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376-1326
QA-CEH-197

November 25, 1987

J. Kennedy
Section Leader Quality
Assurance Section
Operations Branch Division
of High Level Waste Management
623 SS
Washington DC 20555

Dear Mr. Kennedy:

QA PRESENTATION PAPER FOR AMERICAN NUCLEAR SOCIETY

Thank you for agreeing to present a paper on waste management quality assurance at the annual meeting of the American Nuclear Society in June 1988.

I believe that forum provides us an excellent opportunity to further promote the awareness and importance of quality assurance in nuclear waste management.

The attached letter summarizes some key information you need and includes a preliminary agenda for the various waste management sessions. Specifically, note the information on registration and required submittal of abstracts by January 8, 1988.

As a change to the attached agenda, we now expect to have a session, separate from Technology Transfer, devoted to quality assurance presentations (see page 7 of Agenda). I and either Jerry Saltzman or Gene Langston (DOE/OCRWM) will jointly chair that session. We still expect the session to be on June 16 and will inform you promptly if that is changed.

Your cooperation and participation in this session is highly appreciated. If you need additional information, please feel free to contact me at (509) 376-1326, FTS 444-1326, or any of the program organizers listed in the attached letter.

Respectfully,

Cecil E. Hughey

Cecil E. Hughey, Manager
Quality Assurance Department

CEH/gs

Attachments

8803240002 871125
PDR WASTE
WM-1 PDR

88152616
WM Project: WM-1
PDR w/encl
(Return to WM, 623-SS)

WM Record File: 405
LPDR w/encl

H

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September 9, 1987

Dr. Dick Baker
U.S. Department of Energy
Chicago Operations Office
9800 S. Cass Ave.
Argonne, IL 60439

SUBJECT: Nuclear Waste Management Sessions at the American Nuclear Society Meeting, June 12-17, 1988, San Diego, California

Dear Dick:

On behalf of the American Nuclear Society, the Division of Isotope and Radiation, we are organizing several sessions on the Nuclear Waste Management and these sessions are:

1. Nuclear Waste Management (General)
2. MRS, LLW, and Transportation of Nuclear Waste
3. Characterization of High Level Waste (HLW) Sites
4. Hanford (Basalt) Characterization Activities
5. Salt Characterization Activities
6. TUFF Characterization Activities
7. Technology Transfer and Quality Assurance
8. Performance Assessment and Validation Analogs

Sessions 1,3,4,5, and 6 are invited, sessions 2, 7 and 8 are invited and contributed.

A preliminary agenda of the program is enclosed for your information.

You are an invited speaker in the High Level Waste session and chairman of the Technology Transfer and Quality Assurance Session.

Please contact the invited and/or contributed speakers for the topics in your session. The session duration is three hours, so the number of talks should be limited to 8 to 10. The other key information is as follows:

Battelle

- ANS requires a Summary paper of about 450 to 900 words which will be published in the ANS TRANSACTIONS. Guidlines for the Summary is enclosed in the "Call for Papers". A speaker will be billed for page charges. Four copies of the summary paper needs to go Nancy Porter, Technical Program Chairman, Attention TRANSACTION OFFICE, ANS, 555 N. Kensington Ave., La Grande Park, IL 60525 USA, and one copy to the session chairman.

- January 8, 1988 is the deadline of the summary paper to the TRANSACTION OFFICE, and the summary paper will be subjected to peer review for acceptance.

- All invited speakers are expected to register for the meeting. Nonmember invited speakers either may register for one day or for the full meeting at the member rate and receive the TRANSACTIONS and a $50 one-time discount on membership, or may receive a one-day-only complimentary registration (TRANSACTIONS and membership discount not included).

- In addition, there will be a proceedings of the papers on the above topics in the Journal of "Radioactive Waste Management and the Nuclear Fuels Cycle". The page limit per paper is 7 to 10 pages (single spaced). Typing instructions and mats for the paper will be sent to the authors at a later date. Authors need to submit their papers to their session chairmen by April 30, 1987. Each paper will be subjected to peer review. To expedite publication after incorporating the reviewer's comments, the authors need to bring their camera-ready copy at the time of the conference (June 1988).

Your co-operation and participation at the Nuclear Waste Management sessions is highly appreciated. If you need any additional information, please feel free to contact me at (509) 376-3539, FTS 444-3539. Thank you.

PROGRAM ORGANIZERS

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11/15/87

AMERICAN NUCLEAR SOCIETY

ANNUAL MEETING JUNE 12-17, 1988, SAN DIEGO, CALIFORNIA

SECTION - NUCLEAR WASTE MANAGEMENT

Organizer - J. C. Laul, D. H. Alexander, A. E. Van Luik, D. B. Shipler

I. Nuclear Waste Management Session (Invited)

Chairmen (C. E. Kay, H. Thompson)

- Overview talk (MRS, Transportation, HLW, LLW, etc).... Charles Kay
- NRC, role in NWM ..... H. Thompson
- Monitored retrievable storage (MRS)..... Keith Klein
- Transportation of NW ..... Lake Barrett
- Low level waste ..... M. Knapp
- Nuclear Waste Policy Act of 1982 ..... Steve Kale
- Waste package and underground facility design ..... Mark Frei
- Characterization of HLW sites ..... Ralph Stein
- Status of NRC HLW Repository Licensing Program ..... Mike Bell
- Performance Assessment of HLW .... Don Alexander

II. MRS, LLW, and Transportation of Nuclear Waste Session (Invited Contributed)

Chairmen (Lake Barrett, M. Knapp)

MRS topics ..... 2 talks

Transportation..... 2 talks

Cleanup..... 2 talks

Act/compacts ..... 2 talks

III. Characterization of High Level Waste Sites Session (Invited)

Chairmen (D. Alexander, J. C. Laul)

- Characterization Plan for Basalt ..... J. Mecca
- Characterization Plan for Salt ..... G. Appel
- Characterization Plan for Tuff ..... M. Blanchard
- Characterization Studies for the WIPP Site .... W. D. Weart
- Technology Transfer ..... D. Baker
- Characterization studies in the Canadian Underground Research Lab ..... C. Davison
- Stripa Characterization activities in Sweden ..... P. Ahlstrom
- Characterization Plan for Bedded Salt in Germany ..... H. Gies
- Characterization Plan in Switzerland ..... C. McCombie

IV. Hanford (Basalt) Characterization Activities Session (Invited)

Chairmen (J. Mecca, D. Dahlem)

Nine technical talks on what has been done and what is planned along the theme in the site characterization plan (SCP). One talk each should be on the following topics:

1. Geology
2. Geomechanics
3. Hydrology
4. Geochemistry
5. Climatology and Meteorology
6. Facility Design
7. Waste Package
8. Performance Assessment
9. State Activities

V. Salt Characterization Activities Session (Invited)

Chairmen (G. J. Appel,T. A. Baillieu)

Nine technical talks on the SCP topics:

1. Geology
2. Geomechanics
3. Hydrology
4. Geochemistry
5. Climatology and Meteorology
6. Facility Design
7. Waste Package
8. Performance Assessment
9. State Activities

VI. Tuff Characterization Activities Session (Invited)

Chairmen (M. Blanchard, J. L. Younker)

Nine technical talks on the SCP topics:

1. Geology
2. Geomechanics
3. Hydrology
4. Geochemistry
5. Climatology and Meteorology
6. Facility Design
7. Waste Package
8. Performance Assessment
9. State Activities

VII. Technology Transfer and Quality Assurance Session (Invited and Contributed)

Chairmen (S. Brocoum, J. Saltzman) [To be split - see page 7]

- Foreign Cooperative Technology Development/Transfer ..... S. Mann, R. Robinson
- Site Characterization Technology .... S. Whitaker, A. Yonk
- Site Investigation Management System ..... C. Hanlon, D. Alexander
- Geochemical Response ..... M. Ferrigan, E. Lindner
- Geohydrologic Performance ..... N. Patera, M. Deyling
- Instrumentation Development ..... J. Yow, W. Obbes
- DOE Policy on QA Matters ..... J. Saltzman
- NRC Role in QA ..... J. Kennedy
- Repository QA as Applied to R&D Support ..... D. Ryder, C. Hughey

VIII. Performance Assessment and Validation Analogs Session (Invited and Contributed)

Chairmen (Norm Eisenberg, G. Birchard)

- Perceived Risk and HLW disposal ..... D. Alexander

- Safety Analysis of Candidate Repository Sites ..... A. Van Luik/ ..... D. Alexander
- Preclosure Risk Assessment Methodology ..... T. Eng
- Postclosure Performance Assessment ..... N. Eisenberg
- Coupled Effects Modeling ..... Chin Fu Tsang
- Mass transfer control of radionuclide releases ..... Tom Pigford
- Salton Sea Geothermal Field ..... W. Elders
- International Alligator Rivers Analogue Project ... G. Birchard
- Natural Radionuclides in Groundwaters ..... J. C. Laul

Tentative Arrangement of Sessions

June 13, 1988 Monday	
8:30 - 11:30 a.m.	Nuclear Waste Management Session I
12:00 - 1:30	Luncheon Guest Speaker - C. E. Kay, Acting Director DOE-OCRWM
2:00 - 5:00 p.m.	Session II (MRS, LLW, and trans.)
June 14, 1988 Tuesday	
8:30 - 11:30 a.m.	Session III (Characterization of HLW site)
2:00 - 5:00 p.m.	Session IV (Basalt)
June 15, 1988 Wednesday	
8:30 - 11:30 a.m.	Session V (Salt)
2:00 - 5:00 p.m.	Session VI (Tuff)
June 16, 1988 Thursday	
8:30 - 11:30 a.m.	Session VII (Tech Transfer and QA)*
2:00 - 5:00 p.m.	Session VIII (Performance Assessment and Validation Analogs)

* May be split into separate sessions.

NUCLEAR WASTE MANAGEMENT
SAN DIEGO MEETING JUNE 12-17, 1988

1. Nuclear Waste Management (General)
2. MRS, LLW, and Transportation of Nuclear Waste
3. Characterization of High Level Waste (HLW) Sites
4. Hanford (Basalt) Characterization Activities
5. Salt Characterization Activities
6. Tuff Characterization Activities
7. Technology Transfer and Quality Assurance *
8. Performance Assessment and Validation Analogs

Sessions 1, 3, 4, 5 and 6 are invited.

Sessions 2, 7 and 8 are invited and contributed.

* Session 7 may be split into separate sessions - see page 7.

Nuclear Waste Management Quality Assurance Session
(Invited and Contributed)

Chairmen (J. Saltzman, C. E. Hughey)

- DOE Policy: Waste Management QA . . . . J. Saltzman/M. E. Langston
- NRC Overview: Repository QA . . . . J. Kennedy
- Application of QA Requirements for High Level Waste Program . . . . W. Kehew/E. A. Patzer
- Waste Producers' QA Specification Development . . . . K. Chacey
- Application of QA to R&D Support of HLW Programs . . . . D. E. Ryder
- Customizing a National Consensus Standard for High Level Waste Quality Assurance Programs - ANSI/ASME NQA-3 . . . . C. Williams
- TUFF Site Characterization QA Program . . . . J. Blaylock
- Salt Repository Site Characterization QA Program . . . . T. J. Reese
- BWIP Site Characterization QA Program . . . . P. Saget

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CALL FOR PAPERS

AMERICAN NUCLEAR SOCIETY

1988 ANNUAL MEETING

June 12–16, 1988
San Diego, California

Summary Deadline: Postmarked by Friday Jan. 8, 1988

This is the official call for papers for the ANS 1988 Annual Meeting. You are encouraged to submit summaries of papers describing work that is NEW, SIGNIFICANT, and RELEVANT to the nuclear industry. To facilitate an adequate review, a summary of your paper must be in the mail to ANS headquarters by January 8, 1988. The National Program Committee will then review your summary and will notify you of their decision to accept or reject it by February 24, 1988. ANS will publish all accepted summaries in the TRANSACTIONS. You will present your paper orally at the meeting and are expected to register for the meeting. You may publish the completed paper elsewhere if you wish, but your summary becomes the property of ANS. It is your responsibility to protect classified or proprietary information.

GUIDELINES FOR SUMMARIES: Authors must adhere to the guidelines below or the Program Committee may reject their summary. Questions about subject categories may be directed to the representatives listed on page 4.

CONTENT

1. *Introduction*—state the purpose of the work.
2. *Description of the actual work*—must be NEW and SIGNIFICANT.
3. *Results*—discuss their significance.
4. *References*—if any, must be closely related published works. Minimize the number of references. Do not present a bibliographical listing.

LENGTH

1. Use at least 450 words, excluding tables and figures.
2. Use no more than 900 words, including tables and figures.
3. Count figures and tables as 150 words each. Use no more than three figures or tables.
4. Limit title to ten words; limit listing of authors to three or fewer if possible.
5. Exclude references from word count.

TABLES AND FIGURES

1. Tables and figures will be reduced to fit one column (7.5 cm) or two columns (~15 cm). Use lettering that will be at least 1 mm high after reduction.
2. Use high-quality glossy photographs or reproducible black-on-white drawings. Attach to original copy of summary.
3. Put each table or figure on a separate page.

FORMAT

1. Type your summary **double spaced** on one side of the page only.
2. Use SI units (with English units following in parentheses, if desired). Exceptions are made for eV and barns.
3. List references numerically at the end of the summary and use superscript numbers in the text.

PAGE CHARGE

ANS charges $165 per final printed page (prorated) of your summary in the TRANSACTIONS. Attach your institutional purchase order, with purchase order number, to the original copy of the summary. Otherwise, ANS will bill you personally.

TO SUBMIT A SUMMARY

Fill out pages 2 and 3 of this Call for Papers and attach copies of them to your original and three copies of your summary. Mail all four sets, postmarked by *JANUARY 8, 1988*, to:

Nancy J. Porter, Technical Program Chairman
Attn: TRANSACTIONS OFFICE
American Nuclear Society
555 North Kensington Avenue
La Grange Park, IL 60525 USA

YOU MUST SUBMIT FOUR COMPLETE SETS OF YOUR SUMMARY, INCLUDING PAGES 2 AND 3 OF THIS CALL FOR PAPERS, BY JANUARY 8, 1988.

SUMMARY COVER SHEET

CONTRIBUTED/STIMULATED PAPER ☐ INVITED PAPER ☐

➡ ORIGINAL AND THREE COPIES REQUIRED ⬅

TITLE: _____

_____

1st Author: _____ ANS Member: Yes ☐ No ☐

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2nd Author: _____ ANS Member: Yes ☐ No ☐

Company: _____ Phone: _____

Address: _____

3rd Author: _____ ANS Member: Yes ☐ No ☐

Company: _____ Phone: _____

Address: _____

List authors in the order in which they appear on the title page of the paper; list additional authors on a separate sheet. Complete the top portion of page 3.

BILLING INFORMATION
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DESCRIPTION OF PAPER

(Must be at least 450 words, but not more than 900.)

Text (must be at least 450) _____

_____ figures × 150 = _____

_____ tables × 150 = _____

_____ lines of equations × 10 = _____

TOTAL (Must not be more than 900): _____

CONTRIBUTED SUMMARY

Subject category number for your summary (from page 4) _____

Alternative subject category number _____

INVITED SUMMARY

ANS Division Chairman who invited you _____

Subject category number (from page 4) _____

PUBLICATION INFORMATION

	Yes	No
Has the substance of this summary been presented or published previously?	☐	☐
If so, give details _____		
Has the paper been submitted for publication in a technical journal?	☐	☐
If so, give details _____		
Has this summary been approved for publication by your institution or company?	☐	☐
If not, give details _____		

THIS COMPLETED SUMMARY COVER SHEET AND PAGE 3 OF THIS CALL FOR PAPERS MUST BE ATTACHED TO EACH OF THE FOUR SETS OF YOUR SUMMARY. DO NOT STAPLE SETS; PLEASE USE PAPER CLIPS.

FILING AND MAILING INFORMATION

(Original and three copies required)

THIS IS YOUR MAILING LABEL.

Please print or type name and address of author to whom ANS should send correspondence.

Telephone: Commercial:
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Title of Summary _____

_____

☐ **This is to acknowledge receipt of your summary.** Please use the log number above in future correspondence.

This summary will be considered for inclusion in the program of the American Nuclear Society's 1988 Annual Meeting, San Diego, California, June 12–16, 1988.

Your paper has been reviewed and:

☐ 1. Accepted for presentation. (See Attached Instructions)

☐ 2. It is suggested that your summary be revised. (See Attachment)

☐ 3. It is suggested that your summary be combined with the summary referenced as Log # _____. (See Attachment)

☐ 4. Rejected. (See Attached Comments)

Your paper is being returned without review because:

☐ 1. It was received too late to be reviewed.

☐ 2. It does not comply with the 450- to 900-word limit.

In all correspondence regarding your summary, please refer to the Log Number shown above.

Thank you for submitting this summary.

Nancy J. Porter
ANS Technical Program Chairman
1988 Annual Meeting

ANS 1988 ANNUAL MEETING
San Diego, California—June 12–16, 1988
SUBJECT CATEGORIES FOR CONTRIBUTED AND INVITED SESSIONS

1. ALTERNATIVE ENERGY TECHNOLOGIES AND SYSTEMS—William H. Steigelmann, Jr. (215/667-8366)
   - 1.1 Alternative Energy Technologies and Systems: General

2. BIOLOGY AND MEDICINE—M. Guven Yalcintas (615/576-2078)
   - 2.1 Liquid Scintillation Techniques
   - 2.2 Developments in Radiation Therapy
   - 2.3 Internal Dosimetry
   - 2.4 Trace Analysis Techniques and Applications

3. EDUCATION AND TRAINING—Ben H. Stevenson (201/596-3547)
   - 3.1 Innovations in Nuclear Engineering Education and Training
   - 3.2 New Reactor Technologies
   - *3.3 Human Factors in the Control Room
   - **3.4 Applications of High-Temperature Superconductivity to Nuclear Power

4. ENVIRONMENTAL SCIENCES—Joe G. Stephan (509/375-6829)
   - 4.1 Environmental Sciences: General
   - **4.2 Environmental Impact of Site Characterization
   - **4.3 The Use of Geographical Information Systems in Environmental Assessment
   - **4.4 The Use of Geographical Information Systems in Emergency Response
   - **4.5 A Geographical Information System Demonstration Session
   - **4.6 Developments in Indoor and Field Collection Monitoring
   - **4.7 Environmental Requirements for Major Projects (NEPA, RECRA, CRCLA)
   - **4.8 Environmental Impacts from Operation and Disposal of Defense Waste

5. FUEL CYCLE AND WASTE MANAGEMENT—Hassan A. Hassan (804/383-3208)
   - 5.1 Fuel Cycle Management and Economics
   - 5.2 Nuclear Fuel Design and Analysis
   - 5.3 Fuel Reprocessing
   - †*5.4 Roundtable on Utility Waste Problems
   - **5.5 Shippingport Station Decommissioning Project
   - **5.6 In-Core Fuel Economics
   - **5.7 Fuel and Fuel Cycles for Fast Reactors
   - **5.8 Strategic Decisions in Fuel Cycle Procurement
   - **5.9 Mixed Waste: Technical and Institutional Issues
   - **5.10 Human Factor and Operator Perspectives for New Generation Rad Waste Treatment Systems
   - **5.11 Performance Assessment Bases for High-Level Waste Facility Safety Classification
   - **5.12 New Initiatives on Below-Regulatory Concerns
   - **5.13 Status of WIPP Operational Readiness
   - **5.14 Engineering for the Transportation and Packaging of Spent Fuel and HLW
   - **5.15 Management of Greater-Than-Class-C Wastes
   - **5.16 New Developments in Cask Design

6. FUSION ENERGY—Thomas E. Shannon (615/576-5500)
   - 6.1 Fusion Energy: General
   - 6.2 Design of Next-Generation Experimental Reactors/CIT, ITER
   - 6.3 Neutronics and Blanket Development
   - 6.4 Fusion Technology Development

7. HUMAN FACTORS—Philip Berghausen, Jr. (415/857-0712)
   - 7.1 Human Factors: General
   - 7.2 Maintenance Human Factors in Power Plants

8. ISOTOPES AND RADIATION—Ned Wogman (509/375-2451)
   - 8.1 Isotopes and Radiation: General
   - *8.2 Nuclear Waste Management [FCWMD]
   - *8.3 Characterization of High-Level Waste Sites [FCWMD]
   - *8.4 Hanford (Basalt) Characterization Activities [FCWMD]
   - *8.5 Salt Characterization Activities [FCWMD]
   - *8.6 Tuff Characterization Activities [FCWMD]
   - **8.7 Performance Assessment and Validation Analogs [FCWMD]
   - **8.8 Selenium in Biological Materials [BMD]
   - **8.9 Neutron Activation Analysis
   - **8.10 MRS, LLW, and Transportation of Nuclear Waste [FCWMD]
   - **8.11 Technology Transfer and Quality Assurance [FCWMD]
   - **8.12 Radiation Effects in Microelectronics and Fiber Optic Systems [ETD]

9. MATERIALS SCIENCE AND TECHNOLOGY—G. E. Lucas (805/961-3412)
   - 9.1 Materials Science and Technology: General

10. MATHEMATICS AND COMPUTATION—R. Arthur Forster (505/667-6691)
   - 10.1 Mathematical Modeling: General
   - 10.2 Reactor Physics Methods [RPD]
   - 10.3 Methods in Heat Transfer and Fluid Flow [THD]
   - 10.4 Computational Methods in Reactor Safety [NRSD]
   - 10.5 Methods in Neutral- and Charged-Particle Transport [RPD] [RPSD]
   - **10.6 Standards and Good Practices for Computers in the Nuclear Industry
   - **10.7 Multigrid Methods in Nuclear Engineering Applications
   - **10.8 Inverse Problems in Nuclear Engineering [HFD] [BMD]
   - **10.9 Methods for High-Energy Hadronic Beam Transport

11. NUCLEAR CRITICALITY SAFETY—Thomas P. McLaughlin (505/667-4789)
   - 11.1 Data and Analysis for Nuclear Criticality Safety
   - *11.2 MONK Tutorial—I
   - *11.3 MONK Tutorial—II
   - *11.4 MONK Tutorial—III
   - *11.5 MONK Tutorial—IV
   - **11.6 Instrumentation Used to Enhance In-Plant Criticality Safety Control

12. NUCLEAR REACTOR SAFETY—Robert A. Bari (516/282-2629)
   - 12.1 Reactor Safety: General
   - ●**12.2 Uncertainty Analysis in Reactor Safety [MCD]
   - 12.3 Safety Considerations in Space Nuclear Reactors
   - 12.4 Safety Features of Metal Fuels
   - 12.5 Impact of NUREG-1150 on LWR Modifications and Operating Procedures Changes
   - 12.6 Fidelity of Full-Scope Reactor Simulators During Off-Normal and Accident Situations
   - 12.7 Reliability and Risk Assessment
   - 12.8 Liquid-Metal Reactor Safety
   - 12.9 Thermal Reactor Safety
   - 12.10 Applications of Thermal Hydraulics to Reactor Safety [THD]

13. POWER—Ronald K. Bayer (804/273-2105)
   - 13.1 Reactor and Plant Engineering: Design, Modification, Maintenance, and Advanced Reactor Engineering Concepts [ROD]
   - 13.2 Management and Finance [HFD]
   - 13.3 Quality Assurance and Quality Control
   - 13.4 Licensing
   - 13.5 Public Acceptance [ETD]
   - †13.6 Why Preserve the Nuclear Power Option?
   - **13.7 The Effect of Institutional Differences on Worldwide Acceptance of Nuclear Power
   - **13.8 Licensing in the Age of Operating Reactors
   - **13.9 Regulating Plant Life Extension
   - **13.10 Advances in Chemical Decontamination Technology
   - **13.11 Steam Generator Performance Restoration Methods and Results
   - **13.12 New Technology in Plant Systems
   - **13.13 Assurance of Functional Requirements of Operating Plants (Definition, Modification, or Procurement)
   - *13.14 Utility Roundtable
   - **13.15 Nuclear Power Plant Security
   - **13.16 Space Nuclear Power Generation

14. RADIATION PROTECTION AND SHIELDING—Joseph Cardito (617/589-6938)
   - 14.1 Radiation Protection and Shielding: General

15. REACTOR OPERATIONS—M. G. Zaalouk (919/836-6351)
   - 15.1 Plant Decontamination Activities [PD] [RPSD] [RSTD]
   - 15.2 Impact of Safety System Functional Inspection on Plant Operations [PD] [HFD]
   - *15.3 Plant Performance—An Exhibit for the Top Ten Plants
   - **15.4 Impact of Equipment Qualifications on Plant Operations
   - **15.5 PC Applications—Tools for Improving Efficiency in Operations and Maintenance [ETD] [PD]
   - **15.6 Emergency Plan and Facility Audits [PD]
   - **15.7 Facility Modifications to Support Advanced Spent Fuel Storage Options [PD] [FCWMD]
   - **15.8 Plant Performance Indicators—Seeking Excellence
   - **15.9 Simulator Validation—Training [ETD]
   - **15.10 Plant Modifications in Support of Advanced Spent Fuel Technologies

16. REACTOR PHYSICS—Charles Cowan (408/365-6460)
   - 16.1 Reactor Analysis Methods
   - 16.2 Thermal Reactors: Design, Validation, and Operating Experience
   - 16.3 Fast Reactors: Design, Validation, and Operating Experience
   - 16.4 Nuclear Data Instrumentation
   - **16.5 Analyses for LEU Conversion of Research Reactors [ROD]
   - **16.6 Code Benchmarks and Uncertainties

17. REMOTE SYSTEMS TECHNOLOGY—Paul Steneck (702/295-1634)
   - 17.1 Remote Systems in Waste Handling
   - 17.2 Robotics in Fusion Reactor Maintenance
   - 17.3 Robotics in Reactor Plant Surveillance and Maintenance
   - 17.4 Remotely Operated Facilities
   - 17.5 Aerospace Remote Handling Activities

18. THERMAL HYDRAULICS—Alan E. Levin (404/894-3746)
   - 18.1 Thermal Hydraulics: General

* —Invited papers
** —Invited and contributed papers
† —Panel discussion
[ ]—Cosponsoring division
● —Summary required for acceptance and publication in TRANSACTIONS. Full paper required before presentation, to be published in division proceedings.

Oral presentations are normally allotted 20 minutes for presentation and questions.

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