



BAD RIVER BAND OF LAKE SUPERIOR CHIPPEWA
PREVENTION OF SIGNIFICANT DETERIORATION
CLASS I REDESIGNATION
TECHNICAL SUPPORT



ENERGY EFFECTS OF A PROPOSED CLASS I AIR QUALITY REDESIGNATION

This impact analysis was created when the Bad River Band started the process to redesignate the Bad River Reservation from Class II to Class I status under the Prevention of Significant Deterioration (PSD) program of the Clean Air Act. The report was designed to support the energy impacts analysis required by law for any request of this type.

The firm used several EPA-approved air dispersion models and hypothetical energy development projects to determine if a redesignation would stop potential future energy development in this region. The standards that must be met are to maintain levels based on time (24 hour and three hour periods) and allowable increment consumption of the PSD pollutants – sulfur dioxide, nitrogen dioxide, PM_{2.5}, and PM₁₀.

One of the hypothetical energy developments was a biomass electric generating plant located within thirty one miles of tribal lands. The other was a hypothetical coal-fired energy generating plant farther away from tribal land (beyond thirty one miles). They also took into consideration that the Rainbow Lakes Wilderness Area is already classified as a Class I area and any future projects constructed close to that region would need to meet the Class I requirements because of that designation.

Using these two hypothetical models, the firm came to the

conclusion that these two kinds of projects would not interfere with maintaining the Class I limits at the Bad River Reservation or the Rainbow Lake Wilderness. This was based on current control technologies being used by energy companies. But this analysis only takes into consideration these two hypothetical energy projects. This analysis states that the findings would be different if a location was chosen closer to tribal lands or directly on them. It does not take into account any other possible air polluting industry.

All facilities of a great enough size already consider the Rainbow Lake Wilderness Class I in their air permitting and air modeling process. Having the Bad River Reservation as a Class I area would not introduce new permitting or modeling requirements.

Also, this analysis could not take into consideration the proposed Gogebic Mine just southeast of the Reservation because there was only a range of hypothetical variables – mine location, potential emissions, or exact project development information.

~ Air Resource Specialist, Inc
Summary by Fawn YoungBear-Tibbetts

SOCIAL EFFECTS OF A PROPOSED CLASS I AIR QUALITY REDESIGNATION

This report describes the social importance of the cultural practices of harvest and their importance to the distinct way of life of Bad River tribal members. Interviews were conducted with tribal members. Research using historical documents was also used. This way of life is already in danger, even without the Class I designation. Therefore, even without this designation these harvest practices will continue to remain endangered and/or become completely extinct.

Historically, Bad River tribal members have relied upon the rich natural resources of the lake, sloughs, rivers, inland lakes and the forests. They harvest wild rice, maple sugar, fish, deer, turkeys, fur bearing animals and other forest and wetland resources. For hundreds of years tribal members actively used resources available from the land and are still doing so today. As a result, members of this community have a strong and deep sense of belonging to this area. One quote from the interviews conducted states “. . . I don't have the luxury of leaving and calling somewhere else home. I don't. This place is rooted in the psychological, the religious, the spiritual, the physical in terms of what we're talking about with food, realms of everything that I know. It's essentially in our DNA.” (Mike Wiggins).

Members of the community still rely on these resources for subsistence and religious practices. Ceremonies, funerals, and feasts are tied to this way of life. Feasts cannot be held without these resources. In another interview one tribal member stated “. . . There was a feast for everything and there was

a song for every ceremony, everything we do. It's all interconnected” (Tony Gilane).

Wild rice, in particular, is of huge significance to the community. Harvesting wild rice, as with many others, is a family affair that includes off-reservation tribal members. It continues to be passed down through the generations. Tribal members give wild rice as gifts, share it with elders and others who can't go out ricing. And ricing season is a time of celebration in this community. This type of sharing is also done with all harvested resources in this community. Many community members have to harvest as a way to support their families. It is their job.

Tribal members have a lifestyle, culture, values and an environment different from most Americans. The significance of the natural resources that are harvested is an extremely important part of the integrity of Bad River society and culture. Maintaining the air and environmental quality are necessary to maintaining the physical health of the local population committed to the harvesting of these resources.

Redesignation to Class I status does not guarantee the Tribe will be able to maintain a pristine environment. Rather, is it a resource management tool that makes possible the protection of these resources for current and future generations.

~ Larry Nesper, PhD and Joseph Quick, MA
Summary by Fawn YoungBear-Tibbetts

ENVIRONMENTAL EFFECTS OF A PROPOSED CLASS I AIR QUALITY REDESIGNATION

Just as air pollution has important and widespread effects on human health the health of an ecosystem hinges critically on local air quality. Changes in amounts of air pollution can impact individual organisms, populations, and ecosystems, both directly and indirectly. This air quality redesignation is designed to prevent significant deterioration of air quality on the Bad River Reservation. Therefore, it is important to consider the effects of such policy implementation on the healthy, productive, local ecosystem and its natural resources.

Airborne pollutants directly affect soil, water acidity and productivity through deposition. Small amounts of these nutrients can be deposited into the soils and would act much like a fertilizer would, excessively overdosing the soils, killing off vegetation and leaching through the soils into surface water and groundwater. All of these systems are interconnected and rely on each other to stay in balance.

The Kakagon Sloughs are a culturally significant example. They provide critical habitat, biodiversity and provide sources of nutrition for wildlife, especially migratory and partially-migratory birds and waterfowl, such as American bittern, black duck, bald eagle and long-eared owl. The Kakagon Sloughs also supply nursery habitat for native and sport fish such as lake sturgeon, walleye and yellow perch. All of these

species can be affected directly and indirectly by these forms of deposition as well.

Native plant communities would not only be impacted by increased deposition, but increases in other pollutants would lead to increased ground-level ozone. Fifty percent of the forest cover on the Bad River Reservation is sensitive to ground-level ozone. Several culturally significant tree species will suffer reduced growth rates as ground-level ozone levels rise. The most susceptible to increased deposition and ground-level ozone are sugar maple and birch. While these species provide sustenance, they also provide economic support to local communities.

Small increases in air pollutants have been found to ripple throughout an ecosystem, especially when all elements of the ecosystem are closely interwoven and function as one living entity. For a culture that has maintained an intimate connection with the environment, even depending upon it for survival, any negative impact will be acutely felt on both short- and long-term time frames with potentially severe consequences.

~ **Corbett Grainger, PhD and Cyrus Hester, MS**
Summary by Fawn YoungBear-Tibbetts

HEALTH EFFECTS OF A PROPOSED CLASS I AIR QUALITY REDESIGNATION

This report reviews air quality as it relates to human health and potential health effects that can be impacted by a Class I status redesignation. Premature birth weights, infant mortality, chronic heart and lung problems are related to amounts of air pollution. Redesignation to a Class I status will protect the health of tribal members and local citizens.

In general, Native Americans suffer more health problems than other races. For example, the average life expectancy of Native Americans is five years less than the national average. Part of this is caused by higher poverty rates within Native communities. An average of 20 percent of Native people are living below the current poverty level.

Access to health care is also a cause. On average, Native American health, expenditures are 60 percent less per capita than nationwide expenditures. The Bemidji Indian Health Service area, which includes Bad River, has historically been the most under-funded IHS area in the United States. Tribal government and community understand prevention of environmental degradation make risks from environmental health factors less harsh.

Any increase in air pollution, from particulate matter (PM_{2.5}), ozone and Sulfur dioxide (SO₂), are shown to have very serious negative health impacts to tribal members and the surrounding community. These risks include a wide range of effects including low birth weight, gestation time, cardiovascular and respiratory effects. Long term effects of higher concentrations of this kind of air pollution has a significant impact on mortality. For example, we can look at a family of five living in this region with current air quality levels. This

family would have at least one person with respiratory issues, Asthma or other chronic respiratory problems. This, of course, requires medical attention. This family would also have at least one person with cardiovascular problems. If we increased the annual mean to 7.9 (µg/m³), this family would have at least one member die from heart or lung disease and two more would require hospitalization and medication. These diseases could include Ischemic Stroke/Transient Ischemic Attack, Asthma, Chronic Obstructive Pulmonary Disease, Respiratory hospitalization and Non-accidental Mortality. If we increased the annual mean to 13.6 (µg/m³) over half, three or four people of this family would die due to these same lung and heart diseases. They would lose several children shortly after birth and most (if not all) of their children would be born prematurely.

Another part of this report focuses on human capital. Human capital consists of the skills that an individual possesses to be able to perform his or her daily activities and is essential to the economic, social and political well-being of any community. Air pollution can have several impacts on human capital and the productivity of the Tribe. When people fall ill they do not contribute or they may contribute less to the human capital of a region. Class I Status redesignation may also benefit the human capital accomplishments and productive value of tribal members, increasing the long-term well-being of the community.

~ **Matthew Neidell, PhD and Andrew Knauer, BA**
Summary by Fawn YoungBear-Tibbetts

ECONOMIC EFFECTS OF A PROPOSED CLASS I AIR QUALITY REDESIGNATION

This analysis provides an overview of how a Class I redesignation would affect the local economic vitality, including the surrounding counties (Ashland, Iron, and Bayfield) and the economic well-being of residents within the area. Specifically, it was to consider the role of clean air in supporting local quality of life and the local recreation economy. The cause of the large area covered in this report is due to high volumes of work and spending-related travel between these counties. A few examples of this are the many residents who live in Bayfield County. They travel to work in Ashland County. And many people who live in Bad River travel to the city of Ashland to purchase products as well.

A half century of research proves that protecting and improving air quality protects health, reduces premature death, enhances local quality of life, boosts local property values, and enhances local economic well-being as well as local economic vitality. Poor air quality can degrade buildings and other infrastructure causing an increase in maintenance costs and decreasing the functional life of physical property. Poor air quality also has severe impacts on water quality as the pollutants travel through systems, affecting wildlife and habitat and in turn, outdoor recreational activities. Available evidence indicates that Class I designation does not damage local economies. In fact, this report shows that air quality designation and efforts to protect and enhance air quality strengthen local economies and that national parks and wilderness counties have above-average economic vitality, especially in rural areas.

Ordinary citizens will avoid areas with high amounts of air pollution that drive down property values and lower the economic vitality of an area. Air quality has serious health impacts including chronic illness and premature death. The elderly and young are affected more intensely by airborne pollutants. As such, many retirees and young families will avoid moving to areas with high levels of air pollutants. In areas with poor air quality businesses have a difficult time recruiting people with needed skills. These businesses have to pay higher wages and offer potentially prohibitive benefits packages in order to attract ideal employees.

The study area has been attracting both working-age, retirement-age and in-migrants who are drawn to the area by its

social and natural amenities. When these in-migrants move to the area they bring their money with them, increasing the economic vitality of the area. A high quality environment also attracts visitors to the area and even people who will locate vacation homes in those areas, which also increases economic vitality. It also easier for businesses to attract skilled employees in areas with good air quality and natural amenities.

This report documents a major shift in the structure of the local economy. Paper, wood products, logging and other manufacturing jobs have been relatively stagnant for the last four decades while the rest of the economy has grown significantly. The importance of these manufacturing jobs fell about forty percent over the last forty years. As a result, it is highly unlikely that there will be a major expansion in heavy manufacturing activity in the area, with or without the redesignation of the Reservation to a Class I status. Other national and international economic forces are more likely to slow or stop economic developments as they have for most of this century.

The ongoing economic vitality in the Bad River Reservation area has been led by an increase in economic activities with relatively low point source air pollution like professional and technical services, local government, visitor services, education and health services. The current local economic base is increasingly tied to these types of jobs. In addition, the low emissions from existing manufacturing jobs in this study area demonstrate that manufacturing expansion can be compatible with clean air.

Because of these changes in the structure of both the American economy and the economy surrounding the Bad River Reservation, the conclusion reached by the Forest County Potawatomi on likely impacts of their Class I designation would also apply to Bad River's Class I designation. "The development of large industrial projects will very likely be effected more by economic viability, external market conditions and other local environmental and land use restrictions than by the Class I redesignation." The EPA cited this conclusion in support of its final ruling approving Class I redesignation for that reservation.

~ Power Consulting, Inc

Summary by Fawn YoungBear-Tibbetts

