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4/30/2021 7:30:00 AM Rhinelanders Revisited: The rise and fall of America's air quality

Stephanie Kuski River News Features reporter

Stop for a moment and take a big, deep breath.

It's easy to take clean air for granted in an area that enjoys consistently good quality air, but there was a time in the not-too-distant past when Rhinelanders' air quality was nothing to sniff at.

Rhinelanders residents who lived in the city prior to the 1970s may remember the area's air quality issues. Without federal regulations on industrial emissions, air pollution went largely unchecked for several decades.

The Rhinelanders Paper Mill, for instance, was once a major producer of sulfur dioxide that was emitted during the pulp making process which gave off a strong, rotten-egg smell noticeable throughout the city, but especially closer to the mill. The smell was so strong, residents would run into their homes and close the windows until the smell subsided. The sulfur would even burn nearby gardens and lawns, which were also blanketed with layers of soot from the mill's smokestacks as coal was burned.

As the harmful health effects associated with this kind of pollution were not yet known, the sulfur smell was chalked up to "smells like money," especially since the mill was the city's largest employer at the time. Even so, exposure to sulfur dioxide can cause a range of harmful effects on the lungs and contact on the skin is corrosive. As such, residents may recall the sulfur burning their eyes, throat and skin, worsening asthma and even making it difficult to breathe.

But air pollution of this kind wasn't only prevalent in the Northwoods at this point in history. Polluted air has affected global populations since the Industrial Revolution, but when coal came into large-scale use in the late 19th century, the resulting smog and soot had serious health impacts in both rural and urban areas. After World War II, however, air pollution in metropolitan cities rapidly increased as a result of economic and population growth, rapid urbanization, an increase in vehicles on the road and the number of U.S. highways.

Air pollution as a result of motor vehicle and industrial emissions was particularly noticeable in urban America. New York City, for example, experienced its third major smog event over a two-week period in 1966 when a lethal combination of sulfur dioxide and carbon monoxide emitted from the coal-fired power plants that fueled the nation's largest city killed an estimated 200 people.

By the 1970s, air pollution in the U.S. peaked. But NYC's smog disaster and others like it were the catalyst for



Photo courtesy of Frederick Fisher Steam rising from the innards of the Rhinelanders Paper Mill is an iconic image in Rhinelanders' skyline. But for many years, polluting emissions from the mill were the catalyst for numerous environmental and human health impacts that have since been remedied thanks to innovative pollution-control technologies as well as federal efforts to regulate industrial emissions.

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national awareness about the effects of air pollution at the height of the environmental protection movement, prompting federal legislation to regulate air pollutants.

The first piece of federal legislation involving air pollution was enacted in the Air Pollution Control Act of 1955, which provided funds to research the effects of air pollution. In 1963, the inaugural Clean Air Act established a federal program aimed at reducing air pollution, authorizing research to develop techniques for air pollution monitoring and control.

But it wasn't until the 1970s that the environmental paradigm shifted. Numerous environmental disasters as the result of unregulated pollution nationwide spurred Wisconsin senator Gaylord Nelson to propose April 22, 1970 as the first Earth Day, a grassroots movement that encouraged Americans to speak up about environmental degradation. Later that year, President Richard Nixon proposed to consolidate the many environmental responsibilities of the federal government by authorizing the Environmental Protection Agency (EPA), charged with regulating and enforcing national standards to protect environmental resources.

In 1970, the Clean Air Act was also amended to expand the federal mandate on air pollution control, requiring comprehensive regulations for industrial pollution sources. The result was a landmark shift in the federal government's role in regulating air pollution.

Four major regulatory programs were initiated, including the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: particulate matter, ozone, sulfur dioxide, nitrogen oxide, carbon monoxide and lead. These pollutants are typically emitted from industry, mining, transportation and agricultural sources, and in many cases are the result of fossil fuel combustion or other industrial processes.

In 1990, the Clean Air Act was again amended to substantially increase the authority and responsibility of the federal government to regulate environmental pollutants. New regulatory programs were authorized for controlling acid rain and the provisions for attainment and maintenance of NAAQS were substantially modified and expanded.

In order to reduce air pollutant emissions from industrial sources, the Clean Air Act also required industries like Rhinelanders Paper Mill to make changes in order to meet these new standards, prompting the creation of innovative air pollution control technology that reduced emissions of sulfur dioxide, particulate matter and other pollutants.

The sulfur smell in the Rhinelanders area is also not as prominent as it once was because in 1984, the mill shut down its sulfite pulp mill, the main culprit for the noxious sulfur smell.

Despite this new regulatory approach and the positive progress it prompted, in 2013 a portion of Oneida County was designated as non-attainment for the 2010 1-hour sulfur dioxide NAAQS standards based on data measured by the Department of Natural Resources (DNR) at the Rhinelanders water tower - meaning that the city of Rhinelanders and surrounding townships did not meet federal sulfur dioxide emission standards.

Since it was determined that the Rhinelanders mill was the primary source of the elevated sulfur dioxide levels, the mill worked cooperatively with the EPA and DNR to develop a plan that meets state and federal air quality standards. In order to decrease pollutant emissions, the Rhinelanders mill has made several significant modifications in recent years, including decommissioning its auxiliary coal-fired boilers, burning lower-sulfur coal in its main boiler and complying with emissions limitations such as the federal New Source Performance Standards and the National Emission Standards for Hazardous Air Pollutants.

Today, the mill uses modern technology to control particulate matter and sulfur dioxide emissions, using innovative technologies like electrostatic precipitation for particulate control and sorbent injection to control sulfur dioxide emissions. The mill has been complying with new emission control standards since 2017 and Oneida County has met federal sulfur dioxide emission standards since 2018. According to data from the Wisconsin DNR, sulfur dioxide levels measured at the Rhinelanders site have decreased by 76 percent since 2001.

Even though Wisconsin's population and economy continues to grow as residents drive more miles and use more energy, the state's air quality has improved dramatically over the last 50 years as a result of federal regulation and innovative pollution-control technology.

But despite these immense strides, the biggest hurdle to overcome is forecasted to precipitate in the foreseeable future.

Air pollution affects climate change in incredibly complex ways. Because fossil fuels have been burned to generate electricity and power our modern lives for centuries, pollutants like carbon dioxide and other greenhouse gases have collected in the atmosphere, trapping in heat and warming the planet over time.

While natural fluctuations do cause the earth's climate to change gradually, leading climate scientists agree the current global warming trend is directly attributed to human activity - from burning fossil fuels to clearing land for agriculture and air pollutant emissions from industrial processes. Although greenhouse gases are naturally occurring, the amount in the atmosphere has increased significantly since the early 20th century. According to the National Oceanic and Atmospheric Administration (NOAA), the result is a 2-degree increase in global average surface temperature that has occurred since the pre-Industrial era.

Because of this, scientists warn that global warming must be limited to 1.5 degrees Celsius above pre-Industrial levels by mid-century to avoid the most devastating effects of climate change. If not, intense tropical storms and heavier, more frequent flooding is forecasted in some parts of the world with extreme drought and severe wildfires in arid areas - all of which has the potential to cause widespread environmental and human health

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On an even larger scale than the environmental protection movement of the 1970s, local communities and countries across the world are teaming up to solve this global crisis by devising innovative renewable energy technology and developing international agreements to reduce greenhouse gas emissions.

The Paris Agreement was adopted in 2015 as a landmark international treaty that shoulders ambitious efforts to combat climate change by mid-century. Its central aim is to limit global warming to well below 2-degrees Celsius - preferably 1.5-degrees Celsius - compared to pre-Industrial levels. In order to do this, the agreement aims to strengthen the global response to climate change in which nearly every nation on the planet will work collaboratively to communicate actions that reduce greenhouse gas emissions and limit global temperature rise.

Even corporate companies are embracing the challenge to becoming more sustainable. In 2019, Amazon and Global Optimism co-founded The Climate Pledge, a commitment to reach the Paris Agreement 10 years early and be net-zero carbon by 2040. Pledge signatories agree to implement decarbonization strategies that align with the Paris Agreement through innovations like renewable energy, materials reduction and other carbon elimination strategies. Amazon has even committed to operate with 100 percent renewable energy by 2025.

While there are significant developments in renewable energy technology as well as international policy on a global scale, there are also numerous grassroots efforts that are also pushing for a greener future.

RENEW Wisconsin is a nonprofit organization based in Madison that works to develop policies and programs to expand access to geothermal energy, electric vehicles and biogas as well as solar, wind and hydropower. Midwest Environmental Advocates is another nonprofit that works to defend public rights, protect natural resources and ensure government transparency and accountability while advocating for environmental justice on a local level.

As simple as it may sound, these initiatives are spurred by concerned citizens and activists who want to build a more sustainable future. Similar to the environmental protection movement of the 1970s that prompted federal legislation like the Clean Air Act, our society is witnessing another global push for cleaner, renewable energy in an effort to prevent the worst effects of climate change. In both cases, citizen involvement prompted positive progress, and there's so much that can be done at an individual level to reduce one's carbon footprint.

Individuals can take action in numerous ways to combat climate change: from investing in renewable energy technology and energy-efficient appliances to reducing water waste, shopping locally, eating less meat and challenging elected officials to take measurable action on the environmental justice front. But it's equally important to recognize how the actions of our past affect our future, so as to not make the same mistakes twice.

This installment was written with the help and expertise of Rhinelanders locals, conservationists and historians. Special thanks to the Wisconsin DNR and Frederick Fisher for sharing their stories and expertise.

Stay tuned for the next installment in this continuing series. Visit [rivernews](#)

[online.com](#) to read previous installments. Stephanie Kuski can be reached at [stephanie@rivernews online.com](mailto:stephanie@rivernews online.com).

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