radiological Contamination in Soil Using the Material Basis Set Method** Clair J. Branch (University of Michigan),  
Robert J. Estep (Los Alamos National Laboratory)
- 9:00 AM**      **INEEL Developed Windows NT Based Gamma Ray Spectrometer Control and Spectral Analysis System**  
E. Wayne Killian, Larry O. Johnson, Jack K. Hartwell,  
Dawn May, James Seamans, Larry V. East, Yale D. Harker  
(Idaho National Engineering and Environmental Laboratory)

9:30 AM **Integration of TGS and CTEN Assays Using the CTEN\_FIT Analysis and Databasing Software** Robert J. Estep, Connie Buenafe, Sheila Melton (Los Alamos National Laboratory)

10:00 AM **Break**

10:20 AM **A Prototype Generic Expert System Architecture for Data Review/Validation** John Determan, Greg Becker (Idaho National Engineering and Environmental Laboratory)

10:50 AM **Extensible Markup Language, XML, A Catalyst for Knowledge Management and a Tool Base for Building the Dynamics of an Information System** Cecelia J. Hickel (Kiona Scientific)

**Session C: Measurement Uncertainty  
Ballroom A**

11:20 AM **Uncertainty Estimation in Passive Gamma-Ray Assay** Samim Anghai, Chin-Jen Chang (University of Florida)

12:00 PM **Buffet Luncheon (Ballroom B – Main Floor)**

1:00 PM **Recent Uncertainty Analysis Results for the INEEL PAN Radioassay System** Yale D. Harker, Larry G. Blackwood, Teresa R. Meachum, Woo Y. Yoon (Idaho National Engineering and Environmental Laboratory)

1:30 PM **A Statistical Method for Assessing Uncertainty in PAN Radioassay Active Mode Measurements Using Bias Corrected Passive Mode Results** Larry G. Blackwood, Yale D. Harker (Idaho National Engineering and Environmental Laboratory)

2:00 PM **Monte Carlo Error Estimation Applied to Nondestructive Assay Methods** Robert Estep, David Miko, Sheila Melton (Los Alamos National Laboratory)

2:30 PM **Limitations in Current Fissile Waste Nondestructive Assay Systems for Nuclear Criticality Safety** R. Gold, C. L. Mohr, A. D. Wilcox, R. J. Morford, D. O. Hess (Mohr and Associates, GTS DURATEK)

3:00 PM **Break**

**Session D: RH-TRU and RCRA  
Constituent Characterization Techniques -  
Ballroom A**

3:20 PM **Evaluation of Several Fast Neutron Coincidence Counter Options for Characterization of Remote-Handled TRU Waste** D. R. Mayo, N. Ensslin, M. C. Browne, L. A. Carrillo, L. A. Foster, W. H. Geist, M. S. Krick, P. A. Russo, J. E. Stewart, K. D. Veal (Los Alamos National Laboratory)

- 3:50 PM**      **Acceptable Knowledge Package for ANL RH-TRU Waste** R. T. Klann, K. N. Grimm (Argonne National Laboratory East), B. A. Brush (Argonne National Laboratory West)
- 4:20 PM**      **Development of INEEL 104/106 Remote-Handled Waste Surrogates** Michael E. McIlwain, Greg Becker, Jack K. Hartwell (Idaho National Engineering and Environmental Laboratory)
- 4:50 PM**      **Gamma-Ray Spectrometric Characterization of Overpacked CC104/107 RH-TRU Wastes: Surrogate Tests** Jack K. Hartwell, Michael E. McIlwain (Idaho National Engineering and Environmental Laboratory)

**Thursday, May 25, 2000**

**7:30 AM**      **Continental Breakfast (Ballroom A Foyer)**



**8:00 AM**      **Study of AM-241 Alpha-Activity Impact on Performance of PGNAA System for Assay of 55-Gallon Mixed Waste Drums** Bojan Petrovic, Thomas V. Congedo, Abdul R. Dulloo (Westinghouse Electric Company)

**8:30 AM**      **Evaluation of Pulsed Gamma Neutron Activation Analysis for the NDA of RCRA Metals in 55-Gallon Mixed-Waste Drums** A. R. Dulloo, T. V. Congedo, F. H. Ruddy, B. Petrovic, J. G. Seidel, A. Haghghat, (Westinghouse Electric Company, LLC), M. E. McIlwain, R. J. Gehrke, L. Van Ausdeln, L. O. Johnson (Idaho National Engineering and Environmental Laboratory)

**Session E: System Application and Performance - Ballroom A**

**9:00 AM**      **Measurement of the Pu Content of Intermediate Level Waste from the Sellafield Drypac Plant by Passive Neutron Coincidence Counting** Patrick Chard, S. Croft, I. G. Hutchinson, D. J. Lloyd, C. G. Wilkins (Harwell Instruments, Ltd.)

**9:30 AM**      **Performance of a Neutron Multiplicity Counter for Assays of Plutonium Residues** Brian Anderson, Joseph Wachter (Canberra Industries, Inc. - Rocky Flats Office)

**10:00 AM**      **Break**

**10:20 AM**      **233U Active-Well Assay System** David C. Hensley, Frederick J. Schultz, Richard D. Bailey (NorthWest Nuclear, LLC), Andrew Lucero, Larry A. Pierce (Oak Ridge National Laboratory)

- 10:50 AM**      **Uranium Based Active Neutron Assay Applied to Rocky Flats Content Code 007 Waste Containers**  
James Seamans, Daniel Menkhaus, Larry V. East, Yale D. Harker (Idaho National Engineering and Environmental Laboratory)
- 11:20 AM**      **Measuring Mixed Uranium-Plutonium Transuranic Waste at Various Enrichments Using a <sup>252</sup>Cf Shuffler Instrument Calibrated at a Single Enrichment** Jon Hurd (Los Alamos National Laboratory)
- 11:50 am**      *Lunch (on your own)*
- 1:00 PM**      **Accurate Matrix Compensations for Fissile Material Assay in Drummed Waste Using a High Sensitivity Differential Die-Away Chamber** Patrick Chard, S. Croft, P. B. Sharp (Harwell Instruments, Ltd.)
- 1:30 PM**      **IPAN/GEA Active Neutron Assay: Finding the Plutonium Lump** Stephanie A. Jones, George Auchampaugh, Matthew R. Newell (BNFL Instruments, Inc.)
- 2:00 PM**      **Profile of 5000 Nondestructive Assay Results of Rocky Flats TRU Waste Containers** Dawn May, James Seamans, Daniel Menkhaus, Clifford Stanley (Idaho National Engineering and Environmental Laboratory)
- 2:30 PM**      *Break*
- 2:50 PM**      **Certification of Mobile APNEA System for NDA of WIPP TRU Waste** Richard L. Bramblett, Gerry G. Streier (ThermoRetec)
- 3:20 PM**      **Performance of the WIT 6-Detector Gamma NDA System** David Nisius, Richard T. Bernardi (Bio-Imaging Research, Inc.)
- 3:50 PM**      **Down-Hole Probes: Yesterday and Today** C. A. McGrath (Idaho National Engineering and Environmental Laboratory)