GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

2016 OWENS VALLEY PLANNING AREA PM_{10} STATE IMPLEMENTATION PLAN

April 13, 2016

Separately Bound Supplement

RAMBOLL ENVIRON

Prepared for
Great Basin Unified Air Pollution Control District

Prepared by
Ramboll Environ US Corporation
Los Angeles, California

Project Number
0320823P

Date
April 2016

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

APRIL 13, 2016 STAFF REPORT SUPPORTING DOCUMENT

RAMBOLL ENVIRON

ATTACHMENT A:

DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES

DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES

The District received two comment letters during the 30-day comment period for the Draft 2016 SIP. These letters are reproduced here along with the District's responses.

1. Comment Letter No. 1: Wuester, Mary L., Tribal Chairperson, Lone Pine Paiute-Shoshone Reservation*, Letter to Phillip L. Kiddoo, Air Pollution Control Officer, GBUAPCD*, February 24, 2016.
2. District Response to Comment Letter No. 1
3. Comment Letter No. 2: Taghavi, Milad, Manager of Owens Lake Planning, Los Angeles Department of Water and Power, *Letter to Phillip L. Kiddoo, Air Pollution Control Officer, GBUAPCD*, March 18, 2016.
4. Comment Letter No. 2 (Enclosures)
5. District Response to Comment Letter No. 2
6. District Response to Comment Letter No. 2 (Enclosures)

ATTACHMENT A – DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES:

COMMENT LETTER NO. 1

Lone Pine Paiute-Shoshone Reservation
P.O. Box 747 • 1103 South Main Street
Lone Pine, CA 93545
(760) 876-1034 Fax (760) 876-8302
Web Site: www.lppsr.org

RECEIVED
MAR 1 2016
Great Basin Unified APCD

February 24, 2016

Phillip L. Kiddoo, Air Pollution Control Officer
Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, CA 93514

RE: Board Order #160413-01, District Rule 433, and Final 2016 SIP

Dear Mr. Kiddoo:

Thank you for the opportunity to comment on the Board Order #160413-01, District Rule 433, and the Final 2016 SIP.

Lone Pine Paiute-Shoshone Reservation (LPPSR) was established by the Los Angeles Department of Water and Power (City) in a land exchange with the United States Department of the Interior in 1937. By this date, the Owens River diversion had resulted in devastating air pollution from the dry lake bed, impacting the health and welfare of the tribal community only 5 miles from the source. Generations of community members have suffered in the path of this extreme health hazard with no recourse.

Since 2001, we have developed a respectful working relationship with Great Basin Unified Air Pollution Control District. LPPSR supports the exhaustive efforts by the District in its scientific and legal battles with the City. We recognize that these efforts are toward cleaner air for now and future generations.

The ecosystem of the lake was so completely altered that there was little hope of any revival. Water used for dust mitigation over the past 15 years has inadvertently contributed to some habitat restoration. Now that the City demands reductions in water use, the concern for maintaining wildlife habitat has become another priority. We anticipate that, regardless of waterless and water neutral policies, the California Department of Fish & Wildlife, the Lahontan Water Quality Control Board, and California State Lands Commission will be vigilant to enforce protection of the ecological gains made despite the industrialization of the landscape. We strongly support efforts by these agencies to that end.

LPPSR has no objections to the documents set for approval. However, there are two general areas of concern:

Brine BACM as a variation on Shallow Flooding BACM should be carefully monitored for habitat reduction. Language in the Order seems to support varying salinity where desired in any Shallow Flood sites, *"Brine BACM can be implemented for dust control on Owens Lake where Shallow Flooding infrastructure exists and Shallow Flooding can be implemented...".* Because high salinity can be detrimental to wildlife habitat, is there adequate process for amending CDF&W permits as these changes occur? We appreciate the creative use of brine as an alternative, but expect its use to be in low habitat value DCAs only.

None of these documents reference the Cultural Resource Task Force (CRTF) which was established in the Phase 7a and Keeler Dunes Settlement of June 25, 2013. Though advisory in nature, the tribal representatives and various agencies have worked together for over one year to determine dust control options for 7b (extended to Phase 9/10) cultural sites. We believed that our recommendations would be honored, wherever possible, if any 7b site were to become emissive and require control (where 'avoidance' is not possible for sites that contribute to NAAQS violations). The Board Order should include a reference to the CRTF and a process to implement the controls as the tribes recommended, unless they are shown to be unfeasible to protect air quality.

Once again, LPPSR appreciates the opportunity to comment on Board Order #160413-01, District Rule 433, and the Final 2016 SIP.

Sincerely,

Mary Wuester

Mary L. Wuester, Tribal Chairperson
Lone Pine Paiute Shoshone Reservation

ATTACHMENT A - DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES:

DISTRICT RESPONSE TO COMMENT LETTER NO. 1

Phillip L. Kiddoo
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
www.gbuapcd.org

March 25, 2016

Mary L. Wuester
Tribal Chairperson
Lone Pine Paiute Shoshone Reservation
P.O. Box 747
Lone Pine, CA 93545

RE: Comments from Lone Pine Paiute Shoshone Reservation on Board Order #160413-01, District Rule 433, and Final 2016 SIP

Dear Ms. Wuester,

Thank you reviewing and providing comments on the Great Basin Unified Air Pollution Control District (District) Board Order #160413-01, District Rule 433, and the 2016 State Implementation Plan (SIP). We appreciate the support and cooperation from the Lone Pine Paiute Shoshone Reservation (LPPSR) in efforts to provide clean air in the Owens Valley Planning Area (OVPA). Participation by the LPPSR in the process is important to the District and has provided important input for dust control projects within the OVPA.

Even though the jurisdiction and mandate of the District only relates to air quality, input from Tribes, other government agencies, and interested stakeholders is critical in developing a complete dust mitigation program that meets the multiple needs of the area. As such, the District anticipates continuing to work with the LPPSR and agencies such as the California Department of Fish and Wildlife and the California State Lands Commission in the future to ensure that the dust control work within the OVPA is successful not only in providing clean air but also in providing other environmental benefits.

The concern of the LPPSR regarding the potential impact in Brine BACM areas on wildlife was contemplated in the Environmental Impact Report (EIR) completed for the 2003 and 2008 SIPs which included a mandatory mitigation measure requiring the Los Angeles Department of Water and Power (LADWP) to conduct a toxicity monitoring program for the Owens Lake dust control project. The toxicity monitoring program is designed to investigate potential impacts from bioaccumulation of heavy metals and other toxins to wildlife in dust control areas. Monitoring is conducted by the LADWP semi-annually (summer and winter) on a 14-year schedule that started in 2009. If after the completion of the 14-year monitoring effort it is determined that there is no evidence of toxicity issues occurring in wildlife from the project then the monitoring may be discontinued. If, however, monitoring shows that there are impacts to wildlife from the dust control project then the monitoring shall continue until impacts are not detected. All reports on toxicity monitoring are submitted by the LADWP to California Department of Fish and Wildlife, Lahonton Regional Water Quality Control Board, and California State Lands Commission as well as the District.

The Cultural Resource Task Force (CRTF) has worked diligently since November 2013 to provide constructive recommendations for dust controls in sensitive cultural resource areas. The District appreciates the thoughtful and respectful manner in which the members of the CRTF have operated. The District continues to support and will honor the Tribes' recommendations for dust control options in Phase 7b and Phase 9/10b areas identified as containing eligible cultural resources. Although not referenced by name, the CRTF is incorporated in Board Order #160413-01 through reference to the Board Orders #130819-01 and #130916-01. These references can be found in Board Order #160413-01, Preamble paragraphs D and H, and in the Order at 2.A, 2.B and 3.B.

Once again, thank you for providing comments on the Board Order #160413-01, Rule 433, and the 2016 State Implementation Plan (SIP). Your input is valuable to the District.

Sincerely,

Phillip L. Kiddoo

ATTACHMENT A – DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES:

COMMENT LETTER NO. 2

Los Angeles Department of Water & Power

ERIC GARCETTI
Mayor

Commission
MEL LEVINE, *President*
WILLIAM W. FUNDERBURK JR., *Vice President*
JILL BANKS BARAD
MICHAEL F. FLEMING
CHRISTINA E. NOONAN
BARBARA E. MOSCHOS, *Secretary*

MARCIE L. EDWARDS
General Manager

March 18, 2016

Mr. Phillip L. Kiddoo
Air Pollution Control Officer
Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, California 93514-3537

Dear Mr. Kiddoo:

Subject: Adoption and Approval of (1) Proposed Order under the Provisions of California Health and Safety Code Section 42316, (2) Proposed District Rule 433 for the Control of Particulate Emissions at Owens Lake, and (3) Proposed Final 2016 Revision to the Owens Lake PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

Thank you for the opportunity to review and comment on the Great Basin Unified Air Pollution Control District's (District) (1) Proposed Order No. 160413-01 (Proposed Board Order 160413-01), (2) Proposed Rule 433 (Proposed District Rule 433), and (3) Proposed Final 2016 Revision to the Owens Lake PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (Proposed 2016 SIP).

Please incorporate this letter and enclosure into the administrative record(s) for Proposed Board Order 160413-01; Proposed District Rule 433, and Proposed 2016 SIP, (collectively, 2016 Draft SIP Documents).

In 2014, the City of Los Angeles (City) Department of Water and Power (LADWP) and the District (collectively, Parties) reached a historic agreement to end disputes over new dust mitigation orders for areas on Owens Lake and to limit future dust control orders to no more than 53.4 square-miles of lakebed. The Parties' agreement was captured in an enforceable court order in a stipulated judgment in the case of the *City of Los Angeles v. California Air Resources Board, et al.,* Sacramento County Superior Court Case No. 34-2013-800001451-CU-WM-GDS (Stipulated Judgment).

Section 11.B. of the Stipulated Judgment contemplated that the District would prepare a State Implementation Plan revision consisting of the 2008 Owens Lake PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Order (2008 SIP Order) and the provisions of the Stipulated Judgment and limited any legal challenges by the

City to "any new term that the City has not agreed to in advance, and that is not contained in the 2008 SIP Order as modified by this Stipulated Judgment."

Nothing in the Stipulated Judgment or any previous agreements between the Parties limits the ability of the City to comment on the 2016 Draft SIP Documents. By its very nature, the Stipulated Judgment modified several terms of the 2008 SIP Order. For example, the District's decision to limit future lakebed dust mitigation orders to 53.4 square-miles was an exercise of regulatory discretion based on its years of data collection and air quality expertise. The 2008 SIP Order had nothing comparable within its terms.

LADWP understands the District intends to comply with the terms of the Stipulated Judgment that LADWP and the District crafted together. LADWP has taken several steps to meet the obligations LADWP undertook under the Stipulated Judgment. We note the preamble to Proposed Board Order 160413-01 and the introductions to all the 2016 Draft SIP Documents as the District's intention to use these documents to implement the terms of the Stipulated Judgment.

As you know, a key term that was essential to the City's endorsement of the Stipulated Judgment was the District's exercise of its regulatory authority when it agreed to Paragraph 3.B. of the Stipulated Judgment, which states "*except for the 4.8 square-mile BACM Contingency Measure area and any area re-ordered for control under Paragraph 2.B of this Judgment, the District shall not issue any further orders for mitigation measures to the City under Section 42316 or any other law, including but not limited to SCRDs, requiring the City to control windblown dust emissions (including PM_{10}, $PM_{2.5}$ or any speciated components or products of PM) from any areas on the dried Owens Lake bed beyond the combined 53.4 square-miles. The provisions in this paragraph do not apply to fee orders issued to the City under Section 42316, or any orders for areas that are not on the dried Owens Lake bed.*"

Stipulated Judgment Recital Z states: "*Based on data collected, the 2011, 2012, 2013 and 2014 SCRDs, modeling and experience by the District to date, the District estimates that the City's control of dust emissions by applying BACM to 48.6 square-miles of the dried Owens Lake bed, and the District's control of dust emissions from the adjacent Keeler Dunes will reduce emissions in the OVPA such that it can attain the NAAQS. Further monitoring and data collection will be needed to confirm the estimates of attainment.*" The District used its air quality expertise and determined that mitigation of 48.6 square-miles of the lakebed would cause the region to meet air quality standards and it planned for mitigation on an additional 4.8 square-miles as a contingency measure if the original estimate was wrong.

The Stipulated Judgment governs the actions of the City and the District as set forth in Paragraph 18.C, which provides that *"[b]y executing this Stipulated Judgment, each of the Parties acknowledges and agrees that the rights and remedies provided in this Stipulated Judgment shall be the sole and exclusive rights and remedies surviving as between and among the Parties hereto relating to the subject matter of this Stipulated Judgment."*

Proposed Board Order 160413-01:

- General Comment 1 – The provisions of the Stipulated Judgment have been selectively modified or left out in Proposed Board Order 160413-01, which significantly broadens the District's enforcement actions without a recourse venue for the City to appeal such actions.

  An example of these unilateral modifications can be found in Paragraph 8.A of Proposed Board Order 160413-01 which states: *"[t]o provide the emission reduction necessary to meet the NAAQS* ***and State Standard*** *in the OPVA, the APCO may order the City on or any time after January 1, 2016, to implement BACM PM_{10} control measures* ***or MDCE BACM PM_{10} control measures*** *on additional areas on the dried Owens Lake bed from those implemented under Paragraph 1-3 of this order (BACM Contingency Measures)."* These modifications that are highlighted in **bold** significantly exceed the scope and limit of the carefully negotiated and agreed upon provisions in the Stipulated Judgment for the following reasons:

  - In the corresponding Paragraph 3.A of the Stipulated Judgment, the Air Pollution Control Officer (APCO) may consider exceedance of the National Ambient Air Quality Standards (NAAQS) or State Standard; however, APCO can only order the City to implement Best Available Control Measures (BACM) Contingency Measures solely based on exceedances of NAAQS with any further recourse or appeal.

  - It also appears that a new Minimum Dust Control Efficiency (MDCE) BACM PM_{10} Control Measure category has been established, requiring control by the City beyond the 53.4 square-mile limit contained in the Stipulated Judgment. The 0.5 square-mile Channel Area, for example, was not included in any prior dust control order on Owens Lake.

  An example of supportive provisions that are left out can be seen in exclusion of "[t]he District will support the City's efforts to obtain such approvals in compliance with the law" as provided in Paragraph 5.G of the Stipulated Judgment in the Paragraph 8.F of Proposed Board Order 160413-01.

Exclusion of supportive provisions are very apparent in the Proposed Board Order 160413-01 especially when counting the number of times that enforcement statements such as "[t]he City shall be solely responsible", or "[t]he APCO has sole discretion whether to approve or disapprove", or "[t]he City shall not appeal or contest" are incorporated and repeated in the main body versus being delegated to reference sections.

Hence, LADWP requests that relevant provisions in the Proposed Board Order 160413-01 to exactly mirror the provisions of the Stipulated Judgment without further modifications. This request is in line with the District Governing Board's action in 2013 in which the provisions of the 2013 Settlement Agreement and Release were fully and without modifications incorporated in Board Order No. 110317-01.

- Paragraph K, Page 3, Lines 20 -21 – Please clarify whether transitioning is allowed under this requirement.

- Paragraph E, in parts, stats that *"..., and to meet the CAAQS at residences within communities zoned for residential use in the Inyo County General Plan Use Diagrams in accordance with District Rule 401.D (State Standard)"*. This requirement without clarification as specified in Section 7.7 of the 2008 SIP Order vastly expands the applicability of the California Ambient Air Quality Standards (CAAQS) beyond the communities surrounding Owens Lake.

  Hence, LADWP requests that the clarification similar to the clarification in Section 7.7 of the 2008 SIP Order, which states "in any community surrounding Owens Lake" be added to this provision.

- Exhibit 2, Dust Control Efficiency Map – The proposed Exhibit 2 is different from Figure 5.7 of the 2008 SIP Order as shown in the enclosed map, entitled "Difference in Control Efficiency (CE) or CE Boundaries between 2016 SIP and 2008 SIP". The proposed Exhibit 2 mandates significantly higher Control Efficiencies (CE) and MDCEs on nine (9) square-miles of Owens Lake playa than had been previously specified in the District's 2011, 2012, 2013 and 2014 Supplemental Control Requirements Determinations.

  LADWP has been mitigating dust emissions from some of the areas on Owens Lake playa under higher-than-required MDCEs for operations purposes and to comply with fall and spring shouldering requirements of the 2008 SIP Order. LADWP currently anticipates continuing operating at these higher-than-required levels; however, it retains the right to revert at any time to the required lower MDCEs. LADWP is working on developing plans which will remove the current operational restrictions which will enable it to continue to comply with fall and spring shouldering requirements while continuing to operate other adjacent areas at the required lower MDCEs. Additionally, it appears that the required protocols for modifying MDCEs have not been followed as specified in the 2006 Settlement Agreement.

Hence, LADWP requests to retain the MDCE Selection Process that was mutually agreed upon in the 2006 Settlement Agreement and incorporated into the 2008 SIP Order as Attachment A.

For the Owens Lake Dust Mitigation Program – Phase 1 through 7 Projects, the required CEs are shown in Figure 5.7 of the 2008 SIP Order. For Owens Lake Dust Mitigation Program – Phase 8, 9, and 10 Projects, the required CEs are all uniformly at 99 percent.

Furthermore, LADWP welcomes the District's suggestion for modifying the MDCE Selection Process spreadsheet in order to accommodate future changes in either CEs or dust control area boundaries.

- Paragraph 8.D, Page 8, Line 7 – Paragraph 8.D partly states that *"[t]he APCO has sole discretion whether to approve or disapprove the application"*. There is no basis for this mandate in the 2008 SIP Order or 2014 Stipulated Judgment. The City understands and will not contest the District's determination but there is nothing about the City's applications.

  Hence, LADWP requests that statement such as "which approval shall not be unreasonably withheld" be added to the said provision.

- Paragraph 11.E, Page 23, Lines 24 – 28 - Please also add 6 to 36 months that is stated for stabilizing by other means under the 2008 SIP Order, Attachment B, Exhibit 10, Page 16 of 17.

- Paragraph 11.F, Page 24, Lines 4 -7 – Paragraph 11.F specifies the use of *"BACM"* for mitigating dust emissions from the City's gravel mining and transportation activities. In previous State Implementation Plans, BACM was defined as Managed Vegetation, Gravel Cover, or Shallow Flooding, and only applied to Owens Lake playa source areas. The Proposed 2016 SIP should define BACM in the context of gravel mining and transportation activities.

- Paragraph 20, Page 30 – Paragraph 20 is not consistent with the Stipulated Judgment. In order to be consistent with the Stipulated Judgment, the provision should read: *"If there is a material change in federal or state law.......The District shall also maintain its authority under Health & Safety Code Section 42316.......Board Order No. 130916-01, provided, however, that nothing in this sentence authorizes the District to order the City to implement mitigation measures in contravention of the provisions in Paragraph 8.B of this Order".*

Proposed 2016 SIP:

- Section S.4, Page S-3, Paragraph 1 – Section S.4 states that *"PM10 emissions in the OVPA are dominated by fugitive dust emissions resulting from wind erosion on the exposed Owens Lake playa."* This statement should be revised to reflect the current emission inventory in Table S-2 which clearly reflects that PM_{10} emissions in the Owens Valley Planning Area (OVPA) are no longer dominated by emissions from the exposed playa. According to Table S-2, PM_{10} emissions from the Keeler and Olancha Dunes System are now over 10 times greater than those from exposed Owens Lake playa.

- Section S.4, Page S-3, Paragraph 3 – Please explain the justification for basing the emission inventory, and therefore the PM_{10} control strategy, on a near-exceedance day rather than the maximum PM_{10} concentration day used in other State Implementation Plans. By definition, a near-exceedance day is one that marginally exceeds the federal NAAQS. Shouldn't the PM_{10} attainment control strategy be based on the maximum-day PM_{10} concentration day, or some variation of the maximum such as the fourth highest PM_{10} concentration day?

  Appendix V of the Proposed 2016 SIP does not offer a direct answer to this and subsequent attainment questions.

- Section S.4, Page S-4, Paragraph 1 – This Section states that *"...For purpose of the significant source analysis ....The two-kilometer buffer has been applied.... at the monitors..."* This assumption is inconsistent with the 2008 SIP Order, which implies that a *"...strong source-receptor relationship"* for playa sources extends as far away as 10 or 15 kilometers from the PM_{10} monitors (roughly one-third to one-half of the length of Owens Lake; see 2008 SIP Order, page 4-9, items 6 and 8). All of the existing dust mitigation facilities on Owens Lake were identified using data conforming with these two distance criteria.

In a March 17, 2016, conference call with LADWP, the District clarified its position that the impacts of sand motion from the Owens Lake playa are limited to a distance of two kilometers from the shoreline. If this clarification is still valid, please reflect such clarification in the main body of the document.

- Section S.6.1, Page S-11- This Section states: " *In the same manner as the off-lake dust source areas were created as a result of sand migration from the lake bed, the ECR areas will have less sand migration from the adjacent areas after dust controls are in place and it is expected that emissions will be reduced as dust is winnowed from the loose sand deposits.* " This paragraph should acknowledge that off-lake dust source areas were not just created in the last 100 years. Owens Lake was formed some 800,000 years ago by tectonic activity under a portion of the Owens River. The tectonic activity caused the underlying bedrock to tilt upward along a plain, which increased the outlet elevation by more than 200 feet and caused a large, terminal inland lake to form behind the barrier. The surface level on Owens Lake has varied dramatically over its history, mostly in response to climate variation. When the water was high, sandy beaches and beach dune deposits formed around its perimeter due to a combination of wind and wave action (and flash flooding on the alluvial fans). During periods when the lake was dry, which occurred at least 6 times in the last 15,000 years (one event lasted more than 2,500 years), sand migrated across the former shorelines and fanned across the surrounding desert. Not all sand deposits around Owens Lake are strictly Aeolian (i.e., windblown) in origin. Many of the dune systems surrounding Owens Lake lie at the distal end of alluvial fans emanating from the Coso and Inyo Mountains, suggesting that water and sediment load from flash floods plays a significant role in stabilizing, if not forming, dunes. The history of Owens Lake is well documented in numerous published scientific reports, including: Bacon et al. 2006; Benson et al. 2001, 2002; Gale 1915; Grayson 1993, 2000; Li et al. 2000; Lee 1915; Mihevc et al. 1997; and Orme and Orme 2008.

  Sand accumulation in near-shoreline areas cannot be attributed solely to the City's water gathering activities in the last 100 years. Additional, detailed scientific investigations are needed to understand the relative contribution of the exposed Owens Lake playa versus other sources, including those occurring in both modern and prehistorical times.

- Section S-6.4, Page S-14 – LADWP has provided information in the past that shoreline monitors are affected/influenced by dust storms originating far to the north and south of Owens Lake. The evidence is clear: regional scale dust storms cause PM_{10} exceedances at the shoreline monitors. This fact is not addressed anywhere in the Proposed 2016 SIP.

- Section 6.6, Page 56 – The District's cost analysis which are based on the past 15 years of dust mitigation on Owens Lake assumes that the facilities that have been constructed since 2000 will last for another 25 years, and hence, the costs are amortized in that manner. The District's cost analysis does not adequately account for following significant charges:

    - Life expediency of constructed facilities – The facilities are not expected to last up to 40 years as assumed in the analysis, especially in the harsh environment of Owens Lake. This is anticipated the facilities needs to be replaced or upgraded every 20 to 25 years;
    - Cost of the Water – Future cost of the water is anticipated to double in the next five years partly due to inflation rates and environmental regulations. For example, the cost of untreated water in 2004 ranged from $326 to $407 per acre-foot. In 2016, the cost of untreated water ranges from $594 to $728 per acre-foot;
    - Higher labor and material charges;
    - Replacement cost of existing construction maintenance equipment;
    - Tougher labor and environmental regulations effecting the permitting and replacement costs of such facilities;
    - Loss of Power Generation Revenue – LADWP generates power from the water that is exported to the City from Eastern Sierra through several hydropower generating stations. In 2016, the loss of generation amounts to reduction in power generation revenue of $106 per acre-feet; and
    - Increased cost of habitat monitoring and compliance reporting.

  Hence, LADWP requests that exclusion of such valid charges be recognized in this section, and LADWP is willing to work with the District to properly account for such charges prior to consideration and adoption of the Proposed 2016 SIP.

- Appendix X- 1, GBUAPCD Proposed Rule 433 – Proposed Rule 433 omits important terms that were included in the Stipulated Judgment concerning potential delays in installation and implementation of controls, specifically, the provisions concerning Force Majeure and Stipulated Penalties. By omitting these terms, Proposed Rule 433 could be interpreted as transforming the remaining terms specifying controls and deadlines into a completely different set of requirements and consequences than those negotiated by the Parties and embodied in the Stipulated Judgment. The stringency and timetables for implementation were acceptable to the City only when combined with the relief mechanisms provided by the Force Majeure and Stipulated Penalties provisions. Accordingly, LADWP requests that the provisions in Paragraphs 14 and 15 of the Stipulated Judgment be repeated in Proposed Rule 433.

- Off-Lake PM_{10} Reductions in Areas Adjacent to Lakebed Dust Controls Memorandum (Memorandum), dated October 9, 2015, from Messrs. Duane Ono and Chris Howard to Mr. Phill Kiddoo, et al.

  The purpose of this Memorandum appears to be a determination that if on-lake sources are controlled sufficiently to meet NAAQS, then off-lake sources will respond similarly and also meet NAAQS. In this way OVPA would be protected from exceeding NAAQS without requiring controls on off-lake sources. LADWP is concerned about several assumptions in this Memorandum. If the State Implementation Plan actions do not result in attainment of NAAQS by 2017, or if the United States Environmental Protection Agency (USEPA) requires reasonable further progress, our interpretation of the Memorandum is that the District has concluded that LADWP would be obligated to control dust emissions from off-lake dust sources that are not part of the Keeler and Olancha Dunes. Does the District agree with this interpretation?

  The 2013 Settlement Agreement exempts LADWP from orders to control dust emissions from the Keeler and Olancha Dunes, but only for certain portions of each dune field. LADWP disagree with the Memorandum's conclusion that the dust that may exist on the off-lake areas does or will exist there as a result of the City's water diversion activities in the past century. LADWP is hopeful the District's predictions are correct, and therefore in order to avoid a dispute over the liability issue at this time, LADWP requests that the District include a memorandum in the Proposed 2016 SIP that clarifies the Memorandum and the BACM Analysis, stating that if off-lake sources become emissive and prevent the OVPA from reaching attainment in the future, the District will analyze and determine whether the emissions are attributable to the City or another actor, or are naturally-occurring dust emissions that are subject to the Exceptional Events Policy. In determining liability, the District should employ appropriate scientific rigor and comply with all necessary legal requirements.

LADWP's previous comments, dated October 23, 2015, October 30, 2015, and December 7, 2015, are incorporated in this letter by reference.

In closing, we appreciate your commitment to implementing the terms of the 2014 Stipulated Judgment and understand our mutual intent to revise the terms of the 2008 SIP Order to include the terms of the Stipulated Judgment. In order to alleviate any third-party misinterpretations, LADWP would appreciate a reaffirmation in writing that the District is committed to implementing the Stipulated Judgment and nothing in the District's 2016 Draft SIP Documents are intended to contradict the Stipulated Judgment.

LADWP requests that the District revise the Proposed Draft 2016 SIP Documents as provided in this letter and enclosure, and we look forward to working with the District to fulfill the terms of the Stipulated Judgment.

Sincerely,

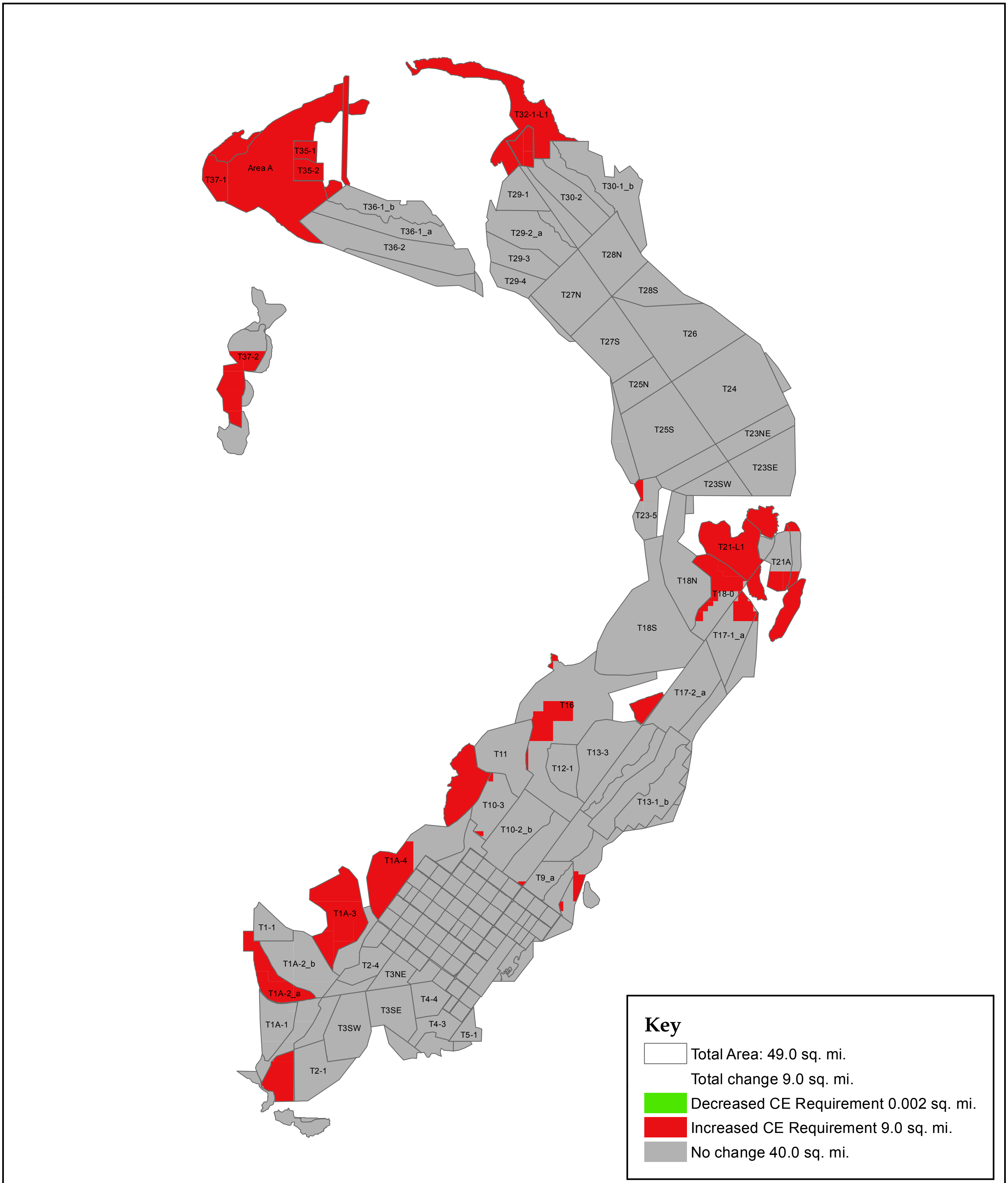
Milad Taghavi

Milad Taghavi
Manager of Owens Lake Planning

MT:ar
Enclosure

ATTACHMENT A - DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES:

COMMENT LETTER NO. 2 (ENCLOSURES)



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Difference in Control Efficiency (CE) or CE Boundaries Between 2016 SIP and 2008 SIP

Version: 3/18/2016

Project No: 410-04

OWENS LAKE
SCIENCE, TECHNOLOGY & REGULATORY PROJECT TEAM

ATTACHMENT A – DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES:

DISTRICT RESPONSE TO COMMENT LETTER NO. 2

Phillip L. Kiddoo
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
www.gbuapcd.org

April 4, 2016

Mr. Milad Taghavi
Manager of Owens Lake Policy and Planning
Los Angeles Dept. of Water and Power
111 North Hope Street
Los Angeles, California 90012-2607

RE: Comments from Los Angeles Department of Water and Power on Adoption and Approval of (1) Proposed Order under the Provisions of California Health and Safety Code Section 42316, (2) Proposed District Rule 433 for the Control of Particulate Emissions at Owens Lake, and (3) Proposed Final 2016 Revision to the Owens Lake PM10 Planning Area Demonstration of Attainment State Implementation Plan

Dear Mr. Taghavi,

Thank you for reviewing and providing comments on the Great Basin Unified Air Pollution Control District (District) Board Order #160413-01, District Rule 433, and the 2016 State Implementation Plan (SIP). Participation by the City of Los Angeles Department of Water and Power (City) is important to the District and has provided important input in the process of preparing a SIP revision that consists of the 2008 SIP Order and the provisions of the 2014 Stipulated Judgment (Stipulated Judgment) as required by Article 11 of the Stipulated Judgment. The District reaffirms its commitment to and intends to abide by the terms of the Stipulated Judgment. Nothing in Board Order #160413-01, District Rule 433, and the 2016 SIP are intended to contradict the Stipulated Judgment.

As requested, your letter and enclosure dated March 18, 2016 will be incorporated into the administrative record. In response to your letter, request to incorporate previous comments by reference and subsequent clarification to incorporate comments from December 10, 2015, the following documents are enclosed:

- The City's previous comments dated October 23, 2015, October 30, 2015, and December 7, 2015 with District responses (Enclosure 20160404a).
- The City's previous comments dated December 10, 2015 with District responses as clarified in our E-mail exchange on March 21, 2016. (Enclosure 20160404b).
- District responses to City's comments dated March 14, 2016 (Enclosure 20160404c).
- District responses to City's comments dated March 18, 2016 (Enclosure 20160404d).

Once again, thank you for providing comments on District Board Order #160413-01, District Rule 433, and the District's 2016 SIP.

Sincerely,

Phillip L. Kiddoo
Air Pollution Control Officer

Enclosures:
20160404a
20160404b
20160404c
20160404d

ATTACHMENT A - DRAFT 2016 SIP COMMENT LETTERS AND DISTRICT RESPONSES:

DISTRICT RESPONSE TO COMMENT LETTER NO. 2 (ENCLOSURES)

Enclosures:

DWP Comments on Draft BO #151207-01 – October 23 and 30, 2015
District Responses follow DWP comments in italicized text.

PART 1 - Sent via email message from Milad Taghavi:

This is a follow-up to our Tuesday, October 20, 2015, conference call regarding the draft Board Order #1512XX (draft Order). Outline below is our primary comments regarding the draft Order (some of which were discussed during our conference call). We will be submitting additional comments by October 30, 2015.

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1) Existing PM_{10} Controls, Subsection 1.C, Page 4

- Is "Reduced Efficiency BACM" defined in the Clean Air Act?

  As discussed in the Addendum to the General Preamble to the Clean Air Act (59 FR 42012) BACM is determined on a case-by-case basis considering the nature and extent of the nonattainment problem and the technological and economic feasibility of control measures. This will be discussed in the SIP.

- This description of the methods used to control the Channel Areas misinterprets the 2006 Settlement Agreement and 2008 SIP, which did not include the Channel Areas as part of the Total Dust Control Area. Those areas, comprising 0.5 square miles, were not ordered for dust control. The parties agreed that due to the sensitive resources existing on the site, LADWP should take some actions to mitigate the emissions, but BACM was not ordered or deemed feasible.

  The 2006 Settlement Agreement (para. 1, 2006 SA) and the 2008 SIP (para. 4, BO 08128-01) identify the Channel Area as part of the Total Dust Control Area. A description of the dust control method for the Channel Area was included in the Subsequent Environmental Impact Report for the 2008 SIP (SEIR, pp 2-4 – 2-5). The description of DWP's strategy to improve dust controls to achieve better vegetation cover is consistent with the current approach being taken in the Channel Area. The APCO did not approve a non-BACM approach, as would be required by the 2006 SA if BACM was not implemented.

2) Phase 9/10 Project to Implement 2011 and 2012 Supplemental Control Requirement Determinations, Subsection 3.A, Line 13, Page 5

- Should be revised to read as follow: "The deadline set forth in this paragraph….".
- The Force Majeure and Stipulated Penalties sections did not solely relate to "construction" deadlines.

The sentence in the order "The construction deadline set forth in this paragraph is subject to the Force Majeure and Stipulated Penalties provisions set forth in Paragraphs __ and __" is a direct quote from the stipulated judgment and is correctly stated in the draft Board Order. Including the word "construction" is appropriate because it limits the District's ability to issue NOVs and collect a monetary penalty to missed construction completion deadlines as stated in para. 17 of the BO (page 26, lines 23-28, see also 2014 SJ, para. 2.A.). Paragraph 15.A applies the clause to "the failure to meet ***dust control measure completion deadlines,*** *" and the clause does not extend to the failure to meet other requirements of the stipulated judgment.*

3) PM_{10} Control Measures, Section 5, Lines 5 and 6, Page 6

- Should be revised to read as follow:"…and as described below in Paragraphs 9 through 11,….,the Reduced Efficiency BACM PM_{10} control measure described in Paragraph 12."

The references to the paragraph numbers are corrected as noted.

4) Contingency PM_{10} Control Measures, Subsection 8.F, Lines 1 – 5, Page 8

- The last two sentences of this paragraph contradict Articles 10 and 14 of the Stipulated Judgment. Article 10 states, in part, that "[t]he Parties agree to collaborate in their efforts to secure support for the terms of this agreement, agreement implementation, and obtaining necessary permits, leases and approvals with the….". Article 14 states, in part, that"…(d) action or non-action by, or inability to obtain the necessary authorizations or approvals from any governmental agency,…….(e) the inability to obtain private property owner access,…."

The District's agreement to collaborate with the City and other agencies and the force majeure provision are not diminished by these two sentences.

The 2014 SJ (para. 3.E.) states "<u>The City shall be solely responsible for</u> all CEQA compliance, and to the extent joint documents are prepared under CEQA and NEPA, for CEQA/NEPA compliance, and <u>all lease and permit requirements associated with any Contingency Measure."</u> Para. 5 G. also states in regard to implementing TwB2, "<u>The City shall be solely responsible to obtain all required approvals and permits required to implement TwB2. The District will support the City's efforts to obtain such approvals in compliance with the law.</u>"

In regards to the force majeure provisions in SJ article 14, it is important to note that the cited sentences include a proviso for obtaining approval, which was omitted in your quote, <u>"… provided that the City demonstrates it has made a timely and complete application to the agency and used its best efforts to obtain that approval,…</u>" Similar language is applied to obtaining permission from land owners. A revision to this paragraph could add this proviso, however, it would be duplicative of the provisions in the Force Majeure section.

We have redrafted the Force Majeure clause to track the language in the Stipulated Judgment. Note Paragraph 14.A and 15.A of the stipulated judgment shownig that the scope of the force majeure clause is tied to "the failure to meet dust control measure completion deadlines."

5) Contingency PM_{10} Control Measures, Subsection H, Lines 13 – 21, Page 8

- The stated compliance deadline contradict Article I(c)(v) of the 2013 Settlement Agreement and Release which states, in part, that "….[t]he new Board order or orders shall include deadlines for constructing dust controls that accommodate project circumstances, including but not limited to, the time to complete a Phase III cultural resources recovery and perform additional environmental work required under CEQA to approve the new project."

  Para. I.c.v. of the 2013 SA, which is referred to, is under the Cultural Resource Task Force section of the 2013 SA and applies to cultural resource areas, which will already have an extended implementation deadline since no new order has yet been issued for controlling these areas.

  The 3-year compliance deadline (plus 2 years for managed vegetation) for all other areas is a longer period than allowed under the 2008 SIP. To simplify the planning process and the compliance deadlines, we made the construction deadline 3 years for all measures. We can justify an extension of the previous SIP deadline as not being "backsliding," which is a relaxation of an existing control measure that EPA would disapprove, because the City agreed to not challenge a new order provided that it was within the 53.4 sq. mi. limit. The lack of an appeal process has cut at least a year out of the implementation process, therefore we have not relaxed the implementation schedule. EPA's anti-backsliding requirement for SIP revisions is dictated under CAA Section 110(l).

6) PM_{10} Control Measures, Subsection 9.B.v, Line 6, Page 10

- Should be revised to read as follow: "…period specified in Paragraph 9.B.ii,…."

  The reference to the paragraph numbers are corrected as noted.

7a) PM_{10} Control Measures, Subsection 9.C.ii.a, Line 23, Page 10
- Should be revised to read as follow: "…Flooding areal wetness cover may be reduced to a minimum of 67 percent."

7b) PM_{10} Control Measures, Subsection 9.C.ii.b, Line 26, Page 10
- Should be revised to read as follow: "…Flooding areal wetness cover may be reduced to a minimum of 62 percent."

7c) PM_{10} Control Measures, Subsection 9.C.ii.c, Line 2, Page 11

- Should be revised to read as follow: "…Flooding areal wetness cover may be reduced to a minimum of 55 percent."

  Reducing the wetness cover during the spring ramping period would relax the current requirements from 70, 65 and 60% cover to 67, 62 and 55% cover, which would be considered backsliding, or a relaxation of an existing SIP requirement.

8) PM_{10} Control Measures, Subsection 9.D.vi, Lines 2 - 4, Page 13

- The requirement that "[an]y such appeal shall not relieve the City of the duty to reflood a TWB[2] area within 37 days of a written order from the APCD" contradicts Article 5.D of the Stipulated Judgment. Since no such requirement is stated.

  This sentence can be deleted or modified, since the disposition of the 37 day order under an appeal is not discussed in the 2014 SJ. However, this sentence makes sense because the City should get an injunction to stop the 37-day clock when they file the appeal, otherwise the District order will still be in place. This can be clarified to indicate that they need an injunction to stop the clock. If the City lost their appeal, which means they lost their challenge of the order to re-flood, then it would make sense that the City had to comply with the original 37-day order. Unless there is an injunction to stop the clock or the City wins their appeal, a notice of violation for failure to comply would be based on meeting the original 37-day deadline for re-flooding. To clarify this point, the section has been modified to clarify that the City may seek such relief from the Court, with the addition of the words "unless the City properly seeks and obtains an injunction from the Court before the expiration of the 37-day period."

9) PM_{10} Control Measures, Brine Shallow Flooding BACM, Subsection 9.E.v, Lines 4 - 8, Page 14

- The stated waivers are not contemplated in the Stipulated Judgment and seem to contradict Article 11.B of the Stipulated Judgment, which states, in part, that "…except that the City may challenge any new terms that the City has not agreed to in advance, and that is not contained in the 2008 SIP order as modified by this Stipulated Judgement."

  Brine shallow flooding is a new BACM that we are proposing in order to help the City save water, and there are no details other than as a potential control method in the 2014 SJ. Similar to Brine BACM, Para. 7. A of the 2014 SJ about dynamic water management says, <u>"The proposed actions shall set forth the conditions upon which the APCO can approve the City's application to undertake these dynamic water management actions</u>." The City's acceptance of those conditions is required when they choose to implement DWM. A challenge of the conditions for Brine BACM in the SIP under para. 11.B of the 2014 SJ could significantly delay approval of this new measure. The City further agreed to waive any challenge to the terms of the stipulated judgment in Paragraph 13.A, and reserved no challenge to the brine shallow flooding determination under the stipulated judgment.

10) PM$_{10}$ Control Measures, Dynamic Water Management, Subsection 9.F.ii., Lines 16 - 21, Page 14

- The stated waivers are not contemplated in the Stipulated Judgment and seem to contradict Article 11.B of the Stipulated Judgment, which states in part that "…except that the City may challenge any new terms that the City has not agreed to in advance, and that is not contained in the 2008 SIP order as modified by this Stipulated Judgement."

  Dynamic water management is a new BACM that we are proposing to help the City save water, and there are no details other than as a conceptual idea in the 2014 SJ, and leaves it to the District to determine the conditions for implementing it. Para. 7. A of the 2014 SJ says, <u>"The proposed actions shall set forth the conditions upon which the APCO can approve the City's application to undertake these dynamic water management actions</u>." The City's acceptance of those conditions is required when they choose to implement DWM. A challenge of the conditions for dynamic water management in the SIP under para. 11.B of the 2014 SJ could significantly delay approval of this new measure. The City further agreed to waive any challenge to the terms of the stipulated judgment in Paragraph 13.A, and reserved no challenge to the dynamic water management determination under the stipulated judgment.

11) PM$_{10}$ Control Measures, Dynamic Water Management, Subsection 9.F.iii.2, Line 8, Page 15

- The stated 21 days cannot be adhered to under all operating conditions. Hence, LADWP respectively requests 37 days to meet the reflooding requirements if the area is greater than 25 percent of the DWM.

  Expediency is needed in re-flooding areas to prevent violations of the NAAQS. The hearing board is available if circumstances don't allow re-flooding within the allowed timeframe.

12) PM$_{10}$ Control Measures, Subsection 9.G, Line 20, Page 15

- Please provide references for the "90 days" requirement in the 2008 SIP.

  See Exhibit 1 of Attachment B in the BO #080128-01. It provides 1 month if more water needs to be applied to existing shallow flood areas, or 12 months if land leveling needs to be done. Since most of the shallow flood areas have already been leveled, this could say 30 days instead of 90 days.

13) PM$_{10}$ Control Measures, Subsection 9.H, Lines 24 - 27, Page 15

- Should be revised to read as follow: "From July 1 through October 15 of each year, the District does not require the City to apply water to Shallow Flooding areas for dust control purposes. The City shall comply with all other permits conditions and requirements."

Suggested revision made.

14) PM$_{10}$ Control Measures, Subsection 9.L, Lines 19 - 22, Page 16

- Should be revised to read as follow: "…The DCM areas shall have lateral boundary edge berms and/or drains as necessary to contain excess waters in the control areas and to isolate the dust control measure areas from each other and from areas not controlled unless otherwise warranted."

We propose the following rewrite: "The DCM areas shall contain excess waters in the control areas and isolate the dust control measure areas from each other and from areas not controlled by the use of lateral boundary edge berms and/or drains or other equally effective measures."

15) PM$_{10}$ Control Measures, Subsection 9.N, Lines 4 - 8, Page 17

- Should be revised to read as follow: "As necessary to protect human health, the City shall prevent, avoid and/or abate mosquito, other pest vector and biting nuisance insect in the vicinity of the control areas that are actively being managed by application of water for dust mitigation purposes, including within communities less than three miles from the said control areas, by effective means that minimize adverse effects upon adjacent wildlife."

With minor edits, this revision is accepted.

16) BACM Managed Vegetation, Subsection 10.B, Line 1, Page 18

- Should be revised to read as follow: "…under-controlled areas are not large enough to become emissive."

Suggested revision made.

17) BACM Managed Vegetation, Subsection 10.C, Line 13 and 14, Page 19

- Should be revised to read as follow: "…Species approved by the APCO. As of January 1, 2016, the only species approved by the APCO is saltgrass (Distichlis spicata)."

First suggested revision made. The District made additional revisions to include the plant list of 48 species.

18) BACM Managed Vegetation, Subsection 10.G, Lines 10 – 13, Page 20

- o Should be revised to read as follow: "The dust control measures areas shall have lateral boundary edge berms and/or drain as necessary to contain excess waters in the control areas and to isolate the dust control measures areas from each other and from areas not control unless otherwise warranted."

  See suggested revision above.

19) BACM Managed Vegetation, Subsection 10.J, Lines 25 - 27, Page 20, and Lines 1 – 2, Page 21

- o Should be revised to read as follow: "As necessary to protect human health, the City shall prevent, avoid and/or abate mosquito, other pest vector and biting nuisance insect in the vicinity of the control areas that are actively being managed by application of water for dust mitigation purposes, including within communities less than three miles from the said control areas, by effective means that minimize adverse effects upon adjacent wildlife."

  See suggested revision above.

20) BACM Gravel Blanket, Subsection 11.B, Lines 15 – 19, Page 21

- o Should be revised to read as follow: "All gravel shall be durable have resistance to leaching and erosion." The last sentences should be deleted.

  Suggest the same edit as above regarding other requirement for shallow flooding, to delete coloration and replace with "comply with all other permits, conditions and requirements."

21) BACM Gravel Blanket, Subsection 11.E, Line 13, Page 22

- o Please provide the 2008 SIP references for the following requirement: "…re-establish within 60 days of written notice from the APCO." This requirement is not feasible under all operational conditions.

  See Exhibit 1 of Attachment B in the BO #080128-01. It requires that supplemental gravel be placed on areas within a timeframe of 4 months per square mile. This has been changed to the 4 month per square mile 2008 SIP requirement.

22) Reduced Efficiency BACM Control Measures, Section 12, Lines 19 – 28, Page 22, and Line 1 – 4, Page 23

- o In addition to whether Reduced Efficiency BACM is defined in the Clean Air Act and Channel Area was not part of the Total Dust Control Area previously ordered, LADWP cannot implement BACM within T1A-1 DCA and Channel Area.

  The District is approving the current conditions in T1A-1 (sand fences, with existing vegetation and natural wet areas) and the Channel Area Managed Vegetation with *surface flooding to enhance existing coverage as MDCE BACM control measures as currently sufficient for BACM dust control requirements. See also the response to the Channel Area being part of the Total Dust Control area in comment #1.*

23) Force Majeure, Subsection 16.A, Line 17 – 28, Page 25

- o Force Majeure is misspelled in the headings. Additionally, the reference to “construction activities” should be deleted, as the Stipulated Judgment was not limited to construction activities.

  Misspelling corrected and reference to construction activities deleted. Force Majeure, Subsection 16 is now verbatim from the 2014 Stipulated Judgment with appropriate paragraph references to 2015 SIP Board Order and case reference in 16.C.

24) Retention of Legal Authority, Section 20, Lines 26 – 28, Page 28, and Lines 1 – 5, Page 29

- o This provision contradicts the District’s agreement to limit future dust control orders to 53.4 square miles. It may be appropriate to remove it from the new order.

  This makes it clear that the District maintains its authority to order the City to implement additional controls for emissive areas outside of the Owens Lake bed for air pollution caused by the City’s water gathering activities. The District must also require compliance with any change in the law. The District intends to comply with each term of the Order in requiring controls at the Owens Lake bed underthe current law. We have proposed a revision to address these limited circumstances. The last phrase of the paragraph should refer to the lake bed dust control areas in paragraphs 1 through 8, and not 9 and 10.

PART 2 - Sent via email message from Milad Taghavi:

This is a follow-up to our Tuesday, October 27, 2015, conference call regarding the draft Board Order #1512XX (draft Order). Outline below is LADWP’s additional comments regarding the draft Order (some of which were discussed during our conference call).

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25) Section 1.B, “Owens Lake Bed PM10 Control Measure Areas,” Page 4, lines 12 & 13:

- There are practical limits on the amount of control LADWP has over the establishment of vegetative cover. Vegetation needs a favorable environment to grow. Conditions on Owens Lake are inherently hostile to plant growth, and even with reclamation change occurs slowly. LADWP will work vigorously to bring all MV areas into compliance. This was the case with the original 3.5-square-mile Managed Vegetation (MV) area and will be the case on all future MV areas.

  The December 31, 2017 deadline to achieve fully-compliant vegetation cover was previously agreed to with the City in para. I.a.ii of the 2013 Settlement Agreement (2013 SA, Aug. 19, 2013).

26) Section 1.C, "Owens Lake Bed PM10 Control Measure Areas," Page 4:

- The title "Reduced Efficiency BACM" is vague, and focuses on the control efficiency outcome rather than the mode of dust control. The titles of all other BACM on Owen Lake allude to their particular control mode: for example, Gravel Blanket, Managed Vegetation, Shallow Flooding, Brine with BACM Backup, and Tillage with BACM Backup, among others. Adding to the confusion, many other dust control areas on Owens Lake have reduced control requirements (e.g., MDCE areas) but none of those are listed as "Reduced Efficiency BACM."

- LADWP recommends re-designating T1A-1 as "Sand Fence BACM" and the Channel Area as "Channel Area BACM." The description of each new BACM should summarize the appropriate facilities and activities associated with each BACM (for example, water spreading, enhanced seeding), the mechanisms acting to control dust emissions, the required control efficiencies, and procedures for evaluating compliance.

  As suggested, the District replaced reduced efficiency BACM category and added appropriate descriptions and applied dust control methods for each area. This will be considered MDCE BACM (see Paragraph 13).

27) Section 2.A, "Phase 7a Cultural Resource Areas," Page 4, lines 21 & 22:

- Delete "the presence of"

  Suggested revision made.

28) Section 8.H, "Contingency PM10 Control Measures," Page 8, line 7:

- Typo; should be "Paragraph 12…"

  Section 8.H. refers to meeting the managed vegetation requirements in paragraph 11, it should actually refer to paragraph 10. The reference at the end of the sentence *(p.8, line 19) is wrong and can also be deleted, "~~as set forth in Paragraph 12 for those areas~~."*

29) Section 9, "PM10 Control Measures," Page 9:

- o This section is silent on the mode of water delivery for Shallow Flooding. Section 9.A should state that the acceptable means of water delivery include sprinkler Shallow Flooding and traditional mass Shallow Flooding.

  Section 9.A currently states "<u>Water shall be applied in amounts and by means sufficient to achieve the performance standards set forth in Paragraphs 9.B. through 9.G below</u>." The City has not demonstrated that sprinkler shallow flooding can reliably meet the wetness cover target as determined using the current satellite imagery method approved for measuring wetness cover. (para. 9.I.)

  If sprinklers can reliably achieve the wetness cover target as determined using approved methods, then it would be an acceptable mode of water delivery for shallow flooding as stated in this paragraph. No change is needed to the text.

30) Section 9.E.iii and 9.E.iv, "PM10 Control Measures," Pages 13-14:

- o This section states that the APCO may order the City to shallow flood a Brine BACM area if any one of the following criteria are met: the IPET method shows that the surface is emissive, or the sand flux is greater than 5 g/cm2/day. Limiting the re-flood decision to a single one of two criteria is inconsistent with Attachment E, "Brine with BACM Backup (Brine BACM)," Attachment A, "Monitoring and Enforcement Protocol for Owens Lake Brine with BACM Backup (Brine BACM)." Attachment A, pages 4-8 lists at least five measures that may be used to trigger a re-flood order, including but not limited to the following: Induced Particulate Emission Test (IPET), sand flux monitoring, dust plume observations, surface integrity observations, and aerial photography and remote sensing.

- o Attachment E, "Brine with BACM Backup (Brine BACM)," Attachment A, "Monitoring and Enforcement Protocol for Owens Lake Brine with BACM Backup (Brine BACM)" does not state that any of these measures are more important than the others in assessing the need for a re-flood order; it simply states that these are the measures that will be used in making a decision. The Board Order should be drafted to state that the District will endeavor to use multiple lines of evidence in making re-flood decisions.

  When available, it is a good idea to use multiple lines of evidence. IPET and sand flux measurements are both requirements in the 2014 SJ for TwB2 and are now proposed for use to determine if re-flooding is needed for the Brine and Dynamic Water Management variations on shallow flood BACM. The IPET and sand flux measurements are objective measurement methods that provide certainty that a *threshold has been exceeded. The other lines of evidence mentioned are useful, but at this time will need to be refined to develop objective criteria. If we encounter brine areas that have broken down and are becoming emissive, we will be able to evaluate these other methods to determine if they can be used to determine if a surface is emissive or is approaching an emissive state.*

The IPET method is intended to provide a measure of the erodibility of a surface before an actual event. With the early warning detection levels IPET can be used to detect weak surfaces before they reach a state that would require a re-flood order. The sand flux measurement can also show the erodibility of a surface before a re-flood order is issued, provided that there are minor wind events that cause erosion before a big event occurs. Sand flux measurements also provide a back-up monitor check in case IPET is not run on a surface, or it can provide an alert to the operator that the IPET should be run, or maintenance activities should take place to prevent a re-flood order.

See also the response to comment #9.

31) Section 9.F.iii.2, "PM10 Control Measures," Pages 15:

- o This section states that the APCO may order the City to shallow flood a Dynamic Water Management (DWM) area "…if the APCO determines that emissive conditions exist in that area as determined by the Induced Particulate Erosion Test procedures in the TwB2 Monitoring Protocol." In other words, the re-flood decision will be based on a single indicator: the IPET. This statement contradicts Board Order 1512xx, Attachment F, "2015 Owens Lake Dynamic Water Management Plan," Section 4.2.1, Re-Flooding Order, which states that several conditions may be used to trigger a re-flood order, including: (1) observed dust plumes, (2) deterioration of the surface such that it is in an emissive state *using the TwB2 monitoring and enforcement protocol in the 2014 Stipulated Judgment*, and (3) sand flux greater than 5 g/cm2/day. Attachment F also stipulates that the candidate re-flood area must have been identified by such methods *with a frequency of more than once in a rolling six-year period.*

- o This section should state that the District will endeavor to use multiple lines of evidence in making re-flood decisions, consistent with the 2014 Stipulated Judgment, and that each area ordered for re-flooding must have been identified as emissive more than once in a rolling six-year period.

The conditions for determining if a re-flood order will be issued for a Dynamic Water Management area are similar to those agreed to for TwB2 areas. See also the response to comments #10 and #31. <u>The IPET method was added to Attachment F</u>. .

LADWP misunderstands the "more than once in a six year period" language. This language does not refer to the ability of the APCO to order re-flooding of an entire or *partial area in any given year. The statement is meant to say that an area becomes ineligible for a modified dust season once it has been identified more than once in any rolling six year period. Areas that are removed from the DWM Plan must be Shallow Flooded using the standard October 16 to June 30 dust season. (para. 9.F.3)*

32) Section 9.F.3, "PM10 Control Measures,", Page 15, lines 10:

- LADWP should have the option to evaluate these situations before making this decision. It is possible that there could be extenuating circumstances. LADWP suggests adding: "3. If any DWM area becomes emissive and is therefore issued a re-flood order by the APCO more than once in a rolling five-year period, these areas will may, at the sole discretion of the APCO, revert to the standard Shallow Flood period of October 16 through June 30. If reversion occurs, and the affected area may, at the APCO's sole discretion, will no longer be eligible be re-considered for DWM at a later date."

  The foundation for inclusion as a DWM area is that the area is not emissive in the modified start or modified end of the October 16 - June 30 dust season. If an area is found to be emissive multiple times during these modified periods there is no justified reason on why it should be reconsidered for eligibility at a later date.

  The frequency of one year in six having significant sand flux (> 5 g/cm2/day) during the modified dust periods was used to determine if areas were eligible for shortened dust control periods. Areas that had a frequency of activity in the modified dust periods of more than one year in six were excluded from DWM. Only five years of data were needed to be included in the program for areas that had no events with significant sand flux since it still met the one in six requirement if a sixth year had significant activity.

  Changing to one in five years as suggested means there could be a 20% chance that the area will have significant activity if it were allowed to have a shortened dust control season. It also does not account for multiple large dust events that could be caused by the same area during the two weeks it will take to re-flood the area, or three weeks to re-flood if more than 25% of the DWM areas are affected. Dust activity often occurs on multiple days during a short period when the winds are high and the surface is vulnerable, therefore conditions that trigger a re-flood order could potentially result in NAAQS exceedances. The DWM areas were selected because there is a low risk of having significant activity outside of the shortened dust control period.

33) Section 9.G, "PM10 Control Measures," Page 15, line 19:

- Add the words "air quality" to the first sentence: "If *air quality* modeling or monitoring data show an exceedance…"

Suggested revision made.

34) Section 9.G, “PM10 Control Measures,” Page 15:

- o This section states that if air quality modeling or monitoring data shows an exceedance of the PM10 standard at the shoreline as a result of excessive dry areas, the APCO may require the City to “increase the level of dust control efficiency within those Shallow Flood dust control areas.” The phrase “excessive dry areas” is somewhat vague and should be clarified. LADWP assumes that in this case, “excessive” means wetness cover or distribution that is less than required levels (that is, less than 75% wetness cover, or 72% wetness cover for Shallow Flood areas after 2006). If that is the case, then the required action by the APCO isn’t to increase the control efficiency but rather to require that wetness cover and distribution be raised to compliant levels. As currently written, this section could be interpreted to mean that the APCO reserves the right to increase the required control efficiency to any level deemed necessary to reduce exceedances at the shoreline. This action would not be consistent with the 2014 Stipulated Judgment or any of the previous Owens Valley SIPs.

The requirement to increase the control efficiency in existing DCAs was included in the 2008 SIP, BO #080128-01, para. 10 A. It is included for shallow flood DCAs primarily to remedy dust problems that may be caused by large dry islands. See also para. 8.D.

35) Section 9.K, “PM10 Control Measures,” Page 16, line 19:

- o LADWP recommends appending the phrase: “…sufficient to meet the requirements of District Rules 400 and 401 (visible emissions and fugitive dust*), including but not limited to surface roughening, brine application, and vegetative cover (for MV and hybrid areas)*.”

The substantially non-emissive provision applies to portions of shallow flood areas that are not required to meet the shallow flood cover requirements, such as berms, roadways and other infrastructure used to support shallow flood dust controls (see para. 9.J.). Areas controlled with surface roughening, brine, and vegetative cover are already covered with detailed performance criteria in TwB2, Brine BACM and managed vegetation BACM requirements and is not intended to be applied to shallow flood infrastructure. This is not to say that they couldn’t be used for berms or roadways if it done in a manner that meets the requirements of District Rules 400 and 401 and is approved by the APCO.

A general inclusion of the suggested dust control methods in this section would create a loophole in the control requirements if it results in excluding these areas from the *shallow flood DCA without specific performance requirements to ensure that they are non-emissive.*

36) Section 10.A, "BACM Managed Vegetation," Page 17:

- Although the District and LADWP collaborated on a 2005 Managed Vegetation Control Efficiency Study, the study results were not explicitly mentioned in reference to the modified BACM requirements in the 2006 SIP. The MV BACM Study found that 99 percent control efficiency was achieved at 22 percent cover, not 50 percent cover as drafted earlier in the 2003 SIP. The 2015 SIP should reference this study because of its importance in gaining a better understanding of how well Managed Vegetation works on Owens Lake, and subsequently, in paving the way for modified MV BACM requirements.

  The SIP will reference all relevant studies supporting the BACM control measures. It will explain the performance criteria for managed vegetation BACM and the supporting studies.

37) Section 10.B, "BACM Managed Vegetation," Page 18 and 19:

- The average cover of 37 percent is associated with a particular reference satellite image and analytical procedure. Those assumptions should be listed here to put the threshold of 37 percent vegetation cover into proper context.

  Additional information is included in supporting documents for the managed vegetation performance criteria to explain the source of cover data and the assumptions used in the analysis. This detailed information does not need to be listed in the Board Order.

- The cover levels shown in Board Order 1512xx Table 10.1 (page 19) were established during development of the Managed Vegetation Operations and Maintenance Plan, and based on the reference 2004 satellite image for the southern MV area. The 2004 satellite image became the reference image because it depicted a spatially heterogeneous MV area that, despite localized areas of sparse or no vegetation, was "working." At the whole-site scale, the MV cover levels and distribution were sufficient to control sand motion everywhere within the site's interior. This image showed an average cover level of 37 percent, as measured by the method being used at that time.

  Later, the manner in which the imagery was ground truthed to assess vegetative cover was changed, shifting from automated analysis of Digital Point Frame (DPF) photographs (in which the ratio of vegetation to total pixels is determined) to "pin counting" of images. In pin counting, a visual grid is digitally overlaid onto the DPF photos, and intersections of the grid with pixels containing vegetation are counted by an observer. The proportion of intersections is taken to be the percent cover. This switch in methods was ordered by the District. As a result of this change, the vegetative cover results for all imagery (including the reference 2004 image upon which Table 10.1 cover levels are based) shifted downward, but this shift has never been quantified in a joint, follow-up analysis. Because the Table 10.1 criteria were never corrected to account for this change in analytical method, the criteria shown are likely higher than they would be were the 2004 image analyzed in the same manner as the compliance assessment imagery. The Table 10.1 compliance criteria should be reviewed by the District and LADWP to refine the required cover levels at different scales.

District staff disagrees with this comment. The automated digital point frame method for vegetation cover analysis was unacceptable to the District due to difficulty in automatically recognizing vegetation. Shadowing and damp soil were not satisfactorily distinguishable from the saltgrass leaves, which resulted in an overestimate of the vegetation cover as compared to standard point frame measurements.

38) Section 10.C, “BACM Managed Vegetation,” Page 19:

- The California State Lands Commission (CSLC) has approved Phase 7a, including all of the species on the following list, which was developed by the Owens Lake Master Planning partners. Additional background regarding the list will be sent to the District in a separate communication.

This paragraph has been amended to include those additional plant species.

39) Section 10.G, “BACM Managed Vegetation,” Page 20:

- LADWP suggests removing or modifying this section. We agreed with the District to remove the perimeter drain requirements for SF. They were shown to be unnecessary for environmental purposes because the zone of seepage influence was short. Perimeter drains are mainly installed to protect root zones and other infrastructure, as well as to conserve water by recycling it. Measures to protect water quality are in the Waste Discharge Requirements, which are too complex to capture in such a short space in the SIP. The SIP should either acknowledge the Regional Board and its jurisdiction and leave water quality regulation to them, or not mention water quality at all, recognizing that DWP must operate within the law and restrictions imposed by other agencies.

This provision is part of the design requirements for managed vegetation BACM and was included in BO #080128-01, para. 16.C.v for long-term management of managed vegetation DCAs. The inclusion of this requirement does not create a conflict with water quality regulations.

40) Section 11.A.i and 11.A.ii, “BACM Gravel Blanket,” Page 21:

- o This section should clarify that geotextile fabric is not required for four-inch lift of gravel. With a two-inch lift of gravel, underlayment with geotextile fabric is always required.

  The original gravel BACM measure in the 1998 SIP, which required 4-inch deep gravel said, "Where necessary to support the gravel blanket, it shall be placed over a permanent permeable geotextile fabric." (BO #981116-01) In the opinion of DWP's design engineers, they believed the geotextile fabric was needed under the 4-inch gravel blanket. There are no examples of 4-inch gravel blanket areas to show that it was unnecessary to have the geotextile fabric.

  The first criteria for 4" gravel specifically states "where it is necessary to support the gravel blanket" and the second criteria for 2"gravel does not have this caveat. This allows LADWP greater management flexibly should to need arise to apply gravel in an area without geotextile fabric. One hypothetical future scenario is a sensitive cultural resources area. Geotextile fabric placement requires significant lakebed surface disturbance. With 4" gravel and no geotextile fabric, hence less surface disturbance, this may be a viable option if supported by the cultural resource task force.

  The two criteria will be kept as is.

41) Section 12.A, "Reduced Efficiency BACM Control Measures," Page 22:

- o The description of each new BACM should summarize the appropriate facilities and activities associated with each BACM (for example, water spreading, enhanced seeding), the mechanisms acting to control dust emissions, the required control efficiencies, and procedures for evaluating compliance.

  As suggested in comment #26, the District will replace the reduced efficiency BACM category with MDCE BACM with appropriate descriptions for each area.

42) Section 12.B, "Reduced Efficiency BACM Control Measures," Page 23:

- o The phrase "For areas of Reduced Efficiency BACM control measures that *do not function as designed*…" should be stated more precisely as follows: "For areas of Reduced Efficiency BACM control measures that *do not meet the MDCE performance standards*…" How will the District determine whether the Channel Area meets the performance requirements for the individual MDCEs subareas that comprise the whole? If monitoring or modeling is used, than those compliance procedures need to be described in sufficient detail for LADWP to fulfill its responsibility to review and approve new information per the 2014 Stipulated Judgment.

- o As currently written, there is no opportunity for LADWP to review the APCO's decision to increase the control efficiency or the amount of time allowed for such an increase. LADWP requests that the District provide an opportunity to review and comment on the proposal before a decision is made.

LADWP's phrase revision is acceptable. The contingency measure provisions in 8.C, 8.D and Attachment B describe the process for determining the impact from lakebed sources, including areas in existing DCAs. All information and data collected as part of the Dust ID program is available to the City upon request.

Sections 9.G, 10.K and 11.E are written to account for previous deficiencies regarding situations where increased control efficiencies may be required for Shallow Flood, managed vegetation and gravel. Language consistent with other sections of the Board Order to allow LADWP to provide opportunity to review and comment on APCO's decision has also been incorporated.

43) Section 13, "New BACM, Adjustments to Existing BACM, and BACM Transitions," Page 23:

- o In the 2014 Stipulated Judgment, the District and City committed to work together to advance certain opportunities for waterless or water-efficient dust control measures in the future. Page 11 of the 2014 Stipulated Judgment states: *"The Parties will continue to collaborate on the expedited testing of Tillage, Engineered Roughness Elements, Lake Brine and Dust Palliative Chemicals as candidate BACMs. The Parties further agree to identify additional candidate BACMs, as appropriate. New dust control measures should be waterless, where feasible. Where not feasible, new dust control measures should be water neutral by offsetting any new or increased water use with water savings elsewhere on the lakebed."* These jointly approved goals are important for the future of Owens Lake and should be brought forward into the Board Order.

  The 2014 SJ, which includes provisions for the City and District to collaborate on new dust control measures in order to save water (para. 6.B), is included as Attachment A to the Board Order. It's unnecessary to repeat this commitment in the Board Order.

44) Section 13.E, "New BACM, Adjustments to Existing BACM, and BACM Transitions," Page 23, line 2:

- o Typos. The text should be revised to state: "…to the existing BACMs described in Paragraphs 9, 10, and 11 of this Order."

  Text revised as suggested in Section 13 (now paragraphs 9, 10, 11 and 12).

45) Subsection 15.A, "Stormwater Management," Page 25, Lines 7 - 9:

- o LADWP request the removal of the following sentence from the SIP: "…Any repairs the require dust controls to be out of compliance with the performance standards set forth in this Order shall be subject to the District Hearing Board variance procedure." There is no need to restrict the APCO's discretion in the SIP. Furthermore, if a breakdown report indicates that more than couple weeks would be needed to repair the damaged infrastructure, a variance may be needed for such breakdown.

Request accepted. BO #080128-01, para. 20 contains similar provisions, but does not include the statement about going to the Hearing Board. Although it is a good idea to go to the hearing board if you are going to be out of compliance, it is DWP's prerogative to request a variance. Requesting a variance is not an obligation for DWP or the APCO. The APCO has the discretion to issue NOVs and if that doesn't result in compliance order an abatement hearing. The hearing board provision can be removed.

46) Section 19.C, "Additional Requirements," Page 28:

- This section states: "*The City shall apply BACM to control air emissions from its construction/implementation activities occurring in the District's geographic boundaries*." The standard list of BACM for Owens Lake are not appropriate for construction/implementation activities. This section should reference the temporary dust control measures that have been used in the past (hay bales, sand fences, soil roughening, water, brine, etc.).

- Additionally, the latter part of this sentence should read "…within the OVPA." The District's "geographic boundaries" extend well beyond the OVPA.

This provision applies to any activities that may emit air pollution and are associated with dust control projects at Owens Lake; such as, gravel mining, cement and asphalt plants, or construction activities. These operations could take place outside of the Owens Valley Planning Area, e.g. Bishop. BACMs appropriate for these activities have and will continue to be included as conditions on District-issued permits to operate.

47) List of Attachments, Page 31:

- The list of attachment should include the 2013 Settlement Agreement and Release for the Keeler Dunes.

Paragraphs 2.A. and 3.B. refers to the 2013 Abatement Order #130916-01, and the 2013 Settlement Agreement (August 19, 2013) and to the provisions contained therein for cultural resource areas. The SIP will include a discussion of the regulatory history, including the 2013 Settlement Agreement. The 2013 SOA, which includes the 2013 SA, should be added as an appendix to the SIP, as opposed to an attachment to the BO. The 2013 SOA contains all the provisions for the cultural resource areas and *the Keeler Dunes. It would be good not to have to hunt this document down in the future.*

48) Exhibit 1,"PM10 Control Areas and Coordinates": Several points:

- Note that page 6 of the 2014 Stipulated Judgment lists the area of Phases 9 and 10 as 3.62 square miles. The legend in Exhibit 1 lists 3.7 square miles. LADWP recommends that all areas in the Board Order be rounded to the nearest one-hundredth of a square mile.

  Fixed in Revised Exhibit 1.

- The Board Order text does not mention "Hybrid BACM."

  Fixed in Revised Exhibit 1.
  Just to clarify, there is no Hybrid BACM only hybrid dust control areas with BACM.

- "Gravel Blanket" is the BACM title.

  Fixed in Revised Exhibit 1.
  .

- The Board Order text does not mention "Brine Test."

  Fixed in Revised Exhibit 1.

- The Board Order text does not mention "Engineered Roughness Test."

  Fixed in Revised Exhibit 1.

49) Exhibit 4, "Dynamic Water Management Dust Control Areas":

- The map should show the sprinkler Shallow Flood areas with end dates of May 30.

  Map shows eligible areas and their modified dust season. The map cannot forsee future areas and method of irrigation. In Attachment F it is now specified that the dust season for DWMP areas irrigated with sprinklers shall start two weeks earlier and end one month later than shown on the map.

50) Attachment B, "2015 Owens Valley Planning Area Additional BACM Contingency Measures Determination," Map 1-Owens Lake Dust ID Monitoring Network:

- o Suggest several updates to this map:
  - The 24 DWP Sensits in T12-1 have been removed and replaced by four TwB2 Sensits.
  - Numerous DWP Sensits are present in T10-1b, T13-1b, T26, and T29-2ab as part of the Shallow Flood Wetness Cover Test.
  - Additional Sensits will be placed in the Dynamic Water Management Areas.

  Suggested updates made to revised map.

51) Attachment D, Subarticle 1.A.1.A, Page 2:

- o The 1.5 square miles referenced in this Subarticle was increased to 3.0 square miles per the Stipulated Judgment, Subarticle 8.A, Page 11, Line 22.

  Attachment D, Subarticle 1.A.1.A is specific to the Shallow Flood Cover Test and this was not increased by the Stipulated Judgment. Only the size of Transition Areas were increased from 1.5 to 3.0 mi² by the Stipulated Judgment and this is reflected in Attachment D Section 3. TRANSITIONING FROM ONE BACM TO ANOTHER BACM.

  3. <u>TRANSITIONING FROM ONE BACM TO ANOTHER BACM</u>

  If the City wishes to transition from one existing BACM to another existing BACM without meeting the performance standard of one or the other BACM at all times, it may submit an application to the APCO in writing for permission to do so. The APCO has full and sole discretion to accept, reject or condition the City's application. The transition may be done on areas that in total comprise no more than three (3.0) square miles lake-wide for any BACM at one time. These transition areas shall be in addition to the Tillage with BACM Back-up areas implemented by the City. The City shall not begin the transition in advance of the APCO's written approval.

52) Attachment D, "Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area," Page 1, Para 1:

- o The requirement in Attachment D that the performance standard for a BACM be met during transition would effectively preclude further transition to habitat/dust control on Owens Lake. This provision conflicts with the 2014 Stipulated Judgment (Section 8, Revisions to the 2008 SIP Transition Procedure, Paragraph 8 of the Stipulated Abatement Order). This section also cites Attachment D to the Board Order, with which this provision also conflicts.

  A careful read of Paragraph 1 of Attachment D, which says, "[The City] may transition from one approved BACM to another provided that, <u>with the exceptions</u>

address below, the performance standard of one or the other BACM is met at all times during the transition, …" indicates that there are exceptions to meeting the performance standards at all times. The paragraph is followed with three exceptions, including the following:

"3. Transition from one BACM to another that requires a time period where neither BACM's performance standards can be met."

The provisions for transitioning from one BACM to another without meeting the performance standards of either is explained in section 3 of Attachment D and is limited to 3.0 square miles at one time. This is consistent with the 2014 SJ, para. 8.

A careful read of paragraph 1 of Attachment D would also inform the City that the amount of area that can be transitioned is not limited if the area is in compliance at all times, e.g. replacing a shallow flood DCA with gravel BACM during the non-dust control period. Staying in compliance at all times during the BACM transition process was what the District envisioned as the way it would be done, which may explain why the first paragraph reads as it does. The City should keep this in mind, since the shorter dust control periods under the DWM Plan may allow more areas to be transitioned to managed vegetation, TWB2 or gravel BACM during the off-season while still staying in full compliance.

53) Attachment D, " Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area," Page 8, "Comments on Potential New BACM," Page 8, Item 10, "the appropriate responsible agency approvals, permits and leases" to be included in BACM application":

- Developing BACM for use on Owens Lake is a two-step process: (1) Perform effectiveness studies and obtain District approval for use of BACM at locations to be approved later, and (2) obtain all other required approvals, permits, and leases. It isn't possible to obtain "approvals, permits, and leases" without first designing a project, and it wouldn't be prudent for LADWP to design a project and obtain all the required approvals, permits, and leases without first knowing whether the District would accept the underlying dust control concept. That's why this section should be rewritten to encompass a two-step process. Permits, approvals, and leases is the final stage in the process.

It is fine for the City to consider this a two-step process, but each of the elements required to perform acceptable research on new BACM approaches are clearly listed in this section. Revising this section as a two-step approach could diminish the importance of these elements, each of which the District considers of critical importance to BACM research.

54) Attachment D, " Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area," Page 9, "Research on Potential New BACM," Paragraph 3:

- LADWP requests that this paragraph to be further clarified to read "Upon adoption by the District Board, approval by CARB, and submission to USEPA of a SIP Revision that identifies new BACM for Owens Lake, the City may implement one or more of the new control measures on up to three square mile (combined) of the next area identified as a BACM Contingency Measure area, or as a BACM Transition Area, until EPA approves the new measure(s) as BACM."

  This is the same provision as in Attachment D to BO #080128-01. New BACM must be approved by EPA before it can be fully implemented. Until it is approved by EPA, new BACMs will have limited application.

55) Attachment E, "2015 DRAFT Brine with BACM Backup (Brine BACM)," Section 5.1, Page 14, paragraph 3:

- Recommend adding two new items: "3. Spreading of brine conveyed to the site from elsewhere." and "4. Alteration of topography to facilitate items 1, 2, or 3."

  Appropriate text will be added to the Brine BACM report.

56) Attachment E, "2015 DRAFT Brine with BACM Backup (Brine BACM)," Section 6.0, Page 16, Para 1:

- The results of ongoing and planned brine studies will be used to determine the thickness of brine required to achieve a stabilized surface. Attachment E should reference those studies and note that the required thickness(es) may change in the future at the sole discretion of the APCO.

  This language is already included in Attachment A to the Brine report in Section B.4.f. Similar language was also added to section 6.0.

57) Attachment E, "2015 DRAFT Brine with BACM Backup (Brine BACM)," Attachment A, Section B, page 4, bottom:

- The addition of the IPET since the last draft significantly reduces the viability of Brine as a dust control measure because the IPET is highly conservative and likely to exaggerate the emission potential of Brine BACM areas. Please restore the earlier protocol, or de-emphasize the IPET as a measure of surface stability on Brine areas.

IPET testing is one of several criteria that will be used to determine if a brine surface is deteriorating and requires maintenance or re-flooding) The conditions for determining if a re-flood order will be issued for a Brine BACM area are similar to those agreed to for TwB2 areas. See also the response to comments #9 and #30.

58) Attachment F, " DRAFT Technical Report: 2015 Owens Lake Dynamic Water Management Plan," Page ES-2, last paragraph:

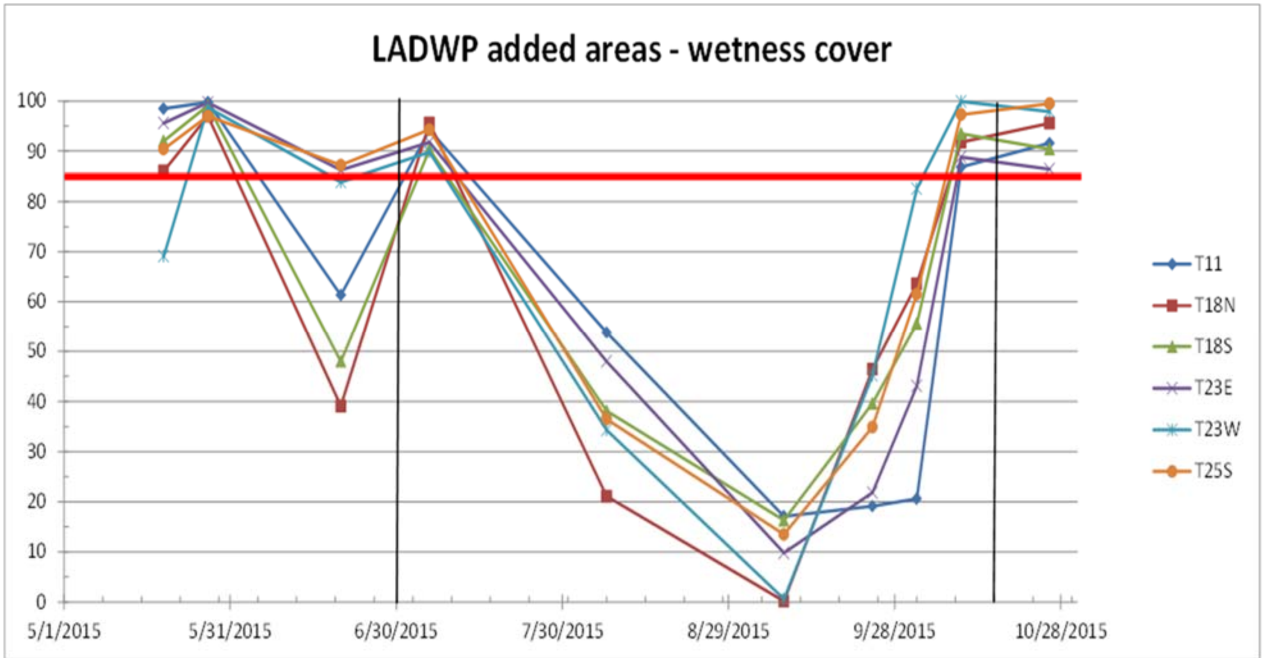
- o LADWP recommends replacing this section with Page 9, Paragraph 4 of Appendix D, which also recognizes other agencies' jurisdictions but in more clear and accurate language.

  Text replaced as requested.

59) Attachment F, " DRAFT Technical Report: 2015 Owens Lake Dynamic Water Management Plan," Page ES-5, Figure ES-1:

- o An earlier District position held that data collected during the current variance period would be used by the APCO to evaluate the suitability of the additional areas for inclusion in the DWM regime. LADWP recommends that this earlier provision be included in the Board Order.

  The District reviewed data from May 2015 to October 2015 for the additional areas that DWP requested for the variance. The wetness data for these areas are plotted below and show that the wetness cover for these areas was high (mostly above the 75% mark) for most of the spring dust season and for all of the start of the fall season. Thus there is no additional data available and the areas do not meet the criteria established to be eligible for the DWMP.



This plot shows the wetness cover trend in shallow flood areas that had water shut off in May 2015, two months before the end of the season. Despite the early shut-off, the areas remained mostly in compliance with the 72% wet cover requirement. No additional information could be gained for the DWM evaluation regarding late season dust activity in these areas.

60) Attachment F, "DRAFT Technical Report: 2015 Owens Lake Dynamic Water Management Plan," Section 4.2, bottom of page 9:

- This section does not appear to take into account the recently modified provisions allowing for an extended period of operation in sprinkler DWM areas. The modified provisions are a recognition that sprinkled areas can be wetted almost instantly upon a re-flood order, extending the duration of the wetted period because the ramp-up and ramp-down periods are short. The text should be updated to reflect the modified provisions.

  The language in the report is clarified.

61) Attachment F, "DRAFT Technical Report: 2015 Owens Lake Dynamic Water Management Plan," Section 4.2.1, page 10, last paragraph:

- This paragraph currently reads: "*If physically feasible, re-flooding can be limited to portions of the DWMP areas that are determined by the APCO to require re-flooding and not the entire DWMP areas. Such re-flooding orders are not appealable by the LADWP to the District Governing Board, Hearing Board or any other agency.*" LADWP requests that this section be reworded to state clearly that the District's intention is to issue re-flood orders only for those portions of DWMP areas that have been found to be emissive by the conditions listed at the top of page 11 (items 1 through 3) more than once in a continuous rolling six-year period. For example, if a DWMP area contains six Sensit sites and only one of those sites (call it "Sensit 3") exceeds the 5 g/cm^2/day threshold, then only the area attributed to Sensit 3 would be issued a re-flood order, not the entire DWMP area encompassing all six Sensit sites. This approach is consistent with maintenance and re-flood orders for Tillage with BACM Backup (TwB2) areas.

The language in the report is clarified so that a re-flood order can be issued for a partial area associated with testing and monitoring. The LADWP appears to mis-understand the statement: "more than once in a continuous rolling six-year period." This language refers to an area being kicked out of the DWMP program and not to having a re-flood order made for any given year. Also see response to comment #31.

62) Attachment F, "DRAFT Technical Report: 2015 Owens Lake Dynamic Water Management Plan," Section 4.2.1, page 11, paragraph 1, item 3:

- o The sand flux units are not correct. The sentence should read: "Sand flux at a sand flux monitoring (SFM) site exceeds *5 grams/cm^2/day*."

  Units corrected.

PART 3 – Comments from LADWP sent via email message on December 7, 2015 from Milad Taghavi. These comments were extracted from a WORD document submitted by LADWP. Page and line numbers refer to locations in DWP's document and may differ from those in the latest draft Board Order.

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63) Section A, Preamble, Page 1, line 19, this also applies to comments on page 12, line 26 and page 16, line 6:

- o General Note - Please clarify that State Standards are to be met at communities surrounding Owens Lake and not at the shoreline monitors.

  In accordance with District Rule 401.D, the City is required to implement dust controls on the Owens Lake bed in order to meet the State PM10 standard at residences within communities zoned for residential use in the latest Inyo County General Plan Use Diagrams. A sentence will be added at the end of Preamble paragraph E to provide the following clarification, *"and to meet the CAAQS at residences within communities zoned for residential use in the Inyo County General Plan Use Diagrams in accordance with District Rule 401.D."*

64) Sections I & J, Preamble, Page 3, Lines 6 and 13:

- o Insert text to say that if the board order is stayed or disapproved (e.g. CARB or EPA action), that BO 080128-01 <u>and the Stipulated Judgment</u> shall continue in effect.

  Text revised as suggested.

65) Section 1, Existing PM10 Controls, Page 3, Line 28:

- o Change Area to plural, "Areas"

  Suggested revision made.

66) Section 1.C, Existing PM10 Controls, Page 4, lines 24-25:

- o Suggest text change. "On 0.5 square-miles on the south end of Owens Lake known as the 'Channel Area,' the City shall continue to operate and maintain dust controls using <u>application of water to</u> ~~Managed Vegetation and~~ enhance existing <u>vegetation</u> coverage ~~with surface flooding~~ as required to comply with the MDCE performance standards set forth in the 2008 SIP Order and shown in Exhibit 2."

  Suggested revision made with small edits.

67) Section 5, PM10 Control Measures, Page 6, Lines 6 and 16:

- o Change measure to plural, "measures"

  Suggested revision made.

68) Section 8. A, Contingency PM10 Control Measures, Page 7, Line 7:

- o The City may be ordered to implement BACM Contingency Measures such that the total area where the City shall implement BACM PM10 controls <u>or MDCE BACM PM10 controls</u> is up to 53.4 square miles, and the City shall comply with those orders without appeal.

  Suggested revision made. Note that paragraphs 5 and 12 limit MDCE BACM to areas that were already approved. New areas that are controlled will be required to have 99 or 100% control efficiency in order to optimize the emission reductions for *the limited new areas available for dust control orders under the contingency measure.*

69) Section 8. B, Contingency PM10 Control Measures, Page 7, Line 10:

- o Suggest text change, "The District will not order the City to implement <u>mitigation measures, including but not limited to </u>BACM PM10 control measures, on additional areas on the lakebed beyond the total area of 53.4 square miles under Health & Safety Code Section 42316 or any other law requiring the City to control windblown dust emissions (including PM10, PM2.5 or any speciated components or products of PM)."

  We have made the suggested edit with small changes for grammatical purposes.

70) Section 8. C, Contingency PM10 Control Measures, Page 7, lines 18-20:

- o Suggest text change, "<u>At least once in every calendar year, the</u> ~~The~~ APCO will make a determination as to whether BACM Contingency Measures are to be ordered ~~at least once in every calendar year~~."

  Suggested revision made.

71) Section 8. D, Contingency PM10 Control Measures, Page 7, line 26:

- o Suggest text change, "Source areas that cause or contribute to a monitored or modeled exceedance of the NAAQS or State Standard may be new source areas, or may be ~~emissions from~~ areas with existing dust controls."

  Suggested revision made.

72) Section 8. D, Contingency PM10 Control Measures, Pages 7 and 8, Comments regarding DWP's choice in Attachment B to BO 080128-01:

- o Attachment "B" to the Board Order 080128-01 (2008 Owens Valley Planning Area Supplemental Control Requirements Determination Procedure) states the following:

  - Subarticle A.3 – District directs City to implement dust controls, 1st Paragraph, Page 8 of 17: "Source areas in A.2 that causes or contribute to an exceedance may be new source areas, or may be emissions from areas with existing dust controls….For emissions from areas with existing dust controls, the City will have the choice of increasing the controls in the existing dust control areas or controlling other contributing sources that will result in lowering the monitored impact below 150 μg/m^3 exceedance threshold, if such areas exists."

- Subarticle B.7 – District directs the City to implement dust controls, 2nd Paragraph, Pages 11 and 12 of 17: "If possible, the City will have the choice of increasing the control efficiencies on existing dust control areas and/or controlling other contributing sources that will result in lowering of the modeled impact below the 150 μg/m^3 exceedance threshold. If the APCO identifies the need for additional controls, the APCO will issue a written SCR determination to the City."

  It appears that in the new order, the City's choice is being withdrawn.

This comment addresses the provision on pages 7 and 8, paragraph 8.D., which states:

8.D."Source areas that cause or contribute to a monitored or modeled exceedance of the NAAQS or State Standard may be new source areas, or may be areas with existing dust controls. For emissions from areas with existing dust controls, the City will have the choice of increasing the controls in the existing dust control areas or controlling other contributing sources that will result in lowering the monitored impact below the NAAQS or State Standard, if such areas exist. If the City chooses to increase the controls in existing areas, it shall prepare and submit a written application to the APCO that contains District-approved modeling which demonstrates that the monitored impact can be reduced below the NAAQS by increasing the controls in existing dust control areas. <u>The APCO has sole discretion whether to approve or disapprove the application</u>."

The choice of whether to 1) improve dust control in an existing dust control area or to 2) control other contributing areas such as new areas is still left to the City; if there is a choice to be had. However, the APCO's approval of which area to control is necessary because the potential control of new areas will affect the 53.4 square mile total area that can be ordered for control.

If there is a choice of which areas to control and the APCO orders controls in a new area as opposed to increasing controls in an existing area, the City may submit an application to control an existing area. This appears to be the only case where there may be room for discussion if the APCO issues an order to control a new area. If there were no choice of areas to control, an order to control a new area within the 53.4 square mile total dust control area could not be appealed.

If the District orders increasing controls in an existing area, the City may have a different opinion and may want to control a new area. In that case, the APCO would have to approve an application to control the new area, otherwise there would no order to control this new area and it would not be part of the 53.4 square mile total dust control area.

73) Section 8.E, Contingency PM10 Control Measures, Page 8, line 9

- Suggest text change. "The BACM Contingency Measures shall be limited to the Owens Lake bed below the ~~regulatory shoreline~~ elevation of 3,600.00 feet above mean sea level (amsl) and above the natural brine pool ordinary high water elevation of 3,553.55 feet amsl.

  . *This sentence is correct as stated. The term Regulatory Shoreline will be corrected by inserting initial capital letters.*

74) Section 8.F Contingency PM10 Control Measures, Page 8, lines 17-18

- Suggest text change. "Failure or inability to secure such permissions and authorizations shall not relieve the City from its obligation to timely install and operate the ordered Contingency Measures<u>, except to the extent any such delay is caused by Force Majeure as defined in Paragraph 16</u>."

  . *This is not a correct statement of the Force Majeure clause. The section has been changed to add the sentence "This Section is subject to the provisions of Paragraph 16 if they are applicable."*

75) Section 9, BACM Shallow Flooding, Page 9, line 23, comment regarding DWP's sprinkler project:

- Please confirm based on our phone call on November 18th that LADWP does not need to further demonstrate the effectiveness of sprinkler irrigation for applying water to shallow flooding DCAs.

  The City should continue the sprinkler project to determine if wetness cover amounts less than 75% can reliably accomplish the 99% control needed for shallow flood BACM areas. Continuation of the project will also provide information on how water application using sprinklers can provide wetness covers comparable to the wetness accomplished with bubblers and whiplines as measured using satellite imagery. If the City already has answers to these questions, it would be beneficial to share the results with the District at the next Dust Control Workshop.

76) Section 9.B.v, BACM Shallow Flooding, Page 10, line 21:

- Suggested text change, "If for any Shallow Flooding area, the percent of areal wetness cover in the periods specified in Paragraphs 9.B.ii, iii, and iv, above, is below the minimum percentages specified for each BACM Shallow Flood area based on <u>satellite imagery</u> ~~the air quality model~~ for the analysis period, and there were no monitored or modeled exceedances of the NAAQS at or above elevation 3,600 feet above mean sea level (Regulatory Shoreline), that area will be deemed to be in compliance, if the City demonstrates in writing and the APCO reasonably determines in writing that maximum water delivery flows were maintained throughout the applicable period.

Suggested revision made, and "for the analysis period" removed for grammatical purposes.

77) Section 9.D.iii and iv, Tillage With Shallow Flood BACM Backup, Page 12, lines 10 and 19, this also applies to page 32, lines 9-13.:

- Suggest text change. Use "Stipulated Judgment" and not the abbreviation SJ.

  Suggested revision made.

78) Section 9.D.vi, Tillage With Shallow Flood BACM Backup, Page 13, line 17:

- Suggest text change. "Any such appeal shall not relieve the City of the duty to reflood a TWB2 area within 37 days of a written order from the APCO unless the City ~~properly~~ seeks and obtains an injunction from the Court before the expiration of the 37-day period.

  Suggested revision made, and a clarifying clause "to enjoin the reflooding" is added.

79) Section 9.E.iii, Brine BACM, Page 14, lines 6-7:

- Suggest text change. "The APCO may order the City to shallow flood any Brine BACM area <u>or emissive portion thereof</u> if any of the following criteria are met.

  Suggested revision made.

80) Section 9.E.iii and iv, Brine BACM, Page 14, lines 6-20.

- Comment - This paragraph *[9.E.iii]* gives the APCO discretion, yet the next subsection iv. Appears to take it away. We understand that the District does not want to commit to using the tillage roughness test, PM10 monitor test, or surface armoring test. But it would be short-sighted to eliminate these as options that the District may find useful in the future. Therefore, we suggest leaving this paragraph as is, but giving the APCO the option to rely on the other tests in the next paragraph. Otherwise, a new Board Order would be needed to use tests that the Stipulated Judgment already provides for. Why tie your hands that way?

- Suggest text change in paragraph 9.E.iv. "If the APCO determines that Paragraph 9.E.iii.1 or 9.E.iii.2 are met, the APCO will give written notice to the City that the area must meet the Shallow Flood BACM requirements for that area within 37 days<u>, unless, in its discretion, the APCO determines that re-flooding in not necessary, based on other information, including but not limited to the tillage roughness, PM10 monitor, or surface armoring tests described in Attachment A, Stipulated Judgment Attachment C</u>."

The surface of a Brine BACM area does not have the same surface characteristics as the tilled surface in TWB2 areas which would make the surface roughness and armoring tests inapplicable to Brine BACM areas. Unlike TWB2, there is currently no requirement for upwind downwind PM10 monitoring near Brine BACM areas. A re-flood order will likely be limited to sand flux data and IPET information unless new techniques become available to determine if brine areas have become emissive. No change to this paragraph is needed.

81) Section 9.F.iii.2), Dynamic Water Management, Page 15, lines 18-19:

- o Suggest text change to clarify that re-flood orders can apply to a portion of the dust control measure area. "The APCO may order and the City is required to implement BACM Shallow-Flooding on the DCM area <u>or portion thereof</u> if the APCO determines that emissive surface conditions exist in that area as determined by the Induced Particulate Erosion Test procedures in the TWB2 Monitoring Protocol."

Suggested revision made.

82) Section 9.F.iii.3), Dynamic Water Management, Page 15, line 27:

- o Suggest text change to clarify that re-flood orders can apply to a portion of the dust control measure area. "If any DWM area <u>or portion thereof becomes</u> ~~become~~ emissive and is therefore issued a reflood order by the APCO more than once in a continuous six-year period, these areas will revert to the standard shallow flood period of October 16 through June 30 and will no longer be eligible for DWM.

Suggested revision made.

83) Section 9.G, comment regarding timeframe to increase control in shallow flood areas, Page 16, line 10:

- o The comment addresses the 90 day deadline in the following paragraph "If air quality modeled or monitoring data shows an exceedance or exceedances of the NAAQS or State Standard at or above the Regulatory Shoreline as a result of excessive dry areas within Shallow Flooding control areas during the dust control periods for each year and the APCO determines that existing PM10 control measures require a higher level of control efficiency, the City shall increase the control efficiency of those measures within **90 days** of its receipt of a written determination by the APCO informing the City of this determination, and maintain that higher control efficiency until the APCO determines that a reduced control efficiency is appropriate."

- o Comment: Please reference Exhibit 10 of the 2008 SIP for shallow flood.

Exhibit 10 of the 2008 SIP allows the City 12 months to improve the wetness cover in shallow flood areas if land leveling will be required or if additional laterals will need to be installed. However, if more water application is needed to overcome evapotranspiration then the deadline is one month. To make this paragraph consistent with Exhibit 10 it can be revised as follows:

Paragraph 9.G. "If air quality modeling~~ed~~ or monitoring data shows an exceedance or exceedances of the NAAQS or State Standard at or above the Regulatory Shoreline as a result of excessive dry areas within Shallow Flooding control areas during the dust control periods for each year and the APCO determines that existing PM10 control measures require a higher level of control efficiency, the City shall increase the control efficiency of those measures within ~~90 days~~ one month of its receipt of a written determination by the APCO informing the City of this determination if more water application is needed to overcome evapotranspiration, or within 12 months of a written determination if land leveling or the installation of more laterals to the water delivery system are needed, and maintain that higher control efficiency until the APCO determines that a reduced control efficiency is appropriate."

84) Section 11.F, BACM Gravel Blanket, Page 22, line 24:

- Suggest text change to delete "(BACM)" since it is already defined in paragraph 1.A.

Suggested revision made by leaving BACM and deleting the definition in this sentence.

85) Section 12.A, MDCE BACM Control Measures, Page 23, line 5:

- Suggest text change. "For these areas only, MDCE BACM ~~DCMs~~ control measures will continue to be operated to meet the required MDCE performance standards shown in Exhibit 2."

Alternative suggestion. "For these dust control areas only, MDCE BACM ~~DCMs~~ will continue to be operated to meet the required MDCE performance standards shown in Exhibit 2."

Note that with the BACM acronym there is redundancy in saying BACM control measure.

86) Section 13.E, New BACM, Adjustments to Existing BACM and BACM Transitions, page 24, lines 24-25.

- This comment is in regards to the 18 month period for transition in the following paragraph, "The City shall only conduct construction of any Transition Area project between July 1 of year when on-site work on the project begins, through December 31 of the next year when all such work shall be completed and the new controls shall be fully installed and operational.

- o Comment - Please simply specify 18 months. LADWP may be able to utilized additional time to complete the transition areas by starting the work during non-dust season or during the commencement of DWM period.

  The City may be missing the free pass for transitioning areas without limitation. Attachment D of the proposed Board Order says in the first paragraph, "The City of Los Angeles Department of Water and Power (City) may transition from one approved BACM to another provided that, with the exceptions addressed below, the performance standard of one or the other BACM is met at all times during the transition…" For instance graveling a shallow flood area during the non-dust control season is not counted as part of the 3.0 square mile transition area.

  The limitations for timeframes (July 1 to December 31, 18 months) to transition from one BACM to another and for the amount of area that could be transitioned at one time only apply to transition projects where the performance standards of neither BACM can be met during the transition period. In this case, the limitations in Section 3 of the Proposed BO Attachment D, - Transitioning from One BACM to Another BACM comes into play. It states, "If the City wishes to transition from one existing BACM to another existing BACM without meeting the performance standard of one or the other BACM at all times, it may submit an application to the APCO in writing for permission to do so."

  Limiting transition projects from July 1 to December 31 (18 months), helps to ensure that the project only allows potential dust emissions during one spring season, which is generally the dustiest period of the year.

  To clarify the BACM transition limitations, paragraph 13.C. will be modified to incorporate the language reflecting the terms from BO Attachment D:

  "<u>If the City wishes to transition from one existing BACM to another BACM without meeting the performance standards of either BACM at all times, the</u> Transition Area project size shall be limited to a maximum size of 3.0 square-miles at one time as provided for in Attachment D, "2016 Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area."

87) Section 17.C, Stipulated Penalties, Page 27, line 22:

- o Suggest text change. "This Paragraph 17 applies only to the failure to meet dust control measure ~~construction~~ completion deadlines as set forth in Paragraph 16.A and does not apply to any other notice of violation or enforcement of laws by the District or its APCO.

  This change was made.

88) Section 18.A, Performance Monitoring Plan, Page 28, lines 2 and 6:

- o Suggest text change. Delete “DCMs” and replace with “dust control measures.”

  Suggested revision made.

89) Section 19.B, Additional Requirements, Page 29, lines 2-5:

- o Comment - The District provided this helpful language in response to LADWP’s request for clarification of this term in a previous draft.

- o Suggest text change. “The City shall apply BACM to control air emissions from its construction/implementation activities occurring in the District’s geographic boundaries. <u>This provision applies to any activities that may emit air pollution and are associated with dust control projects at Owens Lake; such as, gravel mining, cement and asphalt plants, or construction activities. These operations could take place outside of the Owens Valley Planning Area, e.g. Bishop. BACMs appropriate for these activities have and will continue to be included as conditions on District-issued permits to operate.</u>”

  Suggested revision made with addition of “in the City of” Bishop.

90) Section 20, Retention of Legal Authority, Page 29, lines 8-26:

- o There are number of changes that would be better left to reading the original text and suggested revised text to understand if the changes are substantial, or grammatical.

- o Original text: “Notwithstanding any other provision of this Order, the District shall maintain its authority under Health & Safety Code Section 42316 to order the City to implement additional controls, to control additional emissive areas and/or to undertake additional reasonable measures necessary to mitigate the air pollution caused in the District by the City’s water-gathering activities in order to prevent the OVPA from failing to attain or maintain the NAAQS or State Standard for PM_{10}, if circumstances arise that are not specifically addressed in Paragraphs 1 through 8 of this Order.”

- o Suggest text change. “Nothing in this Order affects the District’s authority under Health & Safety Code Section 42316 to order the City to undertake reasonable measures on areas other than the Owens Lake bed below elevation 3,600.00 feet above mean sea level (“amsl”) and above the natural brine pool at elevation 3,553.55 feet amsl, the Keeler Dunes, and the Swansea and Olancha Dunes to mitigate the air quality impacts of its water gathering activities in order to prevent the OVPA from failing to attain or maintain the NAAQS or State Standard for PM10. Section II of the Settlement Agreement and Release dated August 19, 2013, between the District and the City establishes the parties’ respective responsibilities regarding the Keeler Dunes and the Swansea and Olancha Dunes."

This is the same comment as No. 24 above. The intent of the original paragraph has two purposes. First, the District must be able to enforce existing law and any changes to that law. If the federal or state law requirements change in the future, the District would be required to modify its rule to comply with the new law. Second, the District's authority to require the City to control air pollution extends to other areas, sources and activities in the District outside of those regulated through this Board Order. We have revised this paragraph to clarify these terms.

91) Section 22, Relationship to Board Order 080128-01 and Stipulated Judgment, Page 31, lines 1-4:

Suggested text change. Board Order #080128-01 shall immediately be in effect and shall remain in full force for the duration of any stay or, in the case of disapproval, until another Order is issued by this Board, except to the extent that the terms of Board Order #080128-01 were superceded, revised, modified or otherwise affected by the Stipulated Judgment. The City shall not challenge the provisions of ~~this~~ Board Order #080128-01, read in conjunction with the Stipulated Judgment, now or in the future in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

We have added a clarifying sentence that the Stipulated Judgment shall remain in effect.

DWP Comments on Draft Rule 433 – December 10, 2015

Email from Milad Taghavi to Phill Kiddoo and Duane Ono (December 10, 2015) regarding "Preliminary Comments on Draft Rule 433"

District Responses follow DWP comments in italicized text.

1) Outline below are our preliminary comments regarding the draft Rule 433. We intent to speak further with the USEPA regarding the draft Rule 433 and to see whether the negotiated terms in the Stipulated Judgment could be referenced in the Rule in order to provide the negotiated protection from 3rd party actions.

The District is bound by the terms in the Stipulated Judgment as they apply to requirements in Rule 433, even if they are not specifically mentioned in the rule. Rule 433 is intended to put the dust control requirements and provisions of the Stipulated Judgment and other Board Orders for Owens Lake into a regulatory format that can be approved by the US EPA. Provisions in the Stipulated Judgment that are not federally approvable are excluded from the proposed rule, but are covered in the proposed Board Order.

2) **Introductory paragraph**: The final sentence states: "This regulation does not preclude the City or the District from implementing more stringent or additional mitigation pursuant to the Stipulated Judgment." Inclusion of this sentence, with its reference to the Stipulated Judgment, may be well intentioned. However, the Stipulated Judgment itself does not include any provisions regarding implementation of more stringent or additional mitigation, other than the contingency measure areas already addressed in the draft Rule. Therefore, the inclusion of the sentence may well create ambiguity regarding the terms of the Stipulated Judgment itself. I suggest this sentence be deleted.

The contingency measure in the BO may require the City to increase controls in existing dust control areas (BO para. 8.D.). The proposed rule includes specific control requirements for each area and does not include a provision to increase controls in existing areas. Therefore, the sentence removes this ambiguity between the rule and the BO.

3) **A. Definitions, 1. "BACM PM10 Control Areas"**: The introductory paragraph of the definition uses the terms "regulatory shoreline elevation" and "ordinary high water elevation". "Regulatory shoreline elevation" appears to be a new way to refer to the 3,600 elevation – it is not used in the Stipulated Judgement or other documents I reviewed. "Ordinary high water elevation" is sometimes used in documents as a way of referring to the 3,553.55 elevation, but not consistently so. In order to avoid raising new issues by creating new terms, I suggest the rule stick to the terms in the Stipulated Judgement. See, e.g., paragraph 3.B. on p. 7

of the Stipulated Judgement. So, the Definition would read: "'BACM PM10 Control Areas' are areas on the dried bed of Owens Lake at or below the ~~regulatory shoreline~~ elevation of 3,600 feet and at or above ~~Owen's Lake's ordinary high water~~ <u>the</u> elevation of 3,553.55 feet on which BACM PM10 Control Measures shall be implemented …"

The inclusion of the terms <u>R</u>egulatory <u>S</u>horeline (which will be capitalized in the revision) and the "Owens Lake ordinary high water elevation" provide helpful information about upper and lower boundaries of the lakebed dust control areas. The location of the 3,600 foot elevation depends on which map is used, and therefore a Regulatory Shoreline was negotiated to define the location of the former shoreline. The "Owens Lake ordinary high water" description provides support for why the lower bound of the dust control area is at 3,553.55 feet, otherwise the selection of this elevation may appear to be arbitrary and capricious.

4) **<u>A. Definitions, 1. h. "Erosion Threshold"</u>**: Under this definition, re-flooding is triggered if either the sand flux or the IPET threshold is exceeded. The Stipulated Judgment allows the APCO to use a longer list of diagnostic tools, including tillage roughness, PM10 monitor, and surface armoring. These three additional tests should be included in Subsection h. While we understand that the Air District does not want to be required to demonstrate an exceedence of all five thresholds before ordering re-flood, the language of Subsection h would ***prevent*** the APCO from using the other tools, which would be contrary to the framework of the Stipulated Judgment.

The term "erosion threshold" is used for sand flux and IPET monitoring for TWB2, Brine BACM, DWM dust control areas and is consistent with its use in the Stipulated Judgment. Brine BACM and DWM do not include erosion threshold criteria for re-flood orders based on surface roughness, PM10 monitoring or surface armoring; these parameters only apply to TWB2.

Although the SJ allows for the discretionary use of information such as PM10 monitor data or surface roughness measurements for TWB2 areas, a federally approved rule must provide clear and objective criteria for re-flood orders. This discretionary language is seen with the use of the word "may" in the following SJ provision, "The APCO <u>may</u> issue a reflood order if the daily PM10 difference between the downwind and upwind monitors exceeds 100 ug/m3," (SJ Att C. D.3.e). This and other discretionary provisions of Stipulated Judgment may be more stringent than the rule and are omitted from proposed rule 433.

5) **<u>A. Definitions, 1. i "Approved BACM":</u>** This definition states that approved BACM includes the specific controls specified above, as well as equivalent methods approved by the APCO and EPA. Ordinarily, an air district rule does not specify that APCO decisions must be expressly ratified by EPA, so I am inclined to recommend the EPA reference be deleted. However, if the Air District

and EPA view this provision as allowing some expedited approval of additional BACM without having to go through a SIP revision, then it may be advantageous to keep it. LADWP and the Air District should discuss.

This provision is also used in South Coast AQMD Rule 403, Tables 2 & 3, which was previously approved by the US EPA in 2008 (73 FR 12639). It is intended to expedite the approval and implementation of new BACMs without going through the full SIP revision process. In the District's opinion, a letter from EPA approving a new control method as BACM would be sufficient to allow its use.

6) **<u>A. Definitions, 3. "Eligible Cultural Resource Area":</u>** In light of the uncertainty of implementation of dust control measures in these areas, I suggest editing the language as follows: "'Eligible Cultural Resource Area or ECR Area' is an area or areas where dust control measures ~~will be~~ <u>have been ordered but may be</u> implemented on a deferred schedule due to …"

It is possible that new dust control areas under the contingency measure may include additional ECR areas that have not been ordered for control. This definition will be changed as follows:

"Eligible Cultural Resource Area or ECR Area" is an area or areas where dust control measures ~~will~~ <u>may</u> be implemented on a deferred schedule due to the presence of significant cultural resources that make the areas eligible for listing under the California Register of Historic Resources.

7) **<u>B. Requirements, 4:</u>** This paragraph specifies a deadline of December 31, 2017, for controlling the Phase 9/10 area (other than the ECR areas). In the Stipulated Judgment, this deadline is subject to the Force Majeure and Stipulated Penalties provisions. The rule needs to include these same relief valves.

The SJ provisions for force majeure and the stipulated penalties are not applicable to the US EPA and cannot be included in a federally approved rule. However, the District is bound by those provisions through the SJ and proposed BO. See response to comment #1.

8) **<u>B. Requirements, 5:</u>** This paragraph concerns the use of TWB2, Brine Shallow Flooding or DWM as alternatives to BACM Shallow Flooding. The final sentence states: "If TWB2, Brine Shallow Flooding or Dynamic Water Management do not meet CE levels specified in Exhibit 2, the City shall implement BACM Shallow Flooding." This appears to be absolute and self-executing. There is no process for the Air District to determine and notify the City that the CE has not been met and order re-flood. There is also nothing about the time allowed to accomplish the re-flood. Additional detail should be added to conform the rule to the

Stipulated Judgment. The rule also should be consistent with the commitments in the Stipulated Judgment, Attachment C to reconsider many of the criteria, triggers or values based on data following implementation of the alternative controls. The Stipulated Judgment, Attachment C acknowledged that many of the criteria, triggers and values may be unnecessarily stringent. Freezing the criteria, triggers and values in the rule would be contrary to the intention of the parties in the Stipulated Judgment. The paragraph also should specify that re-flood may be partial.

By design, the application of TWB2, Brine BACM and DWM should achieve at least 99% control, which is sufficient to meet the control efficiency target for all MDCE areas. If they fail to meet the performance criteria a re-flood order will be issued and the area will then need to comply with MDCE BACM cover requirements for shallow flooding. Following flooding, if the APCO determines that the MDCE control efficiency target for shallow flood areas needs to be increased in order to prevent PM10 exceedances, then BO paragraph 12 will apply. Rule 433.B.5. will be revised as follows:

B.5. In areas containing infrastructure capable of achieving and maintaining compliant BACM Shallow Flooding the City may implement TWB^2, Brine Shallow Flooding or Dynamic Water Management as alternatives to BACM Shallow Flooding or MDCE BACM shallow flooding. ~~to achieve the CE levels specified in Exhibit 2. If TWB^2, Brine BACM or Dynamic Water Management do not meet CE levels specified in Exhibit 2, the City shall implement BACM Shallow Flooding.~~

9) **C. Contingency Measures, 1:** This paragraph requires the District to determine at least annually whether additional lake bed areas require BACM in order for the OVPA to attain or maintain the PM10 NAAQS. There is no sunset. It is not clear what happens under this provision once the Air District has ordered all the contingency measure controls allowed under the Stipulated Judgment. Note that it is unusual in a prohibitory rule for the District to impose mandatory requirements on itself. I recommend this paragraph simply be deleted. Deletion will not take away any authority that the District already has.

Annual determinations under 433.C. ensures that monitoring will continue at Owens Lake and that air quality standards will be maintained in the future. This provision is applicable to the City since it means that new dust control orders may be issued as a result of these annual determinations.

10) **C. Contingency Measures, 2:** This paragraph states that if the District has not demonstrated attainment with the PM10 NAAQS on or before December 31, 2017, or has not met reasonable further progress, the District "shall order the City" to apply BACM PM10 Control Measures to areas of the lake bed that cause or contribute to the exceedences. This paragraph does not have any limit on the amount of additional or total square miles ordered for control, and Paragraph 4 is stated as "may order", so it does not provide the same absolute cap as the Stipulated Judgment. Wording should be revised to be consistent with the cap in

the Stipulated Judgment. Also, the Stipulated Judgment provides that all additional controls will be waterless or water neutral, so this paragraph should likewise specify that the Air District may order and the City is obligated to implement only order waterless or water neutral controls.

To incorporate the 53.4 sq. mi. limitation and the use of waterless or water neutral BACM, we will amend paragraphs 433.C.2 and 433.C.4 as follows:

C.2. If the District has not demonstrated attainment with the PM_{10} NAAQS on or before December 31, 2017, or has not met reasonable further progress milestones, the District shall order the City to apply one or more BACM PM_{10} Control Measures as set forth in Paragraphs A.2 and C.4 on those areas of the Owens Lake bed that cause or contribute to exceedances of the PM_{10} NAAQS.

C.4. The District may order the City to implement, operate and maintain a total of up to 53.4 square miles of waterless or water-neutral BACM PM_{10} Control Measures on the Owens Lake bed below the Regulatory Shoreline (elev. 3,600 feet) and above the ordinary high water level of Owens Lake (elev. 3,553.55 feet).

11) **C. Contingency Measures, 5:** This paragraph specifies deadlines and control efficiency for contingency measure areas. There are several inconsistencies between this paragraph and the Stipulated Judgment. First, in the Stipulated Judgment, the deadline for contingency measures is subject to the Force Majeure and Stipulated Penalties provisions, and the rule needs to include these same relief valves. Second, the Stipulated Judgment does not mandate a 99% control efficiency for all contingency measure areas. A lower CE may be sufficient to meet attainment, and the rule should not preclude the APCO from establishing MDCE Areas within the contingency measure areas.

The SJ provisions for force majeure and the stipulated penalties are not applicable to the US EPA and cannot be included in a federally approved rule. However, the District is bound by those provisions through the SJ and proposed BO. See response to comment #1. Although the stipulated judgment does not mandate a 99% control efficiency for contingency measure areas, the 4.8 square mile limitation on areas that can be ordered for control should be conserved. It would not be advantageous to the District to order less than 99% control. For instance, if a 4.8 square mile source area caused a violation and 50% control might be adequate, the choices would be 1) order MDCE at 50% on the entire 4.8 sq. mi. and hope it is adequate, 2) order 99% control on the entire 4.8 sq. mi. and never worry about it again, or 3) order 99% control on the worst 2.4 sq. mi. and have 2.4 sq. mi. in reserve. Options 2 and 3 both require 99% control and provide assurance that the dust source will be adequately controlled.

LADWP Comments 03-14-2016									
	Document	Article	Pages		Line		Comment	*District Response*
1	Board Order #160413-01	E	2		12	14	"…, and to meet the CAAQS at residences within communities zoned for residential use in the Inyo County General Plan Use Diagrams in accordance with District Rule 401.D (State Standard);" This language was introduce in February 2016 version. It is not consistent with the 2008 SIP, Section 7.7, Page 7-7, which states the following: "However, compliance with the state PM10 standard of 50 ug/m3 in the communities surrounding Owens Lake may require additional control measures. In order to help meet the state PM10 standard, the Board adopted District Rule 401.D in December 2006. This rule will require the City to implement dust control measures in lake bed areas that cause or contribute the monitored violations of the state PM10 standard in any community surrounding Owens Lake." The new proposed language greatly deviates from the scope of the SIP.	*This statement simply supports the need for the SIP revision because the current control measures are insufficient to attain the federal and state standards. No change suggested.*
2	Board Order #160413-01	I	3		7	8	Why was Order #130916-01 was left out?	*BO # 130916-01 will be added.*
3	Board Order #160413-01	J	3		13	14	Why was Order #130916-01 was left out?	*BO # 130916-01 will be added.*
4	Board Order #160413-01	K	3		20	21	It is not clear from this provision whether transitioning allowed under this requirement.	*Will change to allow transition projects that have been initiated to continue if there is a stay or disapproval.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	
5	Board Order #160413-01	3.B	6		3		" 2013 Stipulated Abatement Order #130819-01" should read "Board Order #130819-01".	*Including the term "2013 Stipulated Abatement Order" before the BO number provides additional context to understand the basis for this order. No change.*
6	Board Order #160413-01	6	6		20		Exhibit #2 is different from Fig. 5.7 of 2008 SIP. It reflects MDCE's that has been placed by LADWP, and not MDCE's that are required.	*In 2010, DWP requested that the District change some of the MDCE areas to 99% control to allow those areas to be included in the fall and spring shallow flood ramping program (to save water). If the MDCE control efficiencies are allowed in the SIP, then ramping will not be allowed in these areas. No change to Exhibit 2.*
7	Board Order #160413-01	8.A	7		2	3	"To provide the emission reductions necessary to meet the NAAQS and State Standard in the OVPA" is not consistent with the 2014 Stipulated Judgment, Article 3, Page 7, which simply states "To provide the emission reduction necessary to meet the NAAQS in the OVPA". Please remove the reference to State Standard in this part of the article.	*Meeting the state standard is discussed in Section 6.4 of the SIP. The 53.4 sq. mi. total area that can be ordered for control will be used to meet the state and federal standard.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	
8	Board Order #160413-01	8.A	7		4	10	This provision appear to require the City to implement MDCE BACM PM10 control measures in addition to the 53.4 square miles of BACM Contingency Measures versus in lieu of.	*MDCE BACM will be removed from this paragraph, since it is already considered BACM in paragraph 10. It incorrectly implies that MDCE BACM is different from BACM.*
9	Board Order #160413-01	8.C	7		18		Suggest replacing "At least once in every calendar year" to "from time to time".	*The phrase "from time to time" provides a vague commitment to determine if additional areas need to be controlled. It is also backsliding on the prior SIPs to make determinations at least once in every calendar year. No change.*
10	Board Order #160413-01	8.D	8		2		Reference to "or State Standard" is not consistent with the Order #080128-01, Article B.7, Page 12. Article B.7, states that "…If possible, the City will have the choice of increasing the control efficiencies on existing dust control areas and/or controlling other contributing sources that will result in lowering the modeled impact below the 150 ug/m3 exceedance threshold."	*Meeting the state standard is discussed in Section 6.4 of the SIP and in CH&SC Section 42316 regarding the City of Los Angeles. The reference you provided is in BO 080128-01, Attachment B, section B.7. This lengthy provision was replaced with this simpler version in 8.D. to eliminate the dispute resolution process in BO 080128-01.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	*District Response*
11	Board Order #160413-01	8.D	7		26		There is no basis for "State Standard" in the 2008 SIP or 2014 Stipulated Judgment for this requirement.	*Meeting the state standard is discussed in Section 7.7 in the 2008 SIP, Section 6.4 in the 2016 SIP, and in CH&SC Section 42316 regarding the City of Los Angeles. The 2014 SJ (para. 3) regarding the 53.4 sq. mi cap says, " Any BACM Contingency Measure orders shall be based on evidence presented to the APCO that the area considered for such order has caused or contributed to an exceedance of the NAAQS or State Standard."*

LADWP Comments 03-14-2016								
	Document	**Article**	**Pages**		**Line**		**Comment**	***District Response***
12	Board Order #160413-01	8.D	8		7		There is no basis for "The APCO has sole discretion whether to approve or disapprove the application" in the 2008 SIP or 2014 Stipulated Judgment for this requirement. The City will not be contesting the District's determination but there is nothing about City's applications.	*BO 080128-01 Attachment D, 2008 Procedures for Modifying BACM contains similar language. The alternative was the lengthy dispute resolution process in Attachment B, which was the process followed in the SCRD appeal hearings and culminated in the 2014 SJ. Attachment D provides the procedure for the City to submit a written application to demonstrate that impacts will be reduced by increasing controls in existing areas, and the APCO has sole discretion to approve or disapprove the application.*
13	Board Order #160413-01	8.F	8		16	19	This provision leaves out Article 5.G of the 2014 Stipulated judgment which states that "The District will support the City's efforts to obtain such approvals in compliance with the law. The provision should state all and not just some of the parties commitment.	*Attachment A to the proposed BO contains the entire SJ. Repeating all SJ provisions in the BO is not necessary. The District is committed to support the City's efforts to get approvals for the dust control projects.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	District Response
14	Board Order #160413-01	9.F.6	17		5		Please explain "less than once in a continuous six-year period"	*This paragraph should be compared to 9.F.5 which applies to areas that are issued re-flood orders more than once in 6 years. Paragraph 9.F.6 allows the City to still have the spring DWM period if they are issued a re-flood order in the fall, as long as they have less than one re-flood order in a 6-year period.*
15	Board Order #160413-01	11.E	23		24	28	Please also add 6 to 36 months that is stated for stabilizing by other means under 2008 SIP Order, Attachment B, Exhibit 10, Page 16 of 17	The 3rd sentence in 11.E will be revised to say, "If any of these conditions are observed over areas larger than one acre, additional gravel will be transported by the City to the playa and applied to the playa surface such that the original performance standard is re-established within four months per square mile of gravel cover, or within thirty-six months per square mile of gravel cover if replaced by different BACM (such as shallow flooding or managed vegetation), of written notice from the APCO."

	LADWP Comments 03-14-2016							District Response
	Document	**Article**	**Pages**		**Line**		**Comment**	***District Response***
16	Board Order #160413-01	11.F	24		4	7	References have been to BACM for mitigating dust emissions from the City's gravel mining and transportation activities. In this document, BACM has been defined as Managed Vegetation, Gravel Cover and Shallow Flooding. Hence, such measures cannot be applied on mining and transportation activities. Please clarify what is meant by BACM under this provision.	*Will clarify "BACM for fugitive dust sources" to distinguish this from lakebed BACM, and will reference the WRAP Fugitive Dust Handbook, WGA, 2006.*
17	Board Order #160413-01	20	30		18	27	In order to be consistent with the 2014 Stipulated Judgment, the provision should read: "If there is a **material** change in federal or state law…….The District shall also maintain its authority under Health & Safety Code Section 42316…….Board Order #130916-01**, provided, however, that nothing in this sentence authorizes the District to order the City to implement mitigation measures in contravention of the provisions in Paragraph 8.B of this Order**.	*See attached letter from District to LADWP with analysis of paragraph 20. No change to this paragraph.*
18	Rule 433						Rule 433 omits important terms that were included in the Stipulated Judgment concerning potential delays in installation and implementation of controls, specifically, the provisions concerning Force Majeure and Stipulated Penalties.	*These provisions were discussed with EPA and determined to be unapprovable at the federal level. However, the District is bound by the terms of the 2014 SJ including the provisions for Force Majeure and stipulated penalties. No change to the rule.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	District Response
19	SIP	S.4	S-3				1st Paragraph, states that "PM10 emissions in the OVPA are dominated by fugitive dust emissions resulting from wind erosion on the exposed Owens Lake playa." This statement should be revised to reflect the current emission inventory in Table S-2 which clearly reflects that PM10 emissions in the OVPA are no longer dominated by emissions from the exposed playa. PM10 emissions from the Keeler and Olancha Dunes System are over 10 times greater that those from exposed Owens Lake playa.	*Replace the first sentence with the following, "In the last century, PM10 emissions in the OVPA were dominated by fugitive dust emissions largely from wind erosion on the exposed Owens Lake playa. These emissions have been on the decline starting in 2002 with the implementation of dust control measures by the City of Los Angeles, and is expected to continue to decrease with additional control measures being implemented by the end of 2017."*
20	SIP	S.4	S-3				3rd Paragraph, please explain the justification for utilizing near -exceedance to calculate the 24-hour PM10 concentration versus highest PM10 concentration that were used in previous SIPs.	*This section is a summary that hits the high points contained in the SIP. Readers that want to know more are encouraged to read past the summary. A detailed explanation for the BACM assessment approach is in the body of the SIP and in Appendix V.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	
21	SIP	S.4	S-4				1st Paragraph, states that "….For purpose of the significant source analysis …….The two-kilometer buffer has been applied….. at the monitors;" Please clarify whether there are any known discrete source areas within the 2-kilometers wide buffer around Owens Lake. Also, please indicate whether the District would order non-diffuse source area to be controlled if attainment is not achieved by December 31, 2017.	*The district has not identified discrete dust source areas within the 2-km buffer. They are assumed to be intermittent scattered. The district is confident that once lake bed dust controls are completed PM10 will be winnowed out from the off-lake areas that are causing NAAQS violations at the shoreline. This passive control approach is the most cost effective and feasible control measure for these areas. There are currently no plans for implementing control measures for these areas if the NAAQS are not met.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	
22	SIP	S.5.1.1	S-6				5th Bullet, states that "The percentage of each area that must have substantially evenly distributed standing water or surface-saturated soil shall be based on the Shallow Flooding Control Efficiency Curve …" There is no reference to subsequent revisions based on Subarticle 5.2.4 of 2008 SIP (i.e., Shallow Flooding Wetness Cover Refinement Field Testing).	*For Section 6.2.1.1 - Shallow Flooding BACM we will discuss the procedures to refine the shallow flood control efficiency curve. This will summarize section 5.2.4 of the 2008 SIP of Shallow Flooding Operations Refinements, provide a link to BO 160413-01, Attachment D for the test requirements, and state that a shallow flood control efficiency test was started in 2015 and results are expected in 2016. This will also be inserted in a brief form into the SIP summary.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	
24	SIP	S.6.1	S-11				The provision states that "In the same manner as the off-lake dust source areas were created as a result of sand migration from the lake bed, the..". This provision should also reflect that these sand migration and off-lake dust source areas were not created in just the 100 years. Owens Lake was formed some 800,000 years ago by tectonic activity under a portion of the Owens River. The tectonic activity caused the underlying bedrock to tilt upward along a plain, which increased the outlet elevation by more than 200 feet and cause a large, terminal inland lake to form behind the barrier. the surface level on Owens Lake has varied dramatically over its history, mostly in response to climate variation. During periods when the lake was dry (which occurred at least 6 times in the last 15,000 years - one event lasted more than 2,500 years), sand migrated across the former shorelines and fanned across the surrounding desert. Additionally, it can not simply be attributed to City even after commencement of water gathering activities without detail investigation.	*The off-lake dust source areas that are of the most concern for PM10 exceedances are those that are adjacent to the lake bed and were formed within the last 100 years. Sands that have been migrating for thousands of years have fanned across the shoreline and beyond winnowing out much of the fine dust that is PM10. Also, there is less wind erosion in ancient sand deposits in the Owens Lake area where the surface has been given time to stabilize with vegetation or a desert pavement of coarse sands and pebbles as a result of the fine dust winnowing process.*
25	SIP	S.6.4	S-14				LADWP has provided information in the past that monitors at Shorelines are affected/influenced by dust storms originating far to the north and south of Owens Lake. Would the District like for LADWP to resubmit such information again?	*Quantitative evidence about dust events that impact the Owens Lake area is always welcome.*

LADWP Comments 03-14-2016								
	Document	**Article**	**Pages**		**Line**		**Comment**	***District Response***
26	Appendix G						The purpose of Appendix G appears to be a determination that if on-lake sources are controlled sufficiently to meet the National Ambient Air Quality Standards (NAAQS), then off-lake sources will respond similarly and also meet the NAAQS. In this way the Owens Valley Planning Area (OVPA) would be protected from exceeding the NAAQS without controls on off-lake sources. The Los Angeles Department of Water and Power (LADWP) is concerned about several assumptions in Appendix G. If the State Implementation Plan (SIP) actions do not result in attainment or if the United States Environmental Protection Agency (USEPA) requires reasonable further progress, our interpretation of Appendix G is that the Great Basin Unified Air Pollution Control District (District) has concluded that LADWP would be obligated to control dust emissions from off-lake dust sources that are not part of the Keeler and Olancha Dunes.	*There are currently no plans for implementing control measures for off-lake areas if the NAAQS are not met. Nor has the District considered a process for determining who would be responsible for implementing dust controls in off-lake areas if they were needed. However, the District has agreed that the City of Los Angeles will not be responsible for controlling dust from the Keeler, Olancha or Swansea Dunes in the areas shown on the map in the 2013 SIP Amendment, Exhibit 4.*

LADWP Comments 03-14-2016								
	Document	**Article**	**Pages**		**Line**		**Comment**	***District Response***
27	Appendix G (Cont'd)						The 2013 Settlement Agreement exempts LADWP from orders to control dust emissions from the Keeler and Olancha Dunes, but only for certain portions of each dune field. LADWP disagree with Appendix G's conclusion that the dust that may exist on the off-lake areas does or will exist there as a result of the City of Los Angeles' water diversion activities in the past century. We are hopeful the District's predictions are correct, and therefore in order to avoid a dispute over the liability issue at this time, LADWP requests that the District include a memorandum in the SIP that clarifies Appendix G and the BACM Analysis, stating that if off-lake sources become emissive and prevent the OVPA from reaching attainment in the future, the District will analyze and determine whether the emissions are attributable to the City of Los Angeles' or another actor, or are naturally-occurring dust emissions that are subject to the Exceptional Events Policy. In determining liability, the District will employ appropriate scientific rigor and comply with all necessary legal requirements.	*The SIP limits the City of Los Angeles' liability for dust control measures to the Owens Lake bed, and the District has agreed that the City is not liable for dust from the Keeler, Swansea and Olancha Dunes, emanating from the areas that were mapped. These mapped boundaries were negotiated with the City in a Settlement Agreement (June 25, 2013). There are currently no plans for implementing control measures for off-lake areas if the NAAQS are not met. Nor has the District considered a process for determining who would be responsible for implementing dust controls in off-lake areas if they were needed.*

LADWP Comments 03-14-2016								District Response
	Document	Article	Pages		Line		Comment	
28	SIP	S.6.4, 4.1, Table 4.-1, Table 4-2, Table 4-3, 5.2.2, and 6.2.2	S-14, 30, 31, 32, 35, 37, 38, and 49				The dunes should be clarified as dune systems.	*Emission calculations are based on the mapped areas for the Keeler, Olancha and Swansea Dunes and are distinctly different from emission calculations for areas in the 2 km band outside of the dune boundaries. Using the term dune system does not clarify anything in the SIP, but muddies the distinction in regard to the mapped boundaries of the Keeler, Swansea and Olancha Dunes where the City has no responsibility.*
29	SIP	6.6	56				Cost and Employment - Questions regarding amortization over the next 25 years for $891 million expenditures.	*DWP is revising the cost analysis they previously sent to us. Written documentation is needed to support any changes to the cost and employment section. As part of the cost analysis they plan to include the lost revenue from power generation due to the diversion of water to Owens Lake. This should consider the power loss downstream of the Owens Lake diversion.*

Phillip L. Kiddoo
Air Pollution Control Officer

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April 4, 2016

Subject: District Responses to March 18, 2016 City of Los Angeles Department of Water and Power (City) Comments

Comments submitted by the City are followed by the District's response shown in *Times Roman italic font*. The District added comment numbers to aid in tracking the comments.

Comment #1

In 2014, the City of Los Angeles (City) Department of Water and Power (LADWP) and the District (collectively, Parties) reached a historic agreement to end disputes over new dust mitigation orders for areas on Owens Lake and to limit future dust control orders to no more than 53.4 square-miles of lakebed. The Parties' agreement was captured in an enforceable court order in a stipulated judgment in the case of the *City of Los Angeles v. California Air Resources Board, eta/.,* Sacramento County Superior Court Case No. 34-2013-800001451-CU-WM-GDS (Stipulated Judgment).

Section 11.B. of the Stipulated Judgment contemplated that the District would prepare a State Implementation Plan revision consisting of the 2008 Owens Lake PM_{10} Planning Area Demonstration of Attainment State Implementation Plan Order (2008 SIP Order) and the provisions of the Stipulated Judgment and limited any legal challenges by the City to "any new term that the City has not agreed to in advance, and that is not contained in the 2008 SIP Order as modified by this Stipulated Judgment."

Nothing in the Stipulated Judgment or any previous agreements between the Parties limits the ability of the City to comment on the 2016 Draft SIP Documents. By its very nature, the Stipulated Judgment modified several terms of the 2008 SIP Order. For example, the District's decision to limit future lakebed dust mitigation orders to 53.4 square-miles was an exercise of regulatory discretion based on its years of data collection and air quality expertise. The 2008 SIP Order had nothing comparable within its terms.

LADWP understands the District intends to comply with the terms of the Stipulated Judgment that LADWP and the District crafted together. LADWP has taken several steps to meet the obligations LADWP undertook under the Stipulated Judgment. We note the preamble to Proposed Board Order 160413-01 and the introductions to all the 2016 Draft SIP Documents as the District's intention to use these documents to implement the terms of the Stipulated Judgment.

As you know, a key term that was essential to the City's endorsement of the Stipulated Judgment was the District's exercise of its regulatory authority when it agreed to Paragraph 3.B. of the Stipulated Judgment, which states *"except for the 4.8 square-mile BACM Contingency Measure area and any area re-ordered for control under Paragraph 2.B of this Judgment, the District shall not issue any further orders for mitigation measures to the City under Section 42316 or any other law, including but not limited to SCRDs, requiring the City to control windblown dust emissions (including PM_{10}, $PM_{2.5}$ or any speciated components or products of PM) from any areas on the dried Owens Lake bed beyond the combined 53.4 square-miles. The provisions in this paragraph do not apply to fee orders issued to the City under Section 42316, or any orders for areas that are not on the dried Owens Lake bed."*

Stipulated Judgment Recital Z states: *"Based on data collected, the 2011, 2012, 2013 and 2014 SCRDs, modeling and experience by the District to date, the District estimates that the City's control of dust emissions by applying BACM to 48.6 square- miles of the dried Owens Lake bed, and the District's control of dust emissions from the adjacent Keeler Dunes will reduce emissions in the OVPA such that it can attain the NAAQS. Further monitoring and data collection will be needed to confirm the estimates of attainment."* The District used its air quality expertise and determined that mitigation of 48.6 square-miles of the lakebed would cause the region to *meet* air quality standards and it planned for mitigation on an additional 4.8 square-miles as a contingency measure if the original estimate was wrong.

The Stipulated Judgment governs the actions of the City and the District as set forth in Paragraph 18.C, which provides that *"[b]y executing this Stipulated Judgment, each of the Parties acknowledges and agrees that the rights and remedies provided in this Stipulated Judgment shall be the sole and exclusive rights and remedies surviving as between and among the Parties hereto relating to the subject matter of this Stipulated Judgment."*

Response #1

Comments regarding the 2014 Stipulated Judgment are noted. The City has not correctly quoted Paragraph 11.B of the Stipulated Judgment. It deletes the first part of the sentence in its quote: "The City shall support and not challenge the adoption of the [2016] SIP Order by the District Governing Board, CARB and EPA, except that the City may challenge any new term that the City has not agreed to in advance, and that is not contained in the 2008 SIP Order as modified by this Stipulated Judgment." Here, the District has revised the 2008 SIP to incorporate the terms of the Stipulated Judgment. Under these circumstances, and as directed by the Court's order, the City shall support and not challenge the adoption of the 2016 SIP Order by the District Governing Board. In addition, Paragraph 10.C of the Stipulated Judgment also applies as follows:

> *The City shall not appeal or contest the 2015 [2016] SIP Order that contain the terms of this Stipulated Judgment now or in the future* ***in any administrative or judicial forum****, under any law, statute or legal theory whatsoever including CEQA or Section 42316, and agrees that the terms of that 2015 SIP Order are valid and reasonable under [Health and Safety Code] Section 42316.*

Responding to City's comments regarding Paragraph 3.B, the District retains its authority to require additional controls to comply with federal and state law if there is a change in the law, or for areas that are not covered by the Stipulated Judgment or other agreements. This was detailed in a letter from the District to the LADWP dated March 9, 2016 (see Attachment A). Based upon subsequent communications, we understand LADWP accepts the analysis in this letter.

Proposed Board Order 160413-01:

Comment #2

General Comment 1 -The provisions of the Stipulated Judgment have been selectively modified or left out in Proposed Board Order 160413-01, which significantly broadens the District's enforcement actions without a recourse venue for the City to appeal such actions.

Response #2

This is incorrect. The 2014 Stipulated Judgment is included as Attachment A to the proposed board order. Paragraph 21 of the board order states:

> *"This Board Order consists of the 2008 SIP Order as modified by the 2013 SIP Amendment and the Stipulated Judgment. The Stipulated Judgment is attached hereto as Attachment A, and its terms are incorporated into this Board Order as if fully set forth herein."*

Repeating all provisions contained in the Stipulated Judgment in the board order is unnecessary, since it is attached to the order in its entirety. See also Paragraph 10.C of the Stipulated Judgment cited above.

Comment #3

An example of these unilateral modifications can be found in Paragraph 8.A of Proposed Board Order 160413-01 which states: *"[t]o provide the emission reduction necessary to meet the NAAQS* ***and State Standard*** *in the OPVA, the APCO may order the City on or any time after January 1, 2016, to implement BACM PM_{10} control measures* ***or MDCE BACM PM_{10} control measures on*** *additional areas on the dried Owens Lake bed from those implemented under Paragraph 1-3 of this order (BACM Contingency Measures)."*These modifications that are highlighted in **bold** significantly exceed the scope and limit of the carefully negotiated and agreed upon provisions in the Stipulated Judgment for the following reasons:

- In the corresponding Paragraph 3.A of the Stipulated Judgment, the Air Pollution Control Officer (APCO) may consider exceedance of the National Ambient Air Quality Standards (NAAQS) or State Standard; however, APCO can only order the City to implement Best Available Control Measures (BACM) Contingency Measures solely based on exceedances of NAAQS with any further recourse or appeal.

- It also appears that a new Minimum Dust Control Efficiency (MDCE) BACM PM_{10} Control Measure category has been established, requiring control by the City beyond the 53.4 square-mile limit contained in the Stipulated Judgment. The 0.5 square-mile Channel Area, for example, was not included in any prior dust control order on Owens Lake.

Response #3

The Stipulated Judgment provides for meeting the state standard as well as the NAAQS. Paragraph 3 states,

> *"Any BACM Contingency Measure orders shall be based on evidence presented to the APCO that the area considered for such order has caused or contributed to an exceedance of the NAAQS* <u>*or State Standard*</u>*."*

Paragraph 8.A of the proposed Board Order incorrectly implied that MDCE BACM was different from BACM, which could be misinterpreted in regards to its inclusion or exclusion in the 53.4 square-mile dust control cap on the lake bed. Paragraph 8.A is proposed to be modified by striking ***MDCE BACM PM_{10} control measures*** *as follows:*

> *"To provide the emission reductions necessary to meet the NAAQS and State Standard in the OVPA, the APCO may order the City on or any time after January 1, 2016 to implement BACM PM_{10} control measures ~~or MDCE BACM PM_{10} control measures~~ on additional areas on the dried Owens Lake bed from those implemented under Paragraphs 1-3 of this order (BACM Contingency Measures). The City may be ordered to implement BACM Contingency Measures such that the total area where the City shall implement BACM PM_{10} controls is up to 53.4 square miles, and the City shall comply with those orders without appeal. These control areas need not be contiguous."*

The City incorrectly contends that the 0.5 square-mile Channel Area was not previously ordered on Owens Lake, and that requiring controls for the Channel Area under this order would require them to control areas beyond the 53.4 square-mile lake bed cap. The Channel Area was ordered for control in 2008 and it is already included in the 53.4 square-mile limit. Board Order 080128-01, paragraph 4 states:

> *"Channel Area PM_{10} controls – A 0.5 square-mile area of natural drainage channels on the south area of the Owens Lake bed is known as the "Channel Area" and is delineated in Exhibit 1. The City shall control PM_{10} emissions from the Channel Area by*

implementing and operating BACM, modified-BACM or alternative non-BACM controls approved by the District's Air Pollution Control Officer (APCO), that take into account the resource issues in the Channel Area, by April 1, 2010."

See also Paragraph 10.C of the Stipulated Judgment cited above.

Comment #4

An example of supportive provisions that are left out can be seen in exclusion of "[t]he District will support the City's efforts to obtain such approvals in compliance with the law" as provided in Paragraph 5.G of the Stipulated Judgment in the Paragraph 8.F of Proposed Board Order 160413-01.

Exclusion of supportive provisions are very apparent in the Proposed Board Order 160413-01 especially when counting the number of times that enforcement statements such as "[t]he City shall be solely responsible", or "[t]he APCO has sole discretion whether to approve or disapprove", or "[t]he City shall not appeal or contest" are incorporated and repeated in the main body versus being delegated to reference sections.

Hence, LADWP requests that relevant provisions in the Proposed Board Order 160413-01 to exactly mirror the provisions of the Stipulated Judgment without further modifications. This request is in line with the District Governing Board's action in 2013 in which the provisions of the 2013 Settlement Agreement and Release were fully and without modifications incorporated in Board Order No. 110317-01.

Response #4

As stated in response to comment #2, repeating all provisions contained in the Stipulated Judgment in the board order is unnecessary, since the Stipulated Judgment is included as Board Order Attachment A.

It is essential that an enforceable board order contain the key provisions clarifying the roles of the parties, the expectations for compliance, and any matters that may be contested in case of deviations in compliance. In regards to paragraph 5.G. of the Stipulated Judgment, the District regularly participates in meetings with the California State Lands Commission and other parties in order to support the City's efforts to implement water saving dust control measures such as Tillage with BACM back-up, dynamic water management, gravel BACM and brine BACM. The District remains committed to help with the City's efforts to obtain approval for BACM dust control measures at Owens Lake.

See also Paragraph 10.C of the Stipulated Judgment cited above.

Comment #5

Paragraph K, Page 3, Lines 20 -21 -Please clarify whether transitioning is allowed under this requirement.

Response #5

Will change paragraph K of the proposed Board Order to allow transition projects that have been initiated to continue if there is a stay or disapproval of the Board Order.

> *"WHEREAS, pursuant to Section 172(e) of the Clean Air Act, to prevent the deterioration of air quality due to dismantling or "backsliding" on control measures that have already been implemented before any such stay or disapproval, the District intends that the City shall continue to operate and maintain all control measures that are operational or implemented, or were in the process of transitioning to a different control measure at the time of any such stay or disapproval without interruption, unless and until a further Order of the District allows for such interruption;"*

Comment #6

Paragraph E, in parts, states that "*..., and to meet the CAAQS at residences within communities zoned for residential use in the Inyo County General Plan Use Diagrams in accordance with District Rule 401.0 (State Standard)".* This requirement without clarification as specified in Section 7.7 of the 2008 SIP Order vastly expands the applicability of the California Ambient Air Quality Standards (CAAQS) beyond the communities surrounding Owens Lake.

Hence, LADWP requests that the clarification similar to the clarification in Section 7.7 of the 2008 SIP Order, which states "in any community surrounding Owens Lake" be added to this provision.

Response #6

Paragraph E, duplicates language in Rule 401.D. which does not mention "in any community surrounding Owens Lake." In practical terms, this exclusion does not expand the applicability of the playa dust controls to meet the state standard to all Inyo County communities. This is because if any Owens Lake dust controls are needed to meet the state standard, it would be triggered by high monitored impacts at communities near Owens Lake and not at communities farther downwind where dust concentrations would be orders of magnitude lower due to dispersion. Just as provided in the 2008 SIP, proposed SIP section 6.4 currently includes the City's requested language regarding meeting the state standard,

> *"The Board adopted District Rule 401.D in December 2006, which requires the City to implement dust control measures in lake bed areas that cause or contribute to monitored violations of the state PM_{10} standard in any community surrounding Owens Lake."*

Comment #7

Exhibit 2, Dust Control Efficiency Map – The proposed Exhibit 2 is different from Figure

5.7 of the 2008 SIP Order as shown in the enclosed map, entitled "Difference in Control Efficiency (CE) or CE Boundaries between 2016 SIP and 2008 SIP". The proposed Exhibit 2 mandates significantly higher Control Efficiencies (CE) and MDCEs on nine (9) square-miles of Owens Lake playa than had been previously specified in the District's 2011, 2012, 2013 and 2014 Supplemental Control Requirements Determinations.

Response #7

The City does not appear to find fault with the change in control efficiency, but an explanation of the differences may provide a better understanding of the history of dust controls at Owens Lake. The differences between the control efficiencies in 2008 SIP Figure 5.7 and Exhibit 2 in the proposed board order can be attributed to four changes that have taken place since 2008;

1. *Areas that were originally intended to be controlled through Moat & Row with less than 99% control efficiency were not constructed because the City was unable to get the necessary approval for their construction. Failure to meet the April 1, 2010 dust control deadline resulted in those areas being required to implement BACM with 99% control efficiency. (BO #080128-01, Para. 3) These areas, which became known as the Phase 7a areas were completed in December 2015.*

2. *Gravel BACM with 100% control efficiency was implemented on 2.0 square miles to provide emission offsets under a variance granted for the Phase 7a areas after missing the April 1, 2010 deadline. The gravel area was not identified as a significant dust source area until 2010 and therefore it was not included in 2008 SIP Figure 5.7. Areas that were converted from shallow flood to gravel also had control efficiencies increased from 99% to 100% in the 2016 SIP.*

3. *To reduce water use in shallow flood areas, the City requested that some areas that were required to have less than 99% control efficiency be changed to 99% to allow those areas to be included in the fall and spring shallow flood ramping program. (See proposed BO at 9.C.ii regarding shallow flood ramping in 99% control efficiency areas.) These shallow flood areas have been operated at 99% control efficiency since fall 2012.*

4. *Phase 9 and 10 areas, which are required to be completed by December 2017 are included in the Exhibit 2 map. These areas were not anticipated when the 2008 SIP Figure 5.7 map was created. These new dust control areas are expected to have 99% control efficiency BACM.*

The map in Attachment B shows the differences in the 2008 and 2016 dust control efficiency areas.

Comment #8

LADWP has been mitigating dust emissions from some of the areas on Owens Lake playa under higher-than-required MDCEs for operations purposes and to comply with fall and spring shouldering requirements of the 2008 SIP Order. LADWP currently anticipates continuing operating at these higher-than- required levels; however, it retains the right to revert at any time to the required lower MDCEs. LADWP is working on developing plans which will remove the current operational restrictions which will enable it to continue to comply with fall and spring shouldering requirements while continuing to operate other adjacent areas at the required lower MDCEs. Additionally, it appears that the required protocols for modifying MDCEs have not been followed as specified in the 2006 Settlement Agreement.

Hence, LADWP requests to retain the MDCE Selection Process that was mutually agreed upon in the 2006 Settlement Agreement and incorporated into the 2008 SIP Order as Attachment A.

For the Owens Lake Dust Mitigation Program- Phase 1 through 7 Projects, the required CEs are shown in Figure 5.7 of the 2008 SIP Order. For Owens Lake Dust Mitigation Program- Phase 8, 9, and 10 Projects, the required CEs are all uniformly at 99 percent.

Furthermore, LADWP welcomes the District's suggestion for modifying the MDCE Selection Process spreadsheet in order to accommodate future changes in either CEs or dust control area boundaries.

Response #8

The 2008 SIP included an EXCEL spreadsheet that could be used to adjust control efficiency targets in MDCE areas while still preventing modeled air quality exceedances at the Regulatory Shoreline. (BO #080128-01, Attachment A – Settlement Agreement, Exhibit 6) However, changes to the target MDCEs were required to be made prior to April 1, 2010, so the application of the MDCE spreadsheet had a limited life. Section 4 of the 2006 Settlement Agreement states:

> *"<u>Prior to April 1, 2010</u>, the Target MDCEs may be modified, upon request of the City and written approval of the APCO, which approval shall not be unreasonably withheld, if the modified MDCEs meet the criteria set forth in the MDCE Selection Process Spreadsheet, attached as Exhibit 6, pursuant to Section 3."*

The application period for use of the MDCE spreadsheet expired April 1, 2010, and would not be appropriate for current or future conditions at Owens Lake.

Comment #9

Paragraph 8.D, Page 8, Line 7- Paragraph 8.D partly states that *"[t]he APCO has sole discretion whether to approve or disapprove the application".* There is no basis for this mandate in the 2008 SIP Order or 2014 Stipulated Judgment. The City understands and will not contest the District's determination but there is nothing about the City's applications.

Hence, LADWP requests that statement such as "which approval shall not be unreasonably withheld" be added to the said provision.

Response #9

Paragraph 8.I. applies to all provisions of contingency measures ordered under Section 8 and it requires the submittal of a Remedial Action Plan which includes the written application under 8.D. It includes the requested language.

> *"Within 60 days of the date that the APCO orders the City to implement the BACM Contingency Measures, the City shall prepare and submit for the APCO's consideration and written approval, which approval shall not be unreasonably withheld, a Remedial Action Plan (RAP) that specifies the type and location of BACM to be installed and provides for the full and timely completion of those measures."*

Comment #10

Paragraph 11.E, Page 23, Lines 24-28- Please also add 6 to 36 months that is stated for stabilizing by other means under the 2008 SIP Order, Attachment B, Exhibit 10, Page 16 of 17.

Response #10

Paragraph 11.E of the proposed board order has been revised as indicated below.

> *"The gravel placement design and implementation shall adequately protect the graveled areas from the deposition of wind- and water-borne soil, settling of gravel into lakebed sediments or infiltration of sediments from below. All graveled areas will be visually monitored by the City at least annually to ensure that the Gravel Blanket is not filled with sand, dust or salt and that it has not been inundated or washed out from flooding. If any of these conditions are observed over areas larger than one acre, additional gravel will be transported by the City to the playa and applied to the playa surface such that the original performance standard is re-established within four months ~~of written notice from the APCO~~ per square mile of gravel cover, or within thirty-six months per square mile of gravel cover if replaced by different BACM (such as shallow flooding or managed vegetation), of written notice from the APCO. The City may comment upon the APCO's determination, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316."*

Comment #11

Paragraph 11.F, Page 24, Lines 4-7 – Paragraph 11.F specifies the use of "BACM" for mitigating dust emissions from the City's gravel mining and transportation activities. In previous State Implementation Plans, BACM was defined as Managed Vegetation, Gravel Cover, or Shallow Flooding, and only applied to Owens Lake playa source areas. The

Proposed 2016 SIP should define BACM in the context of gravel mining and transportation activities.

Response #11

Paragraph 11.F of the proposed board order has been revised as indicated below.

> *"The City shall apply BACM for fugitive dust sources (see WRAP Fugitive Dust Handbook, Western Governors' Association, 2006) and New Source Performance Standard (NSPS) emission limits to its gravel mining and transportation activities occurring within the District's geographic boundaries as required by the District in the City's District-issued Authority to Construct and Permit to Operate."*

Comment #12

Paragraph 20, Page 30 – Paragraph 20 is not consistent with the Stipulated Judgment. In order to be consistent with the Stipulated Judgment, the provision should *read: "If there is* a *material change in federal or state law.......The District shall also maintain its authority under Health* & *Safety Code Section 42316 ....Board Order No. 130916-01, provided, however, that nothing in this sentence authorizes the District to order the City to implement mitigation measures in contravention of the provisions in Paragraph 8.8 of this Order".*

Response #12

See the letter from the District to LADWP (Kiddoo to Harasick, March 9, 2016) in Attachment A which contains an analysis of paragraph 20. Based upon subsequent communications, we understand LADWP accepts the analysis in this letter. No change to this paragraph.

Proposed 2016 SIP:

Comment #13

Section S.4, Page S-3, Paragraph 1 -Section S.4 states that "PM_{10} *emissions in the OVPA are dominated by fugitive dust emissions resulting from wind erosion on the exposed Owens Lake playa."* This statement should be revised to reflect the current emission inventory in Table S-2 which clearly reflects that PM_{10} emissions in the Owens Valley Planning Area (OVPA) are no longer dominated by emissions from the exposed playa. According to Table S-2, PM_{10} emissions from the Keeler and Olancha Dunes System are now over 10 times greater than those from exposed Owens Lake playa.

Response #13

This sentence in Section S.4 will be replaced with the following,

> *"In the last century, PM_{10} emissions in the OVPA were dominated by fugitive dust*

emissions largely from wind erosion on the exposed Owens Lake playa. These emissions have been on the decline starting in 2002 with the implementation of dust control measures by the City of Los Angeles, and is expected to continue to decrease with additional control measures being implemented by the end of 2017."

Comment #14

Section S.4, Page S-3, paragraph 3 – Please explain the justification for basing the emission inventory, and therefore the PM_{10} control strategy, on a near- exceedance day rather than the maximum PM_{10} concentration day used in other State Implementation Plans. By definition, a near-exceedance day is one that marginally exceeds the federal NAAQS. Shouldn't the PM_{10} attainment control strategy be based on the maximum-day PM_{10} concentration day, or some variation of the maximum such as the fourth highest PM_{10} concentration day?

Appendix V of the Proposed 2016 SIP does not offer a direct answer to this and subsequent attainment questions.

Response #14

The near-exceedance day selection and the design-day selection have two different purposes that can be found in the BACM analysis discussions and the modeled attainment demonstration in the SIP.

The near-exceedance day was selected for the purpose of evaluating emissions from PM_{10} sources to determine which source categories had significant emissions and were required to have BACM applied in accordance with EPA guidance. This is discussed in SIP Chapter 4 and Appendix V-1.

The design day is based on the monitored concentrations at each site and depends on how many years monitoring was conducted during the period from 2009-2014. For a monitor site that operated for five years, the sixth highest value is the design concentration used for the attainment demonstration. If only two years of data were available, then the third highest monitored concentration would be used for the design day at that site. For attainment demonstration purposes, the SIP control strategy is acceptable if the model shows that after the application of control measures the forecasted design day at each monitor location has been reduced to a level below the NAAQS. See SIP chapter 7 and Appendix VII-1.

Comment #15

Section S.4, Page S-4, Paragraph 1 -This Section states that *"...For purpose of the significant source analysis ....The two-kilometer buffer has been applied ... at the monitors..."* This assumption is inconsistent with the 2008 SIP Order, which implies that a *"...strong source-receptor relationship"* for playa sources extends as far away as 10 or 15 kilometers from the PM_{10} monitors (roughly one- third to one-half of the length of Owens Lake; see 2008 SIP

Order, page 4-9, items 6 and 8). All of the existing dust mitigation facilities on Owens Lake were identified using data conforming with these two distance criteria.

In a March 17, 2016, conference call with LADWP, the District clarified its position that the impacts of sand motion from the Owens Lake playa are limited to a distance of two kilometers from the shoreline. If this clarification is still valid, please reflect such clarification in the main body of the document.

Response #15

The statements contained in the SIP regarding off-lake sources in the 2 km buffer accurately reflect the understanding of the District staff, which is that our monitoring and modeling analysis indicate that except for the Keeler and Olancha Dunes, emissions from off-lake sources more than 2 kilometers away from the shoreline do not have a significant impact on achieving attainment. This is because emission sources that are near the monitor sites have a much higher impact on monitor concentrations than sources located further away. It would be a misinterpretation of our explanation during the March 17, 2015 conference call to say "the impacts of sand motion from the Owens Lake playa are limited to a distance of two kilometers from the shoreline."

Comment #16

Section S.6.1, Page S-11- This Section states: *"In the same manner as the off- lake dust source areas were created as* a *result of sand migration from the lake bed, the ECR areas will have less sand migration from the adjacent areas after dust controls are in place and it is expected that emissions will be reduced as dust is winnowed from the loose sand deposits."* This paragraph should acknowledge that off-lake dust source areas were not just created in the last 100 years. Owens Lake was formed some 800,000 years ago by tectonic activity under a portion of the Owens River. The tectonic activity caused the underlying bedrock to tilt upward along a plain, which increased the outlet elevation by more than 200 feet and caused a large, terminal inland lake to form behind the barrier. The surface level on Owens Lake has varied dramatically over its history, mostly in response to climate variation. When the water was high, sandy beaches and beach dune deposits formed around its perimeter due to a combination of wind and wave action (and flash flooding on the alluvial fans). During periods when the lake was dry, which occurred at least 6 times in the last 15,000 years (one event lasted more than 2,500 years), sand migrated across the former shorelines and fanned across the surrounding desert. Not all sand deposits around Owens Lake are strictly Aeolian (i.e., windblown) in origin. Many of the dune systems surrounding Owens Lake lie at the distal end of alluvial fans emanating from the Coso and lnyo Mountains, suggesting that water and sediment load from flash floods plays a significant role in stabilizing, if not forming, dunes. The history of Owens Lake is well documented in numerous published scientific reports, including: Bacon et al. 2006; Benson et al. 2001, 2002; Gale 1915; Grayson 1993, 2000; Li et al. 2000; Lee 1915; Mihevc et al. 1997; and Orme and Orme 2008.

Sand accumulation in near-shoreline areas cannot be attributed solely to the City's water gathering activities in the last 100 years. Additional, detailed scientific investigations are needed to understand the relative contribution of the exposed Owens Lake playa versus other sources, including those occurring in both modern and prehistorical times.

Response #16

As noted by the LADWP, the history of Owens Lake has been studied by many different researchers resulting in an extensive library of scientific papers and reports. Review of these reports and work conducted in the area shows that the geologic history of Owens Lake is long and complicated. The statement by LADWP that the "off-lake dust source areas were not just created in the last 100 years" is only partially true and does not recognize the complicated history of the Owens Lake area. Other than short-term temporary sources created by flash flooding events, all of the off-lake sources consist of active and mobile sand dune and sand sheet deposits formed since the recent historic desiccation of Owens Lake.

The sand dune areas around the Owens Lake shorelands were not all formed at the same time or in the same manner. Age dating and geomorphic mapping of the different dune systems around Owens Lake show that the dunes can be divided into older stable vegetated paleo-dunes and younger active mobile dunes and sand sheets. Although the material forming the older and younger dunes is similar, namely sand, the age character of the different aged dunes is different and distinct. These two set of deposits did not form at the same time or in the same manner and should not be lumped together. The active mobile sands that form most of the off-lake sources are modern deposits that formed quickly due to the recent desiccation of Owens Lake within the last 100+ years.

The history of Owens Lake can be divided into two main periods. The first period, began over 140,000 years ago and extends to the late 1800s when large-scale human water diversions began. During the first period, the level of ancient Owens Lake changed naturally in response to climatic and hydrologic conditions and regional tectonic activity. Even though Owens Lake is thought to have completely desiccated during this period it dried at a natural rate and geologic evidence suggests that material moving off of the lake bed was deposited in the paleo-dune systems associated with shoreline features around the lake bed and not into large mobile dunes or sand sheets. These paleo-dune systems are present in many of the shoreland areas surrounding the north, east and southern sides of current Owens Lake and are characterized by the presence of stable vegetation and dune ridge morphology with the dune ridge orientation parallel to subparallel with shoreline features.

The second period in Owens Lake history covers the last approximately 130 years since European-Americans began large-scale water diversions in the Owens Valley. During this period the level of Owens Lake did not change naturally but instead the main source of water into the lake (the Owens River) was essentially shut off instantaneously causing desiccation at a highly accelerated rate leaving a highly unstable lake bed exposed to wind erosion. As a result of this, large volumes of material were transported off of the lake bed into the surrounding environment. This mass movement of material overwhelmed the existing conditions in many areas around the lake shore forming significant active sand deposits. Unlike the preserved paleo-dune systems, these younger modern sand deposits form highly mobile broad sand sheets *and dune deposits covering portions of the surrounding alluvial fans with features that are largely perpendicular to the preserved shorelines.*

The significant sand deposits present in the Owens Lake area were deposited by aeolian, fluvial and lacustrine processes and not from flooding on the alluvial fans. This is supported by the particle size distribution and sorting, sedimentary structures present as well as the mineral composition. The mineral composition of the sand in both the paleo and modern dunes around the lake bed indicate a source from the Owens River and not from the alluvial fans coming out of the Inyo or Coso Mountains. Sedimentary structures in the dune deposits show well developed laminar to cross-bedded structures indicative of aeolian activity and not alluvial deposition.

However, in many of the dune areas that are present on the shorelands of Owens Lake there are deposits of flood silts. The silt deposits occur as a series of separated patches that are either interbedded with aeolian sands or form a cap on underlying sands of aeolian origin. Contacts between the flood silts and the underlying aeolian sands are sharp and represent a clear unconformity. The surface of the silts exhibits polygonal crack systems, which developed as the water body dried out. The flood silts are thought to be the distal end point of floodwaters from alluvial fans that head in the Inyo and Coso Mountains. The flood silts were deposited by silt-laden water flows, which were dammed at their lower extent by small pre-existing stable dunes.

For more information about the geologic history of Owens Lake see SIP Section 2.2.1.1 and the cited references.

Comment #17

Section S-6.4, Page S-14- LADWP has provided information in the past that shoreline monitors are affected/influenced by dust storms originating far to the north and south of Owens Lake. The evidence is clear: regional scale dust storms cause PM_{10} exceedances at the shoreline monitors. This fact is not addressed anywhere in the Proposed 2016 SIP.

Response #17

The City has submitted anecdotal evidence of regional dust sources, however, quantitative evidence is needed to evaluate the impact of those dust sources at monitor sites near Owens Lake and how those sources affect attainment with the NAAQS. Observations at Owens Lake show the highest monitored PM_{10} impacts are caused by source areas on and near the Owens Lake bed. Monitoring data in the Owens Valley shows that occasional regional dust events do occur, but an analysis of PM_{10} monitor data from upwind and downwind of Owens Lake shows that PM_{10} from upwind sources are overwhelmed by the sources closest to the lake bed.

Comment #18

Section 6.6, Page 56 –The District's cost analysis which are based on the past 15 years of dust mitigation on Owens Lake assumes that the facilities that have been constructed since 2000 will last for another 25 years, and hence, the costs are amortized in that manner. The District's cost analysis does not adequately account for following significant charges:

- o Life expediency of constructed facilities- The facilities are not expected to last up to 40 years as assumed in the analysis, especially in the harsh environment of Owens Lake. This is anticipated the facilities needs to be replaced or upgraded every 20 to 25 years;
- o Cost of the Water- Future cost of the water is anticipated to double in the next five years partly due to inflation rates and environmental regulations. For example, the cost of untreated water in 2004 ranged from $326 to $407 per acre-foot. In 2016, the cost of untreated water ranges from $594 to $728 per acre-foot;
- o Higher labor and material charges;
- o Replacement cost of existing construction maintenance equipment;
- o Tougher labor and environmental regulations effecting the permitting and replacement costs of such facilities;
- o Loss of Power Generation Revenue- LADWP generates power from the water that is exported to the City from Eastern Sierra through several hydropower generating stations. In 2016, the loss of generation amounts to reduction in power generation revenue of $106 per acre-feet; and
- o Increased cost of habitat monitoring and compliance reporting.

Hence, LADWP requests that exclusion of such valid charges be recognized in this section, and LADWP is willing to work with the District to properly account for such charges prior to consideration and adoption of the Proposed 2016 SIP.

Response #18

The cost analysis for Owens Lake dust control projects contained in the SIP is based on information provided by LADWP. (LADWP, 2015b) The information provided in this comment is noted, and the District would be glad to work with the City when documentation can be provided to support the basis for these costs.

The purpose of the cost analysis is to estimate the cost per ton of PM_{10} controlled to determine if it is reasonable when compared to the cost effectiveness values for other approved PM_{10} SIPs. Without the suggested changes, the current cost effectiveness value in the SIP is $2,520 per ton for lake bed controls, and $219 per ton for the Keeler Dunes project. In comparison, this is more than 25 times less than the cost estimate for windblown dust controls in the San Joaquin Valley that can range up to $65,000 per ton. Therefore, even doubling the annual cost estimate would still yield a reasonable cost per ton in comparison to control measures contained in an approved SIP.

Comment #19

Appendix X- 1, GBUAPCD Proposed Rule 433 – Proposed Rule 433 omits important terms that were included in the Stipulated Judgment concerning potential delays in installation and implementation of controls, specifically, the provisions concerning Force Majeure and Stipulated Penalties. By omitting these terms, Proposed Rule 433 could be interpreted as transforming the remaining terms specifying controls and deadlines into a completely different set of requirements and consequences than those negotiated by the Parties and embodied in the Stipulated Judgment. The stringency and timetables for implementation were acceptable to the City only when combined with the relief mechanisms provided by the Force Majeure and Stipulated Penalties provisions. Accordingly, LADWP requests that the provisions in Paragraphs 14 and 15 of the Stipulated Judgment be repeated in Proposed Rule 433.

Response #19

These provisions were discussed with the US EPA and determined to be unapprovable at the federal level. However, the District will follow the terms of the 2014 Stipulated Judgment including the provisions for Force Majeure and stipulated penalties. No change to the rule.

Comment #20

Off-Lake PM_{10} Reductions in Areas Adjacent to Lakebed Dust Controls Memorandum (Memorandum), dated October 9, 2015, from Messrs. Duane Ono and Chris Howard to Mr. Phill Kiddoo, et al. The purpose of this Memorandum appears to be a determination that if on-lake sources are controlled sufficiently to meet NAAQS, then off-lake sources will respond similarly and also meet NAAQS. In this way OVPA would be protected from exceeding NAAQS without requiring controls on off-lake sources. LADWP is concerned about several assumptions in this Memorandum. If the State Implementation Plan actions do not result in attainment of NAAQS by 2017, or if the United States Environmental Protection Agency (USEPA) requires reasonable further progress, our interpretation of the Memorandum is that the District has concluded that LADWP would be obligated to control dust emissions from off-lake dust sources that are not part of the Keeler and Olancha Dunes. Does the District agree with this interpretation?

The 2013 Settlement Agreement exempts LADWP from orders to control dust emissions from the Keeler and Olancha Dunes, but only for certain portions of each dune field. LADWP disagree with the Memorandum's conclusion that the dust that may exist on the off-lake areas does or will exist there as a result of the City's water diversion activities in the past century. LADWP is hopeful the District's predictions are correct, and therefore in order to avoid a dispute over the liability issue at this time, LADWP requests that the District include a memorandum in the Proposed 2016 SIP that clarifies the Memorandum and the BACM Analysis, stating that if off-lake sources become emissive and prevent the OVPA from reaching attainment in the future, the District will analyze and determine whether the emissions are attributable to the City or another actor, or are naturally-occurring dust emissions that are subject to the Exceptional Events Policy. In determining liability, the District should employ appropriate scientific rigor and comply with all necessary legal requirements.

Response #20

The District believes that scientific evidence in the form of sand motion and PM_{10} data support the approach to control dust from the off-lake sources by controlling the source of sand and material blown into those areas from the lake bed. At this time, there has been no discussion about what party, if any, would be liable for implementing dust controls in off-lake areas or the procedures that would be followed if off-lake dust sources prevent the area from attaining the NAAQS.

Comment #21

LADWP's previous comments, dated October 23, 2015, October 30, 2015, and December 7, 2015, are incorporated in this letter by reference.

Response #21

The District's responses to LADWP's previously submitted comments are included in the enclosures to this response letter.

Comment #22

In closing, we appreciate your commitment to implementing the terms of the 2014 Stipulated Judgment and understand our mutual intent to revise the terms of the 2008 SIP Order to include the terms of the Stipulated Judgment. In order to alleviate any third-party misinterpretations, LADWP would appreciate a reaffirmation in writing that the District is committed to implementing the Stipulated Judgment and nothing in the District's 2016 Draft SIP Documents are intended to contradict the Stipulated Judgment.

Response #22

As stated in the cover letter to this response, "The District reaffirms its commitment to and intends to abide by the terms of the Stipulated Judgment. Nothing in Board Order #160413-01, District Rule 433, and the 2016 SIP are intended to contradict the Stipulated Judgment."

Comment #23

LADWP requests that the District revise the Proposed Draft 2016 SIP Documents as provided in this letter and enclosure, and we look forward to working with the District to fulfill the terms of the Stipulated Judgment.

Response #23

The proposed SIP, board order and Rule 433 were revised as noted in the District's responses in this attachment and enclosures sent with this letter.

Phillip L. Kiddoo
Air Pollution Control Officer

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

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March 9, 2016
Via Electronic and U.S. Mail

Mr. Richard Harasick
Director, Water Operations Division
Los Angeles Department of Water & Power
111 North Hope Street, Room 1449
Los Angeles, California 90012-2694

Subject: Paragraph 20 of the Draft 2016 SIP Order

Dear Richard:

This letter addresses concerns expressed by the City of Los Angeles Department of Water and Power (City) regarding Paragraph 20 of the proposed 2016 State Implementation Plan Order (2016 SIP Order). I've gone back to the 2008 SIP Order, the 2014 Stipulated Judgment and all draft paragraph 20 revisions to the 2016 SIP Order over the course of the past several months to have a comprehensive understanding of paragraph 20 in current Draft Final form out for public review so the Great Basin Unified Air Pollution Control District's (District) resolution to concerns expressed by the City is correct.

The purpose of the 2016 SIP Order is to revise the 2008 SIP Order (Board Order # 080128-01) to incorporate the terms of the Stipulated Judgment entered by the Sacramento Superior Court on December 30, 2014 (Stipulated Judgment). Paragraph 20 confirms the fact that the Great Basin Unified Control District (District) retains its legal authority under Health and Safety Code Section 42316 to require the City to implement additional controls, to control additional emissive areas and/or to undertake additional reasonable measures necessary to mitigate the air pollution caused in the District by the City's water-gathering activities in order to prevent the Owens Valley Planning Area from failing to attain or maintain the National Ambient Air Quality Standards for particulate matter, **only if** circumstances arise that are not specifically addressed in the Stipulated Judgment, or in the settlement agreement between the City and the District regarding the Keeler Dunes (Board Order #130916-01).

The District concludes that the limited retention of legal authority provided in Paragraph 20 is required by federal Clean Air Act and the state Health and Safety Code. In addition, rather than being in conflict with the Stipulated Judgment, Paragraph 20 is both consistent with and required by the Stipulated Judgment, as discussed in more detail below.

Stipulated Judgment: This analysis begins with the Stipulated Judgment. Paragraph 10.B provides as follows:

By December 31, 2015, the District shall prepare a SIP revision [to the 2008 SIP] that *incorporates the provisions of this Stipulated Judgment ("2015 SIP Order"). The District intends to act as a responsible agency and use the City's Phase 9/10 CEQA/NEPA documents to act on the SIP revision. If the City's CEQA/NEPA document is not adequate for the District's approval purposes, the District shall have until December 31, 2016 to act on the SIP revision.*

The City and District (collectively "Parties") subsequently stipulated and obtained the Court's approval to extend the date for the revised SIP Order to April 15, 2016, and to rename the revised SIP as the 2016 SIP Order. The 2016 SIP Order is expressly intended to comply with all requirements of federal, state and local law, including the requirements of the federal Clean Air Act to attain the National Ambient Air Quality Standards (NAAQS) and the requirements of Health and Safety Code Section 42316. Accordingly, Paragraph 10.E provides as follows:

The Parties have developed the terms of this Stipulated Judgment with the intention that its provisions will be incorporated into the 2015 [2016] SIP Order and are consistent with applicable provisions of federal, state and local law, including Section 42316, including all applicable provisions of federal law regarding attainment of the NAAQS.

<u>2008 SIP Order</u>: Because the 2016 SIP Order consists of revisions to the 2008 SIP Order to incorporate the terms of the Stipulated Judgment, we next turn to the terms of the 2008 SIP Order that are to be retained and that are consistent with the Stipulated Judgment. In the 2008 SIP Order, the Parties agreed to Paragraph 13 entitled "Alternative Methods for Implementing Contingency Measures and Supplemental Controls":

Notwithstanding any other provision of this Order, the District shall maintain its authority under Health and Safety Code Section 42316 to order the City to implement additional controls, to control additional emissive areas and/or to undertake additional reasonable measures necessary to mitigate the air pollution caused in the District by the City's water-gathering activities in order to prevent the OVPA from failing to attain or maintain the NAAQS for PM10, if circumstances arise that are not specifically addressed in Paragraphs 10 [Contingency Measures – Supplemental Control Determinations] or 12 [Criteria for Determining the Need for Additional PM10 Controls] of this Order.

This provision was carefully discussed and the final language was agreed to by the City and District. It acknowledges that the District is required by law to retain its legal authority under Health and Safety Code Section 42316 for those circumstances that are not specifically addressed in the 2008 SIP Order. The City is also required comply with all applicable law regarding its activities, including any change in the law.

The City further agreed that the 2008 SIP including its retention of legal authority in Paragraph 13 was valid and reasonable and that it would not challenge this term in any judicial **or administrative proceeding.** (*See* 2006 Settlement Agreement). The Court in entering the Stipulated Judgment confirmed that the City was legally required to comply with this term of the Settlement Agreement (*see* Stipulated Judgment Exhibit A page 4) and the City agreed that the Court's ruling was final and binding upon the Parties (Stipulated Judgment, Paragraph 13.C.)

<u>Draft 2016 SIP Order</u>: Pursuant to the Stipulated Judgment, the District prepared a draft 2016 SIP Order to incorporate the terms of the Stipulated Judgment into the 2008 SIP Order. In the earlier draft versions shared with the City, the District retained Paragraph 13 of the 2008 SIP

Order and proposed the term that is now identified as Paragraph 20 of the 2016 SIP Order:

> *Notwithstanding any other provision of this Order, the District shall maintain its authority under Health & Safety Code Section 42316 to order the City to implement additional controls, to control additional emissive areas and/or to undertake additional reasonable measures necessary to mitigate the air pollution caused in the District by the City's water-gathering activities in order to prevent the OVPA from failing to attain or maintain the NAAQS for PM10, if circumstances arise that are not specifically addressed in Paragraphs 1 through 8 of this Order.*

In response, the City expressed concerns that the term "notwithstanding" could be read to contradict other provisions of the Stipulated Judgment, including Paragraph 3 which provides for 53.4 square miles of control measures including 4.8 square miles of additional BACM Contingency Measures.

The District sought to clarify Paragraph 20 in response to the City's concerns. In a revised draft of the 2016 SIP Order, the District narrowed the language to more specifically identify that its retention of legal authority under Health and Safety Code Section 42316 was limited to (a) a change of federal or state law that would require additional orders under Section 42316, or (b) for areas that are not specifically addressed by the Stipulated Judgment or the Keeler Dunes settlement. The revised and most recent version of Paragraph 20 provides as follows:

> *If there is a change in federal or state law that requires controls in addition to those provided in this Order, then the District shall maintain its authority under Health & Safety Code Section 42316 to adopt a new order to require the City to comply with these new legal requirements. The District shall also maintain its authority under Health & Safety Code Section 42316 to order the City to control additional sources of air pollution and/or to undertake additional reasonable measures necessary to mitigate the air pollution caused in the District by the City's water-gathering activities for other areas, sources or activities that are not specifically addressed in Paragraphs 1 through 8 of this Order, or that are located outside of the Keeler, Olancha and Swansea dune areas as specified in Board Order #130916-01.*

These two triggers for Paragraph 20 are not reasonably subject to dispute. First, if there is a change in the law that requires additional controls, the District must have the ability to require the City to comply with the new law. The City has not indicated in any of its communications that it disagrees with this principle.

In addition, the Stipulated Judgment is not in conflict with this principle – exactly the opposite is true, where the Stipulated Judgment requires a 2016 SIP Order that incorporates the 2008 SIP provisions such as this retention of legal authority. Thus, the Stipulated Judgement does not provide that if the law changes, the District is somehow barred from complying with those requirements and the City is allowed to operate in violation of the new law. Such an outcome is illegal and therefore this provision is not negotiable. The District must be clear on this point so that there is no argument in the future that the District surrendered its legal authority under Health and Safety Code Section 42316 should there be a change in the legal requirements which the District and the City are required to follow.

In context, the probability that there will be such a change of law is speculation. The District is not aware of any such new law that is either proposed or in the process of adoption that would trigger Paragraph 20. The District further reiterates its belief that under existing law, the provisions of the Stipulated Judgment including Paragraph 3 satisfy the City's duty under Health and Safety Code Section 42316 regarding the areas of the lakebed referenced in the Stipulated Judgment. The District has no hidden agenda or other intention to circumvent those terms or to require additional areas for control on the dried Owens Lake bed under existing law beyond those as provided by the Stipulated Judgment.

The second trigger in Paragraph 20 is that the District maintains its legal authority for areas that are not covered by the Stipulated Judgment or the Keeler Dunes settlement. That is straightforward – if an area it is not covered, then it is not covered. (*See also* Paragraph 3.B of the Stipulated Judgment ["The provisions in this paragraph do not apply to fee orders issued to the City under Section 42316, **or any orders for areas that are not on the dried Owens Lake bed**."] At this time, the District has no plans for issuing further orders to the City and again reiterates that it has no hidden agenda or other intention to circumvent the terms of its agreements with the City.

For both triggers, the District will issue a new Order to address any change in the law. The District intends to comply with existing law and any new law, and expects the City to do the same.

<u>Bar to the City's Challenge to Adoption of the 2016 SIP Order</u>. As shown above, the District has revised the 2008 SIP to incorporate the terms of the Stipulated Judgment. Paragraph 20 was agreed upon and included in the 2008 SIP, and its inclusion in the 2016 SIP Order complies with the Stipulated Judgment. Under these circumstances, Paragraph 10.C of the Stipulated Judgment applies as follows:

> *The City shall not appeal or contest the 2015 [2016] SIP Order that contain the terms of this Stipulated Judgment now or in the future* ***in any administrative or judicial forum****, under any law, statute or legal theory whatsoever including CEQA or Section 42316, and agrees that the terms of that 2015 SIP Order are valid and reasonable under Section 42316.*

Under Paragraph 10.C, the City may not challenge Paragraph 20 and its inclusion in the 2016 SIP Order at the upcoming District Board hearing on April 13, 2016 without violating the Stipulated Judgment, which is enforceable as a court order.

Paragraph 20 is a correct and necessary statement. We hope this letter provides useful information to support the District's analysis of the City's concerns, and that the District and City may proceed in cooperation to the adoption and issuance of the 2016 SIP Order.

Please do not hesitate to contact me if you have any questions.

Sincerely,

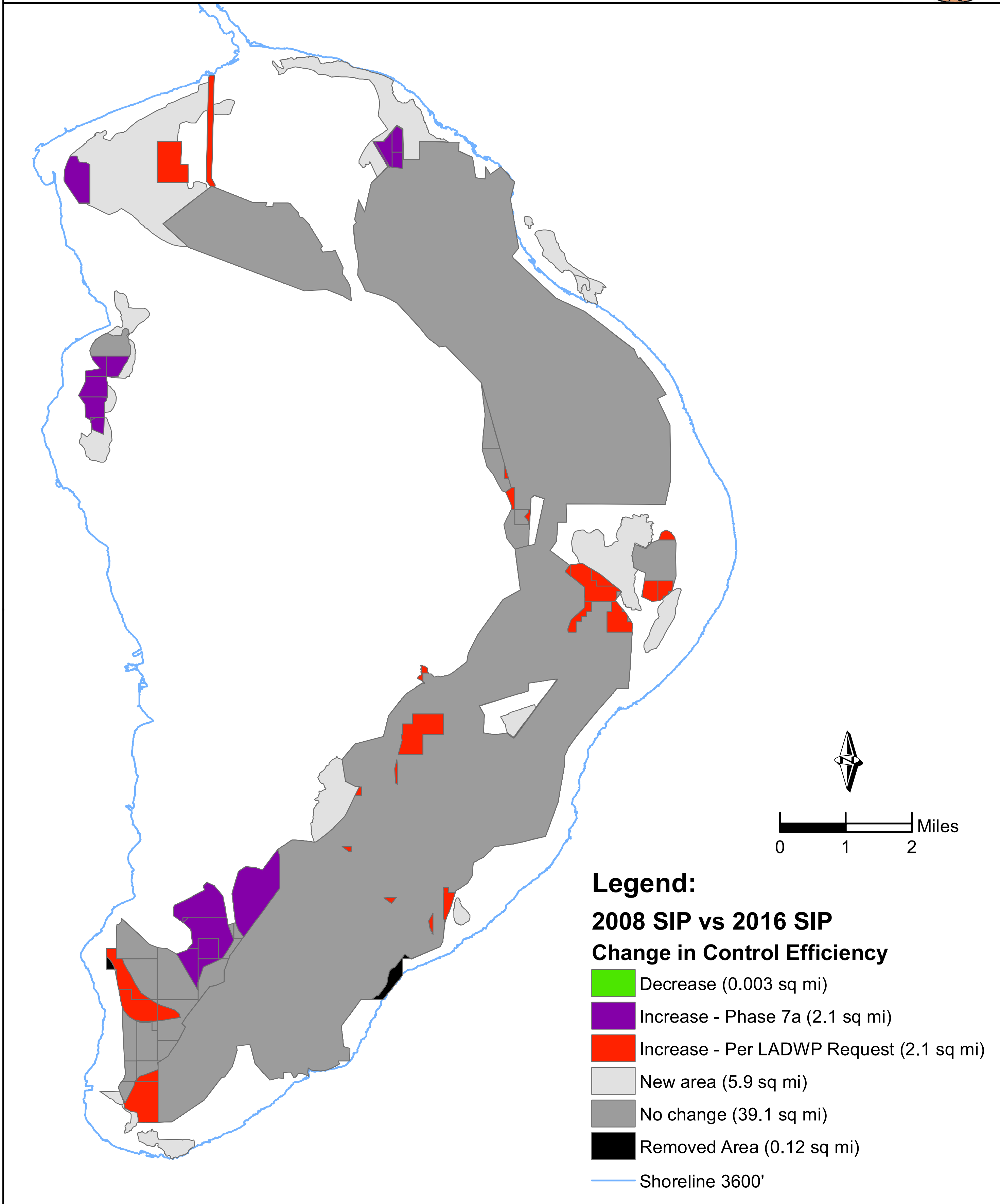
Phillip L. Kiddoo
Air Pollution Control Officer, Great Basin Unified Air Pollution Control District

Attachment B

Enclosure 20160404d

Great Basin Unified Air Pollution Control District

Comparison of SIP Control Efficiency Figures



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Comparison of SIP Control Efficiency Figures 20160324.mxd

ATTACHMENT B:

PROPOSED BOARD ORDER #160413-01 WITH MARKED TEXT CHANGES

BOARD ORDER #160413-01
REQUIRING THE CITY OF LOS ANGELES TO UNDERTAKE MEASURES TO CONTROL PM_{10} EMISSIONS FROM THE DRIED BED OF OWENS LAKE

To comply with the federal Clean Air Act and state law for the control of particulate matter 10 microns in size or less (PM_{10}) emitted from the dried 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:

PREAMBLE

A. WHEREAS the federal Clean Air Act, state law and orders duly adopted by the District, the 1998 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (1998 SIP) dated November 16, 1998, the 2003 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2003 SIP) dated November 13, 2003, the 2008 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2008 SIP), 2013 Amendment to the Owens Valley PM10 SIP dated September 16, 2013 (2013 SIP Amendment) require the City to implement a series of measures and actions to reduce particulate emissions from the Owens Lake bed by a minimum of five percent per year such that the Owens Valley Planning Area (OVPA) will attain and maintain the federal 24-hour National Ambient Air Quality Standards (NAAQS) for PM_{10} by the statutory deadlines, and to achieve compliance with the California Ambient Air Quality Standard (CAAQS) for PM_{10};

B. WHEREAS, the District is required by law to maintain its discretion to protect the environment, public health and safety, this Order is intended to fulfill those duties without improperly constraining that lawful exercise of discretion;

C. WHEREAS, in 2008, the District adopted Governing Board Order (Board Order) #080128-01 and submitted the Board Order to the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) as part of the 2008 SIP (2008 SIP Order); and CARB approved the 2008 SIP and Order and submitted them to the EPA for approval, which is pending before EPA; and in addition, the provisions of the 2008 SIP Order were approved by

EPA as part of the Coso Junction Maintenance Plan in 2010 (75 Fed. Reg. 54031 [September 3, 2010]);

D. WHEREAS, in 2013, the District amended the 2008 SIP Order by adopting Board Order #130916-01 (2013 SIP Amendment) to extend certain deadlines and incorporate provisions for the modification of PM_{10} control projects known as the "Phase 7 Project" and the "Keeler Dunes Project" as discussed in the 2016 OVPA SIP Chapter 6 that are necessary to meet the air quality standards, and submitted this amendment to CARB and EPA for approval, which is pending;

E. WHEREAS, through modeling and monitoring requirements set forth in adopted SIPs and SIP amendments, the District has determined that additional measures and actions will be required to continue to reduce PM_{10} emissions in the OVPA such that the OVPA will attain and maintain the federal 24-hour NAAQS for PM_{10} by the statutory deadlines, and to meet the CAAQS at residences within communities zoned for residential use in the Inyo County General Plan Use Diagrams in accordance with District Rule 401.D (State Standard);

F. WHEREAS, in 2011 a dispute arose between the District and the City regarding the District's requirements for the City to control dust from additional areas at Owens Lake beyond those areas identified in the 2008 SIP, followed by a series of appeals to the California Air Resources Board under Health & Safety Code Section 42316;

G. WHEREAS, those disputes were fully and finally resolved by a Stipulated Judgment entered in favor of the District on December 30, 2014 in the case entitled *City of Los Angeles, et al. v California Air Resources Board*, Sacramento Superior Court, Case No. 34-2013-80001451-CU-WM-GDS (Stipulated Judgment). Under the Stipulated Judgment, the City agreed in part to operate and maintain existing dust control measures, and implement additional dust control measures by December 31, 2017, and the District agreed, in part, to revise the 2008 SIP as provided in the Stipulated Judgment;

H. WHEREAS, the purpose and intention of this Board Order is to revise and supercede the 2008 SIP Order with the applicable provisions of Board Order #080128-01 and Board Order #130916-01 (2013 SIP Amendment). This Board Order (2016

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SIP Order) will be enforceable upon adoption by the District as state law, and will be submitted to the CARB and EPA for their review and approval as a proposed revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP);

I. WHEREAS, in consideration of the District's continuing duties under federal and state law, including but not limited to the Clean Air Act and California Health and Safety Code, to control PM_{10} emissions from the Owens Lake bed without interruption, the District intends, if this Order is stayed or disapproved, that Board Orders #080128-01 and #130916-01, and the Stipulated Judgment shall continue to be in effect, so that at all times there will be continuous control of these emissions;

J. WHEREAS, the District thereby intends that if this Order is stayed due to a legal challenge, including but not limited to a challenge to this Order under Health & Safety Code Section 42316, to the 2016 SIP, or to the Environmental Impact Report for this SIP, or if this Order is disapproved by CARB, the District will revert to enforce the terms of Board Orders #080128-01 and #130916-01, and the Stipulated Judgment which shall continue to be in effect and shall remain in full force for the duration of any stay or, in the case of disapproval, unless and until another Order is issued by this Board; and

K. WHEREAS, pursuant to Section 172(e) of the Clean Air Act, to prevent the deterioration of air quality due to dismantling or "backsliding" on control measures that have already been implemented before any such stay or disapproval, the District intends that the City shall continue to operate and maintain all control measures that are operational or implemented, or were in the process of transitioning to a different control measure at the time of any such stay or disapproval without interruption, unless and until a further Order of the District allows for such interruption;

THEREFORE, IT IS HEREBY ORDERED AS FOLLOWS:

ORDER

OWENS LAKE BED PM_{10} CONTROL MEASURE AREAS

1. Existing PM_{10} controls – At all times starting from January 1, 2016, the City shall continue to operate and maintain the 45.0 square miles of existing controls for PM_{10} as

described in this Paragraph in the areas on the Owens Lake bed within the Dust Control Areas (DCA) delineated in Exhibit 1:

A. On the 29.8 square miles ordered by Board Order #031113-01 (2003 SIP) within the 2003 DCA, the City shall continue to operate and maintain District-approved Best Available Control Measures (BACM) as described in Paragraphs 9 through 12.

B. On the 12.7 square miles ordered by Board Order #080128-01 (2008 SIP) within the 2006 DCA, the City shall continue to operate and maintain District-approved BACM as described in Paragraphs 9 through 12, except as follows:

i. On the T1A-1 area consisting of 0.39 square miles within the 12.7 mile 2006 DCA as shown in Exhibit 1, the City shall continue to operate and maintain sand fences in the natural occurring partially vegetated and seasonally wet T1A-1 area as required to comply with the minimum dust control efficiency (MDCE) performance standards set forth in the 2008 SIP Order and shown in Exhibit 2, and;

ii. For the “Phase 7a” area consisting of 3.1 square miles within the 12.7 mile 2006 DCA as shown in Exhibit 1, the City shall install and fully operate all BACM by December 31, 2015, except for any Managed Vegetation BACM within this area, for which the City shall install all infrastructure and plant materials by December 31, 2015, and achieve fully-compliant Managed Vegetation BACM as set forth in Paragraph 10 by December 31, 2017. This Paragraph is further subject to the exception for Phase 7b areas set forth in Paragraph 2.

C. On 0.5 square-miles on the south end of Owens Lake known as the “Channel Area,” the City shall continue to operate and maintain dust controls using application of water to enhance existing vegetation coverage as required to comply with the MDCE performance standards set forth in the 2008 SIP Order and shown in Exhibit 2.

D. On the 2.0 square miles known as the Phase 8 area identified in Board Order #110317-01, the City shall continue to operate and maintain Gravel Blanket BACM as set forth in Paragraph 11.

2. Phase 7b Cultural Resource Areas

A. For the Phase 7a project area delineated in Exhibit 1, certain subareas contain cultural resources that qualify the subarea as an "Eligible Cultural Resource Areas" under the provision of the California Register of Historic Resources. These areas are designated as "Phase 7b" areas and were removed from the Phase 7a area for controls by Board Order #130916-01.

B. The District Board will decide at a later date whether PM_{10} controls are required in the Phase 7b areas in order to attain and maintain the NAAQS and State Standard after following the process described in Board Order #130916-01, and if necessary will issue a separate Board Order(s) for controls in those areas.

3. Phase 9/10 Project to Implement 2011 and 2012 Supplemental Control Requirement Determinations

A. In addition to the 45.0 square miles of controls set forth in Paragraph 1, by December 31, 2017, the City shall construct and permanently operate a PM_{10} control project by selecting and installing BACM on 3.62 square miles of lakebed areas identified in the 2011 Supplemental Control Requirements Determination (SCRD) and 2012 SCRD (collectively referred to as the "Phase 9/10" areas). With the exception of Eligible Cultural Resource Areas removed from the Phase 7a area under the provisions set forth in Paragraph 2, the Phase 9/10 areas shall bring the total area of the City's dust controls on the Owens Lake bed to 48.6 square miles. The construction deadline set forth in this paragraph is subject to the Force Majeure and Stipulated Penalties provisions set forth in Paragraphs 16 and 17.

B. The City may submit an application to the District's Air Pollution Control Officer (APCO) to approve modifications to the City's proposed Phase 9/10 project or measures on certain areas that are determined to contain significant cultural resources. The District shall consider and decide the City's application under the procedures contained in the 2013 Stipulated Abatement Order #130819-01.

C. The Phase 9/10 project will use dust control measures that are waterless or "water neutral" by offsetting any new or increased water use with water savings elsewhere on the lakebed.

4. Minor adjustments to PM_{10} control area boundaries – Upon written request by the City to the District and written approval by the District's APCO, minor adjustments may be made to the interior and exterior boundaries of the Phase 9/10 project area to avoid impacts to existing resources or features, or for constructability reasons, which approval shall not be unreasonably withheld. The City shall demonstrate by District-approved modeling that such adjustments do not have an impact on the ability of the Phase 9/10 area to meet the PM_{10} control performance requirements.

PM_{10} CONTROL MEASURES

5. The City shall implement BACM PM_{10} control measures as set forth in this Order and as described below in Paragraphs 9 through 11, or where allowed by the District, the MDCE BACM PM_{10} control measures described in Paragraph 12.

6. All PM_{10} control measures within the 12.7 square mile 2006 Supplemental DCA identified in Paragraph 1.B shall be designed, constructed, installed, operated and maintained by the City to achieve at least the initial target shown in Exhibit 2. MDCEs are the actual dust control measures control efficiencies required to meet the PM_{10} NAAQS, based on data collected during the four-year period between July 2002 and June 2006.

7. To complete implementation of a specified control measure by a date as required by this Order means that the control measure shall be constructed, installed, operated and maintained without interruption, so as to comply with the performance standards for the specified control measure no later than 5:00 p.m. on the required date.

CONTINGENCY PM_{10} CONTROL MEASURES

8. Additional BACM Contingency Measures to meet National Ambient Air Quality Standards (Clean Air Act Section 172(c)(9), 42 U.S.C. § 7502(c)(9).)

A. To provide the emission reductions necessary to meet the NAAQS and State Standard in the OVPA, the APCO may order the City on or any time after January 1, 2016 to implement BACM PM_{10} control measures on additional areas on the dried Owens Lake bed from those implemented under Paragraphs 1-3 of this order (BACM Contingency Measures). The City may be ordered to implement BACM Contingency Measures such that the total area where the City shall implement BACM PM_{10} controls is up to 53.4 square miles, and the City shall comply with those orders without appeal. These control areas need not be contiguous.

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B. The District will not order the City to implement mitigation measures on additional areas on the lakebed beyond the total area of 53.4 square miles under Health & Safety Code Section 42316 or any other law, to control windblown dust emissions (including PM_{10}, $PM_{2.5}$ or any speciated components or products of PM). The provisions in this paragraph do not apply to fee orders issued to the City under Health & Safety Code Section 42316, or any orders for areas that are not on the dried Owens Lake bed.

C. At least once in every calendar year, the APCO will make a determination as to whether BACM Contingency Measures are to be ordered. Any BACM Contingency Measure orders shall be based on evidence presented to the APCO that the area considered for such order has caused or contributed to an exceedance of the NAAQS or State Standard, as described in Attachment B, the "2016 Owens Valley Planning Area Additional BACM Contingency Measures Determination Procedure."

D. Source areas that cause or contribute to a monitored or modeled exceedance of the NAAQS or State Standard may be new source areas, or may be areas with existing dust controls. For emissions from areas with existing dust controls, the City will have the choice of increasing the controls in the existing dust control areas or controlling other contributing sources that will result in lowering the monitored impact below the NAAQS or State Standard, if such areas exist. If the City chooses to increase the controls in existing areas, it shall prepare and submit a written application to the APCO that contains District-approved modeling which demonstrates that the monitored impact can be reduced below the NAAQS by increasing the controls in existing dust control areas. The APCO has sole discretion whether to approve or disapprove the application.

E. The BACM Contingency Measures shall be limited to the Owens Lake bed below the Regulatory Shoreline elevation of 3,600.00 feet above mean sea level (amsl) and above the natural brine pool ordinary high water elevation of 3,553.55 feet amsl.

F. The BACM Contingency Measures areas will be controlled with waterless or water-neutral dust control measures by offsetting any new or increased water use with water savings elsewhere on the lakebed. The City is solely responsible for securing all permissions and authorizations necessary for those water savings. Failure or inability to secure such permissions and authorizations shall not relieve the City from its obligation to timely install and operate the ordered Contingency Measures. This paragraph is subject to the provisions of Paragraph 16 if they are applicable.

G. The implementation of BACM Contingency Measures will be considered contingency measures under Section 172(c)(9) of the federal Clean Air Act. Although the City may provide comment on a proposed BACM Contingency Measures order by the APCO, the City shall not appeal or contest the APCO's order for dust controls included in the combined 53.4 square miles now or in the future in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

H. All BACM Contingency Measures shall be installed by the City and be operational within three years of the date that the APCO orders the City to implement them, except that if the City selects the use of BACM Managed Vegetation in Paragraph 10 for any of the areas ordered for BACM Contingency Measures, the City shall have all infrastructure and plants in place within three years, but will be allowed an additional two years to achieve full vegetation-cover compliance as set forth in Paragraph 10. The implementation deadline set forth in this paragraph is subject to the Force Majeure and Stipulated Penalties provisions set forth in Paragraphs 16 and 17. The City shall be solely responsible for all CEQA compliance, and to the extent joint documents are prepared under CEQA and NEPA, for CEQA/NEPA compliance, and other lease/permit requirements associated with any Contingency Measure projects.

I. Within 60 days of the date that the APCO orders the City to implement the BACM Contingency Measures, the City shall prepare and submit for the APCO's consideration and written approval, which approval shall not be unreasonably withheld, a Remedial Action Plan (RAP) that specifies the type and location of BACM to be installed and provides for the full and timely completion of those measures. The plan shall contain intermediate milestones specifying the completion dates for CEQA/NEPA compliance, construction bid award and control measure compliance.

J. Cultural and biological resource protection and mitigation shall be incorporated to the extent feasible as required by law into the design of Contingency Measure control areas.

<u>PM_{10} CONTROL MEASURES</u>

9. <u>BACM Shallow Flooding</u>

A. The "Shallow Flooding" PM_{10} control measure will apply water to the surface of those areas of the lake bed where Shallow Flooding is used as a PM_{10} control measure. Water shall be applied in amounts and by means sufficient to achieve the performance standards set forth in Paragraphs 9.B through 9.G below. The dates by which Shallow Flooding areas are to comply with these performance standards may be modified by the Dynamic Water Management provisions set forth in Paragraph 9.F.

B. For all Shallow Flooding areas except those within the 2006 DCA as referenced in Paragraph 1.B:

i. At least 75 percent of each square mile designated as BACM Shallow Flooding areas shall continuously consist of standing water or surface-saturated soil, substantially evenly distributed for the period commencing on October 16 of each year, and ending on May 15 of the next year. For these Shallow Flood dust control areas, 75 percent of each entire contiguous area shall consist of substantially evenly distributed standing water or surface-saturated soil.

ii. Beginning May 16 and through May 31 of every year, Shallow Flooding areal wetness cover may be reduced to a minimum of 70 percent.

iii. Beginning June 1 and through June 15 of every year, Shallow Flooding areal wetness cover may be reduced to a minimum of 65 percent.

iv. Beginning June 16 and through June 30 of every year, Shallow Flooding areal wetness cover may be reduced to a minimum of 60 percent.

v. If for any Shallow Flooding area, the percent of areal wetness cover in the periods specified in Paragraphs 9.B.ii, iii, and iv, above, is below the minimum percentages specified for each BACM Shallow Flood area based on satellite imagery, and there were no monitored or modeled exceedances of the NAAQS at or above elevation 3,600 feet above mean sea level (Regulatory Shoreline), that area will be deemed to be in compliance, if the City demonstrates in writing and the APCO reasonably determines in writing that maximum water delivery flows were maintained throughout the applicable period.

C. For Shallow Flooding areas within the 12.7 square-mile 2006 DCA referenced in in Paragraph 1.B:

i. The percentage of each area that must have substantially evenly distributed standing water or surface-saturated soil shall be based on the Shallow

Flood Control Efficiency Curve (SFCE Curve) attached as Exhibit 3 to achieve the control efficiency levels in the MDCE Map (Exhibit 2).

ii. For only those Shallow Flooding areas with control efficiencies of 99 percent or more:

a. Beginning May 16 and through May 31 of every year, Shallow Flooding areal wetness cover may be reduced to a minimum of 70 percent.

b. Beginning June 1 and through June 15 of every year, Shallow Flooding areal wetness cover may be reduced to a minimum of 65 percent.

c. Beginning June 16 and through June 30 of every year, Shallow Flooding areal wetness cover may be reduced to a minimum of 60 percent.

d. If for any Shallow Flooding area, the percent of areal wetness cover in the periods specified in Paragraph 9.B.ii, iii and iv, above, is below the minimum percentages specified for each shallow flood area based on the air quality model for the analysis period, and there were no monitored or modeled exceedances of the NAAQS at or above the Regulatory Shoreline, that area will be deemed to be in compliance if the City demonstrates in writing and the APCO reasonably determines in writing that maximum water delivery flows were maintained throughout the applicable period.

D. Tillage With Shallow Flood BACM-Backup

i. The City may implement or transition BACM Shallow Flood areas to "Tillage with Shallow Flood BACM Back-up (TWB^2)," which shall consist of (1) soil tilling within all or portions of Shallow Flood BACM PM_{10} control areas (TWB^2 Areas), and (2) the installation of all necessary shallow flood infrastructure so that the TWB^2 Areas can be shallow-flooded if ordered by the APCO as provided in Paragraph 9.D.v below. The City shall at all times operate and maintain all TWB² areas so that they do not cause or contribute to exceedances of the NAAQS or State Standard.

ii. The City shall have the sole responsibility to obtain all required approvals and permits required by law for TWB². The District will support the City's efforts to obtain these approvals and permits in compliance with the law.

iii. The City's selection and implementation of TWB² shall comply with the procedures in Attachment A, Stipulated Judgment Attachment B, "Protocol for Operation and Maintenance of Owens Lake Tillage with BACM Backup" (TWB² Operations Protocol). The TWB² Operations Protocol shall address site selection, site dry-down, and measures to prevent untilled drying surfaces from becoming emissive during dry-down, tilling, maintenance and rewetting. The City shall have sole discretion to modify the TWB² Operations Protocol as necessary to ensure efficient operation of TWB².

iv. The District's monitoring and enforcement of TWB² Areas will comply with Attachment A, Stipulated Judgment Attachment C, the "Protocol for Monitoring and Enforcing Owens Lake Tillage with BACM Backup" (TWB² Monitoring Protocol). The TWB² Monitoring Protocol describes the data to be collected and methods of analysis to determine if TWB² areas on the Owens Lake bed need maintenance and/or reflooding in order to maintain or reestablish control efficiency for compliance with the NAAQS or State Standard. Based on data and after consulting with the City, the APCO shall have sole discretion to modify the TWB² Monitoring Protocol in writing as necessary to ensure air quality protection.

v. The APCO may order, and the City is required to reflood a TWB² area as provided in the TWB² Monitoring Protocol. Within 37 days of written order by the APCO that a TWB² area must be reflooded, the City shall complete reflooding of that area in accordance with approved Shallow Flooding BACM requirements.

vi. The City shall not appeal or contest the TWB^2 Protocol, any revisions to that protocol that comply with this Paragraph 9.D, or the APCO's order to reflood a TWB^2 area now or in the future in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316, except the City may contest an APCO order to reflood a TWB^2 area on the sole basis that the APCO did not follow the TWB^2 Monitoring Protocol. Such a challenge shall be brought exclusively to Sacramento County Superior Court to enforce the 2014 Stipulated Judgment, and not by an appeal under Health & Safety Code Section 42316 or by any challenge in any other administrative or judicial forum. Any such appeal shall not relieve the City of the duty to reflood a TWB^2 area within 37 days of a written order from the APCO unless the City seeks and obtains an injunction from the Court before the expiration of the 37-day period to enjoin the reflooding.

vii. The District and City shall conduct periodic joint inspections of the TWB^2 Areas by the District and the City. The District will provide the City with at least 24-hour notification of the time and location of the District's TWB^2 field inspections and testing.

viii. The City may at its discretion file an application with the District to seek approval of tillage without shallow flooding backup as BACM by following the procedures in Paragraph 13.

E. <u>Brine BACM</u>. The City may use the "Brine BACM" as a Shallow Flooding BACM in areas that meet the definition for Brine BACM.

i. For an area to qualify for Brine BACM, it must satisfy all of the criteria in Attachment E, "2016 Brine BACM."

ii. The APCO will determine whether the criteria for Brine BACM at any location in a brine shallow flood area are satisfied and shall inform the City of the determination in writing.

iii. The APCO may order the City to shallow flood any Brine BACM area or any emissive portion thereof if any of the following criteria are met.

1) The APCO determines that emissive surface conditions exist in the area as determined by the Induced Particulate Erosion Test procedures in the TWB[2] Monitoring Protocol at Attachment A, SJ Attachment C; or

2) The APCO determines that sand flux greater than 5 g/cm2/day is measured in that area.

3) The APCO determines that the total surface cover of qualifying stable brine surfaces has been reduced to less than 60% of the areal extent of areas requiring 99% control or more than a 10% loss of control efficiency for areas requiring less than 99% control. The relationship between total surface cover and control efficiency shall be determined by the most current approved Shallow Flooding curve. In these cases of reduced surface coverage, there does not need to be emissive surface conditions as determined by the Induced Particulate Erosion Test or sand flux greater than 5 $g/cm^2/day$.

iv. If the APCO determines that Paragraph 9.E.iii.1, 9.E.iii.2 or 9.E.iii.3 are met, the APCO will give written notice to the City that the area must meet the Shallow Flood BACM requirements for that area within 37 days.

v. The City may comment upon the APCO's determination for Brine BACM areas or orders to shallow-flood an area, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

F. Dynamic Water Management. Dynamic Water Management (DWM) allows the APCO to delay the start dates and/or advance the end dates set forth in Paragraph 1.A and 1.B for shallow flooding on non-emissive years to save water if the modification can be shown to have no effect on performance standards or the dust control measure efficiencies required to meet the PM_{10} NAAQS.

i. For an area to qualify for DWM, it must satisfy all of the criteria in Attachment F, the "2016 Owens Lake Dynamic Water Management Plan."

ii. The APCO shall determine whether the criteria for DWM are satisfied and shall inform the City of the determination in writing. The City may comment upon the APCO's determination, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

iii. If an area is approved for DWM, the City shall comply with the following requirements:

1) Each year, the area must meet shallow flood wetness targets by or before the approved DWM start day, and may be shut off with no spring season ramping requirements after April 30.

2) Each year, areas irrigated with sprinklers must meet shallow flood wetness targets by or before two weeks before the approved DWM start day, and may be shut off with no spring ramping requirements after May 31.

3) The APCO may order and the City is required to implement BACM Shallow-Flooding on the DCM area or portion thereof if the APCO determines that emissive surface

conditions exist in that area as determined by the Induced Particulate Erosion Test procedures in the TWB[2] Monitoring Protocol. In this event, the APCO will give notice to the City that the area must meet the wetness target within 15 days if the area is less than or equal to 25 percent of the DWM area, 21 days if the area is greater than 25 percent of the DWM area. Sprinkler irrigated areas ordered by the APCO for BACM Shallow Flooding must meet the wetness target within 15 days regardless of the amount of area ordered.

4) The APCO may order and the City is required to implement BACM Shallow-Flooding on the DCM area or portion thereof if the APCO determines that sand flux greater than 5 g/cm2/day is measured in that area. In this event, the APCO will give notice to the City that the area must meet the wetness target within 15 days if the area is less than or equal to 25 percent of the DWM area, 21 days if the area is greater than 25 percent of the DWM area. Sprinkler irrigated areas ordered by the APCO for BACM Shallow Flooding must meet the wetness target within 15 days regardless of the amount of area ordered.

5) If any DWM area or portion thereof become emissive and is therefore issued a reflood order by the APCO more than once in a continuous six-year period, these areas will revert to the standard shallow flood period of October 16 through June 30 and will no longer be eligible for DWM.

6) If any DWM area or portion thereof becomes emissive and is therefore issued a reflood order by the APCO less than

once in a continuous six-year period, that reflood order shall only apply to the modified start or end period upon which the area was identified for re-flooding and not to the entire dust year.

G. If air quality modeling or monitoring data shows an exceedance or exceedances of the NAAQS or State Standard at or above the Regulatory Shoreline as a result of excessive dry areas within Shallow Flooding control areas during the dust control periods for each year and the APCO determines that existing PM_{10} control measures require a higher level of control efficiency, the City shall increase the control efficiency of those measures within one month of its receipt of a written determination by the APCO informing the City of this determination if more water application is needed to overcome evapotranspiration, or within 12 months of a written determination if land leveling or the installation of more laterals to the water delivery systems are needed, and maintain that higher control efficiency until the APCO determines that a reduced control efficiency is appropriate. The City may comment upon the APCO's determination, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

H. From July 1 through October 15 of each year, the District does not require the City to apply water to Shallow Flooding areas for dust control purposes. The City shall comply with all other permits, conditions and requirements.

I. Aerial photography, satellite imagery or other methods approved at the sole discretion of the APCO shall be used to confirm wetness coverage.

J. The following portions of the areas designated for control with Shallow Flooding are exempted from the requirement of dust control by means of a saturated surface:

i. Raised berms, roadways and their shoulders necessary to access, operate and maintain the control measure which are otherwise controlled and maintained to render them substantially non-emissive and

ii. Raised pads containing vaults, pumping equipment or control equipment necessary for the operation of Shallow Flooding infrastructure which are otherwise controlled and maintained to render them substantially non-emissive.

K. "Substantially non-emissive" shall mean that the surface is protected with gravel, durable pavement or other APCO-approved surface protections sufficient to meet the requirements of District Rules 400 and 401 (visible emissions and fugitive dust).

L. Excess surface water and shallow groundwater above the annual average water table that existed before site construction that reach the lower boundary of the DCM areas will be contained, collected and recirculated for reapplication to dust control areas or otherwise lawfully discharged. The DCM areas shall contain excess waters in the control areas and isolate the dust control measure areas from each other and from areas not controlled by the use of lateral boundary edge berms and/or drains or other equally effective measures. If drains are used, they shall be designed and constructed so that they may be regulated such that groundwater levels, surface water extent and wetlands in adjacent uncontrolled areas are not impacted. These requirements do not apply to Shallow Flood area T36-4 because of to its adjacency to the Lower Owens River Project (LORP) and the City's intention to integrate the design and operation of T36-4 into the LORP.

M. The City shall remove all exotic pest plants, including salt cedar (Tamarix ramosissima), that invade any of the areas designated for control by Shallow Flooding.

N. As necessary to protect human health, the City shall prevent, avoid and/or abate mosquito, other pest vector and biting nuisance insect breeding and swarming within and in the vicinity of the PM_{10} control areas where water is applied for dust control purposes, including within communities less than three miles from those areas, by effective means that minimize adverse effects upon adjacent wildlife.

10. BACM Managed Vegetation

A. For all areas controlled with the Managed Vegetation BACM, the areas shall be operated and maintained in accordance with the Managed Vegetation Operation and Management Plan approved by the District in Board Order #110718-04. This Order provides for a mix of minimum vegetation covers that mimic the cover distribution of existing non-emissive Managed Vegetation controls on the lakebed. Areas controlled with Managed Vegetation BACM shall maintain a minimum overall average vegetation cover of 37 percent for each contiguous Managed Vegetation area. The cover at any point within that area can vary from the average as set forth in Paragraph 10.B.

B. Areas controlled with the Managed Vegetation BACM will be considered compliant when the vegetative cover requirements in Table 10.1 are maintained on the area. Vegetative cover compliance is to be determined based on a satellite image of the area taken between September 21 and December 21 of each year. The image shall be ground-truthed, calibrated, and validated by reference to measurements made by point frame or by equivalent methods approved by the APCO. Vegetative cover provided by any approved locally adapted native plant species will count toward compliance in any Managed Vegetation area. Vegetative cover must average 37 percent. However, it is recognized that over-control in some portions of a control area can offset under-control in other areas, as long as under-controlled areas are not large enough to become emissive. Table 10.1 provides for a range of allowable covers across multi-sized grids to ensure coverage distributions are sufficient to prevent PM_{10} emissions.

TABLE 10.1 Managed Vegetation BACM Vegetative Cover Criteria

Grid Scale	Average	>5% cover	>10% cover	>20 % cover

(acres)	(minimum % cover)	(minimum % of DCM area)		
0.1	37	92	83	65
1	37	94	87	68
10	37	95	89	74
100	37	95	90	77.

C. The vegetation planted for dust control shall consist only of locally-adapted native species approved by both the APCO and the California State Lands Commission (CSLC). As of January 1, 2016, a plant list of 48 native species has been approved. Other appropriate species may be approved only upon written request of the City and written approval of the APCO.

D. Vegetation coverage shall be measured by the point-frame method, by ground-truth remote sensing or by other methods approved at the sole discretion of the APCO.

E. The following portions of the areas designated for control with Managed Vegetation are exempted from the requirements set forth in Paragraphs 10.A. above:

i. Portions consistently inundated with water, such as reservoirs, ponds and canals;

ii. Roadways and equipment pads necessary to access, operate and maintain the control measure which are otherwise controlled and maintained to render them substantially non-emissive; and

iii. Portions used as floodwater diversion channels or desiltation/retention basins.

F. “Substantially non-emissive” shall be defined to mean that the surface is protected with gravel, durable pavement or other APCO-approved surface protections sufficient to meet the requirements of District Rules 400 and 401 (visible emissions and fugitive dust).

G. Excess surface water and shallow groundwater above the root zone depths that reach the lower boundary of the dust control areas shall be collected and recirculated for reapplication to dust control areas or otherwise lawfully discharged. The DCM areas shall contain excess waters in the control areas and isolate the dust control measure areas from each other and from areas not controlled by the use of lateral boundary edge berms and/or drains or other equally effective measures. Drains shall be designed and constructed so that they may be regulated such that groundwater levels, surface water extent and wetlands in adjacent uncontrolled areas are not impacted.

H. To protect the Managed Vegetation control measure from flood damage and alluvial deposition, the City shall incorporate stormwater and siltation control facilities into and around Managed Vegetation areas adequate to maintain the dust mitigation function of Managed Vegetation. The Managed Vegetation protection facilities shall be designed to dissipate flood waters and capture the alluvial material carried by flood waters, so as to avoid greater than normal water flows and deposition of alluvial material into the Owens Lake brine pool.

I. The City shall remove all exotic pest plants, including salt cedar (Tamarix spp.), that invade any of the areas designated for control by Managed Vegetation.

J. As necessary to protect human health, the City shall prevent, avoid and/or abate mosquito, other pest vector and biting nuisance insect breeding and swarming within and in the vicinity of the PM_{10} control areas where water is applied for dust control purposes, including within communities less than three miles from those areas, by effective means that minimize adverse effects upon adjacent wildlife.

K. If air quality modeled or monitoring data shows an exceedance or exceedances of the PM_{10} NAAQS at or above the Regulatory Shoreline as a result of emissions from bare or vegetated areas and the APCO determines that existing PM_{10} control measures require a higher level of control efficiency, the City shall increase the control efficiency of those measures upon written determination by the APCO informing the City of this determination within 36 months by enhancing, restoring or establishing necessary vegetation coverage or within1 to 6 months to stabilize areas by other means. The City may comment upon the APCO's determination, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

11. BACM Gravel Blanket

A. In areas where Gravel Blanket is used as a PM_{10} control measure, the City shall meet one of the following two performance standards:

i. The entire 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 one-half inch (½ inch) in diameter. Where it is necessary to support the gravel blanket, it shall be placed over a permanent permeable geotextile fabric; or

ii. The entire control area shall be covered with a layer of gravel at least two inches thick underlain with a permanent permeable geotextile fabric. All gravel material placed must be screened to a size greater than one-half inch (½ inch) in diameter.

B. All gravel shall be durable have resistance to leaching and erosion. It shall be as durable and no more toxic than the gravel from the Keeler fan site analyzed by the District in the Final Environmental Report prepared for the 1997 SIP and comply with all other permits, conditions and requirements.

C. All geotextile fabric used under Gravel Blanket BACM shall be Class I woven or nonwoven geotextile fabric meeting the minimum specifications set forth in the National Standard Materials Specification "Material Specification 592—

Geotextile" (National Engineering Handbook, Chapter 3, Part 642), or equivalent as approved by the APCO.

D. To protect the Gravel Blanket control measure from flooding, the City shall incorporate drains and channels into and around the control measure areas adequate to maintain the dust mitigation function of the Gravel Blanket, and outlet flood waters into the Owens Lake brine pool, Shallow Flooding areas, or reservoirs. The drains and channels shall be designed to incorporate features such as desiltation or retention basins that are 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.

E. The gravel placement design and implementation shall adequately protect the graveled areas from the deposition of wind- and water-borne soil, settling of gravel into lakebed sediments or infiltration of sediments from below. All graveled areas will be visually monitored by the City at least annually to ensure that the Gravel Blanket is not filled with sand, dust or salt and that it has not been inundated or washed out from flooding. If any of these conditions are observed over areas larger than one acre, additional gravel will be transported by the City to the playa and applied to the playa surface such that the original performance standard is re-established within four months per square mile of gravel cover, or within thirty-six months per square mile of gravel cover if replaced by different BACM (such as shallow flooding or managed vegetation), of written notice from the APCO. The City may comment upon the APCO's determination, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

Deleted: of written notice from the APCO

F. The City shall apply BACM for fugitive dust sources (see WRAP Fugitive Dust Handbook, Western Governors' Association, 2006) and New Source Performance Standard (NSPS) emission limits to its gravel mining and transportation activities occurring within the District's geographic boundaries as required by the District in the City's District-issued Authority to Construct and Permit to Operate.

12. MDCE BACM Control Measures

A. As referenced in Paragraph 1, the T1A-1 sand fence (0.39 square miles) and Channel Area (0.5 square miles) PM_{10} control measures are currently dust control areas with MDCE BACM in operation. For these dust control areas only, MDCE BACM will continue to be operated to meet the required MDCE performance standards shown in Exhibit 2.

B. For areas of MDCE BACM that do not meet the MDCE performance standards or that cause or contribute to an exceedance of the federal 24-hour PM_{10} NAAQS or State Standard, as solely determined by the APCO using monitoring or an approved model, the City shall increase the control efficiency of those measures as directed by the APCO in writing to meet the performance standards of the approved BACM. The APCO's determination shall specify the increase in control efficiency required and the time allowed for such increase. The City may comment upon the APCO's determination, but shall not appeal or contest that determination in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

NEW BACM, ADJUSTMENTS TO EXISTING BACM, AND BACM TRANSITIONS.

13. Upon written request by the City, the District may approve new BACM, a modification or adjustment to the existing BACMs described in Paragraphs 9, 10, 11 and 12 of this Order, and/or the transition from one BACM to another provided that, at all times, the performance standards of one or the other BACM are continuously met during the transition to assure that the transition shall not prevent the OVPA from attaining or maintaining the NAAQS or State Standard for PM_{10}. The City's request shall contain a detailed description of the proposed alternative and a demonstration that the request satisfied all requirements of law and this Order.

A. The APCO shall have full discretion to consider any such application for a change in BACM, and to accept, reject or condition its approval of such application. Non-compliance with any such condition shall be enforceable as noncompliance with a District Order. Without limiting the District's discretion as provided herein, the procedures for transitions of implemented control measures or adjustments to BACM shall be those described in Attachment D, "2016 Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area."

B. The District will review new or refined dust control measures proposed by the City, and will approve a measure as BACM if the District determines that the measure is consistent with the EPA's interpretation of the term Best Available Control Measure under the federal Clean Air Act and its implementation as required for the Owens Valley nonattainment area. In assessing whether a dust control measure (including a new measure or extension of a previously identified measure to a new area) is BACM, the District will consider the technological feasibility of the measure, as well as energy, environmental, and economic impacts and other costs.

C. If the City wishes to transition from one existing BACM to another BACM without meeting the performance standards of either BACM at all times, the Transition Area project size shall be limited to a maximum size of 3.0 square-miles at one time as provided for in Attachment D, "2016 Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area." The 3.0 square mile Transition Area limit shall be in addition to the TWB[2] Areas implemented by the City.

D. The City shall control emissions during Transition Area project construction periods as provided in Attachment D, the "2016 Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area" at Section 3.

E. The City shall only conduct construction of any Transition Area project between July 1 of year when on-site work on the project begins, through December 31 of the next year when all such work shall be completed and the new controls shall be fully installed and operational. The completion deadline set forth in this paragraph is subject to the Force Majeure and Stipulated Penalties provisions set forth in Paragraphs 16 and 17.

MONITORING

14. The District may locate PM_{10} air monitors on City-occupied or unoccupied property in communities located in the OVPA at the District's sole discretion. The City shall provide electric power to those monitors if such power source is under the City's control and shall not interfere with the operation of those monitors, cut off their power supply (except for planned or emergency system outages), or take any other action to evict or remove the monitors.

STORMWATER MANAGEMENT

15. The City shall design, install, continually operate and maintain flood and siltation control facilities to protect the all PM_{10} control measures installed on the lake bed at all times, and in a manner that groundwater levels, surface water extent, and wetlands in adjacent uncontrolled areas are not impacted by induced drainage.

A. Flood and siltation control facilities shall be integrated into the design and operation of the PM_{10} control measures. All flood and siltation control facilities and PM_{10} control measures damaged by stormwater runoff or flooding shall be promptly repaired and restored to their designed level of protection and effectiveness.

B. All flood and siltation control facilities shall be designed and operated in a manner to prevent any greater threat of alluvial material contamination to the existing trona mineral deposit lease area (State Lands Commission leases PRC 5464.1, PRC 3511 and PRC 2969.1) than would have occurred under natural conditions prior to the installation of PM_{10} control measures.

FORCE MAJEURE

16. Force Majeure

A. "*Force Majeure*" as used in the paragraphs above relating to the Phase 9/10 project (Paragraph 3.A), BACM Contingency Measure projects (Paragraph 8.H), and Transition Area projects (Paragraph 13.E), is defined as one of the following events that prevents the City's performance of the specified act by the deadline set forth in that Paragraph: (i) any act of God, war, fire, earthquake, windstorm, flood, severe drought that is declared as an official state of emergency by the Governor of the State of California, or natural catastrophe; (ii) unexpected and unintended accidents (excluding those caused by the City or the negligence of its agents or employees); civil disturbance, vandalism, sabotage or terrorism; (iii) restraint by court order or public authority or agency; (iv) action or non-action by, or inability to obtain the necessary authorizations or approvals from any governmental agency, provided that the City demonstrates it has made a timely and complete application to the agency and used its best efforts to obtain that approval, or (v) the inability to obtain private property owner access, provided that the City demonstrates it has made a timely and complete request to the owner, and used its best efforts to obtain that access. Force Majeure shall not include normal inclement weather, other asserted shortages of water, economic hardship or inability to pay.

B. The City's performance of its duties under Paragraph 16.A will be temporarily postponed only during the condition of Force Majeure, but not excused, and the City will continue to be responsible to recommence performance of its actions to comply with the deadlines at the end of the Force Majeure event. The deadlines for performance shall automatically be extended by the period of interruption caused by the Force Majeure event. The City shall exercise due diligence to resolve and remove any Force Majeure event. Nothing in this paragraph shall be interpreted to relieve the City of its obligations and duties under all applicable laws.

C. Any party seeking to rely upon this paragraph to excuse or postpone performance under Paragraph 16.A shall have the burden of establishing each of these elements to the Sacramento Superior Court with jurisdiction over the 2014 Stipulated Judgment in the case captioned *City of Los Angeles v. California Air Resources Board et al.*, Case No. 34-2013-80001451-CU-WM-GDS, and that it could not reasonably have been expected to avoid the event or circumstance, and which by exercise of due diligence has been unable to overcome the failure of performance.

17. Stipulated Penalties

A. The City shall be subject to notices of violation from the APCO and stipulated daily penalties for failure to meet dust control measure construction completion deadlines set forth in this Stipulated Judgment for the Phase 9/10 project (Paragraph 3.A), BACM Contingency Measure projects (Paragraph 8.H), and Transition Area projects (Paragraph 13.E), except as excused by a condition of Force Majeure as defined in Paragraph 16.A. The amount of the daily penalty shall be determined by the following formula:

Stipulated daily penalty (\$/day) = \$10,000 – \$4500 (A_C/A_R),

where

A_C = Dust control area required by the APCO that is completed and compliant (square miles), and

A_R = Total dust control area required by the APCO (square miles).

B. The City shall pay any stipulated daily penalties within 90 days of any notice of violation from the APCO for failure to meet these deadlines. The City shall not challenge or oppose its duty to pay the stipulated daily penalty in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316(b).

C. This Paragraph 17 applies only to the failure to meet dust control measure completion deadlines as set forth in Paragraph 16.A and does not apply to any other notice of violation or enforcement of laws by the District or its APCO.

PERFORMANCE MONITORING PLAN

18. The City, in consultation with the District, shall develop and provide to the District in writing a Performance Monitoring Plan (PMP) to aid in its operation of the Owens Lake dust mitigation program on the Owens Lake bed.

A. The PMP shall describe the measurements and methods used to verify the performance of the constructed dust control measures. The PMP shall also describe the measurements and methods used to maximize information on dust emissions from any areas of special interest. The PMP shall require the City to make an annual report to the District regarding the measurements and methods used to verify the performance of the constructed dust control measures.

B. The City shall implement the PMP, and will use the results as a guide for making operational decisions about the type, location, timing, and level of dust control measures needed to comply with this Order.

C. The PMP report for each calendar year shall be submitted to the APCO by March 31 of the following calendar year.

ADDITIONAL REQUIREMENTS

19. The District Board orders the City of Los Angeles to satisfy the following requirements related to all control measures:

A. The City's construction, operation and maintenance activities shall comply with all Mitigation Measures set forth in Final Environmental Impact Reports, EIR Addendums and Mitigated Negative Declarations associated with the areas on which dust controls are placed, and all subsequent environmental documents adopted by the District for implementation of the requirements of this SIP.

B. The City shall comply with any and all applicable requirements of the Mitigation Monitoring and Reporting Programs adopted by the District as a lead or responsible agency and associated with the Final Environmental Impact Reports and Final Environmental Impact Report Addendums for this project, and with all subsequent environmental documents adopted by the District for implementation of the requirements of this SIP. All mitigation measures required in certified environmental documents associated with the implementation, operation and maintenance of PM_{10} control measures required by this order are hereby incorporated as requirements of this order and may be enforced as such.

C. The City shall apply BACM to control air emissions from its construction/implementation activities occurring in the District's geographic boundaries. This provision applies to any activities that may emit air pollution and are associated with dust control projects at Owens Lake such as gravel mining, cement and asphalt plants, or construction activities. These operations could take place outside of the Owens Valley Planning Area, *e.g.* in the City of Bishop. BACMs appropriate for these activities have and will continue to be included as conditions on District-issued permits to operate.

<u>RETENTION OF LEGAL AUTHORITY</u>

20. If there is a change in federal or state law that requires controls in addition to those provided in this Order, then the District shall maintain its authority under Health & Safety Code Section 42316 to adopt a new order to require the City to comply with these new legal requirements. The District shall also maintain its authority under Health & Safety Code Section 42316 to order the City to control additional sources of air pollution and/or to undertake additional reasonable measures necessary to mitigate the air pollution caused in the District by the City's water-gathering activities for other areas, sources or activities that are not specifically addressed in Paragraphs 1 through 8 of this Order, or that are located outside of the Keeler, Olancha and Swansea dune areas as specified in Board Order #130916-01.

RELATIONSHIP TO BOARD ORDER 080128-01 AND STIPULATED JUDGMENT

21. This Board Order consists of the 2008 SIP Order as modified by the 2013 SIP Amendment and the Stipulated Judgment. The Stipulated Judgment is attached hereto as Attachment A, and its terms are incorporated into this Board Order as if fully set forth herein.

A. The City shall support and not challenge the adoption of this 2016 SIP Order by the District Governing Board, CARB and EPA, except that the City may challenge any new term that the City has not agreed to in advance, and that is not contained in the 2008 SIP order as modified by the 2013 Amendment and the Stipulated Judgment.

B. Except as provided in Paragraph 21.A, the City shall not appeal or contest this Board Order now or in the future in any administrative or judicial forum, under any law, statute or legal theory whatsoever including CEQA or Health & Safety Code Section 42316, and has agreed that its terms are valid and reasonable under Health & Safety Code Section 42316.

22. The District hereby stays the force and effect of Board Order #080128-01 for all times that this Order is in full force and effect. In the event this Order, or any provision of this Order, is stayed due to a legal challenge, including but not limited to a challenge to this Order under Health & Safety Code Section 42316, or any other law, to the State Implementation Plan, or to the Environmental Impact Report for this Revised SIP, or in the event the Order is disapproved by the CARB, the following shall apply:

A. The City shall continue to construct, operate and maintain all control measures implemented under the Stipulated Judgment, including but not limited to those measures implemented or required for implementation on 48.6 square miles as specified in Paragraphs 1 through 5, and 9 of this Order, without interruption.

B. Board Order #080128-01 shall immediately be in effect and shall remain in full force for the duration of any stay or, in the case of disapproval, until another Order is issued by this Board. The Stipulated Judgment shall also remain in effect. The

City shall not challenge the provisions of this Board Order or the Stipulated Judgment now or in the future in any administrative or judicial forum, under any law, statute or legal theory whatsoever including Health & Safety Code Section 42316.

23. EFFECTIVE DATE

The effective date of this Board Order shall be April 13, 2016.

APPROVED, ADOPTED and ORDERED by Governing Board of the Great Basin Unified Air Pollution Control District this 13th day of April 2016 by the following vote:

Yes:

No:

Abstain:

Approved:

____
, Chair of the Governing Board

Attest:

____
Tori DeHaven, Clerk of the Governing Board

/////

Exhibits

Exhibit 1	Map and Coordinates of PM_{10} Control Areas
Exhibit 2	Minimum Dust Control Efficiency Map
Exhibit 3	Shallow Flood Control Efficiency Curve
Exhibit 4	2016 Dynamic Water Management Areas

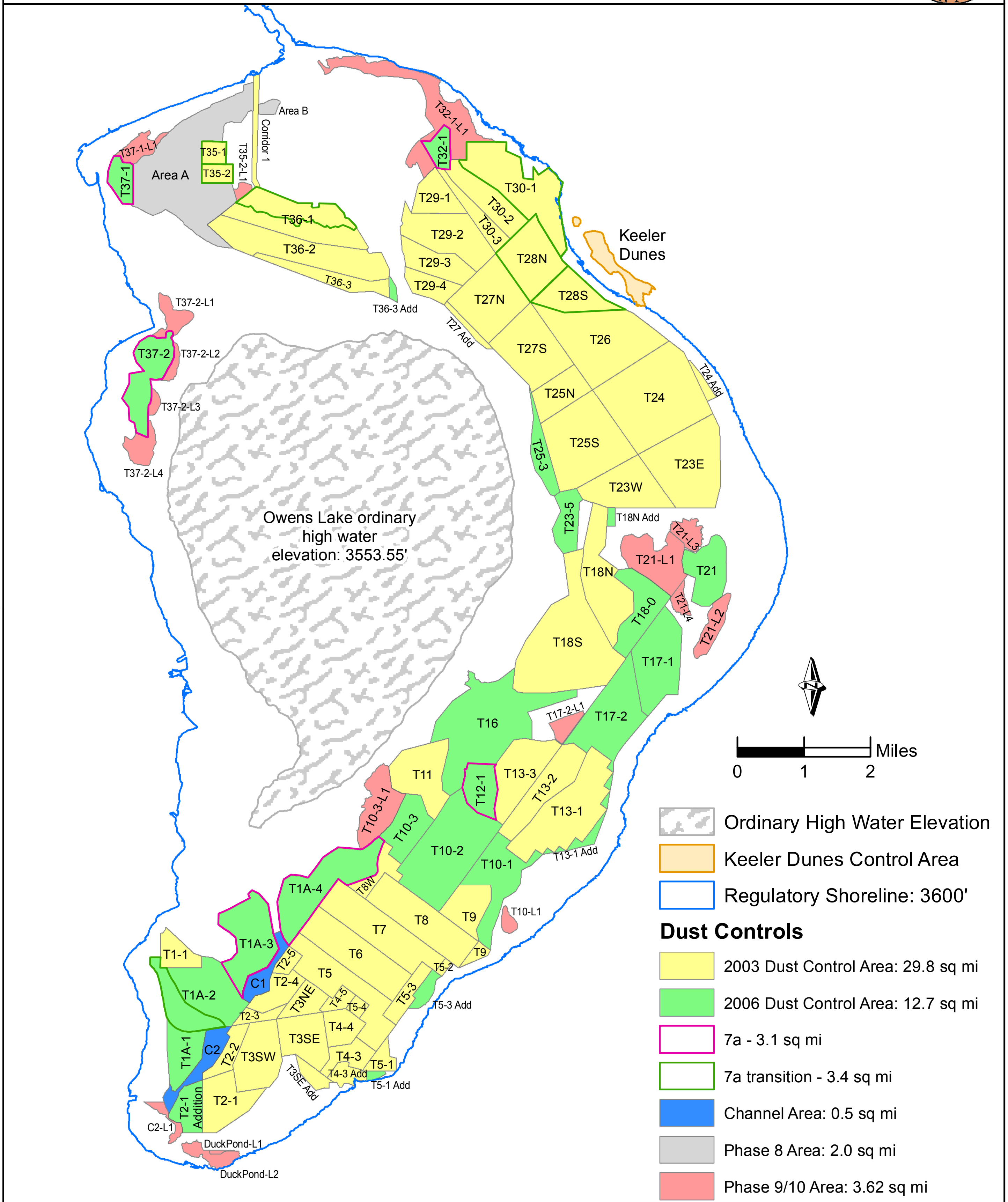
Attachments

Attachment A	Stipulated Judgment (SJ)
	SJ Attachment A – Court Final Ruling and Order
	SJ Attachment B – TwB2 Operations Protocol
	SJ Attachment C – TwB2 Monitoring Protocol.
Attachment B	2016 Owens Valley Planning Area Additional BACM Contingency Measures Determination Procedure
Attachment C	2016 Owens Lake Dust Source Identification Program Protocol
Attachment D	2016 Procedure for Modifying Best Available Control Measures (BACM) for the Owens Valley Planning Area
Attachment E	2016 Brine BACM
Attachment F	2016 Owens Lake Dynamic Water Management Plan

Commented [PK1]: Exhibit 1 PM10 Control Area and Coordinates table has been updated to capture February 4, 2016 Exhibit 1 Map changes. Updates include addition of 'Dust Control Area' headers on each page and 'BACM Type' column removal.

Great Basin Unified Air Pollution Control District

Exhibit 1 - PM10 Dust Control Areas



2/4/2016 3:02:21 PM

SIP Revision 2016 Exhibit 1 Dust Control Map 20160204.mxd

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
Corridor 1	0.14	411375.0392	4043915.7480
		411368.8821	4043685.0145
		411326.8256	4042108.9708
		411411.9449	4041944.4412
		411404.1637	4041882.1942
		411328.7980	4041911.0091
		411307.5628	4041894.7186
		411206.9290	4042044.9075
		411237.3205	4043740.6607
		411250.0279	4044449.6939
		411252.3971	4044581.8872
		411297.8028	4044632.7570
		411393.9218	4044623.3657
		411375.0392	4043915.7480
T1-1	0.24	410001.3479	4023280.2990
		410002.3580	4023206.9595
		410005.2363	4022997.9711
		409150.1396	4022999.8884
		408999.6293	4023000.2258
		409002.0721	4023249.9209
		409002.6986	4023313.7804
		409007.7806	4023833.1024
		409051.0269	4023839.2045
		409110.9082	4023908.2518
		409130.6312	4023981.8092
		409555.1195	4023595.2654
		409806.6814	4023351.0115
		410001.3479	4023280.2990
T2-1	0.52	411579.3994	4020095.6486
		411149.7636	4019542.1549
		410360.7181	4019008.5005
		410025.1591	4019002.0354
		410021.5195	4020289.5251
		410764.8535	4020543.1808
		410856.3054	4019986.9090
		411246.3282	4020045.5553
		411579.3994	4020095.6486
T2-2	0.21	410764.8535	4020543.1808
		410021.5195	4020289.5251
		410015.7153	4020454.4270
		410264.9378	4020620.1863
		410488.7112	4020946.6551
		410592.4067	4021145.4323
		410686.3969	4021329.2488
		410604.9139	4021412.4751
		410723.1430	4021595.2150
		410775.1587	4021601.6591

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		411171.1912	4021661.1653
		410911.0799	4021031.0051
		410750.1808	4020640.9787
		410764.8535	4020543.1808
T2-3	0.12	411802.8532	4021756.0718
		411753.6515	4021748.6529
		411604.4684	4021726.2842
		411449.4651	4021702.9848
		411171.1912	4021661.1653
		410775.1587	4021601.6591
		410723.1430	4021595.2150
		410772.2220	4021661.6656
		410794.5608	4021690.3326
		411069.6619	4022043.1456
		411468.7821	4021898.4334
		412090.5723	4022145.4802
		412041.9403	4022079.6438
		411848.2994	4021817.5154
		411802.8532	4021756.0718
T2-4	0.28	412520.0138	4022726.6285
		412280.9151	4022403.1215
		412090.5723	4022145.4802
		411468.7821	4021898.4334
		411069.6619	4022043.1456
		411151.2016	4022147.9844
		411290.0657	4022321.4651
		411421.1708	4022347.8283
		411641.2736	4022435.1011
		411645.2720	4022735.1098
		411702.1375	4022877.2132
		412105.0647	4022841.9370
		412196.4642	4022965.6545
		412264.8371	4022915.1168
		412292.7693	4022894.4741
		412520.0138	4022726.6285
T2-5	0.10	412196.4642	4022965.6545
		412105.0647	4022841.9370
		411702.1375	4022877.2132
		411780.3515	4023076.2456
		411853.5786	4023178.4492
		411898.3534	4023239.0517
		412114.1288	4023531.1972
		412159.2499	4023493.2116
		412237.2383	4023435.6152
		412435.5486	4023289.1826
		412327.9694	4023143.6398
		412269.0657	4023063.9330

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		412196.4642	4022965.6545
T3NE	0.24	413088.6035	4022306.4585
		412849.6316	4021982.9620
		412928.1826	4021923.8598
		411802.8532	4021756.0718
		411848.2994	4021817.5154
		412041.9403	4022079.6438
		412090.5723	4022145.4802
		412280.9151	4022403.1215
		412520.0138	4022726.6285
		412843.4972	4022487.5883
		413088.6035	4022306.4585
T3SE	0.49	413055.0876	4021078.5086
		413074.9993	4020946.8083
		413096.9447	4020800.0171
		412857.9724	4020476.5179
		412534.5267	4020715.4819
		412270.9733	4020910.1986
		411937.4110	4020860.1271
		411802.8532	4021756.0718
		412928.1826	4021923.8598
		413012.4600	4021362.4643
		413055.0876	4021078.5086
T3SE Addition	0.12	412857.9724	4020476.5179
		412906.4567	4020440.6744
		413034.4897	4020346.0780
		413216.5995	4020220.4049
		413090.0414	4020217.8291
		413082.4137	4020077.9380
		412973.9179	4020085.6761
		412756.6975	4020031.3975
		412608.0432	4020197.5292
		412389.2662	4020442.0285
		412281.9783	4020866.6437
		412270.9733	4020910.1986
		412534.5267	4020715.4819
		412857.9724	4020476.5179
T3SW	0.61	411937.4110	4020860.1271
		411952.8142	4020757.8941
		411890.5687	4020548.9971
		411835.6901	4020364.6351
		411644.0866	4020105.5040
		411579.3994	4020095.6486
		411246.3282	4020045.5553
		410856.3054	4019986.9090
		410764.8535	4020543.1808
		410750.1808	4020640.9787

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
T4-3	0.24	410911.0799	4021031.0051
		411171.1912	4021661.1653
		411449.4651	4021702.9848
		411604.4684	4021726.2842
		411753.6515	4021748.6529
		411802.8532	4021756.0718
		411937.4110	4020860.1271
		414222.0726	4020969.0150
		414160.6092	4020885.8261
		413982.9758	4020645.4436
		413893.6355	4020524.5934
		413796.2475	4020548.7970
		413549.3839	4020610.1560
		413575.0389	4020713.6689
		413487.5647	4020735.4114
		413301.3640	4020707.4619
		413034.4897	4020346.0780
		412906.4567	4020440.6744
		412857.9724	4020476.5179
		413096.9447	4020800.0171
		413074.9993	4020946.8083
		413055.0876	4021078.5086
		413184.2856	4021094.6091
		413342.9646	4021118.4411
		413615.7688	4021163.4678
		413741.0231	4021324.3436
		413898.4688	4021208.0224
T4-3 Addition	0.14	414222.0726	4020969.0150
		413893.6355	4020524.5934
		413877.7052	4020502.9468
		414001.4695	4020502.4758
		414001.2533	4020257.4915
		413893.7745	4020264.7699
		413767.6592	4020273.3310
		413695.4389	4020332.7395
		413677.0551	4020225.3030
		413700.3399	4020128.3549
		413627.7543	4020158.1265
		413549.0822	4020190.3946
		413490.8659	4020190.3962
		413444.3883	4020190.3975
		413424.8082	4020157.2395
		413385.0218	4020104.3834
		413343.6338	4020101.2053
		413266.1224	4020221.4128
		413216.5995	4020220.4049
		413034.4897	4020346.0780

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413301.3640	4020707.4619
		413487.5647	4020735.4114
		413575.0389	4020713.6689
		413549.3839	4020610.1560
		413796.2475	4020548.7970
		413893.6355	4020524.5934
T4-4	0.26	413814.0009	4021770.5574
		413975.7851	4021651.0243
		413741.0231	4021324.3436
		413615.7688	4021163.4678
		413342.9646	4021118.4411
		413184.2856	4021094.6091
		413055.0876	4021078.5086
		413012.4600	4021362.4643
		412928.1826	4021923.8598
		413490.4317	4022009.5808
		413652.2147	4021890.0650
		413814.0009	4021770.5574
T4-5	0.11	413729.5137	4022333.1288
		413490.4317	4022009.5808
		412928.1826	4021923.8598
		412849.6316	4021982.9620
		413088.6035	4022306.4585
		413166.9434	4022248.5872
		413406.0618	4022572.1831
		413729.5137	4022333.1288
T5	0.84	414615.6262	4022178.5720
		414426.4783	4021922.6108
		414376.5555	4021855.0570
		414700.1075	4021616.0524
		414505.9987	4021353.3100
		414461.0480	4021292.4897
		414222.0726	4020969.0150
		413898.4688	4021208.0224
		413741.0231	4021324.3436
		413975.7851	4021651.0243
		413814.0009	4021770.5574
		413865.8579	4021840.7154
		413931.8875	4021930.0605
		414053.0895	4022094.0927
		413729.5137	4022333.1288
		413406.0618	4022572.1831
		413166.9434	4022248.5872
		413088.6035	4022306.4585
		412843.4972	4022487.5883
		412520.0138	4022726.6285
		412292.7693	4022894.4741

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		412264.8371	4022915.1168
		412196.4642	4022965.6545
		412269.0657	4023063.9330
		412327.9694	4023143.6398
		412435.5486	4023289.1826
		412237.2383	4023435.6152
		412159.2499	4023493.2116
		412114.1288	4023531.1972
		412316.2796	4023804.5494
		412351.0895	4023851.6783
		412674.5366	4023612.7141
		412997.9834	4023373.7502
		413321.5800	4023134.6691
		413645.0264	4022895.7058
		413968.6226	4022656.6253
		414292.0677	4022417.6245
		414615.6262	4022178.5720
T5-1	0.14	414429.2165	4020500.8382
		414232.1268	4020501.5982
		414001.4695	4020502.4758
		413877.7052	4020502.9468
		413893.6355	4020524.5934
		413982.9758	4020645.4436
		414160.6092	4020885.8261
		414222.0726	4020969.0150
		414461.0480	4021292.4897
		414505.9987	4021353.3100
		414557.3614	4020853.0236
		414632.3454	4020832.6501
		414717.5371	4020809.5032
		414704.8599	4020499.7994
		414429.2165	4020500.8382
T5-2	0.03	416056.8587	4023113.9676
		415815.3044	4022792.4623
		415704.1714	4022874.5914
		415656.1628	4022910.0892
		415895.2471	4023233.5923
		416056.8587	4023113.9676
T5-3	0.22	415580.7123	4022964.7690
		415520.5385	4022883.3346
		415380.8866	4022694.3156
		415192.7623	4022439.6891
		415127.4250	4022351.2549
		415106.6480	4022323.0048
		415148.1754	4022285.3898
		415178.1078	4022263.0525
		415146.6854	4022220.5223

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414989.6965	4022007.9919
		414750.3341	4021684.0582
		414700.1075	4021616.0524
		414376.5555	4021855.0570
		414426.4783	4021922.6108
		414615.6262	4022178.5720
		414854.5912	4022502.0156
		415093.6715	4022825.5607
		415332.6768	4023149.0322
		415453.5288	4023059.7725
		415580.7123	4022964.7690
T5-4	0.06	413814.0009	4021770.5574
		413652.2147	4021890.0650
		413490.4317	4022009.5808
		413729.5137	4022333.1288
		414053.0895	4022094.0927
		413931.8875	4021930.0605
		413865.8579	4021840.7154
		413814.0009	4021770.5574
T6	0.87	415093.6715	4022825.5607
		414854.5912	4022502.0156
		414615.6262	4022178.5720
		414292.0677	4022417.6245
		413968.6226	4022656.6253
		413645.0264	4022895.7058
		413321.5800	4023134.6691
		412997.9834	4023373.7502
		412674.5366	4023612.7141
		412351.0895	4023851.6783
		412393.1732	4023908.6402
		412590.0541	4024175.1253
		412716.3209	4024345.9798
		412829.1735	4024498.6832
		413152.4691	4024259.7978
		413475.9145	4024020.7953
		413799.5105	4023781.7139
		414122.9555	4023542.7119
		414446.5511	4023303.6311
		414770.1473	4023064.5885
		415093.6715	4022825.5607
T7	0.94	413520.9060	4024987.7652
		413630.5473	4024906.7559
		413705.0932	4024851.6720
		413813.9702	4024771.2201
		413954.0157	4024667.7535
		414277.5935	4024428.7163
		414601.0379	4024189.7139

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414924.6337	4023950.6707
		415248.2293	4023711.6277
		415571.8247	4023472.5851
		415895.2471	4023233.5923
		415656.1628	4022910.0892
		415622.4090	4022934.9994
		415580.7123	4022964.7690
		415453.5288	4023059.7725
		415332.6768	4023149.0322
		415093.6715	4022825.5607
		414770.1473	4023064.5885
		414446.5511	4023303.6311
		414122.9555	4023542.7119
		413799.5105	4023781.7139
		413475.9145	4024020.7953
		413152.4691	4024259.7978
		412829.1735	4024498.6832
		413005.9543	4024737.9616
		413068.1384	4024822.1295
		413307.2567	4025145.6105
		413520.9060	4024987.7652
T8	0.87	414755.6684	4025075.7084
		414987.6679	4024904.2813
		415079.1212	4024836.7146
		415225.2485	4024728.7512
		415402.7156	4024597.6328
		415721.8772	4024363.7439
		416049.7522	4024119.5115
		416373.1960	4023880.5480
		416696.6388	4023641.5466
		416457.6759	4023318.1030
		416213.7556	4022998.2673
		416081.2099	4023096.2253
		416056.8587	4023113.9676
		415895.2471	4023233.5923
		415571.8247	4023472.5851
		415248.2293	4023711.6277
		414924.6337	4023950.6707
		414601.0379	4024189.7139
		414277.5935	4024428.7163
		413954.0157	4024667.7535
		414117.8568	4024889.3542
		414193.0965	4024991.1381
		414365.0268	4025223.8960
		414432.1019	4025314.6897
		414755.6684	4025075.7084
T8W	0.21	414516.2449	4026002.5719

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414628.9092	4025919.5013
		414592.2070	4025869.8256
		414509.4040	4025757.7501
		414573.9046	4025710.0958
		414832.3590	4025517.9893
		414714.1101	4025356.9862
		414875.1490	4025237.4744
		414828.4698	4025174.2710
		414755.6684	4025075.7084
		414432.1019	4025314.6897
		414365.0268	4025223.8960
		414193.0965	4024991.1381
		414117.8568	4024889.3542
		413954.0157	4024667.7535
		413813.9702	4024771.2201
		413705.0932	4024851.6720
		413630.5473	4024906.7559
		413520.9060	4024987.7652
		414210.4545	4025245.9289
		414234.5783	4025278.7465
		414265.6270	4025321.6698
		414260.7145	4025375.7117
		414249.7773	4025496.0299
		414253.5442	4025523.3931
		414275.2628	4025680.9863
		414383.8825	4025998.0971
		414433.1201	4026063.8621
		414516.2449	4026002.5719
T9	0.46	416987.0241	4023427.0505
		416933.0673	4023305.0811
		416213.7556	4022998.2673
		416457.6759	4023318.1030
		416696.6388	4023641.5466
		416373.1960	4023880.5480
		416049.7522	4024119.5115
		415721.8772	4024363.7439
		415752.1670	4024382.2273
		415795.7936	4024428.4142
		416222.2418	4025004.5422
		416423.1407	4025002.1395
		416999.8010	4024996.4655
		417001.1420	4024947.4364
		417009.4547	4024643.4367
		416773.5777	4024179.3380
		416740.4644	4024114.1911
		416644.2056	4023924.8115
		416681.7283	4023739.4429

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416700.3078	4023672.4212
		416724.9459	4023638.9524
		416791.8080	4023571.3270
		416987.0241	4023427.0505
T11	0.67	416016.5518	4027163.7735
		415892.7261	4026970.7408
		415850.0994	4026904.2901
		415790.4216	4026811.2579
		415677.0319	4026634.4934
		415640.1630	4026578.7438
		415466.7219	4026708.6625
		415342.4782	4027059.9901
		415340.1072	4027066.6946
		415303.7796	4027171.2685
		415233.1529	4027179.3891
		415156.5509	4027188.1773
		414946.8125	4027212.2390
		414946.0613	4027212.3252
		414829.7448	4027225.6694
		414704.5839	4027293.5349
		414666.3683	4027314.2564
		414603.3991	4027348.4000
		414525.4449	4027872.6930
		414845.5480	4028265.1622
		415530.3795	4028446.4469
		415969.6875	4028562.7110
		415987.3754	4028348.7866
		415812.0017	4027654.7770
		415815.0825	4027594.0878
		415819.5445	4027506.2313
		415821.2552	4027472.5544
		415829.9319	4027301.7160
		415955.5124	4027208.8937
		416016.5518	4027163.7735
T13-1	1.16	419964.9561	4027727.9417
		419815.0913	4027525.2967
		419726.2673	4027404.5246
		419887.7273	4027284.9795
		419648.9217	4026961.5818
		419810.2777	4026841.6888
		419748.5558	4026757.6663
		419525.0923	4026455.4515
		419499.4993	4026420.9158
		419206.2888	4026038.3123
		419051.1767	4026152.9153
		418944.5404	4026008.5914
		418812.4327	4025829.9087

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		418650.4050	4025948.9162
		418530.6017	4025787.6073
		418369.1355	4025906.6763
		418250.0503	4025745.2361
		418087.8706	4025864.4329
		417965.0399	4025698.1844
		417848.8505	4025540.9244
		417363.5983	4025899.4766
		417483.0867	4026061.2172
		417946.2974	4026526.0033
		418277.6506	4026974.4807
		419022.1895	4027514.9917
		419318.0047	4028206.2594
		419437.6778	4028367.7751
		419922.7917	4028009.4868
		419803.4484	4027847.6038
		419853.4559	4027810.6655
		419964.9561	4027727.9417
T13-2	0.61	419318.0047	4028206.2594
		419022.1895	4027514.9917
		418277.6506	4026974.4807
		417946.2974	4026526.0033
		417483.0867	4026061.2172
		417366.8592	4026147.0905
		417170.2116	4026293.6483
		417289.1233	4026454.5769
		418725.6089	4028396.0970
		418940.0949	4028435.3170
		418994.5143	4028445.2593
		419318.0047	4028206.2594
T13-3	0.68	417985.8357	4028530.6268
		418270.9212	4028479.7747
		418552.1861	4028522.0171
		418641.0131	4028456.3877
		418725.6089	4028396.0970
		417289.1233	4026454.5769
		417122.8974	4026577.3922
		417084.2094	4026850.3179
		417168.0579	4027307.0306
		417084.6434	4027863.9835
		417123.5860	4027916.7888
		417149.3087	4027977.2199
		417545.6899	4028513.6273
		417827.9025	4028557.0432
		417876.9859	4028548.4822
		417985.8357	4028530.6268
T18N	0.85	419496.3620	4034252.3887

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		419832.6228	4034141.1372
		419802.4606	4033687.7767
		419771.8711	4033218.0199
		419606.1581	4032994.4389
		419929.6632	4032755.4136
		420091.3942	4032635.9359
		419976.1285	4032480.3898
		420133.8016	4032354.8284
		420425.7541	4032122.7085
		420448.8685	4032104.3398
		420460.8875	4031607.1656
		420174.1314	4031339.0630
		420132.5084	4031300.4919
		420102.1497	4031215.3678
		420051.6551	4031073.7611
		420067.1527	4030907.7868
		419953.0593	4030737.6865
		419301.2890	4031913.5165
		419167.5391	4032516.0753
		419250.4837	4033085.9106
		419239.5306	4033150.5146
		419365.9142	4033768.8440
		419466.7915	4034261.8713
		419496.3620	4034252.3887
T18S	1.82	419953.0593	4030737.6865
		420100.9126	4030629.4127
		420270.2682	4030504.5926
		420257.4813	4030470.7618
		419822.9960	4029884.0794
		419798.7906	4029851.3951
		419084.5984	4029747.7702
		418383.2186	4029647.0736
		418130.4116	4029646.0180
		417852.8347	4029647.5471
		417771.7107	4029657.7122
		417699.9538	4029667.9768
		417653.3789	4029674.6594
		417521.5049	4029776.4691
		417581.9086	4030267.7438
		417605.6678	4030460.9564
		417838.7772	4030929.0825
		418459.9718	4031788.9629
		418889.1261	4032024.0241
		418754.0253	4033026.4824
		419084.1419	4033110.8123
		419239.5306	4033150.5146
		419250.4837	4033085.9106

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		419167.5391	4032516.0753
		419301.2890	4031913.5165
		419953.0593	4030737.6865
T23E	1.16	422559.8892	4034701.7965
		422429.2563	4034127.0388
		421482.5827	4034132.2129
		420888.8631	4034972.0417
		420872.6936	4034994.9138
		420562.6228	4035433.5165
		422377.3155	4036418.9679
		422544.4991	4036065.0490
		422546.3765	4035898.7421
		422559.8892	4034701.7965
T23W	0.70	420888.8631	4034972.0417
		421482.5827	4034132.2129
		420004.5740	4034139.6849
		419832.6228	4034141.1372
		419496.3620	4034252.3887
		419466.7915	4034261.8713
		419223.1494	4034342.8214
		419188.9454	4034400.9790
		419064.9605	4034610.8362
		420562.6228	4035433.5165
		420872.6936	4034994.9138
		420888.8631	4034972.0417
T24	1.70	421775.5115	4037695.3945
		422237.3513	4036716.5520
		422377.3155	4036418.9679
		420562.6228	4035433.5165
		419459.5560	4036993.8362
		421317.9300	4038183.2674
		421672.5269	4037910.9745
		421775.5115	4037695.3945
T24 Addition	0.07	422237.3513	4036716.5520
		421775.5115	4037695.3945
		421815.4472	4037708.0812
		422114.0386	4037354.1188
		422305.0531	4037054.4245
		422453.6130	4036821.3405
		422237.3513	4036716.5520
T25N	0.40	419459.5560	4036993.8362
		418192.9713	4036174.1094
		417974.8683	4036933.5367
		419017.0594	4037619.7626
		419459.5560	4036993.8362
T25S	1.28	420562.6228	4035433.5165
		419064.9605	4034610.8362

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		418665.8457	4034527.9245
		418192.9713	4036174.1094
		419459.5560	4036993.8362
		420562.6228	4035433.5165
T26	1.33	420260.2740	4038939.6141
		420448.8516	4038850.6281
		421317.9300	4038183.2674
		419459.5560	4036993.8362
		419017.0594	4037619.7626
		417959.0480	4039116.3619
		418789.3715	4038860.6801
		420260.2740	4038939.6141
T27 Addition	0.08	416936.4016	4038118.4003
		417056.7418	4037995.5171
		416908.7138	4037982.5250
		416631.9746	4038195.4231
		416422.7260	4038451.3374
		416046.9016	4038858.3728
		415865.4763	4039054.8651
		415933.4067	4039143.8996
		416483.8237	4038580.2742
		416936.4016	4038118.4003
T27N	0.86	417959.0480	4039116.3619
		416936.4016	4038118.4003
		416483.8237	4038580.2742
		415933.4067	4039143.8996
		416323.1348	4039525.0305
		416658.3540	4039852.3712
		417121.6189	4040304.5343
		417255.4209	4040111.6752
		417959.0480	4039116.3619
T27S	0.85	419017.0594	4037619.7626
		417974.8683	4036933.5367
		417924.4340	4037108.4563
		417056.7418	4037995.5171
		416936.4016	4038118.4003
		417959.0480	4039116.3619
		419017.0594	4037619.7626
T28N	0.71	418687.1386	4040203.3591
		418733.7251	4040126.7522
		418872.7825	4039997.9387
		417959.0480	4039116.3619
		417255.4209	4040111.6752
		417121.6189	4040304.5343
		417473.8189	4040647.9564
		417921.3802	4041084.8832
		418093.9730	4041254.0466

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		418155.9146	4041076.4185
		418687.1386	4040203.3591
T28S	0.47	420260.2740	4038939.6141
		418789.3715	4038860.6801
		417959.0480	4039116.3619
		418872.7825	4039997.9387
		419760.8752	4039175.2705
		420260.2740	4038939.6141
T29-1	0.34	416435.5451	4041276.9560
		416401.4863	4041252.8896
		415073.9313	4041276.5425
		415237.3285	4041985.5193
		415381.2848	4042128.5039
		415526.1742	4042272.4160
		415526.4848	4042272.7244
		415581.2762	4042327.1461
		415630.5647	4042376.1020
		415630.5765	4042376.1058
		415636.0253	4042377.8375
		415652.9389	4042383.2128
		415653.6137	4042383.4273
		415655.4980	4042384.0262
		415655.6659	4042384.0795
		416435.5451	4041276.9560
T29-2	0.75	415073.9313	4041276.5425
		416401.4863	4041252.8896
		416435.5451	4041276.9560
		417121.6189	4040304.5343
		416658.3540	4039852.3712
		416144.0171	4040294.3138
		415700.1604	4040309.2538
		414814.5852	4040750.8719
		414797.1740	4040944.3347
		414835.3793	4040983.9777
		414873.5845	4041023.6206
		414850.9250	4041058.2850
		414828.2654	4041092.9493
		414928.6584	4041572.8182
		415073.9313	4041276.5425
T29-3	0.40	416658.3540	4039852.3712
		416323.1348	4039525.0305
		414927.2536	4039990.1326
		414931.2068	4040036.5085
		414921.7343	4040096.5239
		414906.2118	4040194.8691
		414894.9833	4040266.0091
		414848.0568	4040379.0156

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414814.5852	4040750.8719
		415700.1604	4040309.2538
		416144.0171	4040294.3138
		416658.3540	4039852.3712
T29-4	0.26	416323.1348	4039525.0305
		415933.4067	4039143.8996
		415865.4763	4039054.8651
		415536.0232	4039224.5107
		415102.2160	4039351.9435
		414905.7226	4039737.5501
		414921.1090	4039918.0500
		414927.2536	4039990.1326
		416323.1348	4039525.0305
T30-1	1.08	417130.3805	4042995.6745
		417384.3152	4042993.4517
		417370.6762	4042778.5344
		417719.8507	4042619.4658
		417792.5767	4042117.6796
		418026.3192	4042090.2555
		418032.4649	4042385.2584
		418154.9595	4042206.3723
		418410.5623	4042382.5975
		418608.9968	4042170.9490
		418642.6771	4042098.0531
		418743.9293	4042022.1567
		418637.1570	4041594.2678
		418746.9274	4040943.5424
		418839.1598	4040396.7884
		418687.1386	4040203.3591
		418155.9146	4041076.4185
		418093.9730	4041254.0466
		417921.3802	4041084.8832
		417171.9137	4041828.3044
		416322.8671	4042382.8026
		416237.8729	4042517.5607
		416238.8166	4042563.7458
		416407.4335	4042560.3903
		416409.8771	4042560.3417
		416410.0981	4042560.3373
		416410.1386	4042560.3365
		416413.8960	4042560.2618
		416413.9066	4042562.5781
		416413.9130	4042563.9624
		416413.9324	4042568.1752
		416413.9351	4042568.7621
		416414.7844	4042753.4996
		416415.9268	4043001.9282

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416475.6596	4043001.4053
		416511.9599	4043001.0876
		416737.3658	4042999.1146
		416745.5359	4042999.0431
		416748.7523	4042999.0149
		416748.7581	4042999.0149
		416757.0197	4042998.9425
		416778.2654	4042998.7566
		416779.0491	4042998.7497
		416779.3644	4042998.7470
		416782.0854	4042998.7231
		416785.1959	4042998.6959
		416802.5375	4042998.5441
		416828.7613	4042998.3146
		416834.3585	4042998.2656
		416844.5115	4042998.1767
		416853.3845	4042998.0990
		416872.3079	4042997.9334
		416874.3837	4042997.9152
		416874.7151	4042997.9123
		416874.9421	4042997.9104
		417130.3805	4042995.6745
T30-2	0.49	416238.8166	4042563.7458
		416237.8729	4042517.5607
		416322.8671	4042382.8026
		417171.9137	4041828.3044
		417921.3802	4041084.8832
		417473.8189	4040647.9564
		416056.9737	4042059.9711
		415869.3630	4042338.0433
		416015.9120	4042330.2460
		416018.9905	4042478.3471
		416020.1409	4042533.6930
		416020.5077	4042551.3401
		416020.8582	4042568.1991
		416238.8166	4042563.7458
T30-3	0.27	415665.8258	4042380.6277
		415692.3612	4042371.6124
		415869.3630	4042338.0433
		416056.9737	4042059.9711
		417473.8189	4040647.9564
		417121.6189	4040304.5343
		416435.5451	4041276.9560
		415655.6659	4042384.0795
		415655.9347	4042383.9882
		415665.8258	4042380.6277
T35-1	0.12	410493.9516	4043001.1922

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410599.0285	4042999.1260
		410587.3545	4042696.5373
		410577.9311	4042452.2776
		410001.6954	4042464.1381
		410003.7039	4043010.8326
		410268.6279	4043005.6231
		410493.9516	4043001.1922
T35-2	0.13	410577.9311	4042452.2776
		410757.3767	4042448.5842
		410756.1353	4042245.4528
		410754.6508	4042002.5380
		410723.8358	4042002.5739
		410000.0033	4042003.4174
		410001.6954	4042464.1381
		410577.9311	4042452.2776
T36-1	1.01	412652.1923	4041436.0645
		412690.1314	4041406.0416
		412833.6710	4041412.9150
		412841.4082	4041505.7657
		413191.4978	4041500.2871
		413241.1228	4041488.5169
		413443.2128	4041269.5238
		413478.6456	4041158.2255
		413561.2523	4041141.5984
		413723.0869	4040965.9151
		413750.7680	4040919.5075
		414039.1683	4040436.0033
		414010.8260	4040412.9166
		413965.4168	4040383.7884
		412673.7969	4040565.9749
		410453.6629	4041239.6583
		410825.3880	4041524.8233
		410857.4942	4041549.4532
		410860.8313	4041552.0132
		410865.2368	4041555.3928
		410874.3719	4041562.4007
		410891.2200	4041575.3256
		410908.7982	4041588.8105
		410938.6899	4041611.7416
		410968.0051	4041634.2304
		410996.6969	4041656.2410
		411054.7057	4041700.7419
		411081.5448	4041721.3312
		411089.3727	4041727.3363
		411095.4672	4041732.0116
		411224.0888	4041830.6824
		411307.5628	4041894.7186

Exhibit 1 - PM10 Control Areas and Coordinates

2003 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
T36-2	1.04	411328.7980	4041911.0091
		411404.1637	4041882.1942
		412344.1688	4041513.1631
		412682.1021	4041508.1389
		412652.1923	4041436.0645
		414010.8260	4040412.9166
		414002.9668	4040378.3377
		414050.7092	4040298.5802
		414211.1526	4040321.9816
		414280.2236	4040319.3575
		414347.5813	4040337.7609
		414544.1961	4039918.4944
		414532.4404	4039758.0190
		414528.0492	4039697.5872
		414085.8937	4039631.6364
		411338.4485	4040324.4448
		411230.3923	4040243.9095
		410766.2080	4040418.8272
		410754.5323	4040429.4164
		410132.6677	4040993.4098
		410453.6629	4041239.6583
T36-3	0.35	412673.7969	4040565.9749
		413965.4168	4040383.7884
		414010.8260	4040412.9166
		414528.0492	4039697.5872
		414537.5701	4039498.0063
		414548.2365	4039274.9161
		414550.5526	4039224.6348
		414146.0294	4039386.3858
		413592.7832	4039353.6958
		412039.2079	4039939.1253
		411230.3923	4040243.9095
		411338.4485	4040324.4448
		414085.8937	4039631.6364
		414528.0492	4039697.5872

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
T1A-1	0.39	410110.0532	4021493.3823
		410038.4994	4021096.3389
		410027.5849	4021036.2856
		409998.0302	4020801.4793
		409724.2880	4020448.5196
		409487.6034	4020143.3409
		409409.2894	4020065.3131
		409362.4622	4020009.5035
		409276.4247	4020023.1050
		409280.4484	4020086.9084
		409223.1416	4020188.3568
		409215.0243	4020302.8876
		409166.5836	4020986.3494
		409149.2804	4021803.3442
		409163.9608	4021774.2357
		409179.6823	4021745.9744
		409194.6701	4021721.5470
		409209.7590	4021699.6128
		409225.4173	4021678.7661
		409252.5708	4021646.4477
		409273.6568	4021624.1573
		409294.6311	4021604.2271
		409323.3516	4021579.8075
		409359.8403	4021552.6623
		409394.2697	4021530.5798
		409430.4700	4021510.7705
		409469.1538	4021492.9143
		409509.3814	4021477.5621
		409541.7453	4021467.7021
		409587.0138	4021456.9762
		409628.6050	4021450.2633
		409667.1756	4021446.5232
		409702.2970	4021445.4495
		409734.0450	4021446.0422
		409774.5213	4021449.4157
		409835.6679	4021458.1413
		409886.0723	4021465.7122
		409975.4401	4021479.1355
		410079.1896	4021494.7189
		410110.0532	4021493.3823
T1A-2	1.09	410517.8291	4023045.8856
		410987.9078	4022252.4215
		411151.2016	4022147.9844
		411069.6619	4022043.1456
		410794.5608	4021690.3326
		410772.2220	4021661.6656
		410723.1430	4021595.2150

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410566.9152	4021570.1680
		410350.3675	4021535.4504
		410110.0532	4021493.3823
		410079.1896	4021494.7189
		409975.4401	4021479.1355
		409886.0723	4021465.7122
		409835.6679	4021458.1413
		409774.5213	4021449.4157
		409734.0450	4021446.0422
		409702.2970	4021445.4495
		409667.1756	4021446.5232
		409628.6050	4021450.2633
		409587.0138	4021456.9762
		409541.7453	4021467.7021
		409509.3814	4021477.5621
		409469.1538	4021492.9143
		409430.4700	4021510.7705
		409394.2697	4021530.5798
		409359.8403	4021552.6623
		409323.3516	4021579.8075
		409294.6311	4021604.2271
		409273.6568	4021624.1573
		409252.5708	4021646.4477
		409225.4173	4021678.7661
		409209.7590	4021699.6128
		409194.6701	4021721.5470
		409179.6823	4021745.9744
		409163.9608	4021774.2357
		409149.2804	4021803.3442
		409108.8160	4021989.7821
		409094.0513	4022070.0886
		409085.6763	4022117.5963
		409078.4606	4022146.7713
		409062.7226	4022238.2376
		409046.0396	4022310.3637
		409031.2722	4022390.1936
		409011.1297	4022508.5332
		408992.2636	4022598.4083
		408976.2034	4022678.3443
		408957.5809	4022750.2154
		408947.0031	4022786.7507
		408929.8478	4022830.1862
		408906.8526	4022877.2718
		408890.4273	4022904.6472
		408861.2270	4022947.3527
		408845.1668	4022972.1731
		408798.0812	4023021.8137

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408749.6047	4023067.1420
		408752.0708	4023250.6832
		409002.0721	4023249.9209
		408999.6293	4023000.2258
		409150.1396	4022999.8884
		410005.2363	4022997.9711
		410002.3580	4023206.9595
		410001.3479	4023280.2990
		410254.3830	4023245.9717
		410472.0427	4023123.1702
		410517.8291	4023045.8856
T1A-3	0.79	411737.3086	4023824.9915
		411856.6603	4023492.7197
		411867.2652	4023463.2354
		411784.7187	4023306.3704
		411756.0765	4023263.9938
		411733.8386	4023231.0923
		411581.3611	4023006.5993
		411460.7988	4022950.7106
		411432.4438	4022937.5450
		411126.7256	4022795.5958
		411073.0277	4022641.9086
		410994.3205	4022416.6426
		410987.9078	4022252.4215
		410517.8291	4023045.8856
		410472.0427	4023123.1702
		410717.9845	4023206.8910
		410744.2155	4023238.1869
		410777.7814	4023278.2340
		410862.0902	4023378.8217
		410821.5600	4023731.0035
		410665.4241	4023862.7933
		410559.0790	4023934.9698
		410401.5722	4024041.8691
		410411.4127	4024308.5175
		410520.5786	4024349.2917
		410692.6404	4024438.4529
		410909.1814	4024550.6629
		411162.2767	4024681.8151
		411124.9240	4024778.6121
		411222.3255	4024873.8035
		411392.3945	4024792.1429
		411607.7455	4024539.2489
		411694.2835	4024061.5800
		411737.3086	4023824.9915
T1A-4	0.96	414433.1201	4026063.8621
		414383.8825	4025998.0971

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414275.2628	4025680.9863
		414253.5442	4025523.3931
		414249.7773	4025496.0299
		414260.7145	4025375.7117
		414265.6270	4025321.6698
		414234.5783	4025278.7465
		414210.4545	4025245.9289
		413520.9060	4024987.7652
		413307.2567	4025145.6105
		413068.1384	4024822.1295
		413005.9543	4024737.9616
		412829.1735	4024498.6832
		412716.3209	4024345.9798
		412590.0541	4024175.1253
		412393.1732	4023908.6402
		412351.0895	4023851.6783
		412316.2796	4023804.5494
		412114.1288	4023531.1972
		411987.3569	4023709.3450
		411915.0878	4023883.7727
		411828.1298	4024594.2291
		411987.9741	4025141.2709
		412161.8337	4025254.5966
		412387.4889	4025234.3186
		412577.2692	4025175.8075
		412752.8915	4025413.6926
		412942.5931	4025667.2112
		413140.6925	4025804.2789
		413273.7478	4025896.3417
		413298.0623	4025913.1653
		413700.6748	4025878.0963
		413843.4527	4025859.0182
		413892.4598	4025869.0491
		414047.8003	4025981.4887
		414054.0898	4025986.0412
		414058.1609	4025988.9880
		414103.3906	4026021.7264
		414202.5256	4026108.3980
		414237.0681	4026138.5977
		414280.6829	4026176.7292
		414433.1201	4026063.8621
T2-1 Addition	0.29	410025.1591	4019002.0354
		409535.8384	4018994.6572
		409535.7940	4019000.0000
		409535.7335	4019007.2814
		409535.4202	4019044.9991
		409535.2790	4019062.0029

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409535.2630	4019063.9333
		409534.8572	4019112.7819
		409500.0000	4019229.7137
		409493.9270	4019250.0862
		409428.6436	4019253.2063
		409374.7338	4019259.9508
		409302.2554	4019299.7625
		409272.1768	4019316.2843
		409240.1576	4019333.8721
		409219.4108	4019347.7120
		409207.4586	4019355.6851
		409207.5174	4019364.3380
		409208.2558	4019473.1115
		409435.8230	4019902.2959
		409445.4661	4019983.4003
		409576.6128	4020126.1299
		409630.4774	4020144.7287
		409689.8168	4020165.2179
		410021.5195	4020289.5251
		410025.1591	4019002.0354
T5-1 Addition	0.03	414429.2165	4020500.8382
		414464.0586	4020432.0182
		414293.7162	4020338.7319
		414135.9213	4020279.6763
		414001.2533	4020257.4915
		414001.4695	4020502.4758
		414232.1268	4020501.5982
		414429.2165	4020500.8382
T5-3 Addition	0.12	415656.1628	4022910.0892
		415704.1714	4022874.5914
		415815.3044	4022792.4623
		415748.1977	4022764.6488
		415699.5372	4022723.3612
		415670.0461	4022679.1244
		415672.9952	4022639.3114
		415650.8768	4022577.3799
		415643.2259	4022531.0919
		415621.3856	4022398.9584
		415574.1998	4022322.2813
		415529.9630	4022266.2481
		415496.0482	4022202.8421
		415434.1167	4022145.3343
		415404.6256	4022093.7248
		415361.8634	4022096.6739
		415302.8811	4022046.5389
		415242.8901	4022005.1797
		414989.6965	4022007.9919

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415146.6854	4022220.5223
		415178.1078	4022263.0525
		415148.1754	4022285.3898
		415106.6480	4022323.0048
		415127.4250	4022351.2549
		415192.7623	4022439.6891
		415380.8866	4022694.3156
		415520.5385	4022883.3346
		415580.7123	4022964.7690
		415622.4090	4022934.9994
		415656.1628	4022910.0892
T10-1	0.70	417483.0867	4026061.2172
		417363.5983	4025899.4766
		417848.8505	4025540.9244
		417965.0399	4025698.1844
		418087.8706	4025864.4329
		418250.0503	4025745.2361
		417981.0900	4025483.1796
		417862.3542	4025432.8305
		417742.6529	4025357.7897
		417731.0963	4025299.8718
		417711.4790	4025042.9035
		417596.8590	4024857.0344
		417427.9719	4024735.2047
		417308.1869	4024673.9089
		417192.2023	4024288.3952
		417038.6920	4023907.3688
		416987.0241	4023427.0505
		416791.8080	4023571.3270
		416724.9459	4023638.9524
		416700.3078	4023672.4212
		416681.7283	4023739.4429
		416644.2056	4023924.8115
		416740.4644	4024114.1911
		416773.5777	4024179.3380
		417009.4547	4024643.4367
		417001.1420	4024947.4364
		416999.8010	4024996.4655
		416423.1407	4025002.1395
		416222.2418	4025004.5422
		416940.2572	4025981.7598
		417170.2116	4026293.6483
		417366.8592	4026147.0905
		417483.0867	4026061.2172
T10-2	1.39	415752.1670	4024382.2273
		415721.8772	4024363.7439
		415402.7156	4024597.6328

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
T10-3	0.44	415225.2485	4024728.7512
		415079.1212	4024836.7146
		414987.6679	4024904.2813
		414755.6684	4025075.7084
		414828.4698	4025174.2710
		414875.1490	4025237.4744
		414714.1101	4025356.9862
		414832.3590	4025517.9893
		415640.1630	4026578.7438
		415677.0319	4026634.4934
		415790.4216	4026811.2579
		415850.0994	4026904.2901
		415892.7261	4026970.7408
		416016.5518	4027163.7735
		416307.8668	4027358.6501
		416425.8276	4026988.5600
		416674.9793	4026748.4247
		417122.8974	4026577.3922
		417289.1233	4026454.5769
		417170.2116	4026293.6483
		416940.2572	4025981.7598
		416222.2418	4025004.5422
		415795.7936	4024428.4142
		415752.1670	4024382.2273
		415640.1630	4026578.7438
		414832.3590	4025517.9893
		414573.9046	4025710.0958
		414509.4040	4025757.7501
		414592.2070	4025869.8256
		414628.9092	4025919.5013
		414516.2449	4026002.5719
		414433.1201	4026063.8621
		414280.6829	4026176.7292
		414294.0026	4026188.3743
		414361.5358	4026256.8825
		414364.4695	4026259.8586
		414468.2236	4026365.1107
		414474.4641	4026371.4413
		414521.1467	4026419.0833
		414574.5451	4026473.5792
		414575.1058	4026474.4055
		414580.1326	4026481.8134
		414581.3692	4026483.6358
		414626.7335	4026550.4892
		414628.2736	4026552.7589
		414777.6428	4026862.0020
		414809.4765	4026927.9082

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
T12-1	0.34	414946.7384	4027212.0856
		414946.8125	4027212.2390
		415156.5509	4027188.1773
		415233.1529	4027179.3891
		415303.7796	4027171.2685
		415340.1072	4027066.6946
		415342.4782	4027059.9901
		415466.7219	4026708.6625
		415640.1630	4026578.7438
		417123.5860	4027916.7888
		417084.6434	4027863.9835
		417168.0579	4027307.0306
		417084.2094	4026850.3179
		417122.8974	4026577.3922
		416674.9793	4026748.4247
		416425.8276	4026988.5600
		416307.8668	4027358.6501
		416380.4537	4027677.3045
		416356.7395	4027801.5013
		416412.4399	4027812.1367
		416445.8246	4027952.8636
		417123.5860	4027916.7888
T13-1 Addition	0.12	419964.9561	4027727.9417
		419949.6216	4027659.1454
		419887.7273	4027284.9795
		419880.3754	4027234.3219
		419832.8927	4026984.5659
		419810.2777	4026841.6888
		419499.9094	4025999.3318
		419182.9598	4025925.2840
		418812.4327	4025829.9087
		418720.4393	4025816.9724
		418530.6017	4025787.6073
		418422.7811	4025775.2222
		418250.0503	4025745.2361
		418369.1355	4025906.6763
		418530.6017	4025787.6073
		418650.4050	4025948.9162
		418812.4327	4025829.9087
		418944.5404	4026008.5914
		419051.1767	4026152.9153
		419206.2888	4026038.3123
		419499.4993	4026420.9158
		419525.0923	4026455.4515
		419748.5558	4026757.6663
		419810.2777	4026841.6888
		419648.9217	4026961.5818

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
T16	1.68	419887.7273	4027284.9795
		419726.2673	4027404.5246
		419815.0913	4027525.2967
		419964.9561	4027727.9417
		419084.5984	4029747.7702
		419093.6209	4029564.0366
		418540.1609	4029396.3602
		418492.0331	4029381.7793
		417887.8942	4029186.5402
		418000.2288	4028968.8521
		417985.8357	4028530.6268
		417876.9859	4028548.4822
		417827.9025	4028557.0432
		417545.6899	4028513.6273
		417149.3087	4027977.2199
		417123.5860	4027916.7888
		416445.8246	4027952.8636
		416412.4399	4027812.1367
		416356.7395	4027801.5013
		416380.4537	4027677.3045
		416307.8668	4027358.6501
		416016.5518	4027163.7735
		415955.5124	4027208.8937
		415829.9319	4027301.7160
		415821.2552	4027472.5544
		415819.5445	4027506.2313
		415815.0825	4027594.0878
		415812.0017	4027654.7770
		415987.3754	4028348.7866
		415969.6875	4028562.7110
		415530.3795	4028446.4469
		415660.2354	4028955.4660
		416062.8635	4029458.0553
		416338.7305	4029650.8434
		416414.3687	4029700.9180
		416477.5638	4029742.9928
		416497.9138	4029756.5417
		416520.7968	4029773.4766
		416520.8264	4029773.4985
		416501.9688	4029786.2637
		416489.6563	4029794.9004
		416430.1250	4029834.6543
		416415.3750	4029843.4570
		416400.7188	4029849.4766
		416387.3125	4029856.1563
		416372.5938	4029860.3106
		416368.5313	4029870.0703

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416375.7813	4029880.6270
		416384.4688	4029895.7617
		416385.5313	4029910.9023
		416395.3125	4029918.6621
		416406.0625	4029922.9727
		416419.9063	4029929.8086
		416435.1563	4029936.6543
		416449.2500	4029947.3340
		416459.1250	4029961.2246
		416462.9688	4029976.8418
		416471.5625	4029988.3965
		416481.0000	4029994.3359
		416483.2500	4030000.4590
		416476.4688	4030004.0684
		416464.6250	4030013.5332
		416452.1250	4030020.7266
		416447.3125	4030031.0762
		416454.8750	4030042.8809
		416467.7500	4030052.9766
		416466.0625	4030067.6035
		416454.5313	4030077.5586
		416440.6250	4030076.0938
		416437.6250	4030084.6914
		416445.8125	4030098.3496
		416459.0313	4030110.6875
		416465.9063	4030126.0488
		416467.1563	4030142.7871
		416461.5313	4030157.1523
		416450.1563	4030168.0938
		416439.0938	4030177.2402
		416443.8750	4030188.7227
		416458.4375	4030192.3809
		416470.3125	4030190.8789
		416479.0313	4030177.9727
		416493.8125	4030171.2637
		416510.6250	4030166.2656
		416527.2188	4030165.8828
		416541.7813	4030161.9238
		416568.0625	4030143.3945
		416585.0000	4030137.3281
		416601.6250	4030130.7734
		416608.7188	4030112.7188
		416614.8750	4030093.7324
		416614.1563	4030081.1367
		416606.9688	4030057.0176
		416610.2813	4030041.6328
		416621.0313	4030029.7910

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416626.8438	4030016.4492
		416634.6563	4030003.4863
		416639.6563	4029988.0273
		416642.2500	4029973.2676
		416656.7188	4029972.4727
		416688.3750	4029977.5293
		416704.9375	4029976.5762
		416715.9688	4029964.5742
		416723.1250	4029949.7949
		416734.4688	4029937.7109
		416747.7188	4029929.2070
		416759.0313	4029916.4004
		416768.4688	4029902.2207
		416781.8125	4029898.3633
		416790.3750	4029900.3945
		416827.0938	4029907.2129
		416838.2500	4029915.7813
		416845.7500	4029917.9492
		416852.5938	4029916.0938
		416867.9688	4029916.1543
		416880.3438	4029917.7637
		416895.6875	4029914.7402
		416933.2774	4029903.9416
		416933.3437	4029903.9482
		416960.6093	4029911.0537
		417119.3092	4029946.7131
		417187.5882	4029971.9062
		417307.5528	4030061.9091
		417404.8087	4030134.8752
		417581.9086	4030267.7438
		417521.5049	4029776.4691
		417653.3789	4029674.6594
		417699.9538	4029667.9768
		417771.7107	4029657.7122
		417852.8347	4029647.5471
		418130.4116	4029646.0180
		418383.2186	4029647.0736
		419084.5984	4029747.7702
T17-1	0.83	420796.0648	4029098.4398
		420658.2965	4029205.3010
		420395.6316	4030679.8608
		420485.2029	4030805.0886
		420995.8461	4031495.0315
		421054.3411	4031574.3940
		421209.7312	4031769.2300
		421298.8678	4031663.9944
		421331.5889	4031625.3209

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421366.6346	4031583.9002
		421439.1082	4031498.2427
		421548.5165	4031333.2213
		421631.0272	4031208.7695
		421622.9727	4031054.6596
		421571.8926	4030077.3204
		421549.0082	4029833.7401
		421523.2951	4029607.1388
		421241.1573	4029607.9067
		421115.9541	4029457.7723
		420796.0648	4029098.4398
T17-2	0.93	420796.0648	4029098.4398
		420776.0445	4029075.9509
		420233.8289	4028421.8006
		420070.9764	4028193.2976
		419973.2496	4027978.3517
		419964.9561	4027727.9417
		419853.4559	4027810.6655
		419803.4484	4027847.6038
		419922.7917	4028009.4868
		419437.6778	4028367.7751
		419318.0047	4028206.2594
		418994.5143	4028445.2593
		418940.0949	4028435.3170
		418725.6089	4028396.0970
		418756.9252	4028433.4718
		419406.8125	4029323.4179
		419775.3475	4029819.8899
		419798.7906	4029851.3951
		419822.9960	4029884.0794
		420257.4813	4030470.7618
		420270.2682	4030504.5926
		420395.6316	4030679.8608
		420658.2965	4029205.3010
		420796.0648	4029098.4398
T18-0	0.53	420597.1630	4032558.7211
		420754.8980	4032462.5738
		420847.2185	4032406.3000
		421000.8019	4032283.7380
		421144.0336	4032169.4369
		421339.4293	4032013.5080
		421363.7119	4031994.1301
		421363.6591	4031994.0530
		421332.6602	4031948.7768
		421209.7312	4031769.2300
		421054.3411	4031574.3940
		420995.8461	4031495.0315

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		420485.2029	4030805.0886
		420395.6316	4030679.8608
		420270.2682	4030504.5926
		420100.9126	4030629.4127
		419953.0593	4030737.6865
		420067.1527	4030907.7868
		420051.6551	4031073.7611
		420102.1497	4031215.3678
		420132.5084	4031300.4919
		420174.1314	4031339.0630
		420460.8875	4031607.1656
		420448.8685	4032104.3398
		420425.7541	4032122.7085
		420133.8016	4032354.8284
		419976.1285	4032480.3898
		420091.3942	4032635.9359
		420399.6558	4032679.1114
		420597.1630	4032558.7211
T18N Addition	0.03	420004.5740	4034139.6849
		420012.6570	4033690.4716
		419802.4606	4033687.7767
		419832.6228	4034141.1372
		420004.5740	4034139.6849
T21	0.49	422592.2681	4031994.7888
		422592.1981	4031994.7332
		422355.2617	4031806.6465
		422299.6378	4031762.4906
		422105.2825	4031749.0183
		421855.0233	4031871.3901
		421952.1081	4032442.4394
		421827.2288	4032498.3566
		421765.7569	4032526.0855
		421758.8199	4032529.2147
		421672.6950	4032568.0642
		421669.5739	4032583.9514
		421642.8450	4032720.0067
		421615.4529	4032859.4383
		421680.5833	4033146.5036
		421959.4881	4033044.5656
		422031.2822	4033112.9606
		422103.3088	4033191.3140
		422274.9333	4033248.8166
		422331.3994	4033437.2447
		422451.8434	4033492.2605
		422530.2048	4033470.0379
		422579.0949	4033430.6750
		422659.7524	4033313.9588

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		422698.7244	4033173.2549
		422688.1222	4032830.0374
		422701.7643	4032367.5270
		422592.2681	4031994.7888
T23-5	0.31	419223.1494	4034342.8214
		419141.4448	4034271.8118
		419084.1419	4033110.8123
		418754.0253	4033026.4824
		418552.8969	4033287.6994
		418483.9471	4033621.1100
		418689.0409	4034066.4152
		418529.1039	4034424.5053
		418665.8457	4034527.9245
		419064.9605	4034610.8362
		419188.9454	4034400.9790
		419223.1494	4034342.8214
T25-3	0.26	417974.8683	4036933.5367
		418192.9713	4036174.1094
		418665.8457	4034527.9245
		418529.1039	4034424.5053
		418434.8263	4034452.0750
		418325.1939	4034653.5406
		418224.8453	4034845.3287
		418067.8080	4035047.7803
		417953.2284	4035467.5065
		417980.4697	4035865.3136
		418027.8561	4036319.6127
		417976.7952	4036709.7435
		417940.1967	4036989.3746
		417924.4340	4037108.4563
		417974.8683	4036933.5367
T32-1	0.18	416020.8582	4042568.1991
		416020.5077	4042551.3401
		416020.1409	4042533.6930
		416018.9905	4042478.3471
		416015.9120	4042330.2460
		415869.3630	4042338.0433
		415692.3612	4042371.6124
		415686.0509	4042382.4209
		415685.9013	4042382.6772
		415685.2178	4042383.8480
		415542.5045	4042628.2931
		415466.1135	4042759.1388
		415360.9503	4042939.2666
		415325.3619	4043000.2238
		415316.6838	4043015.0880
		415532.3824	4043014.2631

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415696.9669	4043207.9327
		415863.2633	4043403.6167
		415996.8507	4043320.6666
		416009.4278	4043312.8570
		416010.8609	4043237.9573
		416010.8619	4043237.9058
		416011.6310	4043197.7108
		416012.4067	4043157.1705
		416019.1461	4042804.9417
		416021.5536	4042625.6378
		416021.7492	4042611.0661
		416021.3865	4042593.6171
		416021.0826	4042578.9943
		416020.8582	4042568.1991
T36-3 Addition	0.03	414550.5526	4039224.6348
		414548.2365	4039274.9161
		414537.5701	4039498.0063
		414528.0492	4039697.5872
		414532.4404	4039758.0190
		414583.4212	4039699.2761
		414643.2559	4039605.6218
		414700.4892	4039498.9600
		414718.6997	4039441.7268
		414729.1056	4039314.2529
		414747.2438	4039109.5495
		414550.5526	4039224.6348
T37-1	0.21	408316.4774	4042459.9838
		408338.8360	4042445.5751
		408346.9908	4042440.3199
		408347.0668	4042402.6597
		408347.9558	4041961.9434
		408348.0616	4041909.5004
		408348.9029	4041492.4725
		408268.2287	4041492.7310
		408159.1942	4041493.0803
		408085.5117	4041493.3164
		407826.2600	4041871.2474
		407718.8959	4042027.7602
		407731.4988	4042299.4041
		407804.9242	4042524.2075
		407860.7976	4042630.3748
		407873.2855	4042654.1035
		407893.8312	4042653.2768
		407936.4269	4042651.5630
		407947.3069	4042651.1252
		407978.0503	4042649.8882
		407978.4997	4042649.8701

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		407979.3355	4042649.8365
		407980.4094	4042649.7933
		407985.9326	4042649.5710
		408021.5853	4042648.1365
		408022.4716	4042648.1008
		408032.2670	4042647.7067
		408032.2792	4042647.7062
		408037.2143	4042635.1454
		408046.7525	4042610.8691
		408053.9609	4042592.5224
		408067.3807	4042558.3666
		408073.8791	4042541.8273
		408077.5517	4042532.4798
		408078.1553	4042530.9437
		408080.2995	4042525.4862
		408086.5383	4042509.6074
		408088.7554	4042503.9647
		408089.5014	4042502.0659
		408089.5374	4042502.0637
		408089.5625	4042502.0622
		408090.7813	4042501.9891
		408095.0368	4042501.7350
		408162.3272	4042497.7099
		408184.0589	4042496.4101
		408184.9242	4042496.3584
		408201.5916	4042495.3615
		408219.8713	4042494.2681
		408226.3741	4042493.8791
		408267.6767	4042491.4087
		408267.7178	4042491.4062
		408294.6521	4042474.0488
		408315.3660	4042460.7000
		408316.4646	4042459.9920
		408316.4774	4042459.9838
T37-2	0.59	409286.9516	4038201.2212
		409308.0584	4038163.0196
		409308.0602	4038162.9814
		409308.0610	4038162.9628
		409310.1022	4038119.0518
		409311.1102	4038097.3658
		409312.4915	4038067.6499
		409312.7645	4038061.7760
		409325.1482	4038037.5861
		409335.6731	4038017.0272
		409335.6730	4038017.0063
		409334.9149	4037882.5867
		409334.4056	4037792.2852

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409260.6274	4037628.4629
		409184.9769	4037508.1215
		409105.2039	4037365.9140
		409044.0149	4037256.8354
		408950.7405	4037246.0033
		408947.8902	4037245.6722
		408910.3790	4037241.3160
		408869.9095	4037236.6162
		408755.7934	4037260.8691
		408761.5547	4037206.7214
		408764.0431	4037183.3347
		408766.5154	4037160.0993
		408768.3315	4037143.0313
		408784.9129	4037079.6832
		408785.6375	4037039.7694
		408785.6817	4037037.3381
		408787.0526	4036961.8229
		408789.6756	4036817.3542
		408751.3271	4036667.7207
		408706.6520	4036616.2502
		408702.8334	4036371.4813
		408700.9212	4036248.9110
		408700.7355	4036237.0064
		408700.7345	4036236.9420
		408700.2588	4036206.4511
		408694.4951	4035836.9988
		408465.9883	4035936.4920
		408417.2066	4035957.7318
		408415.8015	4035964.7875
		408386.2217	4036113.3207
		408376.9612	4036159.8220
		408370.5660	4036191.9354
		408325.9393	4036216.4188
		408313.2102	4036223.4024
		408249.5600	4036258.3226
		408231.7489	4036571.0454
		408075.5676	4036791.1801
		408254.3940	4037157.2867
		408249.8202	4037387.3633
		408305.3159	4037396.8798
		408538.1880	4037436.8131
		408606.5674	4037448.5389
		408414.0682	4037664.3519
		408348.7912	4037888.7233
		408388.2641	4037979.1214
		408394.2512	4037992.8327
		408415.8298	4038042.2505

Exhibit 1 - PM10 Control Areas and Coordinates

2006 Dust Control Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408457.2390	4038102.5799
		408493.9799	4038156.1081
		408687.9040	4038284.6646
		408762.6862	4038303.7721
		408796.6756	4038298.6942
		408853.1404	4038290.2585
		408856.6550	4038287.5971
		408883.0703	4038267.5946
		408888.3205	4038263.6190
		408908.9055	4038248.0314
		408911.3347	4038246.1919
		408915.2794	4038246.3720
		408969.2399	4038248.8355
		409028.9283	4038251.5605
		409068.1858	4038254.4649
		409124.1495	4038258.6052
		409126.1477	4038258.7530
		409129.0855	4038277.7607
		409130.9580	4038289.8759
		409134.0177	4038309.6731
		409144.5362	4038382.5555
		409166.2029	4038398.4562
		409188.6648	4038414.9404
		409194.4843	4038419.2111
		409201.0785	4038424.0504
		409201.1026	4038424.0681
		409201.2496	4038424.0469
		409201.6494	4038423.9892
		409267.1551	4038414.5416
		409267.1731	4038414.5390
		409276.8305	4038407.5517
		409299.1327	4038391.4158
		409299.1846	4038391.3782
		409300.1250	4038380.9426
		409304.3603	4038333.9409
		409304.7158	4038329.9955
		409304.7186	4038329.9623
		409264.9373	4038273.3966
		409254.9598	4038259.2095
		409254.9382	4038259.1787
		409254.9333	4038259.1717
		409266.6143	4038238.0301
		409286.9516	4038201.2212

Exhibit 1 - PM10 Control Areas and Coordinates

Channel Area

Area ID	Area (sq miles)	UTM X	UTM Y
C1	0.21	412114.1288	4023531.1972
		411898.3534	4023239.0517
		411853.5786	4023178.4492
		411780.3515	4023076.2456
		411702.1375	4022877.2132
		411645.2720	4022735.1098
		411641.2736	4022435.1011
		411421.1708	4022347.8283
		411290.0657	4022321.4651
		411151.2016	4022147.9844
		410987.9078	4022252.4215
		410994.3205	4022416.6426
		411073.0277	4022641.9086
		411126.7256	4022795.5958
		411432.4438	4022937.5450
		411460.7988	4022950.7106
		411581.3611	4023006.5993
		411733.8386	4023231.0923
		411756.0765	4023263.9938
		411784.7187	4023306.3704
		411867.2652	4023463.2354
		411856.6603	4023492.7197
		411737.3086	4023824.9915
		411915.0878	4023883.7727
		411987.3569	4023709.3450
		412114.1288	4023531.1972
C2	0.30	410021.5195	4020289.5251
		409689.8168	4020165.2179
		409630.4774	4020144.7287
		409576.6128	4020126.1299
		409445.4661	4019983.4003
		409435.8230	4019902.2959
		409208.2558	4019473.1115
		409164.6560	4019560.5346
		409160.4540	4019569.1396
		409135.7321	4019619.7659
		409133.7381	4019623.8493
		409132.8181	4019625.7333
		409119.1730	4019653.6761
		409087.7794	4019744.3676
		409076.9241	4019775.7268
		409064.5237	4019812.8632
		409052.3419	4019860.5319
		409109.9316	4019969.9738
		409201.9155	4020086.6047
		409223.1416	4020188.3568
		409280.4484	4020086.9084

Exhibit 1 - PM10 Control Areas and Coordinates

Channel Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409276.4247	4020023.1050
		409362.4622	4020009.5035
		409409.2894	4020065.3131
		409487.6034	4020143.3409
		409724.2880	4020448.5196
		409998.0302	4020801.4793
		410027.5849	4021036.2856
		410038.4994	4021096.3389
		410110.0532	4021493.3823
		410350.3675	4021535.4504
		410566.9152	4021570.1680
		410723.1430	4021595.2150
		410604.9139	4021412.4751
		410686.3969	4021329.2488
		410592.4067	4021145.4323
		410488.7112	4020946.6551
		410264.9378	4020620.1863
		410015.7153	4020454.4270
		410021.5195	4020289.5251

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 8 Area

Area ID	Area (sq miles)	UTM X	UTM Y
Area A	1.96	411237.3205	4043740.6607
		411207.6845	4043753.6791
		411179.2895	4043757.2091
		411151.6315	4043749.0266
		411123.9014	4043730.4160
		411089.3187	4043670.0089
		410953.8469	4043482.2177
		410935.7348	4043461.5191
		410823.5172	4043456.9972
		410787.0434	4043466.5180
		410727.7247	4043492.0010
		410704.5141	4043495.0568
		410597.5819	4043458.1315
		410565.5024	4043436.8383
		410543.3654	4043401.4241
		410537.6911	4043382.7183
		410536.8726	4043348.8423
		410542.2467	4043327.0034
		410533.5401	4043305.6995
		410526.6307	4043242.9925
		410511.3725	4043210.0862
		410493.9516	4043001.1922
		410268.6279	4043005.6231
		410003.7039	4043010.8326
		410001.6954	4042464.1381
		410000.0033	4042003.4174
		410723.8358	4042002.5739
		410768.3331	4041851.7219
		410776.8400	4041822.8824
		410840.2849	4041607.7952
		410843.9976	4041595.2088
		410857.4942	4041549.4532
		410825.3880	4041524.8233
		410453.6629	4041239.6583
		410132.6677	4040993.4098
		410754.5323	4040429.4164
		410536.3607	4040449.0193
		410369.0729	4040479.2024
		410233.7633	4040544.6348
		410176.5626	4040579.7134
		410104.1071	4040608.5803
		409907.2818	4040745.3987
		409879.5179	4040756.3952
		409750.2805	4040876.4342
		409701.3330	4040895.5954
		409678.6324	4040925.6786
		409642.8276	4040956.5193

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 8 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409600.4556	4040974.3943
		409571.2767	4041006.1819
		409557.0110	4041045.3963
		409545.6251	4041061.2854
		409454.5386	4041143.5883
		409411.7061	4041174.3745
		409399.9933	4041192.2740
		409373.0680	4041216.8668
		409144.3041	4041353.2179
		409121.3431	4041357.7851
		409098.3821	4041353.2179
		409025.7306	4041294.5927
		408819.0912	4041213.6030
		408655.7727	4041290.5176
		408426.6115	4041410.1279
		408344.8643	4041438.2143
		408298.9586	4041458.6586
		408268.2287	4041492.7310
		408348.9029	4041492.4725
		408348.0616	4041909.5004
		408347.9558	4041961.9434
		408347.0668	4042402.6597
		408346.9908	4042440.3199
		408338.8360	4042445.5751
		408316.4774	4042459.9838
		408316.4851	4042459.9851
		408316.5011	4042459.9880
		408316.6806	4042460.0196
		408339.4204	4042464.0330
		408343.1042	4042464.6831
		408343.1912	4042464.6985
		408352.7133	4042470.4798
		408352.9831	4042470.6436
		408358.4712	4042473.9756
		408358.9028	4042474.2377
		408361.9306	4042476.0760
		408389.6508	4042484.1169
		408405.7674	4042488.7920
		408428.3087	4042504.1697
		408441.1621	4042518.9802
		408445.2616	4042523.7039
		408455.9718	4042536.0449
		408462.6057	4042543.6889
		408466.8823	4042548.6166
		408471.3153	4042553.7246
		408477.8694	4042561.2767
		408479.8641	4042563.5751

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 8 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408482.5335	4042566.6510
		408486.5695	4042571.3015
		408500.6445	4042587.5196
		408505.8846	4042593.5576
		408506.2941	4042594.0294
		408511.8895	4042600.4769
		408520.5008	4042614.1347
		408525.9797	4042622.8245
		408526.1185	4042623.0446
		408526.3493	4042623.1913
		408527.1862	4042623.7230
		408531.5370	4042626.4874
		408533.4289	4042627.6895
		408538.3709	4042630.8295
		408543.1086	4042633.8398
		408543.1695	4042633.8785
		408548.7787	4042637.4425
		408563.7246	4042646.9389
		408566.5111	4042648.7094
		408568.1933	4042649.7782
		408569.7642	4042650.7764
		408569.7790	4042650.7858
		408570.3453	4042651.1456
		408571.7999	4042652.0698
		408574.7923	4042653.9712
		408574.9830	4042654.0923
		408576.1325	4042654.5279
		408578.9758	4042655.6054
		408590.3377	4042659.9109
		408604.3349	4042665.2152
		408611.9856	4042668.1144
		408619.1549	4042670.8313
		408629.8639	4042674.8894
		408651.6705	4042676.7814
		408652.7502	4042676.8751
		408658.4561	4042677.3701
		408665.3417	4042677.9675
		408674.8361	4042676.2663
		408688.6273	4042673.7951
		408696.6588	4042672.3560
		408707.2204	4042674.2302
		408713.6605	4042675.3731
		408745.3474	4042680.9963
		408748.7206	4042682.3273
		408758.3303	4042686.1190
		408766.3233	4042689.2729
		408785.3467	4042696.7791

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 8 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408792.4681	4042699.5891
		408803.5265	4042706.5849
		408820.8039	4042717.5152
		408825.1265	4042720.2498
		408840.3955	4042739.6846
		408844.1085	4042744.4106
		408851.2068	4042762.0701
		408857.0293	4042776.5556
		408858.9146	4042781.2460
		408859.2582	4042782.1007
		408863.2774	4042792.0999
		408858.8893	4042833.5669
		408857.4396	4042847.2662
		408856.8687	4042852.6613
		408856.6178	4042855.0319
		408856.0866	4042860.0523
		408859.4392	4042863.1236
		408863.1337	4042866.5080
		408863.5110	4042866.8537
		408867.9296	4042870.9015
		408890.4177	4042891.5024
		408894.7102	4042895.4348
		408900.2233	4042900.4852
		408907.6413	4042907.2807
		408910.5689	4042909.9627
		408913.3184	4042913.6459
		408918.1633	4042920.1363
		408921.8623	4042925.0916
		408929.5742	4042935.4224
		408932.4594	4042939.2875
		408932.7352	4042939.6570
		408936.0468	4042944.0932
		408937.4330	4042945.9503
		408937.7558	4042946.3827
		408940.4946	4042950.0516
		408946.5357	4042958.1444
		408953.7132	4042967.7595
		408959.3314	4042975.2857
		408971.6735	4042987.1501
		408976.9965	4042992.2671
		408993.9067	4043008.5228
		408994.3653	4043008.9637
		409008.4854	4043046.8150
		409011.3561	4043054.5105
		409021.0004	4043063.4047
		409021.8449	4043064.1835
		409029.3449	4043071.1002

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 8 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409029.4133	4043071.1632
		409035.9237	4043077.1673
		409041.4086	4043082.2255
		409049.1885	4043089.4003
		409057.0231	4043096.6256
		409060.9224	4043100.2216
		409064.2670	4043103.3061
		409064.8988	4043103.8887
		409081.3001	4043119.0144
		409083.5694	4043121.1072
		409092.7411	4043129.5655
		409103.0041	4043136.8856
		409119.9071	4043148.9417
		409123.5351	4043151.5294
		409125.0977	4043152.6440
		409131.4936	4043157.2058
		409146.6404	4043168.0094
		409156.9721	4043183.8188
		409157.5060	4043184.6357
		409158.1803	4043185.6676
		409169.1853	4043202.5072
		409169.4921	4043202.9767
		409169.6449	4043203.0818
		409194.5618	4043220.2162
		409200.9353	4043230.3216
		409208.7508	4043242.7132
		409208.7762	4043242.7534
		409230.6355	4043256.7461
		409238.0474	4043261.4907
		409246.0315	4043266.6016
		409331.5726	4043349.9087
		409344.7418	4043368.3637
		409498.2187	4043486.8379
		409513.1152	4043503.3271
		409564.1080	4043531.4515
		409606.3741	4043547.2951
		410002.9423	4043763.4240
		410192.6181	4043839.1058
		410212.5063	4043857.7331
		410224.8423	4043887.6674
		410263.2830	4043926.8198
		410428.1796	4043982.7461
		410597.2709	4044063.9791
		410780.5637	4044127.9989
		410797.1634	4044138.3212
		410822.1383	4044165.6309
		410976.4794	4044211.0969

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 8 Area

Area ID	Area (sq miles)	UTM X	UTM Y
Area B	0.06	410994.0806	4044226.5327
		411004.4350	4044247.5293
		411020.9354	4044383.2291
		411194.2518	4044437.7691
		411250.0279	4044449.6939
		411237.3205	4043740.6607
		411368.8821	4043685.0145
		411375.0392	4043915.7480
		411516.4385	4043938.4040
		411620.8424	4044005.2321
		411709.8854	4044038.2482
		411758.3361	4044037.2052
		411828.9394	4044025.2421
		411888.9563	4043991.2337
		411896.9565	4043946.2341
		411863.9022	4043894.9825
		411828.8353	4043806.6428
		411788.9031	4043686.1008
		411697.8689	4043662.0922
		411602.8327	4043660.0595
		411456.7364	4043657.0894
		411368.8821	4043685.0145

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
C2-L1	0.08	409087.7794	4019744.3676
		409119.1730	4019653.6761
		409132.8181	4019625.7333
		409133.7381	4019623.8493
		409135.7321	4019619.7659
		409160.4540	4019569.1396
		409164.6560	4019560.5346
		409208.2558	4019473.1115
		409207.5174	4019364.3380
		409207.4586	4019355.6851
		409219.4108	4019347.7120
		409240.1576	4019333.8721
		409272.1768	4019316.2843
		409302.2554	4019299.7625
		409374.7338	4019259.9508
		409428.6436	4019253.2063
		409493.9270	4019250.0862
		409500.0000	4019229.7137
		409534.8572	4019112.7819
		409535.2630	4019063.9333
		409535.2790	4019062.0029
		409535.4202	4019044.9991
		409535.7335	4019007.2814
		409535.7940	4019000.0000
		409535.8384	4018994.6572
		409524.1563	4018994.1348
		409505.6563	4018993.3340
		409501.8125	4018984.2520
		409501.9375	4018961.3789
		409502.3750	4018943.6641
		409479.4063	4018921.0293
		409469.4688	4018909.3457
		409459.9688	4018905.8438
		409411.3750	4018888.4805
		409384.1875	4018844.5391
		409375.1875	4018815.8887
		409371.6250	4018810.6992
		409355.9375	4018801.1973
		409350.1875	4018798.6875
		409344.2188	4018797.0176
		409333.7450	4018795.4162
		409302.8125	4018765.2930
		409250.5329	4018743.3376
		409250.3750	4018743.1016
		409244.9063	4018740.9746
		409221.4063	4018739.1406
		409204.0938	4018737.2305

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409198.1250	4018737.7090
		409195.0000	4018741.9863
		409192.9375	4018747.7637
		409191.4375	4018753.2520
		409190.0625	4018758.9082
		409190.4375	4018764.6133
		409191.8125	4018769.8379
		409195.1250	4018774.5059
		409198.6250	4018779.0742
		409200.9063	4018784.5996
		409201.9375	4018786.2715
		409204.2188	4018790.0527
		409207.3125	4018794.8496
		409211.6250	4018797.8184
		409216.2188	4018801.4961
		409219.6875	4018805.8887
		409223.0938	4018810.2930
		409226.1875	4018815.2168
		409229.7188	4018819.8027
		409232.1875	4018825.0371
		409234.5625	4018830.1231
		409235.3750	4018836.1895
		409234.5938	4018841.4199
		409233.1250	4018846.6074
		409230.8125	4018851.6250
		409228.1875	4018856.6602
		409224.5313	4018861.3262
		409220.7813	4018865.6563
		409218.8125	4018870.9414
		409217.8750	4018876.4922
		409215.3125	4018881.1738
		409213.3750	4018885.8184
		409212.1250	4018891.1270
		409209.7813	4018894.8106
		409209.5625	4018901.0000
		409210.7813	4018906.7266
		409212.3438	4018911.9688
		409215.1563	4018916.5918
		409218.9063	4018920.8926
		409222.8125	4018924.4766
		409226.2813	4018928.5117
		409229.3750	4018931.5137
		409231.4688	4018933.7598
		409235.1250	4018937.6543
		409239.8750	4018940.9121
		409243.5313	4018944.9590
		409246.7500	4018949.4375

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409248.4688	4018954.5586
		409247.7813	4018959.7637
		409248.8438	4018965.1680
		409253.0625	4018968.6270
		409257.7829	4018971.0797
		409291.3125	4018993.2539
		409309.4063	4018979.5859
		409335.4688	4018983.5879
		409353.6250	4019026.3809
		409356.5830	4019104.0949
		409356.0625	4019106.2852
		409356.7234	4019107.7831
		409357.0938	4019117.5137
		409365.3438	4019190.8477
		409342.5000	4019222.2031
		409306.1875	4019242.1289
		409285.8589	4019256.1706
		409284.1250	4019257.1387
		409280.9688	4019259.0879
		409280.8973	4019259.1698
		409280.7325	4019259.2676
		409280.6563	4019259.2891
		409280.2218	4019259.5708
		409276.9687	4019261.5019
		409262.6875	4019271.9140
		409247.6250	4019282.4531
		409233.2187	4019292.5313
		409197.8181	4019320.2782
		409195.7813	4019321.6465
		409192.2188	4019324.1133
		409192.2500	4019324.2578
		409192.3125	4019324.3594
		409192.2813	4019324.5391
		409186.7813	4019328.7168
		409186.2377	4019329.3549
		409186.0191	4019329.5262
		409185.9688	4019329.4863
		409183.0000	4019331.8926
		409153.7188	4019363.2930
		409134.1563	4019390.8242
		409134.1875	4019405.6758
		409140.5312	4019422.8145
		409144.9055	4019432.0277
		409137.4375	4019443.4883
		409120.9063	4019442.1953
		409074.3125	4019442.1231
		409059.8438	4019446.7422

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
DuckPond-L1	0.16	409046.5938	4019458.9746
		408978.2813	4019479.2481
		408943.9688	4019519.6250
		408908.4063	4019566.7305
		408862.1563	4019572.7344
		408843.8750	4019574.4863
		408828.3750	4019585.5293
		408759.6563	4019634.6895
		408629.0361	4019730.5739
		408624.1563	4019733.8164
		408601.4375	4019750.4258
		408590.7600	4019758.4994
		409087.7794	4019744.3676
		410031.0849	4018587.3936
		410032.3437	4018584.3964
		410061.7811	4018580.7016
		410064.1562	4018581.6230
		410075.5312	4018580.8203
		410084.2500	4018581.2128
		410090.4430	4018581.0267
		410099.0625	4018580.7675
		410114.6250	4018580.8418
		410131.4062	4018580.0039
		410147.9687	4018578.0117
		410161.5000	4018578.6796
		410173.5937	4018580.4902
		410181.7183	4018580.3297
		410182.4375	4018580.8613
		410182.6875	4018580.3104
		410184.2389	4018576.9366
		410187.4375	4018569.9804
		410188.2812	4018558.3593
		410190.5346	4018524.4617
		410200.8750	4018490.8964
		410231.3437	4018479.4785
		410354.2812	4018478.9472
		410451.4062	4018488.9179
		410466.6439	4018498.9629
		410532.6250	4018542.4589
		410589.2500	4018552.7656
		410707.4687	4018560.7851
		410798.9822	4018560.5659
		410804.9241	4018560.5518
		410812.2900	4018560.5342
		410820.8438	4018560.5137
		410834.3125	4018557.6856
		410844.6563	4018552.3574

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410844.6639	4018552.3535
		410847.5625	4018550.8672
		410850.3125	4018547.8301
		410853.7188	4018547.5059
		410857.0313	4018549.7461
		410863.2193	4018554.0584
		410867.8750	4018557.3027
		410870.8097	4018559.3402
		410874.2187	4018561.7070
		410893.7187	4018561.6250
		410899.9687	4018542.9746
		410905.7187	4018522.6191
		410906.1241	4018520.4503
		410906.1250	4018520.4453
		410906.2813	4018519.7109
		410909.7812	4018501.6230
		410901.3437	4018483.3066
		410900.9063	4018471.0234
		410900.9039	4018470.9633
		410900.7187	4018466.3027
		410904.4062	4018461.4941
		410904.4110	4018461.4879
		410910.3315	4018453.7562
		410910.3437	4018453.7402
		410910.4375	4018453.6367
		410910.9683	4018443.1502
		410910.9688	4018443.1406
		410911.2187	4018437.8457
		410907.8125	4018417.8398
		410900.6250	4018398.5527
		410883.5312	4018390.5898
		410865.8750	4018390.1894
		410854.1875	4018378.3515
		410841.1875	4018369.8027
		410840.6562	4018369.0937
		410837.7813	4018365.1387
		410835.8266	4018363.0415
		410830.7265	4018357.5695
		410827.5625	4018357.0000
		410822.8911	4018358.9993
		410819.9687	4018360.2500
		410814.1562	4018352.5000
		410810.4739	4018348.5399
		410804.6250	4018342.2500
		410803.0625	4018339.5000
		410800.2813	4018335.2500
		410792.0000	4018328.5000

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410790.9168	4018326.7118
		410788.0625	4018322.0000
		410777.7188	4018318.0000
		410768.7812	4018317.5000
		410761.8125	4018304.5000
		410757.7187	4018301.2500
		410764.5313	4018285.0000
		410761.9062	4018277.0000
		410757.6148	4018268.9799
		410754.2812	4018262.7500
		410749.3125	4018261.5000
		410742.1875	4018259.2500
		410749.3125	4018249.7500
		410750.3437	4018248.2500
		410750.5937	4018246.2500
		410749.3125	4018245.2500
		410748.8125	4018245.0000
		410740.6562	4018246.2500
		410739.9303	4018246.3706
		410730.1250	4018248.0000
		410709.7500	4018235.5000
		410702.3125	4018231.2500
		410700.0705	4018227.9247
		410696.7500	4018223.0000
		410688.3438	4018213.7500
		410668.5000	4018206.2500
		410627.3750	4018198.0000
		410621.3125	4018183.7500
		410624.2187	4018181.5000
		410620.0937	4018182.2500
		410594.5312	4018181.0000
		410589.2187	4018181.5000
		410566.4688	4018186.5000
		410535.8750	4018171.0000
		410532.9062	4018167.2500
		410529.1875	4018164.0000
		410500.9687	4018141.2500
		410494.2187	4018135.7500
		410488.1250	4018133.0000
		410485.5625	4018135.7500
		410474.4375	4018137.0000
		410468.3437	4018133.0000
		410464.6562	4018137.7500
		410446.7187	4018145.0000
		410440.1250	4018145.0000
		410428.8750	4018142.7500
		410421.5625	4018140.7500

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410419.7140	4018140.1121
		410413.5937	4018138.0000
		410408.9063	4018137.0000
		410401.3750	4018129.7500
		410397.0937	4018126.5000
		410394.9062	4018122.7500
		410389.7188	4018111.2500
		410386.5000	4018107.2500
		410379.4221	4018100.9586
		410378.9063	4018100.5000
		410377.7500	4018099.5000
		410375.9688	4018099.0000
		410375.9280	4018099.0214
		410373.0937	4018100.5000
		410372.7087	4018101.6034
		410371.0000	4018106.5000
		410350.2500	4018116.2500
		410333.3667	4018121.4261
		410331.4062	4018124.1250
		410333.2500	4018140.2480
		410333.2506	4018140.2538
		410333.4062	4018141.7070
		410333.6875	4018155.2617
		410324.6250	4018165.8613
		410323.7802	4018166.2622
		410307.6562	4018173.8554
		410297.6875	4018189.5019
		410288.8437	4018192.3730
		410277.6250	4018191.7500
		410266.3125	4018184.4707
		410252.5625	4018175.0234
		410233.0937	4018172.1308
		410217.5000	4018183.3554
		410211.9375	4018201.1113
		410208.9375	4018208.8907
		410205.6875	4018217.3515
		410202.8435	4018219.5388
		410199.3125	4018222.2519
		410192.7500	4018221.7363
		410177.5318	4018231.4436
		410176.0625	4018232.3808
		410174.6592	4018240.8893
		410172.7500	4018252.4648
		410175.3437	4018253.2578
		410175.7187	4018262.0312
		410185.2187	4018276.3691
		410173.0000	4018290.9414

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410154.6222	4018301.9333
		410154.4062	4018302.0625
		410136.2812	4018315.9316
		410122.0625	4018334.2773
		410104.0312	4018346.9629
		410103.7150	4018347.2933
		410102.3437	4018348.7265
		410101.5625	4018348.8203
		410101.1562	4018349.9668
		410089.0000	4018362.6172
		410074.5625	4018372.7851
		410055.0312	4018379.0000
		410036.4062	4018388.1269
		410036.2417	4018388.2575
		410018.7500	4018402.1328
		410014.5625	4018424.6855
		410017.2744	4018437.9767
		410018.8437	4018445.6679
		410019.5000	4018451.7129
		410019.5070	4018451.7791
		410021.0937	4018466.8027
		410019.7187	4018483.4375
		410013.0000	4018484.7089
		410003.4062	4018486.5175
		409987.0625	4018479.4375
		409970.6250	4018474.0664
		409970.1250	4018473.9004
		409968.0937	4018473.3925
		409955.5312	4018470.2812
		409950.9687	4018455.2617
		409952.2812	4018451.4765
		409956.8750	4018438.2812
		409943.2500	4018425.9902
		409939.5313	4018421.0313
		409931.5938	4018410.4102
		409913.3438	4018401.5430
		409893.1250	4018403.2188
		409880.5938	4018406.2031
		409817.6875	4018421.0469
		409784.9552	4018426.7287
		409782.2500	4018427.0957
		409762.8125	4018430.5723
		409744.7188	4018437.5410
		409687.8750	4018482.5137
		409632.0625	4018509.0020
		409597.8125	4018525.2168
		409566.8750	4018531.2968

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409563.5934	4018537.1404
		409557.5000	4018547.9902
		409554.3437	4018571.9843
		409542.9062	4018614.6425
		409521.1562	4018692.6875
		409518.0312	4018711.2324
		409517.3750	4018715.2363
		409522.0312	4018733.2187
		409527.5625	4018740.9648
		409564.9687	4018745.6347
		409578.4062	4018749.1738
		409593.3437	4018750.5722
		409607.9062	4018756.4629
		409617.5312	4018768.0390
		409625.2500	4018781.6093
		409637.8125	4018784.3828
		409637.7812	4018771.4902
		409643.2812	4018759.6464
		409658.0625	4018752.2910
		409673.4687	4018745.3359
		409687.9687	4018737.3886
		409703.0312	4018731.7773
		409718.5312	4018737.2461
		409734.6250	4018739.4726
		409748.8125	4018747.4531
		409755.9756	4018753.2742
		409761.6250	4018757.8652
		409769.0000	4018772.5293
		409782.4063	4018782.1055
		409797.4688	4018788.6426
		409812.5625	4018792.3906
		409826.0313	4018790.3164
		409840.4063	4018787.2441
		409853.3125	4018781.9316
		409862.6875	4018790.6914
		409860.2500	4018805.6211
		409861.2188	4018821.0000
		409871.9375	4018829.6211
		409885.2188	4018826.2676
		409889.6875	4018812.8047
		409893.7500	4018798.0879
		409898.1901	4018791.7561
		409902.7812	4018785.2089
		409913.0312	4018774.0722
		409922.2812	4018765.1035
		409933.7812	4018769.5039
		409945.6250	4018766.9316

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
DuckPond-L2	0.01	409956.1035	4018765.2943
		409959.8125	4018764.7148
		409966.9310	4018765.4660
		409973.2500	4018766.1328
		409980.1557	4018765.8153
		409986.8437	4018765.5078
		409995.0625	4018759.4550
		410003.5937	4018706.9765
		410004.5635	4018681.2253
		410004.5663	4018681.1495
		410005.1250	4018666.3145
		410005.7187	4018650.2050
		410009.2529	4018640.2979
		410011.4375	4018634.1738
		410029.4130	4018591.3744
		410031.0849	4018587.3936
		410798.9822	4018560.5659
		410707.4687	4018560.7851
		410589.2500	4018552.7656
		410532.6250	4018542.4589
		410466.6439	4018498.9629
		410451.4062	4018488.9179
		410354.2812	4018478.9472
		410231.3437	4018479.4785
		410200.8750	4018490.8964
		410190.5346	4018524.4617
		410188.2812	4018558.3593
		410187.4375	4018569.9804
		410184.2389	4018576.9366
		410182.6875	4018580.3104
		410182.4375	4018580.8613
		410181.7183	4018580.3297
		410173.5937	4018580.4902
		410161.5000	4018578.6796
		410147.9687	4018578.0117
		410131.4062	4018580.0039
		410114.6250	4018580.8418
		410099.0625	4018580.7675
		410090.4430	4018581.0267
		410084.2500	4018581.2128
		410075.5312	4018580.8203
		410064.1562	4018581.6230
		410061.7811	4018580.7016
		410032.3437	4018584.3964
		410031.0849	4018587.3936
		410610.8819	4018578.0027
		410611.9688	4018575.4198

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410614.5938	4018563.3379
		410626.0313	4018566.1347
		410642.1875	4018572.1054
		410659.9375	4018574.7617
		410677.8438	4018575.7363
		410690.0938	4018573.8925
		410703.0313	4018572.6582
		410717.3437	4018571.8046
		410736.9688	4018572.6425
		410754.8750	4018573.5390
		410764.6562	4018574.2909
		410780.1250	4018575.4472
		410795.2813	4018572.1855
		410798.9822	4018560.5659
T10-3-L1	0.49	414525.4449	4027872.6930
		414603.3991	4027348.4000
		414666.3683	4027314.2564
		414704.5839	4027293.5349
		414829.7448	4027225.6694
		414946.0613	4027212.3252
		414946.8125	4027212.2390
		414946.7384	4027212.0856
		414809.4765	4026927.9082
		414777.6428	4026862.0020
		414628.2736	4026552.7589
		414626.7335	4026550.4892
		414581.3692	4026483.6358
		414580.1326	4026481.8134
		414575.1058	4026474.4055
		414574.5451	4026473.5792
		414521.1467	4026419.0833
		414474.4641	4026371.4413
		414468.2236	4026365.1107
		414364.4695	4026259.8586
		414361.5358	4026256.8825
		414294.0026	4026188.3743
		414280.6829	4026176.7292
		414237.0681	4026138.5977
		414202.5256	4026108.3980
		414103.3906	4026021.7264
		414058.1609	4025988.9880
		414054.0898	4025986.0412
		414047.8003	4025981.4887
		413892.4598	4025869.0491
		413843.4527	4025859.0182
		413829.2680	4025901.0240
		413769.3260	4026077.6510

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413766.8293	4026102.6406
		413774.2520	4026130.8220
		413773.2640	4026153.3100
		413768.6080	4026169.1760
		413769.9440	4026206.0330
		413764.4600	4026229.3150
		413761.1130	4026315.1330
		413762.1840	4026336.2360
		413793.8360	4026337.1470
		413799.1127	4026344.1542
		413795.9790	4026355.3210
		413798.2401	4026395.5489
		413810.6940	4026397.6650
		413814.6230	4026411.5210
		413816.3460	4026445.6330
		413813.8690	4026457.9570
		413813.8570	4026485.0170
		413822.1490	4026499.9920
		413823.9760	4026565.8770
		413826.1880	4026583.3080
		413822.6220	4026599.2050
		413823.7540	4026625.8900
		413823.6980	4026659.2300
		413831.9430	4026671.6870
		413842.7170	4026687.9070
		413849.7370	4026705.4350
		413858.0210	4026720.3030
		413864.8300	4026737.6330
		413900.5600	4026768.0750
		413894.8410	4026776.8640
		413897.2290	4026786.7260
		413911.2500	4026787.5200
		413928.8340	4026806.7060
		413942.1370	4026813.8660
		413954.7110	4026821.2980
		413954.6945	4026850.0205
		413949.8200	4026865.9560
		413932.9030	4026868.5760
		413922.8230	4026872.6790
		413869.4860	4026876.7850
		413859.9980	4026887.3760
		413856.9980	4026902.6120
		413868.5760	4026914.8210
		413880.3510	4026928.0390
		413900.4850	4026936.5090
		413919.7430	4026943.6490
		413930.3390	4026950.4550

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413936.2790	4026967.1950
		413937.8340	4026983.6500
		413948.4310	4027009.1230
		413956.7560	4027025.5370
		413965.5510	4027032.4080
		413963.0570	4027060.0540
		413957.6050	4027084.4780
		413959.7010	4027096.0250
		413967.7620	4027104.8610
		413978.3090	4027109.4140
		413987.6000	4027103.8290
		414013.2630	4027104.3590
		414035.4440	4027111.8120
		414046.0470	4027119.5470
		414062.0140	4027127.3130
		414080.7920	4027132.4770
		414097.1890	4027138.9150
		414107.5030	4027143.0070
		414117.2610	4027147.5140
		414117.9868	4027150.2423
		414123.8820	4027172.4030
		414117.1900	4027185.9450
		414108.9260	4027190.1904
		414099.8110	4027194.8730
		414096.4400	4027215.2820
		414089.9220	4027235.2340
		414083.7370	4027243.7960
		414077.7010	4027260.6910
		414072.9140	4027271.6330
		414067.7740	4027280.1930
		414052.4860	4027287.2320
		414041.1880	4027289.2530
		414024.5660	4027291.9670
		414002.5650	4027309.4960
		413989.4380	4027321.2290
		413983.0380	4027339.5380
		413972.5920	4027356.7900
		413961.3010	4027372.3260
		413950.8350	4027392.4680
		413948.6340	4027404.9760
		413940.4080	4027414.5520
		413921.6940	4027428.1910
		413933.3400	4027448.7420
		413941.7030	4027462.0890
		413954.1560	4027484.8490
		413965.1680	4027492.3790
		413974.1510	4027529.3630

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413981.8210	4027549.7810
		413994.7960	4027555.4150
		414009.3540	4027565.0360
		414026.2990	4027583.1480
		414051.7640	4027604.5520
		414072.4060	4027617.4380
		414087.2730	4027635.8180
		414094.1170	4027644.6930
		414099.7487	4027648.1666
		414103.2320	4027650.3150
		414103.0520	4027659.4080
		414111.1230	4027679.4510
		414131.1575	4027709.6455
		414137.5800	4027719.3250
		414146.7760	4027732.4730
		414151.9075	4027740.9051
		414159.1334	4027742.4894
		414167.6240	4027744.3510
		414176.2720	4027740.3740
		414187.0540	4027736.3470
		414198.4250	4027745.3200
		414200.6060	4027756.1820
		414207.5960	4027779.8570
		414216.6760	4027799.1990
		414224.2310	4027814.6090
		414235.0980	4027828.8040
		414275.1810	4027863.5300
		414286.5747	4027873.8534
		414297.5260	4027883.7760
		414297.8098	4027883.9169
		414315.6990	4027892.7980
		414330.5710	4027902.9550
		414370.1950	4027920.8980
		414381.9180	4027926.2160
		414394.0920	4027957.3720
		414406.4329	4027941.2416
		414428.1750	4027912.8230
		414499.9870	4027893.3960
		414513.9410	4027875.5850
		414525.4449	4027872.6930
T10-L1	0.06	417550.0640	4023881.8302
		417491.8761	4023844.6200
		417432.5938	4023823.1348
		417406.6889	4023841.7865
		417404.5313	4023842.9277
		417401.1064	4023845.8060
		417398.8438	4023845.8750

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		417387.4375	4023846.9883
		417377.4063	4023848.7207
		417373.9911	4023849.5536
		417367.8438	4023851.0000
		417363.5497	4023852.4464
		417358.9375	4023853.9434
		417350.9375	4023857.4238
		417347.9675	4023859.0146
		417343.0938	4023861.5000
		417335.2813	4023866.7500
		417334.1271	4023867.6364
		417330.9375	4023867.5996
		417322.1875	4023869.0977
		417323.3403	4023876.4640
		417319.6875	4023879.7500
		417310.5938	4023888.9688
		417301.9688	4023899.1680
		417298.6438	4023903.5500
		417293.6563	4023910.0000
		417286.2813	4023921.5000
		417285.7344	4023922.4546
		417281.1250	4023930.3848
		417276.9063	4023939.6543
		417273.1563	4023949.9414
		417271.6830	4023954.8214
		417269.7188	4023961.2500
		417266.5000	4023975.5000
		417263.6563	4023992.2500
		417261.2488	4024009.7315
		417257.5625	4024036.4043
		417256.6438	4024045.0105
		417255.7813	4024053.0000
		417254.3444	4024071.4844
		417254.3436	4024071.5000
		417253.3443	4024112.0000
		417253.3441	4024112.0410
		417253.6875	4024135.5000
		417255.3873	4024181.7966
		417255.3750	4024181.8125
		417250.0938	4024188.6699
		417245.7188	4024206.3731
		417256.9692	4024218.8867
		417258.1250	4024236.5586
		417263.7812	4024236.7032
		417268.0938	4024251.1309
		417269.0000	4024267.9277
		417277.5625	4024282.9609

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		417277.4688	4024300.6270
		417280.5938	4024358.7793
		417282.1250	4024375.4063
		417285.8125	4024392.4238
		417287.3438	4024410.4102
		417289.7500	4024428.7559
		417300.5625	4024444.2070
		417305.9375	4024459.5820
		417310.6563	4024474.8535
		417322.5000	4024483.1133
		417333.2813	4024492.4785
		417361.0938	4024493.2520
		417376.7188	4024486.8066
		417388.3125	4024474.5840
		417392.8438	4024457.3848
		417400.8438	4024441.6406
		417409.6250	4024426.0449
		417413.8750	4024408.6758
		417410.5625	4024391.0352
		417407.2188	4024373.8281
		417415.2188	4024358.4316
		417428.4688	4024345.1348
		417437.3125	4024327.9512
		417440.1563	4024309.4434
		417446.3750	4024292.7773
		417458.0313	4024278.2344
		417469.2813	4024264.1680
		417484.2500	4024254.3535
		417498.4688	4024242.7949
		417498.5437	4024242.7227
		417558.7235	4024192.5258
		417582.1322	4024165.5897
		417614.8309	4024120.6349
		417620.5572	4024112.7622
		417646.5625	4024066.9434
		417656.8125	4024054.6660
		417656.8125	4024053.9609
		417656.8128	4024053.9378
		417656.8135	4024053.8927
		417657.0938	4024034.7207
		417655.5938	4024017.8535
		417650.0938	4024000.1777
		417629.0625	4023935.6406
		417621.0000	4023926.7168
		417608.2188	4023918.3125
		417592.9375	4023910.2793
		417550.0640	4023881.8302

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
T17-2-L1	0.12	419265.6563	4029152.4160
		419053.1875	4028867.2344
		418728.2813	4028430.3242
		418722.1875	4028434.7051
		418703.3750	4028437.6113
		418680.8125	4028447.9473
		418676.5938	4028450.9375
		418674.2813	4028451.2168
		418664.3125	4028457.7617
		418660.2500	4028462.5137
		418660.2188	4028462.5254
		418638.8750	4028479.9082
		418638.1563	4028480.3301
		418634.0938	4028482.5215
		418621.2188	4028489.2559
		418609.7188	4028497.1602
		418601.2813	4028504.0840
		418601.6563	4028503.9395
		418601.5938	4028504.0488
		418601.3750	4028504.1934
		418598.5938	4028507.4434
		418596.1250	4028509.4160
		418584.2188	4028525.0977
		418580.7188	4028530.0801
		418580.1875	4028530.3770
		418578.4063	4028533.3984
		418570.1250	4028545.2070
		418569.4688	4028546.6484
		418565.5938	4028551.4981
		418565.3125	4028552.3945
		418559.5625	4028562.7246
		418551.6250	4028575.1992
		418539.2188	4028627.8965
		418524.0938	4028708.4375
		418520.7813	4028730.8281
		418502.0625	4028752.2461
		418496.8750	4028756.9395
		418496.8438	4028756.9844
		418496.5938	4028756.8008
		418494.7188	4028760.0723
		418494.0938	4028761.0039
		418493.0938	4028762.8887
		418487.2500	4028772.9844
		418475.8750	4028792.9961
		418471.0000	4028801.4629
		418469.1250	4028804.2422
		418466.1875	4028809.8301

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		418464.6250	4028811.8184
		418462.2500	4028816.1504
		418462.0625	4028816.4043
		418461.3125	4028817.9063
		418458.3750	4028823.2715
		418449.0313	4028841.5430
		418442.6563	4028852.5977
		418442.2500	4028853.2813
		418442.2188	4028853.3281
		418439.5000	4028858.0840
		418435.1563	4028865.5527
		418421.8750	4028887.7285
		418409.2813	4028909.4512
		418402.2813	4028918.5664
		418403.4688	4028924.1250
		418406.3125	4028924.7207
		418406.1250	4028926.3691
		418425.3438	4028932.8164
		418448.0313	4028940.3438
		418471.4688	4028948.4356
		418496.0625	4028956.0762
		418519.5938	4028965.4629
		418543.4688	4028974.0664
		418558.3125	4028978.1367
		418559.6563	4028978.6289
		418560.0938	4028978.6250
		418563.4688	4028979.5508
		418568.6250	4028979.1816
		418574.5625	4028981.1914
		418575.4375	4028982.5371
		418575.5313	4028982.4453
		418583.1563	4028989.5234
		418591.9688	4028996.3711
		418597.2813	4029000.5430
		418642.1875	4029024.3945
		418665.8438	4029033.3867
		418697.6875	4029043.9512
		418731.6250	4029055.7832
		418768.2500	4029068.1465
		418802.2813	4029079.1816
		418836.2813	4029091.3516
		418871.5938	4029102.8867
		418905.1250	4029114.3223
		418921.4688	4029120.4512
		418945.6250	4029128.2676
		418982.5313	4029140.7832
		419022.2188	4029154.0684

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
T21-L1	0.58	419059.9688	4029167.3906
		419099.0938	4029180.6953
		419140.2500	4029194.4121
		419180.0313	4029207.9473
		419215.6250	4029220.5000
		419236.5000	4029216.8945
		419238.6875	4029208.1816
		419243.2188	4029190.2520
		419251.0000	4029170.3809
		419266.3125	4029154.2773
		419265.6563	4029152.4160
		421681.3538	4033175.4977
		421680.5833	4033146.5036
		421615.4529	4032859.4383
		421642.8450	4032720.0067
		421669.5739	4032583.9514
		421672.6950	4032568.0642
		421758.8199	4032529.2147
		421765.7569	4032526.0855
		421697.5464	4032435.8333
		421697.6948	4032435.3497
		421670.3086	4032396.8373
		421569.2500	4032259.9922
		421363.7119	4031994.1301
		421339.4293	4032013.5080
		421144.0336	4032169.4369
		421144.0312	4032169.4629
		421000.8019	4032283.7380
		420847.2185	4032406.3000
		420754.8980	4032462.5738
		420597.1630	4032558.7211
		420519.7444	4032605.9176
		420399.6563	4032679.1270
		420338.1250	4032670.5020
		420278.7230	4032824.8330
		420268.6708	4032850.9495
		420242.1858	4032883.6401
		420238.1250	4032888.6523
		420224.9228	4032905.2489
		420193.0625	4032945.3008
		420165.5938	4032977.7578
		420162.7669	4032996.9399
		420162.3109	4033000.0345
		420161.3125	4033002.9452
		420161.6104	4033004.7879
		420160.6230	4033011.4880
		420141.0313	4033144.4336

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		420140.7813	4033147.0859
		420141.1996	4033148.5249
		420143.4558	4033203.3550
		420143.5374	4033205.3387
		420144.0937	4033218.8593
		420144.4633	4033220.3903
		420147.4490	4033232.7596
		420153.7104	4033258.6996
		420173.6875	4033341.4609
		420174.9951	4033345.4837
		420175.2050	4033346.1296
		420177.5797	4033353.4352
		420186.9793	4033382.3528
		420196.2248	4033410.7966
		420200.5000	4033423.9492
		420208.1891	4033433.2144
		420223.8529	4033452.0889
		420231.9037	4033461.7901
		420385.1563	4033492.7617
		420395.0145	4033495.6276
		420401.9865	4033497.6543
		420413.6562	4033501.0468
		420427.3129	4033493.4316
		420447.8534	4033481.9780
		420449.1875	4033481.7383
		420460.4375	4033474.9609
		420487.7500	4033452.4140
		420517.0008	4033438.1465
		420539.4687	4033427.1875
		420600.0313	4033422.4414
		420657.7231	4033463.9297
		420657.7295	4033463.9343
		420665.7051	4033469.6699
		420678.7685	4033479.0642
		420680.8189	4033481.0229
		420681.5000	4033481.8359
		420682.0937	4033482.4921
		420685.4062	4033485.9570
		420685.5938	4033486.1601
		420686.4637	4033484.5982
		420693.9979	4033488.8795
		420717.0933	4033502.0036
		420717.4375	4033502.1992
		420727.9603	4033504.2983
		420758.9397	4033510.4780
		420771.4062	4033512.9648
		420785.9062	4033509.2656

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		420801.6305	4033494.5087
		420922.1111	4033381.4411
		420922.5938	4033381.6054
		420922.8279	4033380.7684
		420922.8832	4033380.5707
		420925.1180	4033372.5814
		420926.0313	4033369.3164
		420925.8380	4033369.1089
		420925.2390	4033368.4656
		420924.4903	4033367.6616
		420925.3378	4033360.9801
		420926.0065	4033355.7077
		420928.4060	4033336.7903
		420931.8125	4033309.9335
		420934.0937	4033294.3827
		420933.1563	4033286.8906
		420933.0079	4033286.3887
		420933.2906	4033280.8201
		420934.1039	4033264.8003
		420934.6255	4033254.5274
		420936.6875	4033213.9141
		420939.2159	4033185.1852
		420941.8338	4033155.4399
		420945.9610	4033108.5460
		420961.0398	4033090.9540
		421000.4203	4033087.0715
		421003.7903	4033086.7392
		421006.9062	4033088.8632
		421008.2187	4033088.2890
		421016.2812	4033085.5078
		421026.4497	4033089.4725
		421111.6444	4033122.6896
		421120.9062	4033126.3007
		421156.2164	4033165.7803
		421185.2500	4033198.2422
		421217.8062	4033213.5770
		421220.8437	4033215.0078
		421260.1030	4033214.0976
		421276.4384	4033232.9462
		421275.1818	4033266.8735
		421227.5312	4033321.5781
		421226.5937	4033325.8281
		421225.7812	4033326.3632
		421225.7583	4033327.2740
		421225.7500	4033327.6015
		421225.7053	4033327.6434
		421225.6250	4033327.7188

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421224.3750	4033341.4766
		421225.4375	4033348.0078
		421262.4688	4033473.2813
		421296.7148	4033532.0450
		421296.8750	4033533.2305
		421298.0873	4033534.4719
		421298.1910	4033534.5781
		421298.5144	4033535.1329
		421299.1563	4033536.2344
		421325.6875	4033569.8984
		421667.0073	4033278.2092
		421683.3131	4033249.2211
		421681.3538	4033175.4977
T21-L2	0.22	422355.2617	4031806.6465
		422592.1981	4031994.7332
		422592.2681	4031994.7888
		422706.9375	4032059.7129
		422723.9063	4032064.2676
		422743.0000	4032064.9160
		422750.9688	4032066.0098
		422762.7813	4032059.0234
		422780.2500	4032057.0488
		422785.9063	4032056.4102
		422787.2500	4032056.6426
		422789.2188	4032056.0371
		422798.4063	4032055.0020
		422803.7813	4032052.6738
		422819.4375	4032024.1758
		422782.8438	4031909.1758
		422762.3750	4031844.7949
		422760.7813	4031839.7871
		422737.0923	4031776.4887
		422736.6258	4031775.2422
		422736.2497	4031756.2669
		422736.0128	4031744.3181
		422735.8080	4031733.9876
		422735.4900	4031717.9484
		422735.0625	4031696.3828
		422680.8437	4031591.6054
		422683.1729	4031470.4752
		422651.0344	4031345.6709
		422556.9952	4031186.7779
		422547.0581	4031169.9878
		422537.2791	4031153.4648
		422423.6318	4030950.1465
		422374.4375	4030862.1364
		422306.7034	4030741.4598

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		422287.9036	4030707.9656
		422270.1646	4030676.3614
		422265.5625	4030668.1621
		422229.6875	4030618.2598
		422219.6875	4030598.5430
		422179.5625	4030586.6953
		422137.6875	4030584.5976
		422081.3437	4030558.1641
		422055.1563	4030549.5840
		422036.4875	4030526.8295
		422017.7812	4030504.0293
		422017.1875	4030502.8340
		422005.7500	4030495.0605
		422002.6562	4030493.6054
		421987.0313	4030490.0781
		421960.8438	4030498.2148
		421959.9691	4030498.8625
		421958.6250	4030499.7597
		421952.6250	4030504.3008
		421943.8125	4030514.3359
		421939.1563	4030535.4160
		421906.0625	4030624.2657
		421905.8750	4030681.7520
		421917.6875	4030743.1250
		421979.9063	4030822.8203
		422000.3125	4030866.1621
		422040.0000	4030920.2246
		422071.7188	4031037.7227
		422078.8437	4031057.9609
		422086.2500	4031077.9824
		422093.7188	4031097.2930
		422101.8125	4031116.7129
		422143.6875	4031189.1074
		422157.1250	4031224.5703
		422184.9688	4031280.4258
		422195.2188	4031296.0430
		422197.8268	4031297.8575
		422198.1250	4031298.2656
		422198.3906	4031298.2498
		422260.4688	4031341.4394
		422267.4120	4031351.3946
		422272.5625	4031358.7793
		422281.2812	4031378.1543
		422274.2177	4031400.4159
		422256.5625	4031456.0586
		422253.9062	4031458.9609
		422254.0295	4031459.5487

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
T21-L3	0.16	422254.0312	4031459.5566
		422253.2187	4031460.6660
		422253.9375	4031462.0683
		422253.5937	4031462.6191
		422254.8909	4031473.2921
		422251.7087	4031506.0989
		422249.0937	4031533.0586
		422247.8125	4031563.2207
		422252.7680	4031573.8470
		422253.3119	4031575.0133
		422263.3458	4031596.5297
		422274.8437	4031621.1855
		422325.9062	4031691.4257
		422377.0000	4031739.3144
		422377.0000	4031756.2384
		422377.0000	4031777.6270
		422375.1250	4031781.4063
		422355.2617	4031806.6465
		421681.3538	4033175.4977
		421683.3131	4033249.2211
		421667.0073	4033278.2092
		421325.6875	4033569.8984
		421337.3438	4033573.5957
		421348.0625	4033589.7070
		421353.7188	4033610.9844
		421350.7188	4033619.8516
		421340.8750	4033617.4961
		421342.6888	4033638.0295
		421342.2188	4033649.4024
		421344.9063	4033663.1328
		421353.7032	4033666.4219
		421356.5626	4033683.2246
		421357.2500	4033695.3516
		421357.0000	4033723.4629
		421355.2188	4033745.7265
		421367.1536	4033760.3685
		421373.3437	4033747.4922
		421386.5782	4033738.4356
		421398.3281	4033747.2285
		421389.1771	4033767.0417
		421388.6563	4033775.5293
		421388.0937	4033786.0586
		421388.3687	4033797.9895
		421388.3437	4033798.4101
		421388.4062	4033798.5000
		421388.5937	4033806.9375
		421391.7455	4033807.1188

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421391.8203	4033807.3154
		421392.2089	4033807.3332
		421392.4687	4033807.9296
		421393.7352	4033807.4030
		421408.1563	4033808.0625
		421431.4375	4033804.7969
		421437.0421	4033805.5893
		421467.1079	4033814.9518
		421467.2566	4033814.9981
		421467.6250	4033815.1757
		421467.5937	4033815.2070
		421467.8125	4033815.2734
		421470.2500	4033816.4414
		421470.8437	4033816.1796
		421475.9193	4033817.6978
		421476.0937	4033817.7500
		421507.5496	4033802.0096
		421525.4375	4033793.0585
		421557.1950	4033790.3410
		421572.0868	4033789.0667
		421590.6250	4033787.4804
		421608.0077	4033783.9971
		421619.3570	4033786.1881
		421626.5402	4033787.3951
		421635.4925	4033787.2683
		421641.0366	4033785.6417
		421644.3490	4033795.2713
		421643.7696	4033804.2922
		421641.1584	4033816.0019
		421639.8440	4033826.3449
		421635.8801	4033836.7091
		421632.3219	4033843.9715
		421635.4373	4033850.0944
		421650.5821	4033872.2859
		421652.6197	4033875.2716
		421656.0434	4033883.0405
		421815.0124	4033817.5358
		421821.7338	4033823.3113
		421825.1344	4033833.6057
		421825.1586	4033844.0972
		421828.6209	4033853.7005
		421831.2069	4033865.4808
		421840.6401	4033868.5665
		421849.1875	4033864.5559
		421861.4905	4033869.2576
		421870.4155	4033865.4724
		421882.9527	4033862.8097

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421897.4917	4033860.1399
		421904.5251	4033864.7053
		421916.7480	4033869.7255
		421927.9963	4033871.1454
		421938.0470	4033873.4798
		421950.8317	4033878.1297
		421960.2882	4033878.2885
		421971.6928	4033883.7259
		421981.6913	4033878.9210
		421996.3310	4033870.6050
		422009.1723	4033859.4988
		422011.5803	4033853.0010
		422012.8878	4033849.4728
		422017.2076	4033845.0204
		422017.2935	4033844.9319
		422020.5628	4033839.1590
		422024.5346	4033827.5918
		422026.1756	4033816.2211
		422020.7079	4033808.8057
		422011.3152	4033811.5365
		422002.4601	4033809.7484
		422001.1644	4033801.0568
		422001.1532	4033800.9817
		421992.5010	4033795.5881
		421984.0740	4033800.3783
		421983.9137	4033800.3841
		421972.9042	4033800.7808
		421975.3936	4033793.8987
		421979.1253	4033785.5857
		421981.5495	4033775.2535
		421980.7289	4033770.9823
		421980.4211	4033769.3799
		421973.7300	4033761.9837
		421973.2791	4033761.4853
		421972.1063	4033751.4194
		421973.3260	4033745.9242
		421974.0544	4033742.6426
		421979.1361	4033733.7866
		421980.7452	4033725.8332
		421979.5661	4033719.2661
		421973.4134	4033713.1999
		421967.8173	4033711.6574
		421964.1567	4033708.4748
		421961.1699	4033705.8780
		421960.1243	4033696.4667
		421966.8012	4033692.1762
		421970.0931	4033690.0608

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421980.6143	4033688.9731
		421988.5415	4033688.4598
		421998.0473	4033686.6421
		422006.3557	4033686.3910
		422016.2491	4033687.9296
		422024.2668	4033691.2074
		422031.1895	4033696.5703
		422038.6330	4033699.2169
		422049.5891	4033701.1525
		422062.4299	4033700.5623
		422072.4037	4033700.1082
		422080.6334	4033700.4474
		422087.1016	4033700.2761
		422094.0021	4033699.9198
		422107.3423	4033700.3998
		422115.8217	4033696.7180
		422120.8667	4033686.1297
		422122.9285	4033677.6255
		422127.5932	4033670.6240
		422133.6283	4033666.1255
		422144.1333	4033662.2180
		422148.6320	4033658.7623
		422146.4703	4033651.7194
		422136.6773	4033649.1883
		422126.5214	4033654.3374
		422116.4330	4033655.3419
		422114.2782	4033648.5226
		422103.3853	4033645.5553
		422100.7640	4033635.3872
		422109.6710	4033624.9497
		422106.0714	4033610.4672
		422097.7836	4033612.8259
		422086.4797	4033617.3840
		422076.8310	4033612.0243
		422069.6830	4033608.2939
		422068.1048	4033600.2682
		422070.7961	4033594.6110
		422076.4092	4033589.0905
		422086.4236	4033582.5941
		422094.9721	4033577.4356
		422099.8992	4033567.4788
		422101.7457	4033560.6932
		422102.9795	4033554.2022
		422101.9369	4033543.0252
		422091.9876	4033540.6676
		422081.1628	4033547.1483
		422076.0186	4033537.1299

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		422077.3582	4033526.4853
		422089.0030	4033525.0805
		422098.9131	4033521.7941
		422108.1795	4033513.4364
		422115.9466	4033504.5129
		422120.8971	4033493.7021
		422118.1076	4033479.0611
		422113.7164	4033472.8288
		422110.6834	4033464.5756
		422107.2126	4033455.7725
		422101.3954	4033443.3430
		422108.9339	4033430.2451
		422115.2944	4033417.8423
		422118.1472	4033405.9709
		422129.9964	4033396.1217
		422139.8929	4033389.8593
		422145.9259	4033377.7909
		422132.4500	4033366.8283
		422123.6608	4033375.4093
		422115.2309	4033381.2009
		422106.1155	4033371.9270
		422099.8864	4033365.5106
		422099.3837	4033352.3751
		422100.9061	4033338.2579
		422103.0624	4033324.5643
		422104.3472	4033317.2360
		422102.8931	4033308.7865
		422106.4651	4033298.1806
		422107.4961	4033290.6624
		422111.2775	4033280.8407
		422111.8319	4033270.2617
		422107.5996	4033262.1347
		422102.5389	4033258.4160
		422098.4937	4033253.8542
		422093.3394	4033246.6213
		422087.6756	4033241.0610
		422087.9392	4033235.0746
		422087.7863	4033227.9793
		422090.4422	4033218.6231
		422091.1239	4033210.4872
		422083.2183	4033205.0622
		422077.2351	4033201.5231
		422071.5556	4033199.2851
		422064.5823	4033195.0741
		422056.0822	4033193.5265
		422047.8242	4033193.5299
		422025.7375	4033193.5185

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		422026.1892	4033178.9272
		422030.5186	4033150.3205
		422027.8469	4033132.4328
		422024.7620	4033130.1337
		422022.7511	4033128.6350
		422021.0685	4033127.4847
		422015.3894	4033123.6024
		422006.9767	4033117.8513
		422004.6276	4033115.4819
		421999.0594	4033109.5075
		421989.8693	4033099.8472
		421978.5849	4033089.2141
		421973.8440	4033084.4323
		421961.3093	4033071.1790
		421960.2017	4033070.6722
		421955.7590	4033068.6393
		421954.7815	4033068.6871
		421953.2106	4033067.2688
		421938.5345	4033069.6053
		421807.2800	4033119.4706
		421787.2775	4033131.6011
		421771.3335	4033149.0309
		421753.3823	4033154.6110
		421751.2529	4033155.7844
		421744.9561	4033156.4569
		421740.2787	4033161.8318
		421739.8847	4033162.0490
		421732.3732	4033170.4510
		421714.0618	4033172.7965
		421697.7144	4033177.8108
		421681.3538	4033175.4977
T21-L4	0.09	421332.6602	4031948.7768
		421363.6591	4031994.0530
		421363.7119	4031994.1301
		421569.2500	4032259.9922
		421670.3086	4032396.8373
		421682.4093	4032389.0803
		421694.5070	4032360.0904
		421694.7468	4032352.0833
		421693.9881	4032346.0625
		421692.2021	4032335.6053
		421689.7399	4032324.9168
		421689.3147	4032315.8803
		421691.6528	4032305.8870
		421692.6354	4032299.5731
		421693.5070	4032290.6651
		421694.3799	4032279.8754

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421690.3575	4032274.6757
		421684.7524	4032237.8263
		421686.6249	4032229.2442
		421683.2492	4032216.6541
		421677.5625	4032207.8156
		421673.5102	4032201.5322
		421667.4350	4032192.7211
		421663.4474	4032179.2393
		421660.1193	4032167.1790
		421660.6172	4032155.9092
		421660.3095	4032146.3649
		421659.9347	4032137.0408
		421660.3858	4032126.9874
		421660.6580	4032119.4315
		421671.4127	4032064.3120
		421681.5899	4031992.0625
		421682.3623	4031986.5794
		421689.6883	4031962.7511
		421706.6607	4031938.6811
		421762.6978	4031837.3530
		421765.3662	4031823.7942
		421768.0140	4031802.6034
		421772.6023	4031788.8286
		421774.6640	4031769.5205
		421776.1675	4031757.8969
		421776.2667	4031757.1298
		421778.3781	4031737.6634
		421776.9124	4031716.3730
		421782.8388	4031696.8350
		421788.8514	4031677.6715
		421797.3525	4031656.8917
		421806.7336	4031643.0568
		421819.5804	4031629.6476
		421823.9717	4031625.8883
		421828.1038	4031614.3553
		421830.1140	4031598.4637
		421835.2463	4031584.1761
		421835.3749	4031583.7936
		421838.7364	4031573.7984
		421843.0984	4031564.1375
		421845.9583	4031549.5613
		421845.7263	4031539.8520
		421835.4569	4031528.6020
		421820.8268	4031520.4979
		421817.8060	4031521.0213
		421812.0341	4031522.0213
		421798.7070	4031526.3489

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421792.3020	4031528.5219
		421781.6201	4031527.1440
		421770.4360	4031533.5609
		421762.6020	4031534.6338
		421751.5708	4031537.5581
		421745.8850	4031539.0977
		421735.3104	4031547.0779
		421722.5693	4031559.1294
		421718.4833	4031563.1533
		421712.8996	4031565.8937
		421706.6777	4031565.5124
		421700.1310	4031557.1728
		421691.8667	4031545.0022
		421679.6144	4031543.3809
		421667.9481	4031541.6010
		421653.5219	4031539.1528
		421652.3562	4031538.9597
		421633.6192	4031535.8565
		421622.9774	4031534.3864
		421614.2890	4031534.6916
		421607.0773	4031540.6380
		421601.3715	4031546.7178
		421602.6661	4031564.3030
		421602.2850	4031578.4099
		421600.4091	4031586.9260
		421593.0455	4031595.3515
		421583.6789	4031596.4376
		421573.8871	4031597.2021
		421563.2709	4031598.2955
		421551.0553	4031602.9082
		421540.4570	4031607.2844
		421526.5440	4031610.6698
		421519.5461	4031615.1546
		421512.1129	4031608.7235
		421504.6883	4031603.2008
		421494.5662	4031607.3591
		421481.4896	4031613.5299
		421467.7393	4031622.4144
		421461.8037	4031629.1372
		421458.2079	4031642.2363
		421459.6343	4031656.2858
		421456.8945	4031661.9327
		421445.4766	4031666.8714
		421427.4105	4031662.3658
		421416.0194	4031667.1383
		421414.5884	4031674.9406
		421418.9934	4031689.3452

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		421418.2065	4031697.7663
		421418.1949	4031697.7878
		421411.5422	4031710.1714
		421407.1827	4031717.5263
		421403.9331	4031726.3433
		421396.5242	4031737.6376
		421396.5336	4031748.8364
		421393.5339	4031757.9002
		421389.7467	4031768.3162
		421388.7680	4031781.8972
		421385.6242	4031792.0299
		421383.9764	4031799.7115
		421385.4441	4031807.0840
		421380.7557	4031823.9391
		421374.1852	4031838.6418
		421371.6079	4031844.0354
		421370.1681	4031851.4348
		421366.9893	4031860.1026
		421364.2461	4031866.2165
		421361.6452	4031872.0337
		421352.2877	4031881.9664
		421348.8181	4031889.9356
		421349.3702	4031897.8652
		421353.2973	4031907.6305
		421348.4242	4031920.6849
		421346.1745	4031929.6559
		421331.2509	4031937.3717
		421332.6602	4031948.7768
T32-1-L1	0.94	417130.3805	4042995.6745
		416874.9421	4042997.9104
		416874.7151	4042997.9123
		416874.3837	4042997.9152
		416872.3079	4042997.9334
		416853.3845	4042998.0990
		416844.5115	4042998.1767
		416834.3585	4042998.2656
		416828.7613	4042998.3146
		416802.5375	4042998.5441
		416785.1959	4042998.6959
		416782.0854	4042998.7231
		416779.3644	4042998.7470
		416779.0491	4042998.7497
		416778.2654	4042998.7566
		416757.0197	4042998.9425
		416748.7581	4042999.0149
		416748.7523	4042999.0149
		416745.5359	4042999.0431

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416737.3658	4042999.1146
		416511.9599	4043001.0876
		416475.6596	4043001.4053
		416415.9268	4043001.9282
		416414.7844	4042753.4996
		416413.9351	4042568.7621
		416413.9324	4042568.1752
		416413.9130	4042563.9624
		416413.9066	4042562.5781
		416413.8960	4042560.2618
		416410.1386	4042560.3365
		416410.0981	4042560.3373
		416409.8771	4042560.3417
		416407.4335	4042560.3903
		416238.8166	4042563.7458
		416020.8582	4042568.1991
		416021.0826	4042578.9943
		416021.3865	4042593.6171
		416021.7492	4042611.0661
		416021.5536	4042625.6378
		416019.1461	4042804.9417
		416012.4067	4043157.1705
		416011.6310	4043197.7108
		416010.8619	4043237.9058
		416010.8609	4043237.9573
		416009.4278	4043312.8570
		415996.8507	4043320.6666
		415863.2633	4043403.6167
		415696.9669	4043207.9327
		415532.3824	4043014.2631
		415316.6838	4043015.0880
		415325.3619	4043000.2238
		415360.9503	4042939.2666
		415466.1135	4042759.1388
		415542.5045	4042628.2931
		415685.2178	4042383.8480
		415685.9013	4042382.6772
		415686.0509	4042382.4209
		415679.5045	4042381.9393
		415669.5805	4042381.2091
		415665.8258	4042380.6277
		415655.9347	4042383.9882
		415655.6659	4042384.0795
		415655.4980	4042384.0262
		415653.6137	4042383.4273
		415652.9389	4042383.2128
		415636.0253	4042377.8375

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415630.5765	4042376.1058
		415630.5647	4042376.1020
		415581.2762	4042327.1461
		415526.4848	4042272.7244
		415526.1742	4042272.4160
		415381.2848	4042128.5039
		415381.2813	4042128.5117
		415380.3014	4042130.6674
		415207.4375	4042510.9688
		415198.6250	4042506.9961
		415194.4688	4042500.9492
		415188.8125	4042489.9883
		415189.5625	4042475.2461
		415187.3125	4042454.0820
		415176.7188	4042443.8750
		415160.0937	4042439.3398
		415137.4063	4042441.6094
		415116.6250	4042449.9219
		415105.2813	4042454.0820
		415100.3750	4042451.4336
		415100.7500	4042439.7188
		415107.1562	4042419.3086
		415107.1562	4042407.5898
		415095.8438	4042391.7188
		415080.7188	4042384.9141
		415062.9375	4042375.4648
		415051.2188	4042368.6602
		415039.5000	4042370.9297
		415025.1562	4042378.4883
		415011.1563	4042391.3398
		415005.5000	4042401.5430
		414994.1563	4042413.2617
		414983.9688	4042431.4023
		414974.5000	4042447.2773
		414962.7813	4042456.3477
		414950.6875	4042463.1523
		414941.6250	4042467.6875
		414940.8387	4042542.5520
		414979.1256	4042644.0956
		415021.5742	4042723.1665
		415096.4834	4042851.3445
		415198.0271	4042977.8579
		415262.4711	4043039.8008
		415267.4292	4043044.5665
		415293.5017	4043069.6271
		415303.2187	4043076.0821
		415322.8125	4043088.8867

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415342.1563	4043102.2773
		415361.1875	4043115.0156
		415370.8957	4043120.2930
		415372.0174	4043121.0065
		415377.3750	4043124.4141
		415401.0660	4043138.8041
		415409.0313	4043144.0860
		415427.3898	4043155.1458
		415446.5457	4043167.2021
		415448.0566	4043168.1932
		415483.6875	4043192.0586
		415491.5926	4043197.4737
		415519.0937	4043216.3125
		415541.2221	4043230.7747
		415564.1250	4043246.0703
		415566.8079	4043247.7982
		415588.9062	4043262.8437
		415597.1221	4043268.3788
		415604.2869	4043273.2057
		415640.3728	4043297.5169
		415581.9980	4043383.2661
		415581.8819	4043383.4366
		415499.7456	4043504.0903
		415410.7239	4043634.8580
		415406.6252	4043640.8788
		415405.2197	4043642.9433
		415432.6720	4043804.8033
		415436.6986	4043889.3616
		415440.8828	4043977.2311
		415416.7852	4044097.9308
		415410.2813	4044130.5077
		415383.9094	4044194.0515
		415308.0000	4044376.9570
		415302.5938	4044388.6406
		415293.1250	4044396.9335
		415254.2813	4044433.7304
		415196.6835	4044508.1803
		415125.3150	4044522.9378
		415089.1511	4044528.5689
		415036.4110	4044529.7884
		414966.2940	4044529.4835
		414963.7285	4044530.0457
		414952.7563	4044532.4504
		414901.1823	4044543.7532
		414877.4635	4044551.2350
		414853.8747	4044558.6757
		414841.8345	4044561.0587

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414772.5946	4044574.7624
		414740.0569	4044577.8320
		414637.9743	4044587.4625
		414499.1207	4044591.6958
		414427.3490	4044594.9786
		414378.8662	4044592.9092
		414322.6706	4044590.0980
		414288.5312	4044582.7890
		414276.8125	4044575.6367
		414179.7188	4044619.9257
		414159.0313	4044624.5038
		414155.0167	4044626.9932
		414120.4375	4044636.8867
		414100.8750	4044641.5077
		414062.3750	4044647.7929
		414060.9596	4044647.9407
		414006.1875	4044653.6602
		413985.5000	4044654.8242
		413963.7188	4044655.1914
		413942.8750	4044655.4609
		413927.0000	4044663.3633
		413903.6926	4044683.3942
		413894.4560	4044691.3325
		413851.0549	4044728.6326
		413835.1875	4044742.2695
		413737.0178	4044770.1565
		413736.1250	4044770.4101
		413718.5444	4044774.0088
		413659.5625	4044786.0820
		413580.1563	4044802.4375
		413383.0000	4044830.8046
		413320.1563	4044817.4180
		413301.5625	4044812.2851
		413262.4688	4044804.2656
		413207.5312	4044792.0234
		413172.6250	4044764.1484
		413151.1250	4044737.0781
		413142.0461	4044726.1974
		413141.5000	4044725.5430
		413105.0313	4044686.0703
		413088.8438	4044676.3438
		413043.8125	4044656.6133
		412977.2813	4044638.2344
		412971.8750	4044655.3125
		412975.2813	4044677.9492
		412966.1250	4044702.3750
		412952.9375	4044727.2227

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		412938.6562	4044751.1016
		412920.3125	4044773.7500
		412905.0625	4044797.0703
		412890.5938	4044820.3594
		412872.4062	4044841.6563
		412854.5938	4044865.6172
		412835.3750	4044887.9297
		412825.1563	4044907.0273
		412814.8750	4044926.4844
		412817.4375	4044949.8359
		412821.0937	4044973.8476
		412833.8750	4044984.1484
		412849.5000	4044967.3906
		412865.1250	4044948.5508
		412881.3125	4044929.0977
		412898.4375	4044907.7422
		412916.5625	4044886.6485
		412934.3125	4044865.6524
		412949.7500	4044845.4648
		412969.3750	4044830.5859
		412990.7188	4044816.5156
		413017.0625	4044806.8750
		413040.4688	4044796.8320
		413062.4375	4044789.0195
		413085.0625	4044786.7696
		413095.4635	4044802.3610
		413097.2812	4044805.0859
		413093.7092	4044816.2902
		413090.2969	4044826.9934
		413090.2500	4044827.1406
		413088.7234	4044828.4651
		413073.9063	4044841.3203
		413058.5312	4044853.3359
		413057.0049	4044856.3692
		413054.8607	4044860.6302
		413050.4507	4044869.3941
		413049.8932	4044870.5020
		413049.0313	4044872.2148
		413049.0161	4044872.7291
		413048.9673	4044874.3842
		413048.4418	4044892.2065
		413048.4062	4044893.4141
		413048.7500	4044913.7695
		413047.3185	4044918.3035
		413044.7613	4044926.4027
		413042.0000	4044935.1484
		413039.8215	4044941.9659

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413038.5737	4044945.8710
		413036.7812	4044951.4805
		413023.3447	4044959.5826
		413022.9375	4044959.8281
		413014.6212	4044969.9870
		413011.1250	4044974.2578
		413003.5000	4044987.2227
		413010.9449	4044993.1086
		413019.4688	4044999.8476
		413034.9506	4045003.2954
		413038.7812	4045004.1484
		413053.3053	4045007.3910
		413058.5000	4045008.5508
		413073.2813	4045017.1016
		413091.9375	4045015.5664
		413111.7812	4045015.2734
		413130.2813	4045011.9883
		413148.3125	4045016.6758
		413165.4375	4045023.4844
		413168.2239	4045023.7454
		413181.4217	4045024.9820
		413182.9063	4045025.1211
		413184.2136	4045025.0429
		413189.0494	4045024.7537
		413189.4029	4045024.7326
		413202.4375	4045023.9531
		413203.5915	4045025.6581
		413209.3750	4045034.2032
		413195.8125	4045035.4062
		413177.8125	4045036.8008
		413187.4688	4045042.9063
		413206.1875	4045040.2695
		413222.8125	4045043.4570
		413241.0937	4045047.8281
		413256.7500	4045051.7148
		413276.3437	4045051.3555
		413296.3437	4045052.1562
		413310.8125	4045040.5937
		413320.4010	4045033.1821
		413326.6250	4045028.3711
		413339.4375	4045017.6914
		413359.2813	4045018.9414
		413376.8750	4045025.6133
		413391.3750	4045035.7891
		413409.2187	4045037.5664
		413400.5625	4045051.1055
		413406.4371	4045060.5758

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413408.1250	4045063.2968
		413426.5312	4045064.4219
		413443.5938	4045062.9375
		413450.4040	4045062.7371
		413463.3750	4045062.3555
		413482.5938	4045067.3867
		413487.4246	4045067.6792
		413502.5938	4045068.5976
		413513.5982	4045067.5155
		413520.0313	4045066.8828
		413520.9528	4045066.8472
		413538.6935	4045066.1613
		413540.8438	4045066.0782
		413547.6784	4045067.8885
		413561.3125	4045071.5000
		413571.2790	4045068.4413
		413580.1250	4045065.7265
		413599.5312	4045065.5469
		413619.9063	4045068.5742
		413636.8438	4045078.2188
		413656.3437	4045077.6133
		413666.4113	4045075.3178
		413671.1644	4045074.2341
		413678.1875	4045072.6328
		413686.7636	4045072.1193
		413687.7673	4045072.0592
		413701.2813	4045071.2500
		413702.4004	4045071.8062
		413714.0230	4045077.5833
		413714.5312	4045077.8359
		413727.3489	4045087.0569
		413728.0625	4045087.5703
		413731.0785	4045087.0728
		413749.2813	4045084.0703
		413770.8125	4045087.8281
		413791.1875	4045086.2071
		413810.5938	4045080.6719
		413831.9687	4045078.7265
		413834.2120	4045078.4635
		413852.1875	4045076.3555
		413853.1677	4045075.8880
		413866.9063	4045069.3360
		413869.6487	4045067.4577
		413869.8125	4045067.4414
		413877.2714	4045062.9992
		413885.8205	4045058.1245
		413887.6432	4045058.1620

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		413891.5833	4045058.2433
		413903.6562	4045058.4922
		413904.4613	4045058.2431
		413907.0937	4045058.3711
		413920.1245	4045054.0324
		413927.9063	4045051.4414
		413929.4440	4045050.6288
		413936.9484	4045046.6632
		413940.8584	4045045.0355
		413941.1875	4045044.8984
		413941.8640	4045044.0793
		413941.8839	4045044.0552
		413941.8961	4045044.0487
		413947.6875	4045040.9883
		413948.7066	4045037.5727
		413949.5378	4045034.7866
		413950.3390	4045033.8164
		413952.5938	4045031.0860
		413952.2068	4045025.8405
		413952.9063	4045023.4961
		413954.1304	4045006.9314
		413956.3750	4044999.4219
		413958.8706	4044987.8796
		413963.9633	4044981.2161
		413968.7500	4044974.9531
		413977.2500	4044960.2656
		413983.4375	4044947.5000
		413986.1563	4044931.0312
		413996.9063	4044916.7852
		414016.1250	4044914.2656
		414033.6875	4044906.6172
		414052.8125	4044906.1289
		414072.3750	4044908.3789
		414083.4063	4044921.7031
		414100.8750	4044927.2539
		414120.6250	4044930.7031
		414121.6109	4044930.8922
		414122.0625	4044931.0156
		414123.7604	4044931.3681
		414128.9757	4044932.4506
		414139.0000	4044934.5313
		414155.0625	4044938.7969
		414157.8468	4044939.0266
		414161.4688	4044939.9805
		414182.9834	4044943.1052
		414183.2813	4044943.1484
		414204.6490	4044940.7685

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414205.9375	4044940.6250
		414228.0625	4044939.2071
		414249.1563	4044933.0117
		414271.4375	4044935.2110
		414280.2977	4044939.0012
		414291.3437	4044943.7265
		414308.3750	4044952.0938
		414308.5634	4044952.1951
		414314.1747	4044955.2120
		414315.3593	4044956.8200
		414316.1250	4044957.8594
		414317.0840	4044958.0836
		414321.3864	4044959.0895
		414327.8750	4044962.5781
		414332.8372	4044962.9602
		414347.1241	4044964.0604
		414352.7927	4044964.8795
		414367.8125	4044967.8867
		414383.5625	4044972.0625
		414398.1250	4044977.2929
		414413.6562	4044979.3125
		414431.3437	4044976.8359
		414437.7882	4044976.1305
		414452.7188	4044974.4961
		414467.1704	4044972.9714
		414471.7500	4044972.4883
		414481.0722	4044971.0124
		414483.3437	4044971.2929
		414496.4688	4044971.6797
		414504.4274	4044973.0845
		414505.2500	4044981.2695
		414505.3966	4044981.7496
		414508.0625	4044990.4844
		414511.0552	4044990.9591
		414515.2146	4044991.6189
		414515.5649	4044991.6744
		414519.3125	4044988.5000
		414525.8438	4044981.5000
		414530.6563	4044974.2500
		414535.5137	4044972.3411
		414539.9062	4044965.6055
		414544.5787	4044966.5259
		414550.2500	4044961.7500
		414556.3750	4044959.7500
		414565.5625	4044958.2500
		414569.1490	4044959.5662
		414570.6134	4044949.3240

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414571.1250	4044945.7461
		414587.0778	4044947.7554
		414587.4688	4044947.8047
		414592.8251	4044946.7488
		414606.7500	4044944.0039
		414612.6035	4044944.8317
		414615.9375	4044937.5000
		414625.2142	4044940.9941
		414632.5313	4044943.7500
		414639.4063	4044940.0000
		414647.6875	4044937.2500
		414654.0938	4044930.5000
		414666.7813	4044918.7500
		414677.2813	4044913.7500
		414680.1250	4044913.2500
		414685.1563	4044912.0000
		414695.9375	4044899.2500
		414699.7188	4044891.0000
		414702.5000	4044889.0000
		414703.6892	4044886.4129
		414706.0625	4044881.2500
		414709.1206	4044880.1380
		414709.5000	4044880.0000
		414710.1025	4044879.0036
		414716.0000	4044869.2500
		414720.0000	4044864.0000
		414724.7137	4044862.1231
		414726.9063	4044861.2500
		414731.1250	4044861.2500
		414734.8125	4044856.0000
		414733.7188	4044854.7500
		414734.1250	4044851.2500
		414738.1563	4044849.5000
		414743.5000	4044845.2500
		414748.4167	4044845.2500
		414756.6563	4044845.2500
		414759.3438	4044844.2500
		414766.3438	4044841.5000
		414777.0000	4044833.2500
		414786.6875	4044822.7500
		414800.3750	4044819.2500
		414802.0000	4044818.5000
		414802.2813	4044818.5000
		414820.9063	4044816.0000
		414845.7813	4044812.2500
		414846.5938	4044812.2500
		414868.0313	4044808.0000

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		414890.7500	4044802.2500
		414912.7188	4044797.0000
		414915.5758	4044796.7473
		414932.5000	4044795.2500
		414935.6250	4044795.0000
		414955.0938	4044789.7500
		414958.0938	4044788.2500
		414976.4688	4044783.2500
		414997.1875	4044778.5000
		415001.1563	4044777.7500
		415002.6147	4044777.6331
		415019.8750	4044776.2500
		415024.0313	4044777.2500
		415030.0000	4044771.7500
		415045.5938	4044768.7500
		415056.1250	4044765.7500
		415071.0000	4044763.5000
		415082.5625	4044763.5000
		415104.3183	4044760.1139
		415108.9766	4044753.6674
		415112.7812	4044748.4023
		415125.7500	4044744.2695
		415132.8050	4044742.7189
		415146.4375	4044739.7226
		415158.6875	4044736.7617
		415163.8375	4044735.9730
		415166.9601	4044735.4948
		415178.2500	4044733.7656
		415181.9335	4044731.4456
		415194.2814	4044723.6680
		415196.7188	4044722.1328
		415207.7422	4044718.2725
		415217.1875	4044714.9649
		415229.7510	4044709.3659
		415238.0313	4044705.6758
		415252.8589	4044702.2998
		415257.5520	4044701.2312
		415258.5638	4044701.0008
		415260.4375	4044700.5742
		415277.5679	4044694.8447
		415282.3125	4044693.2578
		415293.9813	4044691.2320
		415304.8125	4044689.3516
		415325.8025	4044679.4597
		415326.5625	4044679.1016
		415342.7265	4044678.3045
		415348.0313	4044678.0430

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415351.4548	4044677.0900
		415351.7725	4044677.0016
		415355.2108	4044676.0446
		415359.1007	4044674.9619
		415362.1877	4044674.1025
		415368.8438	4044672.2500
		415382.8099	4044669.7347
		415389.9687	4044668.4453
		415412.5312	4044662.2500
		415435.1250	4044655.8320
		415456.6562	4044649.4531
		415472.6192	4044643.2642
		415477.2500	4044641.4687
		415485.8804	4044638.7771
		415495.3832	4044635.8134
		415496.1250	4044635.5820
		415515.2813	4044627.1211
		415518.3608	4044626.1182
		415532.6250	4044621.4727
		415550.8750	4044616.3125
		415560.1900	4044612.8868
		415565.8057	4044610.8215
		415565.9310	4044610.7754
		415569.7812	4044609.3594
		415586.5938	4044598.0860
		415606.3437	4044590.3555
		415624.4375	4044581.3203
		415639.3963	4044574.7532
		415643.8438	4044572.8008
		415652.7329	4044568.6985
		415663.3302	4044563.8079
		415663.6250	4044563.6719
		415682.7812	4044554.1055
		415700.7500	4044543.3359
		415705.8118	4044540.3258
		415709.1792	4044538.3233
		415710.3502	4044537.6269
		415717.6250	4044533.3008
		415727.8060	4044529.5410
		415729.6922	4044528.8444
		415730.0099	4044528.7271
		415734.0625	4044527.2305
		415736.1696	4044525.8331
		415750.5312	4044516.3086
		415758.3804	4044509.3832
		415765.5000	4044503.1016
		415772.5636	4044500.0209

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415779.9360	4044496.8055
		415781.2813	4044496.2188
		415774.6562	4044483.5625
		415771.9687	4044465.8047
		415772.4688	4044451.0468
		415762.4063	4044438.1016
		415753.9445	4044431.7449
		415749.6562	4044428.5234
		415749.1821	4044424.3311
		415747.8750	4044412.7734
		415741.7812	4044396.8164
		415739.0625	4044380.0859
		415739.0625	4044363.0468
		415744.1811	4044350.0971
		415745.7188	4044346.2070
		415748.2138	4044340.7077
		415753.3645	4044329.3551
		415753.3750	4044329.3320
		415759.9687	4044312.6288
		415754.6250	4044296.0859
		415753.8167	4044291.2794
		415753.7812	4044290.6523
		415753.8125	4044289.9140
		415752.6875	4044281.3125
		415751.9199	4044279.9999
		415751.6250	4044278.2461
		415749.7831	4044273.5301
		415746.4112	4044264.8966
		415749.5000	4044258.1250
		415754.8437	4044257.8086
		415759.2813	4044253.5586
		415764.4688	4044247.0585
		415767.4062	4044242.7500
		415770.9687	4044235.2890
		415772.7500	4044230.8242
		415773.3750	4044227.5508
		415774.8125	4044218.9766
		415767.4688	4044213.5469
		415766.3437	4044212.2929
		415766.3125	4044211.2578
		415763.9375	4044206.2969
		415759.4688	4044200.3632
		415760.2813	4044197.7578
		415759.4375	4044194.6797
		415758.5625	4044191.7226
		415757.4062	4044189.6132
		415755.1563	4044183.4570

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415758.0937	4044181.3320
		415760.9062	4044179.3125
		415764.6250	4044175.0507
		415765.2500	4044174.3086
		415765.7188	4044173.0351
		415768.3437	4044168.6797
		415774.4688	4044161.6523
		415774.9062	4044161.1406
		415775.1563	4044160.9453
		415777.1875	4044158.3828
		415778.1875	4044157.0820
		415778.5625	4044156.6797
		415780.3240	4044152.1065
		415785.9687	4044142.9218
		415790.9244	4044136.1914
		415793.4062	4044135.2695
		415794.0937	4044134.2578
		415798.7812	4044127.0624
		415799.1202	4044125.8062
		415802.3125	4044121.9218
		415806.8125	4044111.0429
		415808.1994	4044107.8612
		415808.8125	4044107.1992
		415814.4375	4044102.9492
		415819.8125	4044096.1875
		415822.2500	4044091.7382
		415826.2187	4044086.9609
		415829.4375	4044082.6953
		415833.0625	4044080.5273
		415836.3125	4044080.1445
		415836.6875	4044071.4219
		415832.9687	4044063.7851
		415832.2538	4044057.9896
		415832.8468	4044056.9279
		415833.4398	4044055.8663
		415838.6562	4044050.4492
		415845.7858	4044041.9496
		415846.5312	4044041.2812
		415856.8750	4044031.8867
		415867.1875	4044020.2969
		415868.8457	4044018.4143
		415878.5312	4044007.4180
		415887.6562	4043995.8750
		415899.9062	4043987.3554
		415914.4375	4043982.9609
		415929.2187	4043981.8359
		415943.3750	4043976.2773

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		415955.1563	4043965.1992
		415967.7500	4043957.8984
		415982.4375	4043951.4492
		415996.0937	4043950.2734
		416012.3125	4043949.3242
		416027.4688	4043949.1250
		416033.2351	4043950.0655
		416041.7188	4043951.4492
		416052.2593	4043953.9567
		416058.9062	4043962.6054
		416064.3119	4043953.4465
		416065.9216	4043953.2681
		416067.5312	4043953.0898
		416079.9687	4043946.5976
		416094.4688	4043948.2070
		416107.2187	4043954.9883
		416119.7188	4043961.9531
		416121.4151	4043963.0681
		416130.5938	4043969.1015
		416138.3125	4043978.5077
		416150.2000	4043982.1564
		416153.6875	4043986.7617
		416160.5207	4043987.9831
		416160.9128	4043988.2668
		416161.3425	4043988.5777
		416166.6875	4044004.1250
		416171.2813	4044022.1445
		416185.9687	4044025.4219
		416202.2187	4044020.3593
		416216.5312	4044025.2890
		416229.1702	4044030.0451
		416233.5736	4044033.1394
		416237.2359	4044035.7128
		416240.0119	4044038.0385
		416245.2813	4044042.4531
		416245.9177	4044042.2086
		416246.5540	4044041.9642
		416247.3125	4044043.0703
		416249.4687	4044041.4648
		416253.0625	4044043.1367
		416254.5517	4044038.8919
		416259.3750	4044037.0390
		416259.8310	4044036.1638
		416260.8211	4044034.2637
		416261.6470	4044034.9506
		416262.4062	4044035.5820
		416266.2500	4044030.9492

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416267.8488	4044027.1585
		416269.1250	4044024.1328
		416268.6562	4044021.6894
		416267.8953	4044017.7229
		416267.9011	4044017.6287
		416267.9069	4044017.5346
		416270.2434	4044011.4929
		416270.4854	4044010.8671
		416271.0625	4044009.3749
		416274.6154	4044002.6324
		416276.3679	4043999.3064
		416276.7188	4043998.6406
		416278.0625	4043996.5077
		416279.4062	4043994.3749
		416281.2406	4043991.9859
		416283.0625	4043989.6132
		416283.2500	4043989.1269
		416283.4375	4043988.6406
		416285.8750	4043981.4804
		416284.9835	4043980.2698
		416284.0919	4043979.0591
		416286.1563	4043975.5586
		416286.9509	4043974.2400
		416287.0400	4043974.0922
		416287.0472	4043974.0802
		416287.9237	4043972.6259
		416288.0637	4043972.4208
		416293.1250	4043965.0078
		416294.2835	4043962.0731
		416294.4688	4043961.7656
		416294.5466	4043961.4066
		416295.5947	4043958.7515
		416298.5312	4043951.3125
		416297.6223	4043947.2118
		416297.9987	4043945.4750
		416298.3750	4043943.7382
		416303.8750	4043928.9062
		416311.9687	4043913.1914
		416317.7812	4043897.9531
		416318.3953	4043895.6550
		416319.0094	4043893.3568
		416323.1875	4043890.9140
		416335.5000	4043878.1757
		416345.7188	4043864.6132
		416357.5312	4043851.8945
		416358.1184	4043851.3074
		416361.7502	4043847.6756

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416362.9573	4043846.4684
		416369.6562	4043839.7695
		416383.0625	4043831.6797
		416390.8399	4043824.8053
		416393.6579	4043824.5288
		416394.4688	4043824.4492
		416397.6562	4043822.3554
		416402.3750	4043816.9844
		416407.3054	4043809.1908
		416407.8437	4043808.3398
		416408.2282	4043808.1439
		416416.0625	4043804.1523
		416421.7500	4043799.7187
		416431.0937	4043795.0976
		416436.9375	4043787.8476
		416436.9531	4043786.0019
		416436.9687	4043784.1562
		416439.7500	4043779.6601
		416441.2970	4043777.9694
		416441.6888	4043777.5412
		416441.8750	4043777.5429
		416444.5678	4043773.5112
		416450.2813	4043764.9570
		416456.9687	4043750.6953
		416461.3750	4043733.4297
		416459.9375	4043715.6523
		416459.5340	4043704.7745
		416459.7500	4043703.5547
		416459.4699	4043703.0478
		416459.2500	4043697.1211
		416460.1813	4043689.1233
		416460.9687	4043687.3632
		416467.8750	4043682.9453
		416473.0313	4043678.2656
		416477.6875	4043673.6171
		416478.3750	4043669.4609
		416478.6061	4043669.2486
		416484.7500	4043663.6054
		416484.1875	4043654.9648
		416484.0000	4043652.0937
		416488.3125	4043646.5586
		416493.2500	4043640.6953
		416496.8437	4043635.4180
		416502.0313	4043625.4921
		416505.1563	4043618.3086
		416509.0313	4043611.7148
		416513.1875	4043604.9961

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416516.7812	4043596.5937
		416519.5625	4043585.7968
		416516.8750	4043577.6328
		416515.2500	4043575.7929
		416514.2835	4043573.6851
		416512.0662	4043568.8494
		416511.7784	4043567.2830
		416516.9910	4043565.5015
		416517.7500	4043565.2421
		416525.5312	4043559.2617
		416526.9341	4043551.1581
		416527.7500	4043546.4453
		416527.9688	4043544.3415
		416528.1875	4043542.2382
		416527.1580	4043534.8354
		416527.1250	4043534.5976
		416526.5156	4043531.8808
		416526.0945	4043530.0036
		416525.9062	4043529.1640
		416526.4832	4043524.9591
		416526.8125	4043522.5586
		416528.7782	4043517.3200
		416530.0313	4043513.9805
		416530.4062	4043510.2617
		416530.3526	4043509.8563
		416529.6250	4043504.3593
		416529.6250	4043502.3828
		416530.5938	4043495.9140
		416534.0937	4043484.0859
		416534.1449	4043483.4661
		416534.9597	4043481.3282
		416535.0625	4043481.0585
		416535.2049	4043480.8010
		416541.8898	4043468.7127
		416548.2295	4043467.3879
		416549.5625	4043467.1093
		416552.7500	4043468.0937
		416559.0937	4043468.9531
		416563.1875	4043467.7422
		416563.5938	4043467.5508
		416568.8599	4043464.7798
		416570.1563	4043464.0976
		416570.5806	4043461.7927
		416571.1875	4043458.4960
		416571.3125	4043451.7265
		416571.3381	4043450.1999
		416573.1875	4043432.4219

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416581.3437	4043415.6484
		416589.6875	4043398.3515
		416597.6562	4043380.3203
		416598.2094	4043377.6772
		416602.3750	4043371.0546
		416601.2385	4043368.7970
		416600.4118	4043367.1548
		416601.3125	4043362.8516
		416599.3723	4043348.6223
		416600.7188	4043346.9609
		416602.9375	4043344.1601
		416607.8750	4043340.5742
		416611.0313	4043334.5742
		416611.7500	4043331.5898
		416612.1563	4043323.8906
		416613.0000	4043319.6171
		416613.0625	4043316.7265
		416612.9062	4043313.2304
		416612.7356	4043311.7313
		416620.6562	4043302.0937
		416632.3125	4043288.9883
		416636.2819	4043282.3737
		416640.3898	4043275.5284
		416641.4688	4043273.7304
		416640.8556	4043269.3181
		416639.0000	4043255.9648
		416636.5883	4043254.5016
		416625.3125	4043247.6601
		416627.5938	4043236.2109
		416635.5387	4043231.7528
		416641.8438	4043228.2148
		416648.7812	4043213.6641
		416658.2813	4043203.3242
		416670.3750	4043192.5391
		416680.9687	4043180.7070
		416685.5664	4043181.0048
		416696.0449	4043181.6835
		416697.3125	4043181.7656
		416710.0313	4043171.0156
		416722.8750	4043161.2969
		416740.0625	4043160.2773
		416756.6562	4043153.0976
		416772.5312	4043144.1093
		416787.4688	4043133.5508
		416798.2813	4043119.0390
		416804.5000	4043102.9804
		416817.6875	4043095.1211

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		416830.1195	4043088.9051
		416830.1379	4043088.9252
		416830.1563	4043088.9452
		416832.5872	4043088.5580
		416836.6491	4043087.9110
		416839.5540	4043088.1106
		416847.1563	4043088.6328
		416849.5905	4043086.8986
		416858.2813	4043080.7070
		416867.7570	4043081.5548
		416873.3437	4043082.0546
		416890.4063	4043081.1172
		416907.6562	4043081.3671
		416923.4375	4043075.1718
		416927.1865	4043069.7354
		416931.5938	4043071.9180
		416931.6875	4043071.9609
		416932.9688	4043071.8711
		416937.9688	4043071.5234
		416953.5313	4043070.4336
		416956.7188	4043069.2227
		416971.1204	4043063.7614
		416971.5625	4043063.5937
		416977.5324	4043065.1101
		416978.0000	4043065.2421
		416984.0313	4043067.9609
		416990.9062	4043069.2148
		416998.0000	4043067.8281
		416999.7188	4043068.7343
		417001.1248	4043069.4627
		417003.4063	4043070.6446
		417008.8125	4043072.5039
		417009.6562	4043072.3008
		417012.7812	4043070.2344
		417130.3805	4042995.6745
T35-2-L1	0.05	411224.0888	4041830.6824
		411095.4672	4041732.0116
		411089.3727	4041727.3363
		411081.5448	4041721.3312
		411054.7057	4041700.7419
		410996.6969	4041656.2410
		410968.0051	4041634.2304
		410938.6899	4041611.7416
		410908.7982	4041588.8105
		410891.2200	4041575.3256
		410882.7812	4041570.8945
		410874.3719	4041562.4007

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		410865.2368	4041555.3928
		410860.8313	4041552.0132
		410857.4942	4041549.4532
		410843.9976	4041595.2088
		410840.2849	4041607.7952
		410776.8400	4041822.8824
		410768.3331	4041851.7219
		410783.3125	4041852.0898
		410802.3437	4041854.1445
		410822.8438	4041852.0273
		410841.4375	4041851.6093
		410853.1563	4041864.0781
		410860.5000	4041879.9140
		410874.8438	4041890.4882
		410884.7812	4041906.0624
		410889.1250	4041924.3749
		410892.7188	4041944.9413
		410893.6250	4041966.4297
		410890.9375	4041986.3593
		410895.1563	4042005.6210
		410911.0625	4042016.1718
		410951.5526	4042020.9825
		410994.7500	4042021.4062
		411034.1563	4042020.8555
		411048.2187	4042015.8046
		411089.0911	4042005.7764
		411114.5444	4041993.0498
		411150.1875	4041979.1406
		411184.2060	4041970.2758
		411204.3007	4041943.4829
		411215.0179	4041889.8970
		411224.0888	4041830.6824
T37-1-L1	0.18	409238.0474	4043261.4907
		409230.6355	4043256.7461
		409208.7762	4043242.7534
		409208.7508	4043242.7132
		409200.9353	4043230.3216
		409194.5618	4043220.2162
		409169.6449	4043203.0818
		409169.4921	4043202.9767
		409169.1853	4043202.5072
		409158.1803	4043185.6676
		409157.5060	4043184.6357
		409156.9721	4043183.8188
		409146.6404	4043168.0094
		409131.4936	4043157.2058
		409125.0977	4043152.6440

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409123.5351	4043151.5294
		409119.9071	4043148.9417
		409103.0041	4043136.8856
		409092.7411	4043129.5655
		409083.5694	4043121.1072
		409081.3001	4043119.0144
		409064.8988	4043103.8887
		409064.2670	4043103.3061
		409060.9224	4043100.2216
		409057.0231	4043096.6256
		409049.1885	4043089.4003
		409041.4086	4043082.2255
		409035.9237	4043077.1673
		409029.4133	4043071.1632
		409029.3449	4043071.1002
		409021.8449	4043064.1835
		409021.0004	4043063.4047
		409011.3561	4043054.5105
		409008.4854	4043046.8150
		408994.3653	4043008.9637
		408993.9067	4043008.5228
		408976.9965	4042992.2671
		408971.6735	4042987.1501
		408959.3314	4042975.2857
		408953.7132	4042967.7595
		408946.5357	4042958.1444
		408940.4946	4042950.0516
		408937.7558	4042946.3827
		408937.4330	4042945.9503
		408936.0468	4042944.0932
		408932.7352	4042939.6570
		408932.4594	4042939.2875
		408929.5742	4042935.4224
		408921.8623	4042925.0916
		408918.1633	4042920.1363
		408913.3184	4042913.6459
		408910.5689	4042909.9627
		408907.6413	4042907.2807
		408900.2233	4042900.4852
		408894.7102	4042895.4348
		408890.4177	4042891.5024
		408867.9296	4042870.9015
		408863.5110	4042866.8537
		408863.1337	4042866.5080
		408859.4392	4042863.1236
		408856.0866	4042860.0523
		408856.6178	4042855.0319

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408856.8687	4042852.6613
		408857.4396	4042847.2662
		408858.8893	4042833.5669
		408863.2774	4042792.0999
		408859.2582	4042782.1007
		408858.9146	4042781.2460
		408857.0293	4042776.5556
		408851.2068	4042762.0701
		408844.1085	4042744.4106
		408840.3955	4042739.6846
		408825.1265	4042720.2498
		408820.8039	4042717.5152
		408803.5265	4042706.5849
		408792.4681	4042699.5891
		408785.3467	4042696.7791
		408766.3233	4042689.2729
		408758.3303	4042686.1190
		408748.7206	4042682.3273
		408745.3474	4042680.9963
		408713.6605	4042675.3731
		408707.2204	4042674.2302
		408696.6588	4042672.3560
		408688.6273	4042673.7951
		408674.8361	4042676.2663
		408665.3417	4042677.9675
		408658.4561	4042677.3701
		408652.7502	4042676.8751
		408651.6705	4042676.7814
		408629.8639	4042674.8894
		408619.1549	4042670.8313
		408611.9856	4042668.1144
		408604.3349	4042665.2152
		408590.3377	4042659.9109
		408578.9758	4042655.6054
		408576.1325	4042654.5279
		408574.9830	4042654.0923
		408574.7923	4042653.9712
		408571.7999	4042652.0698
		408570.3453	4042651.1456
		408569.7790	4042650.7858
		408569.7642	4042650.7764
		408568.1933	4042649.7782
		408566.5111	4042648.7094
		408563.7246	4042646.9389
		408548.7787	4042637.4425
		408543.1695	4042633.8785
		408543.1086	4042633.8398

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408538.3709	4042630.8295
		408533.4289	4042627.6895
		408531.5370	4042626.4874
		408527.1862	4042623.7230
		408526.3493	4042623.1913
		408526.1185	4042623.0446
		408525.9797	4042622.8245
		408520.5008	4042614.1347
		408511.8895	4042600.4769
		408506.2941	4042594.0294
		408505.8846	4042593.5576
		408500.6445	4042587.5196
		408486.5695	4042571.3015
		408482.5335	4042566.6510
		408479.8641	4042563.5751
		408477.8694	4042561.2767
		408471.3153	4042553.7246
		408466.8823	4042548.6166
		408462.6057	4042543.6889
		408455.9718	4042536.0449
		408445.2616	4042523.7039
		408441.1621	4042518.9802
		408428.3087	4042504.1697
		408405.7674	4042488.7920
		408389.6508	4042484.1169
		408361.9306	4042476.0760
		408358.9028	4042474.2377
		408358.4712	4042473.9756
		408352.9831	4042470.6436
		408352.7133	4042470.4798
		408343.1912	4042464.6985
		408343.1042	4042464.6831
		408339.4204	4042464.0330
		408316.6806	4042460.0196
		408316.5011	4042459.9880
		408316.4851	4042459.9851
		408316.4774	4042459.9838
		408316.4646	4042459.9920
		408315.3660	4042460.7000
		408294.6521	4042474.0488
		408267.7178	4042491.4062
		408267.6767	4042491.4087
		408226.3741	4042493.8791
		408219.8713	4042494.2681
		408201.5916	4042495.3615
		408184.9242	4042496.3584
		408184.0589	4042496.4101

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408162.3272	4042497.7099
		408095.0368	4042501.7350
		408090.7813	4042501.9891
		408089.5625	4042502.0622
		408089.5374	4042502.0637
		408089.5014	4042502.0659
		408088.7554	4042503.9647
		408086.5383	4042509.6074
		408080.2995	4042525.4862
		408078.1553	4042530.9437
		408077.5517	4042532.4798
		408073.8791	4042541.8273
		408067.3807	4042558.3666
		408053.9609	4042592.5224
		408046.7525	4042610.8691
		408037.2143	4042635.1454
		408032.2792	4042647.7062
		408032.2670	4042647.7067
		408022.4716	4042648.1008
		408021.5853	4042648.1365
		407985.9326	4042649.5710
		407980.4094	4042649.7933
		407979.3355	4042649.8365
		407978.4997	4042649.8701
		407978.0503	4042649.8882
		407947.3069	4042651.1252
		407936.4269	4042651.5630
		407893.8312	4042653.2768
		407873.2855	4042654.1035
		407870.3125	4042665.4414
		407896.3438	4042683.5195
		407922.8750	4042703.9179
		407947.9375	4042726.9179
		407973.3750	4042750.1133
		407996.6250	4042770.2265
		408018.2813	4042789.8633
		408040.1250	4042807.8789
		408062.2813	4042821.8437
		408085.0937	4042835.7617
		408089.1563	4042842.0820
		408092.5311	4042843.5702
		408095.9063	4042845.0585
		408103.6562	4042849.9570
		408117.4375	4042862.0039
		408133.1563	4042873.4141
		408149.8125	4042886.3672
		408166.7812	4042897.6328

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408181.5312	4042909.5586
		408195.5938	4042922.3984
		408206.4375	4042938.3320
		408219.5312	4042950.7265
		408235.3750	4042961.1796
		408250.8750	4042973.5586
		408267.7812	4042982.0312
		408276.0313	4042994.5039
		408276.8750	4043008.7578
		408278.2144	4043009.7267
		408278.6608	4043010.0496
		408279.5536	4043010.6956
		408292.5938	4043020.1289
		408306.8437	4043030.0742
		408322.1563	4043041.5703
		408337.2500	4043053.9766
		408351.0937	4043065.2695
		408362.8750	4043075.1875
		408375.4062	4043087.2187
		408390.5625	4043091.8672
		408405.5625	4043100.9140
		408421.1875	4043110.6328
		408437.1875	4043119.8359
		408453.5625	4043131.0468
		408462.4688	4043148.3672
		408476.1875	4043150.3554
		408492.7812	4043154.0195
		408489.3750	4043168.8437
		408476.0937	4043180.2461
		408463.7188	4043185.2500
		408474.0000	4043196.3672
		408489.4062	4043203.4531
		408504.3125	4043212.4921
		408520.1250	4043220.2617
		408536.8125	4043224.8633
		408550.2813	4043227.7812
		408560.2813	4043230.2539
		408570.9687	4043224.7148
		408581.0937	4043216.5391
		408595.1875	4043212.7890
		408611.6250	4043219.1211
		408627.1875	4043226.4062
		408643.4062	4043232.2500
		408657.7187	4043240.6680
		408659.5468	4043242.1263
		408661.3750	4043243.5849
		408702.3750	4043268.4531

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408719.0313	4043275.4804
		408734.3352	4043280.9297
		408745.7188	4043272.6289
		408765.5289	4043234.0403
		408758.0392	4043201.0853
		408755.1533	4043197.3114
		408738.5658	4043175.6201
		408686.1375	4043144.1631
		408685.5828	4043140.5577
		408681.3431	4043112.9996
		408680.1457	4043105.2164
		408681.7293	4043101.1695
		408693.6272	4043070.7635
		408723.9473	4043060.0623
		408744.5576	4043052.7881
		408832.9367	4043031.8168
		408833.2603	4043031.8977
		408856.9040	4043037.8086
		408870.1068	4043056.0894
		408876.3773	4043064.7717
		408890.1591	4043080.7191
		408981.2340	4043186.1058
		409002.8003	4043195.7418
		409051.6377	4043217.5628
		409068.8239	4043219.3770
		409116.9343	4043224.4555
		409118.4002	4043224.6103
		409154.2975	4043228.3996
		409156.7550	4043228.6590
		409157.8562	4043228.7753
		409157.8603	4043228.7757
		409159.6323	4043228.9628
		409170.1563	4043228.0156
		409181.7104	4043227.3755
		409189.9687	4043241.4180
		409210.7188	4043251.7539
		409232.2187	4043261.0195
		409238.0474	4043261.4907
T37-2-L1	0.18	409286.9516	4038201.2212
		409266.6143	4038238.0301
		409254.9333	4038259.1717
		409254.9382	4038259.1787
		409254.9598	4038259.2095
		409264.9373	4038273.3966
		409304.7186	4038329.9623
		409304.7158	4038329.9955
		409304.3603	4038333.9409

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409300.1250	4038380.9426
		409299.1846	4038391.3782
		409299.1327	4038391.4158
		409276.8305	4038407.5517
		409267.1731	4038414.5390
		409267.1551	4038414.5416
		409201.6494	4038423.9892
		409201.2496	4038424.0469
		409201.1026	4038424.0681
		409201.0785	4038424.0504
		409194.4843	4038419.2111
		409188.6648	4038414.9404
		409166.2029	4038398.4562
		409144.5362	4038382.5555
		409134.0177	4038309.6731
		409130.9580	4038289.8759
		409129.0855	4038277.7607
		409126.1477	4038258.7530
		409124.1495	4038258.6052
		409068.1858	4038254.4649
		409028.9283	4038251.5605
		408969.2399	4038248.8355
		408915.2794	4038246.3720
		408911.3347	4038246.1919
		408908.9055	4038248.0314
		408888.3205	4038263.6190
		408883.0703	4038267.5946
		408856.6550	4038287.5971
		408853.1404	4038290.2585
		408796.6756	4038298.6942
		408762.6862	4038303.7721
		408853.6562	4038362.2188
		408871.8125	4038370.6446
		408887.5312	4038382.1250
		408889.4379	4038383.7596
		408896.8438	4038391.3789
		408898.5012	4038391.5296
		408901.8750	4038394.4219
		408918.5000	4038406.1367
		408935.3125	4038417.6641
		408948.0625	4038431.7461
		408957.6562	4038446.8125
		408976.3125	4038455.0391
		408992.6250	4038467.4883
		409009.2187	4038479.3594
		409028.4062	4038485.9649
		409046.1875	4038482.4141

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409063.9687	4038478.6485
		409078.1875	4038468.6875
		409086.8125	4038456.3594
		409099.4688	4038449.0000
		409113.4062	4038450.3555
		409125.5312	4038455.2071
		409135.4688	4038464.4844
		409142.7812	4038475.7461
		409147.8750	4038489.3945
		409153.4375	4038504.4727
		409159.0625	4038520.6563
		409159.4696	4038523.6720
		409159.4688	4038523.8086
		409160.0389	4038546.9275
		409159.0625	4038553.9414
		409157.6875	4038570.2617
		409153.4688	4038584.7578
		409150.4375	4038600.5469
		409144.4375	4038615.7070
		409136.0937	4038629.5547
		409134.5935	4038631.0554
		409134.5313	4038631.0234
		409134.2729	4038631.3762
		409124.7188	4038640.9336
		409119.3680	4038651.1019
		409117.6152	4038662.4947
		409117.1771	4038683.5275
		409111.4807	4038705.4367
		409109.0694	4038711.5575
		409108.3125	4038712.5391
		409108.6051	4038712.7361
		409109.6129	4038713.4146
		409106.9687	4038718.4727
		409117.7188	4038729.5274
		409123.3125	4038745.1094
		409122.0625	4038760.8750
		409116.4062	4038776.2227
		409110.5938	4038791.9180
		409106.9687	4038808.4570
		409101.8125	4038825.7383
		409089.7305	4038837.6123
		409006.3051	4038926.0054
		408972.6702	4038988.9814
		408959.7888	4039112.0709
		408951.9168	4039210.8287
		408958.5938	4039291.7383
		408959.4063	4039303.7854

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408959.1250	4039309.5586
		408959.0857	4039312.3876
		408958.9688	4039313.1211
		408955.3750	4039329.7852
		408967.5113	4039340.2998
		408977.8706	4039344.4704
		408988.0000	4039348.1523
		408997.3259	4039348.7398
		409003.7729	4039349.1459
		409005.9585	4039349.2836
		409019.8673	4039337.2715
		409041.3628	4039313.2471
		409074.2382	4039296.8094
		409109.6425	4039281.6361
		409157.0590	4039282.9006
		409181.7155	4039273.4173
		409217.1198	4039244.9674
		409240.5119	4039210.8276
		409262.0074	4039145.7089
		409267.0652	4039102.7180
		409277.1354	4039075.6544
		409281.3701	4039066.7893
		409291.7217	4039045.1860
		409310.0561	4039014.2073
		409304.0686	4038996.2869
		409298.0313	4038972.5625
		409299.0937	4038963.9414
		409296.4486	4038947.1801
		409308.3019	4038932.7868
		409335.4124	4038931.3884
		409336.8125	4038932.1367
		409347.0313	4038930.7891
		409398.0488	4038923.4734
		409464.9356	4038920.0867
		409531.8224	4038927.7068
		409608.8692	4038926.8601
		409679.9893	4038920.9334
		409737.5628	4038900.6134
		409767.1962	4038870.1333
		409800.2162	4038834.5732
		409816.3029	4038771.9198
		409806.9896	4038754.9864
		409771.4295	4038706.7263
		409734.1761	4038665.2396
		409675.7560	4038616.9795
		409575.8491	4038550.0927
		409531.8224	4038517.9193

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409465.7822	4038432.4058
		409416.5659	4038358.2027
		409407.0313	4038350.7226
		409401.9375	4038346.3164
		409398.5312	4038343.5430
		409393.9687	4038338.2617
		409388.7500	4038333.7969
		409381.7500	4038329.5039
		409373.8750	4038325.3711
		409370.0625	4038324.4063
		409368.1250	4038323.7031
		409364.9375	4038323.3633
		409363.8437	4038323.1211
		409358.1250	4038321.8867
		409351.4375	4038321.9844
		409342.6562	4038321.9922
		409341.4062	4038321.7031
		409339.0625	4038320.0703
		409337.3750	4038318.4024
		409334.3750	4038314.7930
		409331.5625	4038312.0743
		409330.8437	4038311.4141
		409329.8125	4038310.5508
		409323.1875	4038306.6015
		409318.5000	4038301.6836
		409318.0937	4038298.4687
		409316.6562	4038296.4492
		409313.5938	4038291.4883
		409309.4688	4038285.2617
		409306.1563	4038282.4727
		409300.4062	4038276.9180
		409298.2187	4038273.2188
		409294.8437	4038266.7578
		409293.6875	4038261.0664
		409290.9687	4038253.3594
		409288.6250	4038248.0743
		409287.8125	4038242.8320
		409288.7812	4038232.8984
		409286.2187	4038223.9180
		409286.1250	4038217.5976
		409286.9516	4038201.2212
T37-2-L2	0.06	408869.9095	4037236.6162
		408910.3790	4037241.3160
		408947.8902	4037245.6722
		408950.7405	4037246.0033
		409044.0149	4037256.8354
		409105.2039	4037365.9140

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409184.9769	4037508.1215
		409260.6274	4037628.4629
		409334.4056	4037792.2852
		409334.9149	4037882.5867
		409335.6730	4038017.0063
		409335.6731	4038017.0272
		409325.1482	4038037.5861
		409312.7645	4038061.7760
		409312.4915	4038067.6499
		409311.1102	4038097.3658
		409310.1022	4038119.0518
		409308.0610	4038162.9628
		409308.0602	4038162.9814
		409308.0584	4038163.0196
		409307.8777	4038166.1114
		409347.6416	4038144.3188
		409375.6250	4038127.1055
		409383.2500	4038121.4687
		409387.9687	4038119.0391
		409393.1250	4038115.2773
		409396.2187	4038114.1601
		409406.5155	4038103.8984
		409446.3089	4038029.3916
		409441.2289	4037985.3649
		409441.2289	4037954.8848
		409467.4756	4037903.2380
		409477.6356	4037837.1979
		409460.7022	4037805.8712
		409453.0822	4037784.7045
		409458.1622	4037752.5311
		409455.6222	4037719.5110
		409451.3889	4037705.9643
		409457.3156	4037684.7976
		409456.4689	4037654.3175
		409448.0022	4037625.5308
		409439.5355	4037584.8907
		409420.0621	4037550.1773
		409405.6688	4037525.6240
		409405.6688	4037517.0038
		409405.6688	4037504.6109
		409405.6688	4037473.9772
		409395.5088	4037419.7904
		409386.1954	4037359.6770
		409359.9487	4037335.1236
		409340.4753	4037324.1169
		409332.8553	4037299.5635
		409322.8937	4037270.2646

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		409318.4619	4037257.2300
		409269.3552	4037252.1500
		409239.7218	4037236.0633
		409220.2484	4037215.7433
		409191.4617	4037210.6633
		409167.7550	4037210.6633
		409157.2756	4037211.5764
		408869.9095	4037236.6162
T37-2-L3	0.05	408702.8334	4036371.4813
		408706.6520	4036616.2502
		408751.3271	4036667.7207
		408789.6756	4036817.3542
		408787.0526	4036961.8229
		408785.6817	4037037.3381
		408785.6375	4037039.7694
		408794.4375	4037037.9062
		408806.1875	4037026.1640
		408822.2500	4037020.7461
		408835.3125	4037020.0195
		408840.4062	4037016.9688
		408918.0313	4036927.3555
		408927.0000	4036920.4453
		408935.6562	4036909.0938
		408945.7500	4036898.8125
		408955.1250	4036887.5235
		408961.2500	4036872.5196
		408967.0625	4036859.3594
		409002.5938	4036740.4531
		408992.6562	4036629.7070
		408958.3750	4036561.8867
		408944.7500	4036525.4102
		408915.6562	4036465.5898
		408903.9639	4036451.2250
		408863.1007	4036401.0218
		408798.7641	4036379.9278
		408768.6901	4036377.2799
		408723.8003	4036373.3274
		408702.8334	4036371.4813
T37-2-L4	0.19	408376.9612	4036159.8220
		408386.2217	4036113.3207
		408415.8015	4035964.7875
		408417.2066	4035957.7318
		408465.9883	4035936.4920
		408694.4951	4035836.9988
		408700.2588	4036206.4511
		408700.7345	4036236.9420
		408700.7355	4036237.0064

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408708.2813	4036241.5586
		408724.0625	4036246.0469
		408749.7813	4036241.7656
		408762.0000	4036235.3047
		408781.4375	4036182.1367
		408792.3125	4036136.7539
		408830.6875	4036062.8320
		408837.3750	4036051.0742
		408843.3750	4036038.2383
		408859.2500	4035986.2305
		408864.9063	4035973.7852
		408872.5625	4035948.5977
		408873.2500	4035943.3984
		408873.0906	4035940.5779
		408876.8438	4035883.5859
		408879.5000	4035815.1836
		408878.5000	4035789.0859
		408895.0000	4035711.7891
		408893.7500	4035698.2695
		408889.7188	4035685.5820
		408880.0313	4035676.4922
		408851.3125	4035629.3242
		408843.4063	4035619.1055
		408815.4375	4035538.7305
		408817.2813	4035522.3750
		408844.1875	4035466.7656
		408840.3125	4035452.2110
		408835.3750	4035436.3320
		408817.2500	4035393.7461
		408786.1250	4035323.3125
		408765.4688	4035287.1992
		408762.3875	4035264.5425
		408762.4688	4035263.8984
		408760.6563	4035251.8125
		408757.9688	4035237.5742
		408753.5938	4035225.4063
		408747.6563	4035211.9453
		408740.4063	4035199.5391
		408730.8438	4035187.8711
		408728.1888	4035185.3085
		408719.7188	4035177.1328
		408706.9063	4035167.7734
		408693.5938	4035160.7617
		408604.7254	4035159.7544
		408513.1563	4035190.4727
		408499.9375	4035192.5469
		408432.2494	4035196.6703

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408366.8901	4035211.7998
		408341.8750	4035232.3789
		408334.0313	4035251.2656
		408321.6250	4035269.7930
		408305.1875	4035283.0312
		408288.6875	4035289.4570
		408273.6330	4035299.0781
		408258.5298	4035331.8132
		408256.1826	4035344.2198
		408238.4688	4035390.0430
		408220.2813	4035482.1211
		408214.2813	4035500.4219
		408168.9063	4035551.6289
		408124.9687	4035589.3789
		408113.2283	4035598.0053
		408113.0000	4035598.0703
		408112.9178	4035598.2335
		408108.5625	4035601.4336
		408099.7812	4035620.1562
		408097.9508	4035632.0474
		408097.6563	4035632.8203
		408097.0553	4035637.8653
		408096.5000	4035641.4726
		408096.5315	4035642.2625
		408095.2813	4035652.7578
		408095.8125	4035672.1563
		408096.4063	4035692.6602
		408130.6831	4035745.0568
		408132.1875	4035757.6367
		408135.0000	4035776.5781
		408135.7450	4035781.2150
		408132.6875	4035844.1211
		408137.9688	4035860.2188
		408150.6250	4035868.3906
		408158.6250	4035864.0625
		408159.2188	4035864.1250
		408159.9063	4035863.3750
		408167.1875	4035859.4375
		408172.0534	4035854.2357
		408196.3125	4035838.2109
		408266.8750	4035787.7461
		408295.9375	4035789.6328
		408332.2369	4035822.6743
		408338.7188	4035833.7969
		408342.2470	4035836.5598
		408342.9688	4035837.1250
		408342.9688	4035837.1406

Exhibit 1 - PM10 Control Areas and Coordinates

Phase 9/10 Area

Area ID	Area (sq miles)	UTM X	UTM Y
		408343.0625	4035837.2109
		408347.9063	4035841.0117
		408354.9375	4035850.0313
		408356.5000	4035850.6875
		408361.0625	4035857.0039
		408365.0938	4035857.2539
		408367.7188	4035859.9414
		408378.3750	4035868.6875
		408384.4063	4035886.2578
		408387.1466	4035898.8420
		408389.2813	4035908.6445
		408392.2500	4035932.2969
		408391.5000	4035954.7578
		408393.2500	4035976.0977
		408393.7500	4035998.4492
		408391.9063	4036022.1992
		408388.5313	4036046.6602
		408383.6875	4036069.8164
		408382.4063	4036094.4531
		408381.9990	4036102.1378
		408381.7363	4036107.0950
		408381.1250	4036118.6289
		408374.8125	4036140.0391
		408375.0938	4036142.6250
		408373.2500	4036144.5430
		408376.3438	4036153.9297
		408376.8125	4036158.0781
		408376.9612	4036159.8220

ATTACHMENT C:

PROPOSED RULE 433 WITH MARKED TEXT CHANGES

RULE 433. CONTROL OF PARTICULATE EMISSIONS AT OWENS LAKE

Adopted: 04/13/2016 (Proposed)

The purpose of this regulation is to effectuate a regulatory mechanism under the federal Clean Air Act to attain the National Ambient Air Quality Standards ("NAAQS") and to implement the Stipulated Judgment between the Great Basin Unified Air Pollution Control District ("District") and the City of Los Angeles ("City") dated December 30, 2014 and entered by the Superior Court of the State of California, County of Sacramento. This regulation does not alter or supersede any provision in the Stipulated Judgment, nor does it relieve any party from full compliance with the requirements of the Stipulated Judgment. This regulation sets the basic requirements for the Best Available Control Measures ("BACM") and defines the areal extent of these controls at Owens Lake, California required in order to meet the NAAQS. This regulation does not preclude the City or the District from implementing more stringent or additional mitigation pursuant to the Stipulated Judgment.

A. DEFINITIONS

1. "BACM PM_{10} Control Areas" are areas on the dried bed of Owens Lake at or below the Regulatory Shoreline elevation of 3,600 feet and at or above Owens Lake's ordinary high water elevation of 3,553.55 feet on which BACM PM_{10} Control Measures shall be implemented, and

   BACM PM_{10} Control Areas are:

   a. Areas, as shown on the map in Exhibit 1 – Dust Control Area Map, including:

      i. 29.8 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures ("2003 Dust Control Area");

      ii. 13.2 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures, except for Eligible Cultural Resource Areas where PM_{10} BACM selection and implementation dates will be deferred as set forth in Paragraph C.3. ("2006 Dust Control Area" and "Channel Area");

      iii. 2.0 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures ("Phase 8 Area");

      iv. 3.62 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures to be installed by December 31, 2017, except for Eligible Cultural Resource Areas, where PM_{10} BACM selection and implementation dates will be deferred as set forth in Paragraph C.3. ("Phase 9/10 Area"); and

   b. Additional areas as designated pursuant to Section C., "CONTINGENCY MEASURES" of this rule.

2. "BACM PM_{10} Control Measures" are best available control measures designed to reduce PM_{10} emissions to Control Efficiency ("CE") levels specified below through compliance

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with performance standards specified in Attachment A or in specific control measure definitions below. The following BACM PM_{10} Control Measures are approved to be used.

a. "BACM Shallow Flooding" means the application of water to the surface of the lake bed in accordance with the performance standards for shallow flooding in Attachment A, Section I - Performance Requirements for BACM Shallow Flooding. Water shall be applied in amounts and by means sufficient to meet a CE level of 99% or CE targets for Minimum Dust Control Efficiency Areas.

b. "Tillage with BACM (Shallow Flood) Backup or TWB²" means the roughening of a soil surface using mechanical methods in accordance with the specifications in Attachment A, Section IV – Performance Requirements for Tillage with BACM Back-up, and to utilize BACM shallow flooding as a back-up control method in order to prevent NAAQS violations. BACM Shallow Flooding must be implemented in TWB^2 areas if the erosion threshold as defined in Paragraph A.2.h is exceeded. Water shall be applied in amounts and by means sufficient to meet the CE level of 99% or CE targets for Minimum Dust Control Efficiency areas.

c. "Brine BACM" means the application of brine and the creation of wet and/or non-emissive salt deposits sufficient to meet the CE level of 99% as described in Attachment A, Section V – Performance Requirements for Brine BACM. BACM Shallow Flooding must be implemented in Brine BACM areas if the erosion threshold as defined in Paragraph A.2.h is exceeded.

d. "BACM Managed Vegetation" means planting surfaces of the BACM PM_{10} Control Areas with protective vegetation to meet the CE level of 99% by maintaining overall average vegetation cover of at least 37% for each contiguous Managed Vegetation area and an areal distribution based on vegetation cover thresholds and grid size.

e. "BACM Gravel Blanket" means the application of a layer of gravel sufficient to meet the CE level of 100% by covering the control area with

- a layer of gravel at least four inches thick with gravel screened to a size greater than ½ inch in diameter, or
- a layer of gravel at least two inches thick with gravel screened to ½ inch in diameter underlain with a permanent permeable geotextile fabric.

f. "Dynamic Water Management or DWM" is a BACM Shallow Flooding operational modification that allows delayed start dates and/or earlier end dates required for shallow flooding in specific areas that have historically had low PM_{10} emissions within the modified time periods. The truncated dust control periods allows for water savings while achieving the required CE level. Areas eligible for the DWM program and their modified start and/or end dates for shallow flooding are identified in

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Attachment A, Section VI – Performance Requirements for Dynamic Water Management. If any DWM area becomes susceptible to wind erosion outside of the modified dust control period the area will be required to be flooded to meet the required CE for that area. BACM Shallow Flooding must be implemented in DWM areas if the erosion threshold as defined in Paragraph A.2.h is exceeded.

g. “Minimum Dust Control Efficiency or MDCE” BACM is a dust control measure for which the control efficiency target is adjusted to match the required control level based on air quality modeling for the 2006 dust control areas as shown on the map in Exhibit 2 – Dust Control Efficiency Requirements. The control efficiency targets may be less than 99%, but the level of control in all areas is intended to prevent exceedances of the NAAQS. MDCE BACM includes:

   i. Shallow flood areas where the wetness cover is adjusted following the curve in Exhibit 3 - Shallow Flood Control Efficiency and Wetness Cover Curve,

   ii. Channel Area - a state-regulated wetland area as shown in Exhibits 1 and 2 where vegetation cover is enhanced by irrigation and seeding with native plants in a manner sufficient to prevent windblown dust from causing exceedances of the NAAQS, and

   iii. Sand Fence Area – an area as shown in Exhibits 1 and 2 located in area T1A-1 where sand fences, vegetation and natural water runoff combine to provide sufficient protection to prevent windblown dust from causing exceedances of the NAAQS.

h. “Erosion Threshold” is applicable to TWB^2, DWM, and Brine BACM to trigger BACM Shallow Flooding which must be implemented to comply with the shallow flood CE target for that area. The erosion threshold is determined from sand flux measurements or the Induced Particulate Erosion Test (IPET) test method as described in Attachment A, Paragraphs IV.C.2 and IV.C.4. BACM Shallow Flooding must be implemented in TWB^2, DWM or Brine BACM areas if any of the following thresholds are exceeded as determined using the methods described in Attachment A:

   i. Sand flux measured at 15 cm above the surface exceeds 5.0 grams per square centimeter per day on DWM or Brine BACM areas or 1.0 gram per square centimeter per day on TWB^2 areas, or

   ii. Induced Particulate Erosion Test method shows visible dust emissions when operated at the reference test height.

i. “Approved BACM” includes the control measures specified above and other measures approved by the APCO and the US Environmental Protection Agency as equivalent to these methods.

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3. “Eligible Cultural Resource Area or ECR Area” is an area or areas where dust control measures will be implemented on a deferred schedule due to the presence of significant cultural resources that make the areas eligible for listing under the California Register of Historic Resources.

B. REQUIREMENTS

1. For the 2003 Dust Control Area the City shall continuously operate and maintain any mix of approved BACM PM_{10} Control Measures as defined above in Section A to meet the 99% efficient CE level. Selection of the type and location of BACM PM_{10} Control Measures within the area is solely the responsibility of the City.
2. For the 2006 Dust Control Area the City shall continuously operate and maintain approved BACM PM_{10} Control Measures defined above in Section A to meet the CE target specified in Exhibit 2, except for ECR Areas where BACM PM_{10} Control Measure selection and implementation dates will be deferred as set forth in Paragraph C.3., and any areas of BACM Managed Vegetation, for which the City shall comply with the minimum 37% average vegetation cover target and areal distribution requirements by December 31, 2017.
3. For the Phase 8 Area consisting of 2.0 square miles the City shall continue to operate and maintain BACM Gravel Blanket.
4. For the Phase 9/10 Project Area consisting of 3.62 square miles the City shall select and install BACM PM_{10} Control Measures by December 31, 2017, except for ECR Areas, where PM_{10} BACM selection and implementation dates will be deferred as set forth in Paragraph C.3.
5. In areas containing infrastructure capable of achieving and maintaining compliant BACM Shallow Flooding the City may implement TWB[2], Brine Shallow Flooding or Dynamic Water Management as alternatives to BACM Shallow Flooding or MDCE BACM shallow flooding.

C. CONTINGENCY MEASURES

1. At least once each calendar year, the District shall determine whether additional areas of the lake bed require BACM PM_{10} Control Measures in order to attain or maintain the PM_{10} NAAQS.
2. If the District has not demonstrated attainment with the PM_{10} NAAQS on or before December 31, 2017, or has not met reasonable further progress milestones, the District shall order the City to apply one or more BACM PM_{10} Control Measures as set forth in

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Paragraphs A.2 and C.4 on those areas of the Owens Lake bed that cause or contribute to exceedances of the PM_{10} NAAQS.

3. If monitoring and/or modeling demonstrates BACM PM_{10} Control Measures are needed in an ECR Area(s) to attain or maintain the PM_{10} NAAQS after BACM PM_{10} Control Measures are implemented in adjacent areas, the District shall order the City to select and implement BACM PM_{10} Control Measures set forth in Paragraph A.2.
4. The District may order the City to implement, operate and maintain a total of up to 53.4 square miles of waterless or water-neutral BACM PM_{10} Control Measures on the Owens Lake bed below the Regulatory Shoreline (elev. 3,600 feet) and above the ordinary high water level of Owens Lake (elev. 3,553.55 feet).
5. As expeditiously as practicable and not more than three years after any such order for additional BACM PM_{10} Control Measures, the City shall install, operate and maintain BACM PM_{10} Control Measures that achieve a control efficiency of 99%. If BACM Managed Vegetation is chosen up to two additional years for vegetation growth is allowed to achieve the 37% vegetation cover requirement.

EXHIBIT 1 – Dust Control Area Map

Commented [EW1]: Map updated with inset.

EXHIBIT 2 – Dust Control Efficiency Requirements

EXHIBIT 3 – Shallow Flood Control Efficiency and Wetness Cover Curve

ATTACHMENT A – Performance Requirements for BACM

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ATTACHMENT D:
EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

2016 DRAFT SIP

EXCERPTS FROM THE 2016 SIP

SUMMARY

S.1 Purpose of the SIP

* * * *

The 2016 SIP revises and ~~revises~~ supersedes the requirements contained in the 2008 Owens Valley PM_{10} SIP (2008 SIP) which was prepared in response to a finding by the United States Environmental Protection Agency (USEPA) that the southern Owens Valley (known as the Owens Valley Planning Area or OVPA) did not attain the NAAQS for PM_{10} by December 31, 2006, as mandated by the CAA (USEPA, 2007a). As required by CAA Sections 188(e) and 189(d), the 2008 SIP provided for attainment as soon as practicable and committed to achieving at least a five percent annual reduction in PM_{10} emissions starting from a 2006 emission inventory base year. The 2016 SIP ~~revision~~ continues the commitment to attain the NAAQS by providing a control strategy to implement control measures on additional areas at Owens Lake and to approve the use of new dust control measures to augment the existing Best Available Control Measures (BACM) that were available in the 2008 SIP.

S.2 Federal Clean Air Act and the Owens Valley SIP History

* * * *

Also in 1987, the USEPA designated the OVPA as one of the areas in the nation that violated the new PM_{10} NAAQS. 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 (CSLC)—is the major source of PM_{10} emissions contributing to air quality violations in the OVPA. The Owens Lake bed is considered an anthropogenic (human-caused) source of PM_{10} because the City of Los Angeles' Aqueduct diverts water sources that historically supplied the lake. In January 1993, the southern Owens Valley was reclassified as "serious nonattainment" for PM_{10}. The District prepared and adopted a SIP in 1998 (1998 SIP), which was approved by USEPA in 1999. Subsequent SIP revisions were prepared in 2003 to address PM_{10} control requirements to reduce windblown dust from Owens Lake, ~~and~~ in 2008 to incorporate dust control provisions of the 2006 Settlement Agreement between the City of Los Angeles and the District, and in 2013 to incorporate an extension to the NAAQS attainment deadline, as well as to include modifications to some of the previously implemented control measures. As the USEPA has not taken action on these revisions, ~~This~~the 2016 SIP supersedes these documents and ~~will~~ provides an update on control measure implementation, commitments for additional dust controls at Owens Lake, and new control measures to augment the BACM in the 2008 SIP.

S.3 Health Impacts of PM_{10} from Owens Lake

* * * *

From 2012 through 2014, daily PM_{10} sampling recorded ~~24~~ 22 PM_{10} exceedances at the Keeler monitor site. This averages about ~~8~~ 7 exceedances of the PM_{10} NAAQS per year. The Lizard Tail monitor recorded 16 PM_{10} exceedance days from 2012 through 2014 and recorded the highest concentration (3,916 μg/m^3) of the nine sites monitored. Table S-1 shows the number of exceedances from 2012 through 2014 at each site, as recorded in USEPA's Air Quality System. All monitor sites except Lone Pine were in violation of the 24-hour average PM_{10} NAAQS, which allows no more than one exceedance per year over a three year period.

Table S-1: OVPA NAAQS PM_{10} Violations (2012-2014)			
Monitoring Site	**2012**	**2013**	**2014**
Dirty Socks TEOM [1]	5	No Data	Incomplete
Keeler ~~#3~~ PM_{10} TEOM	5	~~10~~9	~~9~~8
Lizard Tail TEOM	12	2	2
Lone Pine FDMS	1	0	0
Mill TEOM [1]	4	No Data	Incomplete
North Beach TEOM [1]	~~9~~8	No Data	Incomplete
Olancha 3 TEOM	3	~~7~~6	3
Shell Cut TEOM	10	43	~~1~~0
Stanley TEOM	3	0	1

Notes:
[1] The Dirty Socks, Mill, and North Beach monitoring sites were not operated in 2013 and portions of 2014 due to lease disputes with the landowner.

* * * *

S.4 Sources of PM_{10} Emissions

In the last century, PM_{10} emissions in the OVPA were dominated by fugitive dust emissions largely from wind erosion on the exposed Owens Lake playa. These emissions have been on the decline starting in 2002 with the implementation of dust control measures by the City of Los Angeles, and is expected to continue to decrease with additional control measures being implemented by the end of 2017. ~~PM_{10} emissions in the OVPA are dominated by fugitive dust emissions resulting from wind erosion on the exposed Owens Lake playa.~~ Other wind erosion sources in the OVPA include off-lake sources of lake bed dust (i.e. the Keeler and Olancha dune areas), small mining facilities, and open areas near the municipalities of Lone Pine and Independence that have been disturbed by human activity, including Inyo County's Lone Pine ~~landfill~~ Landfill. There is a lack of large industrial sources in the Owens Valley and the only other sources of criteria pollutant emissions are wood stoves, fireplaces, unpaved and paved road dust, and vehicle tailpipe emissions. Prescribed burning for wildland management on federal and private lands also generates PM_{10} in and around the nonattainment area; however, prescribed burning is not normally conducted on windy days when wind erosion is at its highest.

* * * *

The significant source emissions threshold is calculated by multiplying the exceedance day emissions inventory for the Owens Lake Subarea (Table S-2) by the ratio of the significant source category contribution (5 μg/m^3) to the near exceedance day concentration (150.1 μg/m^3). This yields a threshold level of ~~18.1~~17.7 tons per day; there are three PM_{10} sources above the *de minimis* level and therefore identified as significant source categories in the OVPA, including: fugitive windblown dust from exposed lake beds and fugitive windblown dust from dunes (Keeler and Olancha).

Table S-2: Exceedance Day PM_{10} Emission Inventory for the Owens Lake Subarea and the OVPA (tons/day)		
Category[1]	**2012**	**2015**
Manufacturing and Industrial	0.03	0.03
Service and Commercial	0.01	0.01
Mineral Processes	0.71	0.71
Metal Processes	0.02	0.03
Other (Industrial Processes)	0.01	0.01
Residential Fuel Combustion	0.02	0.02
Construction and Demolition	0.01	0.01
Lone Pine Landfill	1.07	1.07
Paved Road Dust	0.03	0.03
Fugitive Windblown Dust from Agricultural Lands (Non-Pasture)	0.01	0.01
Fugitive Windblown Dust and Activity-related Dust from Unpaved Roads and Associated Areas[2]	~~12.09~~0.08	~~12.09~~0.08
Fugitive Windblown Dust from Exposed Lake Beds	45.30	45.30
Fugitive Windblown Dust from Dunes	--	--
Keeler Dunes	169.20	169.20
Olancha Dunes	312.00	312.00
Fugitive Windblown Dust from Open Desert[2,3,4]	~~2.94~~1.87	~~2.94~~1.87
Managed Burning and Disposal	0.09	0.09
On-Road Mobile	0.02	0.01
Wildfires	0.17	0.17
TOTAL Owens Lake Subarea	**~~542.65~~530.64**	**~~542.66~~530.65**
Fugitive Windblown Dust from Unpaved Roads and Associated Areas (outside Owens Lake Subarea)	132.~~13~~98	132.~~13~~98
Fugitive Windblown Dust from Open Desert (outside Owens Lake Subarea)	53.76	53.76
TOTAL OVPA (for informational purposes only)	**~~728.55~~717.38**	**~~728.55~~717.39**

Notes:
[1] Sources with emissions less than 0.005 tons/day have been omitted.
[2] ~~Fugitive windblown dust s~~Source limited to two-kilometer buffer around Owens Lake.
[3] Excluding areas associated with Olancha and Keeler dunes.
[4] Excludes emissions related to the Lone Pine Landfill (listed separately).

Data Sources:
All Source Categories (except those noted below): CARB emission inventory for Inyo County ratioed to the OVPA; **Activity-related Unpaved Road Dust and Windblown Unpaved Road Dust outside of Owens Lake Subarea**: GBUAPCD; **Lake Beds and Dunes**: Air Quality

Table S-2: Exceedance Day PM_{10} Emission Inventory for the Owens Lake Subarea and the OVPA (tons/day)
Modeling; **Open Desert** **and Windblown Unpaved Road Dust inside of Owens Lake Subarea**: Constructive estimate based on similar land uses and conditions in Imperial County Air Pollution Control District; **Lone Pine Landfill**: Mojave Desert Air Quality Management District Wind Erosion Equation.

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S.5.1.1 Shallow Flooding BACM

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The City has the option to conduct field testing to refine the wetness cover requirement to achieve 99 percent control efficiency in Shallow Flooding areas. The City initiated a Shallowing Flooding control efficiency test in 2015, the results of which are expected in 2016.

* * * *

S.5.1.5 Post-2008 Board Order

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A revision to the 2008 SIP was prepared in 2013 to incorporate an extension to the NAAQS attainment deadline, as well as to include modifications to some of the previously implemented control measures. Concurrent with this revision, GBUAPCD adopted Board Order No. 130916-01 ("2013 Board Order"), which required the City of Los Angeles to implement new dust control measures in place of Moat & Row in an approximately 3.1 square-mile area now called the "Phase 7a" area. The Phase 7a area includes six DCAs designated as T37-1, T37-2, T1A-3, T1A-4, T-32-1, and T12-1. Per the 2013 Board Order, the City of Los Angeles was required to implement fully-compliant BACM PM_{10} controls (other than Managed Vegetation BACM) in the Phase 7a areas by December 31, 2015. Areas controlled by Managed Vegetation BACM were required to achieve fully-compliant BACM vegetation cover by December 31, 2017. The 2013 Board Order excluded from the Phase 7a areas all California Register of Historical Resources-eligible areas plus necessary buffer areas. Approximately 277 acres of the Phase 7a areas were identified as Eligible Cultural Resources (ECR) areas and were given the title of "Phase 7b Areas." The District will monitor the Phase 7b ECR areas following implementation of dust controls in adjacent areas. It is anticipated that emissions from the ECR areas will be reduced once dust control measures are implemented in adjacent areas. In the same manner as the off-lake dust source areas were created as a result of sand migration from the lake bed, the ECR areas will have less sand migration from the adjacent areas after dust controls are in place and it is expected that emissions will be reduced as dust is winnowed from the loose sand deposits. This emissions decay has been monitored by the District in off-lake areas that are adjacent to lake bed dust control areas. For attainment demonstration purposes, the Phase 7b ECR areas will be assumed to have no emissions after dust controls are implemented in 2015. However, if any ECR area is determined to have caused or contributed to an exceedance of the standard after dust controls are implemented in adjacent areas, it will be ordered for dust control under the contingency measure provisions in the SIP. The 2013 Board Order also recognized adjustments to existing BACM, including "Reduced Thickness Gravel"[3] as an approved type of the Gravel Blanket BACM and "Brine Shallow Flooding"[4] as a subcategory of the Shallow Flooding BACM. In light of California's ongoing drought, the 2013 Board Order also emphasized the need for reductions in water usage, stating that "[the] District and [the

City of Los Angeles] shall make every effort to develop, approve and deploy high-confidence waterless dust control measures in all areas where dust controls are ordered on Owens Lake." Lastly, the 2013 Board Order modified provisions for PM_{10} control in the Keeler Dunes stating that the District would work with stakeholders to develop and implement a project to control dust emissions from the dunes by December 31, 2015. As the USEPA has not taken action on the 2003, 2008, and 2013 SIP revisions, the 2016 SIP is designed to revise and supersede these documents.

* * * *

S.8 Conclusion

The proposed control strategy requires the City to continue to operate and maintain the 45.0 square miles of existing control measures on the Owens Lake bed. It also requires control of the Keeler Dunes and the placement of BACM on an additional 3.62 square miles of lake bed identified as the Phase 9/10 areas. Air quality modeling has shown that this strategy can reduce PM_{10} impacts at sites above the regulatory lake shore to below the federal 24-hr PM_{10} standard by the end of 2017.

* * * *

1. INTRODUCTION

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The 2016 SIP revises and supersedes the requirements contained in the 2008 Owens Valley PM_{10} SIP (2008 SIP) which was prepared in response to a finding by the United States Environmental Protection Agency (USEPA) that the southern Owens Valley (known as the Owens Valley Planning Area or OVPA) did not attain the NAAQS for PM_{10} by December 31, 2006, as mandated by the CAA (USEPA, 2007a). As required by CAA Sections 188(e) and 189(d), the 2008 SIP provided for attainment as soon as practicable and committed to achieving at least a five percent annual reduction in PM_{10} emissions starting from a 2006 emission inventory base year. The 2016 SIP ~~revision~~ continues the commitment to attain the NAAQS by providing a control strategy to implement control measures on additional areas at Owens Lake and in the Keeler Dunes and to approve the use of new dust control measures to augment the existing Best Available Control Measures (BACM) that were available in the 2008 SIP.

* * * *

1.1 Federal Clean Air Act and the Owens Valley SIP History

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Also in 1987, the USEPA designated the OVPA as one of the areas in the nation that violated the new PM_{10} NAAQS. 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 (CSLC)—is the major source of PM_{10} emissions contributing to air quality violations in the OVPA. The Owens Lake bed is considered an anthropogenic (human-caused) source of PM_{10} because the City of Los Angeles' Aqueduct diverts water sources that historically supplied the lake. In January 1993, the OVPA was reclassified as "serious nonattainment" for PM_{10}. The District prepared and adopted a SIP in 1998 (1998 SIP), which was approved by the USEPA in 1999. Subsequent SIP revisions were prepared in 2003 to address PM_{10} control requirements to reduce windblown dust from Owens Lake, ~~and~~ in 2008 to incorporate dust control provisions of the 2006 Settlement Agreement between the City of Los Angeles and the District (Appendix I-1), and in 2013 to incorporate an extension to the NAAQS attainment deadline, as well as to include modifications to some of the previously implemented control measures. As the USEPA has not taken action on these revisions, the~~.~~

~~This~~ 2016 SIP revises and supersedes these documents and ~~will~~ provides an update on control measure implementation, commitments for additional dust controls at Owens Lake and in the Keeler Dunes, and new control measures to augment the BACM in the 2008 SIP (see Section 6.3 for additional details).

* * * *

3.3.3 Cancer Risk Due to Owens Lake Dust Storms

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Under the District's adopted air toxics policy, a toxic risk greater than one in a million additional cancer cases is considered to be significant. This policy requires implementation of controls on sources that pose a risk greater than one in a million in order to reduce the risk, and it prohibits the issuance of a permit to sources that exceed a risk of 10 in a million (GBUAPCD, 1987). Model calculations project an average Keeler PM_{10} concentration of 24.2 µg/m^3 after all dust control measures are operational. This would result in reducing the pre-dust control cancer risk of 23 in a million to around 10 in a million, which would be more in line with the District's goal for protecting public health.

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3.5.1 24-hour Average PM_{10}

From 2012 through 2014, daily PM_{10} sampling recorded ~~24~~22 PM_{10} exceedances at Keeler. This averages about ~~8~~7 exceedances of the PM_{10} NAAQS per year. The Lizard Tail monitor recorded 16 PM_{10} exceedance days from 2012 through 2014 and recorded the highest concentration (3,916 µg/m^3) of the nine sites monitored. Table 3-4 shows the number of exceedances from 2012 through 2014 at each site, as recorded in the USEPA's Air Quality System. All monitor sites except Lone Pine were in violation of the 24-hour average PM_{10} NAAQS, which allows no more than one exceedance per year averaged over a three year period. See Appendix III-1 for a table of the continuous monitor exceedance concentrations recorded at each monitor during 2012 through 2014, as well as tables summarizing the number of exceedances each year by type of source (on-lake, off-lake, Keeler Dunes, or a combination) and the number of exceedances due to each source type at each monitor. Note, exceedances listed in Appendix III-1 are days with average PM_{10} concentrations greater than or equal to 150 µg/m^3.

Table 3-4: OVPA NAAQS PM_{10} Violations (2012-2014)

Monitoring Site	2012	2013	2014
Dirty Socks TEOM [1]	5	No Data	Incomplete
Keeler ~~#3~~ PM_{10} TEOM	5	~~10~~9	~~9~~8
Lizard Tail TEOM	12	2	2
Lone Pine FDMS	1	0	0
Mill TEOM [1]	4	No Data	Incomplete
North Beach TEOM [1]	~~9~~8	No Data	Incomplete
Olancha 3 TEOM	3	~~7~~6	3
Shell Cut TEOM	10	~~4~~3	~~1~~0
Stanley TEOM	3	0	1

Notes: [1] The Dirty Socks, Mill, and North Beach monitoring sites were not operated in 2013 and portions of 2014 due to lease disputes with the landowner.

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4.1 Introduction and Significant Source Emissions Threshold

* * * *

In the last century, PM_{10} emissions in the OVPA were ~~are~~ dominated by fugitive dust emissions resulting from wind erosion on the exposed Owens Lake playa. The historic dominance of dust emissions from the playa has been documented by the District and other researchers who have studied dust source areas in the OVPA since the 1970s (Holder, 2016). Playa emissions have been on the decline since 2002 with the implementation of dust control measures by the City of Los Angeles, and is expected to continue to decrease with additional control measures being implemented by the end of 2017. Other wind erosion sources in the OVPA include off-lake sources of lake bed dust (i.e. the Keeler and Olancha dune areas, which are now the largest sources in the OVPA), small mining facilities, and areas near the communities of Lone Pine and Independence that have been disturbed by human activity, including Inyo County's Lone Pine ~~landfill~~ Landfill. There is a lack of large industrial sources in the Owens Valley and the only other sources of criteria pollutant emissions are wood stoves, fireplaces, unpaved and paved road dust, and vehicle tailpipe emissions. Prescribed burning for wildland management on federal and private lands also generates PM_{10} in and around the nonattainment area; however, prescribed burning is not normally conducted on windy days when wind erosion is at its highest. Table 4-1 shows the PM_{10} emissions inventory for the OVPA on an exceedance day.

Table 4-1: Exceedance Day PM_{10} Emission Inventory for the Owens Lake Subarea and the OVPA (tons/day)

Category[1]	2012	2015
Manufacturing and Industrial	0.03	0.03
Service and Commercial	0.01	0.01
Mineral Processes	0.71	0.71
Metal Processes	0.02	0.03
Other (Industrial Processes)	0.01	0.01
Residential Fuel Combustion	0.02	0.02
Construction and Demolition	0.01	0.01
Lone Pine Landfill	1.07	1.07
Paved Road Dust	0.03	0.03
Fugitive Windblown Dust from Agricultural Lands (Non-Pasture)	0.01	0.01
Fugitive Windblown Dust and Activity-related Dust from Unpaved Roads and Associated Areas[2]	~~12.09~~0.08	~~12.09~~0.08
Fugitive Windblown Dust from Exposed Lake Beds	45.30	45.30

Table 4-1: Exceedance Day PM_{10} Emission Inventory for the Owens Lake Subarea and the OVPA (tons/day)

Category[1]	**2012**	**2015**
Fugitive Windblown Dust from Dunes	--	--
Keeler Dunes	169.20	169.20
Olancha Dunes	312.00	312.00
Fugitive Windblown Dust from Open Desert[2,3,4]	~~2.94~~1.87	~~2.94~~1.87
Managed Burning and Disposal	0.09	0.09
On-Road Mobile	0.02	0.01
Wildfires	0.17	0.17
TOTAL Owens Lake Subarea	**~~542.65~~530.64**	**~~542.66~~530.65**
Fugitive Windblown Dust from Unpaved Roads and Associated Areas (outside Owens Lake Subarea)	132.~~13~~98	132.~~13~~98
Fugitive Windblown Dust from Open Desert (outside Owens Lake Subarea)	53.76	53.76
TOTAL OVPA (for informational purposes only)	**~~728.54~~717.38**	**~~728.55~~717.39**

Notes:
1 Sources with emissions less than 0.005 tons/day have been omitted.
2 ~~Fugitive windblown dust s~~Source limited to two-kilometer buffer around Owens Lake.
3 Excluding areas associated with Olancha and Keeler dunes.
4 Excludes emissions related to the Lone Pine Landfill (listed separately).

Data Sources:
All Source Categories (except those noted below): CARB emission inventory for Inyo County ratioed to the OVPA; **Activity-related Unpaved Road Dust and Windblown Unpaved Road Dust outside of Owens Lake Subarea**: GBUAPCD; **Lake Beds and Dunes**: Air Quality Modeling; **Open Desert and Windblown Unpaved Road Dust inside of Owens Lake Subarea**: Constructive estimate based on similar land uses and conditions in Imperial County Air Pollution Control District; **Lone Pine Landfill**: Mojave Desert Air Quality Management District Wind Erosion Equation. See Appendix IV-1.

The inventory presented in Table 4-1 is based on the best technical information currently available; however, there is evidence that material from the lake bed has been deposited in the two-kilometer buffer zone, which may be sufficient to contribute to off-lake exceedances, where emissions purely from the unpaved roads and open desert areas in the two-kilometer buffer calculated in Table 4-1 do not. The reduction of that material is solely dependent upon controls applied to the lake bed sources and the ultimate winnowing of that deposited material from the two-kilometer buffer. As such, this material is considered related to the lake bed emissions and their previous and near-term controls through 2017 as discussed in Chapter 6.

* * * *

4.2 Significant Sources

The significant source emissions threshold is calculated by multiplying the exceedance day emissions inventory for the Owens Lake Subarea (Table 4-1) by the ratio of the significant source category contribution (5 μg/m^3) to the near exceedance day concentration (150.1 μg/m^3). This yields a threshold level of ~~18.1~~17.7 tons per day; there are three PM_{10} sources above the *de minimis* level and therefore identified as significant source categories in the OVPA (Table 4-2).

Table 4-2: Significant Source Categories of PM_{10} in the OVPA (tons/day)

Category	2012	2015
Fugitive Windblown Dust from Exposed Lake Beds	~~63.54~~45.30	~~63.54~~45.30
Fugitive Windblown Dust from Dunes	--	--
Keeler Dunes	~~154.24~~169.20	~~154.24~~169.20
Olancha Dunes	~~66.60~~312.00	~~66.60~~312.00

* * * *

4.3 PM_{10} Emissions Forecast

Table 4-3 provides a summary of the annual emissions forecast for all the emission source categories in the planning area for the period from ~~2000~~1999 to ~~2020~~2019. PM_{10} emission estimates presented represent the emissions at the end of the calendar year, after all scheduled controls are in place. ~~For the Owens Lake bed, Keeler Dunes, and Olancha Dunes from 2000 to 2014 are based on modeled dust year estimates of emissions derived from observed monitoring results. The "dust year" concept is used to follow the dust season in the OVPA, which begins in July and lasts through the following June (i.e. data for the 2014 dust year covers July 2013 through June 2014). It has traditionally been used to describe emissions from modeled windblown dust sources. Hereafter, emissions summarized by dust year will be labeled as such.~~ PM_{10} emissions from the control areas (i.e. Lake Bed and Keeler Dunes) in future years are projected based on the most recent year of modeling data (July 2013 through June 2014) ~~2014 dust year emission inventory~~ and assumed emission reductions using the target minimum dust control efficiency for each control area. Future estimates of PM_{10} emissions from the Olancha Dunes assume that as controls are applied to the lake bed, the dunes will have less sand migration from adjacent areas and emissions will reduce as PM_{10} is winnowed away.[17] This decay is assumed to occur until the emissions from the dunes reach those of a natural dune system[18], and is quantified according to Equation 1.

* * * *

Emissions from the two-kilometer buffer surrounding Owens Lake have been separated out in the forecast for illustrative purposes. The year end~~2010~~ 2009 through ~~2014~~2013 PM_{10} emission estimates for this area are based on modeled estimates of emissions derived from observed monitoring results. The year end ~~2000~~1999 through ~~2009~~2008 PM_{10} emission estimates assume that emission rates from the two-kilometer buffer ~~will follow~~ followed a similar trend as those from the Olancha Dunes, since both are impacted by the lake bed sources; therefore, emissions for this period are estimated using an equation derived from the years when there are modeled emission estimates for both the Olancha Dunes and the two-kilometer buffer (i.e. ~~dust years~~year end ~~2010~~2009 through ~~2014~~2013)[19]. Future estimates of PM_{10} emissions from the two-kilometer buffer follow the same approach as is used for the

Olancha Dunes (see Equation 1), except that the decay is assumed to occur until the emissions from the buffer reach those of a natural scrub desert.[20]

For the remaining sources, with the exception of fugitive windblown dust from open desert, the emissions data used in this analysis are derived from the CARB 2005, 2010, 2012, 2015, and 2020 emission inventories for Inyo County, and are ratioed to the OVPA by the same factors used for the exceedance day inventory (see Appendix IV-1, Table 2).[21] Emission estimates for fugitive windblown dust from open desert are assumed to stay constant over time and were calculated using emission factors of a similar desert-like environment (e.g. Imperial County). Note, this estimate excludes fugitive windblown dust emissions related to the dune areas and the two-kilometer buffer. This approach is shown in detail in Appendix IV-1, Tables 5a, ~~and~~ 5b, and 5c.

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[19] The resulting equation is: [2-km Buffer Emissions, TPY] = ~~0.8345~~0.7762*[Olancha Dunes Emissions, TPY]-~~1030.5~~746.52

[20] For this analysis, a "natural scrub desert" is assumed to have an emission factor of 0.0272 tons PM_{10} per acre per year (ENVIRON International Corporation, 2004; Mansell, 2005).

[21] Data computed from the CARB inventories has been used as follows: forecast years ~~2000~~1999 to ~~2009~~2008 (CARB 2005 inventory); forecast years ~~2010~~2009 to ~~2011~~2010 (CARB 2010 inventory); forecast years ~~2012~~2011 to ~~2014~~2013 (CARB 2012 inventory); forecast years ~~2015~~2014 to ~~2019~~2018 (CARB 2015 inventory); forecast year ~~2020~~2019 (CARB 2020 inventory).

Table 4-3: Summary of the Annual Emissions Forecast for all PM_{10} Emission Source Categories in the OVPA for the Period from ~~2000~~1999 through ~~2020~~2019 (tons/year)

YEAR END[1]	LAKE BED EMISSIONS	NEAR-LAKE EMISSIONS			REMAINING OVPA EMISSIONS			TOTAL
		Keeler Dunes	*Olancha Dunes*	*2-km Buffer (excluding dunes)*[2]	*Windblown Dust Unpaved Roads*	*Windblown Dust Open Desert*[3]	*Misc. Sources*[4]	
~~2000~~1999	52,539	2,326	6,523	4,316	416	19,617	854	86,591
~~2001~~2000	62,377	2,041	4,812	2,989	416	19,617	854	93,105
~~2002~~2001	46,739	4,692	5,446	3,480	416	19,617	854	81,243
~~2003~~2002	55,341	3,335	4,575	2,804	416	19,617	854	86,942
~~2004~~2003	36,295	4,659	5,226	3,310	416	19,617	854	70,377
~~2005~~2004	25,387	3,754	5,169	3,266	416	19,617	854	58,463
~~2006~~2005	69,778	9,515	5,738	3,707	416	19,617	854	109,625
~~2007~~2006	789	5,324	6,395	4,217	416	19,617	854	37,613
~~2008~~2007	7,448	4,476	5,011	3,143	416	19,617	854	40,964
~~2009~~2008	22,754	2,130	4,487	2,736	416	19,617	854	53,994
~~2010~~2009	42,143	1,524	5,718	3,837	416	19,617	744	73,999
~~2011~~2010	35,861	4,093	5,744	3,868	416	19,617	744	70,343
~~2012~~2011	22,514	4,612	6,031	3,844	416	19,617	744	57,777
~~2013~~2012	4,094	3,815	5,202	3,009	416	19,617	744	36,896
~~2014~~2013	1,936	2,778	4,008	2,435	416	19,617	744	31,934
~~2015~~2014	1,936	2,778	2,886	1,952	416	19,617	747	30,333

Table 4-3: Summary of the Annual Emissions Forecast for all PM_{10} Emission Source Categories in the OVPA for the Period from ~~2000~~1999 through ~~2020~~2019 (tons/year)

YEAR END[1]	LAKE BED EMISSIONS	NEAR-LAKE EMISSIONS			REMAINING OVPA EMISSIONS			TOTAL
		Keeler Dunes	*Olancha Dunes*	*2-km Buffer (excluding dunes)[2]*	*Windblown Dust Unpaved Roads*	*Windblown Dust Open Desert[3]*	*Misc. Sources[4]*	
~~2016~~2015	1,222	172	2,082	1,606	416	19,617	747	25,861
~~2017~~2016	1,222	172	1,506	1,358	416	19,617	747	25,038
~~2018~~2017	355	41	1,093	1,180	416	19,617	747	23,450
~~2019~~2018	355	41	798	1,053	416	19,617	747	23,027
~~2020~~2019	355	41	586	962	416	19,617	750	22,726

Notes:

[1] Values presented represent the emissions at the end of the calendar year, after all scheduled controls are in place.

[2] Includes PM_{10} emissions from Lone Pine Landfill, which equal on average approximately 60 tons per year (see Appendix IV-1, Table 6).

[3] Emissions assumed constant over time.

[4] Miscellaneous sources include: manufacturing and industrial, service and commercial, mineral processes, metal processes, residential fuel combustion, construction and demolition, paved and unpaved road dust (activity related), windblown dust from agricultural lands, managed burning and disposal, on-road mobile, and wildfires.

* * * *

5.2.3 Fugitive Lake Bed Windblown Dust Deposited on Two-kilometer Buffer

The District is implementing controls on the lake bed. This will have the effect of winnowing significantly any lake bed dust deposited on the two-kilometer buffer area, reducing any potentially significant emissions to the *de minimis* levels calculated for unpaved roads and open desert areas within that buffer. These reductions are accounted for in the modeled attainment demonstration discussed in Chapter 7.

* * * *

5.4.1 Summary

Chapter 4 of the 2016 BACM Assessment assesses the emission reductions, cost, and cost-effectiveness of the dust control measures implemented in the OVPA. This analysis is summarized below in Table 5-2.

Table 5-2: Control Effectiveness, Cost Information, and Cost Effectiveness

Source Category (and Windblown Dust Controls)	Average Annual Emissions (tons)	Control Effectiveness	Costs	Cost-effectiveness ($/ton)
Dry Lake bed (varied controls)	2006: ~~73,174~~69,778 2010: ~~43,325~~22,754 2014: 1,936	Up to 99% depending on control and location	$145.8M (annualized)[3] for 2016 SIP	$2,~~390~~520
Off-Lake Dunes (straw bales and re-vegetation)	Keeler[1]: 3,~~309~~365 Olancha[1,2]: 5,~~418~~340	95% with straw bales with future shrub establishment	$700K (annualized)[3] for straw bales and re-vegetation with watering	$~~222~~219

Notes:

[1] Average of 2010-2014 annual emissions.

[2] No active controls are anticipated for the Olancha Dunes. PM_{10} is anticipated to winnow out over time (Ono and Howard, 2015).

[3] Costs are annualized assuming interest = 5%, n = 25 years, A/P = 0.07.

* * * *

6.1.2 Transportation Conformity

Transportation conformity requirements, contained in District Regulation XII, require that federal actions and federally funded projects conform to SIP rules and that they do not interfere with efforts to attain federal air quality standards. As shown in the BACM Assessment and Appendix IV-1, motor vehicle emissions consisting of tailpipe and reentrained roadway dust emissions (0.02 tons per day and 0.95 tons per day, respectively), were determined not to be a significant source of PM_{10} in the OVPA. In fact, together these emissions account for approximately 1.4% of annual 2016 PM_{10} emissions. Given that the ARB's estimates for growth in population and vehicle miles traveled (VMT) between 2015 and 2035 for Inyo County are limited to 0.7% and 1.2% annually, respectively, it would be unreasonable to expect that these emissions would grow to such an extent as to cause a NAAQS violation in the future (CARB, 2013). Furthermore, as this SIP lacks measures that control or artificially lower motor vehicle emissions, the OVPA qualifies as an area with insignificant motor vehicle emissions under 40 CFR Part 93.109(f) and thus is not required to perform a regional emissions analysis for transportation conformity purposes. ~~The emissions inventory shows very low PM_{10} emissions from mobile sources and transportation-related activities in the Planning Area.~~

~~However, fugitive dust from construction-related activities in areas along Highway 395 has caused significant dust events in the Planning Area. For transportation conformity purposes, PM10 emissions from construction-related activities will be quantified as required by District Rule 1231(e) for any new highway construction projects in the OVPA, and will be subject to District Rules 400 and 401 for controlling fugitive dust.~~

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6.2.1.1 Shallow Flooding BACM

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The City shall have the option to conduct field testing to refine the wetness cover requirement to achieve 99 percent control efficiency in Shallow Flooding areas. The City initiated a Shallowing Flooding control efficiency test in 2015, the results of which are expected in 2016.

* * * *

6.2.1.5 Post-2008 Board Order

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A revision to the 2008 SIP was prepared in 2013 to incorporate an extension to the NAAQS attainment deadline, as well as to include modifications to some of the previously implemented control measures. Concurrent with this revision, GBUAPCD adopted Board Order No. 130916-01 ("2013 Board Order"), which required the City of Los Angeles to implement new dust control measures in place of Moat & Row in an approximately 3.1 square-mile area now called the "Phase 7a" area. The Phase 7a area includes six DCAs designated as T37-1, T37-2, T1A-3, T1A-4, T-32-1, and T12-1 (see Figure 2-3). Per the 2013 Board Order, the City of Los Angeles was required to implement fully-compliant BACM PM_{10} controls (other than Managed Vegetation BACM) in the Phase 7a areas by December 31, 2015. Areas controlled by Managed Vegetation BACM were required to achieve fully-compliant BACM vegetation cover by December 31, 2017. The 2013 Board Order excluded from the Phase 7a areas all California Register of Historical Resources-eligible areas plus necessary buffer areas. Approximately 277 acres of the Phase 7a areas were identified as Eligible Cultural Resources (ECR) areas and were given the title of "Phase 7b Areas." The District will monitor the Phase 7b ECR areas following implementation of dust controls in adjacent areas. It is anticipated that emissions from the ECR areas will be reduced once dust control measures are implemented in adjacent areas. In the same manner as the off-lake dust source areas were created as a result of sand migration from the lake bed, the ECR areas will have less sand migration from the adjacent areas after dust controls are in place and it is expected that emissions will be reduced as dust is winnowed from the loose sand deposits. This emissions decay has been monitored in off-lake areas that are adjacent to lake bed dust control areas (Ono and Howard, 2015). For attainment demonstration purposes, the ECR areas will be assumed to have no emissions after dust controls are implemented in 2015. However, if any ECR area is determined to have caused or contributed to an exceedance of the standard after dust controls are implemented in adjacent areas, it will be ordered for dust control under the contingency measure provisions in the SIP. The 2013 Board Order also recognized adjustments to existing BACM, including "Reduced Thickness Gravel"[24] as an approved type of the Gravel Blanket BACM and "Brine Shallow Flooding"[25] as a subcategory of the Shallow Flooding BACM. In light of California's ongoing drought, the 2013 Board Order also emphasized the need for reductions in water usage, stating that "[the] District and [the City of Los Angeles] shall make every effort to develop, approve and deploy high-confidence waterless dust control measures in all areas where dust controls are ordered on Owens Lake." Lastly, the 2013 Board Order modified provisions for PM_{10} control in the Keeler Dunes stating that the District would work with stakeholders to develop and implement a project to control dust emissions from the dunes by December 31, 2015 (see Section 6.2.2). As the USEPA has not taken action on 2003, 2008, and 2013 SIP revisions, the 2016 SIP is designed to revise and supersede these documents.

6.2.2 Keeler Dunes Mitigations

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The main action that enabled the dust control project to finally move forward was the August 2013 Stipulated Order of Abatement (see Section 2.2.2.5). As part of the abatement order the City of Los Angeles made a $10 million public benefit contribution to the District to control PM_{10} emitted from the Keeler Dunes. In return, the District agreed to forever release the City of Los Angeles from any and all liability for dust emissions, regardless of origin, from the Keeler Dunes and other dune areas in the vicinity of Owens Lake. The locations and boundaries of the Keeler, Swansea, and Olancha Dunes are shown in Figure 6-4.

(New Figure 6-4 - included in Attachment E)

* * * *

The dust control project, shown in Figure 6-~~4~~5, is designed to reduce PM_{10} emissions by about 95% within the community of Keeler and involves the placement of approximately 82,000 certified weed-free straw bales and planting of approximately 246,000 native shrubs (three shrubs per bale). The bales are placed in a random array patterned after a natural vegetation distribution (see Figure 6-~~5~~6). The native shrubs are irrigated with water from the Keeler Community Service District well through a temporary above ground irrigation system. After a three year plant establishment period it is anticipated that the shrubs will have matured such that they no longer require supplemental irrigation.

Figure 6-~~4~~5: Aerial View of the Keeler Dunes Dust Control Project (June 2, 2015)

The project is designed to minimize environmental impacts to natural resources within the dunes both during project construction and implementation and during long-term project operation and maintenance. In the design of the project, control of the dunes will be slowly transferred from the straw bales to the native shrubs over a period of three to five years as the bales degrade and the plants grow and mature (see Figure 6-~~6~~7).

Figure 6-~~5~~6: Straw Bale Array in the Keeler Dunes Dust Control Project (January 2015)

Figure 6-~~6~~7: Shrubs Planted along the Base of a Straw Bale in the Project Test Site Started in 2013 (20 months after planting)

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6.3.2 Shallow Flooding BACM

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If the APCO determines that one of these thresholds is exceeded in a conventionally flooded (ponded or lateral/bubbler irrigated) DWM area, the APCO will issue a written order to the City that the area must meet the required wetness target within 15 days if the emissive area is less than or equal to 25 percent of the DWM area, and 21 days if the emissive area is greater than 25 percent of the DWM area. Shallow Flooding areas irrigated with sprinklers shall be re-flooded within 15 calendar days of a re-flood order being issued regardless of the amount of DWM area that is ordered. If any DWM area becomes emissive and is therefore issued a re-flood order by the APCO more than once in a continuous six-year period, these areas will revert to the standard Shallow Flooding period and will no longer be eligible for DWM. Should a re-flooding order be issued by the APCO for a DWM area less than once in a rolling six year period, that re-flooding order shall only apply to the modified start or end period upon which the area was identified for re-flooding and not the entire dust year, which begins in July and lasts through the following June (see GBUAPCD, 2016a for details of the required performance requirements for DWM).

* * * *

6.6 Cost and Employment

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The cost for control of PM_{10} emissions in terms of dollars per ton is instructive in that it allows the cost of PM_{10} control at Owens Lake to be compared with the costs elsewhere. At the time of this 2016 SIP, costs were calculated for the entire project. By annualizing the estimated capital costs over 25 years ($1.204 billion total cost, interest = 5%, n = 25 years, A/P = 0.07—annualized construction cost = $84.3 million) and using the above annual operation and maintenance cost estimate ($61.5 million), the 25-year total annualized cost for Owens Lake dust controls is estimated at $145.8 million per year. The projected emission reductions from the 48.6 square mile control area are estimated at approximately ~~61,000~~57,900 tons per year by ~~mid 2018~~the end of 2017 when compared to 2006 emissions. This gives a cost of $2,~~390~~520 per ton of PM_{10} controlled for the entire project on the lake bed. The total cost for dust control for the Keeler Dunes straw bale/vegetation project is $10 million, which translates to annual control costs of $~~222~~219 per ton.

Past analyses by the San Joaquin Valley Unified Air Pollution Control District estimate the cost of controlling windblown dust at between $7,700 and $65,000 per ton (SJVUAPCD, 2003). In the South Coast Air Quality Management District (which includes the City of Los Angeles) a fugitive dust control measure is considered cost feasible for PM_{10} Best Available Control Measures if cost-effectiveness is less than $5,300 per ton (SCAQMD, 1994). Therefore, the cost of controlling PM_{10} emissions from the bed of Owens Lake is about 3 to ~~27~~26 times less, on a per ton basis, than the costs for control elsewhere in California.

Following the 2003 SIP, the City created about 65 new long-term jobs at Owens Lake for the operation and maintenance of the 29.8 square miles of controls. The additional 13.2 square miles of controls required by the 2008 SIP raised the total City jobs at Owens Lake to about 70 (LADWP, 2007). Actions mandated by this 2016 SIP are expected to maintain similar levels of employment.

* * * *

7.3 Exceedance Days, Out-of-Network Contribution, and Background

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Table 7-1: Summary of Exceedance Day PM_{10} Concentrations for July 2009 to June 2014

Site Name	ID [1]	Years	No. of Days > 150 µg/m^3	Maximum PM_{10} (µg/m^3)	Design PM_{10} (µg/m^3) [2]
Dirty Socks	dirt	3	26	1,437	998
Flat Rock	flat	2	9	871	233
Keeler	keel	5	~~33~~37	2,994	~~518~~524
Lizard Tail	lizt	5	42	4,571	1,654
Lone Pine	lone	4	1	169	#N/A
Mill Site	mill	1	7	754	712
North Beach	norb	3	17	1,536	385
Olancha	olan	5	22	779	310
Shell Cut	scut	5	23	2,149	395
Stanley	stan	5	8	286	180

Notes:
1 TEOM locations are shown in Figure 7-1 or Figure 7-2.
2 Design day based on n+1 highest in n years. For example the 6th highest in 5 years or the 2nd highest in 1 year.

* * * *

Table 7-3 summarizes the out-of-network contributions to daily average PM_{10} contributions on exceedances days during July 2009 to June 2014. Some of the highest contributions occur during some of the larger regional events. However, the median or typical contributions are much smaller and range from 4 µg/m^3 to 223 µg/m^3, at Dirty Socks and Shell Cut, respectively. The overall median or most likely daily PM_{10} contribution for out-of-network sources is ~~19~~18 µg/m^3, close to the background concentration of 20 µg/m^3 used in the 2003 SIP, 2008 SIP, and all the SCRD analyses. The background concentration used in previous studies was derived from the lowest PM_{10} concentrations at any site in the Dust ID Program on days where any site in the network exceeded 150 µg/m^3 (Ono, 2002). The previous analysis also applied wind direction screening to remove hours within the daily averages from lake bed source areas.

* * * *

The Hybrid Model uses actual measured background to account for the sources not included in the dispersion modeling analysis as opposed to a constant of 20 µg/m^3 used in previous regulatory analyses. The out-of-network contributions are typically around ~~19~~18 µg/m^3, but as shown in Table 7-3 can be much higher. Half the out-of-network daily contributions are lower than used in the 2003 SIP, 2008 SIP, and SCRDs and some are as low as no contribution.

* * * *

Table 7-3: Out-of-Network Source Contribution Summary on Exceedance Days for July 2009 to June 2014				
Site Name	**ID [1]**	**Median PM_{10} ($\mu g/m^3$)**	**Maximum PM_{10} ($\mu g/m^3$)**	**N > 150 $\mu g/m^3$**
Dirty Socks	dirt	4	244	4
Flat Rock	flat	41	652	2
Keeler	keel	~~16~~15	2,979 [2]	4
Lizard Tail	lizt	18	3,444 [2]	14
Lone Pine	lone	165	165	1
Mill Site	mill	9	350	2
North Beach	norb	21	570	5
Olancha	olan	8	293	1
Shell Cut	scut	223	2,125 [3]	16
Stanley	stan	133	277	4
All Sites		~~19~~18	3,444 [2]	53

Notes:
[1] TEOM locations are shown in Figure 7-1 or Figure 7-2.
[2] Occurred during December 1, 2011 Regional Dust Event
[3] Occurred on May 25, 2012

* * * *

7.5.1 Control Efficiencies

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Figure 7-5 shows the control measures and control efficiencies expected to be in place by ~~Dust Year 2017/2018~~the end of 2017. For each of 13 different source configurations from July 2009 to June 2014, dispersion model contributions by source area were reduced accordingly. The revised contributions were summed and combined with the out-of-network contribution to obtain a prediction for each exceedance day and future year.

Table 7-4: Control Efficiencies for Future Years			
Control Area	**End of ~~7/2015-6/2016~~2015**	**End of ~~7/2017-6/2018~~2017**	**End of ~~7/2019-6/2020~~2019**
Phases 1-8	Yes (varies by BACM)	Yes (varies by BACM)	Yes (varies by BACM)
Phases 9 & 10	0%	Yes (varies by BACM)	Yes (varies by BACM)
Lake bed ECRs	0%	100%	100%
Keeler Dunes ECR	0%	100%	100%
Keeler Dunes DCA	95%	95%	95%
Contingency Areas	0%	100%	100%

* * * *

7.5.2 Attainment Demonstration Results

The Hybrid Model is based on CALPUFF predictions with a time-varying background concentration, that is: a) a dispersion modeling component, daily CALPUFF concentrations using a modeled wind field and emission factors ("K factors") developed using historical sand flux data from the lake bed and Keeler Dunes; b) this is added to an "out of network" monitored component representing all off-lake sources, and consisting of varying monitor-specific daily average concentrations measured on exceedance days for wind directions toward the lake. For future concentrations, the dispersion component is calculated from lake bed source location-specific control factors applied to source-receptor relationships from the modeling. The future out of network component is calculated by exponential decay down to background levels, with a decay time derived from comparison of historical Dirty Socks concentrations due to on-lake versus off-lake sources.

* * * *

The Hybrid Model predicts the OVPA would be in attainment following ~~by dust year 2017/2018 following~~ the implementation of control measures ~~the last set of controls on the lake bed source areas starting in 2016~~ by the end of 2017. The highest future year predictions are at Lizard Tail, because this site had the highest initial design concentration and due to the proximity of this site to nearby lake bed sources controlled at later implementation years than for some of the other sites.

Table 7-5: PM10 Design Concentration Predictions								
Site ID [1]	Observed	Hybrid Model Design Concentration Predictions (µg/m³) by Year						
	7/2009-6/2014	~~7/~~2009-~~6/~~2014	~~7/2014-6/2015~~ 2014[2]	~~7/2015-6/2016~~ 2015[2]	~~7/2016-6/2017~~ 2016[2]	~~7/2017-6/2018~~ 2017[2]	~~7/2018-6/2019~~ 2018[2]	~~7/2019-6/2020~~ 2019[2]
dirt	998	1,235	1,235	213	213	93	87	83
flat	233	228	228	133	133	94	74	59
keel	~~518~~524	~~560~~592	~~560~~592	~~123~~201	~~115~~196	~~50~~67	~~43~~55	~~37~~46
lizt	1,654	1,993	1,993	1,684	1,684	142	109	85
mill	712	642	642	526	508	125	95	74
norb	385	448	445	114	87	67	54	44
olan	310	294	294	84	68	41	41	39
scut	395	586	506	212	157	105	83	70
stan	180	115	96	59	49	39	35	31

Notes:
[1] TEOM locations are shown in Figure 7-1 or Figure 7-2.
[2] Concentrations reflect controls in place by the end of the year indicated.

* * * *

(Figure 7-7 replaced – as shown in Attachment E)

8. EXTENDED ATTAINMENT DATE JUSTIFICATION AND FIVE PERCENT PLAN REQUIREMENTS

The applicable attainment date for the OVPA was initially set as December 31, 2006. On March 23, 2007, the USEPA published a finding that the OVPA did not attain the federal PM_{10} standard by this date (72 FR 13560). Per CAA §179(d)(3), the attainment deadline applicable to an area that misses the serious area attainment date is as soon as practicable, but no later than five years from the publication date of the nonattainment finding notice (i.e. March 23, 2007). However, the USEPA may extend the attainment deadline to the extent it deems appropriate for a period no greater than 10 years from the publication date (72 FR 13560). Therefore, the revised attainment date for the OVPA could be March 23, 2012, or if the USEPA grants a five-year extension under CAA §~~188(e)~~179(d)(3) and §172(a)(2), the attainment date could be in 2017.

If a serious nonattainment area does not meet the attainment deadline (which may be an extended attainment date), CAA §189(d) dictates that emissions must be reduced by five percent per year until attainment is reached. By submitting the 2008 SIP which committed to a control strategy that could achieve a five percent reduction in PM_{10} emissions per year, the District met the ~~requirements~~ obligation of Section 189(d) for areas that fail to attain. As discussed in Chapters 6 and 7, the 2016 SIP revises the PM_{10} control strategy and attainment demonstration to incorporate new information about additional PM_{10} sources, their ambient impacts, and new BACM approaches. Recognizing that the dominating sources of PM_{10} in the OVPA are fugitive windblown dust sources, which are tied to meteorology and are highly irregular year-to-year, the 2016 SIP adopts a three-year rolling average (beginning in ~~the~~ 2005 ~~dust year~~ and ending in ~~the~~ 2007 ~~dust year~~) from which to measure the five percent reductions.

A plot of the PM_{10} emissions forecast presented in Table 4-3 demonstrates that the control strategy presented in the 2016 SIP for on-lake sources would allow for at least a five percent reduction in PM_{10} emissions per year at the time ~~that attainment is anticipated in 2017 (i.e.)~~ final controls are in place (see Figure 8-1). As can be seen in the figure, three-year rolling average emissions were reduced substantially below the five-percent trend line ~~in~~ from ~~dust years 2008 to 2010~~ 2007 to 2009, and although emissions ~~in~~ from 2010 to 2013~~dust years 2011 to 2014~~ were above the trend line the overall trend in emissions from the Owens Lake Subarea and overall have and will continue to decline faster than the five-percent trend line after ~~dust year 2014~~2013. An attainment inventory representing the emissions at the time final controls are in place is provided in Table 8-1.

(Figure 8-1 replaced – as shown in Attachment E)

Table 8-1: Attainment Emission Inventory for the Owens Lake Subarea and the OVPA (tons/year)

Category[1]	2017
Manufacturing and Industrial	10.59
Food and Agricultural Processing	0.04
Service and Commercial	2.52
Other (Fuel Combustion)	0.11
Incinerators	0.37
Mineral Processes	261.12
Metal Processes	9.56
Other (Industrial Processes)	4.52
Residential Fuel Combustion	7.14
Farming Operations	--
Tilling Dust	0.84
Harvest Operations - Dust	0.13
Construction and Demolition	3.39
Lone Pine Landfill	56.95
Paved Road Dust	12.28
Fugitive Windblown Dust from Agricultural Lands (Non-Pasture)	1.80
Fugitive Windblown Dust and Activity-related Dust from Unpaved Roads and Associated Areas[2]	31.09

Table 8-1: Attainment Emission Inventory for the Owens Lake Subarea and the OVPA (tons/year)	
Category[1]	**2017**
Fugitive Windblown Dust from Exposed Lake Beds	355.37
Fugitive Windblown Dust from Dunes	--
Keeler Dunes	40.65
Olancha Dunes	1,093.49
Fugitive Windblown Dust from Open Desert[2,3,4]	1,014.44
Fires	0.02
Managed Burning and Disposal	32.31
Cooking	0.79
On-Road Mobile	4.80
Aircraft	0.41
Recreational Boats	0.15
Off-road and Farm Equipment	0.73
Wildfires	60.33
TOTAL Owens Lake Subarea	**3,005.92**
Fugitive Windblown Dust from Unpaved Roads and Associated Areas (outside Owens Lake Subarea)	718.83
Fugitive Windblown Dust from Open Desert (outside Owens Lake Subarea)	19,622.10
TOTAL OVPA (for informational purposes only)	**23,347.85**

Notes:
[1] Sources with emissions less than 0.005 tons/year have been omitted.
[2] Fugitive windblown dust source limited to two-kilometer buffer around Owens Lake.
[3] Excluding areas associated with Olancha and Keeler dunes.
[4] Excludes emissions related to the Lone Pine Landfill (listed separately).

Data Sources:
All Source Categories (except those noted below): CARB emission inventory for Inyo County ratioed to the OVPA; **Activity-related Unpaved Road Dust and Windblown Unpaved Road Dust outside of Owens Lake Subarea**: GBUAPCD; **Lake Beds and Dunes**: Air Quality Modeling; **Open Desert and Windblown Unpaved Road Dust inside of Owens Lake Subarea**: Constructive estimate based on similar land uses and conditions in Imperial County Air Pollution Control District; **Lone Pine Landfill**: MDAQMD Wind Erosion Equation. See Appendix IV-1.

9. OTHER CLEAN AIR ACT REQUIREMENTS

9.1 Implementation Milestones and Emission Reductions

Table 4-3 summarizes the PM_{10} emission forecast associated with the proposed 2016 SIP control strategy. As shown in Figure 8-1, the proposed control strategy would allow for at least a five percent reduction in the three-year average of PM_{10} emissions per year at the time ~~that attainment is anticipated~~ final controls are in place. Attainment of the federal PM_{10} standard is expected in 2017. To meet this attainment deadline, the final control measures must be implemented by December 31, 2017. To help prevent new dust source areas from causing additional violations of the federal standard, the District will continue to monitor and observe dust through the Owens Lake Dust ID program. After attainment is reached, the District will require three years of air monitoring data showing no violations of the federal standard in the planning area before redesignation can be requested.

9.2 Reasonable Further Progress

The projected emission reductions from the 48.6 square mile control area are estimated at approximately 57,900 tons per year by the end of 2017 when compared to 2006 emissions. As can be seen in Figure 8-1, these reductions will allow for at least a five percent reduction in PM_{10} emissions per year at the time final controls are in place. A substantial portion of these reductions occurred from 2010 to 2014 with the implementation of the 2008 SIP Control Areas and Phase 8 Control Area (see Sections 6.2.1.4 and 6.2.1.5). The final implementation of controls on the lake will result in more modest reductions of approximately 900 tons per year.

Under CAA Section 189(c), the demonstration of attainment SIP is required to include quantitative milestones that are to be achieved every three years until the area is redesignated attainment. These milestones must demonstrate reasonable further progress toward attainment of the NAAQS by the attainment date. USEPA guidance[29] suggests that quantitative milestone reports for serious nonattainment areas were due in 2015 and will again be due in 2018. As required by Section 189(c)(2) of the CAA, the District shall submit to the USEPA, no later than 90 days after the date of each milestone, a demonstration that each milestone has been met. The ~~main~~ only milestone associated with this 2016 SIP involves completion of Phase 9/10 dust controls by December 31, 2017. Therefore, the District is committed to submitting a reasonable further progress report to the USEPA by April 1, 2018. ~~The Planning area is then expected to attain the NAAQS after three years or by 2020. As required by Section 189(c)(2) of the CAA, the District shall submit to the USEPA, no later than 90 days after the date of each milestone, a demonstration that each milestone has been met.~~

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[29] 59 FR 41889

* * * *

10.1 Proposed Rule 433

* * * *

(Figure 10-1 replaced – as shown in Attachment E)

Exhibit 10-1: Proposed Rule 433 Language

The purpose of this regulation is to effectuate a regulatory mechanism under the federal Clean Air Act to attain the National Ambient Air Quality Standards ("NAAQS") and to implement the Stipulated Judgment between the Great Basin Unified Air Pollution Control District ("District") and the City of Los Angeles ("City") dated December 30, 2014 and entered by the Superior Court of the State of California, County of Sacramento. This regulation does not alter or supersede any provision in the Stipulated Judgment, nor does it relieve any party from full compliance with the requirements of the Stipulated Judgment. This regulation sets the basic requirements for the Best Available Control Measures ("BACM") and defines the areal extent of these controls at Owens Lake, California required in order to meet the NAAQS. This regulation does not preclude the City or the District from implementing more stringent or additional mitigation pursuant to the Stipulated Judgment.

* * * *

2. "BACM PM_{10} Control Measures" are best available control measures designed to reduce PM_{10} emissions to Control Efficiency ("CE") levels specified below~~.~~ through compliance with performance standards specified in Attachment A or in specific control measure definitions below. The following BACM PM_{10} Control Measures are approved to be used.

* * * *

12. REFERENCES

* * * *

CARB, 2013. California Air Resources Board, The California Almanac of Emissions and Air Quality: 2013 Edition, Appendix C, Sacramento, CA. Available online at: http://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm. Accessed on March 15, 2016.

* * * *

13. DECLARATION OF THE CLERK OF THE BOARD AND RESOLUTIONS CERTIFYING THE EIR AND APPROVING THE SIP

13.1 Declaration of the Clerk of the Governing Board

EXHIBIT A: Notice of Public Hearing

EXHIBIT B: Proofs of Publication

EXHIBIT C: Mailing and Distribution List

13.2 District Board Order No. 160413-04 and Resolution No. 2016-02

13.3 District Board Order No. 160413-05 and Resolution No. 2016-03

EXHIBIT A: Findings of Fact

Notice of Determination: Great Basin Unified Air Pollution Control District Board Order No. 160413-01

Notice of Determination: Great Basin Unified Air Pollution Control District Rule 433

Notice of Determination: 2016 Revision to Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

* * * *

RESOLUTION NO. 2016-03

RESOLUTION OF THE GOVERNING BOARD OF THE GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT ADOPTING AND ISSUING (1) BOARD ORDER #160413-01 UNDER THE PROVISIONS OF CAL. HEALTH & SAFETY CODE SECTION 42316, (2) DISTRICT RULE 433 FOR THE CONTROL OF PARTICULATE EMISSIONS AT OWENS LAKE, AND (3) FINAL 2016 REVISION TO THE OWENS VALLEY PM_{10} PLANNING AREA DEMONSTRATION OF ATTAINMENT STATE IMPLEMENTATION PLAN, AND MAKING FINDINGS OF FACT

WHEREAS, pursuant to the federal Clean Air Act Amendments of 1990 (CAAA), the State of California is required to submit to the Administrator of the United States Environmental Protection Agency (U.S. EPA) a State Implementation Plan for the Owens Valley PM_{10} Planning Area, located in southern Inyo County, California, that demonstrates timely attainment of the National Ambient Air Quality Standards (NAAQS) for PM_{10}, defined as particulate matter having an aerodynamic diameter of a nominal 10 microns or less; and

WHEREAS, the Great Basin Unified Air Pollution Control District (District or GBUAPCD) is the body vested by law with the authority and responsibility to develop and adopt the Demonstration of Attainment State Implementation Plan for the Owens Valley PM_{10} Planning Area, and to submit the Demonstration of Attainment State Implementation Plan to the California Air Resources Board for its approval and submittal to the U.S. EPA Administrator on behalf of the State of California; and

WHEREAS, on March 23, 2007, the U.S. EPA published a finding that the Owens Valley Planning Area did not attain the 24-hour NAAQS for PM_{10} by December 31, 2006 as mandated by the CAAA; and

WHEREAS, as a result of the U.S. EPA finding, the State Implementation Plan for the Owens Valley Planning Area that was approved by the District in 2003 must be revised to include a control strategy that will provide for attainment in the Owens Valley Planning Area as soon as practicable and that said revised SIP must be submitted to the U.S. EPA by December 31, 2007; and

WHEREAS, starting in 1997, the GBUAPCD has adopted a series of SIPs to address and control PM_{10}; including in 2008 when the GBUAPCD approved the 2008 Revised State Implementation Plan for the Owens Valley Planning Area (2008 SIP), which was implemented through GBUAPCD Board Order #080128-01; and

WHEREAS, in 2011, a dispute arose between the GBUAPCD and the City regarding the requirements of the 2008 SIP, which were resolved when the Sacramento Superior Court entered a Stipulated Judgment for the GBUAPCD on December 30, 2014 in the case captioned *City of Los Angeles v. California Air Resources Board, et al.*, Case No. 34-2013-80001451-CU-WM-GDS (Stipulated Judgment); and

WHEREAS, under the Stipulated Judgment, the City agreed to implement additional dust control measures on the lake bed (for a total of 48.6 square miles) by December 31, 2017, and the GBUAPCD may also order the City to implement dust control measures on up to 4.8 additional square miles of the lake bed if needed to meet the NAAQS or related state standards; and the GBUAPCD agreed to revise the 2008 SIP by December 31, 2014 (later amended by agreement to April 15, 2016) to incorporate the relevant provisions of the Stipulated Judgment into a 2016 SIP Order; and

WHEREAS, the GBUAPCD reaffirms its commitment to and intends to abide by the terms of the Stipulated Judgment; and

WHEREAS, the GBUAPCD proposes to adopt District Rule 433 (Control of Particulate Emissions at Owens Lake) to contain the dust control requirements of the 2016 SIP Order, which will comprise the attainment strategy for the 2016 SIP to be submitted to the California Air Resources Board and the U.S. Environmental Protection Agency for their approval; and

WHEREAS, notice to the public and to the California Air Resources Board was duly and timely given of this public hearing on the adoption of District Rule 433 in accordance with California Health & Safety Code §40725; and

WHEREAS, the District prepared and made available for review a written analysis of District Rule 433 under Health & Safety Code §40727.2, and

WHEREAS, adoption of the revisions and rules is necessary, as demonstrated by the record of this proceeding, to comply with the legal requirement imposed on the District by federal law and state law, including but not limited to the federal Clean Air Act and Health and Safety Code Section 42316; and

WHEREAS, District Rule 433 is consistent with and not in conflict with or contradictory to, any existing statutes, court decisions, or State or federal regulations, and

WHEREAS, District Rule 433 is written so that persons directly affected by it can easily understand its meaning, and

WHEREAS, District Rule 433 includes requirements that are duplicative of requirements contained in this Board Order ordering air pollution controls at Owens Lake, but it is necessary and proper in order to execute the powers and duties granted to, and imposed upon the District for the adoption of the 2016 SIP in order to comply with the CAAA, and

WHEREAS, District Rule 433 and this resolution adequately and comprehensively set forth the proper references to the legal authority that authorizes and requires the District to adopt this Rule, and

WHEREAS, no changes have been made in the text of Rule 433 originally made available to the public that are so substantial as to significantly affect its meaning, and

WHEREAS, the District has prepared a proposed 2016 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan which incorporated proposed District Rule 433 (collectively, 2016 SIP) and circulated the proposed 2016 SIP Order, 2016 SIP and Rule 433 and the for public and governmental agency comment; and

WHEREAS, the control strategy for the 2016 SIP includes the Keeler Dunes Project which was funded by the City and implemented by GBUAPCD pursuant to a settlement agreement between those parties in 2013, and consists of straw bale and native vegetation dust control measures on 194 acres to provide the necessary control efficiency to meet the NAAQS and CAAQS for PM10 in the communities of Swansea and Keeler with scheduled completion in 2016; and which settlement agreement provides a release of the City's liability to the GBUAPCD under the GBUAPCD's state law authority for the subject areas as more specifically described in the agreement;

WHEREAS, under the Stipulated Judgment, the City served as Lead Agency to prepare and certify the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) for the dust control project required by the Board Actions; and filed a Notice of Determination for the project on June 8, 2015; and the GBUAPCD served as the Responsible Agency to assist with, and to rely upon the EIR in considering the adoption of the 2016 SIP Order, District Rule 433 and the 2016 SIP.

WHEREAS, in Resolution 2016-02, which is incorporated by reference herein, the Governing Board of the Great Basin Unified Air Pollution Control District (Governing Board) acted as a Responsible Agency in reviewing and considering the EIR; and

WHEREAS, the EIR found that except for lake bed areas containing cultural resources, all impacts were beneficial, less than significant or less than significant as mitigated, and the Governing Board of the GBUAPCD concurs with those findings. For areas containing cultural resources, the EIR concluded that impacts of the project could not be mitigated to less than significant levels, and therefore selected the alternative of avoidance of those areas as the environmentally superior alternative; and

WHEREAS, the Governing Board has further determined and made findings in the attached Exhibit A to explain and support its consideration, adoption and issuance of the 2016 SIP Order, District Rule 433 and 2016 SIP; and

WHEREAS, the Governing Board has conducted a public hearing on the adoption and issuance of the 2016 SIP Order, District Rule 433 and the 2016 SIP, and has provided for and invited the submission of statements, arguments, or contentions, both written and oral, in accordance with Health & Safety Code §40726; and

WHEREAS, the 2016 SIP Order, District Rule 433 and the 2016 SIP will be effective upon adoption;

NOW, THEREFORE, BE IT RESOLVED by the Governing Board of the Great Basin Unified Air Pollution Control District as follows:

1. Through this Resolution, the Governing Board hereby finds and determines to be true, on the basis of substantial evidence, each statement of fact, and hereby adopts on the basis of the record of this proceeding each conclusion of law, set forth in the recitals to this Resolution.

2. Through this Resolution, the Governing Board hereby approves and directs the Air Pollution Control Officer to issue to the City of Los Angeles, Great Basin Unified Air Pollution Control District Order No. 160413-01, in the form attached hereto, which adoption and issuance are effective immediately.

3. Through this Resolution, the Governing Board hereby approves, adopts and promulgates District Rule 433 (Control of Particulate Emissions at Owens Lake) which is included and incorporated in Chapter 12 of the 2016 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan, in the form attached hereto, which approval and adoption are effective immediately.

4. Through this Resolution, the Governing Board hereby approves and adopts the 2016 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan, in the form attached hereto, which approval and adoption are effective immediately.

5. Through this Resolution, the Governing Board hereby authorizes and commits the District to complete the Keeler Dunes Project as set forth in the 2016 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan.

6. Through this Resolution, the Governing Board hereby reaffirms each of its findings and resolutions made in Resolution 2016-02, which is incorporated herein by reference.

7. Through this Resolution, the Governing Board makes all the findings set forth in the Findings of Fact which are incorporated herein by reference and included as Exhibit A to this Resolution.

8. Through this Resolution, including the exhibits incorporated herein and attached hereto, the Governing Board has satisfied its obligations pursuant to the Health and Safety Code, including but not limited to Section 43216, and the Public Resources Code Sections 21000 *et seq*., including California Code of Regulations, Title 14, Sections 15091 and 15096, in that the Governing Board has found with respect to the significant or potentially significant effects of the 2016 SIP Order, District Rule 433 and the 2016 SIP, that changes or alterations have been required in, or incorporated into the project which mitigate or avoid many of the significant environmental effects thereof as identified in the EIR.

9. Through this Resolution, the Governing Board hereby authorizes and directs the Air Pollution Control Officer to execute on behalf of the District the Notices of Determination for the 2016 SIP Order, District Rule 433 and the 2016 SIP, and to file or record the notices reflecting those actions as provided by applicable law.

10. Through this Resolution, the Governing Board hereby authorizes and directs the Air Pollution Control Officer to execute and deliver on behalf of the District all documents and to undertake all acts as are necessary to comply with applicable law including, but not limited to, California Health & Safety Code §40724 and §40724.5, and to enforce District Rule 433 hereunder.

11. The Clerk of the Governing Board is hereby authorized to compile and publish the complete 2016 Revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order, adopted on April 13, 2016 and shall certify on behalf of the District that said compilation is the authoritative version of the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order.

12. The District shall prepare and maintain a record of this rule adoption in accordance with Health & Safety Code §40728.

APPROVED, ADOPTED and ORDERED by the Governing Board of the Great Basin Unified Air Pollution Control District this 13**th day of April 2016,** by the following vote:

AYES:

NOES:

ABSTAIN:

____
(Name), Chair of the Governing Board

ATTEST:

____
Tori DeHaven
Clerk of the Governing Board

Incorporated attachments:

Exhibit A - Findings of Fact

Governing Board of the Great Basin Unified Air Pollution Control District
April 13, 2016

RESOLUTION NO. 2016-03

EXHIBIT A - FINDINGS OF FACT

District Board Order #160413-01, District Rule 433 and 2016 Revision to the Owens Valley PM_{10} Demonstration of Attainment State Implementation Plan

Findings of Fact Under the Provisions of California Health & Safety Code §42316(a); Public Resources Code Sections 21000 *et seq*., and California Code of Regulations, Title 14, Sections 15091 and 15096; and Other Findings of Fact

Related Documentation:

2016 revision to the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP)

Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR)

Staff report on the subject of Board Order #160413-01, District Rule 433 and the 2016 SIP prepared for the Great Basin Unified Air Pollution Control District Governing Board

Project Files May Be Reviewed at:
Great Basin Unified Air Pollution Control District
157 Short Street, Bishop, California 93514
(760) 872-8211

RESOLUTION NO. 2016-03

<u>Exhibit A - Findings of Fact Relating to:</u>

District Board Order #160413-01, District Rule 433 and 2016 Revision to the Owens Valley PM_{10} Demonstration of Attainment State Implementation Plan

Contents

A. Findings of fact under the provisions of California Health & Safety Code §42316(a)

B. Findings of fact regarding adoption of the 2016 SIP

C. Findings of fact regarding the District acting as a Responsible Agency and its use of the City Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR)

A. Findings of fact under the provisions of California Health & Safety Code §42316(a)

Section 42316(a) of the California Health and Safety Code provides the authority for the Great Basin Air Pollution Control District to "require the City of Los Angeles to undertake reasonable measures, including studies, to mitigate the air quality impacts of its activities in the production, diversion, storage, or conveyance of water and may require the City to pay, on an annual basis, reasonable fees, based on an estimate of the actual costs to the district of its activities associated with the development of the mitigation measures and related air quality analysis with respect to those activities of the City. The mitigation measures shall not affect the right of the City to produce, divert, store, or convey water and, except for studies and monitoring activities, the mitigation measures may only be required or amended on the basis of substantial evidence establishing that water production, diversion, storage, or conveyance by the City causes or contributes to violations of state or federal ambient air quality standards."

On the basis of substantial evidence in the record, and for the reasons set forth in the staff report prepared for the Governing Board's April 13, 2016 hearing for adoption and approval of (1) proposed District Board Order #160413-01 authorized by California Health & Safety Code Section 42316 for the City of Los Angeles (City) to install, operate and maintain dust control measures on the Owens Lake bed (2016 SIP Order), (2) a proposed District Rule 433 (Control of Particulate Emissions at Owens Lake), and (3) a proposed final 2016 revision to the previously-adopted Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP) (collectively Board Actions), which is hereby incorporated herein by reference, the Governing Board of the Great Basin Unified Air Pollution Control District (Governing Board) makes the following findings:

1. The Governing Board finds that there are violations of the state and federal ambient air quality standards for PM_{10} in the Owens Valley PM_{10} Planning Area.

2. The Governing Board finds that the dried bed of the Owens Lake causes and is the primary contributor to the violations of the state and federal ambient air quality standards for PM_{10} in the Owens Valley PM_{10} Planning Area.

3. The Governing Board finds that the City's water diversions in the Owens Valley have uncovered essentially all of the dust source areas on the dried bed of Owens Lake, thus causing and contributing to violations of the state and federal ambient air quality standards for PM_{10} in the Owens Valley PM_{10} Planning Area.

4. The Governing Board finds that the dust control measures (DCMs) known as Shallow Flooding, Managed Vegetation, and Gravel Blanket, as required and permitted by the Board Actions, have been approved by the U.S. Environmental Protection Agency as Best Available Control Measures (BACM) for the control of PM_{10} emissions from the dried bed of Owens Lake.

5. The Governing Board finds that the DCMs known as Shallow Flooding, Managed Vegetation, and Gravel Blanket, as required and permitted by the Board Actions, are reasonable and proven control measures for controlling PM_{10} emissions from the dried bed of Owens Lake.

6. The Governing Board finds that the DCMs known as Shallow Flooding, Managed Vegetation, and Gravel Blanket, as required and permitted by the Board Actions, will be effective in mitigating the air quality impacts caused by the City of Los Angeles' water diversions.

7. The Governing Board finds that the alternative DCM known as Tillage with BACM Backup is proposed as a reasonable and effective control strategy in the Board Actions.

8. The Governing Board finds that the DCMs and all their associated requirements contained in the Board Actions do not affect the right of the City to produce, divert, store or convey water.

9. The Governing Board finds the DCMs required and provided for by the Board Actions can be completed by the milestones and deadlines set forth in the Board Actions.

10. The Governing Board finds that the time period for implementation contained in the Board Actions is a reasonable period to complete the implementation of the DCMs.

11. The Governing Board finds that the contingency measures contained in the Board Actions are reasonable and adequate to ensure the Owens Valley PM_{10} Planning Area attains the federal PM_{10} ambient air quality standard as expeditiously as practicable.

12. The Governing Board finds that there are reasonable and valid mechanisms in place that allow the District to enforce compliance with the requirements contained in the Board Actions.

13. The Governing Board finds that California Health & Safety Code Section 42316(a) provides the District with the authority and resources necessary to insure compliance with the requirements set forth in the Board Actions.

14. The Governing Board finds that the 2016 SIP Order consists of the 2008 SIP Order and the relevant provisions of the Stipulated Judgment entered on December 30, 2014 in the case captioned *City of Los Angeles v. California Air Resources Board, et al*., Case No. 34-2013-80001451-CU-WM-GDS (Stipulated Judgment), and that the Board Actions are consistent with the Stipulated Judgment.

15. The Governing Board makes each and every of the above findings on the basis of substantial evidence in the record. The District is the custodian of the materials that constitute the record of proceedings upon which the decision to approved the Proposed Project is based. These materials are located at the District's offices at 157 Short Street, Bishop, California 93514.

B. <u>**Findings of fact regarding the approval and adoption of the Board Actions**</u>

16. Based upon the fact that the Owens Valley PM_{10} Planning Area (Owens Valley) has been designated a serious non-attainment area by the USEPA, and that the Owens Valley is required by the Clean Air Act Amendments of 1990 to attain the PM_{10} 24-hour standard as expeditiously and practicable, the GBUAPCD Governing Board finds that the approval and adoption of the Board Actions is necessary.

17. Based upon the fact that California Health and Safety Code Section 42316(a) allows the District to require the City of Los Angeles to undertake reasonable measures to mitigate the air quality impacts of the City's water-gathering activities, the Governing Board finds that the District has the authority to adopt the Board Actions, including the adoption and issuance of District Board Order #160413-01.

18. Based upon public comment on the Plan, the Governing Board finds that the Board Actions and each element of those actions are written clearly so that they can be easily understood by the persons affected.

19. Based upon an examination of the legal and regulatory history of the Owens Valley PM_{10} Planning Area, and the above findings on the compatibility of the Plan and Order with Health and Safety Code Section 42316, the Governing Board finds that the Board Actions are consistent with existing statutes, court decisions, and state and federal regulations.

20. Based upon the fact that state law delegates to the District the responsibility for control of stationary sources of air pollution, the Governing Board finds that the Board Actions do not duplicate existing state or federal regulations.

21. The Governing Board references the Clean Air Act Amendments of 1990 and State of California Health and Safety Code Section 42316 as the laws that the District implements through the Board Actions.

22. The Governing Board finds that reasonable notice of the Governing Board's intention to hold a public hearing to approve and adopt the Board Actions was given in compliance with the provisions of Title 40 of the Code of Federal Regulations, Section 51.102.

23. The Governing Board finds that notice of the public hearing to approve and adopt the Board Actions was published in the following newspapers more than 30 days in advance of the hearing: the *Inyo Register* (Inyo County), the *Review Herald* (Mono County) and the *Tahoe Daily Tribune* (for Alpine County).

24. The Governing Board finds that the Board Actions were available for public inspection at the District's office in Bishop, California at least 30 days in advance of the public hearing to approve and adopt those actions.

25. The Governing Board finds that the Executive Officer of the California Air Resources Board was given notice of the public hearing and a copy of the Board Actions at least 30 days in advance of the hearing.

26. The Governing Board finds that the Administrator of the U.S. Environmental Protection Agency (through the Regional Administrator) was given notice of the public hearing and a copy of the Board Actions at least 30 days in advance of the hearing.

27. The Governing Board finds that the adjacent Kern County Air Pollution Control District was given notice of the public hearing and a copy of the Board Actions at least 30 days in advance of the hearing.

28. The Governing Board finds that the City of Los Angeles was given notice of the public hearing and a copy of the Board Actions at least 30 days in advance of the hearing.

29. The Governing Board finds that for the reasons and based on the facts set forth in Resolution 2016-02, that it has considered the environmental effects of the Board Actions as a Responsible Agency under the California Environmental Quality Act (CEQA).

30. The Governing Board makes each and every of the findings in this Exhibit on the basis of substantial evidence in the record. The District is the custodian of the materials that constitute the record of proceedings upon which the decision to approve the Board Actions is based. These materials are located at the District's offices at 157 Short Street, Bishop, California 93514.

C. ~~Finding of fact regarding the Final Subsequent Environmental Impact Report prepared for the 2008 SIP (State Clearinghouse No. 2007021127)~~ Findings of fact regarding the District acting as a Responsible Agency and its use of the City Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) (State Clearinghouse No. 2014071057)

The action authorized and required by the Board Actions is a "project" as defined by the California Environmental Quality Act (CEQA) (Public Resources Code §21000 *et. seq.)*. The City is the lead agency for the project. The District is the responsible agency.

On July 2, 1997, the Governing Board of the Great Basin Unified Air Pollution Control District (Governing Board) adopted and certified the Final Environmental Impact Report (1997 EIR) for the 1997 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order (1997 SIP) concurrently with the adoption of that 1997 SIP. The 1997 SIP was revised when the Governing Board adopted the 1998 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order on November 16, 1998 (1998 SIP). The Governing Board, concurrently with the 1998 SIP adoption, certified an addendum to the 1997 EIR entitled Addendum No. 1 to the Final Environmental Impact Report for the 1998 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order (1998 EIR). The 1998 SIP was revised when the Governing Board adopted the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order on November 13, 2003 (2003 SIP). The Governing Board, concurrently with the 2003 SIP adoption, certified the 2003 EIR entitled Final Environmental Impact Report for the 2003 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan and Incorporated Board Order (2003 EIR).

For consideration of the revisions contained in the 2008 SIP, the District prepared a 2008 Final Subsequent Environmental Impact Report for the 2008 SIP. Pursuant to the requirements of CEQA, the 2008 FSEIR described the 2008 SIP ~~(also referred to herein as the 'Proposed Project')~~ and affected environment; it identifies, analyzes and evaluates the potential significant environmental impacts that may result from the ~~Proposed P~~project; it identifies measures to mitigate adverse environmental impacts; and it identifies and compares the merits of project alternatives.

~~i~~In 2011, a dispute arose between the GBUAPCD and the City regarding the requirements of the 2008 SIP, which were resolved when the Sacramento Superior Court entered a Stipulated Judgment for the GBUAPCD on December 30, 2014 in the case captioned *City of Los Angeles v. California Air Resources Board, et al*., Case No. 34-2013-80001451-CU-WM-GDS (Stipulated Judgment). Under the Stipulated Judgment, the City served as Lead Agency to prepare and certify the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) for the dust control project required by the Board Actions; and filed a Notice of Determination for the project on June 8, 2015 (State Clearinghouse No. 2014071057).

The City's EIR covers the actions required by the Board Actions, requiring the Los Angeles Department of Water and Power (LADWP) to install Best Available Control Measures (BACM) to mitigate dust on areas known as Phase 9/10. The Phase 9/10 Project (Project) consists of seventeen separate and discrete Dust Control Areas (DCAs): Duck Pond-L1, C2-L1, T10-1-L1, T17-2-L1, T21-L1, T21-L2, T37-2-L4, T37-2-L3, T37-2-L2, T37-2-L1,T35-2-L1, T37-1-L1, T32-1-L1, Duck Pond-L2, T10-3-L1, T21-L3, T21-L4, as well as 1.82 sq miles of Transition Areas that currently contain DCMs, but will be transitioned to less water-intensive methods (Transition Area). Other areas ~~that~~ may be the subject of contingency measures. The Project ~~as proposed in the Draft Environmental Impact Report (EIR)~~ will expand the existing system of DCMs on Owens Lake by construction and operation of an additional 3.61 sq miles of dust control in seventeen DCAs, as identified above, and 1.82 sq miles of Transition Area dust controls in one existing DCA. Installation of BACM on Project DCAs and Transition Area entails ground disturbing activities such as grading, dirt moving, boring, trenching and road, berm, pipeline and other construction.

The City ~~prepared a Draft~~ EIR ~~which~~ also analyzed the potential environmental impacts associated with the construction and operation of the proposed Project and sets forth the applicable facts supporting the Board's findings. Significant impacts were identified for cultural resources for the originally proposed Project that could not be mitigated to less than significant levels. All other impacts including air quality, biological resources, and transportation, were found to be less than significant as mitigated. Based on the analysis presented in the ~~Draft~~ City EIR and public comments received, the Avoidance Alternative has been identified as the environmentally superior alternative. The Avoidance Alternative avoids significant impacts to cultural resources. Mitigation measures have been identified to reduce all other impacts to less than significant levels.

The City also developed a Mitigation Monitoring and Reporting Program to ensure implementation of the mitigation measures for the Environmentally Superior Alternative outlined in the ~~Draft~~ City EIR ~~for Project~~. The Mitigation Monitoring and Reporting Program ~~has~~ was~~been~~ prepared by LADWP as the lead agency for Project under CEQA, in conformance with Public Resources Code Section 21081.6 and CEQA Guidelines Section 15097. Adoption of a Mitigation Monitoring and Reporting Program is required for projects in which the lead agency has required changes or adopted mitigation to avoid significant environmental effects. LADWP shall have primary responsibility for administrating the Mitigation Monitoring and Reporting Program activities to staff, consultants, or contractors. LADWP has the responsibility of ensuring that monitoring is documented through periodic reports and that deficiencies are promptly corrected. LADWP's designated environmental monitor will track and document compliance with mitigation measures, note any problems that may result, and take appropriate action to remedy problems. Specific responsibilities of LADWP include coordination of all mitigation monitoring activities, management of the preparation, approval, and filing of monitoring or permit compliance reports, maintenance of records concerning the status of all approved mitigation measures, and coordination with other agencies.

The City concluded that its EIR identifies impacts that are potentially significant unless mitigation is incorporated, and proposes mitigation measures and a program for implementation, over which LADWP will maintain oversight and act as monitoring agent. The City found that with the implementation of the above noted mitigation measures for the environmentally superior alternative, potential impacts to cultural resources, air quality, biological resources, and transportation will be less than significant.

The CEQA Guidelines require the District Governing Board, with the District as a responsible agency, to consider the information in the City EIR along with other information that may be presented to the District when deciding whether to approve the Proposed Project. The EIR sets forth the information to be considered in the Governing Board's evaluation of benefits and potential impacts to the environment resulting from the implementation of the Board Actions. The Governing Board has reviewed and considered the information in City EIR and applied its independent judgment and analysis to consider that information in taking the Board Actions. The Governing Board concurs with the City's analysis, findings and conclusions, and specifically that:

- Changes or alterations have been required in, or incorporated into, the project that avoid or substantially lessen the significant environmental effects as identified in the City EIR.
- The mitigation measures identified in the ~~Final Subsequent~~ City EIR are feasible and will be required as conditions of approval.
- All significant effects on the environment due to the project have been eliminated or substantially lessened where feasible.
- Changes or alterations have been required in, or incorporated into the project which mitigate or avoid many of the significant environmental effects thereof as identified in the City EIR.
- There is no new information, changes in the project or changes in circumstances or conditions since the preparation and certification of the City EIR that would require further revision or addendum to that~~e~~ EIR, or that would require further environmental review before taking the Board Actions

Further findings by the Governing Board are contained in Resolution 2016-02 and which are incorporated and made part of these findings by reference.

Notice of Determination

To: ☒ Office of Planning and Research

For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street, Room 121
Sacramento, CA 95814

☒ County Clerk
County of Inyo
P.O. Drawer F
Independence, CA 93526

From:
(Public Agency)

Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, CA 93514

Contact: Phillip L. Kiddoo, Air Pollution Control Officer
Phone: (760) 872-8211

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Great Basin Unified Air Pollution Control District Board Order #160413-01 authorized by California Health & Safety Code Section 42316 for the City of Los Angeles (City) to install, operate and maintain additional dust control measures on the Owens Lake bed

Project Title

	Mr. Phillip L. Kiddoo	(760) 872-8211
State Clearinghouse Number (If submitted to Clearinghouse)	**Lead Agency Contact Person**	**Area Code / Telephone/Extension**

Owens Lake (bounded by S.H. 136, S.H. 190, and U.S. 395), Inyo County, CA

Project Location (include county)

2016 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

Land Use / Zoning / General Plan Designations:
The dry Owens Lake is primarily owned and operated in trust for the people of the State of California by the California State Lands Commission. Although it is not subject to local regulatory authority by Inyo County (County), the County's General Plan recognizes the location of state-owned and federally owned lands at Owens Lake. The Land Use element of the Inyo County General Plan designates the project area as Natural Resources and State and Federal Lands. This land use designation "is applied to land or water areas that are essentially unimproved and planned to remain open in character, [and] provides for the preservation of natural resources, the managed production of resources, and recreational uses." The Inyo County Zoning Ordinance designates the project area as predominantly OS-40: Open Space Zone, 40-acre minimum lot size.

Project Description:
On April 13, 2016, the Governing Board of the Great Basin Unified Air Pollution Control District (GBUAPCD) adopted and issued (1) District Board Order #160413-01 authorized by California Health & Safety Code Section 42316 for the City of Los Angeles (City) to install, operate and maintain additional dust control measures on the Owens Lake bed, (2) District Rule 433 (Control of Particulate Emissions at Owens Lake), and (3) the final 2016 revision to the previously-adopted Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP) (collectively "Board Actions"). The Board Actions include orders and requirements for the City to construct and operate additional dust

control measures (DCMs) on the dry Owens Lake bed at the southern end of Owens Valley in Inyo County, eastern-central California. The project is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. The primary goal of the project is to continue to reduce dust emissions from the dry Owens Lake bed by implementing all Owens Lake bed fine particulate matter (PM_{10}) control measures to achieve the National Ambient Air Quality Standards (NAAQS) for PM_{10}. The project is analyzed in detail in the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) prepared by the City of Los Angeles Department of Water and Power (LADWP). The LADWP serving as the Lead Agency approved its project on June 2, 2015 and filed a Notice of Determination on June 8, 2015, State Clearinghouse Number 2014071057.~~.~~

The project site is not identified on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 (Cortese List). No hazardous material sites are located within 1 mile of the project site.

This is to advise that the **Great Basin Unified Air Pollution Control District** has approved the above
☐ Lead Agency ☒ Responsible Agency

described project on **April 13, 2016** and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☒ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☐ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
5. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the Final EIR, with comments and responses and record of project approval, is available to the general public at: Great Basin Unified Air Pollution Control District, 157 Short Street, Bishop, CA 93514.

	April 13, 2016	Air Pollution Control Officer
Signature (Public Agency)	*Date*	*Title*

Date received for filing at OPR: ____________________________

Revised 2005

Notice of Determination

To: ☒ Office of Planning and Research

For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street, Room 121
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☒ County Clerk
County of Inyo
P.O. Drawer F
Independence, CA 93526

From:
(Public Agency)
Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, CA 93514

Contact: Phillip L. Kiddoo, Air Pollution Control Officer
Phone: (760) 872-8211

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Great Basin Unified Air Pollution Control District Rule 433 (Control of Particulate Emissions at Owens Lake)

Project Title

	Mr. Phillip L. Kiddoo	(760) 872-8211
State Clearinghouse Number (If submitted to Clearinghouse)	**Lead Agency Contact Person**	**Area Code / Telephone/Extension**

Owens Lake (bounded by S.H. 136, S.H. 190, and U.S. 395), Inyo County, CA

Project Location (include county)

2016 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

Land Use / Zoning / General Plan Designations:
The dry Owens Lake is primarily owned and operated in trust for the people of the State of California by the California State Lands Commission. Although it is not subject to local regulatory authority by Inyo County (County), the County's General Plan recognizes the location of state-owned and federally owned lands at Owens Lake. The Land Use element of the Inyo County General Plan designates the project area as Natural Resources and State and Federal Lands. This land use designation "is applied to land or water areas that are essentially unimproved and planned to remain open in character, [and] provides for the preservation of natural resources, the managed production of resources, and recreational uses." The Inyo County Zoning Ordinance designates the project area as predominantly OS-40: Open Space Zone, 40-acre minimum lot size.

Project Description:
On April 13, 2016, the Governing Board of the Great Basin Unified Air Pollution Control District (GBUAPCD) adopted and issued (1) District Board Order #160413-01 authorized by California Health & Safety Code Section 42316 for the City of Los Angeles (City) to install, operate and maintain additional dust control measures on the Owens Lake bed, (2) District Rule 433 (Control of Particulate Emissions at Owens Lake), and (3) the final 2016 revision to the previously-adopted Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP) (collectively "Board Actions"). The Board Actions include orders and requirements for the City to construct and operate additional dust control measures (DCMs) on the dry Owens Lake bed at the southern end of Owens Valley in Inyo

County, eastern-central California. The project is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. The primary goal of the project is to continue to reduce dust emissions from the dry Owens Lake bed by implementing all Owens Lake bed fine particulate matter (PM_{10}) control measures to achieve the National Ambient Air Quality Standards (NAAQS) for PM_{10}. The project is analyzed in detail in the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) prepared by the City of Los Angeles Department of Water and Power (LADWP). The LADWP serving as the Lead Agency approved its project on June 2, 2015 and filed a Notice of Determination on June 8, 2015, State Clearinghouse Number 2014071057.~~.~~

The project site is not identified on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 (Cortese List). No hazardous material sites are located within 1 mile of the project site.

This is to advise that the **Great Basin Unified Air Pollution Control District** has approved the above
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This is to certify that the Final EIR, with comments and responses and record of project approval, is available to the general public at: Great Basin Unified Air Pollution Control District, 157 Short Street, Bishop, CA 93514.

	April 13, 2016	Air Pollution Control Officer
Signature (Public Agency)	*Date*	*Title*

Date received for filing at OPR: ______________________________

Revised 2005

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From:
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Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, CA 93514

Contact: Phillip L. Kiddoo, Air Pollution Control Officer
Phone: (760) 872-8211

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

2016 Revision to Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

Project Title

	Mr. Phillip L. Kiddoo	(760) 872-8211
State Clearinghouse Number (If submitted to Clearinghouse)	**Lead Agency Contact Person**	**Area Code / Telephone/Extension**

Owens Lake (bounded by S.H. 136, S.H. 190, and U.S. 395), Inyo County, CA

Project Location (include county)

2016 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

Land Use / Zoning / General Plan Designations:
The dry Owens Lake is primarily owned and operated in trust for the people of the State of California by the California State Lands Commission. Although it is not subject to local regulatory authority by Inyo County (County), the County's General Plan recognizes the location of state-owned and federally owned lands at Owens Lake. The Land Use element of the Inyo County General Plan designates the project area as Natural Resources and State and Federal Lands. This land use designation "is applied to land or water areas that are essentially unimproved and planned to remain open in character, [and] provides for the preservation of natural resources, the managed production of resources, and recreational uses." The Inyo County Zoning Ordinance designates the project area as predominantly OS-40: Open Space Zone, 40-acre minimum lot size.

Project Description:
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County, eastern-central California. The project is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. The primary goal of the project is to continue to reduce dust emissions from the dry Owens Lake bed by implementing all Owens Lake bed fine particulate matter (PM_{10}) control measures to achieve the National Ambient Air Quality Standards (NAAQS) for PM_{10}. The project is analyzed in detail in the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) prepared by the City of Los Angeles Department of Water and Power (LADWP). The LADWP serving as the Lead Agency approved its project on June 2, 2015 and filed a Notice of Determination on June 8, 2015, State Clearinghouse Number 2014071057.~~.~~

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This is to certify that the Final EIR, with comments and responses and record of project approval, is available to the general public at: Great Basin Unified Air Pollution Control District, 157 Short Street, Bishop, CA 93514.

	April 13, 2016	Air Pollution Control Officer
Signature (Public Agency)	*Date*	*Title*

Date received for filing at OPR: ______________________

Revised 2005

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX III-1. TABLE 1

Appendix III-1. Table 1. 2012-2014 Exceedance Data for the Owens Valley Planning Area

2016 Owens Valley Planning Area PM_{10} SIP

Calendar Year	Date	Monitoring Station	Daily Average PM_{10} ($\mu g/m^3$)	Measurement Method	From-the-Lake		Non-Lake		All Wind Directions	Predominantly Non-Lake?	Comparison to Significance Threshold ($5\ \mu g/m^3$)
					Number of Hours	Average Hourly PM_{10} ($\mu g/m^3$)	Number of Hours	Average Hourly PM_{10} ($\mu g/m^3$)	Number of Hours	Yes (Y) or No (N) or Maybe (M)	
2012	3/6/2012	Dirty Socks TEOM	858.8	TEOM	17	1080.3	7	320.9	24	N	0.6%
	3/7/2012	Dirty Socks TEOM	322.7	TEOM	24	322.7			24	N	1.5%
	6/9/2012	Dirty Socks TEOM	277.7	TEOM	11	587.1	13	15.9	24	N	1.8%
	10/22/2012	Dirty Socks TEOM	252.6	TEOM	4	50.8	20	292.9	24	Y	2.0%
	11/8/2012	Dirty Socks TEOM	170.5	TEOM	3	15.3	18	196.4	21	Y	2.9%
2012	3/6/2012	Keeler PM10 TEOM	612.0	TEOM	7	602.2	17	616.0	24	Y	0.8%
	3/7/2012	Keeler PM10 TEOM	517.6	TEOM			24	517.6	24	Y	1.0%
	5/25/2012	Keeler PM10 TEOM	231.4	TEOM	13	215.6	7	260.7	20	M	2.2%
	6/9/2012	Keeler PM10 TEOM	342.1	TEOM	12	18.5	12	665.8	24	Y	1.5%
	12/18/2012	Keeler PM10 TEOM	247.4	TEOM	10	4.5	14	421.0	24	Y	2.0%
2013	1/7/2013	Keeler PM10 TEOM	167.2	TEOM			24	167.2	24	Y	3.0%
	2/20/2013	Keeler PM10 TEOM	529.4	TEOM	1	8.5	23	552.0	24	Y	0.9%
	4/8/2013	Keeler PM10 TEOM	334.4	TEOM	3	369.3	20	329.1	23	Y	1.5%
	4/9/2013	Keeler PM10 TEOM	361.3	TEOM			24	361.3	24	Y	1.4%
	4/23/2013	Keeler PM10 TEOM	318.3	TEOM	11	34.1	13	558.8	24	Y	1.6%
	4/30/2013	Keeler PM10 TEOM	253.9	TEOM	10	14.2	14	425.0	24	Y	2.0%
	5/1/2013	Keeler PM10 TEOM	424.6	TEOM			24	424.6	24	Y	1.2%
	5/14/2013	Keeler PM10 TEOM	314.8	TEOM	9	23.8	15	489.4	24	Y	1.6%
	10/3/2013	Keeler PM10 TEOM	153.1	TEOM	7	8.0	17	212.9	24	Y	3.3%
	12/3/2013	Keeler PM10 TEOM	253.1	TEOM	7	221.9	17	266.0	24	Y	2.0%
2014	3/17/2014	Keeler PM10 TEOM	506.4	TEOM			24	506.4	24	Y	1.0%
	4/22/2014	Keeler PM10 TEOM	208.0	TEOM	8	293.5	16	165.3	24	N	2.4%
	5/10/2014	Keeler PM10 TEOM	577.5	TEOM	6	7.9	18	767.3	24	Y	0.9%
	5/11/2014	Keeler PM10 TEOM	150.1	TEOM			24	150.1	24	Y	3.3%
	6/18/2014	Keeler PM10 TEOM	209.8	TEOM	11	71.2	13	327.0	24	Y	2.4%
	7/30/2014	Keeler PM10 TEOM	366.2	TEOM	3	24.5	21	415.0	24	Y	1.4%
	11/15/2014	Keeler PM10 TEOM	160.7	TEOM	9	7.9	15	252.4	24	Y	3.1%
	12/25/2014	Keeler PM10 TEOM	303.9	TEOM			24	303.9	24	Y	1.6%
	12/31/2014	Keeler PM10 TEOM	950.2	TEOM	1	3563.8	23	836.6	24	Y	0.5%
2012	3/6/2012	Lizard Tail TEOM	734.7	TEOM	6	1013.7	18	641.7	24	M	0.7%
	3/7/2012	Lizard Tail TEOM	180.7	TEOM			24	180.7	24	Y	2.8%
	3/16/2012	Lizard Tail TEOM	197.4	TEOM	12	333.7	12	61.1	24	N	2.5%
	3/31/2012	Lizard Tail TEOM	734.2	TEOM	18	907.7	6	213.7	24	N	0.7%
	5/25/2012	Lizard Tail TEOM	3916.1	TEOM	9	9630.5	15	487.4	24	M	0.1%
	6/4/2012	Lizard Tail TEOM	684.6	TEOM	18	894.5	6	55.2	24	N	0.7%
	6/23/2012	Lizard Tail TEOM	593.4	TEOM	14	995.3	10	30.8	24	N	0.8%
	6/24/2012	Lizard Tail TEOM	410.3	TEOM	20	486.2	4	30.8	24	N	1.2%
	6/25/2012	Lizard Tail TEOM	234.6	TEOM	21	267.0	3	7.7	24	N	2.1%
	11/30/2012	Lizard Tail TEOM	711.3	TEOM	12	1388.5	12	34.1	24	N	0.7%
	12/2/2012	Lizard Tail TEOM	880.4	TEOM	8	2610.5	16	15.4	24	N	0.6%
	12/12/2012	Lizard Tail TEOM	155.8	TEOM	19	194.7	5	8.0	24	N	3.2%

Appendix III-1. Table 1. 2012-2014 Exceedance Data for the Owens Valley Planning Area

2016 Owens Valley Planning Area PM_{10} SIP

Calendar Year	Date	Monitoring Station	Daily Average PM_{10} ($\mu g/m^3$)	Measurement Method	From-the-Lake		Non-Lake		All Wind Directions	Predominantly Non-Lake?	Comparison to Significance Threshold
					Number of Hours	Average Hourly PM_{10} ($\mu g/m^3$)	Number of Hours	Average Hourly PM_{10} ($\mu g/m^3$)	Number of Hours	Yes (Y) or No (N) or Maybe (M)	(5 $\mu g/m^3$)
2013	4/8/2013	Lizard Tail TEOM	283.0	TEOM	2	414.7	21	270.5	23	Y	1.8%
	4/9/2013	Lizard Tail TEOM	158.0	TEOM			24	158.0	24	Y	3.2%
2014	3/17/2014	Lizard Tail TEOM	195.0	TEOM	2	16.5	22	211.2	24	Y	2.6%
	5/10/2014	Lizard Tail TEOM	257.3	TEOM	5	12.5	19	321.8	24	Y	1.9%
2012	5/25/2012	Lone Pine TEOM	168.8	TEOM	3	28.1	21	188.8	24	Y	3.0%
2012	3/6/2012	Mill TEOM	491.9	TEOM	14	697.6	10	203.8	24	N	1.0%
	3/7/2012	Mill TEOM	156.5	TEOM	19	186.3	5	43.1	24	N	3.2%
	5/25/2012	Mill TEOM	712.0	TEOM	21	803.4	3	72.3	24	N	0.7%
	11/30/2012	Mill TEOM	167.7	TEOM	17	230.9	7	14.2	24	N	3.0%
2014	12/31/2014	Mill TEOM	777.0	TEOM			24	777.0	24	Y	0.6%
2012	3/6/2012	North Beach TEOM	1535.6	TEOM	6	3860.6	18	760.6	24	N	0.3%
	3/12/2012	North Beach TEOM	354.5	TEOM	18	464.9	6	23.5	24	N	1.4%
	3/16/2012	North Beach TEOM	281.3	TEOM	17	392.7	7	10.7	24	N	1.8%
	3/31/2012	North Beach TEOM	362.9	TEOM	22	298.9	2	1066.6	24	N	1.4%
	4/11/2012	North Beach TEOM	154.8	TEOM	22	168.5	2	3.3	24	N	3.2%
	5/25/2012	North Beach TEOM	358.4	TEOM	18	418.9	6	176.9	24	N	1.4%
	6/4/2012	North Beach TEOM	342.1	TEOM	23	332.4	1	566.5	24	N	1.5%
	6/20/2012	North Beach TEOM	193.3	TEOM	12	333.0	10	25.6	22	N	2.6%
	6/21/2012	North Beach TEOM	385.3	TEOM	20	456.0	4	31.6	24	N	1.3%
2014	12/31/2014	North Beach TEOM	229.2	TEOM			24	229.2	24	Y	2.2%
2012	3/6/2012	Olancha 3 TEOM	278.9	TEOM	7	512.9	17	182.5	24	N	1.8%
	3/7/2012	Olancha 3 TEOM	485.3	TEOM	22	524.5	2	54.7	24	N	1.0%
	6/9/2012	Olancha 3 TEOM	197.0	TEOM	7	627.7	17	19.6	24	N	2.5%
2013	2/20/2013	Olancha 3 TEOM	236.3	TEOM	20	282.2	4	7.2	24	N	2.1%
	3/9/2013	Olancha 3 TEOM	152.3	TEOM	18	200.1	6	9.0	24	N	3.3%
	4/8/2013	Olancha 3 TEOM	276.8	TEOM	18	334.0	6	105.1	24	N	1.8%
	4/9/2013	Olancha 3 TEOM	241.0	TEOM	24	241.0			24	N	2.1%
	4/23/2013	Olancha 3 TEOM	167.5	TEOM	13	285.2	11	28.3	24	N	3.0%
	5/1/2013	Olancha 3 TEOM	194.8	TEOM	18	252.4	6	22.1	24	N	2.6%
	11/22/2013	Olancha 3 TEOM	170.9	TEOM	24	170.9			24	N	2.9%
2014	5/10/2014	Olancha 3 TEOM	202.2	TEOM	11	387.6	13	45.4	24	N	2.5%
	5/11/2014	Olancha 3 TEOM	309.9	TEOM	24	309.9			24	N	1.6%
	12/31/2014	Olancha 3 TEOM	233.9	TEOM	22	220.5	2	381.2	24	N	2.1%
2012	3/6/2012	Shell Cut TEOM	549.1	TEOM	16	461.9	8	723.6	24	N	0.9%
	3/16/2012	Shell Cut TEOM	203.5	TEOM			24	203.5	24	Y	2.5%
	3/31/2012	Shell Cut TEOM	642.6	TEOM	2	196.1	22	683.2	24	Y	0.8%
	4/26/2012	Shell Cut TEOM	269.4	TEOM	5	673.8	19	163.0	24	M	1.9%
	5/25/2012	Shell Cut TEOM	2149.4	TEOM	6	99.0	18	2832.9	24	Y	0.2%
	6/4/2012	Shell Cut TEOM	236.3	TEOM	1	197.8	23	237.9	24	Y	2.1%
	10/22/2012	Shell Cut TEOM	246.2	TEOM			24	246.2	24	Y	2.0%
	11/8/2012	Shell Cut TEOM	159.7	TEOM	6	22.9	15	214.5	21	Y	3.1%
	11/29/2012	Shell Cut TEOM	223.0	TEOM			24	223.0	24	Y	2.2%
	11/30/2012	Shell Cut TEOM	215.2	TEOM	1	276.9	19	211.9	20	Y	2.3%

Appendix III-1. Table 1. 2012-2014 Exceedance Data for the Owens Valley Planning Area

2016 Owens Valley Planning Area PM_{10} SIP

Calendar Year	Date	Monitoring Station	Daily Average PM_{10} ($\mu g/m^3$)	Measurement Method	From-the-Lake Number of Hours	From-the-Lake Average Hourly PM_{10} ($\mu g/m^3$)	Non-Lake Number of Hours	Non-Lake Average Hourly PM_{10} ($\mu g/m^3$)	All Wind Directions Number of Hours	Predominantly Non-Lake? Yes (Y) or No (N) or Maybe (M)	Comparison to Significance Threshold (5 $\mu g/m^3$)
2013	3/6/2013	Shell Cut TEOM	447.1	TEOM			24	447.1	24	Y	1.1%
	4/8/2013	Shell Cut TEOM	153.4	TEOM	22	157.3	1	67.5	23	N	3.3%
	5/5/2013	Shell Cut TEOM	339.4	TEOM	4	26.0	20	402.1	24	Y	1.5%
	9/21/2013	Shell Cut TEOM	185.7	TEOM	6	190.6	18	184.1	24	Y	2.7%
2014	4/22/2014	Shell Cut TEOM	150.8	TEOM	14	43.6	10	301.0	24	Y	3.3%
2012	2/29/2012	Stanley TEOM	180.3	TEOM	9	9.5	15	282.8	24	Y	2.8%
	5/17/2012	Stanley TEOM	232.1	TEOM	8	13.7	16	341.4	24	Y	2.2%
	11/30/2012	Stanley TEOM	222.8	TEOM	11	49.0	13	369.9	24	Y	2.2%
2014	2/26/2014	Stanley TEOM	179.6	TEOM	24	179.6			24	N	2.8%

Notes:
Shaded rows indicate exceedance days resulting from predominantly "non-lake" source areas.
For the Keeler monitoring station, the keeler dunes are considered a "non-lake" source.

TEOM - Tapered Element Oscillating Microbalance
$\mu g/m^3$ - micrograms per cubic meter

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX IV-1. TABLES 1-6

Appendix IV-1. Table 1a. Exceedance Day PM_{10} Inventory for the Owens Lake Subarea (May 11, 2014)

Inventory Category	PM_{10} Emissions (tons/day)[1,2]		Ratio Code	Comments	% of Total Inventory	
	2012	2015			2012	2015
MANUFACTURING AND INDUSTRIAL	0.03	0.03	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
FOOD AND AGRICULTURAL PROCESSING	0.00	0.00	AG AREA		0%	0%
SERVICE AND COMMERCIAL	0.01	0.01	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
OTHER (FUEL COMBUSTION)	0.00	0.00	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
INCINERATORS	0.00	0.00	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
MINERAL PROCESSES	0.71	0.71	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
METAL PROCESSES	0.02	0.03	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
OTHER (INDUSTRIAL PROCESSES)	0.01	0.01	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
RESIDENTIAL FUEL COMBUSTION	0.02	0.02	POP		0%	0%
FARMING OPERATIONS						
TILLING DUST	0.00	0.00	AG AREA		0%	0%
HARVEST OPERATIONS - DUST	0.00	0.00	AG AREA		0%	0%
CONSTRUCTION AND DEMOLITION	0.01	0.01	POP		0%	0%
LONE PINE LANDFILL	1.07	1.07	CUSTOM	MDAQMD Wind Erosion Equation (Appendix IV-1, Table 6)	0%	0%
PAVED ROAD DUST	0.03	0.03	PAVED RD		0%	0%
UNPAVED ROAD DUST	0.07	0.07	CUSTOM	GBUAPCD Activity-Based Unpaved Roads Method (Appendix IV-1, Table 4)	0%	0%
FUGITIVE WINDBLOWN DUST						
DUST FROM AGRICULTURAL LANDS (NON-PASTURE)	0.01	0.01	AG AREA		0%	0%
DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS	0.01	0.01	CUSTOM	Imperial Land Use Emission Factors (Appendix IV-1, Table 5a)	0%	0%
DUST FROM EXPOSED LAKEBEDS	45.30	45.30	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)	9%	9%
DUST FROM KEELER DUNES	169.20	169.20	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)	32%	32%
DUST FROM OLANCHA DUNES	312.00	312.00	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)	59%	59%
DUST FROM OPEN DESERT (EX. KEELER, OLANCHA, AND LP LANDFILL)	1.87	1.87	CUSTOM	Imperial Land Use Emission Factors (Appendix IV-1, Table 5b); excludes Keeler and Olancha dune areas; excludes emissions related to the Lone Pine Landfill (1.07 tons/day).	0%	0%
FIRES	0.00	0.00	POP		0%	0%
MANAGED BURNING AND DISPOSAL	0.09	0.09	VEG AREA		0%	0%
COOKING	0.00	0.00	POP		0%	0%
LIGHT DUTY PASSENGER (LDA)	0.00	0.00	PAVED RD		0%	0%
LIGHT DUTY TRUCKS - 1 (LDT1)	0.00	0.00	PAVED RD		0%	0%
LIGHT DUTY TRUCKS - 2 (LDT2)	0.00	0.00	PAVED RD		0%	0%
MEDIUM DUTY TRUCKS (MDV)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.00	0.00	PAVED RD		0%	0%
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.00	0.00	PAVED RD		0%	0%
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.00	0.00	PAVED RD		0%	0%
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.00	0.00	PAVED RD		0%	0%
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.01	0.00	PAVED RD		0%	0%
MOTORCYCLES (MCY)	0.00	0.00	PAVED RD		0%	0%
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.00	0.00	PAVED RD		0%	0%
SCHOOL BUSES - DIESEL (SBD)	0.00	0.00	PAVED RD		0%	0%
OTHER BUSES - GAS (OBG)	0.00	0.00	PAVED RD		0%	0%
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	PAVED RD		0%	0%
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	PAVED RD		0%	0%
MOTOR HOMES (MH)	0.00	0.00	PAVED RD		0%	0%
AIRCRAFT	0.00	0.00	AREA		0%	0%
RECREATIONAL BOATS	0.00	0.00	WATER AREA		0%	0%
OFF-ROAD RECREATIONAL VEHICLES	0.00	0.00	AREA		0%	0%
OFF-ROAD EQUIPMENT	0.00	0.00	AREA		0%	0%
FARM EQUIPMENT	0.00	0.00	AG AREA		0%	0%
WILDFIRES	0.17	0.17	AREA	If applicable, will use in-OVPA episode emissions.	0%	0%
Total (tons/day)	**530.64**	**530.65**			100%	100%

Notes:
[1] Except where noted, the values in the table have been derived from the ARB emission inventory for Inyo County and have been ratioed by various factors to obtain results relevant to the Owens Valley Planning Area. The type of ratio used is presented in the 'RATIO CODE' column and is further explained in Appendix IV-1, Table 2.
[2] Emission sources reported as having zero emissions in the ARB emission inventory have been removed from the table.

Appendix IV-1. Table 1b. Exceedance Day PM_{10} Inventory for the Entire Owens Valley Planning Area (May 11, 2014)

Inventory Category	PM_{10} Emissions (tons/day)[1,2] 2012	2015	Ratio Code	Comments
MANUFACTURING AND INDUSTRIAL	0.03	0.03	NO RATIO	Could modify based on area and/or location of point sources.
FOOD AND AGRICULTURAL PROCESSING	0.00	0.00	AG AREA	
SERVICE AND COMMERCIAL	0.01	0.01	NO RATIO	Could modify based on area and/or location of point sources.
OTHER (FUEL COMBUSTION)	0.00	0.00	NO RATIO	Could modify based on area and/or location of point sources.
INCINERATORS	0.00	0.00	NO RATIO	Could modify based on area and/or location of point sources.
MINERAL PROCESSES	0.71	0.71	NO RATIO	Could modify based on area and/or location of point sources.
METAL PROCESSES	0.02	0.03	NO RATIO	Could modify based on area and/or location of point sources.
OTHER (INDUSTRIAL PROCESSES)	0.01	0.01	NO RATIO	Could modify based on area and/or location of point sources.
RESIDENTIAL FUEL COMBUSTION	0.02	0.02	POP	
FARMING OPERATIONS				
TILLING DUST	0.00	0.00	AG AREA	
HARVEST OPERATIONS - DUST	0.00	0.00	AG AREA	
CONSTRUCTION AND DEMOLITION	0.01	0.01	POP	
LONE PINE LANDFILL	1.07	1.07	CUSTOM	MDAQMD Wind Erosion Equation (Appendix IV-1, Table 6)
PAVED ROAD DUST	0.03	0.03	PAVED RD	
UNPAVED ROAD DUST	0.92	0.92	CUSTOM	GBUAPCD Activity-Based Unpaved Roads Method (Appendix IV-1, Table 4)
FUGITIVE WINDBLOWN DUST				
DUST FROM AGRICULTURAL LANDS (NON-PASTURE)	0.01	0.01	AG AREA	
DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS	132.15	132.15	CUSTOM	GBUAPCD Windblown Unpaved Roads Method (Appendix IV-1, Table 3) for roads outside of the 2-Km buffer; Imperial Land Use Emission Factors for roads inside the 2-Km buffer (Appendix IV-1. Table 5a).
DUST FROM EXPOSED LAKEBEDS	45.30	45.30	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)
DUST FROM KEELER DUNES	169.20	169.20	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)
DUST FROM OLANCHA DUNES	312.00	312.00	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)
DUST FROM OPEN DESERT (EX. KEELER, OLANCHA, AND LP LANDFILL)	55.63	55.63	CUSTOM	Imperial Land Use Emission Factors (Appendix IV-1, Table 5c); excludes Keeler and Olancha dune areas; excludes emissions related to the Lone Pine Landfill (1.07 tons/day).
FIRES	0.00	0.00	POP	
MANAGED BURNING AND DISPOSAL	0.09	0.09	VEG AREA	
COOKING	0.00	0.00	POP	
LIGHT DUTY PASSENGER (LDA)	0.00	0.00	PAVED RD	
LIGHT DUTY TRUCKS - 1 (LDT1)	0.00	0.00	PAVED RD	
LIGHT DUTY TRUCKS - 2 (LDT2)	0.00	0.00	PAVED RD	
MEDIUM DUTY TRUCKS (MDV)	0.00	0.00	PAVED RD	
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.00	0.00	PAVED RD	
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.00	0.00	PAVED RD	
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.00	0.00	PAVED RD	
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.00	0.00	PAVED RD	
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.00	PAVED RD	
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.00	0.00	PAVED RD	
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.00	0.00	PAVED RD	
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.01	0.00	PAVED RD	
MOTORCYCLES (MCY)	0.00	0.00	PAVED RD	
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.00	0.00	PAVED RD	
SCHOOL BUSES - DIESEL (SBD)	0.00	0.00	PAVED RD	
OTHER BUSES - GAS (OBG)	0.00	0.00	PAVED RD	
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	PAVED RD	
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	PAVED RD	
MOTOR HOMES (MH)	0.00	0.00	PAVED RD	
AIRCRAFT	0.00	0.00	AREA	
RECREATIONAL BOATS	0.00	0.00	WATER AREA	
OFF-ROAD RECREATIONAL VEHICLES	0.00	0.00	AREA	
OFF-ROAD EQUIPMENT	0.00	0.00	AREA	
FARM EQUIPMENT	0.00	0.00	AG AREA	
WILDFIRES	0.17	0.17	AREA	If applicable, will use in-OVPA episode emissions.
Total (tons/day)	**717.38**	**717.39**		

Notes:

[1] Except where noted, the values in the table have been derived from the ARB emission inventory for Inyo County and have been ratioed by various factors to obtain results relevant to the Owens Valley Planning Area. The type of ratio used is presented in the 'RATIO CODE' column and is further explained in Appendix IV-1, Table 2.

[2] Emission sources reported as having zero emissions in the ARB emission inventory have been removed from the table.

Appendix IV-1. Table 1c. PM_{10} Attainment Inventory for the Owens Lake Subarea

Inventory Category	PM_{10} Emissions (tons/yr)[1,2] 2017	Ratio Code	Comments
MANUFACTURING AND INDUSTRIAL	10.59	NO RATIO	Could modify based on area and/or location of point sources.
FOOD AND AGRICULTURAL PROCESSING	0.04	AG AREA	
SERVICE AND COMMERCIAL	2.52	NO RATIO	Could modify based on area and/or location of point sources.
OTHER (FUEL COMBUSTION)	0.11	NO RATIO	Could modify based on area and/or location of point sources.
INCINERATORS	0.37	NO RATIO	Could modify based on area and/or location of point sources.
MINERAL PROCESSES	261.12	NO RATIO	Could modify based on area and/or location of point sources.
METAL PROCESSES	9.56	NO RATIO	Could modify based on area and/or location of point sources.
OTHER (INDUSTRIAL PROCESSES)	4.52	NO RATIO	Could modify based on area and/or location of point sources.
RESIDENTIAL FUEL COMBUSTION	7.14	POP	
FARMING OPERATIONS			
TILLING DUST	0.84	AG AREA	
HARVEST OPERATIONS - DUST	0.13	AG AREA	
CONSTRUCTION AND DEMOLITION	3.39	POP	
LONE PINE LANDFILL	56.95	CUSTOM	MDAQMD Wind Erosion Equation (Appendix IV-1, Table 6)
PAVED ROAD DUST	12.28	PAVED RD	
UNPAVED ROAD DUST	26.06	CUSTOM	GBUAPCD Activity-Based Unpaved Roads Method (Appendix IV-1, Table 4)
FUGITIVE WINDBLOWN DUST			
DUST FROM AGRICULTURAL LANDS (NON-PASTURE)	1.80	AG AREA	
DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS	5.03	CUSTOM	Imperial Land Use Emission Factors (Appendix IV-1, Table 5a)
DUST FROM EXPOSED LAKEBEDS	355.37	CUSTOM	Modeling Results[3]
DUST FROM KEELER DUNES	40.65	CUSTOM	Modeling Results[3]
DUST FROM OLANCHA DUNES	1,093.49	CUSTOM	Modeling Results[3]
DUST FROM OPEN DESERT (EX. KEELER, OLANCHA, AND LP LANDFILL)	1,014.44	CUSTOM	Imperial Land Use Emission Factors (Appendix IV-1, Table 5b; excludes Keeler and Olancha dune areas; excludes emissions related to the Lone Pine Landfill (56.95 tons/year)
FIRES	0.02	POP	
MANAGED BURNING AND DISPOSAL	32.31	VEG AREA	
COOKING	0.79	POP	
LIGHT DUTY PASSENGER (LDA)	0.97	PAVED RD	
LIGHT DUTY TRUCKS - 1 (LDT1)	0.40	PAVED RD	
LIGHT DUTY TRUCKS - 2 (LDT2)	0.57	PAVED RD	
MEDIUM DUTY TRUCKS (MDV)	0.49	PAVED RD	
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.17	PAVED RD	
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.01	PAVED RD	
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.02	PAVED RD	
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.01	PAVED RD	
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.40	PAVED RD	
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.09	PAVED RD	
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.23	PAVED RD	
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	1.27	PAVED RD	
MOTORCYCLES (MCY)	0.02	PAVED RD	
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.04	PAVED RD	
SCHOOL BUSES - DIESEL (SBD)	0.06	PAVED RD	
OTHER BUSES - GAS (OBG)	0.01	PAVED RD	
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.02	PAVED RD	
ALL OTHER BUSES - DIESEL (OBD)	0.02	PAVED RD	
MOTOR HOMES (MH)	0.03	PAVED RD	
AIRCRAFT	0.41	AREA	
RECREATIONAL BOATS	0.15	WATER AREA	
OFF-ROAD RECREATIONAL VEHICLES	0.51	AREA	
OFF-ROAD EQUIPMENT	0.16	AREA	
FARM EQUIPMENT	0.06	AG AREA	
WILDFIRES	60.33	AREA	If applicable, will use in-OVPA episode emissions.
Total (tons/year)	**3,005.92**		

Notes:

[1] Except where noted, the values in the table have been linearly interpolated from the 2015 and 2020 ARB emission inventories for Inyo County and have been ratioed by various factors to obtain results relevant to the Owens Valley Planning Area. The type of ratio used is presented in the 'RATIO CODE' column and is further explained in Appendix IV-1, Table 2.

[2] Emission sources reported as having zero emissions in the ARB emission inventory have been removed from the table.

[3] Modeling results for the fugitive windblown dust sources reflect the controls that will be in place at the end of 2017.

Appendix IV-1. Table 1d. PM10 Attainment Inventory for the Entire Owens Valley Planning Area

Inventory Category	PM_{10} Emissions (tons/yr)[1,2] 2017	Ratio Code	Comments
MANUFACTURING AND INDUSTRIAL	10.59	NO RATIO	Could modify based on area and/or location of point sources.
FOOD AND AGRICULTURAL PROCESSING	0.04	AG AREA	
SERVICE AND COMMERCIAL	2.52	NO RATIO	Could modify based on area and/or location of point sources.
OTHER (FUEL COMBUSTION)	0.11	NO RATIO	Could modify based on area and/or location of point sources.
INCINERATORS	0.37	NO RATIO	Could modify based on area and/or location of point sources.
MINERAL PROCESSES	261.12	NO RATIO	Could modify based on area and/or location of point sources.
METAL PROCESSES	9.56	NO RATIO	Could modify based on area and/or location of point sources.
OTHER (INDUSTRIAL PROCESSES)	4.52	NO RATIO	Could modify based on area and/or location of point sources.
RESIDENTIAL FUEL COMBUSTION	7.14	POP	
FARMING OPERATIONS			
TILLING DUST	0.84	AG AREA	
HARVEST OPERATIONS - DUST	0.13	AG AREA	
CONSTRUCTION AND DEMOLITION	3.39	POP	
LONE PINE LANDFILL	56.95	CUSTOM	MDAQMD Wind Erosion (Appendix IV-1, Table 6)
PAVED ROAD DUST	12.28	PAVED RD	
UNPAVED ROAD DUST	334.24	CUSTOM	GBUAPCD Activity-Based Unpaved Roads Method (Appendix IV-1, Table 4)
FUGITIVE WINDBLOWN DUST			
DUST FROM AGRICULTURAL LANDS (NON-PASTURE)	1.80	AG AREA	
DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS	415.69	UNPAVED RD	
DUST FROM EXPOSED LAKEBEDS	355.37	CUSTOM	Modeling Results[3]
DUST FROM KEELER DUNES	40.65	CUSTOM	Modeling Results[3]
DUST FROM OLANCHA DUNES	1,093.49	CUSTOM	Modeling Results[3]
DUST FROM OPEN DESERT (EX. KEELER, OLANCHA, AND LP LANDFILL)	20,636.54	CUSTOM	Imperial Land Use Emission Factors (Appendix IV-1, Table 5c); excludes Keeler and Olancha dune areas; excludes emissions related to the Lone Pine Landfill (56.95 tons/year)
FIRES	0.02	POP	
MANAGED BURNING AND DISPOSAL	32.31	VEG AREA	
COOKING	0.79	POP	
LIGHT DUTY PASSENGER (LDA)	0.97	PAVED RD	
LIGHT DUTY TRUCKS - 1 (LDT1)	0.40	PAVED RD	
LIGHT DUTY TRUCKS - 2 (LDT2)	0.57	PAVED RD	
MEDIUM DUTY TRUCKS (MDV)	0.49	PAVED RD	
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.17	PAVED RD	
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.01	PAVED RD	
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.02	PAVED RD	
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.01	PAVED RD	
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.40	PAVED RD	
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.09	PAVED RD	
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.23	PAVED RD	
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	1.27	PAVED RD	
MOTORCYCLES (MCY)	0.02	PAVED RD	
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.04	PAVED RD	
SCHOOL BUSES - DIESEL (SBD)	0.06	PAVED RD	
OTHER BUSES - GAS (OBG)	0.01	PAVED RD	
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.02	PAVED RD	
ALL OTHER BUSES - DIESEL (OBD)	0.02	PAVED RD	
MOTOR HOMES (MH)	0.03	PAVED RD	
AIRCRAFT	0.41	AREA	
RECREATIONAL BOATS	0.15	WATER AREA	
OFF-ROAD RECREATIONAL VEHICLES	0.51	AREA	
OFF-ROAD EQUIPMENT	0.16	AREA	
FARM EQUIPMENT	0.06	AG AREA	
WILDFIRES	60.33	AREA	If applicable, will use in-OVPA episode emissions.
TOTAL (TONS/DAY)	**64**		

Notes:
[1] Except where noted, the values in the table have been linearly interpolated from the 2015 and 2020 ARB emission inventories for Inyo County and have been ratioed by various factors to obtain results relevant to the Owens Valley Planning Area. The type of ratio used is presented in the 'RATIO CODE' column and is further explained in Appendix IV-1, Table 2.
[2] Emission sources reported as having zero emissions in the ARB emission inventory have been removed from the table.
[3] Modeling results for the fugitive windblown dust sources reflect the controls that will be in place at the end of 2017.

Appendix IV-1. Table 2. OVPA / Inyo County Ratio Factors

2016 OVPA SIP Inventory Development Details

Land Use:

Land Use Type Code	Specific Land Use Type	General Land Use Type	Area (acres) (2011)		
			2-Km Buffer	OVPA	Inyo County
11	Open Water	Open Water	28	10,643	13,300
12	Perennial Snow/Ice	Perennial Snow/Ice	0	14	1,103
21	Developed, Open Space	Developed	1,029	3,974	21,675
22	Developed, Low Intensity	Developed	619	2,671	10,884
23	Developed, Medium Intensity	Developed	79	438	1,146
24	Developed, High Intensity	Developed	3	28	63
31	Barren Land	Barren Land	6,836	104,373	405,383
41	Deciduous Forest	Forest	0	643	2,578
42	Evergreen Forest	Forest	46	85,155	303,533
43	Mixed Forest	Forest	5	565	1,843
52	Shrub/Scrub	Shrub/Scrub	34,597	642,193	5,667,781
71	Herbaceuous	Shrub/Scrub	284	16,393	66,445
81	Hay/Pasture	Agriculture	0	1,428	13,195
82	Cultivated Crops	Agriculture	0	575	10,205
90	Woody Wetlands	Wetland	573	4,467	8,237
95	Emergent Herbaceuous Wetlands	Wetland	13	4,773	18,112

Ratios (OVPA to INYO):

Ratio Code	Value
AREA	0.134
WATER AREA	0.800
AG AREA	0.086
VEG AREA	0.124
POP	0.172
PAVED RD	0.206
NO RATIO	1.000
REMOVE	0.000
UNPAVED RD	0.203

Note:
[1] The National Land Use Data Set was obtained from http://www.mrlc.gov/viewerjs/. Accessed August 10, 2015.

Population:

	Population (2010)
OVPA	3,193
Inyo County	18,546

Note:
Population numbers were extracted from 2010 U.S. Census data.

Roads:

	Unpaved Roads (miles)	Paved Roads (miles)	Total Roads (miles)
OVPA	1,103	390	1493
Inyo County	5,437	1,890	7327

Note:
Values extracted from GBUAPCD Unpaved Roads Analysis which used TIGER 2012 data.

Appendix IV-1. Table 3. GBUAPCD Methodology for Windblown Dust Emissions from Unpaved Roads (Entire OVPA, excluding Owens Lake Subarea)

2016 OVPA SIP Inventory Development Details

$$E = 1.34\ x\ 10^{-5} e^{(0.25xu)}$$

E = PM_{10} emissions in grams per square meter per second

u = Hourly average wind speed at 10 meters in meters per second (for u > 7.6 m/s)

Exceedance Day Scenario: 05/11/2014 (Lone Pine)

Hour	Wind Speed (m/s)	Emission Rate		Emissions OVPA (outside 2-Km buffer)	
		$g/m^2/s$	$g/m^2/hr$	kg/hr	tons/hr
100	8.63	1.16E-04	4.17E-01	4.16E+03	4.59E+00
200	8.19	1.04E-04	3.74E-01	3.73E+03	4.11E+00
300	8.88	1.23E-04	4.44E-01	4.43E+03	4.88E+00
400	9.63	1.49E-04	5.36E-01	5.35E+03	5.89E+00
500	10.48	1.84E-04	6.63E-01	6.61E+03	7.29E+00
600	10.63	1.91E-04	6.88E-01	6.86E+03	7.57E+00
700	11.39	2.31E-04	8.32E-01	8.30E+03	9.15E+00
800	13.37	3.79E-04	1.36E+00	1.36E+04	1.50E+01
900	12.64	3.16E-04	1.14E+00	1.13E+04	1.25E+01
1000	12.47	3.03E-04	1.09E+00	1.09E+04	1.20E+01
1100	12.1	2.76E-04	9.93E-01	9.91E+03	1.09E+01
1200	11.11	2.15E-04	7.76E-01	7.74E+03	8.53E+00
1300	10.95	2.07E-04	7.45E-01	7.44E+03	8.20E+00
1400	10.47	1.84E-04	6.61E-01	6.59E+03	7.27E+00
1500	9.2	1.34E-04	4.81E-01	4.80E+03	5.29E+00
1600	9.11	1.31E-04	4.70E-01	4.69E+03	5.17E+00
1700	7.84	9.51E-05	3.42E-01	3.42E+03	3.77E+00
1800	6.62	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1900	6.63	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2000	6.27	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2100	5.38	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2200	6.01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2300	5.71	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2400	5.2	0.00E+00	0.00E+00	0.00E+00	0.00E+00
				kg/day	**tons/day**
			Total	**1.20E+05**	**1.32E+02**

Note:

[1] Methodology is consistent with that presented in the technical memorandum authored by GBUAPCD and titled, *Unpaved Road Dust Inyo County May 3, 2010 (REVISED).*

Assumptions:

20	= average width of unpaved road (ft)
86	= unpaved road in 2-Kilometer buffer (miles)
1,017	= unpaved road in OVPA outside of 2-Kilometer buffer (miles)
9,977,350	= erodable surface area (square meters)
2,465	= erodable surface area (acres)
7.6	= threshold windspeed (meters per second)

Conversion Factors:

5,280	= feet per mile
11	= square feet per square meter
43,560	= square feet per acre
1,000	= grams per kilogram
453.592	= grams per pound
2,000	= pounds per ton
60	= seconds per minute
60	= minutes per hour

Appendix IV-1. Table 4. GBUAPCD Methodology for Calculating Entrained Dust Emissions from Unpaved Roads

2016 OVPA SIP Inventory Development Details

$$E = \frac{k\left(\frac{s}{12}\right)^{a}\left(\frac{S}{30}\right)^{d}}{\left(\frac{M}{0.5}\right)^{c}} - C$$

E = PM_{10} emissions in pounds per vehicle mile traveled
s = silt content of road surface material (%)
S = mean vehicle speed (mph)
M = surface material moisture content (%)
C = emission factor for 1980's vehicle fleet exhaust, brake wear, and tire wear (PM_{10})

For PM_{10} from public unpaved roads:
1.8 = k
1 = a
0.5 = d
0.2 = c

Area	Annual PM_{10}		
	lb / VMT	tons / day	tons / year
2-Km Buffer	8.30E-01	7.14E-02	2.61E+01
Inside OVPA Outside 2-Km Buffer		8.44E-01	3.08E+02
Total OVPA	**--**	**9.16E-01**	**3.34E+02**

Notes:
[1] Methodology is consistent with that presented in the technical memorandum authored by GBUAPCD and titled, *Unpaved Road Dust Inyo County May 3, 2010 (REVISED).*

Assumptions:
5 = s, silt content of road surface material (%) (Keeler, CA)
30 = S, mean vehicle speed (mph)
0.3 = M, surface material moisture content (%)
0.00047 = C, emission factor for 1980's vehicle fleet exhaust, brake wear, and tire wear (PM_{10})
86 = unpaved road in 2-Kilometer buffer (miles)
1,017 = unpaved road in OVPA outside of 2-Kilometer buffer (miles)
1,103 = unpaved road in OVPA (miles)
2 = vehicle trips per mile per day
172 = vehicle miles traveled per day in 2-Kilometer buffer
2034 = vehicle miles traveled per day in OVPA outside of 2-Kilometer buffer

Conversion Factors:
2000 = pounds per ton
365 = days per year

Appendix IV-1. Table 5a. Imperial Valley Land Use Emission Factor Methodology (Owens Lake Subarea, Unpaved Roads Only)

2016 OVPA SIP Inventory Development Details

Imperial County Land Use Category	PM_{10} Emission Factor (tons/acre/yr)	National Land Use Data Set Land Use Category	Unpaved Road Area in 2-Kilometer Buffer (acres)	Unpaved Road 2-Kilometer Buffer Emissions (tons/yr)	Unpaved Road 2-Kilometer Buffer Emissions (tons/day)
Urban	0.0001	Developed	0	0.0	0.00
Grass/Shrublands	0.0272	Shrub/Scrub	0	0.0	0.00
Forest	0.0034	Forest	0	0.0	0.00
Barren	0.0241	Barren Land	208	5.0	0.01
Sand Dunes	0.0481	--	0	--	--
Agricultural	0.0070	Agriculture	0	0.0	0.00
--	0.0000	Open Water	0	0.0	0.00
--	0.0000	Perennial Snow/Ice	0	0.0	0.00
--	0.0000	Wetland	0	0.0	0.00
			Total	**5.0**	**0.01**

Notes:

[1] Imperial Valley land use PM_{10} emission factors obtained from, Mansell, Gerard. 2005. Final Revision for the Imperial Valley Fugitive Dust Emission Inventory. *Technical Memorandum to Brad Poiriez, Imperial County Air Pollution Control District*. September 20.

Assumptions:

20 = average width of unpaved road (ft)
86 = unpaved road in 2-kilometer buffer (miles)
208 = Area (acres) of unpaved roads in the 2-kilometer buffer; assumed to fall under the "Barren Land" land use category.

Conversion Factors:

365 = days per year
5,280 = feet per mile
43,560 = square feet per acre

Appendix IV-1. Table 5b. Imperial Valley Land Use Emission Factor Methodology (Owens Lake Subarea, without Unpaved Roads)

2016 OVPA SIP Inventory Development Details

Imperial County Land Use Category	PM_{10} Emission Factor (tons/acre/yr)	National Land Use Data Set Land Use Category	Area in 2-Kilometer Buffer (acres)	2-Kilometer Buffer Emissions (tons/yr)	2-Kilometer Buffer Emissions (tons/day)
Urban	0.0001	Developed	1,730	0	0.00
Grass/Shrublands	0.0272	Shrub/Scrub	33,489	911	2.50
Forest	0.0034	Forest	51	0	0.00
Barren	0.0241	Barren Land	6,628	160	0.44
Sand Dunes	0.0481	--	0	--	--
Agricultural	0.0070	Agriculture	0	0	0.00
--	0.0000	Open Water	28	0	0.00
--	0.0000	Perennial Snow/Ice	0	0	0.00
--	0.0000	Wetland	586	0	0.00
			TOTAL	**1,071**	**2.94**

Notes:

[1] Imperial Valley land use PM_{10} emission factors obtained from, Mansell, Gerard. 2005. Final Revision for the Imperial Valley Fugitive Dust Emission Inventory. *Technical Memorandum to Brad Poiriez, Imperial County Air Pollution Control District* . September 20.

[2] Land use areas have been derived from the National Land Use Data Set, available at http://www.mrlc.gov/viewerjs/. Accessed August 10, 2015. These estimates were adjusted to remove the areas related to the Keeler Dunes and Olancha Dunes, as well as unpaved roads as emissions from these areas are already being accounted for under alternative methodologies (see assumptions listed below).

Assumptions:

20 = average width of unpaved road (ft)
86 = unpaved road in 2-kilometer buffer (miles)
208 = Area (acres) of unpaved roads in the 2-kilometer buffer (emissions calculated separately); assumed to fall under the "Barren Land" land use category.
870 = Keeler Dune area (acres) on Exceedance Day (05/11/2014); assumed to fall under the "Shrub/Scrub" land use category
100% = Percent of Keeler Dune area in the 2-kilometer buffer
1,045 = Olancha Dune area (acres) on Exceedance Day (05/11/2014); assumed to fall under the "Shrub/Scrub" land use category
50% = Percent of Olancha Dune area in the 2-kilometer buffer

Conversion Factors:

365 = days per year
5,280 = feet per mile

Appendix IV-1. Table 5c. Imperial Valley Land Use Emission Factor Methodology (Entire OVPA, excluding Keeler and Olancha Dunes)

2016 OVPA SIP Inventory Development Details

Imperial County Land Use Category	PM_{10} Emission Factor (tons/acre/yr)	National Land Use Data Set Land Use Category	OVPA Area (acres)	OVPA Emissions (tons/yr)	OVPA Emissions (tons/day)
Urban	0.0001	Developed	7,112	1	0.00
Grass/Shrublands	0.0272	Shrub/Scrub	656,671	17,865	48.95
Forest	0.0034	Forest	86,364	294	0.81
Barren	0.0241	Barren Land	104,373	2,519	6.90
Sand Dunes	0.0481	--	--	--	--
Agricultural	0.0070	Agriculture	2,004	14	0.04
--	0.0000	Open Water	10,643	0	0.00
--	0.0000	Perennial Snow/Ice	14	0	0.00
--	0.0000	Wetland	9,240	0	0.00
			Total	**20,693**	**56.69**

Notes:

[1] Imperial Valley land use PM_{10} emission factors obtained from, Mansell, Gerard. 2005. Final Revision for the Imperial Valley Fugitive Dust Emission Inventory. *Technical Memorandum to Brad Poiriez, Imperial County Air Pollution Control District*. September 20.

[2] OVPA land use areas have been derived from the National Land Use Data Set, available at http://www.mrlc.gov/viewerjs/. Accessed August 10, 2015. These estimates were adjusted to remove the areas related to the Keeler Dunes and Olancha Dunes as emissions from these areas are already being accounted for under alternative methodologies (see assumptions below).

Assumptions:

870 = Keeler Dune area (acres) on Exceedance Day (05/11/2014); assumed to fall under the "Shrub/Scrub" land use category

1045 = Olancha Dune area (acres) on Exceedance Day (05/11/2014); assumed to fall under the "Shrub/Scrub" land use category

Conversion Factors:

365 = days per year

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

$$E = k \; x \; E_f \; x \; A$$

$$E_f = 2.814 \; x \; (1 - v) \; x \left(\frac{u}{u_t}\right)^3 x \; C(x)$$

$$u_t = u_t^* \; x \; u^*$$

E	= particulate matter emission rate in tons per year
k	= particulate aerodynamic factor (see below)
E_f	= emission factor in tons per acre
A	= disturbed area in acres
v	= amount of vegetative cover as a fraction
u	= mean wind speed in meters per second
u_t	= threshold value of wind speed in meters per second (calculated)
u^*_t	= threshold friction velocity in meters per second (see Table 1)
u^*	= ratio of wind speed to friction velocity (see Table 2)
C(x)	= correction factor (see Table 3)

k (TSP) = 1.0
k (PM_{10}) = 0.5
k ($PM_{2.5}$) = 0.2

$$x = 0.886 \; x \; \frac{u_t}{u}$$

Table 1

Scenario	Threshold Friction Velocity, u^*_t (m/s)
Mine Tailings	0.14
Abandoned Ag Land	0.25
Construction Site	0.26
Disturbed Desert	0.33
Scrub Desert	0.38
Coal Dust	0.52
Active Ag Land	0.52
Coal Pile	0.64

Table 2

Area Use	Ratio of Wind Speed to Friction Velocity, u^*
Open space	15.0
Moderate industrial	6.5
Heavy industrial	5.0
Light industrial	8.0

Table 3

x	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
C(x)			1.91	1.90	1.89	1.86	1.83	1.77	1.70	1.60
x	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
C(x)	1.48	1.33	1.20	1.05	0.90	0.78	0.62	0.50	0.40	0.29

Calculation for Annual Emissions:

Area	u^*_t	u_t	x	C(x)	E_f	E_f	Uncontrolled Emissions	Controlled Emissions
	(m/s)	(m/s)	--	--	(tons TSP/acre/year)	(tons PM_{10}/acre/year)	(tons PM_{10}/year)	(tons PM_{10}/year)
Lone Pine	0.26	3.9	0.9	1.7	4.22	2.11	114.0	57.0

Calculation for Exceedance Day Emissions (May 11, 2014):

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
5	8.63	10.8	1.2E-02	5.1E-03	2.5E-03
10	9.59	14.9	1.6E-02	7.0E-03	3.5E-03
15	9.14	12.9	1.4E-02	6.0E-03	3.0E-03
20	8.97	12.2	1.3E-02	5.7E-03	2.9E-03
25	8.42	10.1	1.1E-02	4.7E-03	2.4E-03
30	8.10	9.0	9.7E-03	4.2E-03	2.1E-03
35	9.22	13.2	1.4E-02	6.2E-03	3.1E-03
40	8.69	11.1	1.2E-02	5.2E-03	2.6E-03
45	8.94	12.0	1.3E-02	5.7E-03	2.8E-03
50	8.26	9.5	1.0E-02	4.5E-03	2.2E-03
55	7.48	7.1	7.7E-03	3.3E-03	1.7E-03
100	8.11	9.0	9.8E-03	4.2E-03	2.1E-03

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_{t})^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m / s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
105	7.38	6.8	7.3E-03	3.2E-03	1.6E-03
110	7.90	8.3	9.0E-03	3.9E-03	2.0E-03
115	9.58	14.8	1.6E-02	7.0E-03	3.5E-03
120	8.38	9.9	1.1E-02	4.7E-03	2.3E-03
125	8.10	9.0	9.7E-03	4.2E-03	2.1E-03
130	7.19	6.3	6.8E-03	2.9E-03	1.5E-03
135	8.49	10.3	1.1E-02	4.8E-03	2.4E-03
140	8.90	11.9	1.3E-02	5.6E-03	2.8E-03
145	7.98	8.6	9.3E-03	4.0E-03	2.0E-03
150	8.79	11.4	1.2E-02	5.4E-03	2.7E-03
155	7.97	8.5	9.3E-03	4.0E-03	2.0E-03
200	7.61	7.4	8.1E-03	3.5E-03	1.7E-03
205	8.39	10.0	1.1E-02	4.7E-03	2.3E-03
210	8.56	10.6	1.1E-02	5.0E-03	2.5E-03
215	8.57	10.6	1.2E-02	5.0E-03	2.5E-03
220	7.94	8.4	9.2E-03	4.0E-03	2.0E-03
225	8.80	11.5	1.2E-02	5.4E-03	2.7E-03
230	8.45	10.2	1.1E-02	4.8E-03	2.4E-03
235	8.36	9.8	1.1E-02	4.6E-03	2.3E-03
240	8.83	11.6	1.3E-02	5.5E-03	2.7E-03
245	9.14	12.9	1.4E-02	6.0E-03	3.0E-03
250	9.53	14.6	1.6E-02	6.9E-03	3.4E-03
255	9.44	14.2	1.5E-02	6.7E-03	3.3E-03
300	10.51	19.6	2.1E-02	9.2E-03	4.6E-03
305	9.23	13.3	1.4E-02	6.2E-03	3.1E-03
310	8.43	10.1	1.1E-02	4.7E-03	2.4E-03
315	9.45	14.2	1.5E-02	6.7E-03	3.3E-03
320	9.41	14.0	1.5E-02	6.6E-03	3.3E-03
325	9.59	14.9	1.6E-02	7.0E-03	3.5E-03
330	9.95	16.6	1.8E-02	7.8E-03	3.9E-03
335	10.32	18.5	2.0E-02	8.7E-03	4.4E-03
340	8.83	11.6	1.3E-02	5.5E-03	2.7E-03
345	9.88	16.3	1.8E-02	7.6E-03	3.8E-03
350	10.38	18.9	2.0E-02	8.9E-03	4.4E-03
355	9.99	16.8	1.8E-02	7.9E-03	3.9E-03
400	10.09	17.3	1.9E-02	8.1E-03	4.1E-03
405	10.78	21.1	2.3E-02	9.9E-03	5.0E-03
410	10.75	20.9	2.3E-02	9.8E-03	4.9E-03
415	9.51	14.5	1.6E-02	6.8E-03	3.4E-03
420	10.65	20.4	2.2E-02	9.6E-03	4.8E-03
425	10.15	17.6	1.9E-02	8.3E-03	4.1E-03
430	10.97	22.3	2.4E-02	1.0E-02	5.2E-03
435	11.15	23.4	2.5E-02	1.1E-02	5.5E-03
440	10.39	18.9	2.1E-02	8.9E-03	4.4E-03
445	9.97	16.7	1.8E-02	7.9E-03	3.9E-03
450	10.23	18.0	2.0E-02	8.5E-03	4.2E-03
455	10.75	20.9	2.3E-02	9.8E-03	4.9E-03
500	10.46	19.3	2.1E-02	9.1E-03	4.5E-03
505	10.47	19.3	2.1E-02	9.1E-03	4.5E-03
510	11.26	24.1	2.6E-02	1.1E-02	5.7E-03
515	10.82	21.4	2.3E-02	1.0E-02	5.0E-03
520	10.28	18.3	2.0E-02	8.6E-03	4.3E-03

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$ (m / s)	$(u_{5\text{-min}} / u_{t})^{3}$ --	Uncontrolled Emissions (tons PM_{10} / 5-min period)	Uncontrolled Adjusted Emissions (tons PM_{10} / 5-min period)	Controlled Adjusted Emissions (tons PM_{10} / 5-min period)
525	10.78	21.1	2.3E-02	9.9E-03	5.0E-03
530	10.08	17.3	1.9E-02	8.1E-03	4.1E-03
535	9.39	14.0	1.5E-02	6.6E-03	3.3E-03
540	10.79	21.2	2.3E-02	1.0E-02	5.0E-03
545	10.73	20.8	2.3E-02	9.8E-03	4.9E-03
550	9.79	15.8	1.7E-02	7.4E-03	3.7E-03
555	11.21	23.7	2.6E-02	1.1E-02	5.6E-03
600	11.96	28.8	3.1E-02	1.4E-02	6.8E-03
605	12.32	31.5	3.4E-02	1.5E-02	7.4E-03
610	11.09	23.0	2.5E-02	1.1E-02	5.4E-03
615	11.73	27.2	3.0E-02	1.3E-02	6.4E-03
620	10.26	18.2	2.0E-02	8.6E-03	4.3E-03
625	10.76	21.0	2.3E-02	9.9E-03	4.9E-03
630	10.48	19.4	2.1E-02	9.1E-03	4.6E-03
635	10.35	18.7	2.0E-02	8.8E-03	4.4E-03
640	11.52	25.8	2.8E-02	1.2E-02	6.1E-03
645	12.64	34.0	3.7E-02	1.6E-02	8.0E-03
650	11.53	25.8	2.8E-02	1.2E-02	6.1E-03
655	12.22	30.8	3.3E-02	1.4E-02	7.2E-03
700	11.82	27.8	3.0E-02	1.3E-02	6.5E-03
705	12.77	35.1	3.8E-02	1.6E-02	8.2E-03
710	12.50	32.9	3.6E-02	1.5E-02	7.7E-03
715	12.59	33.6	3.6E-02	1.6E-02	7.9E-03
720	14.24	48.7	5.3E-02	2.3E-02	1.1E-02
725	13.56	42.0	4.6E-02	2.0E-02	9.9E-03
730	14.03	46.6	5.0E-02	2.2E-02	1.1E-02
735	12.47	32.7	3.5E-02	1.5E-02	7.7E-03
740	14.28	49.1	5.3E-02	2.3E-02	1.2E-02
745	13.30	39.7	4.3E-02	1.9E-02	9.3E-03
750	14.28	49.1	5.3E-02	2.3E-02	1.2E-02
755	13.17	38.5	4.2E-02	1.8E-02	9.0E-03
800	13.21	38.9	4.2E-02	1.8E-02	9.1E-03
805	12.52	33.1	3.6E-02	1.6E-02	7.8E-03
810	11.91	28.5	3.1E-02	1.3E-02	6.7E-03
815	12.75	34.9	3.8E-02	1.6E-02	8.2E-03
820	12.86	35.9	3.9E-02	1.7E-02	8.4E-03
825	13.32	39.8	4.3E-02	1.9E-02	9.4E-03
830	13.39	40.5	4.4E-02	1.9E-02	9.5E-03
835	12.11	29.9	3.2E-02	1.4E-02	7.0E-03
840	12.57	33.5	3.6E-02	1.6E-02	7.9E-03
845	13.40	40.6	4.4E-02	1.9E-02	9.5E-03
850	11.73	27.2	3.0E-02	1.3E-02	6.4E-03
855	12.50	32.9	3.6E-02	1.5E-02	7.7E-03
900	12.64	34.0	3.7E-02	1.6E-02	8.0E-03
905	12.54	33.2	3.6E-02	1.6E-02	7.8E-03
910	10.84	21.5	2.3E-02	1.0E-02	5.0E-03
915	12.70	34.5	3.7E-02	1.6E-02	8.1E-03
920	11.33	24.5	2.7E-02	1.2E-02	5.8E-03
925	12.26	31.1	3.4E-02	1.5E-02	7.3E-03
930	12.91	36.3	3.9E-02	1.7E-02	8.5E-03
935	13.52	41.7	4.5E-02	2.0E-02	9.8E-03
940	13.65	42.9	4.7E-02	2.0E-02	1.0E-02

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)
2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
945	10.53	19.7	2.1E-02	9.3E-03	4.6E-03
950	13.22	38.9	4.2E-02	1.8E-02	9.2E-03
955	13.49	41.4	4.5E-02	1.9E-02	9.7E-03
1000	12.62	33.9	3.7E-02	1.6E-02	8.0E-03
1005	12.57	33.5	3.6E-02	1.6E-02	7.9E-03
1010	12.15	30.2	3.3E-02	1.4E-02	7.1E-03
1015	11.76	27.4	3.0E-02	1.3E-02	6.4E-03
1020	12.84	35.7	3.9E-02	1.7E-02	8.4E-03
1025	12.42	32.3	3.5E-02	1.5E-02	7.6E-03
1030	11.94	28.7	3.1E-02	1.3E-02	6.7E-03
1035	12.54	33.2	3.6E-02	1.6E-02	7.8E-03
1040	12.61	33.8	3.7E-02	1.6E-02	7.9E-03
1045	11.70	27.0	2.9E-02	1.3E-02	6.3E-03
1050	12.10	29.9	3.2E-02	1.4E-02	7.0E-03
1055	10.66	20.4	2.2E-02	9.6E-03	4.8E-03
1100	11.87	28.2	3.1E-02	1.3E-02	6.6E-03
1105	12.70	34.5	3.7E-02	1.6E-02	8.1E-03
1110	11.78	27.6	3.0E-02	1.3E-02	6.5E-03
1115	12.07	29.6	3.2E-02	1.4E-02	7.0E-03
1120	11.86	28.1	3.1E-02	1.3E-02	6.6E-03
1125	10.90	21.8	2.4E-02	1.0E-02	5.1E-03
1130	10.37	18.8	2.0E-02	8.8E-03	4.4E-03
1135	10.93	22.0	2.4E-02	1.0E-02	5.2E-03
1140	10.16	17.7	1.9E-02	8.3E-03	4.2E-03
1145	10.28	18.3	2.0E-02	8.6E-03	4.3E-03
1150	10.46	19.3	2.1E-02	9.1E-03	4.5E-03
1155	10.74	20.9	2.3E-02	9.8E-03	4.9E-03
1200	11.10	23.1	2.5E-02	1.1E-02	5.4E-03
1205	10.27	18.3	2.0E-02	8.6E-03	4.3E-03
1210	11.29	24.3	2.6E-02	1.1E-02	5.7E-03
1215	9.96	16.7	1.8E-02	7.8E-03	3.9E-03
1220	10.06	17.2	1.9E-02	8.1E-03	4.0E-03
1225	11.38	24.8	2.7E-02	1.2E-02	5.8E-03
1230	11.09	23.0	2.5E-02	1.1E-02	5.4E-03
1235	11.91	28.5	3.1E-02	1.3E-02	6.7E-03
1240	11.90	28.4	3.1E-02	1.3E-02	6.7E-03
1245	10.21	17.9	1.9E-02	8.4E-03	4.2E-03
1250	10.57	19.9	2.2E-02	9.4E-03	4.7E-03
1255	10.94	22.1	2.4E-02	1.0E-02	5.2E-03
1300	11.80	27.7	3.0E-02	1.3E-02	6.5E-03
1305	9.86	16.2	1.8E-02	7.6E-03	3.8E-03
1310	11.54	25.9	2.8E-02	1.2E-02	6.1E-03
1315	10.65	20.4	2.2E-02	9.6E-03	4.8E-03
1320	11.06	22.8	2.5E-02	1.1E-02	5.4E-03
1325	10.47	19.3	2.1E-02	9.1E-03	4.5E-03
1330	9.93	16.5	1.8E-02	7.8E-03	3.9E-03
1335	11.78	27.6	3.0E-02	1.3E-02	6.5E-03
1340	9.43	14.1	1.5E-02	6.6E-03	3.3E-03
1345	9.24	13.3	1.4E-02	6.3E-03	3.1E-03
1350	10.47	19.3	2.1E-02	9.1E-03	4.5E-03
1355	10.87	21.7	2.3E-02	1.0E-02	5.1E-03
1400	10.30	18.4	2.0E-02	8.7E-03	4.3E-03

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
1405	9.11	12.7	1.4E-02	6.0E-03	3.0E-03
1410	9.29	13.5	1.5E-02	6.4E-03	3.2E-03
1415	9.36	13.8	1.5E-02	6.5E-03	3.2E-03
1420	8.88	11.8	1.3E-02	5.5E-03	2.8E-03
1425	10.21	17.9	1.9E-02	8.4E-03	4.2E-03
1430	8.34	9.8	1.1E-02	4.6E-03	2.3E-03
1435	10.05	17.1	1.9E-02	8.0E-03	4.0E-03
1440	8.34	9.8	1.1E-02	4.6E-03	2.3E-03
1445	9.99	16.8	1.8E-02	7.9E-03	3.9E-03
1450	9.30	13.6	1.5E-02	6.4E-03	3.2E-03
1455	8.78	11.4	1.2E-02	5.4E-03	2.7E-03
1500	8.76	11.3	1.2E-02	5.3E-03	2.7E-03
1505	9.72	15.5	1.7E-02	7.3E-03	3.6E-03
1510	10.07	17.2	1.9E-02	8.1E-03	4.0E-03
1515	8.70	11.1	1.2E-02	5.2E-03	2.6E-03
1520	9.74	15.6	1.7E-02	7.3E-03	3.7E-03
1525	9.83	16.0	1.7E-02	7.5E-03	3.8E-03
1530	9.63	15.1	1.6E-02	7.1E-03	3.5E-03
1535	9.24	13.3	1.4E-02	6.3E-03	3.1E-03
1540	8.56	10.6	1.1E-02	5.0E-03	2.5E-03
1545	7.61	7.4	8.1E-03	3.5E-03	1.7E-03
1550	8.28	9.6	1.0E-02	4.5E-03	2.2E-03
1555	9.07	12.6	1.4E-02	5.9E-03	3.0E-03
1600	8.83	11.6	1.3E-02	5.5E-03	2.7E-03
1605	8.30	9.6	1.0E-02	4.5E-03	2.3E-03
1610	8.04	8.8	9.5E-03	4.1E-03	2.1E-03
1615	8.43	10.1	1.1E-02	4.7E-03	2.4E-03
1620	8.56	10.6	1.1E-02	5.0E-03	2.5E-03
1625	8.77	11.4	1.2E-02	5.3E-03	2.7E-03
1630	7.55	7.3	7.9E-03	3.4E-03	1.7E-03
1635	7.78	7.9	8.6E-03	3.7E-03	1.9E-03
1640	5.96	3.6	3.9E-03	1.7E-03	8.4E-04
1645	7.59	7.4	8.0E-03	3.5E-03	1.7E-03
1650	7.63	7.5	8.1E-03	3.5E-03	1.8E-03
1655	7.45	7.0	7.6E-03	3.3E-03	1.6E-03
1700	7.97	8.5	9.3E-03	4.0E-03	2.0E-03
1705	6.80	5.3	5.7E-03	2.5E-03	1.2E-03
1710	7.52	7.2	7.8E-03	3.4E-03	1.7E-03
1715	7.56	7.3	7.9E-03	3.4E-03	1.7E-03
1720	8.19	9.3	1.0E-02	4.4E-03	2.2E-03
1725	7.53	7.2	7.8E-03	3.4E-03	1.7E-03
1730	7.45	7.0	7.6E-03	3.3E-03	1.6E-03
1735	6.61	4.9	5.3E-03	2.3E-03	1.1E-03
1740	4.74	1.8	2.0E-03	8.5E-04	4.2E-04
1745	5.40	2.7	2.9E-03	1.2E-03	6.2E-04
1750	5.58	2.9	3.2E-03	1.4E-03	6.9E-04
1755	5.47	2.8	3.0E-03	1.3E-03	6.5E-04
1800	6.64	4.9	5.3E-03	2.3E-03	1.2E-03
1805	6.76	5.2	5.7E-03	2.5E-03	1.2E-03
1810	5.75	3.2	3.5E-03	1.5E-03	7.5E-04
1815	5.48	2.8	3.0E-03	1.3E-03	6.5E-04
1820	6.56	4.8	5.2E-03	2.2E-03	1.1E-03

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m / s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
1825	6.91	5.6	6.0E-03	2.6E-03	1.3E-03
1830	8.18	9.2	1.0E-02	4.3E-03	2.2E-03
1835	7.71	7.7	8.4E-03	3.6E-03	1.8E-03
1840	6.96	5.7	6.2E-03	2.7E-03	1.3E-03
1845	7.06	5.9	6.4E-03	2.8E-03	1.4E-03
1850	6.12	3.9	4.2E-03	1.8E-03	9.1E-04
1855	5.94	3.5	3.8E-03	1.7E-03	8.3E-04
1900	6.17	4.0	4.3E-03	1.9E-03	9.3E-04
1905	6.70	5.1	5.5E-03	2.4E-03	1.2E-03
1910	8.80	11.5	1.2E-02	5.4E-03	2.7E-03
1915	8.73	11.2	1.2E-02	5.3E-03	2.6E-03
1920	6.05	3.7	4.1E-03	1.8E-03	8.8E-04
1925	5.81	3.3	3.6E-03	1.6E-03	7.8E-04
1930	4.54	1.6	1.7E-03	7.4E-04	3.7E-04
1935	3.72	0.9	0.0E+00	0.0E+00	0.0E+00
1940	5.61	3.0	3.2E-03	1.4E-03	7.0E-04
1945	5.42	2.7	2.9E-03	1.3E-03	6.3E-04
1950	6.43	4.5	4.9E-03	2.1E-03	1.1E-03
1955	7.09	6.0	6.5E-03	2.8E-03	1.4E-03
2000	6.29	4.2	4.5E-03	2.0E-03	9.8E-04
2005	4.71	1.8	1.9E-03	8.3E-04	4.1E-04
2010	3.52	0.7	0.0E+00	0.0E+00	0.0E+00
2015	3.65	0.8	0.0E+00	0.0E+00	0.0E+00
2020	5.60	3.0	3.2E-03	1.4E-03	7.0E-04
2025	4.91	2.0	2.2E-03	9.4E-04	4.7E-04
2030	6.19	4.0	4.3E-03	1.9E-03	9.4E-04
2035	5.43	2.7	2.9E-03	1.3E-03	6.3E-04
2040	5.18	2.3	2.5E-03	1.1E-03	5.5E-04
2045	5.85	3.4	3.7E-03	1.6E-03	7.9E-04
2050	6.79	5.3	5.7E-03	2.5E-03	1.2E-03
2055	6.01	3.7	4.0E-03	1.7E-03	8.6E-04
2100	6.68	5.0	5.4E-03	2.4E-03	1.2E-03
2105	5.79	3.3	3.6E-03	1.5E-03	7.7E-04
2110	5.27	2.5	2.7E-03	1.2E-03	5.8E-04
2115	5.29	2.5	2.7E-03	1.2E-03	5.9E-04
2120	4.57	1.6	1.7E-03	7.6E-04	3.8E-04
2125	6.58	4.8	5.2E-03	2.3E-03	1.1E-03
2130	7.39	6.8	7.4E-03	3.2E-03	1.6E-03
2135	6.11	3.8	4.2E-03	1.8E-03	9.0E-04
2140	6.41	4.4	4.8E-03	2.1E-03	1.0E-03
2145	6.28	4.2	4.5E-03	2.0E-03	9.8E-04
2150	5.15	2.3	2.5E-03	1.1E-03	5.4E-04
2155	6.87	5.5	5.9E-03	2.6E-03	1.3E-03
2200	6.34	4.3	4.7E-03	2.0E-03	1.0E-03
2205	4.70	1.8	1.9E-03	8.2E-04	4.1E-04
2210	5.07	2.2	2.4E-03	1.0E-03	5.2E-04
2215	4.49	1.5	1.7E-03	7.2E-04	3.6E-04
2220	5.23	2.4	2.6E-03	1.1E-03	5.7E-04
2225	6.22	4.1	4.4E-03	1.9E-03	9.5E-04
2230	5.88	3.4	3.7E-03	1.6E-03	8.0E-04
2235	5.53	2.9	3.1E-03	1.3E-03	6.7E-04
2240	5.87	3.4	3.7E-03	1.6E-03	8.0E-04

Appendix IV-1. Table 6. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
2245	6.13	3.9	4.2E-03	1.8E-03	9.1E-04
2250	6.40	4.4	4.8E-03	2.1E-03	1.0E-03
2255	6.44	4.5	4.9E-03	2.1E-03	1.1E-03
2300	6.60	4.8	5.2E-03	2.3E-03	1.1E-03
2305	6.55	4.7	5.1E-03	2.2E-03	1.1E-03
2310	6.20	4.0	4.4E-03	1.9E-03	9.5E-04
2315	5.33	2.6	2.8E-03	1.2E-03	6.0E-04
2320	4.92	2.0	2.2E-03	9.5E-04	4.7E-04
2325	4.43	1.5	1.6E-03	6.9E-04	3.4E-04
2330	4.84	1.9	2.1E-03	9.0E-04	4.5E-04
2335	5.53	2.9	3.1E-03	1.3E-03	6.7E-04
2340	4.95	2.0	2.2E-03	9.6E-04	4.8E-04
2345	4.83	1.9	2.1E-03	8.9E-04	4.5E-04
2350	4.70	1.8	1.9E-03	8.2E-04	4.1E-04
2355	4.94	2.0	2.2E-03	9.5E-04	4.8E-04
2400	5.15	2.3	2.5E-03	1.1E-03	5.4E-04
					tons PM_{10}/day
				Total	1.07

Notes:

The calculations presented above follow the "intermediate complexity" methodology for estimating wind erosion from unpaved operational areas and roads as presented in Section L of the *Mojave Desert Air Quality Management District Emission Inventory Guidance: Mineral Handling and Processing Industries* (2013). For the exceedance day emissions, the annual emission factor in tons PM_{10} per acre per year was used to quantify the emissions for each five-minute period on the exceedance day. Since the amount of particulate matter emitted is proportional to the cube of the quotient of the five-minute wind speed ($u_{5\text{-min}}$) divided by the threshold value of wind speed (u_t), this was used as a scaling factor. For periods in which the five-minute average wind speed was less than the threshold value, the emissions were assumed to be zero. The resulting emissions were then adjusted by a second scale factor that takes into account the extent to which the five-minute emissions are overestimated. The second scale factor is necessary to ensure the sum of five-minute emissions using the annual formula with five-minute wind speeds over the period of a year is the same as the annual emissions calculated using the annual average wind speed. It is equal to 0.433 and accounts both for the non-linear relationship of the emission factor with wind speed and periods of zero emissions when winds are less than the threshold of 3.9 m/s.

Five-minute wind data obtained from Lone Pine Meteorological Station.

Assumptions:

54.0 = A, Lone Pine Landfill Area (acres)
0.0 = v, fraction of vegetative cover (per Google Earth images)
3.74 = u, mean annual wind speed (m/s) from Lone Pine (Jul. 2013 - Jun. 2014)
50% = Assumed control efficiency due to watering
0.433 = calculated scale factor

Conversion Factors:

9.513E-06 = years per averaging period
5 = minutes per averaging period
525,600 = minutes per year

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX IV-1. EXHIBIT 1-LANDFILL MEMO

RAMBOLL ENVIRON

ENVIRONMENT
& HEALTH

MEMO

Date	**March 25, 2016**
To	**Great Basin Unified Air Pollution Control District**
From	**Ramboll Environ US Corporation**
Subject	**Windblown Dust Emission Estimates for the Lone Pine Landfill for the Great Basin Unified Air Pollution Control District 2016 Owens Valley Planning Area PM_{10} State Implementation Plan**

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The Lone Pine Landfill is an approximately 54-acre landfill located in Inyo County, California, approximately four miles northwest of the northern boundary of Owens Lake. For purposes of the 2016 Owens Valley Planning Area PM_{10} State Implementation Plan, Ramboll Environ estimated particulate matter emissions at the Lone Pine Landfill. The methodology used for the calculations was adapted from Section L of the *Mojave Desert Air Quality Management District Emissions Inventory Guidance: Mineral Handling and Processing Industries* (2013).[1] This "intermediate complexity" method utilizes mean wind speed, along with other parameters such as the land area and amount of vegetation, to estimate the total annual PM_{10} emissions emitted through wind erosion over unpaved operational areas and roads. The following equations and variables were used to calculate emissions values for the landfill, using wind data collected at the Lone Pine Meteorological Station.

$$E = k \; x \; E_f \; x \; A \qquad \textbf{Equation 1}$$

$$E_f = 2.814 \; x \; (1 - v) \; x \; \left(\frac{u}{u_t}\right)^3 x \; C(x) \qquad \textbf{Equation 2}$$

$$x = 0.886 \; x \frac{u_t}{u} \qquad \textbf{Equation 3}$$

$$u_t = u_t^* \; x \; u^* \qquad \textbf{Equation 4}$$

Where,

E	= particulate matter emission rate in tons per year
k	= particulate aerodynamic factor (0.5 for PM_{10})
E_f	= emission factor in tons per acre
A	= disturbed area in acres
v	= amount of vegetative cover as a fraction
u	= mean wind speed in meters per second (m/s)
u_t	= threshold value of wind speed in m/s (calculated)
u_t^*	= threshold friction velocity in m/s
u^*	= ratio of wind speed to friction velocity
$C(x)$	= correction factor (see Table 1)

[1] Mojave Desert Air Quality Management District. 2013. *Mojave Desert Air Quality Management District Emissions Inventory Guidance: Mineral Handling and Processing Industries.* Section L. Available at: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=4209. Accessed March 24, 2016.

Table 1. C(x) Correction Factor									
x	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**	**1.0**	**1.1**
$C(x)$	1.91	1.90	1.89	1.86	1.83	1.77	1.70	1.60	1.48
x	**1.2**	**1.3**	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**	**1.9**	**2.0**
$C(x)$	1.33	1.20	1.05	0.90	0.78	0.62	0.50	0.40	0.29

For the Lone Pine Landfill calculations, the threshold friction velocity (u_t^*) of a construction site (0.26 m/s) was assumed, along with a ratio of wind speed to friction velocity (u^*) of open space (15.0), resulting in a calculated threshold value of wind speed (u_t) equal to 3.9 m/s. Vegetative cover was assumed equal to zero after a review of aerial images on Google Earth. Annual emission values were calculated using a mean annual wind speed (u_{ann}) of 3.74 m/s (the mean wind speed for Lone Pine from July 2013 to June 2014). Final emissions after assuming 50% control from watering were 57.0 tons per year.

Emissions for the exceedance day inventory were calculated in a similar manner. First, the annual emission factor in tons PM_{10} per acre per year was used to quantify the emissions for each five-minute period on the exceedance day, May 11, 2014. Since the amount of particulate matter emitted is proportional to the cube of the quotient of the mean five-minute wind speed (u_5) and the threshold value of wind speed (u_t), this was used as a scaling factor. Thus, the relative emissions for each five-minute period were calculated via the following formula:

$$E = \left(\frac{u_5}{u_t}\right)^3 x\ E_f\ x\ A\ x\ (9.512x10^{-6})$$ **Equation 5**

Where, the final value in the equation converts the emissions value from tons per year to tons per five-minute period. Next, the emissions for each five-minute period were adjusted by a scaling factor that takes into account how much the five-minute interval emissions are overestimated. The scaling factor (S_f) is necessary to ensure the sum of five-minute emissions using the annual formula with five-minute wind speeds over the period of a year is the same as the annual emissions calculated using the annual average wind speed. This scaling factor of 0.433 accounts both for the non-linear relationship of the emission factor with wind speed and periods of zero emissions when winds are less than the threshold value of 3.9 m/s. The following formula was used to calculate this scaling factor.

$$S_f = \frac{E_f(u_{ann})}{(\sum E_f(u_5);\ for\ u_5 > u_t)}$$ **Equation 6**

Using this factor, the adjusted controlled PM_{10} emissions for the exceedance day were found to equal 1.07 tons.

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX V-1 (BACM ASSESSMENT)

EXCERPTS FROM APPENDIX V-1 (BACM ASSESSMENT) OF THE 2016 SIP

2. SIGNIFICANT AND DE MINIMIS SOURCE CATEGORIES

* * * *

2.4 Emission Inventory

In the last century, PM_{10} emissions in the OVPA were~~are~~ dominated by fugitive dust emissions resulting from wind erosion on the exposed Owens Lake playa. The historic dominance of dust emissions from the playa has been documented by the District and other researchers who have studied dust source areas in the OVPA since the 1970s (Holder, 2016). Playa emissions have been on the decline since 2002 with the implementation of dust control measures by the City of Los Angeles, and is expected to continue to decrease with additional control measures being implemented by the end of 2017. Other wind erosion sources in the OVPA include off-lake sources of lake bed dust (i.e. the Keeler and Olancha dune areas, which are now the largest sources in the OVPA), small mining facilities, and open areas near the municipalities of Lone Pine and Independence that have been disturbed by human activity, including Inyo County's Lone Pine ~~landfill~~ Landfill. There is a lack of large industrial sources in the Owens Valley and the only other sources of criteria pollutant emissions are wood stoves, fireplaces, unpaved and paved road dust, and vehicle tailpipe emissions. Prescribed burning for wildland management on federal and private lands also generates PM_{10} in and around the nonattainment area; however, prescribed burning is not normally conducted on windy days when wind erosion is at its highest. Appendix C has the details of the emission inventory used for this significant sources determination.

As stated previously, with the exception of the fugitive windblown dust emissions and activity-related unpaved road dust emissions, the emissions data used in this analysis are derived from the California Air Resources Board (CARB) 2012 and 2015 emission inventories for Inyo County, and have been ratioed to the OVPA by various factors (e.g. population, roadway miles, and land area). Appendix C, Table C2 presents the ratios that were used in developing the OVPA emission estimates, while Table 2-1 below presents the resulting 2012 and 2015 near-exceedance day inventories. The fugitive windblown dust and activity-related unpaved road dust estimates have been revised to more accurately reflect conditions in the OVPA. These revisions are discussed in the following sections. The resulting identification of significant and *de minimis* source categories can be found at the end of this chapter.

Table 2-1: Exceedance Day PM_{10} Emission Inventory for the OVPA Significant Source Determination (tons/day)

Category[1]	2012	2015
Manufacturing and Industrial	0.03	0.03
Service and Commercial	0.01	0.01
Mineral Processes	0.71	0.71
Metal Processes	0.02	0.03
Other (Industrial Processes)	0.01	0.01
Residential Fuel Combustion	0.02	0.02
Construction and Demolition	0.01	0.01
Lone Pine Landfill	1.07	1.07
Paved Road Dust	0.03	0.03
Fugitive Windblown Dust from Agricultural Lands (Non-Pasture)	0.01	0.01
Fugitive Windblown Dust and Activity-related Dust from Unpaved Roads and Associated Areas[2]	~~12.09~~0.08	~~12.09~~0.08
Fugitive Windblown Dust from Exposed Lake Beds	45.30	45.30
Fugitive Windblown Dust from Dunes	--	--
Keeler Dunes	169.20	169.20
Olancha Dunes	312.00	312.00
Fugitive Windblown Dust from Open Desert[2,3,4]	~~2.94~~1.87	~~2.94~~1.87
Managed Burning and Disposal	0.09	0.09
On-Road Mobile	0.02	0.01
Wildfires	0.17	0.17
TOTAL	**~~542.65~~530.64**	**~~542.66~~530.65**

Notes:

[1] Sources with emissions less than 0.005 tons/day have been omitted.

[2] ~~Fugitive windblown dust s~~Source limited to 2-kilometer buffer around Owens Lake.

[3] Excluding areas associated with Olancha and Keeler dunes.

[4] Excludes emissions related to the Lone Pine Landfill (listed separately).

Data Sources:

All Source Categories (except those noted below): CARB emission inventory for Inyo County ratioed to the OVPA ~~(see Appendix C)~~; **Activity-Related Unpaved Road Dust**: GBUAPCD; **Lake beds and Dunes**: Air Quality Modeling; **Open Desert and Windblown Unpaved Road Dust**: Constructive estimate based on similar land uses and conditions in Imperial County Air Pollution Control District; **Lone Pine Landfill**: Mojave Desert Air Quality Management District Wind Erosion Equation. See Appendix C, Table C1.

2.5 Updated Methodologies

2.5.1 Fugitive Windblown Dust from Open Desert and Unpaved Roads

Fugitive dust emissions from open desert areas are a function of the classification and stability of the open desert as well as meteorology and wind speeds, all of which vary across the OVPA. For this source category, a decision was made to develop a representative estimate using emission factors of a similar desert-like environment (e.g. Imperial County). As a result, estimates of fugitive dust emissions from wind erosion on open areas (excluding ~~unpaved roads,~~ exposed lake bed~~,~~ and dune areas, but including unpaved roads) were calculated using emission factors developed in relation to the May 2004 Ramboll Environ (formerly ENVIRON International Corporation) report entitled "Development of a Windblown Fugitive Dust Model and Inventory for Imperial County."[5,6] These emission factors, with units of tons PM_{10} per acre per year, calculate a daily emission rate of 1.87 tons PM_{10} for open desert when applied to the OVPA land use areas (see Appendix C, Table C3a). ~~These emission factors, with units of tons PM_{10} when applied to the OVPA land use areas (see Appendix C5).~~

Note that emissions from ~~this~~these sources have been limited to a ~~2~~two-kilometer buffer surrounding the Owens Lake bed. This approach is similar to the "source weighting" technique used by the Maricopa Association of Governments (MAG) for the design day emission inventories in the May 2012 *MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area* ("MAG 5% Plan").[7] In the MAG 5% Plan, MAG asserted that there is a need to account for distance between emission sources and impacted monitors and found that a 1/distance weighting factor proved to be the best value to use to adjust PM_{10} emissions developed through back trajectory domains. In addition, in supporting analyses performed using the dispersion model AERMOD, MAG found that at the threshold of high wind conditions (i.e. winds greater than 12 miles per hour), PM_{10} concentrations drop by a factor of 10 between 0 and 500 meters, between 500 and 2,800 meters, and between 2,800 and 30,000 meters.[8] In addition, a specific study of dust sources affecting non-attainment monitors has been prepared (Holder, 2016). That report concluded that:

* * * *

The decision to use similar emission factors for unpaved roads was based on discovery by District staff and confirmation by Ramboll Environ personnel that the unpaved roadways surrounding the dried lake bed are equal or less emissive than the adjacent desert. The estimate for emissions from unpaved roads uses GBUAPCD's most recent estimate of unpaved road mileage in the two-kilometer buffer around the Owens Lake bed, which is equal to 86 miles or 208 acres[9]. GBUAPCD's estimate relied on GIS analysis using Topologically Integrated Geographic Encoding and Referencing (TIGER) 2012 data and first-hand knowledge of the condition of roadways surrounding Owens Lake. These emission factors when applied to the estimated area of unpaved roadway in the two-kilometer buffer surrounding the Owens Lake bed result in a daily emission rate of 0.01 tons PM_{10} (see Appendix C, Table C3b).

---

[9] When assuming an average road width of 20 feet.

* * * *

~~2.5.3 Fugitive Windblown Dust from Unpaved Roads and Associated Areas~~

~~For estimates of fugitive dust emissions resulting from wind erosion of upaved roads, the CARB emission inventory website references the August 1997 *Windblown Dust – Unpaved Roads* methodology.[10] This methodology relies on such factors as soil erodibility, climate, vegetative cover, surface roughness, and unsheltered field width to estimate the quantity of unpaved road dust entrained to the air by wind erosion per acre of land. The inventory created for this analysis uses the CARB methodology, but updates the acreage used in the calculation to reflect GBUAPCD's most recent estimate of unpaved road mileage in a 2-kilometer buffer around the Owens Lake bed, which is equal to 86 miles or 208 acres[11]. GBUAPCD's estimate relied on GIS analysis using Topologically Integrated Geographic Encoding and Referencing (TIGER) 2012 data and first hand knowledge of the condition of roadways surrounding Owens Lake. Using the above approach, one calculates a daily emission rate of 11.2 tons PM_{10} from this source category (see Appendix C3).~~

~~[10] CARB. 1997. Windblown Dust – Unpaved Roads. Section 7.13. August. Available at: http://www.arb.ca.gov/ei/areasre/fullpdf/full7-13.pdf. Accessed on Octover 10, 2015.~~

~~[11] When assuming an average road width of 20 feet.~~

~~2.5.5~~2.5.2 Fugitive Windblown Dust from Exposed Lake Bed, Keeler Dunes, and Olancha Dunes

* * * *

~~2.5.6~~2.5.3 Entrained Unpaved Road Dust

* * * *

Using Table 13.2.2-2 of AP-42 and assuming vehicle travel on public roads (where k = 1.8 lb/VMT, a = 1, c = 0.2, and d = 0.5), the above equation yields an emission factor of 0.83 pounds of PM_{10} per vehicle mile traveled. Estimated vehicle activity is based on a November 2001 traffic survey of four unpaved roads in the Owens and Panamint Valleys of Inyo County. This survey showed that there are approximately three vehicle trips per day on unpaved roads during the month of November.[15] Because many of the roads in lower elevation areas of Inyo County are not used during the hot months of the year, and unpaved roads at higher elevations are not used when they are snowbound during the cold months of the year, a seasonal-use factor of 2/3 was applied to the number of vehicle trips per day. This results in around two vehicle trips per day on each mile of unpaved road in Inyo County. Using these values in conjunction with GBUAPCD's most recent estimate of unpaved road mileage in the ~~OVPA~~ two-kilometer buffer surrounding Owens Lake (~~1,103~~86 miles), one calculates a daily emission rate of 0.~~92~~07 tons PM_{10} from this source category (see Appendix C, Table C4).

2.5.4 Emission Uncertainties for Sources within the Two-kilometer Buffer

The inventory presented in Table 2-1 is based on the best technical information currently available; however, there is evidence that material from the lake bed has been deposited in this buffer zone. But, there may be emissions beyond those stated for unpaved roads and open desert areas within the two-kilometer buffer. The extent of that material may be sufficient to contribute to off-lake exceedances, where emissions purely from the unpaved roads and open desert areas in the two-kilometer buffer calculated in Table 2-1 do not. The reduction of that material is solely dependent upon controls applied to the lake bed sources and the ultimate winnowing of that deposited material from the two-kilometer buffer. As such, this material is considered related to the lake bed emissions and their previous and near-term controls through 2017 as discussed in Chapter 3.

2.6 Conclusions

As discussed previously, the *de minimis* threshold is determined by multiplying the *de minimis* level factor (3.33%) by the near-exceedance day emission inventory (542.65 tons/day). This calculation results in a *de minimis* threshold of ~~18.1~~17.7 tons per day per 5 μg/m^3. Because this analysis uses a day in which the ambient concentration was measured close to the NAAQS exceedance level, the resulting *de minimis* level factor is conservatively large (and *de minimis* threshold conservatively low).

2.6.1 Significant Sources

Based on the threshold level of ~~18.1~~17.7 tons per day, there are three PM_{10} sources above the de minimis level and therefore identified as significant source categories in the OVPA (Table 2-2).

* * * *

2.6.2 *De Minimis* Sources

De Minimis source categories are provided for informational purposes only (Table 2-3).

Table 2-3: *De Minimis* Source Categories of PM_{10} in the OVPA (tons/day)

Category[1]	2012	2015
Manufacturing and Industrial	0.03	0.03
Service and Commercial	0.01	0.01
Mineral Processes	0.71	0.71
Metal Processes	0.02	0.03
Other (Industrial Processes)	0.01	0.01
Residential Fuel Combustion	0.02	0.02
Construction and Demolition	0.01	0.01
Lone Pine Landfill	1.07	1.07
Paved Road Dust	0.03	0.03
Unpaved Road Dust	0.92	0.92
Fugitive Windblown Dust from Agricultural Lands (Non-Pasture)	0.01	0.01
Fugitive Windblown Dust and Activity-related Dust from Unpaved Roads and Associated Areas[2]	~~12.09~~0.08	~~12.09~~0.08
Fugitive Windblown Dust from Open Desert[2,3,4]	~~2.94~~1.87	~~2.94~~1.87
Managed Burning and Disposal	0.09	0.09

Table 2-3: *De Minimis* Source Categories of PM_{10} in the OVPA (tons/day)		
Category[1]	**2012**	**2015**
On-Road Mobile	0.02	0.01
Wildfires	0.17	0.17

Notes:

[1] Sources with emissions less than 0.005 tons/day have been omitted.

[2] ~~Fugitive windblown dust source~~Source limited to 2-kilometer buffer around Owens Lake.

[3] Excluding areas associated with Olancha and Keeler dunes.

[4] Excludes emissions related to the Lone Pine Landfill (listed separately).

* * * *

4.2.1 Fugitive Windblown Dust from Exposed Lake Bed

District Rule 401 specifically requires the City of Los Angeles to implement BACM (or other approved control measures) on any windblown dust source areas on Owens Lake that cause or contribute to monitored exceedances of State PM_{10} standards at residences within communities zoned for residential use. Measures recognized as BACM to date have included Shallow Flooding, Managed Vegetation, and Gravel Blanket. Many of these measures have already been implemented on the lake (see Figure 3-1 and Figure 3-2[23]) and the mitigating effects have been realized. For this reason, a cost effectiveness analysis for this measure is unnecessary. Furthermore, at this point in time cost-effectiveness information regarding these measures may not be accurate, as some measures have had to be re-done. However, one estimate of the cost effectiveness of dust controls at Owens Lake is approximately $2,~~390~~520 per ton. This estimate was calculated by assuming an annualized capital cost of $84.3 million (over 25 years) and an annual operating and maintenance and water replacement cost of $61.5 million (for a total annual cost of $145.8 million) and dividing this number by the estimated annual reductions of PM_{10} by ~~mid 2018~~the end of 2017 when compared to 2006 emissions (~~60,950~~57,900 tons). Table 4-1 summarizes the major control strategy milestones at Owens Lake, along with their control effectiveness, and cost information, if known.

* * * *

4.2.3 Fugitive Lake Bed Windblown Dust Deposited on Two-kilometer Buffer

The District is implementing controls on the lake bed. This will have the effect of winnowing significantly any lake bed dust deposited on the two-kilometer buffer area, reducing any potentially significant emissions to the *de minimis* levels calculated for unpaved roads and open desert areas within that buffer. These reductions would be accounted for in the attainment demonstration hybrid modeling discussed in Chapter 7 of the 2016 SIP.

4.3 Summary

Table 4-2 summarizes the results of the impact analysis.

Table 4-2: Control Effectiveness, Cost Information, and Cost Effectiveness				
Source Category (and Windblown Dust Controls)	**Average Annual Emissions (tons)**	**Control Effectiveness**	**Costs**	**Cost-effectiveness (if known)**
Dry Lake Bed (varied controls)	2006: ~~73,174~~69,778 2010: ~~43,325~~22,754 2014: 1,936	Up to 99% depending on control and location	$145.8M (annualized)[3] for 2016 SIP	$2,~~390~~520/ton
Off-Lake Dunes (straw bales and re-vegetation)	Keeler[1]: 3,~~309~~365 Olancha[1,2]: 5,~~418~~340	95% for Keeler Dunes based on straw bales with future shrub establishment.	$700,000 (annualized)[3] for straw bales and re-vegetation with watering	$~~222~~219/ton

Notes:

[1] Average of 2010-2014 annual emissions.

[2] No active controls are anticipated for the Olancha Dunes. PM_{10} will reduce over time as entrained material from the increasingly controlled lake bed sources are reduced (see Appendix G).

[3] Costs are annualized assuming interest = 5%, n = 25 years, A/P = 0.07.

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX V-1 (BACM ASSESSMENT)
APPENDIX C

Appendix C. Table C1. Exceedance Day PM_{10} Inventory for the Owens Lake Subarea (May 11, 2014)

Inventory Category	PM_{10} Emissions (tons/day)[1,2]		Ratio Code	Comments	% of Total Inventory	
	2012	2015			2012	2015
MANUFACTURING AND INDUSTRIAL	0.03	0.03	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
FOOD AND AGRICULTURAL PROCESSING	0.00	0.00	AG AREA		0%	0%
SERVICE AND COMMERCIAL	0.01	0.01	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
OTHER (FUEL COMBUSTION)	0.00	0.00	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
INCINERATORS	0.00	0.00	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
MINERAL PROCESSES	0.71	0.71	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
METAL PROCESSES	0.02	0.03	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
OTHER (INDUSTRIAL PROCESSES)	0.01	0.01	NO RATIO	Could modify based on area and/or location of point sources.	0%	0%
RESIDENTIAL FUEL COMBUSTION	0.02	0.02	POP		0%	0%
FARMING OPERATIONS						
TILLING DUST	0.00	0.00	AG AREA		0%	0%
HARVEST OPERATIONS - DUST	0.00	0.00	AG AREA		0%	0%
CONSTRUCTION AND DEMOLITION	0.01	0.01	POP		0%	0%
LONE PINE LANDFILL	1.07	1.07	CUSTOM	MDAQMD Wind Erosion Equation (Appendix C, Table C5)	0%	0%
PAVED ROAD DUST	0.03	0.03	PAVED RD		0%	0%
UNPAVED ROAD DUST	0.07	0.07	CUSTOM	GBUAPCD Activity-Based Unpaved Roads Method (Appendix C, Table C4)	0%	0%
FUGITIVE WINDBLOWN DUST						
DUST FROM AGRICULTURAL LANDS (NON-PASTURE)	0.01	0.01	AG AREA		0%	0%
DUST FROM UNPAVED ROADS AND ASSOCIATED AREAS	0.01	0.01	CUSTOM	Imperial Land Use Emission Factors (Appendix C, Table C3b)	0%	0%
DUST FROM EXPOSED LAKEBEDS	45.30	45.30	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)	9%	9%
DUST FROM KEELER DUNES	169.20	169.20	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)	32%	32%
DUST FROM OLANCHA DUNES	312.00	312.00	CUSTOM	Modeling Results (Exceedance Day, May 11, 2014)	59%	59%
DUST FROM OPEN DESERT (EX. KEELER, OLANCHA, AND LP LANDFILL)	1.87	1.87	CUSTOM	Imperial Land Use Emission Factors (Appendix C, Table C3a); excludes Keeler and Olancha dune areas; excludes emissions related to the Lone Pine Landfill (1.07 tons/day).	0%	0%
FIRES	0.00	0.00	POP		0%	0%
MANAGED BURNING AND DISPOSAL	0.09	0.09	VEG AREA		0%	0%
COOKING	0.00	0.00	POP		0%	0%
LIGHT DUTY PASSENGER (LDA)	0.00	0.00	PAVED RD		0%	0%
LIGHT DUTY TRUCKS - 1 (LDT1)	0.00	0.00	PAVED RD		0%	0%
LIGHT DUTY TRUCKS - 2 (LDT2)	0.00	0.00	PAVED RD		0%	0%
MEDIUM DUTY TRUCKS (MDV)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.00	0.00	PAVED RD		0%	0%
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.00	0.00	PAVED RD		0%	0%
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.00	PAVED RD		0%	0%
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.00	0.00	PAVED RD		0%	0%
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.00	0.00	PAVED RD		0%	0%
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	0.01	0.00	PAVED RD		0%	0%
MOTORCYCLES (MCY)	0.00	0.00	PAVED RD		0%	0%
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.00	0.00	PAVED RD		0%	0%
SCHOOL BUSES - DIESEL (SBD)	0.00	0.00	PAVED RD		0%	0%
OTHER BUSES - GAS (OBG)	0.00	0.00	PAVED RD		0%	0%
OTHER BUSES - MOTOR COACH - DIESEL (OBC)	0.00	0.00	PAVED RD		0%	0%
ALL OTHER BUSES - DIESEL (OBD)	0.00	0.00	PAVED RD		0%	0%
MOTOR HOMES (MH)	0.00	0.00	PAVED RD		0%	0%
AIRCRAFT	0.00	0.00	AREA		0%	0%
RECREATIONAL BOATS	0.00	0.00	WATER AREA		0%	0%
OFF-ROAD RECREATIONAL VEHICLES	0.00	0.00	AREA		0%	0%
OFF-ROAD EQUIPMENT	0.00	0.00	AREA		0%	0%
FARM EQUIPMENT	0.00	0.00	AG AREA		0%	0%
WILDFIRES	0.17	0.17	AREA	If applicable, will use in-OVPA episode emissions.	0%	0%
Total (tons/day)	**530.64**	**530.65**			100%	100%

Notes:

[1] Except where noted, the values in the table have been derived from the ARB emission inventory for Inyo County and have been ratioed by various factors to obtain results relevant to the Owens Valley Planning Area. The type of ratio used is presented in the 'RATIO CODE' column and is further explained in Appendix C, Table C2.

[2] Emission sources reported as having zero emissions in the ARB emission inventory have been removed from the table.

Appendix C. Table C2. OVPA / Inyo County Ratio Factors

2016 OVPA SIP Inventory Development Details

Land Use:

Land Use Type Code	Specific Land Use Type	General Land Use Type	Area (acres) (2011)		
			2-Km Buffer	OVPA	Inyo County
11	Open Water	Open Water	28	10,643	13,300
12	Perennial Snow/Ice	Perennial Snow/Ice	0	14	1,103
21	Developed, Open Space	Developed	1,029	3,974	21,675
22	Developed, Low Intensity	Developed	619	2,671	10,884
23	Developed, Medium Intensity	Developed	79	438	1,146
24	Developed, High Intensity	Developed	3	28	63
31	Barren Land	Barren Land	6,836	104,373	405,383
41	Deciduous Forest	Forest	0	643	2,578
42	Evergreen Forest	Forest	46	85,155	303,533
43	Mixed Forest	Forest	5	565	1,843
52	Shrub/Scrub	Shrub/Scrub	34,597	642,193	5,667,781
71	Herbaceuous	Shrub/Scrub	284	16,393	66,445
81	Hay/Pasture	Agriculture	0	1,428	13,195
82	Cultivated Crops	Agriculture	0	575	10,205
90	Woody Wetlands	Wetland	573	4,467	8,237
95	Emergent Herbaceuous Wetlands	Wetland	13	4,773	18,112

Ratios (OVPA to INYO):

Ratio Code	Value
AREA	0.134
WATER AREA	0.800
AG AREA	0.086
VEG AREA	0.124
POP	0.172
PAVED RD	0.206
NO RATIO	1.000
REMOVE	0.000
UNPAVED RD	0.203

Note:
[1] The National Land Use Data Set was obtained from http://www.mrlc.gov/viewerjs/. Accessed August 10, 2015.

Population:

	Population (2010)
OVPA	3,193
Inyo County	18,546

Note:
Population numbers were extracted from 2010 U.S. Census data.

Roads:

	Unpaved Roads (miles)	Paved Roads (miles)	Total Roads (miles)
OVPA	1,103	390	1493
Inyo County	5,437	1,890	7327

Note:
Values extracted from GBUAPCD Unpaved Roads Analysis which used TIGER 2012 data.

Appendix C. Table C3a. Imperial Valley Land Use Emission Factor Methodology (Owens Lake Subarea, without Unpaved Roads)

2016 OVPA SIP Inventory Development Details

Imperial County Land Use Category	PM_{10} Emission Factor (tons/acre/yr)	National Land Use Data Set Land Use Category	Area in 2-Kilometer Buffer (acres)	2-Kilometer Buffer Emissions (tons/yr)	2-Kilometer Buffer Emissions (tons/day)
Urban	0.0001	Developed	1,730	0	0.00
Grass/Shrublands	0.0272	Shrub/Scrub	33,489	911	2.50
Forest	0.0034	Forest	51	0	0.00
Barren	0.0241	Barren Land	6,628	160	0.44
Sand Dunes	0.0481	--	0	--	--
Agricultural	0.0070	Agriculture	0	0	0.00
--	0.0000	Open Water	28	0	0.00
--	0.0000	Perennial Snow/Ice	0	0	0.00
--	0.0000	Wetland	586	0	0.00
			TOTAL	**1,071**	**2.94**

Notes:

[1] Imperial Valley land use PM_{10} emission factors obtained from, Mansell, Gerard. 2005. Final Revision for the Imperial Valley Fugitive Dust Emission Inventory. *Technical Memorandum to Brad Poiriez, Imperial County Air Pollution Control District*. September 20.

[2] Land use areas have been derived from the National Land Use Data Set, available at http://www.mrlc.gov/viewerjs/. Accessed August 10, 2015. These estimates were adjusted to remove the areas related to the Keeler Dunes and Olancha Dunes, as well as unpaved roads as emissions from these areas are already being accounted for under alternative methodologies (see assumptions listed below).

Assumptions:

20 = average width of unpaved road (ft)
86 = unpaved road in 2-kilometer buffer (miles)
208 = Area (acres) of unpaved roads in the 2-kilometer buffer (emissions calculated separately); assumed to fall under the "Barren Land" land use category.
870 = Keeler Dune area (acres) on Exceedance Day (05/11/2014); assumed to fall under the "Shrub/Scrub" land use category
100% = Percent of Keeler Dune area in the 2-kilometer buffer
1,045 = Olancha Dune area (acres) on Exceedance Day (05/11/2014); assumed to fall under the "Shrub/Scrub" land use category
50% = Percent of Olancha Dune area in the 2-kilometer buffer

Conversion Factors:

365 = days per year
5,280 = feet per mile

Appendix C. Table C3b. Imperial Valley Land Use Emission Factor Methodology (Owens Lake Subarea, Unpaved Roads Only)

2016 OVPA SIP Inventory Development Details

Imperial County Land Use Category	PM_{10} Emission Factor (tons/acre/yr)	National Land Use Data Set Land Use Category	Unpaved Road Area in 2-Kilometer Buffer (acres)	Unpaved Road 2-Kilometer Buffer Emissions (tons/yr)	Unpaved Road 2-Kilometer Buffer Emissions (tons/day)
Urban	0.0001	Developed	0	0.0	0.00
Grass/Shrublands	0.0272	Shrub/Scrub	0	0.0	0.00
Forest	0.0034	Forest	0	0.0	0.00
Barren	0.0241	Barren Land	208	5.0	0.01
Sand Dunes	0.0481	--	0	--	--
Agricultural	0.0070	Agriculture	0	0.0	0.00
--	0.0000	Open Water	0	0.0	0.00
--	0.0000	Perennial Snow/Ice	0	0.0	0.00
--	0.0000	Wetland	0	0.0	0.00
			Total	**5.0**	**0.01**

Notes:

[1] Imperial Valley land use PM_{10} emission factors obtained from, Mansell, Gerard. 2005. Final Revision for the Imperial Valley Fugitive Dust Emission Inventory. *Technical Memorandum to Brad Poiriez, Imperial County Air Pollution Control District*. September 20.

Assumptions:

20 = average width of unpaved road (ft)
86 = unpaved road in 2-kilometer buffer (miles)
208 = Area (acres) of unpaved roads in the 2-kilometer buffer; assumed to fall under the "Barren Land" land use category.

Conversion Factors:

365 = days per year
5,280 = feet per mile
43,560 = square feet per acre

Appendix C. Table C4. GBUAPCD Methodology for Calculating Entrained Dust Emissions from Unpaved Roads

2016 OVPA SIP Inventory Development Details

$$E = \frac{k\left(\frac{s}{12}\right)^{a}\left(\frac{S}{30}\right)^{d}}{\left(\frac{M}{0.5}\right)^{c}} - C$$

E = PM_{10} emissions in pounds per vehicle mile traveled
s = silt content of road surface material (%)
S = mean vehicle speed (mph)
M = surface material moisture content (%)
C = emission factor for 1980's vehicle fleet exhaust, brake wear, and tire wear (PM_{10})

For PM_{10} from public unpaved roads:
1.8 = k
1 = a
0.5 = d
0.2 = c

Area	Annual PM_{10}		
	lb / VMT	tons / day	tons / year
2-Km Buffer	8.30E-01	7.14E-02	2.61E+01
Inside OVPA Outside 2-Km Buffer		8.44E-01	3.08E+02
Total OVPA	**--**	**9.16E-01**	**3.34E+02**

Notes:
[1] Methodology is consistent with that presented in the technical memorandum authored by GBUAPCD and titled, *Unpaved Road Dust Inyo County May 3, 2010 (REVISED).*

Assumptions:
5 = s, silt content of road surface material (%) (Keeler, CA)
30 = S, mean vehicle speed (mph)
0.3 = M, surface material moisture content (%)
0.00047 = C, emission factor for 1980's vehicle fleet exhaust, brake wear, and tire wear (PM_{10})
86 = unpaved road in 2-Kilometer buffer (miles)
1,017 = unpaved road in OVPA outside of 2-Kilometer buffer (miles)
1,103 = unpaved road in OVPA (miles)
2 = vehicle trips per mile per day
172 = vehicle miles traveled per day in 2-Kilometer buffer
2034 = vehicle miles traveled per day in OVPA outside of 2-Kilometer buffer

Conversion Factors:
2000 = pounds per ton
365 = days per year

Appendix C. Table C5. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

$$E = k \; x \; E_f \; x \; A$$

$$E_f = 2.814 \; x \; (1 - v) \; x \left(\frac{u}{u_t}\right)^3 x \; C(x)$$

$$u_t = u_t^* \; x \; u^*$$

E	= particulate matter emission rate in tons per year
k	= particulate aerodynamic factor (see below)
E_f	= emission factor in tons per acre
A	= disturbed area in acres
v	= amount of vegetative cover as a fraction
u	= mean wind speed in meters per second
u_t	= threshold value of wind speed in meters per second (calculated)
u^*_t	= threshold friction velocity in meters per second (see Table 1)
u^*	= ratio of wind speed to friction velocity (see Table 2)
C(x)	= correction factor (see Table 3)

k (TSP) = 1.0
k (PM_{10}) = 0.5
k ($PM_{2.5}$) = 0.2

$$x = 0.886 \; x \; \frac{u_t}{u}$$

Table 1

Scenario	Threshold Friction Velocity, u^*_t (m/s)
Mine Tailings	0.14
Abandoned Ag Land	0.25
Construction Site	0.26
Disturbed Desert	0.33
Scrub Desert	0.38
Coal Dust	0.52
Active Ag Land	0.52
Coal Pile	0.64

Table 2

Area Use	Ratio of Wind Speed to Friction Velocity, u^*
Open space	15.0
Moderate industrial	6.5
Heavy industrial	5.0
Light industrial	8.0

Table 3

x	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
C(x)			1.91	1.90	1.89	1.86	1.83	1.77	1.70	1.60
x	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
C(x)	1.48	1.33	1.20	1.05	0.90	0.78	0.62	0.50	0.40	0.29

Calculation for Annual Emissions:

Area	u^*_t	u_t	x	C(x)	E_f	E_f	Uncontrolled Emissions	Controlled Emissions
	(m/s)	(m/s)	--	--	(tons TSP/acre/year)	(tons PM_{10}/acre/year)	(tons PM_{10}/year)	(tons PM_{10}/year)
Lone Pine	0.26	3.9	0.9	1.7	4.22	2.11	114.0	57.0

Calculation for Exceedance Day Emissions (May 11, 2014):

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
5	8.63	10.8	1.2E-02	5.1E-03	2.5E-03
10	9.59	14.9	1.6E-02	7.0E-03	3.5E-03
15	9.14	12.9	1.4E-02	6.0E-03	3.0E-03
20	8.97	12.2	1.3E-02	5.7E-03	2.9E-03
25	8.42	10.1	1.1E-02	4.7E-03	2.4E-03
30	8.10	9.0	9.7E-03	4.2E-03	2.1E-03
35	9.22	13.2	1.4E-02	6.2E-03	3.1E-03
40	8.69	11.1	1.2E-02	5.2E-03	2.6E-03
45	8.94	12.0	1.3E-02	5.7E-03	2.8E-03
50	8.26	9.5	1.0E-02	4.5E-03	2.2E-03
55	7.48	7.1	7.7E-03	3.3E-03	1.7E-03
100	8.11	9.0	9.8E-03	4.2E-03	2.1E-03

Appendix C. Table C5. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m / s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
105	7.38	6.8	7.3E-03	3.2E-03	1.6E-03
110	7.90	8.3	9.0E-03	3.9E-03	2.0E-03
115	9.58	14.8	1.6E-02	7.0E-03	3.5E-03
120	8.38	9.9	1.1E-02	4.7E-03	2.3E-03
125	8.10	9.0	9.7E-03	4.2E-03	2.1E-03
130	7.19	6.3	6.8E-03	2.9E-03	1.5E-03
135	8.49	10.3	1.1E-02	4.8E-03	2.4E-03
140	8.90	11.9	1.3E-02	5.6E-03	2.8E-03
145	7.98	8.6	9.3E-03	4.0E-03	2.0E-03
150	8.79	11.4	1.2E-02	5.4E-03	2.7E-03
155	7.97	8.5	9.3E-03	4.0E-03	2.0E-03
200	7.61	7.4	8.1E-03	3.5E-03	1.7E-03
205	8.39	10.0	1.1E-02	4.7E-03	2.3E-03
210	8.56	10.6	1.1E-02	5.0E-03	2.5E-03
215	8.57	10.6	1.2E-02	5.0E-03	2.5E-03
220	7.94	8.4	9.2E-03	4.0E-03	2.0E-03
225	8.80	11.5	1.2E-02	5.4E-03	2.7E-03
230	8.45	10.2	1.1E-02	4.8E-03	2.4E-03
235	8.36	9.8	1.1E-02	4.6E-03	2.3E-03
240	8.83	11.6	1.3E-02	5.5E-03	2.7E-03
245	9.14	12.9	1.4E-02	6.0E-03	3.0E-03
250	9.53	14.6	1.6E-02	6.9E-03	3.4E-03
255	9.44	14.2	1.5E-02	6.7E-03	3.3E-03
300	10.51	19.6	2.1E-02	9.2E-03	4.6E-03
305	9.23	13.3	1.4E-02	6.2E-03	3.1E-03
310	8.43	10.1	1.1E-02	4.7E-03	2.4E-03
315	9.45	14.2	1.5E-02	6.7E-03	3.3E-03
320	9.41	14.0	1.5E-02	6.6E-03	3.3E-03
325	9.59	14.9	1.6E-02	7.0E-03	3.5E-03
330	9.95	16.6	1.8E-02	7.8E-03	3.9E-03
335	10.32	18.5	2.0E-02	8.7E-03	4.4E-03
340	8.83	11.6	1.3E-02	5.5E-03	2.7E-03
345	9.88	16.3	1.8E-02	7.6E-03	3.8E-03
350	10.38	18.9	2.0E-02	8.9E-03	4.4E-03
355	9.99	16.8	1.8E-02	7.9E-03	3.9E-03
400	10.09	17.3	1.9E-02	8.1E-03	4.1E-03
405	10.78	21.1	2.3E-02	9.9E-03	5.0E-03
410	10.75	20.9	2.3E-02	9.8E-03	4.9E-03
415	9.51	14.5	1.6E-02	6.8E-03	3.4E-03
420	10.65	20.4	2.2E-02	9.6E-03	4.8E-03
425	10.15	17.6	1.9E-02	8.3E-03	4.1E-03
430	10.97	22.3	2.4E-02	1.0E-02	5.2E-03
435	11.15	23.4	2.5E-02	1.1E-02	5.5E-03
440	10.39	18.9	2.1E-02	8.9E-03	4.4E-03
445	9.97	16.7	1.8E-02	7.9E-03	3.9E-03
450	10.23	18.0	2.0E-02	8.5E-03	4.2E-03
455	10.75	20.9	2.3E-02	9.8E-03	4.9E-03
500	10.46	19.3	2.1E-02	9.1E-03	4.5E-03
505	10.47	19.3	2.1E-02	9.1E-03	4.5E-03
510	11.26	24.1	2.6E-02	1.1E-02	5.7E-03
515	10.82	21.4	2.3E-02	1.0E-02	5.0E-03
520	10.28	18.3	2.0E-02	8.6E-03	4.3E-03

Appendix C. Table C5. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_{t})^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m / s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
525	10.78	21.1	2.3E-02	9.9E-03	5.0E-03
530	10.08	17.3	1.9E-02	8.1E-03	4.1E-03
535	9.39	14.0	1.5E-02	6.6E-03	3.3E-03
540	10.79	21.2	2.3E-02	1.0E-02	5.0E-03
545	10.73	20.8	2.3E-02	9.8E-03	4.9E-03
550	9.79	15.8	1.7E-02	7.4E-03	3.7E-03
555	11.21	23.7	2.6E-02	1.1E-02	5.6E-03
600	11.96	28.8	3.1E-02	1.4E-02	6.8E-03
605	12.32	31.5	3.4E-02	1.5E-02	7.4E-03
610	11.09	23.0	2.5E-02	1.1E-02	5.4E-03
615	11.73	27.2	3.0E-02	1.3E-02	6.4E-03
620	10.26	18.2	2.0E-02	8.6E-03	4.3E-03
625	10.76	21.0	2.3E-02	9.9E-03	4.9E-03
630	10.48	19.4	2.1E-02	9.1E-03	4.6E-03
635	10.35	18.7	2.0E-02	8.8E-03	4.4E-03
640	11.52	25.8	2.8E-02	1.2E-02	6.1E-03
645	12.64	34.0	3.7E-02	1.6E-02	8.0E-03
650	11.53	25.8	2.8E-02	1.2E-02	6.1E-03
655	12.22	30.8	3.3E-02	1.4E-02	7.2E-03
700	11.82	27.8	3.0E-02	1.3E-02	6.5E-03
705	12.77	35.1	3.8E-02	1.6E-02	8.2E-03
710	12.50	32.9	3.6E-02	1.5E-02	7.7E-03
715	12.59	33.6	3.6E-02	1.6E-02	7.9E-03
720	14.24	48.7	5.3E-02	2.3E-02	1.1E-02
725	13.56	42.0	4.6E-02	2.0E-02	9.9E-03
730	14.03	46.6	5.0E-02	2.2E-02	1.1E-02
735	12.47	32.7	3.5E-02	1.5E-02	7.7E-03
740	14.28	49.1	5.3E-02	2.3E-02	1.2E-02
745	13.30	39.7	4.3E-02	1.9E-02	9.3E-03
750	14.28	49.1	5.3E-02	2.3E-02	1.2E-02
755	13.17	38.5	4.2E-02	1.8E-02	9.0E-03
800	13.21	38.9	4.2E-02	1.8E-02	9.1E-03
805	12.52	33.1	3.6E-02	1.6E-02	7.8E-03
810	11.91	28.5	3.1E-02	1.3E-02	6.7E-03
815	12.75	34.9	3.8E-02	1.6E-02	8.2E-03
820	12.86	35.9	3.9E-02	1.7E-02	8.4E-03
825	13.32	39.8	4.3E-02	1.9E-02	9.4E-03
830	13.39	40.5	4.4E-02	1.9E-02	9.5E-03
835	12.11	29.9	3.2E-02	1.4E-02	7.0E-03
840	12.57	33.5	3.6E-02	1.6E-02	7.9E-03
845	13.40	40.6	4.4E-02	1.9E-02	9.5E-03
850	11.73	27.2	3.0E-02	1.3E-02	6.4E-03
855	12.50	32.9	3.6E-02	1.5E-02	7.7E-03
900	12.64	34.0	3.7E-02	1.6E-02	8.0E-03
905	12.54	33.2	3.6E-02	1.6E-02	7.8E-03
910	10.84	21.5	2.3E-02	1.0E-02	5.0E-03
915	12.70	34.5	3.7E-02	1.6E-02	8.1E-03
920	11.33	24.5	2.7E-02	1.2E-02	5.8E-03
925	12.26	31.1	3.4E-02	1.5E-02	7.3E-03
930	12.91	36.3	3.9E-02	1.7E-02	8.5E-03
935	13.52	41.7	4.5E-02	2.0E-02	9.8E-03
940	13.65	42.9	4.7E-02	2.0E-02	1.0E-02

Appendix C. Table C5. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)
2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
945	10.53	19.7	2.1E-02	9.3E-03	4.6E-03
950	13.22	38.9	4.2E-02	1.8E-02	9.2E-03
955	13.49	41.4	4.5E-02	1.9E-02	9.7E-03
1000	12.62	33.9	3.7E-02	1.6E-02	8.0E-03
1005	12.57	33.5	3.6E-02	1.6E-02	7.9E-03
1010	12.15	30.2	3.3E-02	1.4E-02	7.1E-03
1015	11.76	27.4	3.0E-02	1.3E-02	6.4E-03
1020	12.84	35.7	3.9E-02	1.7E-02	8.4E-03
1025	12.42	32.3	3.5E-02	1.5E-02	7.6E-03
1030	11.94	28.7	3.1E-02	1.3E-02	6.7E-03
1035	12.54	33.2	3.6E-02	1.6E-02	7.8E-03
1040	12.61	33.8	3.7E-02	1.6E-02	7.9E-03
1045	11.70	27.0	2.9E-02	1.3E-02	6.3E-03
1050	12.10	29.9	3.2E-02	1.4E-02	7.0E-03
1055	10.66	20.4	2.2E-02	9.6E-03	4.8E-03
1100	11.87	28.2	3.1E-02	1.3E-02	6.6E-03
1105	12.70	34.5	3.7E-02	1.6E-02	8.1E-03
1110	11.78	27.6	3.0E-02	1.3E-02	6.5E-03
1115	12.07	29.6	3.2E-02	1.4E-02	7.0E-03
1120	11.86	28.1	3.1E-02	1.3E-02	6.6E-03
1125	10.90	21.8	2.4E-02	1.0E-02	5.1E-03
1130	10.37	18.8	2.0E-02	8.8E-03	4.4E-03
1135	10.93	22.0	2.4E-02	1.0E-02	5.2E-03
1140	10.16	17.7	1.9E-02	8.3E-03	4.2E-03
1145	10.28	18.3	2.0E-02	8.6E-03	4.3E-03
1150	10.46	19.3	2.1E-02	9.1E-03	4.5E-03
1155	10.74	20.9	2.3E-02	9.8E-03	4.9E-03
1200	11.10	23.1	2.5E-02	1.1E-02	5.4E-03
1205	10.27	18.3	2.0E-02	8.6E-03	4.3E-03
1210	11.29	24.3	2.6E-02	1.1E-02	5.7E-03
1215	9.96	16.7	1.8E-02	7.8E-03	3.9E-03
1220	10.06	17.2	1.9E-02	8.1E-03	4.0E-03
1225	11.38	24.8	2.7E-02	1.2E-02	5.8E-03
1230	11.09	23.0	2.5E-02	1.1E-02	5.4E-03
1235	11.91	28.5	3.1E-02	1.3E-02	6.7E-03
1240	11.90	28.4	3.1E-02	1.3E-02	6.7E-03
1245	10.21	17.9	1.9E-02	8.4E-03	4.2E-03
1250	10.57	19.9	2.2E-02	9.4E-03	4.7E-03
1255	10.94	22.1	2.4E-02	1.0E-02	5.2E-03
1300	11.80	27.7	3.0E-02	1.3E-02	6.5E-03
1305	9.86	16.2	1.8E-02	7.6E-03	3.8E-03
1310	11.54	25.9	2.8E-02	1.2E-02	6.1E-03
1315	10.65	20.4	2.2E-02	9.6E-03	4.8E-03
1320	11.06	22.8	2.5E-02	1.1E-02	5.4E-03
1325	10.47	19.3	2.1E-02	9.1E-03	4.5E-03
1330	9.93	16.5	1.8E-02	7.8E-03	3.9E-03
1335	11.78	27.6	3.0E-02	1.3E-02	6.5E-03
1340	9.43	14.1	1.5E-02	6.6E-03	3.3E-03
1345	9.24	13.3	1.4E-02	6.3E-03	3.1E-03
1350	10.47	19.3	2.1E-02	9.1E-03	4.5E-03
1355	10.87	21.7	2.3E-02	1.0E-02	5.1E-03
1400	10.30	18.4	2.0E-02	8.7E-03	4.3E-03

Appendix C. Table C5. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m / s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
1405	9.11	12.7	1.4E-02	6.0E-03	3.0E-03
1410	9.29	13.5	1.5E-02	6.4E-03	3.2E-03
1415	9.36	13.8	1.5E-02	6.5E-03	3.2E-03
1420	8.88	11.8	1.3E-02	5.5E-03	2.8E-03
1425	10.21	17.9	1.9E-02	8.4E-03	4.2E-03
1430	8.34	9.8	1.1E-02	4.6E-03	2.3E-03
1435	10.05	17.1	1.9E-02	8.0E-03	4.0E-03
1440	8.34	9.8	1.1E-02	4.6E-03	2.3E-03
1445	9.99	16.8	1.8E-02	7.9E-03	3.9E-03
1450	9.30	13.6	1.5E-02	6.4E-03	3.2E-03
1455	8.78	11.4	1.2E-02	5.4E-03	2.7E-03
1500	8.76	11.3	1.2E-02	5.3E-03	2.7E-03
1505	9.72	15.5	1.7E-02	7.3E-03	3.6E-03
1510	10.07	17.2	1.9E-02	8.1E-03	4.0E-03
1515	8.70	11.1	1.2E-02	5.2E-03	2.6E-03
1520	9.74	15.6	1.7E-02	7.3E-03	3.7E-03
1525	9.83	16.0	1.7E-02	7.5E-03	3.8E-03
1530	9.63	15.1	1.6E-02	7.1E-03	3.5E-03
1535	9.24	13.3	1.4E-02	6.3E-03	3.1E-03
1540	8.56	10.6	1.1E-02	5.0E-03	2.5E-03
1545	7.61	7.4	8.1E-03	3.5E-03	1.7E-03
1550	8.28	9.6	1.0E-02	4.5E-03	2.2E-03
1555	9.07	12.6	1.4E-02	5.9E-03	3.0E-03
1600	8.83	11.6	1.3E-02	5.5E-03	2.7E-03
1605	8.30	9.6	1.0E-02	4.5E-03	2.3E-03
1610	8.04	8.8	9.5E-03	4.1E-03	2.1E-03
1615	8.43	10.1	1.1E-02	4.7E-03	2.4E-03
1620	8.56	10.6	1.1E-02	5.0E-03	2.5E-03
1625	8.77	11.4	1.2E-02	5.3E-03	2.7E-03
1630	7.55	7.3	7.9E-03	3.4E-03	1.7E-03
1635	7.78	7.9	8.6E-03	3.7E-03	1.9E-03
1640	5.96	3.6	3.9E-03	1.7E-03	8.4E-04
1645	7.59	7.4	8.0E-03	3.5E-03	1.7E-03
1650	7.63	7.5	8.1E-03	3.5E-03	1.8E-03
1655	7.45	7.0	7.6E-03	3.3E-03	1.6E-03
1700	7.97	8.5	9.3E-03	4.0E-03	2.0E-03
1705	6.80	5.3	5.7E-03	2.5E-03	1.2E-03
1710	7.52	7.2	7.8E-03	3.4E-03	1.7E-03
1715	7.56	7.3	7.9E-03	3.4E-03	1.7E-03
1720	8.19	9.3	1.0E-02	4.4E-03	2.2E-03
1725	7.53	7.2	7.8E-03	3.4E-03	1.7E-03
1730	7.45	7.0	7.6E-03	3.3E-03	1.6E-03
1735	6.61	4.9	5.3E-03	2.3E-03	1.1E-03
1740	4.74	1.8	2.0E-03	8.5E-04	4.2E-04
1745	5.40	2.7	2.9E-03	1.2E-03	6.2E-04
1750	5.58	2.9	3.2E-03	1.4E-03	6.9E-04
1755	5.47	2.8	3.0E-03	1.3E-03	6.5E-04
1800	6.64	4.9	5.3E-03	2.3E-03	1.2E-03
1805	6.76	5.2	5.7E-03	2.5E-03	1.2E-03
1810	5.75	3.2	3.5E-03	1.5E-03	7.5E-04
1815	5.48	2.8	3.0E-03	1.3E-03	6.5E-04
1820	6.56	4.8	5.2E-03	2.2E-03	1.1E-03

Appendix C. Table C5. MDAQMD Mineral Guidance Wind Erosion from Unpaved Operational Areas and Roads (Lone Pine Landfill)

2016 OVPA SIP Inventory Development Details

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_t)^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
1825	6.91	5.6	6.0E-03	2.6E-03	1.3E-03
1830	8.18	9.2	1.0E-02	4.3E-03	2.2E-03
1835	7.71	7.7	8.4E-03	3.6E-03	1.8E-03
1840	6.96	5.7	6.2E-03	2.7E-03	1.3E-03
1845	7.06	5.9	6.4E-03	2.8E-03	1.4E-03
1850	6.12	3.9	4.2E-03	1.8E-03	9.1E-04
1855	5.94	3.5	3.8E-03	1.7E-03	8.3E-04
1900	6.17	4.0	4.3E-03	1.9E-03	9.3E-04
1905	6.70	5.1	5.5E-03	2.4E-03	1.2E-03
1910	8.80	11.5	1.2E-02	5.4E-03	2.7E-03
1915	8.73	11.2	1.2E-02	5.3E-03	2.6E-03
1920	6.05	3.7	4.1E-03	1.8E-03	8.8E-04
1925	5.81	3.3	3.6E-03	1.6E-03	7.8E-04
1930	4.54	1.6	1.7E-03	7.4E-04	3.7E-04
1935	3.72	0.9	0.0E+00	0.0E+00	0.0E+00
1940	5.61	3.0	3.2E-03	1.4E-03	7.0E-04
1945	5.42	2.7	2.9E-03	1.3E-03	6.3E-04
1950	6.43	4.5	4.9E-03	2.1E-03	1.1E-03
1955	7.09	6.0	6.5E-03	2.8E-03	1.4E-03
2000	6.29	4.2	4.5E-03	2.0E-03	9.8E-04
2005	4.71	1.8	1.9E-03	8.3E-04	4.1E-04
2010	3.52	0.7	0.0E+00	0.0E+00	0.0E+00
2015	3.65	0.8	0.0E+00	0.0E+00	0.0E+00
2020	5.60	3.0	3.2E-03	1.4E-03	7.0E-04
2025	4.91	2.0	2.2E-03	9.4E-04	4.7E-04
2030	6.19	4.0	4.3E-03	1.9E-03	9.4E-04
2035	5.43	2.7	2.9E-03	1.3E-03	6.3E-04
2040	5.18	2.3	2.5E-03	1.1E-03	5.5E-04
2045	5.85	3.4	3.7E-03	1.6E-03	7.9E-04
2050	6.79	5.3	5.7E-03	2.5E-03	1.2E-03
2055	6.01	3.7	4.0E-03	1.7E-03	8.6E-04
2100	6.68	5.0	5.4E-03	2.4E-03	1.2E-03
2105	5.79	3.3	3.6E-03	1.5E-03	7.7E-04
2110	5.27	2.5	2.7E-03	1.2E-03	5.8E-04
2115	5.29	2.5	2.7E-03	1.2E-03	5.9E-04
2120	4.57	1.6	1.7E-03	7.6E-04	3.8E-04
2125	6.58	4.8	5.2E-03	2.3E-03	1.1E-03
2130	7.39	6.8	7.4E-03	3.2E-03	1.6E-03
2135	6.11	3.8	4.2E-03	1.8E-03	9.0E-04
2140	6.41	4.4	4.8E-03	2.1E-03	1.0E-03
2145	6.28	4.2	4.5E-03	2.0E-03	9.8E-04
2150	5.15	2.3	2.5E-03	1.1E-03	5.4E-04
2155	6.87	5.5	5.9E-03	2.6E-03	1.3E-03
2200	6.34	4.3	4.7E-03	2.0E-03	1.0E-03
2205	4.70	1.8	1.9E-03	8.2E-04	4.1E-04
2210	5.07	2.2	2.4E-03	1.0E-03	5.2E-04
2215	4.49	1.5	1.7E-03	7.2E-04	3.6E-04
2220	5.23	2.4	2.6E-03	1.1E-03	5.7E-04
2225	6.22	4.1	4.4E-03	1.9E-03	9.5E-04
2230	5.88	3.4	3.7E-03	1.6E-03	8.0E-04
2235	5.53	2.9	3.1E-03	1.3E-03	6.7E-04
2240	5.87	3.4	3.7E-03	1.6E-03	8.0E-04

Minute	$u_{5\text{-min}}$	$(u_{5\text{-min}} / u_{t})^3$	Uncontrolled Emissions	Uncontrolled Adjusted Emissions	Controlled Adjusted Emissions
	(m/s)	--	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)	(tons PM_{10} / 5-min period)
2245	6.13	3.9	4.2E-03	1.8E-03	9.1E-04
2250	6.40	4.4	4.8E-03	2.1E-03	1.0E-03
2255	6.44	4.5	4.9E-03	2.1E-03	1.1E-03
2300	6.60	4.8	5.2E-03	2.3E-03	1.1E-03
2305	6.55	4.7	5.1E-03	2.2E-03	1.1E-03
2310	6.20	4.0	4.4E-03	1.9E-03	9.5E-04
2315	5.33	2.6	2.8E-03	1.2E-03	6.0E-04
2320	4.92	2.0	2.2E-03	9.5E-04	4.7E-04
2325	4.43	1.5	1.6E-03	6.9E-04	3.4E-04
2330	4.84	1.9	2.1E-03	9.0E-04	4.5E-04
2335	5.53	2.9	3.1E-03	1.3E-03	6.7E-04
2340	4.95	2.0	2.2E-03	9.6E-04	4.8E-04
2345	4.83	1.9	2.1E-03	8.9E-04	4.5E-04
2350	4.70	1.8	1.9E-03	8.2E-04	4.1E-04
2355	4.94	2.0	2.2E-03	9.5E-04	4.8E-04
2400	5.15	2.3	2.5E-03	1.1E-03	5.4E-04
					tons PM_{10}/day
				Total	1.07

Notes:
The calculations presented above follow the "intermediate complexity" methodology for estimating wind erosion from unpaved operational areas and roads as presented in Section L of the *Mojave Desert Air Quality Management District Emission Inventory Guidance: Mineral Handling and Processing Industries* (2013). For the exceedance day emissions, the annual emission factor in tons PM_{10} per acre per year was used to quantify the emissions for each five-minute period on the exceedance day. Since the amount of particulate matter emitted is proportional to the cube of the quotient of the five-minute wind speed ($u_{5\text{-min}}$) divided by the threshold value of wind speed (u_t), this was used as a scaling factor. For periods in which the five-minute average wind speed was less than the threshold value, the emissions were assumed to be zero. The resulting emissions were then adjusted by a second scale factor that takes into account the extent to which the five-minute emissions are overestimated. The second scale factor is necessary to ensure the sum of five-minute emissions using the annual formula with five-minute wind speeds over the period of a year is the same as the annual emissions calculated using the annual average wind speed. It is equal to 0.433 and accounts both for the non-linear relationship of the emission factor with wind speed and periods of zero emissions when winds are less than the threshold of 3.9 m/s.
Five-minute wind data obtained from Lone Pine Meteorological Station.

Assumptions:
54.0 = A, Lone Pine Landfill Area (acres)
0.0 = v, fraction of vegetative cover (per Google Earth images)
3.74 = u, mean annual wind speed (m/s) from Lone Pine (Jul. 2013 - Jun. 2014)
50% = Assumed control efficiency due to watering
0.433 = calculated scale factor

Conversion Factors:
9.513E-06 = years per averaging period
5 = minutes per averaging period
525,600 = minutes per year

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX VII-1 (MODELING REPORT)

EXCERPTS FROM APPENDIX VII-1 (MODELING REPORT) OF THE 2016 SIP

SUMMARY

* * * *

One hundred and ~~eighty-eight~~ninety-two days at 10 monitoring sites with a sufficient length of record around the lakebed were identified in the five-year period where PM_{10} concentrations were above 150 μg/m^3. Using wind direction screening techniques, the PM_{10} data were divided into "in-network" and "out-of-network" components where the "network" refers to the areas covered by the Dust ID sand motion monitoring program. The out-of-network portion of the observed PM_{10} on these days was typically around 20 μg/m^3, but for 53 of the ~~188~~192 days the out-of-network component alone exceeded 150 μg/m^3.

* * * *

Model performance for both the CALPUFF predicted component and the total Hybrid Model predictions were assessed for the exceedance days in the July 2009 to June 2014 baseline period. The CALPUFF simulations of the data collected by the Dust ID Program were found to provide conservative estimates for the higher observed PM_{10} concentrations coming from the lakebed and the Keeler Dunes. The Hybrid Model improved the CALPUFF model's performance by combining the daily out-of-network components. Seventy-~~two~~three percent of the predictions were within a factor-of-two and 45 percent of the geometric variance was explained when the samples were paired in time and by monitoring site. The upper-end of the observed frequency distribution was slightly biased towards over-prediction, providing conservative estimates to help ensure the NAAQS will be attained in the future.

* * * *

The Hybrid Model predicts the OVPA would be in attainment ~~by dust year 2017/2018~~ following the implementation ~~of the last set of~~ controls ~~on~~by the ~~lakebed in 2016~~end of 2017. The highest future year predictions are at Lizard Tail, because this site had the highest initial design concentration and due to the proximity of this site to nearby lakebed sources controlled at later implementation years.

1. INTRODUCTION AND RATIONALE

* * * *

1.1 Background

* * * *

The 2016 SIP revises and supersedes the requirements contained in the 2008 OVPA PM_{10} SIP (2008 SIP) prepared in response to a finding by the USEPA that the OVPA did not attain the NAAQS for PM_{10} by December 31, 2006, as mandated by the CAA (USEPA, 2007). As required by CAA Sections 188(e) and 189(d), the 2008 SIP provided for attainment as soon as practicable and committed to achieving at least a five percent annual reduction in PM_{10} emissions starting from a 2006 emission inventory base year. The 2016 SIP ~~revision~~ continues the commitment to attain the NAAQS by providing a control strategy to implement control measures on additional areas at Owens Lake and to approve the use of new dust control measures to augment the existing Best Available Control Measures (BACM) that were available in the 2008 SIP.

* * * *

3. EXCEEDENCE DAYS, OUT-OF-NETWORK CONTRIBUTION, AND BACKGROUND

Dust ID Program data were examined to identify "exceedance days" for the PM_{10} monitoring sites surrounding the lakebed from July 2009 to June 2014. For the purposes of the OVPA attainment demonstration, USEPA required in the approval of the 1998 Owens Valley SIP that the standard be met at the historic shoreline located at the 3,600 foot elevation (64 FR 34178). Special purpose sampling at the portable TEOM locations and sites on the lakebed were not included in the analysis. Special purpose monitor sites are denoted by a "p" for portable and "t" for temporary as the first character in the site names shown in **Figure 1** and **Figure 2** For the remaining 10 sites, every day exceeding 150 μg/m^3 was selected for further analysis. A summary of the ~~188~~192 exceedance days with at least 18 hours of valid data is shown in **Table 1**. Note the Flat Rock monitor was relocated to the Mill Site in 2012.

Table 1: Summary of Exceedance Day PM_{10} Concentrations for July 2009 to June 2014

Site Name	ID [1]	Years	N > 150 μg/m^3	Maximum PM_{10} (μg/m^3)	Design PM_{10} (μg/m^3) [2]
Dirty Socks	dirt	3	26	1,437	998
Flat Rock	flat	2	9	871	233
Keeler	keel	5	~~33~~37	2,994	~~518~~524
Lizard Tail	lizt	5	42	4,571	1,654
Lone Pine	lone	4	1	169	#N/A
Mill Site	mill	1	7	754	712
North Beach	norb	3	17	1,536	385
Olancha	olan	5	22	779	310
Shell Cut	scut	5	23	2,149	395
Stanley	stan	5	8	286	180

Notes:

[1] TEOM locations are shown in **Figure 1** and **Figure 2**.

[2] Design day based on n+1 highest in n years. For example the 6th highest in 5 years or the 2nd highest in 1 year.

* * * *

Table 3 summarizes the out-of-network contributions to daily average PM_{10} contributions on exceedance days during July 2009 to June 2014. Some of the highest contributions occur during some of the larger regional events. However, the median or typical contributions are much smaller and range from 4 µg/m^3 to 223 µg/m^3, at Dirty Socks and Shell Cut, respectively. The overall median or most likely daily PM_{10} contribution for out-of-network sources is ~~19~~18 µg/m^3, close to the background concentration of 20 µg/m^3 used in the 2003 SIP, 2008 SIP, and all the SCRD analyses. The background concentration used in previous studies was derived from the lowest PM_{10} concentrations at any site in the Dust ID Program on days where any site in the network exceeded 150 µg/m^3 (Ono, 2002). The previous analysis also applied wind direction screening to remove hours within the daily averages from lakebed source areas.

* * * *

Table 2: Out-of-Network Source Contribution Summary on Exceedance Days for July 2009 to June 2014

Site Name	ID [1]	Median PM_{10} (µg/m^3)	Maximum PM_{10} (µg/m^3)	N > 150 µg/m^3
Dirty Socks	dirt	4	244	4
Flat Rock	flat	41	652	2
Keeler	keel	~~16~~15	2,979 [2]	4
Lizard Tail	lizt	18	3,444 [2]	14
Lone Pine	lone	165	165	1
Mill Site	mill	9	350	2
North Beach	norb	21	570	5
Olancha	olan	8	293	1
Shell Cut	scut	223	2,125 [3]	16
Stanley	stan	133	277	4
All Sites		~~19~~18		

Notes:

[1] TEOM locations are shown in **Figure 1 and Figure 2**.

[2] Occurred during December 1, 2011 Dust Event

[3] Occurred on May 25, 2012

The Hybrid Model uses actual measured background to account for the sources not included in the dispersion modeling analysis as opposed to a constant of 20 µg/m^3 used in previous regulatory analyses. The out-of-network contributions are typically around ~~19~~18 µg/m^3, but as shown in **Table 2** can be much higher. Half the out-of-network daily contributions are lower than used in the 2003 SIP, 2008 SIP, and SCRDs and some are as low as no contribution.

5. HYBRID MODEL PERFORMANCE EVALUATION

The 2016 SIP model performance evaluation was requested by USEPA. Model performance evaluations were performed for the 2003 SIP and each of the SCRD modeling analyzes, but not for the 2008 SIP. The model performance evaluation was conducted for the Hybrid Model using the PM_{10} observations and predictions from daily periods exceeding 150 µg/m^3 during the five-year SIP period. The dataset used in the evaluation was described in **Section 1** and included the ~~188~~192 samples used to characterize exceedance days during July 2009 to June 2014; plus two additional periods observed at a portable sampler located at the Duck Club ("pduc" shown in **Figure 2**).

The Hybrid Model contains both observed and predicted components. The model performance evaluation examined both the CALPUFF predicted component from the lakebed source areas and Keeler Dune simulations, and the combined hybrid prediction. **Table 3** displays statistics based on the observed in-network component versus the CALPUFF predictions of the daily PM_{10} from days exceeding 150 µg/m^3 during the SIP baseline period. **Figure 7** shows a log-log scatter diagram for the same dataset where the solid line show a perfect prediction and the dashed lines show over-prediction by a factor-of-two, and under-prediction by a factor-of-two.

(Figure 7 replaced – new figure shown in Attachment E)

Table 3: Statistics for In-Network Daily PM_{10} Observations vs CALPUFF Model Predictions on Exceedance Days During July 2009 to June 2014

Statistic [1]	Observed	Predicted
Mean (µg/m^3)	~~399~~397	~~486~~488
Geometric Mean (µg/m^3) [2]	~~258~~259	~~213~~219
Median (µg/m^3)	~~234~~235	~~244~~256
98th Percentile (µg/m^3)	~~1,806~~784	~~2,674~~641
Maximum (µg/m^3)	4,573	5,472
N > 150 µg/m^3	~~132~~137	~~100~~105
Paired Statistic [1]		
Linear Correlation Coef.	0.831	
Geom. Correlation Coef. [2]	0.613	
Factor-of-2 [2]	~~57~~59%	

Notes:

[1] Based on ~~190~~194 samples where total daily observations are greater than 150 µg/m^3.

2 Based on ~~150~~154 samples where in-network observations and CALPUFF predictions were greater than 5 μg/m³ on days where the total daily observations are greater than 150 μg/m³.

* * * *

As might be expected, the combined Hybrid Model performance is better than the CALPUFF component due the incorporation of a daily variable out-of-network component. Seventy-~~two~~three percent of the predictions are within a factor-of-two and 45 percent of the geometric variance is explained when the samples are paired in time and by monitoring site. The upper-end of the observed frequency distribution is slightly biased towards over-prediction and the application of the Hybrid Model provides conservative estimates for the attainment demonstration. The behavior shown in **Figure 10** at the lower end of the frequency distribution is caused by the non-symmetrical trimming of the data set using the observations only for selection of sample pairs.

(Figure 8 replaced – new figure shown in Attachment E)

* * * *

Table 4: Statistics for Daily PM_{10} Observations vs Hybrid Model Predictions on Exceedance Days During July 2009 to June 2014

Statistic [1]	Observed	Predicted
Mean (μg/m³)	~~456~~455	~~527~~529
Geometric Mean (μg/m³)	321	~~287~~292
Median (μg/m³)	250	~~270~~279
98th Percentile (μg/m³)	~~2,624~~586	~~3,101~~075
Maximum (μg/m³)	4,571 [2]	5,492
N > 150 μg/m³	~~190~~194	~~150~~154
Paired Statistic [1]		
Linear Correlation Coef.	0.~~858~~857	
Geom. Correlation Coef.	0.~~671~~668	
Factor-of-2	~~72~~73%	

Notes:

1 Based on ~~190~~194 samples where observations are greater than 150 μg/m³.

2 The maximum observation of the combined daily total PM_{10} is slightly less than the in-network component in **Table 3**~~-~~because the out-of-network portion was slightly negative. A negative contribution can occur for a few hours following a large event as moisture evaporates from the mass sampled by the TEOM.

(Figure 9 replaced – new figure shown in Attachment E)

(Figure 10 replaced – new figure shown in Attachment E)

6. ATTAINMENT DEMONSTRATION

* * * *

6.1 Control Efficiencies

* * * *

Table 5: Control Efficiencies for Future Years

Control Area [1]	~~7/~~End of 2015~~6/2016~~	~~7/~~End of 2017~~6/2018~~	~~7/~~End of 2019~~6/2020~~
Phases 1-8	Yes (varies by BACM)	Yes (varies by BACM)	Yes (varies by BACM)
Phases 9 & 10	0%	Yes (varies by BACM)	Yes (varies by BACM)
Lakebed ECRs [2]	0%	100%	100%
Keeler Dunes ECR [2]	0%	100%	100%
Keeler Dunes DCA	95%	95%	95%
Contingency Areas	0%	100%	100%

Notes:

[1] The Control Areas for each source configuration period are shown in **Appendix B**.

[2] The ECR are not shown on any of the maps to protect these sensitive areas.

* * * *

Figure 11 shows the control measures and control efficiencies expected to be in place by ~~Dust Year~~ the end of 2017~~/2018~~. For each of 13 different source configurations from July 2009 to June 2014, dispersion model contributions by source area were reduced accordingly for each future year control case. The revised contributions were summed and combined with the out-of-network contribution to obtain a prediction for each exceedance day and future year.

* * * *

6.2 Attainment Demonstration Results

The Hybrid Model is based on CALPUFF predictions with a time-varying background concentration, that is: a) a dispersion modeling component, daily CALPUFF concentrations using a modeled wind field and emission factors ("K factors") developed using historical sand flux data from the lake bed and Keeler Dunes; b) this is added to an "out of network" monitored component representing all off-lake sources, and consisting of varying monitor-specific daily average concentrations measured on exceedance days for wind directions toward the lake. For future concentrations, the dispersion component is calculated from lake bed source location-specific control factors applied to source-receptor relationships from the modeling. The future out of network component is calculated by exponential decay down to background levels, with a decay time derived from comparison of historical Dirty Socks concentrations due to on-lake vs. off-lake sources.

* * * *

The Hybrid Model predicts the OVPA would be in attainment~~ by dust year 2017/2018~~ following the implementation of the last set of controls on the lakebed source areas ~~starting in 2016~~by the end of 2017. The highest future year predictions are at Lizard Tail, because this site had the highest initial design concentration and due to the proximity of this site to nearby lakebed sources controlled during later implementation years.

* * * *

(Figure 13 replaced – new figure shown in Attachment E)

Table 6: PM_{10} Design Concentration Predictions

Site ID [1]	Obs. ~~7/~~2009 - ~~6/~~2014	Hybrid Model Design Concentration Predictions (µg/m³) by Year						
		~~7/~~2009 - ~~6/~~2014	~~7/2014 6/2015~~ 2014[2]	~~7/2015-6/2016~~ 2015[2]	~~7/2016 6/2017~~ 2016[2]	~~7/2017-6/2018~~ 2017[2]	~~7/2018-6/2019~~ 2018[2]	~~7/2019-6/2020~~ 2019[2]
dirt	998	1,235	1,235	213	213	93	87	83
flat	233	228	228	133	133	94	74	59
keel	~~518~~524	~~560~~592	~~560~~592	~~123~~201	~~115~~196	~~50~~67	~~43~~55	~~37~~46
lizt	1,654	1,993	1,993	1,684	1,684	142	109	85
mill	712	642	642	526	508	125	95	74
nor b	385	448	445	114	87	67	54	44
olan	310	294	294	84	68	41	41	39
scut	395	586	506	212	157	105	83	70
stan	180	115	96	59	49	39	35	31

Notes:

1TEOM locations are shown in **Figure 1** and **Figure 2**.

~~1~~2 Controls in place by the end of the year indicated.

ATTACHMENT D - EXCERPTS FROM DRAFT 2016 SIP AND DRAFT 2016 SIP APPENDICES WITH MARKED TEXT CHANGES:

APPENDIX X-1

EXCERPTS FROM APPENDIX X-1 OF THE 2016 SIP

The purpose of this regulation is to effectuate a regulatory mechanism under the federal Clean Air Act to attain the National Ambient Air Quality Standards ("NAAQS") and to implement the Stipulated Judgment between the Great Basin Unified Air Pollution Control District ("District") and the City of Los Angeles ("City") dated December 30, 2014 and entered by the Superior Court of the State of California, County of Sacramento. This regulation does not alter or supersede any provision in the Stipulated Judgment, nor does it relieve any party from full compliance with the requirements of the Stipulated Judgment. This regulation sets the basic requirements for the Best Available Control Measures ("BACM") and defines the areal extent of these controls at Owens Lake, California required in order to meet the NAAQS. This regulation does not preclude the City or the District from implementing more stringent or additional mitigation pursuant to the Stipulated Judgment.

* * * *

2. "BACM PM_{10} Control Measures" are best available control measures designed to reduce PM_{10} emissions to Control Efficiency ("CE") levels specified below~~:~~ through compliance with performance standards specified in Attachment A or in specific control measure definitions below. The following BACM PM_{10} Control Measures are approved to be used.

(Exhibit 1 replaced – new figure shown in Attachment E)

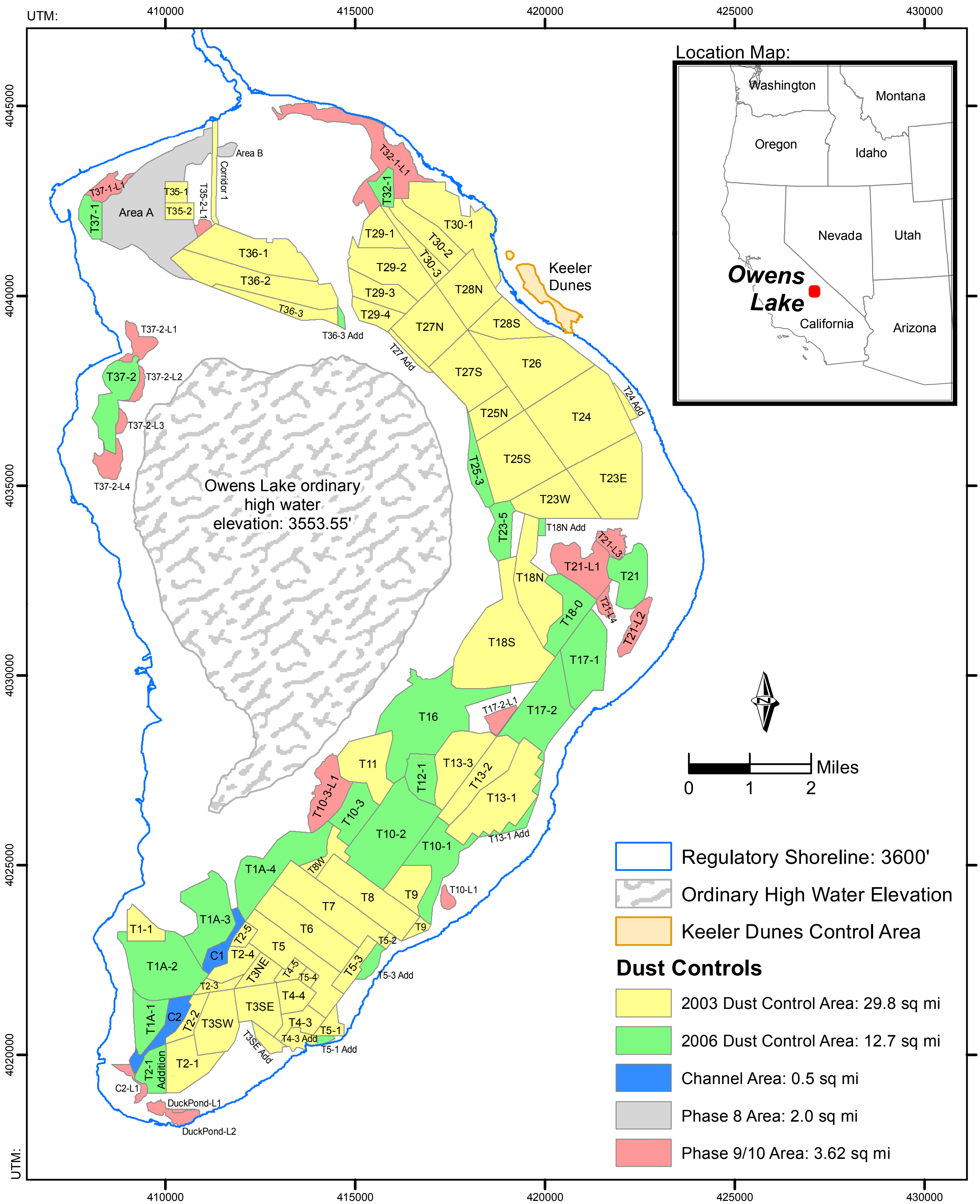
ATTACHMENT E:
REVISED FIGURES

ATTACHMENT E – REVISED FIGURES:

REVISED RULE EXHIBIT 1

Great Basin Unified Air Pollution Control District

Exhibit 1 - PM10 Dust Control Areas



3/9/2016 1:08:16 PM

SIP Revision 2016 Exhibit 1 Dust Control Map 20160309 rule 433.mxd

ATTACHMENT E – REVISED FIGURES:

REVISED FIGURES IN MAIN TEXT

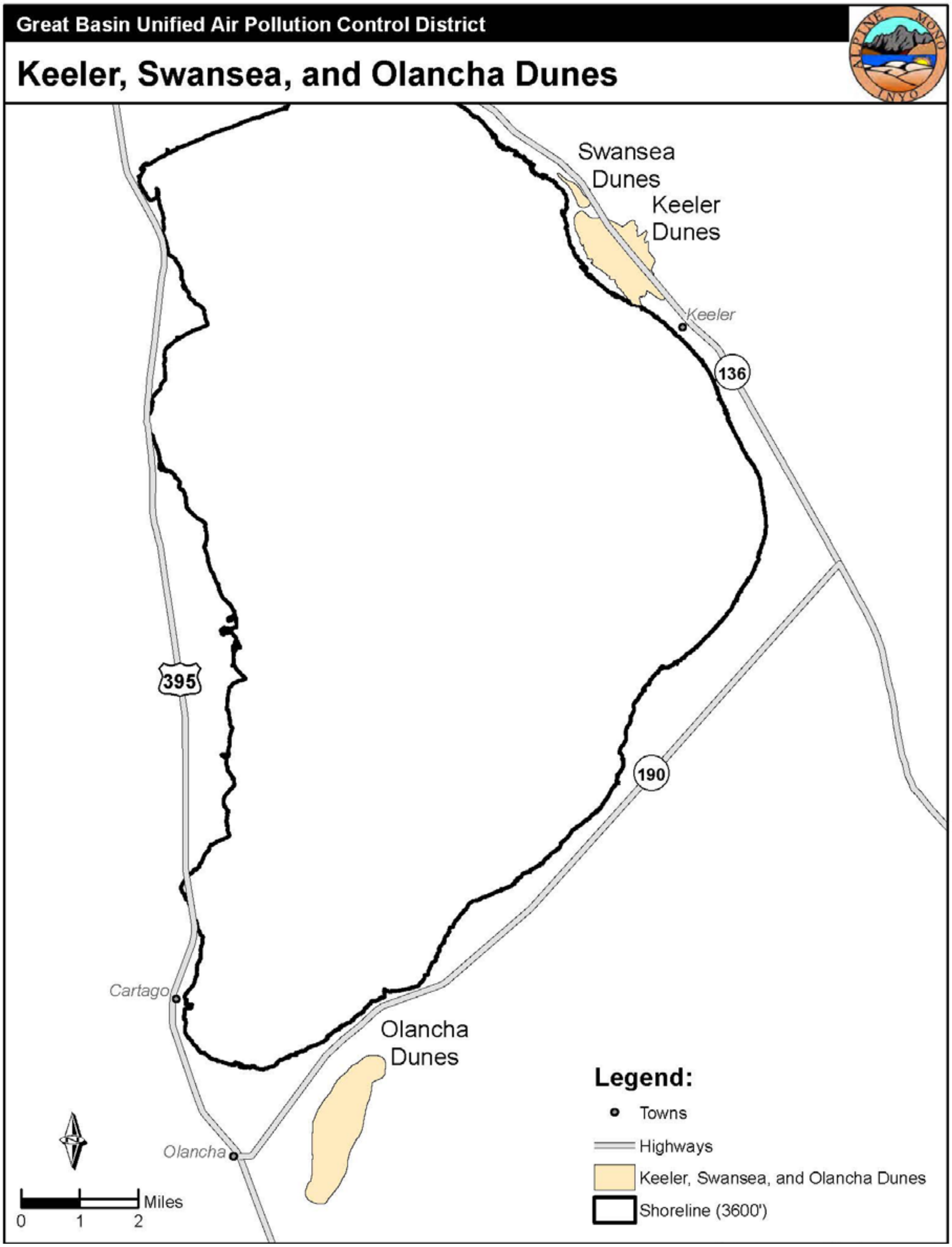


Figure 6-4: Locations of the Keeler, Swansea, and Olancha Dunes

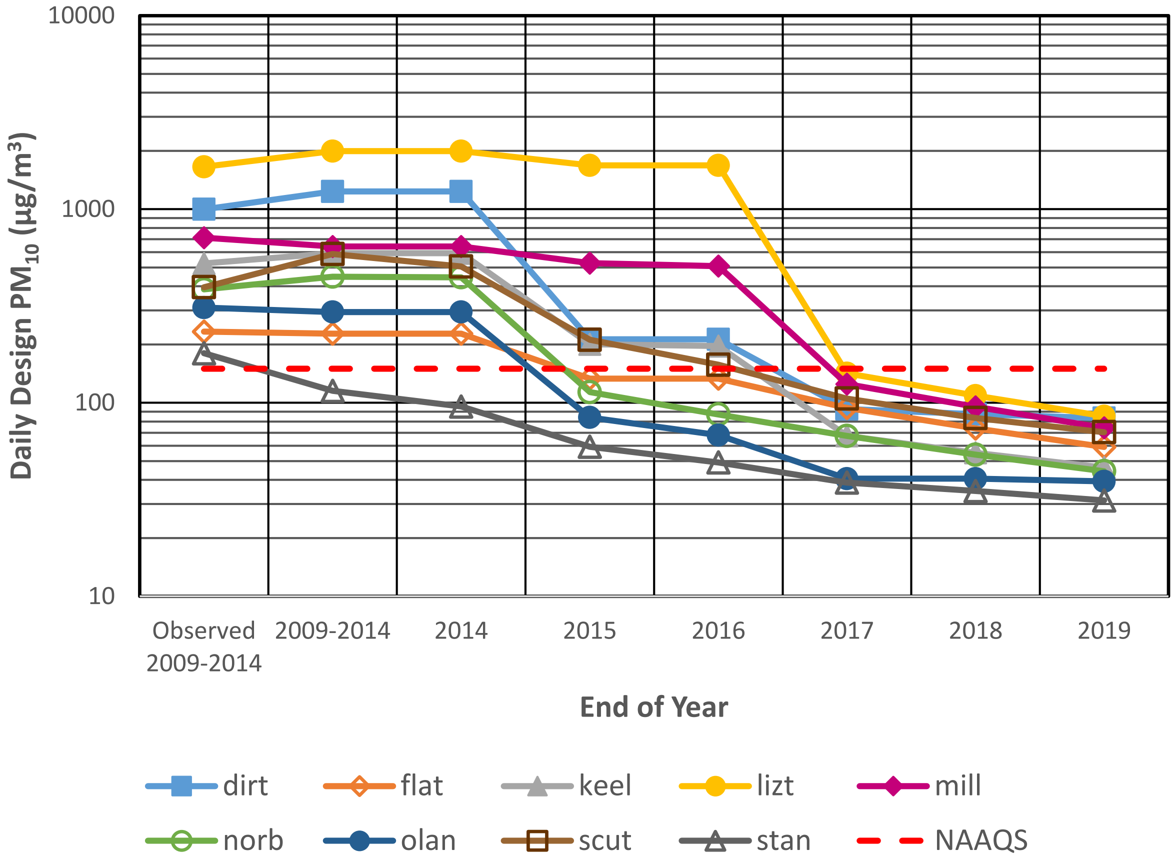


Figure 7-7: **Owens Valley Model Forecast, Future Year PM_{10} Design Concentrations**

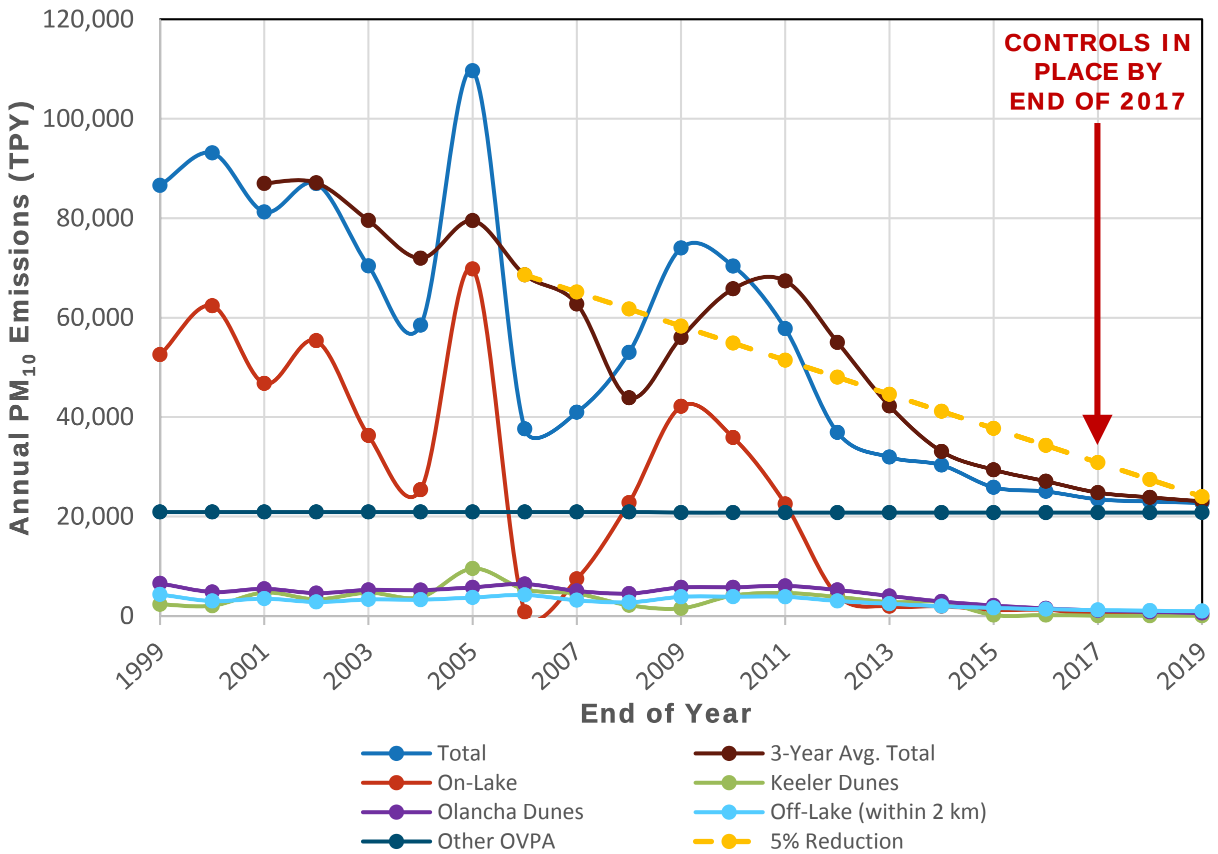


Figure 8-1: 2016 SIP Emissions Trend Analysis: ~~July 2000 to June 2020~~ 1999 to 2019, All OVPA Sources

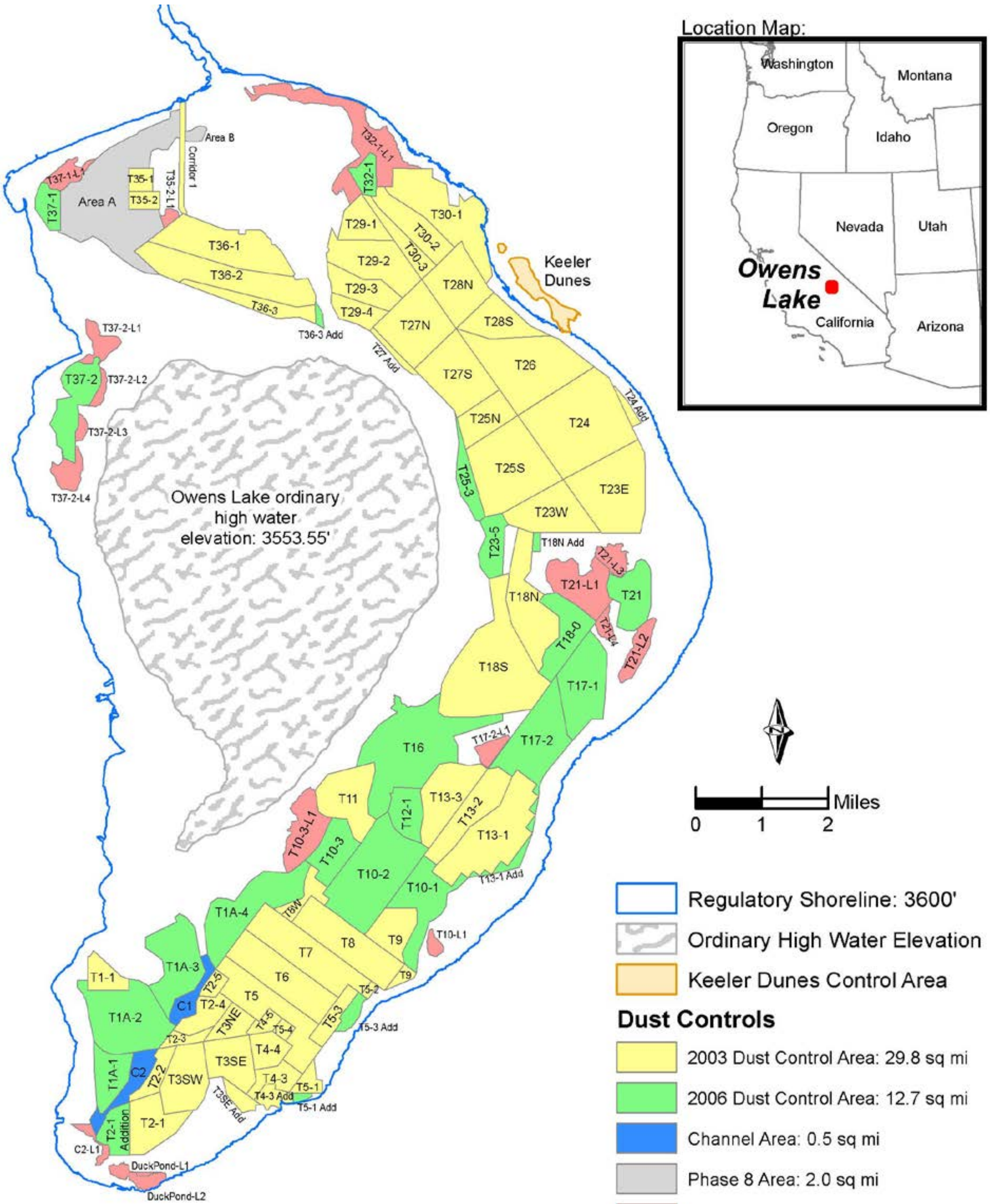


Figure 10-1: PM10 Dust Control Areas Map

ATTACHMENT E – REVISED FIGURES:

REVISED FIGURES IN APPENDIX VII-1

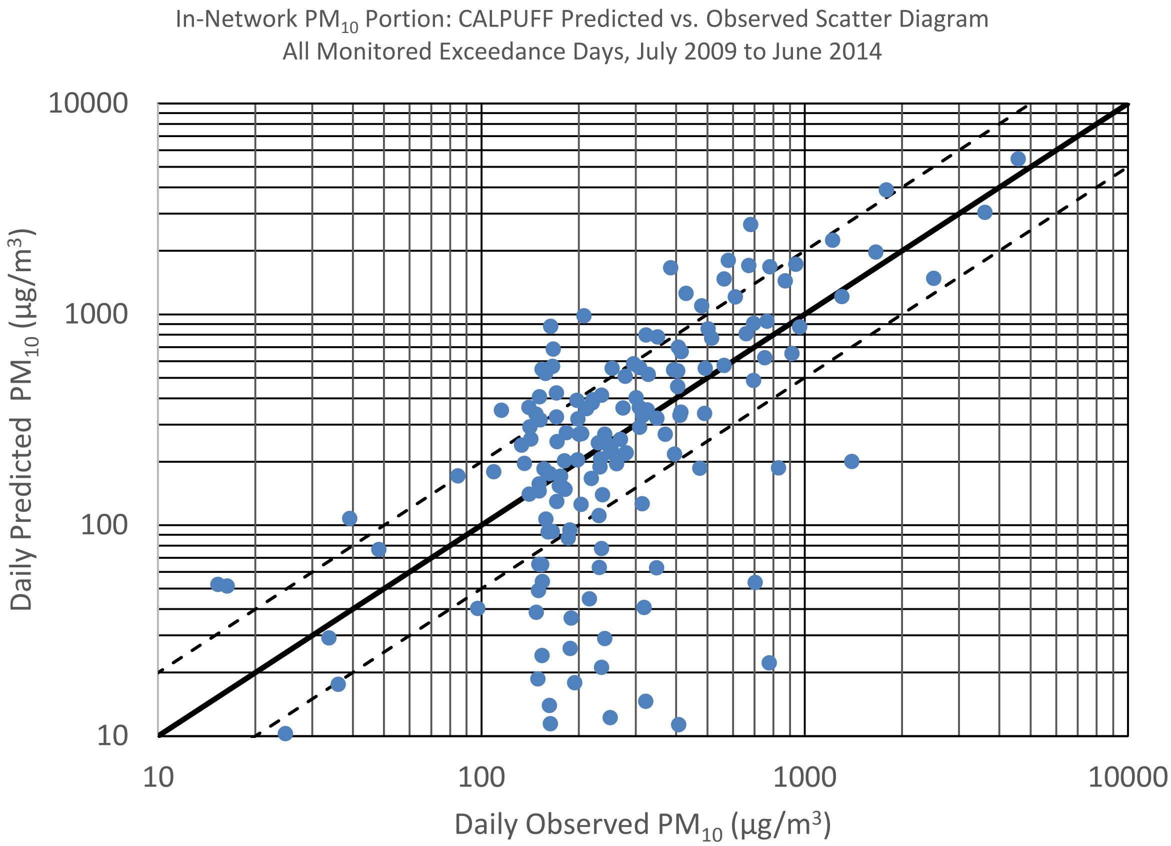


Figure 7: **In-Network PM_{10} Portion: Predicted vs. Observed Scatter Diagram**

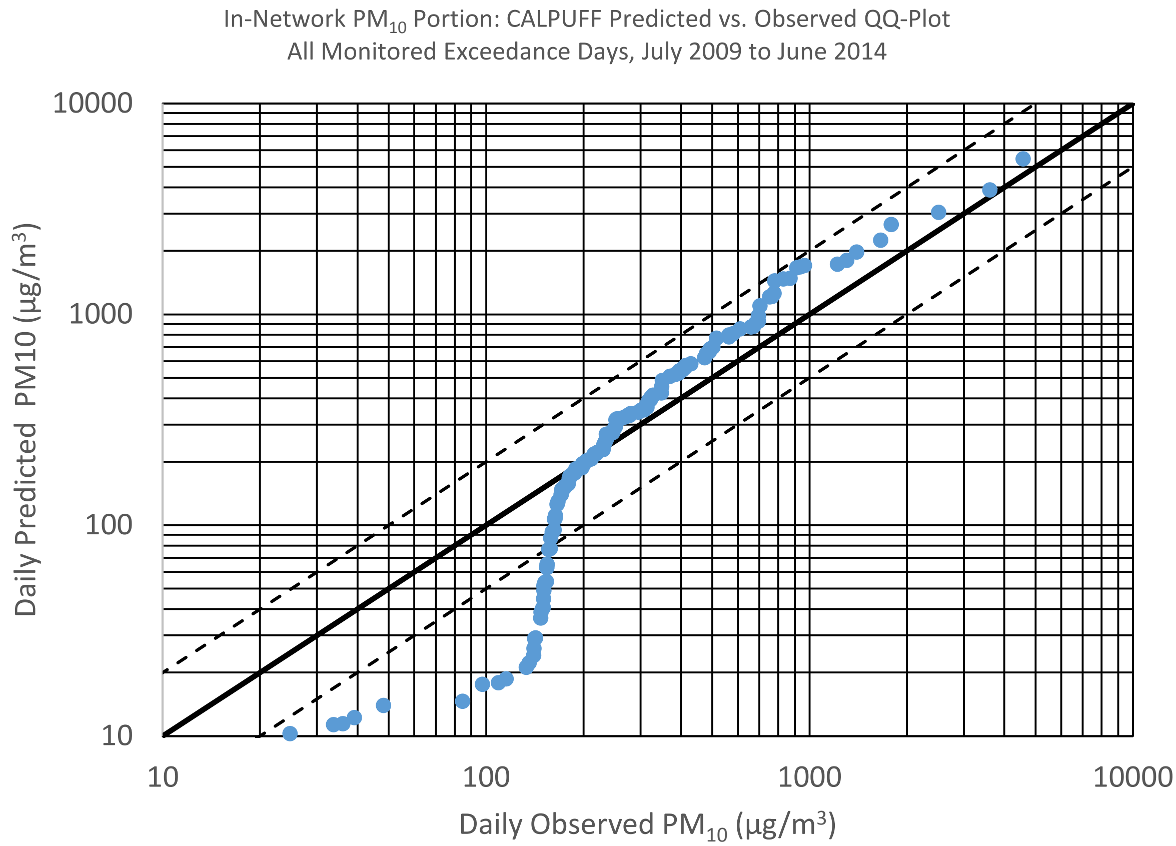


Figure 8: In-Network PM10 Portion: Predicted vs Observed QQ-Plot

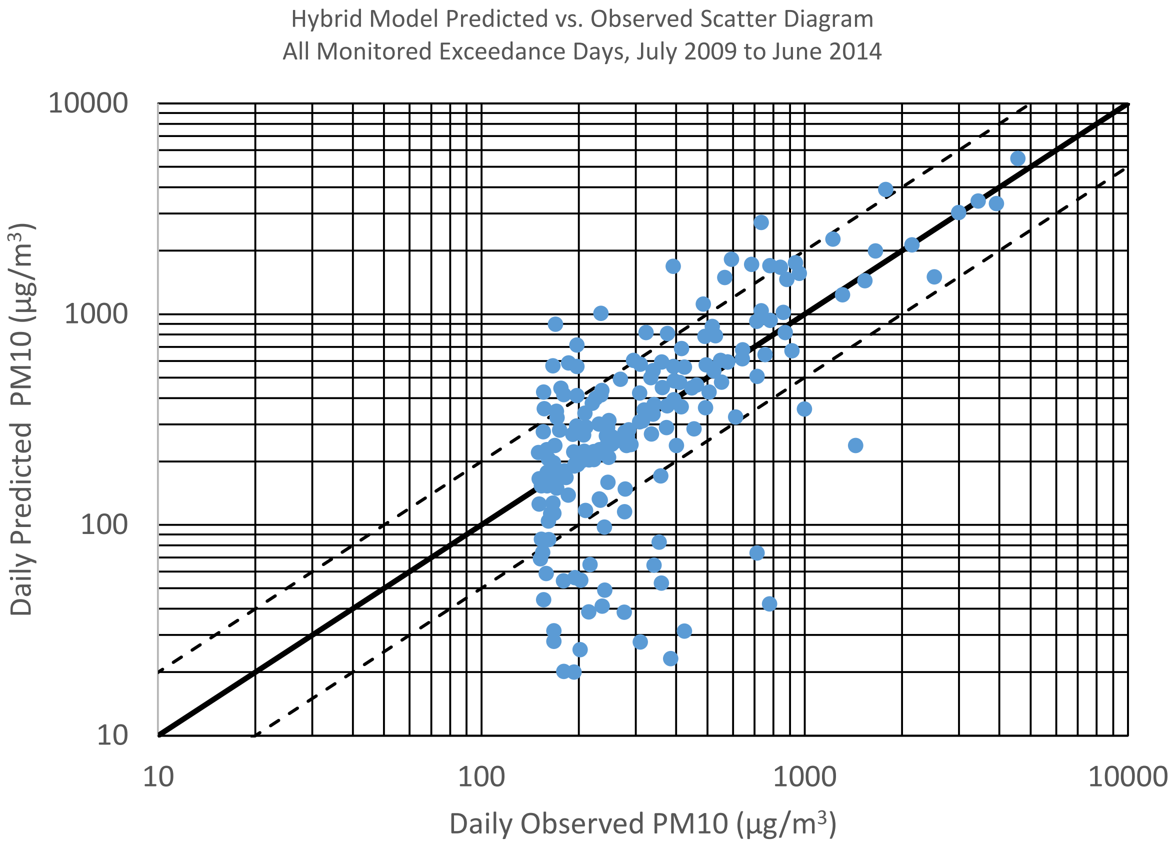


Figure 9: Hybrid Model Predicted vs Observed Scatter Diagram

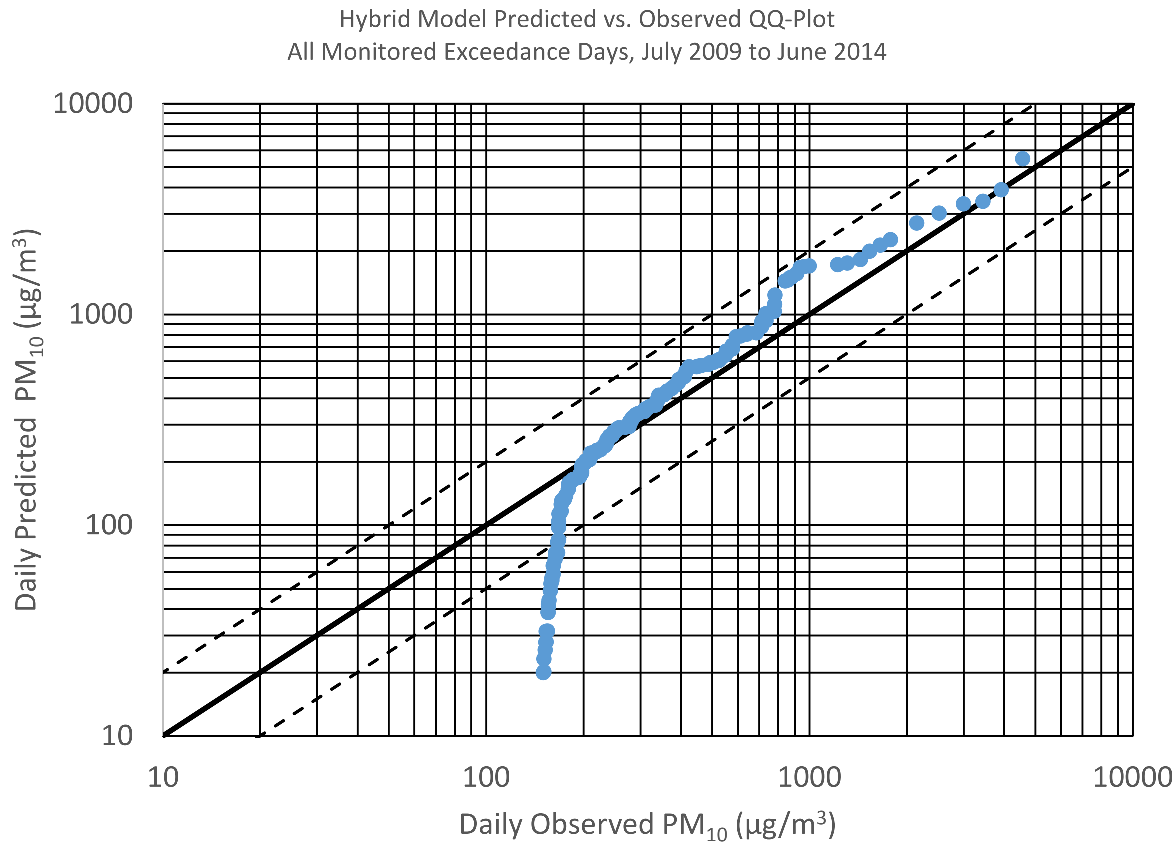


Figure 10: Hybrid Model Predicted vs Observed QQ-Plot

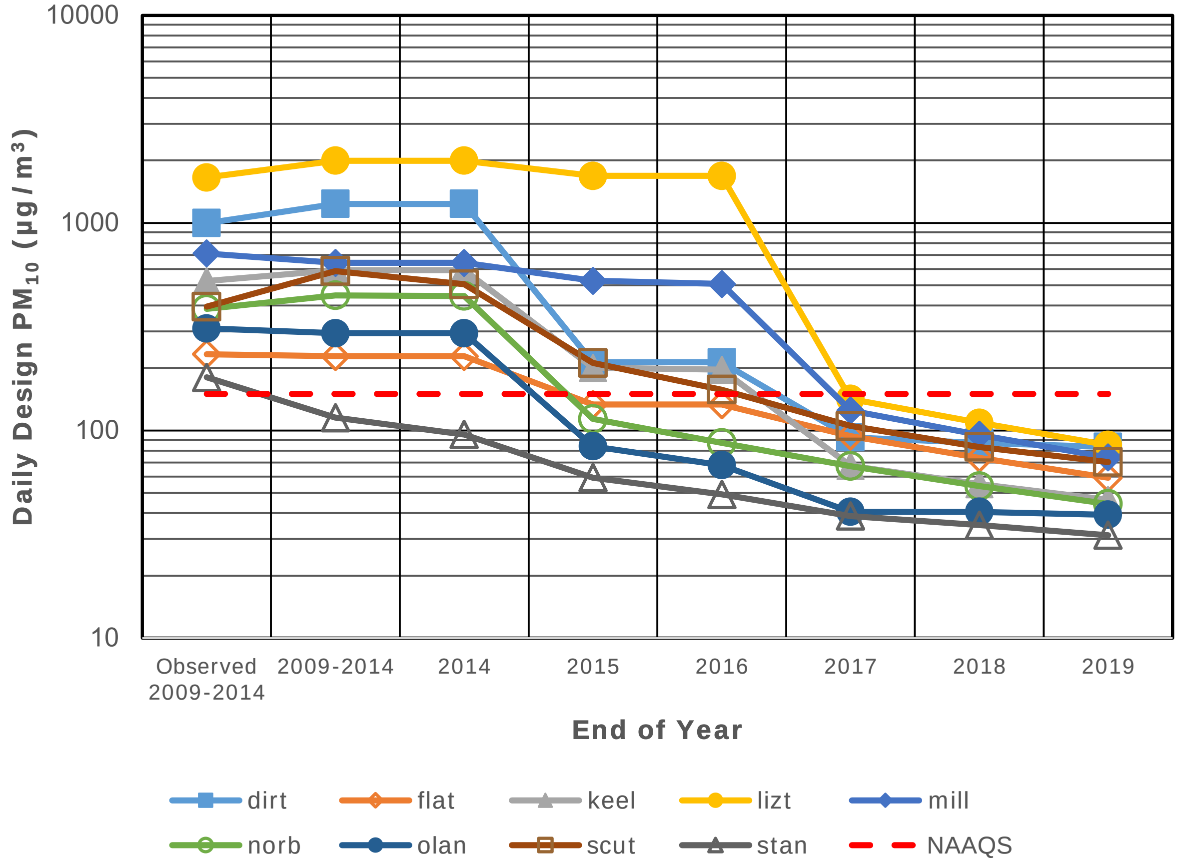


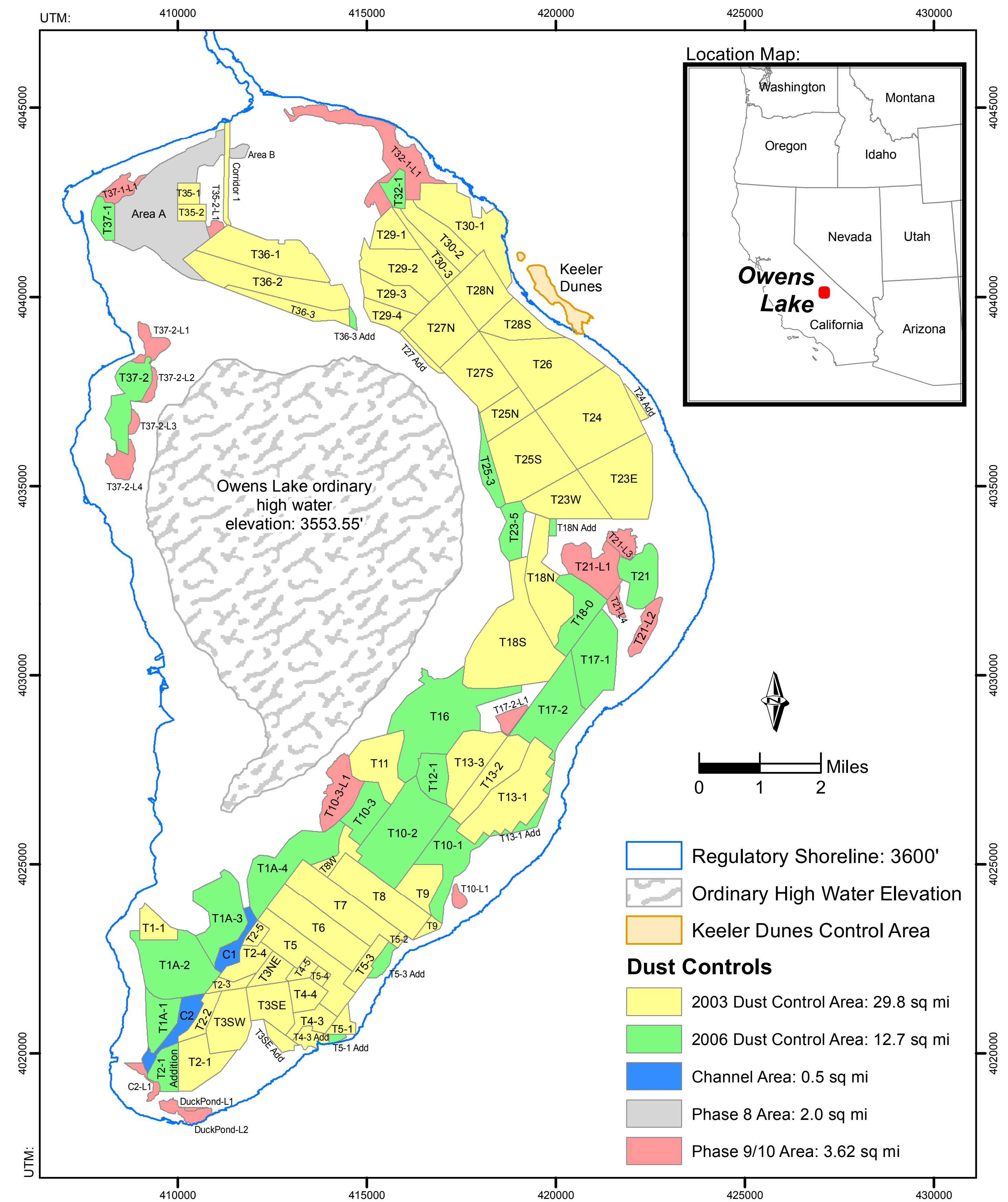
Figure 13: **Owens Valley Model Forecast, Future Year PM_{10} Design Concentrations**

ATTACHMENT E – REVISED FIGURES:

REVISED FIGURE IN APPENDIX X-1

Great Basin Unified Air Pollution Control District

Exhibit 1 - PM10 Dust Control Areas



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SIP Revision 2016 Exhibit 1 Dust Control Map 20160309 rule 433.mxd

ATTACHMENT F:
FINAL RULE 433 PACKAGE

Phillip L. Kiddoo
Air Pollution Control Officer

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT
157 Short Street, Bishop, California 93514-3537
760-872-8211 Fax: 760-872-6109

NOTICE OF PUBLIC HEARING

ADOPTION AND APPROVAL OF (1) PROPOSED ORDER UNDER THE PROVISIONS OF CAL. HEALTH & SAFETY CODE SECTION 42316, (2) PROPOSED DISTRICT RULE 433 FOR THE CONTROL OF PARTICULATE EMISSIONS AT OWENS LAKE, AND (3) PROPOSED FINAL 2016 REVISION TO THE OWENS VALLEY PM_{10} PLANNING AREA DEMONSTRATION OF ATTAINMENT STATE IMPLEMENTATION PLAN

PLEASE TAKE NOTICE that on Wednesday, April 13, 2016, the Governing Board of the Great Basin Unified Air Pollution Control District (GBUAPCD) will conduct a public hearing and consider for adoption and approval of (1) a proposed order authorized by California Health & Safety Code Section 42316 for the City of Los Angeles (City) to install, operate and maintain additional dust control measures on the Owens Lake bed, (2) a proposed District Rule 433 (Control of Particulate Emissions at Owens Lake), and (3) a proposed final 2016 revision to the previously-adopted Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP) (collectively “Board Actions”). The public hearing and the Governing Board’s consideration for adoption and approval of the Board Actions will occur at the District Governing Board’s regular meeting on **Wednesday, April 13, 2016 at 10:15 a.m. at the City of Los Angeles Department of Water and Power Administrative Building, Training Room 134A, 111 Sulfate Road, Keeler, California 93530**. Other actions related to the Board Actions may also be taken at the meeting. Members of the public will have an opportunity to submit written comments or make oral statements at the public hearing on each of the proposed Board Actions.

The GBUAPCD prepared the 2016 SIP for the control of fine dust emissions (PM_{10}) in response to a finding by the United States Environmental Protection Agency (USEPA) that the Owens Valley Planning Area did not attain the 24-hour National Ambient Air Quality Standard (NAAQS) for PM_{10} as required by the federal Clean Air Act. The dried Owens Lake bed soils and crusts are a source of wind-blown dust during significant wind events and contribute to elevated concentrations of PM_{10}.

The GBUAPCD has adopted a series of SIPs to address and control PM_{10}. In 2008, the GBUAPCD approved the 2008 Revised State Implementation Plan for the Owens Valley Planning Area (2008 SIP), which was implemented through GBUAPCD Board Order #080128-01. In 2011, a dispute arose between the GBUAPCD and the City regarding these requirements. On December 30, 2014, the Sacramento Superior Court entered a Stipulated Judgment for the GBUAPCD in the case captioned *City of Los Angeles v. California Air Resources Board, et al*., Case No. 34-2013-80001451-CU-WM-GDS to resolve this dispute. Under the major provisions of this agreement, the City agreed to implement additional dust control measures on the lake bed (for a total of 48.6 square miles) by December 31, 2017. The GBUAPCD may also order the City to implement dust control measures on up to 4.8 additional square miles of the lake bed if needed to meet the NAAQS or related state standards. The GBUAPCD agreed to revise the 2008 SIP by December 31, 2014 (later amended by agreement to April 15, 2016) to incorporate the relevant provisions of the Stipulated Judgment into a proposed 2016 SIP Order.

GBUAPCD also proposes to adopt District Rule 433 pursuant to California Health & Safety Code Section 41511. The Rule includes the control elements of the 2016 SIP Order and will comprise the attainment strategy for the 2016 SIP to be submitted to the California Air Resources Board and the U.S. Environmental Protection Agency for their approval. The 2016 SIP contains the project location, history, air quality setting, emission inventory, control measures, air quality modeling, control strategy, and enabling legislation. The goal of the proposed Board Actions is to continue to reduce dust emissions from the dry lake bed to attain the 24-hour NAAQS for PM_{10} in 2017. A Notice of Determination will be prepared under the California Environmental Quality Act in connection with the proposed Board Actions based upon the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) prepared by the City of Los Angeles Department of Water and Power.

Copies of the proposed order, District Rule 433, the 2016 SIP and the EIR may be obtained from and will be available for public review at the GBUAPCD web-site www.gbuapcd.org, at the GBUAPCD office at 157 Short Street, Bishop, California, and at Inyo County Libraries in Independence, Big Pine, Bishop, Lone Pine, Death Valley and Tecopa, California. Written comments on these rule revisions should be sent to Phillip L Kiddoo, Air Pollution Control Officer, GBUAPCD, 157 Short Street, Bishop, CA 93514. Written comments received by 5:00 pm on March 18, 2016 will be included in the staff report sent to the Governing Board members. Oral and written comments will also be taken at the meeting. For further information, contact the District's Board Clerk, Tori DeHaven at (760) 872-8211.

GBUAPCD staff encourages those who have comments on the 2016 SIP to attend the meeting on April 13, 2016 and submit written comments or make oral statements to the Governing Board prior to the Board Actions.

RULE 433. CONTROL OF PARTICULATE EMISSIONS AT OWENS LAKE

Adopted: 04/13/2016 (Proposed)

The purpose of this regulation is to effectuate a regulatory mechanism under the federal Clean Air Act to attain the National Ambient Air Quality Standards ("NAAQS") and to implement the Stipulated Judgment between the Great Basin Unified Air Pollution Control District ("District") and the City of Los Angeles ("City") dated December 30, 2014 and entered by the Superior Court of the State of California, County of Sacramento. This regulation does not alter or supersede any provision in the Stipulated Judgment, nor does it relieve any party from full compliance with the requirements of the Stipulated Judgment. This regulation sets the basic requirements for the Best Available Control Measures ("BACM") and defines the areal extent of these controls at Owens Lake, California required in order to meet the NAAQS. This regulation does not preclude the City or the District from implementing more stringent or additional mitigation pursuant to the Stipulated Judgment.

A. DEFINITIONS

1. "BACM PM_{10} Control Areas" are areas on the dried bed of Owens Lake at or below the Regulatory Shoreline elevation of 3,600 feet and at or above Owens Lake's ordinary high water elevation of 3,553.55 feet on which BACM PM_{10} Control Measures shall be implemented, and

   BACM PM_{10} Control Areas are:

   a. Areas, as shown on the map in Exhibit 1 – Dust Control Area Map, including:

      i. 29.8 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures ("2003 Dust Control Area");

      ii. 13.2 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures, except for Eligible Cultural Resource Areas where PM_{10} BACM selection and implementation dates will be deferred as set forth in Paragraph C.3. ("2006 Dust Control Area" and "Channel Area");

      iii. 2.0 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures ("Phase 8 Area");

      iv. 3.62 square miles of the Owens Lake Bed with approved BACM PM_{10} Control Measures to be installed by December 31, 2017, except for Eligible Cultural Resource Areas, where PM_{10} BACM selection and implementation dates will be deferred as set forth in Paragraph C.3. ("Phase 9/10 Area"); and

   b. Additional areas as designated pursuant to Section C., "CONTINGENCY MEASURES" of this rule.

2. "BACM PM_{10} Control Measures" are best available control measures designed to reduce PM_{10} emissions to Control Efficiency ("CE") levels specified below through compliance

with performance standards specified in Attachment A or in specific control measure definitions below. The following BACM PM_{10} Control Measures are approved to be used.

a. "BACM Shallow Flooding" means the application of water to the surface of the lake bed in accordance with the performance standards for shallow flooding in Attachment A, Section I - Performance Requirements for BACM Shallow Flooding. Water shall be applied in amounts and by means sufficient to meet a CE level of 99% or CE targets for Minimum Dust Control Efficiency Areas.

b. "Tillage with BACM (Shallow Flood) Backup or TWB^2" means the roughening of a soil surface using mechanical methods in accordance with the specifications in Attachment A, Section IV – Performance Requirements for Tillage with BACM Back-up, and to utilize BACM shallow flooding as a back-up control method in order to prevent NAAQS violations. BACM Shallow Flooding must be implemented in TWB^2 areas if the erosion threshold as defined in Paragraph A.2.h is exceeded. Water shall be applied in amounts and by means sufficient to meet the CE level of 99% or CE targets for Minimum Dust Control Efficiency areas.

c. "Brine BACM" means the application of brine and the creation of wet and/or non-emissive salt deposits sufficient to meet the CE level of 99% as described in Attachment A, Section V – Performance Requirements for Brine BACM. BACM Shallow Flooding must be implemented in Brine BACM areas if the erosion threshold as defined in Paragraph A.2.h is exceeded.

d. "BACM Managed Vegetation" means planting surfaces of the BACM PM_{10} Control Areas with protective vegetation to meet the CE level of 99% by maintaining overall average vegetation cover of at least 37% for each contiguous Managed Vegetation area and an areal distribution based on vegetation cover thresholds and grid size.

e. "BACM Gravel Blanket" means the application of a layer of gravel sufficient to meet the CE level of 100% by covering the control area with

- a layer of gravel at least four inches thick with gravel screened to a size greater than ½ inch in diameter, or
- a layer of gravel at least two inches thick with gravel screened to ½ inch in diameter underlain with a permanent permeable geotextile fabric.

f. "Dynamic Water Management or DWM" is a BACM Shallow Flooding operational modification that allows delayed start dates and/or earlier end dates required for shallow flooding in specific areas that have historically had low PM_{10} emissions within the modified time periods. The truncated dust control periods allows for water savings while achieving the required CE level. Areas eligible for the DWM program and their modified start and/or end dates for shallow flooding are identified in

Attachment A, Section VI – Performance Requirements for Dynamic Water Management. If any DWM area becomes susceptible to wind erosion outside of the modified dust control period the area will be required to be flooded to meet the required CE for that area. BACM Shallow Flooding must be implemented in DWM areas if the erosion threshold as defined in Paragraph A.2.h is exceeded.

g. "Minimum Dust Control Efficiency or MDCE" BACM is a dust control measure for which the control efficiency target is adjusted to match the required control level based on air quality modeling for the 2006 dust control areas as shown on the map in Exhibit 2 – Dust Control Efficiency Requirements. The control efficiency targets may be less than 99%, but the level of control in all areas is intended to prevent exceedances of the NAAQS. MDCE BACM includes:

   i. Shallow flood areas where the wetness cover is adjusted following the curve in Exhibit 3 - Shallow Flood Control Efficiency and Wetness Cover Curve,

   ii. Channel Area - a state-regulated wetland area as shown in Exhibits 1 and 2 where vegetation cover is enhanced by irrigation and seeding with native plants in a manner sufficient to prevent windblown dust from causing exceedances of the NAAQS, and

   iii. Sand Fence Area – an area as shown in Exhibits 1 and 2 located in area T1A-1 where sand fences, vegetation and natural water runoff combine to provide sufficient protection to prevent windblown dust from causing exceedances of the NAAQS.

h. "Erosion Threshold" is applicable to TWB^2, DWM, and Brine BACM to trigger BACM Shallow Flooding which must be implemented to comply with the shallow flood CE target for that area. The erosion threshold is determined from sand flux measurements or the Induced Particulate Erosion Test (IPET) test method as described in Attachment A, Paragraphs IV.C.2 and IV.C.4. BACM Shallow Flooding must be implemented in TWB^2, DWM or Brine BACM areas if any of the following thresholds are exceeded as determined using the methods described in Attachment A:

   i. Sand flux measured at 15 cm above the surface exceeds 5.0 grams per square centimeter per day on DWM or Brine BACM areas or 1.0 gram per square centimeter per day on TWB^2 areas, or

   ii. Induced Particulate Erosion Test method shows visible dust emissions when operated at the reference test height.

i. "Approved BACM" includes the control measures specified above and other measures approved by the APCO and the US Environmental Protection Agency as equivalent to these methods.

3. “Eligible Cultural Resource Area or ECR Area” is an area or areas where dust control measures will be implemented on a deferred schedule due to the presence of significant cultural resources that make the areas eligible for listing under the California Register of Historic Resources.

B. REQUIREMENTS

1. For the 2003 Dust Control Area the City shall continuously operate and maintain any mix of approved BACM PM_{10} Control Measures as defined above in Section A to meet the 99% efficient CE level. Selection of the type and location of BACM PM_{10} Control Measures within the area is solely the responsibility of the City.
2. For the 2006 Dust Control Area the City shall continuously operate and maintain approved BACM PM_{10} Control Measures defined above in Section A to meet the CE target specified in Exhibit 2, except for ECR Areas where BACM PM_{10} Control Measure selection and implementation dates will be deferred as set forth in Paragraph C.3., and any areas of BACM Managed Vegetation, for which the City shall comply with the minimum 37% average vegetation cover target and areal distribution requirements by December 31, 2017.
3. For the Phase 8 Area consisting of 2.0 square miles the City shall continue to operate and maintain BACM Gravel Blanket.
4. For the Phase 9/10 Project Area consisting of 3.62 square miles the City shall select and install BACM PM_{10} Control Measures by December 31, 2017, except for ECR Areas, where PM_{10} BACM selection and implementation dates will be deferred as set forth in Paragraph C.3.
5. In areas containing infrastructure capable of achieving and maintaining compliant BACM Shallow Flooding the City may implement TWB[2], Brine Shallow Flooding or Dynamic Water Management as alternatives to BACM Shallow Flooding or MDCE BACM shallow flooding.

C. CONTINGENCY MEASURES

1. At least once each calendar year, the District shall determine whether additional areas of the lake bed require BACM PM_{10} Control Measures in order to attain or maintain the PM_{10} NAAQS.
2. If the District has not demonstrated attainment with the PM_{10} NAAQS on or before December 31, 2017, or has not met reasonable further progress milestones, the District shall order the City to apply one or more BACM PM_{10} Control Measures as set forth in

Paragraphs A.2 and C.4 on those areas of the Owens Lake bed that cause or contribute to exceedances of the PM_{10} NAAQS.

3. If monitoring and/or modeling demonstrates BACM PM_{10} Control Measures are needed in an ECR Area(s) to attain or maintain the PM_{10} NAAQS after BACM PM_{10} Control Measures are implemented in adjacent areas, the District shall order the City to select and implement BACM PM_{10} Control Measures set forth in Paragraph A.2.
4. The District may order the City to implement, operate and maintain a total of up to 53.4 square miles of waterless or water-neutral BACM PM_{10} Control Measures on the Owens Lake bed below the Regulatory Shoreline (elev. 3,600 feet) and above the ordinary high water level of Owens Lake (elev. 3,553.55 feet).
5. As expeditiously as practicable and not more than three years after any such order for additional BACM PM_{10} Control Measures, the City shall install, operate and maintain BACM PM_{10} Control Measures that achieve a control efficiency of 99%. If BACM Managed Vegetation is chosen up to two additional years for vegetation growth is allowed to achieve the 37% vegetation cover requirement.

EXHIBIT 1 – Dust Control Area Map

EXHIBIT 2 – Dust Control Efficiency Requirements

EXHIBIT 3 – Shallow Flood Control Efficiency and Wetness Cover Curve

ATTACHMENT A – Performance Requirements for BACM

Rule 433 – Attachment A
Performance Requirements for BACM

I. BACM Shallow Flooding

A. The "BACM Shallow Flooding" PM_{10} control measure will apply water to the surface of those areas of the lake bed where shallow flooding is used as a PM_{10} control measure. Water shall be applied in amounts and by means sufficient to achieve the performance standards set forth in Paragraphs I.B and I.C of this attachment. The dates by which BACM Shallow Flooding areas are to comply with these performance standards may be modified by the Dynamic Water Management provisions set forth in Rule 433.A.2.f and Paragraph VI.B.

B. For all BACM Shallow Flooding areas except those within the 2006 DCA:

1. At least 75 percent of each square mile designated as BACM Shallow Flooding areas shall continuously consist of standing water or surface-saturated soil, substantially evenly distributed for the period commencing on October 16 of each year, and ending on May 15 of the next year. For these BACM Shallow Flood dust control areas, 75 percent of each entire contiguous area shall consist of substantially evenly distributed standing water or surface- saturated soil.
2. Beginning May 16 and through May 31 of every year, shallow flooding areal wetness cover may be reduced to a minimum of 70 percent.
3. Beginning June 1 and through June 15 of every year, shallow flooding areal wetness cover may be reduced to a minimum of 65 percent.
4. Beginning June 16 and through June 30 of every year, shallow flooding areal wetness cover may be reduced to a minimum of 60 percent.

C. For BACM Shallow Flooding areas within the 12.7 square-mile 2006 DCA:

1. The percentage of each area that must have substantially evenly distributed standing water or surface-saturated soil shall be based on the Shallow Flood Control Efficiency Curve (Exhibit 3) to achieve the control efficiency levels in the Minimum Dust Control Efficiency (MDCE) Map (Exhibit 2).
2. For only those BACM Shallow Flooding areas with control efficiencies of 99 percent or more:
   a. Beginning May 16 and through May 31 of every year, shallow flooding areal wetness cover may be reduced to a minimum of 70 percent.

b. Beginning June 1 and through June 15 of every year, shallow flooding areal wetness cover may be reduced to a minimum of 65 percent.

c. Beginning June 16 and through June 30 of every year, shallow flooding areal wetness cover may be reduced to a minimum of 60 percent.

II. BACM Managed Vegetation

The "BACM Managed Vegetation" PM_{10} control measure requires planting surfaces of the BACM PM_{10} control areas with protective vegetation to meet the control efficiency level of 99% by maintaining an overall average vegetation cover of 37% for each contiguous managed vegetation area.

III. BACM Gravel Blanket

The BACM Gravel Blanket" PM_{10} control measure requires the application of a layer of gravel sufficient to meet the control efficiency level of 100% by one of the following means:

- covering 100% of the control area with a layer of gravel at least four inches thick with gravel screened to a size greater than ½ inch in diameter, or
- covering 100% of the control area with a layer of gravel at least two inches thick with gravel screened to ½ inch in diameter underlain with a permanent permeable geotextile fabric.

IV. Tillage with BACM (Shallow Flood) Backup (or TWB^2)

A. The City of Los Angeles ("City") may implement or transition BACM Shallow Flood areas to "Tillage with BACM (Shallow Flood) Back-up (TWB^2)," which shall consist of (1) soil tilling within all or portions of BACM Shallow Flood PM_{10} control areas (TWB^2 Areas), and (2) the installation of all necessary shallow flood infrastructure so that the TWB^2 Areas can be shallow-flooded if the erosion threshold is exceeded or the performance criteria are not met.

B. Construction of TWB^2 Areas

1. Tillage shall create rows and furrows in roughly east to west directions in order to create maximum surface roughness for winds from the north and south. Additional roughness to protect surfaces from west winds shall be created in tilled areas

sufficient to prevent emissions from east and west winds.

2. The tilled surfaces will also be armored with soil clods of 1/2 inch diameter or larger covering 60 percent or more of the tilled surface.
3. TWB^2 areas shall be constructed with ridge heights (RH) averaged on 40-acre blocks at or above 1.25 feet (furrow depth to ridge top difference at least 2.5 feet) and row spacing (RS) sufficient to provide a ratio of the row spacing to ridge height (RS/RH) below 10, e.g. distance between rows is 12.5 feet with average ridge height greater than 1.25 feet.

C. Monitoring and Maintenance

1. Surface Roughness
   a. Lidar, aerial photography or other field measurement methods with equivalent accuracies will be used by the City to measure RS/RH ratio and ridge height. Roughness measurements will be made in the north-to-south direction --- the direction of the primary dust producing winds. Roughness measurements may also be made in other directions. Roughness measurements will be reported to the APCO within 30 days of measurement.
   b. The RS/RH ratio and ridge height measurements will be made at 6 month, or more frequent, intervals. Inverse roughness and ridge height for a TwB^2 Area will be tracked and plotted as a function of time. Where feasible, field measurements may also be taken to confirm Lidar or other remotely sensed results. The City will conduct roughness measurements at least once every 6 months and report the measurements within 30 days to the APCO. The District reserves the right to conduct its own roughness measurements at any time.
   c. Assuming that degradation of the tilled ridges may occur over time, tillage maintenance will be performed by the City if the average RS/RH roughness ratio is between 10.1 and 12.0 or if the average ridge height is less than 1.1 feet in a tilled area.
   d. The City shall re-flood a TWB^2 area to comply with the required BACM Shallow Flood control efficiency for the area if the RS/RH ratio is greater than 12.0 (12/1) or the ridge height falls below 1.0 feet for any defined 40-acre averaging area.
   e. The City shall measure clod coverage using the point-intercept method (U.S. Bureau of Land Management, Sampling Vegetation Attributes, Method G,

Technical Reference BLM/RS/ST-96/002+1730) or other field measurement methods with equivalent accuracy. Clod cover will be measured concurrently with surface roughness at least once every 6 months and reported to the APCO within 30 days of measurement.

2. Sand Flux
    a. The City shall monitor each TWB^2 area with at least four Sensits and Cox sand catchers (CSCs) with inlets set at 15 cm above untilled surfaces (circular pads with 3 m radius) in the general northern, southern, eastern and western portions of a tillage. In TWB^2 areas greater than 320 acres the City shall install one Sensit and CSC pair per 80 acres.
    b. The City will pair CSCs with Sensits, radio equipment and dataloggers programmed to record 5-minute sand motion data. All Sensit data will be reported daily to the District. Sand motion data from the CSCs and Sensits will be processed to track sand flux at each site.
    c. All sand flux monitoring equipment will be installed prior to the start of tillage activities.
    d. High sand flux values recorded during maintenance activities or from non-tillage sand flux sources shall be excluded from the sand flux data. Maintenance activities and non-tillage sand flux sources may include, but are not limited to, rain-splatters, bugs, adjacent grading and road construction activities, as well as vehicle traffic. Sensits should be placed so as to minimize impacts from non-tillage sand flux sources.
    e. When (other than during maintenance activities taking place in the “tillage area” which is defined as the tilled portion of the TWB^2 area) the sand flux exceeds 0.50 $g/cm^2/day$, the City will perform maintenance in the tillage area, which may include surface wetting, re-establishment of the surface roughness, or full or partial reflooding of a TWB^2.

3. PM_{10} Monitoring
    a. Each TWB^2 area will be assigned upwind and downwind PM_{10} monitors (not necessarily at the TwB^2 Area boundary) to monitor PM_{10} emissions from the tillage area. For a given wind direction, the downwind monitors shall be within

22 degrees (±11.5°) of the upwind monitors. Upwind/downwind monitor assignments will be requested by the City and approved by the APCO. Existing monitors operated by the District may be used as upwind/downwind monitors. Additional EPA reference and equivalent method PM_{10} monitors (40 CFR Part 53) shall be operated by the City, unless mutually agreed otherwise.

b. If a monitor is operated by the City, its operation and maintenance must follow District procedures and data collection must be incorporated into the District communications network. The District reserves the right to audit monitors and monitoring data collected by the City. The District also reserves the right to install and operate or require the City to install and operate additional PM_{10} monitors to adequately monitor the PM_{10} emissions coming from tilled areas.

c. All PM_{10} monitoring equipment will be in place as soon as practicable as shallow flood areas dry, but no later than the start of tillage activities.

d. Impacts caused by maintenance activities and non-tillage sources shall be excluded from the PM_{10} data. Maintenance activities and non-tillage PM_{10} sources may include, but are not limited to, adjacent grading and road construction activities, as well as vehicle traffic. PM_{10} monitors should be placed so as to minimize impacts from non-tillage sources.

e. When the daily downwind to upwind PM_{10} concentration difference for any dust event (other than during maintenance activities in the tillage area) exceeds 50 $\mu g/m^3$ and there is no evidence to show that the additional downwind PM_{10} did not come from the TWB[2] Area, maintenance will be performed in the tillage area.

4. Induced Particulate Erosion Test

a. The Induced Particulate Erosion Test (IPET) method will be used to determine if tilled area surfaces are starting to become emissive. The IPET method uses a small radio-controlled helicopter-type craft (Radio-Controlled Wind Induction Device or RCWInD) to create wind on the surface. Each RCWInD craft shall be pre-tested to determine the test height above the surface (H_t) at which the craft creates a target maximum horizontal wind speed (TWS) measured at 1 centimeter ($U_{0.01}$) above a flat surface equal to 11.3 meters per second (m/s). If the payload on a craft is changed, e.g. a different camera is used, then H_t must be re-determined for the new payload since it will affect the amount of thrust needed to keep the RCWInD aloft.

b. Testing to determine H_t and TWS will be done on a smooth flat surface, e.g. concrete or asphalt pavement or plywood test platform with calm ambient winds (< 2 m/s). H_t is measured from the bottom of the rotor blade to the surface. The maximum wind speed for any flight height is taken at a height one centimeter above the surface at a point that is one rotor blade length away from the point beneath the center of the fastest rotor blade taken on a line extending outward from the rotor arm. The wind speed measurement is taken with a pitot tube pointing toward the center of the rotor blade. The RCWInD must be flown in a stationary position to get a sustained wind speed measurement.

c. When the craft is flown over a ridged surface H_t is measured from the bottom of the craft's rotor blades to the highest surface projection anywhere directly below the craft.

d. Three erosion alert levels are set using the IPET method: 1) an <u>early warning</u> of possible clod and surface stability deterioration, 2) a <u>warning</u> level to alert the City of a potential breakdown of the surface stability and to advise voluntary maintenance efforts, and 3) a <u>mitigation</u> action level to require re-tilling and/or re-flooding of all or part of a TWB^2, DWM or Brine BACM Area.

e. The IPET method will be used to determine erosion alert levels as follows:

- Level 1 – An erosion <u>early warning</u> is indicated when any visible dust is observed to be emitted from a surface or particles are dislodged when the RCWInD is flown at a height below one half of H_t. Voluntary mitigation may be appropriate to prevent further surface degradation.
- Level 2 – An erosion <u>warning</u> is indicated when any visible dust is observed to be emitted from a surface when the RCWInD is flown at a height below H_t and above one half of H_t. Voluntary mitigation is advised to prevent further surface degradation.
- Level 3 – <u>Mitigation</u> action is required if visible dust is observed to be emitted from a surface when the RCWInD is flown at a height of H_t or higher.

D. The City shall re-flood TwB^2 areas to comply with the BACM Shallow Flood control efficiency target for that area, if either of the following erosion thresholds are exceeded as determined using the sand flux and IPET measurements described in Paragraphs IV.C.2 and IV.C.4.

1. Sand flux measured at 15 cm above the surface exceeds 1.0 gram per square centimeter per day, or
2. Induced Particulate Erosion Test method shows visible dust emissions when operated at the reference test height, $H_{t.}$

V. <u>Brine BACM</u>

A. Stable surfaces for Brine BACM shall be defined as consisting of standing water, evaporite salt deposit, and capillary brine salt crust as follows:
    1. Water: Standing water or hydrologically saturated surface as defined by BACM Shallow Flooding, regardless of salinity level.
    2. Evaporite Salt Deposit: A crystalline deposit of salt minerals precipitated on the surface of the lakebed from evaporation of Owens Lake brine. The evaporite salt deposit does not include the development of salt crust by upward capillary movement of saline fluids through the soil column. The evaporite salt deposit must have an average thickness of 1.5 centimeters or greater and may be either wet or dry.
    3. Capillary Brine Salt Crust: A crust enriched in salt minerals formed at the soil surface by upward capillary movement of water through the soil. The capillary brine crust typically consists of a mix of salt minerals and soil particles in various proportions, and must meet the following three conditions:
        a. The capillary brine salt crust within a Brine BACM area must have an average thickness of 10 centimeters or greater and may be either wet or dry,
        b. a capillary brine salt crust must be accompanied by either water and/or an evaporite salt deposit, and
        c. the proportion of qualifying capillary brine crust within a Brine BACM area cannot exceed one-third of the required total compliant cover within a Brine BACM area.
B. Each Brine BACM area shall be operated such that the total areal extent of the surface cover of the qualifying surfaces are maintained such that they meet or exceed those as

defined by the Shallow Flooding Control Efficiency Curve in Exhibit 3. The combined mosaic of stable Brine BACM surfaces shall cover the entire dust control area.

C. Brine BACM can be used by the City of Los Angeles (City) throughout the Owens Lake bed where backup BACM Shallow Flood infrastructure exists and can be implemented, as set forth in this protocol, to ensure that Brine BACM areas do not cause or contribute to exceedance of the NAAQS for PM_{10}.

D. The boundaries for each Brine BACM area will be pre-defined by the City prior to implementation. Each Brine BACM area will be monitored separately to determine compliance with required surface cover conditions.

E. The City will monitor each Brine BACM area with at least one sand flux monitor (SFM) site instrumented with paired Cox Sand Catchers (CSCs) and Sensits with inlets positioned 15 cm above the surface, radio equipment, and dataloggers programmed to record 5-minute sand motion data. SFM sites will primarily be located in portions of Brine BACM areas covered with a capillary crust. All Sensit data will be reported daily to the District. Sand motion data from the CSCs and Sensits will be processed to track sand flux at each site.

F. Brine BACM areas will be monitored using the IPET method following the procedures used for Tillage with BACM Back-up areas in Paragraph IV.C.4.

G. The City shall re-flood Brine BACM areas to comply with the BACM Shallow Flood control efficiency target for that area, if either of the following erosion thresholds are exceeded as determined using the sand flux and IPET measurements described in Paragraphs IV.C.2 and IV.C.4.

    1. Sand flux measured at 15 cm above the surface exceeds 5.0 grams per square centimeter per day, or
    2. Induced Particulate Erosion Test method shows visible dust emissions when operated at the reference test height, $H_{t.}$

VI. <u>Dynamic Water Management</u>

A. Areas that are eligible for Dynamic Water Management (DWM) must meet the following sand flux history criteria:

    1. 5 years or more of sand flux data from before dust control implementation, and

2. The frequency of significant sand flux ($\geq$5 g/cm^2/day) taking place outside of the modified shallow flood dust control period did not occur in more than one calendar year over any continuous six year period.

B. The modified dust seasons for DWM have three different start dates in the beginning of the season that reflect the delayed start of source area activity across the lakebed. The modified start dates are applicable to certain dust control areas based on the sand flux history as evaluated in Paragraph VI.A and the method of shallow flooding using conventional flooding or sprinkler irrigation.

1. For areas shallow flooded by methods other than sprinkler irrigation, the standard and modified dust control periods are:

Standard Dust Season

October 16 to June 30 (with ramping of 99% control areas after May 15)

Modified Dust Seasons for Dynamic Water Management

October 16 – April 30

December 1 – April 30

January 16 – April 30

2. For eligible areas that are shallow flooded with sprinkler irrigation, the modified DWM seasons shall be adjusted to provide water two weeks earlier in the beginning of the dust season to simulate ramp up as applied in conventional BACM Shallow Flood areas and one month later at the end of the dust season due to the lack of wetness during the dry down period with conventional BACM Shallow Flood areas. The adjustments to the DWM seasons for sprinkler irrigated shallow flooding areas are provided below.

Modified Dust Seasons Adjusted for Sprinkler Irrigated Shallow Flooding Areas

October 16 – May 31

November 16 – May 31

January 1 – May 31

3. In areas approved for DWM, the City of Los Angeles (City) shall meet the shallow flood control efficiency and wetness targets indicated in Exhibits 2 and 3 by or before the applicable start dates in Paragraph VI.B and water may be shut off with no spring ramping at the end of the modified season.

C. Each DWM area will be instrumented by the City with sand flux monitoring (SFM) sites using paired Sensits and Cox Sand Catchers (CSCs) during the modified start and end periods. The locations of SFM sites shall be determined by the City in coordination with the District.

1. The number of SFM sites at the modified start of the dust season will be proportional to the areal extent of the DWM area. All DWM areas will require at least one SFM site however; the APCO may require proportionally more SFM sites for DWM areas greater than 320 acres such that there is approximately one SFM site per 160 acres of DWM area.
2. During the modified end period of the dust season, the LADWP shall install SFM sites incrementally in stages as a DWM area dries. The number of SFM sites is provided in Table 1 below.

Table 1. Number of SFM sites required per DWM area during the modified end of the dust season.

Drying Stage	Exposed Lakebed	Number of SFM sites
1	Less than 50 acres	0
2	50 – 160 acres	1
3	>160 acres	1 per every 160 acres

3. The City will pair CSCs with Sensits with inlets positioned at 15 cm above the surface, radio equipment and dataloggers programmed to record 5-minute sand motion data. All Sensit data will be reported daily to the District. Sand motion data from the CSCs and Sensits will be processed to track sand flux at each site.
4. During the modified start of the dust season all sand flux monitoring equipment will be placed by the City no later than October 16. During the modified end of the dust season all SFM sites will be placed by the City within 7 calendar days of reaching each drying stage. The City shall inform the District of all SFM site installations within 7 days of installation.
5. SFM sites installed for monitoring in the modified beginning dust season may be removed from a DWM area once the modified dust season has started for each DWM area or once the site location is endanger of getting flooded. The City shall inform the District of all SFM site removals within 7 calendar days of their removal

date. SFM sites installed for monitoring of the modified end of the dust season may be removed from a DWM area after June 30.

D. DWM areas will be monitored using the IPET method following the procedures used for Tillage with BACM Back-up areas in Paragraph IV.C.4.

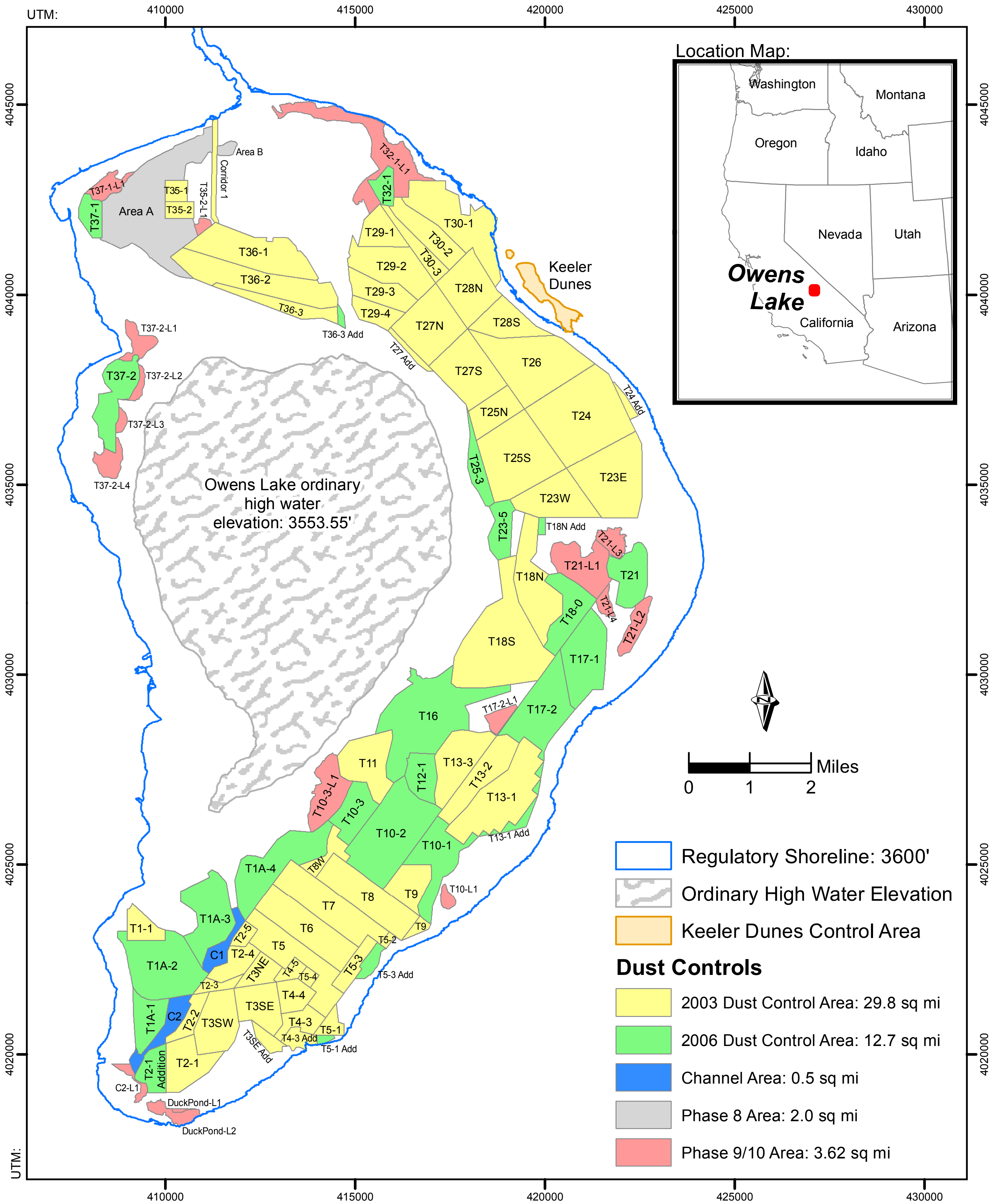
E. The City shall re-flood a DWM area or sub-area as indicated by the available information to comply with the BACM Shallow Flood control efficiency target for that area, if either of the following erosion thresholds are exceeded as determined using the sand flux and IPET measurements described in Paragraphs IV.C.2 and IV.C.4.

  1. Sand flux measured at 15 cm above the surface exceeds 5.0 grams per square centimeter per day, or
  2. Induced Particulate Erosion Test method shows visible dust emissions when operated at the reference test height, H_{t}.

F. If any DWM area exceeds either erosion threshold in Paragraph VI.E in more than one calendar year over any continuous six-year period, that area will revert to the standard BACM Shallow Flood dust season as shown in Paragraph VI.B.1 since the area will no longer meet the DWM criteria in Paragraph VI.A.

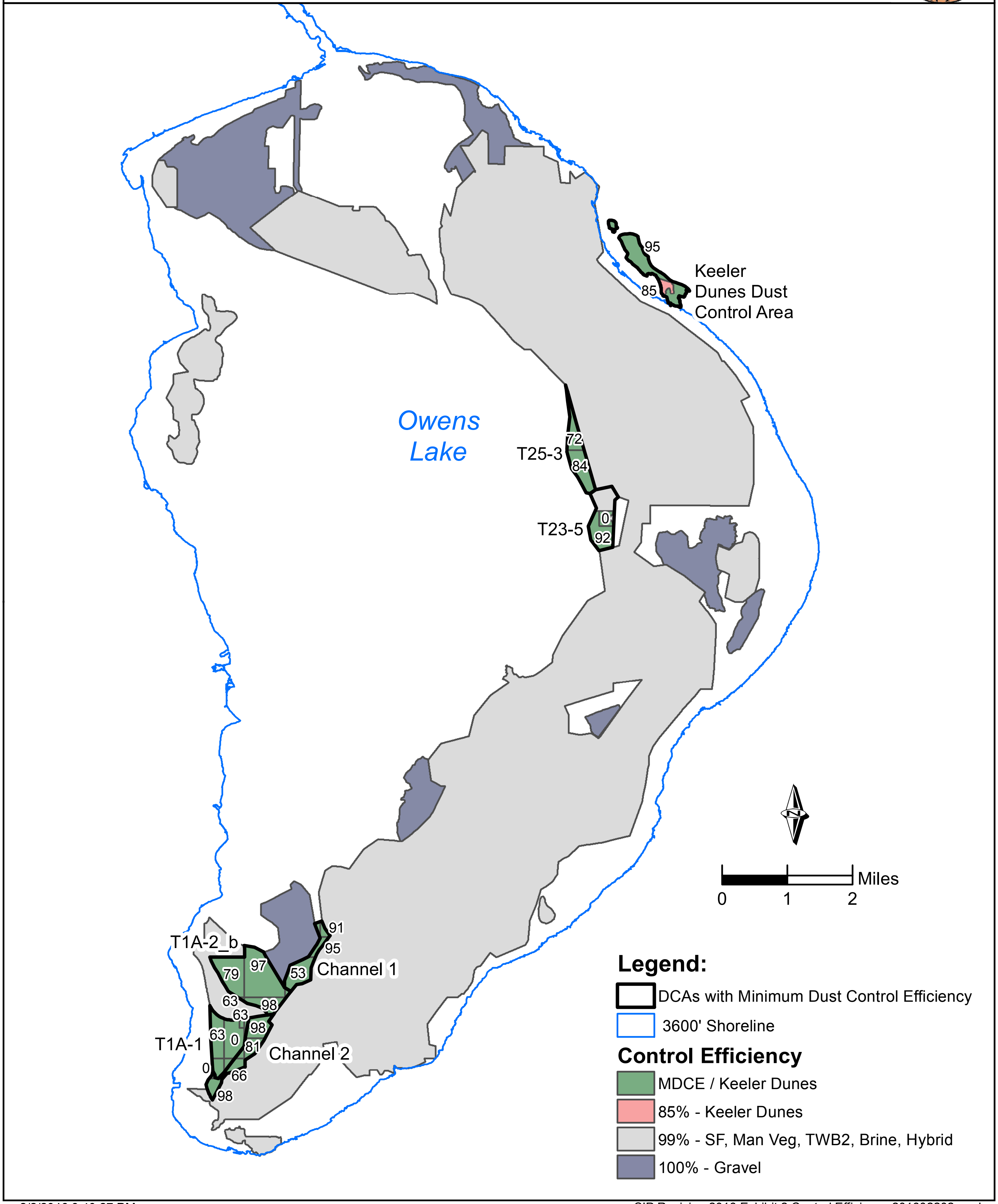
Great Basin Unified Air Pollution Control District

Exhibit 1 - PM10 Dust Control Areas



Great Basin Unified Air Pollution Control District

Exhibit 2 - Dust Control Efficiency Map



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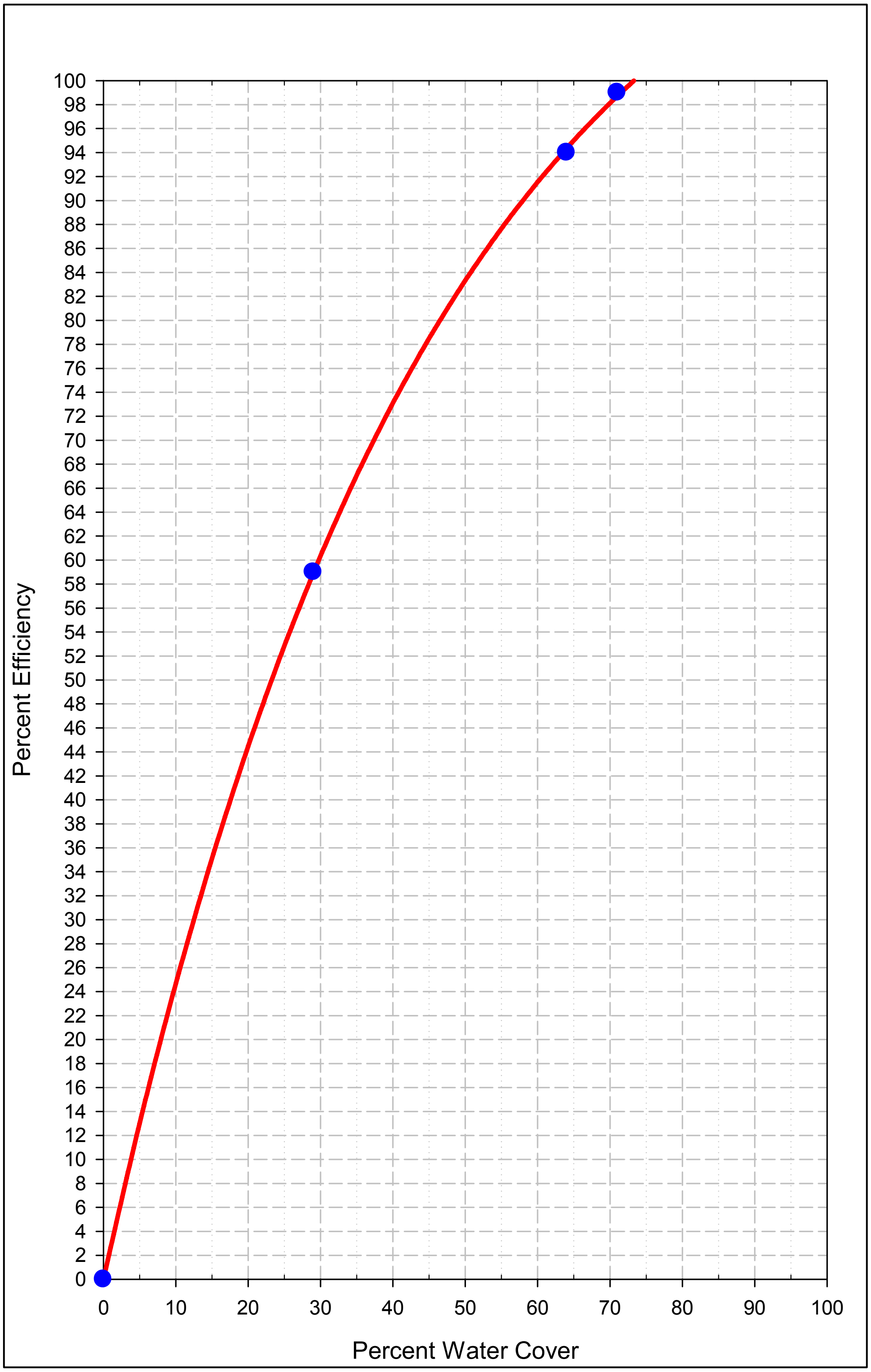
SIP Revision 2016 Exhibit 2 Control Efficiency 201602202.mxd

Exhibit 3 - Shallow Flood control efficiency curve



Phillip L. Kiddoo
Air Pollution Control Officer

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

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760-872-8211   Fax: 760-872-6109

Analysis of Proposed District Rule 433 Under CH&SC § 40727.2 (a)

February 5, 2016
Duane Ono

When adopting new rules, California Health and Safety Code §40727.2(a) requires an analysis of existing requirements applicable to the same source or equipment. The following is the District's analysis of District Rule 433 – Control of Particulate Emissions at Owens Lake, which is proposed for adoption in 2016.

District Rule 433 applies to dust control requirements at Owens Lake, CA. The purpose of this rule is to provide a regulatory mechanism under the federal Clean Air Act to attain the National Ambient Air Quality Standards and to implement the "Stipulated Judgment" between the Great Basin Unified Air Pollution Control District ("District") and the City of Los Angeles ("City") dated December 30, 2014 and entered by the Superior Court of the State of California, County of Sacramento. This rule sets the requirements for the Best Available Control Measures ("BACM") and defines the areal extent of these controls at Owens Lake required in order to meet the NAAQS.

Previously, the District ordered the City to implement dust controls through a series of negotiated board orders. These board orders provided BACM options for use at Owens Lake, locations of ordered dust source areas, deadlines for completion, and other provisions as agreed to by the parties. Proposed District Rule 433 includes the control requirements from these previous board orders and incorporates terms from the 2014 Stipulated Judgment, which adds more areas for control, but also provides additional BACM options. The rule includes provisions that can be federally approved by the US EPA and removes discretionary provisions that were agreed to through the Stipulated Judgment and prior Board Orders negotiated by the parties.

Rule 433 does not include portions of District board orders that control the same sources of air pollution from the Owens Lake bed. The excluded portions pertain to BACM requirements that were revised, discretionary provisions that are not federally approvable in a SIP, and agreements between the District and the City that do not affect lake bed dust control requirements. Otherwise, the requirements of the rule are duplicative of the requirements in other Board Orders applicable to the same source, which includes: areas for control, emission reduction requirements, operating parameters, work practices, and monitoring, reporting and record keeping requirements.

Table 1 summarizes the list of District rules and board orders that apply to dust controls at Owens Lake. There are no federal or state regulations specific to dust control requirements at Owens Lake. Additional information on Rule 433 can be found in the draft 2016 Owens Valley Planning Area State Implementation Plan, which will be considered for adoption at the same time as this rule.

Table 1. List of District Rules and Board Orders that regulate the same source as Rule 433.			
Rule/Board Order (Adoption Year)	Area Ordered for Control	Method of Control	Included in Rule 433?
400 – 20% Opacity (1974)	General	Prohibitory rule.	No
401 – Fugitive Dust (1974)	General	Take reasonable precautions to prevent dust from leaving property.	No
402 – Nuisance (1974)	General	Prohibitory rule.	No
BO 981116-01 (1998)	Lake bed 13.5 sq. mi.	BACM: Shallow flooding, gravel, managed vegetation	Yes[1]
BO 031113-01 (2003)	Lake bed 16.5 sq. mi.	BACM: Shallow flooding, gravel, managed vegetation	Yes[1]
BO 080128-01 (2008)	Lake Bed 13.2 sq. mi.	BACM: Shallow flooding, gravel, managed vegetation (with modified vegetation cover requirements), and MDCE[2] BACM for the following areas: Moat & Channel and selected Shallow Flood areas.	Yes[1]
District Hearing Board Order GB09-06 (2009)	Lake Bed 2.0 sq. mi.	Gravel BACM	Yes[1]
2014 Stipulated Judgment (2014)	3.4 sq. mi., and up to 4.8 sq. mi. (contingency areas)	Modifies BACM for Shallow Flood (SF) to provide options that use SF BACM as a back-up method if the surface becomes emissive. This includes the use of Tillage, Dynamic Water Management (shorter dust control seasons) and Brine. The gravel BACM requirement was modified to allow less gravel depth if the gravel has a geotextile fabric under layer.	Yes[1]

[1] Rule 433 omits portions of the District board orders that control the same sources of air pollution from the Owens Lake bed. The omitted portions include BACM requirements that were revised, discretionary provisions that are not federally approvable in a SIP, and agreements between the District and the City that do not pertain to lake bed dust control requirements. Otherwise, the requirements of the rule are duplicative of the requirements in other Board Orders pertaining to the same source, which includes: areas for control, emission reduction requirements, operating parameters, work practices, and monitoring, reporting and record keeping requirements.

[2] Minimum Dust Control Efficiency (MDCE) BACM is a control measure that has less than the 99% control efficiency required for the other BACM options. The minimum control efficiency level ranges from 53-98%. The control efficiency target is determined for specific locations through a modeling analysis approved with the 2008 OVPA PM10 SIP.

CALIFORNIA AIR RESOURCES BOARD

APCD/AQMD RULE EVALUATION FORM --Page 1
(Electronic Format)

I. GENERAL INFORMATION

District: Great Basin Unified Air Pollution Control District

Rule No(s): 433 Date adopted/Amended/Rescinded: April 13, 2016

Rule Title(s): Control of Particulate Matter Emissions at Owens Lake

Date Submitted to ARB: ______________

If an Amended Rule, Date Last Amended (or Adopted): NA

Is the Rule Intended to be Sent to the U.S. EPA as a SIP Revision? **X** Yes __ No *(If No, do not complete remainder of form)*

District Contact: Duane Ono Phone Number: (760) 872-8211 E-mail: dono@gbuapcd.org

Address: Narrative Summary of New Rule or Rule Changes: _X_ New Rule __ Amended Rule

The purpose of this regulation is to provide a regulatory mechanism under the federal Clean Air Act to attain the NAAQS and to implement the 2014 Stipulated Judgment between the District and the City of Los Angeles. It requires the City to implement BACM to mitigate windblown dust at Owens Lake, CA, to operate and maintain the existing control area, and if ordered, to control additional areas provided that the amount of District-ordered dust control areas on the lake bed does not exceed 53.4 square miles in total.

Pollutant(s) Regulated by the Rule (Check): __ ROG __ (NOx) __ SO2
__ (CO) **X** PM __ TAC (name):

II. EFFECT ON EMISSIONS

Complete this section ONLY for rules that, when implemented, will result in quantifiable changes in emissions. Attach reference(s) for emission factor(s) and other information. Attach calculation sheet showing how the emission information provided below was determined.

Net Effect on Emissions: __ Increase **X** Decrease __ N/A

Emission Reduction Commitment in SIP for this Source Category: 1,581 tons per year of PM10 is expected to be reduced from lake bed areas as a result of new BACM measures.

Inventory Year Used to Calculate Changes in Emissions: 2014 (actual lake bed emission estimate)
Area Affected: Owens Lake bed

Future Year Control Profile Estimate *(Provide information on as many years as possible)*:

Year	Tons of PM_{10}/yr
2014	1,936
2015	1,936
2016	1,222
2017	1,222
2018	355
2019	355

CALIFORNIA AIR RESOURCES BOARD

APCD/AQMD RULE EVALUATION FORM --Page 2
(Electronic Format)

Baseline Inventory in the SIP for the Control Measure: 1,936 tons/yr of PM10

Emissions Reduction Commitment in the SIP for the Control Measure: 1,581 tons/yr of PM10

Revised Baseline Inventory (if any):

Revised Emission Reduction Estimate (if developed):

Note that the district's input to the Rule Evaluation Form will not be used as input to the ARB's emission forecasting and planning.

III. SOURCES/ATTAINMENT STATUS

District is: __ Attainment __ Nonattainment **X** Split

Approximate Total Number of Small (<100 TPY) Sources Affected by this Amendment: NA

Percent in Nonattainment Area: NA %

Number of Large (> 100 TPY) Sources Controlled: NA Percent in Nonattainment Area: NA %

Name(s) and Location(s) (city and county) of Large (> 100 TPY) Sources Controlled by Rule *(Attach additional sheets as necessary)*: NA

IV. EMISSION REDUCTION TECHNOLOGY

Does the Rule Include Emission Limits that are Continuous? _X_ Yes ___ No

If Yes, Those Limits are in: Rule 433 Attachment A

Rule 433 sections A.2, B, and Attachment A require BACM to be implemented continuously in all dust control areas on the Owens Lake bed during the dust season from October 1 through June 30, except for areas that are eligible for the Dynamic Water Management Program and may have shorter dust control periods. For BACM areas, the rule requires 99% control during dust season, except for Minimum Dust Control Efficiency Areas identified in the 2008 SIP that may have lower dust control efficiencies based on the model attainment demonstration.

V. OTHER REQUIREMENTS

The Rule Contains:

Emission Limits in Section: Att. A
Recordkeeping Requirements in Section: Att. A
Work Practice Standards in Section: Att. A
Reporting Requirements in Section: Att. A

CALIFORNIA AIR RESOURCES BOARD

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VI. IMPACT ON AIR QUALITY PLAN

__ No Impact   X Impacts RFP   __ Impacts attainment Discussion:

Notice of Determination

To: ☒ Office of Planning and Research

For U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth Street, Room 121
Sacramento, CA 95814

☒ County Clerk
County of Inyo
P.O. Drawer F
Independence, CA 93526

From:
(Public Agency)
Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, CA 93514

Contact: Phillip L. Kiddoo, Air Pollution Control Officer
Phone: (760) 872-8211

Subject: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Great Basin Unified Air Pollution Control District Rule 433 (Control of Particulate Emissions at Owens Lake)
Project Title

	Mr. Phillip L. Kiddoo	(760) 872-8211
State Clearinghouse Number (If submitted to Clearinghouse)	**Lead Agency Contact Person**	**Area Code / Telephone/Extension**

Owens Lake (bounded by S.H. 136, S.H. 190, and U.S. 395), Inyo County, CA
Project Location (include county)

2016 Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan

Land Use / Zoning / General Plan Designations:
The dry Owens Lake is primarily owned and operated in trust for the people of the State of California by the California State Lands Commission. Although it is not subject to local regulatory authority by Inyo County (County), the County's General Plan recognizes the location of state-owned and federally owned lands at Owens Lake. The Land Use element of the Inyo County General Plan designates the project area as Natural Resources and State and Federal Lands. This land use designation "is applied to land or water areas that are essentially unimproved and planned to remain open in character, [and] provides for the preservation of natural resources, the managed production of resources, and recreational uses." The Inyo County Zoning Ordinance designates the project area as predominantly OS-40: Open Space Zone, 40-acre minimum lot size.

Project Description:
On April 13, 2016, the Governing Board of the Great Basin Unified Air Pollution Control District (GBUAPCD) adopted and issued (1) District Board Order #160413-01 authorized by California Health & Safety Code Section 42316 for the City of Los Angeles (City) to install, operate and maintain additional dust control measures on the Owens Lake bed, (2) District Rule 433 (Control of Particulate Emissions at Owens Lake), and (3) the final 2016 revision to the previously-adopted Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (2016 SIP) (collectively "Board Actions"). The Board Actions include orders and requirements for the City to construct and operate additional dust control measures (DCMs) on the dry Owens Lake bed at the southern end of Owens Valley in Inyo

County, eastern-central California. The project is located approximately 5 miles south of the community of Lone Pine and approximately 61 miles south of the City of Bishop. The primary goal of the project is to continue to reduce dust emissions from the dry Owens Lake bed by implementing all Owens Lake bed fine particulate matter (PM_{10}) control measures to achieve the National Ambient Air Quality Standards (NAAQS) for PM_{10}. The project is analyzed in detail in the Environmental Impact Report for the Owens Lake Dust Mitigation Program – Phase 9/10 Project (May 2015) (EIR) prepared by the City of Los Angeles Department of Water and Power (LADWP). The LADWP serving as the Lead Agency approved its project on June 2, 2015 and filed a Notice of Determination on June 8, 2015, State Clearinghouse Number 2014071057.

The project site is not identified on a list of hazardous materials sites compiled pursuant to California Government Code Section 65962.5 (Cortese List). No hazardous material sites are located within 1 mile of the project site.

This is to advise that the **Great Basin Unified Air Pollution Control District** has approved the above
☐ Lead Agency ☒ Responsible Agency

described project on **April 13, 2016** and has made the following determinations regarding the above described project:

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☒ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☐ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
5. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the Final EIR, with comments and responses and record of project approval, is available to the general public at: Great Basin Unified Air Pollution Control District, 157 Short Street, Bishop, CA 93514.

Signature (Public Agency)	Date	Title
	April 13, 2016	Air Pollution Control Officer

Date received for filing at OPR: ______________________

Revised 2005

Artwork by Ann Piersall, Great Basin Unified Air Pollution Control District