SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report
Proposed Amended Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants

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INTRODUCTION

Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants (Rule 1466) minimizes fugitive dust emissions containing toxic metals, pesticides, herbicides, polychlorinated biphenyls, and other toxic air contaminants from sites that meet the rule's applicability requirements by establishing dust control measures that can be implemented during earth-moving activities. Applicable sites are those that are determined to have soil that contains one or more applicable toxic air contaminants and designated as cleanup sites by the U.S. Environmental Protection Agency (U.S. EPA), California Department of Toxics Substances Control (DTSC), State Water Resources Control Board (State Water Board), Regional Water Quality Control Board (Regional Water Board), or county, local or state regulatory agency. Additionally, Rule 1466 has a provision for the Executive Officer to identify sites, based on a set of criteria, to be subject to the requirements of the rule. The rule establishes a PM_{10} ambient dust concentration limit and dust control measures. Notification to the Executive Officer is required prior to beginning earth-moving activities as well as when ambient PM_{10} dust concentration limits are exceeded. Additional requirements include recordkeeping and signage. Currently, Rule 1466 allows alternative dust control measures, ambient dust concentration limits, signage, and other alternative provisions upon Executive Officer approval.

Proposed Amended Rule 1466 – Control of Particulate Emissions from Soils with Toxic Air Contaminants (PAR 1466) will clarify existing provisions; update requirements for pre-approved monitors, and PM_{10} monitoring and calculation; enhance dust control measures for vehicles, stockpiling, periods of inactivity, and sites adjoining a school, joint use agreement property, or athletic area; remove alternative provisions for dust control measures, ambient dust concentration limits, and other requirements; streamline provisions for existing fencing and signage; and add additional requirements for notifications and recordkeeping.

REGULATORY BACKGROUND

South Coast AQMD's regulatory structure for fugitive dust and particulate matter includes rules that address fugitive dust (Rule 403 – Fugitive Dust); volatile organic compounds (VOCs) contaminated soil (Rule 1166 – Volatile Organic Compound Emissions from Decontamination of Soil); and soil containing toxic air contaminant(s) (Rule 1466).

Rule 1466

Rule 1466 was adopted in July 2017 and filled a regulatory gap in controlling fugitive dust from soil containing non-VOC toxic air contaminants, requiring continuous ambient dust monitoring and implementation of enhanced dust control measures. The rule was amended in December 2017 to expand the list of applicable toxic air contaminants to include pesticides, herbicides, other metals, persistent bioaccumulative toxics, and semi-volatile organic compounds. The amendment also expanded the rule's applicability to other government designated sites and clarified existing provisions.

Rule 1166

Rule 1166 was adopted in August 1988 and established requirements to control VOC emissions from excavating, grading, handling and treating VOC-contaminated soil as a result of leakages from storage or transfer operations, accidental spillage or other deposition. Although Rule 1166 targets VOC emission reductions, implementation of the rule also results in concurrent reductions in toxic-VOCs such as benzene, toluene, xylene, and ethylbenzene, which are generally associated

with petroleum products. The rule includes provisions for mitigation plans to limit VOC emissions, notification to the South Coast AQMD, and monitoring requirements; as well as measures to reduce VOC emissions during stockpiling and truck loading. Rule 1166 does not apply to sites with soils containing non-VOC toxics, such as metal toxic particulates and the toxic air contaminants covered under Rule 1466.

Rule 403

Rule 403 was adopted on May 7, 1976. The purpose of Rule 403 is to reduce particulate matter entrained in ambient air as a result of man-made fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 limits particulate matter concentrations, when monitored, and contains control measures to limit fugitive dust. Rule 403 provides a menu of dust control guidance and options for the operator to select. Additional provisions, including more specific dust control measures, are included for large operations (> 50 acres) and for operations where fugitive dust concentrations exceed performance standards. Many sites with toxic air contaminant(s) in the soil are less than 50 acres, and therefore are not required to implement these additional and more specific dust control measures. Also, ambient dust monitoring is not always required under Rule 403. Even when monitoring is required, the 50 $\mu g/m^3$ PM_{10} ambient dust concentration limit may not be sufficiently health protective for toxic air contaminants. Rule 403 and Rule 1466 have some similar provisions, but there is minimal overlap between the two rules for Rule 403 sites, as only a small number of sites are subject to Rule 1466 as compared to Rule 403. Generally, Rule 1466 has more stringent provisions than Rule 403. Where there is overlap in provisions between Proposed Amended Rule 1466 and Rule 403, the more stringent provision applies.

NEED FOR PROPOSED AMENDED RULE 1466

Clarifications are needed for certain monitoring, fencing, and stockpiling requirements to ensure provisions are enforceable. Enhanced monitoring requirements are needed to align with instrument advances. Instrumentation advances in PM_{10} monitoring methods have demonstrated that PM_{10} concentrations can be calculated on a continuous, real-time basis, which can improve the response to a PM_{10} limit exceedance and maintain fugitive dust mitigation. Between 2019 and 2020, there were 23 notified exceedances of the 25 $\mu g/m^3$ PM_{10} concentration limit. These exceedances occurred at eight out of approximately seventy sites. Alternative provisions are removed to streamline rule implementation. Rule provisions including the PM_{10} limit, monitoring method, and calculation, dust control measures, signage, and direct loading requirements have been demonstrated to be achievable with few requests for alternative provisions.

PUBLIC PROCESS

PAR 1466 is being developed through a public process. South Coast AQMD has held two Working Group Meetings remotely on January 14, 2021 and February 5, 2021, and one Instrument Sub-Committee Working Group Meeting remotely on March 23, 2021. The Working Group and Instrument Sub-Committee are each composed of representatives from businesses, environmental groups, public agencies, and consultants. The purpose of the Working Group Meetings is to discuss the proposed rule amendments and allow stakeholders the opportunity to provide input during the rule development process. Additionally, a Public Workshop was held on March 4, 2021.

CHAPTER 2: SUMMARY OF PROPOSAL

INTRODUCTION

PROPOSED AMENDED RULE 1466

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INTRODUCTION

PAR 1466 will clarify and streamline existing provisions, update monitoring requirements, enhance specific dust control measures, remove alternative provisions for most requirements, and add additional requirements for notifications and recordkeeping.

PROPOSED AMENDED RULE 1466

Purpose (Subdivision (a))

For consistency with the revised definition of "Earth-Moving Activities" in paragraph (c)(7) of the proposed amended rule, additional earth-moving activities of "dredging," "earth-cutting and filling," "loading," "unloading," and "mechanized land clearing" are added.

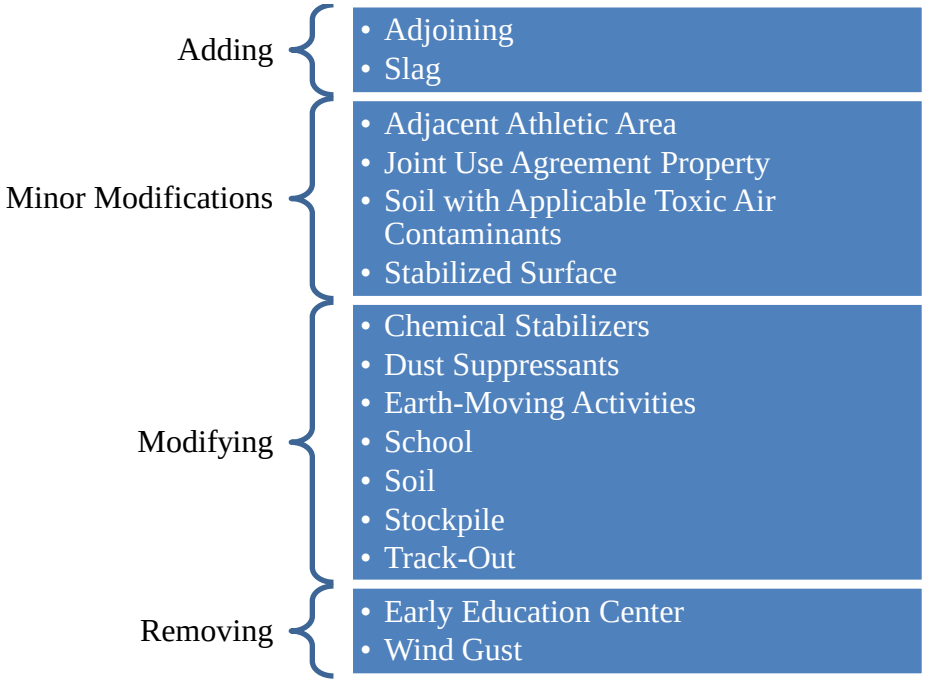
Applicability (Subdivision (b))

In December 2017, Rule 1466 was amended to expand the applicability of the rule to include Hazardous Material Release Sites designated and notified by county, local, or state regulatory agencies. The expanded applicability would be effective January 1, 2018. As this effective date has passed, PAR 1466 will remove this effective date.

Definitions (Subdivision (c))

PAR 1466 includes new, modified, and removed definitions, as listed in Figure 1.

Figure 1: Proposed Definition Revisions



Adjacent Athletic Area and Adjoining Sites (paragraphs (c)(2) and (c)(3))

PAR 1466 paragraph (e)(15) expands the enhanced fugitive dust control measures that currently apply to schools, joint use agreement properties, and adjacent athletic areas, to also include cleanup sites that are adjoining a school, joint use agreement property, or adjacent athletic area. The term

"Adjoining" is added in paragraph (c)(3) and refers to a site that is in physical contact with, or separated solely by, a public roadway or other public right-of-way. An "Adjacent Athletic Area" is now defined in paragraph (c)(2) as any outdoor or athletic field or park where youth organized sports occur that is in physical contact or separated solely by a public roadway or other public right-of-way to a school.

Chemical Stabilizers, Dust Suppressants, and Stabilized Surface (paragraphs (c)(4), (c)(6), and (c)(17))

The definitions for "Chemical Stabilizers" and "Dust Suppressants" are revised to remove circular references. To align with these changes, "Chemical Stabilizers" are incorporated into the definition of "Stabilized Surface" to indicate that a stabilized surface could be achieved through either use of dust suppressants or through chemical stabilization. Due to the proposed amendments to the definitions of chemical stabilizer, dust suppressant, and stabilized surface, all provisions requiring stabilization or a stabilized surface will now allow for the use of chemical stabilizer or dust suppressant to control dust from these sources. Additionally, requirements for how to use chemical stabilizers are removed from the "Chemical Stabilizers" definition and incorporated into paragraph (e)(13).

Earth-Moving Activities (paragraph (c)(7))

The definition for "Earth-Moving Activities" is clarified by removing "but not limited to" and adding additional earth-moving activities of "dredging," "handling," "mechanized land clearing," "treating," "transferring," "removing," and "vehicular movement by equipment associated with these activities." This definition also specifies vehicular movement that would not fall under the "Earth-Moving Activities" definition, including delivery vehicles, passenger vehicles transporting personnel to and from the site, vehicles used for administrative purposes, vehicles transporting personnel for the purposes of soil sampling and conducting ambient PM_{10} monitoring requirements, watering trucks, and equipment used exclusively on an area(s) of the designated site that does not contain soil with applicable toxic air contaminant(s). Vehicular movement associated with activities to prepare the site prior to commencing a cleanup project, such as installing fencing and PM_{10} monitors, also do not fall under this definition. Fugitive dust generated from vehicular movement or any other activity that is either excluded from or not identified in the "Earth-Moving Activities" definition is still subject to Rule 403. Filling operations with soil that is designated to have applicable toxic air contaminants but has been certified as clean by the designating agency after remediation would not fall under the "Earth-Moving Activities" definition.

Early Education Center and School (formerly paragraph (c)(6) and paragraph (c)(13))

For purposes of achieving consistency with recently adopted and amended South Coast AQMD rules, the definition of "School" is revised. This revised definition incorporates the definition of "Early Education Center" from paragraph (c)(6) in the current rule. As a result, the "Early Education Center" definition is deleted along with all references to "Early Education Center" in the rule provisions as well as in the definitions of "Adjacent Athletic Area" and "Joint Use Agreement Property."

Slag and Soil (paragraphs (c)(14) and (c)(15))

A definition for "slag" is added in paragraph (c)(14) and is defined as the by-product material separated from metals during smelting or refining of ore. "Slag" was also added to the list of substances describing "Soil" in paragraph (c)(15) to clarify that soil includes this substance.

Stockpile (paragraph (c)(18))
The current definition of "Stockpile" excludes soil which has been covered or stabilized. This impacts the ability to enforce stockpiling requirements. The exclusion has been corrected.

Track-Out (paragraph (c)(19))
The definition of "Track-Out" is amended to clarify that depositions of soil onto a roadway that cannot be removed by a vacuum sweeper are not subject to the track-out provisions.

Wind Gust (formerly paragraph (c)(20))
This definition is removed as the rule's various provisions for high winds do not reference wind gust.

Monitoring Requirements (Subdivision (d))

PAR 1466 will clarify existing monitoring and concentration calculation provisions to ensure appropriate enforcement of the PM_{10} limit and enhance monitoring requirements to minimize monitoring data gaps and ensure accurate and precise PM_{10} measurements.

Rule 1466 currently requires that the two-hour PM_{10} concentration calculation starts at the top of each hour, despite earth-moving activities not starting at the top of the hour. The intent of the PM_{10} calculation is to monitor the PM_{10} concentration during periods of activity, not periods of inactivity. To clarify this intent, the start of the two-hour PM_{10} concentration calculation is revised to begin when earth-moving activities commence and not at the top of the hour.

Also, as currently written, the PM_{10} calculation does not reset after an exceedance of the 25 $\mu g/m^3$ PM_{10} concentration limit is addressed. After an exceedance is addressed, the two-hour averaging of the PM_{10} concentration should be reset when earth-moving activities resume. If the cause of exceedance was addressed by applying dust suppressants or other mitigation measures, work could not resume until sufficient time had elapsed to allow the two-hour average to be below the standard. The intent of the PM_{10} limit is to alert the operator when there is an exceedance of the limit to increase vigilance of implementing dust control measures; once those measure have been implemented, the operator should not be penalized for the previous exceedance in the current rolling average. To clarify this intent, a provision is added requiring that the two-hour averaging of the PM_{10} concentration be reset when earth-moving activities resume.

Additionally, Rule 1466 currently requires that the PM_{10} concentration be calculated as an absolute difference of the results between the upwind and downwind monitors at the site, regardless of wind direction. This has led to unnecessary delays or stoppages in earthmoving activities. If concentrations at the upwind monitor are elevated due to activities upwind of the site, the absolute difference methodology could result in an exceedance of the 25 $\mu g/m^3$ PM_{10} concentration limit even though the cause of the exceedance is not earth-moving activities on the site. To clarify this intent, provisions are added for designation of upwind monitors and downwind monitors.

Paragraph (d)(2)

PAR 1466 removes the provision which allows use of an alternative PM_{10} limit. Based on rule implementation over the past three years, the 25 $\mu g/m^3$ PM_{10} limit is achievable, and only two sites have requested a higher PM_{10} limit.

To clarify, PM_{10} monitoring must continue as the owner or operator implements dust control measures to bring the PM_{10} concentration below 25 $\mu g/m^3$.

Paragraph (d)(3)

Paragraph (d)(3), which required that the PM_{10} monitoring be conducted using a federal approved equivalent method or an alternative method approved by the Executive Officer, now removes the alternative method and specifies that the PM_{10} monitoring must be conducted using a Rule 1466 Approved PM_{10} Monitor.

Also, paragraph (d)(3) now specifies the requirements for placement and specifications of the PM_{10} monitors. The monitors will continue to be placed in the seasonal prevailing wind direction upwind and downwind of the site and as close to the property line as feasible. However, as clarified in the proposed changes to subparagraph (d)(3)(B), the monitors will no longer be referred to as "upwind" and "downwind" monitors to allow for re-designation of the monitors corresponding to the wind direction when the direction of the wind shifts. Requirements for re-designating the monitors based on the wind direction change are also added in subparagraph (d)(4)(D).

Subparagraph (d)(3)(C) (formerly subparagraph (d)(3)(D)) contains the requirement for PM_{10} monitors to be identical in make and model, settings, calibration, configuration, and calibration, correction, and correlation factors. The term "settings" in subparagraph (d)(3)(C) refers to the run parameters entered into the instrument such as: flow rate, humidity control, conditioning of sample air stream, logging mode and averaging period, run times, zeroing, and correction factor. "Configuration" refers to any of the accessories on the PM_{10} monitor such as the: inlet (omni directional, heated, cyclone, etc.), water trap, zero module, pump, and filter. The phrase "calibration, correction, and correlation factors" refers to any value that scales the concentration output. At the same time, subparagraph (d)(3)(D) (formerly subparagraph (d)(3)(E)) will require that each PM_{10} monitor be operated, maintained, and calibrated in accordance with EPA documents for federal equivalent methods for PM_{10} or manufacturer's instructions, which may actually result in different calibration, correction, and correlation factors for each monitor. To avoid this contradictory result and to ensure that these factors determined pursuant to subparagraph (d)(3)(D) are applied as determined individually for each monitor, it is proposed that the term "calibration" and the phrase "calibration, correction, and correlation factors" be removed from subparagraph (d)(3)(C).

Paragraphs (d)(4) and (d)(5)

To align with the change of the two-hour average from a ten-minute rolling average to a one-minute rolling average, paragraph (d)(5) will require a data acquisition system (DAS) capable of logging direct-reading near real-time data every minute. Additionally, the date and time will need to be calibrated to Pacific Standard Time. Subparagraph (d)(3)(F), which currently requires a DAS capable of logging data every 10 minutes, is now moved to paragraph (d)(4). In order to allow time for stakeholders to prepare for implementation of the new DAS requirement, paragraph (d)(5) will become effective January 1, 2022.

Paragraph (d)(6)

Paragraph (d)(6) is added, which will require monitors to be operated with the heated sampler inlet on. This ensures that humidity will not affect the results of the PM_{10} reading and that all instruments on-site are operating in the same manner, producing results that are as accurate as possible. In order to allow time for stakeholders to prepare for implementation of the heated sampler inlet requirement, paragraph (d)(6) will become effective January 1, 2022.

Paragraphs (d)(7) and (d)(8)

Two additional provisions are proposed to ensure accuracy and precision of the PM_{10} measurements, which include an intra-instrument precision test (paragraph (d)(7)) and a manual zero check (paragraph (d)(8)). Before the monitors can be operated on the site to fulfill the monitoring requirements and proceed with earth-moving activity, the monitors must pass the weekly intra-instrument precision tests and daily zero checks. Prior to conducting the project and on a weekly basis thereafter for the duration of the project, the monitors need to be zero-calibrated then demonstrate an intra-instrument precision of no more than 25 percent when ambient PM_{10} concentrations are 15 $\mu g/m^3$ or greater, or no more than 5 $\mu g/m^3$ when ambient PM_{10} concentrations are less than 15 $\mu g/m^3$. Prior to conducting earth-moving activities for the day, on a daily basis for the duration of the project, the monitors need to pass a manual zero test by demonstrating an average zero reading with a precision ± 3 $\mu g/m^3$. If the monitors have an auto-zero check procedure that directs filtered particle-free air into the measurement chamber, a passing zero check in accordance with manufacturer's instructions can be conducted in lieu of conducting a manual zero check.

Procedures for conducting the intra-instrument test, including the equations to calculate the intra-instrument precision, are provided in PAR 1466 Appendix 2 - Procedures to Demonstrate Intra-Instrument Precision. Intra-instrument precision tests will ensure precise results. Using monitors that demonstrate an acceptable level of "precision," or degree of variation, is important to ensure accurate measurements and objective enforcement of the Rule 1466 PM_{10} limit. The proposed 25 percent limit for intra-instrument precision is 15 percent higher than the acceptable relative standard deviation (10 percent) required in 40 CFR Part 53 – Appendix A Subpart C Table C-4[1] for measuring precision for PM_{10} candidate equivalent methods. Staff has proposed, and instrument manufacturers agreed, that the proposed precision requirement is reasonable since these are not U.S. EPA Federal Equivalent Method (FEM) instruments and cannot be expected to meet the same specifications.

When ambient PM_{10} concentrations are low, calculations to achieve a 25 percent precision are difficult and, therefore, an absolute value precision is needed. The *Monitoring Certification Scheme* (*MCERTS): Performance Standard for Indicative Ambient Particulate Monitors*[2], which is a reference used to develop the instrument requirements for this rule, contains a performance standard for intra-instrument uncertainty for PM_{10} monitors in absolute value. The MCERTS intra-instrument uncertainty standard for a candidate PM_{10} monitoring method, or a method being considered by the certification body, is $\leq$ 5 $\mu g/m^3$ for all PM_{10} concentration ranges of less than and greater than or equal to 30 $\mu g/m^3$. The proposed 5 $\mu g/m^3$ limit for intra-instrument precision is based on this intra-instrument uncertainty.

A lower limit value for ambient PM_{10} concentrations is needed to determine if the intra-instrument precision should be calculated as a percent or an absolute value. The lower limit value for low-volume PM_{10} samplers is $\geq$ 3 $\mu g/m^3$ and the lower limit value for high-volume PM_{10} samplers is $\geq$ 15 $\mu g/m^3$ for measuring uncertainty of collocated samples required by 40 CFR Part 58 -

[1] "Test Specifications for PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$ Candidate Equivalent Methods." *Code of Federal Regulations* Title 40, Part 53, Appendix A, Subpart C, Table C-4.

[2] MCERTS (U.K. Environmental Agency Monitoring Certificate Scheme): performance standard for indicative ambient particulate monitors: https://www.gov.uk/government/publications/mcerts-performance-standard-for-indicative-ambient-particulate-monitors

Appendix A Section 4.c.4[3]. Because staff expects the ambient concentrations will always meet or exceed the PM_{10} concentration lower limit value of ≥ 3 μg/m^3 staff has proposed a lower limit value of 15 μg/m^3 to determine whether to demonstrate the 25 percent limit or the 5 μg/m^3 limit.

Procedures for conducting the zero calibration and manual zero check are provided in Steps 4 and 5 of Appendix 2. Zero calibrations will ensure that the instrument corrects for measurement drift that occurs over time due to various factors by adjusting an internal instrument setting. Some particulate monitoring instruments allow the operator to perform a manual zero check where a HEPA or zero air filter is manually installed on the inlet of the instruments and the manual zero check confirms that the instrument is reading at or near "0" when clean (zero) air is introduced into the measurement chamber during normal operation. No adjustments are made during manual zero checks. The criteria for passing a manual zero check is demonstrating an average zero reading with a precision ± 3 μg/m^3 over 10 minutes, which is above the instrument noise and indicates the air flow through the inlet is clean (near zero). Some particulate monitoring instruments are capable of performing auto-zero checks where the instrument can be programmed to redirect the sample air flow through an internal HEPA or zero air filter and the filtered air is then directed into the measurement chamber. If the monitors have this auto-zero capability, then passing the zero check in accordance with manufacturer's instructions can be conducted in lieu of conducting a manual zero check. If a monitor fails a manual zero or auto-zero check, a zero calibration must be performed again and/or any issue(s) causing the zero check failure corrected, then a passing manual zero or auto-zero check be conducted before proceeding with monitoring.

Either a site operator, equipment rental company supplying the monitors, or other third party can conduct the intra-instrument precision tests. If an equipment rental company or other third party conducts the intra-instrument precision tests, the company must provide the site operator documentation with supporting data, to be made available to the Executive Officer upon request, certifying that these tests were conducted and demonstrated a passing intra-instrument precision pursuant to the limits specified in subparagraphs (d)(7)(A) or (d)(7)(B).

In order to allow time for stakeholders to prepare for implementation of these new provisions, paragraphs (d)(7) and (d)(8) will become effective January 1, 2022.

Paragraph (d)(9)

The calculation methodology currently used to determine the 120-minute rolling average PM_{10} concentration is found in paragraph (d)(9). The average is now proposed to begin as work commences instead of at the top of the hour (subparagraph (d)(9)(A)) to ensure monitoring of PM_{10} is conducted during periods of activity and minimize gaps in monitoring data.

Until December 31, 2021, the average will continue to be calculated every ten minutes (subparagraph (d)(9)(B)). Beginning January 1, 2022, subparagraph (d)(9)(C) requires that the average be calculated each minute covering the previous 120-minute period. Changing the two-hour average from a ten-minute rolling average to a one-minute rolling average updates the requirements to reflect current instrument technology capabilities. This delay in implementation is intended to provide stakeholders with sufficient time to prepare for implementation of the new provisions.

[3] "Quality Assurance Requirements for Monitors Used in Evaluations of National Ambient Air Quality Standards." *Code of Federal Regulations* Title 40, Part 58, Appendix A.

Currently, to calculate the PM_{10} concentration, Rule 1466 uses the absolute difference between the two monitors. PAR 1466 proposes to designate a monitor(s) as the "upwind" monitor(s) while the other monitor(s) will be designated as the "downwind" monitor(s) depending on the wind direction. The concentration will be determined by subtracting the results of the upwind monitor(s) from the downwind monitor(s). Once the wind direction shifts to greater than ± 90 degrees from the seasonal prevailing wind direction, then the designation of monitors change and upwind becomes downwind and downwind becomes upwind (subparagraph (d)(9)(D)). Current Rule 1466 requires PM_{10} to be calculated using absolute value, but that may trigger a PM_{10} exceedance if there are activities upwind of the site elevating upwind concentrations. Removing the absolute value would better characterize PM_{10} exceedances at the site.

New subparagraphs (d)(9)(G) and (d)(9)(H) will allow the rolling average to restart once work recommences after having ceased because of an exceedance. Specifically, the rolling average will restart after ceasing operations and applying dust suppressant or implementing other dust control measures until the PM10 concentration falls to or below 25 $\mu g/m^3$ averaged over 30 minutes. The intent of the PM_{10} limit is to alert the operator when there is an exceedance of the limit to increase vigilance of implementing dust control measures; once those measure have been implemented, the operator should not be penalized for the previous exceedance in the current rolling average.

PAR 1466 removes the provision which allows use of an alternative PM_{10} concentration calculation method (previously subparagraph (d)(4)(D)). Based on rule implementation over the past three years, no sites have requested an alternative calculation method.

Paragraph (d)(10)

PAR 1466 adds a new provision to address operators that move the PM_{10} monitors when there is a change in wind direction. Instead of placing a monitor(s) in the upwind location and a monitor(s) in the downwind location based on the seasonal prevailing wind direction as required in subparagraph (d)(3)(B) and re-designating the "upwind" and "downwind" monitors following a wind direction change greater than ± 90 degrees as required in subparagraph (d)(9)(D), the operator can now elect to place at least one monitor in the upwind direction and one monitor in the downwind direction of the site of earth-moving activity and move the monitors accordingly when there is a change in wind direction. Unless the site has additional upwind and downwind monitors that are not being moved, operators must stop earth-moving activities during monitor movement.

Paragraph (d)(11)

If a DAS fails to log ambient PM_{10} data or the data management system fails to calculate PM_{10} concentrations due to circumstances beyond the reasonable control of the owner or operator, such as internet issues or computer malfunctions, earth-moving activities may continue provided that the PM_{10} concentration at each monitor is manually recorded once every ten minutes and the PM_{10} concentration is calculated manually once every 10 minutes. As soon as practicable but no later than the start of the next working day, the owner or operator must correct the failure and restore the DAS or data management system to working condition.

Paragraph (d)(12)

Currently, Rule 1466 requires wind direction and speed to be monitored as specified in *U.S. EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements.* Instrument manufacturers and site operators have commented, and staff agrees, that the high standard of wind monitoring specified in the U.S. EPA handbook may not be feasible, particularly for small-scale and short-term projects. Therefore, to implement a more feasible

standard of wind monitoring, PAR 1466 proposes that wind direction and speed be monitored using a stationary anemometer or wind sensor that is positioned over open, level terrain within the site at a height of at least eight feet from the ground, and the wind monitoring data logged using a data logger. The data logger must record the wind monitoring data at least once every minute and archive the data, including the date and time, calibrated to Pacific Standard Time. The anemometer or wind sensor must be capable of sampling wind direction to an accuracy of seven degrees at a resolution of ≤ one degree, and sampling wind speed to an accuracy of ± two mph or ± five percent of the observed wind speed, whichever is greater, at a resolution of ≤ one mph. Wind speed and direction performance criteria can be verified in the published literature for the anemometer or wind sensor. To ensure that the anemometer or wind sensor performance is accurate and precise, the anemometer or wind sensor must have National Institute of Standards and Technology (NIST) Traceability certification, which certifies that an unbroken chain of calibrations to NIST-maintained standards are established for the particular instrument[4]. Wind sensors that are integrated with the PM_{10} monitor are acceptable if the sensors meet the wind speed and wind direction performance criteria and have NIST-Traceability certification. Use of handheld anemometers cannot be used to monitor the wind direction and speed required in this provision. The wind monitoring equipment must be operated, calibrated, and maintained in accordance with manufacturer's instructions, but no less frequent than once every six months of cumulative operation.

Paragraph (d)(13)

A request to be added as a Rule 1466 Approved PM_{10} Monitor shall be submitted to Rule1466ApprovedMonitors@aqmd.gov and must include a description of the monitor, any accessories, and all monitor specifications and include documentation demonstrating compliance with each specification listed in *Appendix 1 - Rule 1466 Approved PM_{10} Monitors* of the rule.

Requirements to Minimize Fugitive Dust Emissions (Subdivision (e))

The control measures to minimize fugitive dust are contained in subdivision (e) and include requirements for fencing, dust suppression, vehicular movement, stockpiles, truck loading, and others.

Paragraph (e)(1)

PAR 1466 incorporates a fencing provision which excludes the fencing requirement for sections of the perimeter that either have a solid physical barrier or have earth-moving activities occurring far away from fence line. The first proposed fencing provision (subparagraph (e)(1)(A)) allows a section of the perimeter to be excluded from fencing if that section has a solid physical barrier with the same height requirements as the fencing requirement. A solid physical barrier is a solid feature that minimizes air flow, such as a wall, metal or fiberglass panel, or storage or transport container. Commercial, industrial, or residential buildings with occupants and windows, trees, and vegetation are not considered solid physical barriers. Having a solid physical barrier with the same height requirements as the fencing will be as effective as installing fencing meeting the specified windscreen porosity of 50 ± 5 percent or mesh windscreen meeting the specified shade value or opacity of 85 ± 5 percent (paragraph (e)(2)) in minimizing dust crossing the property line. Subparagraph (e)(1)(B) allows a section of the perimeter to be excluded from fencing if that section is more than 300 feet away from any earth-moving activity. If the property line is far enough away from the earth-moving activities, then it is less likely that fugitive dust will cross the property line.

[4] NIST Policy on Metrological Traceability: https://www.nist.gov/calibrations/traceability

These are exclusions from the fencing requirement and do not exclude any other provisions in the rule.

Paragraph (e)(2)

Currently, Rule 1466 requires fencing that consists of a windscreen with a porosity of 50 ± 5 percent. A windscreen with a porosity of 50 percent has been shown to provide optimum windbreak efficiency[5,6]. In relation to particulate emissions, a 50% porosity windscreen of the same height of the material pile and same length as the base of the pile demonstrated emission reduction up to 97%[7]. Throughout implementation of Rule 1466, site operators have commented that it is difficult to find commercially available windscreens that state a porosity specification. Staff has identified only one windscreen manufacturer that states porosity specifications, but the windscreens offered are for permanent installation. Commercially available windscreens for temporary installation typically have a shade value or opacity specification, which is a measure of visibility that is blocked through the screen. Windbreak efficiency data is unavailable for shade value or opacity. However, fencing manufacturers providing shade value or opacity specified windscreen material have recommended to staff that a windscreen of 80-90% shade value or opacity is ideal for wind protection and dust control. Therefore, to address the availability of windscreens that can comply with Rule 1466, PAR 1466 proposes, effective January 1, 2022, to add a windscreen specification option of 85 ± 5 percent shade value or opacity. The proposed rule also adds "mesh" windscreens to add clarity to the shade value or opacity windscreen specification that the rule allows. Additionally, the height of the fencing must now be at least six inches taller than the height of the tallest stockpile.

Paragraph (e)(4)

Currently, Rule 1466 does not allow track-out to extend beyond 25 feet of the property line and requires track-out to be cleaned with a vacuum equipped with a filter rated to achieve 99.97 percent capture efficiency for 0.3 micron particles. PAR 1466 proposes to revise the provision to not allow track-out that is 25 feet or more in cumulative length instead of continuous length, in an effort to more closely align the provision with Rule 403 and further minimize total track-out from the site. The proposal also clarifies the frequency of track-out removal to be at a minimum once each day. Additionally, the proposal will correct the language regarding the filter efficiency to require 99.97 percent "control" efficiency, as opposed to "capture" efficiency; "control" efficiency refers to the percentage of particles in the air stream that can be trapped by the filter at a minimum particle size whereas "capture" efficiency refers to the percentage of particles in the air stream that can reach the filter.

Subparagraph (e)(4)(D) adds language to clarify that forced air cannot be used to clean soil from the exterior of trucks, trailers, and tires prior to the truck leaving the site as the use of forced air will create fugitive dust emissions. For the vehicle egress measures in subparagraph (e)(4)(E), PAR 1466 increases the width requirement of paving and wheel shaker/wheel spreading device to be 30 feet wide to align with the width requirement of the gravel pad.

[5] U.S. EPA. 1985. Handbook for Dust Control at Hazardous Waste Sites. Prepared by PEI Associates Inc. Contract No. 68-02-3512.

[6] U.S. EPA. 1986. Field Evaluation of Windscreens as a Fugitive Dust Control Measure for Material Storage Piles. Prepared by PEI Associates Inc. Contract No. 68-02-3995.

[7] U.S. EPA. 1985. Windbreak Effectiveness for Storage-Pile Fugitive-Dust Control: A Wind Tunnel Study. Project Summary. Prepared by Billman BJ and Arya SPS.

Paragraph (e)(5)

PAR 1466 clarifications and enhancements related to stockpiles with soil containing applicable toxic air contaminant(s) are currently included in paragraph (e)(5). New subparagraph (e)(5)(B) is separated from subparagraph (e)(5)(A) to clarify that labeling only applies to stockpiles containing soils with toxic air contaminants. Subparagraph (e)(5)(D) (formerly subparagraph (e)(5)(c)) removes the height requirement for a stockpile. This provision is no longer needed since paragraphs (e)(1) and (e)(2) have a fencing height requirement based on the height of the tallest stockpile.

Due to the proposed amendments to the definitions of chemical stabilizer and dust suppressant, subparagraph (e)(5)(E) will now allow for the use of chemical stabilizer or dust suppressant to control dust from a stockpile. Subparagraph (e)(5)(E) will also allow an additional option to use a cover to control dust from a stockpile.

To minimize fugitive dust emissions to the surrounding community, subparagraph (e)(5)(F) now specifies that the provisions to stabilize and/or cover stockpiles apply whenever both earth-moving and ambient monitoring are not occurring. The stockpiles do not have to be completely covered or stabilized during periods of inactivity (breaks, lunch, etc.) if ambient monitoring continues. The requirements for daily stockpile inspection and stockpile covers in subparagraph (e)(5)(F) are moved to paragraphs (e)(12) and (e)(14), respectively.

Paragraphs (e)(6) and (e)(7)

For consistency and clarity, PAR 1466 will include the truck bed and trailer for truck loading and unloading activities.

Paragraph (e)(8)

PAR 1466 will remove the reference to "soil containing applicable toxic air contaminants" for removal of any spilled soil. Staff was concerned that referencing "soil containing applicable toxic air contaminants" implies operators would need to analyze spilled soil. The revision clarifies that any spilled soil will be required to be removed, which will ensure fugitive dust emissions will be minimized.

Paragraph (e)(11)

Instead of stabilizing sources of fugitive dust when there are no earth-moving activities occurring for three or more consecutive days, sources of fugitive dust must be stabilized whenever earth-moving activities are not occurring in the specific location(s) where there is a fugitive dust source. For example, if the owner or operator completes earth-moving activities at one or more locations containing a potential source of fugitive dust, and there are earth-moving activities occurring or will occur in other parts of the site, the owner or operator must stabilize or cover the fugitive dust sources even though earth-moving activity is still occurring on the site. This provision will minimize exposure of soil with toxic air contaminants to the surrounding community during all non-working hours instead of only when there are no earth-moving activities occurring for three or more consecutive days.

Paragraph (e)(12)

The daily inspection provision for stabilized and covered stockpiles is now moved from subparagraph (e)(5)(F) to this paragraph. Daily inspections are clarified to include days when no earth-moving activities are occurring, which is consistent with the original intent of the provision.

For stabilized stockpiles, daily inspections must include demonstration that stabilized stockpiles are stabilized pursuant to one or more South Coast AQMD dust control test methods. For covered stockpiles, daily inspection must include visual examination that stockpile covers are in good condition with no soil exposed to the atmosphere. Additionally, inspection includes verifying that labeling on contaminated stockpiles is accurate, affixed properly, and legible. Lastly, language that implied that re-stabilizing stockpiles or repairing holes or tears in covers is only necessary after inspections is now removed.

Paragraph (e)(13)

The specifications for use of a chemical stabilizer that were previously contained in the definition of the term "chemical stabilizer" are now included as requirements set forth in paragraph (e)(13) to ensure stockpiles and potential sources of fugitive dust are stabilized at all times when there is no earth-moving activity and ambient monitoring occurring.

Paragraph (e)(14)

Requirements for stockpile covers that were contained in subparagraph (e)(5)(F) are now included as requirements set forth in paragraph (e)(14). The unit of measurement for cover thickness is corrected to say "mil" not "millimeter". Language is also added to allow covers thicker than 10 mil.

Paragraph (e)(15)

PAR 1466 expands the enhanced fugitive dust control measures that apply to schools, joint use agreement properties, and adjacent athletic areas, to sites that are adjoining a school, joint use agreement property, or adjacent athletic area. This will further protect children from a cleanup operation that is adjoining a school-related property. To be consistent with the changes in paragraphs (e)(6) and (e)(7) and with paragraphs (k)(3) and (k)(4), the direct soil loading into trucks is clarified to specify direct loading into truck beds or trailers.

Former Paragraph (e)(12)

PAR 1466 removes the general provision to allow use of alternative dust control measures. Alternatives previously identified over the past three years of rule implementation are instead included within the language of the rule where appropriate.

Notification Requirements (Subdivision (f))

Operators have provided input to staff about the lack of a provision addressing notifications of earth-moving activities of soils with applicable toxic air contaminant(s) that exceed 50 cubic yards after the activities have started. Staff has also requested that a notification be provided when earth-moving operations have concluded for the project.

Paragraph (f)(1)

PAR 1466 includes notification requirements for sites that exceed 50 cubic yards after the activities have started in clause (f)(1)(A)(ii). Those sites will be required to notify South Coast AQMD as soon as the information becomes available, but no later than 48 hours after the 50 cubic yard threshold has been exceeded. To be consistent with the enhanced provisions at properties adjoining schools, joint use agreement properties, and adjacent athletic areas, clause (f)(1)(B)(v) now includes notification if the site is adjoining a school, joint use agreement property, or adjacent athletic area.

Paragraph (f)(2)
PAR 1466 subparagraph (f)(2)(D) is added to require notification when the project's earth-moving activities are completed. Cleanup is deemed complete when there will be no further earth-moving activities and not necessarily when the designating agency removes the designation from the site. Notifying staff of project completion assists staff in inspection planning and complaint investigations.

Paragraph (f)(3)
When an exceedance occurs, subparagraph (f)(3)(E) will now require that the wind direction and speed and location of the PM_{10} monitors be provided as part of the notification. This will ensure that the monitors are appropriately being designated as upwind and downwind.

Signage Requirements (Subdivision (g))
Signage is required to inform the community that the site may contain soils with toxic air contaminants. PAR 1466 retains the provision to allow requests for alternative signage, and several alternative provisions are proposed to be incorporated into this subdivision.

Paragraph (g)(1)
Clause (g)(1)(D)(ii) clarifies that on the signage, in addition to the facility contact, the phone number of the site operator or pre-recorded notification center specified in clause (g)(1)(D)(i) is required. PAR 1466 also separates paragraph (g)(1) into several parts. The provision allowing smaller lettering to list applicable toxic air contaminant(s) if the signage exceeds 48 inches by 96 inches is moved to paragraph (g)(2). Finally, the requirement for Executive Officer approval for alternative signage that was in paragraph (g)(2) is now moved to paragraph (g)(3).

Paragraph (g)(4)
PAR 1466 paragraph (g)(4) includes an exclusion for signage that would not require Executive Officer approval. Signage is not required along any section of the perimeter that is not visible and not accessible to the public. This exclusion does not apply to a perimeter that is a school, joint use agreement property, or adjacent athletic area or to a perimeter that is adjoining a school, joint use agreement property, or adjacent athletic area.

Recordkeeping Requirements (Subdivision (h))
Records are required to assist in the enforcement of the provisions of the rule.

Paragraph (h)(1)
Additional records are required to note that re-stabilization, cover repair, and label maintenance have been conducted.

Paragraph (h)(2)
Ambient PM_{10} data, rolling average concentrations and calculations, wind direction and speed, movement of monitoring instruments corresponding to wind direction changes, proof of valid calibration of the monitors per manufacturer's recommended schedule (e.g. log inside the instrument firmware, manufacturer sticker on the instrument, manufacturer-issued certificate), manual zero or auto-zero check results, zero calibration records, intra-instrument precision test results, and instrument logs will be required.

Paragraph (h)(3)
Records of all instrument maintenance activities, including the dates and times of these activities, will be required. Instrument maintenance activities include zero calibration when there is zero drift

in the monitor readings, instrument cleaning and filter replacement after high particulate emission events (e.g. smoke from wildfires, high wind dust events), and instrument performance checks.

Paragraph (h)(4)
Documentation of all DAS and data management system failures will be required. The documentation should include the date and time of the failure, the date and time of the correction of the failure, the technical issue causing the failure, and steps taken to correct the failure and restore the failed DAS or data management system to working condition.

Paragraph (h)(8)
Copies of all submitted notifications for the project, either maintained on paper or electronic form, will be required.

Executive Officer Designated Sites (Subdivision (i))

For consistency and to further protect children from a cleanup operation that is adjoining a school-related property, PAR 1466 adds that distance to a joint use agreement property, adjacent athletic area, or a site adjoining a school, joint use agreement property, or adjacent athletic area be considered by the Executive Officer when designating a site.

Alternative Provisions (Subdivision (j))

Currently, Rule 1466 allows alternative dust control measures, ambient dust concentration limits, signage, and other alternative provisions upon Executive Officer approval. Alternative provisions were originally included when the rule was newly adopted to allow for flexibility to meet the rule requirements, ensuring the requirements were feasible and not disruptive to cleanup operations. Review of alternative provisions requests is resource intensive as the Executive Officer must evaluate that the alternative measure meets the same objectives and effectiveness as the provision the alternative is replacing. Over the three-year implementation period, no alternative measures were requested for a number of these provisions. PAR 1466 will incorporate additional measures as appropriate into the applicable provisions and remove alternative provisions for dust control measures, ambient dust concentration limits, and other requirements to streamline requirements. Alternative provision requests for signage requirements are retained and incorporated within the language of the rule. To align with the removal of alternative provisions for dust control measures, *Appendix 2 - Objectives and Effectiveness of Dust Control Measures Set Forth in Subdivision (e)* is proposed to be deleted. Proposed paragraph (j)(5) allows projects that currently have approved alternative provisions to continue using those provisions until their expiration dates, which will not be allowed to be renewed or extended.

Exemptions (Subdivision (k))

Exemptions provide regulatory flexibility for smaller or specialized cleanup operations. Currently, exemptions are provided for operations vented to air pollution control, linear trenching, excavations of less than 500 cubic yards, emergencies, and utility outages.

Paragraphs (k)(3) and (k)(4)
The alternative provisions for direct truck loading have been removed. Over the three-year implementation period, no alternative measures were requested for these provisions. To be consistent with the changes in paragraphs (e)(6) and (e)(7), direct soil loading into a truck is clarified to specify direct loading into a truck bed or trailer. Additionally, the requirements of stockpile inspections in paragraph (e)(12) and stockpile covering in paragraph (e)(14) are removed

as these requirements will no longer be applicable due to the removal of alternative provisions for these two exemptions.

Paragraphs (k)(5) and (k)(6)
"Active operations" is replaced with "on-site earth-moving activities" for consistency with the applicability of the rule to earth-moving activities on cleanup sites.

Table I - Applicable Toxic Air Contaminants

Table I lists the substances that applicable to Rule 1466. For clarification, congener names of the polychlorinated biphenyls (PCBs) listed in Table I - Applicable Toxic Air Contaminants are added. To clarify questions regarding whether or not Aroclors are included in Table I, the PCB with Chemical Abstract Service (CAS) Number 1336-36-3 does include Aroclors. In December 2017, Rule 1466 was amended to expand the list of applicable toxic air contaminants to include pesticides, herbicides, other metals, and persistent bioaccumulative toxics commonly found at contaminated sites above background levels. The expanded list became effective January 1, 2018. As this effective date has passed, PAR 1466 will remove reference to this effective date.

Appendix 1 - Rule 1466 Approved PM_{10} Monitors

Rule 1466 Appendix 1 currently provides alternative Executive Officer approved PM_{10} monitor requirements. PAR 1466 Appendix 1, now titled "Rule 1466 Approved PM_{10} Monitors," separates current requirements into physical and performance requirements for monitor approval.

Physical Requirements
The requirement for volumetric flow controller is removed and replaced with the requirement for a sample pump with an active flow control mechanism. The requirement for a volumetric flow controller excludes instruments with different flow control mechanisms (e.g. mass) from being pre-approved. This clarifies the requirement that monitors need to be equipped with a flow control mechanism and excludes monitors with no flow control mechanism and passive sampling devices. A requirement for conductive tubing that minimizes particle loss to be used for any external tubing used to carry sampled air, is added.

Performance Requirements
Throughout implementation of the Rule 1466 monitor approval requirements, staff has observed that manufacturers establish accuracy differently and some do not include accuracy in their instrument specification materials. "Accuracy" is the difference between the instrument measured value and a true value obtained by a reference method. To standardize the accuracy performance requirement for Rule 1466 approved monitors, PAR 1466 clarifies that accuracy be determined through factory testing against a U.S. EPA Federal Reference Method or Federal Equivalent Method, and the accuracy limit be demonstrated for a minimum of 30 measurements, each averaged over 24 hours. The minimum of 30 measurements is prescribed in Table C-4 of 40 CFR Part 53 Subpart C[8] for measuring accuracy for PM_{10} candidate equivalent methods. PAR 1466 also adds a statistical parameter, a coefficient of determination (R^2) value of ≥ 0.95 obtained from simple linear regression, as an option to demonstrate accuracy. A requirement for the flow control accuracy of ± 5 percent of factory setpoint for the active flow sample pump is added. Additionally, a provision is added and allows monitors that have a valid Monitoring Certification Scheme certification meeting the latest version of *Monitoring Certification Scheme* (*MCERTS):*

[8] "Test Specifications for PM_{10}, $PM_{2.5}$ and $PM_{10-2.5}$ Candidate Equivalent Methods" *Code of Federal Regulations* Title 40, Part 53, Subpart C, Table C-4.

Performance Standard for Indicative Ambient Particulate Monitors to be exempt from meeting the performance requirements. These performance standards were used as a reference to develop the instrument requirements for this rule. Additionally, MCERTS certification is widely used by manufacturers to demonstrate instrument performance and reliability.

Quality Assurance/Quality Control Requirements

"Span" was removed from the language regarding daily instrument performance checks as span checks are typically with gas and vapor direct-reading instruments. Additional recordkeeping to demonstrate compliance with the quality assurance/quality control requirements for the monitors are added into subdivision (h).

Appendix 2 - Procedures to Demonstrate Intra-Instrument Precision

Appendix 2 includes the procedures and calculations necessary to demonstrate intra-instrument precision as required by paragraph (d)(7) as well as procedures necessary to conduct the manual zero check as required by paragraph (d)(8).

Steps 1 through 3 set up the PM_{10} monitors for testing and ensure variables that contribute to differences in ambient measurement such as inlet height, monitor location, and instrument performance are consistent for the purpose of testing intra-instrument precision. All monitors to be tested must be:

1. The same in make and model, settings, and configuration;
2. Collocated such that the sampling inlets are the same height and between one and four meters apart; and
3. Powered on with the heated sampler inlet and fully warmed-up or have stabilized readings.

Steps 4 and 5 are the last preparation steps to ensure measurement errors are minimized before starting the intra-instrument precision test. Step 4 requires zero-calibrating each monitor in accordance with manufacturer's instructions, then confirming the validity of each zero calibration by performing a manual zero check. Zero calibration is a procedure to correct an instrument for measurement drift and ensure the instrument is clean and there are no interferences. A zero check indicates that the instrument is reading "0" when measuring clean (zero particle) air. To conduct the manual zero check, the sampling inlet is removed and a HEPA or zero air filter is installed on the inlet of the monitor. If the monitors have an auto-zero check feature that directs filtered particle-free air into the measurement chamber, a passing zero check in accordance with manufacturer's instructions can be conducted in lieu of conducting the manual zero check. Step 5 requires logging of the PM_{10} readings every minute for at least 10 minutes while the HEPA or zero air filter is installed on the inlet and demonstrating an average of zero ± 3 $\mu g/m^3$ from the logged PM_{10} readings for each monitor as required by paragraph (d)(8). If the average PM_{10} readings do not result in zero ± 3 $\mu g/m^3$ or the auto-zero check fails for any of the monitors, then the monitor must be zero-calibrated again and/or corrected for any issue(s) causing the zero check failure and pass another manual zero check. After each monitor passes the manual zero or auto-zero check, the intra-instrument precision test can begin.

Steps 6 through 8 contain the actual intra-instrument precision test including the equations necessary to calculate the intra-instrument precision pursuant to paragraph (d)(7). This requires placing any sampling inlet that was removed back on the monitor and after 10 minutes of waiting, running the monitors simultaneously and logging the PM_{10} readings every minute for at least 60 minutes. Step 7 specifies the equations to be used to calculate the intra-instrument precision. If the

logged PM_{10} readings in Step 6 are ≥ 15 μg/m^3, then the intra-instrument precision must be calculated pursuant to Step 7a. Step 7a contains the calculations corresponding to the 25 percent intra-instrument precision limit as specified in subparagraph (d)(7)(A) as a percent relative standard deviation or correlation of variation among the averaged PM_{10} readings calculated for each tested monitor from the data logged during Step 6. If the logged PM_{10} readings in Step 6 are < 15 μg/m^3, then the intra-instrument precision must be calculated pursuant to Step 7b. Step 7b contains the calculations corresponding to the 5 μg/m^3 intra-instrument precision limit as specified in subparagraph (d)(7)(B) as a standard deviation among the among the averaged PM_{10} readings calculated for each tested monitor from the data logged during Step 6. Step 8 requires recording the results of the calculations performed in Step 7.

CHAPTER 3: IMPACT ASSESSMENT

POTENTIALLY IMPACTED SITES

COMPLIANCE COSTS

SOCIOECONOMIC ASSESSMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

COMPARATIVE ANALYSIS

POTENTIALLY IMPACTED SITES

A review of Rule 1466 initial notifications submitted between 2019 and 2020 indicate approximately 32 sites per year have been subject to Rule 1466. Many of the initial notifications were submitted for multiple projects stemming from the Exide cleanup site. The number of applicable sites can fluctuate based on sites that meet the applicability provisions. The proposed amendments in PAR 1466 will not increase the number of affected sites.

COMPLIANCE COSTS

Proposed additional requirements for PM_{10} monitoring, stabilization of soil, and dust control measures for sites adjoining schools, joint use agreement properties, and adjacent athletic areas will add some compliance costs to owners or operators. The costs are estimated using actual costs provided by facilities, instrument vendors, and cost estimates from previous rulemaking efforts for Rule 1466.

The requirement to have the heated inlet on at all times when operating the PM_{10} monitors will increase power usage by approximately 200 watts per hour. While the electricity usage and cost is negligible, some sites may have to provide an electrical connection or additional solar panels. The cost to provide the electrical connection is estimated to be $500 and the cost of additional solar panels is estimated to be $1,000 to $2,000 per site. In sum, the additional cost to have the heated inlet on at all times when operating the monitors will be between $16,000 to $64,000 per year.

The data management system needed to calculate and log the rolling 120-minute average will cost approximately $2,100 for the system and data plan per site. Conservatively estimating that all of the sites will require an electrical connection and a data management system, the total annual cost increase will be approximately $83,200.

Increasing the frequency of stabilizing the soil daily rather than when activity stops for three or more days will add approximately $500 for water and dust suppressants per site. The estimated annual cost increase is $16,000.

An estimated one site per year will be adjoining a school and be required to meet more stringent standards. From the Socioeconomic Assessment in June 2017 Final Staff Report for Proposed Rule 1466, the site adjoining a school-related property is expected to increase the use of water and dust suppressants and plastic sheeting to minimize fugitive dust from directly loaded soils prior to transport and install additional fencing for stockpiles. The estimated annual cost increase for these additional measures is $4,200 per year.

The annual total cost increase resulting from PAR 1466 is estimated to be between $3,600 and $5,100 per typical site and between $7,800 and $9,300 per site adjoining a school, joint use agreement property, or adjacent athletic area.

SOCIOECONOMIC ASSESSMENT

California Health & Safety Code §40440.8 requires a socioeconomic impact assessment for proposed and amended rules resulting in significant impacts to air quality or emission limitations. This assessment shall include affected industries, range of probable costs, cost effectiveness of control alternatives, and emission reduction potential. Proposed Amended Rule 1466 - Control of Particulate Emissions from Soils with Toxic Air Contaminants (PAR 1466) would require affected

facilities to purchase additional equipment and increase power usage to meet the PM_{10} monitoring requirements, as well as incur additional costs for fugitive dust suppression and soil stabilization.

Affected Facilities and Industries

PAR 1466 is expected to potentially affect a total of 32 sites per year, based on initial notifications received between 2019 and 2020. Many of the initial notifications were related to the Exide facility cleanup site, and the actual number of notifications can fluctuate based on sites that meet Rule 1466 applicability. About 40 percent of the affected facilities belong to the sector of lessors of real estate (North American Industrial Classification System [NAICS] code 5311). As presented in Table 3-1, 75 percent of the potentially affected sites are in Los Angeles County, while the remaining 25 percent are located in Orange, Riverside, and San Bernardino counties.

Table 3-1: PAR 1466 Affected Number of Facilities by County (2019 - 2020)

County	Affected Facilities
Los Angeles	24
Orange	5
Riverside	2
San Bernardino	1
Total	**32**

Costs

PAR 1466 would require affected facilities to install and purchase equipment to meet PM_{10} monitoring requirements and dust minimization provisions. The enhanced monitoring provisions require the purchase of data management systems, and electrical installations to allow for calculating 120-minute rolling PM_{10} concentration averages. In addition, PAR 1466 requires additional soil stabilization for affected facilities. The cost estimates were based on actual data provided by facility operators, instrument vendors, and cost estimates from previous rulemaking efforts for Rule 1466. All estimated 32 sites are expected to incur an equal share of the PAR 1466 compliance costs, except for one potential site that is adjoining a school that is expected to incur additional costs to meet the enhanced fugitive dust minimization requirements for sites adjoining schools, joint use agreement properties, or adjacent athletic areas.

Data Management Systems

Effective January 1, 2022, PAR 1466 would require Data Acquisition Systems to log 120-minute average PM_{10} concentrations, calculated on a rolling basis every minute. Integration of the Data Acquisition System to a data management system with a data plan may be needed to conduct the new PM_{10} calculation requirements. The data management system is expected to cost about $1,300 per site (one-time), and the data plan for the data management system is expected to cost about $825 per year. Projects subject to Rule 1466 can last longer or shorter than a year.

Electricity

The use of PM_{10} monitors with heated inlets for PM_{10} monitoring will require additional power to run the heated inlet at all times, which can be provided through electrical connection or solar panels. An additional electrical connection is estimated at $500 per site (one-time cost). Additional solar panels to power the heated inlet is expected to range from $1,000 to $2,000 per site (one-time). Increased power usage on the heated inlets for PM_{10} monitors required by PAR 1466 is

expected to be about 200 watts per hour. Assuming a rate of $0.15 per kw/h, increased annual electrical costs will be about $500 per site assuming a minimum of two monitors operating on the site ($250 per monitor), or $16,800 across all sites.

Dust Control and Soil Stabilization

Dust suppression requirements in PAR 1466 would require increased water and/or dust suppressant usage to reduce fugitive dust. An estimated cost of $500 per site is expected to comply with this requirement. It is estimated that one site may be classified as a site that is adjoining a school. The site adjoining a school will be required to use additional dust minimization measures including additional water and dust suppressants, stockpile fencing, and plastic sheeting for directly loaded soils prior to transport at an estimated annual cost of $4,200.

Cost Summary

One-time costs were annualized using a capital recovery factor based on the expected life of the equipment. Recurring costs were calculated as annual costs and are expected to reoccur throughout the use of the associated equipment. In total, the annual cost of all PAR 1466 expected compliance costs is about $67,000 across all facilities. Table 3-2 below shows the breakdown of costs by industry. Lessors of real estate (NAICS 5311) account for about 44 percent of the total affected universe under PAR 1466, and account for over 47 percent of the total share of costs.

Table 3-2: PAR 1466 Annual Compliance Costs by Industry

6-digit NAICS	NAICS Industry Description	Number of Sites Potentially Affected by PAR 1466	Annual Cost to Industry	Percent of Total Cost
221122	Electric Power Distribution	2	$3,913	5.9%
423930	Recyclable Material Merchant Wholesalers	1	$1,956	2.9%
482111	Line-Haul Railroads	1	$1,956	2.9%
485113	Bus and Other Motor Vehicle Transit Systems	1	$1,956	2.9%
488310	Port and Harbor Operations	1	$1,956	2.9%
531110	Lessors of Residential Buildings and Dwellings*	7	$17,914	26.8%
531120	Lessors of Nonresidential Buildings (except Mini-warehouses)	7	$13,694	20.5%
611110	Elementary and Secondary Schools	1	$1,956	2.9%
621498	All Other Outpatient Care Centers	1	$1,956	2.9%
622110	General Medical and Surgical Hospitals	1	$1,956	2.9%
924110	Administration of Air and Water Resource and Solid Waste Management Programs	5	$9,781	14.6%
925110	Administration of Housing Programs	1	$1,956	2.9%
925120	Administration of Urban Planning and Community and Rural Development	1	$1,956	2.9%
562212	Solid Waste Landfill	2	$3,913	5.9%
Total		**32**	**$66,821**	**100%**

* One site within this category incurs additional cost for additional dust minimization requirements as it is adjoining a school.

Regional Macroeconomic Impacts

South Coast AQMD does not estimate regional macroeconomic impacts when the total annual compliance cost is less than one million current U.S. dollars as the Regional Economic Models Inc. (REMI)'s Policy Insight Plus Model is not able to reliably evaluate impacts that are so small relative to the baseline regional economy.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Sections 15002(k) and 15061, the proposed project is exempt from CEQA pursuant to CEQA Guidelines Section 15061(b)(3). A Notice of Exemption will be prepared pursuant to CEQA Guidelines Section 15062. If the proposed project is approved, the Notice of Exemption will be electronically filed with the State Clearinghouse of the Governor's Office of Planning and Research to be posted on their CEQAnet Web Portal, which may be accessed via the following weblink: https://ceqanet.opr.ca.gov/search/recent. In addition, the Notice of Exemption will be electronically posted on the South Coast AQMD's webpage which can be accessed via the following weblink: http://www.aqmd.gov/nav/about/public-notices/ceqa-notices/notices-of-exemption/noe---year-2021. The electronic filing and posting of the Notice of Exemption is being implemented in accordance with Governor Newsom's Executive Orders N-54-20 and N-80-20 issued on April 22, 2020 and September 23, 2020, respectively, for the State of Emergency in California as a result of the threat of COVID-19.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings

California Health and Safety Code Sections 40727 and 40001(c) require that prior to adopting, amending or repealing a rule or regulation, the South Coast AQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference, and the problem alleviated, respectively, based on relevant information presented at the public hearing, and in the staff report in the rulemaking record and presented at the hearing.

Necessity

Proposed Amended Rule 1466 is needed clarify, update, and enhance provisions addressing monitoring, PM_{10} calculation, dust control measures, signage, and notifications to ensure the provisions are enforceable, eliminate areas of confusion, and further minimize fugitive dust emissions to the surrounding community.

Authority

The South Coast AQMD Governing Board has authority to adopt amendments to Rule 1466 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, 41511, 41700, and 41706.

Clarity

Proposed Amended Rule 1466 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency

Proposed Amended Rule 1466 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations.

Non-Duplication

Proposed Amended Rule 1466 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the South Coast AQMD. South Coast AQMD Rule 403

has some similar provisions but there is minimal overlap between the two rules for Rule 403 sites, of which only a small subset are also subject to Rule 1466. Generally Rule 1466 has more stringent provisions than Rule 403. Where there is overlap in provisions between Proposed Amended Rule 1466 and Rule 403, the more stringent provision applies.

Reference

By adopting Proposed Amended Rule 1466, the South Coast AQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Section 41700 (nuisance), and Federal Clean Air Act Section 112 (Hazardous Air Pollutants), and Section 116 (Retention of State authority).

Rule Adoption Relative to Cost-Effectiveness

On October 14, 1994, the Governing Board adopted a resolution that requires staff to address whether rules being proposed for amendment are considered in the order of cost-effectiveness. The 2016 Air Quality Management Plan (AQMP) ranked, in the order of cost-effectiveness, all of the control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first. Although TXM-04 is a control measure that was included in the 2016 AQMP, Proposed Amended Rule 1466 was included in the 2016 AQMP as a toxic control measure and was not ranked relative to other criteria pollutant control measures in the 2016 AQMP.

Incremental Cost-effectiveness

Health and Safety Code Section 40920.6 requires an incremental cost effectiveness analysis for Best Available Retrofit Control Technology (BARCT) rules or emission reduction strategies when there is more than one control option which would achieve the emission reduction objective of the proposed amendments, relative to ozone, carbon monoxide, sulfur oxides, oxides of nitrogen, and their precursors. Since Proposed Amended Rule 1466 is a toxic rule that is designed to reduce toxic air contaminants, the incremental cost effectiveness analysis requirement does not apply.

COMPARATIVE ANALYSIS

Health and Safety Code Section 40727.2 requires a comparative analysis of the proposed amended rule with any Federal or District rules and regulations applicable to the same source.

	Proposed Amended Rule 1466	Rule 403	Rule 1166	Rule 1157	Rule 1403	Rule 1156
Purpose	Control fugitive toxic air contaminant emissions during earth-moving activities	Reduce anthropogenic fugitive dust	Control of VOC emissions (including toxic VOCs) from earth-moving activities	Control PM_{10} emissions from aggregate activities	Limit asbestos emissions	Reduce particulate matter (PM) and hexavalent chromium (Cr^{6+}) emissions
Applicability	Designated cleanup sites with specified toxic air contaminants; Executive Officer designated cleanup sites based on a set of criteria	Any activity or anthropogenic condition capable of generating dust	VOC contaminated soils	Sand, gravel, quarried rock operations	Building demolition and renovation activities	Cement manufacturing operations and the property
Monitoring	120-minute rolling average 25 $\mu g/m^3$ differential limit for PM_{10} emission; Meteorological monitoring	If monitored, five-hour 50 $\mu g/m^3$ differential limit for PM_{10} emission	15-minute monitoring of VOC emissions	None	None	Monitoring of: Cr^{6+}, wind, and PM_{10} if owner/operator accrues three or more notices of violation for Rule 403 exceedance within 36-month period

	Proposed Amended Rule 1466	Rule 403	Rule 1166	Rule 1157	Rule 1403	Rule 1156
General Controls	Perimeter fencing and windscreen	Perimeter fencing and windscreen	None	None	Removal procedures	None
	Application of chemical stabilizers or dust suppressants during earth-moving activities	Adequately wet during earth-moving activities	Water or vapor suppressants for VOC concentrations > 1000 ppmv	None	Handling procedures	Application of dust suppressants
	Cease earth-moving operations during high wind conditions	During high wind conditions some requirements do not apply	None	None	None	Cease open handling of clinker material during high wind conditions
	Onsite compliance supervisor	Onsite compliance supervisor (large sites only)	None	None	Onsite compliance supervisor	None
	Earth-moving not allowed during hours of operation or facility-sponsored activities when conducted on or adjacent to school, early education center, or joint use agreement properties	None	None	None	None	None
Vehicle Controls	Vehicle speed limit	Vehicle speed limit (large sites only)	None	Vehicle speed limit	Vehicle marking	Vehicle speed limit
	Stabilize road and parking surfaces	Stabilize road and parking surfaces	None	Stabilize road and parking surfaces	None	Stabilize or apply gravel pad to roads
	Clean departing vehicles	None	None	None	None	Truck cleaning on site
	Limited track out	Limited track out	None	Limited track out	None	No track out
	Vehicle egress	Vehicle egress	None	Vehicle egress	None	Vehicle egress
	No internal paved road sweeping provision	None	None	None	None	Sweep internal paved roads

	Proposed Amended Rule 1466	Rule 403	Rule 1166	Rule 1157	Rule 1403	Rule 1156
Stockpile Controls	Limited size	None	None	Limited size	Leak-tight containers	None
	Adequately wet or chemically stabilized	Adequately wet or chemically stabilized	Wet or apply vapor suppressant	Adequately wet or chemically stabilized	None	Apply chemical dust suppressant
	Covered during inactivity	None	Covered during inactivity	Apply chemical stabilizer during inactivity	None	Covered
	Daily inspection	None	Daily inspection	None	None	Records of status of inactive clinker stockpiles
	Segregate	None	Segregate	None	None	None
	Limited at or adjacent to schools, early education centers and joint use agreement properties	None	None	None	None	None
	No freeboard requirement	None	None	None	None	Freeboard requirements
	No wind fence	None	None	None	None	Wind fence
Loading, Unloading and Transferring Controls	Adequately wet	Adequately wet	Moisten with additional water for VOC concentrations > 1000 ppmv	None	None	Apply dust suppressants as necessary
	Loading techniques	Loading techniques	Loading as soon as possible for VOC concentrations > 1000 ppmv	None	None	Minimize height of drop
	Stabilize and cover loads	Cover loads (contingency only)	Cover loads	None	None	Close cement truck hatches
	No requirement for enclosed system	None	None	None	None	Conduct in enclosed system vented to South Coast AQMD permitted air pollution control device
	No requirement for enclosed conveying systems and transfer points	None	None	None	None	Cover or enclose all conveying systems and enclose all transfer points
	No requirement for belt conveying system	None	None	None	None	Dust curtains, shrouds, belt scrapers, and gaskets along belt conveying system

	Proposed Amended Rule 1466	Rule 403	Rule 1166	Rule 1157	Rule 1403	Rule 1156
Notification	Prior to commencing and at the end of earth-moving activities	Prior to commencing earth-moving activities (large sites only)	Prior to commencing earth-moving activities	None	Prior to commencing asbestos handling	None
	Exceedances of PM_{10} limit	None	None	None	Changes in quantity or schedule	Exceedance of Cr^{6+}, failing source testing compliance limits
	No advisory flyer requirement	None	None	None	None	Fugitive Dust Advisory flyer
Signage	Entrances and along perimeter	Entrances and along perimeter (large sites only)	None	None	Entrances and along perimeter	None
Recordkeeping	Monitoring results, dust control actions taken, stockpile inspections, volume of soil removed, transport information, complaints, intra-instrument precision testing and zero calibration, instrument maintenance and logs	Dust control actions taken (large sites only)	VOC concentration readings; stockpile inspections, transport information	Dust control actions, transport information	Control actions, survey data, notifications, training information, transport information	Dust control and cleaning activities, operation and production records, test reports, equipment records, material handling, monitoring data, maintenance activities, clinker pile reclamation, vehicle traffic

APPENDIX I: COMMENTS AND RESPONSES

Comment Letter 1

Aeroqual – March 11, 2021

Aeroqual feedback on Proposed Amended Rule 1466 (cont.) (Amended December 1, 2017)
PAR 1466 - 25

11th March 2021

Section d

(3) (H)On and after January 1, 2022, prior to conducting any on-site earth-moving activities, and ~~weekly~~ monthly thereafter, run intra-instrument precision tests with the PM_{10} monitors in accordance with *Appendix 2 – Procedures to Demonstrate Intra-Instrument Precision,* demonstrate~~e~~ing an intra-instrument precision of no more than ~~a~~ 2 micrograms per cubic meter or an intra-instrument relative precision of less than ~~a~~ 5 percent; and

Geoff Henshaw
Weekly is very onerous. Drift rates are such that monthly should be sufficient.

1-1

(3) (I) On and after January 1, 2022, ~~each day prior to conducting on-site earth-moving activities,~~ perform a manual or automatic zero test daily on each PM_{10} monitor in accordance with manufacturer's instructions.

Geoff Henshaw
A daily test makes sense but restricting the timing of it to the start of the day seems unduly onerous without a clear benefit.

1-2

(6) When on-site earth-moving activities occur, the owner or operator shall monitor wind direction and speed as specified in U.S. EPA *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV: Meteorological Measurements*.

Geoff Henshaw
This is very high standard of measurement for wind speed and direction. Do you expect a site operator to install a 10 m met tower? Alternatively the rule could require a wind sensor to be fitted to one of the PM10 monitors or the site operator could rely on publicly available wind data.

1-3

Appendix 1 – Executive Officer Rule 1466 Approved PM_{10} Monitors

The Executive Officer may approve PM_{10} monitors that meet the following physical and performance requirements. Monitors that have a valid *Monitoring Certification Scheme* certification meeting the latest version of the *Monitoring Certification Scheme (MCERTS): Performance Standard for Indicative Ambient Particulate Monitors* may be exempt from meeting the requirements listed below.

Geoff Henshaw
We suggest this is moved to the top of the page and that MCERTS approved monitors may be exempt from both the physical and performance requirements since MCERTS approval is a comprehensive and robust test method.

1-4

1. Physical Requirements
   - 1.1. PM_{10} monitors must shall be continuous direct-reading near-real time monitors and shall monitor particulate matter less than 10 microns.
   - 1.2. PM_{10} monitors must shall be equipped with:
     - 1.2.a. Omni-directional heated sampler inlet;
     - 1.2.b. Sample pump with active flow control mechanism and stated flow control accuracy of ±5 percent of factory setpoint;
     - 1.2.c. Enclosure; and
     - 1.2.d. Data logger capable of logging each data point with average concentration, time/date, and data point number; and
     - 1.2.e. For any external tubing used to carry sampled air prior to measurement, conductive tubing to minimize particle loss.

2. Performance Requirements
   - 2.1. PM_{10} monitors must shall have the following minimum performance standards:
     - 2.1.a. Range: 0 - 10,000 µg/m3;
     - 2.1.b. Accuracy: ±5% percent of reading ± precision;
     - 2.1.c. Resolution: 1.0 µg/m3; and
     - 2.1.d. Measurement Cycle: User selectable (30 thirty minute and 2 two hour).
   - 2.2 ~~Monitors that have a valid *Monitoring Certification Scheme* certification meeting the latest version of the *Monitoring Certification Scheme (MCERTS): Performance Standard for Indicative Ambient Particulate Monitors* may be exempt from meeting the performance requirements listed above, but shall meet all stated physical requirements.~~

1-5

3. Quality Assurance/Quality Control Requirements
In order to ensure the validity of the PM_{10} measurements performed, there shall be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the owner or operator to adequately supplement QA/QC Plans to include the following critical features: instrument calibration, instrument maintenance, operator training, and daily instrument performance ~~(span)~~ checks.

Jason Thongplang
"Spanning" typically refers to supplying a known concentration of gas (at the 'span' concentration of around 75 to 80 per cent of the full scale range) and altering the instrument response to read the correct concentration. How would a site operator perform daily span checks on a PM instrument?

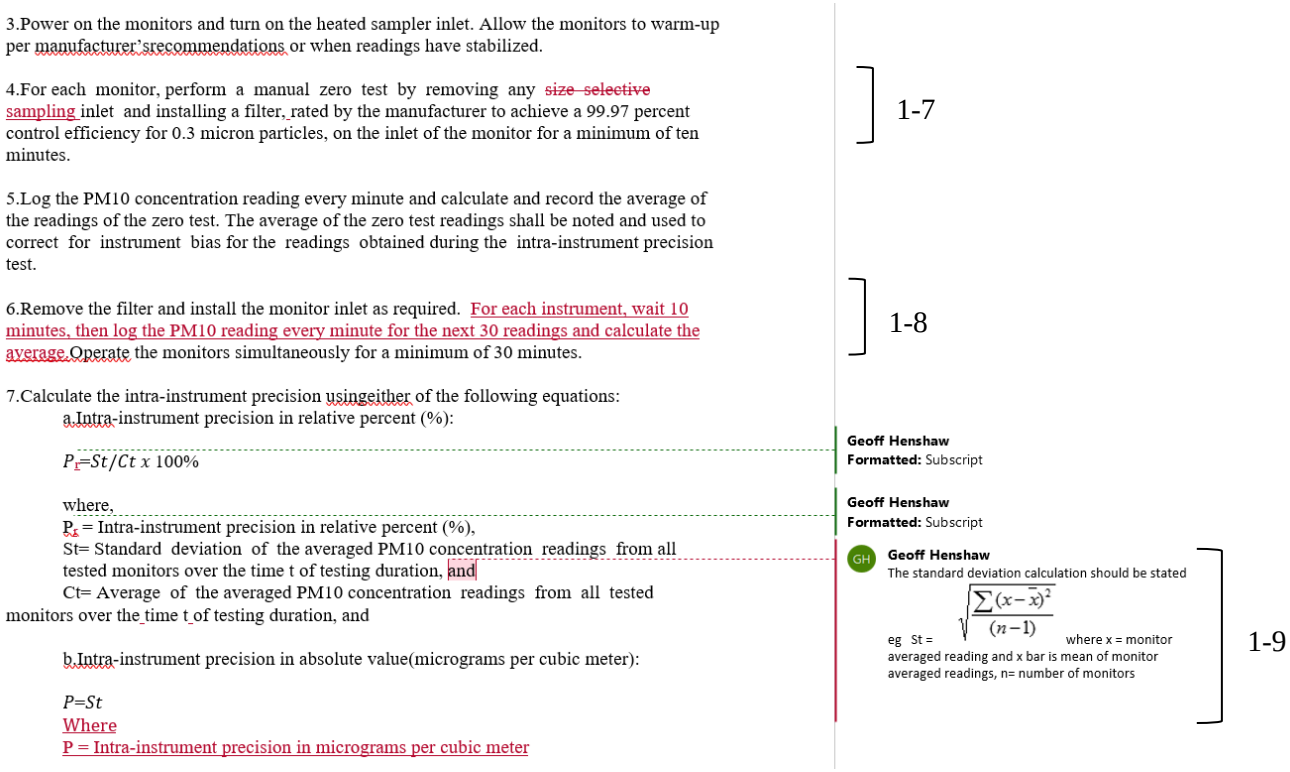
1-6

Appendix 2 –Procedures to Demonstrate Intra-Instrument Precision

An owner or operator shall perform the following procedures to demonstrate the intra-instrument precision of all PM10 monitors as required in subparagraph (d)(3)(H):

1.Ensure monitors are identical in make and model, settings, and configuration.

2.Ensure monitor inlets are at the same height and located within four meters of each other but no less than one meter apart for the duration of the test.



Response to Comment 1-1

Typically earth-moving activities for a project are conducted on a Monday to Friday schedule, with weekends being nonworking days. Since monitors would most likely not be operating on the weekends, staff believes weekly intra-instrument precision tests are needed to ensure measurements are continuously precise. A weekly intra-instrument precision test will also ensure measurements are accurate and precise for instances when projects have a duration of a month or less, another monitor(s) has to be introduced to the site, or a monitor(s) has to be replaced.

Response to Comment 1-2

Staff has revised this proposed language to require monitors pass a daily manual zero or auto-zero check prior to conducting earth-moving activities. Normally the daily schedule of earth-moving activities follow a typical workday (i.e. begin activity in the morning and end activity in the afternoon or evening), and therefore, monitoring would stop after the end of the workday and begin again on the next workday. Conducting a zero check prior to earth-moving activities confirms that the zero calibration on the instrument is still valid and ensures that measurement errors continue to be minimized before monitoring begins. Furthermore, time needed to conduct the zero check (a few minutes up to 10 minutes) is small.

Response to Comment 1-3

Staff has revised this provision to require the operator conduct wind monitoring using a minimum of one anemometer or wind sensor that meets the requirements set forth in PAR 1466 paragraph (d)(12).

Response to Comment 1-4
Staff has retained the MCERTS certification option in the Performance Requirements section and the language allowing MCERTS certification to be used to fulfill only the performance standards in lieu of demonstrating these standards. The Physical Requirements are unique to Rule 1466 and are not prescribed in *MCERTS: Performance Standard for Indicative Ambient Particulate Monitors*.

Response to Comment 1-5
To ensure that Rule 1466 approved monitors are highly accurate in measurement and robust in operation, staff has retained the 10,000 $\mu g/m^3$ maximum measurement for PM_{10} concentration range standard to exclude instruments that do not have an optics chamber for mass concentration measurement or cannot handle high particulate emissions (e.g. low-cost particulate sensors).

Response to Comment 1-6
Staff has corrected this language by removing "span."

Response to Comment 1-7
Thank you for your comment. Staff has included the suggested language in the proposed amended rule.

Response to Comment 1-8
Thank you for your comment. Staff has included the suggested language in the proposed amended rule.

Response to Comment 1-9
Thank you for your comment. Staff has included the suggested standard deviation equation and language in the proposed amended rule.