79030203486

MONTICELLO NUCLEAR GENERATING PLANT
ANNUAL REPORT OF OCCUPATIONAL EXPOSURE - 1978

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (≥100 mrem)			TOTAL MAN-REM		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS
REACTOR OPERATIONS & SURVEILLANCE						
OPERATING PERSONNEL	33	0	2	32.075	0	.310
HEALTH PHYSICS PERSONNEL	7	0	24	8.523	0	4.205
SUPERVISORY & ENGR. PERSONNEL	24	3	8	5.820	.501	.896
INSTRUMENT & CONTROLS PERSONNEL	7	0	14	4.491	0	1.079
SECURITY	0	0	2	0	0	.205
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	29	59	157	23.757	9.810	23.035
INSERVICE INSPECTION						
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0
SUPERVISORY & ENGR. PERSONNEL	0	1	0	0	.128	0
INSTRUMENT & CONTROLS PERSONNEL	0	0	10	0	0	11.851
MAINTENANCE PERSONNEL	0	1	19	0	.009	15.899
*SPECIAL MAINTENANCE						
OPERATING PERSONNEL	33	0	0	9.138	0	0
HEALTH PHYSICS PERSONNEL	7	0	15	1.240	0	5.451
SUPERVISORY & ENGR. PERSONNEL	18	3	11	5.753	.777	2.709
INSTRUMENT & CONTROLS PERSONNEL	7	0	16	2.576	0	13.956
MAINTENANCE PERSONNEL	27	67	179	21.637	44.027	66.949
WASTE PROCESSING						
OPERATING PERSONNEL	20	0	7	3.914	0	4.441
HEALTH PHYSICS PERSONNEL	6	0	1	.871	0	.004
SUPERVISORY & ENGR. PERSONNEL	5	0	0	.215	0	0
INSTRUMENT & CONTROLS PERSONNEL	3	0	1	.098	0	.039
MAINTENANCE PERSONNEL	25	2	12	14.110	.098	.837
REFUELING						
OPERATING PERSONNEL	19	0	0	2.366	0	0
HEALTH PHYSICS PERSONNEL	1	0	1	.049	0	.009
SUPERVISORY & ENGR. PERSONNEL	5	1	5	.231	.009	1.045
INSTRUMENT & CONTROLS PERSONNEL	3	0	0	.034	0	0
MAINTENANCE PERSONNEL	15	24	16	1.557	1.729	.737
**TOTAL						
OPERATING PERSONNEL	105	0	9	47.493	.000	4.751
HEALTH PHYSICS PERSONNEL	21	0	41	10.683	.000	9.669
SUPERVISORY & ENGR. PERSONNEL	52	8	24	12.019	1.415	4.650
INSTRUMENT & CONTROLS PERSONNEL	20	0	41	7.199	.000	26.925
MAINTENANCE PERSONNEL	96	153	383	61.061	55.673	107.457
SECURITY PERSONNEL	0	0	2	.000	.000	.205
GRAND TOTAL:	294	161	500	138.455	57.088	153.657

*DESCRIPTION: 1. Maintenance performed in Primary Containment during shutdown.
2. Torus Modification
3. Security and Fire Protection Systems Installation
4. Radwaste System Modification
5. Main Steam Line Modification
6. Fuel Pool Modification

**INDIVIDUALS MAY BE LISTED UNDER MORE THAN ONE WORK AND JOB FUNCTION.

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1978

The following sections include a brief description and a summary of the safety evaluation for those changes, tests and experiments which were carried out without prior NRC approval, pursuant to the requirements of 10CFR50.59(b).

1. INCREASE ALLOWABLE NUMBER OF REACTOR VESSEL STARTUP/SHUTDOWN CYCLES TO 298 (SRI 181)

Description of Change

The allowable number of reactor vessel startup/shutdown cycles was increased from 120 to 298.

Summary of Safety Evaluation

A review of the Monticello Reactor Vessel Design Specification and Stress Report indicates that the controlling usage factor in the vessel (with the exception of the feedwater nozzle for which the design cycling has been substantially redefined) is 0.67 after 200 cycles in the refueling bellows support skirt. Thus an increase in the allowable number of cycles to 298 (200/0.67) is justified.

2. REDESIGNATION OF LPCI AND CORE SPRAY ISOLATION VALVES (SRI 184)

Description of Change

The core spray injection line isolation valves have been redefined to be the motor operated valves outboard of primary containment (MO 1751/1752, MO 1753/1754). The LPCI injection line valves are no longer considered to be primary containment isolation valves.

Summary of Safety Evaluation

The redesignation of the core spray isolation valves is based on the ability of the operator to manually close the valves in the event of a failure of the pump to start or the tripping of the pump during an accident situation. The deletion of the LPCI isolation valves is based on the fact that the injection lines are pressurized under all circumstances following an accident and effectively provided with a sealing system. This is consistent with NRC positions presented at a meeting in Bethesda on October 28, 1976.

3. INSTALLATION OF HIGH DENSITY FUEL RACKS (77Z013 Addendum III)

Description of Change

Four High Density Fuel Storage System (HDFSS) modules were installed in the spent fuel storage pool per License Amendment No. 34 issued by the NRC on April 14, 1978. Visual inspection of the installed modules revealed that some of the tubes had swollen. Two vent holes were drilled in the top of the tube to relieve pressure found to be causing the swelling.

Summary of Safety Evaluation

Tube venting precludes the possibility of tube inner wall bulging caused by air/water entrapment within the boral sandwich. Also, any hydrogen generated within the tube is relieved. The results of testing conducted by both the tube manufacturer and the module supplier indicate minimal galvanic corrosion between aluminum and stainless steel over the expected life of the modules. This results in acceptable boral stability in the fuel pool environment within the tube sandwich.

4. ATWS MODIFICATION (77Z024)

Description of Change

To mitigate the consequences of an Anticipated Transient Without Scram (ATWS) event, a system was installed to trip the reactor recirc pumps upon detection of an ATWS event as indicated by high reactor pressure or low reactor water level.

Summary of Safety Evaluation

The performance of the recirc pump trip system in mitigating the consequences of an ATWS event was analyzed and found acceptable (ref: GE Document NEDO 25016, submitted to NRC, DOR on September 15, 1976). Installation of the system does not create an unanalyzed condition, change the conclusions of any previous plant analysis or degrade any existing system.

5. LOAD MITIGATING SPARGERS (78M012)

Description of Change

The rams heads on the B, C, D, F and H safety/relief valve discharge lines were replaced with load mitigating spargers.

Summary of Safety Evaluation

Aspects of this modification which could conceivably affect the probability or consequences of an accident or malfunction previously analyzed were evaluated. The quencher is designed to result in an acceptable pressure drop and thereby eliminate feedback to the safety/ relief valve. Neither the safety/relief valve nor nuclear steam supply system is affected by the modification.

Effects of the quencher on the piping has been specifically accounted for in the quencher and support design. The loads on containment with the existing ramshead were measured during relief valve testing at Monticello during June, 1976, and the structural adequacy of the containment was demonstrated. Testing conducted in December, 1977 demonstrated that loads from quencher operation are less than loads from ramshead operation.

6. SHORTEN TORUS VENT HEADER DOWNCOMERS [78M014]

Description of Change

The torus vent header downcomers minimum submergence was reduced from 4'-6 1/2" to 3' and lateral restraints were added to further reduce stresses on the vent header.

Summary of Safety Evaluation

General Electric Mark I Containment Tests demonstrate that at three feet submergence the downcomer will perform as required during postulated events.

7. INSTALLATION OF TORUS VENT HEADER DEFLECTOR [78M015]

Description of Change

A vent header deflector was installed under the vent header to reduce the water impact loads on the vent header during postulated events. The deflector consists of a 14-inch schedule 160 steel pipe with 6-inch structural steel tees welded to the pipe at a 45° angle from the horizontal. The deflector is supported by plate attached to the vent header collar. The deflector is located on the vertical centerline of the vent header with a distance of 22 inches between the top of the deflector and the bottom of the vent headers.

Summary of Safety Evaluation

This modification reduces the stresses on existing plant equipment and the deflector stresses are below code allowable under all postulated conditions. The deflector was designed according to ASME

Section III and installed according to the AISC Manual of Steel Construction.

8. MAIN STEAM LINE MANIFOLD (78Z028)

Description of Change

An 18 inch equalizer line was installed to facilitate testing of the turbine stop valves while the plant is at 100% power. Because of new loads identified with turbine stop valve fast closure, 10 new steamline supports were added and 8 existing supports were modified. Also, hangers were modified and added to the existing bypass lines.

Summary of Safety Evaluation

This modification does not introduce new anchor points or governing stress points. The new and modified hangers reduce the calculated pipe stresses. This modification meets applicable requirements of ASME Section III and ANSI B31.1.

9. MODIFICATION OF RECIRC PUMP ISOLATION VALVE LPCI INTERLOCKS (78M036 & SRI 195)

Description of Change

The LPCI recirc loop selection logic was modified so that the recirc pump suction valve in the selected loop does not receive a signal to close. Problems with #11 recirc pump discharge bypass valve required that the interlock be reinstalled on the suction valve and removed from the discharge and discharge bypass valves. The interlocks will be returned to the discharge valves after repairs can be made to the discharge bypass valve.

Summary of Safety Evaluation

This modification assures that a break between the recirc pump isolation valves will depressurize the reactor vessel so that low pressure ECCS systems can provide core cooling. One of the recirc pump discharge valves will still close upon LPCI initiation providing the correct path of coolant to the vessel.

10. CHANGES TO MONTICELLO SEGMENTED TEST ROD (STR) BUNDLE FOR CYCLE 7 OPERATION (78M072)

Description of Change

Six irradiated segmented rods were removed from the bundle. Fresh unirradiated rods, each containing four new segments replaced the removed rods. The locations of three pairs of STR fuel rods were exchanged to satisfy the nuclear criteria for local peaking.

Summary of Safety Evaluation

This modification has no significant affect on the thermal-mechanical, or nuclear characteristics of the STR bundle. The results of the safety analysis contained in GE Document NEDE 20179 are not affected.

11. CORE SPRAY ISOLATION VALVE BYPASS SWITCH (78M075)

Description of Change

To conform with SRI #184 (reported above), the core spray outboard isolation valves (MO-1751 and MO-1752) control circuits were modified. Key locked bypass switches were installed to allow closure of the outboard isolation valve if a core spray pump fails to start or trips after receiving an auto initiation signal. This modification allows operation of these valves for containment isolation purposes.

Summary of Safety Evaluation

The consequences of bypass switch failure were analyzed. A failure of either of these switches would not result in system degradation beyond that previously considered in the accident analysis.

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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AUTH.NAME AUTHOR AFFILIATION
MAYER,L.O. NORTHERN STATES POWER CO.
RECIP.NAME RECIPIENT AFFILIATION
KEPPLER,J.G. REGION 3, CHICAGO, OFFICE OF THE DIRECTOR

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NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

February 23, 1979

Mr J G Keppler, Director, Region III
Office of Inspection & Enforcement
U S Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Dear Mr Keppler:

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

Annual Report of Occupational Exposure
and Changes, Tests & Experiments
January 1 - December 31, 1978

Attached you will find two copies of the following reports:

1) Annual Report of Occupational Exposure

2) Annual Report of Changes, Tests, and Experiments

These reports satisfy the annual reporting requirements contained in Section 6.7.A.2 of Appendix A to DPR-22 and Section 50.59(b) of 10CFR Part 50.

Yours very truly,

L. O. Mayer

L O Mayer, PE
Manager of Nuclear Support Services

LOM/DMM/deh

cc: Director, IE, USNRC (c/o DSB) (40)
G Charnoff
MPCA
Attn: J W Ferman

FEB 26 1979

Attachment

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