



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

Bill K
Zoe

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October 19, 2001

MEMORANDUM TO: William D. Travers
Executive Director for Operations

FROM: Joseph A. Murphy, Chairman *Joseph A. Murphy*
Committee To Review Generic Requirements

SUBJECT: MINUTES OF THE COMMITTEE TO REVIEW GENERIC
REQUIREMENTS MEETING NUMBER ~~365~~

The Committee To Review Generic Requirements (CRGR) held special Meeting No. 365 on October 11, 2001, from 2:00 p.m. to 3:00 p.m., with the attendees listed in Attachment 1. The purpose of this meeting was to brief the CRGR on the staff's review of licensee responses to Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Control Rod Drive Mechanism Penetration Nozzles," (ADAMS Accession No. ML012080284) for high and moderate susceptibility plants. The bases for the next regulatory actions were discussed, but no request was made for decisions on these actions by the CRGR during this meeting.

This Bulletin requested inspection information so the NRC could determine what additional actions may be necessary in response to circumferential cracking in CRDM reactor pressure vessel nozzles. Mr. Lawrence Burkhart, Acting Project Manager, Office of Nuclear Reactor Regulation (NRR), described the time line of responses to Bulletin 2001-01.

Attachment 2 contains the slides that were used (ADAMS Accession No. ML012850101) with information on plants with cracking/leakage history and high susceptibility plants. The pictures are in ADAMS at ML012830100. This package also listed the date of their next CRDM nozzle inspection, the method to be used, and the staff's preliminary determination on whether the licensee's response was acceptable.

The CRGR asked the staff to explain how the NRC discussions with licensees, in cases where the bulletin response was determined to be inadequate, were in keeping with not being a "backfit." The staff explained that the licensees were provided the NRC's bases for determining the licensees' responses were inadequate. In each case, the licensees volunteered to supplement their response.

The CRGR discussed the next regulatory actions the staff was considering, if the licensees responses were considered inadequate to protect the public health and safety. Details on future regulatory actions are evolving as licensees respond to the discussions referenced above.

Questions about these meeting minutes should be referred to Robert Spence at RAS2@nrc.gov.

Attachments: As stated

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 4
FOIA- 2002-229

E-52

October 19, 2001

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Memorandum dated: 10/ /01

SUBJECT: MINUTES OF THE COMMITTEE TO REVIEW GENERIC REQUIREMENTS
MEETING NUMBER 365

cc w/atts:	<u>Mail Stop</u>
Chairman Meserve	O-16 C1
Commissioner Dicus	O-16 C1
Commissioner Diaz	O-16 C1
Commissioner McGaffigan	O-16 C1
Commissioner Merrifield	O-16 C1
Annette Vietti-Cook, Secretary of the Commission	O-16 C1
William D. Travers, EDO	O-16 E15
William F. Kane, DEDR	O-16 E15
Carl J. Paperiello, DEDMRS	O-16 E15
Frank J. Congel, OE	O-14 E1
Hubert T. Bell, OIG	T-5 D28
Karen D. Cyr, OGC	O-15 D21
Janice E. Moore, OGC	O-15 D21
Richard K. Hoefling, OGC	O-15 D21
John T. Larkins, ACRS	T-2 E26
Martin J. Virgilio, NMSS	T-8 A23
Margaret V. Federline, NMSS	T-8 A23
E. William Brach, NMSS	O-13 D13
Samuel J. Collins, NRR	O-5 E7
Ashok C. Thadani, RES	T-10 F12
Roy P. Zimmerman, RES	T-10 F12
Scott F. Newberry, RES/DRAA	T-10 E50
Michael E. Mayfield, RES/DET	O-10 D20
Nilish C. Chokshi, RES/DET/MEB	O-10 D20
Edwin M. Hackett, RES/DET/MEB	T-10 E10
Deborah A. Jackson, RES/DET/MEB	T-10 E10
Wallace Norris, RES/DET/MEB	T-10 E10
R. William Borchardt, NRR	O-5 E7
Jon R. Johnson, NRR	O-5 E7
Brian W. Sheron, NRR	O-5 E7
Gary M. Holahan, NRR/DSSA	O-10 A1
David B. Matthews, NRR/DRIP	O-12 E5
Jack R. Strosnider, Jr., NRR/DE	O-9 E3
Farouk Eltawila, NRR/DE	O-9 E2
William H. Bateman, NRR/DE/EMCB	O-9 H6
Keith R. Wichman, NRR/DE/EMCB/A	O-9 H6
Allen L. Hiser, Jr., NRR/DE/EMCB/A	O-9 H6
C.E. (Gene) Carpenter, Jr., NRR/DE/EMCB/A	O-9 H6
Jacob I. Zimmerman, NRR/DLMP	O-8 B1

Memorandum dated: 10/ /01

**SUBJECT: MINUTES OF THE COMMITTEE TO REVIEW GENERIC REQUIREMENTS
MEETING NUMBER 365**

James W. Clifford, NRR/DLPM/PDI-2	O-8 B1
Lawrence Burkhardt, NRR/DLPM/PDI-1	O-8 C2
Suzanne C. Black, NRR/DSSA	O-8 E1
Frank P. Gillespie, NRR/DRIP	O-12 E5
Ledyard B. (Tad) Marsh, NRR/DRIP/REXB	O-12 D12
James W. Shapaker, NRR/DRIP/REXB	O-12 D1
Robert K. Caldwell, NRR/DRIP/REXB	O-12 D1
Scott Freeman, NRR/DRIP/REXB	O-12 D1
Jared S. Wermiel, NRR/DSSA/SRXB	O-10 B3
Ralph R. Landry, NRR/DSSA/SRXB	O-10 B3
Jin Wook Chung, NRR/DSSA/SPSB	O-10 H4
F. Mark Reinhart, NRR/DSSA/SPSB	O-10 H4
Bruce A. Boger, NRR/DIPM	O-6 E3
William M. Dean, NRR/DIPM	O-6 E3
John A. Zwolinski, NRR/DLPM	O-8 E1
Hubert J. Miller	RGN-I
Luis A. Reyes	RGN-II
Bruce S. Mallett	RGN-II
James E. Dyer	RGN-III
Ellis W. Merschhoff	RGN-IV

Distribution w/atts.:
CRGR R/F

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OAR in ADAMS? (Y or N) Y ADAMS ACCESSION NO.: _____ TEMPLATE NO. NRC-001
Publicly Available? (Y or N) N DATE OF RELEASE TO PUBLIC N/A SENSITIVE? NO
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OFFICE	CRGR	E	CRGR	E
NAME	RSpence:wpe		JMurphy	
DATE	10/ /01		10/ /01	



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James W. Clifford, NRR/DLPM/PDI-2	O-8 B1
Lawrence Burkhardt, NRR/DLPM/PDI-1	O-8 C2
Suzanne C. Black, NRR/DSSA	O-8 E1
Frank P. Gillespie, NRR/DRIP	O-12 E5
Ledyard B. (Tad) Marsh, NRR/DRIP/REXB	O-12 D12
James W. Shapaker, NRR/DRIP/REXB	O-12 D1
Robert K. Caldwell, NRR/DRIP/REXB	O-12 D1
Scott Freeman, NRR/DRIP/REXB	O-12 D1
Jared S. Wermiel, NRR/DSSA/SRXB	O-10 B3
Ralph R. Landry, NRR/DSSA/SRXB	O-10 B3
Jin Wook Chung, NRR/DSSA/SPSB	O-10 H4
F. Mark Reinhart, NRR/DSSA/SPSB	O-10 H4
Bruce A. Boger, NRR/DIPM	O-6 E3
William M. Dean, NRR/DIPM	O-6 E3
John A. Zwolinski, NRR/DLPM	O-8 E1
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Ellis W. Merschoff	RGN-IV

Distribution w/atts.:
CRGR R/F

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PKG: ML012760104

OAR in ADAMS? (Y or N) Y ADAMS ACCESSION NO.: MIN: ML 012970368 TEMPLATE NO. NRC-001

ATT. 2 ML012850101 (Slides)

ATT. 3 ML 012830100 (Pictures)

Publicly Available? (Y or N) N DATE OF RELEASE TO PUBLIC N/A SENSITIVE? NO

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OFFICE	CRGR	E	CRGR	E
NAME	RSpence:wpe		JMurphy	
DATE	10/ /01		10/19/01	

CRGR MEETING No. 365
LIST OF ATTENDEES
(October 11, 2001)

CRGR Members

Joseph A. Murphy, Chairman
Brian W. Sheron, NRR
E. William Brach, NMSS (alternate)
Bruce S. Mallett, RGN-II
Janice E. Moore, OGC
Scott F. Newberry, RES (alternate)

Robert A. Spence, CRGR Staff

RES Staff

Edwin M. Hackett, RES/DET/MEB

NRR Staff

Allen L. Hiser Jr., NRR/DE/EMCB/A
Farouk Eltawila, NRR/DE
F. Mark Reinhart, NRR/DSSA/SPSB
Jacob I. Zimmerman, NRR/DLMP
William Bateman, NRR/DE/EMCB
Lawrence Burkhardt, NRR/DLPM/L
Scott Freeman, NRR/DRIP/REXB
Keith Wichman, NRR/DE/EMCB



**Committee to Review
Generic Requirements (CRGR) Brief**
Thursday, October 11, 2001
2:00 p.m. - 3:00 p.m.
Room: T-2B1

Purpose: 1) To discuss and focus on the results of the staff's Bulletin 2001-01, "Circumferential Cracking of Reactor Pressure Vessel Head Penetration Nozzles," response reviews for the high and moderate susceptibility plants
2) To discuss the basis for the next Regulatory Action to be taken

Success: CRGR members understand the results of the staff's review and the next Regulatory Action(s)

Introduction:	Larry Burkhart	5 mins.
Discussion of Reviews:	Allen Hiser	20 mins.
Discussion of Next Regulatory Action(s):	Mark Reinhart	20 mins.

PROCESS/STATUS/SCHEDULE

Action Items Completed

Bulletin Issued - August 3, 2001

Bulletin Responses Received - September 4, 2001

Preliminary Review of Responses Complete - September 12, 2001

- NRR & RES - 7 Submittals
 - Plants that have found Cracking & Leakage (5 plants) - Bin 1
 - Plants with High Susceptibility, < 5 EFPY of Oconee 3 (7 plants) - Bin 2
- NRR/DLPM PM "Tiger" Team - 37 Submittals
 - Plants with Moderate Susceptibility, b/w 5 & 30 EFPY of Oconee 3 (32 plants) - Bin 3
 - Plants with Low Susceptibility, > 30 EFPY of Oconee 3 (25 plants) - Bin 4

Temporary Instruction (TI) Issued to Regions - September 20, 2001

PLANTS WITH CRACKING/LEAKAGE HISTORY (BIN 1) AND HIGH SUSCEPTIBILITY PLANTS (BIN 2)

EXIST

Plants	Last Inspection		Next Inspection				CCDP* (IPE)	Response Acceptable ?
	Date	Method	Date		Method			
Oconee 1	11/2000	Qual. Visual - 100%	03/2002	OK	Qual. Visual - 100%	OK	1E-2 3.5E-3 (Response)	YES
Oconee 2	04/2001	Qual. Visual - 100%	[REDACTED]	OK	Qual. Visual - 100%	OK	1E-2 3.5E-3 (Response)	YES
Oconee 3	2/2001	Qual. Visual - 100%	11/2001	OK	Qual. Visual - 100%	OK	1E-2 3.5E-3 (Response)	YES
ANO-1	03/2001	Qual. Visual - 100%	[REDACTED]	OK	Qual. Visual - 100%	OK	3E-3	YES
Surry 1	Spr 2000	***	10/2001	OK	Qual. Visual - 100%	OK	5.3E-3	YES **
TMI-1	09/1999	Eff. Visual - 100%	10/2001	OK	Qual. Visual - 100%	OK	7.5E-3	YES
D.C. Cook 2	09/1994	ID NDE - 91%	1/19/2002	?	Remote Visual & ECT/UT	OK	4.7E-3	?
North Anna 1	02/1996	ID NDE - 31%	09/2001	OK	Qual. Visual (100%) & ECT/UT ★	OK ★	6.6E-3	YES ★
Robinson	04/2001	Qual. Visual - 100%	[REDACTED]	OK	Qual. Visual - 100% ★	OK ★	2E-2	YES ★
Davis-Besse	03/2000	Visual - Partial	04/2002	NO	Qual. Visual - 100%	OK	6.9E-3	NO
North Anna 2	Spr 2001	***	[REDACTED]	NO	Qual. Visual - 100%****	NO	6.6E-3	NO ****
Surry 2	Fall 2000	***	03/2002	NO	Qual. Visual - 100%	OK	5.3E-3	NO **

* Conditional core damage probability.

** Licensee has committed to qualified visual examination per conference call (September 21, 2001).

*** Prior inspection at last RFO, in accordance with GL 88-05 & GL 97-01.

**** Licensee may or does not have sufficient information to demonstrate that last inspection was a qualified visual examination.

★ Pending licensee's supplemental response.

As of 10/10/01

PLANTS HAVING MODERATE SUSCEPTIBILITY TO PWSCC AS OF 10/11/2001

Plant	Ranking (EFPY)	Next Inspection			Response Acceptable?
		Date	Method		
Beaver Valley 1	11.5	Sept. 2001	Eff. Visual in Sept. 2001	OK	YES
Beaver Valley 2	16.5	Feb. 2002	Eff. Visual in Feb. 2002	OK	YES
Calvert Cliffs 1	9.8	Feb. 2002	Eff. Visual & Qual. Vol., Feb. 2002	OK	YES
Calvert Cliffs 2	10.2	[REDACTED]	Eff. Visual & Qual. Vol. [REDACTED]	OK	YES
Crystal River 3	5.9	Oct. 2001	Eff. Visual in Fall 2001	OK	YES
Diablo Canyon 1	20.8	May 2002	Eff. Visual in May 2002	OK	YES
Diablo Canyon 2	16.1	[REDACTED]	Eff. Visual [REDACTED]	OK	YES
Farley 1	6.9	Oct. 2001	Eff. Visual in Oct. 2001	OK	YES
Farley 2	8.3	[REDACTED]	Eff. Visual or Qual Vol. [REDACTED]	OK★	YES★
Fort Calhoun	17.9	[REDACTED]	Eff. Visual in Spring 2002	OK★	YES★
Kewaunee	21.9	Oct. 2001	Eff. Visual in Fall 2001	OK	YES
Point Beach 1	11.5	[REDACTED]	Eff. Visual in [REDACTED]	OK	YES
Point Beach 2	9.6	April 2002	Eff. Visual in Spring 2002	OK	YES
Prairie Island 1	26.7	[REDACTED]	Eff. Visual in [REDACTED]	OK	YES
Prairie Island 2	26.8	Feb. 2002	Eff. Visual in Feb. 2002	OK	YES
Salem 1	13.8	[REDACTED]	Eff. Visual in [REDACTED]	OK	YES
Salem 2	17.4	Apr. 2002	Eff. Visual in Apr. 2002	OK	YES
San Onofre 2	10.7	May 2002	Eff. Visual or Qual Vol., May 2002	OK	YES
San Onofre 3	10.8	Jan. 2002	Eff. Visual or Qual Vol. [REDACTED]	OK	YES
St. Lucie 1	10.3	[REDACTED]	Eff. Visual in [REDACTED]	OK	YES
Turkey Point 3	6.3	Oct. 2001	Eff. Visual in October 2001	OK	YES
Turkey Point 4	6.4	Mar. 2002	Eff. Visual in Spring 2002	OK	YES
Waterford 3	7.8	Mar. 2002	Eff. Visual in Spring 2002	OK	YES
Ginna	15.0	Mar. 2002	Not Specified (notify 1/02)	NO	?
Millstone 2	14.3	Feb. 2002	Not Specified (notify 1/02)	NO	?
ANO-2	17.1	April 2002	Surface or Vol. of 25% in Spring 2002	NO	NO
Indian Point 2	26.6	[REDACTED]	GLs 88-05 & 97-01	NO	NO
Indian Point 3	14.5	[REDACTED]	GLs 88-05 & 97-01	NO	NO
Palo Verde 1	17.0	[REDACTED]	None (Vol. in [REDACTED])	NO	NO
Palo Verde 2	17.7	May 2002	None (Vol. in [REDACTED])	NO	NO
Palo Verde 3	17.3	Sept. 2001	None (Vol. in [REDACTED])	NO	NO
St. Lucie 2	11.3	Nov. 2001	Partial Visual (Eff. Visual in [REDACTED])	NO	NO

* Licensee proposed to remove one panel of insulation, and to look under the shroud to examine as many CRDMs as possible. St. Lucie Unit 2 has 91 CRDMs

★ Pending licensee's supplemental response

NEXT REGULATORY ACTION

- **Adequate Protection**
 - ▶ Special Circumstance
 - ▶ Risk
 - ▶ Deterministic Standards

- **Regulatory Action**
 - ▶ Phone call with Licensee
 - ▶ Meeting with Licensee
 - ▶ Implement Regulatory Action

PERFORMANCE GOALS

- **Maintain Safety**

- ▶ Purpose of the bulletin is to collect information to determine if additional regulatory action is necessary
- ▶ Information to date provides a sufficient technical basis to show that conditions adverse to quality are being managed for most, but not all plants in the short-term
- ▶ Additional cracking should be anticipated - long-term management needed

- **Increase Public Confidence**

- ▶ Participation at public meetings via telephone
- ▶ Maintaining current information on Bulletin 2001-01 & Alloy 600 Web Sites
- ▶ Disciplined and timely reviews of plant-specific responses and regulatory action(s)

- **Make NRC Activities and Decisions More Effective, Efficient, and Realistic**

- ▶ Reviews prioritized based on susceptibility groupings and plant outage schedules
- ▶ Use of Risk Insights

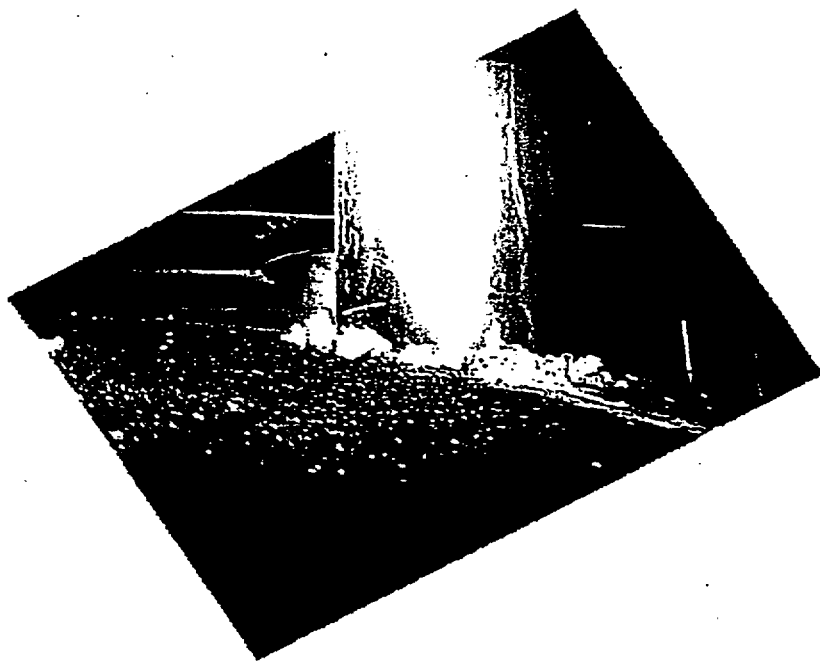
- **Reduce Unnecessary Regulatory Burden**

- ▶ Information requested in the bulletin was minimized
- ▶ Stakeholder meetings on resolution of issue (Short- and Long-term)
- ▶ Inspection, Assessment, and Repair methods must be developed to manage this issue

STEPS TO SUPPORT REGULATORY ACTION

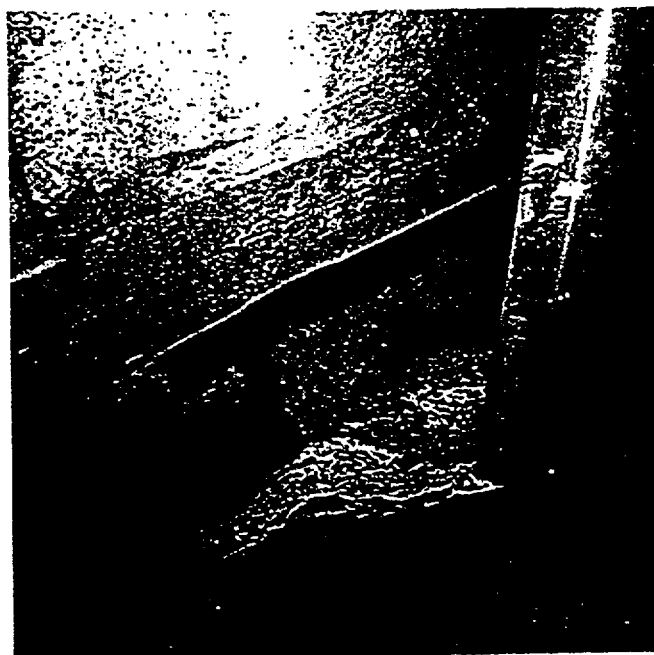
- **Brief NRR Leadership Team - 9/20/01 (Complete)**
- **Brief NRR Executive Team - 9/26/01 (Complete)**
- **NRR Management Phone Calls w/ Licensees' - 9/28/01 (Complete)**
 - ▶ **Robinson 2**
 - ▶ **Davis-Besse**
 - ▶ **North Anna 2**
 - ▶ **Surry 2**
- **Brief Executive Director for Operations - 10/2/01 (Complete)**
- **Brief Commission Technical Assistants - 10/3/01 (Complete)**

- **NRR Management Phone Calls w/ Moderate Susceptibility Plant Licensees - 10/9/01 (Complete)**
 - ▶ **Fort Calhoun**
 - ▶ **Ginna**
 - ▶ **Millstone**
 - ▶ **Farley 2**
 - ▶ **ANO-2**
 - ▶ **IP-2 and 3**
- **Brief Committee to Review Generic Requirements - 10/11/01**



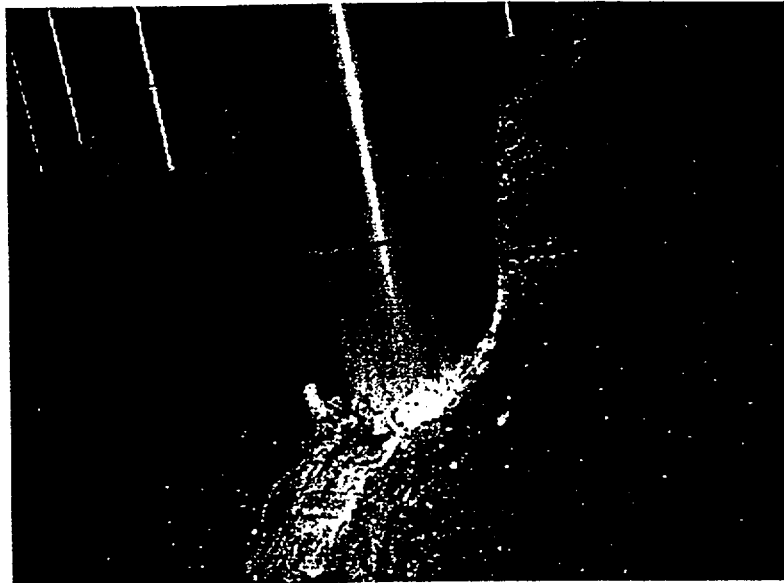
**ONS-1 Reactor Vessel
Head showing Boric Acid
at CRDM Nozzle
(November 2000)**

**ONS-1 Reactor Vessel Head
showing Boric Acid at
Thermocouple Nozzle
(November 2000)**



Visual Inspection at Oconee Unit 3 (February 2001)

CRDM Nozzle #56



April 19, 2001

CRDM Nozzle #50

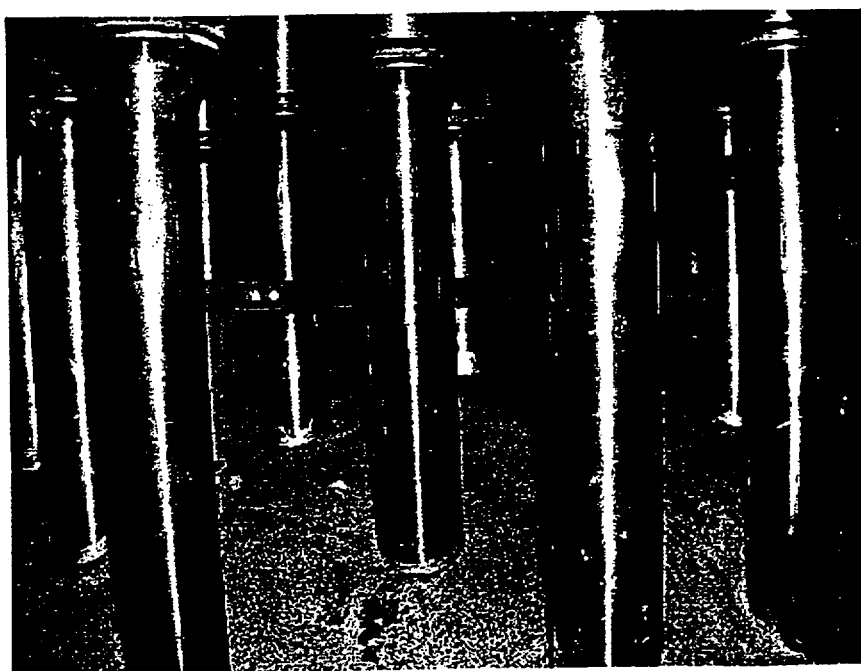


April 19, 2001

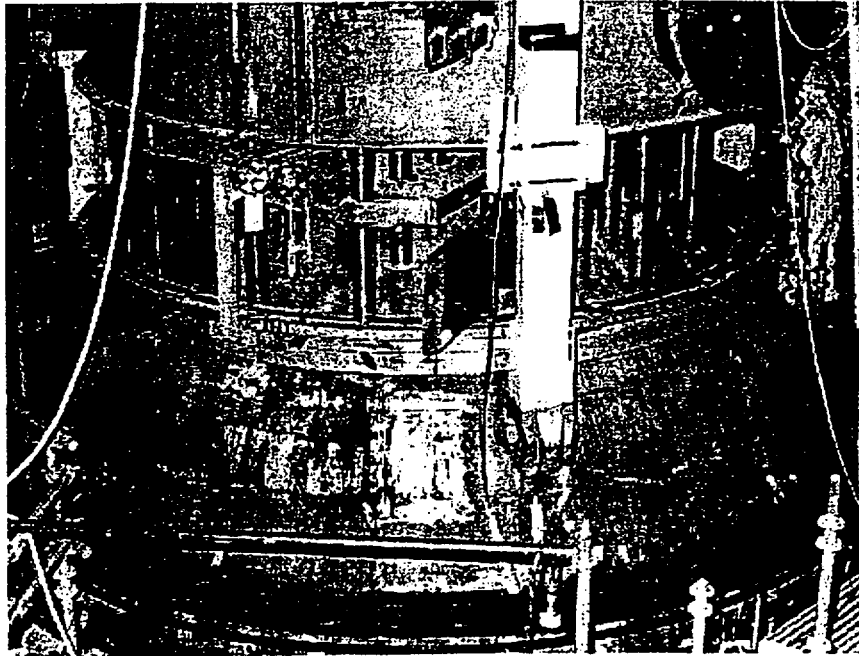
Visual Inspection at ANO-1 (March 2001)



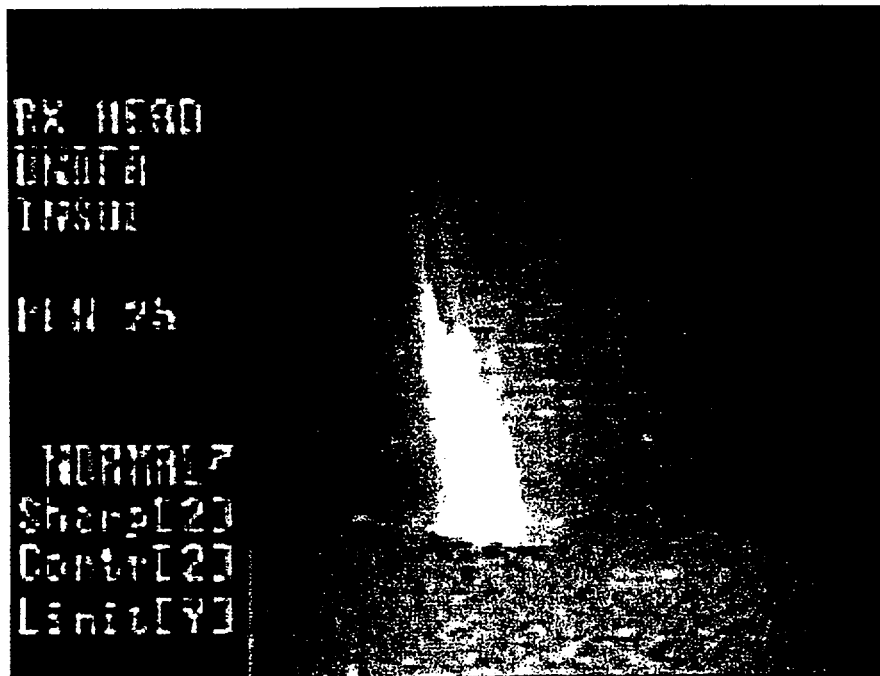
Visual Inspection at Robinson 2 (April 2001)



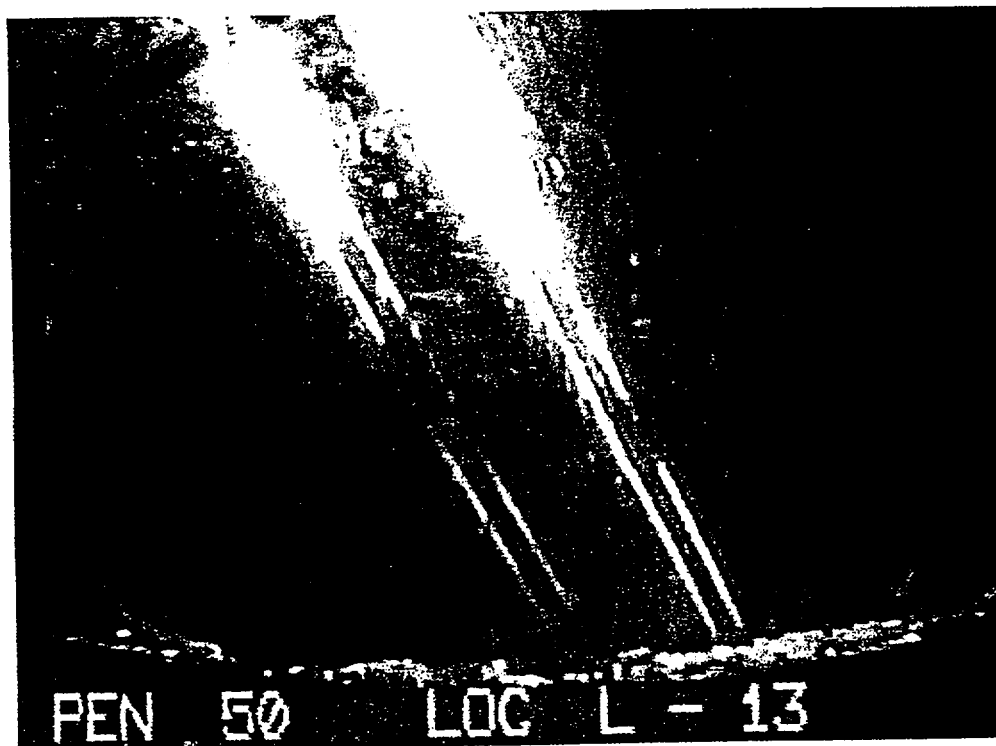
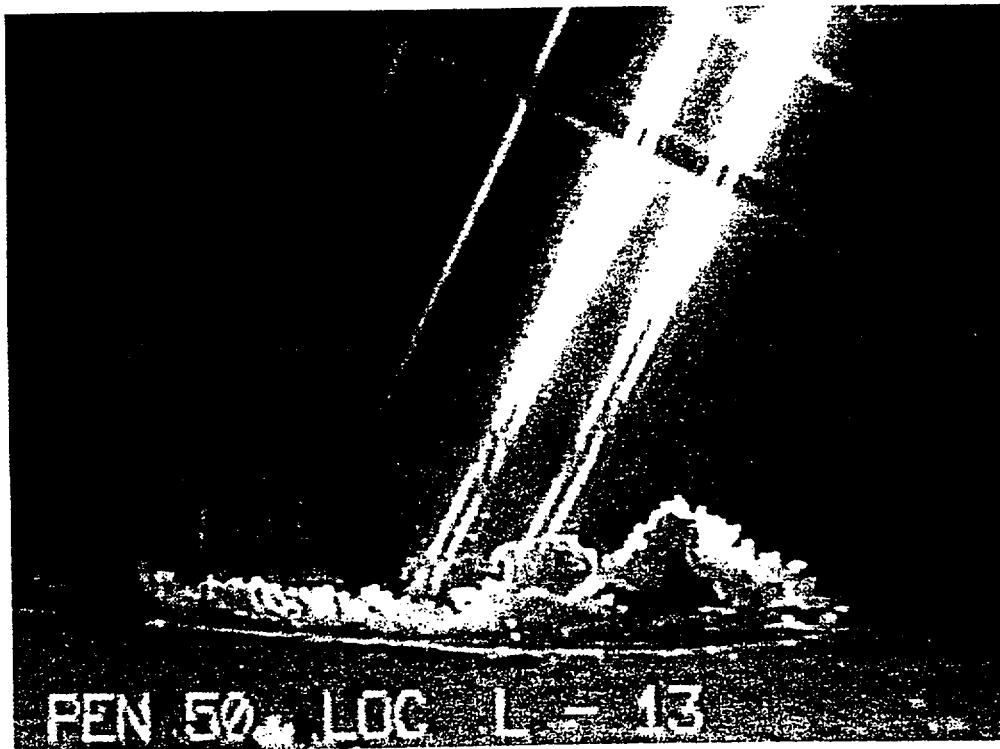
Visual Inspection at Salem Unit 1 (April 2001)



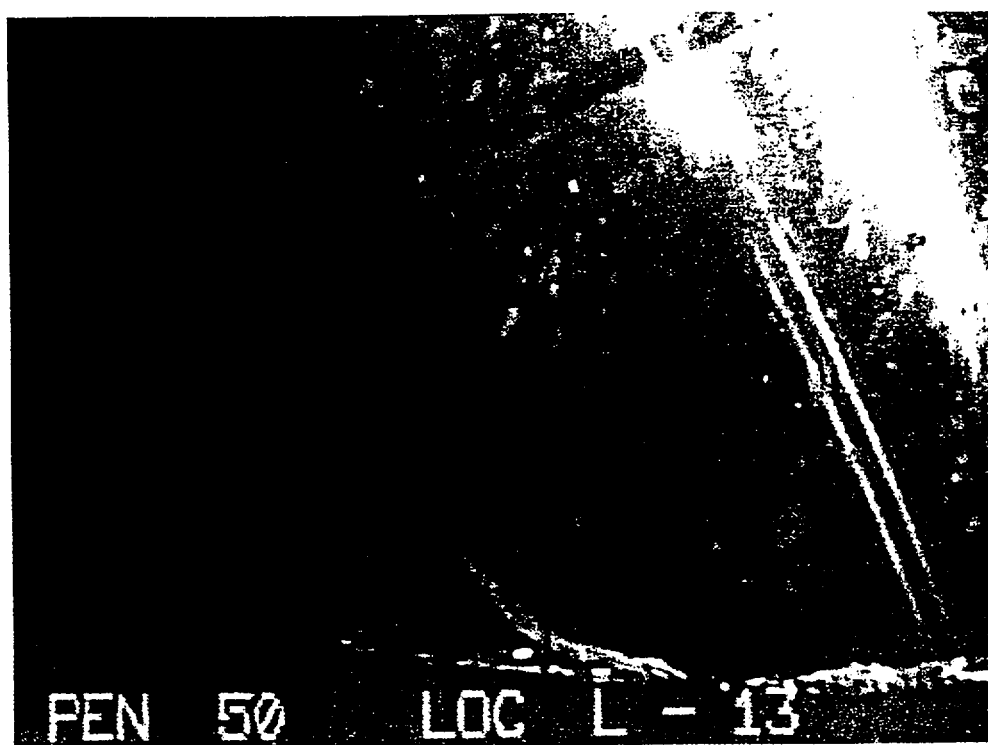
Visual Inspection at Farley Unit 2 (February 2001)



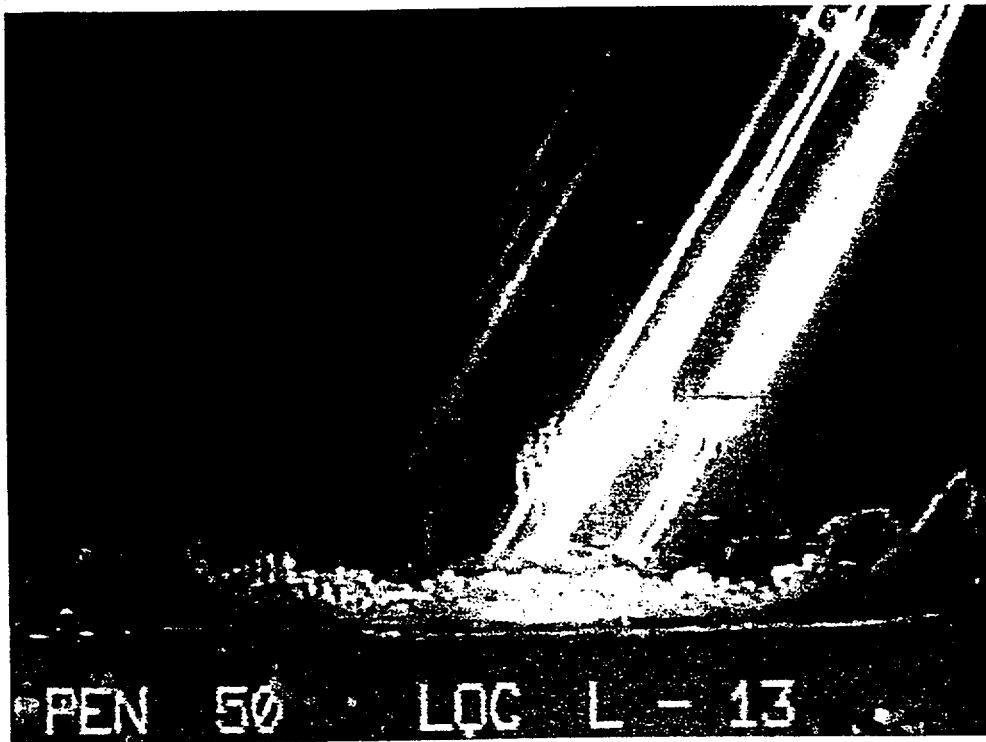
Visual Inspection at North Anna Unit 1 (September 2001)



**Visual Inspection at North Anna Unit 1 (cont.)
(September 2001)**



**Visual Inspection at North Anna Unit 1 (cont.)
(September 2001)**



**Visual Inspection at Crystal River 3
(October 2001)**

