DEPARTMENT OF ECOLOGY
State of Washington

Washington State Implementation Plan Revision

Wallula, Washington, Second Ten-Year Maintenance Plan for Particulate Matter (PM_{10})

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Este plan de calidad de aire muestra que el área de Wallula continuará cumpliendo con las normas federales de calidad de aire para partículas finas. El plan describe las fuentes y causas contribuyentes al polvo en el aire en y cerca de Wallula. El plan mantiene las estrategias de control que ayudan a mantener estos niveles bajos. Para solicitar información en español comuníquese con Laurie Hulse-Moyer, Programa de Calidad de Aire al 360-407-6783.

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Washington State Implementation Plan

Wallula, Washington, Second Ten-Year Maintenance Plan for Particulate Matter (PM_{10})

Air Quality Program

Washington State Department of Ecology

Olympia, Washington

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Acronyms

ANR .....Annual (Monitoring) Network Report

AOP.....Air Operating Permit

AQS.....EPA's Air Quality System

BACM.....Best Available Control Measures

BCAA .....Benton Clean Air Agency

BMPs.....Best Management Practices

CAA .....federal Clean Air Act

CRP .....Conservation Reserve Program

EER.....Exceptional Event Rule

EPA.....U.S. Environmental Protection Agency

FEM .....Federal Equivalent Method

FRM .....Federal Reference Method

FSA .....Farm Service Agency

IPP.....Inventory Preparation Plan

Lbs.....Pounds

LMP .....Limited Maintenance Plan

NAA.....Nonattainment area

NAAQS.....National Ambient Air Quality Standard

NEAP .....Natural Events Action Plan

NEI.....National Emission Inventory

NEP .....Natural Events Policy

NRCS .....Natural Resources Conservation Service

PM10.....Particulate Matter ten microns or less

PMc.....Particulate Matter, coarse (between PM2.5 and PM10)

PTE .....Potential To Emit

SIP.....State Implementation Plan

SLAMS .....State and Local Monitoring System

SPS.....Special Purpose Monitor

TEOM .....Tapered Element Oscillating Microbalance

tpy .....tons per year

TSD.....Technical Support Document

USDA.....United States Department of Agriculture

WMA .....Wallula Maintenance Area

WMP.....Wallula Maintenance Plan

Executive Summary

The Wallula Maintenance Area (WMA) includes the cities of Burbank and Wallula, and surrounding unincorporated areas in Walla Walla County, as well as small parts of Benton and Lincoln counties. The Washington State Department of Ecology (Ecology) operates ambient air monitors to track compliance with National Ambient Air Quality Standards (NAAQS). Monitors have shown the WMA meets the NAAQS for Particulate Matter ten microns and smaller (PM_{10}) since 1994, except for natural events like high winds or wildfires. This State Implementation Plan (SIP) revision explains how this area will continue to meet this standard through 2025.

The Environmental Protection Agency (EPA) sets health-based standards for particulate pollution. Small particles can penetrate deep into the lungs and cause health problems. The current 24-hour PM_{10} NAAQS, set in 1987, is 150 micrograms per cubic meter ($\mu g/m^3$). To maintain compliance with the standard, monitored levels should not exceed this level more than once a year, averaged over a three year period[1]. The Wallula area monitors violated this standard in the 1980s.

EPA re-designated the Wallula area to attainment —in compliance with the standard— in 2005 when they approved the attainment and first 10-year maintenance plan. The federal Clean Air Act (CAA) also requires that states submit a second plan that provides for the area's continued compliance with the standard for a second 10-year period. This plan:

- Meets the requirement for a second 10-year maintenance plan,
- Covers the period through 2025, and
- Fulfills the final maintenance planning requirements of the CAA for the WMA.

Ecology operated ambient air compliance monitors in various areas at different times to track compliance with the PM_{10} NAAQS. Ecology identified that the Burbank and Kennewick monitors measured the same air mass and Kennewick could represent the WMA well, during normal weather conditions. Ecology provided a technical analysis with its request to remove the Burbank monitor and use Kennewick as the representative monitor. EPA granted permission in 2011. Ecology reinstalled the Burbank monitor in August 2017. While originally intended to be sited temporarily, Ecology decided to keep the monitor as a permanent part of the monitoring network to represent the WMA. Ecology requested to reclassify this monitor to a State and Local Air Monitoring System (SLAMS) monitor in the 2018 Annual Ambient Air Monitoring Network Plan.[2] EPA approved this change on August 13, 2018.

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[1] 40 CFR 50.6(a), National primary and secondary ambient air quality standards for PM_{10}.

[2] Ecology, 2018 Ambient Air Monitoring Network Plan, June 2018, <https://fortress.wa.gov/ecy/publications/SummaryPages/1802019.html>

Congress passed a revision to the Clean Air Act for *Air quality monitoring data influenced by exceptional events*. This provision, implemented under EPA's Exceptional Event Rule (EER) establishes the process to exclude monitored values over the standard for extreme weather events beyond our control. An exceptional event is defined as a natural event or human activity unlikely to recur. Once Ecology submits and EPA approves an exceptional event demonstration, the values over the standard are excluded. The monitors only exceed the standard during high wind and wildfire events.

The main sources of dust in the WMA include agriculture, a pulp and paper mill, a compost facility and a cattle feedlot. Control measures for these sources ensure the area maintains compliance with the 24-hour PM_{10} NAAQS. The control measures in Wallula's first PM_{10} maintenance plan[3] (2005 Plan) included permits, plans and publications. Some control measures from 2005 plan were updated; none were removed. Contingency measures provide the means to return an area to compliance, should the area violate the standard. Ecology also carried forward the contingency measures from the 2005 plan.

Conditions in permits are the control measures to ensure compliance. Dust control plans for the compost facility at the pulp and paper mill and the cattle feedlot also include the requirements for these facilities. Ecology's publication Fugitive Dust Control Plan and Best Management Practices for Cattle Feeding Operations has also been updated, in partnership with the Washington Cattlemen's Association.

Agricultural sources are the largest contributor of dust in the area. The 2005 Plan relied on voluntary and incentive-based United States Department of Agriculture (USDA) conservation measures to control fugitive dust from these sources. Measures that prevent soil erosion are described in the Natural Events Action Plan (NEAP). The NEAP is maintained in this plan; Ecology will continue to work to promote measures to minimize soil erosion through USDA programs from agricultural lands.

Ecology fulfilled federal requirements for public comment and offered to hold a hearing upon request. Appendix E., Media, and Public Comment Period Notices includes outreach and public notices, public comments and Ecology responses, if any received and the hearing transcript, if held.

Ecology reviewed demographic information for the maintenance area. Spanish is spoken by 21 percent of WMA residents. Efforts to reach underrepresented groups in the area about the continued protections in the plan, including translation of outreach materials into Spanish and posting in public locations where Spanish speakers may gather are in Appendix E.

[3] A Plan for Maintaining Particulate Matter (PM10) Ambient Air Quality Standards in the Wallula PM10 Maintenance Area: A Washington State Implementation Plan Revision, March 2005, Publication 05-02-008, <https://fortress.wa.gov/ecy/publications/SummaryPages/0502008.html>

Ecology will continue to monitor air quality for the WMA at the designated monitor (Kennewick, now Burbank).

1. Introduction

1.1 Purpose

The purpose of this plan is to demonstrate that the Wallula Maintenance Area (WMA) meets and will continue to maintain the 24-hour PM_{10} National Ambient Air Quality Standard (NAAQS) through 2025. Ecology requests EPA's approval of this plan so it may be included in Washington's State Implementation Plan (SIP). This plan meets Part 175A federal Clean Air Act (CAA) requirements for a second 10-year maintenance plan.

1.2 Plan structure

This document is organized as follows:

1. Introduction: provides the purpose, structure and background, includes the area's compliance history and background information on the PM_{10} standard. This section also describes the criteria an area must meet for an approvable maintenance plan and how the WMA meets these criteria.
2. Monitoring: provides history of PM_{10} monitoring in the WMA, including dates, locations, equipment, and concentrations. Also includes exceedances of the standard, data flagged, and exceptional event demonstration history.
3. Emission Inventories: includes historical information on the most significant PM_{10} emission categories from the original maintenance plan, an updated 2014 inventory and projected inventories for these same categories.
4. Maintenance Demonstration: presents monitoring information that shows attainment of the standard and projected emissions to future concentrations.
5. Control Measures: includes the provisions from the original maintenance plan with the updated permits, plans, rules and publications, where available) to maintain the standard.
6. Contingency Measures: describes the maintained contingency measures.
7. Commitment to Continued Monitoring: states that Ecology will continue to monitor at a site indicated in the most recent Annual Network Report (ANR).
8. Completion of Required Plans: states that this document fulfills federal planning requirements.

1.3 Background

The Wallula Maintenance Area (WMA), which includes the cities of Burbank and surrounding unincorporated areas in Walla Walla, Benton, Lincoln, and Franklin counties, violated the 24-hour NAAQS for Particulate Matter ten microns and smaller (PM10) in the 1980s.

Environmental Protection Agency (EPA) sets NAAQS for particulate pollution because these particles can penetrate deeply into the lungs and cause health problems. The current 24-hour PM_{10} NAAQS, set in 1987, is 150 micrograms per cubic meter of air ($\mu g/m^3$). To maintain compliance, monitored levels should not exceed the standard in the area more than once a year averaged over a three year period.

The CAA requires an area re-designated to attainment have a second (2nd) 10 year EPA-approved maintenance plan that provides for the area's continued compliance with the PM_{10} standard for 10 additional years. This SIP revision covers through 2025. It fulfills the requirement for a second 10-year plan and the final maintenance planning requirements of the CAA for the area.

This maintenance plan addresses the elements defined in the CAA in Section 175A. A complete maintenance plan includes:

- An attainment emission inventory and projection years,
- Demonstration of maintenance,
- Controls and contingency measures
- Transportation conformity, if applicable

EPA approved the first maintenance plan in 2005[4].

Historically, agricultural sources have been the largest source of particulate matter in the area. The 2005 Plan relied on voluntary and incentive based United States Department of Agriculture (USDA) conservation measures to control fugitive dust from agricultural sources to prevent soil erosion as described in the Natural Events Action Plan (NEAP). Other control strategies include provisions in permits and fugitive dust plans for a pulp and paper mill (including their composting facility), a cattle feedlot, and other sources, to maintain compliance with the 24-hour PM_{10} NAAQS.

The Washington State Department of Ecology (Ecology) did not remove any existing control measures. Ecology submitted the updated permits and plans for these same measures, where available to strengthen the plan. This document reflects all updated control measures. Ecology maintained the existing contingency measures, which will continue to provide the means to promptly correct the standard, should a violation occur.

[4] 70 FR 38073 proposed, 70 FR 50212 final

Ecology operated federal reference method (FRM) and/or federal equivalent method (FEM) ambient air monitors— at different places and times — to track compliance with the federal PM_{10} standard. Ambient monitoring has shown the WMA in attainment since 1994. With a finding of attainment in 2002 and approval of a Limited Maintenance Plan (LMP), the WMA was re-designated to attainment in 2005. Ecology has enforcement authority for this area, except for the state park, federal wildlife refuge, and the portion of the WMA in Benton County. Benton Clean Air Agency (BCAA) has jurisdiction in Benton County.

Ecology submits this maintenance plan and requests EPA approve this plan for the WMA as a revision to the SIP.

1.4 Description of the Wallula Maintenance Area

The WMA lies in eastern Washington just north of the Oregon border in the geographic area known as the Columbia Plateau. The former nonattainment area (NAA) includes parts of Walla Walla, Lincoln and Benton counties as well as a small portion of Sacajawea State Park in Franklin County.

The WMA lies in Washington State's Central Basin, the lowest and driest section of eastern Washington. The driest part of the Basin is in the vicinity of the confluence of the Snake and Columbia Rivers (the northwest corner of the WMA), where annual precipitation is 7-to-9 inches. Summer precipitation is usually associated with thunderstorms. During July and August it is not unusual to have four to six weeks pass without measurable rainfall. During most of the year, the prevailing wind direction is from the southwest or west. The small amount of annual precipitation contributes to the native shrub-steppe vegetation dominating the rural landscape.

The WMA is generally rural and agricultural. Prominent land uses include dryland and irrigated cropland and industrial sites. There is only one major stationary source, a large pulp and paper mill. There is a large beef cattle feedlot with a capacity of about 80,000 head (recent levels have been in the 42,000 head range) and a beef processing plant. The WMA also has grain storage silos and a natural gas compression station in the Walla Walla County portion and a few minor sources in Benton County. The area measures 12 miles on a side for a total area of 144 square miles or 92,160 acres[5].

Figure 1 shows the locations of the three monitoring stations located inside the maintenance area at various times— Wallula Farm, Wallula Port, and Burbank. Also shown are key sources and the maintenance area boundary.

[5] The area bounded on the south by a line from UTM coordinate, 5099975mN, 362500mE, west to 5099975mN, 342500mE, thence, north along a line to coordinate 5118600mN, 342500mE, thence east to 5118600mN, 362500mE, thence south to the beginning coordinate 5099975mN, 362500mE.

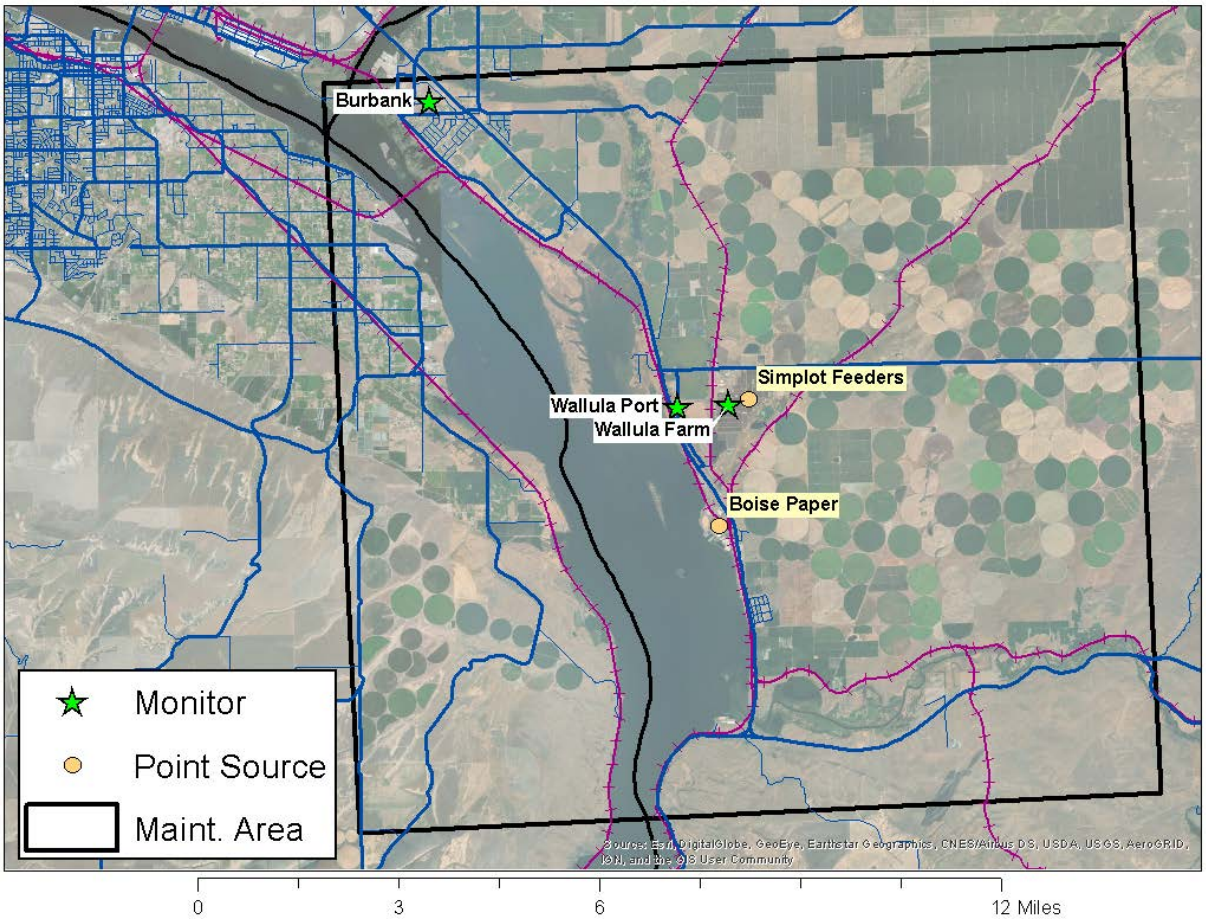

Figure 1 Wallula Maintenance Area, Monitoring Sites and Key Regulated Facilities

The major geographical feature of the WMA is Lake Wallula, a pool on the Columbia River behind McNary Dam. Lake Wallula, which extends from the northern boundary to southern boundary approximately along a north-south axis, occupies about 18,430 acres or 12 percent of the maintenance area. The Horse Heaven Hills rise to more than 1,100 feet above the lake to the west. To the northeast, the gently rolling topography rises gradually to 300-350 feet above the level of the lake by the east boundary. Along the east and south boundaries are steep-sloped hills that rise 600 feet and more above lake level. The Stateline Wind Project is located in the hills to the south of the south boundary of the former NAA. These unnamed hills are an extension of the Horse Heaven Hills on the west side of Lake Wallula.

Figure 2 Lake Wallula with Horse Heaven Hills, (Lyn Topinka, 2005)

The McNary National Wildlife Refuge lies within the maintenance area north-northwest of Wallula proper.

Figure 3 McNary National Wildlife Refuge, Washington: Burbank Slough, 2005

In 2000, the estimated population of the maintenance area was 4,800. In Burbank, where regional schools are located, the population was 3,303. In 2010, the census reported the maintenance area population was 5,700, with 3,291 in Burbank and 179 in Wallula.

1.5 Demographic indicators/ health assessment/ environmental justice

Ecology reviewed demographic data for the WMA to identify how to best reach underrepresented or underserved groups to distribute information about the continuing protections the plan offers and how best to reach these groups so they may comment on the plan.

Groups most vulnerable to impaired air quality are people with cardiac or pulmonary illnesses, children and the elderly. A review of the 2010 Census data shows:

Population categories with percentages higher than the state average in the maintenance area are:

- Adults without a high school diploma or GED
- Hispanic / Latino residents
- Children under age 5

Categories with lower percentages in the maintenance area than the state average:

- Low income households
- Minority groups
- Limited English proficiency

The table below show the percentage of each category for the maintenance area and the state.

Table 1 Wallula Maintenance Area Census Data, 2010 Census

Categories	Maintenance Area	State
Minority Population	21.5%	27.5%
Hispanic / Latino	17.8%	11.2%
Black or African American	0.7%	3.6%
American Indian and Alaska Native	1.0%	1.5%
Asian	0.4%	7.2%
Native Hawaiian and Pacific Islander	<0.1%	0.6%
Some Other Race	0.1%	5.2%
Two or More Races	1.5%	4.7%
Low Income Households (%HH < 2x Poverty Level)	30%	38%
Speaks English Less Than “Very Well” Ages 5+	4.3%	7.7%
Adults 25+ w/o HS diploma or GED	16%	9.6%
Under 5	8.2%	6.4%
65 +	13%	14%

The maintenance area has a slightly higher percentage of children under five and people of Hispanic/Latino background than the state average. Children under five are one the groups most vulnerable to poor air quality. Overall, however, the percentage of underrepresented groups is not very different from the state average. Thirty percent of WMA households are low income, compared with the state average of 38 percent.

These data suggest that health and welfare impacts will not disproportionally affect minority, low income, or indigenous populations in or near the Wallula maintenance area.

Ecology used this information to inform our communication plan. We sought public comment and tailored targeted messages including translation of social and traditional media into Spanish. See Appendix E- Media, Public Comment Period Notices for how Ecology sought to reach these groups.

1.6 Particulate matter standards

The Environmental Protection Agency (EPA) sets air quality standards for particulate matter to protect public health and welfare. Particulate matter pollution is a public health issue because smaller particles can penetrate deep into the lungs and cause health problems. The NAAQS for Particulate Matter ten microns or less refers to particulate matter less than or equal to 10 microns in aerometric diameter. Ten microns is 0.0004 inch or one-seventh the width of a human hair.

Particulate matter comes from soot, dust, and incomplete combustion products suspended in the air. EPA revised the particulate matter NAAQS from total suspended particulate (TSP) to PM_{10} on July 1, 1987, since smaller particles were determined to be more harmful[6]. EPA set the primary or health-based 24-hour standard for PM_{10} at 150 $\mu g/m^3$. This cannot be exceeded more than once a year on average over three years[7]. This standard remains in effect today.

The primary and secondary NAAQS for PM_{10} are the same for the 24-hour concentrations[8]. EPA established the primary standard to protect public health. EPA established the secondary standard for welfare effects. The national primary and secondary ambient air quality standards for PM_{10}, at 40 CFR 50.6(a) defines the PM_{10} standard as follows:

- The level of the national primary and secondary 24-hour ambient air quality standards for particulate matter is 150 micrograms per cubic meter ($\mu g/m^3$), 24-hour average concentration. The standards are attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$, as determined in accordance with Appendix K[9] to this part, is equal to or less than one.

In the simplest case, we determine the number of expected exceedances at a site by recording the number of exceedances in each calendar year and then averaging them over the past three calendar years. A value of one or less complies with the standard.

1.6.1 Health effects

Particulate Matter can accumulate in the respiratory system and is associated with numerous health effects. Short-term exposure to PM_{10} can irritate the lungs and may cause immune responses. Lung constriction produces shortness of breath and coughing may result. The materials dissolving from the particles can also damage cells. The larger particles deposit in the

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[6] Ten years later, on July 18, 1997, EPA set a 24-hour for fine particulate matter (particulate matter 2.5 microns or smaller or $PM_{2.5}$) at 65 $\mu g/m^3$. In 2006, the 24-hour standard was revised from 65 $\mu g/m^3$ to 35 $\mu g/m^3$, < <https://www.govinfo.gov/content/pkg/FR-2006-10-17/pdf/06-8477.pdf >

[7] https://www.govinfo.gov/content/pkg/CFR-2012-title40-vol2/pdf/CFR-2012-title40-vol2-sec50-6.pdf

[8] EPA revoked the annual PM_{10} NAAQS October 17, 2006, 71 FR 61143-61233. <https://www.gpo.gov/fdsys/pkg/FR-2006-10-17/pdf/06-8477.pdf>

[9] <https://www.gpo.gov/fdsys/pkg/CFR-2012-title40-vol2/pdf/CFR-2012-title40-vol2-part50-appK.pdf>

upper respiratory tract, while smaller particles travel deeper into the lungs and are retained for longer periods of time.

Long-term, low-level PM_{10} exposure may cause cancer and premature death. Those with a known history of asthma or chronic lung disease are especially sensitive to these effects. The elderly or those with pre-existing heart conditions may also have severe reactions since the resulting lack of oxygen may strain the heart.

1.7 Maintenance area compliance history

Wallula's compliance history with the 24-hour PM_{10} NAAQS dates back to the late '80s and early '90s. The current standard is the 1987 24-hour PM_{10} standard of 150 $\mu g/m^3$, and allows no more than one exceedance per year over a three year period[10].

[10]§50.6 National primary and secondary ambient air quality standards for PM_{10}. Official compliance calculation method at 40 CFR Appendix K to Part 50, Interpretation of the National Ambient Air Quality Standards for Particulate Matter.<<https://www.ecfr.gov/cgi-bin/text-idx?SID=9e937cf6815fc5a540dd4c9562499958&mc=true&node=se40.2.50_16&rgn=div8

Table 2 lists the area's compliance history and key dates. A summary of the WMA history is also on EPA's Washington SIP website[11].

Table 2 Wallula area compliance dates

Dates	Action
1990	Classified a moderate nonattainment area per 1990 CAA Amendments – (40 CFR 81.348, PM_{10} Initial Nonattainment Areas); see also 56 FR 56694
12/31/1997	Granted temporary waiver – extended attainment date to 12/31/1997 (60 FR 47276) (proposal 60 FR 63109, 12/6/1995)
2/9/2001	Did not attain, reclassified to serious nonattainment area (66 FR 9663) – new attainment date: 12/31/2001, *See CAA* sections 188(b)(2)(A) and 188(c)(2).
11/22/2002	Issued finding of attainment (67 FR 64815)- 4 exceedances due to natural events qualify for exclusion under Natural Events Policy[12]
2/1/2005	EPA proposed to approved Ecology's serious attainment plan (70 FR 5086)
3/29/2005	Ecology submitted a request for re-designation to attainment and 1st 10-year maintenance plan (i.e., 2005 maintenance plan).
5/2/2005	EPA approved serious attainment plan (70 FR 22957)
7/12/2005	EPA made corrections to Ecology's section WW. (70 FR 39926)
8/26/2005	Final approval of re-designation to attainment, maintenance plan (70 FR 50212)
9/26/2015	2nd 10 year maintenance plan due
3/2025	End of maintenance planning period

The area is in attainment with the standard, once exceedances due to exceptional events for the September 2017 wildfire exceedances are excluded. Ecology submits an Exceptional Event Demonstration to EPA for review; EPA must concur with the demonstration before the data is excluded. See Section 0, 2.3 Treatment of exceedances due to natural events.

1.8 Maintenance plan requirements

The CAA Section 175A describes the requirements for a second ten year plan for maintenance areas. To fulfill these requirements, the plan must include:

- Monitoring Network History (monitoring values)
- Attainment Emission Inventory and Projection Years
- Maintenance Demonstration
- Control Measures
- Contingency Plan

Ecology will continue to implement the control measures relied upon in the attainment SIP. Ecology has updated some permits and plans. The contingency measures provide a means to

[11] https://www.epa.gov/sips-wa/summary-wallula-particulate-matter-pm-10-maintenance-plan

[12] The Natural Events Policy is described and referenced in the Section 2.3 of this document.

promptly correct any violation of the standard not attributed to a natural event. See Control Measures and Contingency Measures.

2. Monitoring

This section discusses the history and current status of coarse particulate matter monitoring for the WMA. Ecology operated FRM and/or FEM ambient air monitors at various sites at different times to track compliance with the 24-hour PM_{10} standard. Ecology reports data to EPA's Air Quality System (AQS).

Ambient monitoring has shown the WMA in attainment since 1994, except for natural events.

2.1 Monitor locations, dates, and equipment

The first compliance monitor for the WMA was at Wallula Farm from 1986 to 2003.[13] For a short time, to evaluate an alternate location for this monitor, there were three monitors in the maintenance area.

Figure 4 below shows the maintenance area boundary, location of compliance and trial monitors and key sources. The figure also shows the maintenance area boundary and the location of the Kennewick station.

[13] The Wallula Farm location was originally owned by Wordens, then the farm was sold to Nedrows. Throughout this document, the location is referred to as Wallula Farm.

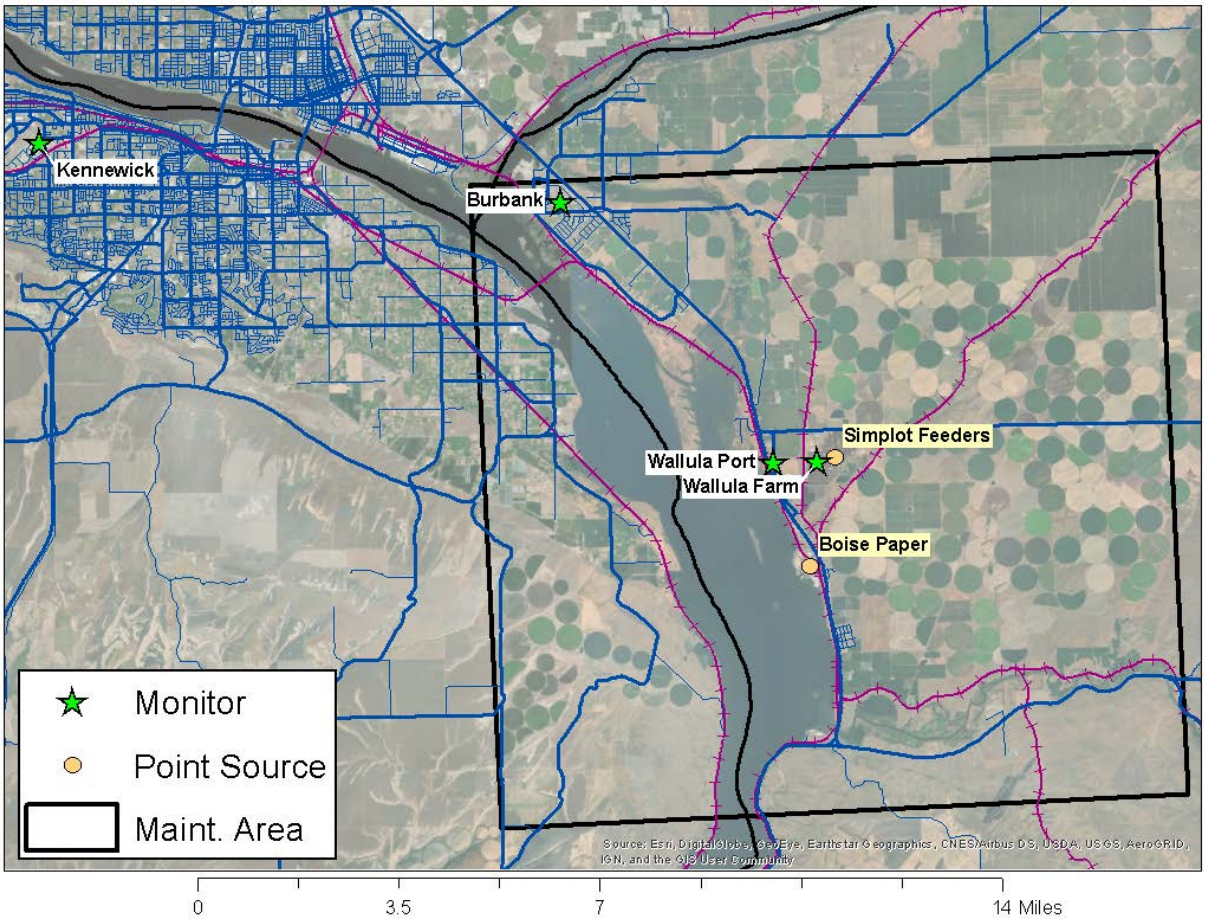

Figure 4 Current, Historical and Trial Monitoring Sites, Key Sources

Table 3 shows the locations, dates, types and sampling frequencies for particulate matter monitors for the WMA. The manufacturer of the filter-based monitors is Sierra Anderson (SA). The Tapered Element Oscillating Microbalance (TEOM) is manufactured by Rupprecht & Patashnick (R&P).

Table 3 Wallula PM10 monitoring: Locations, Dates, Equipment, and Frequency

Sampling Dates	Sampler Type	Sampling Frequency
Wallula Farm	*AQS site id no.*	*53-071-1001*
8/28/1986 – 7/15/1988 8/12/1988 – 12/30/1988 1/01/1989 – 10/24/2003	SA321 SA321A SA1200	every 2 days every 6 days every 6 days
Wallula Port	*AQS site id no.*	*53-071-0003*
11/3/2002 – 4/30/2004	SA1200	every 3 days
Burbank, Maple Street	*AQS Site id no.*	*53-071-0006*
12/25/2002 – 12/31/2006 6/1/2004- 12/31/2011 **8/16/2017 –to present**	SA1200 R&P 1400a TEOM **R&P 1400a TEOM**	every 3 days Continuous **Continuous**
Kennewick, Metaline Road	AQS site id no.	53-005-0002
1994-2006 **2004 to present (through 2017))**	SA1200 **R&P 1400a TEOM**	Every 3 days **Continuous**

*Ecology requested that EPA reinstate Burbank as the compliance monitor for the area in the 2018 ANR. EPA approved this change.

Although the Kennewick station has been operating since 1994, it has only been the official compliance monitor for the WMA since 2011, when EPA approved the change. (Appendix C.) Most recently, a monitoring station was reinstated at Burbank. Burbank represents the WMA beginning 2018.

2.1.1 Lease terminated – candidate location trials: Wallula Port and Burbank

After EPA reclassified the Wallula NAA from moderate to serious in 2001, the owner of Worden Farms — where the Wallula (FRM) monitor was located — exercised his option to terminate the lease and asked Ecology to remove the unit. The land owner agreed to let the monitor remain while Ecology looked for a replacement site. The site operated until October 31, 2003. To locate a replacement site, Ecology contracted with Washington State University for a saturation study during the summer of 2001.

Ecology considered two sites: Wallula Port and Burbank. The Port location considered was in the vicinity of Dodd Road. The Port site is about a mile north-northwest of the Wallula farm monitoring site and began monitoring on November 13, 2002.

The second site considered was in the unincorporated community of Burbank, where most of the population of the maintenance area lives. Monitoring began at the Burbank (AQS site id no. 53-071-0006) site in December 2002, at the Burbank school at 755 Maple Street, Burbank.

For the full details of the research and analysis of the saturation study, and letter from EPA approving Burbank as the representative monitor for the Wallula maintenance area, see Appendix A-1, *Demonstration of Attainment of the PM10 NAAQS* in *A Plan for Maintaining Particulate Matter (PM10) Ambient Air Quality Standards in the Wallula PM10 Maintenance Area*, March 2005, Publication No 05-02-008. The references for this section are listed below.

Wallula 2005 Maintenance Plan, Appendix A-1

- Candis Claiborn, January 3, 2002. PM_{10} Saturation Study in Wallula, WA. Washington State University, Pullman.
- Washington State Department of Ecology, Air Quality Program, March 2002. Analysis of 2002 Wallula Saturation Study.
- Washington State Department of Ecology, Air Quality Program, January 5, 2004. Evaluation of Two Candidate Sites for Replacement of the Wallula PM_{10} Monitoring Site.
- U. S. Environmental Protection Agency, Region 10, November 4, 2004. Letter from Mahbubul Islam, Manager, State, and Tribal Programs Unit, to Mike Ragan, Ecology, re: Approval of the Burbank PM_{10} Monitoring Site as the Representative Monitor for the Wallula PM_{10} Nonattainment Area.

The Ecology statistical analysis, Appendix A-1 in the 2005 plan, shows that since Burbank and Wallula Farm were only seven miles apart, these two monitors measured the same air mass. Most of the population of the maintenance area lives in Burbank. The Burbank site was also attractive because of practical considerations, such as possibility for a long term lease and availability of power and telephone lines. Therefore, Ecology chose Burbank. The network approval letter from EPA that includes approval of this change is also in Appendix C of this document.

2.1.2 The move to Kennewick

The Burbank monitors – filter based and continuous - operated from 2002 to 2011, until EPA granted permission for the Kennewick-Metaline Road monitor to represent the WMA. Ecology submitted an analysis that showed that Burbank and Kennewick continuous PM_{10} TEOMs consistently recorded the same or similar PM_{10} levels.

The two monitors share the same air shed and are about seven miles apart. Ecology's analysis showed that Kennewick was a reasonable surrogate for the Burbank monitor.

This monitor represented the WMA well, except during high wind events. As shown in the exceedance review in the next section, more exceedances occurred at Kennewick than at Burbank from 2004 to 2011, the overlapping period. High wind events usually come from the SW of Kennewick, and less frequently from the northeast. The maintenance area is not in the pathway of the most frequent high wind dust storms.

The Kennewick, Metaline Road (AQS 530050002, POC #3) monitor became the compliance monitor for the maintenance area in 2011. In the summer of 2012, Ecology relocated the Burbank meteorological equipment to Kennewick, as well.

Ecology proposed the removal of the Burbank monitor in the 2010 5-Year Network Assessment (Washington State Department of Ecology, 2010) and EPA approved the change December 7, 2011. Appendix C includes monitoring information, including the portion of the Assessment that provides the details of this analysis (pages 52, 53) and the EPA approval letter. The Burbank-

Maple Street site's last day of data in EPA's Air Quality System (AQS) during this period was December 31, 2011.

2.1.3 Back to Burbank: August 2017 - present

Kennewick was the compliance monitor from 2011 through 2017. Ecology reinstalled the Burbank monitor in August, 2017 as a Special Purpose Monitor (SPM). Originally slated to stay in place only for one year, Ecology requested this site be reclassified as a permanent SLAMS monitor and formally asked that EPA reinstate Burbank as the compliance monitor for the WMA in the 2018 ANR (Washington State Department of Ecology, 2018). EPA granted this request in a letter approving the network dated August 13, 2018 (Appendix C). The status change is effective January 1, 2018.

Ecology commits to maintaining a PM_{10} NAAQS compliance monitor for the maintenance area (formerly represented by Kennewick, now Burbank) through the maintenance plan period. Ecology will maintain and operate the compliance monitor in accordance with federal siting and design criteria set forth in 40 CFR Part 58. Ecology will propose any changes to the area monitor through Ecology's annual network plan and is subject to EPA approval.

2.2 Monitored concentrations

This section presents the PM_{10} concentrations for the various monitors collecting data within the maintenance area over time. Figure 5 shows 24-hour PM_{10} concentrations at all four monitors from 1986 to 2017.

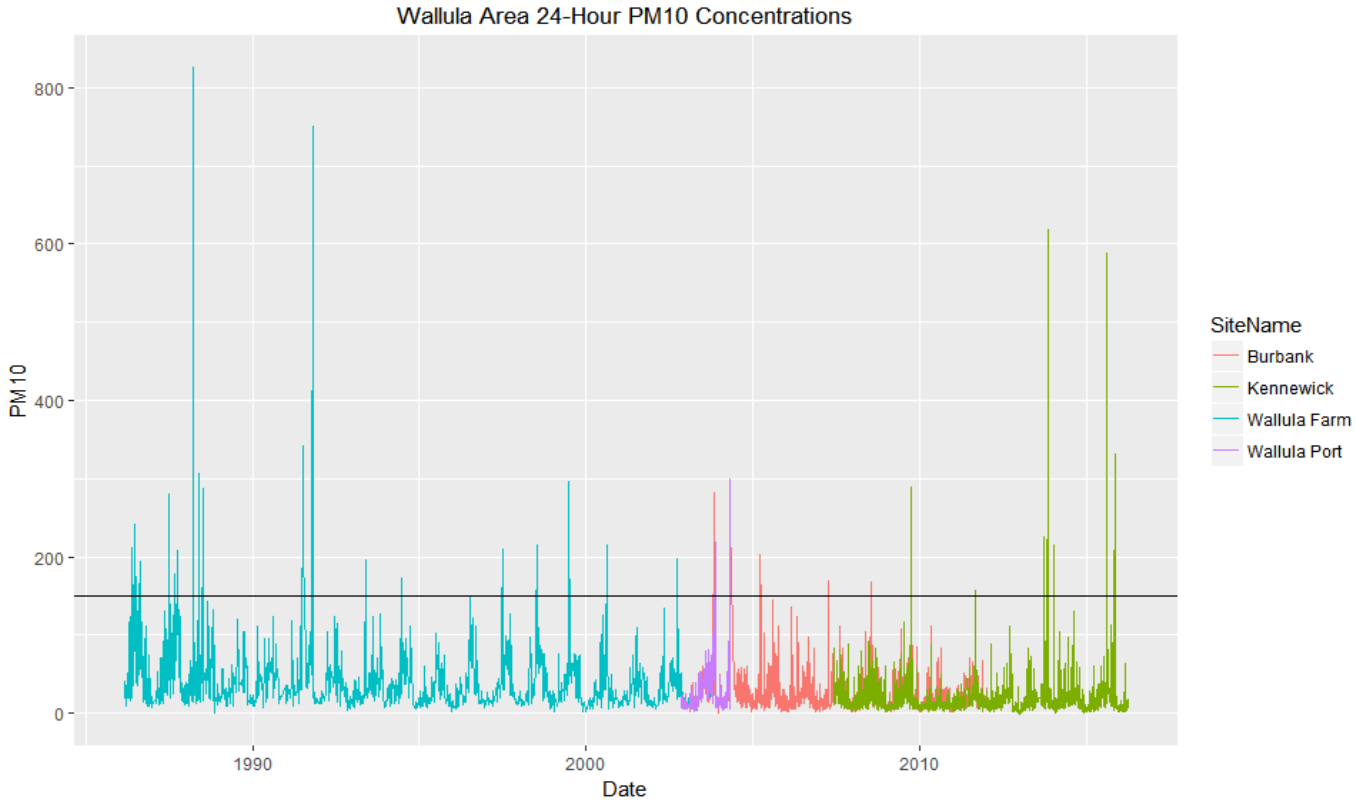

Figure 5 Monitored Values in the Wallula Maintenance Area, 1986 to 2017

The following sections break out monitored values at the separate locations for the various time periods.

2.2.1 The early years: Wallula farm - 1986 - 2003

Monitoring began at Wallula Farm in 1986. Figure 6 shows the monitored PM10 values.

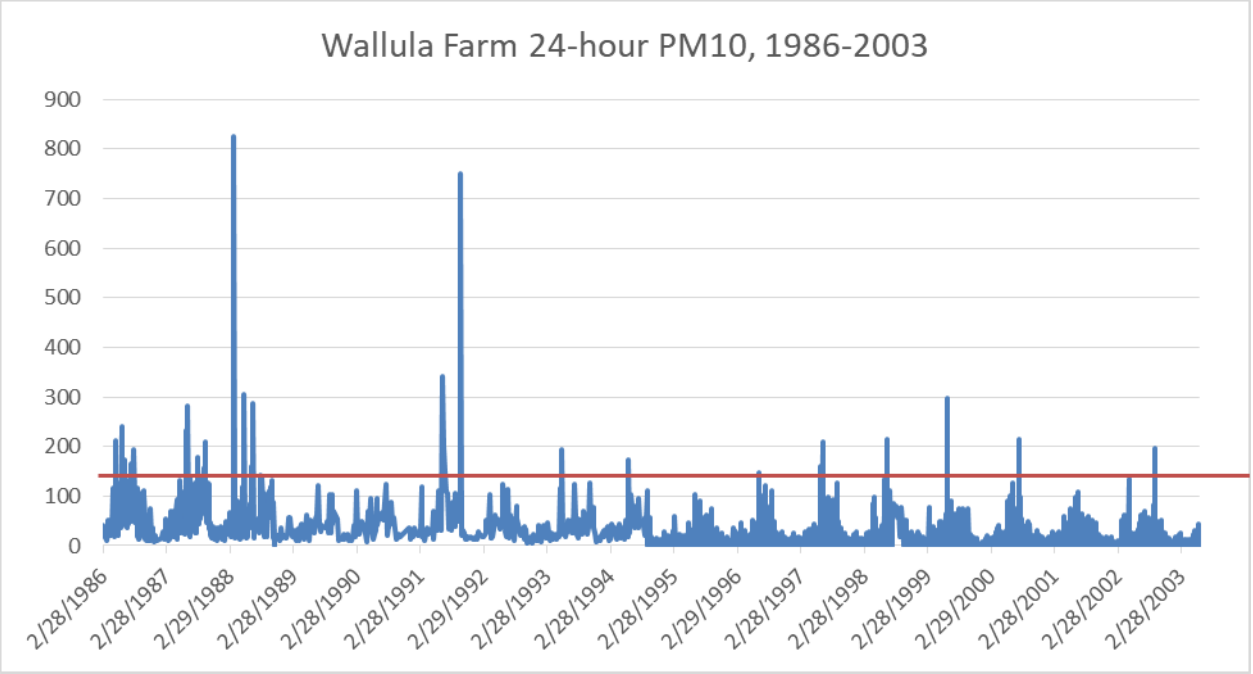

Figure 6 Wallula Farm Concentrations, 1986-2003

The Wallula Farm site recorded three exceedances from 1999 to 2003. Appendix C, Monitoring Documentation, has the dates and values of exceedances for these early years. Ecology excluded some values after submitting demonstrations and gaining EPA approval. EPA's Natural Events Policy (NEP) governed exclusions of data from natural events from 2007 to 2016.

As described above, when the owner of the land where the monitor was located opted out of his lease, Ecology conducted a search for a replacement location. Ecology considered Wallula Port and Burbank, but ultimately chose Burbank.

2.2.2 The middle years: Burbank - 2002-2011

The monitor at the Burbank School operated from February 25, 2002 through December 31, 2011. The graph below shows how values were consistently below the PM_{10} 24-hour standard, except during two high wind events: April 9, 2007[14] and July 10, 2008. Figure 7 shows values recorded at Burbank in the middle years through 2011.

[14] An exceedance of 160 µg/m^3 was also reported at Kennewick on 4/9/2007; there was no data for 7/10/2008.

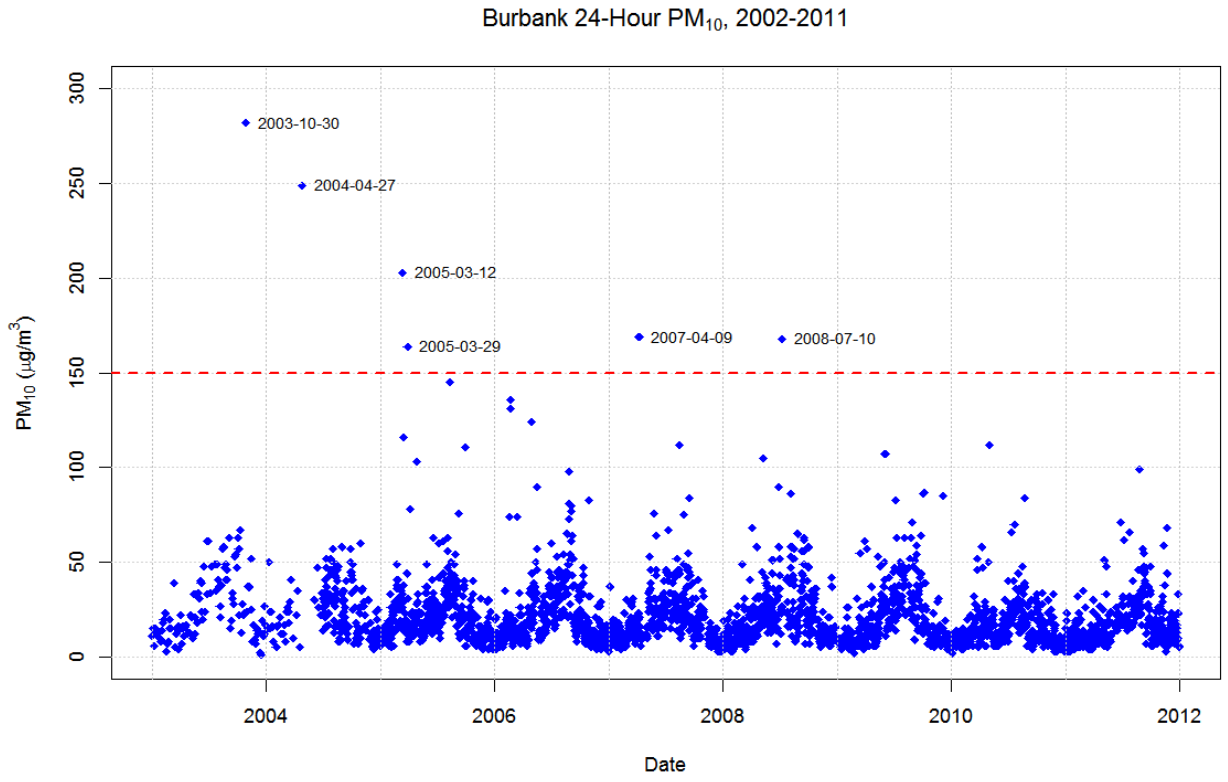

Figure 7 Burbank 24-hour PM_{10} values, 2002 -2011

The last official data recorded at the monitor at Burbank after Kennewick became the compliance monitor was December 31, 2011. This monitor represented the WMA through 2010.

2.2.3 Kennewick represents Burbank: 2011 through 2017

In 2009, Ecology thought that Burbank and Kennewick monitors might potentially be redundant monitors. These monitors were located within the same air shed about seven miles apart. While Burbank recorded slightly higher concentrations overall, Kennewick was sometimes higher during windblown dust events. In the 2010 Washington State Ambient Air Monitoring Network Assessment, Ecology presented evidence that under normal conditions, the two monitors consistently tracked each other closely. Therefore, Ecology considered Kennewick and Burbank to be redundant monitors and requested EPA approval to remove the monitor at Burbank. EPA granted approval to remove the Burbank monitor in their network approval letter on December 7, 2011. See Appendix C. Monitoring Documentation for the excerpt from the 2010 report and EPA network approval letter.

The Kennewick monitor represents Burbank well under normal circumstances, but when high wind events occur, the WMA does not experience the high levels of windblown dust observed in Kennewick. Figure 8 shows Burbank and Kennewick values for their overlapping periods. The Burbank 2017 data is not included because monitoring only started in July of 2017.

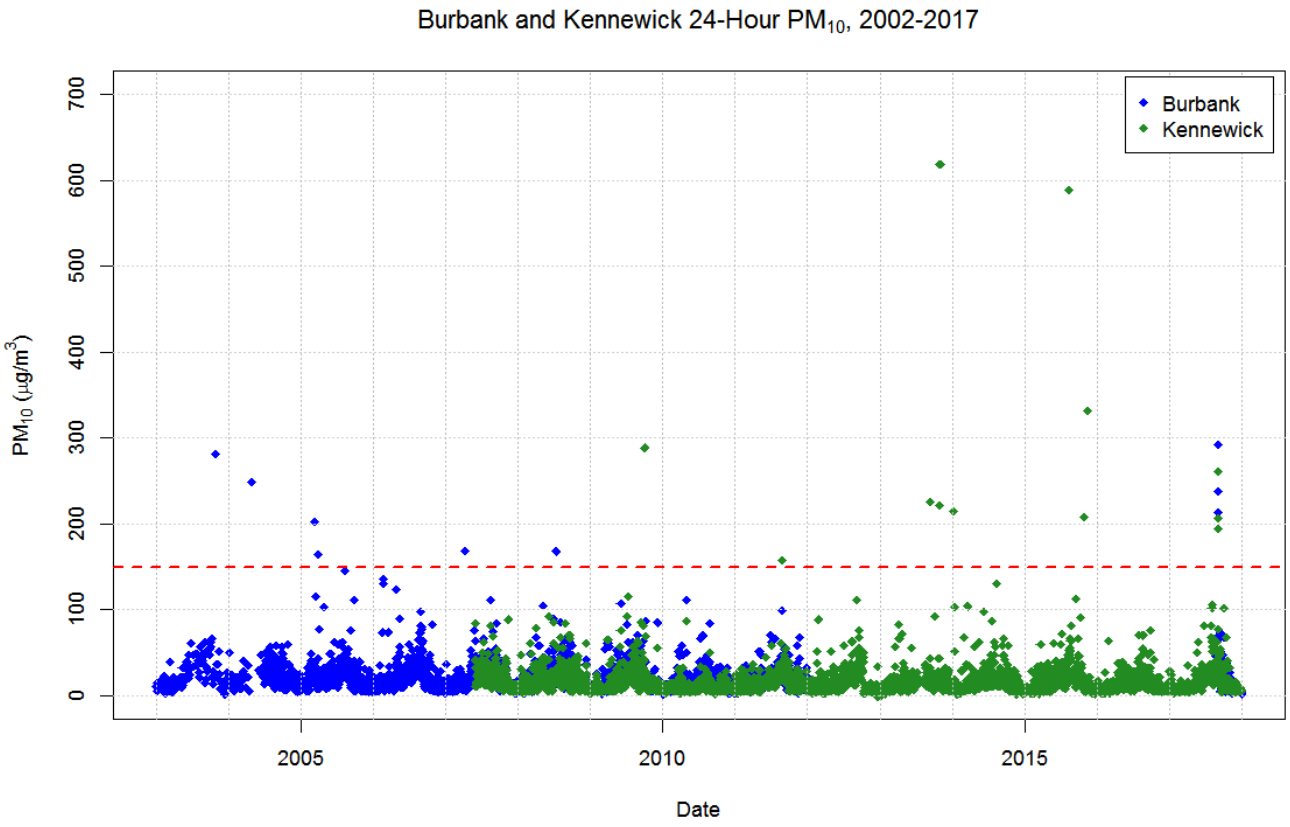

Figure 8 Monitoring at Burbank, 2002-2011; Kennewick, 2007 to 2017

Figure 9 shows values at Kennewick from 2011 through 2017, with exceedances listed. Ecology did not pursue all exceedances for EER qualification and exclusion.

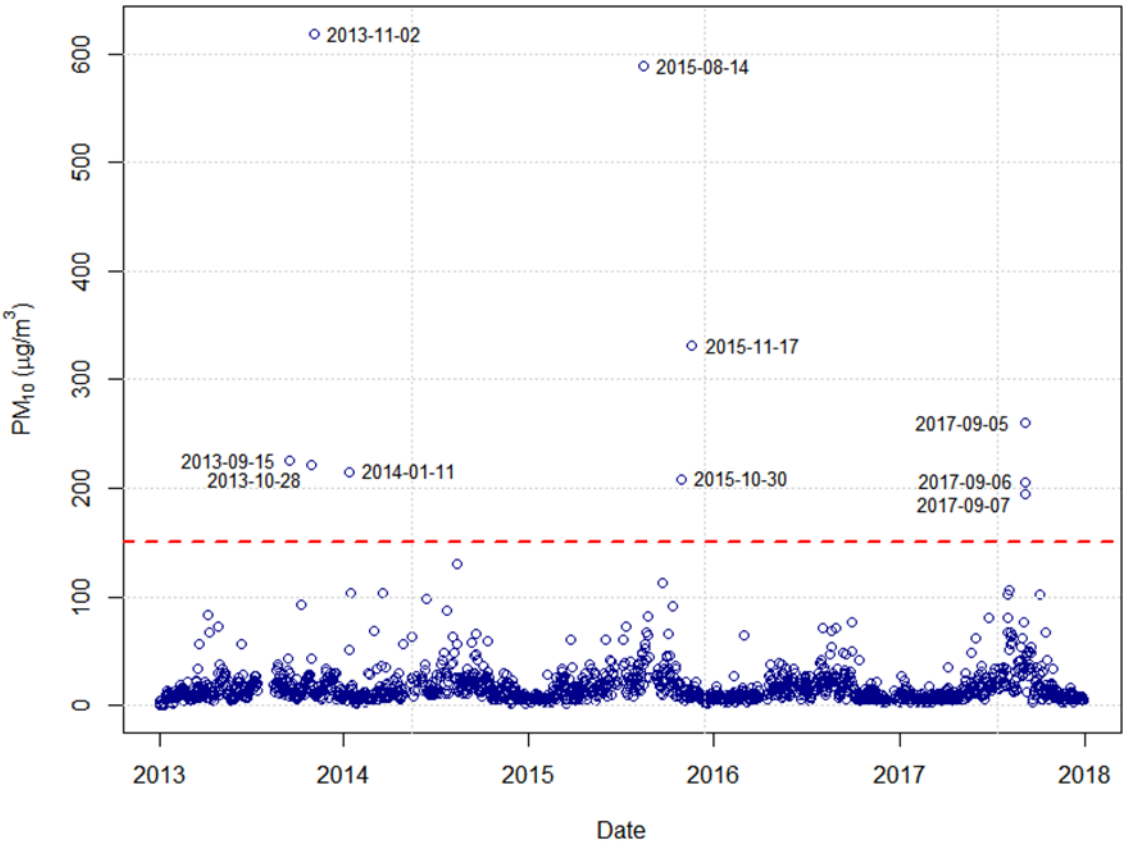

Figure 9 Kennewick 24-hour PM_{10} concentrations and exceedances by date, 2011-2017

The Kennewick Metaline Road monitor represented the WMA from 2011 through 2017.

2.2.4 Back to Burbank:

Ecology removed the monitors at Wallula Farm (2003), Wallula Port (2004) and Burbank (2011). Kennewick was the compliance monitor from 2011 through 2017.

Then, in August 2017, Ecology installed a special purpose, temporary monitor with a continuous FEM TEOM and meteorological equipment inside the WMA back at the original Burbank school site. In our 2018 Annual Ambient Monitoring Report, Ecology requested that EPA reclassify this monitor as a SLAMS monitor and reinstate it as the compliance monitor for the WMA. On August 13, 2018, EPA approved the network plan and reinstated Burbank as the compliance monitor. See Appendix C for the approval letter and Ecology's response.

The Section below, titled 2.4 Historical exceedances, includes information on exceedances through 2017, that occurred at Kennewick and Burbank since those reported in the 2005 maintenance plan.

2.3 Treatment of exceedances due to natural events

Exceedances caused by natural events, such as wind storms or wildfires, may be excluded from the record, if Ecology submits proper documentation and EPA agrees the event meets the criteria for exclusion.

From 1996 to 2007, the Natural Events Policy (NEP) governed the process states could use to request exclusion for monitored values that exceeded NAAQS due to natural events. This policy outlined the information states had to provide to EPA to show that a particular exceedance was due to natural events and should not count against an area. In May 1998, EPA approved Washington's Windblown Dust Natural Events Action Plan (NEAP[15]) for the Columbia Plateau16. This plan outlined the conditions and process that Ecology would use to qualify events for exclusion under the NEP. This NEAP also presented information about the specific conditions and characteristics of the Plateau that describe the vulnerability of the area.

Section 319(b) of the Clean Air Act, Air quality monitoring data influenced by exceptional events, established a process to exclude monitored values over the standard for extreme weather events beyond our control. EPA developed the Exceptional Event Rule (EER) (U.S. Government, 2007).to provide the criteria and process for states to demonstrate and EPA to approve/disapprove demonstrations to and exclude data from compliance calculations. EPA adopted this rule on March 22, 2007 and revised it on October 3, 2016 (Government, 2016). This rule governs the exceptional event process today.

[15] Ecology, Columbia Plateau Windblown Dust Natural Events Action Plan< https://fortress.wa.gov/ecy/publications/SummaryPages/0302014.html>, 2003

[16] EPA approved Ecology's Columbia Plateau NEAP as meeting the minimum requirements of the NEP in May 1998, with some recommendations that were incorporated in the 2003 NEAP update.

2.4 Historical exceedances

For exceedances at compliance monitors that occurred before 2003, see Appendix B1. Since 2003, Burbank and Kennewick shared only two exceedances dates — 4/27/2004 and 4/9/2007 — from their overlapping operating periods, until the wildfires in September 2017. Table 4 and Table 5 shows exceedance dates and values of both these stations, respectively. Highlighted values in the next two tables denote these shared exceedances.

Burbank begins representing the WMA beginning January 1, 2018. Wildfire exceedances from the 2017 fires at Burbank were not included in the Kennewick demonstration. Once the Burbank monitor records three years of data, a PM_{10} compliance value can be calculated.

Table 4 Burbank Exceedances, 2002-2008 and 2017

Date	24-hour Concentration (µg/m^3)
10/30/2003	282
4/27/2004	249
3/12/2005	203
3/29/2005	164
4/9/2007	169
7/10/2008	168
ended 12/31/2011	restarted 8/16/2017
9/5/2017	293
9/6/2017	238
9/7/2017	213

Table 5 Kennewick Exceedances, 2002-2017

Date	24- hour Concentration (µg/m^3)
8/16/2002	186
3/5/2003	186
10/28/2003	1438
11/10/2003	164
3/18/2004	301
4/27/2004	539
3/16/2005	205
8/12/2005	590
9/29/2005	268
2/23/2006	173
4/29/2006	172
5/18/2006	251
4/9/2007	192
10/4/2009	289
8/28/2011	158
9/15/2013	226
10/28/2013	222
11/2/2013	619
1/11/2014	215
8/14/2015	589
10/30/2015	208
11/17/2015	332
9/5/2017	261
9/6/2017	207
9/7/2017	195

Table 6 shows Exceptional Event status for the Kennewick monitor under the EER. All exceedances were due to high winds, except September 2017 values caused by wildfires. Not all exceedances may qualify or have regulatory significance[17] so Ecology did not submit demonstrations for all exceedances shown. We did not develop or submit demonstrations for events shown shaded below. The Kennewick September 2017 wildfire values are potentially eligible for exclusion from compliance calculations under the Exceptional Event Rule. Ecology submitted a demonstration to EPA March 20, 2019 requesting exclusion for monitored values at Kennewick for September 4, 5 and 6, 2017. EPA concurred with this event and excluded September 5 and 6 from the record. See Appendix C.2.

[17] The 2016 EER lists five categories (plus an option for case by case consideration) where a demonstration affects the compliance value for an area and EPA needs to take action.

Table 6 Dates, Values and Status of Exceedances at Kennewick, 2007 through 2017

Exceedance Dates	24-hr PM_{10} ($\mu g/m^3$)	Status	Links to demonstrations that were submitted, concurred upon
April 9, 2007	192	Not submitted	NA
October 4, 2009	290	Not submitted	NA
August 28, 2011	158	Not submitted	NA
September 15, 2013	227	Submitted, concurred May 23, 2017	2013 Exceptional Event Demonstration: PM10 Exceedances due to High Winds at Kennewick
October 28, 2013	224	Submitted, concurred May 23, 2017	"
November 2, 2013	620	Submitted, concurred May 23, 2017	"
January 11, 2014	216	Not submitted	NA
August 14, 2015	589	Submitted, concurred March 21, 2018	Exceptional Event Demonstration for the August 14, 2015 PM10 Exceedance due to High Winds at Kennewick, Washington
October 30, 2015	208	Not submitted	NA
November 17, 2015	331	Not submitted	NA
September 4,5,6, 2017*	261, 207,196	Submitted, March 20, 2019; EPA has given verbal approval concurred (9/5 and 6 only) Concurrence letter to come.	Exceptional Event Demonstration for September 2017 PM10 Exceedances Due to Wildfires

*due to wildfires

EPA's concurrence with the two of the three values submitted in the 2017 wildfire demonstration for Kennewick will bring the maintenance area into compliance with the 24-hour PM_{10} NAAQS[18]. Based on recent monitoring data, Ecology expects that the Burbank monitor will be significantly less impacted by high wind exceptional events than the Kennewick monitor.

2.5 Mitigation Plan requirements

The 2016 Exceptional Event Rule (EER)[19] requires states to prepare a mitigation plan when they submit exceptional event demonstrations (EE demos) for three events/seasons of the same type and pollutant in the same area in a three-year period. The rule requires states with areas with such exceedances (see Table 6 of the Federal Register Notice) to submit a mitigation plan by

[18] EPA concurred with two of the three days submitted in the demonstration, see Appendix C.

[19] 81 FR 68272, Federal Register for 10/3/2016

September 30, 2018. Since Kennewick recorded repeat exceedances of the PM_{10} standard while representing the WMA, when EPA finalized the EER revision in 2016, the WMA was identified in the rule revision. Therefore, Ecology submitted a High Wind Fugitive Dust Mitigation Plan[20] to EPA for this area in early 2019.

Ecology submitted high wind PM_{10} EE demos for four events at Kennewick from 2013 to 2015. EPA has concurred with Ecology's demonstrations for these four events (Appendix C), bringing the maintenance area into compliance with the standard.

Dry wheat operations in Benton and Klickitat County's Horse Heaven Hills (HHH) area, as well as other Columbia Plateau counties, such as Franklin and Adams, were the main PM_{10} sources during high wind events. Ecology's Mitigation Plan addresses control strategies on agricultural lands in those areas.

The mitigation plan will focus on control information on agricultural lands through implementation of voluntary conservation practices in the HHH area, areas northeast and southwest of the WMA.

Ecology will periodically review and update the mitigation plan as required by the EER.

[20] <https://fortress.wa.gov/ecy/publications/documents/1902005.pdf>

3. Emission Inventories

Ecology developed emission estimates from maintenance plan sources to evaluate whether the emission sources or amounts have changed significantly in the years since Ecology prepared the first maintenance plan emission inventory (EI) in 2005.

Ecology developed four EIs:

- A base year/attainment inventory (2014)
- A mid-term projection inventory (2020)
- Two final projection year inventories (2025 and 2030)

While 2025 is the anticipated final year of the maintenance plan, Ecology prepared the 2030 projection in the event of a delay in plan approval.

The base year 2014 is the most recent year of the National Emissions Inventory (NEI) with actual emissions. The future year inventories include all the sources inventoried for the base year. Ecology based the future year inventories on projected activity levels and effects of current and future controls. The base year and future year inventories include annual and seasonal weekday emissions.

Details about the spatial surrogates, temporal profiles, and other information are available in Appendix A: Emission Inventory Documents (includes A.1 Inventory Preparation Plan (IPP) and A.2 Emissions Inventory Documentation for the Wallula PM_{10} Second 10-Year Maintenance Plan (EI Documentation).

3.1 2002 Emission inventory (for 2005 Maintenance Plan)

The 2002 attainment emissions inventory for a typical PM_{10} season day—identified for the 2005 plan as from June through September — indicates that most of the emissions came from agricultural tilling (51.2%), the pulp and paper mill (20.1%), and small industrial sources (19.0%).

3.1.1 Changes to emission sources: Differences between 2002 and 2014 emission inventories.

Emission sources in the Wallula Maintenance Area have not changed much. Except for a few small sources and new equipment for corn and hay at the Simplot facility, there has been little change in emission sources. Ecology included emissions estimates for the same categories as the first maintenance plan in this attainment inventory and added construction dust and agricultural harvesting. Notable changes for specific sources are below:

- The Wallula Generating Station, a 1,300 MW gas turbine power plant was never built, (not to be confused with existing Gas Transmission NW, station 8 that began operation in 1996).

- Beef feedlot emissions, new emission factor.
- Unpaved road dust vehicle miles traveled estimates increased.

Though the emissions sources are similar, some estimation methods, emission factors, and tools have changed. The changes resulted in higher estimates for some sources and lower for others.

For example, Ecology updated the emission factor from cattle feedlots to reflect the latest research. Ecology used the Bonifacio study (Bonifacio, 2012) as the basis of the new emission factor. This highly detailed study occurred over multiple years and reported emission factors in a variety of contexts. The new feedlot emission factor is approximately eight times higher than the old factor. See Appendix A., Emission Inventory Documentation, for details.

Table 7 Comparison of WMP2 Base Year 2014 to WMP1 Base Year 2002 PM_{10} Emissions Inventory

Source	2014 WMP2 (lbs per day)	2014 WMP2 (%)	2002 WMP1 (lbs per day)	2002 WMP1 (%)	2014 - 2002 Difference (lbs per day)
POINT SOURCES ≥ 70 Tons PTE					
Boise Paper	659	10%	1,035	20%	-376
Simplot Feeders *	1,147	18%	219	4%	928
POINT SOURCES < 70 Tons PTE					
Agrium US Inc.	27	0%	472	9%	-445
Gas Transmission NW Station 8	11	0%	37	1%	-26
Greenbriar Rail Services	7	0%		0%	7
NW Grain Growers	34	1%	28	1%	6
Sandvik			1	0%	-1
Simplot Agribusiness	9	0%	0	0%	9
Tessenderlo Kerley Inc.	24	0%		0%	24
Tyson **	76	1%	208	4%	-132
Western Stockmen	19	0%		0%	19
NONPOINT SOURCES					
Ag. Burning	0	0%	0	0%	0
Ag. Tilling Dust	2,380	38%	2,606	51%	-226
Ag. Harvesting Dust	324	5%		0%	324
Construction Dust	700	11%		0%	700
Paved Road Dust	412	7%	305	6%	107
Unpaved Road Dust	448	7%	124	2%	324
MOBILE SOURCES					
All Mobile	57	1%	53	1%	4
TOTAL ALL SOURCES	**6,334**	**100%**	**5,088**	**100%**	**1,246**

* Simplot Feeders was counted as a small point source in the 2002 inventory
** Formerly Iowa Beef Processor

3.1.2 Temporal and spatial allocation

This section lays out how Ecology allocated the county emissions to derive the emissions inside the maintenance area only, and how Ecology chose which months to include as the season with the highest emissions. The emission inventory documentation has the details.

Ecology determined the PM_{10} season as the months with the highest monitored concentrations and emissions. These conditions occur in the summer and early fall months. Ecology defined the PM_{10} season in the first maintenance plan as June to September, based on monitoring data from 1996 – 2000. For this plan, Ecology reevaluated the season using data from the Kennewick-Metaline monitoring site from 2012 - 2016 (See Section 3 in the Emission Inventory Documentation, Appendix A.2). Ecology calculated statistics both with and without exceedance days. Table 8 shows monthly median, mean, 3rd quartile, and max concentrations monitored. Higher median, mean, and 3rd quartile values generally occur May - October. Ecology excluded high wind events from the emissions inventory because they are intermittent and uncontrollable. When high wind days are excluded from monitored values, higher PM_{10} statistics generally occur July – October, with higher max concentrations consistently monitored from June to October. Based on this analysis, the season used for this emission inventory and the projection years, was June to October.

Table 8 Kennewick-Metaline Monthly PM_{10} Statistics in $\mu g/m^3$: 2012 – 2016
(Statistics that changed when exceedance days were excluded are shown in parentheses)

Month	Median	Mean	3rd Quartile	Max
1	7	9.8 (8.4)	10	215 (103)
2	9	11.4	12	89
3	10	13.9	16	104
4	12	15.4	18	83
5	17	17.8	23	63
6	15	18.1	22	98
7	20.5	22.9	27	87
8	25	34.1 (29.9)	36 (35)	589 (130)
9	21.5 (21)	27.7 (26.2)	31.3 (31)	226 (113)
10	14	20.8 (18.2)	24	222 (92)
11	10	17.8 (11.5)	14.3 (14)	619 (33)
12	7	8.7	10	34

The recent reevaluation led Ecology to define June to October as the PM_{10} season. Ecology estimated emissions for each source category for each month in the season. Ecology summed the highest monthly emissions for each source to represent a typical season day's emissions.

3.1.3 Wintertime PM coarse contribution confirmed

As part of the review of the season, the data show that PM_{10} maximums occur in the winter (Jan-March) and summer (June to October). In order to be sure that the high winter concentrations were not due to a greater percentage of fine particulate matter and the formation of secondary particulate matter, Ecology compared the monitored value's percentages of both coarse and fine particulate matter. The table below shows the high PM_{10} days (24-hr avg. > 60 µg/m3) that occurred in the winter, (Jan through March) from 2012 through 2016.

Table 9 $PM_{2.5}$ and PM_{10} on high PM_{10} days in winter, 2012-2016

Date	NPM2.5	TPM10	Maximum wind speed	PM10: PM2.5
1/11/2014	2.4	215	-	90:1
3/19/2014	3.3	104	-	32:1
1/13/2014	3	103	-	-
2/25/2012	2.1	89	-	-
3/1/2014	5.6	68	13	-
2/28/2016	3.6	64	-	-
3/23/2015		60	-	-

3.1.4 PM distribution – Coarse mass dominates when concentrations are high

Table 10 shows the 30 highest concentrations from 2012 - 2016. The exceedances (> 150 µg/m^3) and most of the other high concentrations are associated with high winds. The data also show that the percentage of coarse mass (PMc: particulate matter with an aerodynamic diameter between 2.5 µm and 10 µm) was greater than 84 percent for all but four days. Ecology monitored extreme wildfire smoke during the four days (marked with *) when the coarse mass (PMc) was less than 84 percent. This indicates that wind-blown dust sources dominated the high concentration days.

Table 10 Kennewick-Metaline 30 Highest PM_{10} Concentrations in µg/m^3: 2012 - 2016

PM_{10}	$NPM_{2.5}$	Max. Wind Speed (mph)	Coarse Mass	Date
619	6	38	99%	11/2/2013
589	14.9	28.6	97%	8/14/2015
331	2.3	32.8	99%	11/17/2015
222	7.5	20.4	97%	10/28/2013
215	2.4	31	99%	1/11/2014
208	3	29.5	99%	10/30/2015
130	12.4	NA	90%	8/12/2014
113	3.2	21.9	97%	9/20/2015
112	10	20.8	91%	9/9/2012
104	3.3	26	97%	3/19/2014
103	3	29.4	97%	1/13/2014
98	5	NA	95%	6/12/2014
92	5.2	24.3	94%	10/7/2013
91	5	23	95%	10/10/2015
89	2.1	27.6	98%	2/25/2012
87	6.8	NA	92%	7/23/2014
83	2.1	33.3	97%	4/7/2013
82	45.7	8.6	44%	8/24/2015*
76	35	7.5	54%	9/21/2012*
72	3.8	24.2	95%	4/27/2013
72	9.4	20.2	87%	7/10/2015
71	4.9	20.2	93%	8/2/2016
71	6.1	15.8	91%	8/27/2016
69	5.7	11.1	92%	8/19/2016
68	30.4	4.9	55%	9/20/2012*
68	5.6	13.6	92%	3/1/2014
67	3.2	29.2	95%	4/10/2013
67	35.8	6.4	47%	8/22/2015*
66	10.4	19.8	84%	9/18/2014
66	9.5	15.3	86%	10/2/2015

Meteorological data collection in Kennewick started in August of 2012, so Ecology substituted Burbank data from January through July 2012. Table 11 shows the monthly PM_{10} median, mean, 3rd quartile, and maximum values when wind speeds are 25 miles per hour; Table 12 shows the same statistics when the hourly wind speed is 18 miles per hour.

Table 11 PM_{10} Summary Statistics When Max Hourly Wind <25 miles per hour

Month	Median	Mean	3rd Quartile	Max
1	7	7.421	10	19
2	9	10.23	12	64
3	10	12.22	15	68
4	12	14.49	18	72
5	16	17.33	23	39
6	16	18.33	23	60
7	20	22.09	27	72
8	27.5	32.72	41.25	82
9	22	27.07	32	113
10	14	19.28	24	222
11	10	11.41	14	33
12	7	8.789	10	34

Table 12 PM_{10} Summary Statistics When Hourly Wind <18 miles per hour

Month	Median	Mean	3rd Quartile	Max
1	7	7.59	10	19
2	9	9.62	12	27
3	10	12.35	15	68
4	12	13.26	17	37
5	15	16.94	22.5	38
6	16	17.01	22	41
7	19	20.65	26	60
8	27	32.19	41	82
9	21	25.55	32	76
10	14.5	17.44	23.75	66
11	10.5	12.03	15	33
12	7	8.963	10	30

Using the hourly wind-speed threshold of 18 mph shows that winter (Jan-March) is not generally a high PM_{10} season in the absence of wind-blown dust. On March 1, 2014 there was a max value of 68 $\mu g/m^3$ that was not associated with high winds. However, March was not included in the PM_{10} season since this was a lone event during the five-year period that occurred on a day with 3 hours of missing data.

This analysis demonstrates that PM_{10} in the winter is not a function of woodstove smoke. Rather the majority of the wintertime particulate is from coarse particulate sources, such as windblown dust, road dust, etc. This information shows that the coarse mass is the largest percentage of the PM_{10} when winds are high, even in the wintertime, and the summer season should be June through October.

3.2 Base Year 2014 emissions inventory

Ecology based emission inventories on county 2014 or 2015 emission years and then spatially and temporally allocated for the Wallula Maintenance Area. The area is primarily agricultural with grain and row crops, poplar plantations, a large cattle feedlot and a pulp and paper mill. There are also several smaller commercial/industrial sources, as well as public roads, rail lines and marine traffic that contribute particulate matter to the area.

The 2014 base year emissions inventory for a typical PM_{10} season day in the maintenance area, which occurs from June through October, indicates that emissions come from agricultural tilling and harvesting (43%); a cattle feedlot (18%); the pulp and paper mill (10%); other point sources (3%); road and construction dust (25%); and mobile sources (1%). Motor vehicles are an insignificant source of PM_{10} emissions and justifies exclusion from regional analysis for transportation conformity[21]. Since coarse mass is the largest percentage of particulate matter detected, there is no need to include precursor emissions in the inventories.

Woodstoves are used most heavily in the wintertime, so they do not significantly contribute to the pounds per season day totals. Furthermore, days with large PM_{10} concentrations are mostly impacted by coarse particulate ($PM_{10} – PM_{2.5}$; e.g. dust); thus the emissions inventory was developed for sources of coarse particulate and excludes sources that only emit fine particulate, such as woodstove emissions.

[21] Washington made a demonstration in the WMA serious attainment plan, Section 4.7 (2004) that motor vehicles do not now or in the future contribute significantly to nonattainment and requested an exemption from regional analysis for transportation conformity. Although, EPA granted this exemption, project-level transportation conformity requirements still apply.

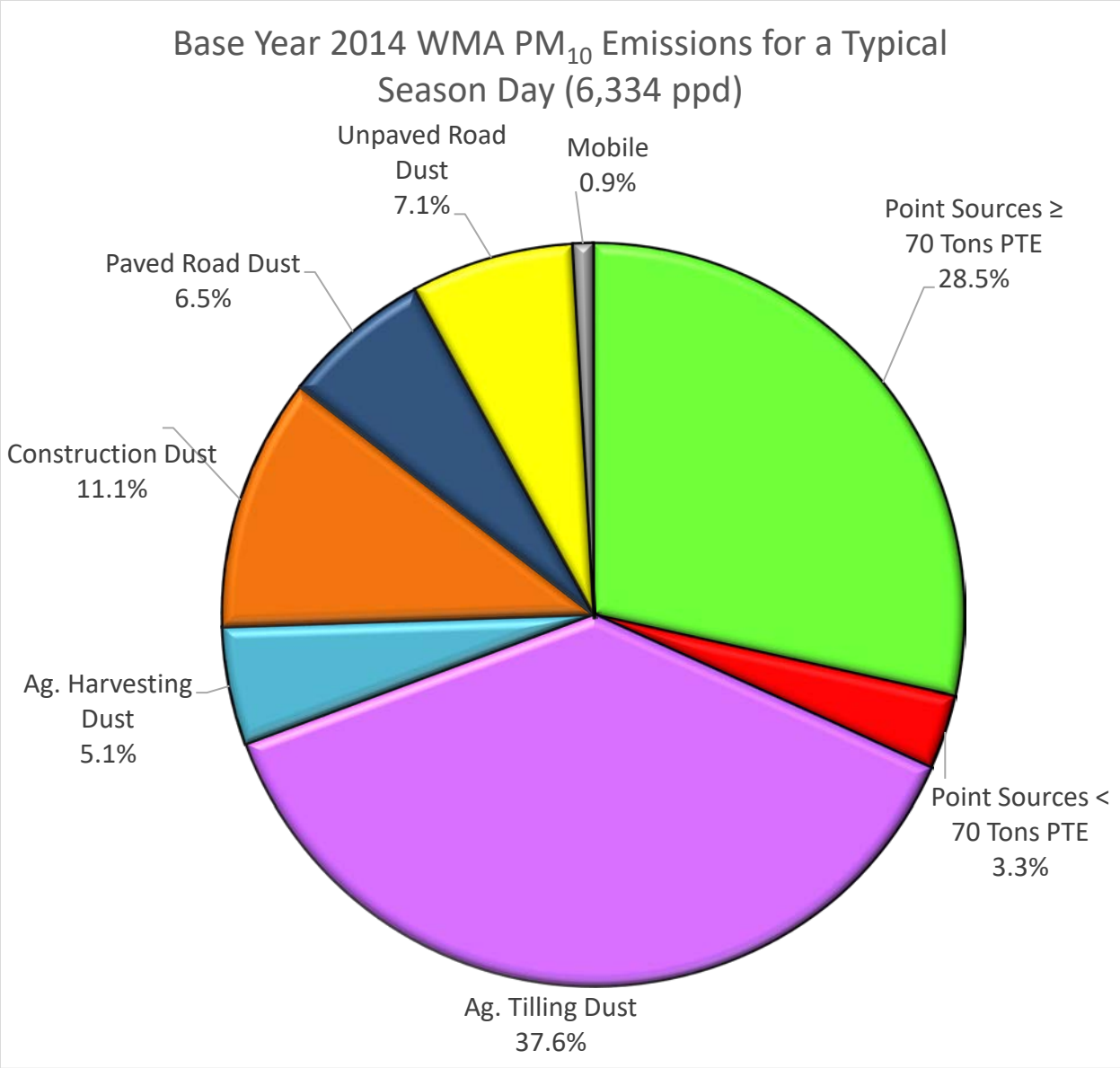

Figure 10 Source Categories for Base Year 2014, Percent Pounds Per Season Day

Table 13 below shows the emissions in the WMA by source type, category and includes tons per year, pounds and the percentage per season day.

Table 13 Base Year 2014 Wallula Maintenance Area PM_{10} Emissions Summary

Source Type	Category	Tons per Year	Pounds per Season Day	% Pounds per Season Day
Point	≥ 70 Tons PTE	330	1,806	29%
Point	< 70 Tons PTE	32	206	3%
Nonpoint	Ag. Burning	11	0	0%
Nonpoint	Ag. Tilling Dust	231	2,380	38%
Nonpoint	Ag. Harvesting Dust	14	324	5%
Nonpoint	Construction Dust	92	700	11%
Nonpoint	Paved Road Dust	53	412	7%
Nonpoint	Unpaved Road Dust	62	448	7%
Onroad	Mobile	10	57	1%
	All Sources Total	**835**	**6,334**	

3.2.1 Maintenance area point sources

Figure 11 shows the location of regulated point sources.

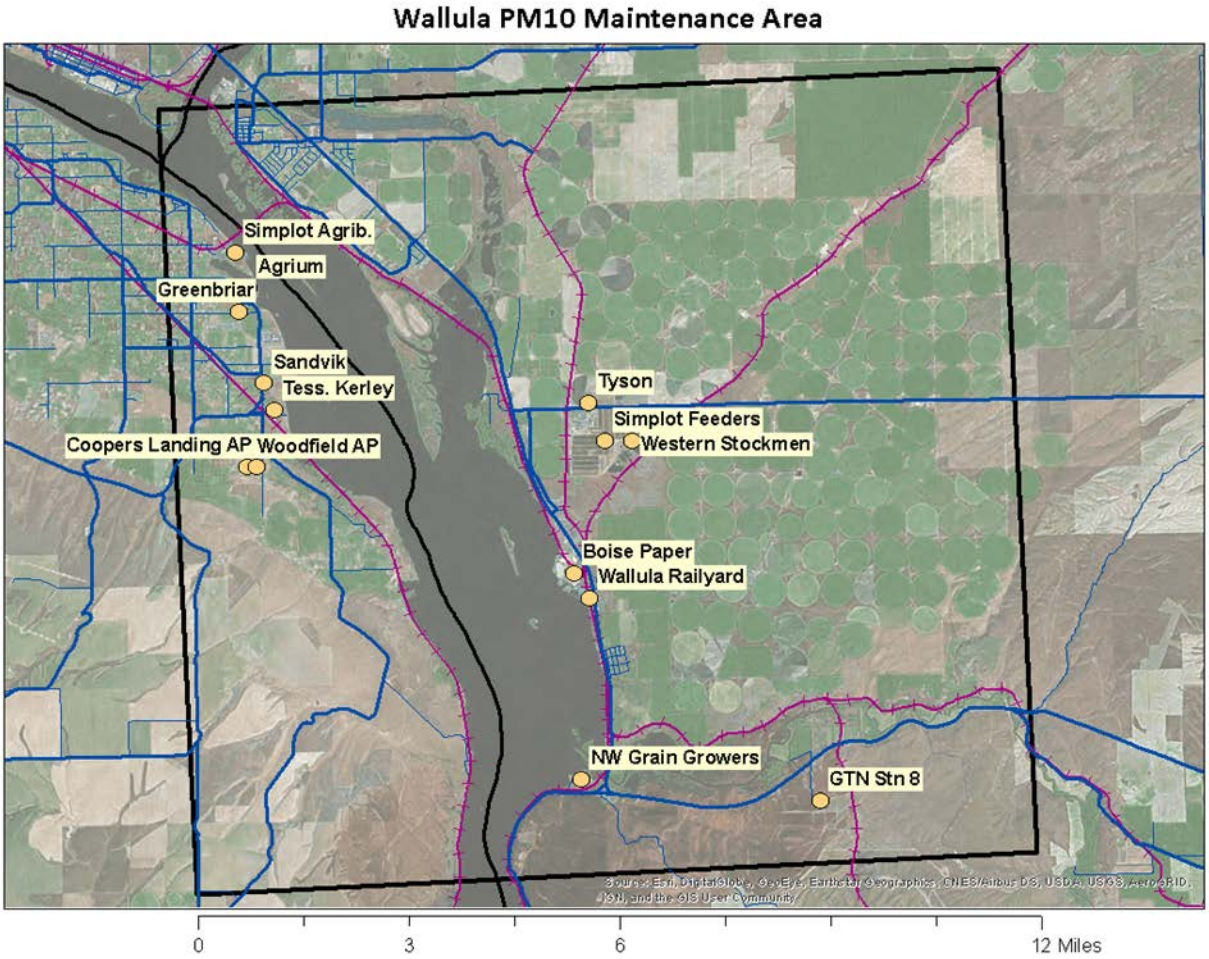

Figure 11 Regulated Air Emission Facilities, 2014

Table 14 shows point source emissions for the Wallula Maintenance Area. Boise Paper and Simplot Feeders area the two largest emissions sources.

Table 14 Base Year 2014 Point Source Emissions, Wallula Maintenance Area

Source Name	Emission Year	Tons per Year	Pounds per Season Day	% Pounds per Season Day
Sources > 70 tpy				
Boise Paper	2014	120	659	32.7%
Simplot Feeders	2014	209	1,147	57.0%
Sources < 70 tpy				
Agrium US Inc.	2014	2	27	1.3%
Gas Transmission NW Station 8	2014	2	11	0.5%
Greenbriar Rail Services	2014	1	7	0.3%
NW Grain Growers	2015	4	34	1.7%
Simplot Agribusiness	2014	1	9	0.4%
Tessenderlo Kerley Inc.	2014	4	24	1.2%
Tyson	2014	14	76	3.8%
Western Stockmen	2015	3	19	0.9%
All Point sources		**360**	**2,013**	

3.2.2 Nonpoint and mobile sources

Nonpoint and mobile sources include agricultural tilling, harvesting and burning as well as emissions from mobile sources and road dust. For more details on assumptions and estimation sources see Appendix A. Emission Inventory Documents.

Agricultural Dust: Agricultural dust is a major and variable source of emissions in the maintenance area. Ecology calculated emissions for tilling and harvesting as described in the Emission Documentation (sections 5.2.2 and 5.2.3). The agricultural crops grown in the largest amounts in the WMA are wheat (winter, spring), corn (sweet and feed), hay (timothy and alfalfa), peas, and potatoes.[22]

Mobile Sources: Mobile sources continue to be an insignificant source of PM_{10} emissions in the WMA. As a result, a motor vehicle emission budget is not required and transportation conformity does not apply in this area (see 40 CFR 93 109(k)).

[22] 2014 National Agriculture Statistical Service (NASS) data for county emissions and the 2016 WA Dept. of Ag shapefile for spatially distributing to the maintenance area. <https://agr.wa.gov/FP/Pubs/docs/2016WSDACropDistributionMetadata.pdf>

3.3 Projected inventories

Ecology is providing three projection year inventories, 2020, 2025 and 2030. For details see Appendix Z, AA, BBB, respectively within Appendix A.1 and A.2. Emission Inventory Preparation Documentation. Table 15 provides a summary of the three projected years in tons per year. Following tables show projected tons per year, seasonal pounds per day, and percentage pounds percentage of lbs per season day for 2020, 2025, and 2030. Graphs are provided for projected emission inventory years, lbs per season day.

Table 15 Summary of Projected Emission Inventory Years, 2020, 2025 and 2030, tpy

Source Type	Category	2020	2025	2030
Point	≥ 70 Tons PTE	654	654	654
Point	< 70 Tons PTE	80	80	80
Nonpoint	Ag. Burning	11	11	11
Nonpoint	Ag. Tilling Dust	231	231	231
Nonpoint	Ag. Harvesting Dust	14	14	14
Nonpoint	Construction Dust	97	102	106
Nonpoint	Paved Road Dust	56	59	66
Nonpoint	Unpaved Road Dust	66	68	71
Onroad	Mobile	8	7	7
	All Sources Total	1,216	1,226	1,241

Figure 12 below shows source categories for a typical season day for projection year 2020.

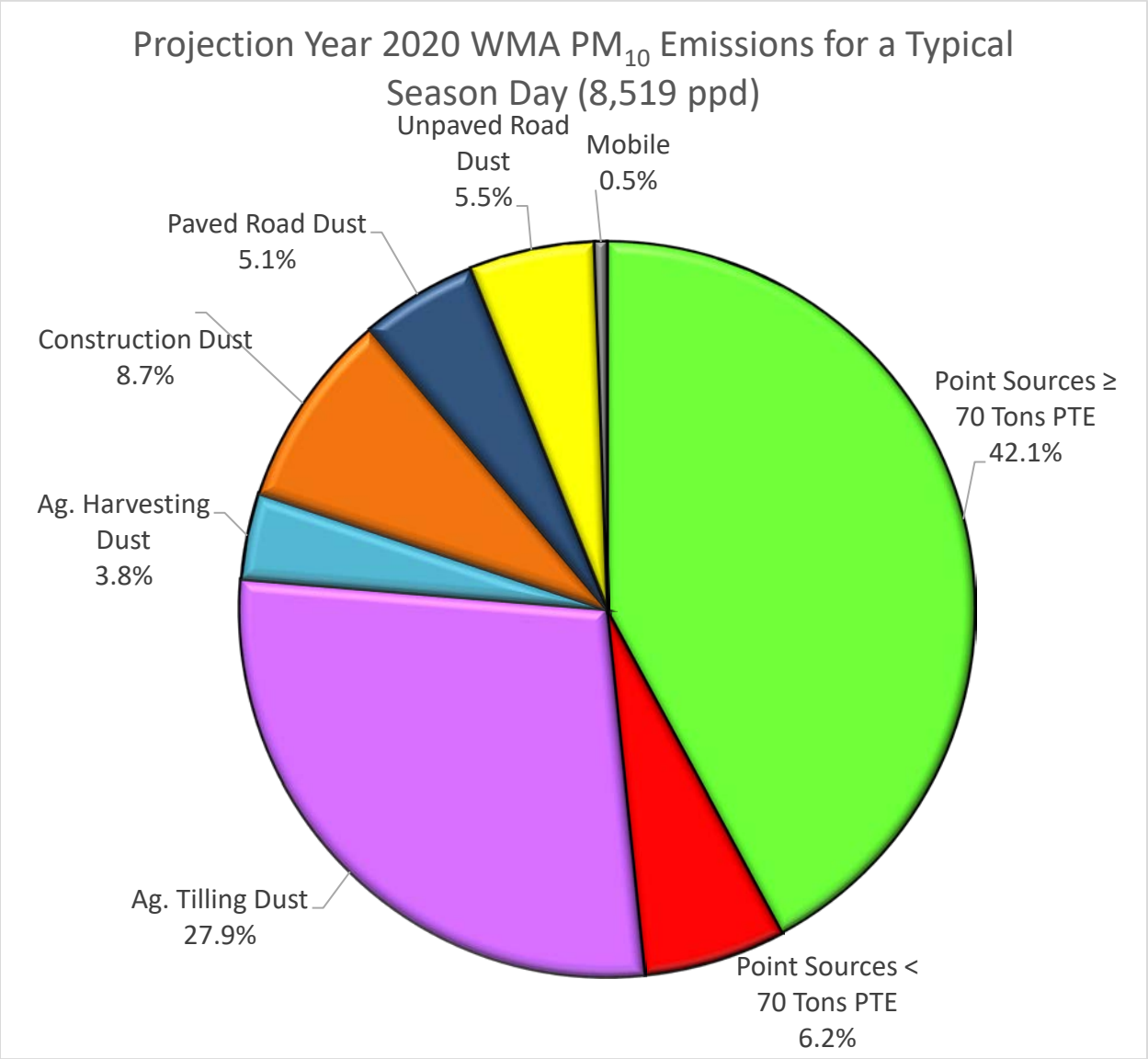

Figure 12 Projection Year 2020 PM_{10} Emissions, Pounds per Season Day

Table 16 Projection Year 2020 PM_{10} Emissions Summary

Source Type	Category	Tons per Year	Seasonal Pounds per Day	% Pounds per Day
Point	≥ 70 Tons PTE	654	3,588	42%
Point	< 70 Tons PTE	80	532	6%
Nonpoint	Ag. Burning	11	0	0%
Nonpoint	Ag. Tilling Dust	231	2,380	28%
Nonpoint	Ag. Harvesting Dust	14	324	4%
Nonpoint	Construction Dust	97	742	9%
Nonpoint	Paved Road Dust	56	435	5%
Nonpoint	Unpaved Road Dust	66	471	6%
Onroad	Mobile	8	46	1%
	All Sources Total	**1,216**	**8,519**	

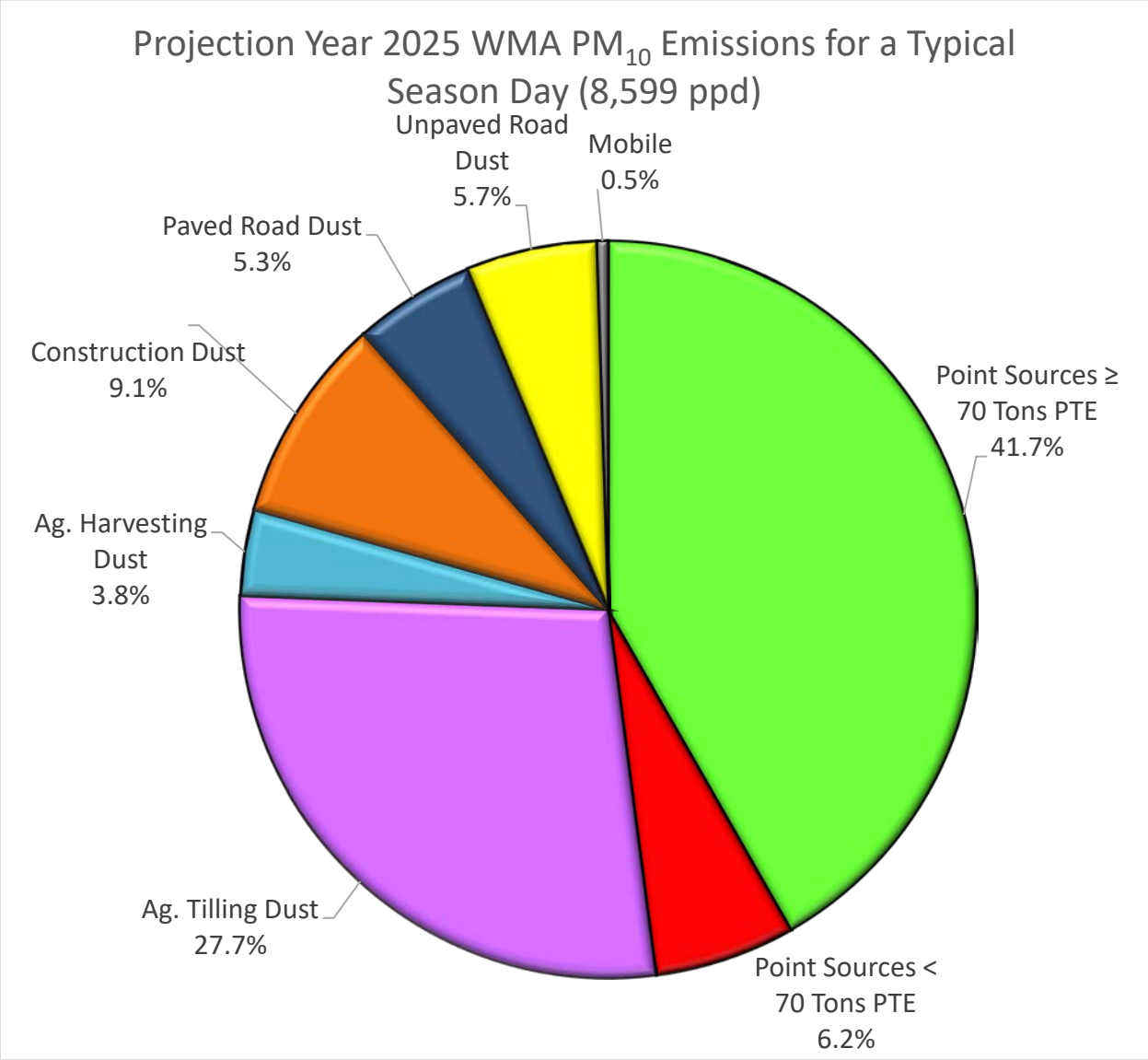

Figure 13 Emissions for Projection Year 2025, Pounds Per Season Day

Table 17 below shows tons per year, seasonal pounds per day and percent pounds per day for projection year 2025.

Table 17 Projection Year 2025 PM_{10} Emissions Summary

Source Type	Category	Tons per Year	Seasonal Pounds per Day	% Pounds per Day
Point	≥ 70 Tons PTE	654	3,588	42%
Point	< 70 Tons PTE	80	532	6%
Nonpoint	Ag. Burning	11	0	0%
Nonpoint	Ag. Tilling Dust	231	2,380	28%
Nonpoint	Ag. Harvesting Dust	14	324	4%
Nonpoint	Construction Dust	102	780	9%
Nonpoint	Paved Road Dust	59	459	5%
Nonpoint	Unpaved Road Dust	68	492	6%
Onroad	Mobile	7	42	0%
	All Sources Total	**1,226**	**8,599**	

Figure 14 below shows the various emission sources, pounds and percentages for a typical season day for projection year 2030 in the WMA.

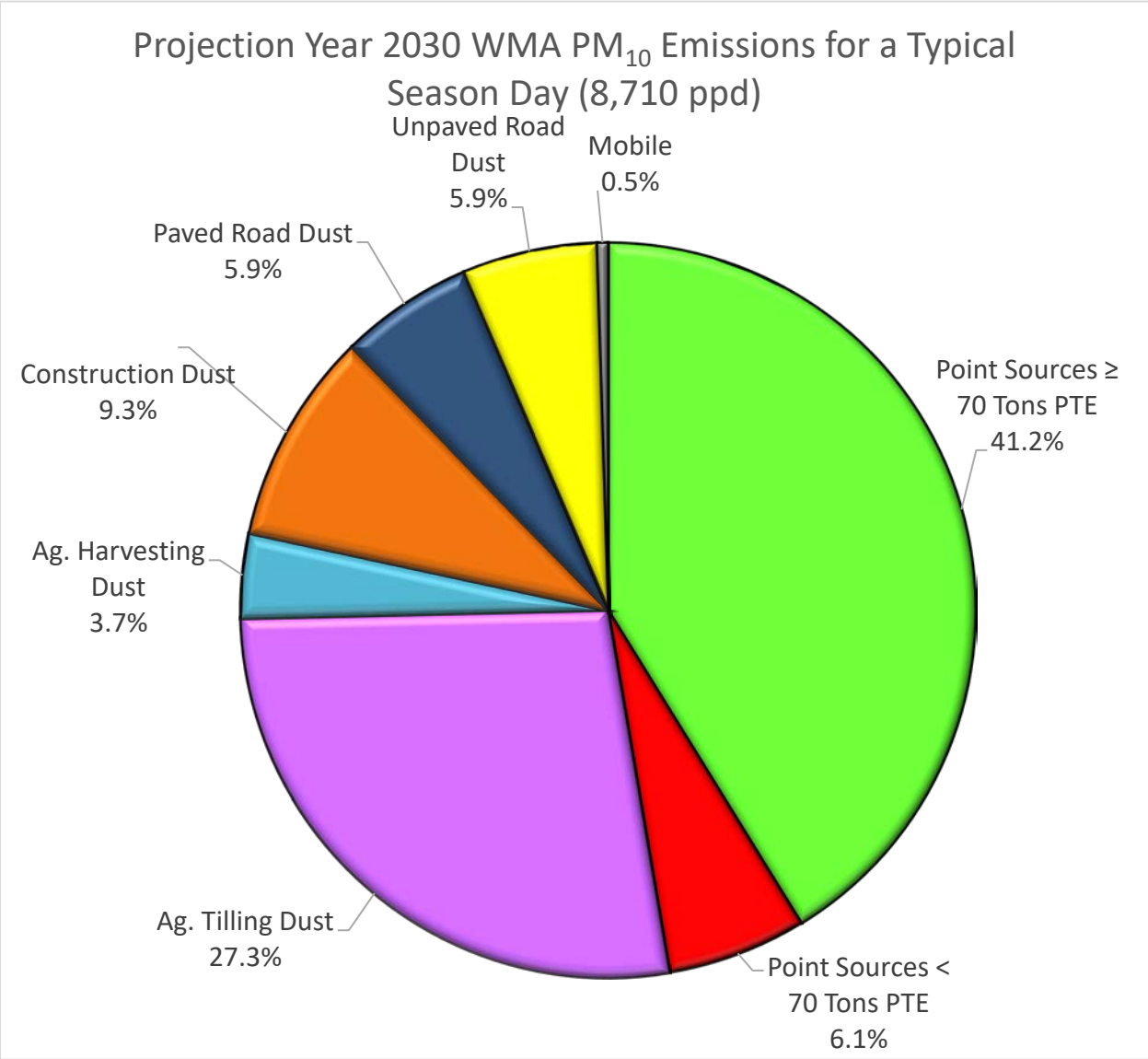

Figure 14 Projection Year 2030 PM_{10}, Typical Season Day, lbs/day

Table 18 below shows emissions from point, nonpoint and on-road emissions for projection year 2030.

Table 18 Projection Year 2030 PM_{10} Emissions Summary

Source Type	Category	Tons per Year	Seasonal Pounds per Day	% Pounds per Day
Point	≥ 70 Tons PTE	654	3,588	41%
Point	< 70 Tons PTE	80	532	6%
Nonpoint	Ag. Burning	11	0	0%
Nonpoint	Ag. Tilling Dust	231	2,380	27%
Nonpoint	Ag. Harvesting Dust	14	324	4%
Nonpoint	Construction Dust	106	813	9%
Nonpoint	Paved Road Dust	66	514	6%
Nonpoint	Unpaved Road Dust	71	515	6%
Onroad	Mobile	7	43	0%
	All Sources Total	**1,241**	**8,710**	

As stated earlier, Simplot Feeders and Boise Cascade are the two largest point sources inside the maintenance area. Table 19 shows the 2020 through 2030 projected PM_{10} emissions for all point sources in the WMA.

Table 19 2020-2030 Projection Year Point Sources, Wallula Maintenance Area

Source Name	Tons per Year	Pounds per Season Day	% Pounds per Season Day
Sources > 70 tpy			
Boise Paper	184	1,010	24.5%
Simplot Feeders	471	2,578	62.6%
Sources < 70 tpy			
Agrium US Inc.	3	30	0.7%
Gas Transmission Northwest Station 8	4	22	0.5%
Greenbriar Rail Services	1	14	0.3%
NW Grain Growers	30	230	5.6%
Simplot Agribusiness	4	31	0.7%
Tessenderlo Kerley Inc.	5	27	0.7%
Tyson	27	148	3.6%
Western Stockmen	6	31	0.7%
All Point Sources	734	4,120	

4. Maintenance Demonstration

Table 20 below shows the monitored PM_{10} concentrations at Kennewick, with and without flagged or concurred upon exceedances due to natural events.

Table 20 Monitored PM_{10} concentrations related to attainment of the 24-hour NAAQS, 2013-2017

Year	First Max	Second Max	Number of Exceedances
2013 (with natural events)	619	226	3
2013 (without natural events)	92	83	0
2014 (with natural events)	215	130	1
2014 (without natural events)	130	104	0
2015 (with natural events)	589	332	3
2015 (without natural events)	113	91	0
2016	76	71	0
2017 (with natural events)	261	207	3
2017 (without natural events)	107	103	0

The 24-hour PM_{10} standard is not to be exceeded more than once per year on average over a three year period. The three-year period evaluated for compliance was 2015-2017. The EER recommends that states submit, and the EPA review, only those flagged exceptional events necessary for demonstrating compliance with the PM_{10} standard. Therefore, in determining 2015-2017 attainment, EPA Region 10 concurred upon exceptional event demonstrations for:

- The August 14, 2015 high wind event in a letter dated May 23, 2016. (Two other high wind episodes were flagged as exceptional events in 2015; however, event demonstrations for these episodes were not necessary in meeting the three-year average for compliance with the PM_{10} standard as shown in the equation below).
- The three days with exceedances for the September 2017 wildfire event, submitted to EPA on March 20, 2019; EPA has notified Ecology that they expect to send the concurrence letter for two of three dates (9/5, 9/6) shortly.

The EER allows for a process to have data excluded for days impacted by natural events beyond the state's control, where anthropogenic sources are adequately controlled. Ecology may exclude monitoring data for exceedances influenced by exceptional events, like high winds or wildfire from compliance calculations once EPA concurs with Ecology's demonstration that the data meets the criteria in the EER.

For official compliance with the 24-hour PM_{10} standard, Ecology must show that the estimated exceedances are equal to or less than 1. Using the number of exceedances remaining from 2015, 2016 and 2017 after data for concurred upon events are excluded, the compliance value at Kennewick for the WMA is:

$$(2_{2015} + 0_{2016} + 1_{2017})/3) = 1$$

EPAs concurrences on these events are not final until EPA takes regulatory action. When EPA acts on this maintenance plan, the approval of the EE demos for the dates used for determining compliance will be final.

4.1 Projected emissions to future concentrations shows attainment

Ecology compared the 2014 Design Value to projected inventories. We subtracted background before calculations, and added background back in after calculations. The variables and results are shown in the table below.

Table 21 Projected Design Value Calculation Variables

Variable, units	Value
2014 Design Value, µg/m^3	112
Background, µg/m^3, (From 1991 attainment plan (ref)	20
2014 lbs/season day all sources	6,334
2025 projected emissions, lbs/season day all sources	8,599
2030 projected emissions, lbs/season day all sources	8,710

(2014 Design Value) x (Projected year emissions/2014 emissions) = Concentration in projected year

DV in 2025 w/o background correction $112 * \left(\frac{8599}{6334}\right) = 152$ µg/m^3

Table 22 Projected Design Value Calculation Results, with and without background removed

Calculation Parameters	Value, µg/m^3
2025 DV (without background removed before calculation)	152
2030 DV (without background removed before calculation)	154
2025 DV (using 20 µg/m3 background)	145
2030 DV (using 20 µg/m3 background)	147

Equation 1. 2025 DV: $(112 - 20) * \left(\frac{8519}{6334}\right) + 20 = 125 + 20 = 145$

Equation 2. 2030 DV: $(112 - 20) * \left(\frac{8710}{6334}\right) + 20 = 127 + 20 = 147$

Therefore, since the projected design value of 145 µg/m^3 is less than the NAAQS threshold (150 µg/m^3), the WMA will continue to maintain the standard through the maintenance period (2025).

Ecology acknowledges that the projected Design Value is close to the NAAQS threshold. However, the projected Design Value was calculated using a worst-case-scenario that is primarily dependent on two factors described below.

1) The 2014 Design Value of 112 µg/m^3 was due to a wind event that occurred on September 9, 2012, when winds peaked at 20 mph. EPA defines a high-wind dust "exceptional event" as having average winds over 40 mph for at least one hour and PM_{10} concentrations exceeding 150 µg/m^3. EPA allows for a revised threshold of 25 mph for many western states and also acknowledges that, if soil has been disturbed (e.g. by tilling practices), winds of 18 mph would be enough to cause high-wind dust events. If a high-wind threshold of 18 mph was used, and all natural events were excluded, the 2014 Design Value would be 71 µg/m^3.

2) The projection of emissions from Simplot doubled the base year estimate due to the assumption that the facility would increase activity to the permitted allowable 80,000 head of cattle. If the actual maximum head of cattle reported at Simplot was used (53,302 head – based on 2014 to 2018), the projected 2025 Design Value would be 132 µg/m^3.

For comparison, if the high-wind threshold of 18 mph was used and all natural events were excluded, combined with using the actual maximum head of cattle reported at Simplot, the projected 2025 Design Value would be 82 µg/m^3.

5. Control Measures

The 2005 Plan[23] relied on controls of fugitive dust from agricultural sources, a pulp and paper mill composting facility, a cattle feedlot, and other stationary sources to maintain compliance with the 24-hour PM_{10} NAAQS. The SIP-approved, specific source documents that serve as control measures for the 2005 Plan are at EPA Approved State Source-Specific Requirements, 40 CFR part 52.2470(d).

Ecology will continue to rely on existing control measures. Where updated permits are available, Ecology reviewed the relevant conditions to ensure that the 24-hour PM_{10} NAAQS will continue to maintain. A summary of the changes is listed below.

Washington's Windblown Dust Natural Event Action Plan (NEAP) is one control measure carried forward to the new plan unchanged. The NEAP is supplemented by the *High Wind Fugitive Dust Mitigation Plan for the Wallula Maintenance Area, April 2019, Publication 19-02-005*[24], a plan required by the 2016 Exceptional Event Rule. Permits, plans, and publications for control measures are part of Appendix D.

The summary of control measures from the 2005 Plan and the 2018 updates are in Table 23 below.

[23] Washington State Department of Ecology, A Plan for Maintaining Particulate Matter (PM_{10}) Ambient Air Quality Standards in the Wallula PM_{10} Maintenance Area: A Washington State Implementation Plan Revision, 2005,<https://www.epa.gov/sips-wa/summary-wallula-particulate-matter-pm-10-maintenance-plan>

[24] <https://fortress.wa.gov/ecy/publications/SummaryPages/1902005.html>

Table 23 Summary of Comparison of Control Measures, 2005 to 2018

2005 Maintenance Plan Control Measures	2005 Plan Permit or Order	Emission Source	2018 Plan Update
Permits (Administrative Orders),			
Boise	AOP 000369-7, 12/1/2004, only one condition 1614-AQ04, 8/19/2004, limited conditions, Appendix A, Dust Control Plan, 2/18/2004	Landfill/ Compost Operations	AOP 0003697[25], issued 3/30/2018, effective 4/1/2018, expires 3/31/2023, only one condition incorporates 1614-AQ04 1614-AQ04, 8/19/2004, limited conditions, Appendix A, Dust Control Plan, 2/18/2004, stays active.
Tyson Foods	02AQER-5074, 12/6/2002	Beef processing facility	(interim for reference 2007 permit (with TSD) *not for inclusion in the SIP* Permit 13AQ-526, 4/16/2014
Simplot Fugitive Dust Plan	Fugitive Dust Control Plan for Simplot Feeders, 12/1/2003	Cattle Feedlot	Fugitive Dust Control Plan, March, 2018
State Plans/Guidelines			
Fugitive Dust Control Plan and Best Management Practices for Cattle Feeding Operations	Fugitive Dust Control Guidelines for Beef Cattle Feedlots and Best Management Practices, 12/13/1995	Beef cattle feedlots	Fugitive Dust Control Plan and Best Management Practices for Cattle Feeding Operations, Publication No. 18-02-033, August 2018
Natural Events Action Plan	Columbia Plateau Windblown Dust Natural Events Action Plan, June 2003	Agricultural sources	Original remains in the SIP. BACM, agricultural control measures ongoing, June 2003

[25]Permit and Supplemental Documents available at <https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Industrial-facilities-permits/Boise-Wallula>

5.1 Permits, plans for certain operations at point sources

The Wallula 2005 Plan includes permits and plans as control measures for certain operations at point sources to assure compliance of the PM_{10} 24 hour NAAQS in the WMA. The sources included in the 2005 Plan are still in operation. The most current permits are referenced below and included in Appendix D to replace the existing permits and relevant provisions are to be included in the SIP. [26]

Washington's WAC 173-400-111[27], processing Notice of Construction applications for sources, stationary sources and portable sources, (8) (a)-(c), includes the requirements that must be met for any change to a permit. Note especially, item (8)(a)(ii), which reads, "no ambient air quality standard will be exceeded as a result of the change".

Ecology compared conditions in permits in the 2005 plan to the facilities' most recent versions. There are no substantive changes to conditions that control emissions from these sources.

5.2 Permits (Orders)

A description of the facility-specific permits, formerly called Orders, conditions existing in the 2005 Plan and the corresponding updated permits, is below. Boise, Tyson and Simplot permit conditions, those in the SIP-approved 2005 Plan, as well as permits that remain in force and updated permits, are referenced below.

Boise Cascade/White Paper (Boise): The Boise operation in Wallula is a large pulp and paper mill, located near Burbank. They are currently owned by the Packaging Corporation of America (PCA). The activity in the 2005 Plan incorporated into the SIP for the WMP are the Landfill/Compost operations only. Text for the relevant portions of Boise permits that replace the version in the 2005 Plan are in Appendix D; Links to the full permits are below. The air operating permit (AOP) is a summary of permit conditions for the facility.

***2005 Plan*:** Only specific conditions, shown Table 24 below, for Boise's landfill and compost operations were approved into the SIP for the 2005 Plan. These conditions require Boise to control fugitive dust at the landfill and compost operations as described in their Dust Control Plan.

[26] Note that the SIP covers criteria pollutants only; any provisions for toxic air pollutants or odors are not included.

[27] http://apps.leg.wa.gov/WAC/default.aspx?cite=173-400-111

Table 24 Boise Permit Conditions, state effective, EPA Approval Date from 2005 Plan

Name of Source	Order/Permit Number*	State Effective Date	EPA Approval Date/ FR reference	Explanations
Landfill/Compost Operation	AOP Permit 000369-7	12/1/04	5/2/05 70 FR 22597	Following condition only: 1.Q.1 of item Q. (references Order 1614-AQ04)
	Order 1614-AQ04 Appendix A (Dust Control Plan)	9/15/04 2/14/2004	5/2/05 70 FR 22597	Following conditions only: No. 1 (from Order 1614-AQ04 (Approval Conditions) & Appendix A.

Approval Condition 1 from permit 1614-AQ04 (2004), requires Boise maintain and adhere to Appendix A, the Dust Control Plan, dated 2/18/2004.

- ***2018 Update:*** Boise White Paper continues to have provisions to control fugitive dust and their landfill/compost operation in their current permit. The most recent AOP 0003697, issued 3/30/2018, expires 3/31/2023, references 1614-AQ04 in condition Q, item Q.1, Landfill/Compost Operation, Particulate fugitive dust, (page 64 of 98).

The following table documents Boise's permit conditions on the landfill/compost operation for this plan. Boise's renewed Air Operating Permit, 000369-7, maintains Order 1614-AQ04, which includes the Dust Control Plan.

Table 25 Boise Permit's SIP Conditions, Dates for 2018 plan

Name of Source	Order/Permit No.	State Issue Date	State Effective Date	Expiration Date	Conditions
Landfill/Compost Operation	Air Operating Permit 000369-7,	3/30/2018	4/1/2018 NA	3/31/2023	Following condition only: Condition Q. Landfill/Compost Operation, Q.1 Particulate fugitive Dust, Dust Control Plan
	Order 1614-AQ04 Appendix A (Dust Control Plan)	9/15/04 2/14/2004	5/2/05 70 FR 22597		Following conditions only: No. 1 (from Order 1614-AQ04 (Approval Conditions) & Appendix A.

Tyson Foods: Tyson Foods is a beef processing plant. All conditions in their permit for control of fugitive dust and emissions from operational equipment apply except those related to odor and air toxics.

- ***2005 Plan:*** Tyson Foods 2002 permit was included in the 2005 Plan; conditions excluded are shown below.

Table 26 Tyson Foods Permit SIP Conditions for 2005 Plan

Name of Source	Order/Permit Number	State Effective Date	EPA Approval Date	Excluded Conditions
Beef processing	Order 02AQER-5074	12/6/02	5/2/05 70 FR 22597	Washington Department of Ecology Administrative Order No. 02AQER-5074 for IBP, Inc. (now known as Tyson Foods Inc.) dated December 6, 2002, *except for the following:* Finding number 4 ("T-BACT"), found on page 5 of document and item 3.3 of Approval Condition number 3 ("Emission Limits and Test Methods") found on page 7 of the document.

- ***2018 Update:*** Tyson Foods latest permit is Air Discharge Permit 13AQ-E526, issued 4/16/2014. This permit consolidates several previous permits for this facility, including a 2007 amendment to Order 02AQER-5074. This 2007 amendment slightly increased hourly production rates included in the 2002 approval order. In a Technical Support Document(TSD) for the amendment, Ecology determined the changes will not cause or contribute to violations of the 24-hour PM_{10} NAAQS.

The 2007 Amendment, its TSD, along with a strikeout version of the current permit, are in Appendix D. Ecology requests that provisions in the current permit not stricken, be submitted into the SIP. The 2007 permit with its TSD is provided for reference only.

Table 27 Tyson Foods Permit SIP Conditions for 2018 Plan

Name of Source	Order/Permit No.	State Issue and Effective Date	Conditions
Beef Processing	13AQ-E526	4/16/2014	See Appendix D for strikeout version of current permit for provisions to be included in the SIP.

Simplot Feeders*:* Simplot Feeders is a beef cattle feedlot.

- ***2005:*** The 2005 Plan included the Simplot's Fugitive Dust Control Plan, dated December 1, 2003[28], as a control measure.
- ***2018 Update:*** Ecology approved Simplot Feeders most current dust control plan in March 2018. This most recent Fugitive Dust Control Plan is included in Appendix D.

[28] <https://www3.epa.gov/region10/pdf/sips/Air-Quality-SIP-WA-D-Source-Specific-Fugitive-Dust-Control-Plan-Simplot.pdf>

5.3 State plans/publications

The state plans and publications used as control measures in the 2005 maintenance plan are as follows and have been either updated or maintained. The NEAP is maintained without changes; Ecology has updated other publications and plans.

Natural Events Action Plan

- ***2005***: Washington State Department of Ecology Columbia Plateau Windblown Dust Natural Events Action Plan [29] (NEAP).
- ***2018****:* maintained without changes.

Washington's Columbia Plateau High Wind Natural Event Action Plan (NEAP) is a control measure in the existing 2005 plan and *will stay in place unchanged* for this second ten year maintenance plan. The appropriate way to control dust from agricultural sources is using conservation measures and incentive programs identified and managed by the United States Department of Agriculture (USDA).

In the NEAP, USDA conservations measures are recognized as Best Available Control Measure (BACM) and best management practices (BMPs). Ecology determined BACM for agricultural fields to be conservation programs and practices that reduce or minimize wind erosion. Specifically, Ecology considers as BACM USDA Conservation Title Programs supplemented by incentive-based implementation of wind-erosion conservation practices or best management practices. These conservation measures and incentive programs relied on in the NEAP have been evolving and in continued use since 1999. These programs encourage agriculture producers to adopt conservation practices to reduce soil erosion, improve soil health and address air quality concerns. The voluntary incentive programs are active and dynamic with participation fluctuating dependent on market forces for agricultural products and federal Farm Bill funding.

Properly implemented, USDA-approved BMPs provide for adequate control to minimize soil erosion and effectively reduce fugitive dust from agricultural lands. Many agricultural producers in the WMA use reduced till or no till conservation practices. [30].

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[29] <https://fortress.wa.gov/ecy/publications/SummaryPages/0302014.html>

[30] Managing crop and plant residue on the soil surface year-round while limiting soil-disturbing activities used to grow and harvest crops, where surface is tilled prior to planting, USDA, Field Office Technical Guide. https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/, Washington state Residue and Tillage Management, Reduced Till, https://efotg.sc.egov.usda.gov/references/public/WA/345_stnd_1017.pdf, 11/17/2017; No-till.
USDA field office technical guide page. Look up by state and practice.
https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/fotg/
Conservation Practice Standard Overview, Residue and Tillage Management, Reduced-till, (Code 345), September, 2016. Residue and Tillage Management, Reduced Till, Code 345,

Producers must comply with the requirements of the USDA Reduced Tillage Conservation Practice, or USDA No Till Conservation standards to qualify under their contracts and receive incentive funding. More detail on USDA programs follows.

USDA Conservation Title Programs: USDA offers the following three major Conservation Title Programs, which are financial assistance programs designed to treat natural resources concerns, such as soil erosion:

- Farm Service Agency (FSA) Conservation Reserve Program (CRP)
- NRCS Environmental Quality Incentives Program (EQIP (USDA-NRCS, 2017))
- NRCS Conservation Security/Stewardship Program (CSP)

While participation in NRCS Conservation Title Programs is voluntary, many agricultural producers implement conservation practices that keep the soil protected and dust out of the air (Stubbs, 2014). NRCS and FSA programs have audit provisions that check whether land owners have implemented or maintained the conservation practices properly. A violation of these provisions can put producer's eligibility at risk for most NRCS and FSA programs.

Each producer works with their county conservation district and chooses measures appropriate for their particular land characteristics. While some producers implement conservation practices without receiving financial assistance, most producers use USDA Programs' financial assistance to implement no-till or mulch/reduced tillage conservation practices.

Ecology's Beef Feedlot Publication: The purpose of the guidelines is to provide guidance for effective control of fugitive dust emissions at Confined Cattle Feeding Operations (CCFO). The original publication submitted as a control measure for this plan was the Ecology publication, *Fugitive Dust Control Guidelines for Beef Cattle Feedlots and Best Management Practices,(*12/13/1995).

- ***2005 Plan:*** The 2005 Plan included Ecology's 1995 publication, Fugitive Dust Control Guidelines for Beef Cattle Feedlots and Best Management Practices.
- ***2018 Update*****:** Beginning about four years ago, Ecology started to collaborate with the Cattlemen's Association to update the 1995 publication that was included in the 2005 Plan. The revised publication built on the 1995 publication and now covers feedlot operations not previously managed. The new publication is composed of several existing guidelines as well as new BMPs from various agencies and practicing feedlots. Fugitive Dust Control Guidelines for Beef Cattle Feedlots and Best Management Practices, issued by Ecology, (September 2018, Publication 18-02-033) is available on line and included in Appendix D.

Residue and Tillage Management, No-till, Practice (Code 329) October, 2017. <https://efotg.sc.egov.usda.gov/references/public/WA/329_stnd_1017.pdf>

Ecology maintains the same control measures as in the 2005 Plan, and provides permits, plans or publications as described above in Appendix D.

6. Contingency Measures

Ecology is maintaining the contingency measures unchanged from the 2005 plan. These contingency measures focus on the mitigation of windblown dust because windblown dust is associated with most all recent exceedances of the standard and is the most likely cause of future exceedances. The contingency measures in the 2005 plan did not include a trigger value to implement the contingency measures. Because of the likelihood of future windblown dust exceedances, the final EPA approval of the 2005 plan implemented the measures on a regular basis regardless of the PM_{10} levels plan[31]. The 2005 Plan Contingency Measures are as follows:

- Improvements to process for identifying source contributors during high wind events,
- PM_{10} reduction projects included in the 2003 Natural Events Action Plan projects.
- Demonstrations of Best Available Control Measures for natural events with EPA review.

[31] Proposed Federal Register Notice: 70 FR 38078, < https://www.gpo.gov/fdsys/pkg/FR-2005-07-01/pdf/05-13058.pdf>, approved <https://www.gpo.gov/fdsys/pkg/FR-2005-08-26/pdf/05-16929.pdf> August 26, 2005.

7. Commitment to Continued Monitoring

Ecology commits to maintaining a PM_{10} NAAQS compliance monitor as identified in Ecology's ANP (formerly Kennewick, change to Burbank starting 2018) through the maintenance period. Ecology will operate and maintain the monitor in accordance with 40 CFR Part 58 and Ecology's PM_{10} Standard Operating Procedures. Ecology will include any proposed change to the monitor under Ecology's annual network plan submitted to EPA for approval.

8. Required Plans Complete

EPA re-designated the WMA to attainment for the 1987 24-hour PM_{10} standard and approved the first 10-year maintenance plan in 2005. Ecology anticipates that the plan control and contingency measures will ensure compliance with this standard through 2025 and fulfills the final requirement for maintenance plans specified by the CAA for this area.

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Appendices