Appendix B

April 4, 2005 Dust Storm.
The text below and accompanying graphics have been extracted from the TCEQ public website at http://www.tceq.state.tx.us/compliance/monitoring/air/monops/sigevents05.html.

Description of El Paso Dust Storm of April 4, 2005

High winds swept across southern New Mexico, northern Mexico, and far West Texas on Monday, April 4, 2005. The high winds generated numerous plumes of dust in northern Mexico that merged into one large dust cloud, blown east-northeast into far West Texas. The highest daily average PM$_{10}$ measurement in the El Paso area was 157 micrograms per cubic meter (µg/m$^3$) at the Socorro Continuous Air Monitoring Station (CAMS) 49, which rated as Unhealthy for Sensitive Groups, based on the U.S. Environmental Protection Agency (EPA) Air Quality Index (AQI) scale. The University of Texas at El Paso (UTEP) CAMS 12 monitor reported a daily average of 142 µg/m$^3$ and Ascarate Park CAMS 37 measured 131 µg/m$^3$. Both of these daily averages rated as "Moderate" on the AQI. Socorro CAMS 49 also measured the highest one-hour PM$_{10}$ average of 575 µg/m$^3$ from 4:00 p.m. to 5:00 p.m. Mountain Daylight Time (MDT).

The lowest visibilities reported at weather stations were in New Mexico at Deming and at Holoman Air Force Base (AFB) near White Sands. Both of these stations reported visibility as low as 1.5 miles. El Paso Airport reported visibility as low as 7 miles at 4:51 p.m. MDT and Ascarate Park CAMS 37 measured its lowest visibility of 4.3 miles at 3:35 p.m. MDT. The highest measured wind gust in the El Paso area was 59 mph at Skyline Park CAMS 72, with peaks of 50 mph at UTEP CAMS 12 and 48 mph at the El Paso Airport.

Table 1, Airport Minimum Visibility and Peak Wind Gust Reported on April 4, 2005, shows that this dust storm reduced visibility in a large area of New Mexico, West Texas, and northern Chihuahua.

Table 1: Airport Minimum Visibility and Peak Wind Gust Reported on April 4, 2005

<table>
<thead>
<tr>
<th>Airport Location</th>
<th>Lowest Visibility (miles)</th>
<th>Peak Gust (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deming, NM</td>
<td>1.5</td>
<td>52</td>
</tr>
<tr>
<td>Holoman AFB, NM</td>
<td>1.5</td>
<td>45</td>
</tr>
<tr>
<td>Alamogordo, NM</td>
<td>4</td>
<td>35</td>
</tr>
<tr>
<td>Las Cruces, NM</td>
<td>5</td>
<td>47</td>
</tr>
<tr>
<td>Guadalupe Pass, TX</td>
<td>7</td>
<td>60</td>
</tr>
<tr>
<td>Ruidoso, NM</td>
<td>7</td>
<td>55</td>
</tr>
<tr>
<td>El Paso, TX</td>
<td>7</td>
<td>48</td>
</tr>
<tr>
<td>Juarez, MX</td>
<td>7</td>
<td>44</td>
</tr>
<tr>
<td>Marfa, TX</td>
<td>8</td>
<td>31</td>
</tr>
</tbody>
</table>
This GOES composite image shows an extensive dust storm originating in southeast Arizona, New Mexico, and Chihuahua blowing towards West Texas including the El Paso area. The time on the image is Greenwich Mean Time just after midnight on April 5, 2005, which is equivalent of 5:08 PM Mountain Daylight Time (MDT) on April 4, 2005. This image shows multiple individual plumes of dust originating in Arizona, New Mexico, and Chihuahua.
Figure 2: View from Ranger Peak Cameras on a Clear Day

View of El Paso in the bottom part of the picture and Ciudad Juárez behind it. Ranger Peak is on the southern edge of the Franklin Mountains about 6 km north of the Rio Grande River in El Paso. The mountains in the top left center (south) are about 55 miles (88 km) from the camera. The peak on the top right corner of the image is in the Juarez Mountains, about 16 km from the camera. This panoramic image is the composite from two cameras.

Figure 3: View from Ranger Peak Cameras at 5:01 pm on April 4, 2005
View of El Paso in the bottom part of the picture and Ciudad Juarez behind it. Ranger Peak is on the southern edge of the Franklin Mountains about 6 km north of the Rio Grande River in El Paso. The mountains in the top left center (south) are about 55 miles (88 km) from the camera. The peak on the top right corner of the image is in the Juarez Mountains, about 16 km from the camera. This panoramic image is the composite from two cameras.

**Figure 4: View from Ranger Peak Cameras at 5:01 pm on April 4, 2005**

Figure 4, *(View from Ranger Peak Cameras at 5:01 PM on April 4, 2005)*, during the dust storm shows a dense uniform haze. Ciudad Juarez and the distant mountains are obscured by the pinkish white haze.

Figure 3, *(View from Ranger Peak Cameras on a Clear Day)*, shows El Paso and Cuidad Juarez on a clear day. This visual range is greater than 88 km since the farthest peak in the Juarez Mountains is visible. Figure 4 *(View from Ranger Peak Cameras at 5:01 PM on April 4, 2005)*, shows the dust storm event on the afternoon of April 4, 2005. The visual range for this dust storm is slightly greater than 16 km based on the fact that near the peak of the Juarez Mountains is a barely visible faint dark spot. A comparison of Figure 3, *(View from Ranger Peak Cameras on a Clear Day)*, and Figure 4, *(View from Ranger Peak Cameras at 5:01 PM on April 4, 2005)*, shows that uniform haze with no apparent upper boundary was present. This is characteristic of a regional scale visibility effect. The color of the haze suggests that the haze is principally composed of entrained soil based particulate matter, which is reddish in color in the Chihuahuan Desert.
The following images are additional documentation of the April 4, 2005 dust storm event included in this document:

- Satellite Image – Geostationary Operational Environmental Satellites (GOES) Composite; (Figure 2-5)
- Webcam Panorama - Ranger Peak - Before Dust Storm; (Figure 2-6) (and
- Webcam Panorama - Ranger Peak - During Dust Storm (Figure 2-7).

Further supporting documents for the April 4, 2005 event, are not included in this document because the large size (over 60 images), but may be found on the website:

- Satellite Animation - West Texas
- Satellite Image West Texas 11:28 a.m. MDT - False Color (from UT CSR)
- Satellite Image El Paso 2:17 p.m. MDT - True Color (from UT CSR)
- Satellite Image West Texas 2:17 p.m. MDT - True Color (from UT CSR)
- Satellite Image West Texas 5:14 p.m. MDT - False Color (from UT CSR)
- Satellite Image West Texas 6:30 p.m. MDT - False Color (from UT CSR)
- Webcam Animation - Ranger Peak SSW