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MP&LClayBoswellPermitHearingTestimonyExcerpts- March19,1975

STATE OF MINNESOTA — MINNESOTA POLLUTION
COUNTY OF RAMSEY — CONTROL AGENCY

In the Matter of the Applications for National POLLUTANT Discharge Elimination System Permits to Discharge from three Steam Electric Generating Plants of Minnesota Power & Light Co.

The above-entitled matter came on for hearing before Richard L. Pemberton on the 19th day of March, 1975, at the PCA Building, 1935 West County Road B-2, Roseville, Minnesota, commencing at approximately 1:30 o'clock p.m.

* * *

APPEARANCES:

Richard L. Pemberton, Esquire, of the firm of RUFER, HEFTE, PEMBERTON, SCHULZE & SORLIE, 110 North Mill Street, Fergus Falls, Minnesota, appeared as Hearing Officer.

William Donohue, Esquire, Special Assistant Attorney General, 1935 West County Road B-2, Roseville, Minnesota, appeared representing The Minnesota Pollution Control Agency.

G. W. Harries, Esquire, Attorney at Law, 1200 Alworth Building, Duluth, Minnesota, appeared representing Minnesota Power and Light Company.

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WHEREUPON, the following proceedings were duly had:

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So we just didn't count all of the small stands, you know.

Q Are many of the significant stands in Minnesota located on streams, or flowing bodies of water?

A Yes, quite a few of them are.

Q And of those that are located on streams, to your knowledge what concentrations of sulfates are present in the water?

A Well, it's usually between two and ten, although I know of one stream, the Pelican River in western Becker County, that has a selfperpetuating stand on it that sometimes gets as high as 25.

Q Okay. When you say as high as 25, you are referring to parts per million of sulfates?

A That's right.

Q Okay. In your opinion, is there a relationship between sulfate concentrations in water and wild rice?

A Well, at least wild rice doesn't grow where there are high concentrations of sulfate here in the state. And as near as I can find out, it never has grown in such areas.

Q Could you describe how you think that relationship operates between sulfate concentrations and wild rice production?

A Well, that's quite speculative. Now it seems to me that

the most likely cause is that in organic soils, mucky soils, on which wild rice ordinarily grows. If you have such high concentrations of sulfates present, some of them are going to be reduced to hydrogen sulfide, which is a toxic gas and is soluble in water. And this is known to be toxic to fish eggs and crustacea and in cultivated rice paddies in the south to cultivated rice. But that's something that never has been checked experimentally.

Q Okay. Is there any other mechanism that the relationship of sulfate concentration and wild rice could work through?

A Yes. If you have very high concentrations along with high carbonate and fluorides, you have a high total concentration of salts in the water. Now, these become really brackish, or saline waters, or alkaline waters sometimes that's called. And the effect there may be an osmotic effect; that is, the high concentrations in the water prevent the plant from taking in the nutrients it needs in water. It sort of dries up the plant, you might say. And of course, that sort of thing has been known for a long time, especially in coastal waters where the salts are mostly chlorides.

Q It's my understanding then that your work then is mainly observational with planting.

wild rice in a high sulfate water concentration under controlled conditions?

A No.

Q Eliminating other possible factors?

A No.

Q I think you mentioned a situation where high sulfates and high carbonates produce a brackish water situation.

A Yes.

Q I take it that is attributable to the whole combination that you mentioned and not merely the sulfates.

A Yes. See, and oftentimes you have got to add in chlorides there too.

Q But that is not attributable particularly to the sulfate, it's to the whole combination?

A Yes, that's right.

Q Okay. I take it that it's some years since you have visited Manitoba.

A Oh, yes, maybe five or six years.

Q And you testified that you observed only one stand there at that time.

A Well, observed one stand in Saskatchewan.

Q I beg your pardon.

A Ya.

Q Then let me ask about Manitoba.

A I didn't look there.