THEODORE D. SCHADE
AIR POLLUTION CONTROL OFFICER

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT
157 SHORT STREET, BISHOP, CALIFORNIA 93514-3537
TEL: 760-872-8211 FAX: 760-872-6109 gb1@greatbasinapcd.org

February 15, 2006

California State Senate Select Committee on Air Quality
Hearing on Health and Air Quality Impacts of Federal Roll Back of Particulate Rules
Senator Dean Florez, Chair

California State Capitol, Room 2040

Statement of Theodore D. Schade,
Air Pollution Control Officer, Great Basin Unified Air Pollution Control District

Dear Senator Florez,

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 California'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 four main points in my statement today. Additional points are summarized at the end of my statement.

1. The 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 amounts 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. During the first part of the 20th century the City of Los Angeles obtained the rights to much of the freshwater supplies in eastern California and diverted waters destined for Owens and Mono Lakes into the Los Angeles Aqueduct and south to their growing city. The water diversions cut off inflows to the lakes and 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 PM_{10} 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 $\mu g/m^3$. Since 2000, the highest annual 24-hour PM_{10} values have ranged from 987 to 10,500 $\mu g/m^3$ at Mono Lake and from 5,500 to 21,000 $\mu g/m^3$ at Owens Lake. These are exceedances of up to 140 times the 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 $\mu g/m^3$ 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 has requested the U.S. EPA to amend the proposed rule to require coarse PM controls in the Owens Valley and Mono Basin non-attainment areas.

2. At some level, even "rural dust" must be harmful

Although the EPA contends that windblown, agricultural and mining dusts are not harmful, there can be no argument that at some high concentration, even these dusts will cause adverse health effects. The few health studies that have been conducted where wind-blown dust was at least some part of the total dust component looked at 24-hour concentrations of at most only a few hundred micrograms per cubic meter. Twenty-four-hour PM_{10} concentrations at Owens and Mono Lakes can be from 10 to 140 times the standard. These levels of PM_{10} are surely harmful, even on an episodic basis. The extreme levels experienced by residents in the Great Basin Air Pollution Control District require an amendment to the U.S. EPA's proposed rule to require controls on these and any other extreme PM sources in order to protect our health.

3. 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.

The 14th Amendment to the U.S. Constitution guarantees "equal protection of the laws" to all citizens. And recent discussions regarding "environmental justice" have made us aware of the need to equally protect the environment of all Americans. It seems that no one would argue that air pollution that would be considered hazardous, and therefore regulated, in a populous city (like Los Angeles) should be equally regulated in rural communities (like the Owens Valley). 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 are denied the protection provided by the Clean Air Act (and the Constitution) 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.

4. Progress has been made and must continue

In 1998 the EPA approved a PM_{10} State Implementation Plan for the air pollution from Owens Lake—the largest single source of particulate matter air pollution in the country. In 2000 the City of Los Angeles began solving the problem by constructing Best Available Controls Measures on the lake bed. By the end of 2006 the City of Los Angeles will have spent about $415 million to control annual PM_{10} emissions of over 80,000 tons and they will have constructed control measures on 30 square miles (19,000 acres) of emissive lake bed. In addition, the controls have been cost-effective. We estimate that final controls will cost on the order of $1,000 per ton—reasonable PM_{10} controls adopted by the South Coast AQMD range as high as $13,400 per ton. The cost per ton for control of windblown dust in the San Joaquin Valley Unified APCD ranges from $7,700 to $65,000 per ton.

Our current dust control efforts at Owens Lake are well on the way toward eliminating this enormous source of air pollution. But, it is an enormous problem and it will take time for us to be successful. However, now in 2006 the EPA is proposing to revise the coarse PM standard to redefine the toxic dust emissions from Owens Lake as "not air pollution." The proposed standard must make provisions for preserving the progress that has been made to date. It must also provide a means to finally solve the PM problems at Owens and Mono Lakes.

Additional Comments

5. During development of the 1990 Clean Air Act amendments, the U.S. Congress specifically required control of the air pollution from Owens and Mono Lakes. The proposed National Ambient Air Quality Standards for PM must be amended to carry out Congress' directives.

6. The proposed NAAQS PM rule would protect only about two percent of the country's land mass and only 63 percent of the population. 103 million people and over 3.5 million square miles would not be protected from elevated levels of harmful coarse PM.

7. Section 172(e) of the Clean Air Act requires "no backsliding." The EPA Administrator must provide for equivalent controls for non-attainment areas (like Owens and Mono Lakes) which are not less stringent than controls applicable to areas designated non-attainment prior to any modification of the NAAQS. The proposed NAAQS PM rule must be amended to require coarse PM controls in all existing PM_{10} non-attainment areas.

8. Dust storms from Owens Lake are a threat to operations at the U.S. Navy's China Lake Naval Air Weapons Station and are therefore a threat to national security. The proposed NAAQS PM rule must be amended to require coarse PM controls in the Owens Valley non-attainment area.

9. Three Class I national parks and four Class I wilderness areas, which are granted special air quality protections in the federal Clean Air Act, are adjacent to the Owens and Mono Lakes non-attainment areas. Windblown dust from Owens and Mono Lakes can impact the air quality in these national parks and wilderness areas. The proposed PM NAAQS rule must be amended to require coarse PM controls in the Owens Valley and Mono Basin non-attainment areas in order to protect these natural resources.

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. If the EPA abandons protections for rural areas, we request that the State of California provide protections at least as stringent as those previously provided by the federal particulate matter standards.

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

Sincerely,

Theodore D. Schade
Air Pollution Control Officer

Enc.

0602131

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 (μg/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	
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.)