

**Board Order 080128-01
Attachment D**

**2008 Procedure for
Modifying Best Available Control Measures (BACM)
for the Owens Valley Planning Area**

The City may transition from one approved BACM to another provided that the performance standard of one or the other BACM is met at all times during the transition, and that the City makes a complete and technically well-supported written demonstration of that performance, with a built-in margin of safety, to the satisfaction of the APCO in advance of any actions by the City to transition. There are three circumstances under which temporary modifications may be allowed to the BACM identified in this SIP, if certain conditions are met. The circumstances are:

1. Adjustments to existing BACM. Research to demonstrate that sufficient PM₁₀ control efficiency during the dust season can be achieved and the NAAQS can be attained everywhere on or above the historic shoreline with a different performance standard for an existing BACM.
2. Research on new BACM
3. Transition from one BACM to another that requires a time period where neither BACM's performance standards can be met.

The City may make an application for any of these modifications in writing to the APCO. The complete application must include all necessary data and other technical information to support the application. Except for the specific limitations set forth below for BACM adjustments to Shallow Flooding, the APCO shall have full and sole discretion to accept, reject or condition the City's application for modifications to BACM on Owens Lake, to require additional technical information, and/or to independently monitor the results of the project, and shall provide her/his decision in writing. This same discretion shall apply to the APCO's consideration of each of the other applications that the City may make as further described below. The APCO will consider and respond to comments made by the City regarding any decision by the APCO to reject, condition or modify an application. Failure by the City to comply with any condition of the project approval may result in the APCO revoking the project approval and directing closure procedures be implemented for the project.

The flexible BACM description under the terms of the Order preclude the application of the U.S. Environmental Protection Agency's Natural Events Policy for monitoring data used to make the determinations in this Attachment. All monitored PM₁₀ concentrations that meet the EPA quality-assurance requirements contained in 40 CFR Part 58 and are measured at stations located at or no more than 3 kilometers above the historic shoreline (shoreline monitors) will be used in the analysis. The monitored values will be used as measured, and will not be adjusted for from-the-lake and non-lake wind directions as they are for the Supplemental Control Requirements.

The modeling for the determinations will be performed in accordance with the 2008 Owens Lake Dust Source Identification Program Protocol (Board Order 080128-01, Attachment C).

1. ADJUSTMENTS TO EXISTING BACM

A. BACM Adjustments to Shallow Flooding

1. After approval of the 2008 SIP, the City shall have the option to conduct field testing to refine the wetness cover requirement to achieve 99 percent control efficiency in Shallow Flood areas within the boundaries of the 2003 Dust Control Area (Shallow Flood Cover Test).
 - A. The Shallow Flood Cover Test shall occur on one or more areas totaling not more than 1.5-square-miles, to be selected by the City and approved by the APCO, which approval shall not be unreasonably withheld, from within the TDCA areas requiring 99 percent control.
 - B. The Shallow Flood Cover Test design shall be prepared by the City and approved by the APCO, which approval shall not be unreasonably withheld, prior to implementation. Based on that design, the APCO will reasonably determine wetness cover requirements for the Shallow Flood Cover Test.
 - C. The City will be CEQA lead agency for the Shallow Flood Cover Test and shall secure all required responsible agency approvals, permits and leases.
2. If the APCO reasonably determines in writing that the PM₁₀ Dust Control Measures in the 2008 Total Dust Control Area (TDCA) have been operational for one continuous year (defined as 365 consecutive days) with no exceedance of the federal standard at monitors located at or above the historic shoreline caused solely by sources within the 2008 TDCA, the City shall be permitted to reduce the wetness cover by an average of 10 percent over those Shallow Flood areas requiring 99 percent control efficiency, excluding areas identified in Section A.2.C, below, provided that:
 - A. Application of the 10 percent reduction in wetness cover during the May 16 through June 30 Shallow Flood areal wetness cover reductions provided for in Paragraphs 15.A.ii and 15.B.ii of Board order 080128-01 shall result in the lower of:
 - i. The areal cover resulting from a 10 percent reduction; or
 - ii. The areal cover required in Paragraphs 15.A.ii and 15.B.ii of Board Order 080128-01.
 - B. To implement the reductions set out in this Section, the City shall be required to first submit a written Wetness Cover Plan to the District for reducing the wetness cover on the eligible areas. The Wetness Cover Plan shall take into account:

- i. The results of testing carried out pursuant to Section A.1, if conducted; and
 - ii. The results of fall and spring Shallow Flood wetness cover reduction operations carried out pursuant to Paragraphs 15.A.ii and 15.B.ii of Board Order 080128-01.
 - C. If, in any year, the Wetness Cover Plan proposes reductions in wetness cover greater than 10 percent in any portion of the Shallow Flood areas covered by the Plan (consistent with the 10 percent limit on the overall average reduction), the City shall obtain the additional written approval of the APCO, which approval shall not be unreasonably withheld.
 - D. In the event shoreline monitors show an exceedance of the federal standard, whether that exceedance is caused by sources within, outside, or both within and outside of the 2008 TDCA, no further reductions in wetness cover shall be permitted for any Shallow Flood area that has contributed to the exceedance, as determined by the methodology in the “2008 Owens Valley Planning Area Supplemental Control Requirements Procedure” (Attachment B) and subject to the provisions of Section A.4, below.
 - E. Except as provided in Section A.4, below, the City may continue to operate using reductions of wetness cover pursuant to a previously approved Wetness Cover Plan.
3. For each Dust Control Season (October 1 of each year through June 30 of the next year) that wetness cover reductions have taken place under the provisions of Section A.2, the City shall prepare and submit to the District a written report summarizing the results of the wetness cover reductions within 90 days after conclusion of the corresponding Dust Control Season. The report shall document the percentage of wetness cover for Shallow Flood areas and the effect(s) of wetness cover reductions on PM₁₀ concentrations at the historic shoreline.
 4. Any areas for which wetness cover has been reduced pursuant to Section A.2 and that cause or contribute to an exceedance of the federal standard at the historic shoreline shall be remediated by the City under the Remedial Action Plan prepared pursuant to the requirements of Attachment B.
 - A. Subject to APCO written approval, which approval shall not be unreasonably withheld, the City may further reduce the wetness cover beyond that allowed in Section A.2 provided that:
 - i. The maximum 24-hour PM₁₀ shoreline monitor values for at least 365 consecutive days of operation following initiation of the last approved Wetness Cover Plan does not exceed 130 µg/m³; and
 - ii. The City demonstrates to the reasonable satisfaction of the APCO that the modeled contributions from the lake bed for the same time period set forth in

Section A.4.A.(i) plus the background of $20 \mu\text{g}/\text{m}^3$ do not exceed $120 \mu\text{g}/\text{m}^3$ at the historic shoreline.

- B. If the monitored values at the historic shoreline exceed $130 \mu\text{g}/\text{m}^3$, and it is determined that non-lake bed sources are contributing greater than $20 \mu\text{g}/\text{m}^3$, then the District will expeditiously seek to identify and require control of those non-lake bed sources so that the City may continue to implement efficient DCMs on the lake bed.
- C. If the City is entitled to further reduce wetness cover pursuant to this Section, the City shall prepare and submit an updated Wetness Cover Plan to the District to describe the wetness cover proposed for the subsequent, applicable Dust Control Season. The updated Wetness Cover Plan shall include:
 - i. A map that depicts the eligible Shallow Flood areas;
 - ii. The proposed amount of wetness cover for each eligible Shallow Flood area; and
 - iii. The method for determining effectiveness of the proposed wetness cover.
- D. The Wetness Cover Plan shall be subject to approval of the APCO, which approval shall not be unreasonably withheld.

B. BACM Adjustment to Measures Other than Shallow Flooding within Existing Dust Control Areas

Requirements to Begin the Process

At least once per calendar year after May 1, 2010, the District's APCO will make a written determination as to whether the Owens Lake bed will require additional PM_{10} controls in order to attain or maintain the federal 24-hour PM_{10} NAAQS. The APCO will use the procedure forth in Board Order 080128-01 to make the determination.

If the APCO determines that there were no monitored or modeled exceedances of the PM_{10} NAAQS as described above for the previous calendar year, each calendar year the APCO will do the following:

- 1) determine from the modeling if there are shoreline receptors where the model shows the combined predicted yearly maximum 24-hour contribution from all source areas on the lake bed contributing to those receptors plus background (24-hour average of $20 \mu\text{g}/\text{m}^3$) is less than $120 \mu\text{g}/\text{m}^3$, and
- 2) determine that there were no concentrations greater than $120 \mu\text{g}/\text{m}^3$ measured at any shoreline or near-shore monitoring site in the area of those receptors.

The City may perform an independent assessment using the data and methods of the Dust ID Protocol in order to confirm the APCO's findings. The APCO will consider and respond to the

City's assessment before making his/her final determination. The APCO has full and sole discretion to make this determination.

First Step on Test Areas

If there are receptors that meet the requirements described above, and provided that the City is in compliance with SIP control requirements on all areas of the lake bed, the APCO will inform the City that they may submit an application to reduce the level of control within a 1 to 2-square-mile test area of an existing Shallow Flooding Dust Control Measure (DCM) area or within a 160 to 320 acre test area of an existing Managed Vegetation DCM area that the modeling shows contributes to, and only to, the shoreline receptors described above where the yearly maximum 24-hour contribution from the lake bed plus background is less than $120 \mu\text{g}/\text{m}^3$. Application may be made for more than one area to be tested simultaneously provided the test areas do not impact any of the same modeled shoreline receptors or monitors (no overlapping impacts). The above limitations on test area size and location do not apply outside the boundaries of existing Dust Control Areas.

For the Managed Vegetation DCM, the cover may be reduced by no more than 5%, e.g. 50% to 45%, (one step). For other BACM or changes to compliance averaging areas (e.g., one acre for Managed Vegetation), the APCO will determine the permitted test area size, averaging area, test location and step amount. An area with a non-zero contribution to a receptor will be considered not to contribute to a receptor if the contribution from that area is less than $5 \mu\text{g}/\text{m}^3$ and the yearly maximum 24-hour contribution from the lake bed plus background ($20 \mu\text{g}/\text{m}^3$) to that receptor is less than $140 \mu\text{g}/\text{m}^3$. (A "zero contribution" is defined by the accuracy of the instruments used to collect the data, but in no case shall it be greater than $1 \mu\text{g}/\text{m}^3$.) The City may also satisfy the requirements of a BACM test for Managed Vegetation with documentation of a site-specific BACM test, along with written justification for more general application of the results of this test.

The City's application to reduce the level of control over any area within the boundaries of existing Dust Control Areas must be accompanied by a modeling analysis that demonstrates that increasing PM_{10} emissions within the test area will not cause the predicted yearly maximum 24-hour concentrations along the shoreline to exceed $120 \mu\text{g}/\text{m}^3$, including background ($20 \mu\text{g}/\text{m}^3$).

The application must also include, but is not limited to:

- 1) a project description,
- 2) site plan,
- 3) any necessary environmental documentation, responsible agency approvals, permits and leases,
- 4) a protocol to measure PM_{10} emissions and performance standards,
- 5) a time frame for project milestones and completion,
- 6) plans to control PM_{10} emissions if they exceed project limits,
- 7) project closure procedures if the project is discontinued,
- 8) soil texture information, soil chemistry, groundwater chemistry and applied water chemistry, and

- 9) a protocol to evaluate control effectiveness, estimate emissions and determine whether the results are transferable to other areas of the lake bed.

For BACM other than Shallow Flooding, the City will submit a relationship between control efficiency and performance standards based upon research results. The APCO has full and sole discretion to accept, reject, or modify that relationship. All modeling will be done according to the Dust ID Protocol.

Rectified aerial or satellite images of the area of adjusted BACM, or any other method approved by the APCO, will be used by the APCO to determine the performance standards for the adjusted BACM for this step and all subsequent steps.

All raw data must be shared with the APCO, and all data screening criteria must be approved (or disapproved) in writing by the APCO. The APCO may terminate the test at any time if modeling or monitoring show that modeled (including background of $20 \mu\text{g}/\text{m}^3$) or monitored emissions are increasing above trigger levels set by the APCO based upon a $140 \mu\text{g}/\text{m}^3$ modeled or monitored PM_{10} concentration at the shoreline, or if the City is not following the APCO-approved protocol. The APCO has full and sole discretion to determine whether these conditions have been met.

The APCO has full and sole discretion to approve or reject the City's application or require conditions. The APCO will take action and notify the City in writing within 90 days of receipt of the written application. No changes may be made to BACM in advance of the APCO's approval. Any adjustments to BACM will be reported to EPA by the APCO within 60 days of the APCO's approval.

Subsequent Steps on Test Areas

The adjusted BACM shall be maintained by the City for one year. No other adjustments to BACM may be made during that year that impact any of the same set of model shoreline receptors. At the end of the year, the City may submit a new application to the APCO to reduce the level of control in the test area by another step provided:

- 1) the modeled yearly maximum 24-hour contribution at all of the shoreline receptors identified above from all lake bed sources including the test area, plus background ($20 \mu\text{g}/\text{m}^3$), during the test period is less than $120 \mu\text{g}/\text{m}^3$, and
- 2) no concentrations greater than $120 \mu\text{g}/\text{m}^3$ were measured at any shoreline monitor in the area of those receptors during the test period.

The new application must contain all the same elements as the original application, and all the data and modeling from the first step of the test.

The APCO has full and sole discretion to approve or reject the City's application, or to require conditions. Subsequent steps may be made in the same manner. The APCO will take action and notify the City in writing within 90 days of receipt of the written application.

Requirement to Increase Controls on Test Areas

If, at the end of the year or any subsequent year before the SIP Revision to adjust BACM is approved by USEPA, the predicted yearly maximum 24-hour contribution from all lake bed sources including the test area plus background ($20 \mu\text{g}/\text{m}^3$) exceeds $140 \mu\text{g}/\text{m}^3$ at any of the shoreline receptors identified above, and/or concentrations greater than $140 \mu\text{g}/\text{m}^3$ were measured at a shoreline monitor in the area of the identified receptors, then the City must increase the control efficiency on the test area to the last step that achieved concentrations below the $140\text{-}\mu\text{g}/\text{m}^3$ threshold. For Managed Vegetation, this action must be taken within 12 months of the written determination by the APCO that the requirements for adjusting BACM were not met. For all other PM_{10} control measures, this action must be taken within 60 days of the written determination by the APCO that the requirements for adjusting BACM were not met. The APCO has full and sole discretion to make that determination. The APCO will determine the time scale for compliance for other BACM as part of the approval of the application.

SIP Revision for BACM for the Test Area

After three consecutive years of successful operation of the adjusted-BACM test area (modeled and monitored concentrations less than $140 \mu\text{g}/\text{m}^3$ as described above), the City may apply to the District for a SIP Revision to redefine BACM for that test area on the Owens Lake bed provided:

- 1) the predicted yearly maximum 24-hour PM_{10} contribution for each year of the test from the test area plus background ($20 \mu\text{g}/\text{m}^3$) at all shoreline receptors is $140 \mu\text{g}/\text{m}^3$ or less, and
- 2) no PM_{10} concentrations greater than $140 \mu\text{g}/\text{m}^3$ were measured at any shoreline monitor during the three years of the test.

The APCO has full and sole discretion to determine whether these conditions have been met. After public notice and comment and a public hearing, the District Board has full and sole discretion to determine whether to adopt the SIP revision.

Lake-Wide SIP Revision for BACM for a Soil Type

If, after three consecutive years of successful operation of the adjusted-BACM test area, the predicted yearly maximum 24-hour contribution from the test area and all source areas on the lake bed plus background ($20 \mu\text{g}/\text{m}^3$) at all shoreline receptors for all three years of the test is $140 \mu\text{g}/\text{m}^3$ or less and no concentrations greater than $140 \mu\text{g}/\text{m}^3$ were measured at any shoreline monitor during the three years of the test, the research conducted on these test areas can be used to determine the relationship between the PM_{10} emissions, control efficiency and DCM performance standards. After the relationship has been identified, the City will use the research results in an updated modeling analysis that applies the test results to other areas on the lake bed with the same general soil type (sand-dominated, silt-dominated or clay-dominated) and under the same range of evaluated emissions or control efficiencies and performance standards as the test. The modeling will cover the entire test period, and will be done in accordance with the Dust ID Protocol. A DCM control map (map) will be prepared of lake bed control efficiencies (with corresponding DCM performance standards) that would be required to achieve the PM_{10} NAAQS everywhere along the historic shoreline with that DCM in the same general soil type

(sand-dominated, silt dominated or clay-dominated) as the test area and under the same range of control efficiencies, emissions, and performance standards evaluated in the test.

The City will then submit this draft map to the APCO for approval. The submittal must contain all the data from the test area and the modeling that produced the map. The APCO has full and sole discretion to approve, disapprove, or modify the draft map.

If the APCO approves the map, the City may apply to the District Board for a SIP Revision to redefine that BACM for that mapped area on the Owens Lake bed. After public notice and comment and a public hearing, the District Board has full and sole discretion to determine whether to adopt the SIP Revision. If a SIP Revision identifying a redefined BACM for Owens Lake is adopted by the District Board and approved by USEPA, the redefined BACM may be implemented anywhere designated by the new DCM control map. If the City has implemented a different DCM in the mapped area, the requirements of the following section below titled "Transitioning From One BACM to Another BACM After 2010" must also be met. If any modeled or monitored exceedance of the PM₁₀ NAAQS results from these adjustments to BACM, the requirements of Board Order 080128-01, Paragraphs 10 and 11, will automatically apply to increase controls on these extreme violators to restore attainment of the NAAQS.

As many of the existing and potential dust control areas on the Owens Lake bed fall under the jurisdiction of the California State Lands Commission and other responsible agencies, the City must secure the appropriate approvals, leases and permits prior to implementing adjustments to existing BACM. However, nothing in this section is intended to give any responsible agency any authority beyond their authority under law.

2. RESEARCH ON POTENTIAL NEW BACM – INCLUDING MOAT & ROW

The City may test new dust control measures at any time on areas of the lake bed that are emissive, except within the 43.0 square-mile 2008 Total Dust Control Area footprint where BACM (or on up to 3.5 square miles, the non-BACM dust control known as Moat & Row) must be implemented by April 1, 2010 or within any Supplemental Control Area where existing BACM has been implemented or is scheduled for implementation. This testing area exclusion does not apply to Moat & Row PM₁₀ controls constructed within the 12.7 square-mile 2006 Supplemental Dust Control Area (SDCA). The City may test up to 3.5 square miles of Moat & Row within the SDCA. If the City has tested a new control measure for three years in this manner, it may apply in writing to the APCO for a SIP Revision to designate the new dust control measure as BACM. The application must meet all USEPA requirements for BACM designation and demonstrate to the APCO's satisfaction that the new control measure is sufficient to achieve the required PM₁₀ emission reductions or control efficiency during the dust season and attain the NAAQS everywhere on the shoreline. The APCO has full and sole discretion to determine whether these conditions have been met.

The application shall include, but not be limited to:

- 1) a description of the new dust control measure

- 2) a description of the test site and the meteorological conditions under which it was tested
- 3) the measured PM₁₀ emissions during the test
- 4) the test time frame
- 5) all raw data collected during the test
- 6) all data screening criteria and final data sets
- 7) data supporting the conclusion that the required control efficiency was achieved
- 8) a performance standard that the new dust control measure must meet in order to achieve the required emission reductions or control efficiency
- 9) an analysis of any environmental impacts of the dust control measure
- 10) the appropriate responsible agency approvals, permits and leases

The application must include modeling that demonstrates that the required PM₁₀ emission reductions or control efficiency can be achieved during the dust season anywhere this control measure may be implemented on Owens Lake, and the NAAQS can be met at all times everywhere along the historic shoreline.

If the APCO determines that the application is complete and the above conditions have been met, he/she will have full discretion to select or approve a method of determining compliance of the proposed new BACM with its performance standard and include that method in the description of the proposed BACM for the SIP Revision. The District Governing Board has full and sole discretion to determine whether to adopt a SIP Revision for approval of any new BACM.

Upon adoption by the District Board, approval by CARB, and submission to USEPA of a SIP Revision that identifies a new BACM for Owens Lake, the City may implement only this one new control measure on one-half square mile of the next area to be identified as needing control under the 2003 SIP Revision Supplemental Control Requirements until EPA approves this new measure as BACM. No other new control measures may be implemented on areas identified as needing control under the 2003 SIP Revision Supplemental Control Requirements until EPA approves this new measure as BACM. The District Governing Board may limit the new BACM to specific circumstances, for example, distance of the new dust control measure from the shoreline or approval in a specific general soil type. Upon approval by USEPA, the new BACM may be implemented per the requirements described in the following section, "Transitioning From One BACM to Another BACM After 2010," or on any subsequent areas requiring control under the "2008 Owens Valley Planning Area Supplemental Control Requirements Procedure" (Board Order 080128-01, Attachment B), subject to any limitation to specific circumstances.

As many of the existing and potential dust control areas on the Owens Lake bed fall under the jurisdiction of the California State Lands Commission and other responsible agencies, the City must secure the appropriate approvals, leases and permits prior to implementing any BACM test or new BACM. However, nothing in this section is intended to give any responsible agency any authority beyond their authority under law.

3. TRANSITIONING FROM ONE BACM TO ANOTHER BACM AFTER 2010

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 after April 1, 2010. The APCO has full and sole discretion to accept, reject or condition the City's application. The transition may be done on no more than one and one-half (1.5) square miles lake-wide for any BACM except Managed Vegetation, or 320 acres lake-wide if the transition is to Managed Vegetation, at one time. The City shall not begin the transition in advance of the APCO's written approval.

The application shall include, but not be limited to:

- 1) a protocol that includes a project description
- 2) a site plan
- 3) a plan to measure PM₁₀ emissions
- 4) a time frame for project milestones and completion
- 5) plans to control PM₁₀ if emissions exceed any trigger value set by the APCO based upon a 140µg/m³ modeled (including background of 20µg/m³) or monitored PM₁₀ concentration at the shoreline
- 6) data supporting the assumption that the transition can be completed and the BACM performance standards can be achieved within three years of the start-up of construction
- 7) project closure procedures if the project is discontinued for any reason or if the PM₁₀ trigger value is exceeded
- 8) any necessary environmental documentation, responsible agency approvals, permits and leases

The protocol must include modeling in accordance with the Dust ID Protocol that predicts that the NAAQS will be met at all times everywhere on the shoreline during the transition period, and must include a method to monitor emissions continuously throughout the transition period. The transition must be complete, and the new BACM performance standard achieved, within three years of written notification from the City to the APCO that they are no longer maintaining the performance standard for the existing BACM, and are beginning the transition.

All raw data must be shared with the APCO, and all data screening criteria must be approved (or disapproved) in writing by the APCO. The APCO may terminate the transition at any time if modeling or monitoring show that emissions are increasing above any pre-set trigger level described in 5) above, or if the City is not following the APCO-approved protocol. The APCO has full and sole discretion to determine whether these conditions have been met.

If the data show to the APCO's satisfaction that the transition has been accomplished while attaining the NAAQS everywhere at the shoreline, the City may submit an application to the APCO to allow another area to be transitioned. The APCO has full and sole discretion to accept, reject or condition the City's application. The same procedures outlined above will apply.

As many of the existing and potential dust control areas on the Owens Lake bed fall under the jurisdiction of the California State Lands Commission and other responsible agencies, the City must secure the appropriate approvals, leases and permits prior to BACM transitions. However, nothing in this section is intended to give any responsible agency any authority beyond their authority under law.

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