

Office of the Governor

September 29, 2016

Shaun McGrath
Administrator, Region 8
U.S. Environmental Protection Agency
1595 Wynkoop Street
Denver, CO 80202-1129

RE: 2015 Ozone National Ambient Air Quality Standard (NAAQS) – Wyoming Designation Recommendation

Dear Mr. McGrath,

The State of Wyoming is making recommendations regarding designations for the Primary and Secondary National Ambient Air Quality Standard (NAAQS) for Ozone, as allowed for under Section 107(d)(1) of the Clean Air Act. These recommendations are based on a Wyoming Department of Environmental Quality (WDEQ) staff analysis which follows EPA's guidance dated February 25, 2016, "Area Designations for the 2015 Ozone National Ambient Air Quality Standards."

Enclosed with this letter is a table listing all specific areas of the state with corresponding recommended designations and ozone monitoring data collected through 2015.¹ I recommend all Wyoming areas/counties with ambient monitoring data that meet the 2015 Ozone NAAQS be designated as 'attainment.' These meet the EPA requirements for comparison to the NAAQS, from 2013 through 2015. The State of Wyoming accurately captures and evaluates ambient air monitoring data and these areas/counties are in attainment of the 2015 Ozone NAAQS and should be designated as 'attainment' not 'attainment/unclassifiable.' The State requests the EPA consider the monitoring data demonstrating attainment. Those areas without three years of ambient monitoring data should be designated as 'attainment/unclassifiable.'


An area-specific analysis was completed for the Upper Green River Basin Area in 2009. The WDEQ would like to preserve this boundary determination (2009 Executive Summary, Boundary Area Map, and Code of Federal Regulations citation attached). The previous evaluation determined the air quality data, emissions and emissions-related data, meteorological data, geography/topography and jurisdictional boundaries support an appropriate boundary area. For this area, EPA published a Final Rule on May 4, 2016 (81 FR 26697-26722), which was effective on June 3, 2016 that included a Determination of Attainment for the 2008 Ozone

¹ The recommendation does not extend to areas considered Indian county.

NAAQS in the UGRB by the attainment date of July 20, 2015. The UGRB area is in attainment of the 2015 Ozone NAAQS.

If you have questions concerning this recommendation, please contact Nancy E. Vehr, Administrator, Department of Environmental Quality, Air Quality Division, at 307-777-7391.

Sincerely,



Matthew H. Mead
Governor

MHM:dp

Encl.: Attachment 1 - Designation Areas
Attachment 2 – Executive Summary from 2009 Technical Support Document for Upper Green River Basin, Boundary Area Map, and 40 CFR 81.351
Attachment 3 - Ozone Monitoring Data

cc: Todd Parfitt, DEQ Director
Colin McKee, Governor's Office
Nancy E Vehr, AQD Administrator
Monica Morales, EPA Region 8 w/ Enclosures

Attachment 1

2015 Primary and Secondary NAAQS 8-hour Ozone Standard
Wyoming Recommendations for Ozone Designations

Region (as defined in the 2016 Wyoming Statute 15-1-101)	8-hour Ozone Designation
Casper, WY: Natrona County (part) The portion within the City of Casper	Attainment
Cheyenne, WY: Laramie County (part) The portion within the City of Cheyenne	Attainment
Albany County	Attainment
Big Horn County	Attainment/Unclassifiable
Campbell County	Attainment
Carbon County	Attainment
Converse County	Attainment/Unclassifiable
Crook County	Attainment/Unclassifiable
Fremont County	Attainment
Goshen County	Attainment/Unclassifiable
Hot Springs County	Attainment/Unclassifiable
Johnson County	Attainment/Unclassifiable
Laramie County (remainder)	Attainment
Lincoln County (remainder)	Attainment/Unclassifiable
Natrona County (remainder)	Attainment
Niobrara County	Attainment/Unclassifiable
Park County	Attainment/Unclassifiable
Platte County	Attainment/Unclassifiable
Sheridan County	Attainment/Unclassifiable
Sweetwater County (remainder)	Attainment
Teton County	Attainment
Uinta County	Attainment
Washakie County	Attainment/Unclassifiable
Weston County	Attainment/Unclassifiable
Upper Green River Basin Area: Sublette County: (all) Lincoln County: (part) The area of the county north and east of the boundary defined by a line starting at the point defined by the intersection of the southwest corner Section 30 Range (R) 115 West Township (T) 27N and the northwest corner of Section 31 R 115 West T 27N of Sublette County at Sublette County's border with Lincoln County. From this point the boundary moves to the west 500 feet to the Aspen Creek. The boundary follows the centerline of Aspen Creek downstream to the confluence of Aspen Creek and Fontenelle Creek (in R116W T26N, Section 1). From this point the boundary moves generally to the south along the centerline of Fontenelle Creek to the confluence of Fontenelle Creek and Roney Creek (in R115W T24N Section 6). From the confluence, the boundary moves generally to the east along the centerline of Fontenelle Creek and into the Fontenelle Reservoir (in R112W T24N Section 6). The boundary moves east southeast along the centerline of the Fontenelle Reservoir and then toward the south along the centerline of the Green River to where the Green River in R111W T24 N Section 31 crosses into Sweetwater County. Sweetwater County: (part) The area of the county west and north of	Attainment

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Region (as defined in the 2016 Wyoming Statute 15-1-101)	8-hour Ozone Designation
<p>the boundary which begins at the midpoint of the Green River, where the Green River enters Sweetwater County from Lincoln County in R111W T24N Section 31. From this point, the boundary follows the center of the channel of the Green River generally to the south and east to the confluence of the Green River and the Big Sandy River (in R109W T22N Section 28). From this point, the boundary moves generally north and east along the centerline of the Big Sandy River to the confluence of the Big Sandy River with Little Sandy Creek (in R106W T25N Section 33). The boundary continues generally toward the northeast along the centerline of Little Sandy Creek to the confluence of Little Sandy Creek and Pacific Creek (in R106W T25N Section 24). From this point, the boundary moves generally to the east and north along the centerline of Pacific Creek to the confluence of Pacific Creek and Whitehorse Creek (in R103W T26N Section 10). From this point the boundary follows the centerline of Whitehorse Creek generally to the northeast until it reaches the eastern boundary of Section 1 R103W T26N. From the point where Whitehorse Creek crosses the eastern section line of Section 1 R103W T26N, the boundary moves straight north along the section line to the southeast corner of Section 36 R103W T27N in Sublette County where the boundary ends.</p>	

R - Range, T - Township, N - North, W - West

Attachment 2

2015 Primary and Secondary NAAQS 8-hour Ozone Standard Wyoming Recommendations for Ozone Designations

Executive Summary (State of Wyoming 2009 Technical Support Document for the Upper Green River Basin, Boundary Area Map, and 40 CFR 81.351)

In March 2008 the US EPA promulgated a new National Ambient Air Quality Standard for ozone. The new standard was lowered from 0.08 ppm to 0.075 ppm based on the fourth highest 8-hour average value per year at a site, averaged over three years. Based on monitoring results from 2006 through 2008, the entire state of Wyoming is in compliance with this standard except for at a single monitor, the Boulder monitor, in Sublette County.

The Wyoming Department of Environment Quality (DEQ) evaluated whether a nonattainment area should be designated due to the monitored results at the Boulder monitor. Using EPA's guidance in the Robert J. Meyers December 4, 2008 memo, the DEQ performed a nine-factor analysis, which is the basis of this document. This analysis supports DEQ's recommendation that the Upper Green River Basin (UGRB), as defined in the introduction to this document, be designated as nonattainment for the 2008 ozone NAAQS.

The DEQ bases this recommendation on a careful review of the circumstances surrounding the incidence of elevated ozone events. Elevated ozone in the UGRB is associated with distinct meteorological conditions. These conditions have occurred in February and March in some (but not all) of the years since monitoring stations began operation in the UGRB in 2005. Our determination of an appropriate nonattainment area boundary is focused on an evaluation of EPA's nine factors, applied to the first quarter of the year. It is important to evaluate conditions during the first quarter of the year in order to focus on the very specific set of circumstances that lead to high ozone.

The most compelling reasons for the boundary recommendation are based on the meteorological conditions in place during and just prior to elevated ozone events. Elevated ozone episodes occurred in 2005, 2006 and 2008; they were associated with very light low-level winds, sunshine, and snow cover, in conjunction with a strong low-level surface-based temperature or "capping" inversion. The longest such event (February 19-23, 2008), which also resulted in the highest measured ozone of 122 ppb as an 8-hour average at the Boulder station, has been reviewed in detail and summarized in Section 7 of this document. Section 7 demonstrates that sources outside the recommended nonattainment area would not have a significant impact on the Boulder monitor due to the presence of an inversion and very low winds, which significantly limit precursor and ozone transport from sources located outside of the UGRB.

The DEQ carefully examined sources of ozone and ozone precursors within Sublette and surrounding counties. When evaluating sources, DEQ considered these five of EPA's factors: population density, traffic and commuting patterns, growth rates and patterns, emission data, and level of control of air emissions. Sublette County is a rural county with a population density of 2 people per square mile; the most densely populated nearby county (Uinta) is also largely rural with a population density of 10 per square mile. As would be expected, the number of commuters into or out of the Upper Green River Basin is small and does not represent a significant source of precursor emissions. While there is an interstate highway 80 miles south of the Boulder monitor, the attached analysis demonstrates that I-80 traffic is not considered to be a significant contributor of emissions that impact the Boulder monitor during ozone events.

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2015 Primary and Secondary NAAQS 8-hour Ozone Standard Wyoming Recommendations for Ozone Designations

Although population and population growth was not a significant factor, growth in the O&G in Sublette County was considered pertinent. The volume of natural gas produced doubled between 2000 and 2008 in the county; the number of wells completed doubled between 2004 and 2008. Approximately 1500 well completions were recorded in Sublette County in the last four years. Growth in the oil and gas industry in nearby areas is much slower.

DEQ prepared an estimated inventory of emissions for the recommended nonattainment area and the surrounding counties. The inventory showed that approximately 94% of VOC emissions in the UGRB and 60% of NO_x emissions are attributable to oil and gas production and development. Of the eleven major sources in the UGRB, all are O&G related. To the north, east and west there are few major sources in counties adjacent to the UGRB. To the south in Sweetwater County and along the I-80 corridor there are some major sources. In addition to the major sources, there are numerous minor sources in the UGRB including several concentrated areas of O&G development. Just to the south of the UGRB, there are a few major sources, several minor sources and again, a concentrated area of O&G wells. DEQ then used other factors, meteorology, topography, and level of control of emissions, to determine which of the sources to the south of Sublette County should be included in the proposed nonattainment boundary.

The level of control of emissions in the Jonah and Pinedale Anticline Development is very stringent and new oil and gas production units in Sublette County and surrounding counties require permits including BACT. An interim policy for Sublette County which took effect in 2008 results in a net decrease in emissions of ozone precursors with every permit that is issued. Since stricter controls for O&G are already in place in Sublette County, if O&G sources outside of Sublette County might contribute ozone or ozone precursors to the Boulder monitor, including these O&G sources in the proposed nonattainment area would provide motivation to control these sources.

In evaluating topography, the east, north and west county boundaries are natural boundaries of high mountains. These geographical and jurisdictional boundaries also coincide with population boundaries and emission source boundaries. To the south, the topographical boundaries are less dramatic, but there are rivers, valleys, and buttes that form geographic boundaries near the southern border of Sublette County. Therefore, the DEQ considered the county boundary to the north, east and west to be a reasonable boundary based on geography, jurisdictions, emission sources, population and growth.

However, meteorology provided the strongest support for setting the southern boundary of the proposed nonattainment area. Elevated ozone in the UGRB is associated with distinct meteorological conditions. These conditions have occurred in February and March in some (but not all) of the years since monitoring stations began operation in the UGRB in 2005.

The most compelling reasons for the boundary recommendation are based on the meteorological conditions in place during and just prior to elevated ozone events. Elevated ozone episodes occurred in 2005, 2006 and 2008; they were associated with very light low-level winds, cold temperatures, sunshine, and snow cover, in conjunction with a strong low-level surface-based temperature inversion. Sources outside the recommended nonattainment area would not have a significant impact on the Boulder monitor due to the presence of the inversion and very low wind speeds, which influence the transport of emissions. Detailed meteorological data collected

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2015 Primary and Secondary NAAQS 8-hour Ozone Standard Wyoming Recommendations for Ozone Designations

during intensive field studies shows that emissions from sources south of the recommended nonattainment area are generally carried toward the east and not into the UGRB during or just prior to an ozone episode. Speciated VOC data collected in the UGRB during elevated ozone episodes also has a strong oil and gas signature, indicating the VOC concentrations are largely due to O&G development activities.

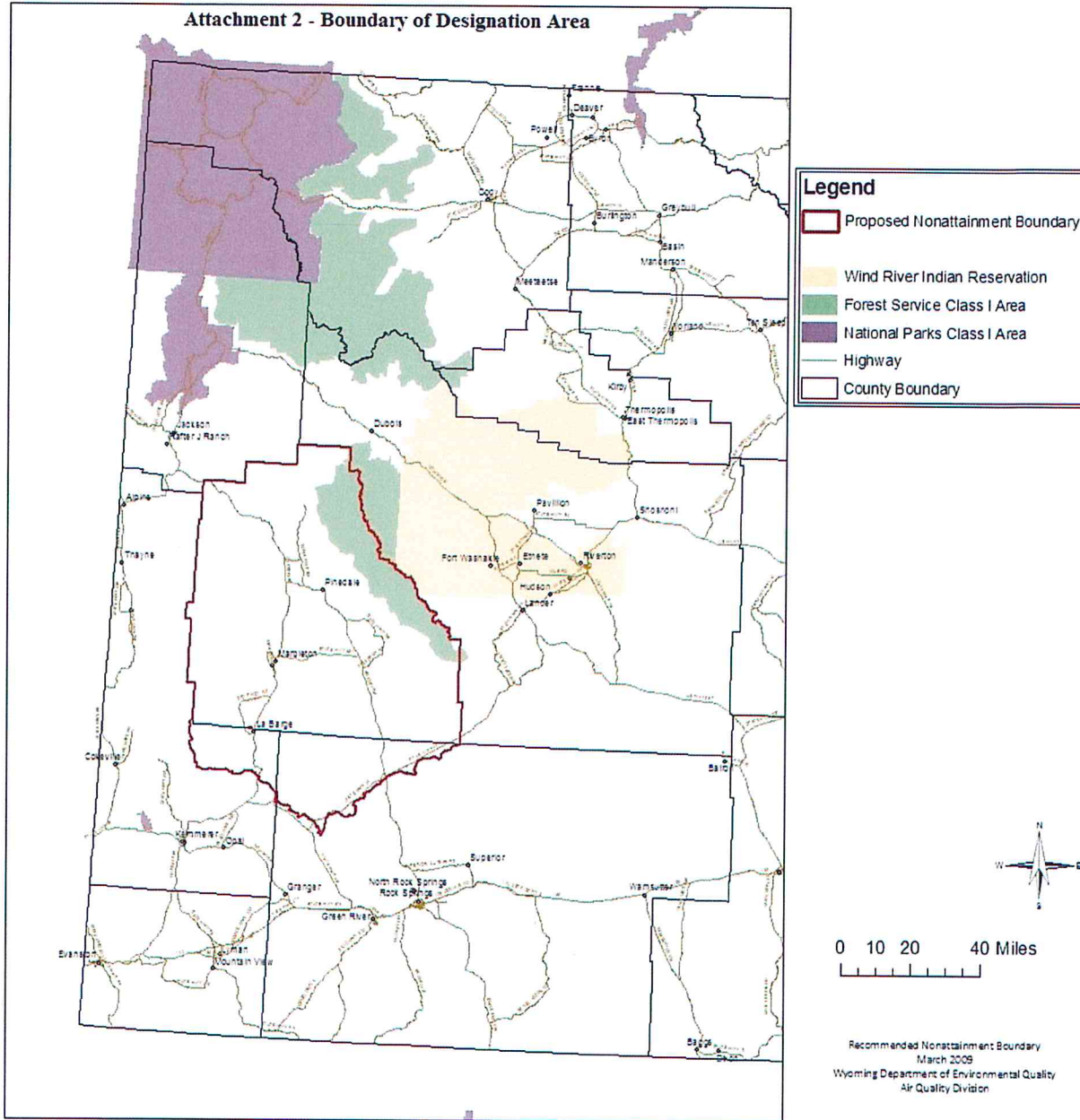
Meteorology and topography indicate that sources within a southern boundary defined by the Little Sand Creek and Pacific creek to the east and the Green River and Fontenelle Creek to the west define the limit from which ozone and ozone precursors could reach the Boulder monitor.

The analysis conclusively shows that elevated ozone at the Boulder monitor is primarily due to local emissions from oil and gas (O&G) development activities: drilling, production, storage, transport, and treating. The ozone exceedances only occur when winds are low indicating that there is no transport of ozone or precursors from distances outside the proposed nonattainment area. The ozone exceedances only occur in the winter when the following conditions are present: strong temperature inversions, low winds, cold temperatures, and snow cover. If transport from outside the proposed nonattainment area was contributing to the exceedances, then elevated ozone would be expected at other times of the year. Mountain ranges with peaks over 10,000 feet border the area to the west, north and east control wind patterns. Emission sources in nearby counties are not upwind of the Boulder monitor during episodes which exceed the 8-hour ozone standard in Sublette County.

The proposed nonattainment area boundary includes the violating monitor and the sources which are most likely to contribute ozone and ozone precursors to the monitored area. Using this as a boundary will allow the State to focus its resources on the emission sources that contribute to the ozone issue and will allow the State to control the ozone problem in a timely manner.

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2015 Primary and Secondary NAAQS 8-hour Ozone Standard Wyoming Recommendations for Ozone Designations



Attachment 2

2015 Primary and Secondary NAAQS 8-hour Ozone Standard
Wyoming Recommendations for Ozone Designations

Attachment 2 - Code of Federal Regulations Citation

Environmental Protection Agency

§ 81.351, Nt.

Wyoming—PM_{2.5} [24-hour NAAQS]

Designated area	Designation for the 1997 NAAQS ^a		Designation for the 2006 NAAQS ^a	
	Date ¹	Type	Date ²	Type
Park County	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Platte County	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Sheridan County (remainder)	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Sublette County	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Sweetwater County	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Teton County (remainder)	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Uinta County (remainder)	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Washakie County	Unclassifiable/Attainment	.....	Unclassifiable/Attainment
Weston County	Unclassifiable/Attainment	.....	Unclassifiable/Attainment

^a Includes Indian Country located in each county or area, except as otherwise specified.
¹ This date is 90 days after January 5, 2005, unless otherwise noted.
² This date is 30 days after November 13, 2009, unless otherwise noted.

Wyoming—2008 Lead NAAQS

Designated area	Designation for the 2008 NAAQS ^a	
	Date ¹	Type
Whole State	Unclassifiable/Attainment.

^a Includes Indian Country located in each county or area, except as otherwise specified.
¹ December 31, 2011 unless otherwise noted.

[43 FR 8964, Mar. 3, 1978, as amended at 47 FR 31878, July 23, 1982; 48 FR 54483, Dec. 5, 1983; 56 FR 56853, Nov. 6, 1991; 57 FR 56778, Nov. 30, 1992; 58 FR 4350, Jan. 14, 1993; 60 FR 55798, 55800, Nov. 3, 1995; 61 FR 47060, Sept. 6, 1996; 63 FR 31093, June 5, 1998; 65 FR 45271, July 20, 2000; 69 FR 23948, Apr. 30, 2004; 70 FR 1016, Jan. 5, 2005; 70 FR 44478, Aug. 3, 2005; 74 FR 58778, Nov. 13, 2009; 76 FR 72119, Nov. 22, 2011; 77 FR 9585, Feb. 17, 2012]

EFFECTIVE DATE NOTE: At 77 FR 30157, May 21, 2012, §81.351 was amended by revising the table heading for “Wyoming—Ozone (8-Hour Standard)” to read “Wyoming—1997 8-Hour Ozone NAAQS (Primary and Secondary)”; by adding a new table entitled “Wyoming—2008 8-Hour Ozone NAAQS (Primary and Secondary)” following the newly designated table “Wyoming—1997 8-Hour Ozone NAAQS (Primary and Secondary)”, effective July 20, 2012. For the convenience of the user, the added text is set forth as follows:

§ 81.351 Wyoming.

* * * * *
Wyoming—2008 8-Hour Ozone NAAQS (Primary and secondary)

Designated area	Designation		Classification	
	Date ¹	Type	Date ¹	Type
Upper Green River Basin Area, WY; ² Lincoln County (part)	Nonattainment	Marginal.

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**2015 Primary and Secondary NAAQS 8-hour Ozone Standard
Wyoming Recommendations for Ozone Designations**

§ 81.351, Nt.

40 CFR Ch. I (7–1–12 Edition)

Wyoming—2008 8-Hour Ozone NAAQS (Primary and secondary)

Designated area	Designation		Classification	
	Date ¹	Type	Date ¹	Type
<p>The area of the county north and east of the boundary defined by a line starting at the point defined by the intersection of the southwest corner Section 30 Range (R) 115 West Township (T) 27N and the northwest corner of Section 31 R 115 West T27N of Sublette County at Sublette County's border with Lincoln County. From this point the boundary moves to the west 500 feet to Aspen Creek. The boundary follows the centerline of Aspen Creek downstream to the confluence of Aspen Creek and Fontenelle Creek (in R116W T26N, Section 1). From this point the boundary moves generally to the south along the centerline of Fontenelle Creek to the confluence of Fontenelle Creek and Roney Creek (in R115W T24N Section 6). From the confluence, the boundary moves generally to the east along the centerline of Fontenelle Creek and into the Fontenelle Reservoir (in R112W T24N Section 6). The boundary moves east southeast along the centerline of the Fontenelle Reservoir and then toward the south along the centerline of the Green River to where the Green River in R111W T24N Section 31 crosses into Sweetwater County.</p> <p>Sublette County Sweetwater County (part)</p>				

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Wyoming Recommendations for Ozone Designations

Environmental Protection Agency

§ 81.352

Wyoming—2008 8-Hour Ozone NAAQS (Primary and secondary)

Designated area	Designation		Classification	
	Date ¹	Type	Date ¹	Type
The area of the county west and north of the boundary which begins at the midpoint of the Green River, where the Green River enters Sweetwater County from Lincoln County in R111W T24N Section 31. From this point, the boundary follows the center of the channel of the Green River generally to the south and east to the confluence of the Green River and the Big Sandy River (in R109W T22N Section 28). From this point, the boundary moves generally north and east along the centerline of the Big Sandy River to the confluence of the Big Sandy River with Little Sandy Creek (in R106W T25N Section 33). The boundary continues generally toward the northeast along the centerline of Little Sandy Creek to the confluence of Little Sandy Creek and Pacific Creek (in R106W T25N Section 24). From this point, the boundary moves generally to the east and north along the centerline of Pacific Creek to the confluence of Pacific Creek and Whitehorse Creek (in R103W T26N Section 10). From this point the boundary follows the centerline of Whitehorse Creek generally to the northeast until it reaches the eastern boundary of Section 1 R103W T26N. From the point where Whitehorse Creek crosses the eastern section line of Section 1 R103W T26N, the boundary moves straight north along the section line to the southeast corner of Section 36 R103W T27N in Sublette County where the boundary ends. Rest of State and Rest of Indian Country	Unclassifiable/Attainment		

¹ This date is July 20, 2012, unless otherwise noted.

² Excludes Indian country located in each area, unless otherwise noted.

* * * * *

§ 81.352 American Samoa.

American Samoa—TSP

Designated area	Does not meet primary standards	Does not meet secondary standards	Cannot be classified	Better than national standards
Whole State	1 X

¹ EPA designation only.

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2015 Primary and Secondary NAAQS 8-hour Ozone Standard
Wyoming Recommendations for Ozone Designations

Design Values for Wyoming Ambient Ozone Monitors							
Site Name	County	AQSI ID	Site Type	Year			3-Year Average 2013-2015 (ppm)
				2013 (ppm)	2014 (ppm)	2015 (ppm)	
Centennial	Albany	56-001-9991	CASTNET	0.069	0.065	0.064	0.066
Thunder Basin	Campbell	56-005-0123	SPM	0.061	0.058	0.059	0.059
Campbell County	Campbell	56-005-0456	SPM	0.061	0.059	0.062	0.060
Sun Dog	Carbon	56-007-0100	Industry	0.059	0.062	0.059	0.060
South Pass	Fremont	56-013-0099	SPM	0.062	0.065	0.062	0.063
Spring Creek	Fremont	56-013-0232	Industry	0.066	0.058	0.063	0.062
Cheyenne NCore	Laramie	56-021-0100	SLAMS	0.069	0.065	0.063	0.065
Casper Gaseous	Natrona	56-025-0100	SPM	0.065 ¹	0.061	0.060	0.062
Boulder	Sublette	56-035-0099	SPM	0.061	0.060	0.055	0.058
Daniel South	Sublette	56-035-0100	SPM	0.063	0.062	0.062	0.062
Pinedale Gaseous	Sublette	56-035-0101	SPM	0.061	0.057	0.059	0.059
Big Piney [^]	Sublette	56-035-0700	SPM	0.064	0.060	0.059	0.061
Juel Spring	Sublette	56-035-1002	SPM	0.064	0.062	0.061	0.062
Pinedale	Sublette	56-035-9991	CASTNET	0.066	0.062	0.065	0.064
Wamsutter	Sweetwater	56-037-0200	SPM	0.064	0.060	0.060	0.061
Moxa Arch	Sweetwater	56-037-0300	SPM	0.067	0.063	0.071	0.067
Grand Teton Science School	Teton	56-039-0008	NPS	0.060	0.060	0.059	0.059
Yellowstone	Teton	56-039-1011	NPS	0.063	0.060	0.062	0.061
Murphy Ridge	Uinta	56-041-0101	SPM	0.065	0.059	0.066	0.063

1. Data collection began on 3/1/2013.

[^] This site was a mobile station until 12/2/2013 when a permanent station was established at the same coordinates.

Table 1. Design Values for Ozone Monitors in Wyoming from 2013-2015.

Attachment 3
 2015 Primary and Secondary NAAQS 8-hour Ozone Standard
 Wyoming Recommendations for Ozone Designations

4th Maximum 8-Hour Ozone Values for Ambient Monitors without 3 Years of Data						
Site Name	County	AQSI ID	Site Type	Year		
				2013	2014	2015
Tallgrass Gaseous	Natrona	56-009-0008	Industry	0.057 ¹	0.058	0.060
Basin	56-003-0002	BLM-WARMS	0.064	0.056	0.059	
Newcastle	56-045-0003	BLM-WARMS	0.067	0.059	0.061	
Converse County	Converse	56-009-0010	SPM	--	--	0.060 ²
Sinclair-Casper	Natrona	56-025-2601	Industry	0.057 ³	0.058	0.058
Hiawatha ⁴	Sweetwater	56-037-0077	SPM	0.064	0.062	0.062
1. Data collection began on 7/11/2013. 2. Data collection began on 4/14/2015. 3. Data completeness for this year is less than 75%. 4. Data completeness for the 3-year design value is less than 90%.						

Table 2. Ozone Monitors in Wyoming with Partial Data from 2013-2015.