



July 22, 2026

South Coast Air Quality Management District
Jason Aspell, Deputy Executive Officer
Engineering and Permitting
21865 Copley Drive
Diamond Bar, CA 91765

Subject: Comments on Permit Processing Handbook – Draft Plasma Arc and Laser Metal Cutting Chapter

Dear Jason:

Clean Water SoCal appreciates the opportunity to comment on the Permit Processing Handbook – Draft Plasma Arc and Laser Metal Cutting Chapter (Proposed Guidance). We commend South Coast Air Quality Management District (SCAQMD) staff for developing guidance intended to improve consistency and transparency in the permitting of plasma arc and laser metal cutting operations.

Clean Water SoCal represents over 80 public water/wastewater agencies in Southern California. Our members provide essential water supply, wastewater treatment and water disinfection for approximately 20 million people in San Diego, Orange, Los Angeles, Santa Barbara, Riverside, San Bernardino, and Ventura counties. These agencies provide environmentally sound, cost-effective management of more than two billion gallons of wastewater each day and, in the process, convert wastewater into resources for beneficial uses such as recycled water and renewable energy. Many member agencies use plasma arc cutting equipment to modify, repair, and maintain treatment facilities, pumping stations, pipelines, tanks, and other essential infrastructure. Accordingly, the Proposed Guidance has important implications for the permitting of equipment used to support essential public services.

While we support the development of permitting guidance, we have several concerns regarding the technical basis, transparency, and implementation of the Proposed Guidance. As currently written, the guidance appears to rely heavily on emission factors developed from a limited and largely unpublished body of information, with insufficient discussion of the associated uncertainties or opportunities to use more representative information. Because the guidance proposes new default emission factors that may substantially influence permitting



requirements for a broad range of facilities, it is important that the technical basis for those factors be clearly documented and transparent.

1. The Handbook Should Clearly Identify the Emission Factors as Default Values

The handbook should explicitly state that the emission factors presented are default values intended for use only when representative information is unavailable.

Applicants should be permitted to submit alternative technically supported information, including manufacturer performance data, representative source testing, peer-reviewed published studies, engineering analyses, or other technically justified information. Likewise, permitting engineers should retain the discretion to evaluate such information when it provides a more representative estimate of emissions than generalized default factors.

Permitting necessarily requires consideration of equipment-specific design, operating practices, processed materials, and other project-specific information. The handbook should not be interpreted as establishing mandatory emission factors that preclude the use of better available technical information.

2. Greater Transparency Is Needed Regarding the Technical Basis for the Emission Factors

Footnote 2 in the Proposed Guidance states that the plasma arc cutting emission factors, including the proposed hexavalent chromium (Cr(VI)) emission factors, were developed through an evaluation of "existing in-house source test data." The Draft Guidance also references the [1994 Swedish study](#), Emission of Fume, Nitrogen Oxides and Noise in Plasma Cutting of Stainless and Mild Steel, which has historically served as the principal technical basis for [EPA's plasma arc cutting emission information](#). However, the relationship between these various data sources, and the manner in which they were combined to develop the proposed emission factors is not explained.

Because these emission factors may determine permit applicability, air quality modeling requirements, emission offset obligations, health risk assessments, permit conditions, and Best Available Control Technology determinations, the underlying technical basis should be fully transparent.

We respectfully request that SCAQMD publish the source test reports, supporting calculations, data reduction methodologies, assumptions, and statistical analyses used to develop these emission factors prior to finalizing the Proposed Guidance. Without access to these materials, applicants and other stakeholders cannot independently evaluate the scientific basis for the



proposed emission factors or meaningfully compare them with other technically supported emissions data.

Because the proposed Cr(VI) emission factors may significantly influence permit applicability, health risk assessments, New Source Review requirements, emission offsets, and permit conditions, SCAQMD should publish the supporting calculations, assumptions, source test reports, and statistical analyses supporting the revised methodology.

The draft guidance does not explain why SCAQMD has departed from the methodology used in its [“Guideline for Calculating and Reporting Emissions from Laser or Plasma Cutting of Metal Materials Operations”](#), dated March 2025 (March 2025 Guidance) or why the same historical technical reference now supports materially different Cr(VI) emission factors. SCAQMD should document whether the revised factors are based on newly available source test data, a different interpretation of the 1994 Swedish study, additional in-house testing, a revised analytical methodology, or other technical considerations.

The March 2025 Guidance estimates Cr(VI) emissions using a default emission factor of 0.00022 pounds of Cr(VI) per pound of chromium contained in the metal removed and attributes this value to "South Coast AQMD permitting." In contrast, the Draft Guidance proposes substantially higher Cr(VI) emission factors while appearing to rely, at least in part, on many of the same underlying technical references, including the 1994 Swedish study.

The Draft Guidance proposes substantially higher default hexavalent chromium (Cr(VI)) emission factors for plasma arc cutting than those contained in SCAQMD's March 2025 Guidance. Accordingly, it's critical that the basis for the revised hexavalent chromium emission factors be clearly explained and supported.

3. The Technical Basis for the Emission Factors Should Be Strengthened

The Proposed Guidance relies heavily on emission information originating from EPA publications and supporting studies conducted during the early 1990s. While these studies represented the best information available at the time, they are now more than thirty years old.

The apparent change in methodology for estimating Cr(VI) emissions further underscores the importance of clearly documenting how historical studies and more recent source test information were evaluated and incorporated into the proposed emission factors.



Our review of the technical literature indicates that, although research on plasma arc cutting has continued, relatively little modern work has focused on developing permitting emission factors using source testing methodologies comparable to those used for regulatory applications. Instead, more recent studies have generally examined particle formation mechanisms, aerosol characteristics, occupational exposure, and metal speciation.

Consequently, there remains a limited body of publicly available source test data suitable for developing broadly applicable permitting emission factors. This limited database warrants careful consideration, particularly where default emission factors may be used to establish permit applicability, air quality modeling requirements, emission offset obligations, health risk assessments, or permit conditions.

Rather than treating the Proposed Guidance as universally representative, SCAQMD should acknowledge the limitations of the available database and explicitly allow applicants to submit technically supported, representative emissions information when available.

4. Establish Minimum Data Quality Criteria for Future Handbook Revisions

To promote consistency and technical rigor, SCAQMD should establish objective quality criteria for studies relied upon in future handbook revisions.

For example, emission factors should preferably be based on:

- Publicly available source test reports;
- EPA, CARB, or other agency-approved methodologies;
- Peer-reviewed publications;
- Adequately documented sampling and analytical procedures;
- Sufficient sample size to characterize variability; and
- Modern testing representative of commercially available equipment.

Older studies or unpublished information may remain useful as supporting references but should not serve as the primary basis for permit requirements unless corroborated by more recent, representative source testing or other technically robust information.

5. Applicants Should Be Allowed to Demonstrate More Representative Emission Factors

The Proposed Guidance should expressly recognize that applicants may demonstrate lower or more representative emissions through source testing, manufacturer-supported data, or other technically defensible engineering analyses.



Allowing applicants to submit representative emissions information is consistent with longstanding permitting practice and promotes the use of the best available technical information while avoiding unnecessary regulatory burdens based solely on generalized default assumptions.

6. Potential Regulatory Consequences Merit Additional Technical Validation

The proposed emission factors have regulatory implications that extend well beyond estimating emissions because they may directly influence permitting thresholds, health risk analyses, offset obligations, and control technology determinations.

Depending on facility-specific circumstances, the proposed emission factors may trigger:

- Criteria pollutant dispersion modeling;
- New Source Review offset requirements;
- Air toxics health risk assessments;
- Risk reduction requirements; and
- Additional permit conditions.

The sample evaluation contained in the Proposed Guidance estimates approximately three tons per year of NO_x emissions from a single plasma arc cutting operation. Given the magnitude of this estimate and its potential permitting implications, additional explanation regarding the underlying assumptions and calculations would be helpful. Such emissions could materially affect permitting requirements for many facilities, particularly those with existing combustion equipment or other permitted emission sources.

Given these potentially significant regulatory consequences, the technical basis supporting the proposed emission factors warrants additional documentation and validation.

7. Additional Documentation Supporting the NO_x Emission Factors Is Needed

The proposed NO_x emission factors appear to rely primarily upon the Swedish study conducted approximately thirty years ago.

Our review found relatively few subsequent published studies that directly measured NO_x emissions using source testing methodologies suitable for permitting applications. More recent technical literature has focused primarily on particulate emissions, aerosol characterization, and occupational exposure rather than development of updated permitting emission factors.



If SCAQMD possesses additional source test information supporting the proposed NO_x emission factors, those data should be published and incorporated into the technical basis for the Proposed Guidance. If such information is unavailable, any guidance should acknowledge the uncertainty associated with these emission factors.

8. The Sample Evaluation Should More Fully Reflect Actual Permitting Requirements

The sample evaluation contained in the Proposed Guidance would provide substantially greater value if it illustrated the complete permitting analysis that applicants are likely to encounter.

Specifically, the example should include:

- Facility-wide pre-project and post-project potential-to-emit calculations;
- Identification of New Source Review offset applicability, where appropriate;
- Example air quality modeling inputs and results;
- Discussion of cumulative facility emissions; and
- Explanation of how uncertainty in emission estimates may influence permitting outcomes.

Providing a more comprehensive example would improve transparency and better prepare applicants for the permitting process.

9. Potential Impacts on Water and Wastewater Agencies

Public water and wastewater agencies use plasma arc cutting equipment to modify, repair, and maintain pipelines, tanks, and treatment equipment. These activities are generally intermittent, maintenance-oriented, and frequently performed using portable equipment rather than production manufacturing systems.

The emission factors presented in the Proposed Guidance could significantly affect these public agencies by triggering permitting requirements, air quality modeling, emission offsets, and air toxics evaluations for equipment used only periodically to support the operation and maintenance of critical public infrastructure.

Unlike manufacturing facilities, water and wastewater agencies provide essential public health and environmental protection services and must maintain the ability to respond rapidly to equipment failures, emergency repairs, and infrastructure rehabilitation projects. Inflexible application of generalized default emission factors could unnecessarily complicate or delay deployment of equipment needed to maintain reliable drinking water and wastewater treatment operations.



Accordingly, it is particularly important that the Proposed Guidance preserve flexibility to consider representative equipment-specific or representative emissions information and clearly acknowledge the uncertainty associated with default emission factors derived from a limited historical database.

10. Preserving Engineering Judgment Will Improve Both Permit Quality and Efficiency

Experience throughout California has demonstrated that permitting guidance is most effective when it supports—not replaces—the engineering evaluation necessary for individual projects.

Maintaining flexibility to consider representative information will improve permit quality, promote technically sound permitting decisions, and reduce unnecessary delays associated with applying generalized default assumptions where better information exists.

Conclusion

Clean Water SoCal supports SCAQMD's objective of developing technically sound permitting guidance that promotes consistency, transparency, and efficient permit processing. We respectfully request that SCAQMD revise the Proposed Guidance to:

1. Clearly identify the emission factors as default values intended for use only when representative data are unavailable.
2. Publish the source test reports, supporting calculations, statistical analyses, and technical documentation supporting the proposed emission factors, including the basis for the revised hexavalent chromium emission factors.
3. Establish objective quality criteria for future handbook revisions.
4. Acknowledge the uncertainty associated with emission factors derived from a limited historical database.
5. Explicitly allow applicants to submit technically supported emissions information during permit evaluations.
6. Expand the Sample Evaluation to illustrate complete permitting implications, including facility-wide emissions, New Source Review applicability, emission offsets, and air quality modeling.
7. Confirm that permitting engineers retain the discretion to evaluate representative, technically supported emissions information when it provides a more accurate estimate than default emission factors.

Collectively, these revisions would improve the technical defensibility, transparency, and practical implementation of the Proposed Guidance while preserving the engineering judgment



necessary to evaluate diverse permitting projects. They would also ensure that applicants may use representative, technically defensible emissions information when available, while retaining default emission factors for situations where more representative data do not exist. This approach is consistent with longstanding air permitting practice and is particularly important for publicly owned water and wastewater agencies responsible for maintaining critical public infrastructure.

Thank you for the opportunity to comment on the Proposed Guidance. We appreciate SCAQMD's willingness to engage stakeholders during its development and look forward to working collaboratively with SCAQMD staff.

Sincerely,

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