REQUEST FOR REDESIGNATION OF LIBBY PM_{10} NONATTAINMENT AREA

&

ATTAINMENT AREA LIMITED MAINTENANCE PLAN

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ACRONYMS

AIRS	Aerometric Information Retrieval System
ARM	Administrative Rules of Montana
CAA	Federal Clean Air Act
CMB	Chemical Mass Balance
DEQ	Montana Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
FR	Federal Register
LMP	Limited Maintenance Plan
NAA	Nonattainment area
NAAQS	National Ambient Air Quality Standard(s)
NEI	National Emission Inventory
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NSPS	New Source Performance Standards
NSR	New Source Review
PM_{10}	Particulate Matter of 10 Microns or Less
$PM_{2.5}$	Particulate Matter of 2.5 Microns or Less
PSD	Prevention of Significant Deterioration
RACM	Reasonable Available Control Method
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
SLAMS	State and Local Air Monitoring Sites
SIP	State Implementation Plan
tpy	tons per year
USC	United States Code Annotated
VMT	Vehicle Miles Traveled
$\mu g/m^3$	micrograms per cubic meter

REQUEST FOR REDESIGNATION OF THE LIBBY PM_{10} NONATTAINMENT AREA AND APPROVAL OF A LIMITED MAINTENANCE PLAN

1. INTRODUCTION

The purpose of this document is to formally request redesignation of the Lincoln County (Libby area) nonattainment area (NAA) for particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}) from 'nonattainment' to 'attainment' with a limited maintenance plan (LMP). This document supports the request by demonstrating each of the redesignation requirements set out in Sections 107, 110 and Part D of the Clean Air Act (CAA), including:

- A determination that the area has attained the PM_{10} National Ambient Air Quality Standards (NAAQS);
- An approved State Implementation Plan (SIP) for the area under Section 110(k) of the CAA;
- A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements;
- A fully-approved maintenance plan under Section 175A of the CAA; and
- A determination that all Section 110 and Part D requirements of the CAA have been met.

This section provides detail on the history of the NAA designation, major source contributors, and control plan details. Subsequent sections provide support for each of the redesignation requirements outlined above including monitoring data, SIP provisions, emission inventory, and limited maintenance plan specifics.

1.1. NAA History

The United States Environmental Protection Agency (EPA) promulgated new PM_{10} NAAQS on July 1, 1987 (52 Federal Register (FR) 24634). The primary (health-based) standards were set at 150 micrograms per cubic meter ($\mu g/m^3$), not to be exceeded more than once per year on average over a 3-year period, and 50 $\mu g/m^3$ annual arithmetic mean, averaged over 3 years. The secondary (public welfare-based) standards were set the same as the primary standard.

On August 7, 1987 (52 FR 29383), the Libby area of Lincoln County was classified by the EPA as a Group I area, meaning it is likely to violate the PM_{10} NAAQS. Then on March 15, 1991 (56 FR 11101), the EPA designated Libby as one of the initial moderate PM_{10} NAAs through the enactment of the 1990 CAA Amendments per 42 US Code (USC) 7407(d)(4)(B). The Libby area was originally designated nonattainment for both the 24-hour and annual PM_{10} NAAQS. After the EPA revoked the annual PM_{10} standard in 71 FR 61144 (October 17, 2006), Libby's NAA status only applied to

the 24-hour PM_{10} standard. The EPA explained that retaining the 24-hour PM_{10} standard is generally controlling and is protective of human health.

Libby is a small, rural community located in Lincoln County, in the northwest corner of Montana, as shown in Figure 1.1. The Libby PM_{10} NAA is irregularly shaped and composed of Townships T30N, R31W-Sections 2, 3, 4, 5, 9, 10, 11, 14, 15, 23, 26, 35, and west 1/2 of Section 24, west 1/2 of Section 25, and west 1/2 of Section 36; plus T31N, R31W-Sections 26, 27, 29, 32, 33, 34, 35 and the east 1/2 of Section 30. The town sits on the valley floor at the junction of US Highway 2 and MT Highway 37. Figure 1.2 shows the NAA boundary which encompasses the commercial and residential neighborhoods of Libby and nearby communities that extend along the valley floor. The valley floor elevation is about 2,080 feet with the Cabinet Mountains to the west rising to over 8,000 feet, the Purcell Mountains to the north rising to 6,000 feet and the Salish Mountains to the east rising to 6,000 feet. These steep valley walls channel air flows and, during calm wind conditions, easily develop temperature inversions trapping cold air (and pollution) on the valley floor.

Particulate monitoring has been conducted in Libby since the mid-1970s. Initial monitoring was for total suspended particulate (TSP) at two locations, the Brown residence (30-053-0010) and Lincoln County's courthouse (30-053-0012). Exceedances of the TSP NAAQS were measured at both sites. An analysis of the TSP data from the Lincoln County courthouse and the Brown's residence revealed both sites were monitoring the same airshed. In August 1985, Department of Environmental Quality (DEQ) discontinued the TSP sampling at the Brown's residence.

DEQ installed the first PM_{10} sampler in Libby at the courthouse site in May 1985. In 1986, another PM_{10} monitoring site was established a few blocks away at the county's courthouse annex (30-053-0018). The original courthouse monitoring site was terminated in April 1995, when a comparison of its data with that collected at the annex site indicated the original courthouse PM_{10} site was redundant.

Figure 1.1 – Lincoln County, Montana

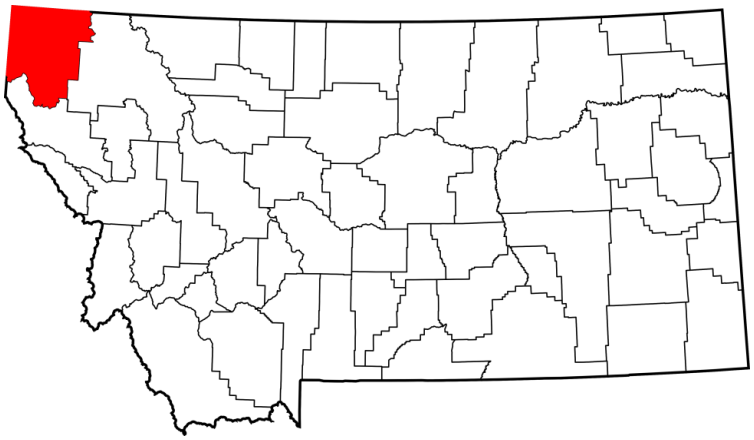
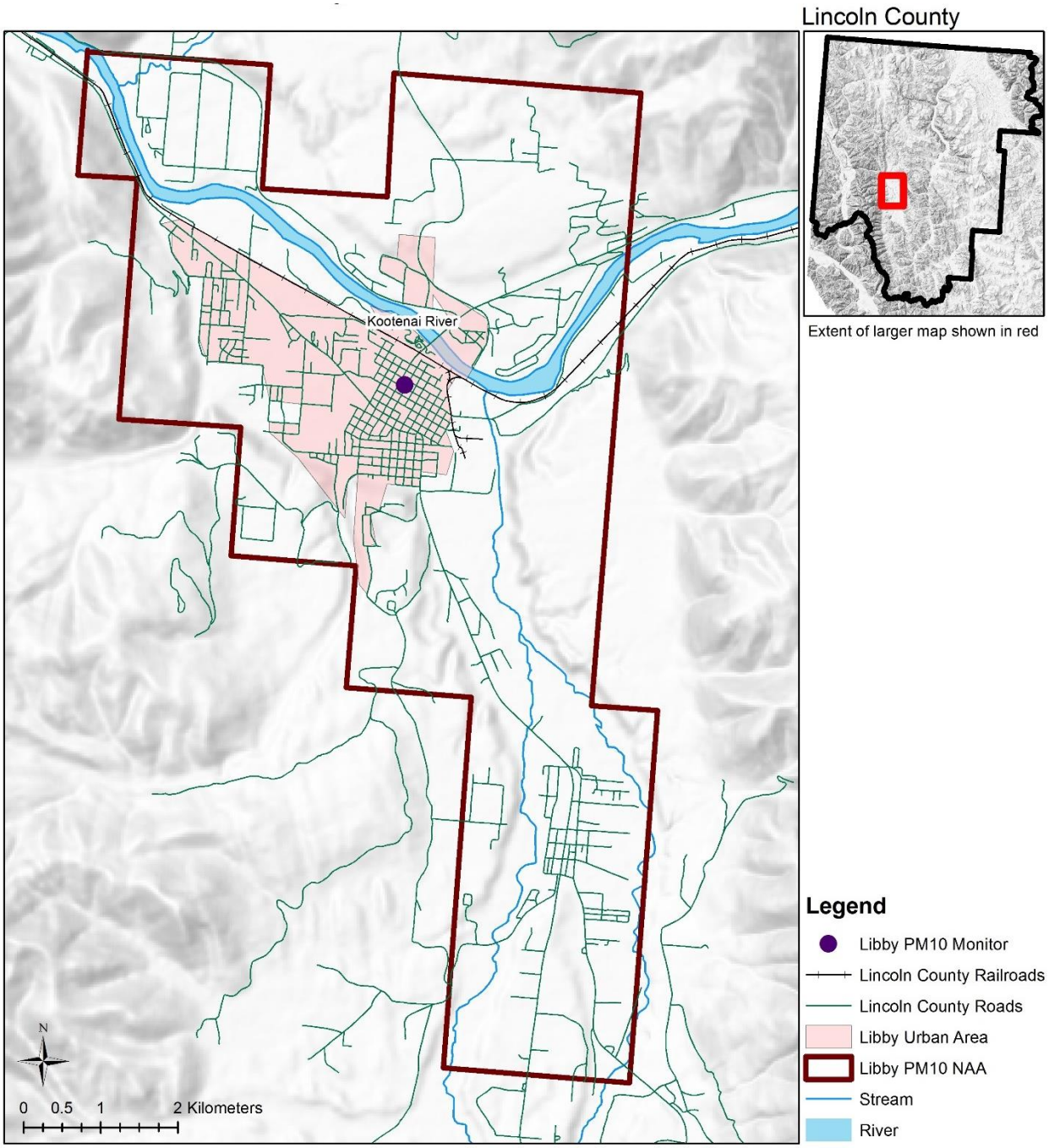


Figure 1.2 – Libby PM_{10} NAA Boundary



1.2. Historical Sources of PM_{10}

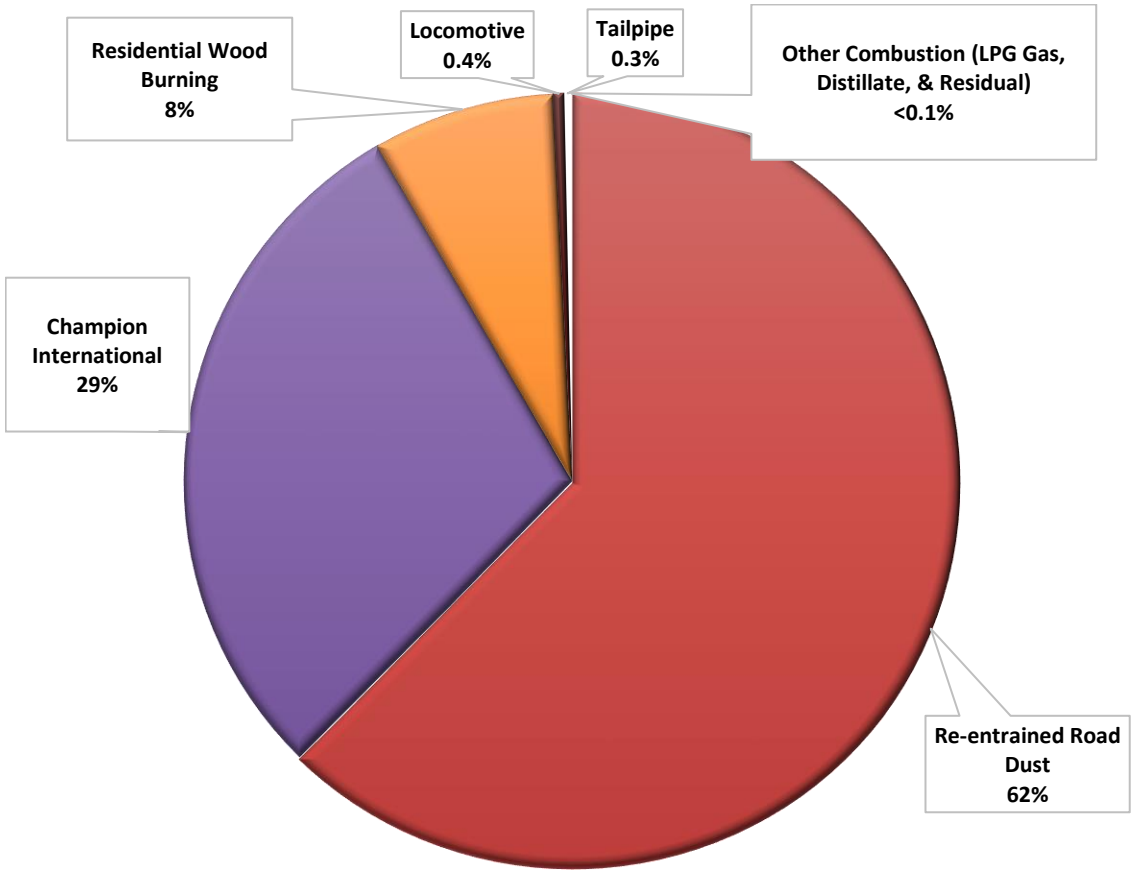
To develop strategies to reduce PM_{10} emissions within the NAA, the DEQ investigated what the major emission sources were in the area. A chemical mass balance (CMB) study with rollback was used to identify the major emission sources contributing to noncompliance. The CMB study was a 14-month study from October 31, 1987 through December 30, 1988, to cover all four seasons.

Additionally, an optical microscopy study was conducted from January 3, 1988 through December 26, 1988 for comparison purposes with the CMB study and showed acceptable agreement. The studies identified the following emission sources contribute to the area's PM_{10} impact:

- road dust (paved and unpaved),
- industry (Champion International),
- residential wood combustion,
- fossil-fuel combustion (LPG, distillate, residual),
- locomotives, and
- tailpipe.

Most of Libby's emissions are from area sources. Even the industrial source's contributing emissions mainly came from fugitive dust. As seen in Figure 1.3, re-entrained road dust from paved and unpaved roads had the largest contribution at 62 percent, followed by the one industrial source whose emission contribute 29 percent. These two source categories alone accounted for over 90 percent of the emissions in Libby.

Figure 1.3 – PM_{10} Emissions in Libby During Control Plan Development



1.3. Control Plan Details

To develop a control plan to reduce PM_{10} emissions within the NAA, DEQ investigated control options for the major emission sources identified in the area from the CMB and optical microscopy studies. The EPA approved the use of receptor modeling in lieu of dispersion modeling.

The Libby PM_{10} control plan was based on:

- Local regulations to control residential wood combustion,
- Local regulations to control re-entrained road dust (from roads, parking lots and commercial lots),
- Local regulations to control outdoor burning,
- Champion International revised permit conditions, and
- Federal tailpipe standards.

DEQ submitted the first elements of the control plan to the SIP on November 25, 1991, with revisions on May 24, 1993. Final technical corrections to the SIP were sent on June 3, 1994. The EPA approved Libby's PM_{10} control plan except for the contingency measures on August 30, 1994 (59 FR 44627). Revisions to the contingency measures were submitted to EPA on March 15, 1995, and the EPA approved them on September 30, 1996 (61 FR 51074). The approved control plan satisfied the requirements for reasonably available control measures (RACM) of area sources and reasonably available control technology (RACT) for stationary sources.

Local Regulations for Residential Wood Combustion

The control plan for residential wood combustion is based on rules adopted by Lincoln County Environmental Health Department and the City of Libby for the Air Pollution Control District which encompasses the PM_{10} NAA and much more. These rules are part of the Lincoln County Health Departments Health and Environment Rules in Chapter 1, as revised on March 23, 2006 and adopted into the SIP by the EPA on September 14, 2010 (75 FR 55713).

The regulations in Subchapter 2 require that solid fuel burning devices be permitted by Lincoln County Environmental Health Department. The regulations restrict the material allowed for combustion and prohibit visible emissions greater than 20 percent opacity. When an 'alert' is called in the Air Pollution Control District, solid fuel burning devices are not allowed to operate unless the device has received an exemption. Yet, exempt devices can be operated during an alert, but only with an opacity of 10 percent or less.

Local Regulations for Re-Entrained Road Dust

Subchapter 3 of the Lincoln County Environmental Health Department rules address re-entrained dust from roads, parking lots and commercial lots by requiring dust abatement and control. These

road dust regulations apply within the regulated road sanding and sweeping district as defined in the regulation. Vehicular operations within the district are only allowed on paved surfaces within the district. To control ice on the roads, liquid de-icing agents and de-icing salts should be used. Sanding material is not allowed unless the Lincoln County Environmental Health Department declares an emergency situation and then only sanding material that meets specific durability, abrasion and fines concentrations are allowed.

Roads should be maintained using a schedule of prioritized street sweeping and flushing to removed carry-on or applied materials. Commercial operations shall also implement measures to prevent depositing material on yards/lots, suppress dust, and clean adjoining roadways. These regulations address areas beyond the NAA and beyond the regulated road sanding and sweeping district. These areas must also control road dust using specified practices that are less restrictive than inside the regulated district.

Local Regulations to Control Outdoor Burning

Lincoln County Environmental Health Department rules in Subchapter 4 for outdoor burning are designed to restrict non-essential outdoor burning, promoting alternative disposal methods and recycling, and setting standards to minimize emissions when outdoor burning is necessary. These rules apply to both the air pollution control district and Impact Zone L, which extends beyond the NAA.

The rules specify which materials and activities are prohibited for outdoor burning. Residential outdoor burning is only allowed in the month of April while management burns are allowed from April through October. Burning outside these months requires additional approval from the Lincoln County Health Department. Burners must obtain a burn permit from the department and may only conduct their burn if meteorological conditions have good air dispersion characteristics, as determined by the department.

Champion International Revised Permit Conditions

The control plan included restrictions to the Champion International (Champion) facility that operated a sawmill, studmill and plywood plant in Libby. Champion's air quality Permit No. 2627M was revised on July 25, 1991, which reduced the emissions from Boilers #7, #8, and #9. Boiler #7 had its operation de-rated. Emissions were reduced for Boiler #8's. New controls were required for Boiler #9. Additionally, the revised permit required that haul roads and the log decks be treated with chemical stabilization to control fugitive emissions. These permit revisions constituted RACT. Baseline emissions from Champion were estimated at 649.3 tons per year (tpy) of PM_{10} and reflect Champion's operation before these permit revisions and emission reductions.

Federal Tailpipe Standards

Federal tailpipe standards were designed to reduce vehicle emissions, including PM_{10}. The control

plan accounted for a reduction of 12.2 percent of the annual emissions from 1988 through 1995 and an additional 1 percent reduction from 1995 through 1998. Additional tailpipe reductions were anticipated for the future as required by the 1990 CAA Amendments.

2. REQUEST FOR LIBBY NAA REDESIGNATION TO ATTAINMENT

Section 107(d)(3)(E) of the CAA establishes five requirements that must be met before a NAA can be considered for redesignation to attainment. Guidance from the September 4, 1992 Calcagni Memo for *Procedures for Processing Requests to Redesignate Areas to Attainment* and applicable provisions of the CAA, provide the basis for redesignation and maintenance of the 1987 24-hour PM_{10} NAAQS for the Libby NAA.

This section of the document addresses each of the five requirements (as listed in Section 1) and demonstrates that the area has attained and will maintain compliance with the 1987 PM_{10} NAAQS. While these conditions must be met before redesignation of an area from nonattainment to attainment may occur, the Calcagni memo allows that a state may submit both the redesignation request and maintenance plan concurrently.

2.1. CAA §107(d)(3)(E)(i) – Determination that the Area Has Attained the PM_{10} Standards

On January 31, 2011, the EPA published (76 FR 5280) that Libby, Montana had attained the PM_{10} 24-hour NAAQS as of December 31, 1994. The determination was based on data from the three years immediately preceding the attainment date – 1992, 1993, and 1994. The data was gathered at two PM_{10} state and local ambient monitoring sites (SLAMS) in the Libby nonattainment area: the Lincoln County Courthouse and the Libby Courthouse Annex. During the three-year period, no exceedances of the 24-hour standard were recorded and the Libby area was found to have attained the standard by the attainment date. So not only has the demonstration been made that Libby has attained the PM_{10} NAAQS, the EPA declared Libby is attaining the standard. The following discussion supports the attainment determination.

The Calcagni memo indicates that determining if an area has attained a NAAQS is based on two components. First, the area may be considered attaining the NAAQS if the number of expected exceedances per year for PM_{10} is equal to or less than 1.0. In making this PM_{10} showing, data must rely on three complete, consecutive calendar years of quality-assured air quality monitoring data, collected in accordance with 40 CFR Part 50, Appendices H and K. The second component of this demonstration relies upon supplemental, EPA-approved air quality modeling. However, when dealing with a limited number of initial PM_{10} NAAs that were designated as moderate NAAs, dispersion modeling is not required. The Libby NAA followed the federal adoption of the PM_{10} standard, and received the designation of being a moderate NAA without using dispersion modeling. Therefore, no air quality modeling is required for this demonstration of attainment.

The PM_{10} 24-hour standard of 150 $\mu g/m^3$ is not to be exceeded more than once per year on average over 3 years. Since 1985, PM_{10} monitoring data has been collected in Libby and has been quality-

assured to meet the requirements of 40 CFR Part 58. This data has been recorded in the EPA's Air Quality System, the successor of the Aerometric Information Retrieval System (AIRS), and is available for public review. Table 2.1 shows the number of monitored exceedances per year for the most recent five years of quality-assured monitoring data, 2013 through 2017. Data substitution was used for any quarters with less than 75% data completeness. The process used for data substitution is outlined in Appendix B. Table 2.1 shows both the number of exceedances and the number of exceedances with concurred exceptional events removed. Table 2.2 shows the 3-year average of these exceedances along with the 5-year average. Both tables demonstrate that Libby's monitored data remain below the 1987 PM_{10} NAAQS.

Table 2.1 – Libby's Recent 5-year 24-hour PM_{10} Exceedances

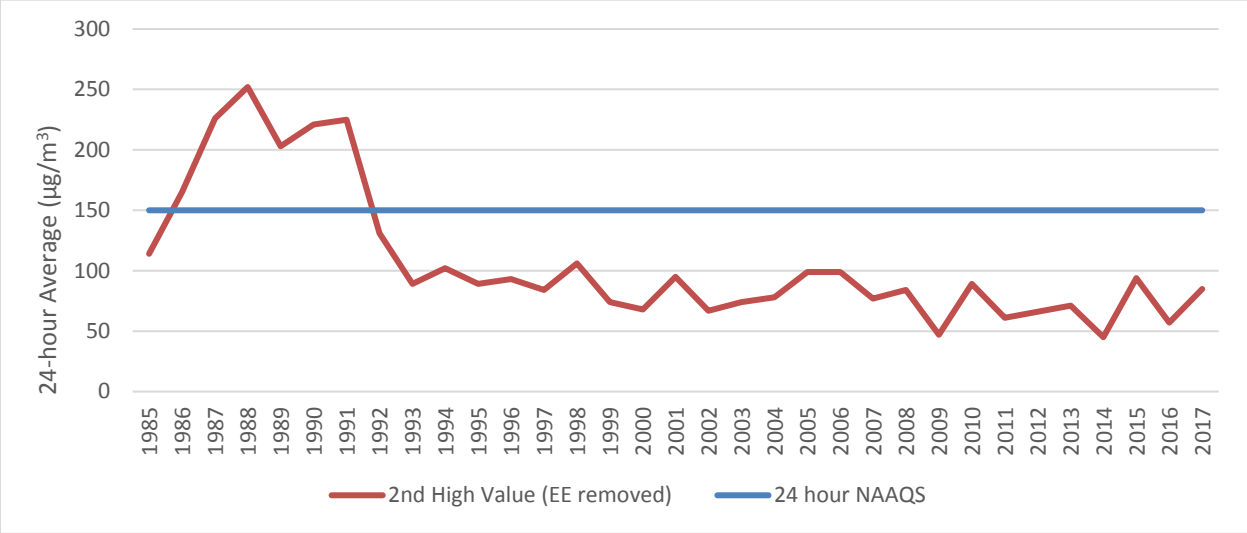
	2013	2014	2015	2016	2017
Number of Exceedances	0	0	1	0	1
Number of Exceedances Excluding Exceptional Events	0	0	0	0	0

Table 2.2 – Libby's Recent 3-year Averages of the 24-Hour PM_{10} Exceedances

	2013-2015	2014-2016	2015-2017	5-year Avg.
3-year Exceedance Averages	0.3	0.3	0.7	0.4
3-year Exceedance Averages Excluding Exceptional Events	0	0	0	0

The data in Figure 2.1 has been collected and reported in accordance with the quality assurance requirements of 40 CFR Part 58, Appendix A. This figure is for informational purposes only and does not represent the area's design value. All wildfire impacted events have been removed both with and without EPA regional concurrence. As shown in the figure, the last exceedance of the PM_{10} 24-hour NAAQS was in 1991. The Libby area monitoring results have been less than 70 percent of the PM_{10} 24-hour standard over the last 2 decades. These results demonstrate that Libby has attained the PM_{10} NAAQS and meets the requirements of CAA §107(d)(3)(E)(i).

Figure 2.1 – Libby's Second Highest PM_{10} 24-hour Averages (µg/m³)



Using the monitored values, a local design value has been calculated for Libby which is a statistic that describes the air quality relative to the level of the NAAQS. The design value is calculated over the most recent three consecutive 3-year intervals. As shown in Table 2.3, Libby's 5-year average design value is 104 µg/m³ using the "table lookup" method outlined in the 1987 PM_{10} SIP Development Guidance. The table lookup method identifies which monitored data value is to be used as the design value. This is based on the number of measurements collected by the monitor during the 3-year period. The design value calculation excludes regionally concurred exceptional events but includes data substitution, as outlined in Appendix A. Concurred exceptional events only include events where the NAAQS has been exceeded. Additional days with wildfire impacts below the NAAQS are still included in the design value calculation.

Table 2.3 – Libby's Recent 5-year 24-hour PM_{10} Design Value Excluding Regionally Concurred Exceptional Events

	2013-2015	2014-2016	2015-2017	5-year Avg.
Number of Measurements	1047	1048	1060	--
Data Value to Use	4th Highest	4th Highest	4th Highest	--
Design Value (µg/m³) (Table Lookup Method)	102	102	109	104

The demonstration above re-affirms the continued attainment status of Libby as initially determined by EPA on January 31, 2011 (76 FR 5280), that Libby, Montana had attained the PM_{10} 24-hour NAAQS as of December 31, 1994.

2.2. CAA §107(d)(3)(E)(ii) – Approved Implementation Plan for the Area Under Section 110(k)

Montana submitted initial SIP revisions to EPA on November 25, 1991, to provide for attainment of the PM_{10} NAAQS in the Libby NAA by the attainment date. Several additional revisions were adopted and submitted to EPA in subsequent years, with final approval of contingency measures on September 30, 1996 (61 FR 51014).

2.3. CAA §107(d)(3)(E)(iii) – Determination that the Improvement in Air Quality is Due to Permanent and Enforceable Reductions in Emissions Resulting from Implementation of the SIP and Other Federal Requirements

This section demonstrates that emission reductions in the Libby NAA are both permanent and enforceable, and are a result of SIP and other federal requirements.

SIP Provisions

The control plan emission inventory, was approved by the Board of Environmental Review (BER) and subsequently adopted into the SIP on August 30, 1994 (59 FR 44627), except for the contingency measures which were subsequently submitted and approved by EPA for the SIP on September 30, 1996 (61 FR 51014). The control plan identified the fugitive area sources and industrial sources contributing to PM_{10} concentrations in the NAA. Table 2.4 shows the actual annual emissions based on a 13-month period from October 31, 1987 to November 30, 1988 which are considered the annual baseline emissions for Libby. These baseline emissions do not account for any control plan measures. The table also shows the current emissions in Libby which are from the most recent emission information available from the 2014 national emission inventory (NEI). Three additional source categories (construction dust, general burning and prescribed fires), not found in the baseline year were included with the 2014 inventory. It is presumed that these three source categories were present during the baseline time-period but that they were either included within other categories, or were not identifiable in the receptor monitoring studies

Table 2.4 – Libby, MT - PM_{10} Emission Summary

Source Categories	Actual Annual Baseline PM_{10} Emissions 1988/1989 (tons)[1]	2014 PM_{10} Emissions (tons)[2]
Area Sources		
Road Dust Paved	1,211.9	5.1
Road Dust Unpaved	175.2	162.3
Residential Wood Burning	169.1	20.8
Locomotive	10.0	2.5
Tailpipe (diesel & non-diesel)	6.0	1.4
Other Combustion[3]	1.0	1.0
Construction Dust	-	12.0
General Burning	-	11.7
Prescribed Fires	-	0.6
Industrial Source		
Champion International	649.3	-[4]
Total	2,222.5	217.3

[1]Emissions are based on those found in Table 27.10.5B (March 19, 1993) of the SIP.

[2]Area emissions are based on the most current NEI values from 2014.

[3]Other represents LPG gas, distillate, residual, and aviation.

[4]This wood products plant closed in 2008.

As shown in Table 2.4, the emissions in 2014 are less than 10 percent of the baseline emissions. The approved attainment plan incorporated permanent and enforceable rules from the Lincoln County Air Pollution Control Program which established rules as described above in Section 1.3. The air pollution control rules in Chapter 1, Subchapters 1 through 4, address solid fuel burning devices, re-entrained road dust control, and outdoor burning regulations. Because these rules were adopted by Lincoln County, the Board of Environmental Review, and included in the federal SIP, these rules are permanent and enforceable.

Additionally, the control plan accounts for industrial emission reductions through permit revisions. These revisions required that RACT be applied to the Champion International boilers which resulted in derating Boiler #7, reducing allowable emissions from Boiler #8, and adding new controls on Boiler #9. Changing economic conditions, ultimately saw the closure of the wood products facility after a previous sale of the facility to Stimson Lumber Company. All air quality permits associated with this wood products facility were eventually revoked.

The Libby NAA remains protected from air quality impacts with federally enforceable air quality rules and permitting regulations. DEQ has permitting rules in the Administrative Rules of Montana (ARM) 17.8.901 through 17.8.906 for major stationary sources or major modifications locating within NAAs. The rules require all new sources or modifications to use the lowest achievable emission rates. The source must obtain emission reduction offsets in tpy which provide a positive net air quality benefit in the NAA using a 1 to 1 offset and must be from other emission sources within the same NAA. There must be demonstrated improvement to the PM_{10} NAA with permanent, quantifiable and federally enforceable emission reductions. A reduction of actual emissions, not potential emissions, must occur before a new source can be permitted to operate.

Montana has a federally enforceable permitting program for minor sources that emit 25 tpy or more of PM_{10} to ensure the NAA is not negatively affected. Montana also requires permitting of asphalt and concrete plants, mineral crushers, and mineral screens that have the potential to emit of 15 tpy (although this is not federally enforceable). Current DEQ practice for these portable sources, is to require more stringent limits and conditions for their operation within a NAA or within 10 kilometers of a NAA to ensure that the portable operations do not result in additional degradation of air quality in the affected NAA. These restrictions may come as seasonal restrictions for certain locations depending on the NAA situation.

Significant emission reductions occurred since the baseline year, while the population of Lincoln County grew by 12.6 percent from 17,481 in 1990 to 19,687 in 2010, according to the U.S. Census Bureau. Yet during this same period, the population census for the City of Libby declined 5 percent from 2,770 in 1990 to 2,628 in 2010. The NAA encompasses the City of Libby as well as portions of the county, so the population change within the NAA is tough to predict. Even if the population is considered to remain unchanged between the baseline year and the 2014 NEI, the 90 percent reduction of PM_{10} emissions is notable.

Other Federal Requirements

According to the Calcagni memo, to demonstrate the improved air quality is from permanent and enforceable emission reductions, a state shall estimate the percent reduction achieved from federal measures such as the Federal Motor Vehicle Control Program and fuel volatility rules as well as control measures that have been adopted and implemented by the state. The Federal Motor Vehicle Control Program controls tailpipe emissions and evaporative emission standards for new vehicles. Tailpipe emissions and fuel vaporization were a small fraction of the Libby NAA emissions during the baseline years, 1988/1989. Tailpipe emissions have declined since, and remain at less than 1 percent of the total emissions, while the population of the Libby NAA has remained fairly stable.

These emission changes demonstrate that the control measures adopted by the SIP and other federal requirements for fugitive area sources and industrial sources have effectively lowered the PM_{10} levels in Libby through permanent and enforceable requirements that comply with CAA §107(d)(3)(E)(iii).

2.4. CAA §107(d)(3)(E)(iv) – Fully Approved Maintenance Plan Under CAA Section 175A

This request for redesignation is being submitted concurrently with a limited maintenance plan (Section 3.0). As described in CAA Section 175A(c), until a maintenance plan is approved, all SIP requirements for the NAA will remain applicable. Section 3.0 of this document addresses the necessary maintenance plan elements. With the EPA's concurrence, the area will have a fully approved limited maintenance plan providing for continued attainment of the PM_{10} NAAQS for 10 years meeting the requirement of §107(d)(3)(E)(iv).

2.5. CAA §107(d)(3)(E)(v) – Determination that the Department Has Met all Requirements Applicable to the Area Under Section 110 and Part D of the CAA

Prior to redesignation, a state containing a NAA must demonstrate compliance with all requirements applicable to the area under Section 110 and Part D of the Act. This means the state must meet all requirements that applied to the area prior to, and at the time of, the submission of a complete request for redesignation to attainment.

CAA Section 110

Section 110(a) of the CAA contains the general requirements for a SIP. Only Section 110 requirements that are linked with an area's designation are the relevant measures to consider in evaluating a redesignation request. EPA has approved Montana's SIP provisions for Libby's PM_{10} NAA and therefore meets the requirements of Section 110(a). The EPA approved the control plan and proposed final revisions for the Libby SIP on September 30, 1996 (61 FR 51014). The 1996 SIP addressed the 24-hour primary and secondary PM_{10} NAAQS and annual primary and secondary PM_{10} NAAQS. It also demonstrated compliance with the requirements "applicable to the area" under CAA Section 110. CAA Section 110(a)(2) contains the general requirements or infrastructure elements necessary for EPA approval of the SIP. These requirements include, but are not limited to, submittal of a SIP that has been adopted by the state after reasonable notice and public hearing. The approved SIP described above met these requirements.

Part D, Plan Requirements for Nonattainment Areas (CAA Section 171, et seq.)

CAA Part D contains requirements applicable to all areas designated nonattainment. PM_{10} NAAs must meet the general provisions of Subpart 1 and the specific PM_{10} provisions in Subpart 4. The limited maintenance plan (see Section 3.0) associated with this request for redesignation of the Libby NAA is a SIP revision for an area designated as a NAA and the plan shall meet the applicable requirements of Part D of the CAA. The Libby PM_{10} SIP (fully-approved by EPA in Federal Register: September 30, 1996 61 FR 51014) shows that the state has satisfied all requirements under section 110(a)(2) of the Act.

CAA Section 172

These provisions contain the general requirements to include NAA documents and revisions in the SIP. These include attainment demonstrations, RACM, reasonable further progress (RFP), inventory data, and permitting requirements. Submittal of a comprehensive PM_{10} emissions inventory is required by 40 CFR 51.1008 to meet the requirements of Section 172(c)(3) of the CAA. The Libby NAA PM_{10} baseline emissions inventory, which also serves as the attainment year inventory, is being submitted as part of the limited maintenance plan (Section 3.0), and therefore, is submitted concurrently with this request for redesignation.

CAA Section 173

These provisions outline the requirements related to permitting of air pollution sources in NAAs. Stationary sources of air pollution are subject to the applicable regulations of the ARM, Title 17, Chapter 8. These regulations include:

- Standards of Performance for New Stationary Sources (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated by the EPA (ARM 17.8.102);
- Permit, Construction, and Operation of Air Contaminant Sources (ARM, Title 17, Chapter 8, Sub-chapter 7);
- Prevention of Significant Deterioration of Air Quality (ARM, Title 17, Chapter 8, Sub-chapter 8);
- Permit Requirements for Major Stationary Sources or Major Modifications Locating Within Nonattainment Areas (ARM, Title 17, Chapter 8, Sub-chapter 9);
- Preconstruction Permit Requirements for Major Stationary Sources or Major Modifications Locating Within Attainment or Unclassified Areas (ARM, Title 17, Chapter 8, Sub-chapter 10); and
- Annual Emission Statements and required emissions reporting (ARM 17.8.505).

These requirements were adopted to implement the federally mandated requirements in Sections 110, 172, 173 and 182(a) of the CAA. The EPA has approved these regulations as SIP revisions, as indicated in Table 2.5, below.

Table 2.5 – State of Montana Federally Approved Air Quality Rules

State Rule(s)	Federal Action	Action Reference
ARM 17.8.101 et seq.	approved	60 FR 36715
ARM 17.8.701 et seq.	approved	60 FR 36715
ARM 17.8.801 et seq.	approved	60 FR 36715
ARM 17.8.901 et seq.	approved	60 FR 36715
ARM 17.8.1001 et seq.	approved	60 FR 36715

CAA Section 176(c)

These provisions prohibit federal financing of projects or activities that do not conform to an approved SIP. DEQ adopted and incorporated EPA's general conformity rule (40 CFR Part 93, Subpart A), in ARM 17.8.1302. The general conformity regulation describes procedures to determine if federally-financed, non-transportation projects are in conformity with air quality plans. The EPA and the U.S. Department of Transportation have issued regulations regarding criteria and procedures for demonstrating and assuring conformity of transportation improvement programs, long range plans, and individual transportation projects with the requirements of the CAA and the SIP for the specific NAA. Federal actions are handled independently in 40 CFR 93 Subpart B that prohibits the federal government from providing financial assistance, licensing, permitting or approving activities that do not conform with Montana's SIP.

Subpart 4, Additional Provisions for Particulate Matter Nonattainment Areas:

Libby has an approved control plan as required by CAA section 191(a) for the PM_{10} NAA. This plan controlled PM_{10} emissions from area sources and an industrial source which impacted the NAA. Therefore, DEQ has met the requirements of Subpart 4 of the CAA. Further, as required under section 191(b) of the CAA, DEQ has a fully-approved New Source Review (NSR), Prevention of Significant Deterioration (PSD), and Part D permitting programs (60 FR 36715).

2.6. Redesignation Request

DEQ requests redesignation of the Libby PM_{10} NAA to attainment. The criteria applicable to redesignation are addressed in Section 2.0 of this document, above. Concurrent with the request for redesignation, DEQ is providing for maintenance of the PM_{10} NAAQS according to the applicable provisions of section 175A of the CAA (Section 3.0).

3. Libby NAA PM_{10} Limited Maintenance Plan

On March 15, 1991 (56 FR 11101), the EPA codified the designation and classification of Libby as a 'moderate' NAA for the 1987 PM_{10} standards. Based on quality assured monitoring data collected from PM_{10} monitoring in the area from 2013 through 2017, the Libby NAA is shown to have attained compliance with the 1987 24-hour primary PM_{10} NAAQS. Further, the EPA determined on January 31, 2011, that the area has attained the standard (76 FR 5280).

Section 2.0 of this document includes DEQ's formal request for redesignation according to the requirements of Section 107(d)(3)(E) of the CAA. For the Libby NAA to be formally redesignated to attainment, DEQ must submit, and the EPA must approve, a SIP revision providing for maintenance of the PM_{10} NAAQS within the affected area for at least 10 years after redesignation. This maintenance plan has been developed in support of DEQ's request for redesignation according to the Calcagni memo, EPA's August 9, 2001 memo for *Limited Maintenance Plan Option for Moderate PM10 Nonattainment Areas,* applicable provisions of the CAA, additional guidance received from EPA's Region 8 Air Quality Planning Unit, and the requirements of Section 175A of the CAA.

This maintenance plan addresses the following elements:

- Attainment inventory,
- Maintenance demonstration,
- Control plan,
- Monitoring network,
- Verification of continued attainment, and
- Contingency plan.

3.1. Attainment Inventory

According to the requirements of Section 107(d)(1)(A)(i) and 107(d)(1)(B)(i) and (ii) of the CAA, in establishing the final NAA boundary the EPA determined that the fugitive area sources and the industrial source listed in Table 2.4 of the previous section are the major contributing emission sources relevant to the Libby NAA. Table 3.1 below shows the approved emission categories from the attainment plan and at EPA Region 8's request DEQ has included light and heavy-duty diesel emissions in the emission inventory. The methodology for calculating the 2014 NEI emissions from within the Libby NAA from all the 2014 NEI emissions of Lincoln County can be found in Appendix C. Despite increasing the level of emission detail over the original approved attainment plan, PM_{10} emissions are still well below the approved 1996 maintenance plan values shown in Table 2.4. Furthermore, as detailed in Section 2.1, on January 31, 2011 (76 FR 5280), the EPA determined that the Libby area attained the standard.

Table 3.1 – Libby NAA 2014 NEI PM_{10} Emissions

Source Category	2014 NEI Emissions (tons)[1]
Paved Roads	5.1
Unpaved Roads	162.3
Residential Wood Burning	20.8
Locomotives	2.5
Tailpipe Exhaust (diesel & non-diesel)	1.4
Other Combustion[2]	1.0
Construction Dust	12
General Burning	11.7
Prescribed Fires	0.6
Total	217.3

[1]Area emissions are based on the most current NEI values from 2014.

[2]Other combustion sources represent LPG gas, distillate, residual, and aviation.

3.2. Maintenance Demonstration

For this redesignation request to be complete and approvable, the CAA requires that the maintenance plan provide for maintenance of the PM_{10} NAAQS for at least 10 years following EPA's approval of the plan. As stated earlier in this document, attainment of the PM_{10} NAAQS has been demonstrated in the Libby area, and this maintenance demonstration will demonstrate continued attainment, or "maintenance" of the PM_{10} NAAQS through the year 2031.

The Maintenance Plan will continue to implement the controls of the attainment plan. The following are the criteria that must be met to demonstrate maintenance and meet LMP requirements.

Design Value

As described above in Section 2.1, the local design value for Libby is based on averaging three consecutive 3-year averages of monitoring data from 2013-2017. To qualify for a LMP the design value must be below the critical design value discussed below.

Using the monitored values, a local design value has been calculated for Libby which is a statistic that describes the air quality relative to the level of the NAAQS. The local design value calculation excludes regionally concurred exceptional events and regionally concurred values, as specified in Appendix A. EPA's concurrence letters for the 2015 and 2017 exceptional events can be found in Appendix A. Data substitution has also been applied where appropriate, as outlined in Appendix B.

The concurred exceptional events are monitored values above the NAAQS impacted by wildfires. The excluded regionally concurred values are values between 98 μg/m^3 and 150 μg/m^3 impacted by wildfires. The design value is calculated over the most recent three consecutive 3-year intervals. As shown in Table 3.2, this Libby design value uses the "table lookup" method outlined in the 1987 PM_{10} SIP Development Guidance. The table lookup method identifies which monitored data value is to be used as the design value. This is based on the number of measurements collected by the monitor during the 3-year period.

Table 3.2– Libby's Recent 5-year 24-hour PM_{10} Design Value Excluding Regionally Concurred Exceptional Events and Regionally Concurred Values

	2013-2015	2014-2016	2015-2017	5-year Avg.
Number of Measurements	1047	1048	1060	--
Data Value to Use	4th Highest	4th Highest	4th Highest	--
Design Value (μg/m^3) (Table Lookup Method)	90	90	92	91

The 5-year average design value from 2013-2017 is 91 μg/m^3, as shown above.

Critical Design Value

The EPA has determined that some PM_{10} NAAs have little inter-annual variation. This has led the EPA to develop a 'Critical Design Value' (CDV) that is an indication of the 'likelihood of future violations of the NAAQS given the current average design value and its variability. The process for developing a CDV is outlined in Attachment A of the EPA guidance titled "Limited Maintenance Plan Option for Moderate PM10 Nonattainment Areas." In this guidance, the EPA states that an area "may still be able to qualify for the LMP option if the average design values of the site are less than their respective site-specific CDV."

The equation to calculate a CDV is as followed:

$$CDV = NAAQS/(1+t_c*CV)$$

Where:

CDV	=	Critical Design Value
NAAQS	=	National Ambient Air Quality Standard
t_c	=	Critical t-value corresponding to a probability of exceeding the NAAQS in the future and the degree of freedom in the estimate of the coefficient of variation (CV).
CV	=	Coefficient of variation (CV) of the annual design value, calculated as the ratio of the standard deviation and average design values in the past.

DEQ has defined 'the past' as eleven 3-year periods of design values, beginning with the 2005-2007 design value and ending with the 2015-2017 design value. The table lookup method, described in Section 2.1, was used to calculate design values for each of these three-year periods. Table 3.3 below

provides the number of measurements, lookup ranking, and design value for each period. The design value calculation excludes regionally concurred exceptional events and regionally concurred values, as specified in Appendix A. Data substitution has also been applied where appropriate, as outlined in Appendix B. The concurred exceptional events and values exclude all wildfire impacts events above 98 µg/m^3.

Table 3.3– Design Values from the Past Eleven 3-years Periods (µg/m^3)

3-year Period	Count	Design Value
2005-2007	1048	99
2006-2008	1063	89
2007-2009	1067	79
2008-2010	1081	87
2009-2011	1075	87
2010-2012	1084	90
2011-2013	1088	90
2012-2014	1071	90
2013-2015	1047	90
2014-2016	1048	90
2015-2017	1060	92

The coefficient of variation is calculated as the standard deviation of the eleven design values divided by the mean of the eleven design values. The critical t-value was derived by assuming a one-tailed distribution with a tolerable risk factor of 10% probability of a NAAQS violation, which matches the method used by EPA to demonstrate a CDV.

The parameter values used for the calculations are as follows:

NAAQS	= 150 µg/m^3
t_c	= 1.372
Standard deviation of design values (2005-2017)	= 4.70 µg/m^3
Mean of design values (2005-2017)	= 89.36 µg/m^3
Coefficient of Variation [CV= StDev/Mean]	= 0.05
CDV [NAAQS/(1+t_c*CV)]	**= 139.91 µg/m^3**

A CDV of 140 µg/m^3 will be used to determine if the Libby area qualifies for an LMP.

Regional Motor Vehicle Analysis

To qualify for the LMP option, an area must expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) as described in the EPA guidance titled *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas*. Limited growth is demonstrated when the regional motor vehicle growth value is below the CDV for the area. When adjusted for future on-road mobile emissions, Libby has a motor vehicle regional emissions analysis test design value of 99.2 µg/m^3. These results are less than the CDV of 140 µg/m^3 used as the margin of safety in the LMP

guidance. The equation used to determine eligibility of Libby for the LMP is based on the regional motor vehicle analysis equation set forth in the guidance:

$$DV + (VMT_{pi} * DV_{mv}) \leq MOS$$

Where:

DV	=	5-year PM_{10} design value (2013-2017), ($\mu g/m^3$)
VMT_{pi}	=	Projected increase in vehicle miles traveled (VMT) over the next 10 years (2021-2031), (%)
DV_{mv}	=	Product of the design value and the fraction of the inventory represented by on-road mobile sources in the attainment year ($\mu g/m^3$); and
MOS	=	Margin of safety for PM_{10} or CDV, which is 98 $\mu g/m^3$ for the 24-hour standard.

DEQ has assumed the attainment year to be 2017, the year for which the most recent Libby NAA emissions inventory was prepared. The Montana Department of Transportation projected VMT_{pi} for the next 10 years following projected EPA approval in late 2020 (2021-2031) and provided that data to DEQ. The design value was derived from the PM_{10} monitoring data collected at the Lincoln County Health Department Annex site for the most recent 5 years (2013-2017). PM_{10} values that were greater than 98 $\mu g/m^3$ due to exceptional events (e.g. wildfires) were excluded from the design value analysis in Table 3.2, based on EPA guidance. Given the criteria above, Libby qualifies for the LMP option. Details of the calculations are shown below and the parameter values used for the calculations are as follows:

Table 3.3– Regional Motor Vehicle Analysis Parameters

Parameter	Value
DV ($\mu g/m^3$)	91
VMT_{pi} (2021-2031)	11.56%
% of the 2017 EI from on-road mobile sources in 2017	77.64%
DV_{mv} ($\mu g/m^3$)	70.6
Calculated [DV + (VMT_{pi} * DV_{mv})] ($\mu g/m^3$)	99.2

As shown, the calculated regional motor vehicle analysis value is less than the CDV of 140 $\mu g/m^3$, and therefore the area passes the regional analysis criteria.

Based on the analyses above, the local design value and the regional motor vehicle analysis values are below the CDV. The Libby NAA qualifies for the LMP option from these analyses according to the *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas* memo.

3.3. Control Plan

The Libby area has a robust control plan adopted into local ordinances (Health and Environment Regulations, Chapter 1: Control of Air Pollution 75.1) of the Lincoln County Ordinances. The plan contains the following provisions, designed to control PM_{10} in Lincoln County. A discussion of the local rules is included above in Section 1.3.

- Subchapter 1 – (75.1.100-106) - General Provisions
- Subchapter 2 – (75.1.201-206, 208) - Solid Fuel Burning Device Regulations
- Subchapter 3 – (75.1.301-308) - Dust Control Regulations
- Subchapter 4 – (75.1.401-408) - Outdoor Burning Regulations

DEQ has long-standing, SIP-approved major NSR and minor source permitting programs (ARM Title 17, Chapter 8, Subchapters 7, 8, 9, and 10). These administrative rules include provisions for PSD, approved in 60 FR 36715. In conjunction with all SIP-approved requirements of DEQ's PSD permitting program, the Source Impact Analysis (ARM 17.8.820), requires that "(1) The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions (including secondary emissions), *would not cause or contribute to air pollution in violation of any national ambient air quality standard in any air quality control region or any applicable maximum allowable increase over the baseline concentration in any area.*" (Emphasis added.)

Further, in conjunction with all SIP-approved requirements of DEQ's minor source permitting program, ARM 17.8.749, Conditions For Issuance or Denial of Permit, requires that "(3) A Montana air quality permit may not be issued for a new or modified facility or emitting unit unless the applicant demonstrates that the facility or emitting unit can be expected to operate in compliance with the Clean Air Act of Montana and rules adopted under that Act, the Federal Clean Air Act and rules promulgated under that Act (as incorporated by reference in ARM 17.8.767), and any applicable requirement contained in the Montana State Implementation Plan (as incorporated by reference in ARM 17.8.767), *and that it will not cause or contribute to a violation of any Montana or national ambient air quality standard.*" (Emphasis added.)

DEQ will continue to implement its SIP-approved major and minor source permitting programs in the Libby maintenance area to ensure that any new or modified (or reopened) industrial source of PM_{10} emissions will not cause or contribute to a subsequent PM_{10} NAAQS violation in the area. Further, any appropriate changes to the ARM will be submitted to the EPA for approval as a SIP revision.

3.4. Monitoring Network

DEQ has historically operated the "Libby" PM_{10} monitor within the Libby NAA (Monitor 30-053-0018).

3.5. Verification of Continued Attainment

DEQ intends to continue operating the Libby monitor (30-053-0018) or an approved alternatively located monitor until such a time that an approved alternative monitoring method is agreed upon. DEQ will request approval of an alternative monitoring methodology in a separate request.

3.6. Contingency Plan

As required by Section 175A(b) of the CAA, DEQ will submit to the EPA, eight years after redesignation, a revision of this maintenance plan. This revision will contain DEQ's plan for maintaining the 1987 24-hour PM_{10} NAAQS for 10 years beyond the first 10-year maintenance period following redesignation.

As discussed in Section 3.2 of this document, any new source planning to locate within the maintenance area or existing source proposing a significant increase in PM_{10} emissions would be subject to Montana's SIP-approved major NSR and minor source permitting programs promulgated under ARM Title 17, Chapter 8, Subchapters 7, 8, 9, and 10. These permitting programs require a demonstration of NAAQS compliance prior to construction and operation of the source.

Section 175(A)(d) of the CAA requires that the maintenance plan contains contingency provisions to assure that the state will promptly correct any violation of the PM_{10} NAAQS that may occur after the redesignation of the area to attainment. The EPA's redesignation guidance notes that the state is not required to have fully adopted contingency measures that will take effect without further action by the state. As such, the contingency plan should ensure that the state has the capacity to adopt the contingency measures expediently if the need were triggered. Therefore, the primary elements of this contingency plan involve the tracking and triggering mechanisms to determine when contingency measures would be necessary and a process for implementing appropriate control measures.

Tracking

The tracking plan for the Libby maintenance area will consist of monitoring and analyzing PM_{10} concentrations. In accordance with 40 CFR Part 58, DEQ will continue to operate the Libby monitor (30-053-0018) or an approved alternatively located monitor until such a time that an approved alternative monitoring method is agreed upon.

Trigger and Response

Triggering of the contingency plan does not automatically require a revision of the SIP, nor is the area necessarily redesignated once again to nonattainment if a PM_{10} exceedance occurs. Instead, DEQ will have an appropriate timeframe to correct the violation with implementation of one or more adopted contingency measures. If violations continue to occur, additional contingency measures will be adopted until the violations are corrected.

Upon notification of a PM_{10} exceedance, DEQ and Libby's local government will develop appropriate contingency measure(s) intended to prevent or correct a violation of the PM_{10} standard. Information about historical exceedances of the standard, the meteorological conditions related to the recent exceedance(s), and the most recent estimates of growth and emissions will be reviewed. The possibility that an exceptional event occurred will also be evaluated. Under the 2016 revisions to the Treatment of Data Influenced by Exceptional Events Rule (81 FR 68216), DEQ would confer with EPA Region 8 regarding whether the flagged event would meet the criteria of a regulatory decision, and if so, a determination would be made on whether to move forward with producing a demonstration.

This process will be completed within twelve months of the exceedance notification. If a violation of the PM_{10} NAAQS has occurred, DEQ and local government will review the current control plan. If it is determined that the implementation of current local contingency measures will prevent further exceedances or violations, no changes to the control plan will be made. If, however, DEQ and the local government finds locally adopted control measures to be inadequate, DEQ and the local government will adopt state-enforceable measures as deemed necessary by DEQ to prevent additional exceedances or violations. Measures to be considered could include, implementation of Libby's contingency Rules 75.1.208, and 75.1.307, the use of deicers, additional street cleaning, etc.

3.7. Conformity for LMP Areas

The Federal transportation conformity rule (40 CFR Parts 51 and 93, subpart A) and general conformity rule (40 CFR Part 93, subpart B) apply to nonattainment and maintenance areas. Typically, under either rule, an acceptable method of demonstrating that a federal action conforms to the applicable SIP is to demonstrate that expected emissions from the planned action are consistent with the emissions budget for the area. The EPA's LMP policy does not exempt an area from the need to demonstrate conformity; however, it allows the area to do so without submitting a transportation conformity Motor Vehicle Emissions Budget (MVEB) that would then need to be analyzed under 40 CFR 93.118. This is because data demonstrates no violation of the NAAQS will occur when accounting for reasonable growth projections for mobile sources. For transportation purposes, the emissions in a qualifying LMP area need not be capped for the maintenance period and thus no regional emissions analysis is required. The Libby area does not have a Metropolitan

Planning Organization (MPO); transportation conformity will then by default go to the Montana Dept. Of Transportation in consultation with MDEQ

Regional transportation conformity is presumed due to the limited potential for emission growth in the area during the LMP period. A regional emissions analysis and associated regional conformity requirements (40 CFR 93.118) are no longer necessary. Similarly, Federal actions subject to the general conformity rule would automatically satisfy the "budget test" specified in 40 CFR 93.158(a)(5)(i)(A) for the same reasons. However, since Libby will still be a maintenance area after redesignation, transportation conformity determinations are still required for transportation plans, programs and projects. The conformity determination for transportation plans and programs should state that a regional emission analysis is not required because the area has an approved LMP.

Transportation plans and the programs should still be made available for public review. The portions of the conformity rule that still apply are found in 40 CFR 93.112 and 93.113. In addition, transportation projects would still need to meet the criteria for PM_{10} hot spots (40 CFR 93.116 and 93.123) and for PM_{10} control measures (40 CFR 93.117). DEQ will continue to work with the affected jurisdictions and interested parties to develop an evaluation criteria and process to meet these transportation conformity requirements.

4. Public Participation

According to the applicable requirements of 40 CFR 51.102, Public Hearings, DEQ must provide the affected public with notice, opportunity for comment, and the opportunity to request a hearing regarding DEQ's request for redesignation and associated maintenance plan for the Libby PM_{10} NAA.

On DATE, 2019, DEQ issued 30-day public notice meeting all the above referenced public participation criteria. Also, a public hearing was held on DATE, during the public notice period, which concluded on DATE. No public comments were received during the public comment period or at the hearing. A transcript of the DATE public hearing is included in Appendix D for reference.

Or

On DATE, 2019, DEQ issued 30-day public notice meeting all the above referenced public participation criteria. Also, a public hearing was held on DATE, during the public notice period, which concluded on DATE. Public comments were received during the public notice period. These comments and DEQ's responses as well as a transcript of the DATE public hearing are included in Appendix D for reference.

5. Conclusion

The Libby NAA has attained the 1987 24-hour primary and secondary PM_{10} NAAQS for 26 years. The attainment is demonstrated by the monitoring data from 1992 through 2017 which shows compliance with the standards. Current NAA PM_{10} emissions are less than 10 percent of the control plan baseline emissions estimated from 1988-1989. The current emissions are expected to increase at a rate no greater than the population growth rate because of improved vehicle fleet emissions and the Lincoln County Air Pollution Control Rules restricting fugitive emissions which has ensured compliance with the PM_{10} NAAQS.

Further, DEQ has demonstrated compliance with all applicable provisions of the CAA for the redesignation and maintenance of the 1987 PM_{10} NAAQS in the Libby NAA. Documentation to that effect is contained herein.

Therefore, DEQ requests formal redesignation of the Libby PM_{10} NAA to attainment (Section 2.0) concurrent with EPA approval of the associated limited maintenance plan (Section 3.0) ensuring ongoing PM_{10} NAAQS compliance in the area.

6. References

EPA, 1987, *PM_{10} SIP Development Guideline*, June 1987 (EPA-450/2-86-001).

EPA, 1992, *Memorandum: Procedures for Processing Requests to Redesignate Areas to Attainment,* by John Calcagni, September 4, 1992.

EPA, 2001, *Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas*, by Lydia Wegman, August 9, 2001.

U.S. Census Bureau, Population of Libby, MT and Lincoln County, https://population.us/mt/libby/(November 2, 2018).

APPENDIX A

EPA REGION 8 LETTERS CONCURRING SPECIFIC WHILDFIRE EXCEPTIONAL EVENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region8

NOV - 1 2018

Ref: 8P-AR

Mr. Dave Klemp, Bureau Chief
Air Resources Management Bureau
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

Dear Mr. Klemp:

This letter is in response to your letter of April 24, 2017, requesting the U.S. Environmental Protection Agency's concurrence on exceptional event claims for fine ($PM_{2.5}$) and course (PM_{10}) particulate matter data impacted by wildfires in 2015 and 2016. The Montana Department of Environmental Quality (DEQ) determined that regional wildfire smoke events caused exceedances of the 24-hour $PM_{2.5}$ and PM_{10} National Ambient Air Quality Standards (NAAQS) at monitoring sites across Montana in 2015 and 2016. In addition, the DEQ determined that the smoke events caused multiple sites to exceed 98 $\mu g/m^3$, which is the eligibly threshold for the use of a limited maintenance plan (LMP) for a nonattainment area redesignation. The DEQ has flagged these data to support future plans to redesignate PM_{10} nonattainment areas using the LMP Policy.

The EPA concurs with the Montana DEQ's determination that the 24-hour PM_{10} exceedance at the Libby monitoring site on August 24, 2015, and the PM_{10} exceedances at the Missoula monitoring site on August 28 and August 29, 2015, meet the criteria for an exceptional event in the Exceptional Events Rule (EER). The basis for this concurrence is set forth in the enclosed technical support document. Concurrence flags have been entered for these data in the EPA's Air Quality System (AQS) database. For those PM_{10} values in August 2015 and the one value in August 2016 that exceeded the LMP Policy eligibility threshold, (98 $\mu g/m^3$)but were under the minimum value that is determined to be an exceedance of the PM_{10} NAAQS (155 $\mu g/m^3$), the EPA concurs that the elevated PM_{10} concentrations meet the general definition and criteria for exceptional events, and thus in accordance with EPA guidance, those values may be excluded when considering whether the areas are eligible for use under the LMP Policy for PM_{10}.

The EPA, at this time, has not reviewed the $PM_{2.5}$ exceptional event requests. 40 CFR 51.14(a)(1)(i) limits the applicability of the EER to data concerning NAAQS exceedances or violations that are relevant to regulatory determinations by the EPA. Data in AQS flagged as exceptional events that are not relevant to regulatory determinations will not be reviewed by the EPA for concurrence. The EPA has determined that the $PM_{2.5}$ data do not have any regulatory significance. In the event that any of the data on which the EPA is deferring action become significant for a future regulatory action, the EPA will retain the demonstration for potential

future consideration.

The determination conveyed in this letter does not constitute final action regarding any matter on which the EPA is required to provide an opportunity for public comment. In particular, this applies to determinations regarding the attainment status or classification of this area. Final actions will take place only after the EPA completes notice and comment rulemaking on those determinations.

If you have any questions on this matter, you may contact me at (303) 312-6776 or your staff may contact Ethan Brown, of my staff, at (303) 312-6403.

Sincerely,

Martin Hestmark

Martin Hestmark
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

Enclosure

cc: Annette Williams, Montana DEQ

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
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FEB - 8 2019

Ref: 8P-AR

Mr. Dave Klemp, Bureau Chief
Air Resources Management Bureau
Montana Department of Environmental Quality
P.O. Box 200901
Helena, Montana 59620-0901

Re: Exceptional Event Requests Regarding Exceedances of the 24-hour PM_{10} NAAQS and the LMP Eligibility Threshold at Montana Monitoring Sites within PM_{10} Nonattainment Areas

Dear Mr. Klemp:

This letter is in response to your letter of June 1, 2018, requesting the U.S. Environmental Protection Agency's (EPA) concurrence with the Montana Department of Environmental Quality's (DEQ) request to exclude PM_{10} data impacted by wildfires in 2017 as exceptional events. The DEQ determined that regional wildfire smoke events caused exceedances of the 24-hour PM_{10} National Ambient Air Quality Standard (NAAQS) at monitoring sites across Montana in 2017. In addition, the DEQ determined that the smoke events caused multiple sites to exceed 98 $\mu g/m^3$, an eligibility threshold for EPA's Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas (the LMP Policy),[1] and the DEQ flagged these data as exceptional events to support future plans to redesignate PM_{10} nonattainment areas using the LMP Policy.

In 2016, the EPA revised sections of the Exceptional Events Rule (EER) found in 40 CFR 50.14 and 51.930. After careful consideration of the information provided, the EPA concurs, based on the weight of evidence, that the state has made the demonstrations referred to in 40 CFR 50.14(a)(2), (b)(1) and (b)(4) of the EER. In addition, the state has met the schedule and procedural requirements in section 50.14(c) with respect to the same information. The EPA has reviewed the documentation provided by the DEQ to demonstrate that the exceedances identified in the submitted demonstration meet the criteria for an exceptional event in the EER. The basis for this concurrence is set forth in the enclosed technical support document. Concurrence flags have been entered for these data in the EPA's Air Quality System (AQS) database. For those values included in the DEQ's demonstration that exceeded the LMP eligibility threshold of 98 $\mu g/m^3$ but were under 155 $\mu g/m^3$, the EPA concurs that the elevated PM_{10} concentrations were caused by wildfire smoke, and that these data may be excluded when considering whether the areas are eligible for use of the LMP Policy.

[1] https://www.epa.gov/sites/production/files/2016-06/documents/2001lmp-pm10.pdf.

The determination conveyed in this letter does not constitute final action regarding any matter on which the EPA is required to provide an opportunity for public comment. In particular, this applies to EPA determinations regarding PM_{10} attainment status or classification. Final actions will take place only after the EPA completes notice and comment rulemaking on those determinations.

If you have any questions on this matter, you may contact me at (303) 312-6776 or your staff may contact Ethan Brown, at (303) 312-6403.

Sincerely,

Martin Hestmark
Assistant Regional Administrator
Office of Partnerships and Regulatory Assistance

Enclosure

cc: Annette Williams, Montana DEQ

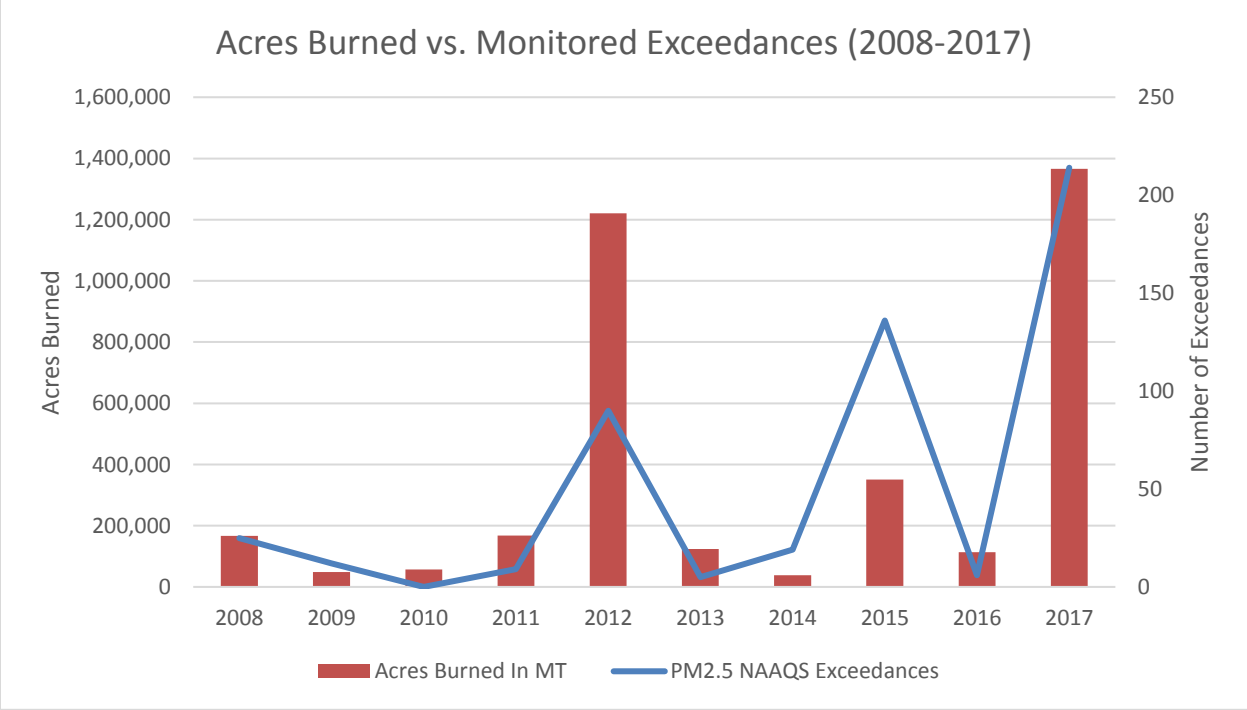
APPENDIX B

LIBBY DATA SUBSTITUTION METHODOLOGY

Over the past 10 years, three quarters of PM_{10} data in Libby were below the 75% reporting threshold, making those quarters incomplete. To address the missing data, Montana used the method outlined in the April 1987, *Guideline on Exceptions to Data Requirements for Determining Attainment of Particulate Matter Standards*.

The missing quarters were Q3 in 2012 (69.56% complete), Q4 in 2013 (69.56% complete), and Q2 in 2015 (62.64% complete). To select a representative substitute value, DEQ reviewed the highest values across the 10 years of data within each quarter. An initial review of quarter 3 and quarter 4 indicated that 2012, 2015 and 2017 were exceptionally high years for PM values due to wildfire impacts. The graphic below shows the acres burned in Montana from 2008-2017 compared with the number of monitored NAAQS exceedances at our $PM_{2.5}$ monitors. The graphic shows $PM_{2.5}$ monitors instead of PM_{10} monitors because the network is more extensive and is the primary pollutant of concern during wildfire season in Montana. $PM_{2.5}$ exceedances are a good way to judge the severity of a fire season in Montana. The discrepancy in 2015 between acres burned in Montana and the number of exceedance is due to the extreme fire conditions in Washington state. Transported smoke from these fires caused frequent, widespread air quality impacts in Montana in 2015.

Due to the extreme nature of the 2012, 2015, and 2017 wildfire seasons, DEQ has omitted those years when selecting the highest value by quarter.



When excluding those years, the following high values were selected for data substitution:

- Q2: 83 μg/m^3 from 6/24/2011
- Q3: 90 μg/m^3 from 8/26/2010
- Q4: 65 μg/m^3 from 11/17/2008

The following high values were omitted from the analysis because they occurred in the years highly impacted by wildfire.

Date	Quarter	PM_{10} Conc. (μg/m^3)
8/20/2015	3	113
8/24/2015	3	180
8/25/2015	3	102
8/26/2015	3	94
8/27/2015	3	109
8/29/2015	3	143
9/29/2015	3	94
9/5/2017	3	104
9/6/2017	3	101
9/7/2017	3	134
9/8/2017	3	158
9/9/2017	3	94
10/1/2015	4	92
10/2/2015	4	72
10/6/2015	4	79

APPENDIX C

LIBBY EMISSION INVENTORY

DEQ has developed an emission inventory for the Libby PM_{10} nonattainment area within Lincoln County based on the source categories included in the 1996 approved attainment plan. The source of the emissions is the 2014 National Emission Inventory (NEI). The NEI catalogs emissions from 60 various sources for criteria pollutants and hazardous air pollutants. However, the NEI only reports to county level resolution. The emissions listed in the table below are combined for all of Lincoln County, not just the nonattainment area (NAA). This list is limited to only those sectors used in the attainment plans for each area as well as diesel emissions from mobile sources.

Table 1. 2014 NEI Data for Lincoln County by Sector

PM_{10} Emissions		
Sector	**Tons/Year**	**Percent**
Unpaved Road Dust	4224.73	64.28%
Paved Road Dust	131.68	2.00%
Tailpipe (non-diesel)[1]	20.51	0.31%
Tailpipe (diesel) [2]	16.29	0.25%
Woodstoves	51.25	0.78%
Locomotives	50.67	0.77%
Aircraft	0.65	0.01%
General Burning	28.80	0.44%
Construction Dust	29.48	0.45%
Prescribed Fires	2016.89	30.69%
Other Heating (oil and propane)[3]	0.92	0.01%
Total	**6571.88**	100.00%

[1] Non-Diesel emissions from "Mobile - On-Road Non-Diesel Light Duty Vehicles" (15.48 Tons/year), "Mobile - Non-Road Equipment – Gasoline" (4.85 Tons/Year), and "Mobile - On-Road Non-Diesel Heavy Duty Vehicles" (0.18 Tons/year)

[2] Diesel emissions from "Mobile - On-Road Diesel Heavy Duty Vehicles" (10.11 Tons/year), "Mobile On-Road Diesel Light Duty Vehicles" (2.57 Tons/year), and "Mobile – Non-Road Equipment Diesel" (3.60 Tons/year)

[3] Includes: Fuel Comb - Industrial Boilers, ICEs – Oil, Fuel Comb - Residential – Oil, Fuel Comb - Residential – Other, Fuel Comb - Industrial Boilers, ICEs – Other, Fuel Comb - Comm/Institutional – Oil, Fuel Comb - Comm/Institutional – Other

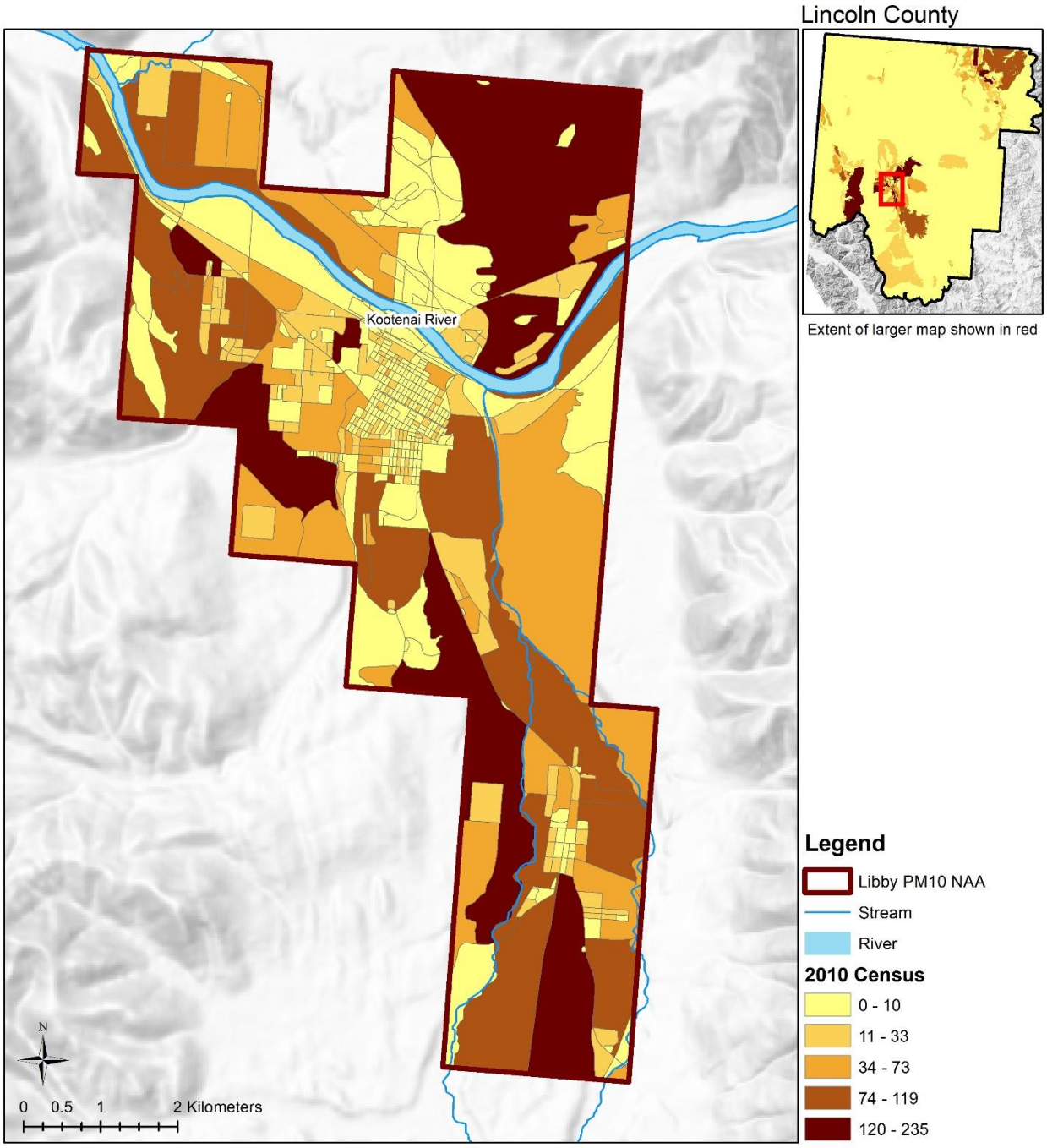
This document will outline the methodology for scaling the county level emissions to the Libby NAA. These methods vary by sector.

Fuel Combustion, Construction Dust, and General Burning Emission Calculations

Fuel combustion sources include commercial and industrial natural gas, residential natural gas, and residential wood. Emissions from these combustion sources and emissions from construction dust, and general burning are available at the county level. There are no emissions available that are specific to the smaller NAA. Since these three emission sectors are linked to population, the 2010 census tract data was used to estimate an appropriate scaling factor.

The NAA represents the more populated part of the county. The figure below shows the census track data for the county, with a higher population in the NAA and surrounding areas, compared to the more rural parts of the county.

Lincoln County Census Track Data



The table below shows the 2010 population totals of the county and the NAA. This shows that the PM_{10} NAA in Libby makes up 40.6 percent of the county population. This tables scales the fuel combustion emissions to the percent of county population within the NAA.

Table 2. Fuel Combustion Emission Estimate.

	2010 Pop.	% of County	Emissions (tons/year)			
			Fuel Combustion – Oil and Other[1]	Fuel Combustion - Residential – Wood	General Burning	Construction Dust
Total County	19,823	100.0%	0.92	51.25	28.80	29.48
Libby NAA	8,047	40.6%	0.38	20.80	11.69	11.97

[1] Includes: Fuel Comb - Industrial Boilers, ICEs – Oil, Fuel Comb - Residential – Oil, Fuel Comb - Residential – Other, Fuel Comb - Industrial Boilers, ICEs – Other, Fuel Comb - Comm/Institutional – Oil, Fuel Comb - Comm/Institutional – Other

Road Dust and Vehicle Emission Calculations

A reasonable emissions estimate from paved and unpaved road dust, mobile on-road gasoline light duty vehicles, and diesel emissions, including heavy duty, light duty, and non-road vehicles, would be scaling the NEI emissions to the ratio of vehicle miles traveled (VMT) within the county to the VMT in the NAA. Unfortunately, VMT data within the NAA is not available. The method outlined below demonstrates the best available estimate to scale county-level vehicle emissions to the NAA within Lincoln County.

2016 daily VMT data is available through the Montana Department of Transportation for Lincoln County and the Libby urban area. The Libby urban area is not identical to the NAA, but the best available representation of the NAA. The table below shows the total daily VMT in the county compared to the Libby urban area in 2016 and the percentage of these VMT within Libby urban area.

Table 3. 2016 VMT Data by County and City.

	2016 Daily VMT	Percent of County
Lincoln County	540,188	100%
Libby Urban Area	20,745	3.8%

Based on the percentage of VMT in Libby relative to the county, a 3.8% scaling applies to all roadway emissions in Lincoln County. Table 5 estimates representative roadway emissions by source category for the Libby NAA.

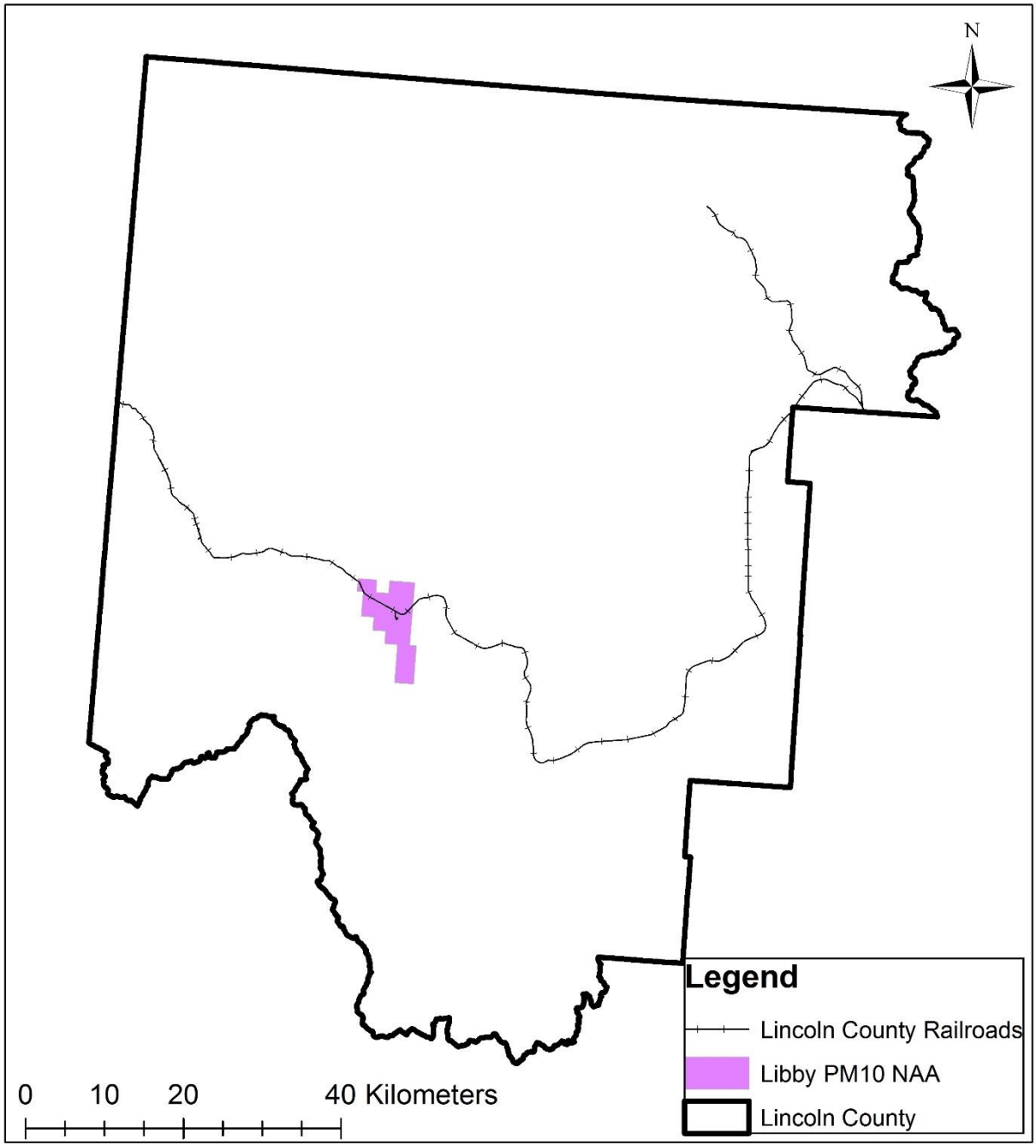
Table 4. Roadway Emission Estimates Based on VMT Scaling.

Source	Lincoln County (2014 NEI) (tons)	Libby Urban Area (tons)
Paved Road Dust	131.68	5.06
Unpaved Road Dust	4224.73	162.25
Road Dust (paved & unpaved) Total	**4356.41**	**167.30**
Mobile – On-road Gasoline LDV	15.48	0.59
Mobile – Non-road Equipment – Gasoline	4.85	0.19
Mobile – On-Road Non-diesel Heavy Duty Vehicles	0.18	0.01
Tailpipe (non-diesel) Total	**20.51**	**0.79**
Mobile – On-road Diesel Heavy Duty Vehicles	10.11	0.39
Mobile – On-road Diesel Light Duty Vehicles	2.57	0.1
Mobile – Non-road Equipment – Diesel	3.6	0.14
Tailpipe (diesel) Total	**16.28**	**0.63**
Tailpipe (diesel & non-diesel) Total	**36.79**	**1.42**
Road Emissions Total	**4393.21**	**168.72**

Locomotive Emission Calculation

A railroad runs through Lincoln County, including the NAA. The location of the railroad track is shown below.

Lincoln County Railroad Tracks



Locomotive emissions are available at the county level but not within the NAA. Since the key industrial sources are no longer active in the Libby NAA, industrial railroad use, including loading and unloading, and idling is expected to be minimal. There is an Amtrak station in Libby with 1 eastbound and 1 westbound train each day and numerous non-stop freight trains daily. Since most of the locomotive traffic through the NAA is not expected to stop, the emissions were scaled based on the length of track in Lincoln County versus the NAA as shown in Table 6.

Table 5. Locomotive Emission Estimate.

	Track Length (miles)	Percent of Track Miles	Locomotive Emissions (tons/year)
Lincoln County	144	100.0%	50.67
Libby NAA	7	4.9%	2.49

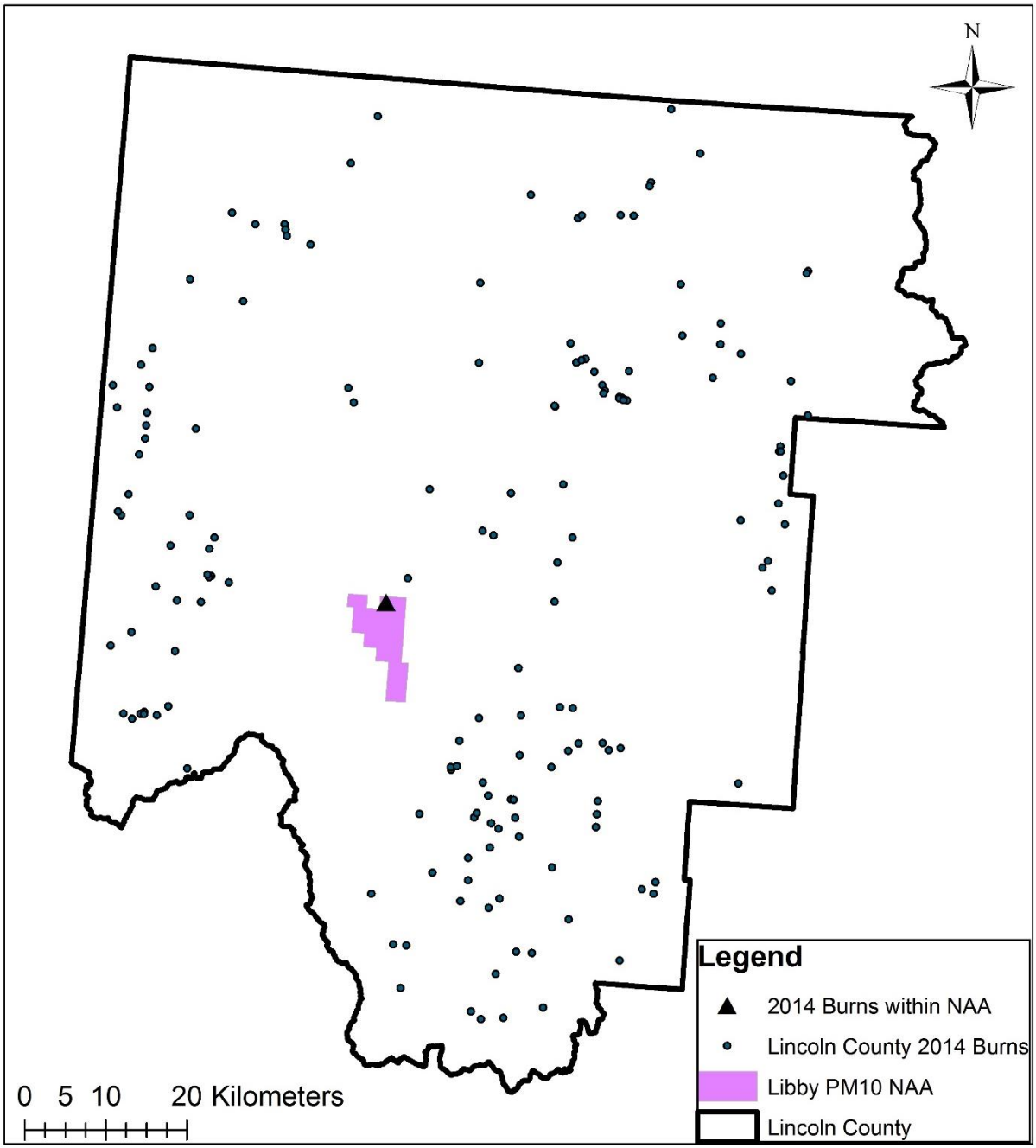
Prescribed Fire Emission Calculation

There is a significant amount of prescribed burning conducted within Lincoln County, totaling over 2,000 tons of PM_{10} in 2014. DEQ 's Open Burning Rules require all major burners to report the location and amount burned each year. To determine the percent of prescribed fire emissions within the NAA compared to the county, DEQ looked at the location of all 2014 major open burns in Lincoln County. DEQ tracked acres burned and tons of debris per acre, allowing DEQ to estimate the total tons of material consumed. The tons of debris consumed within the NAA compared to outside the NAA was used to scale the emissions. Only three burns were conducted within the NAA in 2014, all at the same location in the northern section. These burned totaled 4 acres and 40 tons of debris. The graphic below shows the location of the burns in Lincoln County. Table 7 shows the estimated PM_{10} emissions from prescribed fire in the NAA.

Table 6. Prescribed Fire Emission Estimate.

	Total Tons Consumed	Percent of Tons Consumed	Prescribed Fire Emissions (tons/year)
Lincoln County	131,582	100.0%	2016.89
Libby NAA	40	0.03%	0.61

Lincoln County 2014 Prescribed Burns



APPENDIX D

PUBLIC NOTICE DOCUMENTATION, COMMENTS, AND DEQ'S RESPONSE TO COMMENTS