COOPER NUCLEAR STATION

BROWNVILLE, NEBRASKA

ANNUAL OPERATING REPORT

JANUARY 1, 1983 THROUGH DECEMBER 31, 1983

USNRC DOCKET 50-298

IE24

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I. PERFORMANCE CHARACTERISTICS AND TESTS

FUEL PERFORMANCE

Off-gas activity in the January 1 through April 30, 1983 operational period showed no increases indicative of fuel failures. The off-gas activity level continued at essentially steady state levels from January 1 to April 30, 1983 with the release rates being well within the limits specified in the CNS Technical Specifications.

During the period from April 30, 1983 through September 1, 1983, the reactor was shut down and the reactor vessel disassembled for the scheduled refueling and maintenance outage. The core was loaded per the loading plan developed by CNS for Cycle IX; 116 spent fuel assemblies were removed and replaced with 116 new fuel assemblies. A normal incore shuffle plan was used to load the fuel in the reactor. In concurrence with General Electric, sipping for leaking fuel assemblies was not warranted due to the low off-gas activity. After the reactor core loading was completed, the fuel loading was verified as correct in accordance with the General Electric loading plan for Cycle IX and the results recorded on video tape.

A 10CFR50.59 Reportability Analysis for Cycle IX was performed and approved by the Licensing Manager and by the District safety review committees. NRC review and approval was not necessary.

On September 1, 1983, the reactor was started up and the startup physics test program was initiated. One hundred percent thermal power was initially achieved for Cycle IX on September 26, 1983. From September 1, 1983 through December 31, 1983, an essentially steady state off-gas activity was monitored. This activity indicates a very small number (or severity) of leaking fuel pins in the reactor.

Comparisons of the actual control rod density during the period January 1 to December 31, 1983, to the control rod density predicted by computer programs at various core average exposures indicated reactivity anomalies less than 1% $\Delta K/K$.

The startup physics test program was completed on November 23, 1983.

MSV AND MSRV FAILURES AND CHALLENGES
(Ref: NUREG-0737, Action Item II.K.3.3)

There were six challenges to the relief valves during the September 12, 1983 scram. All valve actuations were satisfactory.

There were no failures.

REPORTABLE SPECIAL PROCEDURES/SPECIAL TEST PROCEDURES

STP 82-2

Procedure: This test procedure is used for pressure testing Class III nuclear systems as required by ASME Section XI Summer 1975 Addenda for the Inservice Inspection (ISI) program.

Description: ASME Section XI specifies that a part of the Class III N pressure retaining components be hydrostatically tested at least 1.1 times the system design pressure by the end of each inspection interval. The Class III systems in this category are as follows:

1. Augmented Off-Gas
2. Off-Gas
3. Radwaste Equipment and Floor Drain Systems
4. Standby Liquid Control (Pump Suction) (SLC)
5. Fuel Pool Cooling (FPC)

Items 1, 2 and 3 were granted exemptions from hydrostatic and Inservice Leak Testing per relief requests now specified in our ISI program. Items 4 and 5 were granted exemptions from hydrostatic testing per relief request, but must be Inservice Leak Tested. SLC and FPC pump suction were tested satisfactorily in 1983. FPC pump discharge will be tested in 1984 at which time all requirements will be met.

Safety Analysis: This testing is conducted in accordance with ASME Section XI ISI requirements. No changes are being made to any safety related equipment. The tests are conducted with existing surveillance procedures. The pressure testing will enhance the availability of the systems tested by detecting pressure boundary failures before they can affect plant operation.

II. FACILITY CHANGES REPORTABLE UNDER 10CFR50.59

REPORTABLE MINOR DESIGN CHANGES (MDC) COMPLETED IN 1983

MDC 80-57/81-108

Component: Electric Boilers Addition

Description: This MDC authorized installation of two high voltage electrode boilers to supply all plant heating and auxiliary steam requirements. The reliability and cost effectiveness of the existing oil fired boilers had dictated the need. One of the two oil fired boilers will remain as a standby unit.

Safety Analysis: The modification performs the same function as previously available and additionally provides system redundancy. Power supply to the boilers is from the auto-transformer tertiary winding of two underground feeders. Failure of either or both feeders will not affect operation of the diesel generator or emergency buses.

MDC 80-84

Component: Extended Range Effluent Monitors Reactor, Turbine Generator, Radwaste/Augmented Radwaste Building and Off-Gas Building/ Elevated Release Point

Description: This MDC authorized the replacement of the existing effluent monitoring and sampling equipment with new units procured from Kaman Instrumentation. The new equipment is designed to function during accident as well as normal operating conditions and satisfies the requirements of NUREG-0737. In addition to radiation alarms, the microprocessor control units also provide radiation level inputs to pen recorders in the Control Room. All indicator arrangements were designed with human factor engineering concepts.

Safety Analysis: The modification enhances the effluent monitoring capabilities of the plant by providing instrument range overlap from normal to accident conditions. The MDC also provides increased capability for post-accident monitoring and does not degrade the function of any other system or safety related equipment.

MDC 81-10-1

Component: Scram Discharge Volume Modification

Description: This MDC was initiated to provide better hydraulic coupling between the Scram Discharge Volume (SDV) and the Scram Discharge Instrument Volume (SDIV) of the Control Rod Drive Hydraulic System (CRDHS). Better coupling was needed so that the SDIV system could more accurately indicate the SDV drained and capable of accommodating CRDHS discharge during a scram.

This MDC also provided for the removal of equipment installed by MDC 81-05 and MDC 80-117. These MDCs had been used as an interim solution and were referenced in the 1981 Annual Report.

Safety Analysis: The modification described conforms to criteria established by the NRC in the Safety Evaluation Report for the CRDHS. The changes improve the hydraulic coupling, are single active and common mode failure proof, provide for reactor coolant containment, and provide the capability for inservice surveillance and testing, thereby increasing system reliability through redundancy. No existing safety features have been deleted or new hazards created.

MDC 81-29

Component: Reroute of Nitrogen Inerting and Pump Around Systems

Description: This MDC authorized modification of the N_2 inerting and pump around systems in order to operate the Primary Containment system in a more passive mode. In addition, it will reduce the amount of N_2 needed to maintain the suppression pool and drywell inerted.

Safety Analysis: This modification improves the safety of the plant and decreases the time necessary to inert. All new supports and hangers meet the same seismic qualifications as originally installed. System reliability has been enhanced because the 24 inch primary containment isolation valves may be kept in the closed position during plant operation.

MDC 81-84

Component: Torus Temperature Monitoring System

Description: This MDC authorized the installation of a new Torus Temperature Monitoring system that complies with the requirements outlined in NUREG-0661. The new system consists of 16 RTDs which will be placed in thermowells previously installed under MDC 80-62. The MDC provides increased assurance that suppression pool temperatures will be properly monitored.

Safety Analysis: This MDC provides upgraded post-accident monitoring capabilities and does not degrade the function of any safety related system. In addition, it provides the operator with a greater ability to monitor operation of the RHR system in the torus cooling mode during abnormal events. The system is also designed to meet the single failure criteria of IEEE 279 and IEEE 379.

MDC 81-114

Component: Fire Protection Clean Water Supply

Description: This MDC authorized a major upgrade of the site Fire Protection system. The existing system caused excessive maintenance problems which in turn decreased system reliability. Major additions consisted of two 500,000 gallon water storage tanks, one 3,000 gpm electric and one 3,000 gpm diesel pump, and a motor driven jockey pump to provide pressure maintenance of the fire main. The MDC also satisfied all requirements established by Cooper Nuclear Station's insurance carrier.

Safety Analysis: This MDC increases the safety margin regarding personnel, equipment, and nuclear safety requirements. Design and installation is in accordance with the latest National Fire Protection Association codes. In addition, the clean water supply provides less system maintenance and greater reliability.

MDC 82-20

Component: Discharge Ventilation Modification for Augmented Radwaste and Radwaste Buildings

Description: This MDC authorized modification of the discharge ventilation duct work of the augmented radwaste and radwaste buildings in order to combine all exhaust ducts into one common header. This allowed the use of only one effluent monitor (see MDC 80-84) to meet the requirements of NUREG-0737.

Safety Analysis: This modification does not present any new safety questions or reduce the existing margin of safety. All duct work has been designed to previously approved standards so that installation of new duct work will not degrade operation of any safety related equipment.

MDC 83-12

Component: Waste Sludge Tank - Floor Drain Collection Tank: Pipe Line Addition

Description: This MDC authorized the addition of a pipe connecting the floor drain collection tank to the waste sludge tank. The existing design had required transferring water from the waste sludge tank to the floor drain collection tank via K sump. The pipe addition reduces wear on the sump pump and provides the capability for filtering and discharging the waste sludge tank contents even when the phase separator tanks are full.

Safety Analysis: All component additions meet original design specifications of the Radwaste system. The isolation valves used are of the manually operated type to prevent misuse of the pipe addition and to ensure the operator has obtained the necessary permission. This MDC did not create an unreviewed safety question since any water in the floor drain collection tank must be processed through the floor drain sample tank before it can be discharged.

MDC 83-65

Component: Replacement of Essential Wire Splices in Drywell Penetrations

Description: This MDC authorized inspection and upgrading of essential wire splices associated with drywell penetrations and power leads for motor-operated valves. The existing tape on conductor splices was removed and replaced with environmentally qualified heat-shrinkable sleeves. The installation of the qualified sleeves and penetration kits bring the station into compliance with 10CFR50.49.

Safety Analysis: Nuclear safety is enhanced by the application of the heat-shrink sleeves at the conductor splices. All margins of safety are not reduced since the new sleeves meet previous design specifications and in addition are environmentally qualified.

MDC 83-81

Component: Service Water Pump Room Smoke Detector Addition

Description: This MDC authorized the addition of four smoke detectors in the service water pump room. The detectors were added in parallel to two existing flame detectors. The detectors were added to complete a commitment made to the NRC for extending the detection and automatic suppression in lieu of a 20 foot separation between Division I and Division II components.

Safety Analysis: This MDC does not affect safe shutdown or safe opcration of the plant. It enhances the fire protection safety requirements in the service water pump room by improving the ability to detect fires before significant damage can occur. The margin of safety will also be improved to comply with the basis defined in 10CFR50 Appendix R.

III. PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1983

Work and Job Function	Number of Personnel (> 100 mRem)			Total Man-Rem		
	Station Employees	Utility Employees	Contractor & Others	Station Employees	Utility Employees	Contractor & Others
REACTOR OPERATIONS & SURV.						
Maintenance Personnel	5	--	3	2.095	---	1.001
Operating Personnel	49	--	--	25.744	---	---
Health Physics Personnel	18	--	--	6.950	---	---
Supervisory Personnel	14	2	3	4.623	0.107	0.763
Engineering Personnel	19	1	3	13.984	0.127	0.339
ROUTINE MAINTENANCE						
Maintenance Personnel	60	17	168	80.261	17.226	251.626
Operating Personnel	6	--	--	2.120	---	---
Health Physics Personnel	14	--	--	6.569	---	---
Supervisory Personnel	11	4	5	4.047	0.827	8.016
Engineering Personnel	13	16	3	5.434	15.537	0.272
SPECIAL MAINTENANCE						
Maintenance Personnel	--	--	404	---	---	717.356
Operating Personnel	--	--	--	---	---	---
Health Physics Personnel	14	--	2	4.559	---	0.193
Supervisory Personnel	4	2	9	1.326	0.088	3.719
Engineering Personnel	1	17	9	0.080	3.449	6.732
WASTE PROCESSING						
Maintenance Personnel	2	--	--	0.214	---	---
Operating Personnel	22	--	--	5.944	---	---
Health Physics Personnel	12	--	--	2.009	---	---
Supervisory Personnel	4	--	--	0.591	---	---
Engineering Personnel	1	--	--	0.063	---	---
REFUELING						
Maintenance Personnel	2	--	--	0.062	---	---
Operating Personnel	28	--	--	3.762	---	---
Health Physics Personnel	5	--	--	0.423	---	---
Supervisory Personnel	1	1	--	0.092	0.016	---
Engineering Personnel	2	3	--	0.105	0.137	---
INSERVICE INSPECTION						
Maintenance Personnel	--	--	50	---	---	70.885
Operating Personnel	--	--	--	---	---	---
Health Physics Personnel	1	--	--	0.044	---	---
Supervisory Personnel	1	--	5	0.096	---	4.371
Engineering Personnel	--	--	--	---	---	---
TOTALS						
Maintenance Personnel	61	17	601	82.632	17.226	1040.868
Operating Personnel	50	--	--	37.570	---	---
Health Physics Personnel	18	--	--	20.554	---	0.193
Supervisory Personnel	15	4	18	10.775	1.038	16.869
Engineering Personnel	19	19	13	19.666	19.250	7.343
GRAND TOTALS	163	40	632	171.197	37.514	1065.273

Nebraska Public Power District

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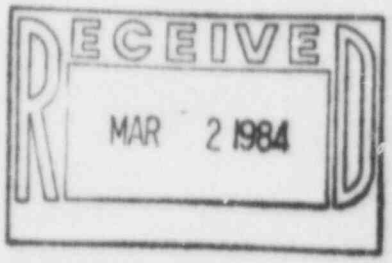
February 24, 1984



Mr. John T. Collins
Regional Administrator
U.S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive
Suite 1000
Arlington, TX 76011

Subject: Annual Operating Report
Cooper Nuclear Station
NRC Docket No. 50-298, DPR-46

Dear Mr. Collins:

In accordance with Paragraph 6.7.1 of the Cooper Nuclear Station Technical Specifications, the Nebraska Public Power District submits the Cooper Nuclear Station Annual Operating Report for the period of January 1, 1983 through December 31, 1983.

We are enclosing one signed original for your use and, in accordance with Regulatory Guide 10.1 Revision 4, are transmitting one copy to the Director, Office of Inspection and Enforcement.

Should you have any questions or comments regarding this report, please contact me.

Sincerely,

Jay M. Pilant

Jay M. Pilant
Division Manager of Licensing
and Quality Assurance

JMP:ls
Enclosure
cc: Director
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Cooper Nuclear Station

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