Fond du Lac Band of Lake Superior Chippewa
Prevention of Significant Deterioration
Class I Redesignation
Technical Report

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List of Acronyms

ADHD – Attention Deficit/Hyperactivity Disorder

AQCR – Air Quality Control Region

AQRV – Air Quality Related Value

BACT – Best Available Control Technology

BWCA – Boundary Waters Canoe and Wilderness Area

CAA – Clean Air Act

CAAA – Clean Air Act Amendments

CFR – Code of Federal Regulations

CO – Carbon Monoxide

DNR – Department of Natural Resources

DOI – Department of the Interior

EPA – Environmental Protection Agency

FCPC – Forest County Potawatomi Community

FDLTCC – Fond du Lac Tribal and Community College

FIP – Federal Implementation Plan

FLM – Federal Land Manager

GIS – Geographic Information Systems

Km - Kilometers

MCL – Maximum Contaminant Level

MN – Minnesota

MPCA – Minnesota Pollution Control Agency

MW – Megawatts

NAAQS – National Ambient Air Quality Standards

NADP – National Atmospheric Deposition Program

NPS – National Park Service

NOx – Nitrous Oxides

PM – Particulate Matter

$PM_{2.5}$ – Particulate Matter with a diameter of 2.5 micrometers or less

PM_{10} – Particulate Matter with a diameter of 10 micrometers or less

PSD – Prevention of Significant Deterioration

RBC – Reservation Business Committee

RMD – Resource Management Division

SO_2 – Sulfur Dioxide

SIP - State Implementation Plan

SNF - Superior National Forest

TAS – Treatment as an Affected State

tpy – Tons Per Year

UMD – University of Minnesota – Duluth

US – United States

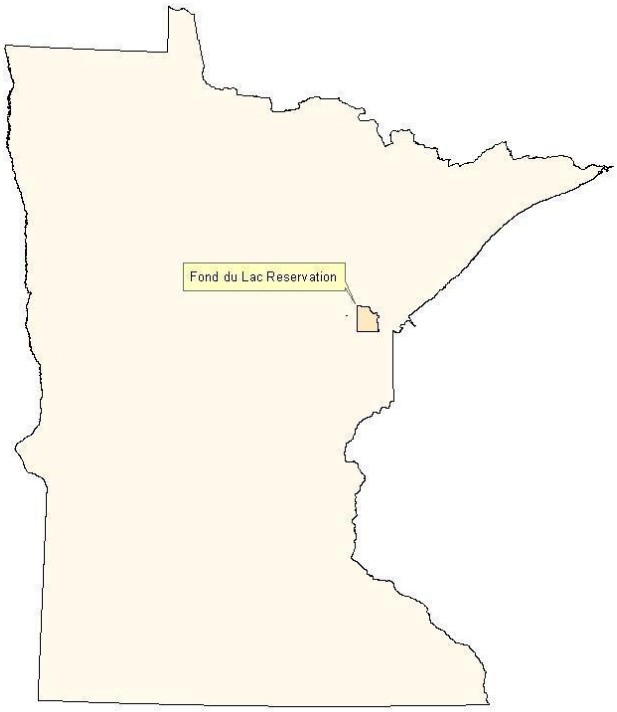
USFS – United States Forest Service

USGS – United States Geological Survey

VNP – Voyageurs National Park

VOC – Volatile Organic Compounds

Figure 1 Map of the Location of the Fond du Lac Reservation



Section I. Introduction

The Fond du Lac Band of Lake Superior Chippewa are a sovereign people, who occupy the Fond du Lac Reservation and retain their aboriginal rights of self-government and self-determination pursuant to the Treaty of LaPointe on September 30, 1854, 10 Stat. 1109; the Indian Reorganization Act of 1934, 25 U.S.C. § 461 et seq.; the common law of the United States; and as recognized by the United Nations Declaration on the Rights of Indigenous Peoples of September 13, 2007. The Fond du Lac Band also retains usufructuary rights in 8 million acres of land in Central and Northeastern Minnesota. These lands were ceded to the U.S. Government in the Treaties of 1837 and 1854. The Band retains all rights on the Reservation and in the Ceded Territories that were not reserved by treaty. These include hunting, fishing, and gathering rights and the governing authority and responsibility to regulate the exercise of those rights by its members under Band law.

Today there are approximately 4,004 Band members, with 1,492 living directly on the Reservation. An additional 2,400 Indian people live within 25 miles of the Reservation.[1] The land on and around the Reservation is heavily forested, with many water bodies and wetlands. These conditions attract populations of wild creatures and support a wide variety of plant life.

The Reservation is located in northeastern Minnesota, 20 miles southwest of Lake Superior and the Twin Ports of Duluth, Minnesota and Superior, Wisconsin. The boundaries of the Fond du Lac Reservation were established by the Treaty of LaPointe on September 30, 1854, 10 Stat. 1109, as the permanent home of the Fond du Lac Band of Lake Superior Chippewa, which possesses the inherent jurisdiction and authority to exercise regulatory control within the boundaries of the Fond du Lac Reservation and the territories ceded by the Treaty of 1854.

There are 100,850 acres of land within the exterior boundaries of the Reservation, including 54,000 acres of forested land, plus approximately 44,000 acres of wetlands. There are 108 bodies of water, totaling 2,850 acres, of which approximately 843 acres are wild rice waters. Wild rice waters indicate good water quality and provide excellent wildlife habitat, along with a very important traditional food resource, both for people and for animals. Swans, for instance, are often seen roosting near wild rice lakes. The Reservation also contains ninety-six miles of rivers and streams. The St. Louis River, the largest tributary to Lake Superior on the United States ("US") side, drains approximately 90% of the Reservation and comprises the entire northern and most of the eastern boundary. Many rare and/or culturally significant plants, such as wild rice, blueberries, and paper birch, also occur within the Reservation boundaries. The Reservation also is home to many bird and animal species such as the common loon, bald eagle, ruffed

[1] Statistics from Fond du Lac Planning Department

grouse, wood turtle, black bear, beaver, moose, white-tail deer, and timber wolves. Fish species found on-Reservation include trout and walleye, as well as non-game species.

The Band owns about 33% of the land within Reservation boundaries. The reservations established by the Treaty of 1854, including Fond du Lac, were allotted pursuant to Article III of the Treaty. Band members were given plots of land and any remaining land was opened to sale by non-Indians. Much member-owned land was lost as tax-forfeit in the ensuing years, meaning that the Reservation is heavily checker-boarded with regard to ownership patterns. Buying back lands within the exterior boundaries of the Reservation is a continuing goal of the Band.

The Fond du Lac Band has a long history of protecting the Reservation's unique environmental qualities. This commitment to protect its lands was further enhanced through the creation and funding of the Resource Management Division ("RMD") in 1975, with the hiring of one conservation officer to regulate hunting, fishing, and gathering on the Reservation. The program grew quickly, due to the favorable outcome of mid-1980s federal court cases seeking the re-affirmation of reserved treaty rights. The hiring of the Reservation's first forester led to the establishment of the Fond du Lac Forestry Program. In 1988 the Fond du Lac Natural Resources Program ("FDLNRP") was created and placed within the RMD. The FDLNRP was tasked with managing and regulating the on-Reservation harvest of fisheries, wildlife, and wild rice resources. Subsequent court decisions issued in the 1990's re-affirmed reserved treaty rights in the territories ceded in the Treaties of 1837 and 1854. This led to the hiring of Ceded Territories wildlife and fisheries biologists, and an Environmental Program Manager. In 2013, the Division had a staff of 62 permanent employees and 20-25 seasonal workers, with up to 4 high school/college interns. The Band's Natural Resource Programs now have capacity in the biology, science and enforcement capability to implement their governing authority and responsibility not only to the exercise of these rights by Band members but the protection of the resources both on and off reservation.

Today's Environmental Program consists of fourteen staff members working in the following areas: air quality, water quality, wetlands protection, renewable energy, Geographic Information Systems ("GIS"), and environmental education issues. The Band also has a Tribal Historic Preservation Officer. The Band had the first dedicated air program and was the first in the Environmental Protection Agency's ("EPA") Region 5 to obtain Treatment as an Affected State ("TAS") status for air quality. The Band also employs a Fisheries Specialist, a Wildlife Specialist, and eight Conservation Officers, who enforce on- and off-Reservation conservation codes.

The Reservation has a strong history of self-governance, having its own Constitution and Bylaws (approved by the Secretary of the Interior on March 3, 1964), and is governed by the five member Reservation Business Committee ("RBC"), which consists of a Chairperson, a Secretary/Treasurer and one member from each of the three Reservation voting districts (Brookston, Sawyer, and Cloquet). All are elected to four-year terms on a staggered basis.

Fond du Lac's Resource Management Program is a vital part of the local, regional, and national science, natural resources, and environmental community. Our employees have partnered in doing research or otherwise collaborating with: the University of Minnesota – Duluth ("UMD"), the Natural Resources Research Institute, the EPA, the Minnesota Pollution Control Agency ("MPCA"), the Minnesota Department of Natural Resources, the Great Lakes Indian Fish and Wildlife Commission, the EPA's Great Lakes National Program Office, the US Geological Survey ("USGS"), the Nature Conservancy, St. Louis and Lake Counties, the Minnesota Deer Hunters Association, the Hawk Ridge Bird Observatory, the Superior National Forest ("SNF") National Forest Resources Advisory Committee, the US Forest Service ("USFS"), the 1854 Treaty Authority, and other Bands. These activities include: fisheries population studies, studies and counts on populations of moose, owls, and numerous small mammals, and work on the Statewide Minnesota Mercury Total Maximum Daily Load limit.

As a way to protect its land for future generations, the Fond du Lac Band hereby announces and provides support for the redesignation of its Reservation from Class II air quality to Class I. This action will lead not only to cleaner air, but to cleaner water and healthier Band members, as well as healthier populations of fish, wildlife, and plants for the use and enjoyment of its members, many of whom still pursue a subsistence lifestyle.

The proposed action will not affect existing facilities in any way – only new sources or expansions to existing sources will be affected, and then only if they can be classified as "major sources" under the Clean Air Act ("CAA").

This document serves as a technical report analyzing the potential health, environmental, economic, social, and energy impacts that are expected from the redesignation. This document also outlines the history of the Band, describes the Band's capacity to manage air quality, explains the Band's reasons for seeking redesignation, and describes important provisions of the CAA that make redesignation a right for federally recognized tribes. The Band believes that its past record of environmental stewardship demonstrates its ability and its authority to request this action.

Section II. Fond du Lac Background

Cultural

At the time of first contact with Europeans, in 1622, the Ojibwe were living a hunter/gatherer lifestyle scattered around the Great Lakes. Seasonal activities, such as wild ricing and maple syrup gathering, dictated changes in residence for the people – in the winter time living in small, relatively isolated family groups, and in the summer time gathering in larger groups for shared work and socialization. There was little formal structure--instead family groups tended to gather together, with the heads of these groups gathering to settle disputes or form alliances. At this time, the totemic system was a large influence in the culture. Clan identity (bear, martin, wolf, loon, eagle, or crane) was passed from father to child, and the child identified very strongly with his or her clan for life. The kinship of the totem was considered stronger than kinship of blood. Although contact with Europeans changed much of the Ojibwe culture, the use of traditional

medicine remained strong. The need to keep traditional plants, waters, and animals strong is part of the impetus for seeking Class I air quality, as can be understood from the migration story of the Ojibwe found in the following paragraphs.[2]

Ojibwe oral traditions tell of a great westward migration from the Atlantic Seaboard to the Great Lakes region "many strings of lifetimes ago". Before the first Europeans appeared in this land, seven prophets came to the Ojibwe people, where they lived in great numbers on the shores of the Great Salt Water. The teachings of the seven prophets came to be called the "Seven Fires". The prophets told the people to move to the West, or they would be destroyed.

The first prophet told them to look for the turtle-shaped island, which would be a place for purification and where they were to wait for further instructions. The prophet said that the people would know they had come to the end of their journey when they reached the place where food grows on the water, and that a turtle-shaped island would be found both at the beginning and the end of their journey, and that there would be seven stopping points along the way. The second prophet told the Ojibwe that at the Second Fire, the nation would be camped by a large body of water, and that the people would diminish in strength. The third prophet predicted that in the Third Fire, the Anishinaabe would find the path to their land in the west, where the food grows on the water. The fourth prophet told the Ojibwe of the coming of a light-skinned people. The fifth prophet foretold a time of great struggle for native people and the destruction that can be caused by false promises. The sixth prophet predicted a time of the effects of the false promises, and a disturbance in the balance of the people. But the seventh prophet was said to be different from the others. He predicted the emergence of the Seventh Fire New People, who may lead to the rebirth of the Anishinaabe Nation. He said that the light-skinned people would have a choice between two roads – one of peace or one of destruction.

The prophets also outlined the path the people should follow, describing seven places, or "fires", where they would stop during the migration. Spirit Island, near Duluth, is believed to have been the location of the sixth fire and is where the people found the food that grows on the water. This land was recently returned to Ojibwe ownership with the Fond du Lac Band's purchase of Spirit Island. The seventh and final stopping place was a turtle-shaped island in a bay of Lake Superior, which is now known as Madeline Island. This is why the lands of northeastern Minnesota and northwestern Wisconsin have great meaning for the Ojibwe people.

Today, the Fond du Lac Band keeps its traditions alive through a number of activities, both on and off the Reservation. Schoolchildren at the Fond du Lac Ojibwe School are able to participate in Ojibwe language classes and drum circles, and help to make traditional regalia for participation in regularly held powwows. Band members continue to hunt, fish, and gather as their ancestors did many years ago. Fish, moose, bear, duck, turkey, berries, and wild rice are part of a subsistence diet. While these foods are important for the sake of nutrition, they are also important as a way of remembering the

[2] www.fdlrez.com, Anishinaabeg History, 2013

past and keeping it alive in the present. Adult groups also meet at the Tribal Center to learn and continue to speak the Ojibwe language, to share traditional crafting practices, such as beadwork, and to participate in the Giitigaan gardening club. The on-Reservation Headstart facility encourages Ojibwe language and cultural development in young children and their families by offering experiences such as culturally specific children's books, a Medicine Wheel Garden, and classes such as Positive Indian Parenting.

About twenty years ago, the Band worked with the Minnesota Legislature to create the Fond du Lac Tribal and Community College ("FDLTCC") in Cloquet, which opened in the fall of 1992. FDLTCC is the only community college in Minnesota with the ability to offer four-year bachelor's degrees. Additionally, students at UMD can major in American Indian Studies and participate in the related Anishinaabe Student Organization. UMD recently started a program offering a Masters of Tribal Administration and Governance through its American Indian Studies Department.

The Reservation logo is widely used in Fond du Lac buildings and on the Band's official paperwork. The logo packs an enormous amount of cultural significance in one compact circle. The following excerpt was paraphrased from a piece written by Fond du Lac Band member and former Reservation Cultural Resource Specialist, Leroy Defoe, who also designed the logo.

"Everything in the logo has specific meaning and importance to the Band. The circular shapes signify that of a shield and also acknowledge and show respect that "everything natural is a part of a circle." The colors in the circles also have specific meaning. White is for North and the white snow that cleans the earth. Red is for the East and the color of the rising sun. Yellow is for the South and the heat that ripens the staff of life. Black is for the West, where we will walk when we enter the Spirit World. Finally, the blue and green colored circle represent the Mide' colors. The Eagle feathers are symbolic of the four-winds and the four directions. They also pay respect for the Eagle that in our culture carries our prayers to the creator. The two hair-ties signify Mother Earth and Father Sky. The Arrowhead symbolizes the hundred year war that our ancestors fought against the Dakota and their allies for control of this region. It also represents the Arrowhead Region of Minnesota where the Band calls home. Finally, in the Arrowhead a rough map of the

Reservation and its three districts can be seen, while around the edge of the Arrowhead there is fire. This fire and the number eight that the Arrowhead sits atop are a symbolic way of recognizing the belief that "an eighth and final fire will be lit and a new people will emerge."

Economy and Employment

The Band has worked hard to become self-sufficient. A furnace factory was built on the Reservation in the 1970s, for the production of wood stoves. It transitioned to a manufacturing facility that had a contract with the postal service to manufacture stamp dispensers and was later converted into a facility in which the Band operated government gaming activities. Next door to the gaming facility, the gymnasium of the former Ojibwe School doubled as a Bingo Hall in the evenings for several years. The Fond du Luth Casino was built in downtown Duluth in 1985, followed by construction of the Black Bear Casino on the Reservation in 1993, and the adjoining Black Bear hotel in 1995. In 2001, Black Bear expanded to include a golf course, and in 2009 completed an expansion that included a rebuild of the casino along with a new parking ramp, hotel tower, and Convention Center. The Band currently employs about 2,200 people and has a payroll of over $25 million annually, making the Band the largest employer in the greater Cloquet area. A 2012 study performed by the Labovitz School of Business and Economics at UMD indicates that in 2011, Fond du Lac was estimated to have generated almost $119.9 million in output spending from tourist operations, $124 million in Reservation services operations, and almost $61.2 million in public services operations. The revenues from these facilities are used by the Band to fund government programs and are the only source of revenues available to operate the government. Unlike the state and local governments the Band cannot rely on the collection of taxes to support its government.

Apart from building and operating the facilities listed above, the Band built and operates a Tribal Center and two community centers; the Min No Aya Win health clinic on the Reservation, the Center for American Indian Resources clinic in Duluth; the Fond du Lac Gas and Grocery store on the Reservation; sewer and water lines; many new homes on the Reservation for use by Band members; an elder housing unit; a K-12 school; and a new Resource Management and Tribal Court building. The RBC oversees the administration of over forty separate programs. These include: education; health and human services; conservation; natural resources; economic development; housing; licensing; planning; law enforcement; and roads and public transit. There is also the aforementioned K-12 public school system, the Headstart and Early Headstart programs, a propane company, a logging operation, a busing and transit system, and other enterprises.

The Band is an active member of the Cloquet Chamber of Commerce, and has donated money to several area schools, to Churches United for Ministry (a non-profit organization in Duluth), to local hockey programs, to several local fire districts, and to dozens of other community fundraisers and charities.

These examples show how hard the Band has worked to grow and thrive throughout the years, that the Band's presence has become the economic engine that drives the

economies of Cloquet and Duluth, and that the Band has the capacity to manage a Class I airshed. Greater detail on the Reservation's contributions to the local economy will be shown in Section VI and Appendix B, where an estimate of the expected economic effects of redesignation is included.

The Reservation has three distinct voting districts – Cloquet, Brookston, and Sawyer. Cloquet is the largest of the three districts that make up the greater Fond du Lac community. Part of the city lies within the boundaries of the Reservation. The population of the City of Cloquet was 12,124 in the 2010 census. The city is located on the St. Louis River, which led to its establishment in the 1800's as timber, agricultural, and railroad interests moved into the area. Access to the river also prompted the establishment of the Sappi (formerly Potlatch) paper mill. The area is the site of the 1918 Cloquet Fire, in which over 550 people lost their lives, and much of the town was destroyed. Cloquet also boasts the R.W. Lindholm Service Station, which is the only gas station designed by famous architect Frank Lloyd Wright, and is currently on the National Register of Historic Places.

Brookston is also located along the St. Louis River, near the mouth of the Artichoke River. It is the smallest district and covers only 0.6 square miles, and had 141 residents as of the 2010 census. Roughly 8% of the residents of the district are American Indian, although another 8% of the population list themselves as being from two or more races.

The district of Sawyer has an estimated population of 138, as of 2010. Sawyer is near Big Lake off of Highway 210. The Mash-ka-wisen drug and alcohol treatment center, operated by the Band, is located there. Sawyer is home to the oldest church in the area, built in 1859. The church is on the National Register of Historic Places.

Section III. The Clean Air Act and Class I Redesignation

When Congress passed the Clean Air Act Amendments ("CAAA") in 1977, it included a program known as Prevention of Significant Deterioration ("PSD"). This program was intended to ensure that clean areas of the U.S. stay clean, and are not degraded by air pollution, while still allowing for some industrial growth.

The PSD program provided for three levels, or classes, of air quality in the United States. All lands were first classified as Class II air quality, where moderate, incremental amounts of pollution from new sources may be added over a set baseline, as long as the National Ambient Air Quality Standards ("NAAQS") are not exceeded. Next, Congress created mandatory Class I areas, where only minimal amounts of pollution from new sources are allowed. All international parks, national parks exceeding 6,000 acres in size, and wilderness areas or national monuments exceeding 5,000 acres in size are mandatory Class I areas and must remain so. Congress also included provisions giving states and tribes the authority to request redesignation of their lands to non-Federal Class I status through an application to the EPA and the completion of specified procedural requirements. These redesignated lands are known as non-Federal Class I areas. A number of tribes have applied for, and received, this type of redesignation. These are:

Northern Cheyenne (Montana); Confederated Salish and Kootenai (Montana); Assiniboine and Sioux (Montana); Spokane (Washington); Forest County Potawatomi Community ("FCPC") (Wisconsin).

To date, no states have pursued redesignation of lands to Class I. While states and tribes also have the authority to apply for Class III redesignation (allowing greater increments of pollution from new sources, while not exceeding the NAAQS), no Class III areas currently exist in the U.S.

Federal Class I areas are managed by Federal Land Managers, who have an "affirmative responsibility" to protect air quality related values in these areas and to protect human health and basic resource values in all areas.

Redesignation Procedures

The redesignation process is similar for states and tribes and can be found in 40 Code of Federal Regulations ("CFR") 52.21 and Section 164(e) of the CAA. The process basically consists of procedural requirements. In order to start the redesignation process, the Band must:

- Announce its intentions to the appropriate EPA Regional office.
- Hold at least one public hearing in accordance with the procedures described in 40 CFR 51.102.
- Notify other states, Indian governing bodies, and Federal Land Managers ("FLM's") whose lands may be affected by the proposed redesignation at least 30 days prior to the public hearing.
- Prepare a discussion or report including a satisfactory description and analysis of the reasons for the proposed redesignation and the resulting health, environmental, economic, social, and energy effects and make this report available for public inspection at least 30 days prior to a public hearing. The notice announcing the public hearing must also include a notice of the availability of the report.
- Consult with the state(s) in which the reservation is located and which border the reservation.
- Give written notice to any affected FLM prior to the notice of the public hearing and availability of the redesignation report. The FLM must be given adequate opportunity to confer and submit written comments (however not in excess of 60 days). The Indian Governing Body must publish a list of any inconsistencies between the final redesignation and the list of comments and recommendations.
- Submit the proposal to redesignate to the EPA Administrator through the appropriate Regional office.

If the EPA Administrator finds that the proposed redesignation meets these procedural requirements s/he must approve the redesignation. If the Administrator disapproves the proposed redesignation because of procedural deficiencies, the Indian Governing Body may resubmit the proposal after correcting the deficiencies noted by the Administrator. If any state affected by an Administrator-approved redesignation disagrees with the redesignation, the governor of that state may request the Administrator to enter into

negotiations with the parties involved to resolve the dispute. If the parties do not reach agreement, the Administrator will resolve the dispute and her determination will become part of the applicable plan and will be enforceable.

Section 164(e) of the CAA states that in resolving disputes related to area redesignation, "the Administrator shall consider the extent to which the lands involved are of sufficient size to allow effective air quality management or have air quality related values of such an area".

The Fond du Lac Reservation is over 100,000 acres in size and its boundaries are contiguous and undisputed. Although the land in downtown Duluth where the Fond du Luth Casino is located is part of the Reservation, only the lands inside the exterior boundaries of the Reservation are being proposed for Class I Redesignation at this time.

The Band proposes that its redesignation be executed and implemented through a Federal Implementation Plan ("FIP").

Increment and Air Quality Related Values

Class I protections focus on two factors, increment and air quality related values ("AQRV's") (CAA, Section 164(e)). Increment is the amount by which air pollutant concentrations in the Class I area can increase over the baseline concentration. Baseline values are set for a specific "baseline area" on a pollutant-by-pollutant basis. A baseline area is often a county, but can vary depending on the size of the county and the air emissions sources located nearby. It is an area which can be designated "attainment" or "unclassifiable" for the NAAQS. The "minor source baseline date" is the earliest date after the major source baseline date on which an applicant submits the first complete application for a PSD permit in a particular area. The "major source baseline date" is a fixed date that triggers the overall increment consumption process nationwide. These dates vary for different pollutants. The "baseline concentration" is generally the air quality at the time of the first complete application for a PSD permit in the area. After the minor source baseline date, any increase in actual emissions (from both major and minor sources) begins to consume the PSD increment for that area (and any decrease in emissions causes the available increment to increase or "expand"). The "baseline area" needs to include all portions of the attainment or unclassifiable area in which the applicant proposes to locate and any attainment or unclassifiable area in which the proposed emissions would have a significant ambient impact. A "significant impact" for a Class I area is defined as at least a 1 ug/m^3 increase in the average annual concentration of the applicable pollutant, as determined through EPA-approved air quality models.

The Band lies within the borders of both St. Louis and Carlton Counties. The minor source baseline dates for both of these counties have been set for nitrogen dioxide, sulfur dioxide, and $PM\text{-}_{10}$, but not for $PM\text{-}_{2.5}$. Triggering the minor source baseline date means that increment is actively being consumed.

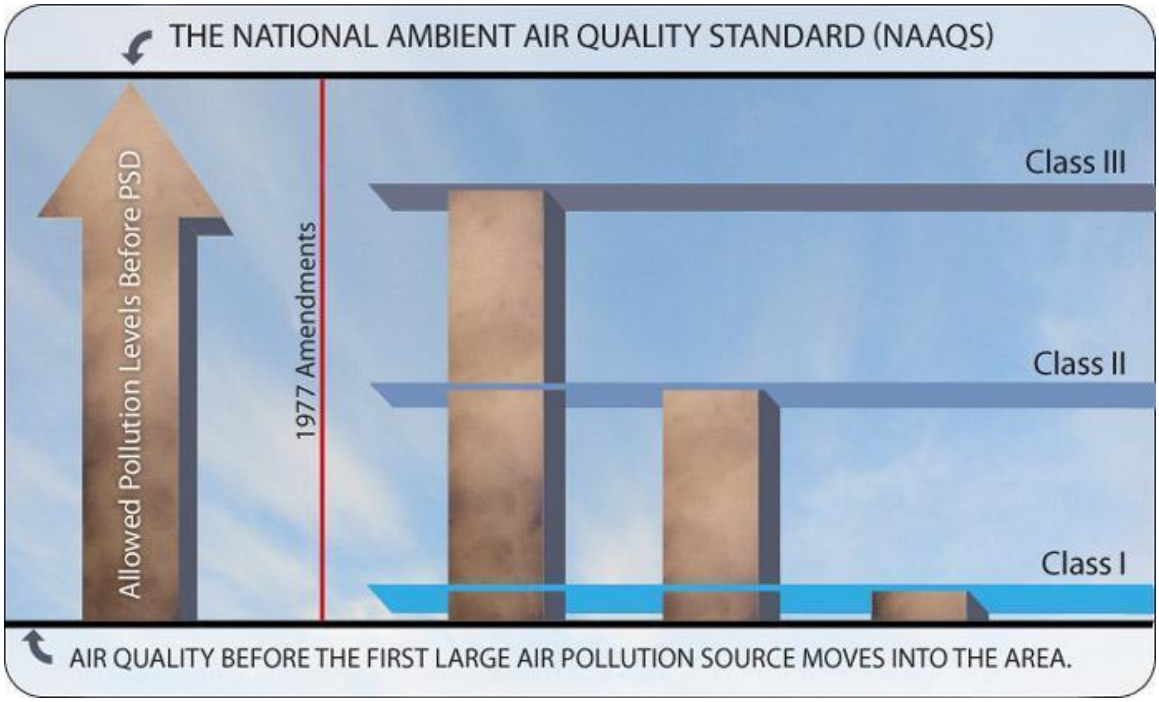
Increment applies only to $PM\text{-}_{10}$ (particles with a diameter of 10 micrometers or less), $PM_{2.5}$ (particles with a diameter of 2.5 micrometers or less), nitrous oxide ("NOx"), and

sulfur dioxide ("SO_2") and is a way of tracking both emissions increases (increment consumption) and decreases (increment expansion). Emissions from both new major and minor sources contribute to increment, although minor source contributions can be difficult to track due to lack of data. Decreases in emissions due to plant shutdowns or the installation of control equipment serve to expand increment. Increment is solely a computer-modeled quantity; it is not measured through ambient air monitoring. Increment consumption and expansion are verified through emissions inventories and computer models. In a permitting situation, the sources that are included in increment calculation are agreed upon by: the company seeking the permit, the permitting agency, the EPA, and nearby FLM's. The Class I and Class II increment values are shown below, along with NAAQS values for comparison. Table 1 shows the numerical values assigned to increment, and Table 2 shows a pictorial representation of increment.

Table 1 **PSD Increments for Class I and II and NAAQS (ug/m^3)**

	Class I	**Class II**	**Class III**
Nitrogen Oxide			
NO_2, annual	2.5	25	50
Particulate Matter			
$PM\text{-}_{10}$, annual	4	17	34
$PM\text{-}_{10}$, 24-hour	8	30	60
$PM\text{-}_{2.5}$, annual	1	~~4~~	34
$PM\text{-}_{2.5}$, 24-hour	2	9	60
Sulfur Dioxide			
SO_2, annual	2	20	40
SO_2, 24-hour	5	91	182
SO_2, 3-hour	25	512	700

Table 2 Pictorial Representation of Increment



Class I status keeps increment from being exceeded within the Class I area. However, land managers often have concerns about specific environmental criteria on their lands that may not be sufficiently protected by increment alone. Therefore, the CAA specifies that land managers may establish AQRV's for these lands. Section 164(e) of the CAA addresses these concerns. AQRV's can include visibility as well as ``the fundamental purposes for which such lands have been established and preserved by the Congress and the responsible Federal agency". For example, under the 1916 Organic Act to establish the National Park Service ("NPS") (16 U.S.C. 1), the purpose of such national park lands is "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.' " S. Rep. No. 127, 95th Cong., 1st Sess. 36 (1977). EPA's July 1996 proposed PSD revisions define AQRV's as "visibility or a scenic, cultural, physical, biological, ecological, or recreational resource that may be affected by a change in air quality, as defined by the Federal Land Manager for federal lands and as defined by the applicable State or Indian Governing Body for non-federal lands".[3]

FLM's have an "affirmative responsibility" to protect the air quality related values of Federal Class I areas. CAA Sec. 165(d)(2)(B). This means that if the FLM finds that the proposed source will cause or contribute to a violation of a Class I increment, then the owner or operator of the proposed source needs to demonstrate to the satisfaction of the FLM that the emissions will not adversely impact previously identified AQRVs. If the

[3] 61 FR 38284

FLM agrees, then the permit may be issued. However, even if a proposed source will not cause or contribute to a violation of a Class I increment, the FLM may nevertheless demonstrate to the satisfaction of the permitting authority that the source will have an adverse impact on AQRVs. If the FLM makes an adequate demonstration, then the permit shall not be issued. CAA Sec. 165(d)(2)(C). Therefore, compliance with the Class I increments determines who bears the burden of proof for demonstrating the presence or absence of an adverse impact on AQRVs.

AQRV's in some federal Class I areas include acid deposition to waters in these areas. Preventing excessive acid deposition protects the health of these waters and the creatures that live and feed in them. AQRV's can also protect sensitive flora and fauna at Class I areas. The NPS and the USFS have criterion that must be met for sources to show that no adverse impacts will be expected. Visibility is another AQRV at many federal Class I areas. The Regional Haze Rule (final rule published in 1999) demonstrates that good visibility in areas of natural beauty is important to the American people.

Although different Class I areas handle new source review in different ways, the rule of thumb used by mandatory Class I areas has been to look at new, major sources that will be constructed at a distance of up to 100 km from the Class I area. This distance was chosen because it reflected the capacity of the air dispersion models that existed in the 1990's, when the CAAA were written. However, the USFS looks at a quantity called the "Q/d" ratio of a proposed source, where "Q" represents the distance the source plans to construct from the Class I area and "d" represents the potential emissions from the proposed sources. If this ratio is greater than 10, the USFS takes a closer look at the source. Fond du Lac will expect to be notified of any source that plans to construct up to 100 km from the nearest point on the exterior boundary of the Reservation (as the crow flies) but will also look at the "Q/d" ratios of proposed projects up to 300 km from the Reservation to determine which proposed sources would have a significant impact on the Reservation.

Major and Minor Source Baseline Dates in Minnesota

Major source baseline dates are the same for all counties in Minnesota – see the MPCA website: $PM\text{-}_{10}$ and SO_2 established on January 6, 1975; NOx established on February 8, 1988.[4] These are for both short-term (24-hour) and long-term (annual) increment values. The major source baseline date for $PM\text{-}_{2.5}$ was set through EPA rule-making on October 20, 2010 for both 24-hour and annual increment values. Minor source baseline dates are set on a county-by-county basis.

Minor source baseline dates are as follows (MPCA website): $PM\text{-}_{10}$ established in 1978 for Carlton County and 1979 for St. Louis County; SO_2 established in 1978 for Carlton County and 1986 for St. Louis County; NOx established in 1990 for Carlton County and 1991 for St. Louis County. Again, these dates address both the 24-hour and annual increment values. Since both the major and minor source baselines have been triggered for St. Louis and Carlton Counties, increment is currently being consumed within these

[4] http://www.pca/state.mn.us/index.php/air/air-monitoring-and-reporting/air-emissions-and-monitoring/air-dispersion-modeling.html

counties for NOx, SO_2, and PM-$_{10}$. Increment is largely a "paper" method of tracking emissions increases and decreases, and increment is modeled, not measured physically. If these minor source baseline dates had yet not been triggered, increment consumption would not be taking place even though pollutants would still be physically released to the atmosphere by existing facilities.

The EPA established Class I and Class II PM-$_{2.5}$ increment levels in a rulemaking dated October 20, 2010. Therefore, the major source baseline date has been set for all counties across the nation. However, Class I increment consumption for specific Class I areas would not start until the minor source baseline date is set – for non-mandatory Class I areas this is the date in which the first major source permit application in the baseline area is deemed complete. PM-$_{2.5}$ increment consumption has not started on the Reservation or in the general area in Carlton or St. Louis Counties because the PM-$_{2.5}$ increment levels were finalized quite recently (2010) and the first major source permit application for this area has not yet been received and deemed complete.

Effects on New Sources

The CAA was revised in 1977 with PSD regulations, as the result of a lawsuit filed against the EPA by the Sierra Club. PSD regulations apply to new, major sources or major modifications to existing sources that are built in areas that meet the NAAQS. Because these areas still have relatively good air quality and since new sources often look to locate in these areas due to the difficulty of locating a new source in non-attainment areas, the PSD regulations are intended to keep air quality in clean areas from being degraded by the construction of these new sources. This is done through ensuring that potential emissions from new sources won't cause an exceedence of the NAAQS, and through the use of increment calculations.

Whether a source or expansion is considered "major" depends on its source category and its potential emissions. The CAA specifies a group of 28 source categories that are considered "major" if they emit 100 tons per year ("tpy") of any criteria pollutant. These source categories are listed in Appendix A. Facilities from other source categories can emit up to 250 tpy of any criteria pollutant before being considered "major". A modification to an existing major source is considered "major", and therefore subject to PSD analysis, if emissions of criteria pollutants exceed significance thresholds. These thresholds are: 40 tpy for NOx, SOx, or VOC; 15 tpy for PM-$_{10}$; 100 tpy for CO; and 0.6 tpy for lead.

In order to build and operate a major source or major modification near a Class I area, the source must:

1. Install Best Available Control Technology ("BACT");

2. Perform an air quality impact analysis;

3. Perform an additional impact analysis; and

4. Include public participation.

The facility must demonstrate to the satisfaction of the Federal or Tribal Land Manager that increment for the Class I area will not be exceeded and that AQRV's will not be adversely affected. This usually means that air quality modeling needs to be performed and, if limits are shown to be exceeded, the facility may need to look at additional controls or emissions offsets.

BACT

The requirement to conduct a BACT analysis and determination is found in section 165(a)(4) of the CAA, in 40 CFR 52.21(j), in State Implementation Plan ("SIP") regulations at 40 CFR 51.166(j), and in the SIP's of various states at 40 CFR 52, Subpart A-Subpart FFF.[5] BACT is an emissions limit for an individual piece of equipment that is set by a permitting authority requiring a certain level of control from a specific type of control equipment. The control technology to be required is chosen through a BACT analysis. Regulations require the analysis to be done in a "topdown" manner, meaning that the most efficient control option is considered first and can be eliminated from further consideration based on technical feasibility, economic considerations, or energy or other environmental effects (i.e. a wet scrubber used to remove sulfur dioxide may present water quality issues), at which point the second-most efficient technology is considered, and so on, until a control device is chosen.

In the first step, all available controls are listed. The technical feasibility of each option is then analyzed and those that are found to be technically infeasible are removed from consideration. The remaining technologies are ranked by control effectiveness. Each technology is further studied for cost per ton of pollutant removed and required energy usage. Only technologies that are currently in use at similar facilities may be considered. The best-performing technology that cannot be eliminated due to technical, economic or energy considerations is chosen as BACT.

A BACT analysis needs to be performed for each piece of equipment emitting a pollutant *for which the facility is a major source*. This means that if total expected emissions from a certain criteria pollutant exceed the major source threshold, all equipment expected to emit *that pollutant* must undergo a BACT analysis. If an acceptable piece of control equipment cannot be found, "best work practices" or "good combustion practices" may be chosen as "BACT". "Best work practices" can include good process design, sound operating practices, emission control devices, or a combination of these techniques. "Good combustion practices" can include operator practices or maintenance practices.

[5] EPA's draft New Source Review Workshop Manual – Prevention of Significant Deterioration and Nonattainment Area Permitting, October 1990, "The Puzzlebook"

Reasons for the Proposed Redesignation

The Band seeks resignation of the Reservation to Class I status because clean air is essential to protect the Band's Reservation homeland and the well-being of its people. The Band's connection with the natural world is a central component of its tribal identity. The Band's Treaty rights to hunt, fish and gather are vitally important, both as a source of subsistence and an expression and manifestation of cultural continuity. Clean air is needed to protect these rights and resources.

The Band also seeks redesignation because we have an obligation to protect the health of all Reservation residents – especially elders, youth, and others who may be particularly vulnerable to the ill-effects of pollution. Without clean air, the basic conditions for a healthy population would be compromised.

Clean air and a clean environment are also important to the long term economic growth of the Reservation and the surrounding area. Tourism, recreation and related activities are increasingly important components of the local economy. Here again, clean air is a foundation to future success.

Finally, the Band seeks redesignation as part of our ongoing efforts regarding self-governance and self-determination. The Band seeks an active, governmental role in the broader regulatory arena that affects the Reservation. Class I resdesignation will ensure that the voice of the Tribe is properly heard in the context of decisions and actions that will impact the Reservation environment.

Section IV. Health Effects of Redesignation

Redesignating the Reservation to Class I status will lead to healthier conditions on the Reservation by limiting the amount of pollution that can come from new or expanding major sources. The six criteria pollutants regulated under the Clean Air Act all have potentially detrimental health effects. **Sulfur dioxide ("SO_2")** causes respiratory problems, can aggravate existing heart diseases and respiratory conditions, causes inflammation of the eyes, can promote respiratory infections, and can lead to premature death. **Nitrogen oxides ("NOx")** can damage lung tissue, decrease lung function, cause or aggravate respiratory diseases, and act as greenhouse gases. **Lead** can have adverse effects on the nervous, immune, reproductive, developmental, and cardiovascular systems, as well as affecting kidney function and reducing blood's oxygen carrying capacity. **Carbon monoxide ("CO")** can reduce oxygen delivery to the body's organs, can contribute to other cardiovascular effects, and can worsen existing heart problems. Ozone, formed from **volatile organic compounds ("VOC")**, can cause airway irritation, coughing and pain, wheezing and breathing difficulties, aggravation of asthma and increased susceptibility to respiratory illnesses, reduced lung function, and permanent lung damage. **Particulate matter ("PM")** can affect the lungs and heart. Small particulates, those 2.5 micrometers or less in diameter ($PM_{2.5}$), can lodge deep in the lung

tissue and cause problems such as: irritation of the airways; coughing; difficulty breathing; decreased lung function; aggravated asthma; development of chronic bronchitis; irregular heartbeat; non-fatal heart attacks; lung cancer; and premature death in those with existing heart or lung disease. Particulates often serve as a surrogate for predicting and measuring emissions of toxic pollutants. Many toxic pollutants are emitted as particulate, such as metals, or become particulate-bound due to emission chemistry. In many cases, controlling fine particulates means controlling these toxics. Many types of control equipment show "collateral" benefits. For instance, scrubbers can control several types of pollutants, such as SO_2, total suspended particulate, PM_{10}, $PM_{2.5}$, mercury, and acid mist. Requiring BACT controls for one of these pollutants will likely lead to concurrent enhanced control of other pollutants.

The individuals most susceptible to the problems caused by air pollution are children, the elderly, and those with pre-existing health conditions. Demographic data on the U.S. population of American Indians from 2002 shows that roughly one-third (32%) of American Indian/Alaska Native population are under the age of 18, compared to the total population, where only 25% of Americans are under the age of 18.[6] Another report shows that a substantial percentage (10.3%) of American Indians are under the age of five.[7] Thus, protection of the health of children is a high priority for the Band. Health effects are not always seen immediately, but can develop with chronic exposure. Redesignation would limit the amounts of these criteria pollutants allowed from new or expanding major sources to fractions of the current Class II allowable increases. For example, the Class I annual limits for sulfur dioxide and nitrogen oxides are one-tenth of the Class II limits. The allowable limit for Class I areas on $PM\text{-}_{10}$ is one quarter that allowed in Class II areas. Children are especially susceptible to the effects of pollution because their bodies are still developing and because, pound for pound, they consume more food, drink more water, and breathe more air than adults.

The Band believes that tighter air pollution standards are also desirable based on the health problems suffered by many Indian people. For example, Indians suffer diabetes at a rate of 16.5%, as compared to a rate of 6.6% in non-Hispanic whites. [8] Diabetes can lead to complications and associated health problems, such as kidney failure, heart disease, high blood pressure, amputations, blindness, complications in pregnancy, and incidence of infections, including tuberculosis. [9,10] In addition, Indians die from diabetes at a rate 190% higher than other Americans and have an overall life expectancy that is 4.6 years less than the U.S. all-races population.[11] The Indian Health Service's 2005-2007 Current Population Survey showed that the American Indian population has larger families, less health insurance (double the rate of uninsured as compared to the general

[6] National Center for Education Statistics, United States Department of Education, Institute of Education Sciences website, www.nces.ed.gov/pubs/2005/nativetrends/ind_1_1.asp
[7] U.S. Census Bureau, www.census.gov/population/www.documentation.twps0015.htm#4
[8] CDC, 2007 National Diabetes Fact Sheet, www.cdc.gov/diabetes/pubs/estimates07.htm#4
[9] Diabetes Monitor, www.diabetesmonitor.com
[10] CDC, 2007 National Diabetes Fact Sheet, www.cdc.gov/diabetes/pubs/estimates07.htm#8
[11] Indian Health Service, Fact Sheets, Indian Health Disparities, http://info.ihs.gov/Disparities.asp

population), and a poverty level twice that of the general population.[12] Diabetes sufferers have more to worry about than the disease itself – a study published recently showed that when people with diabetes breathe ultrafine particles, the effects can be very damaging to their cardiovascular and respiratory systems. In fact, having diabetes doubles the risk that a person will contract cardiovascular disease.[13]

Asthma also afflicts Indians disproportionately. The incidence rate of asthma for American Indian children was 30% higher than for white children in 2007 [7]. Among users of tribal health care in Minnesota, 7% of preschoolers have asthma, along with 5% of school-age children.[14] Also, while the incidence rate of asthma for American Indian adults was less than for white adults in 2003, American Indian adults died from asthma at a rate 80% higher than for whites in that year.[15] The CDC analyzed asthma data from 2001-2009 and found that the incidence of asthma increased by 12.3% during this period, showing that the problem is only getting worse.[16] A recent article found in the *Journal of Epidemiology and Community Health* found that asthmas sufferers who were exposed to higher levels of ozone and particulate matter are much more likely to experience poorer asthma control. Long-term exposure to ozone raises the likelihood of having controlled asthma by 69%, while long-term exposure to particulate matter increases the risk by 35%.[17]

While Class I status only allows tighter standards for three criteria pollutants (SO_2, PM, and NOx), these standards can help control other pollutants, as well. For instance, particulate matter can be made up of metal particles (such as nickel, manganese, and mercury) which can be toxic. Control of NOx can help control the formation of ozone, to which NOx is a pre-cursor. Scrubbers installed to control SO_2 can also control sulfuric acid mist, which is corrosive if inhaled. Control of SO_2 can also prevent deposition of this pollutant into local waters. Adding SO_2 to water can lead to increased rates of mercury methylization, and to contamination of fish tissue. Since fish consumption is an important cultural activity, the Band wants to curtail methylization. The Band believes that keeping its air quality good will lead to better health outcomes for its members.

Additionally, the spiritual well-being of the Fond du Lac people is highly dependent on the ability to use their surrounding resources in traditional ways. When the air is dirty, it is unpleasant or unhealthy to be outside. When the water is contaminated, it cannot be

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[12] Indian Health Service, Fact Sheets, Indian Population, http://info.ihs.gov/Population.asp

[13] Watkins, Peter J., (2003). Cardiovascular disease, hypertension, and lipids. *BMJ*. April 19, 2003, pg. 874-876

[14] Indian Health Service "Datamart" National Data Warehouse, National Tribal Asthma Data Profile, 2011. www.http://www.health.state.mn.us/asthma/documents/tribalasthmadatareportmn2011.pdf

[15] U.S. Department of Health and Human Service, Office of Minority Health website http://www.omhrc.gov/templates/content.aspx?lvl=3&lvlID=532&ID=6172

[16] Zahran, Hatice S., MD; Bailey, Cathy, MS; Garbe, Paul, DVM, Div. of Environmental Hazards and Health Effects, National Center for Environmental Health, CDC. (Vital Signs: Asthma Prevalence, Disease Characteristics, and Self-Management Education) – United States, 2001-2009, Morbidity and Mortality Weekly Report (May 6, 2011)

[17] Nordqvist, Christian. Medical News Today. Journal of Epidemiology and Community Health (Monday, 20 June, 2011)

used for traditional ceremonies. When plants cannot grow in contaminated soil or suffer damage from air pollution, they cannot be gathered for medicinal purposes or for eating. Contamination can cause fish, bird, and animal populations to decline, meaning that opportunities to hunt, trap, or observe these species are lost. The healing effects of being able to enjoy the sights, smells, and sounds of nature are incalculable.

Minority populations often experience disproportionate exposure to environmental problems (i.e. Federal Emergency Management Agency trailers contaminated with formaldehyde being given to Hurricane Katrina victims, extensive uranium mining on the Navajo Reservation in the southwestern United States). Much of this is due to the fact that minority populations are often economically disadvantaged. In Fond du Lac's case, illegal dumping often occurs on the Reservation, causing potentially toxic substances to be released into the environment.

Section V. Environmental Effects of Redesignation

The proposed redesignation of the Reservation will have wide-reaching benefits for local natural resources. The Reservation has relatively clean air, water, and wetlands and healthy timber stands. With these resources come healthy populations of fish, fowl, and fur-bearing creatures, as well as productive plant populations. Band members hunt, fish, and gather extensively on the Reservation. Harvests of plant food will likely improve as a result of reduced pollution. Tribal elders have identified air pollution as a threat to wild-growing plants used for non-medicinal purposes. Effects on the plants include stunted plant growth and reduced fruit production. Plants mentioned were: blackberry, blueberry, choke cherry, pin cherry, raspberry, strawberry, sumac, wild rice, wild plum, and cattail. Water pollution was mentioned as a threat to wetland plants, such as wild rice, cattails, and cranberries. Some of this water pollution could be attributable to deposition from the air. With the poor economy and the growing "local food" movement, the Band is encouraging people to grow their own food at home. Keeping the air clean will keep the local food supply clean and abundant.

Ambient Air Quality

Air quality on the Reservation is generally good, as can be seen from the ambient air concentrations shown below. All data was gathered at a monitoring site on the Reservation.

Table 3 **Ambient Air Concentrations at Fond du Lac**

Pollutant	Ave. time	Type of Conc	Conc	Year	NAAQS	% of NAAQS
Ozone	8-hour	4th highest max	.053 (ppm)	Ave of 2011, 2012, and 2013	.075 (ppm)	71

NOx	1-hour	98th percentile **, over 3 years	55 ppb	Ave of 2003, 2004, 2010	100 (ppb)	55
NOx	Annual	Annual Mean	3.16 ppb ***	Ave of 2003, 2004, 2010	53 (ppb)	6
$PM_{-2.5}$	24-hour	Annual Mean	12 (ug/m^3)	2000-2008	150 (ug/m^3)	8
$PM_{-2.5}$	Annual	Annual Mean	6 (ug/m^3)	2000-2008	15 (ug/m^3)	40

** the 1st (highest) max is used instead of the 98% percentile number

As can be seen from the table above, concentrations of criteria pollutants on the Reservation range from 6-75% of the NAAQS. The pollutant with the highest concentration relative to the NAAQS is ozone. Ozone is not emitted, but is formed in the atmosphere when volatile organic compounds and NOx mix together along with heat and light from the sun. A wind rose for Cloquet is shown in Appendix D. In the winter and fall, pollutants predominately come from the northwest. However, in the spring, winds blow more from the east, and summer winds are from both the east and west. It is assumed that most ozone is transported north from the Twin Cities through northeasterly winds.

Acidification

Acidification of waters from the deposition of airborne pollutants (NOx and SO_2) can be a problem in Minnesota due to the poor buffering capacity of some of the state's lakes (buffering capacity refers to the ability of a buffer solution to resist pH change when an acid or a base is added to it). In fact, most of the 2,200 "acid sensitive" lakes in Minnesota are found in the northeastern counties of the state (St. Louis, Itasca, Lake, and Cook Counties).[18] Portions of St. Louis and Carlton Counties lie within the Reservation. The Ceded Territories encompass all or part of 15 counties including St. Louis, Lake and Cook Counties, making this a matter of concern for Fond du Lac. Acidic waters are harmful to fish and other aquatic life forms. Low pH's can prevent fish eggs from hatching, and pH levels that reach a certain level can kill adult fish. The insects that provide nourishment for fish can also be destroyed.

In 2011, for the first time in its 40 year history, the EPA proposed secondary standards for NOx and SO_2 that were different from the primary standards. Primary standards are to be established at levels that protect human health and secondary standards are to be set at levels that protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. In reviewing the current standards,

[18] http://www.waterontheweb.org/curricula/bs/teacher/ph/teaching.html

the Clean Air Scientific Advisory Committee concluded "that current levels of oxides of nitrogen and sulfur are sufficient to cause acidification of both aquatic and terrestrial ecosystems, nutrient enrichment of terrestrial ecosystems and contribute to nutrient enrichment effects in estuaries that could be considered adverse, and the current secondary standards do not provide adequate protection from such effects". While the EPA ultimately did not promulgate the proposed new secondary standards (choosing instead to retain the current standard), the Band would support any future consideration of implementing secondary standards. We believe that stricter secondary standards on SO_2 could help reduce the methylization of mercury in some waterbodies and would help address the decline of wild rice waters.

Beyond acidification, the addition of nitrogen to water bodies can also lead to eutrophication, which is a process whereby water bodies receive excess nutrients that stimulate excessive plant growth, such as algal blooms. Controlling this type of deposition would protect fish populations against hypoxia, which is the depletion of oxygen in the water. Ultimately, eutrophication leads to altered plant and lichen communities, enhanced growth of invasive species, and habitat deterioration for native species.[19] Nitrogen saturation of forest ecosystems can make trees more susceptible to other stresses, such as excessive cold.

Acid deposition can lead to increased methylization of mercury in area waters, and increased uptake of methyl mercury into the food chain. Protecting waters from excessive acidification could slow or prevent these processes. Bioaccumulation of mercury is of great concern to Band members. Besides the danger of humans eating fish containing high levels of mercury, animals who feed on fish or on plants that grow in these waters also are in danger of suffering the effects of methyl mercury.

Acid deposition can harm soil health by damaging soil biology and chemistry. Soil microbes can be killed by low pH levels. Acid rain can leach essential nutrients and minerals, such as calcium and magnesium, from soils putting sensitive species, such as sugar maple and red spruce, at risk. Acid deposition also releases aluminum from soils through chemical reactions that take place between the acid and the soil. Aluminum is toxic to aquatic organisms. Groundwater can be contaminated as a result of the deposition of air pollution either by settling on plants and the ground or by coming down in precipitation. Declines in soil health and fertility can lead to decreased timber production and decreased resilience to disturbance.

The effects of acid rain on plants have been documented in several places. Lee and Weber (1979) identify foliar injury, influences on growth, excessive leeching of nutrients from the soil and plant foliage, inhibition or stimulation of certain plant diseases, and an inhibition of the nitrogen-fixing activities of legumes.[20] The effects of acid rain could increase the forest's vulnerability to other pollutants, the stresses of climate change, and

[19] Mark E. Fenn, et al, (Fall, 2011), Issues in Ecology, Published by the Ecological Society of America, Report Number 14

[20] Lee, J.J., Weber, D.E. (Effects of sulfuric acid rain on major cation and sulfate concentrations of water percolating through two model hardwood forests). Journal of Environmental Quality, Vol. 11:1, 1979

invasive species. There are strong indications that high sulfate levels in water bodies lead to the decimation of wild rice beds. Wild rice is of significant cultural, subsistence, and economic importance to many Band members. The animals that feed on wild rice are also affected by the loss of this resource. While atmospheric deposition is only one route whereby sulfates enter water bodies, it is still a matter of concern.

Wet deposition of acids is monitored by the National Atmospheric Deposition Program ("NADP"), which is a cooperative effort among federal, state, tribal, and local governmental agencies, educational institutions, private companies, and non-governmental agencies. The NADP program has worked since 1978 to provide information on the amounts, trends, and geographic distributions of acids, nutrients, and base cations in precipitation, and currently has 250 sites nationwide. NADP monitoring took place on the Reservation between 1997 and 2003, but was discontinued due to a lack of funding. Annual data collected at Fond du Lac is shown in the table below.

Table 4 **Fond du Lac Acid Deposition Data**

Year	SO_4 deposition (kg/ha)	NO_3 (kg/ha)
1997	3.86	5.37
1998	6.58	8.21
1999	7.41	8.77
2000	7.36	8.67
2001	6.55	8.53
2002	6.46	7.91
2003	6.07	6.45

After increasing through the late 1990s, deposition of both sulfate and nitrates at Fond du Lac started to show a downward trend in 2000, which continued into 2003, when data collection ended. More long-term data is available from an NADP site at Fernberg, Minnesota, as shown below.

Table 5 **Fernberg Acid Deposition Data**

Year	SO_4 deposition (kg/ha)	NO_3 deposition (kg/ha)
1997	2.74	3.69
1998	6.56	7.88
1999	6.93	8.31

2000	5.05	6.27
2001	5.55	7.56
2002	4.03	5.71
2003	5.58	5.60
2004	4.32	5.65
2005	5.41	6.54
2006	3.47	4.40
2007	5.26	6.12
2008	5.55	6.06
2009	3.36	3.85
2010	2.05	3.02
2011	2.51	3.95
2012	3.31	5.04

The Fernberg data shows varying trends for both sulfate and nitrate deposition. The decreases in 2009 and 2010 may have been caused by the poor economy and its effects on manufacturing. However, there are too many factors involved to be able to tie these results to any emissions increases or decreases at any specific facilities, partly because of international and interstate transport of pollutants. The Fernberg data is consistently lower than the Fond du Lac data (over the years that Fond du Lac collected data), probably due to its remote location.

Air Toxics

In 2010, the MPCA conducted toxics monitoring on the Fond du Lac Reservation. Monitoring included VOC's, carbonyls, and metals. Total suspended particulate was monitored at the same time. In total, 56 VOC's, 7 carbonyls, and 15 metals were monitored. Of these, 40 VOC's, 1 carbonyl, and 8 metals dropped out of the study because at least 10% of the data was not above the lower detection limit. For the remaining pollutants, the 2nd highest concentration, the average, and the 95% upper confidence level were calculated. The results were then compared to cancer and non-cancer health benchmarks. None of the air toxics monitored exceeded an inhalation health benchmark value, although cumulative impacts may occur when these pollutants are added to the risk from other pollutants. That analysis was beyond the scope of the study.

Mercury

Wet deposition of mercury has been monitored on the Reservation since December, 1996, and is on-going. In 2010, a statistical analysis of the information gathered to date was commissioned. The results of the statistical analysis show that mercury deposition on the Reservation has decreased by roughly 5.6% to 8.7% eachyear during that time. Adjusting to account for variations in the amount of precipitation led to decreases of 5.2% to 7.7% per year. These decreases compare reasonably well with observations elsewhere in the state. In September of 2012, the Band began a study looking at dry mercury deposition in leaf litter at three different locations on the Reservation. One of these locations was co-located with our wet deposition monitor. The 2012 results from this site showed 9.3 ug/m^3 wet deposition and an average of 4.9 ug/m^3 of dry deposition. No solid conclusions can be made until additional years' worth of data have been obtained.

Visibility

Visibility is an important environmental component that is often neglected. Much more aesthetic benefit can be gained from a clear vista than from one that is obscured by smog. $PM_{2.5}$, SO_2, and NOx can all contribute to smog formation. Visibility problems decrease the ability to appreciate potentially culturally significant scenes such as wildlife, rock formations, waterfalls, constellations, etc. Objectionable odors can also be prevented with improved air quality. Fine particulates, which result from emissions of NOx and SO_2, cause most haze problems. No visibility monitoring has occurred on the Reservation to date.

Reservation Water Resources Description

The water resources of the reservation include approximately 43,000 acres of wetlands, 96 miles of streams, and over 3,000 acres of lakes, of which more than 1,500 acres are designated wild rice waters. A 20-mile reach of the St. Louis River, the largest U.S. tributary to Lake Superior (also on the state of Minnesota's 303(d) list for mercury impairment), forms the northern and eastern boundaries of the reservation. In addition, Fond du Lac has three designated trout streams.

The Reservation has been granted "Treatment as an Affected State" or "TAS" authority for administering its water quality program, and in December 2001, was notified that our tribal water quality standards were formally approved by the U.S. Environmental Protection Agency. Since 1998, Fond du Lac has been monitoring on-reservation waters to determine if they are indeed "healthy" and able to support the types of aquatic communities (algae and macrophytes, zooplankton and benthic macro invertebrates, both cold and warm-water fishes) that we would expect to see in lakes and streams in northern Minnesota.

Section VI. Economic Effects of Redesignation

Class I Redesignation would not affect the operations of any existing facilities or businesses in the area. No existing facilities would be required to install additional pollution controls and there would be no impact on any existing jobs in the area.

Rather, by definition, redesignation applies only to major new operations or major expansions of existing operations, and requires only that they address air pollution in a manner that allows existing air quality to remain clean. Sources whose emissions do not meet or exceed major source thresholds will also remain unaffected.

The Reservation lies within the boundaries of St. Louis and Carlton Counties. Douglas County, in Wisconsin, is located only twenty miles away. The Band has an interest in keeping these counties economically healthy, as many of its members live and work in the area, and because the Band owns property in these areas. The continued economic vitality of the Band's government owned enterprises also depends on the economic health of the area.

Appendix B contains the full economic analysis performed for the Band by Dr. Thomas Power. The analysis shows that an improvement in air quality around the Reservation is not expected to have an adverse impact on the local economy. Dr. Power's analysis predicts that a Class I air quality designation will improve tourism, recreation, and related sectors of the local economy which have become increasingly significant in recent years. With regard to industrial expansion, other factors, such as market conditions, are more likely to be controlling than Class I air redesignation.

Additionally, air quality improvements in other areas of the country have: reduced premature deaths; increased worker productivity; enhanced local quality of life; boosted local property values; and enhanced local economic well-being, along with local economic vitality.

Carlton County[21]

Minnesota's Department of Employment and Economic Development's website was reviewed by Fond du Lac staff to supplement Dr. Power's review. The agency's website gives information in terms of individual counties and for the Arrowhead Economic Development Region, which encompasses seven northeastern Minnesota counties. Tourism is an important part of Minnesota's economy. Tourists spend $11 billion annually in Minnesota, with $679 million in sales tax revenue alone. This makes tourism revenue equal to the amount of money generated by agriculture in its contribution to the gross state product. The leisure and hospitality industry employs more than 247,000 Minnesotans. The 39 million people that visit Minnesota each year equals eight times the total population of the state.

In the Arrowhead region, 15,954 people are employed in the leisure and hospitality industry, which is about 9.5% of the available workforce. Broken down to the county level, Carlton County employs 1,060 individuals (6% of the available workforce) in leisure and hospitality, and in St. Louis County the figure is 10,446 (nearly 10% of the available workforce). Most tourism in the area involves enjoying the outdoors. Carlton County offers snowmobiling, biking, hiking, fishing, hunting, snowshoeing, geocaching, whitewater rafting and kayaking. Jay Cooke State Park is an 8,818 acre park located on

[21] From the website industry.exploreminnesota.com

the St. Louis River, which forms the northeast border of the Reservation. The Park is about 5 miles from the Reservation boundaries. The park has trails for wildlife viewing, birding, hiking, skiing, snowshoeing, mountain and tour biking, off-highway vehicle riding, and in-line skating; it has dozens of campsites; and it offers educational events.

The DNR has designated 78 miles of the St. Louis River as a state kayak and canoe route. The Willard Munger State Trail (a collection of multiple-use trails that runs 69 miles between the towns of Hinckley and Duluth) links up with Jay Cooke trails for biking, horseback riding, backpacking, in-line skating, and snowmobiling. These trails also preserve some of the local history of the area. For example, part of the Munger Trail follows the route of a railroad that used to run through the area. The Munger Trail also runs near many other recreational areas, such as the Moose Lake State Park and the St. Louis River Water Trail.

St. Louis County

St. Louis County is the largest county in Minnesota and the second largest US county east of the Mississippi River, encompassing 6,860 square miles.[22] The county is a place of great natural beauty. It contains a national park ("VNP"), a national park (Boundary Waters Canoe and Wilderness Area, ("BWCA"), both of which have Class I air quality, as well as four state parks and five hundred lakes.[23] The St. Louis County website lists tourism as one of the major industries in the county, and touts the boating, fishing, and skiing opportunities available. Spirit Mountain, located twenty miles from the Reservation on the western edge of Duluth, offers a view of Lake Superior from its alpine ski slopes. Cross-country skiing and camping are also available at Spirit Mountain. The Cloquet River, which runs near the borders of the Reservation, offers opportunities for fishing, kayaking, and canoeing and often offers sightings of bald eagles and other wildlife.

The City of Duluth has made tourism one of its top industries, investing significant amounts of money since the 1980s into improving its downtown area and marketing itself as a vacation destination. The city has nearly 12,000 acres of some of the most amazing parks in North America. This acreage includes: one hundred and twenty-nine municipal parks, playgrounds, and public places; a dog park; two 27-hole golf courses; eight self-guided hiking trails; 28 miles of groomed cross-country ski trails; 45 miles of snowmobile trails; swimming beaches and a marina on Park Point (which at 7 miles in length is the longest freshwater sand bar in the world); over four miles of the Duluth Lakewalk runs alongside Lake Superior, offering opportunities for walking, running, biking, or just looking at the lake. Lake Superior Zoo is located in Duluth along Kingsbury Creek and offers visitors a chance to walk beside the creek and view of one of the creek's waterfalls. Duluth's Rose Garden boasts two hundred rose bushes of around ninety-nine varieties, along with other complementary trees, flowers, and shrubs. The Bayfront Festival Park hosts outdoor concerts and festivals, and has an ice-skating rink and warming house. The city itself stretches along twenty-five miles of the shore of Lake Superior[7].

[22] Duluth Area 1997 Guide, Duluth Chamber of Commerce
[23] St. Louis County website, http://www.co.st-louis.mn.us

The Duluth Chamber of Commerce's 2007 Guide states that Duluth's tourism industry is responsible for $400 million in annual economic impact and provides more than eight thousand local workers in more than four hundred and fifty businesses with jobs. The Guide states that roughly 3.5 million people visit Duluth each year and that the industry's "positive effect on Duluth's economy has more than doubled in the past ten years. While Duluth used to rely heavily on manufacturing jobs in the timber, mining, and shipping industries, the city's natural beauty is lending itself to tourism in a big way.

Duluth was recently voted as the best outdoors town in the country during Outside magazine's 2014 "best outdoors town" competition. Thousands of people voted through social media, showing that it is not only Duluthians who believe their town is something special. The city will be able to use the title to promote itself to prospective visitors, residents, and businesses.

Mining

Although mining is not as large an industry as in the past, Minnesota has an ever changing mining sector that ebbs and flows with the economy and technological improvements. The Band does not believe that its Class I proposal would cause any economic hardship to the Minnesota Iron Range. Northeastern Minnesota, where the Iron Range is located, already has two Federal Class I areas—the BWCA, under management of the USFS, and Voyageur's National Park ("VNP"), under management of the NPS. Both areas are located close to the Iron Range—the center of the Range is approximately 100 kilometers ("km") away from VNP, less than 25 km away from the SNF, and roughly 100 km away from the BWCA. By contrast, the Iron Range is located 80 km away from the Reservation (center to center). Isle Royale is another Federal Class I area which, while part of the state of Michigan, is located only about 27 km southeast of Grand Portage, MN. The Rainbow Lakes Wilderness Area in northwestern Wisconsin is also a Class I area. The Band believes that adding our own Class I area to these existing regional Class I areas helps to complement these existing requirements with our unique point of view.

Recent expansion projects proposed for several new and existing mines in the Arrowhead Region of Minnesota have gone forward without drastic consequences resulting from their proximity to Class I areas. Consultations with the FLMs have led to increased controls on some of these facilities (i.e. one proposed mine needed to change the planned location of its haul roads from its original design and switch out some haul vehicles for more efficient models), but none of them have been denied an air pollution control permit to date.

Co-management of the environment and mining interests has been occurring in Minnesota since the ratification of the Treaty of 1854. In fact, the purpose of the 1854 Treaty for United States interests was to acquire lands to exploit the mineral resources, while the tribes' purpose was to reserve permanent homelands, and they retained the right to hunt fish and gather within the territory ceded to ensure their survival in their homelands. Today's discussion is part of an on-going effort to find a balance. The Band

sees Class I redesignation as an extension of the Band's and the federal governments obligation to protect resources that are protected by treaty. When handled effectively, we believe that mining and the environment can co-exist, but economic well-being must be balanced with the requirements of the CAA, the Band's values and the federal trust responsibility to protect treaty rights.

Douglas County

Douglas County borders the State of Minnesota and is roughly 20 miles from Reservation boundaries. According to the Wisconsin Department of Workforce Development, there were 2,191 people in the county employed in the Leisure and Hospitality sector, as of June, 2011. This is 14% of the 15,364 individuals listed under "all industries".[24] Outdoor recreation is important in Douglas County and the City of Superior. Superior has several miles of trails in the city for walking, biking, in-line skating, cross country skiing, and skijoring. Snowmobile and ATV trails are also open to the public. The Superior Municipal Forest is the third largest forest within a city in the nation. It comprises 4,400 acres of forested land. It is the best remaining example of a boreal forest in Wisconsin.

Wisconsin Point, along with Minnesota Point, makes up the largest freshwater sandbar in the world. The Point consists of 203 acres of land, with 2.75 miles of beach. This land is of particular importance to the Band, as it is the historical site of an Ojibwe burial ground. The Army Corps of Engineers, owner of the property, is currently transferring seventeen acres of this land to the Band. Superior is also a major port for both commercial ships and pleasure craft. Barker's Island Marina has 420 slips for mooring.

Economic Focus

The Twin Ports of Duluth and Superior, as well as the entire Arrowhead region, have traditionally relied heavily on deposits of iron ore to drive the local economic engine. The mining, heavy equipment, and ship and rail transportation industries have all benefitted from extraction activities. However, mining is a "boom or bust" industry, and the area has suffered through hard times, experiencing significant drops in revenue and population. In the 1980s, a "bust" cycle occurred that led to the loss of hundreds of mining jobs in the area. By 2005, 835 of the mining jobs that existed in 1979 were gone.[25] During the 1980s, people in the area began the process of attempting to diversify the local economy. Tourism was a main focus of this diversification. Therefore, the area has a long history of managing industry alongside tourism. The MN Dept of Employment and Economic Development recently estimated that the mining and natural resources sector of the economy account for only 7% of the region's payroll.

Further, sources of air pollution that choose to locate in Duluth are already required to study their proposed emissions with regard to the Class I Rainbow Lakes Wilderness Area, located in Wisconsin about 70 km from Duluth.

[24] WI DWD, Bureau of Workforce Training, Quarterly Census Employment and Wages, June 2011

[25] Power, Thomas Michael, Economics Dept, University of Montana, Missoula, The Economic Role of Metal Mining in Minnesota: Past, Present, and Future, October 2007

Section VII. Social Effects of Redesignation

The Band believes that redesignation will have positive social effects on the Reservation. The Band places a high value on keeping its lands in pristine condition, and continued environmental quality will protect the resources we hold dear. Having continued or improved access to fish, game, and native plants will enable Band members to continue to pursue traditional cultural activities. Many of these activities are undertaken with friends and family members, leading to stronger interpersonal ties in the community.

Redesignation is another step toward self-determination for the Band and is consistent with the Indian Self-Determination and Education Act. It will also help the Fond du Lac Air Program increase its tribal capacity. These are social effects that will positively affect Band members as they increasingly make decisions for themselves.

Keeping our natural world clean and accessible to everyone, even those with health issues such as asthma, is key to the social well-being of our Band members. A clean environment is also a wonderful classroom. Fond du Lac's educational staff members spend a great deal of time teaching students about the natural world. Keeping the Reservation clean will help continue opportunities of showing kids where to pick blueberries, how to harvest wild rice and maple syrup, and how to appreciate the plant and animal life on the Reservation. The Reservation already faces the threat of plant and animal relocation due to climate change. This can be seen in the decreasing occurrence of some species (i.e. moose) and the increasing occurrence of others (i.e. emerald ash borer). However, the Band's usufructurary rights do not "move" along with species or pollution. Rights retained on the Reservation and in the Ceded Territories stand in those areas only. The Band cannot move to find cleaner air or water, or to follow species that have left the Reservation or the ceded territories.

The Band believes that in a society that is increasingly isolated from personal contact and where people spend ever greater amounts of time interacting with electronic media, taking steps to preserve the natural world will encourage people to leave their computers and cell phones for a while and appreciate the wonders of nature. Researchers are discovering that "disappearing" into nature from time to time is not just a pastime but a necessity. In his book Last Child in the Woods: Saving Our Children From Nature Deficit Disorder, author Richard Louv discusses the benefits of encouraging all people, and especially children, to spend time outdoors. More outdoor activity could help lower rates of childhood obesity, by encouraging children to be active at times other than recess or when playing on an organized team. Children who play in nature tend to be more creative in their play, and play with fewer stops and interruptions, according to Swedish studies. In natural playgrounds, children invent fantasy or make-believe play that is on-going, even from day to day. Researchers have found that this type of play allows boys and girls to be included more equally, and emphasizes language skills, creativity, and inventiveness over physical ability.[26]

[26] Louv, Richard. *Last Child in the Woods*, page 87. Algonquin Books of Chapel Hill, 2006

Studies show that spending time in nature may help children with Attention Deficit/Hyperactivity Disorder ("ADHD") to improve their focus and minimize their symptoms.[27] The use of medications to treat ADHD increased by 600% between 1990 and 1995, and is still rising. Roughly 90% of the children placed on medications are male. The calming effect that some parents notice in their children when they spend time outdoors doesn't seem to be merely from physical activity, but in actively exploring nature. In contrast, indoor activities, such as watching television or being on a computer, seem to increase ADHD symptoms.

A Carnegie Mellon study from 1998 shows that adults who spend even a few hours on the Internet per week have higher rates of depression and loneliness than those who use the Internet less often.[28] And a study released by The National Center on Addiction and Substance Abuse at Columbia University found that teens who use social networking media are more likely to use tobacco, alcohol, and marijuana than teens who do not use these sites.[29] Another study from the University of Miami School of Medicine found that "low" Internet users (defined as less than one hour per day) had significantly better relationships with their mothers and friends than "high" Internet users (defined as more than two hours per day).[30]

Hours of observing children at play led child psychology researcher Edith Cobb to conclude that the inventiveness and imagination of the creative people she studied was due to the early experiences in nature. She believes that the middle years of childhood are a particularly important time of development.[31] Outdoor play can teach children the laws of physics, as they build forts and dams, and fly kites. Observing animals, birds, plants, and bugs teaches children about biology. Children who engage in unstructured activities learn to work together and to experiment, rather than having knowledge spoon-fed to them. Taking part in outdoor activities can also serve as an opportunity for families to connect in a time when the "generation gap" can make finding shared activities difficult.

Beyond all of these examples, the biggest reason for protecting Reservation lands is that maintaining cultural knowledge and traditions requires that Band children be able to spend time outdoors in an environment that is clean and healthy enough not just for people but also for native plants and creatures. Showing Band children the wonders of nature teaches them to become the next generation of environmental caretakers. If Band children lose their desire to keep their Reservation lands healthy and productive, a huge part of the cultural future will be lost. The time to teach children to care for nature is when they are young, and it cannot be taught indoors, but must be taught in the classroom

[27] Louv, Richard. *Last Child in the Woods*, page 99
[28] Louv, Richard. *Last Child in the Woods*, page 65
[29] Duran, Lauren, Beg, Sulaiman, (August, 2011). National survey of American attitudes on substance abuse XVI: Teens and Parents, National Center for Addiction and Substance Abuse, Columbia University
[30] Sanders, Christopher E., Field, Tiffany M., Diego, Miguel, Kaplan, Michele (June 22, 2000). The relationship of Internet use to depression and social isolation among adolescents. Touch Research Institutes, Nova Southeastern University and University of Miami School of Medicine. *Adolescence*
[31] Louv, Richard. *Last Child in the Woods*, page 92

of the forest, lake, or river and must be experienced with the eyes, ears, and skin. And if we lose the species that are important to our culture (moose, wolf, eagle, bear) then our connection to our culture and to this place is lost.

Section VIII. Energy Effects of Redesignation

Fond du Lac Modeling Analysis

CAA guidelines state that an application for Class I redesignation should include an energy analysis. Since the guidelines do not give details regarding what this analysis should include, the Band chose to follow the example of the FCPC's Class I Technical Document, in which a modeling analysis was performed of two hypothetical energy projects (one near the Reservation, the other farther away) "proposed" to be constructed and their predicted impacts on Reservation lands. Thus, based on an air quality modeling analysis performed by Air Resource Specialists (see Appendix C for the full text of the analysis) no appreciable energy effects from redesignation are predicted.

The choice of two different facilities and locations is driven by uncertainty as to which energy resources will be developed in the future and where they will be located, as well as by the existence of two different modeling tools. AERMOD is the regulatory dispersion model recommended by the EPA for "near-field" receptors, which are those within 50 km of the source. In contrast, the EPA recommends the use of CALPUFF to model receptors more than 50 km distant from the source. In both instances, real-world inputs were modeled, as described in the paragraphs below.

The only nearby energy construction project identified recently has been Excelsior Energy, with a proposal to construct a 1,200 megawatt ("MW") coal gasification plant and carbon capture and sequestration facility. The facility's Draft Environmental Impact Statement offers two sites, a "preferred alternative" near Taconite, MN and an "alternate site" near Hoyt Lakes, MN. Taconite and Hoyt Lakes are roughly 50 and 58 miles away from the Reservation, respectively. Predicted emissions from this plant were modeled using the preferred location and compared to the Class I increments for NOx, SO_2, $PM\text{-}_{10}$ and $PM\text{-}_{2.5}$. All pollutants were shown to be below increment levels for these pollutants. Development of this project began in 2001, however, thirteen years later funding for this project is still uncertain, and the plant faces local opposition. The Minnesota Public Utility Commission has refused to issue a Power Purchase Agreement with nearby Xcel Energy, meaning that there is no purchaser for the power from the proposed plant. The project has lately been re-proposed as a natural gas plant rather than a coal gasification plant, but there is still no purchaser for the power, and the project is said to be running low on funds. No other energy projects have been proposed in the area.

As a near-location source, the modelers assumed construction of a 630 MW natural gas-fired plant at the location of the ML Hibbard Energy Station in Duluth. Details can be found in the full report in Appendix C, but once again, all modeled pollutants were shown to be below increment levels. While sources such as these could hypothetically be constructed near the Reservation, the future of energy production in Minnesota is highly unpredictable, as shown in the following paragraphs.

Minnesota Energy Predictions

An overall review of the energy outlook in the state of Minnesota was performed by using the Minnesota Resource Assessment Study (October 21, 2009) and the related Supplement, prepared by the Minnesota Office of Energy Security and the Reliability Administrator. These documents show that the future of energy generation in Minnesota is highly uncertain. The report lists a number of reasons for this uncertainty. While it is anticipated that the state of Minnesota will require additional energy in the future (8,000 MW by 2025 – roughly 4,000 from fossil fuels and 4,000 from renewables), it is unclear where this additional capacity will come from.

Two recent developments have changed the way that utilities are providing energy to their customers. First, recent changes in federal government policies mean that any electrical buyer or seller can now transmit power over lines that were originally constructed to serve only local customers. Independent Transmission System Operators have been appointed to operate this new system and the resulting market. The need for large additional amounts of transmission capacity is a key point of these reports. Secondly, requirements for renewable energy in many states in the region, including Minnesota, have constrained utilities by mandating that certain percentages of energy generated must come from renewable sources. These two factors, along with uncertainties in reductions from demand-side management, uncertainty over carbon trading, and price fluctuations in fuels, all complicate the picture. Utility groups are coordinating in new ways to meet their customers' energy needs, and it is possible that Minnesota's energy requirements may be filled by plants located in other states.

The reports studied several different generation scenarios, using the variables listed above (i.e. the amount of renewable energy required, reductions obtained through demand-side management, varying fuel costs, varying costs of carbon credits) to estimate the kilowatts needed from various fuel sources. The results found in these scenarios are shown in the tables found on pages 21-87 of the main report (not all tables are numbered) and Tables 5-19 and E1-E5 of the Supplement. The Supplement goes beyond the initial report by predicting the amount and type of new power generation needed assuming that Minnesota's current ban on developing nuclear power is lifted, leading to slightly different results than with the nuclear ban in place. The scenarios vary, with the number of new coal plants needed in the state ranging from zero to nine. As stated above, rough estimates indicate that 4,139 MW of generation will be needed from fossil fuel sources by the year 2025. In addition, 4,000 MW will be needed from renewables by 2025 (page 3 of the main report). The Minnesota Resource Assessment Study states (page 101) that, due to transmission issues, the best locations in the state for siting new plants are Southeastern and Southwestern Minnesota, potentially hundreds of miles away from the Reservation.

It is anticipated that the majority of new fossil fuel generation will come from natural gas. Natural gas-generated power is expected to increase from 6% of total generation to 11%. Coal is expected to remain the same, or increase moderately. Page 140 of the Study states that natural gas is critical, since coal or nuclear facilities take a long time to permit and

construct, whereas natural gas sources are less controversial. However, the Study also states on page 200 that mining facilities have growing energy needs that could require around 950 MW of new power.

Section IX Capacity to Manage Natural Resources

In the past, the Reservation has shown the initiative, the desire, and the expertise to manage environmental affairs on the Reservation. The Resource Management Division was started in 1975 with the hiring of the Reservation's first Conservation Officer, through the Bureau of Indian Affairs. This program grew to include the Forestry, Conservation Enforcement, Fisheries, Wildlife, Waste Management, Natural Resources, and Environmental programs. The Environmental Program was started in 1994 and now includes fourteen staff members, including a program manager. The program includes the Office of Water Protection, a GIS Specialist, a Brownfield team, an Environmental Educator, and an Air Program. A clean-up crew also operates for a portion of each year to pick up garbage from illegal dump sites on the Reservation. A transfer station created at the Reservation collected roughly 960 tons of household garbage in 2012. Employees from each of these programs work diligently together to protect the Bands resources on- and off-Reservation.

The Resource Management Division was founded in 1975, with the hiring of the first conservation officer to regulate hunting, fishing, and gathering on the Reservation. Within a few years, the creation of an on-Reservation conservation code led to the hiring of seven additional conservation officers, and in 1980, the hiring of a forester led to the establishment of the Forestry Program, which now employs 11 staff members. In the mid-1980s, treaty cases brought by Minnesota bands, including Fond du Lac, were underway in the federal court system seeking the re-affirmation of reserved off-Reservation treaty rights. In response to the favorable outcome of these cases, the Fond du Lac Natural Resources Program undertook the responsibility to manage and regulate the harvest of on-Reservation fisheries, wildlife, and wild rice resources. Subsequent court decisions issued in the 1990's upholding treaty rights in the territories ceded by the treaties of 1837 and 1854 led to the hiring of ceded territories conservation enforcement, wildlife and fisheries biologists, and an Environmental Program Manager. In 2013, the Division had 62 permanent employee positions and 20-25 seasonal workers, with up to 4 high school/college interns.

The Band has shown its commitment to environmental principles by its support of these programs through the years. The RBC adopted the Kyoto Protocol in 2009, and is working to achieve the stated goals of that document. To this end, environmental program staff members have: developed a Strategic Energy Plan for the Reservation along with the Office of Administration for Native Americans; helped perform a siting study for a wind power project; installed solar panels on the roof of the new Resource Management Building for the production of electricity; and installed a photovoltaic solar lighting unit at the Fond du Lac powwow grounds. The Band has hosted two AmeriCorps interns who performed an energy benchmarking analysis for Reservation-owned buildings. The results of this analysis are being used to decide how and where to

upgrade Reservation energy systems. The Band recently constructed the aforementioned LEEDS-certified ("Leadership in Energy and Environmental Design") building to house the Resource Management Division. Guests at the Black Bear Casino Resort can choose to re-use their sheets and towels during multiple-day stays, and all light bulbs in the hotel are energy-efficient.

Fond du Lac takes great pride in its Resource Management and Environmental Programs. Major accomplishments and brief histories of the separate entities follow.

- In 1999 the Band established the first dedicated air program in EPA Region 5, and received TAS for air quality in 2004. This means that the tribe must be notified of draft air permits within fifty miles of the Reservation before such permits are issued. If the Band submits comments on these draft permits, their comments must be taken into account or the Band must be notified as to why they were not. Since hiring an Air Quality Technician in 1999, the Fond du Lac Air Program has grown to include an Air Coordinator and has been involved in numerous local, state, regional, and national workgroups. These include serving as: a charter member of the Steering Committee of the Tribal Air Monitoring Support Center in Las Vegas; the Secretary/Treasurer of the Central Regional Air Planning Association; and as a representative on the EPA's Clean Air Act Advisory Committee. Fond du Lac's Air Quality Technician was the recipient of the 2011 Virgil Masayesva Tribal Environmental Excellence Award, given through the Institute for Tribal Environmental Professionals - Northern Arizona University. Air quality staff members attend training regularly to expand and update their knowledge of air quality issues. The staff has good working relationships with the state and federal regulatory agencies regulating local and regional air quality. Fond du Lac's air staff have been leaders in Region 5, with the first dedicated air staff, the first TAS award, and participation on many local, state, regional, and national workgroups. Staff members have also served as instructors for courses offered by the Institute for Tribal Environmental Professionals, housed within Northern Arizona University, and have given presentations at many local, regional, and national events. Staff members have GIS capability and are advancing their knowledge of dispersion modeling.
- Fond du Lac is also very proud of its water quality program. The Band secured TAS status under the Clean Water Act to administer a water quality standards program in 1996, and developed its own water quality standards with designated uses such as fishing, recreation, cultural, and wild rice production. Those water quality standards were extensively reviewed for consistency not only with national standards, but also with the Great Lakes Initiative standards, and approved by EPA Region 5 in 2001. Since 1998, the Band has conducted a comprehensive water quality monitoring program of the Reservation lakes, streams, and the St. Louis River, to assess attainment or impairment relative to their designated uses, to identify water bodies in need of restoration or special protections, and to develop new criteria. The Band has completed one required triennial review, and is initiating its second water quality standards review process, with potential revisions to include numeric nutrient and biological criteria. Along with water quality standards, the Band also has authority to certify

federal actions such as wetlands dredge and fill permits or National Pollutant Discharge Elimination System water discharge permits under Section 401 of the Clean Water Act. Our Water Program Coordinator has served as a leader and active participant on several water-related workgroups, including the MPCA's Total Maximum Daily Load workgroup for mercury and the Binational Forum. She is often asked to speak at community events pertaining to water quality concerns.

- Fond du Lac served as a Cooperating Agency along with the MDNR, USFS, and United States Army Corps of Engineers on an Environmental Impact Analysis conducted for the proposed Northmet mine in northern Minnesota and for the Mesabi Nugget, Phase 2 mining project in the same area.
- Other reservation water resource protection tools are: a Joint Comprehensive Wetland Protection and Management Plan; a draft Aquatic Resources Protection and Management Ordinance; a Wellhead Protection Plan for the community wells; and a Source Water Protection Plan. The Reservation has an abundance of undisturbed, high quality wetlands and contains areas of forested, scrub shrub, emergent, and aquatic bed wetlands. Wetlands are important for water quality protection; flood and storm water retention; wildlife and fish habitat; shoreline protection; groundwater interaction; aesthetic, recreational, educational, cultural, and scientific opportunities; and crop production. Several years ago, Fond du Lac began a wetland monitoring program, and is developing a Wetland Restoration Plan to identify and prioritize opportunities for wetland mitigation, enhancement, and restoration.
- Fond du Lac's Brownfields program does Phase I inspections on properties that the Band is considering purchasing and/or is moving into "trust" status, and works to clean up contaminated sites. Staff members also participate in training sessions and in Emergency Preparedness activities.
- The Fond du Lac Forestry program addresses forest management, fire management, and public education. Forestry personnel need to balance habitat improvement, biodiversity issues, and preservation of natural cultural resources, as well as the development of commercial timber and related timber sales and reforestation. Further responsibilities include wildland fire suppression, fire prevention education, controlled burns, control of invasive species, and fuels management.
- The Band's Wildlife and Fisheries managers work with other agencies in assessing and studying the health of wildlife and fish populations both on and off the Reservation. Populations of interest are moose, wolves, duck, deer, ruffed grouse, and walleye. These species are very culturally important to the Band.
- Fond du Lac operates a Waste Management program which addresses recycling, illegal dumping, and household hazardous waste disposal on the Reservation. The program also has an educational component both on the Reservation and with local, state, and regional communities. Education of Ojibwe School students on caring for our environment is of particular importance. The Waste Management program operates an on-Reservation transfer station that processed roughly 960 tons of household garbage in 2012. The Reservation has a 33% recycling rate among Band members, which is comparable to the national average.

- The Fond du Lac Natural Resources team works to protect and support wild rice stands on the Reservation and also works with Fond du Lac's Fisheries and Wildlife programs. These programs work within the Reservation, often with outside conservation and environmental groups, to protect wild rice, fish and wildlife populations on-Reservation and in the Ceded Territories.
- Fond du Lac has eight full-time Conservation Officers who patrol on- and off-Reservation to enforce the Tribal Conservation Code upon Band members. This includes bag limits, seasons, licensing and registration.

We believe that the paragraphs above sufficiently demonstrate that Fond du Lac has the technical and managerial capacity to manage its natural resources.

Appendix A

28 Source Categories

1) Fossil fuel-fired steam electric plants of more than 250 million Btu/hr heat input.
2) Coal cleaning plants (with thermal dryers).
3) Kraft pulp mills.
4) Portland cement plants.
5) Primary zinc smelters.
6) Iron and steel mill plants.
7) Primary aluminum ore reduction plants.
8) Primary copper smelters.
9) Municipal incinerators capable of charging more than 250 tons of refuse per day.
10) Hydrofluoric acid plants.
11) Sulfuric acid plants.
12) Nitric acid plants.
13) Petroleum refineries.
14) Lime plants.
15) Phosphate rock processing plants.
16) Coke oven batteries.
17) Sulfur recovery plants.
18) Carbon black plants (furnace plants).
19) Primary lead smelters.
20) Fuel conversion plants.
21) Sintering plants.
22) Secondary metal production plants.
23) Chemical process plants.
24) Fossil fuel boilers (or combination thereof) totaling more than 250 million Btu/her heat input.
25) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels.
26) Taconite ore processing plants.
27) Glass fiber processing plants.
28) Charcoal production plants.

Appendix B

Economic Analysis

Appendix C

Energy Analysis

Appendix D

Appendix E