Compiled Comments and responses to the NM Modeling Guidelines Aug/Sep 2010
Some comments have been edited for clarity or combined with similar comments.

Background concentrations:

Monitors show concentrations are well below 1-hour NO_2 standards, but modeling of background sources predicts violations.

Guidelines are being changed to place greater emphasis on the monitoring data. The new proposal requires modeling of the entire facility plus background monitored concentrations in areas where monitoring is determined to be representative. In areas where a monitor is not necessarily representative or all-inclusive, sources within 10 km of the facility will need to be included, plus background. Particulates would be non-inclusive by default because concentrations include many non-regulated sources. (Sources farther than 25 km from large population centers will have the option of modeling surrounding sources instead of background for CO, NO_2, or SO_2).

This is the wrong time to add background concentrations.

NMED believes that background concentrations are the key to producing modeling results that are more accurate without grossly over-predicting concentrations.

Are background concentrations elevation-adjusted?

Background concentrations will be presented in native format. Any elevation adjustment will be noted and will take into account the standards to which it is applied.

The PM2.5 Page memo is inconsistent with Appendix W.

The Page memos clearly call for background concentrations representing maximum concentrations for each averaging period. The Appendix W is unclear in this regard. NMED provides conservative background concentrations for worst-case conditions, and instructions on how to refine the background concentrations to better reflect seasonal changes in meteorology.

Significance levels:

NMAQB is using a 1-hour NO_2 SIL of 4.0 ug/m^3 and references EPA guidance. The EPA has issued interim guidance on the 1-hour NO_2 SIL and has set the level at 4.0 ppb. Does NMAQB intend to keep the SIL at 4.0 ug/m^3 or use the more up-to-date 4.0 ppb level?

This value was a mistake. NMED intends to use a significance level based on the EPA interim guidance and EPA standard temperature and pressure. 2.6.4 and 2.6.9 have been updated to reflect these values.

Title V modeling:

Section 2.1.1 appears to contain an outdated excerpt from 20.2.70.300.D.10 NMAC. Please remove section 2.1.1 from the guidelines and the Title V regulatory reference in the 1st paragraph of 2.1. We can not require modeling in the Title V permit process. The citation to section 300.D.10 is from an old regulation. The current regulation says:

(10) Provide certification of compliance, including all of the following.

(a) A certification, by a responsible official consistent with Subsection E of 20.2.70.300 NMAC, of the source's compliance status for each

applicable requirement. For national ambient air quality standards, certifications shall be based on the following.

(i) For first time applications, this certification shall be based on modeling submitted with the application for a permit under 20.2.72 NMAC.

(ii) For permit renewal applications, this certification shall be based on compliance with the relevant terms and conditions of the current operating permit.

Guidelines have been altered to make it clear that modeling is not required to issue a Title V permit (except landfills, which may be allowed to model instead of obtaining an NSR permit).

SO_2 effective date:

Please remove the sentence in section 2.6.9 about the effective date of the SO_2 standard for permitting.

The effective date is history. The sentence has been removed.

Effective date of new requirements:

Are applications that have already been submitted with a modeling waiver going to be required to conduct the analysis?

Modeling for permits ruled complete after the Guidelines have been finalized may need to demonstrate compliance with 1-hour NO_2 and SO_2 standards, if applicable according to the Guidelines.

Timeframe:

Why is it important to implement the new standard as soon as possible?

It is important to implement the new standards as soon as possible because our regulations (NMAC 20.2.72 and others) say that a facility must demonstrate compliance with air quality standards in order for a permit to be issued. In order to do that, applicants must understand how to demonstrate compliance, and the purpose of the guidelines it to provide specific details about how to demonstrate compliance (in a consistent manner so that all sources are held to the same standards).

EPA Guidance:

"We are concerned that modeling using the current guidance from EPA will result in ultra-conservative results."

NMED has listened to the comments of this nature and has attempted to avoid unwarranted over-prediction of concentrations while still demonstrating compliance with the air quality standards.

Radius of Impact:

The NSR Workshop Manual indicates that the maximum ROI is 50 km.

Guidelines have been modified to reflect this information.

We suggest replacing the determination of the ROI using the emissions of the entire facility with the project emissions, considering the extremely small magnitude of the respective SILs.

NMED is reluctant to make this change at this time because of the perceived difficulty of tracking changes from multiple permit modifications and to avoid incremental drift into non-attainment of new and existing air quality standards. NMED is attempting to address this problem by limiting the number of surrounding sources and receptors included in modeling.

Conducting the NO_2 and SO_2 analyses for periods other than 1-hour with the enlarged 1-hour NO_2 and SO_2 receptor distributions may unnecessarily complicate and enlarge the longer averaging period analyses.
ROI for each averaging period may now be determined independently.

Elevation correction for standards:
For 1-hour NO_2 and SO_2 modeling analyses, the NAAQS should be directly converted from parts per billion (ppb) to micrograms per cubic meter (µg/m³) without applying the gaseous conversion factor, which is the approach specified by the EPA.

> **40 CFR 50.3 Reference conditions.**
> **All measurements of air quality that are expressed as mass per unit volume (e.g., micrograms per cubic meter) other than for particulate matter (PM2.5) standards contained in §§ 50.7 and 50.13 and lead standards contained in § 50.16 shall be corrected to a reference temperature of 25 (deg) C and a reference pressure of 760 millimeters of mercury (1,013.2 millibars).**

Federal standards and significance levels will be evaluated at standard temperature and pressure. State standards are temperature corrected. People exposed to air at high altitude need to inhale a larger volume in order to get the same amount of oxygen, so correcting the standards for elevation provides equal protection for the same amount of respiration.

Three years of met data:
If one year of on-site meteorological data is used (which is the case for most modeling analyses in New Mexico), the 98th percentile value associated with the 1-year period of meteorological data modeled (i.e., the highest eighth highest daily 1-hour value) is the design value.
Guidelines have been clarified consistent with this comment.

New meteorological data:
All gaseous ambient monitoring that the Bureau has used for the determination of background concentrations has occurred since March 2006. The Bureau-provided meteorological data that are available and required for dispersion modeling were collected and processed during the 1990s, so temporal correlation would not be possible for this analysis with the different ambient monitoring and meteorological data periods of record unless the Bureau provided additional recent preprocessed on-site meteorological data.
NMED intends to gradually supply new meteorological data on an as-needed basis as time allows. Background refined pollutant data will also be developed on a similar schedule.

24-hour NO_2
Request that the fixed rate conversion for the 24 hour NMAAQS be retained at 0.4 (Section 2.6.4.3). We understand that EPA guidance specifies an extremely high conservative value for the 1-hr standard of 0.75. We do not believe this is representative of a 24-hr value.

Compliance with the NO_2 24-hour NMAAQS is guaranteed if compliance is demonstrated with the 1-hour standard. Therefore, conversion ratios for 24-hours are irrelevant.

Burden of modeling:
We do not believe it was the intent of EPA to require 1 hr NO_2 NAAQS analysis for small increases in emissions. This places a significant burden on small projects.
Projects that previously required modeling under the state regulations continue to do so.

Uncertainty and refinement
What data can be used?
The Guidelines are written with intent to allow refinement of data when it is available and required to demonstrate compliance. Not all the data needs for each project can be anticipated at this time, but the Guidelines provides baseline defaults for background concentrations and outlines methods available to refine background data. More site-specific and more refined data are likely to be approved, but are encouraged only in cases where there is trouble determining compliance using defaults.

We should wait for more data.
NMED believes the approach presented now allows demonstration of compliance for typical facilities that indeed comply with standards, and include improvements to the modeling process to make it more focused on significant issues and more equitable. It is informative to have more data, but data needs have historically been identified one project at a time and it is impractical to wait for all the data. Streamlines to the modeling process will hopefully offset some of the holes in the datasets.

NO_2/NO_X in-stack ratio justification:
What level of site-specificity is required for justification of NO_2/NO_X ratios?
While site-specific studies are ideal, other sources of data may also be acceptable, subject to approval of NMED staff. As more data becomes available, requirements may be specified or generalized, depending on trends in the data. Surrounding sources, if required, may be modeled with a default of 0.3 without justification.

PM2.5 high eighth high
The use of the highest PM2.5 concentration to account for secondary formation of the pollutant is scientifically and procedurally flawed.
The March 23rd memo from Stephen Page, EPA director of OAQPS, indicates that current techniques for modeling PM2.5 are screening techniques because secondary formation is not explicitly modeled and that the use of values lower than the highest concentration are not warranted for screening techniques. Procedures for using 98th percentile background concentrations (instead of high values) have been added.

Receptor grids
We don't understand the need for requiring an additional finer grid to the grid spacing that has historically been acceptable to EPA and NMED to identify the areas of maximum concentration.

The grid spacing to identify the maximum concentration has not changed from previous versions of the guidelines. Overall, fewer receptors are required than were previously required to model the same pollutant.

Multiple years of met data
We want to model five years of meteorological data instead of one.
Design values of standards have been clarified to accommodate cases where it is necessary to use multiple years of meteorological data.

Pollutants to model
Definition of modification
Only pollutants that change during the modification are subject to review.

New Surrounding Source Language
The contributions of distant sources are included in the background concentration. If the background concentration includes all neighboring sources or a conservative approximation of them, then surrounding source modeling is not required. For particulate matter or cases where the background concentration does not include all neighboring sources, then include all sources within 10 km of the facility in the model. Discard sources beyond 10 km from the facility. PSD increment is modeled, not monitored. Retain sources within 10 km of the facility for PSD Class II increment analysis. Retain the facility and sources within 10 km of the Class I area for PSD Class I increment analysis.

Table 22: Surrounding Source Retention Example for a Source Near Bloomfield.

Pollutant and averaging period	Neighboring source notes:
NO2 1-hour NAAQS	Do not include surrounding sources.
PM2.5 24-hour NAAQS	Retain sources within 10 km of facility.
NO2 annual PSD increment	Retain sources within 10 km of facility.
NO2 annual PSD increment	Retain sources within 10 km of Mesa Verde.

The streamlined compressor station table is out of date
The table has been updated and simplified to include areas with background NO_2 concentrations above 80% of the 1-hour NO_2 standard. Explanation of regulatory language has been clarified.