SOUTHERN UTE INDIAN TRIBE

March 9, 2009

Carol Rushin, Acting Regional Administrator
United States Environmental Protection Agency – Region 8
8OC-EISC
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Area Designation Recommendation for 2008 Revised Ozone NAAQS

Dear Ms. Rushin:

Thank you for your letter inviting the Southern Ute Indian Tribe to participate in the process of designating areas for the 2008 revised ozone national ambient air quality standards. Under section 107(d)(1) of the Clean Air Act, areas may be designated as "nonattainment" (if the area does not meet the standards or contributes to ambient air quality in a nearby area that does not meet the standards), "attainment" (if the area meets the standards), or "unclassifiable" (if the area cannot be classified on the basis of available information as meeting or not meeting the standards).

EPA's guidance on the area designations for the 2008 revised ozone standard lists nine factors that states and tribes should consider in making recommendations for area designations and on which EPA will base its designations. With regard to the factors to be considered in determining nonattainment area boundaries, the guidance provides that "a state's or tribe's demonstration supporting their boundary recommendation for an area should show that: 1) violations are not occurring in nearby portions that are excluded from the recommended area, and 2) the excluded nearby portions do not contain emission sources that contribute meaningfully to the observed violations." (emphasis added). In carrying out its responsibility for designating areas in Indian country, in addition to the factors listed in EPA's guidance document, EPA must consider the federal policy of encouraging tribal self-determination and economic development, and environmental justice must be considered too. *EPA 1984 Indian Policy* (providing that "in keeping with the Federal trust responsibility, [EPA] will assure that tribal concerns and interests are considered whenever EPA's actions and/or decisions may affect reservation environments.")

Based on our evaluation, set forth in the attached *Technical Support Document*, of air quality data, emissions data, and other factors which, according to EPA guidance, should be considered in making recommendations for area designations, the Tribe recommends that the

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area within the exterior boundaries of the Southern Ute Indian Reservation be designated as **"attainment/unclassifiable"** for the 2008 revised ozone NAAQS. Additionally, based on our determination that the contribution, if any, from Reservation-based sources to the violation of the standard in northwest New Mexico is not meaningful, the Tribe recommends that the Reservation not be included in the "nonattainment" area that is likely to be designated for San Juan County, and perhaps Rio Arriba County, in New Mexico as a result of the ozone violating monitor located in New Mexico near Navajo Lake. In other words, no violations of the revised ozone standards are occurring on the Reservation and the sources of air pollution located on the Reservation do not contribute meaningfully to the monitored violation at New Mexico's Navajo Lake monitor.

Please contact Vickie Kujawa (Environmental Programs Division Head) (970) 563-0135 or James Temte (Air Quality Program Manager) at (970) 563-4705 or Sam W. Maynes (Tribal attorney) at (970) 247-1755 if you have any questions about the Tribe's recommendation and *Technical Support Document*.

Sincerely,

Matthew J. Box, Chairman
Southern Ute Indian Tribal Council

Encl. Technical Support Document

cc: Southern Ute Indian Tribe/State of Colorado Environmental Commission
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Montezuma County Colorado Board of County Commissioners
State Senator Jim Isgar
State Representative Ellen Roberts
U.S. Senator Mark Udall
U.S. Senator Michael Bennett
Interior Secretary Ken Salazar

SOUTHERN UTE INDIAN TRIBE

Technical Support Document
For 2008 Revised Ozone NAAQS Area Designation Recommendation

March 10, 2009

Southern Ute Environmental Programs Division
Air Quality Program
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I. Introduction.

Pursuant to section 107(d) of the Clean Air Act, EPA must designate areas as "attainment," "nonattainment," or "unclassifiable" whenever a new or revised NAAQS is promulgated. In making area designations, EPA guidance provides that the following nine factors, as well as any other relevant information, will be considered:

- Air quality data
- Emissions data
- Population density and degree of urbanization
- Traffic and commuting patterns
- Growth rates and patterns
- Meteorology
- Geography/topography
- Jurisdictional boundaries
- Level of control of emission sources

This technical support document analyzes the nine factors identified above, as well as other relevant information, and is provided in support of the Tribe's recommendation that the Reservation be designated "**attainment/unclassifiable**" and not be included in any nonattainment area that may be designated for northwest New Mexico.[1]

In support of the Tribe's recommendation, this technical support document includes data and analysis performed by Air Quality Resource Management and ENVIRON International Corporation, under contract with the Tribe. ENVIRON's work has included conducting a state-of-the-art three-dimensional multi-scale photochemical/aerosol grid modeling study using ENVIRON's *Comprehensive Air Quality Model with Extensions* (*CAMx*, v4.51). An approach using ENVIRON's *CAMx* model is more robust than performing qualitative analyses using the NOAA HYSPLIT back trajectory model. The HYSPLIT model provides an estimated flow only at one layer of the atmosphere, and in addition there is uncertainty regarding the accuracy of the flow in complex terrain (as in the case of the Navajo Lake monitor). By contrast, the use of a photochemical grid model in conjunction with fine scale MM5 meteorological modeling provides a complete and accurate picture of transport in the region within the mixed layer and provides a quantitative estimate of potential impacts that include the non linear chemistry of ozone formation. This work is similar to the modeling analysis of air quality and air quality related values impacts within the Four Corners region that is currently being conducted by ENVIRON for the Four Corners Air Quality Group (formerly known as the Four Corners Air Quality Task Force) under contract with the New Mexico Environmental Department.

Importantly, and as further explained below, ENVIRON's *CAMx* model results show that there is no meaningful contribution from sources located on the Southern Ute Indian Reservation to elevated ozone concentrations measured at New Mexico's Navajo Lake monitor. The modeling and the analyses of the nine factors support the Tribe's recommendation that the

[1] The nine factors analyzed by the Tribe are the factors listed in EPA's guidance but the Tribe's analysis of the factors is not presented in the same order as the factors are listed in EPA's guidance.

Reservation should be designated attainment/unclassifiable. In summary, burdening Reservation development with nonattainment requirements in circumstances where (1) Reservation monitors show attainment, (2) source apportionment shows the contribution by Reservation sources to a measured exceedance at New Mexico's Navajo Lake monitor is not meaningful, (3) prevailing winds blow from the west and southwest onto the Reservation, and (4) the Southern Ute Indian Tribe/State of Colorado Environmental Commission and the Tribe already are aggressively acting to control emissions, would not likely result in ozone reductions in northwest New Mexico and would impose a disproportionate and unfair burden on the Tribe to attempt to help northwest New Mexico achieve attainment with the 2008 revised ozone NAAQS.

II. Nine-Factor Analysis.

Factor 1 (Air Quality Data)

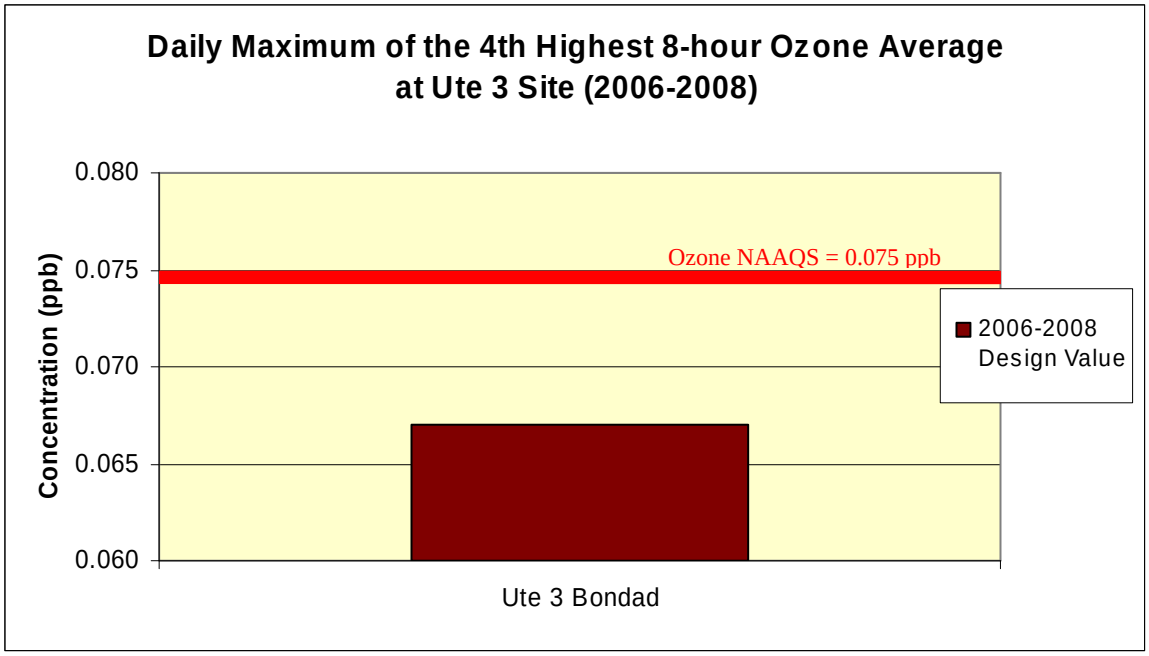
A. Monitoring Data Show Attainment for the Reservation.

The most recent years of quality-assured, certified air quality data collected from the two ozone monitors located on the Reservation, including three consecutive years for the Ute 3 monitor, each sited and operated in accordance with applicable federal requirements, show compliance with the 2008 revised ozone NAAQS. The data shown in Table 1 and Figure 1 demonstrate attaining ozone levels well below the revised NAAQS.

Table 1. Southern Ute Indian Reservation Ozone Monitoring Data Summary.

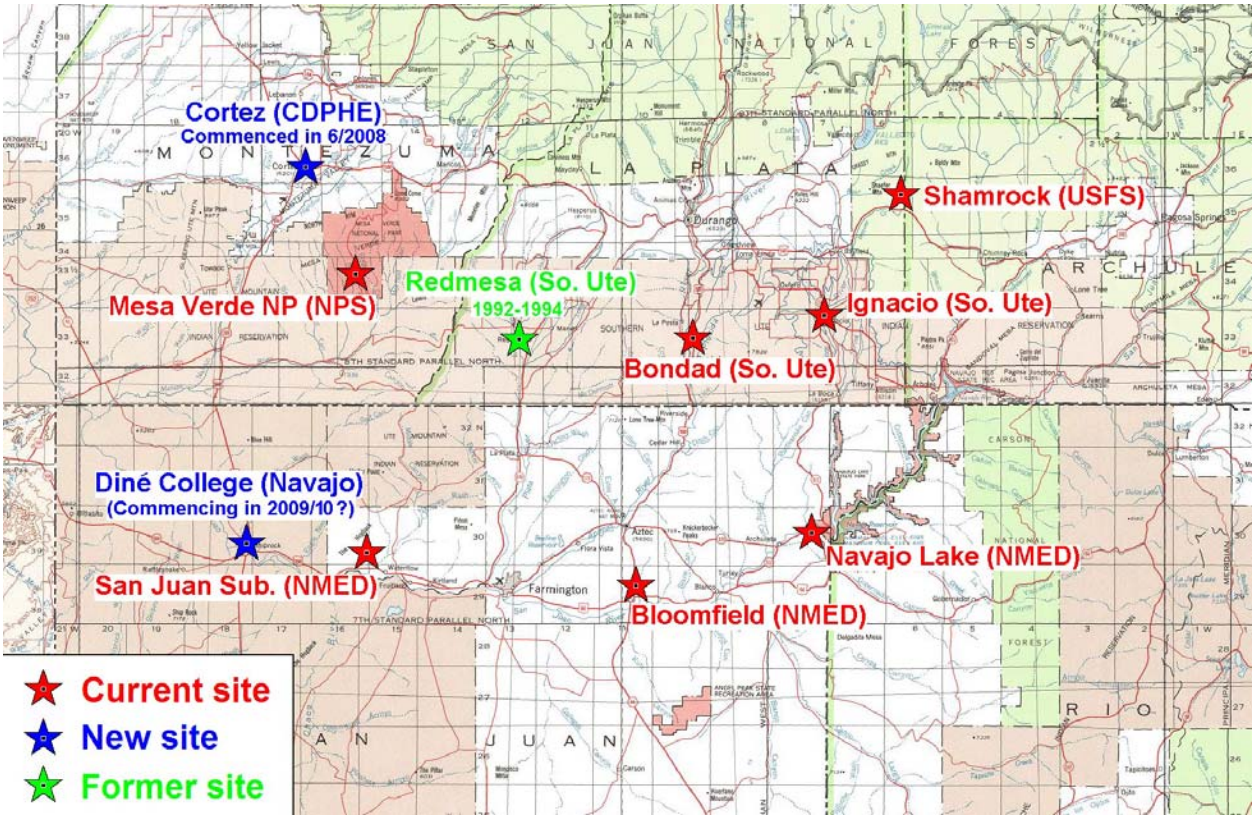
4th Maximum 8-Hour Ozone Values and 3-Year Averages							
Site Name	**AQS #**	**Year**				**3-Year Average 2005-07 (ppm)**	**3-Year Average 2006-08* (ppm)**
		2005 (ppm)	**2006 (ppm)**	**2007 (ppm)**	**2008 (ppm)**		
Ute 1-Ignacio	08-067-7001	(Void)	(Void)	(Void)	0.067	n/a	n/a
Ute 3-Hwy. 550/Bondad	08-067-7003	0.066	0.063	0.071	0.067	0.066	0.067
*Note: Data are through October 2008							

Figure 1. Ute 3 2006 – 2008 Ozone Monitoring Data.



The location of the two ozone monitors on the Reservation, as well as the ozone monitors in surrounding areas, are shown on Figure 2.

Figure 2. Ozone Monitor Locations in the Four Corners Region.



The Tribe is aware that the monitoring data from New Mexico's Navajo Lake monitor indicates that San Juan County, New Mexico, is not attaining the revised ozone NAAQS of 0.075 ppm. As shown in Figure 2, New Mexico's Navajo Lake monitor is located approximately 13 miles south of the southern boundary of the Reservation. Emissions from Reservation-based sources, however, do not meaningfully contribute to ozone concentrations in northwest New Mexico and for that reason and the additional reasons discussed below, the Reservation should not be included in any nonattainment area that may be designated for northwest New Mexico.[2]

[2] The presumptive boundary for a nonattainment area based on the Navajo Lake monitor encompasses San Juan County, New Mexico, but does not include the Southern Ute Indian Reservation, because they are in separate Core Based Statistical Areas. The EPA's ozone area designations guidance provides that the Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA) should serve as the starting point or presumptive boundary for any nonattainment designation. Where a violating monitor is not located in a CBSA or CSA, EPA recommends that the boundary of the county containing the monitor serve as the presumptive boundary for the nonattainment area. In this case, the Navajo Lake monitor is located at Navajo Lake State Park, which is located in San Juan County, New Mexico. Farmington, New Mexico, is in a CBSA that encompasses San Juan County and is designated as a metropolitan statistical area. Durango, Colorado, is in a CBSA that encompasses La Plata County and the Reservation and is designated as a micropolitan statistical area. Neither statistical area is included in a combined statistical area, or CSA. The presumptive nonattainment boundary for the Navajo Lake monitor, therefore, does not include the Reservation.

Factor 2 (Meteorology)

A. Photochemical Source Apportionment Modeling Shows that the Contribution of Reservation Sources to Ozone Formation in Northwest New Mexico is Not Meaningful.

In evaluating if sources within an area should be included in a nearby nonattainment area, it is important to identify meaningful source culpability or source attribution from that area to elevated ozone concentrations in the nearby nonattainment area. The most quantitative method for making that determination is to utilize source apportionment modeling within a photochemical grid model that has undergone an accuracy evaluation using actual ozone monitoring data. That kind of work is ongoing as part of the modeling analysis being done by ENVIRON for the Four Corners Air Quality Group using the *CAMx* model.

An approach using ENVIRON's *CAMx* model provides a more realistic quantitative representation of source contributions than using the NOAA HYSPLIT back trajectory model. The use of a photochemical grid model in conjunction with fine scale (4 kilometer) MM5 meteorological modeling provides a complete, accurate picture of emission transport in the region within the mixed layer and provides a quantitative estimate of potential ozone contributions that includes non-linear chemistry of ozone formation. As part of the Four Corners analysis, the accuracy of the *CAMx* model was evaluated and found to be within EPA criteria. Thus, such a modeling analysis provides a complete picture of Reservation source contributions related to elevated ozone concentrations at New Mexico's Navajo Lake monitor.

In contrast, the HYSPLIT model only provides an estimated flow at one or several layers in the atmosphere and possibly identifies what may be upwind regions from the Navajo Lake monitor. Unlike the *CAMx* model, the HYSPLIT model provides no indication of pollutant concentrations. In addition, in complex terrain such as the terrain where the Navajo Lake monitor is located, there is uncertainty regarding the accuracy of the wind fields in HYSPLIT. In the EPA's HYSPLIT analysis of the Navajo Lake monitor, there was no indication of the meteorological information that was used in the analysis. One critical issue is the size of the grids used to estimate meteorological conditions. In a recent analysis regarding the accuracy of meteorological modeled wind fields (as used by HYSPLIT) in Wyoming, it was found that wind fields modeled with either a 36 kilometer grid or a 12 kilometer grid could not resolve the observed terrain influences in meteorological data caused by the Wind River Mountains. It was further found that a 4 kilometer grid was necessary in order to obtain an acceptable comparison between meteorological data and modeled wind fields[3].

Thus the *CAMx* model results provide a more accurate estimate of the contribution from Reservation sources to the elevated ozone measurements at the Navajo Lake monitor than qualitative HYSPLIT modeling.

[3] D.N. Blewitt, 2008, "Evaluation of the Accuracy of MM5/CALMET Generated Wind Fields in Southwestern Wyoming" Presented at EPA Modeling Conference October 2008.

In this case, the Tribe has had an extensive air quality impact assessment performed by Air Quality Resource Management and ENVIRON using ENVIRON's *CAMx* model for the Four Corners region.[4] ENVIRON's *CAMx* model accuracy was evaluated for 2005 emissions and meteorology and future year source apportionment modeling was conducted for estimated 2018 emissions.[5] Because the 2018 modeling used 2005 emissions for Reservation emissions, the modeled contributions from Reservation sources represent actual 2005 contributions. Figures 3 through 8 provide monthly estimates of ***hourly*** time series for 2005 predicted ozone concentrations at the Navajo Lake monitor for the months of April through October and present the contribution from various source groups to total ozone formation at the Navajo Lake monitor.[6] The source groups include boundary conditions (BC) which reflect the amount of ozone formed as a result of emissions outside the Four Corners region, other sources in the Four Corners region (i.e., New Mexico oil and gas, electric generating utilities (EGU), mobile sources, area sources, etc.) and Reservation sources.

Importantly, as shown in Figures 3 through 8, ENVIRON's modeling for ozone evidences that:

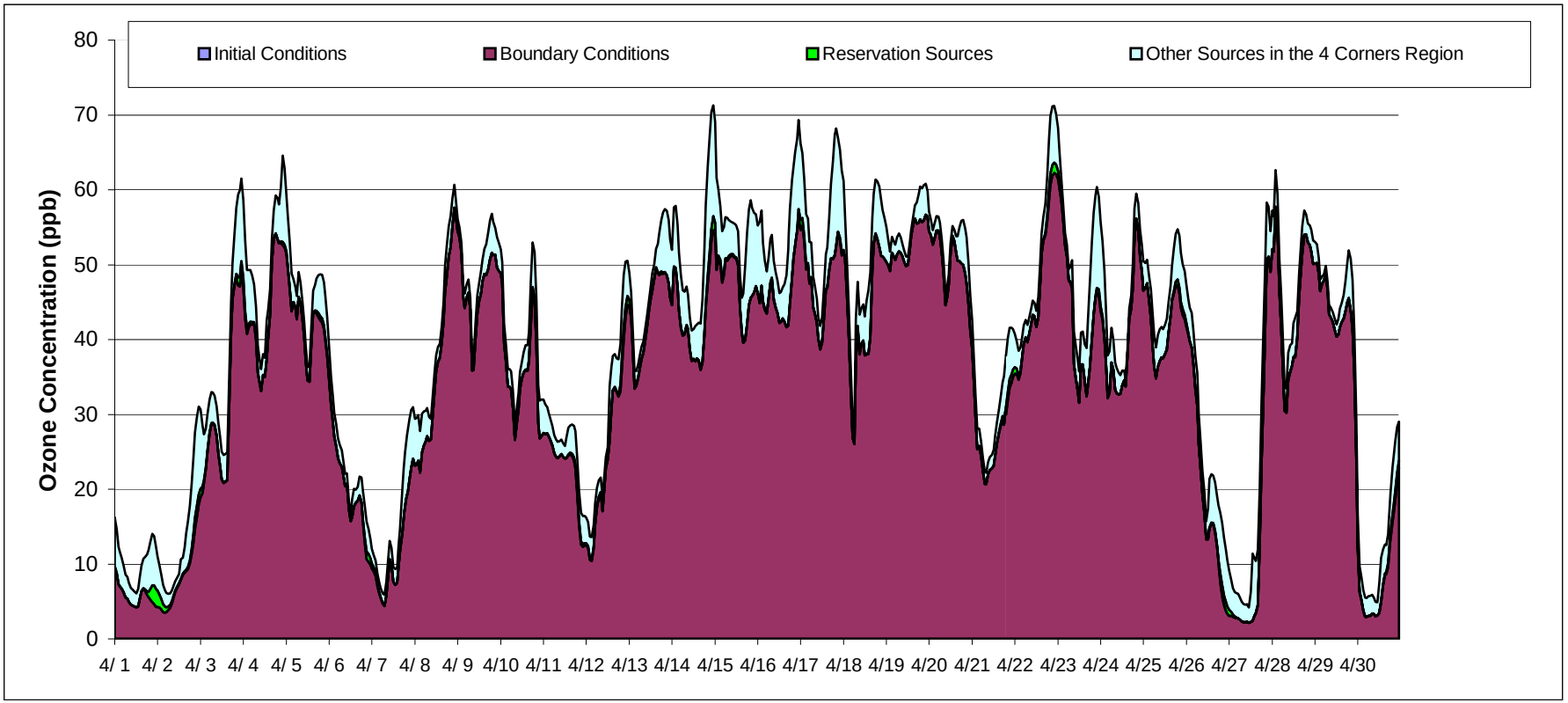
- On many of the days with predicted elevated ozone concentrations at the Navajo Lake monitor, a contribution from Reservation sources does not exist;
- On days when there are contributions from Reservation sources, the contribution is not meaningful;
- A large amount of ozone in northwest New Mexico is the result of ozone transported from outside the Four Corners region; and
- New Mexico sources are responsible for the vast majority of ozone in the region above that which is transported from outside the region.

[4] This analysis was complementary to the Four Corners air quality analysis performed for the Four Corners Air Quality Task Force and used the same modeling procedures, emission data, meteorological data and air quality data.

[5] The Four Corners modeling analysis extrapolated the 2005 inventory to estimate 2018 emissions. This extrapolation was done using BLM's Northern San Juan Environmental Impact Statement and Farmington Resource Management Plan analyses based on information contained in the Record of Decision and economic growth factors.

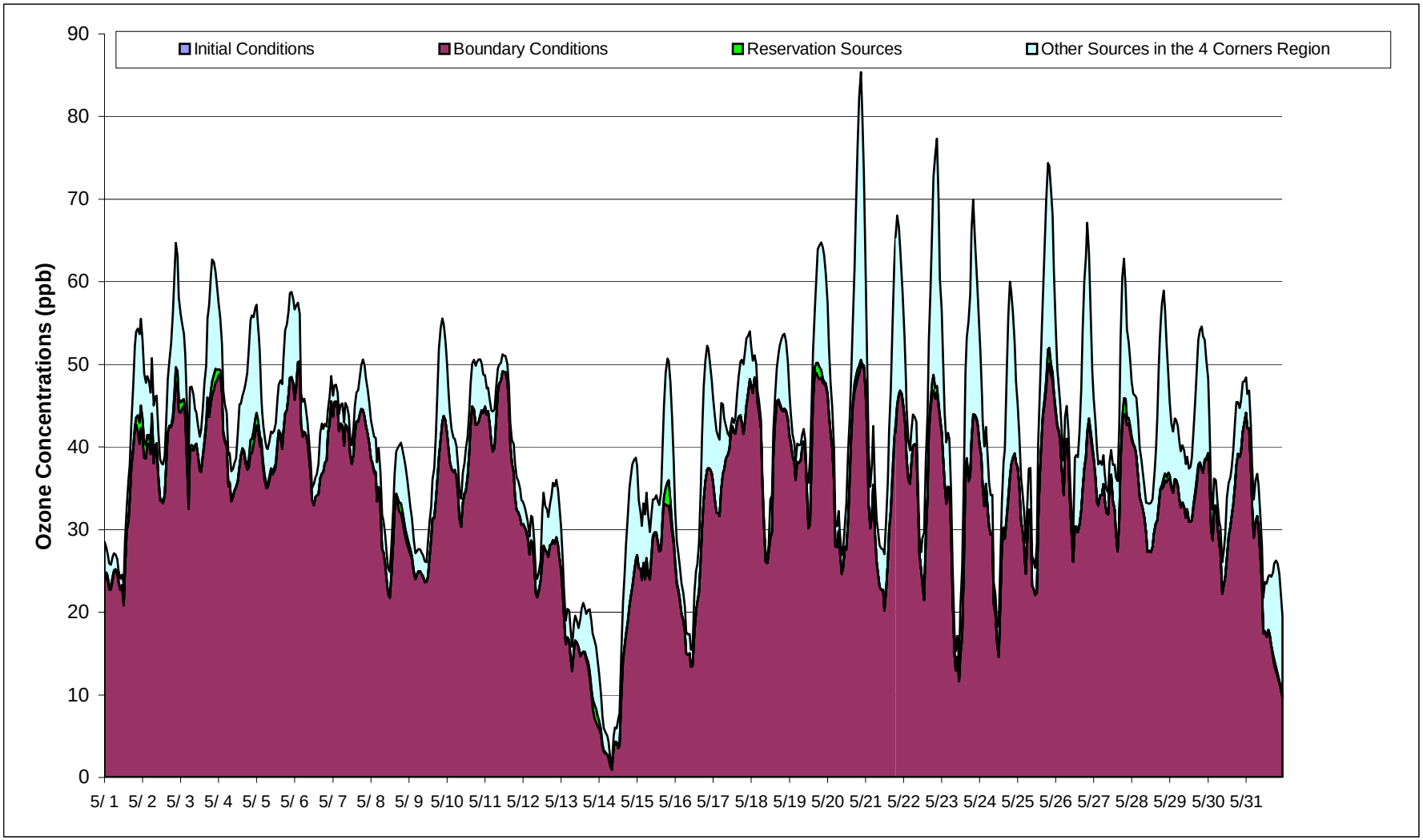
[6] Because these figures represent 1-hour average concentrations and not 8-hour concentrations, these figures cannot be used to test compliance with the 8-hour ozone standard.

Figure 3. Hourly Time Series for Navajo Lake Monitor for April 2005.



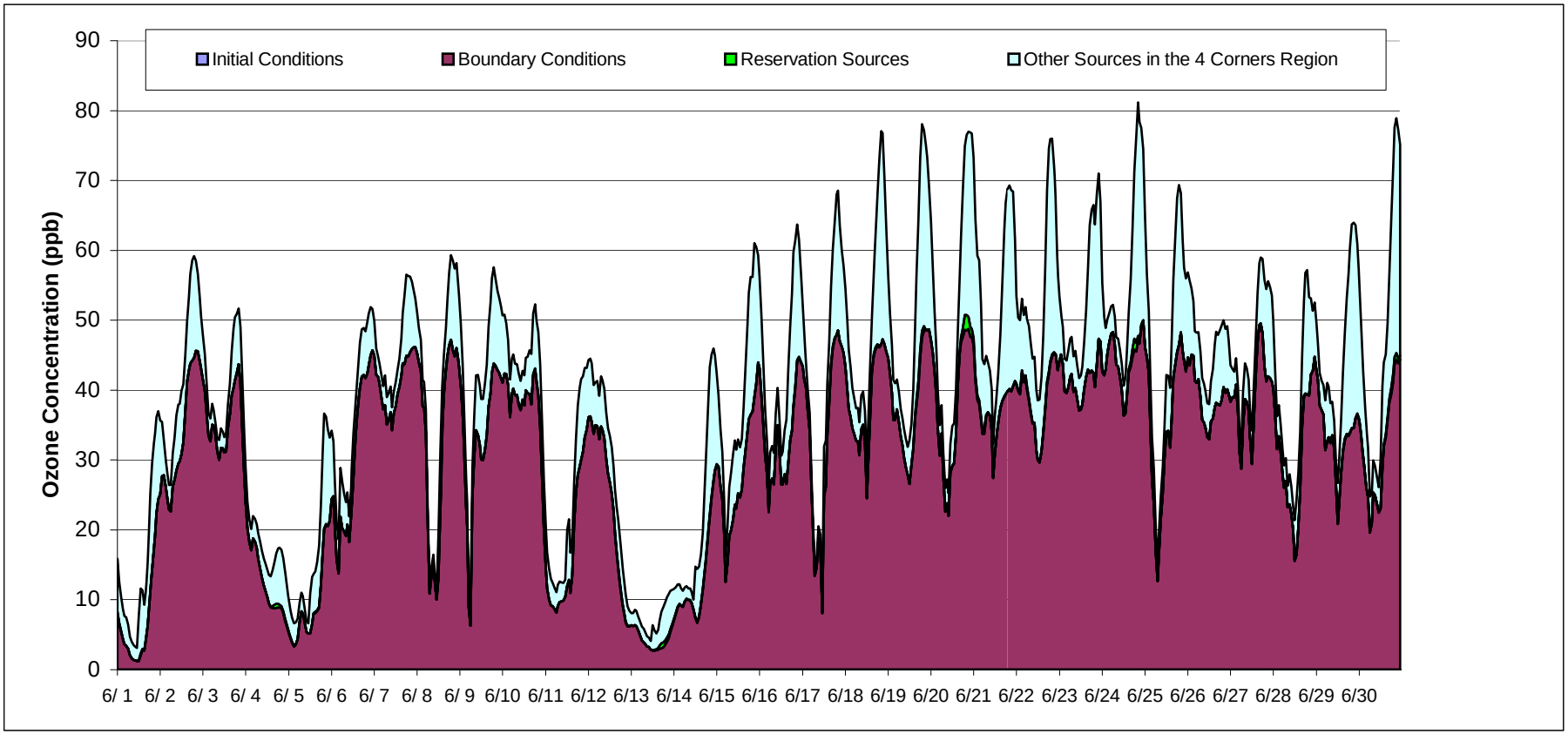
Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Figure 4. Hourly Time Series for Navajo Lake Monitor for May 2005.



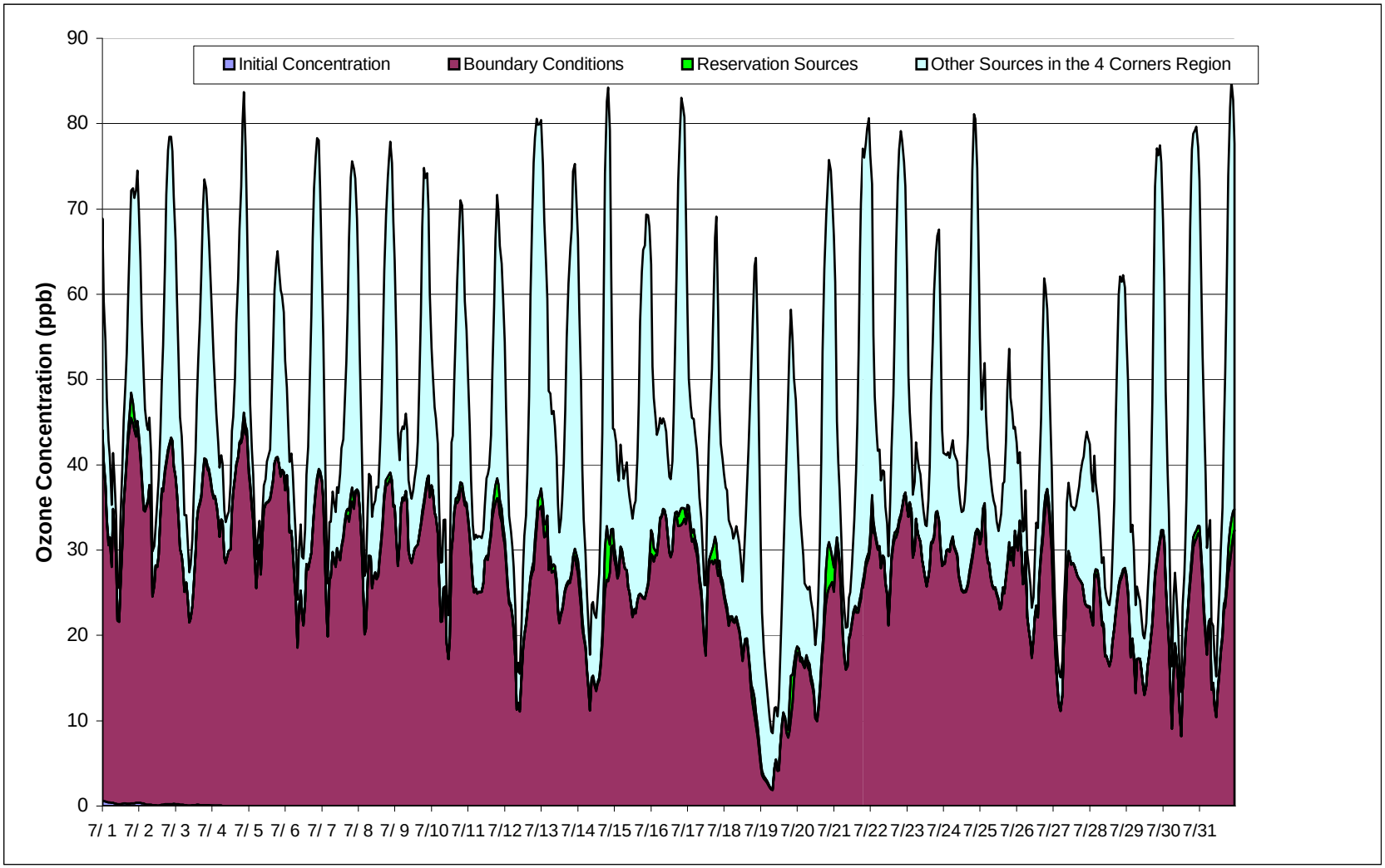
Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Figure 5. Hourly Time Series for Navajo Lake Monitor for June 2005.



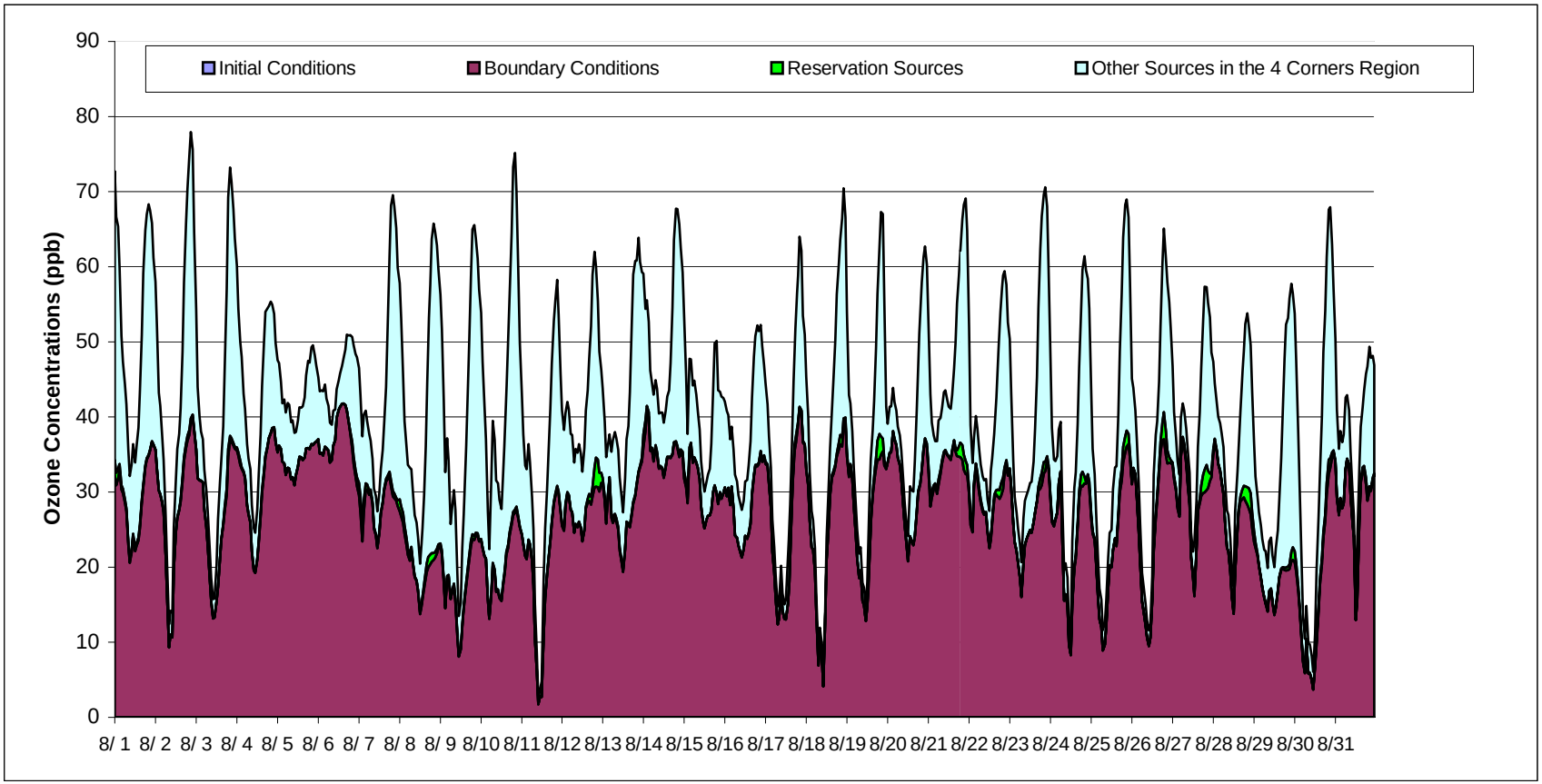
Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Figure 6. Hourly Time Series for Navajo Lake Monitor for July 2005.



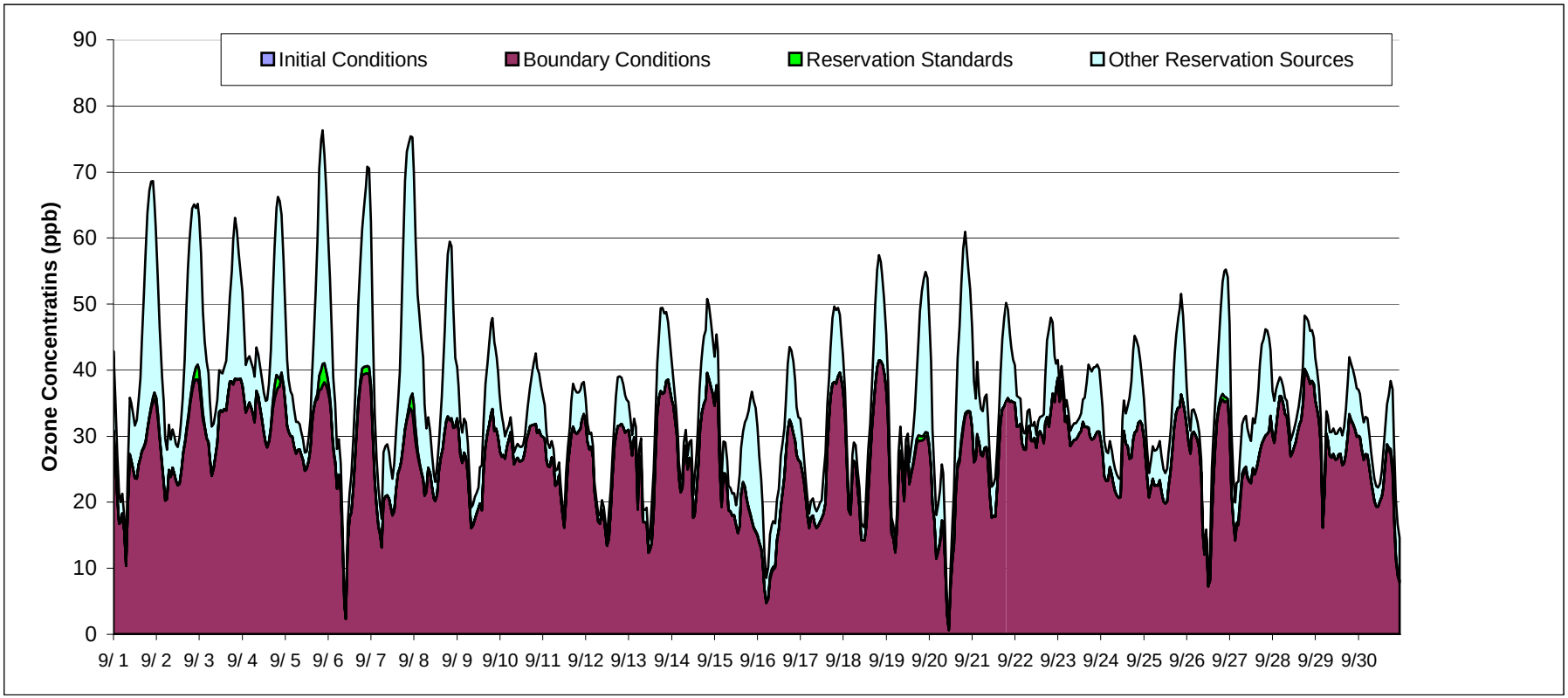
Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Figure 7. Hourly Time Series for Navajo Lake Monitor for August 2005.



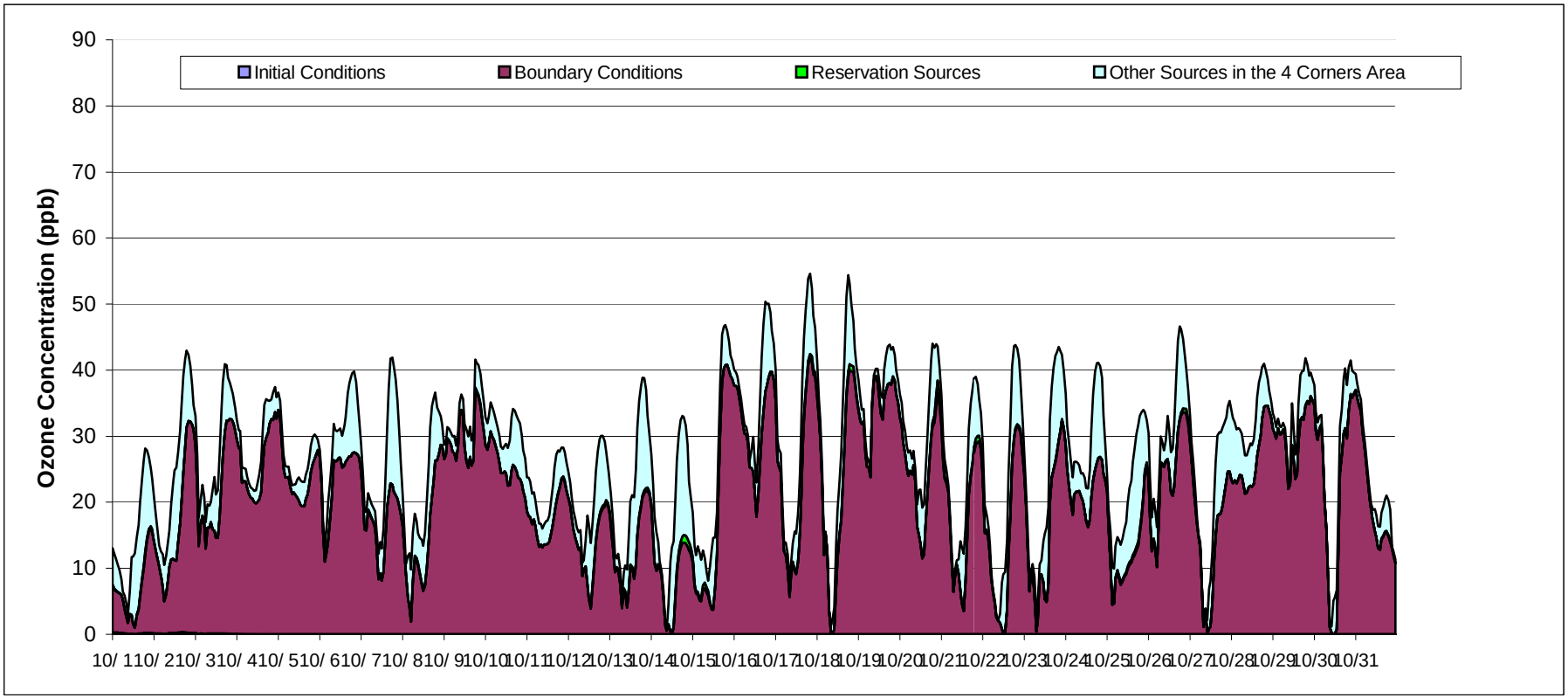
Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Figure 8. Hourly Time Series for Navajo Lake Monitor for September 2005.



Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Figure 9. Hourly Time Series for Navajo Lake Monitor for October 2005.



Note: 1) This information is not comparable to the 75 ppb 8-hour standard
2) Initial conditions are the concentrations that were used to start the CAMx model

Table 2 quantifies the predicted hourly contributions from sources on the Reservation to predicted peak ozone at New Mexico's Navajo Lake monitor. This table presents the number of hours when total predicted concentrations were above 60, 65, 70, and 75 ppb, as well as the contribution from sources on the Reservation. As indicated in this table, the contribution, on average, from Reservation sources during periods of elevated concentrations at New Mexico's Navajo Lake monitor is so small as to be not meaningful.

Table 2. Average Predicted Hourly O_3 (ppb) for all Hours Above Indicated Threshold at the Navajo Lake Monitor for 2005.

O_3 Concentrations Greater than	No. Hrs	Average Total Impacts	Sources on the Reservation	Other Sources in the Four Corners Region	Boundary Conditions
60	472	68.4	0.9	28.8	38.7
65	295	71.9	1.0	32.5	38.3
70	167	75.4	1.2	36.0	38.2
75	86	78.2	1.2	39.7	37.3

Note: Boundary Conditions indicate the amount of ozone formed as a result of sources outside the Four Corners region.

Further analyses were conducted to evaluate whether, and if so, by how much, Reservation sources were contributing to a predicted exceedance of the 75 ppb 8-hour ozone standard at New Mexico's Navajo Lake monitor. This was done by identifying all predicted hourly concentrations that had a total hourly ozone concentration in excess of 70 ppb and when the corresponding Reservation contributions were in excess of 1 ppb. Table 3 summarizes these modeling results and indicates that Reservation sources are not responsible for any exceedances of the 8-hour ozone standard and have a contribution to the overall model predicted concentrations that is not meaningful.

Table 3. Total 8-Hour Ozone Predictions and Corresponding SUIT Contributions for High Impact Days for 2005.

Rank	Date	Total (ppb)	Reservation Sources (ppb)	Percent Contribution of Reservation Sources to Total	Other Sources in the 4 Corners Region (ppb)	Percent Contribution of Other Four Corners Sources to Total
1	13-Jul	77.3	1.4	1.8	75.9	98.2
2	1-Aug	75.7	2.6	3.4	73.2	96.6
3	31-Jul	74.7	1	1.3	73.8	98.7
4	22-Jul	74.4	1.1	1.5	73.3	98.5
5	16-Jul	73.4	1.2	1.7	72.2	98.3
6	20-May	72.8	0.8	1.1	72	98.9
7	24-Jun	72.3	0.7	1	71.5	99.0
8	20-Jun	71.9	0.5	0.7	71.4	99.3
9	1-Jul	71.7	0.7	1	70.9	99.0
10	12-Jul	71.4	0.9	1.2	70.5	98.8
11	4-Jul	71.1	0.6	0.9	70.5	99.1
12	19-Jun	70.9	0.6	0.8	70.3	99.2
13	7-Jul	70.4	0.2	0.3	70.2	99.7
14	30-Jul	69.9	0.9	1.2	69	98.8
15	8-Sep	69.3	0.1	0.2	69.2	99.8
16	30-Jun	68.9	0.8	1.1	68.2	98.9
17	25-May	67.6	1.1	1.6	66.5	98.4
18	6-Sep	66.9	2.1	3.1	64.8	96.9
19	22-May	66.8	0.9	1.4	65.8	98.6
20	20-Jul	65.9	3.2	4.8	62.8	95.2
21	22-Apr	65.7	1	1.6	64.7	98.4
22	7-Sep	64	0.7	1.1	63.3	98.9
23	11-Jul	63.3	1.7	2.7	61.6	97.3
24	23-Aug	62.1	0.9	1.5	61.2	98.5
25	5-Sep	61.1	1.6	2.5	59.5	97.5
	Average	**69.6**	**1.1**	**1.6**	**68.5**	**98.4**

Note: Regulatory compliance is based on 4th highest concentration

B. Wind Roses Show That Prevailing Winds Over the San Juan Basin Blow from the West and Southwest.

The Southern Ute Indian Reservation, located in southwestern Colorado, includes a substantial portion of the northern San Juan Basin. The Reservation remains generally semi-arid throughout the year consistent with its location in the arid/semi-arid continental Great Basin. Abundant sunshine and large diurnal temperature ranges occur in the region, largely as a result of the significant distance from major oceans. Temperature and precipitation data from Ignacio, Colorado, are considered to be representative of climatic conditions within the Reservation. However, because elevation, slope and aspect affect precipitation and temperatures, the complex terrain of La Plata County, Colorado, creates considerable climatic variability. The Reservation can be classified into six climatic zones:

- Zone 1 - semi-desert grasslands at elevations below 6,000 feet; average annual precipitation less than 12 inches;
- Zone 2 - sagebrush savanna at elevations from 6,000 to 6,300 feet; average annual precipitation 12 to 13 inches;
- Zone 3 - piñon-juniper woodland at elevations from 6,000 to 7,200 feet; average annual precipitation 13 to 17 inches;
- Zone 4 - piñon-juniper/mountain browse at elevations from 6,100 to 8,400 feet; average annual precipitation 14 to 20 inches;
- Zone 5 - ponderosa pine at elevations from 6,500 to 8,800 feet; average precipitation 16 to 23 inches; and
- Zone 6 - fir-spruce/aspen at elevations from 6,600 to 9,000 feet; average precipitation 18 to 27 inches.

Annual precipitation measurements at Ignacio during the period from 1961 through 1990 averaged 14.4 inches. From 1993 through 1996, precipitation was well distributed throughout the year, with the months from April to June receiving the lowest average amounts (0.5 to 0.9 inches) and August the highest levels (1.7 inches). Maximum precipitation occurring in the region in late summer and early fall is the result of moisture transport from the Gulf of Mexico under the western extension of the Bermuda High.[7] Much of this precipitation derives from afternoon convective thunderstorms that occur during the late summer "monsoon" season. Snow is another dominant form of precipitation on the Reservation, though more snowfall is generally seen in the higher elevations just north of the Reservation. During the winter season, the Reservation records an average of roughly 3 to 4 inches of precipitation.

December and January are the coldest months, with average lows of about 10 degrees Fahrenheit (°F) and highs of about 40°F. The warmest months are July and August with average minimum and maximum temperatures of 50°F and 85°F, respectively. Based on 30-year climate data (National Oceanic and Atmospheric

[7] Tesche, T. W. and Dennis E. McNally, Air Quality Modeling Analysis for the San Juan County Early Action Compact: Episode Selection and Conceptual Model. June 17, 2003.

Administration 1992), the norm minimum temperature (about 6°F) occurs in January and the normal maximum temperature (88°F) occurs in July.

Figures 10 through 18 are wind rose figures created using data gathered by the meteorological monitoring stations in the Four Corners region that depict the frequency, direction, and force of the winds that travel across the Reservation. The distribution of wind values are shown on each wind rose map. Note that the directions associated with any bar in these figures are the direction from which the wind blows.[8] It should be noted that all of these data were collected at a ten meter elevation.

Seasonal and daytime/nighttime wind roses display the predominant light winds crossing the Reservation blowing from the northeast with the stronger less frequent winds gusting from the west (Figures 10 through 18). During the summer daytime period when ozone concentration values are expected at their highest, the wind roses show more frequent west and southwest winds at the San Juan Substation, Bloomfield, and Navajo Lake sites in northern New Mexico (Figure 15). The Ute 1 and Ute 3 sites also illustrate similar characteristics of high frequency winds blowing from the west and southwest during the same time period. Overall, the wind rose models show that the winds over the San Juan Basin are westerly to southwesterly throughout much of the year.

[8] Preprocessed meteorological data used to produce wind roses for each of the monitoring sites were obtained from the State of New Mexico Environment Department website, Air Resource Specialists, Inc., and EPA's Air Quality Subsystem (AQS) database. New Mexico meteorological monitoring wind rose figures were for the Bloomfield, Substation, and Navajo Lake sites. Data from the Ute 1, Ute 3, Mesa Verde National Park, and Shamrock sites were used to produce the Colorado wind roses.

Figure 10. 2008 Annual Wind Roses in the Four Corners Area.

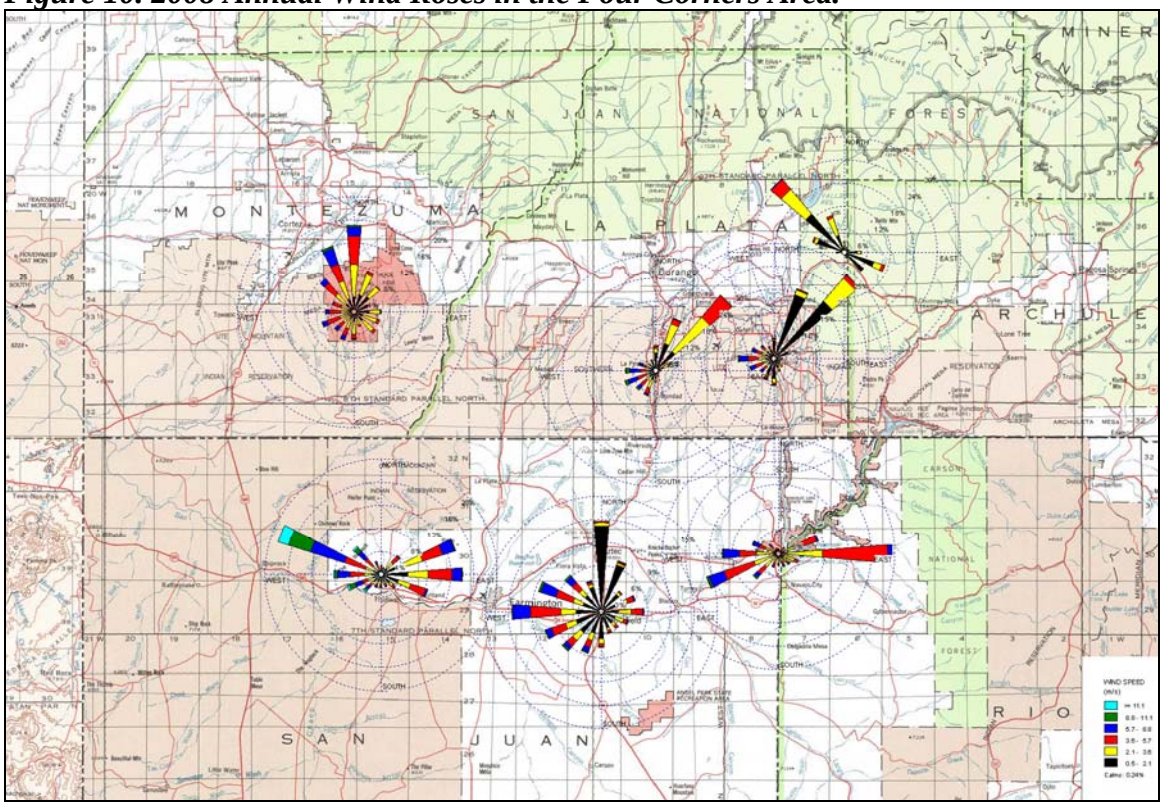


Figure 11. 2008 Annual Daytime Wind Roses (6am – 6pm).

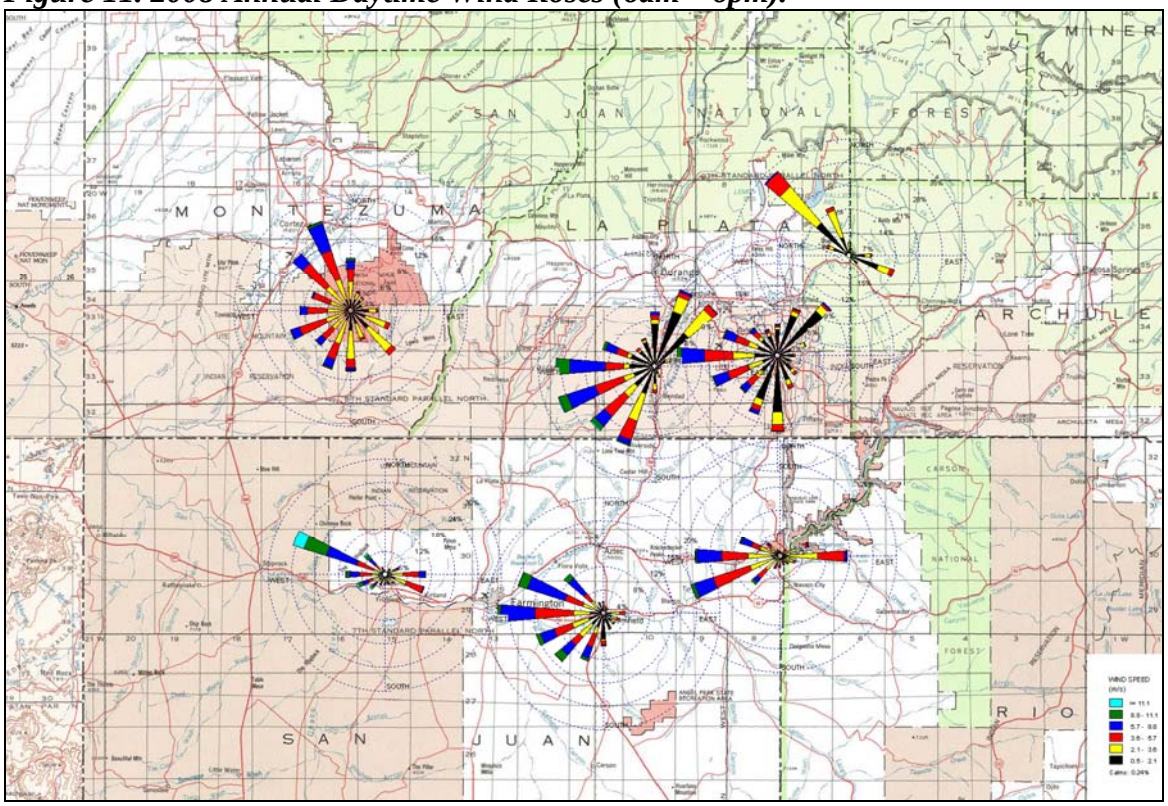


Figure 12. 2008 Annual Nighttime Wind Roses (6pm – 6am).

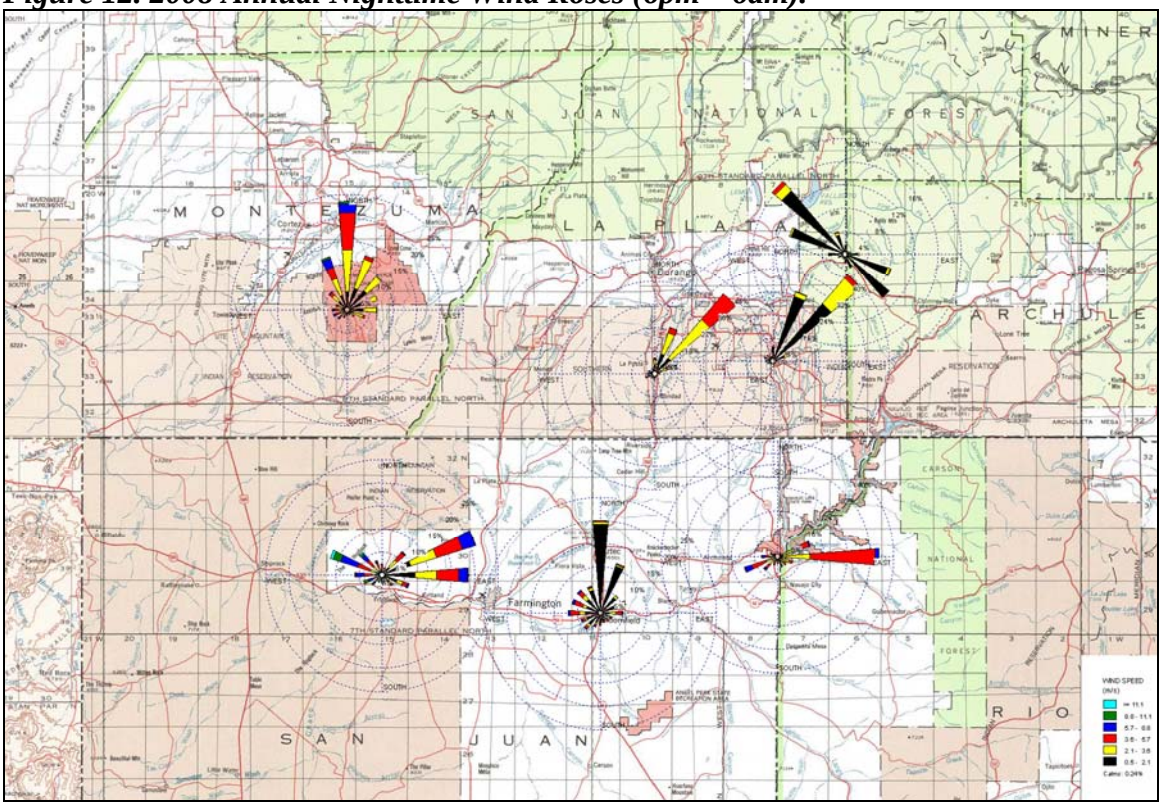


Figure 13. 2008 Spring Wind Roses (March – May).

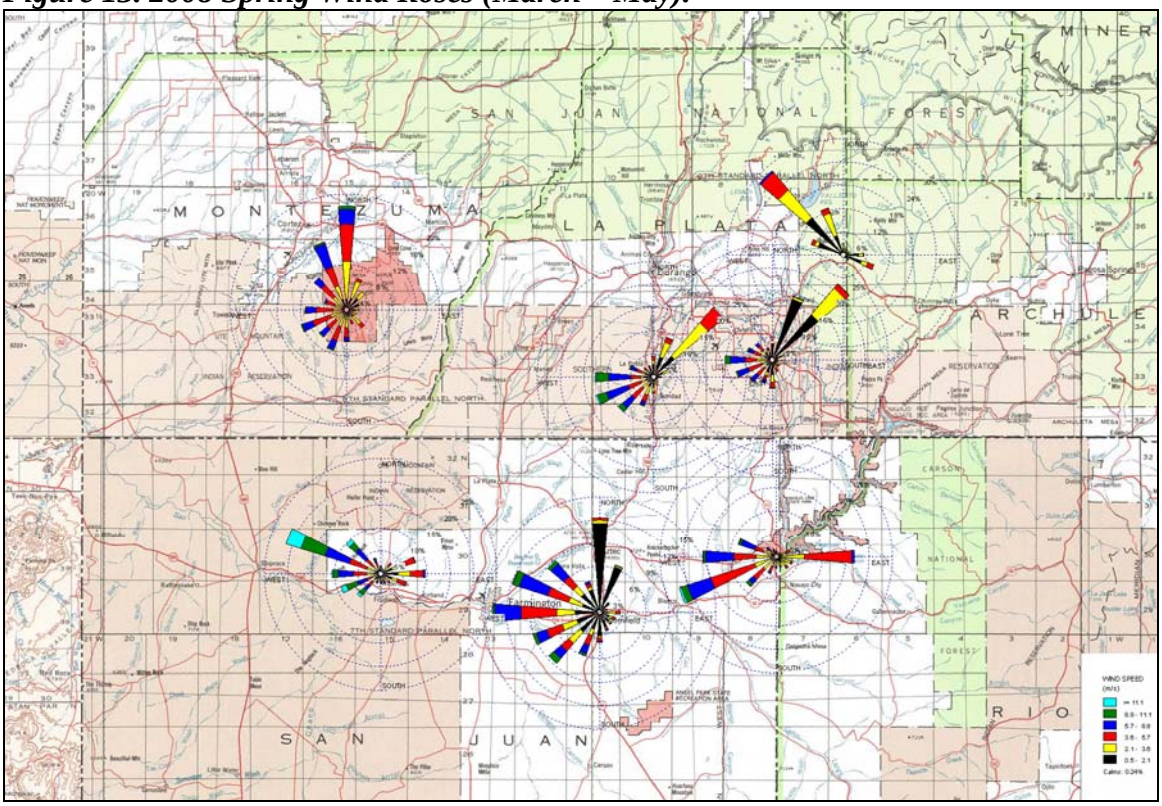


Figure 14. 2008 Summer Wind Roses (June – August).

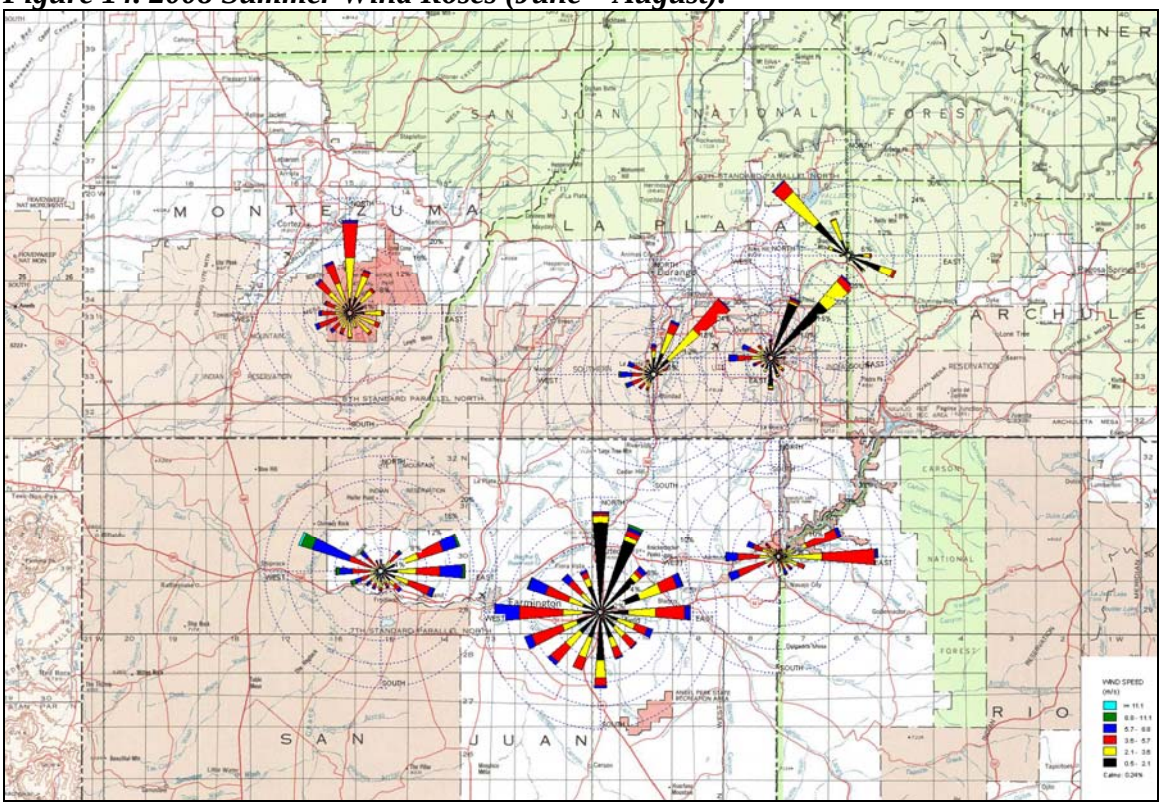


Figure 15. 2008 Summer Daytime Wind Roses (June – August from 6am – 6pm).

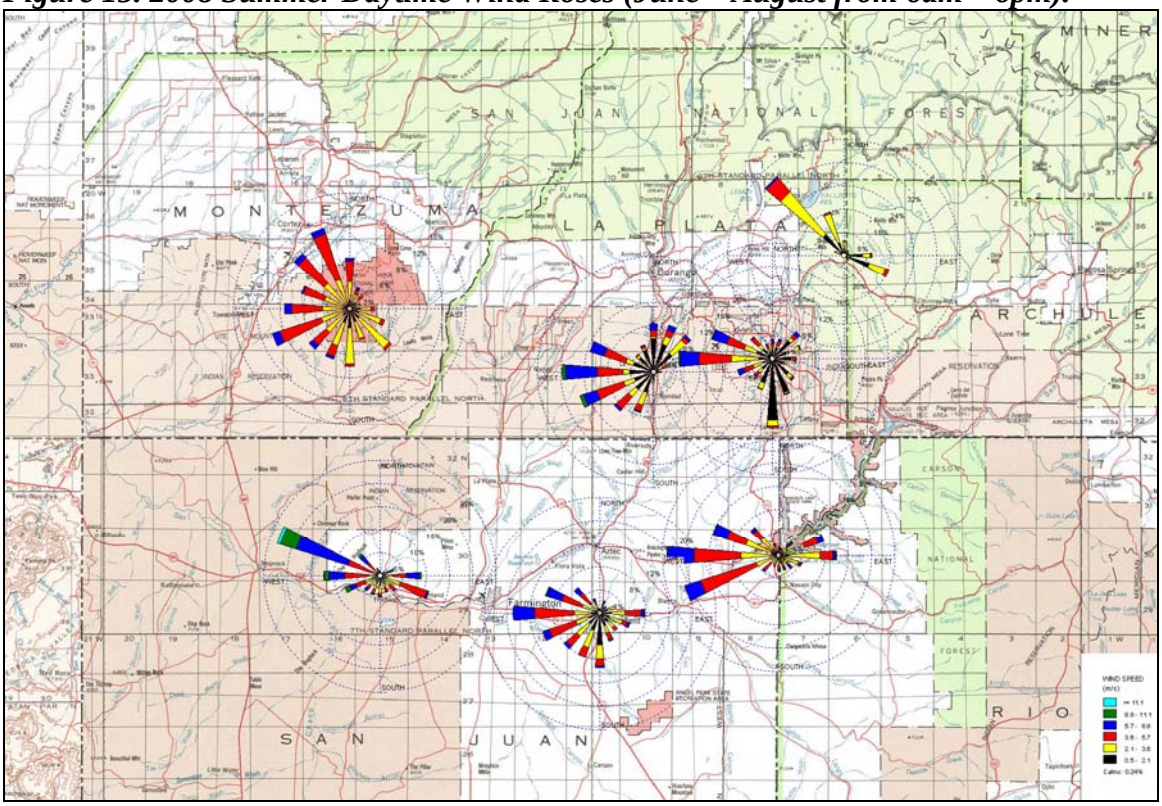


Figure 16. 2008 Summer Nighttime Wind Roses (June – August from 6pm – 6am).

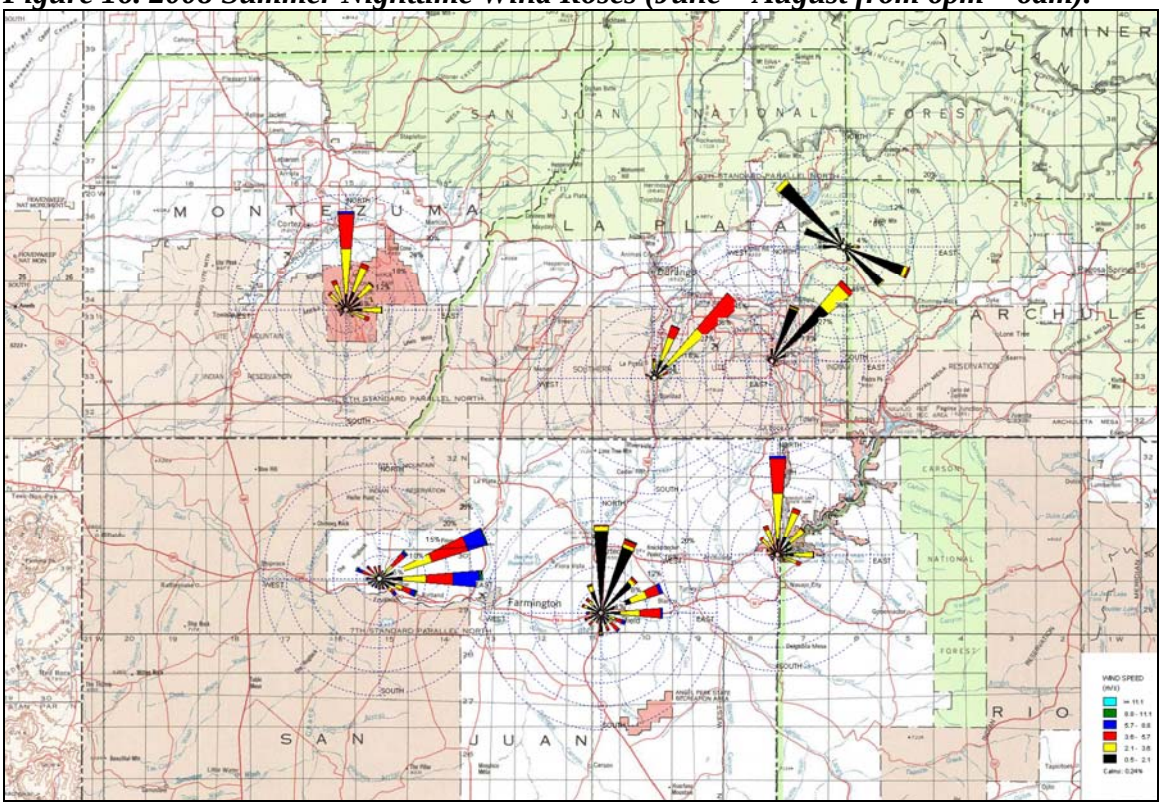


Figure 17. 2008 Autumn Wind Roses (September – November).

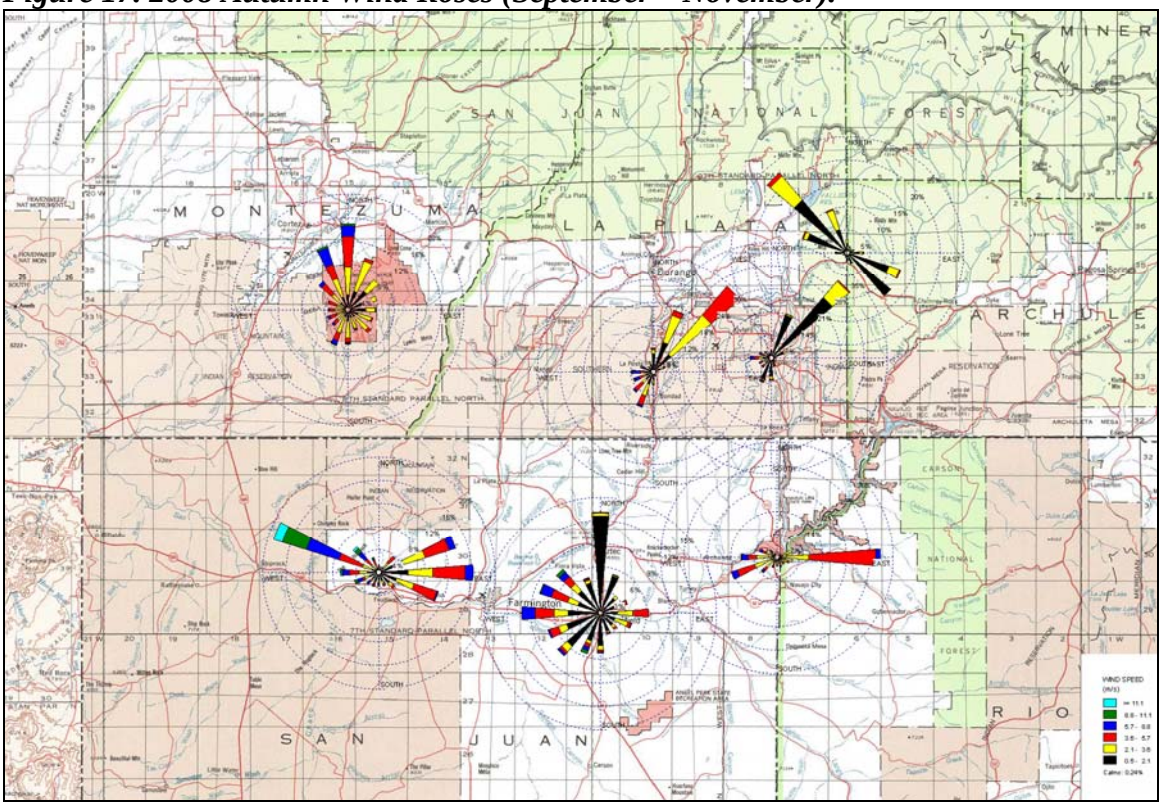
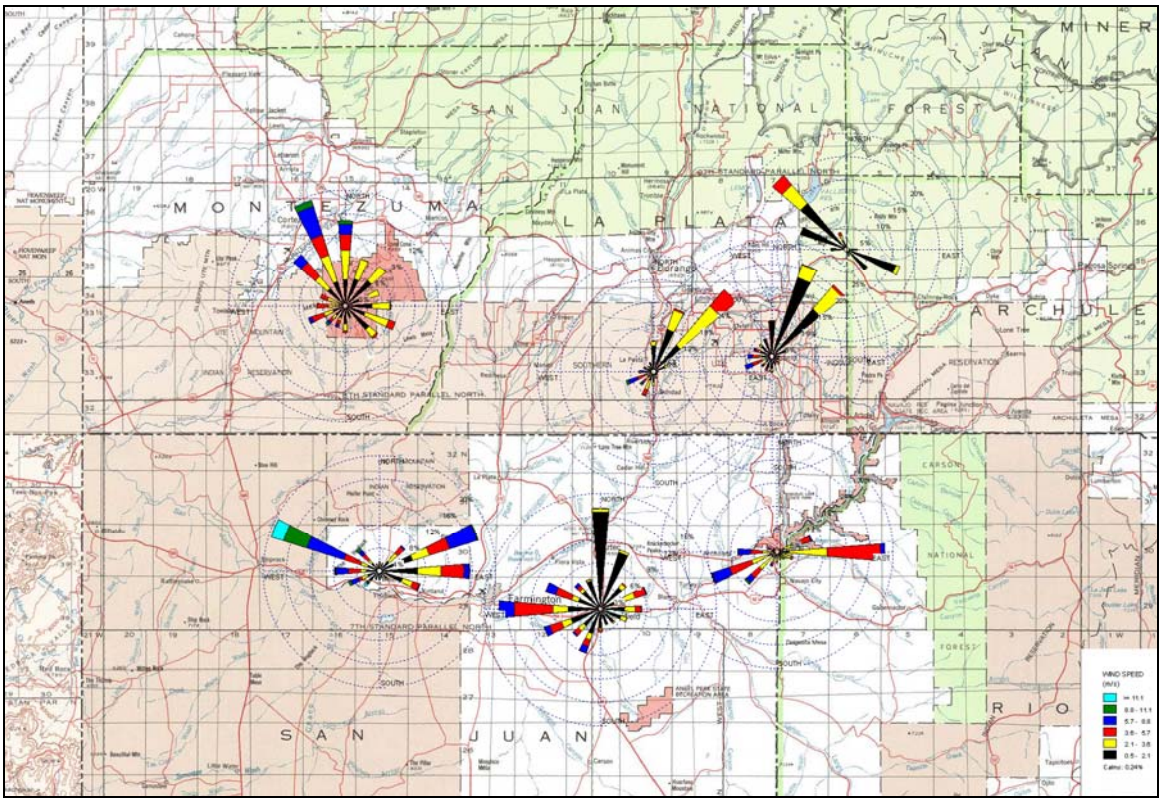


Figure 18. 2008 Winter Wind Roses (December – February).



Factor 3 (Emissions Data)

An evaluation of emissions data for the Reservation demonstrates the following: (1) based on a comparison of emission inventories for different areas within the Four Corners region, the contribution by sources located on the Reservation to elevated ozone concentrations in New Mexico is minimal, and (2) NOx emissions from large engine sources located on the Reservation already are within the recently promulgated NSPS regulatory requirements.

A. Ozone Precursor Emissions from Reservation Sources are only a Small Portion of Ozone Precursor Emissions in the Four Corners Region.

Table 4 demonstrates that the Reservation sources are only a small portion of the NOx emissions for the Four Corners region (2 percent or 4,694 tons per year of a total of 221,865 tons per year) and an insignificant amount of the VOC emissions (0.4 percent or 1,926 tons per year out of 431,649 tons per year). Compared to the other areas in the Four Corners region, contribution from the Reservation is much smaller than emissions from other areas in the region. For example, NOx emissions from the Reservation amount to 4,694 tons per year, while northwestern New Mexico's sources alone, not including the Navajo Nation, emit 150,493 tons per year (approximately 32 times as much as the Reservation), and the Navajo Nation emits 45,323 tons per year (almost ten times as much as the Reservation). Comparisons of relative VOC emissions are similarly illustrative, with sources in northwestern New Mexico emitting 144 times as many tons per year of VOCs as the Reservation. Further, with respect to hydrocarbons, the emissions from Reservation sources are primarily methane and ethane, which are not regulated VOC compounds by EPA because of low reactivity, and therefore have very little culpability in regional ozone formation. In other words, the Reservation is not a source of VOCs – one of the two primary precursors to ozone.

The data shown in Table 4 is a summary of the 2005 Four Corners regional emissions inventory that was developed as part of the Four Corners Task Force's modeling project for the base case modeling and represent the most accurate emission data in the region. It is important to note that all stakeholders involved in the modeling analysis approved this inventory.

Table 4. Summary of Regional NOx and VOC Emissions in the Four Corners Area

4C - 4km Domain Emissions Summary (t/yr)

2005 NOx

Jurisdiction	Area	Biogenics	Fugitive Dust	Off-road	On-road	Road Dust	Windblown Dust	Area Oil & Gas	Point Oil & Gas	Electric Generating Utility	Non-Electric Generating Utility	Grand Total	% Of total
Arizona	97	211	0	2,407	4,661	0	0	13	0	0	0	7,388	3
Colorado	302	659	0	1,910	3,757	0	0	921	2,548	0	535	10,632	5
Navajo Nation	0	0	0	0	0	0	0	0	2,570	41,743	1,010	45,323	20
New Mexico	16,036	833	0	11,219	30,182	0	0	37,848	19,834	30,925	3,615	150,493	68
Pueblo of Laguna	0	0	0	0	0	0	0	0	0	0	1,551	1,551	1
Pueblo of Santa Ana	0	0	0	0	0	0	0	0	0	0	209	209	0
Southern Ute	*	*	0	*	*	0	0	0	4,694	0	0	4,694	2
Utah	42	130	0	181	741	0	0	51	352	0	78	1,575	1
Ute Mountain Ute	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	16,477	1,834	0	15,717	39,340	0	0	38,832	29,998	72,668	6,997	221,865	100

Source: ENVIRON for Four Corners Modeling Group
* Area, Biogenics, Off-road and On-road emissions for Southern Ute are included in the numbers shown for Colorado.

4C - 4km Domain Emissions Summary (t/yr) (continued)

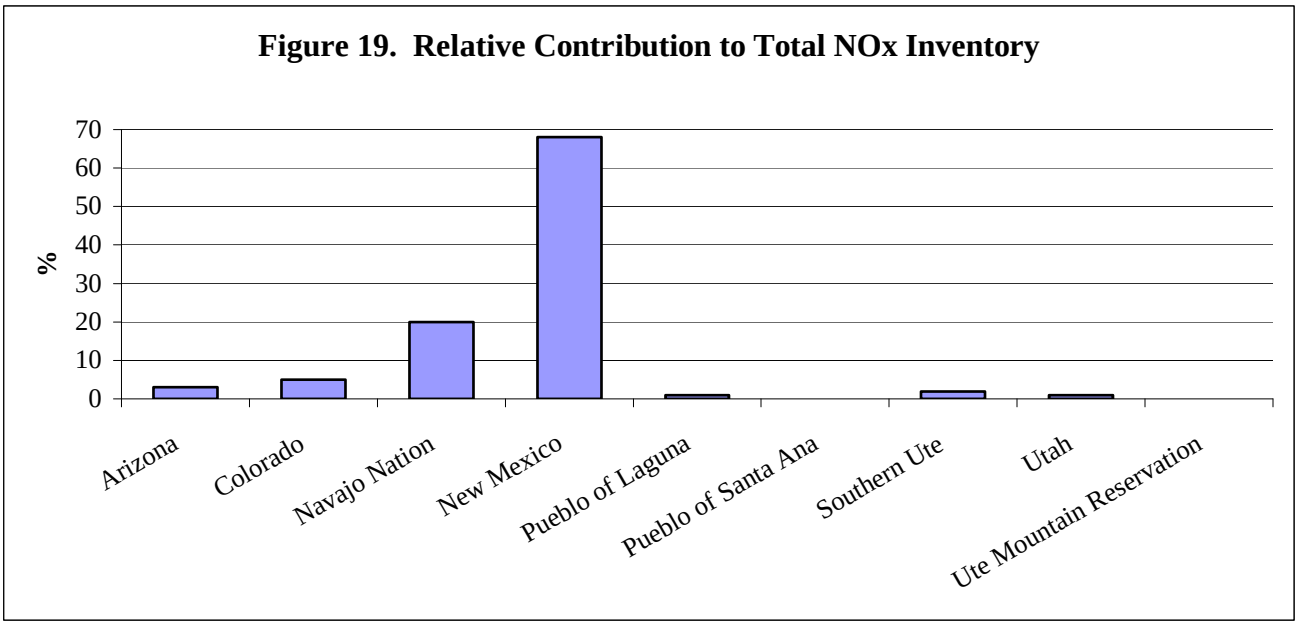
2005 VOC

Jurisdiction	Area	Biogenics	Fugitive Dust	Off-road	On-road	Road Dust	Windblown Dust	Area Oil & Gas	Point Oil & Gas	Electric Generating Utility	Non-Electric Generating Utility	Grand Total	% of Total
Arizona	2,204	29,202	0	728	3,314	0	0	37	0	0	0	35,484	8
Colorado	3,632	84,822	0	4,884	2,616	0	0	891	1,257	0	348	98,450	23
Navajo Nation	0	0	0	0	0	0	0	0	293	292	121	706	0
New Mexico	26,675	108,515	0	5,690	17,079	0	0	109,480	7,857	7	1,849	277,152	64
Pueblo of Laguna	0	0	0	0	0	0	0	0	0	0	11	11	0
Pueblo of Santa Ana	0	0	0	0	0	0	0	0	0	0	49	49	0
Southern Ute	*	*	0	*	*	0	0	0	1,926**	0	0	1,926	0
Utah	479	15,931	0	388	490	0	0	455	77	0	52	17,872	4
Ute Mountain Ute	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	32,989	238,471	0	11,690	23,499	0	0	110,862	11,410	299	2,429	431,649	100

Source: ENVIRON for Four Corners Modeling Group
* Area, Biogenics, Off-road and On-road emissions for Southern Ute are included in the numbers shown for Colorado.
** VOC emissions from oil and gas operations are based on the production of coal bed methane which does not contain VOC compounds.

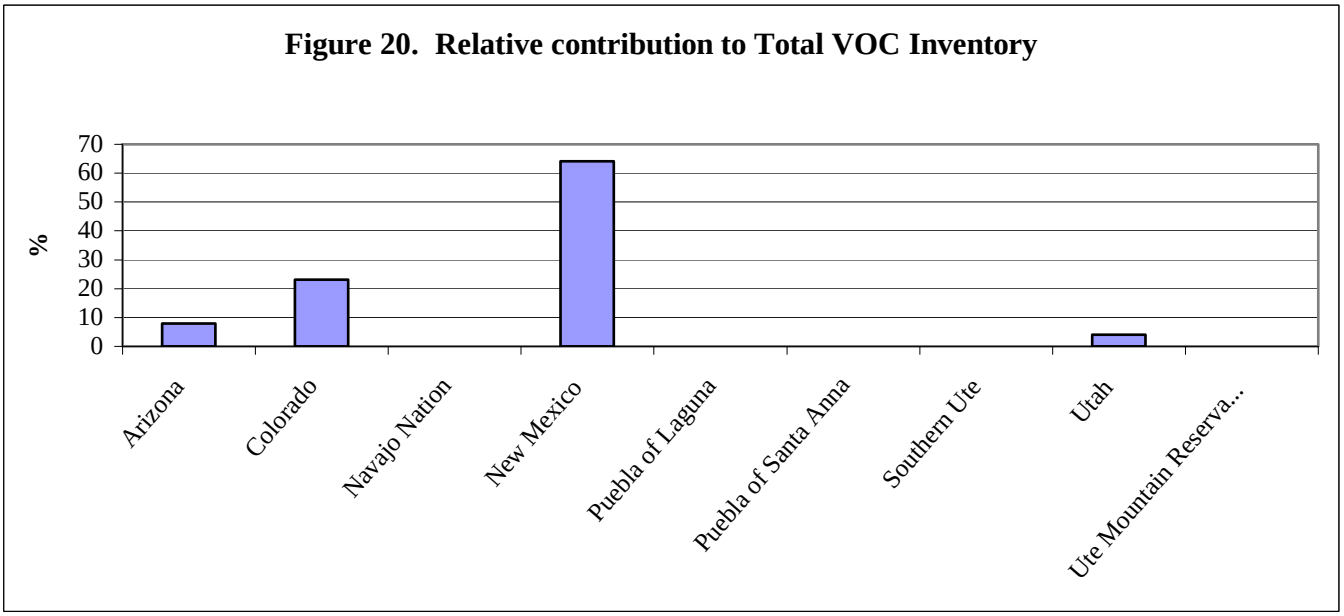
As indicated in Figure 19, the contribution to NOx emissions in the Four Corners region by sources on the Reservation is only about 2 percent.

Figure 19. Relative Contribution to Total NOx Inventory



As indicated in Figure 20, the contribution to VOC emissions in the Four Corners region by Reservation sources is less than 1 percent.

Figure 20. Relative contribution to Total VOC Inventory



B. Emissions Data Show Large Engine Sources on the Reservation Already Have Low NOx Emissions.

Table 5 presents a summary of the level of the distribution of emissions from data compiled for engines as part of a 2005 emission inventory for the Reservation.

Table 5. Distribution of Reciprocating Internal Combustion Engines on the Reservation in 2005 that Process CBM Gas.

Engine Size (hp)	Number of Engines	Number of Engines (percent)	Percentage of Capacity	Average NOx Emission Factor (g/hp-hour)	Total NOx Emissions (t/yr)	Emissions (percent)
>500	170	53.0	92	1.5	2,982	71
<500 >100	76	23.7	6.1	7.7	724	17
<100 >25	73	22.7	1.8	12.2	510	12
<25	2	0.6	0.0	27	11	0.3
Total	**321**		**100**		**4,227**	

As indicated by this analysis, the vast number of engines on the Reservation have capacities in excess of 500 horsepower and are controlled with non-selective catalytic reduction (NSCR) or are low emitting lean burn engines.[9] Table 5 shows that 71 percent of the emissions and 92 percent of the capacity are from engines larger than 500 horsepower. For this size engine, the average NOx emission factor is 1.5 g/hp-hour. Currently, therefore, the overwhelming majority of the large natural gas fired compressor engines on the Reservation already meet or exceed the recently promulgated EPA New Source Performance Standard (NSPS) for reciprocating internal combustion engines (RICE). *73 Fed. Reg. 3568 (January 18, 2008).*

For the small to medium size engines (i.e., engines below 500 hp, which account for approximately 29 percent of the emissions shown in Table 5), the Tribe intends to improve the controls on those engines and reduce their emissions through implementation of a minor source permitting program, which is in the final draft stage and which the Tribe expects will be implemented in late 2009 or early 2010. The minor source program will impose restrictions upon both new and existing sources. In addition, the Tribe intends to condition its consent to new well development on the inclusion of additional controls.

[9] It is important to note that the inventory identified only one engine in this size class that was not controlled.

Factor 4 (Level of Control of Emission Sources) – The Southern Ute Indian Tribe/State of Colorado Environmental Commission (Environmental Commission) and the Tribe are Taking Responsibility for the Control of Emission Sources on the Reservation.

A. Existing Regulatory Framework on the Reservation. EPA currently implements emission controls for major sources on the Reservation. New sources with a potential to emit (PTE) in excess of 250 tons per year are required to obtain a PSD permit prior to construction. In addition, sources with PTE in excess of 100 tons per year are required to obtain a Title V operating permit. There currently is no federal minor source program for Indian country, so sources that do not require a PSD pre-construction permit or a Title V operating permit (i.e., minor sources) are unpermitted for the time being.[10]

B. Existing Sources on the Reservation Already are Well-Controlled.

The Four Corners Task Force recently published a report regarding mitigation options[11], which provided a detailed analysis of emission reduction options for oil and gas engine mitigation.[12] The majority of the controls identified by the Task Force are already in use on the Reservation. The others were determined to be ineffective or infeasible. The Four Corners report examined:

- Electrification of natural gas fired compressor engines;
- Lean burn technology;
- Non selective catalytic reduction (NSCR);
- Selective catalytic reduction (SCR);
- Oxidation catalyst

Table 6 demonstrates how the mitigation measures have been applied on compressor engines on the Reservation, and indicates whether those measures are feasible and effective.

[10] On August 21, 2006, EPA issued a notice of proposed rulemaking entitled "Review of New Sources and Modifications in Indian Country." *71 Fed. Reg. 48,696 (2006)*. In that notice, EPA proposed to promulgate a Federal Implementation Plan ("FIP") covering certain minor emission sources in "Indian country" nationwide. To date, however, EPA has not finalized the proposed FIP.

[11] Mitigation is defined as additional emission controls beyond NSPS.

[12] Four Corners Air Quality Task Force Report of Mitigation Options, 2007

Table 6. Summary of Conclusions Regarding Additional Controls on Natural Gas Fired Engines for Oil and Gas

Mitigation Option	Comments
Electrification of natural gas fired compressor engines	Based on information and belief, a major operator on the Reservation (i.e., BP America Inc.) plans for all of its new engines associated with ongoing infill development on the Reservation to be electrically operated and, over the next two years, plans to replace approximately 100 existing engines with electrically operated engines. The effect of this conversion to electrically operated engines will be to further reduce emissions from Reservation sources.
Lean burn technology	Already widely in use
Non selective catalytic reduction (NSCR);	Already widely in use
Selective catalytic reduction (SCR)	Not Feasible—Not commercially available for remote oil and gas operations
Oxidation catalyst	Already widely in use

As indicated in Table 6, there is very little opportunity to retrofit existing engines with additional reliable and cost effective controls that will further reduce emissions from natural gas fired engines on the Reservation below NSPS levels. At the present time, proven technology does not exist to reduce emissions below the federally mandated limits. Thus, existing sources within the Reservation already are well-controlled.

Notwithstanding the conclusion in Table 6 regarding electrification, it is important to note that, based on information and belief, a major operator on the Reservation (i.e., BP America Inc.) plans for all of its new engines associated with ongoing infill development on the Reservation to be electrically operated and, over the next two years, plans to replace approximately 100 existing engines with electrically operated engines. The effect of this conversion to electrically operated engines will be to further reduce emissions from Reservation sources.

C. Tribal Efforts to Assume Regulatory Responsibility Will Result in Better Control of Sources and Decreased Emissions.

The Tribe is aggressively engaged, in cooperation with the State of Colorado, in developing a Reservation air program to regulate all air pollution sources located on the Reservation and to maintain the attainment/unclassifiable status of the Reservation area. In 1999, the Tribe and State entered into an intergovernmental agreement concerning air quality control on the Reservation. The purpose of the agreement is to establish a single air quality program applicable to all lands within the exterior boundaries of the Reservation. A joint

Tribal/State Environmental Commission was established with responsibility for selecting the Clean Air Act programs and other air programs that will be adopted for the Reservation. Under the agreement, the day-to-day administration of the programs is the responsibility of the Tribe.

In 2004, Congress provided specific statutory authority for the Tribe to regulate all air resources within the exterior boundaries of the Reservation. *Southern Ute and Colorado Intergovernmental Agreement Implementation Act of 2004*, Act of October 18, 2004, Pub. L. No. 108-336, 118 Stat. 1354-56 (Public Law 108-336). Public Law 108-336 accomplished several important objectives. First, Public Law 108-336 authorizes the Environmental Protection Agency to treat the Tribe as a state under section 301(d) of the Clean Air Act, and allows the Tribe to accept delegation of EPA's authority under the Clean Air Act in the same manner as states for purposes of administering air quality programs. *Sec. 4(a)(1)*. Second, Public Law 108-336 provides that the scope of the Tribe's delegated authority extends to all air resources within the exterior boundaries of the Reservation, including those located on fee land. *Sec. 4(a)(2)*. No distinction is made among the various categories of on-Reservation land. Once the delegation is made, therefore, the Tribe is authorized to regulate sources of air pollution located anywhere within the exterior boundaries of the Reservation. Third, Public Law 108-336 provides jurisdiction for enforcement of the Tribe's delegated powers in the United States District Court for the District of Colorado and provides for judicial review in the United States Court of Appeals for the Tenth Circuit. *Secs. 5(a) and 6, Public Law 108-336*.

On January 20, 2009, the Tribe submitted its *Application for Treatment as a State Pursuant to Section 301(d) of the Clean Air Act and Section 4(a) of the Southern Ute and Colorado Intergovernmental Agreement Implementation Act of 2004 for the Purpose of Approval of the Southern Ute Indian Tribe's Part 70 Operating Permit Program* (TAS Application) and *Application for Approval of the Southern Ute Indian Tribe's 40 CFR Part 70 Operating Permit Program* (Part 70 Program Application). Upon approval of the TAS Application and Part 70 Program Application by EPA, the Tribe will become the first Indian tribe in the nation to receive a delegation of authority to administer a Part 70 operating permit program. These efforts exemplify the Tribe's commitment to emissions control and clean air. Because the program will be administered locally, and because the Tribe will have several staff members devoted solely to regulation and inspection of sources located on the Reservation, the Tribe expects that emissions from sources located on the Reservation will be more effectively controlled than they are currently.[13]

Further, the Tribe plans to seek a delegation of authority from EPA, in accordance with the process established by its agreement with the State of Colorado, to incorporate as part of the Reservation air program certain standards of performance established by EPA pursuant to section 111 of the Clean Air Act (regulating criteria pollutant emissions from specific categories of new sources) (NSPS) and certain National Emission Standards for Hazardous Air Pollutants established by EPA pursuant to section 112 of the Clean Air Act (NESHAP) (regulating hazardous air pollutant emissions from specific categories of new and existing sources). The incorporation will enable the Tribe and the Environmental Commission to exercise administrative authority with respect to the incorporated regulations. With that authority will

[13] There are five staff members employed as part of the Tribe's Air Quality Program, which is a ratio of approximately 1 staff member to every 8 major sources on the Reservation.

come the authority to set and implement controls on major sources that are more stringent than those that are imposed by the federal government.

Recognizing the importance of regulating minor sources, the Tribe currently is finalizing a minor source permitting program to recommend to the Environmental Commission. The Tribe intends to recommend the program in spring 2009 with the expectation that the Environmental Commission will adopt the program for implementation in late 2009 or early 2010. The adoption of a minor source permitting program is the second priority of the Environmental Commission and Tribe under their *Long-Term Plan for Reservation Air Program*, after the development of the Part 70 operating permit program.

The minor source permitting program will mirror certain aspects of the proposed federal minor source NSR program (*71 Fed. Reg. 48,696 (2006)*), yet will be tailored towards the specific regulatory needs of the Reservation, and will, in some respects, be more stringent than the proposed federal program. The purpose of the program is to establish a permitting program for existing, new, and modified minor sources of air pollution and for minor modifications at major stationary sources located within the exterior boundaries of the Reservation. The draft program includes proposed minor source thresholds so that only minor sources with a potential to emit (PTE) equal to or higher than those thresholds (and less than the thresholds necessary for regulation as a major source) will be subject to the program.[14] By regulating existing minor sources on the Reservation, the Tribe's proposed program goes a step further than the proposed federal minor source NSR program. Sources subject to the program (including existing, new, and modified sources) will be required to apply control technology and be subject to emission limits as determined by the Tribe on a case-by-case basis or based on an application of presumptive best available control technology that may be established by the Tribe for various categories of similar sources with similar control technologies and capabilities. Additionally, the Tribe's draft program will allow otherwise major stationary sources on the Reservation to voluntarily accept emission limitations on their PTE to become "synthetic minor sources." Such synthetic minor sources will include sources that emit hazardous air pollutants.

The draft program also sets forth the criteria and procedures that the Tribe will use to administer the program. In accordance with the IGA and Public Law No. 108-336, the Tribe and Environmental Commission will enforce civil compliance with the program. Actions taken by the Tribe in the administration of the program will be subject to administrative review by the Environmental Commission in accordance with the procedures contained in the program regulations. A copy of the minor source program will be provided to EPA-Region 8 for review and comment as part of the Environmental Commission's public review and comment process once the Tribe's recommended program becomes an Environmental Commission proposed program. A copy of the Tribe's draft program is available now, however, and will be provided to EPA upon request.

The development of the minor source permitting program and, specifically, the plan to make not only new and modified sources but also existing minor sources subject to emission limits and control technology requirements set by the Tribe under the program, demonstrates the

[14] The thresholds included in the Tribe's draft minor source program are the same as the thresholds contained in the proposed federal program.

Tribe's intention to aggressively control NOx emissions from the estimated 300 to 400 minor sources located on the Reservation. This program, coupled with (1) the Tribe's and Environmental Commission's efforts to reduce NOx emissions from the Reservation's 40+ major sources (in part through aggressive administration of the Part 70 operating permit program once it is delegated by EPA to the Tribe (e.g., more frequent inspections) and through the possible adoption of more stringent substantive requirements (e.g., NSPS, NESHAPS, and MACT)), and (2) the tribal-imposed conditions on new infill well development on the Reservation, should ensure maintenance of the attainment/unclassifiable status of the Reservation for the 2008 revised ozone standards.

In sum, the programs planned for implementation on the Reservation, particularly the minor source program, will be sufficient for the Tribe and Environmental Commission to maintain and prevent deterioration of the Reservation's existing good air quality.

Factor 5 (Growth Rates and Patterns)

A. Existing Development.

Emissions associated with mineral extraction activities are the principal source of air pollution on the Reservation, where rural population densities and agricultural land uses predominate. Development of its coalbed methane and natural gas resources has been and continues to be the economic lifeblood of the Tribe. Overall, the wells on the Reservation are on the declining end of the production curve. As noted above, the ozone monitors on the Reservation show attainment, and a source apportionment study shows that Reservation sources do not contribute meaningfully to ozone exceedances that have been measured at New Mexico's Navajo Lake monitor.

B. 80-Acre Infill Development.

With the Tribe's support, well density based on 80 acres rather than 160 acres on lands within the exterior boundaries of the Reservation already has been approved by the Colorado Oil and Gas Conservation Commission and development of infill wells on non-Indian fee lands has begun. Development of infill wells on Tribal land is needed to ensure that the gas reserves that are held in trust by the United States for the benefit of the Tribe are efficiently extracted in a manner that protects against drainage and is protective of correlative rights.

For the infill development on the Reservation, all new natural gas-fired compressor engines (i.e., the largest NOx emission sources associated with the development) will be required to meet the new NSPS emission limits as a matter of federal law. In addition, in order to ensure that Reservation mineral resources are extracted in an environmentally compatible manner, the Tribal Council has required, as a condition of consenting to 80-acre infill development, the presumptive utilization of the best available air emissions control technology for new compressor installation, as well as the presumptive upgrade of existing compressors to contemporary best available emissions control technology to the maximum extent feasible in a manner consistent with optimizing air quality on the Reservation.

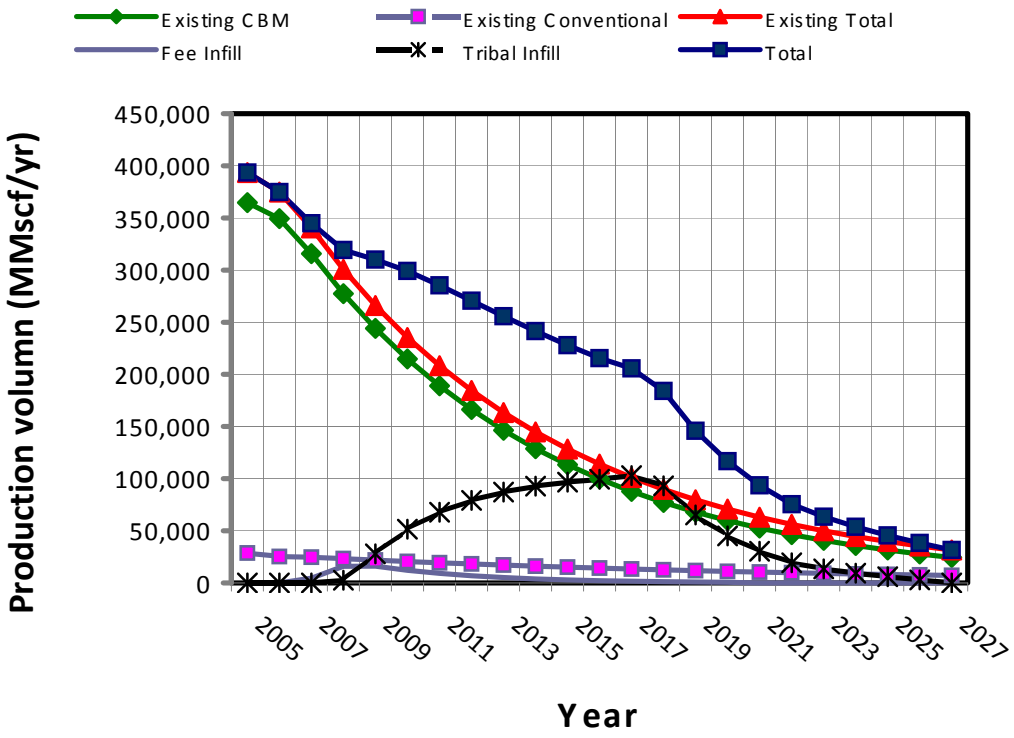
Full infill development of Tribal lands within the Reservation would consist of as many as 770 new coalbed methane 80-acre infill wells to be drilled from existing and new well sites on the Reservation over a 20-year period. [15] That development, however, will not increase overall emissions from Reservation sources. In fact, as demonstrated below, there will be a dramatic decline in NOx emissions from Reservation sources over the life of the development.

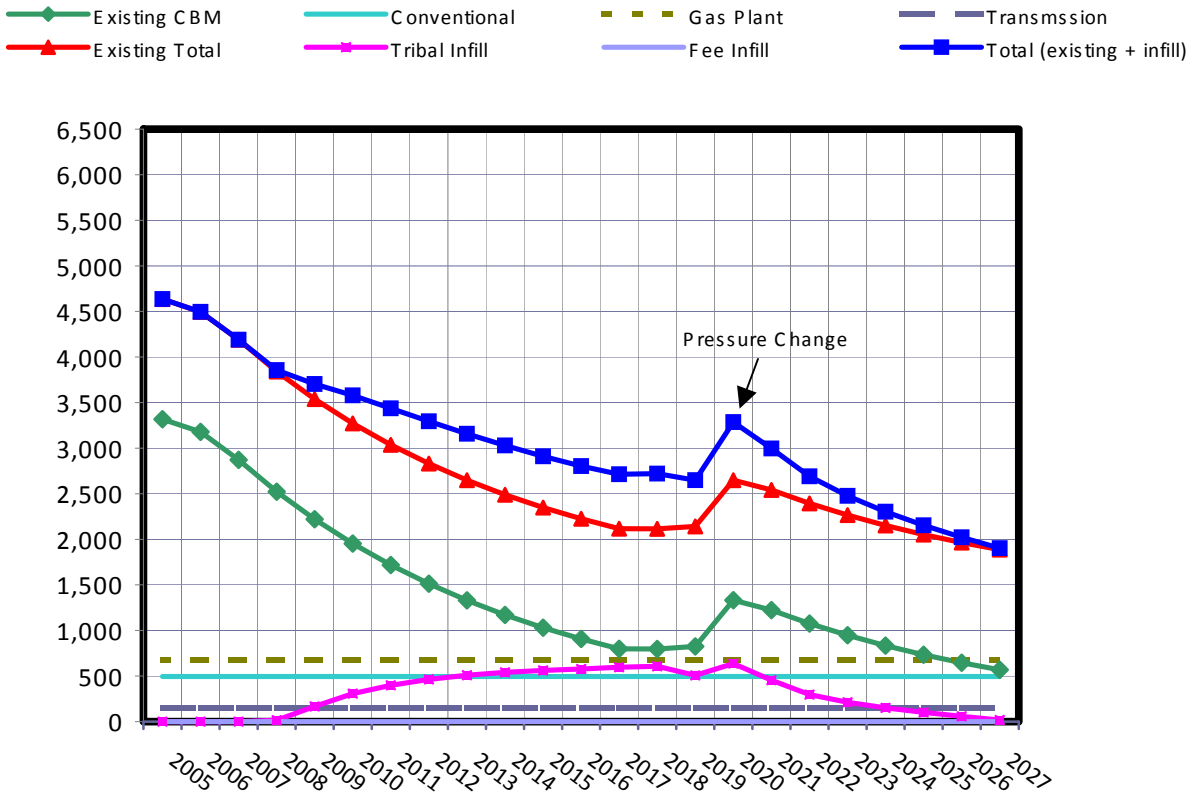
[15] In comparison, according to a 20-year Reasonably Foreseeable Development Scenario supporting a Resource Management Plan prepared by the Bureau of Land Management in 2001 for the BLM's Farmington, New Mexico Field Office, there are approximately 12,461 new oil and gas wells that are expected to be completed from 2002-2022 in the New Mexico portion of the San Juan Basin (i.e., San Juan County and western Rio Arriba County). That equates to approximately 623 new wells per year.

C. A Nonattainment Designation Based on Possible Future Development is Inappropriate Since NOx Emissions from Reservation Sources (and, Hence, Ozone Levels on the Reservation) are Expected to Decrease Over the Next 20 Years Notwithstanding Infill Development.

Air Quality Resource Management and ENVIRON International Corporation have performed an extensive air quality impact analysis assessing the impact of this anticipated growth. The analysis conservatively assumes that the requirements of the NSPS will be applied only to new compressor installation and assumes no upgrades to existing compressors. Figure 21 presents annual production estimates through 2027 with and without infill development on the Reservation and Figure 22 presents a summary of projected NOx emissions through 2027. As indicated by these figures, because of production decline, emissions of NOx (an ozone precursor) are projected to dramatically decrease. Furthermore, due to the additional upgrades to existing compressors required by the Tribe, this emissions decrease is anticipated to be accelerated. While NOx emissions from the Reservation will decrease even with infill development and even without the supplemental upgrades to existing compressors, the same probably cannot be said of ozone precursor emissions from northwest New Mexico, given that nearly 15 times the amount of new wells may be drilled in that area as compared to the Reservation, given that New Mexico state law bars the State from implementing regulations that are more stringent than federal NSPS regulations, and given the possible construction of an additional coal-fired power plant in the northwest New Mexico area.

Figure 21. Estimated Production Volume by Year





Note: Future year emissions were projected using operating data from 2005.

Factor 6 (Jurisdictional Boundaries)

A. Control of Emission Sources in a Regional Nonattainment Area Would be Spread Among Multiple Jurisdictions and (1) is Unnecessary, (2) Could Slow the Tribe's and Environmental Commission's Implementation of Air Pollution Control Measures, and (3) Would Not Efficiently and Effectively Serve the Purpose of Improving Air Quality.

In 1984, Congress confirmed the exterior boundaries of the Southern Ute Indian Reservation, which contains approximately 710,000 acres of land in southwest Colorado. Because of the vagaries of federal Indian policy over the last 125 years, land within the Reservation is owned in a checkerboard fashion by a number of different parties, meaning that some of the land within the exterior boundaries of the Reservation is owned by Indians and non-Indians in fee, while other land is owned by the United States in trust. The United States holds approximately 300,000 surface acres in trust for the Tribe. Additionally, the Tribe is the beneficial owner of minerals, including oil, gas and coal, on more than half of the Reservation lands. As discussed, the Tribe and Environmental Commission have been recognized by Congress as being primarily responsible for air quality on the Reservation, and the Environmental Commission's air pollution control programs will apply to all sources on the Reservation, regardless of whether they are located on fee or trust land, and regardless of whether the sources are owned by Indian or non-Indian entities.

Jurisdictional complications are amplified when considering all of the entities that can claim jurisdiction in the Four Corners region, given that the region includes four states, three EPA regions, and a half-dozen Indian reservations. Control of emission sources in the Four Corners region is spread among multiple jurisdictions. On the Reservation, as noted above, regulatory authority currently is exercised by EPA but the Environmental Commission has the authority to establish CAA and other air pollution control programs for the Reservation. Once adopted by the Environmental Commission, the Tribe may (1) apply for a delegation of authority from EPA to administer the CAA programs, and (2) administer the non-CAA programs. For land outside the exterior boundaries of the Reservation and within Colorado, the State of Colorado is the primary regulatory agency. Within northwest New Mexico, regulatory authority is split among two EPA regional offices (Region 6 for lands within New Mexico that are not within the Navajo Reservation and Region 9 for lands within the Navajo Reservation); the State of New Mexico; and the Navajo Nation. A regional nonattainment area would require close coordination among all of the entities with regulatory authority.

The inclusion of the Reservation in a nonattainment area that spans all of those jurisdictions, however, is unnecessary given the substantial efforts that the Tribe and Environmental Commission already are making to control emissions. As evidenced by the progress that the Tribe and the Environmental Commission have made with regard to air quality permitting and regulation on the Reservation, as well as the proactive stance they have already taken to address emissions, the Tribe and the Environmental Commission will be the most effective entities to facilitate air quality planning and implementation of control measures on the Reservation to maintain the Reservation's attainment/unclassifiable status with the 2008 revised ozone standard. If the Reservation were to be included in a nonattainment area, the efforts

required to prepare and implement a plan for bringing the area into attainment could hamper and delay the Tribe's and Environmental Commission's current efforts to control emissions, their progress in that regard, and their ability to efficiently regulate through development of the Reservation air program. In sum, further complicating an already difficult jurisdictional situation by thrusting the Reservation into an interstate, intergovernmental, nonattainment area would not effectively and efficiently serve the purpose of improving air quality.

B. The Reservation is Already a Separate Air Quality Control Region.

The nine-factor analysis that will be used in making area designations for the 2008 revised ozone standard also was used by EPA in making area designations for the 2006 24-hour fine particle standard. In the context of the area designations for the 2006 24-hour fine particle standard, EPA stated that in evaluating the jurisdictional boundary factor, consideration should be given to existing boundaries and organizations that may facilitate air quality planning and the implementation of control measures to attain the standard. As explained below, the Reservation already has effectively been designated as a separate AQCR via Congressional action and should continue to be considered a separate AQCR for purposes of maintenance of an attainment/unclassifiable designation for the 2008 revised ozone standard.

First, by not being part of a region designated by one of the first two means for designation under CAA section 107 (i.e., designated as an AQCR by Congress before December 31, 1970, pursuant to the Air Quality Act of 1967; or by EPA as part of an interstate or major intrastate area "necessary or appropriate" for the attainment and maintenance of the NAAQS), the Reservation became its own AQCR.

Second, the Reservation is recognized by Congress in the *Southern Ute and Colorado Intergovernmental Agreement Implementation Act of 2004* as the geographic area within which the Environmental Commission and the Tribe are primarily responsible for assuring air quality (by submitting an implementation plan which will specify the manner in which national primary and secondary ambient air quality standards will be achieved and maintained within each air quality control region in the Reservation area). The purpose of the *Southern Ute and Colorado Intergovernmental Agreement Implementation Act of 2004* was to:

> provide for the implementation and enforcement of air quality control programs under the Clean Air Act (42 U.S.C. 7401 *et seq*.) and other air quality programs developed in accordance with the Intergovernmental Agreement that provide for –
>
> (1) the regulation of air quality within the exterior boundaries of the Southern Ute Indian Reservation; and
>
> (2) the establishment of a Southern Ute Indian Tribe/State of Colorado Environmental Commission.

Pub. L. No. 108-336, § 2(b), 118 Stat. 1354 (2004). This unique arrangement was created to specifically address and resolve a complicated jurisdictional issue between the Tribe and State of

Colorado and, given adequate opportunity, will prove to be an effective means to regulate air quality on the Reservation.

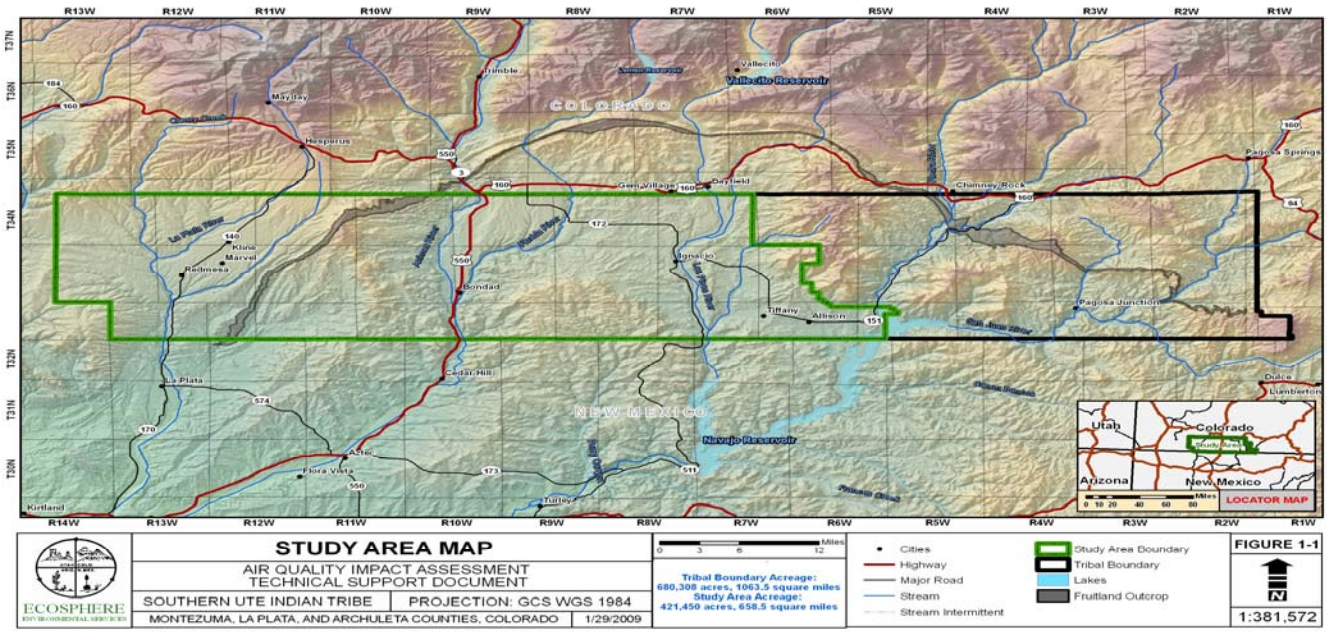
Third, EPA has determined that the CAA operates as a delegation of federal jurisdiction to tribes to administer programs with respect to all air resources within the tribe's reservation. *See* 63 Fed. Reg. 7254 (1998). In other words, in the CAA amendments of 1990, Congress authorized tribes to act as primary air quality regulators and recognized their reservations as the areas over which they are primarily responsible. CAA § 301; 42 U.S.C. § 7601(d).

Factor 7 (Geography/Topography)

The Reservation is located in the northern portion of the San Juan Basin and the eastern area of the Colorado Plateau in southwestern Colorado. The Colorado Plateau is a vast physiographic province extending throughout western Colorado, northwestern New Mexico, most of northern Arizona, and southern and eastern Utah. This physiographic province is characterized by generally flat-lying sedimentary deposits divided by faults and monoclines that form cliffs and individual plateaus. Steep-sided mesas and buttes capped by erosion-resistant rock layers are common.

The topography of the Reservation varies from moderately steep to steep mountains, canyons, and mesas in the north-central and south-central portions, to rolling hills and gently sloping river valleys in the eastern and western regions. Elevations range from about 6,000 to 9,000 feet.

Figure 23. Geography of the Southern Ute Indian Reservation.



Factor 8 (Population Density and Degree of Urbanization)

Data from the U.S. Census Bureau demonstrates that the Southern Ute Indian Reservation is sparsely populated, and the degree of urbanization is minimal. Only two small towns, Ignacio and Arboles, are located within the Reservation boundaries, and the remainder of the Reservation's population is scattered throughout the portion of the Reservation that is comprised of unincorporated areas of Archuleta and La Plata counties. Based on information provided on the website for the Colorado State Demography Office, the total population on the Reservation for 2007, including both Indians and non-Indians, is estimated to be approximately 16,128.

As shown in Table 7, the population estimate for the Reservation was calculated using the population estimates for the unincorporated portions of Archuleta and La Plata counties multiplied by the estimated percentage of those counties that are within the exterior boundaries of the Reservation.

Table 7. Reservation Demography – Estimated Population on Reservation.

County / Town	% of County/Town covered by Reservation	2005 Population	2005 Total on Reservation	2006 Population	2006 Total on Reservation	2007 Population	2007 Total on Reservation
Archuleta Unincorporated Area	29%	10,055	2,916	10,509	3,048	10,865	3,151
La Plata Unincorporated Area	39.6%	29,788	11,796	30,261	11,983	30,912	12,241
Ignacio	100%	755	755	741	741	736	736
La Plata Total			12,551		12,724		12,977

Source: http//www.dola.colorado.gov/dlg/demog/pop_munil_estimates.html

Table 8 shows that, based on the 2006 and 2007 population data, the average growth rate on the Reservation is 2.7% (i.e., (3.4 +2.0) ÷ 2 = 2.7%).

Table 8. Reservation Demography – Estimated Population Growth on Reservation.

County	2005 Total on Reservation	2006 Total on Reservation	2007 Total on Reservation	Percent Change 2006 -2007
Archuleta Unincorporated	2,916	3,048	3,151	3.4%
La Plata Unincorporated and Ignacio	12,551	12,724	12,977	2.0%

The total square miles of both Archuleta and La Plata counties and the estimated portion of those counties that lie within the exterior boundaries of the Reservation are shown on Table 9.

Table 9. Estimated Total Square Miles on the Reservation.

County	Total Square Miles	% County Covered by Reservation	Total Square Miles on Reservation
Archuleta	1,355	29.0%	393.0
La Plata	1,700	39.6%	673.2

Based on the population estimates shown in Table 7, the estimated population density within the exterior boundaries of the Reservation is 27 people per square mile, which is well below the United States average population density of 80 people per square mile:

Table 10. Estimated Population Density on the Reservation.

County	Total Square Miles on Reservation	2005 Persons Per Square Mile	2006 Persons Per Square Mile	2007 Persons Per Square Mile
Archuleta	391.5	7	8	8
La Plata	670.0	19	19	19
TOTAL on Reservation		26	27	27

Even combined with the three counties in southwest Colorado, the Reservation population has not only a much smaller density than the United States average density, it also is much smaller than the population of northwest New Mexico, which is 75 percent higher than the population of southwest Colorado.

Factor 9 (Traffic and Commuting Patterns)

Traffic volume on the Reservation is relatively low. Approximately 150 miles of state and major highway segments cross the Reservation. Table 9 shows daily and annual vehicle miles travelled, as well as total emissions from vehicle travel on paved roads within the Reservation for 2005.

Table 11. Emissions from Vehicle Travel on Paved Roads within the Reservation Boundaries (tons)**

Paved Roads	Length (mi)	Daily VMT*	Annual VMT*	VOC (tons)	CO (tons)	NOx (tons)	PM_{10} (tons)
Hwy 550	15.61	100,794	3.6789E+07	56.78	1,011.56	95.43	2.50
Hwy 140	15.658	31,860	1.1628E+07	17.95	319.74	30.16	0.79
Hwy 151	33.96	43,120	1.5738E+07	24.29	432.75	40.82	1.07
US Hwy 160	7.668	65,323	2.3843E+07	46.16	704.20	71.84	1.85
Hwy 172	24.449	102,151	3.72835+07	57.54	1,025.18	96.71	2.53
Other Hwys	52	66,026	2.4099E+07	46.66	711.78	72.61	1.87
Totals	**149.40**	**409,274.00**	**1.4935E+07**	**289.21**	**3,862.95**	**450.08**	**11.58**

** Southern Ute Indian Tribe Air Emissions Inventory Base Year 2005.
* Vehicle miles traveled (VMT) data is based on inventory data from the Colorado Department of Transportation website.

According to the Southern Ute Indian Tribe Air Emissions Inventory Base Year 2002, there are approximately 3,700 miles of unpaved roads on the Reservation. Table 10 demonstrates the emissions from vehicle travel on unpaved roads within the Reservation for Base Year 2002.

Table 12. Emissions from Vehicle Travel on Unpaved Roads within the SUIT Reservation Boundaries (tons)*

	VOC (tons)	CO (tons)	NO_x (tons)	PM_{10} (tons)
Unpaved Road Emissions	12.51	184.0	18.52	8,589

* Southern Ute Indian Tribe Air Emissions Inventory Base Year 2002.

III. Other Factors.

A. EPA Must Consider Tribal Self-Determination in Making its Area Designation for the Reservation.

In the 1984 EPA Indian Policy, EPA committed that, "in keeping with the federal trust responsibility," it would "assure that tribal concerns and interests are considered whenever EPA's actions and/or decisions may affect reservation environments." The Tribe's interest in pursuing expanded control over emissions on the Reservation and in proposing its 80-acre infill development project is linked to the strong federal interests in promoting strong tribal economic development, self-sufficiency, and self-governance. In that regard, the Tribe is concerned that imposition of a nonattainment designation on the Reservation by EPA, and the corresponding nonattainment requirements, would constitute an infringement on the Tribe's interests in territorial autonomy and could damage the long-term economic and social interests of the Tribe. The northern San Juan Basin is continuing to be developed and, as noted above, the Colorado Oil and Gas Commission already has approved 80-acre infill drilling on lands within the Reservation boundaries. Prudent and environmentally protective development of the mineral resources held in trust by the United States for the benefit of the Tribe is an important economic development objective of the Tribe. In fact, such development is for the express purpose of improving the economic and social well-being of the Tribe and its members. A portion of the revenues from development of the trust mineral estate are distributed to tribal members and a portion is used by the Tribe to fund many important governmental functions and services such as the Tribe's police department, court system, school, education programs, health care services, water treatment plants, and recreation programs. Accordingly, the Tribe expects that in keeping with its commitment given in the 1984 EPA Indian Policy, EPA will "give special consideration to Tribal interests" when considering a designation for Reservation.

B. Environmental Justice Favors an Attainment/Unclassifiable Designation for the Reservation.

In 1994, the President issued Executive Order 12,898 on environmental justice in minority and low-income populations. *Executive Order 12,898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7629 (1994)*. The purpose of the Order is to identify and address, as appropriate, disproportionately high and adverse human health and environmental effects of programs, policies, or activities on minority or low-income populations. The mandates of *Executive Order 12,898* specifically apply to Native American programs. *Id*. at § 6-606, 59 Fed. Reg. 7629, 7632 (1994). On the Reservation, minority populations include Native Americans and Hispanics. Low-income groups on the Reservation may include low-income Indians, Hispanics, and Caucasians. The Council on Environmental Quality has issued a guidance document on compliance with the President's order on environmental justice that is designed to engender greater tribal involvement. *Council on Environmental Quality, Environmental Justice: Guidance Under the National Environmental Policy Act 1, 9 (Dec. 10, 1997), <ceq.eh.doe.gov/nepa/regs/ej/justice.pdf>*. This guidance document provides that the environmental justice concerns that federal agencies must address in their decision-making arise not only from impacts on the natural and physical environment, but also from related social and economic impacts on the affected populations.

The Tribe is concerned that a nonattainment designation of the Reservation by EPA for the 2008 revised ozone NAAQS would have a disproportionate negative impact on the Tribe and its members and would be unfair to the Tribe from a social and economic perspective. As noted above, comparative emission inventories reveal that emissions from northwestern New Mexico far exceed emissions from Reservation sources. Northwest New Mexico and Navajo Nation emissions include emissions from two existing coal-fired power plants and EPA recently approved a PSD permit for a third. Burdening Reservation development with nonattainment requirements in circumstances where (1) Reservation monitors show attainment, (2) source apportionment shows the contribution by Reservation sources to a measured exceedance at New Mexico's Navajo Lake monitor is not meaningful, and (3) the Environmental Commission and the Tribe already are aggressively acting to control emissions, would impose a disproportionate burden on the Tribe to help New Mexico achieve attainment with the 2008 revised ozone NAAQS and would be unjust to the Tribe.

In summary, it is the Tribe's expectation that EPA will take the Tribe's environmental justice concerns into account in making its 2008 revised ozone NAAQS area designation for the Reservation.

C. In the Alternative, Ongoing Studies May Warrant an Unclassifiable Designation for the Reservation.

In the alternative, an unclassifiable designation for the Reservation should be considered until officials have a more complete understanding of the root causes of the monitored exceedances at New Mexico's Navajo Lake monitor. The Four Corners Air Quality Group still is in the process of evaluating emission reductions that could be achieved, as well as the overall air quality benefits that could be achieved as a result of implementation of additional controls on sources in the Four Corners region. Those studies include ongoing photochemical analyses that will provide more information on the role of VOCs and NOx from different source regions in ozone formation. Before including the Reservation in any nonattainment area that may be designated as a result of the violation measured at New Mexico's Navajo Lake monitor, therefore, the results of the ongoing studies should be obtained and considered. For that reason, a designation of unclassifiable for the Reservation may be warranted.

IV. Conclusion.

In conclusion, the Tribe's recommendation is that the Reservation area be designated as **"attainment/unclassifiable"** for the 2008 revised ozone NAAQS and **not** included in any nonattainment area that may be designated for northwest New Mexico. The reasons supporting this recommendation include:

- Monitoring data show that the Reservation is attaining the 2008 ozone NAAQS.
- A source apportionment study shows the contribution from Reservation sources to the violation in northwest New Mexico is not meaningful.
- Prevailing winds blow from the west and southwest onto the Reservation.

- Emissions from sources located on the Reservation are minimal when compared to emissions from sources located in northwest New Mexico.

- Emissions from large engine sources on the Reservation already are within federal limits and additional emission reductions probably are not technologically possible at this time.

- Reservation emissions already are well-controlled and limits and controls that will be required on the Reservation as a result of (1) the new NSPS emissions regulation, (2) self-imposed conditions to the Tribe's support for 80-acre infill development, and (3) limits and controls that the Tribe currently is planning to include as part of the minor source program that it will recommend to the Environmental Commission, will be sufficient to maintain compliance with the 2008 revised ozone NAAQS. Both the conditions for the Tribe's support for infill development and the minor source program that the Tribe plans to recommend to the Environmental Commission, will require use of presumptive best available control technology (BACT) for not only new or modified minor sources but also existing minor sources. The required use of BACT for all minor sources on the Reservation is a more stringent control requirement than would be required, and will be implemented sooner (within 3 years under the draft minor source program) than probably could be required if the Reservation were included in a nonattainment area (assuming the nonattainment area would be categorized as a "marginal" nonattainment area). In addition, some of the controls and limits that will be required on the Reservation probably are equivalent to or exceed the controls that would be required if the Reservation were included in a "marginal" nonattainment area.

- Continued development of the Reservation air program by the Environmental Commission and the Tribe advance self-determination and environmental justice goals. In making its designation for the Reservation area, EPA must consider not only its statutory duty, but the federal interest in promoting tribal self-determination, as well as the Tribe's environmental justice concerns.

Based on the Tribe's analysis above of the 9-factors that EPA instructs must be considered in making recommendations for area designations for the 2008 revised ozone NAAQS, and based on the other considerations described above, the Tribe recommends that the Reservation be designated "**attainment/unclassifiable**" and not be included in any nonattainment area that may be designated for northwest New Mexico.

→ OPRA INFO

SOUTHERN UTE INDIAN TRIBE/STATE OF
COLORADO ENVIRONMENTAL COMMISSION
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February 26, 2009

Carol Rushin, Acting Regional Administrator
United States Environmental Protection Agency – Region 8
8OC-EISC
1595 Wynkoop Street
Denver, CO 80202-1129

Re: Support for the Southern Ute Indian Tribe's 2008 Revised Ozone NAAQS Area Designation Recommendation

Dear Ms. Rushin:

The Southern Ute Indian Tribe/State of Colorado Environmental Commission was established pursuant to an intergovernmental agreement between the Southern Ute Indian Tribe and the State of Colorado, and is involved in air quality matters on the Southern Ute Indian Reservation due to its responsibility for promulgating rules and regulations for the Reservation Air Program.

Although it is the Tribe's responsibility to submit the ozone designation recommendation for the Reservation to EPA, the Commission has been involved and interested in the designation process, and has communicated with the Tribe's Air Quality Program regarding the Tribe's progress and intent with respect to the recommendation. The Commission has reviewed the Tribe's recommendation for the ozone NAAQS area designation for the Reservation, and fully supports the Tribe's analysis and conclusion that the Reservation be designated as in attainment of the revised ozone NAAQS.

Sincerely,

Peter R. Foster, P.E.
Chairman