

FROM

Senator Edward J. Martin, Chairman
Subcommittee on Emergency and
Relations, Comm. on Govt. Oper.

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re testimony by John Radlich, MRA, on 8.27.70 - re: info
 on AEC policy on location of power facilities near public
 water intakes, particularly with respect to Monticello
 plant

REMARKS

Prepare copy for signature of
the Chairman

"Your Senator Martin"

17F

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Martin E/nation

9/13/70

Cys: Testimony

subject

PDR (50-263)

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Commissioners ✓

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Remarks _____

Julius H. Rubin
For the Chairman

JAMES E. CALLOWAY
CHIEF COUNSEL AND STAFF DIRECTOR

United States Senate

COMMITTEE ON
GOVERNMENT OPERATIONS
SUBCOMMITTEE ON INTERGOVERNMENTAL RELATIONS
(PURSUANT TO S. RES. 310, 91ST CONGRESS)
WASHINGTON, D.C. 20510

September 17, 1970

Dr. Glenn T. Seaborg
Chairman
Atomic Energy Commission
1717 H Street, N.W.
Washington, D. C. 20545

Dear Dr. Seaborg:

In the course of hearings held on September 16, 1970, concerning S. 2752, the Intergovernmental Coordination of Power Development and Environmental Protection Act, Mr. John Badalich, Executive Director, Minnesota Pollution Control Agency, in testimony on the topic of power plant sites located above public water intakes, made special note of an apparent inconsistency between Atomic Energy Commission criteria and practice. His comments concerned the Monticello facility, located approximately 35 miles north of and upstream of the Minneapolis water intake. He indicated that no public explanation of this exception to the standards of the Commission had been offered.

I would appreciate it very much if you would clarify the issue by response to the following specific questions:

1. Does the Commission have a specific policy in regard to the location of power facilities above water intakes?
2. Did the Commission set aside such a policy in the instances referred to by Mr. Badalich? (These concerned the experimental 25 megawatt plant at Elk River, and the 550 megawatt plant referred to as the Monticello facility)
3. If the Commission did set aside such a policy as a deliberate decision, what procedures were taken to consider the issues involved in setting aside that policy?

WORTHINGTON
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JOHN P. BADALICH, P.E.,
EXECUTIVE DIRECTOR

STATEMENT BY JOHN P. BADALICH, EXECUTIVE DIRECTOR
of
THE MINNESOTA POLLUTION CONTROL AGENCY
before the

UNITED STATES SENATE SUBCOMMITTEE ON INTERGOVERNMENTAL RELATIONS

EDMUND S. MUSKIE, CHAIRMAN
September 16, 1970
at the

SENATE OFFICE BUILDING, WASHINGTON, D.C.

Mr. Chairman and Members of the Subcommittee:

I am appreciative of this opportunity to appear before you to express our views with respect to S.2752, the Intergovernmental Coordination of Power Development and Environmental Protection Act, and to further discuss the Minnesota Pollution Control Agency's policies as they relate to power siting and the associated environmental problems of great concern to us.

The Minnesota Pollution Control Agency is required to protect the citizens of Minnesota against pollution of the air, water or land.

The Agency is responsible for the management of the quality of Minnesota's waters, both surface and underground; the quality of the air; and the collection, transportation and disposal of solid wastes.

The basic policy, as set down by the Minnesota Legislature, is to prevent new pollution and control and abate existing pollution for the purpose of:

Conserving the air and water resources of the state,
Protecting the public health and
Developing the economic welfare of the state.

It is on the basis of this policy that the Agency has adopted standards and regulations for the protection and enhancement of its interstate and intrastate waters, including effluent standards as well as water quality standards; air quality standards, including emission standards as well as ambient air quality standards; and standards and regulations for the collection, transportation and disposal of solid wastes.

Minnesota is blessed with an abundance of water, most of which is of excellent quality. One need only to look at a map of the state to gain an appreciation of the quantity of water with which we are dealing. In order to protect and preserve this valuable resource, the Agency's regulations assign water quality criteria for the various classifications and uses and in addition, include an effluent standard as a minimal requirement. In other words, in order to protect and enhance the stream quality, a discharger must think and design treatment works in terms of effluent quality. Included in these regulations are temperature criteria that provide all year around protection of the fishery. All dischargers of sewage, industrial wastes or other wastes, including nuclear power and fossil fuel power plants, must obtain permits for such discharges under such conditions as the Agency may prescribe for the prevention of pollution and in compliance with our standards and regulations.

In some cases, more stringent requirements are contained in the permit than are in the general water quality requirement. I am happy to report that all dischargers on the interstate waterways of Minnesota have or will achieve compliance with the Agency's effluent standards

by December of 1973. Compliance has been achieved through stipulation notice, orders and through litigation.

In the field of air pollution control, the standards for ambient air quality and emissions have been adopted by the Agency and these standards became effective July 7, 1969.

The regulations established a requirement that all existing sources of air pollution achieve compliance by January 7, 1970, or submit to the Agency an acceptable compliance program, prior to this date, and in turn the Agency would allow an additional 2 1/2 years to meet standards.

The regulations also established a requirement that all new potential sources of air pollution meet emission standards and have a permit to construct and operate. This permit system has been developed and the necessary forms designed and procedures established for both existing and new sources.

Since the Agency's division of Air Quality became active just two years ago, it has established an air monitoring program and is operating a network of 166 sampling sites and gathering data and evaluating it from 326 sites in the state. The bulk of these have been furnishing data for over two years.

Computer programs have been developed to analyze data obtained and this is furnished to the National Air Sampling Network and to the cities affected.

Since the Agency is subjected to the requirements of the Federal Air Quality Act of 1967, many meetings and conferences have been held relating to air quality control and proposed establishments of air quality regions in Minnesota. The Federal Government has established

an air quality region in the Metropolitan Area, the Duluth-Superior Area, the Winona-LaCrosse Area and in the Fargo-Moorhead Area. The Agency has also worked with and provided technical assistance to St. Paul, Minneapolis, Rochester, Duluth, St. Cloud and other municipalities in establishing and coordinating air pollution control programs. Federal grants for these various municipalities are reviewed by the Agency before monies are received from the Department of Health, Education and Welfare.

Ambient Air Quality Standards for the following air pollution have been adopted:

- 1) Sulfur Oxides
 - a. Sulfation rate
 - b. Sulfur Dioxide levels
 - c. Suspended sulfates
 - d. Sulfuric acid mist
- 2) Hydrogen sulfide
- 3) Total Oxidants
- 4) Dustfall
- 5) Suspended particulates
- 6) Soiling Index

Emission standards for particulate matter from fuel burning equipment for indirect heating, industrial sources and power are included in these regulations.

To our knowledge, every major point source of air pollution, including all existing power generating plants have submitted approved schedules for compliance with the Agency's air quality regulations.

At the time the Agency was created, following the 1967 Legislative Session, the Agency was charged to study and investigate problems of solid waste and problems concerning the uses of land in areas of the

state which are affected by the pollution of air and water and report to the Governor and the 1969 Legislative Session. This report was submitted and during the 1969 session of the legislature, the statutes governing the activities of the Agency were amended giving the Agency authority to adopt standards and regulations for the collection, transportation and disposal of solid waste. After a series of state-wide hearings, the Agency did adopt standards and regulations relating to disposal of solid wastes and these regulations became effective on February 10, 1970.

Briefly, the solid waste regulations require the following:

- 1) That all counties are required to prepare and institute a comprehensive plan for solid waste disposal by July 1, 1972, including preliminary compliance steps prior to this date.
- 2) Permits for existing dump facilities must be obtained from the Agency within six months and a schedule for compliance with the regulations must be submitted.
- 3) The regulations outline procedures for sanitary landfill practices that must be followed for new and existing operations.

To my knowledge, the State of Minnesota is one of the first states in the nation to have a complete set of standards and regulations for the disposal of solid wastes.

The Agency, since its inception in August of 1967, has granted or acted upon a permit for a 550 M.W.E. nuclear power plant at Monticello, Minnesota, an 1100 M.W.E. nuclear power plant near Red Wing, Minnesota, a 350 M.W.E. fossil fuel plant at Cohasset, Minnesota

and modifications to several other power generating facilities throughout the state. With the exception of the plant at Cohasset, issuance of a permit for the operation of these power facilities was not considered by the Agency until after construction had commenced.

The Agency, during the 1969 Session of the Legislature, secured the following legislation which required a waste disposal permit for large installations in unincorporated areas prior to construction, thereby, further preventing the Agency from acting after the fact. A just recently announced 680 M.W.E. fossil fuel plant, to be located at Monticello, Minnesota will be subject to this statute.

Minnesota Law 1969, Chapter 115.03, Subd. 4:

"It is unlawful for any person to issue or grant a building permit or otherwise permit, the construction, enlargement, or relocation of a commercial or industrial building to be used as the place of employment of more than 12 persons, or any other commercial or industrial building to house a process producing industrial or other wastes, unless the sewage or industrial or other waste originating in such buildings is or will be discharged into a disposal system for which a permit has first been granted by the Agency provided that this subdivision shall not apply to building permits issued for buildings which have an estimated value of less than \$500,000, located or to be located within an incorporated municipality. If an application for such permit is not acted upon by the Agency within 90 days after submitted, the permit shall be deemed to be granted, provided that the Agency, for good cause, may order said 90 day period to be extended for a reasonable time."

The site selection of the steam power plants in Minnesota to-date has been made by the electric utility. After the site selection is made by the utility company, the company then applies to the Agency for the required waste disposal permit which covers all liquid discharges, including temperature requirements, air pollution control equipment, solid wastes disposal (such as fly ash) and radioactive wastes (air and water) in the case of nuclear power plants. It should be noted that in the case of nuclear power plants, the question of state or federal jurisdiction in the control of radioactive discharges is being litigated in Minnesota. The tentative trial date has been set for October 5, 1970, in the Federal District Court in St. Paul, Minnesota.

The utility company, however, prior to actual site selection reviews the Agency's water quality regulations, air quality regulations and solid waste disposal requirements and also consults with the Agency's staff as to other guidelines and considerations.

In selecting a site for a steam electric generating facility, the Agency gives consideration to the following criteria:

A. WATER POLLUTION CONTROL CRITERIA

- 1) Sites above public water intakes should be avoided wherever possible.
- 2) Sufficient water should be available in dependable supply from either surface or ground sources to provide at least the make-up requirements of a closed system in continuous use.
- 3) Sites involving discharges to lakes or reservoirs should be avoided and preference given to sites adjacent to rivers.

- 4) Sites upstream from or in proximity to major sport or commercial fishery waters should be avoided.
- 5) Sites upstream from intakes for water for irrigation of truck gardens and other food crops should be avoided.
- 6) Proximity to highways, airports and population concentrations should be avoided.
- 7) Sites with a good supply of available low cost or sub-marginal land for suitable conversion to cooling ponds or landfill areas are preferred.
- 8) The soil of the plant site and associates areas should be relatively impervious and the ground water flow direction well established so as to minimize possible ground water pollution.
- 9) Sites located in the flood plain should be avoided but if this may be the case, complete flood protection shall be provided.

B. AIR POLLUTION CRITERIA

1. Topography

- a. Site should be located away from deep valleys to the maximum extent possible, as these are subject to recurrent temperature inversions which trap pollutants in the valley.
- b. Use of unusually tall stacks to get the effluent well above the level of the area adjacent to the valley is the only effective way to avoid such trapping and pollutant build-up.
- c. Other rough terrain features may also affect dispersion of pollutants, and must be considered.

2. Meteorology

- a. Meteorology of the area should be well-known, with prevailing wind directions and velocity for all seasons of the year available on a percentage of "wind rose" basis.
- b. Prevailing winds should carry pollutants away from population centers to the maximum extent possible. Thus, for the Twin City Metropolitan Area, the least frequent wind direction is from the North East, so an ideal plant site would be to the North East of the center of population.
- c. Frequency and duration of temperature inversions for the projected site should be known, as these drastically affect the dispersion and dilution of pollutants. This information is often not available, so studies should be made of potential sites well in advance of any decision making so these factors will be adequately considered, as they are of extreme importance to the health of the adjacent population and the general ecology of the area.

3. Fuel Use

- a. The most commonly used fossil fuel for power plants in this area is coal. Factors of importance are sulfur and ash content.
- b. Minimum sulfur content, preferably below 1% is highly desirable, to limit emissions of SO_2 . The present source of low sulfur coals is the Montana - Wyoming area, which produces a sub-bituminous coal of generally under 1% sulfur content.

c. Some light #2 oil is being used in some of the older metropolitan area plants which have been converted from coal burning, because of serious air pollution problems, although costs are extremely high.

d. Natural gas should be used to some extent in mild weather months, where it is not needed for residential heating.

4. Air Pollution Control Requirements

a. Particulate collection equipment must be capable of 99.5% to 99.7% collection efficiency. Newer boiler and firing equipment produce as high as 70% of particulates in less than 10 micron size which is difficult to collect, and is of a size range which gives very high light reflectance. Thus, even if a highly efficient collector is used, some visible plume may still be in evidence.

b. Sulfur Dioxide removal from combustion gases is still in a research and development stage, and large size proven units are not in use as yet. May be required at a future date.

c. Removal of radioactive vent gases is in a research stage. A method of cryogenic recovery and purification has been developed in laboratories and further investigations as to production practicality is being conducted.

d. Nitrogen Oxides are of growing concern and are produced in any combustion process. As yet, technology for control and/or removal does not exist.

surrounding area must also be given. Water vapor emissions from large cooling towers may create local fog and icing conditions, and should be located far enough away from highways and other buildings so as not to adversely affect them.

5. General Principles

Local sites as far from population centers as possible with proper consideration for Topography, Meteorology, Fuel Supply Access and Cooling Water Supply.

ENVIRONMENTAL CABINET

During the past two years, a considerable amount of concern has been expressed by the general public in matters dealing with our environment and with the preservation of our natural resources. This concern, and rightfully so, was brought out strongly by scientists, engineers, lawyers and conservation groups in the hearings the Agency held with respect to Northern States Power Company's Monticello Nuclear Power Plant and the company's Prairie Island Nuclear Generating Plant permits.

In order for all state departments to be fully informed on environmental matters and that their efforts be coordinated with all other departments dealing with the environment and our natural resources, Governor Harold LeVander, on September 30, 1969, created the state's first Environmental Quality Cabinet. This cabinet is composed of the following department heads:

- Commissioner of Conservation
- Commissioner of Economic Development
- Commissioner of Agriculture
- Executive Officer of the Department of Health
- Executive Director of the Pollution Control Agency
- Executive Secretary of Soil and Conservation Service
- Administrative Secretary of Water Resources Board

Regular meetings are held by the Cabinet and the Governor to discuss major problems and programs dealing with the state's environment. Several day-long meetings were held by the cabinet in viewing and discussing the 1976 site of Northern States Power Company's fossil fuel power generating plant. In this particular case, the company choose the cabinet's second choice for this site although the Monticello site was the first choice of the Ad Hoc Environmental Task Force Committee. Company officials and personnel spent countless days bringing forth information on various site locations and statistics on their power needs. The NSP Company is to be complimented for their leadership and precedence for bringing this information to the Environmental Cabinet and the Site Task Force Committee prior to their commitment as to a site and preliminary design in this future power generating unit. It is my further understanding that the company intends to start discussion with all concerned on their 1978 unit in the very near future.

I trust the preceding information may have been of interest to the committee as this background does serve as a basis for my comments with respect to S.2752, the Intergovernmental Cooperation Bill for site selection and control of bulk power facilities under consideration today.

My comments are referenced to the form of the bill furnished me by Mr. Edwin M. Webber, Staff Director of this Subcommittee which was introduced by Senator Muskie in the Senate of the United States on July 31, 1969.

Referring to Page 3, Section 2, (b) (2)

As I previously pointed out, Minnesota has taken a leadership role in the matter of power plant siting through the Governor's Environmental Quality Cabinet and the Citizens' Plant Siting Task Force Committee. I believe Minnesota has shown it is well able to protect its interests in this field, if permitted to do so by the Federal Government.

Page 3, Section 2, (b) (3)

We are certainly receptive to advanced technical developments but it may be that through the imposition of national or regional procedures in some instances may result in regional or national approval of a site in Minnesota which may be unacceptable to Minnesota simply because their criteria may be different from ours in some respects.

Page 4, Section 3 (1)

This act will govern those electric generating plants of 400 M.W.E. or greater. What is the reasoning for this limitation? Just recently, the Agency approved a site for a 340 M.W.E. fossil fuel plant which, if not checked by the Agency's regulations, would have posed a far greater environmental problem because of its location than would have a much larger facility located near an abundance of water.

Page 4, Section 4 (a)

With respect to the establishment of regional district boundaries, difficulties may arise since some states have already an established siting group (either statutory or administrative) such as Minnesota; therefore, any regional grouping should take all of a state and not leave part in one region and part in another as intimated by this section.

Page 5, Section (b)

This subsection sets forth the mechanics and representation of the regional districts. One wonders if this proliferation of regional boards is always a good approach to certain problems and may lead to more federal control thereby minimizing the control and responsibility of the states in controlling their own environmental problems.

Page 8, Section 5 (a) (1)

As I understand the use of the word or in this context (applicable State or Federal law) means one or another and thus, the state law could be disregarded. Suggest this be changed to read applicable local state and federal laws, regulations or ordinances.

Further, the use of the word "standards" and "established" precludes at this time the inclusion of what may be informal criteria or policies which the Pollution Control Agency may use in the issuance of permits because of special conditions. For example, the requirement placed on the Prairie Island Plant of no more than 5°F above natural in the effluent is not a part of established standards nor are our recommended criteria for mixing zones. Also, at present, the Pollution Control Agency has not established state radioactivity standards except the reference to AEC's standards in WPC-14 and 15 and the permit issued to NSP Company's Monticello Nuclear Power Plant. Thus, if the criteria were adopted today on the basis stated herein, it presumably could exclude the wishes of the Pollution Control Agency and Governor because they are not embodied in regulations, unless the Agency, designated by this Act, chooses to do so under Section 5 (a) (8) page 9.

The regional boards and councils still have no real power as the Agency (under this Act) promulgates the criteria unilaterally. As an example, if one assumes the Atomic Energy Commission can sell it to the Agency (under this Act) the Agency could in effect, promulgate the AEC's own standards as its criteria.

Page 9, Section 5, (b)

Suggest the inclusion of a requirement that the procedure must include a provision similar to the one recently incorporated in the amendment to the Federal Water Quality Act (PL 91-224, Sec. 21 (b), 3Ap70) as it related to state certification of compliance with pollution control standards.

Page 12, Section 8, (b)

There also should be in here a statement to the effect that granting of an Agency (under this Act) license based on its own criteria is in no way to be construed as voiding the right of the state or locality to impose more stringent requirements, should it so choose.

Page 13, Section 9

On the advice of legal counsel, why should this extra right of eminent domain be given, when utilities already have the right under state law?

Why should the utility have an option of which forum it wants?

This provision seems totally unnecessary and appears to be throwing state eminent domain proceedings in this area right out of the picture.

Mr. Chairman, I am deeply gratified to have had this opportunity to appear before this committee in behalf of the Minnesota Pollution Control Agency and present to you our views and comments regarding S.2752 and also the State of Minnesota's role in the control of site selection and construction of electric power generating facilities.

Intergovernmental cooperation, coordination and consultation is most welcome in this matter providing that the right of the state or locality to regulate and control these facilities is not pre-empted by the federal government.

JPB/ee