# REASONABLE FURTHER PROGRESS REPORT FOR THE MONO BASIN PM-10 STATE IMPLEMENTATION PLAN

September 2001

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1

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This document provides a progress report on air quality trends in the Mono Basin federal *PM-10<sup>1</sup>* nonattainment area since the adoption of the Mono Basin *PM-10* State Implementation *Plan* in May 1995.

#### Introduction

The Mono Basin PM-10 planning area experiences episodes of high PM-10 concentrations due to dust storms generated from the exposed lake bed of Mono Lake. Lake bed sediments and efflorescent salts provide a source of PM-10 sized particles that can become airborne under windy conditions. During the late fall and spring, efflorescent salts form on large portions of Mono Lake's exposed shoreline creating highly erodible soil conditions. Prior to 1995, PM-10 monitors located downwind from dust source areas at Mono Lake measured peak PM-10 concentrations around 1,000  $\mu$ g/m<sup>3</sup>, which was more than 6 times higher than the National Ambient Air Quality Standard (federal standard) of 150  $\mu$ g/m<sup>3</sup> for a 24-hour average.

The exposure of the lake bed to wind erosion is primarily due to the diversion of Mono Lake's tributary streams by the City of Los Angeles from 1941 to 1989. During this period, the City's water diversions caused the lake level to drop approximately 45 feet, exposing more than 9 square miles of highly erodible soils to wind erosion.

The high air pollution levels at Mono Lake prompted the US Environmental Protection Agency to designate the Mono Basin as a federal PM-10 nonattainment area in 1993. The Mono Basin PM-10 nonattainment area was identified as the portion of the Mono Lake hydrologic basin that lies within California. The Mono Basin PM-10 State Implementation Plan (SIP) was adopted by the Great Basin Unified Air Pollution Control District (District) and the State of California in response to this federal nonattainment designation in accordance with the requirements of the 1990 Clean Air Act (Patton and Ono, 1995). In general, a SIP provides an analysis of the air

<sup>&</sup>lt;sup>1</sup> PM-10 stands for particulate matter less than 10 microns. PM-10-sized particles, which are emitted from the wind blown lake bed soils at Mono Lake, are extremely small, less than a tenth the diameter of a human hair. Because of their small size they can penetrate deep into the lungs causing health problems for people with asthma, bronchitis and other heart and lung diseases.

The graph shown in Figure 3 provides a comparison of the lake level to annual runoff (runoff period April 1 - March 31) from 4 creeks that are monitored in the Mono Basin by the City of Los Angeles; Rush, Lee Vining, Parker and Walker (LADWP, 2001 and MLC, 2001). The runoff data does not include other creeks in the basin. Although the long-term mean runoff for the 4 creeks is 118,600 ac-ft/yr based on runoff data from 1946-1995, LADWP has exported 16,000 acre-feet per year in accordance with the amended license since 1997. The exported volume is subtracted from the annual runoff to determine the long-term mean creek runoff to Mono Lake shown in Figure 3. The Los Angeles Department of Water & Power is expected to evaluate the hydrologic model to determine if adjustments need to be made to the model or the input data (McBain, 2001).

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An air quality modeling analysis was performed for the SIP to estimate PM-10 concentrations at the historic Mono Lake shoreline as the lake level rose to submerge wind blown dust areas. The air quality model showed that the 6,391 foot lake level required by Decision 1631 would bring the Mono Basin into attainment with the federal air quality standards for PM-10. Figure 4 shows the results of the modeled PM-10 impacts for Receptor 45, which is the receptor site with the highest modeled PM-10 concentrations. Predicted concentrations at Receptor 45 are shown for each year based on the lake level trend for normal run-off as shown in Figure 1.

#### **Reasonable Further Progress**

The trend line shown in Figure 4 for the PM-10 concentrations using the predicted normal runoff is the 'reasonable further progress' trend expected as a result of implementation of the SIP. In addition to the normal runoff trend line, Figure 4 shows the modeled air quality trend from 1995 to 2001 based on the actual lake level on April 1 for each year at four receptor sites: Simis, Warm Springs, Mono Shore and Receptor 45.

Due to the higher than normal runoff from 1995-1999, air quality improvement was ahead of schedule as indicated by the lower than expected modeled concentrations at the monitor sites. The modeled design day PM-10 concentration<sup>2</sup> for Receptor 45 dropped from 838  $\mu$ g/m<sup>3</sup> in 1995 to 376  $\mu$ g/m<sup>3</sup> in 1999. The modeled air quality trend reversed in 2000 and 2001 as the lake level declined, causing PM-10 concentrations to increase. The model shows Simis in attainment with the PM-10 standard in 2001; however, all sites around the lake shore are not expected to reach attainment until the 6,391 foot lake level target is achieved. Receptor 45, which is the worst case impact site, will not reach attainment until the lake reaches its target level of 6,391 feet. As of April 1, 2001, the lake level was at 6,383.8 feet and is expected to drop over the next year.

<sup>&</sup>lt;sup>2</sup> The design day, which is the 6<sup>th</sup> highest PM-10 concentration at each receptor site during the 5 years modeled for the SIP attainment demonstration, is used to analyze the air quality trend. Attainment with the federal PM-10 standard is demonstrated when the 6<sup>th</sup> highest PM-10 concentration at each receptor site over a 5 year period is below 150  $\mu$ g/m<sup>3</sup>.

<u>Date</u>	PM-10 Concentration	<b>Sampling Frequency</b>
April 8, 2000	690 μg/m³	Daily
May 4, 2000	1,063 µg/m <sup>3</sup>	Daily
May 6, 2000	490 μg/m <sup>3</sup>	Daily
May 9, 2000	3,059 μg/m <sup>3</sup>	Daily
May 10, 2000	$1,513 \mu g/m^3$	Daily
June 7, 2000	$1,642 \ \mu g/m^3$	Daily
June 8, 2000	241 $\mu$ g/m <sup>3</sup>	Daily
October 9, 2000	$387 \mu g/m^3$	Every 3 <sup>rd</sup> Day
November 29, 2000	10,466 µg/m <sup>3</sup>	Every 3 <sup>rd</sup> Day
June 2, 2001	$414 \mu g/m^3$	Daily
June 27, 2001	$150 \mu g/m^3 *$	Daily

### Table 1. Summary of PM-10 violations at Mono Shore monitor site (Jan. 2000 - Jun. 2001).

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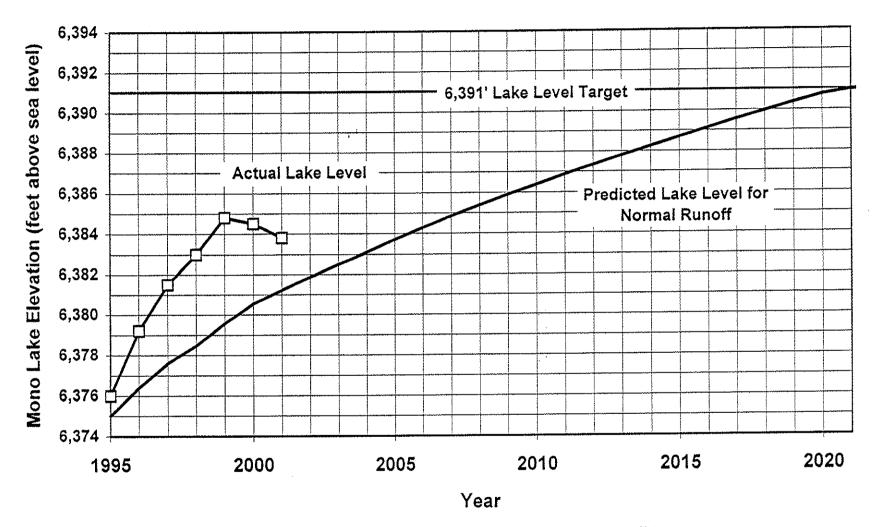
\* Not considered a NAAQS violation, since it didn't exceed  $150 \,\mu g/m^3$ .

#### Conclusion

Dust storms and federal PM-10 standard violations continue to occur in the Mono Basin PM-10 nonattainment area. Since it began operation in January 2000, the new Mono Shore monitor site on the north shore of Mono Lake recorded 10 violations of the federal PM-10 standard. Five of the violations were over 1,000  $\mu$ g/m<sup>3</sup>, with a peak concentration of 10,466  $\mu$ g/m<sup>3</sup>. The Simis PM-10 monitor site data indicates that PM-10 concentrations at this site may now meet the federal standard. The air quality model shows that PM-10 concentrations at all sites should be going down as the lake level rises and that the rate of improvement is currently ahead of the reasonable further progress trend predicted for normal runoff. The rate of progress, however, has slowed as the lake level declined over the last two years. The lake level decreases in 2000 and 2001 were more than expected by the hydrologic model for runoff years with 92% and 82% flow into Mono Lake. An evaluation of the hydrologic model performance should be done to determine if it is performing properly or if it should be modified for future predictions of lake level changes.

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Mono Basin RFP Report September 2001



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Figure 1. Predicted lake level for normal runoff and actual Mono Lake elevations on April 1.

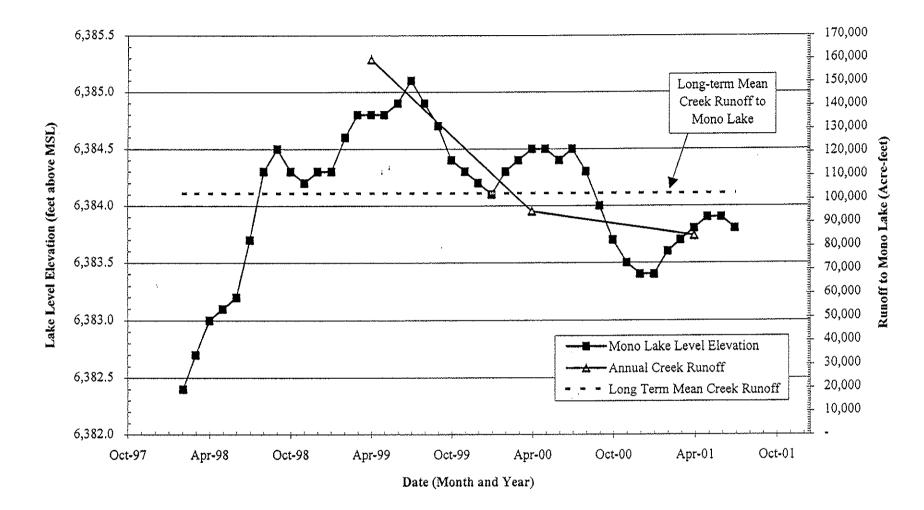


Figure 3. Runoff into Mono Lake and lake level elevations for January 1998 through June 2001 for Rush, Lee Vining, Parker and Walker Creeks (LADWP, 2001 and MLC, 2001).

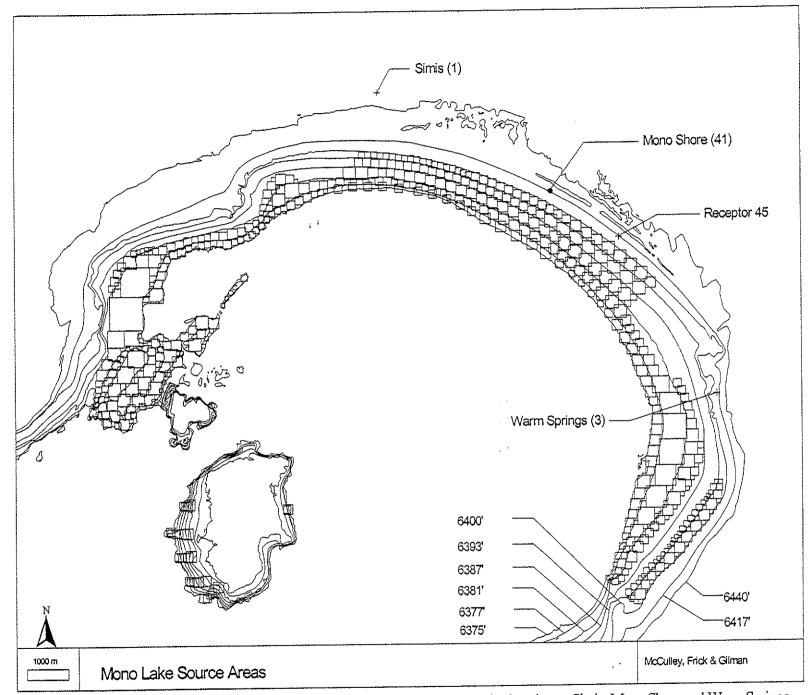


Figure 5. Mono Lake dust source areas and locations of Receptor 45 and monitoring sites at Simis, Mono Shore and Warm Springs.

# APPENDIX A

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# MONO BASIN PM-10 DATA

# SIMIS, LEE VINING & MONO SHORE

# MONITORING SITES

# WITH DATA CAPTURE STATISTICS

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January 1994 through June 2001

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01/02/94	15	19	
01/08/94	6	19	
01/14/94	21	13	
01/20/94	20	ND	
01/26/94	9	6	
02/01/94	17	4	
02/07/94	3	2	
02/13/94	15	4	
02/19/94	8	14	
02/25/94	10	10	
03/03/94	12	ND	
03/09/94	6	ND	
03/15/94	8	ND	
03/21/94	8	ND	
03/27/94	11	ND	
04/02/94	6	ND	
04/08/94	3	ND	
04/15/94	13	ND	
04/20/94	19	ND	
05/02/94	12	ND	
05/08/94	6	ND	
05/14/94	21	ND	
05/20/94	7	ND	
06/01/94	5	ND	
06/07/94	6	ND	
06/13/94	2	ND	
06/25/94	7	ND	
07/01/94	. 6	ND	
07/07/94	11	ND	
07/13/94	16	ND	
07/19/94	15	ND	
07/25/94	9	ND	
07/31/94	10	ND	
08/06/94	12	ND	
08/18/94	19	16	
08/24/94	12	10	
08/30/94	10	10	
09/05/94	ND	10	
09/11/94	10	ND	
09/17/94	11	12	
09/23/94	10	11	
09/29/94	4	ND	

Federal PM<sub>10</sub> Std. =  $150 \ \mu g/m^3$ State PM<sub>10</sub> Std. =  $50 \ \mu g/m^3$  F = Fire nearby M = Make-up for scheduled run ND = No data for this date

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
06/14/95	16	103	
06/20/95	6	7	
06/26/95	11	10	
07/02/95	8	ND	
07/08/95	12	ND	
07/14/95	9	10	
07/20/95	12	ND	
07/26/95	5	8	
08/01/95	16	14	
08/07/95	10	43	
08/13/95	ND	18	
08/19/95	11	8	
08/25/95	13	14	
08/31/95	20	13	
09/06/95	9	12	
09/11/95	11	ND	
09/18/95	13	ND	
09/24/95	10	12	
09/30/95	ND	6	
10/06/95	17	17	
10/12/95	9	ND	
10/18/95	8	ND	
10/24/95	12	ND	
10/30/95	13	ND	:
11/11/95	ND	7	
11/17/95	ND	6	
11/23/95	ND	7	
11/29/95	ND	3	
12/05/95	ND	5	
12/11/95	ND	7	
12/17/95	18	ND	
12/23/95	13	ND	
12/29/95	11	ND	
01/04/96	10	ND	
01/10/96	13	ND	
01/16/96	5	6	
01/22/96	15	4	······································
01/28/96	10	5	
02/03/96	12	7	
02/09/96	15	3	
02/15/96	14	5	
02/27/96	12	ND	

Federal  $PM_{10}$  Std. = 150  $\mu$ g/m<sup>3</sup> State  $PM_{10}$  Std. = 50  $\mu$ g/m<sup>3</sup> F = Fire nearby M = Make-up for scheduled run ND = No data for this date

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
11/11/96	17	0	
11/17/96	5	8	
11/23/96	14	6	
11/29/96	10	5	
12/05/96	ND	8	
12/11/96	11	8	
12/13/96	8 M	ND	
12/17/96	14	5	
12/23/96	12	3	
12/29/96	10	6	
01/04/97	6	3	
01/10/97	8	6	
01/16/97	16	0	
01/22/97	2	. 1	
01/28/97	11	2	
02/03/97	16	2	······································
02/09/97	10	ND	······································
02/13/97	ND	4 M	
02/15/97	14	3	
02/21/97	12	1	
02/27/97	7	3	······································
03/05/97	9	4	
03/11/97	8	6	
03/17/97	7	6	
03/23/97	7	6	
03/29/97	9	7	
04/04/97	13	13	
04/10/97	4	4	
04/16/97	19	12	
04/22/97	7	7	
04/28/97	11	15	
05/04/97	10	9	
05/10/97	10	8	
05/16/97	12	10	
05/22/97	13	9	
05/28/97	11	7	
06/03/97	11	10	[
06/09/97	8	8	
06/15/97	7	4	
06/21/97	7	9	-
06/27/97	13	11	<u>+</u> +
07/03/97	10	11	

Federal  $PM_{10}$  Std. = 150 µg/m<sup>3</sup> State  $PM_{10}$  Std. = 50 µg/m<sup>3</sup> F = Fire nearby M = Make-up for scheduled run ND = No data for this date

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
03/12/98	48	7	
03/18/98	17	7	
03/24/98	6	7	
03/30/98	10	5	
04/05/98	8	5	
04/11/98	7	5	
04/17/98	10	5	
04/23/98	40	45	
04/29/98	27	25	
05/05/98	3	3	
05/11/98	ND	8	
05/17/98	ND	ND	
05/23/98	ND	9	
05/29/98	ND	10	
06/04/98	ND	10	
06/10/98	ND	7	
06/16/98	ND	14	
06/22/98	ND	11	
06/28/98	ND	7	
07/04/98	ND	11	
07/10/98	ND	11	
07/16/98	ND	11	
07/22/98	ND	8	
07/28/98	16	9	
08/03/98	- 13	12	
08/09/98	ND	10	
08/15/98	13	12	
08/21/98	11	7	
08/27/98	15	10	
09/02/98	13	11	
09/08/98	14	8	
09/14/98	13	8	
09/20/98	4	ND	
09/26/98	3	4	
10/02/98	9	4	
10/08/98	9	8	
10/14/98	12	9	
10/20/98	12	9	
10/26/98	9	10	
11/01/98	6	5	
11/07/98	6	24	
11/13/98	17	5	

Federal  $PM_{10}$  Std. = 150 µg/m<sup>3</sup> State  $PM_{10}$  Std. = 50 µg/m<sup>3</sup> F = Fire nearby M = Make-up for scheduled run ND = No data for this date ٠.

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(μg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
04/18/99	13	3	
04/21/99	40	32	
04/24/99	15	ND	,,,,,,, _
04/27/99	10	15	
04/30/99	ND	7	
05/03/99	18	33	
05/06/99	ND	20	
05/09/99	12	13	
05/12/99	17	32	
05/15/99	10	10	
05/18/99	12	12	
05/21/99	13	14	
05/24/99	13	12	
05/27/99	18	11 .	
05/30/99	14	14	
06/02/99	12	ND	
06/05/99	8	9	
06/08/99	8	6	
06/11/99	13	10	
06/14/99	6	12	
06/17/99	14	13	
06/20/99	ND	10	
06/23/99	18	24	
06/26/99	10	ND	
07/02/99	24	28	
07/05/99	11	ND	
07/08/99	15	14	
07/11/99	11	13	
07/14/99	21	21	
07/17/99	10	11	
07/20/99	20	13	
07/23/99	14	13	
07/26/99	10	9	
07/29/99	9	9	
08/01/99	ND	10	
08/04/99	ND	9	
08/07/99	9	7	
08/10/99	8	6	
08/13/99	8	6	
08/16/99	11	8	
08/19/99	14	13	
08/22/99	13	12	

Federal PM<sub>10</sub> Std. =  $150 \mu g/m^3$ State PM<sub>10</sub> Std. =  $50 \mu g/m^3$ 

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F = Fire nearby M = Make-up for scheduled run ND = No data for this date ٠.

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
01/07/00	18	8	
01/10/00	24	25	
01/13/00	7	5	10
01/14/00	ND ·	ND	7
01/15/00	ND	ND	5
01/16/00	6	4	ND
01/17/00	ND	ND	4
01/19/00	7.	3	5
01/20/00	ND	ND	5
01/21/00	ND	ND	3
01/22/00	8	5	4
01/23/00	ND	ND	4
01/24/00	ND	ND	3
01/25/00	5	2	2
01/27/00	ND	ND	4
01/28/00	14	5	3
01/29/00	ND	ND	5
01/30/00	ND	ND	4
01/31/00	8	4	3
02/01/00	ND	ND	3
02/03/00	62	11	101
02/04/00	ND	ND	13
02/05/00	ND	ND	14
02/06/00	8	ND	4
02/07/00	·ND	ND	
02/08/00	ND	ND	6
02/09/00	10	ND	ND
02/10/00	ND	ND	5
02/11/00	ND	ND	8
02/12/00	4	2	5
02/13/00	ND	ND	7
02/14/00	ND	ND	9
02/15/00	8	5	3
02/16/00	ND	ND	5
02/18/00	8	4	4
02/19/00	ND	ND	6
02/20/00	ND	ND	19
02/21/00	11	3	5
02/22/00	ND	ND	81
02/23/00	ND	ND	7
02/24/00	11	2	1
02/25/00	ND	ND ND	3

Federal PM<sub>10</sub> Std. =  $150 \mu g/m^3$ State PM<sub>10</sub> Std. =  $50 \mu g/m^3$  F = Fire nearby M = Make-up for scheduled run ND = No data for this date

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
04/08/00	ND	ND	690
04/09/00	7	8	25
04/10/00	ND	ND	12
04/11/00	ND	ND	9
04/12/00	13	11	15
04/13/00	ND	ND	21
04/14/00	ND	ND	7
04/15/00	5	4	7
04/16/00	ND	ND	10
04/17/00	ND	ND	6
04/18/00	3	10	6
04/19/00	ND	ND	3
04/20/00	ND	ND	5
04/21/00	8	ND .	15
04/22/00	ND	ND	10
04/23/00	ND	ND	10
04/24/00	ND	ND	8
04/25/00	ND	ND	12
04/26/00	ND	ND	27
04/27/00	30	40	31
04/28/00	ND	ND	20
04/29/00	ND	ND	8
04/30/00	11	10	9
05/01/00	ND	ND	12
05/02/00	ND	ND	12
05/03/00	14	19	17
05/04/00	ND	ND	1063
05/05/00	ND	ND	42
05/06/00	7	8	490
05/07/00	ND	ND	7
05/08/00	ND	ND	15
05/09/00	18	50	3059
05/10/00	ND	ND	1513
05/11/00	ND	ND	14
05/12/00	8	8	13
05/13/00	ND	ND	14
05/14/00	ND	ND	51
05/15/00	12	15	ND
05/16/00	ND	ND	23
05/17/00	ND	ND	18
05/18/00	12	10	ND
05/19/00	ND	ND	19

Federal  $PM_{10}$  Std. = 150 µg/m<sup>3</sup> State  $PM_{10}$  Std. = 50 µg/m<sup>3</sup> F = Fire nearby M = Make-up for scheduled run ND = No data for this date ΄.

PM-10     PM-10     PM-10       DATE     (µg/m³)     (µg/m³)     (µg/m³)        07/01/00     ND     ND         07/02/00     8     NDD         07/02/00     ND     ND         07/04/00     ND     ND         07/05/00     ND     ND         07/05/00     ND     ND         07/05/00     ND     ND         07/05/00     ND     ND         07/07/00     ND     ND         07/07/00     ND     ND         07/16/00     ND     ND         07/16/00     ND     ND         07/16/00     ND     ND         07/18/00     ND     ND         07/18/00     ND     ND <t< th=""><th>Mono Shore</th></t<>	Mono Shore
07/01/00     ND     ND       07/02/00     8     ND       07/03/00     ND     ND       07/03/00     ND     ND       07/04/00     ND     ND       07/05/00     ND     ND       07/05/00     ND     ND       07/06/00     ND     ND       07/07/00     ND     ND       07/10/00     ND     ND       07/11/00     17     ND       07/11/00     ND     ND       07/11/00     ND     ND       07/11/00     ND     ND       07/11/00     ND     ND       07/12/00     ND     ND       07/21/00     ND     ND       07/22/00     ND     ND  <	PM-10
07/02/00     8     ND     ND       07/03/00     ND     ND     ND       07/04/00     ND     ND     ND       07/05/00     ND     ND     ND       07/06/00     ND     ND     ND       07/07/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     16     11     1       07/15/00     ND     ND     0       07/16/00     ND     ND     0       07/16/00     ND     ND     0       07/17/00     ND     ND     0       07/20/00     13     8     0       07/21/00     ND	(µg/m <sup>3</sup> )
07/03/00     ND     ND     ND       07/04/00     ND     ND     ND       07/05/00     ND     ND     ND       07/06/00     ND     ND     ND       07/07/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     16     11     1       07/14/00     16     11     1       07/15/00     ND     ND     1       07/16/00     ND     ND     1       07/16/00     ND     ND     1       07/16/00     ND     ND     1       07/12/00     ND     ND     1       07/20/00     12     17     1       07/23/00     ND	9
07/04/00     ND     ND     ND       07/05/00     ND     ND     ND       07/06/00     ND     ND     ND       07/07/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     17     ND     ND       07/14/00     16     11     1       07/15/00     ND     ND     ND       07/16/00     ND     ND     0       07/18/00     ND     ND     0       07/18/00     ND     ND     0       07/20/00     13     8     0       07/21/00     ND     ND     0       07/22/00     ND     ND     0       07/26/00     ND	8
07/05/00     ND     ND     ND       07/06/00     ND     ND     ND       07/07/00     ND     ND     ND       07/08/00     11     ND     ND       07/09/00     ND     ND     ND       07/09/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     17     ND     ND       07/12/00     ND     ND     ND       07/16/00     ND     ND     ND       07/16/00     ND     ND     ND       07/17/00     10     9     .       07/18/00     ND     ND     .       07/19/00     ND     ND     .       07/20/00     13     8     .       07/21/00     ND     ND     .       07/22/00     ND     ND     .       07/22/00     ND     ND     .       07/22/00     ND     ND     .       07/28/00     ND	13
07/06/00     ND     ND     ND       07/07/00     ND     ND     ND       07/08/00     11     ND     ND       07/09/00     ND     ND     ND       07/09/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     17     ND     ND       07/12/00     ND     ND     ND       07/16/00     ND     ND     ND       07/16/00     ND     ND     ND       07/18/00     ND     ND     ND       07/19/00     ND     ND     ND       07/12/00     ND     ND     ND       07/20/00     13     8     0       07/21/00     ND     ND     0       07/22/00     ND	11
07/07/00     ND     ND     ND       07/08/00     11     ND     ND       07/09/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     17     ND     ND       07/12/00     ND     ND     ND       07/14/00     16     11     1       07/15/00     ND     ND     ND       07/16/00     ND     ND     1       07/17/00     10     9     1       07/18/00     ND     ND     1       07/19/00     ND     ND     1       07/20/00     13     8     1       07/21/00     ND     ND     1       07/22/00     ND     ND     1       07/28/00     ND	9
07/08/00     11     ND       07/09/00     ND     ND       07/10/00     ND     ND       07/11/00     17     ND       07/11/00     17     ND       07/11/00     ND     ND       07/12/00     ND     ND       07/14/00     16     11       07/15/00     ND     ND       07/16/00     ND     ND       07/18/00     ND     ND       07/18/00     ND     ND       07/19/00     ND     ND       07/19/00     ND     ND       07/20/00     13     8       07/21/00     ND     ND       07/22/00     ND     ND       07/23/00     12     17       07/24/00     ND     ND       07/28/00     ND     ND       07/28/00     ND     ND       07/29/00     17     26       07/30/00     ND     ND       08/01/00     ND     ND  <	11
07/09/00     ND     ND     ND       07/10/00     ND     ND     ND       07/11/00     17     ND     ND       07/12/00     ND     ND     ND       07/14/00     16     11        07/14/00     ND     ND     ND       07/16/00     ND     ND        07/17/00     10     9        07/18/00     ND     ND        07/19/00     ND     ND        07/19/00     ND     ND        07/20/00     13     8        07/21/00     ND     ND        07/22/00     ND     ND        07/22/00     ND     ND        07/24/00     ND     ND        07/26/00     ND     ND        07/28/00     ND     ND        07/29/00     17     26        07/30/00     ND     ND	13
07/10/00     ND     ND     ND       07/11/00     17     ND     ND       07/12/00     ND     17     ND     10       07/14/00     16     11     1     11       07/14/00     16     11     1     11       07/14/00     ND     ND     ND     11       07/16/00     ND     ND     10     10       07/16/00     ND     ND     10     10       07/18/00     ND     ND     10     10       07/20/00     13     8     10     10       07/21/00     ND     ND     10     10       07/22/00     ND     ND     10     10       07/23/00     12     17     10     10     10       07/26/00     ND     ND     10     10     10       07/28/00     ND     ND     10     10     10       07/28/00     ND     ND     10     10     10 <tr< td=""><td>13</td></tr<>	13
07/11/00     17     ND       07/12/00     ND     ND       07/14/00     16     11       07/15/00     ND     ND       07/16/00     ND     ND       07/16/00     ND     ND       07/16/00     ND     ND       07/16/00     ND     ND       07/17/00     10     9       07/18/00     ND     ND       07/19/00     ND     ND       07/20/00     13     8       07/21/00     ND     ND       07/22/00     ND     ND       07/24/00     ND     ND       07/25/00     ND     ND       07/26/00     ND     ND       07/28/00     ND     ND       07/28/00     ND     ND       07/30/00     ND     ND       07/31/00     ND     ND       08/01/00     29     34       08/02/00     ND     ND       08/03/00     ND     ND <t< td=""><td>12</td></t<>	12
07/12/00     ND     ND     ND       07/14/00     16     11     1       07/15/00     ND     ND     ND     .       07/16/00     ND     ND     .     .       07/17/00     10     9     .     .       07/18/00     ND     ND     .     .       07/19/00     ND     ND     .     .       07/20/00     13     .     .     .       07/21/00     ND     ND     .     .       07/22/00     ND     ND     .     .       07/23/00     12     .     .     .       07/24/00     ND     ND     .     .       07/25/00     ND     ND     .     .       07/28/00     ND     ND     .     .       07/29/00     17     .     .     .       07/29/00     .     .     .     .       07/29/00     .     .     .     . <td>13</td>	13
07/14/00     16     11       07/15/00     ND     ND       07/16/00     ND     ND       07/16/00     ND     ND       07/16/00     ND     ND       07/17/00     10     9       07/18/00     ND     ND       07/19/00     ND     ND       07/20/00     13     8       07/21/00     ND     ND       07/22/00     ND     ND       07/22/00     ND     ND       07/24/00     ND     ND       07/25/00     ND     ND       07/26/00     ND     ND       07/28/00     ND     ND       07/28/00     ND     ND       07/28/00     ND     ND       07/29/00     17     26       07/30/00     ND     ND       08/01/00     29     34       08/02/00     ND     ND       08/03/00     ND     ND       08/04/00     14     ND <t< td=""><td>15</td></t<>	15
07/15/00     ND     ND     ND     ND       07/16/00     ND     ND     ND     ND       07/17/00     10     9     9       07/18/00     ND     ND     ND     9       07/18/00     ND     ND     ND     10       07/19/00     ND     ND     ND     10       07/20/00     13     8     10     10       07/21/00     ND     ND     ND     10       07/22/00     ND     ND     10     10       07/23/00     12     17     1     10       07/24/00     ND     ND     ND     10       07/25/00     ND     ND     10     10       07/28/00     ND     ND     10     10       07/29/00     17     26     10     10       07/31/00     ND     ND     10     10       08/01/00     29     34     10     10       08/02/00     ND     ND	15
07/16/00     ND     ND     ND       07/17/00     10     9     9       07/18/00     ND     ND     ND       07/19/00     ND     ND     ND       07/19/00     ND     ND     ND       07/20/00     13     8     1       07/21/00     ND     ND     1       07/22/00     ND     ND     17       07/22/00     ND     ND     17       07/24/00     ND     ND     17       07/25/00     ND     ND     10       07/26/00     ND     ND     10       07/28/00     ND     ND     10       07/28/00     ND     ND     10       07/31/00     ND     ND     10       07/31/00     ND     ND     10       08/01/00     29     34     10       08/02/00     ND     ND     10       08/04/00     14     15     15       08/06/00     ND	12
07/17/00     10     9       07/18/00     ND     ND       07/18/00     ND     ND       07/19/00     ND     ND       07/20/00     13     8       07/21/00     ND     ND       07/22/00     ND     ND       07/22/00     ND     ND       07/23/00     12     17       07/24/00     ND     ND       07/25/00     ND     ND       07/26/00     ND     ND       07/28/00     ND     ND       07/29/00     17     26       07/30/00     ND     ND       07/31/00     ND     ND       08/01/00     29     34       08/02/00     ND     ND       08/04/00     14     15       08/06/00     ND     ND       08/07/00     14     ND       08/08/00     ND     ND	. 13
07/18/00     ND     ND     ND       07/19/00     ND     ND     ND     ND       07/20/00     13     8         07/21/00     ND     ND     ND        07/22/00     ND     ND     ND        07/23/00     12     17         07/24/00     ND     ND         07/25/00     ND     ND         07/26/00     ND     ND         07/28/00     ND     ND         07/30/00     ND     ND         07/31/00     ND     ND         08/01/00     29     34         08/02/00     ND     ND         08/03/00     ND     ND         08/04/00     14     15         08/07/00     14     ND </td <td>15</td>	15
07/19/00     ND     ND       07/20/00     13     8       07/21/00     ND     ND       07/21/00     ND     ND       07/22/00     ND     ND       07/22/00     ND     ND       07/22/00     ND     ND       07/23/00     12     17       07/24/00     ND     ND       07/25/00     ND     ND       07/26/00     ND     ND       07/28/00     ND     ND       07/29/00     17     26       07/30/00     ND     ND       07/31/00     ND     ND       08/01/00     29     34       08/02/00     ND     ND       08/03/00     ND     ND       08/04/00     14     15       08/06/00     ND     ND       08/07/00     14     ND       08/08/00     ND     ND	7
07/20/00     13     8       07/21/00     ND     ND       07/22/00     ND     ND       07/22/00     ND     ND       07/23/00     12     17       07/24/00     ND     ND       07/24/00     ND     ND       07/25/00     ND     ND       07/26/00     ND     ND       07/28/00     ND     ND       07/28/00     ND     ND       07/29/00     17     266       07/30/00     ND     ND       07/31/00     ND     ND       08/01/00     29     34       08/02/00     ND     ND       08/03/00     ND     ND       08/04/00     14     15       08/06/00     ND     ND       08/07/00     14     ND       08/08/00     ND     ND	6
07/21/00     ND     <	7
07/22/00     ND     ND     ND       07/23/00     12     17     17       07/24/00     ND     ND     ND       07/25/00     ND     ND     ND       07/26/00     ND     ND     ND       07/26/00     ND     ND     ND       07/28/00     ND     ND     07/26/00       07/28/00     ND     ND     ND       07/29/00     17     266     0       07/30/00     ND     ND     ND       07/31/00     ND     ND     0       08/01/00     29     34     0       08/02/00     ND     ND     ND       08/03/00     ND     ND     0       08/04/00     14     15     0       08/06/00     ND     ND     0       08/07/00     14     ND     0       08/08/00     ND     ND     0       08/09/00     ND     ND     ND	5
07/23/00     12     17     17       07/24/00     ND     ND     ND     17       07/24/00     ND     ND     ND     17       07/25/00     ND     ND     ND     17       07/26/00     ND     ND     ND     17       07/28/00     ND     ND     ND     17       07/28/00     ND     ND     ND     17       07/29/00     17     266     17     10       07/30/00     ND     ND     10     10       07/31/00     ND     ND     10     10       08/01/00     29     34     10     10       08/02/00     ND     ND     ND     10       08/03/00     ND     ND     10     10       08/04/00     14     15     10     10       08/06/00     ND     ND     10     10       08/07/00     14     ND     10     10       08/09/00     ND	15
07/24/00     ND     <	7
07/25/00     ND     <	7
07/26/00     ND     <	7
07/28/00     ND     ND     ND     ND     ND     ND     07/29/00     17     266     07/30/00     ND     ND     ND     ND     07/31/00     ND     ND     07/31/00     ND     ND     08/01/00     29     34     08/02/00     ND     ND     ND     08/03/00     ND     ND     08/03/00     ND     ND     08/03/00     ND     ND     08/04/00     14     15     08/06/00     ND     ND     08/07/00     14     ND     08/08/00     ND     ND     08/08/00     ND     ND     08/08/00     ND     ND     08/09/00     ND     ND     ND     08/09/00     ND     ND     08/09/00     ND     ND     ND     08/09/00     ND     ND     08/09/00     ND     ND     ND     08/09/00     ND     ND	11
07/29/00     17     26       07/30/00     ND     ND       07/31/00     ND     ND       07/31/00     ND     ND       08/01/00     29     34       08/02/00     ND     ND       08/03/00     ND     ND       08/04/00     14     15       08/06/00     ND     ND       08/07/00     14     ND       08/08/00     ND     ND       08/08/00     ND     ND	8
07/30/00     ND     <	11
07/31/00     ND     <	13
08/01/00     29     34     34       08/02/00     ND     ND     ND     ND       08/03/00     ND     ND     ND     08/03/00       08/04/00     14     15     08/06/00     ND     08/06/00       08/07/00     14     ND     ND     08/08/00     08/08/00     ND     08/08/00     ND     08/08/00     ND     08/08/00     ND     10     08/09/00     ND     10     08/08/00     ND     10     <	23
08/02/00     ND     <	53
08/03/00     ND     <	34
08/04/00     14     15     15       08/06/00     ND     ND     ND       08/07/00     14     ND     10       08/08/00     ND     ND     10       08/09/00     ND     ND     10	29
08/06/00     ND     <	18
08/07/00     14     ND     ND       08/08/00     ND     ND     ND       08/09/00     ND     ND     ND	ND
08/08/00     ND     ND       08/09/00     ND     ND	15
08/09/00 ND ND	12
	13
10 ND	14
08/11/00	9
08/11/00 ND ND	
08/12/00 ND ND	8
08/13/00 9 ND 08/14/00 ND ND	6

Federal  $PM_{10}$  Std. = 150 µg/m<sup>3</sup> State  $PM_{10}$  Std. = 50 µg/m<sup>3</sup> F = Fire nearby M = Make-up for scheduled run ND = No data for this date

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(μg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
9/29/00	ND	ND	12
9/30/00	12	11	9
0/01/00	ND	ND	9
0/02/00	ND	ND	12
0/03/00	12	9	9
0/04/00	ND	ND	7
0/06/00	11	9	ND
0/09/00	27	55	387
0/12/00	7	4	ND
0/15/00	10	7	7
0/18/00	14	7	ND
0/21/00	6	ND	ND
0/24/00	ND	5	5
0/27/00	8	3	3
0/30/00	5	ND	ND
1/02/00	13	ND	6
1/05/00	8	ND	
1/08/00	38	11	8
1/11/00	10	4	ND
1/14/00	ND	2	2
1/17/00	ND	4	3
1/18/00	17 M	ND	ND
1/20/00	ND	3	5
1/23/00		ND	ND
1/26/00	11	ND	3
1/29/00	28	97	10466
12/02/00	17	7	19
12/05/00	20	5	7
12/08/00	11	5	11
12/11/00	18	5	11
12/14/00	6	2	9
12/17/00	11	5	10
12/20/00	15		
12/23/00	8	4	12
12/26/00 12/29/00	18	ND ND	2
01/01/01	24	ND	2 ND
01/01/01		6	ND ND
	29		ND
01/07/01	16	ND	ND ND
01/10/01	19	12	
01/13/01 01/16/01	12	3	ND ND

Federal  $PM_{10}$  Std. = 150  $\mu$ g/m<sup>3</sup> State  $PM_{10}$  Std. = 50  $\mu$ g/m<sup>3</sup>

.

F = Fire nearby M = Make-up for scheduled run ND = No data for this date

	Lee Vining	Simis	Mono Shore
	PM-10	PM-10	PM-10
DATE	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )	(µg/m <sup>3</sup> )
04/27/01	ND	ND	ND
04/28/01	25	18	14
04/29/01	ND	ND	9
04/30/01	ND	ND	15
05/01/01	14	11	20
05/02/01	ND	ND	19
05/03/01	ND	ND	9
05/04/01	ND	9	ND
05/05/01	ND	ND	15
05/06/01	ND	ND	ND
05/07/01	17	14	16
05/08/01	ND	ND	21
05/09/01	ND	ND	26
05/10/01	15	30	16
05/11/01	ND	ND	ND
05/12/01	ND	ND	144
05/13/01	9	7	6
05/14/01	ND	ND	7
05/15/01	ND	ND	5
05/16/01	18	15	12
05/17/01	ND	ND	16
05/18/01	ND	ND	ND
05/19/01	14	11	12
05/20/01	ND	ND	15
05/21/01	ND	ND	10
05/22/01	22	ND	21
05/23/01	ND	ND	17
05/24/01	ND	ND	17
05/25/01	24	11	ND
05/26/01	ND	ND	11
05/27/01	ND	ND	12
05/28/01	19	10	12
05/29/01	ND	ND	10
05/30/01	ND	ND	17
05/31/01	26	25	15
06/01/01	ND	ND	69
06/02/01	ND	ND	414
06/03/01	6	15	ND
06/04/01	ND	ND	ND
06/05/01	ND	ND	8
06/06/01	9	6	5
06/07/01	ND	ND	7

Federal PM<sub>10</sub> Std. =  $150 \ \mu g/m^3$ State PM<sub>10</sub> Std. =  $50 \ \mu g/m^3$  F = Fire nearby M = Make-up for scheduled run

ND = No data for this date

## Simis Hi-Vol PM-10 Data Quarterly Analysis

	C	Quarterly		Quarter	Sampling	%		Observed
		Avg	Runs	Days	Schedule	Collect		Exceedances
IST QUARTER	1994	10.1	9	15	1-in-6	60%	Invalid Qtr.	0
2ND QUARTER	1994	0.0	0	15	1-in-6	0%	Invalid Qtr.	0
3RD QUARTER	1994	11.5	6	16	1-in-6	38%	Invalid Qtr.	0
4TH QUARTER	1994	4.9	12	15	1-in-6	80%		0
1994 Annual Av	verage =	Invalid						
IST QUARTER	1995	4.3	10	15	1-in-6	67%	Invalid Qtr.	0
2ND QUARTER	1995	13.9	13	15	1-in-6	87%		0
3RD QUARTER	1995	14.4	11	16	1-in-6	69%	Invalid Qtr.	0
4TH QUARTER	1995	7.4	7	15	1-in-6	47%	Invalid Qtr.	0
1995 Annual Av	verage =	Invalid						
IST QUARTER	1996	6.4	10	15	1-in-6	67%	Invalid Qtr.	0
2ND QUARTER	1996	11.3	15	15	1-in-6	100%	mvanu Qu.	
3RD QUARTER				15	1-in-6			0
•	1996	23.2	16		1-in-6			1 0
4TH QUARTER	1996	7.2	15	15	1-m-0	100%		U
1996 Annual A	verage =	Invalid						
<b>1ST QUARTER</b>	1997	3.4	15	15	1-in-6	100%		0
2ND QUARTER	1997	9.0	15	15	1-in-6	100%		0
3RD QUARTER	1997	14.3	15	15	1-in-6	100%		0
4TH QUARTER	1997	5.9	15	16	1-in-6	94%		0
1997 Annual A	verage =	6.2						
IST QUARTER	1998	4.3	15	15	1-in-6	100%		0
2ND QUARTER	1998	11.6	14	15	1-in-6	93%		0
3RD QUARTER	1998	9.4	14	15	1-in-6	93%		0
4TH QUARTER	1998	9.1	14	16	1-in-6	88%		0
1998 Annual A	verage =	7.9						
1ST QUARTER	1999	7.3	19	30	1-in-3	63%	Invalid Qtr.	0
2ND QUARTER	1999	14.0	26	30	1-in-3	87%	minu Qu.	ő
3RD QUARTER	1999	14.0	28	31	1-in-3	90%		0
4TH QUARTER	1999	13.3	25	30	1-in-3	83%		0
1999 Annual A		Invalid	23	50	1-11-5	0370		v
17777 I Million 13	verage	mvanu						
<b>IST QUARTER</b>	2000	8.9	27	31	1-in-3	87%		0
2ND QUARTER	2000	13.6	25	30	1-in-3	83%		0
<b>3RD QUARTER</b>	2000	14.5	17	31	1-in-3	55%	Invalid Qtr.	0
4TH QUARTER	2000	11.4	23	30	1-in-3	77%		0
2000 Annual A	verage =	Invalid						
<b>1ST QUARTER</b>	2001	5.6	27	30		90%		0
2ND QUARTER	2001	14.4	28	31	1-in-3	90%		0

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# Mono Shore BGI PM-10 Data Quarterly Analysis

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	Quarterly			Quarter	Sampling	%	Observed
		Avg	Runs	Days	Schedule	Collect	Exceedances
IST QUARTER	2000	9.7	73	91	Daily	80%	0
2ND QUARTER	2000	112.1	89	91	Daily	98%	7
<b>3RD QUARTER</b>	2000	10.8	84	92	Daily	91%	0
<b>4TH QUARTER</b>	2000	479.3	26	30	1-in-3	87%	2
2000 Annual Average =		153.0					
<b>1ST QUARTER</b>	2001	ND	0	30	Inaccessible	0% Invali	id Qtr. 0
2ND QUARTER	2001	26.9	66	91	Daily	73% Inval	id Qtr. 1

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