



Great Basin Unified  
Air Pollution Control District

# Owens Valley PM<sub>10</sub> Planning Area Demonstration of Attainment State Implementation Plan



November 16, 1998

# **Owens Valley PM<sub>10</sub> Planning Area Demonstration of Attainment State Implementation Plan**

Prepared by:

**Great Basin Unified Air Pollution Control District**

November 16, 1998

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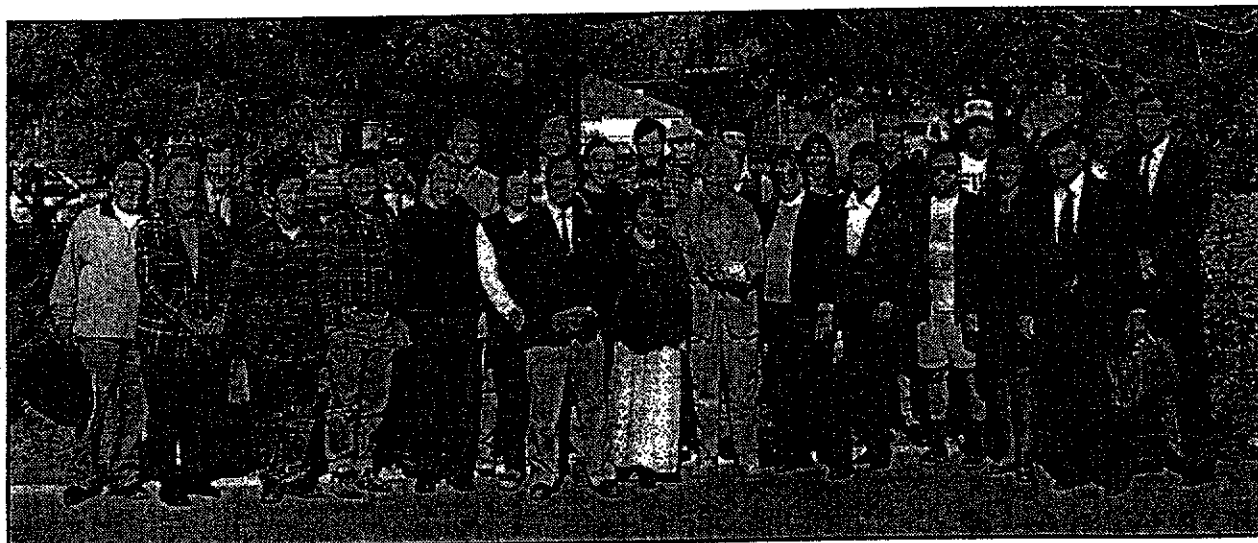
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## Dedication

"Perched on mountains, I am a human speck of an observer to this wild extravagance of creative force. It extends my world, and time, to know that I cannot truly measure space, energy, and beauty. In the face of mountains, measurement seems contrived, impertinent, dwarfed. But mountains do not dwarf the spirit; they present reaches that convene with the universal."

from *A Practice of Mountains* by Andrea Mead Lawrence & Sara Burnaby

The Great Basin Unified Air Pollution Control District dedicates this plan to Andrea Mead Lawrence. Andrea's 14 years of leadership on the District Governing Board, her 16 years as a Mono County Supervisor and her lifetime of dedication to the environment have been inspiration for District staff to "do the right thing" for the air and the environment of the Eastern Sierra.



The authors gratefully acknowledge the enormous contributions of all the Great Basin staff and contract employees, who have worked for over a decade on research and development of fugitive dust control measures at Owens Lake.

### Cover photos:

Top – Aerial view of the north end of the Owens Lake bed looking north up the Owens Valley. The crest of the Sierra Nevada runs along the top of the photo and wind scoured areas of the lake bed can be seen as the darker areas in the center of the photo. (photo by David Groeneveld)

Bottom – Aerial view of dust plumes coming off the bed of Owens Lake during a dust storm. The community of Keeler is just off the bottom right corner of the photo. The lake bed is emitting dust from the Keeler area down to Dirty Socks, a distance of approximately 10 miles. (photo by David Groeneveld)

**Owens Valley PM<sub>10</sub> Planning Area  
 Demonstration of Attainment  
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\* NOTE: Appendices C through K are bound separately and are available upon request.

## S-1 PURPOSE OF THE SIP

The Owens Valley PM<sub>10</sub> Demonstration of Attainment State Implementation Plan (SIP) has been prepared by the Great Basin Unified Air Pollution Control District (District) to meet federal requirements in the Clean Air Act Amendments of 1990 (CAAA). The SIP includes an analysis of the particulate matter air pollution problem in the Owens Valley and provides a control strategy to bring the area into attainment with the National Ambient Air Quality Standards (NAAQS) for particulate matter by December 31, 2006.

## S-2 FEDERAL CLEAN AIR ACT AND THE SIP

On July 1, 1987, the US Environmental Protection Agency (USEPA) revised the NAAQS, replacing total suspended particulates (TSP) as the indicator for particulate matter with a new indicator called PM<sub>10</sub> (i.e., particulate matter less than or equal to 10 microns in diameter). The intent of the new, health-based standard for particulate matter was to prevent concentrations of suspended particles in the air that are injurious to human health. PM<sub>10</sub> can penetrate deep into the respiratory tract, and lead to a variety of respiratory problems and illnesses. On August 7, 1987, the USEPA designated the southern Owens Valley as one of the areas in the nation that violated the new PM<sub>10</sub> NAAQS. Figure 1 shows the boundaries of the nonattainment area, which is known as the Owens Valley Planning Area. Subsequent air quality monitoring by the District has shown that the bed of Owens Lake – most of which is owned by the State of California and managed by the California State Lands Commission (SLC) – is the major source of PM<sub>10</sub> emissions contributing to air quality violations in the Owens Valley Planning Area. In January 1993, the southern Owens Valley was reclassified as a “serious nonattainment” area for PM<sub>10</sub>.

The USEPA required the State of California to prepare a SIP for the Owens Valley Planning Area that demonstrates how PM<sub>10</sub> emissions will be decreased to prevent exceedances of the NAAQS. The District is the agency delegated by the state to fulfill this requirement. In accordance with Section 189(b) of the CAAA, an Attainment SIP for serious nonattainment areas must be submitted to the USEPA by February 8, 1997 that demonstrates conformance with the federal air quality standards through the implementation of a program of control measures. By statute, attainment of the NAAQS for PM<sub>10</sub> must be accomplished by December 31, 2001. However, Section 188(e) of the CAAA makes provisions, under certain conditions, for a one-time, up to five-year, extension of the deadline, which the District believes is necessary in this case. Therefore, the latest possible date for attainment of the PM<sub>10</sub> NAAQS is December 31, 2006.

This document was prepared to satisfy the requirements for a SIP that demonstrates attainment of the PM<sub>10</sub> NAAQS. The SIP includes a PM<sub>10</sub> control strategy to reduce wind blown PM<sub>10</sub> emissions from the exposed playa at Owens Lake. The control strategy permits using gravel coverings, managed vegetation, or shallow flooding along with unspecified measures to accomplish PM<sub>10</sub> emission reductions at Owens Lake. It is anticipated that the control strategy can be implemented such that the Owens Valley Planning Area will be brought into attainment by December 31, 2006 as required by the CAAA. After the District

### 3-3.4 PM<sub>10</sub> Data Summary

#### 3-3.4.1 Number of 24-hour Violations and Peak Concentrations

An estimate for the expected number of violations of the PM<sub>10</sub> standard can be derived from the one in six day sampling, using size selective inlet samplers (SSI), that was done at the three monitoring sites around Owens Lake. Because the one in six day schedule provides a random sample of daily PM<sub>10</sub> data, a frequency analysis of the data from 1987 through 1995 can be used to estimate the number of exceedances per year that occurred during that period. To be in attainment with the NAAQS, the 24-hour PM<sub>10</sub> standard of 150 µg/m<sup>3</sup> cannot be exceeded more than 1.0 time per year on average. Figures 3.4, 3.5 and 3.6 show that Keeler would be expected to exceed 150 µg/m<sup>3</sup> about 19 times per year, Olancha 5 times per year and Lone Pine 2 times per year. These graphs were generated by arranging the data at each site in order from the highest to lowest concentration and then dividing the rank number for each data point by the number of samples to determine the fraction of samples with concentrations equal to or greater than a given concentration. For instance, 693 µg/m<sup>3</sup> is the 4<sup>th</sup> highest SSI measurement for Keeler between 1987 and 1995. Dividing 4 by the number of SSI samples taken, in this case 490, yields a fraction of 0.008. This fraction is then multiplied by 365 to determine the expected number of days per year that a given concentration would be exceeded. In this example, 3 days per year on average would be expected to exceed 693 µg/m<sup>3</sup>, and is plotted on the graph. Doing the same calculation for each SSI sample provides the points to generate the frequency distribution curves, which are displayed on a semi-log curve. This procedure follows the exponential tail distribution method in the USEPA's PM<sub>10</sub> SIP Development Guidelines (USEPA, 1987). The peak concentrations measured at each site using all of the PM<sub>10</sub> data for this same period are summarized in Table 3.2. The peak concentrations in Table 3.2 are measured using the TEOM PM<sub>10</sub> monitor, while the expected number of exceedances are estimated using size selective inlet PM<sub>10</sub> sampling data. A complete PM<sub>10</sub> data summary for Keeler, Olancha and Lone Pine is included in Appendix A. A separate summary of the sampling days from 1987 through 1995 that exceeded 150 µg/m<sup>3</sup> is also included in Appendix A.

Table 3.2 Number of PM<sub>10</sub> violations per year and peak concentrations in the Owens Valley Planning Area, 1987-1995.

Monitoring Site	Peak PM <sub>10</sub> Concentration (Date of peak) <sup>1</sup>	Expected Number of Exceedances Per Year <sup>2</sup>
Keeler	3,929 µg/m <sup>3</sup> (4/13/95)	19
Lone Pine	499 µg/m <sup>3</sup> (3/18/94)	2
Olancha	2,252 µg/m <sup>3</sup> (4/9/95)	5

<sup>1</sup> From TEOM PM<sub>10</sub> monitor data.  
<sup>2</sup> From every sixth day SSI PM<sub>10</sub> monitor data (1987-95).

For the days when the 24-hour PM<sub>10</sub> standard is violated, the peak hourly wind speed at the Owens Lake monitoring sites have been measured up to 46 mph. Violations have also been recorded when the hourly wind speed peaked at a more modest 20 mph, See Appendix A. The daily average wind speed when the 24-hour PM<sub>10</sub> standard is violated ranges from 5 to 33 mph.

**Table 4.1 Annual and 24-Hour PM<sub>10</sub> Emissions in the Owens Valley PM<sub>10</sub> Planning Area for the 1995 Emissions Inventory Base Year.**

	PM <sub>10</sub> Peak 24-Hour (Tons/Day)	PM <sub>10</sub> Annual (Tons/Year)
<u>Area and Mobile Sources</u>		
Owens Lake Primary Wind Erosion	8,346	279,900
Owens Lake Secondary Wind Erosion	516	11,200
Vehicle Tailpipe	0.08	29
Unpaved Road Dust	0.15	53
Paved Road Dust	0.19	69
Residential Wood Burning	0.24	36
Prescribed Burning	42	2,532
Agricultural Operations	0.00	1
<u>Industrial Facilities</u>		
Big Pine Distributors	0.06	21
Pacific Lightweight Prod.	0.09	32
Federal White Aggregate	0.08	28
Owens Lake Soda Ash*	0.51	179
Total Emissions	<u>8,905.40</u>	<u>294,080</u>
(*Proposed project)		

Assuming for estimation purposes that vehicle traffic in the control area is primarily on Highway US 395, a simple proportion of the mileage in the control area to the length of US 395 in Inyo County yields a good estimate of the PM<sub>10</sub> 24-hour and annual emissions from mobile sources.

**Entrained Road Dust:**

$$(30 \text{ miles}/115 \text{ miles}) \times 0.7 \text{ T/d} = 0.19 \text{ tons of PM}_{10} \text{ per day}$$

$$0.19 \text{ T/d} \times 365 \text{ days} = 69 \text{ tons of PM}_{10} \text{ per year}$$

**Vehicle Exhaust:**

$$(30 \text{ miles}/115 \text{ miles}) \times 0.3 \text{ T/d} = 0.08 \text{ Tons of PM}_{10} \text{ per day}$$

$$0.08 \text{ T/d} \times 365 \text{ days} = 29 \text{ tons of PM}_{10} \text{ per year}$$

**4-2.2 Entrained Unpaved Road Dust**

An estimate of entrained PM<sub>10</sub> emissions from traffic on unpaved roads in the control area is based on emission factors found in the USEPA's Compilation of Air Pollution Emission Factors, AP-42 (USEPA, 1985).

$$PM_{10} = 2.1 (s/12) (S/30) (W/3)^{0.7} (w/4)^{0.5} [(365-p)/365]$$

Where: PM<sub>10</sub> = PM<sub>10</sub> emissions in pound per vehicle mile traveled  
 s = silt content of road surface material (5 percent)

**CHAPTER 8**

**Enabling Legislation to Implement Control Strategy**

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## 8-1 CONTROL STRATEGY IMPLEMENTATION

Under California Health & Safety Code §42316 (see Figure 8.1 and Section 2-2.2.2), the Great Basin Unified Air Pollution Control District (District) is adopting an order to the City of Los Angeles (City) to implement the Owens Valley PM<sub>10</sub> Planning Area Demonstration of Attainment State Implementation Plan (SIP) control measures on the schedule included in Chapter 7. The schedule will require that implementation of the control measures take place over an eight-year period with completion by December 31, 2006. The Board order to implement the control strategy is incorporated into this SIP and adopted concurrently with the approval of this SIP.

The order requires the City to implement shallow flooding, managed vegetation, gravel or other unspecified control measures within the areas shown in and described by Exhibit 1, below. Implementation under the Board's order also ensures compliance with the California Environmental Quality Act. This includes specified environmental mitigation measures, environmental monitoring and reporting requirements. Additional environmental documents to the SIP Final Environmental Impact Report (EIR) and EIR Addendum Number 1 may be needed for complete implementation of the proposed control strategy.

Unless the District determines by December 31, 2002 that the Owens Valley Planning Area will attain the PM<sub>10</sub> National Ambient Air Quality Standards (PM<sub>10</sub> NAAQS) by December 31, 2006 without implementation of additional control measures, the District will revise the SIP in 2003 to provide for attainment of the PM<sub>10</sub> NAAQS by the end of 2006. The 2003 SIP revision will include a new Board Order to require the City of Los Angeles to implement any additional control measures necessary to meet the PM<sub>10</sub> NAAQS. The attainment demonstration presented in this document is based on the projection that the additional control measures will be implemented on the balance of the control area shown in Exhibit 1 and that the implemented controls will meet the emission allowance criteria (current modeling techniques show this allowance to be 1.25 metric tons of PM<sub>10</sub> per square kilometer per day). The control measures required by the 2003 SIP may include expanding the control measures required under the Board Order in Section 8-2, or other control methods that are determined by the District as sufficient to attain the PM<sub>10</sub> NAAQS. The 2003 SIP revision may also require applying controls in areas outside of the PM<sub>10</sub> control area shown in Exhibit 1, if it is determined that additional PM<sub>10</sub> source areas must be controlled to attain the standard.

California Health & Safety Code §42316

*Authority Mitigation Requirements*

*Water Pollution Control District may require the City of Los Angeles to conduct air quality impact studies, to mitigate the air quality impacts of its activities or conveyance of water and may require the city to pay, on an estimate of the actual costs to the district of its activities mitigation measures and related air quality analysis with the mitigation measures shall not affect the right of the city to sue and, except for studies and monitoring activities, the measures shall not be rescinded or amended on the basis of substantial evidence that the diversion, storage, or conveyance by the city causes or contributes to air quality standards.*

*Measures or fees imposed by the district to the state board of water resources or fees. The state board, on at least 30 days' notice, on the validity of the measures or reasonableness of the fees shall make a decision of the state board shall be in writing and shall be appealable. Pending a decision by the state board, the city shall not be enjoined from measures which have been appealed. Either the district or the city may sue for a decision by the state board under this section. The action shall be brought under the Code of Civil Procedures and shall be filed within 30 days of the decision of the state board.*

*Measures imposed by the district pursuant to this section is a violation of the provisions of Sections 41513 and 42402.*

*Authority with respect to the water production, diversion, or conveyance by the city except as provided in this section. Nothing in this section shall prevent the district from requiring a water treatment plant from permit or other district requirements.*

*(Added by Chapter 18, Sec. 1. Effective September 1, 1983.)*

that allows the District to assess fees for studies and measures to implement the SIP control strategy.



## 8-2 THE BOARD ORDER

The following order of the Great Basin Unified Air Pollution Control District is incorporated into this State Implementation Plan and constitutes an integral part thereof.

### BOARD ORDER # 981116-01 Implementation of PM<sub>10</sub> Control Measures on the Owens Lake Bed

With regard to the control of PM<sub>10</sub> emissions from the bed of Owens Lake, the Governing Board of the Great Basin Unified Air Pollution Control District (District) orders the City of Los Angeles (City) as follows:

1. **Phase 1** - The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on ten (10) square miles of the Owens Lake bed by December 31, 2001. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.
2. **Phase 2** - The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on an additional three and one-half (3.5) square miles of the Owens Lake bed by December 31, 2002, unless the District determines on or before December 31, 2001, that the Owens Valley Planning Area (OVPA) will attain the PM<sub>10</sub> NAAQS by December 31, 2006 without implementation of further control measures. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.
3. **Phase 3** - The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on an additional three (3) square miles of the Owens Lake bed by December 31, 2003, unless the District determines on or before December 31, 2002, that the OVPA will attain the PM<sub>10</sub> NAAQS by December 31, 2006 without implementation of further control measures. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.
4. **Phase 4** - The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on an additional two (2) square miles of the Owens Lake bed by December 31, 2004, unless the District determines on or before December 31, 2003, that the OVPA will attain the PM<sub>10</sub> NAAQS by December 31, 2006 without implementation of further control measures. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.

5. **Phase 5** - The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on an additional two (2) square miles of the Owens Lake bed by December 31, 2005, unless the District determines on or before December 31, 2004, that the OVPA will attain the PM<sub>10</sub> NAAQS by December 31, 2006 without implementation of further control measures. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.
6. **Phase 6** - The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on an additional two (2) square miles of the Owens Lake bed by December 31, 2006, unless the District determines on or before December 31, 2005, that the OVPA will attain the PM<sub>10</sub> NAAQS by December 31, 2006 without implementation of further control measures. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.
7. **Contingency measure** - In 2006, the District will make a determination as to whether the OVPA will attain the PM<sub>10</sub> NAAQS by December 31, 2006. Unless the District determines that the PM<sub>10</sub> NAAQS will be attained by December 31, 2006, the following contingency measure is required:

The City shall complete implementation of PM<sub>10</sub> control measures, as described in Paragraph 9 hereof, on an additional two (2) square miles of the Owens Lake bed by December 31 of each year, unless the District determines by December 31 of the previous year, that the OVPA will attain the PM<sub>10</sub> NAAQS without implementation of further control measures. Upon implementation, the City shall continuously operate and maintain the control measures to comply with the performance standards set forth for such measures in the control measure descriptions contained in this Order.
8. **Location of control measures** - The control measures implemented shall be located within the area identified in Exhibit 1. The District and the City may jointly agree to modify the areas identified in Exhibit 1.
9. **Control measures** - The City shall implement the PM<sub>10</sub> control measures as described herein in the section titled "Control Measures." The District and the City may jointly agree to modify, or add, one or more control measures to those identified below. On the three and one-half (3.5) square miles of the "Dirty Socks" area identified as Zone 4 in Exhibit 1, the City has the authority to try one (1) or more control measures of its choosing not identified below. To complete implementation of a specified control measure by a particular date as required by this order means that the control measure shall be constructed, installed, operated and maintained so as to comply with the performance standards for the specified control measure not later than five o'clock p.m.

of the required date. Where this order provides for actions to be authorized by joint agreement of the parties, neither party shall be obligated to agree.

10. **Control measure replacement** - Replacing, modifying, improving or reworking control measures on areas previously counted as controlled under Paragraphs 1 through 7 hereof does not satisfy any requirement of Paragraphs 2 through 7 hereof for implementation of control measures on additional areas.
11. **2003 SIP revision** - The District will revise the OVPA Demonstration of Attainment State Implementation Plan (SIP) by December 31, 2003 to incorporate the knowledge gained by previous implementation of control measures (the "2003 SIP"). The 2003 SIP will provide for attainment in the OVPA of the PM<sub>10</sub> NAAQS by December 31, 2006 and may, among other things, modify the requirements set forth in Paragraphs 4 through 9 hereof.
12. **Placement of additional controls** - In the event of a 2003 SIP legal challenge by the City, the City shall continue to implement control measures on an additional two (2) square miles of the Owens Lake bed annually, as provided in Paragraphs 4, 5, 6 and 7 hereof. Upon State of California approval of the 2003 SIP pursuant to Health & Safety Code Section 41650, the City shall make-up any control shortfall between the requirements of the 2003 SIP and the requirements of this paragraph for the period of the City's SIP challenge, if any, or shall be provided credit for control measure installation beyond the requirements of the State approved 2003 SIP, if any. The City shall effect any required make up of a control measure shortfall by completing implementation of control measures sufficient to satisfy the shortfall by the one (1) year anniversary of the date of the approval of the 2003 SIP by the State.

## **CONTROL MEASURES**

### **Shallow Flooding**

The shallow flooding control measure will apply water to the surface of the areas of the lake bed where shallow flooding is used as a control measure. The City shall apply water in amounts and by means sufficient to achieve the following performance standard commencing on September 15 of each year, and ending on June 15 of the next year: at least 75% percent of each square mile of the designated areas shall continuously consist of standing water or surface saturated soil. Aerial photography or other methods satisfactory to the District shall be used to confirm coverage.

Between June 16 and July 31 of each calendar year, the City will supply, within the boundaries of the areas designated for control by shallow flooding, water in amounts and locations adequate to maintain sources of food and water suitable for sustaining nesting and fledgling shorebirds, including western snowy plovers, nesting within the boundaries of those control areas or within ½ mile of their boundaries. If the control measure as implemented creates vegetation of the type and density used as wildlife habitat, the City shall supply water in amounts sufficient to maintain that vegetation in a state suitable for wildlife

June 16 and July 31 of each calendar year. Between each calendar year, the District does not require any water to be used for shallow flooding.

designed into the lake bed sediments along the lower boundary control by shallow flooding to minimize the transmission of salts toward the Owens Lake brine pool. The design and construction shall incorporate snowy plover crossings located at no more than 100 feet from the berm, adequate in design to freely allow traverse by adults and chicks. Surface waters that reach the lower boundary shall be collected and recirculated for reapplication to the control areas. Lateral boundary edge berms as necessary shall be used to isolate the control measure areas from each other.

Control areas shall be free of woody plants, including salt cedar (*Tamarix ramosissima*), that are a nuisance for control by shallow flooding. As necessary to protect and abate mosquito breeding and swarming in the control areas, the City shall minimize adverse effects upon adjacent wildlife.

When shallow flooding is used as a control measure, the City shall achieve the average of at least 50% on each acre in substantially native vegetation, as measured by the point-frame method. The vegetation shall be locally-adapted native species or species approved by both the State Lands Commission.

Control areas designated for control with managed vegetation are required to have 50% vegetative coverage:

Control areas designated with water, such as reservoirs and canals,

shall be operated, maintained and managed in a way that shall ensure, operate and maintain the control measure which are required to be substantially non-emissive,

Control areas designated for diversion channels or desiltation/retention basins, and

Control areas designated for montane Alkaline Meadow (TAM) habitat restoration shall be managed to mitigate environmental impacts associated with the loss of vegetation.

Control areas shall be free of woody plants, including salt cedar (*Tamarix ramosissima*), that are a nuisance for control by managed vegetation. To the extent that the City shall

To protect the managed vegetation control measure from natural flooding, the City shall incorporate drains and channels in the control measure area adequate to divert the flood waters away from the vegetated areas and to outlet the flood waters into the Owens Lake brine pool (or reservoir(s), if any). The drains and channels shall be designed to incorporate features (such as desiltation/ retention basins) adequate to capture the alluvial material carried by the flood waters and to avoid greater than normal deposition of this material into the Owens Lake brine pool.

The City shall construct a berm keyed into the lake bed sediments along the lower boundary of the areas designated for control by managed vegetation to minimize the transmission of excess water from the control area toward the Owens Lake brine pool. The design and implementation of this berm will incorporate snowy plover crossings located at no more than 500 feet apart along the length of the berm, adequate in design to freely allow traverse of the berm by both snowy plover adults and chicks. Surface waters that reach the lower boundary of the control area will be collected and recirculated for reapplication to the control area or other discharge. The control measure areas will have lateral boundary edge berms as necessary to contain waters in the control areas and to isolate the control measure areas from each other and from areas not controlled.

#### **Gravel**

In areas where gravel is used as a control measure, the City shall meet the following performance standard: one hundred percent of the control area shall be covered with a layer of gravel at least four inches thick. All gravel material placed must be screened to a size greater than 3/8-inch in diameter. Where necessary to support the gravel blanket, it shall be placed over a permanent permeable geotextile fabric. The gravel shall have resistance to leaching and erosion. It shall be no more toxic than the gravel analyzed by the District in the SIP's Final Environmental Report from the Keeler fan site. It shall also be comparable in coloration to the existing lake bed soils.

To protect the control measure from natural flooding, the City shall incorporate drains and channels in the control measure areas adequate to divert the flood waters away from the graveled areas and to outlet the flood waters into the Owens Lake brine pool. The drains and channels shall be designed to incorporate features (such as desiltation or retention basins) adequate to capture the alluvial material carried by the flood waters and to avoid greater than normal deposition of this material into the Owens Lake brine pool. The gravel placement design and implementation shall adequately protect the graveled areas from the deposition of wind- and water-borne soil. The City will apply best available control measures (BACM) and New Source Performance Standard (NSPS) emission limits to its gravel mining and transportation activities occurring in the District's geographic boundaries as required by the District in the City's District-issued Permit to Construct and Permit to Operate.

## SCHEDULE

The implementation of the control measures shall be conducted so as to attain each project milestone set forth in Paragraphs 1 through 7, above, and summarized in Table 1, below, on or before the date ascribed to such milestone.

**Table 1 Mandatory project implementation milestones.**

<u>Milestone</u>	<u>Date</u>
1. Phase 1 – Complete implementation on 10 mi <sup>2</sup>	December 31, 2001
2. Phase 2 – Complete implementation on an additional 3.5 mi <sup>2</sup>	December 31, 2002
3. Phase 3 – Complete implementation on an additional 3 mi <sup>2</sup>	December 31, 2003
4. Phase 4 – Complete implementation on an additional 2 mi <sup>2</sup>	December 31, 2004
5. Phase 5 – Complete implementation on an additional 2 mi <sup>2</sup>	December 31, 2005
6. Phase 6 – Complete implementation on an additional 2 mi <sup>2</sup>	December 31, 2006

## ADDITIONAL REQUIREMENTS

Furthermore, the Board orders the City of Los Angeles to satisfy the following requirements related to the implementation of the shallow flooding, managed vegetation, and gravel control measures:

1. The City's construction and implementation activities will comply with Mitigation Measures set forth in the Final Environmental Impact Report and Environmental Impact Report Addendum Number 1 relating to protection of air quality, vegetation resources, wildlife resources and cultural resources. The City will mitigate transportation impacts caused by their construction and implementation activities.
2. The City shall comply with any applicable requirements of the Mitigation Monitoring and Reporting Program adopted by the District concurrently with its certification of the Final Environmental Impact Report and Final Environmental Impact Report Addendum for this project.
3. The City shall apply best available control measures (BACM) to control air emissions from its construction/implementation activities occurring in the District's geographic boundaries as required by the District in the City's District-issued Authority to Construct and Permit to Operate.

Attachment: Exhibit I – Map and Coordinates of Control Area (2 pages)

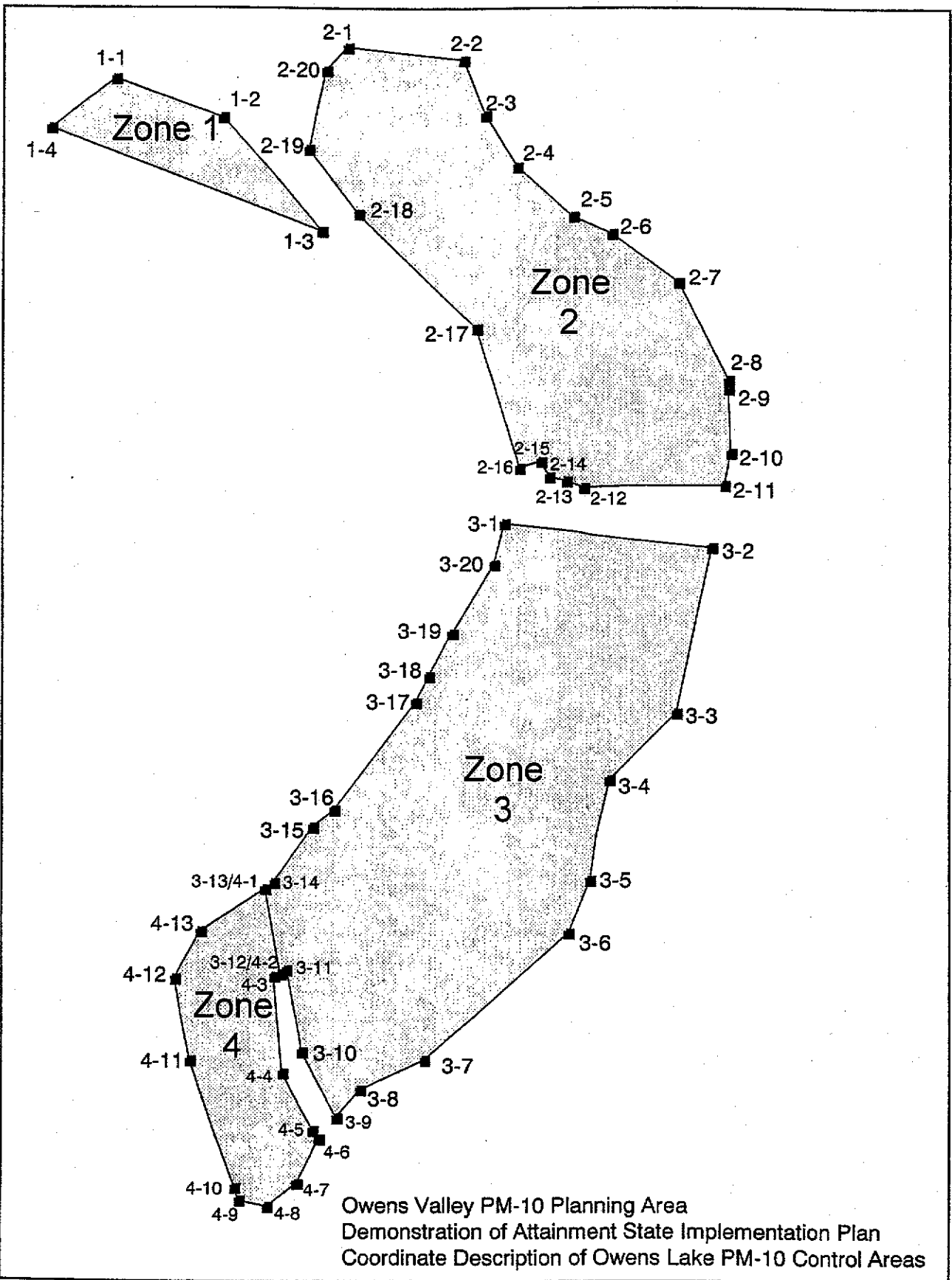


Exhibit 1: Map of control area.

Owens Valley PM-10 Planning Area  
 Demonstration of Attainment State Implementation Plan  
 Coordinate Description of Owens Lake PM-10 Control Measure Areas

Point #	Longitude	Latitude
1-1	-117.99035	36.51845
1-2	-117.96797	36.51159
1-3	-117.94773	36.49253
1-4	-118.00360	36.51007
2-1	-117.94223	36.52319
2-2	-117.91819	36.52090
2-3	-117.91402	36.51154
2-4	-117.90746	36.50302
2-5	-117.89590	36.49453
2-6	-117.88818	36.49166
2-7	-117.87443	36.48330
2-8	-117.86451	36.46672
2-9	-117.86447	36.46527
2-10	-117.86420	36.45444
2-11	-117.86560	36.44925
2-12	-117.89455	36.44916
2-13	-117.89795	36.45004
2-14	-117.90140	36.45093
2-15	-117.90319	36.45333
2-16	-117.90764	36.45255
2-17	-117.91618	36.47577
2-18	-117.94021	36.49519
2-19	-117.95038	36.50601
2-20	-117.94675	36.51949

Point #	Longitude	Latitude
3-1	-117.91088	36.44312
3-2	-117.86846	36.43863
3-3	-117.87594	36.41089
3-4	-117.89002	36.40005
3-5	-117.89406	36.38327
3-6	-117.89845	36.37439
3-7	-117.92836	36.35348
3-8	-117.94175	36.34858
3-9	-117.94667	36.34402
3-10	-117.95377	36.35522
3-11	-117.95654	36.36858
3-12	-117.95811	36.36804
3-13	-117.96090	36.38246
3-14	-117.95921	36.38336
3-15	-117.95087	36.39252
3-16	-117.94804	36.39399
3-17	-117.92834	36.41453
3-18	-117.92693	36.41748
3-19	-117.92178	36.42456
3-20	-117.91321	36.43637

4-1	-117.96090	36.38246
4-2	-117.95811	36.36804
4-3	-117.95955	36.36754
4-4	-117.95763	36.35165
4-5	-117.95156	36.34197
4-6	-117.95056	36.34038
4-7	-117.95509	36.33281
4-8	-117.96116	36.32909
4-9	-117.96671	36.33017
4-10	-117.96768	36.33241
4-11	-117.97701	36.35391
4-12	-117.97958	36.36767
4-13	-117.97437	36.37530

Note: All coordinates are in decimal degrees, WGS 84 spheroid coordinate system

Exhibit 1: Coordinates of control area.