

**Additional Guidance about Requests for the Use of Best Available Monitoring Methods  
(BAMM) Beyond 2011  
(subpart I: Electronics Manufacturing)**

**1. Points of Clarification on the Subpart I BAMM Provisions**

- The subpart I BAMM provisions do not specify an end date; for example, the rule does not specify that BAMM extensions beyond 2011 pursuant to 40 CFR 98.94(a)(4) are limited to 2012.
  - EPA does not intend to approve the indefinite use of BAMM: all BAMM applications should specify the date on which the owner or operator plans to cease the use of BAMM. EPA intends to propose and finalize a revised version of subpart I to be implemented for the 2014 reporting year.
  - EPA recognizes that during this interim period it may not be reasonably feasible for some owners or operators to comply with specific requirements of subpart I (as published December 2010) where the facility cannot currently meet the requirement and EPA is evaluating and considering alternative approaches for inclusion in a revised version of subpart I.
  - Because EPA intends to finalize a revised version of subpart I for use for the 2014 reporting year, the Agency does not anticipate approving the use of BAMM for current subpart I provisions beyond 2013.
- The approval criteria by which EPA will evaluate a request for the use of BAMM to estimate emissions beyond December 31, 2011 are identified in 40 CFR 98.94(a)(4)(iii); informational requirements to be submitted as part of the BAMM request are identified in 40 CFR 98.94(a)(4)(ii)(A)-(E).
- The approval to use BAMM does not change the requirement to use the calculations and equations in 40 CFR 98.93, but the owner or operator may use BAMM to develop the inputs to those calculations. EPA recognizes that when a facility is approved to use BAMM for specific monitoring or QA/QC requirements, the values for those parameters that will be used in the calculations and the information that will be reported and/or kept as records will be based on the BAMM used by the facility. The owner or operator does not need to request the use of BAMM for calculation, reporting, and recordkeeping requirements where BAMM is used to monitor one or more of the inputs. Similarly, if EPA has approved the use of BAMM for a specific monitoring or QA/QC requirement, EPA recognizes that the complete record of all measured parameters required under 40 CFR 98.95(a) will reflect the use of BAMM for that requirement. The owner or operator does not need to request the use of BAMM specifically for 40 CFR 98.95(a).

## 2. Contents of BAMM Requests

- The table below provides further guidance on the contents of requests for the use of BAMM beyond December 31, 2011. The table is only intended to be guidance; the contents of BAMM requests should be tailored to a facility's specific situation.

REQUESTS FOR EXTENSION OF THE USE OF BAMM TO ESTIMATE EMISIONS BEYOND DECEMBER 31, 2011 40 CFR 98.94(a)(4)		
Regulatory Citation	Description	Guidance
§98.94(a)(4)(ii)(A)	A list of parameters for which the owner or operator is seeking use of best available monitoring methods (BAMM) beyond 2011.	The owner or operator should identify all of the specific parameters for which BAMM is being requested. For example, if an owner or operator cannot monitor actual gas consumption by process type for apportioning model verification as required in 40 CFR 98.94(c)(2), it should indicate this in its BAMM request.
§98.94(a)(4)(ii)(B)	A description of the specific rule requirements that the owner or operator cannot meet, including a detailed explanation as to why the requirements cannot be met.	<p>The owner or operator should identify the regulatory citation(s) that specify requirement(s) for which BAMM is being requested. BAMM can only be requested for applicable monitoring and QA/QC requirements in subpart I provisions (40 CFR 98.94). An explanation of why it is not reasonably feasible to meet the requirement(s) should also be included. For example, an owner or operator could specify that it cannot currently measure actual gas consumption by process type per 40 CFR 98.94(c)(2) because installed tools do not have the register space or they are unable to communicate with data collection systems. Similarly, the owner or operator could specify that existing mass flow controllers cannot currently meet the accuracy and precision requirement in 40 CFR 98.94(i) and that measurement of actual gas consumption cannot be performed in complete compliance with the rule.</p> <p>Where it is not reasonably feasible for an owner or operator to meet a specific monitoring or QA/QC requirement for a part of their operations (e.g., the owner or operator cannot currently comply with the heel recalculation requirement in 40 CFR 98.94(b)(5) for smaller cylinders only or the owner or operator cannot currently measure gas consumption per 40 CFR 98.94(c)(2) for a particular type of tool only), the owner or operator should request the use of BAMM only for those specific instances.</p>

§98.94(a)(4)(ii)(C)	Detailed description of the unique circumstances necessitating an extension, including specific data collection issues that do not meet safety regulations, technical infeasibility, or specific laws or regulations that conflict with data collection.	The owner or operator should specify why it is requesting the use of BAMM for estimating emissions beyond December 31, 2011. For example, the facility may state that EPA is currently evaluating industry proposed alternative methods to the requirements for which BAMM is being requested, and these alternative methods, if incorporated into a revised subpart I, may render certain aspects of the rule moot.
§98.94(a)(4)(ii)(D)	A detailed explanation and supporting documentation of how and when the owner or operator will receive the required data and/or services to comply with the reporting requirements of this subpart in the future.	<p>The time period for which BAMM is being requested should be specified for each parameter. The information provided to support the extension should appropriately justify the time period for which BAMM is being requested. For certain parameters, owners or operators should be able to identify a point at which they will be able to comply with the monitoring and QA/QC requirements of subpart I as currently written. However, there may be situations, as described above, where an owner or operator is requesting to use BAMM for a requirement that may not be applicable in the future if an alternative method is incorporated into a revised version of subpart I or if other changes currently under discussion with EPA are included in such a revision. In such situations, the owner or operator may explain that it intends to devote its resources to obtaining the necessary data and/or services to comply with the requested revision to subpart I. The owner or operator should adjust its “detailed explanation and supporting documentation” accordingly.</p> <p>Where an owner or operator believes that use of an alternative method in the future could make an existing requirement inapplicable, the owner or operator should explain why and to what extent that might be the case. For example, if a large semiconductor manufacturing facility is requesting BAMM for apportioning model verification as currently required in subpart I because that facility intends to use an alternative methodology (e.g., stack monitoring) if that methodology is incorporated into subpart I in the future, then the owner or operator should explain to what extent use of that methodology might make the existing gas apportioning requirements inapplicable. In this case, the facility must still calculate and report the</p>

		<p>required information related to the gas apportioning requirements, but may use BAMM to satisfy the monitoring and QA/QC requirements.</p> <p>Likewise, if an owner or operator is requesting BAMM for a requirement that may be revised in a future version of subpart I resulting from ongoing discussions between stakeholders and EPA, the owner or operator should specify the requested change to that requirement and explain what preparations it plans to make to comply with subpart I in future if the change is made as requested. As part of the BAMM request, an owner or operator may refer to public comments already submitted describing the alternative method or other requested revision to subpart I. For example if a facility is requesting to use BAMM to comply with the current requirements for monitoring uptime because that facility intends to monitor uptime using an alternative method that was described to EPA as part of already submitted public comments, then the owner or operator should explain its plans for obtaining the required data and/or services to comply with the alternative method in the future.</p>
§98.94(a)(4)(ii)(E)	A detailed description of the specific BAMM that the facility will use in place of the required monitoring and QA/QC procedures.	The owner or operator should describe the methods that will be used as BAMM in place of the required methods outlined in 40 CFR 98.94 to estimate emissions beyond 2011 (see below examples for abatement system uptime and apportioning model verification). Note, where an owner or operator uses BAMM to comply with specific monitoring or QA/QC provisions in subpart I, the owner or operator <b>MUST</b> estimate its emissions using the calculation methodologies and equations in the rule (40 CFR 98.93). Note also that, pursuant to 40 CFR 98.96(t), where BAMM is used, reporters must provide a brief description of each BAMM used, the parameter measured or estimated using BAMM, and the time period during which the BAMM was used. Detailed information about how BAMM was used should be provided.

### 3. BMM Implementation Examples

- **Monitoring Abatement System Uptime (40 CFR 98.94(f)(2)):** If an owner or operator requests and is approved to use BMM to comply with the requirements to monitor uptime of abatement systems, then the owner or operator must still estimate its emissions using Equation I-15 of subpart I. However the owner or operator may use BMM to estimate the inputs to that equation. (Note, only those facilities that wish to calculate and report controlled fluorinated GHG and N<sub>2</sub>O emissions from the use of abatement systems are required to monitor abatement system uptime). For example, if an owner or operator is currently unable to monitor the total time in which fluorinated GHGs or N<sub>2</sub>O are flowing through production tools (for the purposes of calculating  $t_p$  and  $T_p$ ) that owner or operator may assume that fluorinated GHGs or N<sub>2</sub>O are flowing constantly during the reporting period. In this example, the owner or operator would only have to track the amount of time an abatement system is in operational mode and is operated within the range of parameters specified in the operations manual provided by the system's manufacturer.
- **Verification of a Facility-Specific Apportioning Model (40 CFR 98.94(c)(2)):** If an owner or operator uses BMM to comply with the gas apportioning model verification requirements, the owner or operator should develop an apportioning model and use that model to apportion gas consumption to process types/sub-types/recipes as required in subpart I. The owner or operator must also go through the verification steps outlined in §98.94(c)(2). However, because BMM applies to any parameter that cannot reasonably be measured or monitored using installed equipment, if an owner or operator requests and is approved to use BMM for the apportioning model verification requirement, it may use BMM to estimate actual gas consumption for verification purposes. For example, the owner or operator may measure actual gas consumption for a subset of etch tools that are capable of measuring consumption and may compare the modeled consumption for those tools to the measured consumption for those tools. Alternatively, the owner or operator may measure actual gas consumption for the facility as a whole rather than for each process type and may compare the modeled consumption for the facility as a whole to this measurement. Because BMM may be used to estimate actual gas consumption in such situations, EPA recognizes that the facility may not meet the 5 percent verification standard per 40 CFR 98.94(c)(2)(iii).