



GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

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March 8, 2006

Docket ID No. EPA-HQ-OAR-2001-0017

Mr. Stephen L. Johnson, EPA Administrator
Environmental Protection Agency
Mailcode: 6102T
1200 Pennsylvania Avenue, NW
Washington, DC 20460

SUBJECT: PUBLIC HEARING ON U.S. EPA PROPOSED RULE: NATIONAL AMBIENT AIR QUALITY
STANDARDS FOR PARTICULATE MATTER – *FEDERAL REGISTER*, JANUARY 17, 2006
PRESENTED IN SAN FRANCISCO ON MARCH 8, 2006

Dear Administrator Johnson,

My name is Theodore Schade. I am the Air Pollution Control Officer for the Great Basin Unified Air Pollution Control District, which regulates air quality in the counties of Alpine, Mono and Inyo in eastern California. Thank you for providing a forum for those of us interested in the nation's air quality to discuss the U.S. EPA's recent proposed rules regarding particulate matter (PM) air pollution. The Great Basin APCD has the dubious distinction of being home to two of the largest single sources of coarse particulate matter air pollution in the country: the dried beds of Owens and Mono Lakes. We hope that because of this you will give our comments more than due consideration.

I would like to discuss two main points in my statement today. Many additional issues are discussed in my complete written comments. During my testimony I will show some time-lapse video of dust emissions from the Owens Lake bed. Every four seconds of video corresponds to one hour of clock-time. The 24-hour PM₁₀ concentrations in the videos range from 1300 to over 4000 µg/m³.

1. The PM air pollution levels at Owens and Mono Lakes are the Highest in the U.S.

One hundred years ago Owens and Mono Lakes were two of the largest natural lakes in California. They are both saltwater terminal lakes—freshwater flows into them but only leaves through evaporation. The small amount of chemicals contained in the fresh inflow waters are left behind as water evaporates and over thousands of years these chemicals have concentrated and

made the lakes very salty—more than twice as salty as seawater. However, due to water diversions from the eastern Sierra by the City of Los Angeles that began in 1913, by the mid-1920s Owens Lake was essentially dry and by 1980 Mono Lake was over 50 feet lower than it had been in 1920.

The City of Los Angeles' water diversions caused the lake levels to drop and the sediments on the beds of Owens and Mono Lakes became exposed and subject to wind erosion. The resulting dust storms are the worst source of particulate matter air pollution in the United States, both in terms of maximum levels of 24-hour PM_{10} values and in terms of total tons emitted per year. The current federal 24-hour standard for PM_{10} is $150 \mu\text{g}/\text{m}^3$. Since 2000, the highest annual 24-hour PM_{10} values at Mono Lake have ranged from 987 to $10,500 \mu\text{g}/\text{m}^3$ and from 5,500 to $21,000 \mu\text{g}/\text{m}^3$ at Owens Lake. These are exceedances of up to 140 times the current federal standard. The State Implementation Plans (SIPs) for these two sources estimate that prior to placement of dust controls, Mono Lake emitted 5,700 tons of PM_{10} annually and Owens Lake emitted over 80,000 tons per year.

Along with this statement I am submitting tables that summarize the highest levels of PM_{10} measured in the entire U.S. for each year between 2000 and 2004. Of the 100 highest "dusty days" that occurred in the entire U.S. during that 5-year period, 99 of the days occurred at Owens and Mono Lakes.

In addition to extreme PM_{10} levels, the standard is exceeded on a frequent basis in the eastern Sierra. During the 5-year period from 2000 through 2004, the federal 24-hour PM_{10} standard of $150 \mu\text{g}/\text{m}^3$ was violated on 247 days in the Owens Valley and Mono Basin non-attainment areas. That is 14 percent of the time or an average of seven weeks per year.

Owens and Mono Lakes are located in eastern California, which is sparsely populated—an estimated 40,000 people are affected by the PM_{10} emissions, including the residents of five federally-recognized Indian tribes. However, because the dust from the lake beds is generally coarse, or greater than 2.5 microns in size, and the exposed population is less than 100,000, the U.S. EPA's proposed coarse PM standard would simply redefine the extreme dust emissions from Owens and Mono Lakes as "not air pollution" and the federal PM standards would not provide the protection intended by Congress (as well as the protection that 40,000 people deserve). Great Basin requests that the U.S. EPA amend the proposed rule to require coarse PM controls in the Owens Valley and Mono Basin non-attainment areas.

2. All dust, including "rural" dust, is NOT created equal

The EPA argues in the proposed rule that there is an intrinsic difference between the coarse dust created in cities with more than 100,000 people (urban dust) and the dust generated in areas with less than 100,000 people (rural dust). That may very well be true, even if the EPA's distinction between urban and rural (100,000 people) is completely disconnected from the mechanisms that cause dust. However, it is certainly true that there are differences in the chemical compositions of coarse dusts generated in different rural areas. Because Owens and Mono Lakes are both saltwater terminal lake basins (water flows in, but only leaves through evaporation), the chemicals naturally found in their sediments are concentrated many times above the natural levels found in upland areas. For example, the PM_{10} generated at Owens Lake contains naturally-

elevated levels of the metals arsenic (greater than 250 ppm), cadmium (greater than 50 ppm) and nickel (≈ 40 ppm) and it contains extremely high levels of sulfate salts (greater than 17%). These are precisely the type of particles that the EPA contends can “influence health responses.” They are also the type of particles that the proposed rule will protect urban residents from.

We argue that our “rural dust” is every bit as toxic, and possibly even more toxic, than most “urban dusts.” Yet, under the U.S. EPA’s proposed standards, because the dust does not directly affect more than 100,000 people and is not caused by urban processes, we would be denied the protection provided by the Clean Air Act to more populated areas. If Owens or Mono Lakes were located in Los Angeles, the extreme PM_{10} levels and toxics would require these problems to be controlled. It is only because we do not have a large population that the proposed standard would deny our protection. The coarse dust from our dried lake beds is extreme and toxic—it must be controlled; why should it matter that less than 100,000 people are affected? The proposed rule must be amended to require coarse PM controls in the Owens Valley and Mono Basin non-attainment areas, as well as in all rural communities threatened by toxic dust, regardless of the source.

Conclusion

The U.S. EPA’s proposed particulate matter rule must be amended to include clean air protections for the millions of Americans that live in rural areas who are potentially exposed to health-threatening levels of coarse particulate matter air pollution. In particular, the proposed rule must be revised to require control PM_{10} emissions from Owens and Mono Lakes—two of the largest single sources of particulate matter air pollution in the country.

Thank you for the opportunity to comment on this important issue.

Sincerely,



Theodore D. Schade
Air Pollution Control Officer

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Highest 24-Hour PM-10 Values in the U.S. - 2000 thru 2004

Note: All PM-10 values are in units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Owens Lake and Mono Lake are located in the Great Basin Air Pollution Control District

SUMMARY

| Year | # of Great Basin in Top 20 | Great Basin Highest in USA? | non-Great Basin Highest Rank | Highest Great Basin Value | Highest non-Great Basin Value |
|------|----------------------------|-----------------------------|------------------------------|---------------------------|-------------------------------|
| 2000 | 20 | Yes | 24 | 10,842 | 508 |
| 2001 | 20 | Yes | 27 | 20,754 | 610 |
| 2002 | 20 | Yes | 28 | 7,915 | 590 |
| 2003 | 19 | Yes | 20 | 16,619 | 590 |
| 2004 | 20 | Yes | 22 | 5,225 | 625 |

2004

| RANK | PM-10 | Date | Location |
|------|-------|------------|---|
| 1 | 5,225 | 4/2/2004 | Owens Lake - Dirty Socks Hot Spring |
| 2 | 4,472 | 3/10/2004 | Owens Lake - Dirty Socks Hot Spring |
| 3 | 4,125 | 11/21/2004 | Owens Lake - Dirty Socks Hot Spring |
| 4 | 3,322 | 3/25/2004 | Owens Lake - Keeler |
| 5 | 3,295 | 4/22/2004 | Owens Lake - Dirty Socks Hot Spring |
| 6 | 2,214 | 5/10/2004 | Owens Lake - Dirty Socks Hot Spring |
| 7 | 2,116 | 11/27/2004 | Owens Lake - Dirty Socks Hot Spring |
| 8 | 1,901 | 4/1/2004 | Owens Lake - Shell Cut Monitor |
| 9 | 1,374 | 12/21/2004 | Owens Lake - Shell Cut Monitor |
| 10 | 1,268 | 5/11/2004 | Owens Lake - Dirty Socks Hot Spring |
| 11 | 1,241 | 4/28/2004 | Owens Lake - Dirty Socks Hot Spring |
| 12 | 987 | 9/18/2004 | Mono Lake North Shore |
| 13 | 913 | 5/17/2004 | Mono Lake North Shore |
| 14 | 898 | 10/18/2004 | Mono Lake North Shore |
| 15 | 871 | 10/19/2004 | Mono Lake North Shore |
| 16 | 843 | 5/12/2004 | Mono Lake North Shore |
| 17 | 813 | 2/18/2004 | Owens Lake - Keeler |
| 18 | 781 | 12/23/2004 | Owens Lake - Shell Cut Monitor |
| 19 | 741 | 1/31/2004 | Owens Lake - Shell Cut Monitor |
| 20 | 686 | 2/9/2004 | Owens Lake - Shell Cut Monitor |
| 21 | 669 | 11/22/2004 | Owens Lake - Dirty Socks Hot Spring |
| 22 | 625 | | Black Thunder Mine, WY (Highest non-Great Basin APCD value in U.S.A.) |

Highest 24-Hour PM-10 Values in the U.S. - 2000 thru 2004 (Continued)

2003

| RANK | PM-10 | Date | Location |
|------|--------|-----------|--|
| 1 | 16,619 | 2/2/2003 | Owens Lake - Dirty Socks Hot Spring |
| 2 | 6,592 | 3/18/2003 | Owens Lake - Dirty Socks Hot Spring |
| 3 | 5,745 | 4/25/2003 | Mono Lake North Shore |
| 4 | 5,283 | 4/24/2003 | Mono Lake North Shore |
| 5 | 3,586 | 2/4/2003 | Owens Lake - Dirty Socks Hot Spring |
| 6 | 2,521 | 5/14/2003 | Owens Lake - Dirty Socks Hot Spring |
| 7 | 2,400 | 2/5/2003 | Owens Lake - Shell Cut Monitor |
| 8 | 2,327 | 3/27/2003 | Owens Lake - Dirty Socks Hot Spring |
| 9 | 2,265 | 2/20/2003 | Owens Lake - Dirty Socks Hot Spring |
| 10 | 2,195 | 3/13/2003 | Owens Lake - Dirty Socks Hot Spring |
| 11 | 2,030 | 3/28/2003 | Owens Lake - Dirty Socks Hot Spring |
| 12 | 1,658 | 3/14/2003 | Mono Lake North Shore |
| 13 | 1,637 | 3/17/2003 | Owens Lake - Dirty Socks Hot Spring |
| 14 | 1,218 | 1/5/2003 | Owens Lake - Dirty Socks Hot Spring |
| 15 | 1,209 | 3/14/2003 | Owens Lake - Keeler |
| 16 | 1,170 | 4/13/2003 | Mono Lake North Shore |
| 17 | 1,169 | 2/1/2003 | Owens Lake - Dirty Socks Hot Spring |
| 18 | 979 | 7/22/2003 | Owens Lake - Dirty Socks Hot Spring |
| 19 | 672 | 4/18/2003 | Owens Lake - Dirty Socks Hot Spring |
| 20 | 590 | | El Paso, TX (Highest non-Great Basin APCD value in U.S.A.) |

2002

| RANK | PM-10 | Date | Location |
|------|-------|------------|--|
| 1 | 7,915 | 3/1/2002 | Owens Lake - Dirty Socks Hot Spring |
| 2 | 7,071 | 4/17/2002 | Owens Lake - Dirty Socks Hot Spring |
| 3 | 6,505 | 5/19/2002 | Mono Lake North Shore |
| 4 | 3,089 | 4/14/2002 | Mono Lake North Shore |
| 5 | 2,962 | 6/9/2002 | Owens Lake - Shell Cut Monitor |
| 6 | 2,638 | 11/25/2002 | Owens Lake - Shell Cut Monitor |
| 7 | 2,525 | 2/28/2002 | Owens Lake - Dirty Socks Hot Spring |
| 8 | 2,295 | 4/15/2002 | Owens Lake - Dirty Socks Hot Spring |
| 9 | 1,785 | 11/26/2002 | Owens Lake - Shell Cut Monitor |
| 10 | 1,745 | 11/7/2002 | Mono Lake North Shore |
| 11 | 1,671 | 5/10/2002 | Owens Lake - Dirty Socks Hot Spring |
| 12 | 1,654 | 6/8/2002 | Owens Lake - Dirty Socks Hot Spring |
| 13 | 1,504 | 3/10/2002 | Owens Lake - Dirty Socks Hot Spring |
| 14 | 1,481 | 5/20/2002 | Mono Lake North Shore |
| 15 | 1,172 | 1/9/2002 | Owens Lake - Dirty Socks Hot Spring |
| 16 | 1,157 | 4/15/2002 | Mono Lake North Shore |
| 17 | 1,109 | 1/19/2002 | Owens Lake - Dirty Socks Hot Spring |
| 18 | 1,099 | 3/18/2002 | Owens Lake - Dirty Socks Hot Spring |
| 19 | 972 | 3/13/2002 | Owens Lake - Dirty Socks Hot Spring |
| 20 | 967 | 3/6/2002 | Owens Lake - Dirty Socks Hot Spring |
| 21 | 871 | 1/22/2002 | Owens Lake - Dirty Socks Hot Spring |
| 22 | 857 | 5/7/2002 | Owens Lake - Dirty Socks Hot Spring |
| 23 | 809 | 12/31/2002 | Owens Lake - Dirty Socks Hot Spring |
| 24 | 790 | 10/2/2002 | Owens Lake - Shell Cut Monitor |
| 25 | 784 | 4/26/2002 | Owens Lake - Dirty Socks Hot Spring |
| 26 | 611 | 1/29/2002 | Owens Lake - Dirty Socks Hot Spring |
| 27 | 611 | 4/18/2002 | Owens Lake - Dirty Socks Hot Spring |
| 28 | 590 | | El Paso, TX (Highest non-Great Basin APCD value in U.S.A.) |

Highest 24-Hour PM-10 Values in the U.S. - 2000 thru 2004 (Continued)

2001

| RANK | PM-10 | Date | |
|------|--------|------------|--|
| 1 | 20,754 | 5/2/2001 | Owens Lake - Dirty Socks Hot Spring |
| 2 | 12,153 | 2/8/2001 | Owens Lake - Dirty Socks Hot Spring |
| 3 | 10,963 | 2/7/2001 | Owens Lake - Dirty Socks Hot Spring |
| 4 | 5,124 | 2/6/2001 | Owens Lake - Dirty Socks Hot Spring |
| 5 | 4,482 | 9/25/2001 | Mono Lake North Shore |
| 6 | 4,130 | 5/3/2001 | Owens Lake - Dirty Socks Hot Spring |
| 7 | 3,912 | 6/13/2001 | Owens Lake - Dirty Socks Hot Spring |
| 8 | 3,541 | 12/14/2001 | Owens Lake - Dirty Socks Hot Spring |
| 9 | 3,519 | 4/10/2001 | Owens Lake - Dirty Socks Hot Spring |
| 10 | 3,302 | 12/10/2001 | Owens Lake - Dirty Socks Hot Spring |
| 11 | 2,730 | 4/1/2001 | Owens Lake - Dirty Socks Hot Spring |
| 12 | 2,646 | 6/4/2001 | Owens Lake - Dirty Socks Hot Spring |
| 13 | 2,044 | 1/16/2001 | Owens Lake - Dirty Socks Hot Spring |
| 14 | 1,923 | 4/11/2001 | Owens Lake - Dirty Socks Hot Spring |
| 15 | 1,517 | 6/1/2001 | Owens Lake - Dirty Socks Hot Spring |
| 16 | 1,469 | 4/19/2001 | Owens Lake - Keeler |
| 17 | 1,195 | 11/22/2001 | Owens Lake - Dirty Socks Hot Spring |
| 18 | 1,143 | 10/12/2001 | Owens Lake - Dirty Socks Hot Spring |
| 19 | 1,082 | 6/3/2001 | Owens Lake - Dirty Socks Hot Spring |
| 20 | 993 | 4/12/2001 | Owens Lake - Dirty Socks Hot Spring |
| 21 | 945 | 12/15/2001 | Owens Lake - Dirty Socks Hot Spring |
| 22 | 872 | 2/28/2001 | Owens Lake - Dirty Socks Hot Spring |
| 23 | 822 | 3/29/2001 | Owens Lake - Dirty Socks Hot Spring |
| 24 | 789 | 4/20/2001 | Owens Lake - Keeler |
| 25 | 750 | 3/10/2001 | Owens Lake - Dirty Socks Hot Spring |
| 26 | 665 | 1/27/2001 | Owens Lake - Dirty Socks Hot Spring |
| 27 | 610 | | Jasper County, MO (Highest non-Great Basin APCD value in U.S.A.) |

2000

| RANK | PM-10 | Date | |
|------|--------|------------|--|
| 1 | 10,842 | 10/22/2000 | Owens Lake - Dirty Socks Hot Spring |
| 2 | 10,549 | 3/20/2000 | Owens Lake - Dirty Socks Hot Spring |
| 3 | 10,466 | 11/29/2000 | Mono Lake North Shore |
| 4 | 3,454 | 10/21/2000 | Owens Lake - Dirty Socks Hot Spring |
| 5 | 3,169 | 3/21/2000 | Owens Lake - Dirty Socks Hot Spring |
| 6 | 3,078 | 5/11/2000 | Owens Lake - Dirty Socks Hot Spring |
| 7 | 3,059 | 5/9/2000 | Mono Lake North Shore |
| 8 | 2,524 | 4/29/2000 | Owens Lake - Dirty Socks Hot Spring |
| 9 | 1,923 | 3/30/2000 | Owens Lake - Dirty Socks Hot Spring |
| 10 | 1,642 | 6/7/2000 | Mono Lake North Shore |
| 11 | 1,607 | 3/31/2000 | Owens Lake - Dirty Socks Hot Spring |
| 12 | 1,513 | 5/10/2000 | Mono Lake North Shore |
| 13 | 1,350 | 4/28/2000 | Owens Lake - Dirty Socks Hot Spring |
| 14 | 1,266 | 11/7/2000 | Owens Lake - Dirty Socks Hot Spring |
| 15 | 1,063 | 5/4/2000 | Mono Lake North Shore |
| 16 | 977 | 6/8/2000 | Owens Lake - Dirty Socks Hot Spring |
| 17 | 843 | 11/6/2000 | Owens Lake - Dirty Socks Hot Spring |
| 18 | 798 | 12/24/2000 | Owens Lake - Dirty Socks Hot Spring |
| 19 | 690 | 4/8/2000 | Mono Lake North Shore |
| 20 | 627 | 11/29/2000 | Owens Lake - Dirty Socks Hot Spring |
| 21 | 548 | 12/25/2000 | Owens Lake - Dirty Socks Hot Spring |
| 22 | 528 | 2/14/2000 | Owens Lake - Keeler |
| 23 | 514 | 4/8/2000 | Owens Lake - Keeler |
| 24 | 508 | | Las Vegas, NV (Highest non-Great Basin APCD value in U.S.A.) |