

State of Colorado

Technical Support Document For 1-Hour Nitrogen Dioxide Standard Attainment In Colorado



October 21, 2010

Colorado Department of Public Health and Environment
Air Pollution Control Division
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Colorado Analysis for 1-Hour Nitrogen Dioxide Attainment

Designation Recommendation

The State recommends that the entire state of Colorado be designated as attainment or attainment/unclassifiable for the 2010 revised 1-hour nitrogen dioxide standard. This recommendation is based on monitoring information that indicates the region is in compliance with the revised 1-hour nitrogen dioxide standard.

Overview

On February 2, 2010, the U.S. Environmental Protection Agency (EPA) promulgated a new National Ambient Air Quality Standard (NAAQS) for nitrogen dioxide as a 1-hour average. The level was set at 100 ppb as the 3-year average of the 98th percentile 1-hour daily maximum values. States are required to submit area designation recommendations to EPA by January 22, 2011.

The Air Pollution Control Division (APCD) currently operates two nitrogen dioxide analyzers in Colorado, both in the Denver metropolitan area. There are also two Southern Ute Indian Tribe (SUIT) sites and one U.S. Forest Service (USFS) site operating in Colorado, as well as a number of private/industrial monitoring sites that do not report to the EPA Air Quality System. All nitrogen dioxide monitoring for the 2007-2009 period shows 98th percentile 1-hour daily maximum values to be below the level of the NAAQS. Thus, the APCD is proposing that Colorado be designated as attainment/unclassifiable for the entire state (excluding tribal lands over which the APCD has no jurisdiction).

The EPA requires states base their designation recommendations on monitoring data results from the most current complete three year period. Based on the 2007 - 2009 results, Colorado is in attainment of the new standard. The following analysis discusses air quality data as necessary to demonstrate that Colorado should be designated as attainment or attainment/unclassifiable for the new 1-hour nitrogen dioxide NAAQS. It must also be noted that this attainment demonstration applies only to non-tribal lands over which the State of Colorado has direct air quality jurisdiction.

Air Quality Data

The air quality analysis looked at all known monitoring sites for the 1-hour nitrogen dioxide standard in Colorado for 2007 through 2009. A map of the two APCD site locations in Colorado (CAMP and Welby) as well as the USFS and tribal sites is presented in Figure 1. As can be seen, there was not a lot of monitoring in Colorado in the 2007-2009 time period.

Figure 2 presents long term trends for the APCD's CAMP and Welby sites as well as the USFS Shamrock site, the SUIT Ignacio site and the SUIT Bondad site. It is evident that ambient 1-

hour nitrogen dioxide levels have decreased dramatically over time. Much of this decrease is likely due to emissions reductions in vehicles and major stationary sources.

The 1-hour nitrogen dioxide data for 2007 to 2009 are presented as the 3-year average of the 98th percentile daily maximum values in Table 1 and graphically in Figure 2.

Figure 1. Map of 1-Hour Nitrogen Dioxide Ambient Air Monitoring Sites 2007-2009.

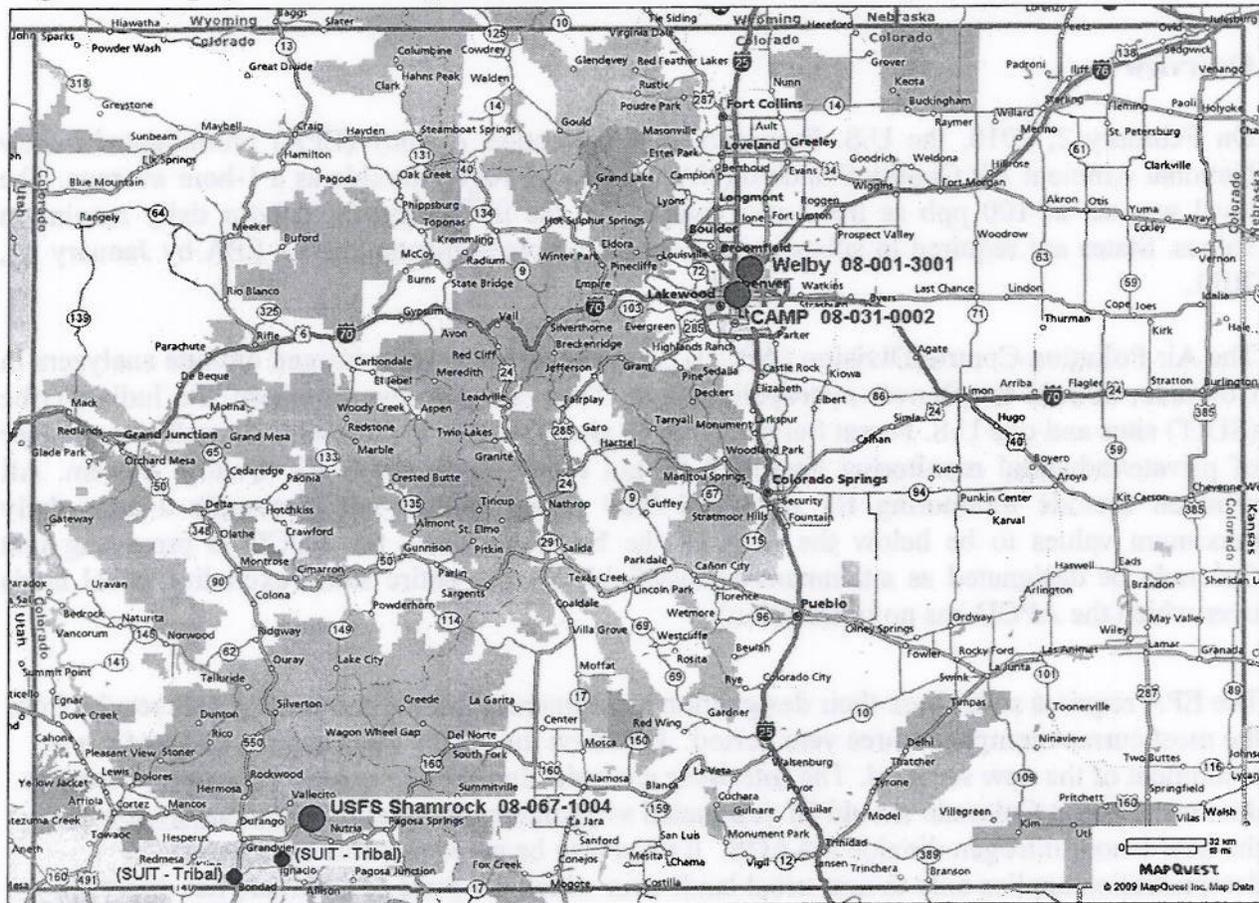


Figure 2. Colorado 1-Hour Nitrogen Dioxide Ambient Air Concentration Trends-CDPHE Sites.

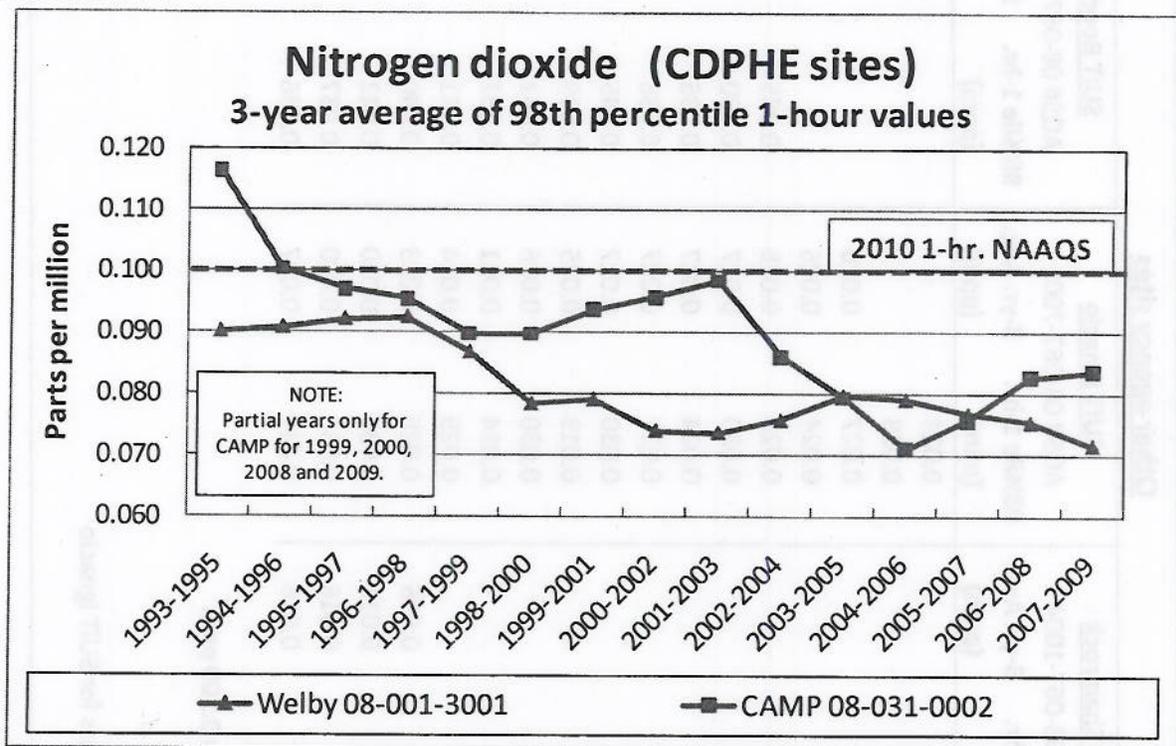


Figure 3. Colorado 1-Hour Nitrogen Dioxide Ambient Air Concentration Trends – Other Agency Sites.

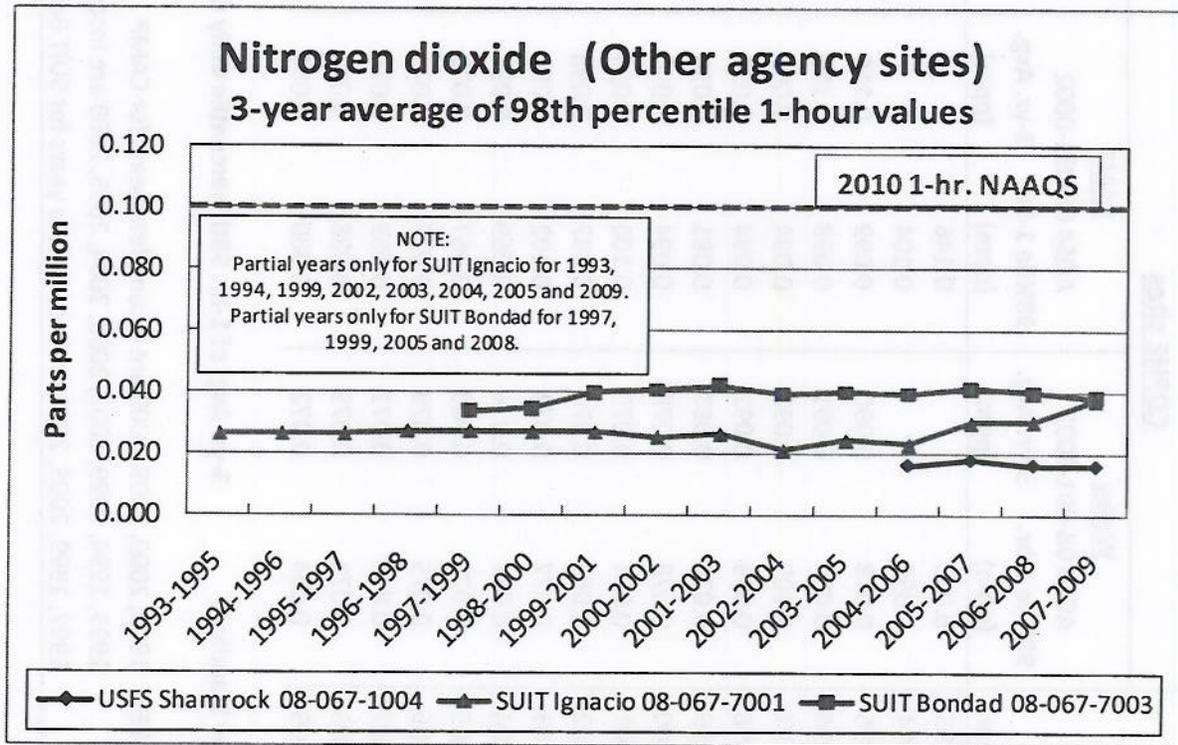


Table 1. Colorado 1-Hour Nitrogen Dioxide Monitoring Data Summary.

Year	CDPHE sites			Other agency sites		
	<u>Welby</u> AQS# 08-001-3001 98%ile 1-hr. (ppm) 3-yr. Avg. (ppm)	<u>CAMP</u> AQS# 08-031-0002 98%ile 1-hr. (ppm) 3-yr. Avg. (ppm)	<u>USFS Shamrock</u> AQS# 08-067-1004 98%ile 1-hr. (ppm) 3-yr. Avg. (ppm)	<u>SUIT Ignacio</u> AQS# 08-067-7001 98%ile 1-hr. (ppm) 3-yr. Avg. (ppm)	<u>SUIT Bondad</u> AQS# 08-067-7003 98%ile 1-hr. (ppm) 3-yr. Avg. (ppm)	
1993	0.093	0.146		0.024		
1994	0.099	0.104		0.028		
1995	0.078	0.099	0.116	0.027	0.026	
1996	0.095	0.098	0.100	0.024	0.026	
1997	0.103	0.094	0.097	0.028	0.026	
1998	0.079	0.094	0.095	0.030	0.027	
1999	0.078	0.081	0.090	0.024	0.027	
2000	0.078	0.094	0.090	0.027	0.027	
2001	0.081	0.106	0.094	0.030	0.027	
2002	0.063	0.087	0.096	0.019	0.025	
2003	0.077	0.102	0.098	0.030	0.026	
2004	0.087	0.069	0.086	0.014	0.021	
2005	0.075	0.067	0.079	0.018	0.024	
2006	0.075	0.077	0.071	0.017	0.023	
2007	0.080	0.083	0.076	0.019	0.030	
2008	0.071	0.088	0.083	0.013	0.030	
2009	0.064	0.080	0.084	0.016	0.037	
				0.016	0.036	
New Standard:	3-yr. Avg. of 1-hr. 98th percentile daily maximum = 0.100 ppm					
NOTE:	1999, 2000, 2008, 2009 are incomplete years for CAMP 1993, 1994, 1999, 2002, 2003, 2004, 2005, 2009 are incomplete years for SUIT Ignacio 1997, 1999, 2005, 2008 are incomplete years for SUIT Bondad					

Summary Conclusions

The data and analysis presented provide documentation and compelling evidence supporting a finding that Colorado should be designated as attainment or attainment/unclassifiable for the 2010 1-hour nitrogen dioxide NAAQS. It is important to note that only areas over which Colorado has direct air quality jurisdiction are included in this attainment attainment/unclassifiable finding and recommendation. The Southern Ute Indian Tribe, and the Southern Ute Indian Tribe/State of Colorado Environmental Commission, as well as the Ute Mountain Ute Indian Tribe, are distinct nations or entities and consequently such Tribal lands are specifically excluded from this designation recommendation.

Table 2 provides a complete listing of the recommended designations, by area. Figure 3 provides a map of the Air Quality Control Regions for the 1-Hour Nitrogen Dioxide Designations in Colorado. These recommendations are based on monitoring information that indicates compliance with the revised standard.

Table 2. Recommended 1-Hour Nitrogen Dioxide Designations by Area for Colorado

2010 Colorado Designations for 1-Hour Nitrogen Dioxide NAAQS (based on 2007–2009 monitoring data)	
Air Quality Control Regions (AQCR)	Nitrogen Dioxide NAAQS Designation
State AQCR 01 Logan County Morgan County Phillips County Sedgwick County Washington County Yuma County	Attainment/Unclassifiable
State AQCR 02 Larimer County Weld County	Attainment/Unclassifiable
State AQCR 03 Adams County Arapahoe County Boulder County (including the portion of Rocky Mountain National Park therein) Broomfield County Clear Creek County Denver County Douglas County Jefferson County Gilpin County	Attainment
State AQCR 04 El Paso County	Attainment/Unclassifiable

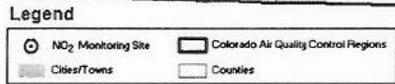
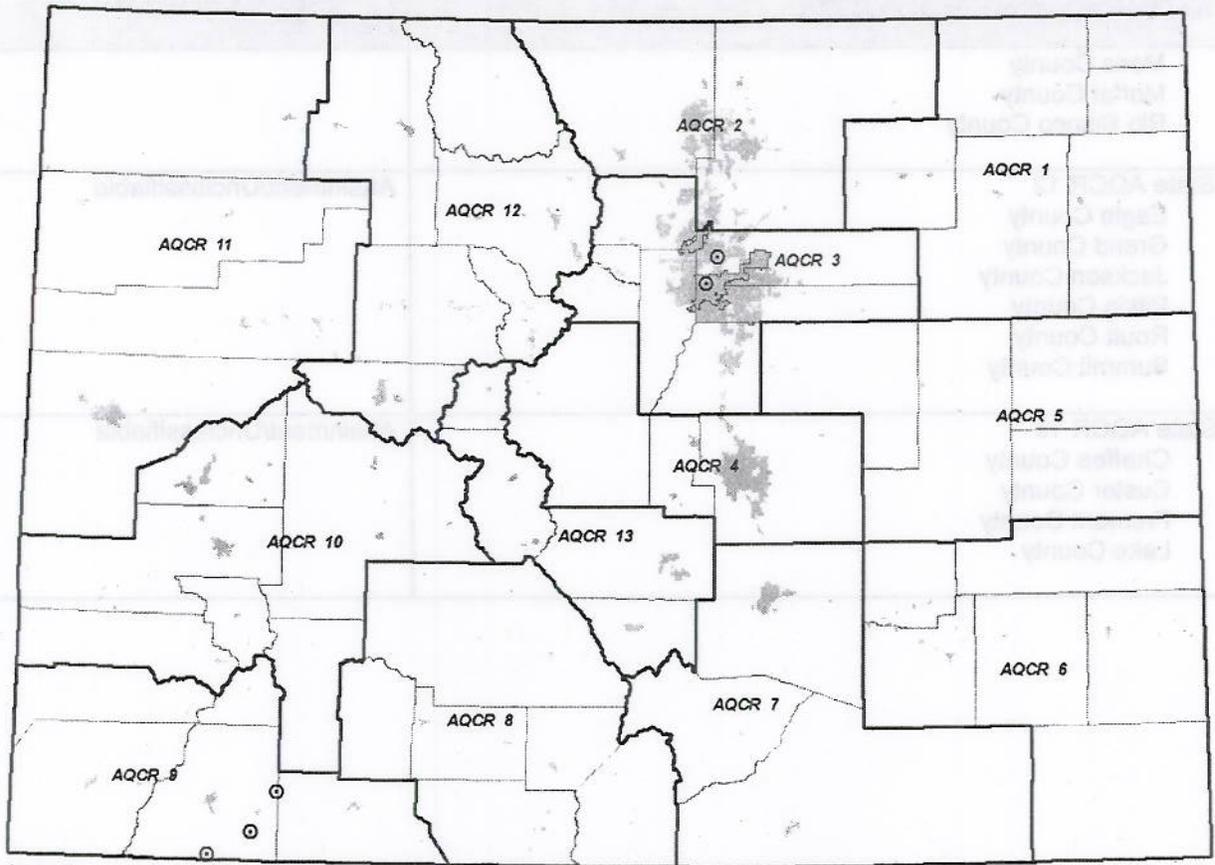
2010 Colorado Designations for 1-Hour Nitrogen Dioxide NAAQS (based on 2007–2009 monitoring data)	
Air Quality Control Regions (AQCR)	Nitrogen Dioxide NAAQS Designation
Park County Teller County	
State AQCR 05 Cheyenne County Elbert County Kit Carson County Lincoln County	Attainment/Unclassifiable
State AQCR 06 Baca County Bent County Crowley County Kiowa County Otero County Prowers County	Attainment/Unclassifiable
State AQCR 07 Huerfano County Las Animas County Pueblo County	Attainment/Unclassifiable
State AQCR 08 Alamosa County Conejos County Costilla County Mineral County Rio Grande County Saguache County	Attainment/Unclassifiable
State AQCR 09 Archuleta County (part) excluding Southern Ute Indian Tribe (SUIT) lands Dolores County La Plata County (part) excluding SUIT and Ute Mountain Ute Tribe lands Montezuma County (part) excluding SUIT and Ute Mountain Ute Tribe lands San Juan County	Attainment
State AQCR 10 Delta County Gunnison County Hinsdale County Montrose County Ouray County San Miguel County	Attainment/Unclassifiable
State AQCR 11 Garfield County	Attainment/Unclassifiable

2010 Colorado Designations for 1-Hour Nitrogen Dioxide NAAQS
(based on 2007–2009 monitoring data)

Air Quality Control Regions (AQCR)	Nitrogen Dioxide NAAQS Designation
Mesa County Moffat County Rio Blanco County	
State AQCR 12 Eagle County Grand County Jackson County Pitkin County Routt County Summit County	Attainment/Unclassifiable
State AQCR 13 Chaffee County Custer County Fremont County Lake County	Attainment/Unclassifiable



Figure 3. Map of Air Quality Control Regions for 1-Hour Nitrogen Dioxide Designations in Colorado



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