The Organizing Committee and Yankee Atomic Electric Company welcome you to the Forty-First Annual Conference on Bioassay, Analytical and Environmental Radiochemistry. We are pleased to have had the opportunity to organize the conference this year and to interact with our numerous colleagues from the many organizations represented annually at the conference. The scientific program is exceptional, covering a diversity of topics including new analytical procedures for environmental site restoration and bioassay, internal dosimetry, NIST standard reference material, new approaches to laboratory quality control and proficiency testing, naturally occurring radionuclides in terrestrial and marine environments, and metrological applications. At this annual conference, we are pleased to have five technical workshops and fifty-one technical papers.

The compilation of abstracts within this Conference book represents material submitted by the author(s) in a reproducible form. As such, it has not been peer-reviewed or edited. Inclusion in the Conference presentation schedule does not preclude publication in a technical journal. A "standing" policy was established very early in the history of the Conference that permits the acceptance of either a regular or an extended abstract in order to offer the authors the opportunity to submit research material that was either complete or still in-progress. Other Conference traditions have been summarized in the 40th Annual Conference Book.

This Conference is hosted by the **Yankee Atomic Environmental Laboratory** of the Yankee Atomic Electric Company (YAEC), Bolton, Massachusetts. This conference marks the second time (28th in 1982) that the Yankee Atomic Environmental Laboratory has sponsored the Conference. The services of Text Graphics of YAEC were used for word processing, graphics and the Conference Book assembly. The Conference logo graphics were obtained from Gary Kramer of the Human Monitoring Laboratory, BRMD. Henry Spitz, Conference Director for the 40th Conference, provided essential conference records and the attendance data base to facilitate organizing this Conference. The Conference Services of the Swissôtel have been very cooperative in meeting our changing requirements as the Conference preparations progressed.

This Conference was organized by the following staff of the Yankee Atomic Environmental Laboratory: David E. McCurdy, Anita Jensen, Estella Laurenzo and Christine Albright. Please feel free to seek their assistance if you have any questions or specific needs.

For your convenience, there are three available sources for Conference information. The first source is the members of the Conference organizing committee mentioned previously. The second source is the carefully organized material in the front sections of this Conference book. The third source is the electronic events board in the Swissôtel lobby. All daily events or noted changes to the schedule shall be announced on the electronic events board. So please review this electronic events board periodically.
### 41st Conference on Bioassay, Analytical and Environmental Radiochemistry

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>Sunday, Nov. 12</td>
<td>3:00 – 8:30 PM</td>
<td>3rd Floor – Lobby</td>
<td>Registration</td>
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<td></td>
<td>6:30 – 8:30 PM</td>
<td>3rd Floor – Lobby Lounge</td>
<td>Reception</td>
</tr>
<tr>
<td>Monday, Nov. 13</td>
<td>7:15 – 6:30 PM</td>
<td>4th Floor – Lobby</td>
<td>Registration</td>
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<td>7:45 – 9:45 AM</td>
<td>Lower Level – Quincy</td>
<td>Technical Workshop</td>
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<td>Break</td>
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<td>10:00 – 12:00 PM</td>
<td>Lower Level – Quincy</td>
<td>Technical Workshop</td>
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<td>Lower Level – Quincy</td>
<td>Technical Workshop</td>
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<td>6:30 – 8:30 PM</td>
<td>4th Floor – Exhibit Areas</td>
<td>Vendor Reception</td>
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<td></td>
<td>8:00 PM</td>
<td>4th Floor – Cambridge</td>
<td>DOE Data Validation Meeting</td>
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<td>Tuesday, Nov. 14</td>
<td>7:15 – 5:00 PM</td>
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<td>Registration</td>
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<td>Vendor Exhibits</td>
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<td>8:00 – 10:05 AM</td>
<td>4th Floor – Grand Ballroom</td>
<td>General Session</td>
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<td>10:05 – 10:20 AM</td>
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<td>4th Floor – Grand Ballroom</td>
<td>General Session</td>
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<td>12:00 – 1:15 PM</td>
<td>3rd Floor – Marquis</td>
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<td>1:15 – 2:55 PM</td>
<td>4th Floor – Grand Ballroom</td>
<td>General Session</td>
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<td>2:55 – 3:15 PM</td>
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<td>Break</td>
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<td>4th Floor – Grand Ballroom</td>
<td>General Session</td>
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<td></td>
<td>7:00 PM</td>
<td>4th Floor – Cambridge</td>
<td>ANSI N42.23 Committee Meeting</td>
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<tr>
<td>Wednesday, Nov. 15</td>
<td>7:30 – 3:00 PM</td>
<td>4th Floor – Lobby</td>
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<td>Vendor Exhibits</td>
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<td>8:00 – 9:40 AM</td>
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<td>General Session</td>
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<td>Break</td>
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<td>General Session</td>
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<tr>
<td>Thursday, Nov. 16</td>
<td>8:00 – 9:40 AM</td>
<td>Lower Level – Quincy</td>
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<td>12:40 PM</td>
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<td>2:00 – 7:00 PM</td>
<td>Berkshire Room</td>
<td>MARLAP Committee Meeting</td>
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<td>Friday, Nov. 17</td>
<td>8:00 – 5:00 PM</td>
<td>Lexington Room</td>
<td>MARLAP Committee Meeting</td>
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## Vendor Workshops

<table>
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<tr>
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<th>Time</th>
<th>Location</th>
<th>Workshop Title</th>
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<tr>
<td>Sunday, Nov. 12</td>
<td>8:00 – 5:00 PM</td>
<td>4th Floor – Dedham Room</td>
<td>Perals Workshop</td>
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<td></td>
<td>8:45 – 5:00 PM</td>
<td>Lower Level – Quincy Room</td>
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<td></td>
<td>8:45 – 9:00 AM</td>
<td></td>
<td>Continental Breakfast</td>
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<td></td>
<td>9:00 – 11:30 AM</td>
<td></td>
<td>Packard Workshop</td>
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<td>11:30 – 1:00 PM</td>
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<td>Lunch</td>
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<td>12:45 – 1:00 PM</td>
<td></td>
<td>Coffee</td>
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<td>1:00 – 3:00 PM</td>
<td></td>
<td>3M and IBC Workshop</td>
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<td>3:00 – 3:30 PM</td>
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<td>Break</td>
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<td>3:30 – 5:00 PM</td>
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<td>Oxford Workshop</td>
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<tr>
<td>Monday, Nov. 13</td>
<td>1:00 – 5:00 PM</td>
<td>Marquis Room</td>
<td>EICrOzM Workshop</td>
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## Technical Workshops

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<td>Lower Level – Quincy</td>
<td>Technical Workshops</td>
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<tr>
<td></td>
<td>7:45 – 9:45 PM</td>
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<td>&quot;Radiochemistry Lab Waste Management&quot;</td>
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<td></td>
<td></td>
<td></td>
<td>Dr. C. F. Wu, Westinghouse</td>
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<td></td>
<td>9:45 – 10:00 AM</td>
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<td>Break and Setup</td>
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<td>10:00 – 12:00 PM</td>
<td></td>
<td>&quot;ICP Mass Spectrometry: An Instrumental Overview with Insights into Radiochemical Applications&quot;</td>
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<td></td>
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<td>Tom Rittberg, Fisons Instrument</td>
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<td></td>
<td>12:00 – 1:00 PM</td>
<td></td>
<td>Lunch</td>
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<td></td>
<td>1:00 – 3:00 PM</td>
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<td>&quot;Operational Laboratory Quality Control&quot;</td>
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<td></td>
<td>Environmental Science &amp; Engineering</td>
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<td></td>
<td>Doug Van Cleef, Environmental Science &amp; Engineering</td>
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<tr>
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<td>3:00 – 3:15 PM</td>
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<td>Break and Setup</td>
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<td>3:15 – 5:15 PM</td>
<td></td>
<td>&quot;DOE &amp; ANSI Initiatives on Rad Data Validation&quot;</td>
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<td></td>
<td>S. Salaymeh, Westinghouse Savannah River</td>
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<td></td>
<td>D. Bottrell, DOE Analytical Services Division</td>
</tr>
</tbody>
</table>
WORKSHOP TITLE: RADIOCHEMISTRY LABORATORY WASTE MANAGEMENT

TIME/DATE/PLACE: 8-10 a.m., November 13, 1995, Boston, MA

ORGANIZER: Chuan-Fu Wu, Ph.D., CHP, Manager, Environmental and Radiological Control, WIPP/Westinghouse Electric Corporation

CO-ORGANIZER: Don Fingleton, Ph.D., Director, Carlsbad Environmental Monitoring & Research Center

FORMAT: 10 minute presentation from each speaker followed by a 30 minute panel discussion

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>INVITED SPEAKER</th>
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<tbody>
<tr>
<td>1. Evaluation of Five Commercially Available Extractive Scintillators</td>
<td>Dr. Sal Scarpitta, U.S. DOE/EML</td>
</tr>
<tr>
<td>for the Measurement of Ra, Pb, U, Th, Pu, Am, Cm, and Np by PEARLS and LS Spectrometry</td>
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<tr>
<td>2. Waste Minimization in the Laboratory</td>
<td>Dr. Jim Harvey, Eichrom</td>
</tr>
<tr>
<td>3. Development of the Waste Management Plan for the Environmental Evaluation Group's Radiochemistry Laboratory</td>
<td>Mr. Don Gray, EEG</td>
</tr>
<tr>
<td>4. Waste Management Issues When Contracting Laboratory Services</td>
<td>Mr. Rich Wells, Lockheed Martin</td>
</tr>
<tr>
<td>5. Management of Radiochemistry Laboratory Waste at Oak Ridge National Laboratory</td>
<td>Dr. Govind Rao, Oak Ridge National Laboratory</td>
</tr>
<tr>
<td>6. Waste Handling at TMA/Richmond</td>
<td>Mr. Rodney Melgard, TMA/Richmond</td>
</tr>
<tr>
<td>7. Handling Analytical Wastes at Quanterra/Richland</td>
<td>Mr. Matt Lardy, Quanterra/Richland</td>
</tr>
<tr>
<td>8. Waste Management/Disposal Requirements for the Licensing of Radiochemistry Laboratories in the State of Georgia</td>
<td>Dr. Hermon Rao, Nuclear Technology Services, Inc.</td>
</tr>
<tr>
<td>9. Radiochemistry Waste Management at the Illinois Department of Nuclear Safety</td>
<td>Dr. Lih-Ching Chu, Illinois Department of Safety</td>
</tr>
</tbody>
</table>
VENDOR PARTICIPANTS

Amersham Corporation
2636 S. Clearbrook Drive
Arlington Heights, IL 60005
800 323-6695 Voice
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Marlan Hillebrand

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Karen Lavender

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708 963-0381 Fax
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904 333-6622 Fax
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Al Mandelblatt

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Al Zirkes

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615 483-8404 Fax
Wayne Graves
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615 483-5891 Fax
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203 238-7593 Fax
Sheila Filiault

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609 924-1729 Fax
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615 988-6905 Fax
Joseph Bradley

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612 736-7149 Fax
Jamie Meilahn

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505 761-5410 Fax
Mike Buvinghausen

Wallac, Inc.
9238 Gaither Road
Gaithersburg, MD 20877
301 963-3200 Voice
301 869-5806 Fax
Joseph Byrne
THE AWARDS

HISTORY

The Organizing Committee of the 32nd Annual Conference on Bioassay, Analytical, and Environmental Radiochemistry began the tradition by presenting three awards for meritorious service to the Bioassay Conference.

The Organizing Committees of the 33rd, 35th and 37th Annual Conferences have carried on this tradition which, as you can see, is not necessarily an annual event.

THE AWARD

The award has taken the form of either a parchment, which was also signed by the attendees at the assembly, or a wall plaque. The text of the award is reproduced below:

| Whereas, the participants in this conference pursue professional excellence and soulful cogitation, |
| Whereas, topics of debate at this conference are at the forefront of scientific knowledge, |
| Whereas, this conference is blessed with independent existence, and is dedicated to the preservation of free creativity and open exchange of intellection, and |
| Whereas, these publications of acclaim are the sole documents issued by this conference for public perulation, |

Be it known

that all honours, rights, privileges, and praises which pertain to this letter of recognition are presented to

by conference colleagues in sincere felicitation and appreciation for inspirational leadership and meritorious scientific contributions at the XXth Bioassay, Analytical, and Environmental Radiochemistry Conference.
THE RECIPIENTS

A. Brodsky
C. W. Sill
J. Sedlet

W. D. Moss
K. Heid
L. Levanthal

D. E. McCurdy
G. H. Kramer
K. G. W. Inn

J. T. Harvey
R. M. Hall

J. E. McInroy

I. M. Fisenne
R. Holtzman

M. Thein
W. B. Spitz
D. G. Olson

32nd Annual Meeting
Washington, DC

33rd Annual Meeting
Berkely, CA

35th Annual Meeting
Charleston, SC

37th Annual Meeting
Ottawa, Ontario

38th Annual Meeting
Santa Fe, NM

40th Annual Meeting
Cincinnati, OH

41st Annual Meeting
Boston, MA

NOMINATIONS

If you are aware of any individual that fulfills the criteria outlined in the text of the award and is a regular attendee at this conference you are invited to submit a nomination for this award to the next Organizing Committee Chairperson.
08:00-08:10  Opening Remarks and Welcome
            Dr. Stephen P. Schultz
            Vice President, Yankee Atomic Electric Company

Session 1  Chairperson: Dale G. Olson
            1576 Cassiopeia St.
            Idaho Falls, ID 83402

08:10-09:05  KEYNOTE ADDRESS: Any Answer or the Correct Answer.
            Dale G. Olson, retired Senior Scientist
            Radiological and Environmental Sciences Laboratory
            U. S. Department of Energy
            Idaho Falls, ID 83401

09:05-09:25  An Analysis of Total Propagated Uncertainties in Analytical Radioactivity
            Measurements of Environmental Samples.
            Anna Berne, Vivian Pan and Herman Eng
            Environmental Measurements Laboratory
            U.S. Department of Energy
            New York, NY 10014

09:25-09:45  Partnering as a Tool for Improving Analytical Laboratory Performance in
            Environmental Monitoring.
            M. M. Khalif and T. P. Killeen
            Westinghouse Savannah River Company
            Aiken, SC 29808

09:45-10:05  The Department of Energy's Integrated Performance Evaluation Program (IPEP):
            Pilot Studies for Implementation.
            P. Lindahl, et al.
            Analytical Chemistry Laboratory,
            Argonne National Laboratory
            Argonne, IL 60439

10:05-10:20  BREAK

TUESDAY, NOVEMBER 14, 1995  GRAND BALLROOM

Session 2  Chairperson: Saleem Salaymeh
            Environmental & Hazards Analysis Group
            Westinghouse Savannah River Co.
            Aiken, SC 29803

10:20-10:40  Preparation and Characterization of a Performance Evaluation Soil Sample for
            QA/QC of Radiochemical Analyses.
            L. E. Fiske and D. E. McCurdy
            Shepherd Miller Incorporated
            Fort Collins, CO 80525

10:40-11:00  Factors for Consideration in the Development of a Blind In Vitro Quality Assurance
            Program.
            Timothy J. Donovan, et al.
            Lockheed Martin Corporation, Knolls Atomic Power Lab Inc. Schenectady, NY 12301
11:00-11:20  Survey of Quality Control Practices at Radioanalytical Laboratories.  
B. S. Crandall and K. K. Crandall  
Environmental Monitoring Section, EPD and Health Physics Technology  
Westinghouse Savannah River Company  
Aiken, SC 29808

11:20-11:40  Empirically Determined Decision Levels - Development and Use In An In Vitro Bioassay Program.  
Brian J. Lawson, Jane M. Tapio and Richard J. Winslow  
Lockheed Martin Corporation, Knolls Atomic Power Lab Inc. Schenectady, NY 12301

11:40-12:00  Empirically Determined Decision Levels - Development and Use In An In Vivo Bioassay Program.  
Brian J. Lawson, Michael A. Orcutt and Richard J. Winslow  
Lockheed Martin Corporation, Knolls Atomic Power Lab Inc. Schenectady, NY 12301

12:00-13:15  LUNCH SPONSORED BY THERMO NUCLEAR SERVICES, EICHROM INDUSTRIES, INC. AND THE YANKEE ATOMIC ENVIRONMENTAL LABORATORY

TUESDAY, NOVEMBER 14, 1995  GRAND BALLROOM

Session 3  
Chairperson:  Mitchell D. Erickson  
Environmental Research Division  
Argonne National Laboratory  
Argonne, IL 60439

TIME  TITLE

J. B. Miller, et al.  
EET TN Corporation  
Knoxville, TN

Mary Ann Edgell, et al.  
Environmental Research Division  
Argonne National Laboratory  
Argonne, IL 60439

13:55-14:15  Separation and Analysis of Actinides by Extraction Chromatography Coupled with Alpha Liquid Scintillation Spectrometry.  
J. R. Cadieux and S. H. Rehoul  
Savannah River Technology Center  
Westinghouse Savannah River  
Aiken, SC 29808

14:15-14:35  Microwave-assisted Decomposition of Solid Matrices, and Analysis of Radiostannium and Plutonium.  
R. Garcia, R. Rosson and B. Kahn  
School of Mechanical Engineering  
Georgia Institute of Technology  
Atlanta, GA 30332

14:35-14:55  High Accuracy Instrumental Neutron Activation Analysis of Chlorine in Lubricating Base Oils (SRM 1818a) Using Primary Standards.  
L. Tandon and D. A. Becker  
Nuclear Methods Group  
National Institute of Standards and Technology  
Gaithersburg, MD 20899

14:55-15:15  BREAK
<table>
<thead>
<tr>
<th>TIME</th>
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| 15:15-15:35 | *Simultaneous Determination of $^{237}$Np, $^{232}$Th and $^{234,235,238}$U in Urine Samples using Extraction Chromatography, Inductively Coupled Plasma Mass Spectrometry (ICP-MS) and Gamma Spectroscopy.*  
Son N. Nguyen, Philip E. Miller, John F. Wild, David P. Hickman and Gary WM. Mansfield. Lawrence Livermore National Laboratory  
Livermore, CA 94551. |
D. Lewis and J.N. Lawrence  
Dose Assessment Team  
Los Alamos National Laboratory  
Los Alamos, NM 87545 |
M. Owais, L.C. Sun and W. J. Klemm  
Science Application International Corporation  
McLean, VA |
| 16:15-16:35 | *The Determination of Np, U and Th in Urine.*  
Robert Langston, Son Nguyen and Tracey Simpson  
Lawrence Livermore National Laboratory  
Livermore, CA 94551 |
| 16:35-16:55 | *Os-185 Intake Following an Accelerator Target Failure.*  
Bruce Murray*, George Holeman* and Richard Holtzman*.  
*Brookhaven National Laboratory, Upton, NY and *Argonne National Laboratory, Argonne, IL 60439 |

**TOPICAL PAPER**

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| 16:55-17:15 | *The Effect of Morale on the Quality of Analytical Results.*  
Barry D. Stewart  
Environmental Physics, Incorporated  
Charleston, SC |

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**TUESDAY, NOVEMBER 14, 1995**

**GRAND BALLROOM**

**WEDNESDAY, NOVEMBER 15, 1995**

**GRAND BALLROOM**
The Low-level Radioactivity Ocean Sediment Standard Reference Material.
Kenneth G. W. Inn, Zhichao Lin, et al.
National Institute of Standards and Technology
Gaithersburg, MD 20899

Zhichao Lin, Kenneth G.W. Inn and Carlos E. Crespo Hernandez.
National Institute of Standards and Technology
Gaithersburg, MD 20899

Joylene W. L. Thomas, Kenneth G. W. Inn, Maria Elisa Garcia and Rafael Martinez.
National Institute of Standards and Technology
Gaithersburg, MD 20899

Development of a Sequential Extraction Technique to Define the Fractionation of Radioactive Elements in NIST Natural Matrix Standards.
Michael Schultz, et al.
Environmental Radioactivity Measurement Facility
Department of Oceanography
Florida State University, Tallahassee, FL 32306

BREAK

WEDNESDAY, NOVEMBER 15, 1995
GRAND BALLROOM

Session 6
Chairperson: Tracey Simpson
Hazardous Waste Control Department
Lawrence Livermore National Laboratory
Livermore, CA 94550

TIME
TITLE

10:00-10:20
Chest Wall Thickness Measurements: The Novel Approach Continues.
Gary H. Kramer and Linda C. Burns
Human Monitoring Laboratory
Ottawa, Ontario K1A 1C1

10:20-10:40
The Calibration of Germanium Detectors Used For Lung Counting.
Gary H. Kramer, Peter Olsen and Suzanne Yiu
Radiation Protection Bureau
Ottawa, Ontario K1A 1C1

10:40-11:00
Wound Counting Techniques Used for Np Accident Response and Follow-Up: Lessons Learned From a Recent Incident.
Debbie Kruchten and Tracey Simpson
Lawrence Livermore National Laboratory
Livermore, CA

11:00-11:20
The Canadian National Calibration Reference Centre for In-Vivo Monitoring: The New Lung Counting System - The Story Continues!
Gary H. Kramer
Radiation Protection Bureau
Ottawa, Ontario K1A 1C1

11:20-11:40
The Beginning of the Korean Whole Body Counting Intercomparison Program.
Gary H. Kramer and Tae-Young Lee
Human Monitoring Laboratory
Ottawa, Ontario K1A 1C1

11:40-12:00
BUSINESS MEETING & FOUNDER'S AWARD PRESENTATION

12:00-13:15
LUNCH
## Session 7

**Chairperson:** Myint Hein  
Office of Radiation Protection  
Oak Ridge National Laboratory  
Oak Ridge, TN 37831

<table>
<thead>
<tr>
<th>TIME</th>
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</table>
Steve Goldstein, Catherine Hensley, Claudine Armenta and Richard Peters.  
Inorganic Trace Analysis, Group CST-9  
Los Alamos National Laboratory  
Los Alamos, NM 87545 |
| 13:35-13:55  | *Uptake of $^{239}$Pu and $^{241}$Am in Seawater Via Diphonix™, and Actinide CU Resins.*  
D. Reide Corbett, et al.  
Department of Oceanography  
Florida State University  
Tallahassee, FL 32306 |
| 13:55-14:15  | *Application of Empore™ Disk Technology to Environmental Radiochemical Analysis.*  
Analytical Chemistry Laboratory  
Argonne National Laboratory  
Argonne, IL 60439 |
| 14:15-14:35  | *Determination of Geochemical Partitioning of Uranium and Transuranic Elements in a Marine Sediment by the Application of Sequential Chemical Extractions.*  
Michael Schultz and Bill Burnett  
Environmental Radioactivity Measurement Facility  
Department of Oceanography  
Florida State University, Tallahassee, FL 32306 |
| 14:35-14:55  | *Use of Sequential Extractions to Determine the Speciation of $^{226}$Ra in Phosphogypsum.*  
Bill Burnett, Geoff Schaefer, Carter Hull and Michael Schultz.  
Department of Oceanography  
Florida State University, Tallahassee, FL 32306 |
| 14:55-15:15  | **BREAK**                                                                                 |

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## Session 8

**Chairperson:** Bill Burnett  
Department of Oceanography  
Florida State University, Tallahassee, FL 32306

<table>
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<th>TIME</th>
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</table>
| 15:15-15:35  | *Germanium Detector Efficiency Variations Due to a Change in Matrix Density for Standard Marinelli Beakers.*  
Aman Khan and Ana Ramirez  
Isotope Products Laboratories  
Burbank, CA 91504 |
| 15:35-15:55  | *Assays of Thick Soil Samples Using Low-Resolution Alpha Spectroscopy.*  
Kevin Mayer and Art Lucas  
Health Sciences Research Division  
Oak Ridge National Laboratory  
Oak Ridge, TN 37831 |
The Use of One-Side Aluminum Coated Thin Polycarbonate Film (2.10 μM) as a High Precision Neutron or Fission Counter.
H. L. Pai
R.A.D. Service and Instruments Limited
Rexdale, Ontario M9V 3Y2

Design for Measurements of Environmental Radon Using TLDs.
Barbara C. Fields, Art Biermann and Joel White
Lawrence Livermore National Laboratory
Livermore, CA

Fractal Methods in Radioactivity Measurements.
Thomas M. Semkow
Wadsworth Center
New York State Department of Health
Albany, NY 12201

THURSDAY, NOVEMBER 16, 1995
QUINCY

Session 9
Chairperson: Ashok Banavali
Analytical Services Group
Yankee Atomic Environmental Laboratory
Yankee Atomic Electric Company
Bolton, MA 01740

TIME

TITLE

08:00-08:20
Review of Health Canada's Radioactivity Monitoring Networks.
R. Kurt Ungar and Murray Walsh
Radiation Protection Bureau, Health Canada
Ottawa, Ontario K1A 1C1

08:20-08:40
Cleanup of Byproduct Material and Verification of Radiological Compliance Using In Situ Detection of Ra-226.
L. E. Fiske, S. J Baker, J. A. Johnson and N. M. High
Shepherd Miller, Incorporated
1600 Specht Point Dr., Suite F
Fort Collins, CO 80525

08:40-09:00
Natural Radioactivity in Brazilian Mineral Waters and Its Correlation With The Water Composition.
José Marcus Godoy
Instituto de Radioproteção e Doenmetria - Comissão Nacional de Energia Nuclear
Rio de Janeiro, RJ Brazil CEP 22793.970

09:00-09:20
Applications of Geographic Information Systems for Documentation of Radiological Cleanup.
N. M. High and L. E. Fiske
Shepherd Miller, Incorporated
1600 Specht Point Dr., Suite F
Fort Collins, CO 80525

09:20-09:40
Tools for Developing a Radiochemistry Departmental Database.
Russell L. Moser, Heyward H. Coleman and James B. Westmoreland
Environmental Physics Incorporated
Charleston, SC

09:40-10:00
BREAK
<table>
<thead>
<tr>
<th>TIME</th>
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<tbody>
<tr>
<td>10:00-10:20</td>
<td>Faster, Cheaper, and Pollution-Preventing Analytical Methods for Environmental Radionuclides. Mitchell D. Erickson, et al. Environmental Research Division Argonne National Laboratory Argonne, IL 60439</td>
</tr>
<tr>
<td>10:40-11:00</td>
<td>Use of Analytical Application for Remediation Results in Technology Transfer. Cathay Sharp Thermal Nuclear Services Oak Ridge, TN 37830</td>
</tr>
<tr>
<td>11:00-11:20</td>
<td>Determination of $^{89}$Sr and $^{90}$Sr in Milk, Soil, and Biota Using an Extraction Chromatography Column: Further Results. Hewitt W. Jeter Teledyne Brown Engineering Environmental Services Westwood, NJ 07675</td>
</tr>
<tr>
<td>11:20-11:40</td>
<td>Radiochemistry of Actinides in High Concentration Brine Solutions. Amy S. Wong and Nelson D. Stainaker Chemical Science and Technology Division Los Alamos National Laboratory Los Alamos, NM 87545</td>
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<tr>
<td>11:40-12:00</td>
<td>Sampling and Analytical Methods for Radionuclides in Environmental and Waste Samples. S. K. Fadeff, et al. Pacific Northwest Laboratory Richland, WA 99352</td>
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<tr>
<td>12:00-12:20</td>
<td>$^{137}$Cs and $^{210}$Pb Dating of the Sediments in the Lagoons of the Chandeleur Islands, Louisiana. John R. Meriwether and Harish Dhurvasula Physics Department University of Southwestern Louisiana Lafayette, LA 70504</td>
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<td>12:40</td>
<td>CLOSE OF CONFERENCE</td>
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