

# Program Evaluation

## Air Quality Bureau

Montana Department of Environmental Quality



## ENVIRONMENTAL QUALITY COUNCIL

September 14, 2016  
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## Introduction

The Environmental Quality Council (EQC) is required to evaluate programs within the Department of Environmental Quality (DEQ) pursuant to 75-1-324, MCA. That law requires the EQC to “review and appraise the various programs and activities of the state agencies, in the light of the policy set forth in 75-1-103, for the purpose of determining the extent to which the programs and activities are contributing to the achievement of the policy and make recommendations to the governor and the legislature with respect to the policy.”

The policy reads as follows:

The legislature, recognizing the profound impact of human activity on the interrelations of all components of the natural environment, particularly the profound influences of population growth, high-density urbanization, industrial expansion, resource exploitation, and new and expanding technological advances, recognizing the critical importance of restoring and maintaining environmental quality to the overall welfare and human development, and further recognizing that governmental regulation may unnecessarily restrict the use and enjoyment of private property, declares that it is the continuing policy of the state of Montana, in cooperation with the federal government, local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which humans and nature can coexist in productive harmony, to recognize the right to use and enjoy private property free of undue government regulation, and to fulfill the social, economic, and other requirements of present and future generations of Montanans.

The council allocated 68 hours of staff time to evaluate each of four bureaus within the former Permitting and Compliance Division of the DEQ that do not deal primarily with water. That division is now called the Air, Energy, and Mining Division and includes the Air Quality Bureau.

## Background

For more than a century of America's early history, the only people who thought much about the quality of the air they breathed lived in a few certain places. Boston. Pittsburgh. Chicago. Cincinnati. Butte. Anaconda. Residents of industrialized cities complained about dirty air, calling it a public nuisance or alleging trespass. Some cities passed ordinances declaring smoke to be a public nuisance. Others filed suit. Either way, the legal theory at the time was that air emissions were not regulated until there was a complaint.<sup>1</sup>

In Montana, this stance was articulated in 1909 by C.F. Kelley, the secretary of the Anaconda Copper Mining Company.

"There is no legal objection to a pollution of the atmosphere until it results in damage to somebody, which gives him the right to formulate a cause of action or to complain," Kelley said. "We have a perfect right to carry on a legitimate business, and if incidentally we should pollute the atmosphere nobody has the right to complain until specific damage gives him a cause of action."<sup>2</sup>

By the time Kelley uttered that quote, the residents of Butte had lived with and fought over industrial emissions for almost two decades. In 1890, the city boasted six modern smelters along the base of Butte Hill. The smelters used a process called "heap roasting" to separate copper from ore. Fire was set to lumps of ore mixed with logs in heaps as long as a city block, wide as a street, and six feet high. The heaps burned for up to three weeks, releasing sulfur, arsenic, particulates, and fluorides.<sup>3</sup>

In December of 1890, 36 deaths were attributed to breathing-related diseases. Three days that month were smoke-free. The city health officer concluded that the death rate of Butte residents that year was higher than that of Chicago and London and almost equal to New York and Paris. The city passed its first smoke ordinance that year calling heap roasting a public nuisance. The ordinance allowed roasting where the smoke passed through a 75-foot chimney. However, enforcement proved difficult, especially as the production of copper boomed in the coming years. It took more than a decade for smelting operations to move to Great Falls and Anaconda.<sup>4</sup>

But the battle over the air continued. In 1905, the Deer Lodge Valley Farmers' Association sued the copper companies in federal court, claiming sulphur and arsenic from the Anaconda smelter settled on crops and grass, poisoned livestock, and killed trees. The farmers eventually lost the suit with the court concluding the industry had installed state of the art equipment and the economic benefits of smelting outweighed the damages. But the suit garnered the attention of the federal government, which investigated the effect of emissions on the national forests.<sup>5</sup>

As these events unspooled in Montana, cities and counties across the rest of the country were passing ordinances aimed at preventing air pollution before it became a nuisance subject to litigation.<sup>6</sup>

A seminal event in 1948 is credited with giving rise to national air pollution regulations. An inversion in a small mill town outside Pittsburgh trapped sulfur dioxide emissions from the zinc works. Twenty people died and 6,000 took ill. Also making headlines in the 1940s was the longer term issue of smog in Los Angeles.<sup>7</sup>

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<sup>1</sup> Arthur C. Stern, Emeritus Professor (1982) [History of Air Pollution Legislation in the United States](#), Journal of the Air Pollution Control Association, 32:1, 44-61.

<sup>2</sup> Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

<sup>3</sup> Donald MacMillan. Smoke Wars: Anaconda Copper, Montana Air Pollution, and the Courts, 1890–1924.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

<sup>6</sup> Arthur C. Stern, Emeritus Professor (1982) [History of Air Pollution Legislation in the United States](#), Journal of the Air Pollution Control Association, 32:1, 44-61.

Congress authorized research in 1955 on the nature and extent of air pollution. In 1963 the Clean Air Act provided grants to state and local agencies to establish control programs. Legislation in 1967 expanded federal authority over interstate pollution issues. Oregon passed the first statewide air pollution law in 1951 and seven other states passed laws that decade. The rest of the states, including Montana, passed air pollution laws in the 1960s.<sup>8</sup>

On January 18, 1967, Dr. G.A. Diettert from Missoula told the Public Health, Welfare and Safety Committee of the Montana House of Representatives of dramatic increases in chronic bronchitis and lung cancer, especially in Anaconda, Missoula, and Butte. Libby, despite its small population, had the highest incidence of asthma in the state. The amount of the cancer-causing substance Benzoapyrine in Missoula's air, the doctor said, was equal to smoking three packs of cigarettes a day.<sup>9</sup>

Also testifying in support of the Clean Air Act of Montana was the vice president of Intermountain Lumber Co. in Missoula.

“We in the wood industry make no attempt to deny the existence of an air-pollution problem in parts of Montana, particularly in the mountain valleys of the west where temperature inversions frequently prevent contaminants from being dispersed and blown away,” said Henry S. Pennypacker, speaking on behalf of Forest Industries of Missoula. “We recognize a good control law is needed.”<sup>10</sup>

Pennypacker argued against exemptions in the bill, saying all sources of pollution should be regulated including cars, barbecues, fireplaces, and other home heating equipment.<sup>11</sup>

The bill as passed defined air pollution as “one or more air contaminants in such quantities and duration as is or tends to be injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or property, or conduct of business.” The state board of health was charged with adopting ambient air quality standards and allowed the establishment of emission limits from any source to prevent, abate, or control air pollution.<sup>12</sup>

In 1970, Congress passed amendments to the federal Clean Air Act that mandated nationwide outdoor air quality standards to be implemented by the states, setting the stage for the regulation of air quality in Montana as it exists today.

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<sup>7</sup> Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

<sup>8</sup> Arthur C. Stern, Emeritus Professor (1982) [History of Air Pollution Legislation in the United States](#), Journal of the Air Pollution Control Association, 32:1, 44-61.

<sup>9</sup> House Bill 8, 1967, legislative history.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

## Air Quality Regulation

### Standards

Under the 1970 federal law, the Environmental Protection Agency used science-based research to identify six criteria pollutants commonly found nationwide, exposure to which has short and long term effects on human health and the environment. The pollutants are:<sup>13</sup>

- **Carbon monoxide (CO)** is a colorless, odorless, poisonous gas released into the air when carbon in fuels doesn't burn completely. Major sources include vehicle emissions, factories, industrial boilers, house furnaces, and almost anywhere petroleum fuel is consumed. The gas can remain in the atmosphere for two to four months. Carbon monoxide in the bloodstream reduces the amount of oxygen reaching tissues and organs.
- **Lead (Pb)** occurs naturally in the environment, but high concentrations can be found near metal smelters and battery plants. Vehicle emissions were high in lead until federal regulations mandated unleaded gasoline. Lead can be present in food, water, or air. Once in the body, it can damage the kidneys, liver, and central nervous system. Even low doses pose a risk for children.
- **Nitrogen dioxide (NO<sub>2</sub>)** is emitted when fuel is burned at high temperatures in cars, electric generators, and industrial boilers. Exposure can irritate lungs and increase risk of respiratory infections.
- **Ground level ozone (O<sub>3</sub>)**, otherwise known as smog, is formed when nitrogen oxides and volatile organic compounds react with sunlight. Sources of those gasses include gasoline vapors, chemical solvents, fossil fuel combustion, and industrial facilities. Exposure to ozone can lead to coughing and chest pain from the irritation and swelling of the lungs. Repeated exposure can cause permanent lung damage. Ozone causes irritation, congestion, and swelling in the lungs, along with symptoms such as coughing and chest pain. Experiments have shown that repeated exposure to high levels of ozone for several months or more can produce permanent structural damage in the lungs.
- **Particulate matter (PM)** often comes from smoke, dust, fly ash, or soot. Particles suspended in the air range from 50 microns down to .1 micron. For comparison, the width of a human hair is about 7 microns. Particles of 2.5 microns or less (PM<sub>2.5</sub>) can pose the most danger because they are inhaled deep into the lungs.
- **Sulfur dioxide (SO<sub>2</sub>)** is a colorless, nonflammable, nonexplosive gas. The gas is created by burning coal, natural gas, and oil that contain sulfur. Exposure to high concentrations of sulfur dioxide can cause bronchitis and emphysema.

Two nationwide standards establish pollution levels for outdoor or ambient air that cannot be exceeded. Primary standards are set for the immediate protection of public health, including people with asthma or emphysema, children, and the elderly. Secondary standards protect the public from known or anticipated effects of air pollution, including effects on soil, water, vegetation, property, animals, and visibility.<sup>14</sup> Science is the sole basis for setting of the standards; however, the costs of attaining the standards are considered when developing implementation regulations.<sup>15</sup>

Montana adopted standards stricter than federal law for carbon monoxide, lead, nitrogen dioxide, ozone, and sulfur dioxide prior to 1995. In that session, the legislature passed a law allowing standards stricter than federal regulations

<sup>13</sup> Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

<sup>14</sup> Ibid.

<sup>15</sup> Environmental Protection Agency, [The Clean Air Act in a Nutshell: How it Works](#), March 22, 2013.

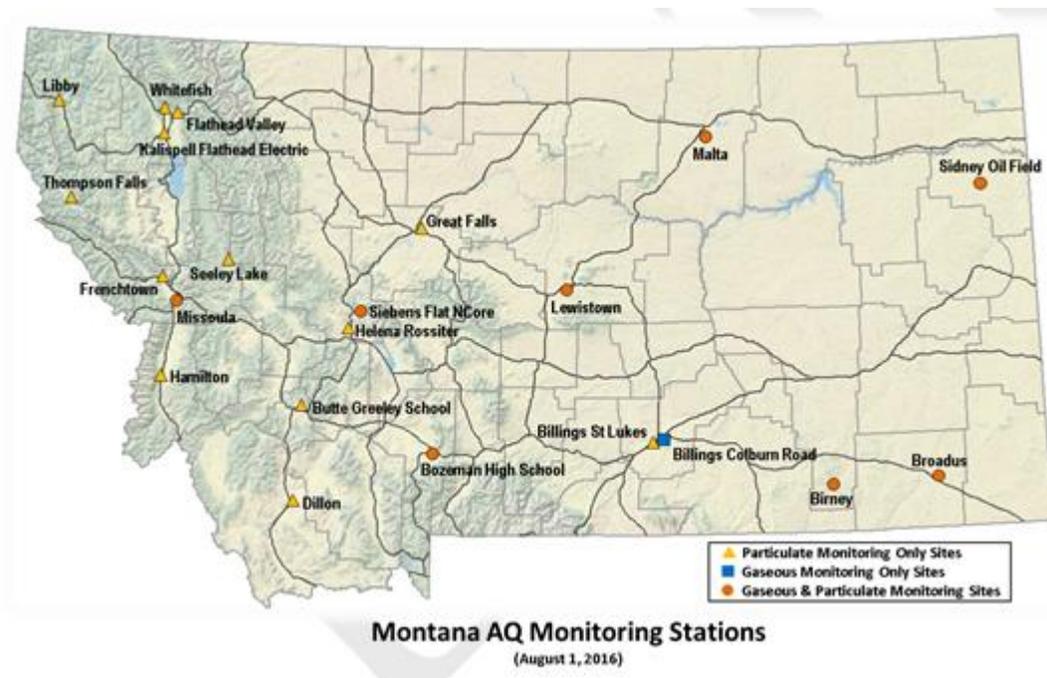
only if peer-reviewed scientific studies supported the finding that the standard would protect public health or the environment, mitigates harm to health or the environment, and is achievable with current technology.<sup>16</sup>

In addition to standards for the criteria pollutants, Montana also has ambient air quality standards for:<sup>17</sup>

- Hydrogen sulfide, a flammable colorless gas that smells like rotten eggs. It occurs naturally in oil, natural gas, and geothermal features but is also produced by oil refineries, paper mills, and food processors. High doses can cause immediate death, and longer term symptoms include headaches, fatigue, and irritated eyes.<sup>18</sup>
- Particulate matter, regardless of size, that settles as dust within a reasonable period of time.
- Visibility as a measure of how far a person can see textures and colors of a scene. Haze consists of fine particles and gases in the atmosphere that scatter and absorb light. Dust, smoke, and other air pollution can create haze.
- Pasture or cured forage contaminated with inorganic fluoride, usually by the production of aluminum, ceramic, or phosphate products. Cattle that consume contaminated forage may experience dental and skeletal lesions, lameness, and in severe cases effects on appetite and milk production.<sup>19</sup>

### Monitoring

The regulatory process, including setting of standards and issuing of permits, relies on a state network of air monitoring sites.



<sup>16</sup> [75-2-207](#), MCA.

<sup>17</sup> [Title 17, chapter 8, subchapter 2](#), Administrative Rules of Montana.

<sup>18</sup> [Hydrogen sulfide](#), Agency for Toxic Substances and Disease Registry.

<sup>19</sup> J. W. Suttie (1969) [Air Quality Standards for the Protection of Farm Animals from Fluorides](#), Journal of the Air Pollution Control Association, 19:4, 239-242, DOI: 10.1080/00022470.1969.10466481

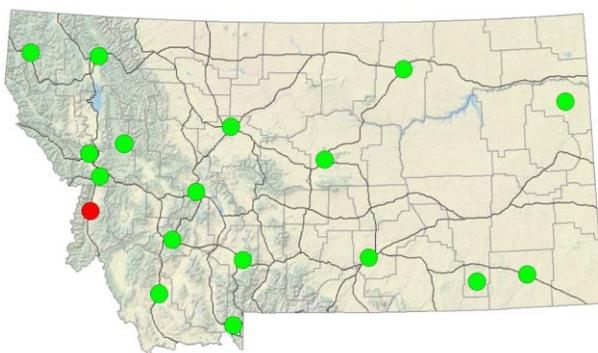
Depending upon the array of instruments included, establishing and operating a typical multipollutant monitoring station that consists of both gaseous (NO<sub>2</sub>, CO, SO<sub>2</sub>, and O<sub>3</sub>) and particulate monitoring (PM<sub>2.5</sub> and PM<sub>10</sub>) costs about \$75,000 to \$120,000 for the first year. Collection costs between \$1,000 and \$3,000 annually.

Many sites within Montana's ambient air monitoring network only monitor particulates. These monitoring stations cost \$20,000 to \$50,000 to establish and operate for the first year and about \$1,500 annually. Additional expenses include leasing land, installing power, travel expenses, and personal services.

Data from the monitors is used to determine compliance with ambient air quality standards. The [Today's Air](#) website shows particulate matter concentrations and the health effects of the current air quality for each monitoring station.

Data from the state monitors are uploaded and compiled by the EPA. Maps and data are available from the [AirData](#) website.

**Health Effects Category by Air Monitoring Station**  
Based on Average Measured Concentrations of Particulate Matter 2.5  
As Of Hour Ending 1:00 PM MDT on 8/5/2016



**Health Effects Categories**

- Hazardous
- Very Unhealthy
- Unhealthy
- Unhealthy for Sensitive Groups
- Moderate
- Good
- Current Hour Unavailable

Explanation of Categories: Breakpoints and Associated Visibility for Particulate Concentrations.

Featured Link:  
[Outdoor Activity Recommendations](#)  
[County Air Quality Programs](#)

The color of the dot on the map is determined by the worst of the most recent 1-hour, 8-hour and 24-hour rolling averages and these breakpoints, unless the 1-hour concentration is less than 15 µg/m<sup>3</sup>, in which case the dot color is green (Good). See the methodology graphically [here](#).

### Air Quality Index Report 2015

| County          | # Days with AQI | Unhealthy for |          |                  |                | # Days CO | # Days NO2 | # Days O3 | # Days SO2 | # Days PM2.5 | # Days PM10 |
|-----------------|-----------------|---------------|----------|------------------|----------------|-----------|------------|-----------|------------|--------------|-------------|
|                 |                 | Good          | Moderate | Sensitive Groups | Very Unhealthy |           |            |           |            |              |             |
| Cascade         | 347             | 306           | 32       | 3                | 6              | .         | .          | .         | .          | 347          | .           |
| Fergus          | 365             | 343           | 13       | 5                | 4              | .         | .          | 322       | .          | 43           | .           |
| Flathead        | 365             | 265           | 88       | 3                | 9              | .         | .          | 170       | .          | 147          | 48          |
| Gallatin        | 365             | 319           | 43       | 2                | 1              | .         | 6          | 35        | .          | 324          | .           |
| Lake            | 90              | 83            | 5        | 1                | 1              | .         | .          | .         | .          | 90           | .           |
| Lewis and Clark | 365             | 290           | 62       | 8                | 5              | .         | .          | 244       | .          | 121          | .           |
| Lincoln         | 365             | 204           | 140      | 8                | 12             | 1         | .          | .         | .          | 353          | 12          |
| Missoula        | 365             | 184           | 157      | 14               | 10             | .         | .          | 77        | .          | 287          | 1           |
| Phillips        | 365             | 336           | 21       | 4                | 4              | .         | .          | 277       | .          | 87           | 1           |
| Powder River    | 358             | 295           | 57       | 5                | 1              | .         | .          | 245       | .          | 64           | 49          |
| Powell          | 90              | 82            | 6        | .                | 2              | .         | .          | .         | .          | 90           | .           |
| Ravalli         | 350             | 291           | 38       | 8                | 11             | 2         | .          | .         | .          | 350          | .           |
| Richland        | 365             | 320           | 39       | 3                | 3              | .         | .          | 292       | .          | 60           | 13          |
| Roosevelt       | 75              | 69            | 2        | 3                | 1              | .         | .          | .         | .          | 75           | .           |
| Rosebud         | 360             | 313           | 42       | 4                | 1              | .         | .          | 274       | .          | 66           | 20          |
| Sanders         | 360             | 340           | 17       | 3                | .              | .         | .          | .         | .          | 31           | 329         |
| Sheridan        | 88              | 83            | 2        | 2                | 1              | .         | .          | .         | .          | 88           | .           |
| Silver Bow      | 365             | 288           | 67       | 4                | 6              | .         | .          | .         | .          | 322          | 43          |
| Yellowstone     | 365             | 332           | 32       | 1                | .              | .         | .          | .         | 70         | 295          | .           |

The Environmental Protection Agency requires the state to produce an annual plan for the monitoring network. Highlights of the 2016 plan include:<sup>20</sup>

- Particulate matter of 2.5 microns or less is the pollutant of greatest concern in Montana. The agency plans to continue to upgrade the technology and automation of those monitors. Since much of the pollution stems from wildfires, there is more reliance on portable continuous monitors.
- The existing network provides data to the most densely populated areas of the state, but funding is not available to place permanent stations in smaller mountain communities in the western part of the state, where air pollution can become trapped. Portable monitors are a more practicable solution.
- Monitoring of oil and gas development was emphasized in a prior report. The station in Sidney was established to characterize impacts of development in the area. Data collected so far shows continued compliance with air quality standards.
- DEQ operated a monitor at West Yellowstone under a grant from the National Park Service. The grant expired and the West Yellowstone monitor is now part of the national park network. The park service continues to operate the station and provides data to DEQ.

## Implementation of Standards

The Environmental Protection Agency oversees air quality regulation. States, local governments, and tribes may have their own programs and standards, but they are subject to review by the EPA and cannot be less stringent than allowed by federal law. States develop implementation plans to achieve the national and state standards. Local governments may establish pollution control programs. Tribal governments or the federal government implements the law on tribal lands.

### Federal Role

While states implement many aspects of air quality regulations, there are some areas where the federal government sets and implements regulations directly, including:<sup>21</sup>

- Setting and revising standards for new mobile sources and their engines, including cars, farm and construction equipment, trains, lawnmowers, boats, and planes. The EPA also sets requirements for fuels and additives.
- Establishing a market-based emission trading system to limit sulfur dioxide from coal-fired power plants. Sulfur dioxide and nitrogen oxide are components of acid rain, which damages aquatic life, soil, and property. Federal law set standards to encourage installation of low nitrogen oxide burners.
- Phasing out of chemicals that deplete the ozone layer. Recycling of refrigerants used in appliances and air conditions is required.
- Establishing rules on to reduce emissions of greenhouse gasses and carbon.

### State Role

The state implements the provisions of the federal law and regulation as well as its own air quality laws by developing plans to meet standards, monitoring air quality, issuing permits, inspecting permit holders, and providing technical and prevention assistance.<sup>22</sup>

<sup>20</sup> [Air Quality Monitoring Network Plan](#), May 2016.

<sup>21</sup> Environmental Protection Agency, [The Clean Air Act in a Nutshell: How it Works](#), March 22, 2013.

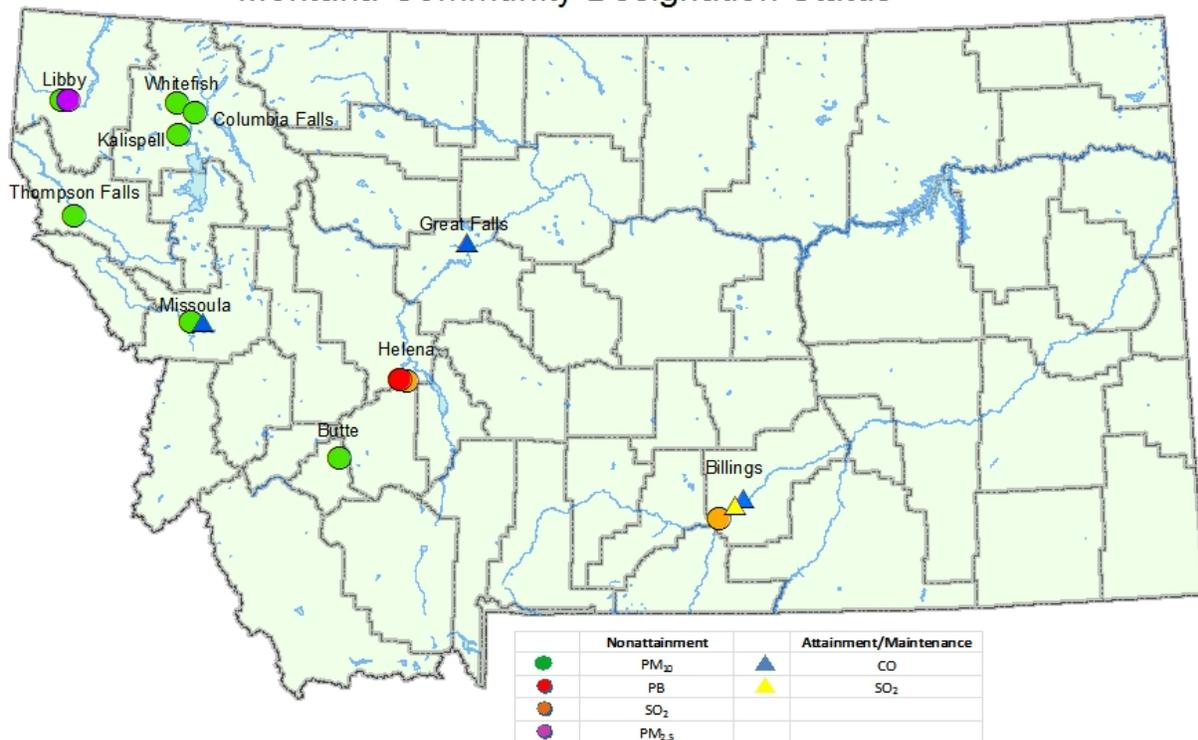
<sup>22</sup> Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

Regulation of air pollutants is based on the quality of air in geographic areas of the state. If the air in the area is cleaner than the primary standard, that is called an attainment area. If the standard for a pollutant is not met, the area is classified as nonattainment. Since not all areas are monitored, some areas are unclassified, which are basically treated as attainment areas.

There are 11 nonattainment areas in Montana. When an area is designated as nonattainment, the state has 18 months to develop a plan that would bring the area into compliance within 5 years. Once an area attains the standard, the state can apply to be designated as an attainment area under a maintenance plan. Montana's nonattainment areas are at least 20 years old and met the required deadlines for compliance. However, until the last few years, the state did not apply to be redesignated as attainment areas, in part, officials say, because of a lack of staff and expertise within the agency, the extensive modeling needed to apply for redesignation, and a relationship with the EPA that did not justify the effort to make the request.

Four areas have been redesignated and the state is working with the EPA to redesignate the 11 nonattainment areas.

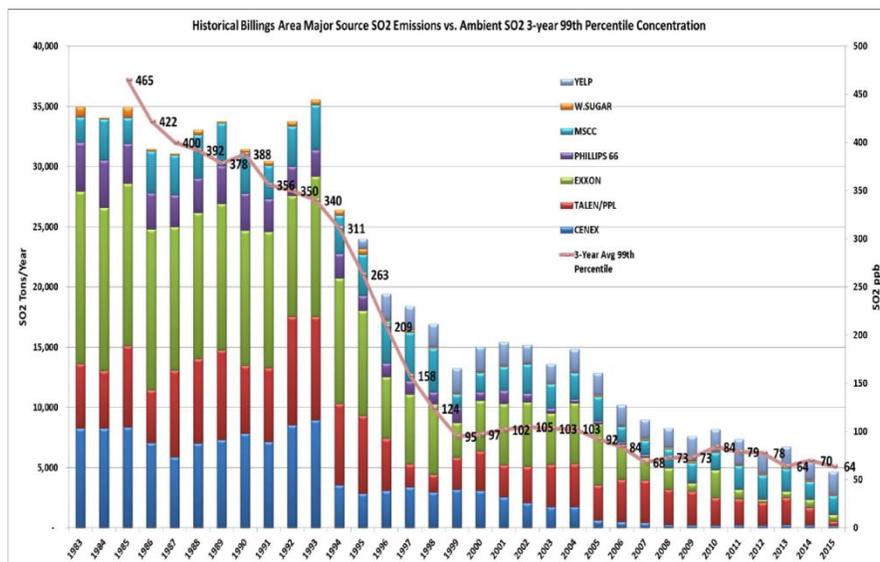
### Montana Community Designation Status



The Billings area was designated as nonattainment for sulfur dioxide in 2013. In May of 2016, the Environmental Protection Agency determined standards that emission reductions over those three years, which included the shutdown of the Corette coal-fired plant, brought the area into compliance.<sup>23</sup>

Billings and Great Falls were redesignated as attainment areas for carbon monoxide in 2002. Missoula reached that status for carbon monoxide in 2007.

In nonattainment areas, the regulations aim to control emissions to the greatest degree possible to keep the impacts below significant levels while moving toward meeting the primary standard. The permit applicant must show the lowest achievable emission rate without considering cost. The emissions must also be offset by reducing the pollutants from other sources in the nonattainment area.<sup>24</sup>



In unclassified and attainment areas, the goals of permitting is to preserve air quality while ensuring economic growth and protect public health and welfare from pollutants, even if the ambient air quality is better than standards.<sup>25</sup> Akin to nonattainment areas, the applicant must document the lowest achievable emission rate and offsetting pollution. However, if the department determines that technological or economic limitations render the standard unenforceable, another standard based on design, equipment, or operations may be required as long as that standard is federally enforceable.<sup>26</sup>

For areas not labeled nonattainment, there exist different levels of allowable pollution:<sup>27</sup>

- Class I areas allow the smallest incremental increase of pollutants and a small degree of deterioration. These include Yellowstone and Glacier national parks, the wilderness areas, and the Northern Cheyenne, Flathead, and Fort Peck reservations. Permit applications in Class I areas are also subject to an analysis of whether the source would interfere with the visual experience of visitors, taking into account the extent, intensity, duration, frequency, and time of the visual impairment.<sup>28</sup>
- Class II areas can accommodate normal, well-managed industrial growth. This encompasses the rest of the state.
- Class III areas allow the largest amount of growth. Redesignating an area as Class III requires federal approval as well as that of the governor after consulting the Legislature. Local government bodies

<sup>23</sup> DEQ [presentation](#) to Clean Air Act Advisory Committee, May 26, 2016.

<sup>24</sup> [Title 17, chapter 8, subchapter 9](#), Administrative Rules of Montana.

<sup>25</sup> Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

<sup>26</sup> [Title 17, chapter 8, subchapter 10](#), Administrative Rules of Montana.

<sup>27</sup> [Title 17, chapter 8, subchapter 8](#), Administrative Rules of Montana. Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

<sup>28</sup> [Title 17, chapter 8, subchapter 11](#), Administrative Rules of Montana.

representing a majority of residents must pass ordinances, regulations, or resolutions supporting the change. None of these areas exist in Montana.

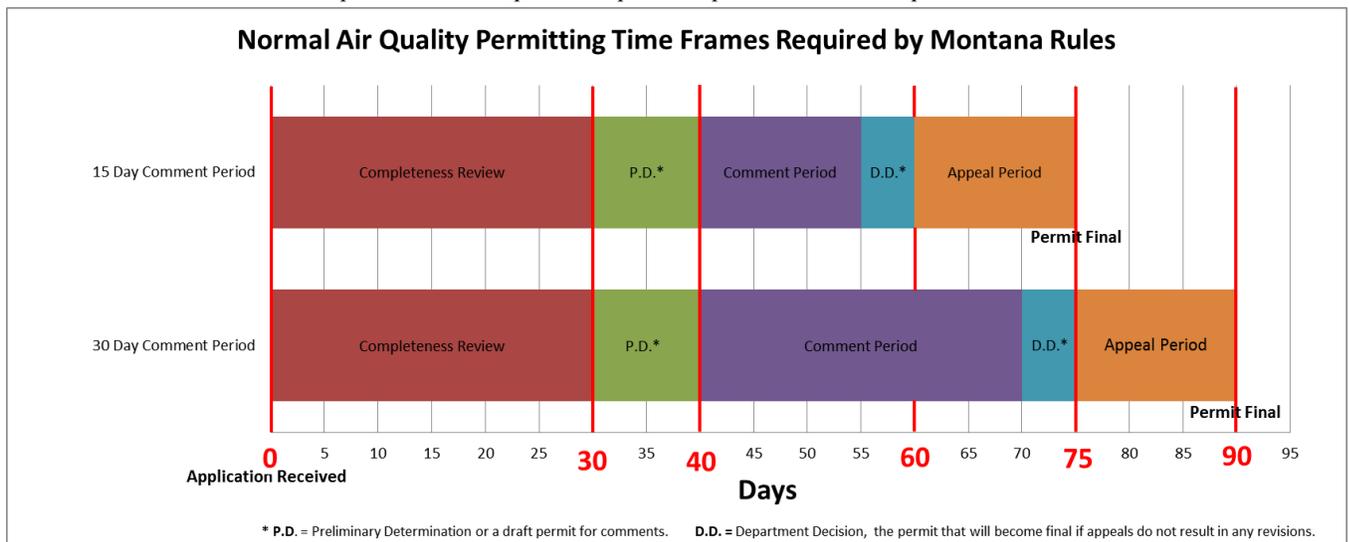
### Preconstruction Permit

A “preconstruction” permit is required before:<sup>29</sup>

- Construction of a new facility with the potential to emit more than five tons of lead a year or modification of a facility that would increase airborne lead by more than .6 tons a year;
- Construction or modification of an asphalt concrete plant, mineral crushers, and mineral screens that may emit more than 15 tons of a single pollutant a year, except lead;
- Construction or modification of incinerators;
- Modification of a facility built before November. 23, 1968, that would increase emissions by more than 25 tons per year;
- Construction or modification of any facility that isn’t excluded by rule and may emit more than 25 tons of any single pollutant a year. Exemptions include fireplaces, barbeques, and other heating or cooking devices; cars, trains, planes, and other vehicles; laboratory equipment; agricultural activities and agricultural equipment that is mobile or remains in a single place less than 12 months; emergency generators in hospitals, industrial buildings, or commercial buildings; machinery used for road construction or maintenance; and drilling rigs that do not have the potential to emit more than 100 tons of any pollutant in a year.

The application fee for a preconstruction permit depends on the size of the facility and whether the facility is new or requesting a modification to an existing permit. The fee for most facilities is \$800 for a new permit and \$500 for a permit modification. The fee for the largest and most complex facilities may be \$15,000 for a new source and \$3,500 for a major modification.<sup>30</sup>

The amount it takes to obtain a preconstruction permit depends in part on how much public comment is allowed.



<sup>29</sup> Title 17, chapter 8, subchapter 7, Administrative Rules of Montana.

<sup>30</sup> Air Quality Permit Application Fees, DEQ 10/11/14.

If the permit does not require an environmental impact statement (EIS) the comment period is 15 days. Applications that need an EIS or are for incinerators have a 30-day comment period. The comment period may also be 30 days if required by federal law or if the DEQ determines more comment is necessary.<sup>31</sup>

For permits with the 15-day comment period, the DEQ reports the average for the last 160 permits was 60.5 days. For the longer comment period, the average for the last 110 permits was 80.6 days.

### Operating Permit

An operating permit is generally required for facilities that emit more than 100 tons per year of any single regulated pollutant. The operating permit includes all the air quality requirements that are applicable to the facility and must be renewed every 5 years.

About 3% of the emission sources in Montana are required to obtain operating permits.

In general, the agency takes final action on an operating permit application within 18 months of receiving a complete application. The operating permit requires at least a 30-day public comment period and 45 days for review by the EPA. The operating permit also requires a public hearing and notification to other states that might be affected by the source.<sup>32</sup>

The fee for operating permits is \$6,500. Renewals are \$2,000 and significant modifications are \$1,500.

### Oil & Gas Permits & Registrations

In 2004, the DEQ realized that many oil and gas wells could likely exceed the limits on potential air pollutant emissions and be required to obtain a preconstruction permit. However, the potential emissions are difficult to estimate prior to drilling because the amount of pollutants emitted depends on the pressure, volume, and, if a reservoir is found, the temperature of the oil or gas reservoir. That meant the operator could be required to apply for a permit that ultimately wouldn't be needed or the permit could include requirements not pertinent to the facility.<sup>33</sup>

The Legislature passed [Senate Bill 95](#) in 2005. It allows the agency to issue a permit after the oil or gas well is complete. After the well is drilled, the operator has 60 days to operate the well and evaluate emissions before applying for a permit. During that time the department established pollution control practices and limits for criteria pollutants.<sup>34</sup>

In 2006, the DEQ established a registration process for oil and gas wells in lieu of obtaining a permit. The rules establish emission control and recordkeeping standards applicable to the oil and gas industry. The application fee is \$500.<sup>35</sup>

| Emission Sources    |             |
|---------------------|-------------|
| Source Type         | Total       |
| Ag Storage          | 16          |
| Asphalt Plant       | 72          |
| Concrete Batch      | 42          |
| Compressor          | 82          |
| Crusher/Screen      | 233         |
| Incinerator         | 45          |
| Manufacturing       | 37          |
| Mine                | 25          |
| Other               | 20          |
| Power Generation    | 11          |
| Petroleum Productio | 1266        |
| Petroleum Refining  | 4           |
| Petroleum Storage   | 22          |
| Wood Products       | 12          |
| Null                | 0           |
| <b>Totals</b>       | <b>1887</b> |

<sup>31</sup> [Title 17, chapter 8, subchapter 7](#), Administrative Rules of Montana.

<sup>32</sup> [Title 17, chapter 8, subchapter 12](#), Administrative Rules of Montana.

<sup>33</sup> [Testimony](#) of Don Vidrine, DEQ, on Senate Bill 95 Senate Natural Resources Committee, Jan. 14, 2005.

<sup>34</sup> [Title 17, chapter 8, subchapter 16](#), Administrative Rules of Montana.

<sup>35</sup> [Title 17, chapter 8, subchapter 17](#), Administrative Rules of Montana

## Open Burning Permits

Particulate matter is a criteria pollutant and also one of the major pollutants in Montana. Particulate can come from a number of mostly industrial sources regulated under the permitting system. However, burning waste material in the open air is also a common occurrence in the state and a contributor to particulate pollution. Regulations on open burning include small sources such as burning yard waste to large prescribed burns in forests.

As burning relates to fire danger, all burners must obtain a permit from the local fire control authority. As the burning relates to air quality, burning is regulated by the amount of material burned and the time of year.

Open burning is allowed without air quality restrictions from March through August. Though fire danger may be higher in the warmer months, there is also a better chance that the smoke disperses easily. When air near the ground becomes warm it rises and mixes with the rest of the atmosphere. Good dispersion is key to avoiding accumulation of particulate matter.<sup>36</sup>

During the fall season of September through November, DEQ limits burning based on local weather conditions and air quality. Areas with poor dispersion are listed daily on a burn closures website.

Open burning is most regulated in the months of December, January, and February. High pressure systems are more likely, which pushes air to the ground and restricts dispersion. Mountain valleys are also susceptible to inversions where cold air sinks into the valley and traps pollution.

Major burners need a permit throughout the year. Major burners are those that would emit more than 500 tons of carbon monoxide or 50 tons of any other pollutant in a calendar year. Those emission levels would require someone to burn about 4,500 tons of wood. There are [12 permitted major burners](#) in Montana, including the major public landowners and timber companies. Major burners must submit to DEQ proposed burning dates; the location, size, and elevation of each proposed burn site; the method of burning; and tons of fuel to be disposed. Fires may only be burned under good or excellent ventilation conditions. Public notice in the area also is required.<sup>37</sup>

Permits are also required for burning waste from a business, industry, or demolition project; landfill burning; fires set for firefighter training; burning waste from a commercial Christmas tree business; and fires set as part of a commercial film production.<sup>38</sup>

A minor burner must adhere to burning restrictions established daily by the department during the months of September, October, and November. A minor burner in [western Montana](#) must demonstrate that burning during the months of December, January, and February is essential and receive department approval. In [eastern Montana](#), minor open burning is allowed during those months if ventilation is good or excellent.<sup>39</sup>

The counties of Missoula, Cascade, Yellowstone, Lincoln, and Flathead have their own open burning restrictions.<sup>40</sup>

## Small Business Assistance

In 1990, major amendments were made to the federal Clean Air Act including the establishment of operating permits. The act also created small business assistance programs. In state law, a small stationary source is one that

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<sup>36</sup> [Why Can't I Burn?](#) Weather, Air Quality & Open Burning, DEQ.

<sup>37</sup> [Title 17, chapter 8, subchapter 6](#), Administrative Rules of Montana.

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

<sup>40</sup> [Montana Open Burning Periods](#).

employs fewer than 100 people and emits less than 50 tons per year of a single air pollutant and less than 75 tons of all pollutants.<sup>41</sup>

The legislature established the Small Business Stationary Source Technical and Environmental Compliance Assistance Program. The program assists small businesses in complying with state and federal air quality regulations. Some of these businesses, such as dry cleaners, may not be subject to permitting but are required to meet standards for emissions, monitoring, and reporting.<sup>42</sup> The department is also required to hire a representative for small business stationary sources whose job duties include representing the interests of small businesses in air quality matters before local, state, and federal entities. The representative monitors the assistance program and helps locate financial assistance to comply with air quality requirements. The representative does not work in a regulatory capacity.<sup>43</sup>

Lastly, there is a Small Business Compliance Assistance Advisory Council. Members of the council appointed to 3-year terms include:<sup>44</sup>

- two members appointed by the governor who do not own or represent a small business stationary source of pollution.
- four members who do represent small business stationary sources and who are not legislators, one appointed by each party leader in each house of the legislature; and
- one member appointed by the DEQ.

The council is required to evaluate the compliance assistance program and report its findings to the EPA, review information made available to small businesses to make sure it is understandable, and consult with the small business stationary source representative.

### *Clean Air Act Advisory Committee*

Also advising the agency on air quality matters is the Clean Air Act Advisory Committee (CAAAC). The CAAAC is a stakeholder advisory group of individuals mostly representing industry but does include representatives from local government and environmental and health advocacy groups. About 30 of the people on the mailing list of 210 participate in meetings. Formed in the early 1990s, the CAAAC advises DEQ on a wide range of air quality issues including establishment and implementation of laws and rules; program funding; compliance assistance; and regional air quality issues.

### *Local Role*

Cities or counties may establish their own air quality programs, subject to approval by the Board of Environmental Review for consistency with state regulations. The state retains jurisdiction over facilities that emit more than 250 tons per year of a regulated pollutant, require an environmental impact statement pursuant to the Montana Environmental Policy Act, or are regulated by the Montana Major Facility Siting Act.<sup>45</sup>

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<sup>41</sup> [75-2-103, MCA](#).

<sup>42</sup> [75-2-107, MCA](#).

<sup>43</sup> [75-2-109, MCA](#).

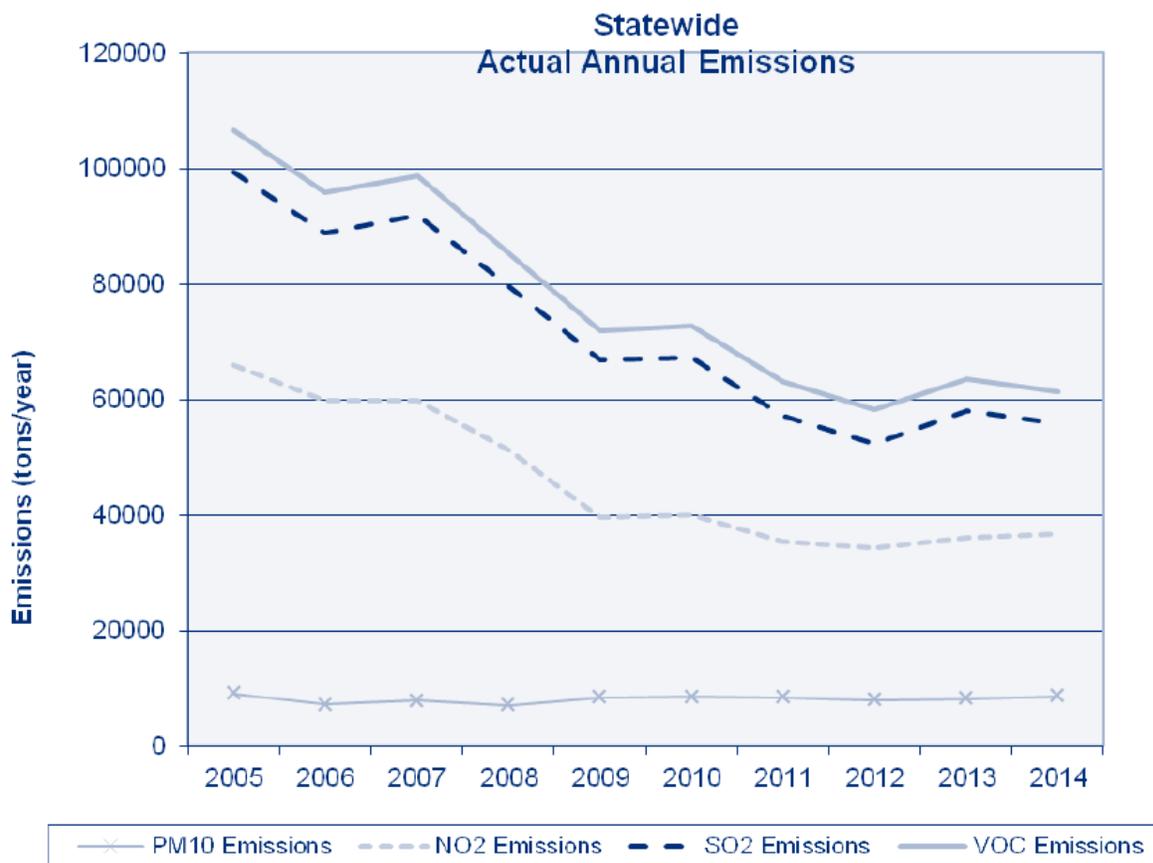
<sup>44</sup> [2-15-2110, MCA](#).

<sup>45</sup> [75-2-301, MCA](#).

The counties of Yellowstone, Butte-Silver Bow, Cascade, Lewis and Clark, Flathead, Lincoln, and Missoula operate air quality programs. Examples of program duties may include establishing permitting programs, responding to local complaints, regulating open burning, and inspecting pollution sources.<sup>46</sup>

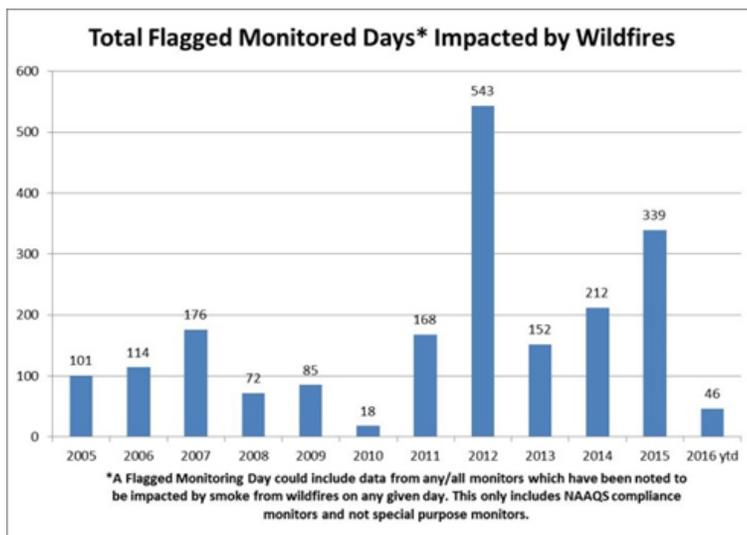
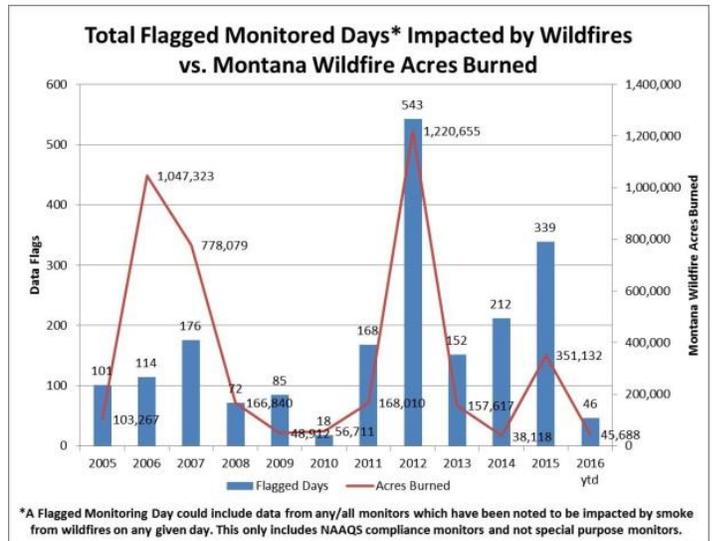
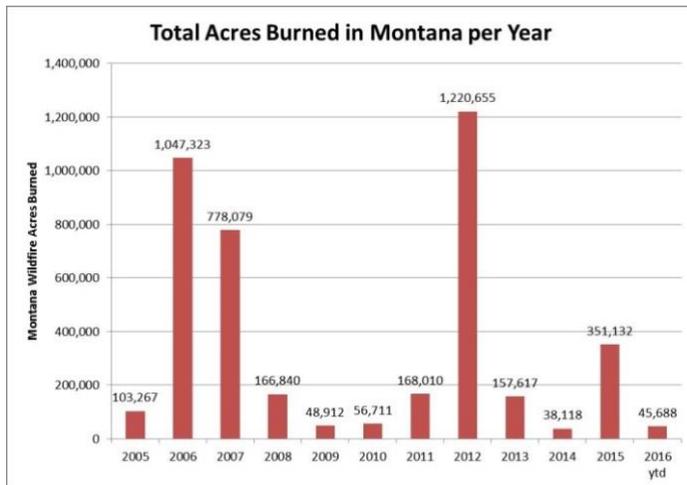
## Trends in Air Quality

### Emissions of Criteria Pollutants



<sup>46</sup> Montana Department of Environmental Quality, [Citizen's Guide to Air Quality in Montana](#), 2000.

## Wildfire Smoke<sup>47</sup>



<sup>47</sup> Wildfire smoke is one of the larger influences on air quality.

## Financial Overview

Most funding of the Air Quality Bureau comes from fees paid by permit holders and registrants and the federal government.

| Expenses                       | FY15 Budget      | FY 15 Expenditures | FY16 Budget      | FY 16 Expenditures |
|--------------------------------|------------------|--------------------|------------------|--------------------|
| Personal Services              | 3,711,755        | 3,525,520          | 3,934,564        | 3,800,400          |
| Operating                      | 1,987,024        | 1,636,794          | 1,741,766        | 1,779,475          |
| Equipment                      | 201,349          | 61,824             | 213,827          | 166,086            |
| Capital Outlay                 | 0                | 15,283             | 0                | 0                  |
| <b>Total</b>                   | <b>5,900,128</b> | <b>5,239,421</b>   | <b>5,890,157</b> | <b>5,745,961</b>   |
| <b>Revenue</b>                 |                  |                    |                  |                    |
| Air Fees                       | 4,141,149        | 3,709,091          | 4,093,187        | 3,982,179          |
| Air Fees Used for Interns      | 94,000           | 34,268             | 0                | 0                  |
| Air Fees in lieu General Fund* | 0                | 0                  | 152,039          | 151,297            |
| General Fund                   | 169,009          | 140,526            | 0                | 0                  |
| BLM Monitoring                 | 96,516           | 57,014             | 0                | 0                  |
| BLM Monitoring                 | 25,094           | 14,836             | 53,229           | 53,228             |
| EPA-PPG Carryforward           | 0                | 0                  | 114,466          | 114,466            |
| EPA-PPG 105 Grant              | 926,260          | 842,034            | 1,087,484        | 1,086,710          |
| EPA 103 PM-2.5                 | 425,751          | 427,972            | 379,730          | 348,059            |
| NPS-Yellowstone Agreement      | 22,349           | 13,679             | 10,022           | 10,021             |
| <b>TOTAL</b>                   | <b>5,900,128</b> | <b>5,239,420</b>   | <b>5,890,157</b> | <b>5,745,961</b>   |

## Enforcement

Permittees and registrants are required to submit reports and also are subject to onsite inspections. The significance of violations depends on the type, such as missing a fee deadline versus an emission violations; the impact of the violation, and the compliance history of the facility. The department notes that compliance assistance is offered whenever practical. For example, facilities may be sent multiple billing notices for past due operating fees followed by phone calls and emails before a violation letter is sent.<sup>48</sup>

### Noncompliance at Permitted Facilities

|  | FY2014 | FY2015 |
|--|--------|--------|
| Permitted Facilities                                       | 636    | 625    |
| Notices of Noncompliance <sup>1</sup>                      | 43     | 49     |
| Noncompliance Rate based on Field Inspections <sup>2</sup> | 1.7%   | 2.3%   |
| Noncompliance Rate based on File Review                    | 6.3%   | 7.2%   |

1. Notices of Noncompliance consist of warning and violation letters
2. File reviews consist of semi-annual report reviews, quarterly report reviews, source test reviews, annual production information review, etc.

The agency attributes lower compliance rates for oil and gas registrants in part to the industry being relatively new to dealing with air quality regulations. The department spent the last decade working with the oil and gas industry on registration obligations. The department reports that in many cases, compliance was not achieved until after inspections were conducted. The agency also notes that traditional emission controls for oil and gas wells did not meet state standards.<sup>49</sup>

<sup>48</sup> DEQ [Environmental Enforcement and Compliance Report](#) to EQC, 2016.

<sup>49</sup> Ibid.

### Noncompliance at Registered Facilities

|  | FY2014 | FY2015 |
|--|--------|--------|
| Registered Facilities                                | 1233   | 1269   |
| Notices of Noncompliance <sup>1</sup>                | 93     | 88     |
| Noncompliance Rate Based on Field Inspections        | 44.4%  | 69.0%  |
| Noncompliance Rate Based on File Review <sup>2</sup> | 10.2%  | 5.4%   |

1. Notices of Noncompliance consist of warning and violation letters

2. File reviews consist of registration form reviews, source test reviews, etc.

For the most serious or repetitious violations, the department issues and collects monetary penalties. Most of the larger fines are for emission violations.

### Air Quality Penalties FY2015

| RP                                | City             | Amt paid     |
|-----------------------------------|------------------|--------------|
| Sinclair Oil & Gas Company        | Plentywood       | \$6,271.00   |
| Calumet Montana Refining, LLC     | Great Falls      | \$56,350.00  |
| CONTINENTAL RESOURCES INC         | Richland County  | \$17,700.00  |
| PLUM CREEK MANUFACTURING INC      | COLUMBIA FALLS   | \$25,300.00  |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| Myrstol Logging Inc               | Park County      | \$2,000.00   |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| CAP Paving                        | East Helena      | \$8,050.00   |
| Oasis Petroleum North America LLC | Roosevelt County | \$38,200.00  |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| Myrstol Logging Inc               | Park County      | \$1,000.00   |
| PPL Montana LLC                   | Billings         | \$1,000.00   |
|                                   |                  | \$161,871.00 |

### Air Quality Penalties FY2016

| RP  |                    | Amt paid      |
|---|--------------------|---------------|
| Colorado Energy Management LLC/Rocky Mountain Power LLC | Hardin             | \$ 15,500.00  |
| Myrstol Logging, Inc.                                   | Park County        | \$ 1,000.00   |
| Myrstol Logging, Inc.                                   | Park County        | \$ 1,000.00   |
| Myrstol Logging, Inc.                                   | Park County        | \$ 3,300.00   |
| CHS   | Laurel             | \$ 90,000.00  |
| Calumet Lubricants Co. L.P.                             | Great Falls        | \$ 55,750.00  |
| Slawson Exploration Company, Inc.                       | Richland County    | \$165,300.00  |
| Helena Sand & Gravel                                    | all counties       | \$ 16,100.00  |
| Rim Operating, Inc.                                     | multiple locations | \$ 36,300.00  |
| Petro-Hunt LLC  | Sidney             | \$ 63,000.00  |
| Conoco Phillips Company                                 | Billings           | \$ 1,200.00   |
| CBS/Big Sky Stickers                                    | Superior           | \$ (7,854.50) |
|   |                    | \$440,595.50  |