



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Ref: 8P-AR

JUN 29 2004

Honorable Judy H. Martz
Governor of Montana
State Capitol
Helena, MT 59601

Dear Governor Martz:

Fine-particle pollution represents one of the most significant barriers to clean air facing our nation today. These tiny particles – about 1/30th the diameter of a human hair – have been scientifically linked to serious human health problems. Their ability to be suspended in air for long periods of time makes them a public health threat far beyond the source of emissions. An important part of our nation's commitment to clean, healthy air deals with reducing levels of this fine-particle or PM_{2.5} pollution.

In February, your state submitted its recommended boundaries for PM_{2.5} unclassifiable/attainment and nonattainment areas. We have thoroughly reviewed your recommendations. Consistent with the Clean Air Act, this letter is to notify you that based on the information contained in your submittal, EPA agrees with your recommended designations but intends to modify your recommended boundary for the Lincoln County nonattainment area, as described in the enclosure to this letter. Your recommendation letter also requested boundaries for attainment/unclassifiable areas that would be smaller than whole counties. We have not taken action on that request today. However, we intend to respond to your boundary recommendation shortly -- allowing at least 120 days for you to review our response.

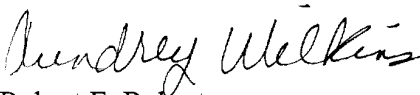
Your Environmental Commissioner will receive a copy of this letter with a more detailed enclosure containing the description of the area where EPA intends to modify your State recommendations along with the basis for such modification. Should you have additional information that you wish to be considered by EPA in this process, we request that you provide it to us by September 1.

You will hear from us again in November when EPA takes the final steps in the PM_{2.5} designations process and determines those areas that are attainment (or unclassifiable) and those areas that are nonattainment. For areas that are attainment, the challenge will be not only to maintain, but also continue the progress you have made toward clean air. It is a commitment to no backsliding in your State's clean air status for fine particles. EPA will also issue a proposed fine particle implementation rule prior to final designation, which will allow you to proceed with planning to achieve clean air.

The EPA is addressing fine particle pollution with a comprehensive national clean air strategy. This strategy includes EPA's recent rule to reduce pollution from nonroad diesel engines, and the proposed rule to reduce pollution from power plants in the eastern U.S. These two rules are important components of EPA's efforts to help states and localities meet the more protective national fine-particle and 8-hour ozone air quality standards. Together these rules will help all areas of the country achieve cleaner air.

We look forward to a continued dialogue with you as we work together to implement the PM_{2.5} standards. Should you have any questions, I invite you to contact me at our toll free number 1-800-227-8917. Your staff or that of the Montana Department of Environmental Quality may also wish to contact Richard Long, Director of our Air and Radiation Program, at (303) 312-6005, or Libby Faulk, Air and Radiation Program staff, at (303) 312-6083.

Sincerely yours,


for Robert E. Roberts
Regional Administrator

Enclosure

cc: Jan Sensibaugh, Director, MT DEQ w/enclosure
Don Vidrine, Bureau Chief, MT DAQ w/enclosure
Trista Glazier, MT DAQ w/enclosure
Ron Anderson, Lincoln County Health Department w/enclosure
John Wardell, MT EPA Office w/enclosure



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Enclosure

The following table identifies the individual areas and counties comprising those areas within Montana that EPA intends to designate as nonattainment.

Area	EPA Recommendation	State Recommendation
Lincoln County, MT	Full counties: Lincoln County, MT	Partial Counties: Lincoln County, Libby and vicinity

An Explanation of EPA's 9-Factor Analysis

Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:

The analysis for factor 1 looks at emissions of carbonaceous particles ("carbon"), inorganic particles ("crustal"), SO₂, and NO_x. EPA computed a composite emission score for each county by multiplying the county's emissions as a fraction of the metropolitan area emissions for each of these pollutants times a corresponding air quality weighting factor. The air quality weighting factors for each area are given below and reflect the percentages of the total estimated "urban excess" value found as, respectively, carbonaceous particles, miscellaneous inorganic particles ("crustal material"), ammonium sulfate, and ammonium nitrate. These scores add to 100 for the metropolitan area counties. Composite scores were also calculated for counties adjacent to the metropolitan area. Tables presented under factor 1 present the emissions of carbonaceous particles, inorganic particles, SO₂, and NO_x and the composite emission scores for the counties in the corresponding metropolitan area and adjacent counties. Metropolitan area counties are in **bold**. Emissions data indicate the potential for a county to contribute to observed violations, often making the emissions data the most important factor in assessing boundaries of nonattainment areas.

"Urban excess" values are derived by comparing urban monitored component concentrations against rural monitored component concentrations. Concentrations of the four PM_{2.5} components are obtained from local data if available (or, if necessary, from the nearest available urban site), and are compared to available rural concentrations. The monitoring sites used for this purpose are identified below. Although this information is air quality information, it is presented under Factor 1 due to its integration into the analysis of emissions information.

Factor 2. Air quality in potentially included versus excluded areas:

The air quality analysis looks at the annual averaged design value for each area based on data for 2001 to 2003. Counties without monitors are not listed.

Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:

Tables presented under factor 3 show the 2003 population for each metropolitan area, as well as the population density for each county in that area. Population data indicate the likelihood of population-based emissions that might contribute to violations.

Factor 4. Traffic and commuting patterns:

The traffic and commuting analysis looks at the number of commuters in each county who drive to another county within the metropolitan area ("Number"), the percent of total commuters in each county who commute to other counties within the metropolitan area ("percent")*, as well as

the total Vehicle Miles Traveled (VMT) for each county in thousands of miles. A county with numerous commuters is generally an integral part of the area, and would be an appropriate part of the domain of some mobile source strategies, thus warranting inclusion in the nonattainment area.

*Note that the percent of commuters traveling to counties within the metropolitan area is based on the total number of commuters from that county. This total includes commuters who may travel outside the metropolitan area from their county of origin.

Factor 5. Expected growth:

The expected growth analysis looks at the percent growth for counties in each metropolitan area from 1990 to 2000.

Factor 6. Meteorology:

The meteorology analysis looks at wind data. Tables presented under factor 6 list the year round average prevailing wind directions by quadrant for each county in the corresponding metropolitan area.

Factor 7. Geography/topography:

The geography/topography analysis looks at physical features of the land that might have an effect on the airshed and therefore, the distribution of particulate matter over an area.

Factor 8. Jurisdictional boundaries:

The analysis of jurisdictional boundaries looks at the planning and organizational structure of an area to determine if the implementation of controls in a potential nonattainment area can be carried out in a cohesive manner.

Factor 9. Level of control of emission sources:

The level of control analysis looks at what controls are currently implemented in each area.

EPA's 9 Factor Analyses for Lincoln, Montana - Enclosure 2

The following is a 9 factor analysis for Lincoln County, Montana. Lincoln County is considered a rural county, according to EPA's April 1, 2003 "Designations for the Fine Particle National Ambient Air Quality Standards" which defines a rural area as counties or areas not included in or adjacent to urban areas (metropolitan statistical areas (MSA)). The adjacent areas to Lincoln County are the Canadian border to the North, Boundary and Bonner County, Idaho to the West, Sanders County, MT to the South, and Flathead County, MT to the East. Lincoln County contains a violating monitor located in the town of Libby. The Lincoln County PM_{2.5} nonattainment issue is unique in that the area of impact is localized within and around the vicinity of the town of Libby due to topographical features and meteorology in the area impacted by emissions. Montana's recommendation identifying the PM_{2.5} nonattainment area included Lincoln County (part) to include the town of Libby and vicinity. Montana plans to submit a technical analysis for the partial county request. Until such time that Montana submits a technical analysis, EPA intends to designate the entire Lincoln County area as nonattainment for the annual PM_{2.5} standard.

Based on air quality data for 2001-2003, the PM_{2.5} monitor at the Libby Courthouse Annex is violating the annual PM_{2.5} standard. EPA is utilizing the 9 factors identified in the April 1, 2003 "Designations for the Fine Particle National Ambient Air Quality Standards" guidance to evaluate whether the surrounding rural counties around Lincoln, MT should be included as part of the nonattainment area. However, due to the topographical features and local meteorology within Lincoln County and more specifically around the Libby, Montana vicinity, a majority of the 9 factors cannot be applied to this particular nonattainment area when looking at adjacent counties to Lincoln County, MT.

The following is a brief summary of the 9 factor criteria for the Lincoln County, MT area and surrounding counties. These analyses were based on existing available data. The counties recommended as nonattainment are in **bold**.

Factor 1: Emissions in areas potentially included versus excluded from the nonattainment area

For this factor, EPA looked at SO_x, NO_x, carbon and crustal PM_{2.5} emissions. A weighted emissions score was applied to Lincoln county and the adjacent counties reflecting the speciation profile of Lincoln County versus the adjacent counties. Counties adjacent to the Lincoln County were assigned an emission score as a way to compare the emissions from those counties against Lincoln County emissions. The following table has the SO_x, NO_x, carbon, and crustal PM_{2.5} emissions and CES scores. This information is from the 2001 National Emissions Inventory (NEI). (The recommended nonattainment area is in **bold**.)

County	Sox (tons)	Nox (tons)	Carbon (tons)	Crustal PM _{2.5}	Comp. E-Score

				(tons	
Lincoln	257	3286	862	275	100
Flathead	1919	6651	1788	1904	257
Bonner	313	5324	1411	730	159.5
Boundary	114	1886	1431	760	134.4
Sanders	328	4543	605	151	88.2

Since Lincoln County is considered to be a rural county as defined in EPA's April 1, 2003 PM_{2.5} Designations Guidance and not a metropolitan statistical area this factor did not play a significant role in the decision making process. Also, due to the topographical features and meteorology in Lincoln County (see factors 6 and 7 below) and more specifically surrounding Libby, MT where the PM_{2.5} problem is, EPA feels the surrounding counties emissions are not impacting the PM_{2.5} monitor located at the Libby Courthouse Annex.

Factor 2: Air quality in potentially included versus excluded areas

County	PM _{2.5} 2001-2003
Lincoln	16.2*
Flathead	9.1
Bonner	8.0
Boundary	8.2
Sanders	6.2

* Lincoln County PM_{2.5} monitor is located at the Libby Courthouse Annex, Libby, MT.

All adjacent counties to Lincoln, MT are attaining the PM_{2.5} standard. This factor played a significant role in the decision making process.

Factor 3: Population density and degree of urbanization including commercial development in included versus excluded areas

The following table has the population and population density for Lincoln County and the adjacent counties.

County	2002 Population	2002 Population Density (pop. per square mile)
Lincoln	18,665*	5**

Flathead	77,240	15
Bonner	38,205	22
Boundary	10,085	8
Sanders	10,367	4

* Town of Libby, MT population: 2,626;

** Town of Libby, MT population density: 2,020

The town of Libby, where the $PM_{2.5}$ problem is located has a much higher population density than the remainder of Lincoln County or any of the surrounding counties. Also, due to the commuting patterns, topographical features and meteorology in Lincoln County (see factors 4, 6 and 7 below), EPA feels the adjacent county populations do not impact the $PM_{2.5}$ monitor located at the Libby Courthouse Annex. This factor played a significant role in the decision making process.

Factor 4: Traffic and commuting patterns

Commuting Information

Lincoln County, the design value county, has a total of 6,721 commuters.
 - Commuters who remain in Lincoln County: 6,177

Flathead County, an adjacent county, has a total of 34,035 commuters.
 - Commuters from Flathead County to Lincoln County: 85
 - Commuters that remain in Flathead County: 32,956

Bonner County, an adjacent county, has a total of 15,570 commuters.
 - Commuters from Bonner County to Lincoln County: 0
 - Commuters that remain in Bonner County: 12,968

Boundary County, an adjacent county, has a total of 3,830 commuters.
 - Commuters from Boundary County to Lincoln County: 10
 - Commuters that remain in Boundary County: 3,310

Sanders County, an adjacent county, has a total of 3,903 commuters.
 - Commuters from Sanders County to Lincoln County: 12
 - Commuters that remain in Sanders County: 3,337

The following table has the vehicle miles traveled (thousand miles) for Lincoln County and the adjacent counties.

County	VMT
Lincoln	231
Flathead	756
Bonner	442
Boundary	139
Sanders	93

Based on the analysis for this factor there are no adjacent counties impacting the PM_{2.5} monitor located at the Libby Courthouse Annex. This factor played a significant role in the decision making process.

Factor 5: Expected growth

The following table has the population and population growth figures for Lincoln County and the adjacent counties. (Nonattainment counties are in **bold**.)

County	2002 Population	Population Density	Area (sq. mile)	growth (99-00)	% Change (90-00)
Lincoln	18665	5	3613	1356	8
Flathead	77240	15	5099	15253	26
Bonner	38205	22	1738	10213	38
Boundary	10085	8	1269	1539	18
Sanders	10367	4	2762	1558	18

Based on the analysis for this factor, there is no significant growth, on either an absolute or a percentage basis, to indicate a contribution to the air quality in Lincoln County. This factor did not play a significant role in the decision making process.

Factor 6: Meteorology

Libby Montana is located in the northwestern part of the state in a narrow north-south orientated valley. The ridgetops surrounding Libby are approximately 4,000 feet higher than the town. There are no other towns or large emissions sources immediately upwind so transport of high background concentrations into Libby is considered unlikely. The highest PM_{2.5} concentrations in Libby generally occur during the months of November through February. During the summer months concentrations typically average less than half the level of the annual PM_{2.5} NAAQS, while winter concentrations may double the NAAQS. The much higher concentrations in winter

are related to stagnant weather conditions dominated by light winds and strong temperature inversions. These meteorological conditions may trap emissions within the valley for many days. No recent meteorological data is available for Libby, however, data from Kalispell, MT show calm wind conditions occur 35 percent of the time in the winter months and only 15 percent of the time in the spring and summer. Vertical temperature soundings at Great Falls in Western MT also show a very high frequency of surface temperature inversions in the winter.

Due to the meteorology conditions in the town and surrounding vicinity of Libby and due the topographical features within Lincoln County and more specifically around Libby (see factor 7 below), that create stagnant weather conditions, EPA feels the adjacent counties do not impact the PM_{2.5} monitor located at the Libby Courthouse Annex and that the nonattainment problem is a localized PM_{2.5} problem.

County	Prevailing Wind Directions (%)			
	NW	SW	SE	NE
Lincoln	14	37	22	26
Flathead	21	34	22	24
Bonner	14	42	20	24
Boundary	12	40	22	27
Sanders	26	28	24	22

This factor played a significant role in the decision making process.

Factor 7: Geography/topography

Lincoln County, MT

Lincoln County has a land area of 3,675 square miles. The area of concern showing high PM_{2.5} concentrations is located within and around the Libby, Montana vicinity. Lincoln County has numerous geographical or topographical boundaries limiting its airshed to a very narrow valley including the surrounding vicinity of Libby. The town of Libby has a total area of 1.3 miles. As of the 2000 census, there are 2,626 people, 1,132 households, and 669 families residing in the city. The elevation for the town of Libby is 2,601 feet. The ridgetops surrounding Libby are approximately 4,000 feet higher than the town. The town sits in a narrow valley that runs in a north-south direction (48°23'17" North, 115°33'13" West). The Kootenai River runs adjacent to the town in a east-west direction. The Kootenai Basin is largely mountainous and dominated by three major ranges. The Rocky Mountain Range and the Flathead Range constitute the eastern boundary; the Purcell Range roughly bisects it from north to south. The Selkirk and Cabinet ranges mark the western boundary. Elevations reach a maximum of about 12,000 feet with most summit elevations between 6,000 and 7,500 feet. Except for a few areas, the entire watershed is heavily forested (practically all of Lincoln County and a large portion of the surrounding counties

consists of National Forest land). The Kootenai River has its origins in British Columbia's Kootenay National Park in Canada. From there it flows 485 miles into northwest Montana and through the towns of Libby and Troy. From there it flows into northern Idaho, then back into Canada and Kootenay Lake. Ultimately it joins with the Columbia River. Sixteen miles north of Libby, the river is held back by Libby Dam, creating a 90-mile long reservoir which reaches into Canada. The river drops less than 1,000 feet (305 meters) in elevation from Canal Flats to Kootenay Lake, a distance of over 300 miles (480 km). However, even along the river's slow meandering course, valley-bottom widths are generally less than two miles and are characterized by tree-covered rolling hills with few grassland openings.

Due to the topographical features and meteorological data (see factor 6 above) within and surrounding the vicinity of Libby resulting in stagnant weather conditions trapping emissions in the valley, EPA feels the adjacent counties do not impact the PM_{2.5} monitor located at the Libby Courthouse Annex. Emissions from adjacent counties would have to traverse one or more major mountain ranges, in some cases against the prevailing wind direction, in order to impact the town of Libby.

This factor played a significant role in the decision making process.

Factor 8: Jurisdictional boundaries

No areas in Montana or Idaho were designated nonattainment for the 8-hour ozone standard on April 15, 2004.

The town of Libby and vicinity within Lincoln County are designated nonattainment for PM10.

Due to the fact that the town and surrounding vicinity of Libby, Montana was designated nonattainment for PM10 and did not include the surrounding counties around Lincoln, MT, EPA believes this factor plays a significant role in the decision making process.

Factor 9: Level of control of emission sources

The following are sources located in Lincoln County, MT but are not considered major PSD sources.

- Plum Creek Northwest Lumber, Inc. (Ksandka Sawmill), Fortine, MT
- Eureka Pellet Mills, Eureka, MT
- Genesis Inc. (Troy Mine), Troy, MT
- Lone Pine Timber Industries, Eureka, MT
- Stimson Lumber Mill, Libby, MT (closed - Spring, 2003)

Due to the topographical features and meteorology in Lincoln County (see factors 6 and 7 below) and more specifically surrounding Libby, MT where the PM_{2.5} problem is located, EPA believes this factor does not play a significant role in the decision making process.