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

Continued comments
A number of comments were repeated from previous comment periods. In the interest of time, the comments and responses that did not change significantly from previous reviews will not be repeated here, but are available in the previous issue of compiled comments.

Guidelines versions:
Which versions and options from the Guidelines can I use?
All of the options in the new draft Guidelines can now be used. For minor sources and minor modifications, 1-hour NO2 and 1-hour SO2 concentrations are not required to be modeled before the Guidelines are next finalized, but it is recommended to demonstrate compliance with these standards as soon as possible. Sources that do not demonstrate compliance with these standards must still demonstrate compliance with the 24-hour NMAAQS for NO2 and with the vacated SO2 standards.

New optional NO2 modeling procedure:
OLM, PVMRM, or 75% conversion greatly overstate the actual NO2 1-hour impacts.
A new optional method for calculating the NOX to NO2 conversion is under investigation, and will be presented when it is available.

Particulate matter modeling:
Are separate analyses required to demonstrate compliance with the 24-hour PM10 NAAQS if all PM10 emission rates are the same as PM2.5 emission rates?
If PM2.5 emission rates are modeled as equal to PM10 and TSP emission rates, then the PM2.5 NAAQS demonstration will satisfy the requirement for demonstration of compliance with PM10 NAAQS and TSP NMAAQS. However, PM10 PSD increment demonstration is not necessarily satisfied by any PM2.5 modeling.

PM2.5 annual multiple year concentration:
The guidance contained in the EPA Memorandum, entitled "Modeling Procedures for Demonstrating Compliance with $PM_{2.5}$ NAAQS," by Stephen D. Page, dated March 23, 2010, states that for $PM_{2.5}$ the <u>average of the values predicted for each year</u> (i.e., for <u>multiple years</u> of meteorological data) on a receptor-by-receptor basis is the design value). The verbiage from page 6 of that EPA guidance memorandum, which specifies that for multiple years of data the maximum predicted concentration at each receptor is determined for each year, and those maximum concentrations for each receptor for each year are then averaged to determine the design concentration, reads as follows:

> **"The modeling methods used in this initial significant impact assessment phase of the $PM_{2.5}$ analysis, based on either a state's interim *de minimis* levels or EPA-finalized SILs, are similar to the methods used for other pollutants,**

including the use of maximum allowable emissions. However, due to the probabilistic form of the NAAQS, we recommend that the highest average of the modeled annual averages across 5 years (*emphasis added*) for National Weather Service (NWS) meteorological data or the highest modeled annual average for one year (*emphasis added*) of site-specific meteorological data be compared to the annual screening level (SIL). Similarly, the highest average of the maximum 24-hour averages across 5 years for NWS meteorological data (*emphasis added*) or the highest modeled 24-hour average for one year (*emphasis added*) of site-specific meteorological data should be compared to the 24-hour screening level (SIL).

Page 8 of the Page Memo states:

> "The modeled annual concentration of (primary) PM2.5 to be added to the monitored annual design value should be computed using the same procedure used for the initial significant impact analysis based on the highest average of the modeled annual averages across 5 years for NWS meteorological data or the highest modeled annual average for one year of site-specific metrological data."
>
> "For the 24-hour NAAQS analysis, the modeled concentrations to be added to the monitored 24-hour design value should be computed using the same procedure used for the preliminary analysis based on the highest average of the maximum modeled 24-hour averages across 5 years for NWS meteorological data or the maximum modeled 24-hour average for one year of site-specific metrological data."

The Bureau interprets "highest average of the modeled annual averages" to mean that an annual average is determined for each year, and that the highest of these is selected. That appears to be consistent with the language in the October draft Guidelines.

Furthermore, Page 5 of the Page Memo states:
"…modeling of PM2.5 should currently be viewed as screening-level analysis…"

Appendix W indicates the highest modeled concentration should be used.

> "Also, the highest concentration should be used whenever selected worst-case conditions are input to a screening technique, as described in EPA guidance.
>
> d. If the controlling concentration is an annual average value and multiple years of data (site specific or NWS) are used, then the design value is the highest of the annual averages calculated for the individual years." -- 68238 Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 / Rules and Regulations (Appendix W)

PM2.5 24-hour increment:

The high second high value should be compared with the short-term PM2.5 increment.
"…using the average of the first highest 24-hour averages rather than the 98th percentile (rather than 8th highest) values is consistent with the screening nature of PM2.5 dispersion modeling." Page, Memo, p. 8.
It is consistent with the Page memo to treat modeling that ignores the secondary formation of PM2.5 as screening modeling and to compare the highest modeled concentration with the PSD increment.

Concentration conversions:
Should we use the ideal gas law or the elevation correction equation for the standard or corrections to modeled result calculations?
Use the ideal gas law at standard temperature and pressure for NAAQS and the elevation calculator and a representation of site conditions for NMAAQS.

Are the background levels in Table 17 referenced to the monitor site conditions or to STP?
Backgrounds are now in native form, as reportable to EPA (ppm or ppb).

Backgrounds should be corrected to the same reference as the modeled results and then added, correct?
Background conversions should use the same calculation method as the applicable standard. Conversion can be done either before or after adding background, unless there are concentration-dependent chemical reactions (like NO2 modeling with ozone conversion) in which case the background should be added before the chemical reaction is simulated.

Administrative completeness
We are concerned permits will be delayed by an incompleteness ruling if minor aspects of modeling differ from the Guidelines.
The policy of the Modeling Section at AQB has been and continues to be to quickly advise the permit writer that the application may be ruled complete if required modeling has been completed and files and report are received by AQB. Staff will make reasonable attempts to allow the applicant to correct issues during the review process. Language in the Guidelines (section 1.2.2, "The modeling section staff will make a quick determination to see if the modeling analysis appears complete. This involves checking to see if modeling files are attached and readable and verifying that application forms and modeling report are present.") seems to already be consistent with this.

Premature to require 1-hour modeling for NO2 and SO2.
Inclusion of modeling requirements for the new short-term NO2 and SO2 NAAQS is premature and unnecessary. Under § 110 of the federal Clean Air Act, New Mexico has three (3) years from EPA's adoption of the new standard to develop a plan to assure attainment and maintenance of the standards. As expressed in our September comments, modeling using the current guidance from EPA will result in ultra-conservative results, over predicting ambient impacts, and possibly leading to

confusion and unnecessary concern among the public potentially impacted by emissions from various sources. We suggest that the Bureau take the necessary time to develop more realistic approaches to modeling these short-term impacts.
NMED has delayed implementation of the new standards by months, and is now investigating new modeling options that appear to provide more realistic modeling results and a reduction in over-prediction. NMED is currently not requiring the compliance with 1-hour NO2 and SO2 standards for minor sources, but expects to upon completion of ongoing investigations.

Background inappropriate
Inclusion of background concentrations for many of the criteria pollutants is inappropriate at this time.
Unless there is a large population center, adding background concentrations is now treated as an optional alternative for gaseous pollutants to modeling surrounding sources. Particulate matter background concentrations have been added historically.

Background selection:
In at least some cases, background concentrations seem to be driven by available monitoring data rather than actual expected background concentrations.
As it is impractical to cover the whole state with monitors, there will always be gaps in the available monitoring data. The data is expected to be conservative, and will over-predict in some cases more that in others. Use of background (instead of modeling surrounding sources) is optional in many of the more over-predictive cases.

Form a technical working group to address issues with the Guidelines
We suggest that a technical working group with modeling experts from industry and consulting firms be formed to address issues with the Guidelines that were identified in the comments.
Something of this nature will be considered if significant issues and interest remain.

Terminology:
SSM MSS:
From a terminology perspective, the acronym "SSM" should be expressed as "MSS" (i.e., maintenance, startup, shutdown) in this document.
Both acronyms are used by EPA (and other sources).

Background regions:
Background concentrations are listed by geographical region, but the regions are not well defined. The Bureau should delineate these regions now and not on a case-by-case basis.
The regional labels on the background concentrations are designed to serve as a guide to quickly identify data sets near a facility. The locations of the monitors within that region further refine information on which data may be most appropriate. As is the case with meteorological data, there may be factors beyond latitude and longitude that determine which is most representative of a given location. Hopefully, the majority will be clear, and few will need selection on a case-by-case basis.

Large population centers:
It is not clear what defines the edge of large population centers.
The criteria have been changed to "10 km from the center of Albuquerque or El Paso".

Relative terms:
Define "small number" and "very close".
There are cases where the appropriate use of such terms will rely upon the judgment of the modeler because of the complex nature of modeling.

Errors:
Table 6C has errors:
They have been corrected.

PM background:
Particulate matter background concentrations are higher than previous values. Are these really representative of background concentrations?
Annual PM2.5 concentrations are lower than previous values. 24-hour concentrations are sometimes higher and sometimes lower, considering the refined background concentration table, 19B. PM10 and TSP have similar changes to PM2.5. Monitors are designed to determine background concentrations, and are not located near sources that would unduly influence concentrations. As noted previously, The Page memos clearly call for background concentrations representing maximum concentrations for each averaging period.

Obsolete background table for comparison:

Table 15: Particulate Matter Background Concentrations

Location	PM2.5 background ($\mu g/m^3$)	PM10 background ($\mu g/m^3$)	TSP background ($\mu g/m^3$)
Dona Ana County	12.2	35	46.6
The rest of New Mexico	7.3	20	26.6

What's up with the Hurley air quality standard?
It is not clear why or what guidance is being given concerning Hurley (Chino Mines Company). We are not clear on what specific guidance is being provided by the statement "there can be no sources within a specified distance of a non-existent stack".
DCP recommends that all language related to Hurley (Chino Mines Company) be removed. DCP submits that general guidance like this is not the place for facility-specific guidance like that provided for the Hurley site. If NMED wants to issue

specific guidance concerning Hurley, this guidance should be directed to that specific company and contained in a separate document to that specific company.
There is a separate air quality standard in the New Mexico Administrative Code for a location that no longer exists, and this language is our attempt to explain that regulation. Based on the number of comments about this regulation, it may be easier to change the code than to accurately explain it, but changing NMAC is beyond the scope of the revisions to the Modeling Guidelines.

GCP modeling?
Modeling guidance should not require GCP-permitted facilities to be included in modeling analysis and should not address GCP-permitted facilities at all. The modeling demonstration of compliance is addressed by NMED in the development of the GCPs.
Modeling is not required in order to get a General Construction Permit (GCP) because modeling for that type of facility has been performed using certain assumptions included in the GCP. Modeling is often required for other permits, and if that modeling requires surrounding source modeling and there is a GCP nearby, then it should be included in the surrounding source modeling as a surrounding source. Guidance presented here is aimed at facilitating the modeling of GCP's as surrounding sources.

Exceedances are not necessarily violations
Revise language through the Guidelines to replace the term "violation" with the term "exceedance".
Done. (Except for quoted material).

PM2.5 background
The methods specified in the Stephen Page EPA Memorandum dated March 23, 2010, Modeling Procedures for Demonstrating Compliance with the PM2.5 NAAQS, specifically for the choice of background are defective. In the case of PM2.5, there are modeling issues very similar to those of NO2 in that plume chemistry is important for secondary PM formation based on NO2 and SO2 precursors. However, that relation has not been demonstrated to be significant in New Mexico and specifically for background PM2.5. Therefore, very conservative (and wrong) methods should not be imposed upon the permitting program based on this EPA memo.
Sources without PM2.5 precursors are allowed to use 98th percentile for modeled results.

Establishing background concentrations needs to use only thoroughly vetted ambient air data that have extreme natural events such as forest fires and dust storm events and nearby manmade emission sources removed and that represents the normal and prevalent conditions that exist in the atmosphere. A concentration distribution is not spatially representative and is definitely not temporally representative. A high concentration from a monitor that is assumed to be background is almost certainly not background but is due to an emission source.

Excluding exceptional events is consistent with EPA guidance. Background concentrations of particulate matter have been re-evaluated, this time excluding exceptional events.

Streamlined CS table:
The streamlined compressor station table is out of date
The table in the draft was updated to include areas with background NO_2 concentrations above 80% of the 1-hour NO_2 standard. (The model predicted violations wherever modeled). Perhaps the evaluation should be re-done using new modeling methodology, if resources permit.

Errors in background concentrations:
Some background concentrations are incorrect.
Errors have been corrected.

Radius of impact:
Use only modification to compare with significance levels
In cases where the entire facility has been modeled for a given pollutant and averaging period, the modifications (in the past five years) may be compared with significance levels. Otherwise, the entire facility shall be modeled for comparison with significance levels. See the Modeling Guidelines for details.