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FROM: Northern States Power Company Minneapolis, Minn 55401 Wade Larkin	DATE OF DOC: <u>6-28-72</u>	DATE REC'D <u>7-2-72</u>	LTR <u>X</u>	MEMO	RPT	OTHER
TO: Mr. Muntzing	ORIG <u>3 signed</u>	CC OTHER	SENT AEC PDR <u>X</u> SENT LOCAL PDR <u>X</u>			
CLASS: <u>U</u> PROP INFO	INPUT	NO CYS REC'D <u>3</u>	DOCKET NO: <u>50-263</u>			

DESCRIPTION:
Ltr trans the following:

ENCLOSURES:
NSP ltrs to Dr. Howard A. Andersen dtd
6-27-72 & 4-2-71.

NOTE: Dist Per R. Diggs

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PLANT NAMES: Monticello Nuclear Generating Plant

ACKNOWLEDGED

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NSP**NORTHERN STATES POWER COMPANY**

MINNEAPOLIS, MINNESOTA 55401

June 28, 1972

Mr L Manning Muntzing
Director of Regulation
United States Atomic Energy Commission
Washington, D C 20545

Dear Mr Muntzing

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

Attached for your information is a copy of a letter from NSP to Dr Howard A Andersen, Chairman of the Minnesota Pollution Control Agency, which was delivered yesterday. It outlines the current off-gas release rates at the Monticello Nuclear Generating Plant and the status of the construction of the new off-gas system. Also attached is an April 2, 1971 letter to Dr Andersen which is referenced in yesterday's letter.

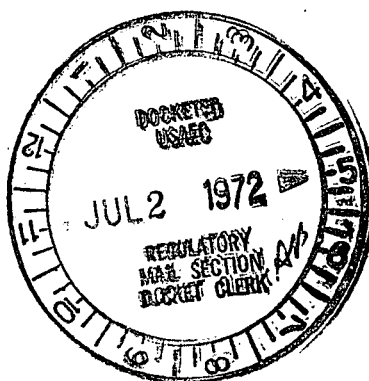
In our effort to share fully with the MPCA the reasons for the delay in completion of the off-gas system, extensive reference is made to the requisite safety reviews and licensing process within the AEC. Unfortunately, some of the early news media releases on yesterday's letter implied that the AEC regulatory function was the major cause for the delayed in-service date of the new off-gas system. We believe that sharing the full context of the letter with you will put our comments on the licensing and safety review process in the proper perspective.

As Mr McElroy's letter states, "Our original, rather basic concept grew into a much larger, highly complex project...." Under these circumstances, an exhaustive review by the AEC was both necessary and desirable. The elapsed time for AEC regulatory approval was anticipated by people with

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adequate knowledge of the technology involved. We continue to avidly support the regulatory process needed to assure safety in nuclear plant operations, and sincerely hope our explanation of delays to the MPCA did not unduly bring public criticism to the AEC. If such is determined to be the case, please understand that it was inadvertant and accept our sincere apologies.

Yours very truly



Wade Larkin
Group Vice President -
Power Supply

NSP

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MINNEAPOLIS, MINNESOTA 55401

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U.S. ATOMIC ENERGY COM. REG. DIV.
MAIL & RECORDS SECTION

Dr Howard A Andersen, Chairman
Minnesota Pollution Control Agency
1072 Plummer Lane
Rochester, Minnesota 55901

Dear Dr Andersen

There is a matter of some importance regarding the Monticello plant that I must communicate to you.

You may recall Mr Robert H Engels' letter of April 2, 1971, to you in which he informed you of our plans for modifications to the Monticello plant to reduce radioactive gaseous emissions. (A copy of that letter is attached for your reference.) We initiated these changes to fulfill a commitment made to the MPCA in May, 1970, concerning off-gas storage tanks to hold up gaseous emissions to permit additional radioactive decay before release.

In that letter Mr Engels said:

"With the plant modifications described, we can assert with confidence the plant will not exceed the gross beta-gamma rate limits for gaseous releases now set out in the Minnesota permit. Further, we pledge that pending installation of this equipment, the plant will not be allowed to exceed these gross limitations -- even if it means the plant must be run at less than full capacity. The fuel cycle will not be extended as a result of any of the described plant modifications."

NSP filed a technical specifications amendment for modifications to the off-gas system with the Atomic Energy Commission the day of the letter to you, April 2, 1971. We hoped, as was stated in the letter, that installation of the new facilities would be completed by the end of 1971. As you know, we experienced considerable delay in receiving the authorization for the changes from the AEC. A major reason for this delay was that we were breaking new ground in developing an over-all concept that had never before been applied to an operating nuclear power plant. Because of this, the concept was subjected to painstaking examination by the AEC which resulted in significant modifications to the original proposal. Many of these modifications had to do with assuring safe operation of the new system. Our original, rather basic concept grew into a much larger, highly complex project costing more than seven times our

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original estimate. In addition, changes since April, 1971, in Codes of the American Society of Mechanical Engineers have delayed procurement and delivery of some components for the new system.

Our technical people and engineering design consultants had numerous conferences during 1971 with representatives of the AEC's Division of Reactor Licensing in an effort to speed approval. In addition, a subcommittee of the AEC's Advisory Committee on Reactor Safeguards became involved in review of the modifications.

We ordered some of the new system components in 1971 and we began basic excavation and structural work for the modifications late in November, 1971, in spite of the fact that we had not yet received authorization from the AEC for the changes. Mr Engels said at that time: "In keeping with our commitment to the people of Minnesota, we feel we must proceed as far as we can with excavation and structural work. When we receive approval, and we hope it is soon, basic structures should be ready for equipment installation."

After its extensive review, the AEC authorized the off-gas modifications late in January, 1972. We have continued with all speed on the project. It is a job of some magnitude, as indicated by its estimated cost of \$4.5 million. We anticipate that the project will be completed by early spring of 1973. We plan to shut the plant down at that time for the purposes of tying in the new off-gas system, making some core modifications and completing a turbine overhaul.

In the meantime, we are confronted with the fact that gaseous emissions from the plant with its existing design are approaching the point where they will exceed the gross beta-gamma limits proposed as an annual average by the MPCA. The annual average that we committed ourselves not to exceed is 10,000 microcuries per second. The Monticello plant is now releasing at the rate of about 30,000 microcuries per second at full operation and the release rate probably will increase before we can complete installation of the off-gas modifications. As is predictable with a boiling water reactor, the gaseous release rate has been increasing as we have maintained full power levels and as the fuel has become older. However, plant gaseous emissions will continue to be far below the average annual release rate of 270,000 microcuries per second allowed under the present AEC license.

I am sure that you can recall as clearly as we do the situation in the months prior to our decision to make the off-gas modifications. We had gone through a protracted AEC licensing hearing during which a \$112 million plant was standing idle. The proposed MPCA permit

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for the plant was under litigation, but we were and still are determined to meet the spirit of your agency's wishes. Our decision to make the off-gas modifications and our information-sharing program with the agency are evidence of this determination.

Although Mr Engels did not specifically state it in his letter to you, our commitment not to exceed the gross beta-gamma release limits for gaseous emissions in the proposed MPCA permit was based on our full expectation that the modifications would be completed by the end of 1971 or at the latest early in 1972, well before the gaseous emission rate would have reached present levels. Because of the delay beyond our control, we are now faced with the following extremely difficult alternatives regarding the commitment to you:

1. Run the Monticello plant at less than full capacity from now until the scheduled spring shutdown. We estimate that this would require reducing plant output from its present level of about 550,000 kilowatts to about 275,000 kilowatts immediately and to progressively lower levels until the new system goes into operation.
2. Run the plant at full operation until we reach the MPCA's proposed gross beta-gamma limit, then shut the plant down until next spring. We calculate that this shutdown would have to occur around mid-July, 1972.
3. Shut the plant down now and replace certain fuel rods. Experience with other boiling water reactors has shown that selective fuel rod substitution does not reduce gaseous emissions significantly. We estimate that it would be at least six months before refueling could commence because new fuel would have to be ordered and AEC license requirements met for refueling operations.
4. Shut the plant down after the summer peak demand period or run it at less than full capacity until the scheduled spring shutdown. In either case, we would still exceed the MPCA's gross beta-gamma figure. Further, because of the need for capacity to replace that lost at Monticello, scheduled maintenance periods for other NSP generating units would have to be postponed, potentially jeopardizing reliability of these units. This could also disrupt the maintenance schedules of other interconnected utilities.

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5. Ask you for a release from our commitment and continue present plant operations until the scheduled spring shutdown.

Alternatives 1, 2 and 3, if any one were implemented, would seriously jeopardize our ability to meet anticipated peak electrical demands of our customers this summer. Our projected summer peak is 3,678,000 kilowatts. Our reserve capacity at the time of the projected summer peak will be 434,000 kilowatts if all existing NSP equipment is available for service and if new generating capacity outside our system from which we have contracted purchases is completed. It is readily apparent that if Monticello is not available for our summer peak demands, we not only will be without reserve capacity, but in fact will have insufficient capacity to carry our own load. Our ability to completely meet our customer load would then depend on the availability of surplus power from others, a very uncertain prospect.

Thus, our utility responsibility does not permit us to consider 1, 2 or 3 as acceptable alternatives.

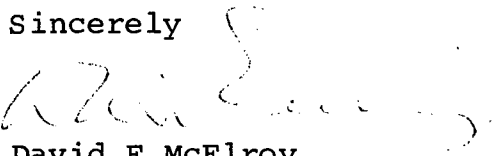
Under alternative 4, we still would exceed the gross beta-gamma figure and disrupt our maintenance schedules. This alternative also presents environmental trade-offs. With reduction of generating capacity available from Monticello, we would at times have to operate older fossil-fuel plants or buy more power from outside our system if it were available. Any decrease in the output of Monticello would result in increased emissions from fossil-fuel plants. In our judgment, Monticello full power operation is a cleaner answer.

I have reached the last alternative. I believe it to be the most realistic and responsible course that we can take as this region's power supplier. I therefore ask you to release us from our commitment not to exceed the gross beta-gamma limits, while we proceed as rapidly as possible toward completion of the off-gas modifications. I regret that both of our organizations are in this position. I do not believe that our request places you in a position of having to weigh against the health and safety of Minnesotans. You may wish to contact the Minnesota Department of Health regarding the health aspects of continued operation of the plant until the new system goes into operation.

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I will be happy to discuss this situation with you at any time.
I look forward to hearing from you.

Sincerely



David F McElroy
President

cc - The Honorable Wendell Anderson
Grant J Merritt
Dr Warren R Lawson



N O R T H E R N S T A T E S P O W E R C O M P A N Y

MINNEAPOLIS, MINNESOTA 55401

ROBERT H. ENGELS
PRESIDENT

April 2, 1971

Dr. Howard A. Andersen
Chairman
Minnesota Pollution Control Agency
1072 Plumber Lane
Rochester, Minnesota 55901

Dear Dr. Andersen:

With our Monticello plant now in operation, I am writing to inform you of NSP's plans for the operation of this facility.

I'm sure you are aware of our Company's pledge to spend whatever is required to assure that the plant will have no adverse effects on public health or safety. On February 26, 1970, Earl Ewald, Chairman of our Board of Directors, testified before the Joint Committee of Congress on Atomic Energy as follows:

"We are willing to provide electrical service to the people of the state on whatever basis they want it. We are not in any sense challenging the right of the State of Minnesota to regulate in a reasonable manner any of our actions. Compliance with the Minnesota permit is not a matter of money."

To carry out this commitment, NSP today will file with the AEC in Washington, D. C., safety design information for changes that will materially reduce radioactive discharge at our Monticello plant. These modifications, we are confident, will make it possible for us to meet virtually every standard which had been advocated by the PCA.

NSP will make three modifications to the plant design. We anticipate that these will enable the plant to meet and in some cases better the gross limits for radioactive releases contained in the permit for the plant issued by the PCA on May 28, 1969.

The proposed modifications are:

- A. Installation of a hydrogen/oxygen recombiner. Its purpose is to convert a substantial portion of the gaseous releases to water.

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The recombiner will reduce the volume of off-gas released to the atmosphere by approximately 80 percent. Monticello will be the first large nuclear power plant in this country to utilize such equipment.

- B. Installation of an off-gas hold-up system having not less than a 50-hour retention capability. The plant is presently designed to hold such gases for 30 minutes. This new system has the capability to compress the off-gases into large specially designed steel underground tanks built to exacting nuclear codes. This gas is there held to permit radioactive decay before release. With 50-hour or more retention, site boundary radiation levels will on the average be reduced not less than 95 percent. The dramatic reduction is shown on the attached graph. It might be noted that operating conditions may extend the actual retention period to as much as 72 hours, resulting in a 99.7 percent reduction.

We have requested early AEC approval so we may proceed quickly with construction. We hope to complete installation of both the recombiner and the hold-up system by the end of the year. A design contract for both recombiner and the system hold-up system was let several months ago and the conceptual design is now complete. In anticipation of appropriate approvals, orders soon will be placed with manufacturers to begin fabrication of the equipment. NSP's effort to incorporate such a system is among the first in the industry and Monticello will be the first large nuclear generating station in the United States operating with such a system. I anticipate it will set the standard of performance by which others will be measured.

- C. Installation of an activated charcoal filtration system in the stack. It is the recommendation of the state's consultant that the charcoal filters, operated in concert with the gas retention system, will give further assurance that virtually no radioactive iodine will appear in the environment.

Engineering feasibility studies by NSP have been conducted over the past year on a national and international basis. To our knowledge, Monticello will again be the first nuclear generating station in the United States with such charcoal filters.

The system design of the charcoal filters is almost complete. It will take approximately six weeks to install after approvals have been received. Orders have been placed with manufacturers to begin fabrication of the equipment.

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The cost of these modifications will be substantial. However, these modifications will insure the Monticello plant utilizes the most advanced environmental protection developments in boiling water reactor nuclear power generation. Further, we are confident these modifications will make it possible for us to meet most of the requirements of the PCA permit.

The permit for the Monticello plant issued by the PCA on May 28, 1969, contains two categories of release limitations. One is a gross beta-gamma release limitation for all isotopes as a group. The other is an annual average and a 7-day consecutive release limitation for each individual isotope.

Based on the best advice and analysis which could be secured, and assuming installation of the three plant modifications, we are willing to assert that the plant will meet the gross beta-gamma limits for all liquid releases now set out in the Minnesota permit. To assure this, release of liquid waste batches will be extended over the longest practicable time period consistent with meeting the stated radioactivity limitations. We can at this time also assure you the liquid tritium releases from the plant to the river will not exceed 1 percent of the AEC limits. Operating experience may permit betterment of that figure.

With the plant modifications described, we can assert with confidence the plant will not exceed the gross beta-gamma release rate limits for gaseous releases now set out in the Minnesota permit. Further, we pledge that pending installation of this equipment, the plant will not be allowed to exceed these gross limitations -- even if it means the plant must be run at less than full capacity. The fuel cycle will not be extended as a result of any of the described plant modifications.

We believe the facts reaffirm NSP's commitment to construct and operate the Monticello plant to the highest possible standards of environmental protection, and certainly to meet the goals and objectives of the Agency when the permit was formulated.

NSP will cooperate with all state agencies in meeting our common goals. NSP has expanded its environmental monitoring program to include all monitoring recommendations by the PCA. This monitoring program is being conducted in cooperation with the Minnesota Department of Health and the PCA. We are willing to continue to cooperate with the PCA in the interpretation of this data and its application to plant operation.

When the full scope of operating conditions is determined after sufficient operating experience and if any significant departures from design expectations occur, we renew our offer made at the August 11, 1970, PCA meeting to meet with the Agency and the AEC to discuss what appropriate action may be necessary.

Soon we will be discussing in detail with you the specifics of our Prairie Island plant. I am pleased to announce we are hopeful of implementing a zero emission concept recently announced by Westinghouse, the nuclear systems contractor for this facility.

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There must be a strenuous effort by government and the power industry to solve the problems of environment. We pledge our commitment, and we will work with the PCA and the environmental leadership in our community to achieve the goals.

Thank you for this opportunity to tell you about our plans for these facilities.

Sincerely,


ROBERT H. ENGELS
President

cc: Mr. Grant Merritt

Attachment

FIGURE 1
EFFECT OF MONTICELLO OFF-GAS SYSTEM MODIFICATION
ON RADIATION DOSE CONTRIBUTION AT PLANT BOUNDARY

