

November 24, 1989

MEMORANDUM FOR: Charles E. Rossi, Director
Division of Operational Events Assessment

FROM: Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

SUBJECT: THE OPERATING REACTORS EVENTS MEETING
November 22, 1989 - MEETING 89-40

On November 22, 1989, we conducted an Operating Reactors Events meeting (89-40) to brief senior managers from NRR, ACRS, Commission staff, and regional offices on selected events that occurred since our last meeting on November 15, 1989. Enclosure 1 lists the attendees.

Enclosure 2 presents the significant elements of the discussed events. Enclosure 3 contains a summary of reactor scrams for the weeks ending 11/19/89. No significant events were identified for input into the NRC performance indicator program.

Original signed by:
Charles J. Haughney

Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

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/1

*TDR-51
OPERATING
EXPERIENCE*

JFC	:EAB/DOEA <i>HJR</i>	:C:EAB/DOEA <i>[Signature]</i>	:	:	:	:
NAME	:MLReardon	:CJHaughney	:	:	:	:
DATE	:11/22/89	:11/22/89	:	:	:	:

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

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A handwritten signature in black ink that reads "Charles J. Haughney".

Charles J. Haughney, Chief
Events Assessment Branch
Division of Operational Events Assessment

Enclosures:
As stated

cc w/Encl.:
See Next Page

cc:

T. Murley, NRR
F. Miraglia, NRR
J. Sniezek, NRR
J. Partlow, NRR
E. Jordan, AEOD
J. Taylor, EDO
E. BeckJord, RES
W. Russell, RI
S. Ebnetter, RII
B. Davis, RIII
R.D. Martin, RIV
J.B. Martin, RV
W. Kane, RI
L. Reyes, RII
E. Greenman, RIII
J. Milhoan, RIV
R. Zimmerman, RV
S. Varga, NRR
B. Boger, NRR
G. Lainas, NRR
G. Holahan, NRR
F. Congel, NRR
E. Weiss, AEOD
B. Clayton, EDO
J. Lieberman, OE
J. Guttman, SECY
A. Thadani, NRR
J. Richardson, NRR
S. Rubin, AEOD
J. Forsyth, INPO
R. Barrett, NRR
M. Harper, AEOD
R. Newlin, GPA
J. Roe, NRR
H. Alderman, ACRS

A. Wang, NRR
J. Stolz, NRR

LIST OF ATTENDEESOPERATING REACTORS EVENTS BRIEFING (89-41)

November 22, 1989

<u>NAME</u>	<u>ORGANIZATION</u>	<u>NAME</u>	<u>ORGANIZATION</u>
R. Capra	NRR/PD 1-1	C. Haughney	NRR/DOEA
H. Alderman	ACRS	R. Auluck	NRR/ADSP
F. Witt	NRR/EMCB	S. Koscielny	NRR/EMCB
R. Kendall	NRR/DOEA	M. Reardon	NRR/DOEA
M. Case	NRR/PQUB	M. Ham	NRR/EMCB
C. Thomas	NRR/DLPQ	J. Ball	NRR/DRIS
P. Baranowsky	NRR/DOEA	J. Carter	NRR/DOEA
E. Rossi	NRR/DOEA	T. Chan	NRR/PD-5
A. Wang	NRR/PD 1-4	N. Kadambi	NRR/OCGB
S. Wu	NRR/SRXB	A. Gilbert	NRR/DOEA
J. Clifford	OEDO	W. Troskoski	OE
R. Perfetti	OE		

OPERATING REACTORS EVENTS BRIEFING 89-41
EVENTS ASSESSMENT BRANCH
LOCATION: 1GB-11, WHITE FLINT
WEDNESDAY, NOVEMBER 22, 1989, 11:00 A.M.

HADDAM NECK

FUEL ROD FAILURES DUE TO
POST-MAINTENANCE DEBRIS

HADDAM NECK
FUEL ROD FAILURES DUE TO POST-MAINTENANCE DEBRIS
OCTOBER 11, 1989

PROBLEM

AT LEAST 343 FUEL PINS FAILED (WITH THROUGH-WALL CRACKS). OVER 1,200 OF THE 20,000 PINS HAVE VISUAL MECHANICAL DAMAGE.

CAUSE

DAMAGE FROM DEBRIS WHICH ESCAPED CONTROLS DURING THE PREVIOUS OUTAGE.

SAFETY SIGNIFICANCE

INADEQUATE CLEANUP AFTER MAINTENANCE IN THE REACTOR COOLANT SYSTEM COULD RESULT IN FUEL FAILURES AND REACTOR COOLANT ACTIVITY THAT EXCEEDS TECH SPECS. THIS IS SIGNIFICANT BECAUSE IN THE EVENT OF AN ACCIDENT SUCH AS SGIR, HIGH ACTIVITY MAY BE RELEASED IN THE PLANT AND/OR TO THE ATMOSPHERE.

DISCUSSION

- o DURING THE PREVIOUS REFUELING OUTAGE IN JULY 1987, REPAIR WORK WAS DONE ON THE CORE BARREL SUPPORT BLOCKS. THE OLD FLEXURE SUPPORTS (WHICH PREVENTED ROTATION OF THE THERMAL SHIELD) WERE REPLACED WITH LIMITER KEYS.
- o DURING THE CURRENT REFUELING OUTAGE, WHICH BEGAN IN SEPTEMBER 1989, THE LICENSEE OFF-LOADED THE CORE TO INSPECT THE SUPPORT BLOCKS AND THE NEW LIMITER KEYS. WHILE INVESTIGATING THE CAUSE OF RAISED ACTIVITY DURING THIS CYCLE, THE LICENSEE DISCOVERED METAL SHAVINGS BETWEEN THE FUEL PINS.
- o THE LICENSEE BELIEVES THESE METAL SHAVINGS ORIGINATED FROM THE MACHINING OF THE OLD FLEXURE SUPPORTS.
- o THE LICENSEE USED REMOTE, "PICKING" TOOLS TO PICK-AWAY METAL SHAVINGS FROM THE INDIVIDUAL FUEL ASSEMBLIES. THE LICENSEE COLLECTED ABOUT 1 GALLON OF SHAVINGS.

CONTACT: A. P. GILBERT

SIGEVENT: YES

REFERENCES: MORNING REPORT 10/12/89 AND 10 CFR 50.72 # 17128

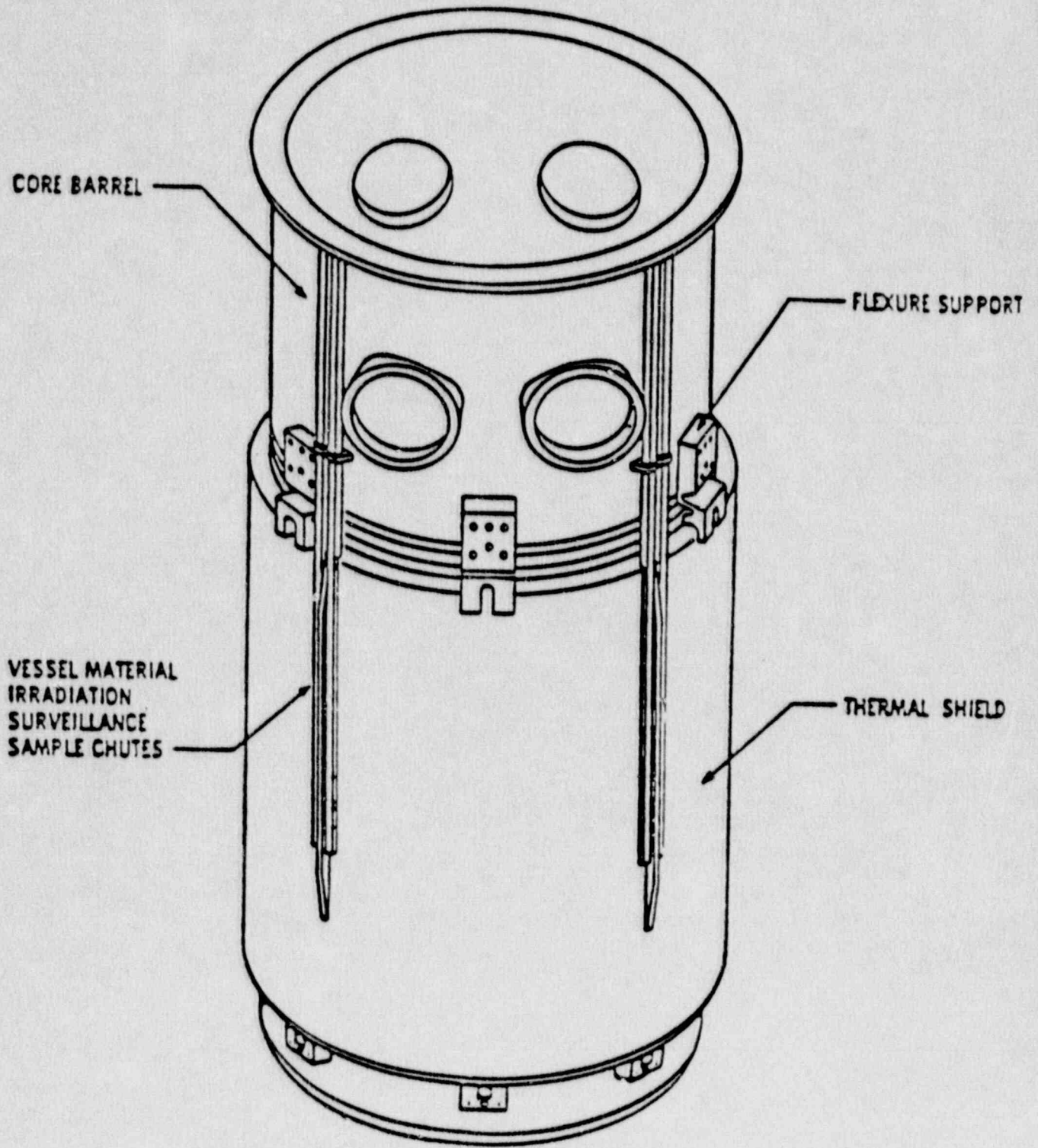
DISCUSSION (CONTINUED)

- o HADDAM NECK OPERATED FOR 460 DAYS WITH ONLY SMALL INDICATIONS OF FUEL PIN LEAKAGE. REACTOR COOLANT ACTIVITY WAS WELL BELOW TECH SPECS LIMITS.
- o AT LEAST 343 FUEL PINS HAVE BEEN IDENTIFIED VIA ULTRASONIC TESTING (UT) AS FAILED FUEL - THAT IS, WITH THROUGH-WALL CRACKS.
 - UT CAN ONLY IDENTIFY LEAKING FUEL PINS.
 - EDDY CURRENT TESTING MUST BE USED TO IDENTIFY DEGRADED CLADDING AND REQUIRES THE FUEL PIN TO BE REMOVED FROM THE ASSEMBLY. A 100% INSPECTION WOULD TAKE ABOUT 1 YEAR.
 - THE LICENSEE POSTULATES THAT 400 TO 800 FUEL RODS HAVE BEEN DEGRADED BUT ARE NOT LEAKING. THE LICENSEE IS RECONSTITUTING AFFECTED ASSEMBLIES WITH DONOR PINS FROM ONCE-BURNED ASSEMBLIES AND IS HAVING B&W SHIP-IN FRESH ASSEMBLIES AS WELL.
 - THE LICENSEE IS CONSIDERING METHODS OF INSPECTION OF THE REMAINING FUEL.

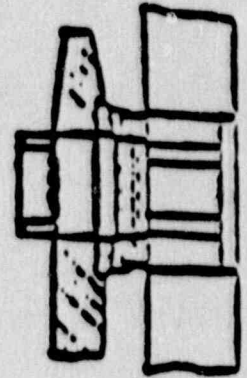
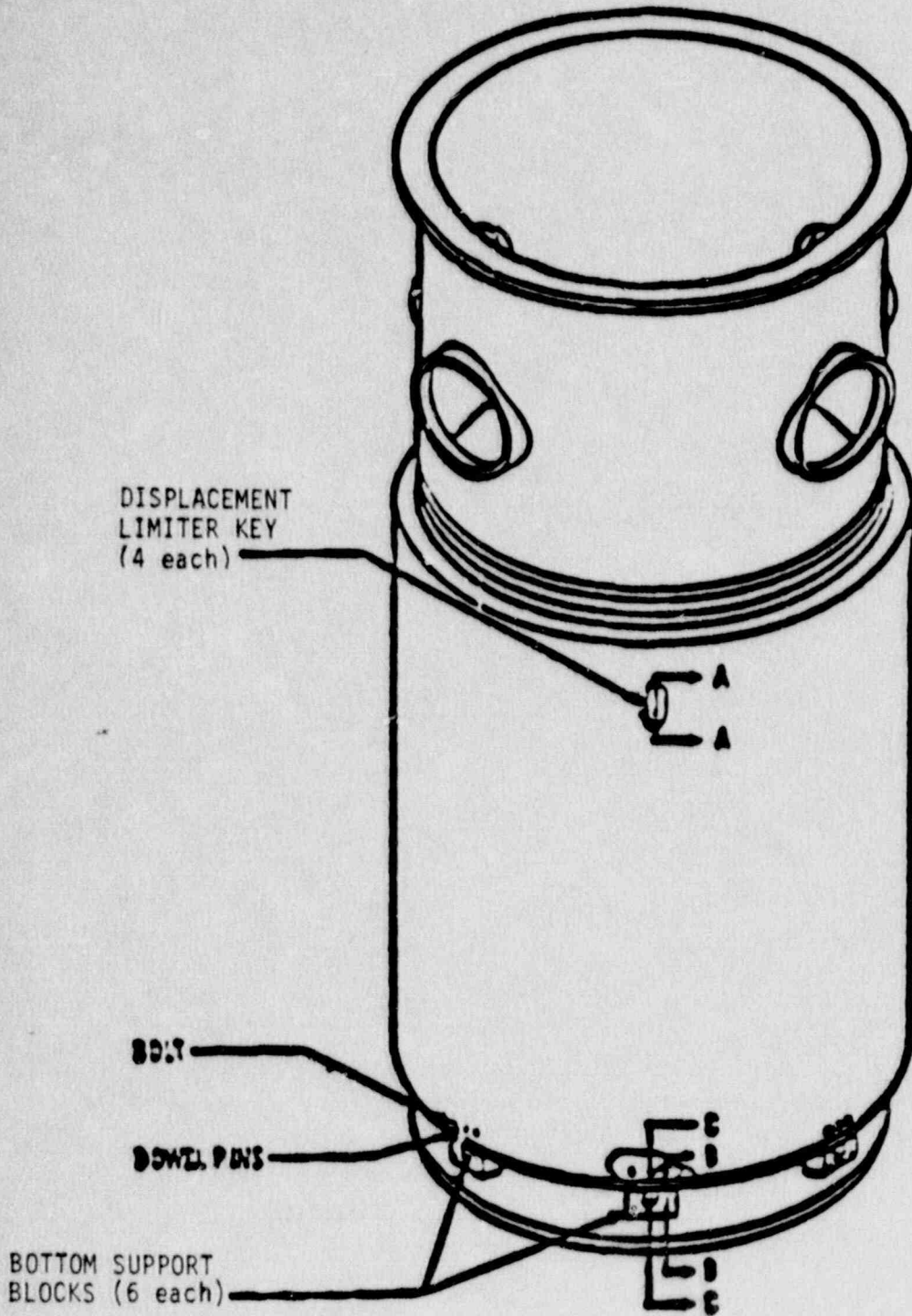
FOLLOWUP

- o CONNECTICUT YANKEE ATOMIC POWER CO. IS CONSIDERING FILTERING THE REACTOR COOLANT SYSTEM BEFORE THE STARTUP SCHEDULED FOR JUNE 1990.
- o THE MATERIALS & CHEMICAL ENGINEERING BRANCH AND THE REACTOR SYSTEMS BRANCH ARE FOLLOWING THE LICENSEE'S ACTIVITIES, WHICH INCLUDE DEVELOPING AN INSPECTION PROGRAM OF THE REMAINING FUEL ASSEMBLIES AT HADDAM NECK AND EVALUATING WHETHER THE CURRENT FSAR ACCIDENT ANALYSES ARE BOUNDING.

THERMAL SHIELD WITH FLEXURE SUPPORTS



THERMAL SHIELD WITH LIMITER KEYS



SECTION A-A



SECTION B-B



SECTION C-C

HADDAM NECK

REACTOR SCRAM SUMMARY
WEEK ENDING 11/19/89

I. PLANT SPECIFIC DATA

DATE	SITE	UNIT	POWER	SIGNAL	CAUSE	COMPLI- CATIONS	YTD	YTD	YTD TOTAL
							ABOVE 15%	BELOW 15%	
11/14/89	ARKANSAS	1	74	A	PERSONNEL	NO	4	0	4
11/15/89	MONTICELLO	1	100	A	EQUIPMENT	NO	1	0	1
11/18/89	FARLEY	2	100	A	EQUIPMENT	NO	5	1	6

11. COMPARISON OF WEEKLY STATISTICS WITH INDUSTRY AVERAGES

SCRAMS FOR WEEK ENDING
11/19/89

SCRAM CAUSE	POWER	NUMBER OF SCRAMS (5)	1989 WEEKLY AVERAGE YTD	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE (3)(4)	1985 WEEKLY AVERAGE (8)(9)
** POWER >15%							
EQUIP. RELATED	>15%	2	3.0	3.1	3.9	4.3	5.4
PERS. RELATED (6)	>15%	1	1.1	1.0	1.3	1.8	2.0
OTHER (7)	>15%	0	0.1	0.5	1.2	0.4	0.6
** Subtotal **		3	4.2	4.6	6.4	6.5	8.0
** POWER <15%							
EQUIP. RELATED	<15%	0	0.4	0.5	1.2	1.4	1.3
PERS. RELATED	<15%	0	0.3	0.3	0.6	0.8	0.9
OTHER	<15%	0	0.0	0.1	0.3	0.2	0.2
** Subtotal **		0	0.7	0.9	2.1	2.4	2.4
*** Total ***		3	4.9	5.5	8.5	8.9	10.4

MANUAL VS AUTO SCRAMS

TYPE	NUMBER OF SCRAMS	1989 WEEKLY AVERAGE YTD	1988 WEEKLY AVERAGE	1987 WEEKLY AVERAGE	1986 WEEKLY AVERAGE	1985 WEEKLY AVERAGE
MANUAL SCRAMS	0	0.9	1.0	1.4	1.0	1.0
AUTOMATIC SCRAMS	3	3.9	4.5	7.0	7.9	9.4

NOTES

1. PLANT SPECIFIC DATA BASED ON INITIAL REVIEW OF 50.72 REPORTS FOR THE WEEK OF INTEREST. PERIOD IS MIDNIGHT SUNDAY THROUGH MIDNIGHT SUNDAY. SCRAMS ARE DEFINED AS REACTOR PROTECTIVE ACTUATIONS WHICH RESULT IN ROD MOTION, AND EXCLUDE PLANNED TESTS OR SCRAMS AS PART OF PLANNED SHUTDOWN IN ACCORDANCE WITH A PLANT PROCEDURE. THERE ARE 111 REACTORS HOLDING AN OPERATING LICENSE.

2. COMPLICATIONS: RECOVERY COMPLICATED BY EQUIPMENT FAILURES OR PERSONNEL ERRORS UNRELATED TO CAUSE OF SCRAM.

3. PERSONNEL RELATED PROBLEMS INCLUDE HUMAN ERROR, PROCEDURAL DEFICIENCIES, AND MANUAL STEAM GENERATOR LEVEL CONTROL PROBLEMS.

4. "OTHER" INCLUDES AUTOMATIC SCRAMS ATTRIBUTED TO ENVIRONMENTAL CAUSES (LIGHTNING), SYSTEM DESIGN, OR UNKNOWN CAUSE.