## March 4, 1981

tu:

The Commissioners

From:

T. A. Rehm, Assistant for Operations, Office of the EDO

Subject: WEEKLY INFORMATION REPORT - WEEK ENDING FEBRUARY 27, 1981

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

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A. Rehm, Assistant for Operations Office of the Executive Director for Operations

\*No input this week.

CONTACT:

T. A. Rehm, 27781

# Summary of Weekly Information Report Week Ending February 27, 1981

# Oconee Unit No. 1

On February 23 Juke Power Company reported that while Oconee Unit No. was ascending in pressure and temperature after a maintenance shutdown, they discovered a leak in a check valve which contributes to an intersystem LOCA. Duke stopped the heatup and, after discussions with the staff, agreed not to restart Oconee 1 until after repairs are completed.

#### Fort St. Vrain

On February 23 Fort St. Vrain experienced an electric grid upset due to a tie-in with Utah, causing the plant to trip. A static seal did not seal properly and primary coolant helium was released into the containment building. Access to the building was limited but it was not evacuated.

# Report on Radon Releases from Uranium Mining and Milling

NUREG-0757, "Radon Releases from Uranium Mining and Milling and Their Calculated Health Effects," was issued last week. The report documents radon releases from the front end of the uranium fuel cycle.

#### Hydrogen Program

We have received Federal Republic of Germany concurrence in our proposal to send a Sandia engineer proficient in code work to Germany during March 1981 to obtain their RALOC code and return with it to Sandia. This code was developed to describe the transport of steam, air, and hydrogen in reactor containments.

# Industry Operational Data Screening Program

A Commission Paper (SECY-81-121) was forwarded by EDO which discusses current staff efforts to formally encourage INPO/NSAC to establish an industry-wide and NRC-approved operational experience screening service.

#### OFFICE OF ADMINISTRATION

Week Ending February 27, 1981

# ADMINISTRATION OF THE FREEDOM OF INFO: MATION ACT

#### STATUS OF REQUESTS

Initial		Appeal of
Request		Initial Decision
Received	115	1
Granted	60	0
Denied	4	0
Pending	51	1

# ACTIONS THIS WEEK

#### Received

Trudy Knowles (81-63)

Rick Trombetta (81-64)

George Vernon, Karon, Morrison & Savikas, LTD. (81-65)

(An individual requesting information about himself) (81-66)

FOI Services, (81-67)

Clifford H. Turner, Denticare (81-68)

CONTACT: J. M. Felton 492-7211 Requests specific information on shipments of yellowcake from Ambrosia Lake Milling Facility in New Mexico to the Gore Conversion Plant in Gore, Oklahoma during the months of July through December, 1980.

Requests documents concerning a leak of radioactive gas at the Trojan nuclear power plant.

Requests, on behalf of Nuclear Pharmacy, Inc., all written and oral statements given to the NRC from January 1, 1980 to the present which mentions, names or refers to Nuclear Pharmacy, Inc.

Requests a copy of his Reactor Operator License exam results.

Referral from the Food and Drug Administration for a list of all companies with approved applications licensed to build facilities for radiation sterilization in Puerto Rico and a list of names and addresses of companies performing radiation sterilization in Puerto Rico.

Requests the names, duty stations and any other identifying information of NRC employees in Maryland, Virginia and District of Columbia.

#### Received, Cont'd

Lynn Connor, Doc-Search Associates (81-69)

(NRC employee) (81-70)

(NRC employee) (81-71)

William S. Jordan, III, Harmon & Weiss (81-72)

(NRC employee) (81-73)

Robert R. Holt, New York University (81-A-1-80-578)

# Granted

Lilias Jones, Black Hills Alliance (81-27)

Lilias Jones, Black Hills Alliance (81-37)

Lucille Sadwith, Center for Farm & Food Research, Inc. (81-40) Requests a copy of SECY-80-467, SECY-80-555 and the 1980 Plan for Reorganization that was sent to the Transition Team.

Requests a copy of documents on him in his security and personnel file and personal files kept on him by listed individuals.

Requests the date of vacancy selection, birth date of selected individual and his own personal candidate rating for 79 listed vacancy announcements.

Requests, on behalf of the New England Coalition on Nuclear Pollution, all documents, other than those dealing with personnel matters, prepared by Dr. Mihalio D. Trifunac, on behalf of, or for presentation to, or consideration by the Advisory Committee on Reactor Safeguards and all transcripts of ACRS meetings in which Dr. Trifunac participated.

Requests information on his security clearance.

APPEAL TO THE COMMISSION for 15 denied documents relating to the Task Force on Interim Operation of Indian Point submitted to the NRC Commissioners in June, 1980.

In response to a request for a copy of 16 listed documents, made available these records.

In response to a request for a copy of 15 listed documents, made available 14 documents. Informed the requester one document was not reproduced due to poor legibility.

In response to a request for a copy of eight listed documents pertaining to radionuclides in the food chain, made available these records.

#### Granted, Cont'd

Andrew B. Reid, Black Hills Alliance (81-42)

Robert R. Holt, New York University (81-43)

Rodney E. Armstrong, Armstrong, Byrd & Associates, Inc. (81-45)

Douglas Harbrecht, Scripps-Howard Newspapers (81-46)

Richard E. Willins, The Procter & Gamble Company (81-51)

Matthew F. Medeiros, Attorney-At-Law (81-55)

Joseph N. Cassiere, Boston University (81-56) In response to a request for a copy of all written legal opinions and subsequent documents regarding NRC's role in the control of offsico tailings locations and whether NRC has the authority to order a clean-up of offsite tailings contamination from uranium millings, made available eight documents.

In response to a request for documents which indicated the methodology, assumptions, data and procedures used by the Task Force on Interim Operation of Indian Point Nuclear Power Station, informed the requester the Task Force report was based upon three listed published documents and the work specific to the Task Force was contained in two additional reports.

In response to a request for a copy of an October 10, 1977 memorandum written by Harold Denton recommending a shutdown of the Humbolt Bay reactor because of the surface faulting, and copies of all supporting documents, made available six documents. Informed the requester one additional document subject to this request is already available at the PDR.

In response to a request for documents pertaining to licenses issued for all spent fuel piles to be cleaned up under the Uranium Mill Tailings Act of 1978, informed the requester the NRC has no documents subject to this request.

In response to a request for a copy of an up-to-date list of Agreement States and addresses, made available a copy of this list.

In response to a request for a letter from Leslie Alsager requesting documents relating to the construction of nuclear generating units located in Seabrook, New Hampshire and the Commission's written response to Mr. Alsager's request, informed the requester the NRC did not locate documents subject to this request.

In response to a request for information on the break down of the types or classes of people who have made Freedom of Information Act requests, made available the requested list.

# Granted, Cont'd

Fred Eberlein, Control Data Corporation (81-62)

(An individual requesting information about himself) (81-66)

# Denied

None

In response to a request for a copy of 10 CFR Part 21, made available this information.

Made available information on his Reactor Operator License exam results.

#### DIVISION OF CONTRACTS

Week Ending February 27, 1981

#### RFP'S ISSUED

RFP No. RS-RES-80-198

Title - Earthquake Recurrence Intervals at Nuclear Power Plant Sites
Description - A study to provide a methodology for determining the
recurrence interval for specific levels of ground motion
generated at nuclear power plant sites by either an
on-site or off-site earthquake.

Period of Performance - Two years
Sponsor - Office of Nuclear Regulatory Research
Status - Technical negotiations completed. Best and Final offers
due March 6, 1981.

(All administrative action completed and final payment made)

Contract No.	Contractor	Closeout Date
NRC-06-75-143	Potomac Research, Inc.	2/13/81

#### DIVISION OF SECURITY

Week Ending February 27, 1981

# United Kingdom (UK) Interest in 10 CFR Parts 25 and 95

Division of Security personnel met and discussed the Classified Safeguards Program (e.g., 10 CFR Parts 25 and 95, "Access to and Protection of National Security Information and Restricted Data," as well as the related NRC Classification Guide) Safeguards Information) with UK personnel.

# Classified Exchange Agreement with the Federal Republic of Germany (FRG)

The Division of Security advised the Office of International Programs that they concurred in a proposed FRG Federal Ministry of Interior-Nuclear Regulatory Commission agreement to exchange classified information.

# Material Access Approval Program (Clearance Rule)

NRC Division of Security and Office of Personnel Management-Personnel Investigations Division representatives met to discuss and plan for the clearing of licensee personnel who have access to or control over unclassified special nuclear material under 10 CFR Part 11. Part 11 concerns "Criteria and Procedures for Determining Eligibility for Access to or Control Over Special Nuclear Material."

# Security Education/Awareness Poster Series

The Division of Security has received a number of constructive ideas in response to Announcement No. 164, which invited participation in the development of a new Security Education/Awareness poster series. The Division of Security greatly appreciates the efforts of those individuals who responded to this Announcement. Additional ideas, statements and rough drafts are still welcome and may be forwarded to 020-SS.

# OFFICE OF NUCLEAR REACTUR REGULATION WEEKLY HIGHLIGHTS - 3/2/81

# CRYSTAL RIVER UNIT NO. 3 (CR-3)

CR-3 was brought to cold shutdown at 0900 on February 17, 1981 because of increasing leakage in the "A" Reactor Coolant Pump Seal. This shutdown was for preventative maintenance as the leakage rate did not exceed the action level of the Technical Specifications.

# NORTH ANNA, UNIT NO. 1 (NA-1)

On February 13, 1981, VEPCO purchased from Met Ed the TMI-2 Low Pressure (LP) turbine rotor No. 2 to replace the NA-1 LP turbine rotor No. 2. UT testing of the NA-1 LP turbine discs in early January, 1981 revealed two cracks in the keyways of the NA-1 LP turbine rotor No. 2. UT testing by Met Ed in late January, 1981 revealed no cracks in the TMI-2 LP curbine rotor No. 2. The TMI-2 and NA-1 LP turbine rotors No. 2 are similar in design and construction.

The approximate 450 mile journey of the TMI-2 LP rotor No. 2 from the TMI-Power station to the NA-1 power station commenced February 14, 1981. The 450 mile journey will take 50 hours (no delays) and involves 5 different rail routes. The combination rail/truck journey requires that the rotor be offloaded (railroad to truck) at Harrisonburg, Virginia to by pass a narrow bridge and then reload from truck to railroad for the remainder of the trip. The TMI-2 LP rotor No. 2 is scheduled to arrive at NA-1 power station on February 18, 1981.

On February 19, 1981, the ASLAP and NRC staff will conduct a site visit to NA at which time the Board can observe and ask questions regarding the replacement of the NA-1 rotor No. 2 with the TMI-2 LP rotor No. 2. NA-1 is shutdown for refueling and is presently scheduled to restart mid-March, 1981.

# OCONEE NUCLEAR STATION, UNIT NO. 1

Duke Power Company reported on February 23, 1981 that a 14" check valve (CF-12), a potential contributor to an intersystem LOCA, had developed a leak of about 20 gpm. Oconee Unit No. 1 was ascending in pressure and temperature after a maintenance shutdown that commenced on February 6, 1981. The reactor has two Low Pressure Injection lines each with two check valves, CF-12 being one of these valves, and a motor operated gate valve all in series. Duke stopped the heatup on discovery of the leak and informed the ONRR Oconee Project Manager. The licensee, after discussions with the staff, agreed not to restart Oconee Unit No. 1 until after repairs are completed on CF-12. Duke estimates that these repairs will add seven to ten days to the outage. "Event V" Orders currently under preparation would require a shutdown for such a valve repair.

# OFFICE OF NUCLEAR REACTOR REGULATION WEEKLY HIGHLIGHTS - 3/2/81

# FORT ST. VRAIN

On February 23, 1981 at 17:30 hours the Fort St. Vrain Nuclear Generating Station experienced an electric grid upset due to a tie-in with Utah. The plant was unable to follow frequent changes and tripped on hot reheat temperature upset after scram, "A" circulator tripped on a buffer-mid-buffer upset and when the circulator came down, the static seal did not seat properly. This resulted in primary coolant helium traveling down the shaft to the low pressure separator and into the reactor confinement building. The release of activity was 2 x 10 $^{\circ}$  µc/cc on one monitor. The stack monitor did not register any activity since such low concentrations are below the sensitivity of the monitor.

Access to the building was limited but it was not evacuated. All state and local officials were notified. At 24:00 hours the monitors showed 6 x  $10^{-10}$  µc/cc and the building was reopened to full access.

Testing of the static seal is under way and the plant is at 2% power.

#### NRC TMI PROGRAM OFFICE WEEKLY STATUS REPORT

Week of February 22-28, 1981

#### Plant Status

Core Cooling Mode: Heat transfer from the reactor coolant system (RCS)

loops to reactor building ambient.

Available Core Cooling Modes: Long-term cooling "B" (once through steam generator B); decay heat removal systems.

RCS Pressure Control Mode: Standby Pressure Control (SPC) System.

Backup Pressure Contro. Mode: Mini Decay Heat Removal (MDHR) System.

Major Parameters (as of 0500, February 27, 1981) (approximate values)

Average Incore Thermocouples: 118°F Maximum Incore Thermocouple: 151°F

RCS Loop Temperatures:

A B 116°F 119°F 119°F 119°F 66°F 66°F 66°F 65°F

RCS Pressure: 99 psig

Reactor Building: Temperature: 61°F

Water level: Elevation 290.6 ft. (8.1 ft. from floor)

via penetration 401 manometer

Pressure: -0.4 psig (Heise)

Concentration: 6.7 x 10-5 uCi/cc (Kr-85)

(sample taken 2/24/81)

# Effluent and Environmental (Radiological) Information

 Liquid effluents from TMI site released to the Susquehanna River after processing, were made within the regulatory limits and in accordance with NRC requirements and City of Lancaster Agreement dated February 27, 1980.

During the period February 20, 1981, to February 26, 1981, the effluents contained no detectable radioactivity at the discharge point although individual effluent sources which originated within Unit 2 contained minute amounts of activity. Calculations indicate that less than two millionths (0.000002) of a curie of cesium-137(Cs-137) was discharged. This represents less than 0.00002% of the permissable total liquid activity as specified in Technical Specifications for operational commercial reactors.

#### NRC TMI PROGRAM OFFICE WEEKLY STATUS\_REPORT

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RCS Loop Temperatures:

116°F 119°F Hot Leg Cold Leg (1) 66°F 66°F 66°F-- 65°F

KUS Pressure: YY psig

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Water level: Elevation 290.6 ft. (8.1 ft. from floor)

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- 2. EPA Environmental Data. Results from EPA monitoring of the environment around the TMI site were as follows:
  - -- The EPA measured Krypton-85 (Kr-85) concentrations (pCi/m³) at several environmental monitoring stations and reported the following results:

Location	February 13 - February 20, 1981
	(pCi/m <sup>3</sup> )
Bainbridge	21
Goldsboro	22
Observation Center	28
Middletown	25

All of the above levels of Kr-85 are considered to be background levels.

- No radiation above normally occurring background levels was detected in any of the samples collected from the EPA's air and gamma rate networks during the period from February 18, 1981, through February 26, 1981.
- 3. NRC Environmental Data. Results from NRC monitoring of the environment around the TMI site were as follows:
  - -- The following are the NRC air sample analytical results for the onsite continuous air sampler:

Sample Period		I-131 (uCi/cc)	Cs-137 (uCi/cc)
HP-256	February 18, 1981-February 25, 19	180	*

\*Sample results are not available due to a temporary outage of EPA counting equipment. EPA reported that the counting equipment will be restored to service by March 2, 1981. NRC air monitoring results will be reported in the next status report.

- Licensee Radioactive Material and Radwaste Shipments. The following shipments were made:
  - -- On Monday, February 23, 1981, a 40 ml Unit 2 reactor coolant sample was sent to Babcock and Wilcox (B&W), Lynchburg, Virginia.
  - -- On Friday, February 27, 1981, 55 drums containing Unit 2 contaminated laundry were shipped to Tri-State Industrial Laundries, Utica, New York.

# Major Activities

- 7.00

- 1. Submerged Demineralizer System (SDS). SDS construction is approximately 84% complete. Initial testing of completed portions is in progress while construction is ongoing. The testing verifies the proper operation of equipment and does not involve processing radioactive water. The licensee is preparing an update to the Technical Evaluation Report which should be available for NRC review by the middle of March (the report has been delayed approximately two weeks).
- 2. Contaminated Building Expansion Joint. During the period Feburary 21-23, 1981, there were intermittent and sometimes heavy rains in the TMI area. The air intake tunnel sump filled with water, and some water seeped past the doorway from the tunnel to the service building. Contamination had previously been found in the cork building-expansion joint in this area, so a sample of the seepage was taken by the licensee.

Later, a water sample was taken in a previously sampled expansion joint in the auxiliary building.

Both of these samples, together with an expansion joint sample taken in the control building after the previous heavy rain (on February 11, 1981) are being analyzed for radioactive contamination.

Reactor Building Entry and Purge. The seventh entry into the Unit 2 reactor building has been delayed until March 11, 1981. The rescheduling was necessitated by delays in constructing equipment which is to be used during the entry. The equipment includes a device to pass sump water through a zeolite column and collect the effluent for analysis and a second device which will be used to obtain four samples of sump water for off site analysis. Additional tasks which are scheduled for the seventh entry include the servicing of valves, additional radiation surveys, polar crane inspection, and intercom telephone repairs. Twelve men are scheduled to participate in the entry which will extend over a two day period.

Prior to the entry, a reactor building purge will be conducted to reduce the concentration of Kr-85 gas. Calculations indicate that there will be less than 6 curies of Kr-85 released during the purge.

#### Meeting Attended

On Tuesday, February 24, 1981, Lake Barrett had a spontaneous meeting at the NRC's Middletown Office with area mothers. They expressed their feelings that TMI Unit 1 should not be restarted while Unit 2 is being cleaned up. They also felt that the NRC Commissioners were not adequately considering the stress that would be created in some area residents if Unit 1 was restarted. Lake Barrett assured them that their concerns would be communicated to the Commissioners and other appropriate NRC staff. He also mentioned that they could express their concerns on a more formal basis, in writing or orally, before the Atomic Safety and Licensing Board on March 5, 1981, at 7:00 p.m. in Harrisburg at the William Penn Museum.

# Future Meeting

On Tuesday, March 10, 1981, Lake Barrett will meet with area mothers to discuss various issues related to the decontamination of TMI Unit 2.

# OFFICE OF STANDARDS DEVELOPMENT IMPORTANT EVENTS FOR THE WEEK ENDING FEBRUARY 27, 1981

1. NRC Comments on DOT Highway Routing Rule: Representatives from SD. NMSS, and SP met on February 20 with counterparts from the Department of Transportation to determine why DOT did not fully accept the NRC comments on the DOT highway routing rule. With respect to routing of placarded shipments (as opposed to the smaller number of large quantity shipments), DOT chose, in its final rule, to base routing decisions on the principle of minimization of radiological risk, rather . than the NRC endorsed principle of minimization of total impact, including the predominant nonradiological component of traffic fatalities and injuries. The DOT task leader for the rule insisted that it would be improper for DOT to consider impacts not directly related to the hazardous nature of the cargo being regulated in any of its hazardous material regulations. It could not be determined from this discussion with the DOT task leader whether DOT management understood the implications of this logic. The routing requirement for large quantity shipments implies by reference to DOT routing guidelines (a draft of which was made available to us on request) that nonradiological impacts are to be considered in routing these shipments. Even though NRC would likely not be able to fully support DOT in expected court cases related to this rule, the practical health impacts associated with this rule appear to be small; therefore, we do not plan to contest it with DOT.

Contact: D. R. Hopkins 443-5946

# Publications Issued During the Week of February 23-27, 1981

Draft Regulatory Guide and Value/Impact Statement: Qualification and Acceptary. Tests for Snubbers Used in Systems Important to Safety, Task SC 722-4. Comments requested by April 30, 1981.

# OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

# Items of Interest

# Week Ending February 27 1981

# US/IAEA Safeguards Agreement

- The IAEA has informed the U.S. orally that they would like to perform an inspection at the three selected facilities in the near future. Since facility attachments will not be completed for some months, they would conduct these inspections on an "ad hoc" basis. Of particular interest is the semiannual physical inventory which Exxon has scheduled for the end of March. The IAEA would like to conduct their first inspection at that time to establish an agreed upon initial inventory.
- Staff recently met with Executive Branch representatives to finalize a draft document on "US Agency Responsibilities and Procedures for Implementation of the US/IAEA Safeguards Agreement." This document will be circulated to the ISG members in the near future for formal agency approval.
- Staff is working with PA to prepare a press release announcing the initial selection by the IAEA of facilities under the Agreement.

# Report on Radon Releases from Uranium Mining and Milling

Radon releases from the front end of the uranium fuel cycle are documented in the report, NUREG-0757, "Radon Releases from Uranium Mining and Milling and Their Calculated Health Effects," which was issued this week. Copies of the report will be served on participants in the Appeal Board hearing on radon, which was held at Harrisburg, Pennsylvania on February 26-28, 1980. The radon release estimated documented in NUREG-0757 are normalized to the average quantity of uranium required to produce the fuel consumed in a year"s operation of a model 1000-MWe LWR. On this basis, with minor refinements in the calculations, they agree with estimates given in the Appeal Board hearing on radon and the estimates given in the Final GEIS on Uranium Milling.

# Regulation of Contaminated Sites

NRC and EPA staff met on February 26, 1981, to discuss the development of an NRC/EPA agreement for the regulation of sites contaminated with radioactive materials. Attendees were Richard E. Cunningham and Gerry Page of NRC, and Roger Mattson and Ray Johnson of EPA. Another meeting is scheduled to be held on March 6, 1981.

# Planned Meetings Division of Safeguards

1. Subject: ISIS SEP meeting

100

Date & Time: March 2, 9:30 AM
Place: 8th Floor Conference Room, Willste Building Attenders: Ted Sherr, Gene Sparks, Ivan Keller of SGMD and other members of the SEP including representatives from NRC Offices and DOE

# Planned Meetings - Division of Fuel Cycle and Material Safety

1. Subject: General Information on Transportation

Date/Time: February 27, 1981, 10:30-12:00

Location: 9th Floor Conference Room, Willste Building Attendees: Richard E. Cunningham, Charles E. MacDonald and

Tony Batten, CBS News, 50 Minutes

2. Subject: To describe NRC's program for updating emergency

preparedness at fuel c,cle and major materials licensees, particularly NRC's criteria for selection of licensees requiring Radiological

Contingency Plans - Regional Mtg. of Agreement States.

Date/Time: February 27, 1981 Location: Portland, Oregon Attendees: Fred D. Fisher

3. Subject: Participate in discussion on nuclear medicine

waste management on the Panorama Television

Show, Channel 5, WTTG.
Date/Time: March 4, 1931, 12:15 p.m.

Location: 5151 Wisconsin Avenue, Washington, D. C.

Attendees: Richard E. Cunningham

4. Subject: Transportation of Radioactive Waste

Date/Time: March 5-6, 1981

Location: Albuquerque, New Mexico

Attendees: Charles E. MacDonald, State Planning Council on

Radioactive Waste Management Task Force, Representatives from DOT, DOE, and State Representatives.

5. Subject: Discuss the development of an NRC/EPA agreement

for the regulation of sites contaminated with

radioactive materials.

Date/Time: March 6, 1981, 2:00 p.m.

Location: Willste Building, Silver Spring

Attendees: Richard E. Cunningham, Ralph G. Page of NRC and

R. Mattson and R. Johnson of EPA.

# Planned Meetings - Division of Waste Management

1. Subject: LBL Contract - to discuss technical assistance contract in

support of NEC Site Characterization Studies

Date: Week of March 2, 1981 Location: Willste Bldg.

Attendees: Bill Stromdahl, LBL; Dai Watkins, LBL; most members of

WMHT staff

2. Subject: Plateau Resources - to discuss surety arrangements

Date: February 26, 1981 Location: Willste Bldg.

Attendees: Plateau Resources; J. Lineham, NRC

3. Subject: Cleveland Cliffs - to discuss disposal and control of

surface wastes

Date: March 6, 1981 Location: killste Bldg.

Attendees: J. Louderbach, Cleveland Cliffs; J. Linehan, NRC

# OFFICE OF INSPECTION AND ENFORCEMENT

#### Items of Interest

Week Ending February 27, 1981

- The following Notifications of Significant Enforcement Action were dispatched during the past week:
  - a. EN-80-50A Commonwealth Edison Company A Notice of Violation and Proposed Imposition of Civil Penalty in the amount of \$40,000 was previously issued to subject licensee based on a violation of 10 CFR 50.54(k) in that licensed operators for Dresden Units 2 and 3 were observed by the NRC resident inspector to be apparently asleep at the controls and thus not fully attentive nor able to monitor reactor conditions. After consideration of the licensee's basis for denial, no new facts were found to justify mitigation of the civil penalty. Accordingly, a civil penalty of \$40,000 was imposed on the licensee on February 23, 1981.
  - b. EN-81-06 Nuclear Metals, Inc. A Notice of Violation and Proposed Imposition of Civil Penalty in the amount of \$5,000 was issued to subject licensee on or about February 23, 1981. This action was based on an alleged violation relating to the shipment of low specific activity materials from the licensee's facility in Concord, Massachusetts to the Nuclear Engineering Company, Richland, Washington burial site, during which time leakage of radioactive liquid material occurred from one of the waste drums.
- Preliminary Notifications relating to the following actions were dispatched during the past week:
  - a. PNO-I-81-26 Beaver Valley Power Station, Unit 1 Unscheduled Plant Shutdown Unusual Event
  - b. PNO-I-81-27 Beaver Valley Power Station, Unit 1 Unscheduled Plant Shutdown - Reactor Coolant System (RCS) Pressure Boundary Leakage
  - c. PNO-I-81-28 Pilgrim (Boston Edison Co.) Potential for LOCA and Loss of Primary Containment During an Anticipated Transient Without Scram (ATWS)
  - d. PNO-II-81-15A Sequoyah Unit 1 Update of Inadvertent Operation of Containment Spray and Accumulation of Water in Containment
  - e. PNO-II-81-18 Cherokee Nuclear Station Indefinite Construction Delay
  - f. PNO-II-81-19 Surry Unit 1 Main Steamline Pipe Defects
  - g. PNO-III-81-20 Monticello Complete Loss of Plant Air
  - h. PNO-III-81-21 Zion, Units 1 and 2 U.G. General Accounting Office Study Concerning Zion and Indian Point Power Plants

- i. PNO-V-81-08 Trojan Nuclear Plant Resin Injection Into Reactor Coolant and Subsequent Unplanned Release of Airborne Radioactivity
- j. PNO-V-81-09 U.S. Ecology, Inc., Beatty Nevada Burial Site Banning of Indiana and Michigan Power Company, D.C. Cook Power Plant, Bridgman, Michigan (NRC Licensee) for Radioactive Waste Shipments
- k. PNO-TMI-81-05 Three Mile Island Onsite Ground Water Monitoring Program Update
- PNS-I-81-0 Indian Point, Unit 2 (Consolidated Edison) and Indian Point, Unit 3 (PASNY) - Bomb Threat
- m. PNS-III-81-04 Zion Units 1 and 2 Arrests of Employees for Alleged Drug Sales

# OFFICE OF NUCLEAR REGULATORY RESEARCH Important Items - Week Ending February 28, 1981

# IE Physical Protection Inspection Compliance Modules

During the first week of February 1981, the final version of the physical protection power reactor inspection compliance module developed for IE was delivered to the five regional offices. The remaining inspection modules for nonpower/research reactors, SSNM fixed sites, transportation of SNM, personnel training and qualifications plan (Appendix B to 10 CFR 73) and in safeguards contingency plans (Appendix C to 10 CFR 73) as well as licensee implementing procedures evaluation have been recently delivered to the IE regional physical security inspectors for field testing.

The final version of IE inspection modules will be placed in the Public Document Room, thereby making it available for licensees. These inspection modules can be used by the licensee to improve his required self audit of his security program. Section 73.46(g)(6) of 10 CFR Part 73 requires that the security program at a licensee's facility be reviewed at least every 12 months by individuals independent of both security management and security supervisors.

#### FLECHT SEASET

A meeting was held with NRR to reach an NRC consensus on the blockage strain value for the large bundle test. NRR indicated 44 percent should be used for the first bundle. NRR also expressed its need for the second bundle with 36 percent strain.

A memorandum was sent from L. S. Rubenstein to L. H. Sullivan to express NRR's continued need for the entire program - blockage, natural circulation and system reflood. NRR and RES should obtain the additional funding to complete the program.

# Pulsed Neutron Activation Technique for Two-Phase Flow Measurements

ANL completed the draft report "Feasibility of Using PNA Techniques for In-Situ Calibration of UPTF Two-Phase Flow Instrumentation," and presented the findings at the mid-year meeting. ANL concluded that it is feasible to calibrate UPTF instrumented spool piece instruments.

A meeting was held among NRC, ANL and JAERI to discuss using PNA for SCTF blockage flow distribution experiment. NRC and ANL provided the pertinent information to the Japanese for their decision.

#### Hydrogen Program

We have received Federal Republic of Germany concurrence in our proposal to send a Sandia engineer proficient in code work to Germany during March 1981 to obtain their RALOC code and return with it to Sandia. This code was developed to describe the transport of steam, air, and hydrogen in reactor containments. An agreement to obtain the code was negotiated with the FRG at the recent Hydrogen Workshop in Albuquerque. Our plans are that after Sandia has RALOC operational, exercise of the code to obtain transport information will be done under Hydrogen Program sponsorship, but modifications and improvements to the code will be sponsored by the Analysis Development Branch, RES.

#### 2D/3D Program

Meetings were held on February 17-19 with representatives from JAERI (Japan) and GRS/KWU (Germany). Conditions for the ECCS reflood EM test to be conducted in Japan in the Cylindrical Core Test Facility (CCTF) Core I on March 19 were agreed upon with JAERI and accepted by NRR. Both Savannah River Laboratory and LASL will make pre-test predictions using the agreed upon initial and boundary conditions.

CREARE presented its proposal for four refill separate effects tests to be run in CCTF Core II in CY82. JAERI is to review the recommendations and provide its comments at the 2D/3D coordination meeting in Japan in March.

LASL reviewed the results of TRAC calculations that it had made to evaluate the water slug and flow oscillation behavior in the hot leg of the German reference reactor. Since this behavior would have a significant impact on the Upper Plenum Test Facility structural design, the German representatives present were strongly concerned about the calculations. Both the two-fluid and draft flux model TRAC calculations show oscillations in the hot-leg flow. Test data from LOFT and CCTF were presented which also showed oscillations. GRS/KWU stated that they had not observed these in their tests. Because of some uncertainties in the TRAC steam condensation model, the Germans were still not convinced at the end of the meeting. It was agreed that further discussion would be held in abeyance until the TRAC German reference reactor calculation, using TRAC-PD?, was completed in March. The NRC is discussing having CREARE run a hot-leg steam water interaction test to see if plug flow can be simulated in the laboratory and hence either confirm the LASL predictions or provide a basis for modifying the TRAC hot-leg condensation model.

# Disturbance Analysis and Surveillance Systems

RES prepared its first draft on "Regulatory Approaches to Disturbance Analysis and Surveillance Systems." The report examines the safety implications of such systems and proposes alternative approaches which the regulatory staff might consider in licensing a prototype system. This paper is in response to Action Plan Task I.D.5.

# Improved Ultrasonic ISI Flaw Evaluation

The improved SAFT (Synthetic Aperture Focussing Technique) ultrasonic inspection technique, previously developed at the University of Michigan, has now been incorporated into a field-usable inspection device at the Southwest Research Institute, under RES contract. The SwRI ultrasonic testing device, employing the SAFT methodology, has successfully and accurately imaged the stress corrosion crack in a sample of the cracked pipe removed from the Duane Arnold plant. The device is undergoing further trials on additional pipe and plate samples to determine its characteristics under typical inservice inspection conditions. It is expected that the inspection device will be capable of field inspections by the end of this fiscal year.

# Grant Award - American Institute of Aeronautics and Astronautics

A \$20K grant was awarded to the American Institute of Aeronatics and Astronautics (AIAA) to support a multidiscipline workshop/conference involving dialogue and transfer of technology between the organizations involved in aerospace and nuclear-electrical power. Other organizations involved in this workshop-conference are NASA, INPO, EPRI and DOE.

The first planning session for this effort will take place on 2/26/81 in Washington, DC. The nature of NRC participation should be identified at this meeting. The earliest date for the conference will be in the May-June period of this year.

# 1. State of Technology Report on Fission Product Iodine (SOTRI)

The title of the report has been changed to be more consistent with the scope of the report. The new title is "Technical Bases for Fission Product Behavior in LWR Accidents".

As of C.O.B. Tuesday, February 24, 1981 all final draft actions have been received from the field.

The Introduction and Summary section is now in preparation at Headquarters.

Some additional follow-on analyses are in progress in the field and results are important and time permits they will be factored into the report.

Close coordination is being carried out with the Regulatory Impact Report Taskforce to assure effective transfer of results and conclusions from SOTRI.

Formation of the peer review group is essentially complete and only confirmation of several names remains. The principal reviewers will be composed of:

# Independent Reviewers (non-NRC, non-industry)

Dave Garvin, NBS
Leo Brewer, UC-Berkley
Lloyd Zumwalt, NC. Staff
Dave Morrison, IITRI (tentative)
Frank Driggers, ORNL (Y-12)

#### Industry

Richard Vogel, EPRI Dee Walker,  $\underline{W}$  One representative each from GE, B & W and Combustion Eng.

#### DOE Lab. Reviewers

Bob Hilliard, HEDL Don Schweitzer, BNL Carl Johnson, ANL

#### Foreign Reviewers

Dave Torgerson, AECL Canada Invitations have been sent to UK, FRG, Japan, Sweden and France

#### Other Reviewers

R. Ebbin, NSOC Bob Ritzman, SAI Invitations are being extended to NRDC and UCS.

Discussions with Dr. Dade Moeller, Chairman of the ACRS Ad Hoc Subcommittee on Fission Product Source Terms revealed that the ACRS does not wish to have additional time for review of SOTRI, hence no change in ACRS meeting schedule, April 10, 11 and 12 (full-committee) is not required.

(2) Meeting of the LMFBR PAHR (Post-Accident-Heat-Removal) Research
Review Group on the Results and Analysis of the D-4 ACRR Experiment
on Debris-Bed Coolability

The subject meeting was held on February 18 to review the results and analysis, of ACRR experiment D-4 on the coolability limits of a relatively thin bed (8.2 cm thick) of particulate LMFBR fuel debris in a socium pool. The results and models derived from the D-series experiments have generic applicability to LWR safety assessment, and have been used in analysis of the TMI-2 accident and in the Zion/Indian Point study. The meeting included representatives of RES, DOE, NRC and DOE safety research contractors, and reactor vendors, but the NRR review group member was not able to attend.

The results and analysis of the D-4 experiment as presented in the recent Sandia topical report, NUREG/CR-1809 were reviewed in detail, and no exceptions were taken to the conclusion in the report. The most important result of experiment D-4 was that the threshold specific power for bed dry out at low subcooling (195K) was nearly 5 times greater than that measured earlier in D-4 at high subcooling (460K), the dry out specific powers being  $3.6\pm 10.00$  and 1.00 models was caused by the opening up of vapor-flow-channels in the debris bed by sodium-vapor jets. While the channeled-bed and packed-bed dry-out limits are in reasonable agreement with previous models (packed bed) and data correllations (channeled-bed), no model or understanding currently exists of the conditions that govern this important transition.

A preliminary report on recently performed experiment D-6 on the coolability limits of a 10.6 cm thick vertically-stratified debris bed was presented and discussed. D-6 showed that bed stratification (fines at top) as expected from debris settling, reduced the dry out coolability limit by nearly a factor of 2 from that in similar but unstratified experiment D-2. The stratification also appeared to have prevented the more-coolable channeled bed configuration that occurred in experiments D-2 and D-4.

ANL speakers presented the current status of DOE research on LMFBR debrisbed coolability. A general discussion then followed on our current understanding of debris-bed coolability, about which there was general consensus.

On February 19, the NRC/RES and DOE representatives and some of their contractors met to discuss respective plans for current and future research on LMFBR core-debris coolability and some other LMFBR post-accident phenomena. A summary was given of the results of the recently-completed draft report by the DOE Technology Management Center at ANL (with industry participation) on the technical uncertainties in assessing LMFBR post-accident behavior from a risk assessment and risk reduction point of view, and in current and needed future research to address these uncertainties. The ACRR debris-bed coolability experiments furnish a major part of the needed information in this DOE assessment and DOE plans no similar in-pile work. In general, the cooperation between the NRC and the DOE research programs on LMFBR post-accident phenomenon has been excellent, with complementary programs and extensive technical interchange at the working level. This cooperation can furnish a model for work in other areas.

# OFFICE OF THE EXECUTIVE LEGAL DIRECTOR ITEMS OF INTEREST WEEK ENDING FEBRUARY 25, 1981

#### La Crosse Boiling Water Reactor

On February 24, 1981, the presiding ASLB in this show-cause proceeding issued a Partial Initial Decision which permits continued reactor operation without installation of a site dewatering system pending a final determination by the ASLB on the remaining matters in controversy.

# OFFICE OF INTERNATIONAL PROGRAMS WEEK ENDING FEBRUARY 27, 1981

# Renewal of Arrangement with the British

IP was advised this week that the U.K. Health and Safety Executive had approved, with certain modifications which IP believes to be acceptable, the information exchange renewal arrangement text initially proposed by NRC in February 1980. (The original arrangement expired March 13, 1980, but has been continued informally while active negotiations proceeded.) The Commission will recall that the British had asked for clarification of the non-proliferation language used in NRC's broad-scale international aggreements. This was provided with Executive Branch approval in December 1980. IP now awaits receipt of the revised text.

# Review and Evaluation of NRC Bilateral Information Exchange Arrangements

A. Labowitz, under a consultant contract, has begun a review and evaluation of NRC's bilateral exchange arrangements. This effort is planned to be completed by the end of May.

# Foreign Visits to NRC

On Monday and Tuesday Messrs. T. Tobioka, H. Kaneki, and K. Abe of the safety Code Development Laboratory of the Japan Atomic Energy Research Institute (JAERI) met with J. Heltemes and F. Hebdon, AEOD; J. Boyle, MPA, R. Denning, SRR/NRR, and M. Mallory, IP to discuss safety-related data base systems for nuclear plant operation.

On Thusday six Indonesian scientists from the Agency for the Development and Application of Technology (BPPT) of the Indonesian Ministry of Research and Technology toured the Fort St. Vrain Generating Station in Colorado. The delegation, consisting of Messrs. Panggabean, Machfoed, Djamal, Krishna, Mahayana, and Chandra, is here under the auspices of the International Communications Agency to gain a greater understanding of HTGR technology in the U.S.

On Friday, Mr. F. Mueller of the Federal Republic of Germany, an economist with the Peace Research Institute which is affiliated with the University of Frankfurt, met with a representative of Public Affairs to discuss the role of nuclear power in forecasting future energy supply and demand.

#### OFFICE OF STATE PROGRAMS

#### ITEMS OF INTEREST

#### WEEK ENDING FEBRUARY 27, 1981

On February 23, 1981, Tom Elsasser, RSLO Region I, appeared before the Bronx Borough Council in New York City to explain the current and pending NRC and DOT regulations governing the transportation of nuclear materials. On February 25, Mr. Elsasser and other members of RAC II met in West Trenton, New Jersey, to discuss their evaluation of the New Jersey radiological emergency response plan.

William F. Menczer, RSLO, Region III, was in Battle Creek, Michigan on February 27, 1981, to conduct a workshop on emergency preparedness and exercise evaluation with the Federal Emergency Management Agency, Region V.

The Texas Legislature has passed a temporary moratorium banning the licensing of low level radioactive waste handling facilities in Texas. The measure, which is effective until June 1, 1981, is intended to give the Legislature time to consider several pieces of legislation which would tighten Texas regulations on the licensing of low level radiation waste disposal and handling facilities.

Frank Young attended the winter meeting of the National Governors' Conference February 22-24. The draft interim report to the President of the State Planning Council war released there to the Governors and their comments were invited. Mr. Young met with staff persons from Washington and Idaho that are drafting the regional compact for low level waste disposal for the Northwest region.

#### OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

WEEK ENDING FEBRUARY 27, 1981

#### Qs & As

With other offices, produced answers to initial set of more than 300 questions from Mr Bevill's subcommittee; now working on second (Mr. Faziɔ's) set; assisted NRR by providing data for answers to Mr. Udall's questions.

#### Publications

Issued "Operating Unit Status Report," NUREG-0020 (Gray Book), dated January 1981. This edition summarizes all 1980 data.

#### OFFICE FOR ANALYSIS AND EVALUATION OF OPERATIONAL DATA

# ITEMS OF INTEREST

# WEEK ENDING FEBRUARY 27, 1981

# Industry Operational Data Screening Program

A Commission Paper (SECY-81-121) was forwarded by EDO which discusses current staff efforts to formally encourage INPO/NSAC to establish an industry-wide and NRC-approved operational experience screening service. Past experience clearly indicates a high probability exists that the massive volume and inherent nature of operational experience reports can inundate the available resources of an individual licensee. The staff believes that INPO/NSAC can provide a valuable service by conducting a thorough screening and preliminary evaluation process of domestic and foreign operating events and by identifying significant events to individual licensees, or classes of licensees, for their further study regarding the degree of applicability and need for action. This screening process would be in addition to those performed by the NRC.

# INPO/NSAC/NRC Agreement on Operational Data

Letters have been forwarded to INPO/NSAC suggesting the possibility of establishing a centralized industry operational data screening service and suggesting several modifications to an INPO/NSAC draft agreement on a cooperative relationship on operational data. The NRC suggested changes were believed necessary in order to focus upon: (a) how fragmentary, privileged, or otherwise restricted information and data should be handled; and (b) the importance of assuring communication on specific events as well as generic activities. It is expected that further discussions on the proposed agreement will be been in the next few weeks.

# Integrated Operational Experience Reporting (10...) Activities

Representatives of AEOD, SD, RES, NRR, and IE met informally with representatives of INPO on February 24, 1981 to discuss the current status of development of the IOER system. INPO was particularly interested in gaining a better understanding of the intent of the various requirements contained in the preliminary draft of the proposed rule. Although still opposed to a mandatory system for the collection of reliability data, INPO provided perspective on the impact that the draft requirements would have on the industry. Additional feedback from INPO and other organizations will be sought in order to assist the staff in developing an efficient system for the collection of operational safety data that will provide the information needed by the NRC without placing an unreasonable burden on the reporting utilities.

# Sequence Coding and Search Procedure

AEOD met with representatives from Argonne National Lab on February 23, 1981 to discuss the Sequence Coding System. The meeting consisted of general discussion in order to give Argonne a better idea of the current status of the development and what we are looking for in the way of a contractor. They seemed very interested and we expect to receive further information from them next week.

#### Abnormal Occurrence Reports

The Third Quarter CY-1980 Abnormal Occurrence Report was delivered to Congress. The report was then released for general distribution.

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A. SECY-81-11 - REQUEST FOR FUNDING APPROVAL FOR ONGOING TECHNICAL ASSISTANCE PROJECT. Memo SECY to Dircks, dtd 2/23/81.

This is to advise you that the Commission (with three Commissioners approving and Commissioner Bradford not participating) has approved the interagency tasking project outlined in the subject paper.

In connection with his approval, Chairman Ahearne has provided the following comments:

- "(1) For further work of this type, we should try to get DOE to fund part or all.
  - (2) In general, when proposing to give additional funds to a contractor who has previously been working on a contract, the staff should state what useful work has been done."

The Office of Nuclear Material Safety and Safeguards was informed of this action by telephone on February 20, 1981.

It is requested that you inform the Office of the Secretary when the contract is awarded. (SECY Suspense: 3/16/81)

(EDO suspense: 3/9/81)

B. SECY-80-186 - SECY -78-415, "FURTHER ACTIONS TO CONTROL RISK ASSOCIATED WITH OCCUPATIONAL RADIATION EXPOSURES IN NRC-LICENSED ACTIVITIES". Memo SECY to Dircks, dtd 2/24/81.

This is to advise you that the Commission (with all Commissioners concurring) has approved the qualitative regulatory approach to the implementation of occupational ALARA programs by licensees as set forth in the subject papers. In developing the proposed rule, staff should include the following items. The proposed rule should also request comments on any alternative to these items which also accomplish their primary purpose.

- Staff's preference for structuring the proposed rule to require licensees to develop and submit individual radiation protection programs which incorporate means for maintaining radiation exposures ALARA as a major component, rather than only requiring ALARA programs, is accepted.
- The proposed rule should include a requirement for affected licensees to establish annual collective dose objectives and to submit an annual report which (1) documents the collective dose for the previous year, (2) provides an appraisal of the effectiveness of their occupational ALARA program,

# B. (Continued)

- and (3) sets forth the collective dose objectives for the ensuing year. Such objectives should be based upon the licensee's operating experience and knowledge of activities planned for the coming year, as well as the successful implementation of. their occupational ALARA programs. The report should include an explanation with respect to any collective dose objective that was exceeded during the year. The report should also include sufficient information on personnel dose data for specific, generically-applicable tasks to permit the staff to concentrate regulatory attention on appropriate activities and to facilitate future considerations of quantitatively-based ALARA requirements. This report is to be posted in each affected licensee's establishment.
- The proposed rule should include a requirement for affected licensees to submit a separate report for any major non-routine task, such as a steam generator replacement, which will cause a collective dose larger than a stated threshold. Such reports should describe the manner in which the licensee will apply the methods detailed in the individual ridiation protection-ALARA program to the conduct of the specific major activity and should set forth a collective dose objective for the activity. The report should be submitted at least 20 days prior to commencement of the activity; NRC approval would not be required prior to commencement of the activity.

In developing the proposed rule, staff should consider including the following items. The paper forwarding the proposed rule for Commission action should discuss the rationale for including or not including these items and, where appropriate, should discuss alternatives for accomplishing the primary purpose of the item. The items to be considered are:

Staff should consider incorporating the individual radiation protection programs into the facility license. The manner in which individual programs are incorporated into licenses should be consistent for all licensees unless there are good reasons for varying. In this regard, the proposed rule should provide for sufficient flexibility to allow minor changes in individual programs to be effected without the need for a license amendment.

#### B. (Continued)

- Where justified by the potential hazard, licensees should be required to establish an in-house advisory capability (preferably a committee) responsible for advising management on radiation protection, including ALARA, measures.
- Reporting of any non-routine task which is predicted to cause a specified number of manrems (e.g., 10 manrems) in advance to the radiation protection committee, along with a collective dose objective for the task. The committee should review the task and recommend actions to maintain occupational exposures ALARA. If the collective dose objective is exceeded by a fixed percentage (e.g. 30% or more), a documented explanation should be submitted to the committee.
- At nuclear power plants, reporting in advance to the in-house radiation protection committee of any periodic routine task which is predicted to cause more than a specified collective dose over the projected lifetime of the plant. The committee should review the task and recommend actions to maintain occupational exposures ALARA.
- Prominent display in each radioactive area of the ALARA policy for occupational exposures, the makeup of the advisory committee and the projected annual goal and the performance against that goal.
- A requirement that all licensees submit an annual report of radiation exposures of all individuals for whom personnel monitoring is required.

It is requested that you provide a Commission paper containing a discussion of the above items, a proposed rule change, and supporting regulatory guidance to the Office of the Secretary within four months from the date of this SECY memorandum.

C. SECY-81-106 - PROPOSED LICENSE TO EXPORT LOW ENRICHED URANIUM TO KOREA (XSNM01750). Memo SECY to Dircks, dtd 2/25/81.

This is to advise you that the Commissioners have reviewed the subject license to Westinghouse Electric Corporation. The Commission (with all Commissioners approving) has accepted your recommendation to export to Korea 305,283 kilograms of uranium, enriched to 3.6% U-235, in the form of UO2 in fabricated fuel bundles.

The Office of International Programs was informed of this action by telephone on February 25, 1981.

D. SECY-81-60 - PROPOSED CONTRACT AWARD FOR PERFORMANCE OF ENGINEERED BARRIERS IN A CEOLOGIC REPOSITORY. Memo SECY to Dircks, dtd 2/27/81.

This is to advise you that the Commission (with all Commissioners approving) has granted approval for the staff to enter into the subject technical assistance contract, subject to staff's assurance that Tasks 1 and 2 are fully coordinated.

The Offices of Nuclear Material Safety and Safeguards and Administration (Division of Contracts) were informed of this action by telephone on February 26, 1981.

It is requested that you inform the Office of the Secretary when the contract is awarded. (SECY Suspense: 9/25/81)

# SCHEDULED SPEAKING ENGAGEMENTS

Date	Organization	Location	Subject	Speaker
3/10/81	NRC/ORNL Symposium on "Uncertainties Associated with the Regulation of Geologic Disposal of High Level Radioactive Wastes	Gatlinburg, TN	Writing Standards for Geologic Disposal of High- Level Waste	K. Goller SD
3/11/81	Same as above	Same as above	The Effects of the Uncertainty of Inadvertent Human Intrusion on Stds for Reg of Geologic Disposal of High-Level Radioactive Waste	F. Cameron SD
3/13/81	Same as above	Same as above	NRC Perspective on the Symposium	P. Corella SD
3/18/81	Annual Meeting of State & Territorial Health Officers	San Antonio, TX	Panel on Low Level Nuclear Wastes	G. Wayne Kerr SP
3/26/81	22nd Annual Quality Clinic	Knoxville, TN	What NRC Regulations Require from QA Program	W. Ruhlman RO II
3/29-4/2/81	American Chemical Society Meeting	Atlanta, GA	Regulatory Implications of Radiation Dose-Effect Relationships	H. T. Peterson SD
4/1/81	Spouses of Operating Staff at Seabrook Station	Education Center Seabrook, NH	Quality Assurance Require- ments & Licensing Procedures Related to Seabrook Station	A. Cerre RO I

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