

**MEMORANDUM**

**SUBJECT:** Guidance on Plantwide Applicability Limitation Provisions Under the New Source Review Regulations

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**TO:** Regional Air Division Directors

**I. Introduction and Purpose of Memorandum**

This guidance memorandum addresses the plantwide applicability limitation (PAL) provisions of regulations implementing the New Source Review (NSR) preconstruction permitting program. EPA promulgated the PAL regulations as part of the 2002 NSR Reform rules. 67 FR 80186 (December 31, 2002). A PAL is an optional flexible permitting approach available to major stationary sources that involves the establishment of a plantwide emissions limit, in tons per year, for a regulated NSR pollutant. A PAL represents a simplified NSR applicability approach that provides a source with the ability to manage changes and facility-wide emissions without triggering major NSR and without the need for project-by-project major NSR applicability analysis.<sup>1</sup> The added flexibility of a PAL allows a source to respond rapidly to market changes with reduced permitting burden and greater regulatory certainty. To achieve these benefits, the PAL regulations require monitoring, recordkeeping and reporting of actual emissions of a PAL pollutant on a 12-month rolling total basis.

The PAL provisions in the existing NSR regulations provide the opportunity for significant operational flexibility and permitting burden reduction, and approximately 70 PAL permits have been issued to a wide range of industry categories since the 2003 effective date of the NSR Reform rules and subsequent state adoption of conforming regulations.<sup>2</sup> However, EPA has become aware, through stakeholder input,<sup>3</sup> that certain elements of the PAL regulations have been perceived as

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<sup>1</sup> Sources may still need to obtain minor NSR permits for physical or operational changes, depending on the applicable implementation plan.

<sup>2</sup> Based on a survey of EPA Regional offices presented in Section IV of this memorandum.

<sup>3</sup> EPA received stakeholder input on the PAL regulations through outreach efforts associated with the presidential memorandum, "Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing" (January 24, 2017), Executive Order 13777, "Enforcing the Regulatory Reform Agenda" (February 24, 2017), and through

onerous, or as sources of uncertainty and potential risk, and that those concerns have hindered more widespread PAL adoption.

The purpose of this memorandum is to provide guidance on the PAL regulations to address specific concerns raised by stakeholders and generally improve understanding of PALs.<sup>4</sup> This memorandum is organized as follows: Section II provides guidance related to specific issues raised by stakeholders on the PAL regulations;<sup>5</sup> Section III contains additional guidance on PALs, including general advantages and other considerations; and Section IV presents the results of a survey of EPA Regional offices on PAL program implementation conducted in February 2019.

## II. Guidance on PALs based on Stakeholder Comments

### 1. PAL Permit Reopening

The regulations contain provisions for both mandatory and discretionary reopening of a PAL permit during the PAL effective period. Reopening of a PAL permit is *required* to “(1) Correct typographical/calculation errors made in setting the PAL or to reflect a more accurate determination of emissions used to establish the PAL; (2) Reduce the PAL if the owner or operator of the major stationary source creates creditable emissions reductions for use as offsets; and (3) Revise a PAL to reflect an increase in the PAL as provided under paragraph (aa)(11) of this section.” 40 CFR § 52.21(aa)(8)(ii)(a) (emphasis added).<sup>6</sup> The reviewing authority *has discretion* to reopen a PAL to “(1) Reduce the PAL to reflect newly applicable Federal requirements (for example, NSPS) with compliance dates after the PAL effective date; (2) Reduce the PAL consistent with any other requirement, that is enforceable as a practical matter, and that the State may impose on the major stationary source ... under the State Implementation Plan; and (3) Reduce the PAL if the reviewing authority determines that a reduction is necessary to avoid causing or contributing to a National Ambient Air Quality Standards (NAAQS) or Prevention of Significant Deterioration (PSD) increment violation, or to an adverse impact on an air quality related value that has been identified for a Federal Class I area by a Federal Land Manager and for which information is available to the general public.” 40 CFR § 52.21(aa)(8)(ii)(b) (emphasis added).

Stakeholders raised concerns about the PAL permit reopening provision under 40 CFR § 52.21(aa)(8)(ii)(b)(3) that provides the reviewing authority discretion to reopen and reduce a PAL to address air quality standard violations or Class I area impacts. Stakeholders indicated that the

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informal stakeholder meetings. *See* Department of Commerce request for information, “Impact of Federal Regulations on Domestic Manufacturing,” Docket No. 170302221-7221-01, 82 FR 12786 (March 7, 2017) and “Evaluation of Existing Regulations,” EPA-HQ-OA-2017-0190, 82 FR 17793 (April 13, 2017).

<sup>4</sup> This guidance memorandum is not a substitute for the EPA PAL regulations, nor does it touch upon all aspects of those regulations. Readers should consult the applicable state or federal PAL regulations and rulemaking records for a complete understanding of applicable PAL program requirements.

<sup>5</sup> With respect to stakeholder comments that recommended changes to the PAL regulations themselves, EPA is not at this time planning a rulemaking action on PALs.

<sup>6</sup> This memorandum cites the provisions in the federal PSD regulations at 40 CFR § 52.21. The other NSR regulations at 40 CFR § 51.166, 40 CFR § 51.165, and Appendix S of CFR part 51 contain equivalent provisions, and the statements in this memorandum apply to those provisions as well. In states with EPA-approved PAL regulations, those regulations constitute the applicable requirements in that jurisdiction.

broad authority under this paragraph creates a lack of certainty about the PAL level during the permit term, and that it was unclear whether, and under what circumstances, a reviewing authority would invoke the provision.

As described in the technical support document for the 2002 NSR Reform rules, EPA continues to believe that “reviewing authorities are in the best position to determine whether there is a need to reduce a PAL for air quality reasons,” but also that “[a] PAL should not be frequently and arbitrarily revised.”<sup>7</sup> EPA believes that concerns regarding a reviewing authority abusing its discretion in reopening and lowering a PAL are largely unfounded. First, state reviewing authorities have broad authority and multiple mechanisms in addition to PAL adjustment under EPA-approved state implementation plans (SIPs) to address air quality management goals, including NAAQS and PSD increment violations. In cases where a particular source’s emissions are found to be associated with such violations, states can already implement SIP control measures such as source-specific permit limits regardless of whether the source has a PAL for the subject pollutant. Second, most NAAQS have short term averaging periods (*i.e.*, 24-hours or less). It would therefore be more appropriate, and likely, for a reviewing authority seeking to mitigate adverse air quality impacts associated with a particular source to establish control requirements on a consistent averaging period with the underlying standard instead of targeting a ton-per-year limit such as a PAL.<sup>8</sup> Thus, while sources considering a PAL may perceive the language in the PAL regulations regarding discretionary permit reopening to address air quality issues to be a significant risk, EPA does not believe that a PAL permit reopening would be the selected mechanism to address such issues in most cases.

EPA’s expectation that the discretionary reopening and lowering of PALs pursuant to paragraph § 52.21(8)(ii)(b)(3) would rarely be invoked is further supported by PAL implementation experience. Based on the PAL implementation survey described in Section IV of this memorandum, EPA is not aware of any instances to date of a reviewing authority reopening and lowering a PAL to address air quality violations or Class I area impacts. In circumstances where a reviewing authority does elect to exercise its authority to reopen and reduce a PAL, EPA expects that such a proceeding would be conducted in an open and transparent manner, with opportunity for the source to be involved during the public participation process as required by the regulations.<sup>9</sup> Accordingly, potentially affected sources would have ample opportunity to provide input to the reviewing authority regarding a planned discretionary reopening to ensure that it was necessary and appropriate based on the criteria in the regulations and to explore any other options to address the identified air quality issue(s).

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<sup>7</sup> Technical Support Document for the Prevention of Significant Deterioration and Nonattainment Area New Source Review Regulations at I-7-45, U.S. EPA Office of Air Quality Planning and Standards (November 2002), (“NSR Reform TSD”).

<sup>8</sup> Any such new requirements that are established may result in a reduced PAL level during the permit term in accordance with 40 CFR § 52.21(aa)(8)(ii)(b)(2) or upon renewal in accordance with 40 CFR § 52.21(aa)(10)(v).

<sup>9</sup> 40 CFR § 52.21(aa)(8)(ii)(c) provides that “[e]xcept for the permit reopening in paragraph (aa)(8)(ii)(a)(1) of this section for the correction of typographical/calculation errors that do not increase the PAL level, all other reopenings shall be carried out in accordance with the public participation requirements of paragraph (aa)(5) of this section.”

## 2. PAL Expiration

The regulations provide that “[a]ny PAL that is not renewed in accordance with the procedures in paragraph (aa)(10) of this section expires at the end of the PAL effective period, and the requirements in paragraphs (aa)(9)(i) through (v) apply.” 40 CFR § 52.21(aa)(9). Paragraph (aa)(9)(i) provides that “[e]ach emissions unit (or each group of emissions units) that existed under the PAL shall comply with an allowable emission limitation under a revised permit established according to the procedures in paragraphs (aa)(9)(i)(a) and (b) of this section.” Paragraph (aa)(9)(i)(a) provides, in part, that “[w]ithin the time frame specified for PAL renewals in paragraph (aa)(10)(ii) of this section, the major stationary source ... shall submit a proposed allowable emission limitation for each emissions unit (or each group of emissions units, if such a distribution is more appropriate as decided by the Administrator) by distributing the PAL allowable emissions for the major stationary source ... among each of the emissions units that existed under the PAL.” Paragraph (aa)(9)(i)(b) further provides that “[t]he Administrator shall decide whether and how the PAL allowable emissions will be distributed and issue a revised permit incorporating allowable limits for each emissions unit, or each group of emissions units, as the Administrator determines is appropriate.”

Stakeholders that commented on PAL expiration raised concerns about the lack of specific criteria in the regulations or guidance on acceptable approaches to distributing a PAL to individual or grouped emissions units, and the broad discretion reviewing authorities have in determining “whether and how the PAL allowable emissions will be distributed.” They felt that this uncertainty about the emission limitations that would apply to a source after PAL expiration was a disincentive to pursuing a PAL.

As an initial matter, it is important to understand that it is a source’s decision whether to renew a PAL or to allow it to expire without renewal, and only in the latter case are the requirements related to distribution of the PAL allowable emissions applicable. If a source meets the application deadline for a PAL permit renewal, the existing PAL continues as an enforceable requirement until the reviewing authority renews the PAL, even if the reviewing authority fails to issue a PAL renewal permit within the specified time period. EPA believes that most sources that opt for a PAL intend to maintain and renew that PAL indefinitely. However, we understand that there will be situations where unforeseen circumstances could result in a source deciding not to renew a PAL. For those situations, the regulations provide a straight forward yet flexible approach to transitioning from a PAL to allowable emission limitations.

If a source decides not to renew a PAL, the first step is for the source to submit an application to the reviewing authority requesting expiration of the PAL. As part of that application, the source must submit a proposed approach for distributing the PAL among the emissions units under the PAL. The distribution can range from a single emission limit (or “cap”) across all units at the same level as the PAL to any combination of emission limits for individual emissions units or groupings of units under the PAL that in aggregate sum to the level of the PAL. The source has the opportunity under the regulations to propose this distribution in a way that provides the most flexibility post-PAL expiration. Distributing a PAL to groupings of emissions units will generally provide greater flexibility, because multi-unit limits can better accommodate variable operating and emissions rates of the covered units. While the reviewing authority retains the ultimate discretion to determine whether and how the PAL allowable emissions will be distributed,

including whether to establish limits on individual emissions units or groups of emissions units, EPA expects that in most cases the reviewing authority will accept the source's proposed distribution if it is accompanied by a supporting rationale and appropriate compliance demonstration methods.

After expiration of a PAL, a source must comply with the established unit-specific and/or unit grouping-specific allowable emission limitations on a 12-month rolling basis,<sup>10</sup> and physical changes or changes in the method of operation must be evaluated using the traditional project-by-project applicability procedures in 40 CFR § 52.21(a)(2). As part of an application for PAL expiration, a source may propose the same monitoring that was in place under the PAL or alternative monitoring for demonstrating compliance with proposed allowable emission limitations. Although the minimum monitoring requirements in the PAL regulations are no longer applicable after PAL expiration, they can be used as a guide in developing proposed post-PAL monitoring sufficient to ensure that the allowable emission limitations are enforceable as a practical matter.

When a PAL expires, none of the limits on capacity to emit covered by 40 CFR § 52.21(r)(4)<sup>11</sup> that the PAL originally eliminated are required to be reestablished. Additionally, the allowable emission limitations resulting from PAL expiration do not constitute limits "on the capacity of the source or modification otherwise to emit a pollutant"<sup>12</sup> that are potentially subject to 40 CFR § 52.21(r)(4) upon subsequent relaxation. However, relaxation of such limits, even absent any other physical change or change in the method of operation of the unit(s) subject to the limit, would qualify as a change in the method of operation. Sources should consider the potential implications of this in their decision-making on PAL expiration and in proposing distribution of a PAL upon expiration.

### 3. PAL Renewal

The provisions for renewal of a PAL are contained in 40 CFR § 52.21(aa)(10). Sources must submit a complete application to renew a PAL between 18 and 6 months prior to the expiration date of the PAL. As part of the renewal application, a source must recalculate and propose a maximum PAL level, taking into account newly applicable requirements and other factors identified in the regulations. The reviewing authority must review the complete application and, if the applicable criteria are met, issue a proposed permit for public comment consistent with the permitting procedures for issuing the initial PAL. As part of this public process, the reviewing authority must provide a written rationale for its proposed renewal permit PAL level.

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<sup>10</sup> Until the reviewing authority issues the revised permit with allowable emission limitations covering each of the emissions units under the PAL, the source must comply with a source-wide multi-unit emissions cap equivalent to the PAL level. 67 FR 80186, 80209 (December 31, 2002).

<sup>11</sup> 40 CFR § 52.21(r)(4) provides that "[a]t such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation ... on the capacity of the source or modification otherwise to emit a pollutant, ... then the requirements or paragraphs (j) through (s) of this section shall apply to the source or modification as though construction had not yet commenced on the source or modification."

<sup>12</sup> *Id.*

Stakeholder comments on the PAL renewal provisions focused on the PAL adjustment component of those provisions, which specifies the following:<sup>13</sup>

*PAL adjustment.* In determining whether and how to adjust the PAL, the Administrator shall consider the options outlined in paragraphs (aa)(10)(iv)(a) and (b) of this section. ...

(a) If the emissions level calculated in accordance with paragraph (aa)(6) of this section is equal to or greater than 80 percent of the PAL level, the Administrator may renew the PAL at the same level without considering the factors set forth in paragraph (aa)(10)(iv)(b) of this section; or

(b) The Administrator may set the PAL at a level that he or she determines to be more representative of the source's baseline actual emissions, or that he or she determines to be more appropriate considering air quality needs, advances in control technology, anticipated economic growth in the area, desire to reward or encourage the source's voluntary emissions reductions, or other factors as specifically identified by the Administrator in his or her written rationale.

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#### 40 CFR § 52.21(aa)(10)(iv)

Stakeholders expressed concern about what they perceived as “automatic ratcheting” of a PAL upon renewal. They felt that the rule language providing that the reviewing authority may set the PAL at a level determined to be more representative of baseline actual emissions or more appropriate under paragraph (aa)(10)(iv)(b) created uncertainty about the level of a PAL after renewal and therefore could impact the “headroom” that a source would have under the PAL after renewal.

EPA designed the PAL adjustment provisions at renewal to strike an appropriate balance between operational flexibility and ensuring that each 10-year period represents a distinct “contemporaneous” period, such that the PAL continues to serve as an appropriate baseline for determining whether there is a significant net increase in overall emissions from the source. If, at the time of renewal, a source’s baseline actual emissions of a PAL pollutant, plus the applicable significant level,<sup>14</sup> are equal to or greater than 80 percent of the PAL level, the reviewing authority may renew the PAL at the same level without any additional considerations.<sup>15</sup> Speaking to such situations, EPA previously stated “[w]e believe that this level is reasonably representative of the source’s baseline actual emissions.” 67 FR 80216 (December 31, 2002).

If, at the time of renewal, a source’s baseline actual emissions of a PAL pollutant, plus the applicable significant level, are less than 80 percent of the PAL level, the reviewing authority may set the renewed PAL at a level determined to be more representative of the source's baseline actual emissions, or more appropriate considering a list of factors identified in the regulations. 40 CFR §

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<sup>13</sup> Not addressed here are certain mandatory adjustment requirements found at 40 CFR § 52.21(aa)(10)(iv)(c)(1) and 40 CFR § 52.21(aa)(10)(v).

<sup>14</sup> Significant levels for NSR regulated pollutants are listed in 40 CFR § 52.21(b)(23).

<sup>15</sup> Except that in no case shall a PAL be set at a level greater than the PTE of the source. 40 CFR § 52.21(aa)(10)(iv)(c)(1).

52.21(aa)(10)(iv)(b).<sup>16</sup> While this provision does not preclude renewing the PAL at the current level or at a level higher than baseline actual emissions plus the significant level,<sup>17</sup> it provides the reviewing authority the discretion to make an appropriate downward adjustment on a case-by-case basis. The reviewing authority may propose to adjust a PAL based on its conclusion that the new level is more representative of the source's baseline actual emissions after considering any other relevant source-specific factors. EPA previously provided the following examples of circumstances where it would be appropriate for a reviewing authority to set the renewed PAL at a level higher than baseline actual emissions plus the applicable significant level.

[A]ssume that your source was designed to burn either fuel oil or natural gas, and that your source's permit allowed the use of either fuel. During the initial term of the PAL, you used only natural gas at the source and your source-wide emissions were consistently less than 80 percent of the PAL level. However, due to shifting market conditions, you expected to use fuel oil for a period beginning after PAL renewal. Under these circumstances, the reviewing authority could reasonably determine that a higher level would be more representative of your source's baseline actual emissions.

Similarly, your source might be designed to manufacture several different products, and your permit might allow you to switch from one product to another. During the initial term of the PAL, you might produce a product associated with low emissions, resulting in source-wide emissions that were consistently less than 80 percent of the PAL level. However, you might be planning to produce a product that would cause the source to emit at a higher level following PAL renewal. This is another example of a circumstance in which the reviewing authority could reasonably determine that a higher level was more representative of your source's baseline actual emissions.

67 FR 80216 (December 31, 2002)

The reviewing authority may also propose a renewed PAL level that it determines to be more appropriate considering air quality needs, advances in control technology, anticipated economic growth in the area, desire to reward or encourage the source's voluntary emissions reductions, or other factors as specifically identified in its written rationale. The reviewing authority may, for example, determine that the renewed PAL level should be higher than baseline actual emission plus the significant level to avoid penalizing a source for making voluntary emissions reductions and/or to provide a reasonable operating margin. The reviewing authority also has discretion under the PAL renewal provisions to take into account measures necessary to prevent a violation of a NAAQS or PSD increment, and to prevent an adverse impact on an air quality related value (AQRV) in a Federal Class I area. However, planning for attainment is not unique to a PAL system. States have broad authority under their SIPs to mitigate adverse air quality impacts through control measures (including source-specific emission limits) regardless of whether a source has a PAL. Therefore, for the same reasons discussed in Section II.2 of this

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<sup>16</sup> However, as noted above, *supra* note 15, the level shall not be greater than the potential to emit (PTE) of the source.

<sup>17</sup> Except that, "[t]he Administrator shall not approve a renewed PAL level higher than the current PAL, unless the major stationary source has complied with the provisions of paragraph (aa)(11) of this section (increasing a PAL)." 40 CFR § 52.21(aa)(10)(iv)(c)(2).

memorandum, EPA believes that PAL adjustment would rarely be the primary mechanism that a reviewing authority would invoke to address such issues.

As part of a PAL renewal application, a source must submit calculations of baseline actual emissions (with supporting documentation), the sum of the PTE of all emission units under the PAL, a proposed PAL level, and “[a]ny other information the owner or operator wishes the Administrator to consider in determining the appropriate level for renewing the PAL.” 40 CFR § 52.21(aa)(10)(iii). The renewal application provides the opportunity for a source to present its rationale for the proposed PAL level. Additionally, the regulations provide that the reviewing authority “shall follow the procedures specified in paragraph (aa)(5) of this section in approving any request to renew a PAL for a major stationary source [...], and shall provide both the proposed PAL level and a written rationale for the proposed PAL level to the public for review and comment.”<sup>18</sup> This required public review process provides the opportunity for the source to comment on the proposed PAL level and, at its discretion, to propose a different PAL level with supporting rationale for consideration by the reviewing authority. The reviewing authority must address all such material comments before taking action on the final renewal permit. In situations where the source disagrees with the PAL level included in the renewal permit, the source would have the option of either requesting expiration of the PAL or appealing the renewal permit through the applicable state administrative and judicial review process, or to the Environmental Appeals Board where EPA is the reviewing authority.

In summary, the PAL regulations do not require automatic downward adjustment, or “ratcheting,” of a PAL level at renewal, and when a reviewing authority exercises its discretion under the regulations to adjust a PAL at renewal, it must justify the proposed PAL level based on the criteria in the regulations and provide a written rationale as part of the permit record. Sources must propose a PAL level as part of an application for renewal and have the opportunity to provide a rationale for that proposed level based on the regulatory criteria for PAL adjustment. If a source disagrees with a reviewing authority’s proposed PAL level, it has the opportunity to comment and propose a different level as part of the required renewal public notice and comment process. In cases where baseline actual emission plus the significant level are equal to or greater than 80 percent of the PAL, EPA expects that in most cases PALs will be renewed at the same level. In cases where baseline actual emissions plus the significant level are less than 80 percent of the PAL, EPA expects that PALs will at minimum be renewed at a level equal to baseline actual emissions plus a reasonable operating margin (generally equal to the significant emission rate) and could be renewed at a higher level, up to the level of the existing PAL, if the applicant provides a supporting justification to the satisfaction of the reviewing authority.

#### 4. PAL Termination

The regulations do not contain specific provisions related to terminating a PAL prior to expiration. EPA previously stated that “[d]ecisions about whether a PAL can or should be terminated will be handled between you and your reviewing authority in accordance with the

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<sup>18</sup> 40 CFR § 52.21(aa)(5) contains the public participation requirements for PALs (including PAL renewals), which include providing the public with notice of the proposed approval of a PAL permit, providing at least a 30-day period for submittal of public comment, and addressing all material comments before taking final action on the permit.



requirements of the applicable permitting program.”<sup>19</sup> EPA does not expect requests for PAL termination to be common, and continues to believe that handling such requests on a case-by-case basis with the reviewing authority is the most appropriate and flexible approach to address any such request.

## 5. Monitoring Requirements for PALs

Monitoring requirements for PALs are contained in 40 CFR § 52.21(aa)(12). The general requirements specify that “[e]ach PAL permit must contain enforceable requirements for the monitoring system that accurately determines plantwide emissions of the PAL pollutant in terms of mass per unit of time ...” and that “[a]ny monitoring system authorized for use in the PAL permit must be based on sound science and meet generally acceptable scientific procedures for data quality and manipulation.” 40 CFR § 52.21(aa)(12)(i)(a). A PAL monitoring system must employ one or more of four general approaches meeting minimum requirements specified in the regulations. These include mass balance calculations for activities using coatings or solvents, continuous emissions monitoring systems (CEMS), continuous parameter monitoring systems (CPMS) or predictive emissions monitoring systems (PEMS), and emission factors.<sup>20</sup>

Stakeholders that commented on the PAL monitoring provisions in general expressed concern that the perceived hierarchy of monitoring approaches in the regulations could result in more complex and costly monitoring systems such as CEMS, PEMS and CPMS being required. Stakeholders also raised concerns about specific requirements associated with the use of emission factors for PAL monitoring, including emission factor adjustment and validation testing. Finally, stakeholders were concerned about the lack of specifics in the regulations or EPA guidance on acceptable approaches to address periods of monitoring data unavailability.

Sources eligible for a PAL (*i.e.*, major stationary sources) are typically subject to extensive monitoring, recordkeeping, and reporting requirements under Clean Air Act (CAA) programs including new source performance standards (40 CFR part 60), national emissions standards for hazardous air pollutants (40 CFR part 63), title V (40 CFR part 70), air emissions reporting requirements (40 CFR part 51, subpart A), and applicable SIP requirements. The existing monitoring systems and procedures for a given emissions unit/pollutant at a source may be adequate for purposes of a PAL or may provide some of the building blocks for meeting the PAL monitoring requirements. However, even emissions units whose monitoring systems meet the title V requirements in §§ 70.6(a)(3)(i)(B) or 70.6(c)(1), including those imposed by 40 CFR part 64 (Compliance Assurance Monitoring), may need to be upgraded when those units are proposed to become subject to a PAL in order to quantify mass emission rates as required under a PAL. The level of additional monitoring required under a PAL will depend on a number of source-specific factors. However, in all cases, sources may propose PAL monitoring that best aligns with their existing systems and procedures and, as necessary, new/upgraded monitoring that meets any one of the four general monitoring approaches and associated minimum requirements contained in the regulations. While EPA believes CEMS or PEMS may provide the most reliable approach to quantify emissions where applicable, the PAL regulations provide three additional general

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<sup>19</sup> NSR Reform Technical Support Document (TSD), at II-4-16.

<sup>20</sup> The regulations also provide for alternative monitoring approaches that meet 40 CFR § 52.21(aa)(12)(i)(a) and are approved by the reviewing authority. 40 CFR § 52.21(aa)(12)(i)(c).

monitoring approaches that, if meeting the minimum requirements specified, may be proposed by an applicant and approved by the reviewing authority.

a. Emission Factor Adjustment

For emission factor-based PAL monitoring systems, the regulations provide, in part, that “[a]ll emission factors shall be adjusted, if appropriate, to account for the degree of uncertainty or limitations in the factors’ development.” 40 CFR § 52.21(aa)(12)(vi)(a). Stakeholders raised concerns about the lack of specific criteria in the regulations or EPA guidance on when it would be appropriate to adjust an emission factor and how to perform such an adjustment. They were also concerned about the potential impact of emission factor adjustments on compliance margin under a PAL.

In many cases, emission factors proposed for PAL monitoring will be the same factors used by the source for other purposes, including compliance demonstration with existing permit requirements, NSR applicability calculations, and annual emissions inventory reporting. Such emission factors may be based on a range of data sources including unit-specific source test results, averages of similar unit test results, vendor supplied data, and literature references (*e.g.*, EPA AP-42: Compilation of Air Emissions Factors and WebFIRE). In determining whether an emission factor is appropriate for purposes of PAL monitoring, sources and reviewing authorities should consider the origin and basis for the emission factor, the representativeness of the emission factor to the particular unit, and the contribution of emissions from the emissions unit in relation to the PAL. Sources and reviewing authorities should also factor into this assessment the fact that for PAL monitoring, emission factors are used to calculate actual emissions in tons per year on a 12-month rolling total basis and not maximum short term emissions.

In circumstances where a source or reviewing authority determines that an emission factor adjustment is appropriate to account for the degree of uncertainty or limitations in the factors’ development, such an adjustment may be made using generally accepted statistical methods.<sup>21</sup> Alternatively, the source could propose to conduct site-specific testing within a specific amount of time after PAL issuance to develop a site-specific emission factor that may require no adjustment at all. Assuming the emission factor in question was a generally-applicable factor (*e.g.*, from a literature reference), the source could also propose a revised emission factor based on available unit- and parameter-specific emissions data that were used to develop the generally-applicable emission factor. Sources and reviewing authorities should ensure, however, that when emission factors are adjusted or revised for PAL monitoring purposes, the baseline actual emissions calculations used to set the PAL level are adjusted as appropriate to avoid inequitable outcomes.

b. Validation testing

The PAL regulations provide that “[i]f technically practicable, the owner or operator of a significant emissions unit that relies on an emission factor to calculate PAL pollutant emissions shall conduct validation testing to determine a site-specific emission factor within 6 months of PAL permit issuance, unless the Administrator determines that testing is not required.” 40 CFR § 52.21(aa)(12)(vi)(c). Stakeholders identified emission factor validation testing as potentially

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<sup>21</sup> See, *e.g.*, Data Quality Assessment: Statistical Methods for Practitioners EPA QA/G-9S; EPA/240/B-06/003; February 2006; available at <https://www.epa.gov/sites/production/files/2015-08/documents/g9s-final.pdf>.

burdensome and expressed concern about the lack of specific criteria in the regulations or EPA guidance to inform a reviewing authority's determination that validation testing is not required.

It is important to note that validation testing is only applicable to significant emissions units<sup>22</sup> for which the source is using an emission factor-based monitoring approach for the PAL pollutant.<sup>23</sup> Once the subset of emissions units potentially subject to validation testing is identified, there are additional relevant considerations. First, in many cases, such units will already be subject to initial and periodic testing requirements for the particular PAL pollutant under other CAA programs and in accordance with title V operating permit requirements.<sup>24</sup> EPA believes the availability of such contemporaneous data, which may include test data from similar units at different source(s), would support a reviewing authority's decision not to require additional validation testing. For vendor- or literature-based emission factors, a source may demonstrate to the reviewing authority that the emission factor is appropriate and sufficiently conservative to make validation testing unnecessary. Sources and reviewing authorities should also consider the contribution of the emissions units' actual emissions to the proposed PAL level and the margin between actual and potential emissions. If an emissions unit generally operates at a level with actual emissions below the significant level, it may provide a basis for determining that validation testing is not required. Additionally, where multiple similar emissions units are potentially subject to validation testing, sources and reviewing authorities should consider requiring validation testing for only one, or a representative subset, of those units.

#### c. Missing Monitoring Data

The PAL regulations provide that “[a] source owner or operator must record and report maximum potential emissions without considering enforceable emission limitations or operational restrictions for an emissions unit during any period of time that there is no monitoring data, unless another method for determining emissions during such periods is specified in the PAL permit.” 40 CFR § 52.21(aa)(12)(vii). Stakeholders that commented on the missing monitoring data requirements in the PAL regulations requested that EPA provide guidance on acceptable approaches for determining emissions during such periods.

EPA believes that missing data monitoring procedures are best determined on a case-by-case basis between the source and the reviewing authority. This approach provides maximum flexibility for the source to propose, and the reviewing authority to approve, alternative monitoring or data substitution procedures based on emissions unit- and source-specific factors. However, we acknowledge that guidance, including practical examples, may be helpful for sources considering a PAL. As an initial matter, it is important to understand that the regulations do not require that a PAL permit contain alternative procedures to address the unavailability of monitoring data. If not specified in the PAL permit, sources must record and report maximum potential emissions during such periods as specified in the regulations, which may or may not have a significant potential

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<sup>22</sup> “Significant emissions unit” in general means an emissions unit that emits or has the potential to emit a PAL pollutant in an amount that is equal to or greater than the significant level. Large emissions units are also significant emission units. 40 CFR § 52.21(aa)(2)(xi).

<sup>23</sup> In addition, all data used to establish the PAL pollutant must be revalidated through performance testing or other scientifically valid means approved by the reviewing authority, and such testing must occur at least once every 5 years after issuance of the PAL. 40 CFR § 52.21(aa)(12)(ix).

<sup>24</sup> See 40 CFR §§ 70.6(a)(3)(i)(A), (a)(3)(i)(B), and 70.6(c)(1).

impact on compliance margin or operational flexibility. The value of including an alternative method for determining emissions during periods of missing primary monitoring data will depend on the emissions unit, monitoring system, and other source-specific factors. These factors include the likelihood and potential duration of missing primary monitoring data, the potential contribution of emissions from the unit during periods of monitoring data unavailability, and the complexity of designing and implementing an alternative method.

Once a source determines the subset of emissions units for which missing data monitoring procedures are warranted, it may propose such procedures to the reviewing authority for approval and inclusion in the PAL permit. EPA recommends that sources first consider using any applicable or analogous missing data procedures contained in EPA regulations or the source's existing NSR or title V permit(s). For example, for CEMS, EPA believes the missing data substitution procedures in 40 CFR 75 subpart D would be sufficient in most cases to meet the criteria in the PAL regulations for monitoring. Next, we recommend that sources identify and review examples of missing monitoring data procedures from other permits issued by the relevant reviewing authority, including, but not limited to, PAL permits or permits issued for similar facilities/units. Working directly with the reviewing authority would be the most efficient way to identify such examples. Below are some examples of approved missing data procedures that are contained in a PAL permit issued by EPA Region 3.<sup>25</sup>

#### Example 1: CEMS Data

Unless the CEMS is rendered inoperable for more than 10 percent of a given month, no data filling procedures are required in computing the monthly average emission factor. In the event that the CEMS is inoperable for more than 10 percent of the month, the owner or operator shall calculate an emissions factor using the average of the five highest NO<sub>x</sub> hourly emission rates from the stack in the month. The calculated average emissions factor shall be input for the missing data during periods when the boiler associated with the stack was operational and the missing data shall be reported in accordance with Section 7 of this permit.

#### Example 2: Fuel Usage Data

A. If fuel usage data which is monitored continuously is missing or invalid (as determined through review of plant records), data shall be filled for each day of missing/invalid data. If less than 10 percent of days for a given month have missing data, the missing days shall be filled using the average of the days immediately preceding and following the missing period. If 10 percent or more of days for a given month are missing data, the data shall be filled using the maximum daily fuel usage recorded during that month and the missing data will be reported as a deviation in accordance with Section 7 of this permit.

B. If fuel usage data which is monitored monthly is missing, data shall be filled for the entire missing month with the maximum monthly fuel usage for the given unit during the preceding 12-

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<sup>25</sup> PAL Permit for U.S. Capitol Power Plant, 25 E Street S.E., Washington, D.C. 20003; EPA PAL Permit Number EPA-R3-PAL-001; EPA Region 3 (January 23, 2013). Note that these conditions were developed based on site- and unit-specific considerations and should not be assumed to apply generally in all situations.

month period. The missing data will be reported as a deviation in accordance with Section 7 of this permit.

Example 3: Cooling Tower Total Dissolved Solids (TDS)

A. If TDS data is missing for a single week, data shall be filled using the average of the weeks immediately preceding and following the missing data for the given unit.

B. If TDS data is missing for two or more consecutive weeks for only one unit, data for the other unit for the given weeks shall be used to fill the data.

C. If TDS data is missing for two or more consecutive weeks for both units concurrently, data shall be filled using the maximum test result from the preceding 12-month period for each of the given units. In addition, the missing data will be reported as a deviation in accordance with Section 7 of this permit.

6. Baseline Actual Emissions for Replacement Units

EPA has become aware of potential confusion and inconsistent interpretations regarding the determination of baseline actual emissions from a “replacement unit” for purposes of setting a PAL and for certain other NSR applicability calculations. The source of the potential confusion is a lack of clarity concerning whether a replacement unit, as defined in the NSR regulations, effectively takes the place of the unit it replaced and thereby carries with it the baseline actual emissions from that replaced unit for purposes of subsequent applicability calculations and permitting actions (*e.g.*, for a PAL), or whether a replacement unit is considered a separate existing emissions unit. Based on the reasoning below, EPA is clarifying that it interprets the federal NSR regulations consistent with the former approach.

Under the NSR regulations, a “replacement unit” is considered an existing emissions unit. 40 CFR § 52.21(b)(7)(ii). A “replacement unit” is defined as an emissions unit meeting the following criteria: (i) The emissions unit is a reconstructed unit within the meaning of § 60.15(b)(1) of this chapter, or the emissions unit completely takes the place of an existing emissions unit; (ii) The emissions unit is identical to or functionally equivalent to the replaced emissions unit; (iii) The replacement does not alter the basic design parameters of the process unit; and (iv) The replaced emissions unit is permanently removed from the major stationary source, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter. 40 CFR § 52.21(b)(33).

The regulations are clear that a replacement unit is an existing emissions unit, and thus for the purpose of the initial NSR applicability analysis, emissions increases must be calculated using the actual-to-projected-actual applicability test. The regulations are also clear that for this initial analysis, baseline actual emissions must be those associated with the replaced unit.

The question that has been raised is whether the same approach is required for subsequent analyses of a replacement unit, such as subsequent modification of the unit, or calculating the unit’s baseline actual emissions for the purpose of determining the level of a PAL. In the 2003 reconsideration rule that established the regulatory replacement unit provisions, EPA determined that “[i]t is reasonable to compare the baseline actual emissions from the replaced unit to the

projected actual emissions of the replacement unit because the units are effectively the same existing emissions unit.” 68 FR 63024 (November 7, 2003). EPA did not at that time indicate, nor do we now believe, that this reasoning would cease to apply once the replacement activity is completed. Therefore, we are confirming our interpretation of the EPA NSR regulations to provide that, for a replacement unit (as defined in the regulations), the baseline actual emissions from the unit that was replaced carry over to the replacement unit for purposes of both the initial and any subsequent NSR analyses, including determining baseline actual emissions for the purpose of setting the level of a PAL. For example, assume a petroleum refinery source replaced a heater (Unit H01) with a new heater (Unit H08) qualifying as a replacement unit in 2015. Assume also that in 2019 the same source is developing a permit application for a PAL for nitrogen oxides (NO<sub>x</sub>) emissions, and the source has selected calendar years 2012-2013 as the 24-month period for determining baseline actual emissions of NO<sub>x</sub>. Under these facts, the baseline actual emissions for Heater Unit H08 would be the average actual annual emissions, in tons per year, that Heater Unit H01 emitted during calendar years 2012-2013.

### III. General Advantages of PALs and Other Considerations

When EPA promulgated the PAL regulations as part of the 2002 NSR Reform rules, the Agency described the new regulations in detail and highlighted several benefits of PALs, including increased operational flexibility, regulatory certainty, a simpler NSR applicability approach, and fewer administrative burdens.<sup>26</sup> Since 2003, approximately 70 sources have obtained PALs, and the regulated community, states, and EPA have gained over 15 years of implementation experience.<sup>27</sup> At this time, we believe it may be helpful to reemphasize some of the general advantages of PALs, clarify some key aspects of the regulations that can affect compliance margin and operational flexibility under a PAL, and explore some PAL strategies that sources may consider in evaluating their options under the NSR program.

The key advantage of a PAL is the ability for a source to manage facility-wide emissions without triggering major NSR and without the need to perform project-by-project NSR applicability analysis. As long as actual emissions remain below the PAL, a source can implement timely projects, including modifications to existing emissions units and construction of new emissions units, as needed, to react to market demand or to meet other company business objectives.<sup>28</sup> For projects that would otherwise trigger the requirement to obtain a major NSR permit, which can take up to 18 months to apply for and obtain, a source with a PAL (or multiple PALs as necessary) may begin construction expeditiously.<sup>29</sup> Furthermore, the potentially complex and burdensome requirements associated with a major NSR permit are avoided.<sup>30</sup> The ability to

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<sup>26</sup> 67 FR 80206, *et seq.* (December 31, 2002).

<sup>27</sup> We note that while over 15 years have passed since the federal PAL regulations were finalized and made effective in 2003, a SIP process was required to implement the PAL regulations in most states, meaning that PALs did not become widely available until several years later.

<sup>28</sup> Any emissions units modified or added during the PAL term are subject to the monitoring, recordkeeping and reporting and notification requirements in 40 CFR § 52.21(aa)(12), (aa)(13), and (aa)(14), respectively, as applicable.

<sup>29</sup> These projects may still need to obtain a minor NSR permit, but the burden and timing of minor NSR permitting is generally significantly less than major NSR.

<sup>30</sup> For example, to obtain a PSD permit, a source must meet emissions limits consistent with the best available control technology and demonstrate that allowable emissions increases will not cause or contribute to a violation of

make changes to a source that increase emissions is limited by the margin of compliance, or “headroom” under a PAL, which is related to both the initial level of a PAL, determined at the time of permit issuance, and subsequent voluntary projects or initiatives implemented by the source that reduce emissions of the PAL pollutant and thus expand margin.

The first step in evaluating whether a PAL (or multiple PALs) presents a viable and advantageous option for a source generally involves a scoping and feasibility analysis. Under such an analysis, the source would determine, on a pollutant-by-pollutant basis, the optimal PAL level that could be obtained considering baseline actual emissions and PTE as applicable to each eligible emissions unit. To perform this analysis, a source would generally start with a list of currently existing emissions units, historical emissions inventory data for the past 5 or 10 years, depending on the source category,<sup>31</sup> compliance status of each emissions unit during candidate baseline periods, and currently applicable requirements that affect emissions of the PAL pollutant. It is also important to understand the status of each emissions unit both during the 24-month baseline period and at the time of PAL permit application submittal, and how that status affects a unit’s contribution to the level of a PAL. Table 1 presents the four possible emissions unit status cases with corresponding PAL contribution bases. Case 1 is a new emissions unit, or one that is (or will be) newly constructed at the time of PAL permit application submittal.<sup>32</sup> New emissions units include units that have operated for less than 2 years at the time of PAL permit application submittal and units on which construction has commenced as of that same time.<sup>33</sup> A new emissions unit contributes to the PAL level at an amount equal to its PTE.

Case 2 in Table 1 is an existing emissions unit at the time of PAL permit application submittal (*i.e.*, not a new emissions unit) that was in existence during the 24-month baseline period, which includes a unit on which actual construction began prior to the end of that 24-month period. For such existing emissions units, the contribution to the PAL level is equal to the unit’s average annual emission rate during the selected 24-month baseline period. Case 3 is an emissions unit that was in existence during the 24-month baseline period but was subsequently permanently shut down. For such emissions units, the contribution to the level is zero (or as specifically stated in the regulations, emissions must be subtracted from the PAL level). Finally, Case 4 in Table 1 is an emissions unit that may be either new or existing, but that was not in existence during the 24-month baseline period, *i.e.*, on which actual construction began after the baseline period. Such emissions units are termed “newly constructed units” in the PAL regulations and contribute to the PAL level at a rate equal to their PTE.

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any NAAQS or PSD increment, and to obtain a nonattainment NSR permit, a source must meet emissions limits consistent with the lowest achievable emission rate and obtain emission offsets.

<sup>31</sup> “Baseline actual emissions” are defined specifically for existing electric utility steam generating units and separately for all other existing emissions units. *See* 40 CFR § 52.21(b)(48).

<sup>32</sup> *See* June 14, 2018 letter from Anna Marie Wood, Director, Air Quality Policy Division, EPA Office of Air Quality Planning and Standards to Bart E. Cassidy, Manko, Gold, Catcher & Fox, LLP for more information on the proper classification of a new emissions unit.

<sup>33</sup> Units on which construction has commenced at the time of initial application for a PAL, or application for renewal of a PAL, constitute new emissions units and thus contribute to a PAL at a level equal to PTE. *See* NSR TSD, at I-8-28.

Table 1. PAL Contribution based on Emissions Unit Status

Case	Emissions Unit Status		PAL Contribution	Regulatory Reference (40 CFR 52.21)	Notes
	Baseline Period	Application Submittal Date			
1	N/A	New	PTE	(aa)(6)(i); (b)(48)(iii),(iv); (b)(7)	Is (or will be) newly constructed <ul style="list-style-type: none"> <li>• Operated &lt; 2 years as of application date;</li> <li>• Permit obtained, construction commenced prior to application date</li> </ul>
2	In existence*	Existing	24-month average annual emissions	(aa)(6)(i); (b)(48)(i),(ii),(iv)	Must incorporate all required downward adjustments and address qualifying criteria under (b)(48)
3		Shut down	Zero	(aa)(6)(i)	In accordance with §52.21(aa)(6)(i), emissions associated with units that were permanently shut down after the baseline period must be subtracted from PAL level
4	Not in existence*	Existing or new; actual construction began after baseline period	PTE	(aa)(6)(ii)	PAL-specific provision for “newly constructed units”

\* “In existence” as used here means any unit that existed during the baseline period, which includes any unit on which actual construction began prior to end of that baseline period. This should not be confused with “existing,” which means “existing emissions unit” as defined in the regulations.



Once baseline actual emissions and estimated PAL levels have been calculated for candidate 24-month baseline periods considering required adjustments and emissions unit status as described above, an optimal period can be determined. At this point, other strategic factors may be considered such as future project plans and opportunities for voluntary emission reductions that can affect margin and operational/project flexibility under the PAL during the permit term. For example, a future project plan involving a shift to lower emitting technology, such as repowering an electric utility source from coal to natural gas-fired units, could build significant additional margin under a PAL.

In summary, PALs can provide significant benefits to sources in terms of operational flexibility and reduced permitting burden. EPA encourages sources to consider PALs in evaluating options under the NSR program and trusts that this guidance may be helpful to this effect. We also encourage sources to engage with their reviewing authorities to address any additional concerns or questions on PALs.

#### **IV. PAL Implementation Survey Results**

In February 2019, the EPA Office of Air Quality Planning and Standards conducted a survey of EPA Regional offices to gain a better understanding of PAL implementation statistics. The survey results indicated that approximately 70 PAL permits had been issued nationwide in 20 states and the District of Columbia.<sup>34</sup> Of those PAL permits, approximately 12 had been renewed and only one had expired without renewal.

The survey results showed that PAL permits have been issued to a diverse group of industry categories, including electric utilities, pulp and paper, cement, petroleum refineries, iron and steel, semiconductors, pharmaceuticals, automobile and truck car manufacturing, chemicals, minerals, oil and gas, and landfills.

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For any questions regarding this guidance, please contact Scott Mathias, Acting Director of the Air Quality Policy Division in the Office of Air Quality Planning and Standards at (919) 541-5310 or [mathias.scott@epa.gov](mailto:mathias.scott@epa.gov).

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<sup>34</sup> Because this survey was informal, the values reported here are approximate and believed to be conservative. “PAL permit” as used here means a permit that contains one or more pollutant-specific PALs.