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APPENDIX E

Response to Comments Summary

Summary of Comments and Responses on the Regulatory Package for Proposed Amendments to Regulation 8: Organic Compounds, Rule 18: Equipment Leaks

Table of Contents

LIST OF COMMENTERS **2**

EMISSIONS AND EMISSIONS REDUCTION CALCULATIONS (EERC) 2
FEASIBILITY OF SCREENING AND SAMPLING STEAM QUENCHED PUMPS (SQP) 7
COST-EFFECTIVENESS ANALYSIS 8
OUTREACH TO AFFECTED STAKEHOLDERS (OAS) 9
RULE LANGUAGE BY SECTION (RL) 9

REFERENCES **12**

List of Commenters

Air District staff received one written comment letter prior to the June 22, 2024 comment deadline, from the Western States Petroleum Association (WSPA). WSPA is a non-profit trade association representing twenty-six companies involved in exploration, production, refining, transport, and marketing of petroleum, natural gas, petroleum products, and other energy supplies in California, Arizona, Nevada, Oregon, and Washington.

Commenter	Contact Information
Western States Petroleum Association (WSPA)	Kevin Buchan Senior Manager, Bay Area Region Regulatory Affairs Letter, June 21, 2024

Comments provided in the letter are grouped below by subject matter or theme.

Emissions and Emissions Reduction Calculations (EERC)

Comment EERC-1: The commenter states that the current emissions and emissions reduction estimates provided in the Staff Report are inflated and are calculated using outdated emission factors. The commenter states that the Staff Report's current emissions estimate of 133.8 tons per year and emissions reduction estimate of 128 tons per year are based on components intentionally omitted from the Heavy Liquids Study (HLS) by the Air District. The commenter states that these 128 tons per year (a reduction of over 95 percent) were calculated based on 40-year old emission factors for pressure relief valves (PRVs) and steam-quenched pumps (SQPs).

Response EERC-1: The commenter states that Air District emission estimates from 2015 are substantially higher than the estimates calculated by the commenter, and states that the estimates in the 2024 Staff Report are similarly overstated. This direct comparison of the 2015 estimate and the commenter's estimate is misleading, as information on the number of components used

in the 2015 estimates is considerably different than that used in the commenter's estimate. As detailed below and in the 2024 Staff Report, the Air District's current estimates of emissions and emission reductions for the proposed amendments were developed using the best available and most appropriate information available, including results from the 2022 HLS (BAAQMD, 2022).

Air District staff reviewed and considered available published emission factors and developed the analysis using emission factors representing the best available and most appropriate information. The Air District reviewed a wide range of emissions studies and reports, including the 1977 U.S. EPA Study (U.S. EPA, 1977), 1979 U.S. EPA Study (U.S. EPA, 1979), U.S. EPA Report (U.S. EPA, 1980), 1993 Refinery Study (U.S. EPA, 1993), 1995 EPA Protocol (U.S. EPA, 1995), American Petroleum Institute (API) Publication Number 332 (API, 1995), 1996 API Study (API, 1996), 1999 CAPCOA Guidelines (CAPCOA, 1999), and the Air District Heavy Liquids Study (BAAQMD, 2022).

For PRVs, the current emissions estimates were calculated using an emission factor from Table 4-2 of the U.S. EPA Report (U.S. EPA, 1979). Air District staff reviewed and considered available published emission factors for PRVs and used the best available and most appropriate data in these calculations. This is because the emission factor from U.S. EPA Report (U.S. EPA, 1979) was the only emission factor for PRVs in heavy liquid service that was available based on mass emissions data obtained via the bagging method, which is the highest ranked method for estimating emissions from equipment leaks in the Air District's Petroleum Refinery Emissions Inventory Guidelines (BAAQMD, 2019). Staff considered use of the emission factor from Table-IV-1a of the 1999 CAPCOA report for estimating current emissions but determined that it was not representative of PRVs in heavy liquid service, because it was specific to components in gas service. In addition, staff considered deriving the emission factor using a correlation equation included in the 1999 CAPCOA report for PRVs. The correlation equation-derived emission factor provided in the 1999 CAPCOA report is applicable only to components already under a leak detection and repair (LDAR) program, thus the Air District determined it to be unsuitable for calculating emissions from components yet to be monitored via an LDAR program. Staff also reviewed data from the HLS, however, the HLS Report concluded that appropriate emission factors for PRVs could not be derived from the data due to an insufficient number of components studied.

For SQPs, which are not subject to LDAR program requirements in the current version of the Rule, the current emissions were calculated using an emission factor from Table VI-1a of the CAPCOA Guidelines (CAPCOA, 1999), which was sourced from 1980 U.S. EPA Report (U.S. EPA, 1980). The 1999 CAPCOA Report recommends using this emission factor for estimating emissions for components that are not under a LDAR program. In addition, similar to the emission factor used to estimate PRV emissions, the emission factor for SQPs was the only emission factor for PRVs in heavy liquid service that was available based on mass emissions data obtained via the bagging method, which is the highest ranked method for estimating emissions from equipment leaks in the Air District's Petroleum Refinery Emissions Inventory Guidelines (BAAQMD, 2019). Air District staff also considered deriving the emission factor using a correlation equation included in 1999 CAPCOA report but similarly determined it unsuitable for calculating emissions from components yet to be monitored via an LDAR program. Staff also reviewed data from the HLS, however, the HLS Report concluded that

appropriate emission factors for SQPs could not be derived since emissions could not be evaluated at some SQPs.

Comment EERC-2: The commenter questions the emission factors used by Air District staff to calculate emissions from PRVs, SQPs, and valves. The commenter states that staff does not explain its use of a 1979 PRV emission factor that is roughly 18 times higher than the factor for this equipment agreed in its 2018 Settlement, Enforcement, and Release Agreement (2018 Agreement) between refineries and the Air District. Further, the commenter states that WSPA provided more recent emissions-related data for SQPs to the Air District in 2021 that indicate an emission factor nearly 20 times lower than the 1979 emission factor used by staff. Lastly, the commenter asserts staff used an emission factor for valves that is higher than the factor shown in the HLS report (8.47E-05 lb/hr per valve vs 6.26E-05 lb/hr per valve).

Response EERC-2: The Air District considered using the interim emission factors for PRVs and SQPs available in the 2018 Agreement, which were sourced from 1999 CAPCOA Guidelines (CAPCOA, 1999). The emission factor for PRVs in the 2018 Agreement was derived using a correlation equation included in the 1999 CAPCOA Guidelines for PRVs. The correlation equation-derived emission factor provided in the 1999 CAPCOA Guidelines is applicable only to components already under a LDAR program, thus the Air District determined it to be unsuitable for calculating emissions from components yet to be monitored via an LDAR program. For SQPs, the Air District did use the emission factor from the 2018 Agreement, which was obtained from 1999 CAPCOA Guidelines but was originally sourced from 1980 U.S. EPA Report (U.S. EPA, 1980).

Air District staff reviewed available published studies on emission factors from component leaks and determined that the emission factors used in the Staff Report emissions calculations represent the best available and most appropriate emissions information. For the rationale behind the use of emission factors for PRVs and SQPs, please refer to Response EERC-1. For valves, the emissions were estimated using emission factors derived from emissions data and initial boiling point of materials as reported by the respective refineries as part of the HLS (BAAQMD, 2022). The HLS reported emission factor referenced by the commenter is an average factor for valves handling materials with an initial boiling point greater than 302 ºF with no upper bound. Because the proposed amendments only apply to a subset of these valves (i.e., valves handling materials with an initial boiling point greater than 302 ºF but less than or equal to 372 ºF), the analysis in the Staff Report uses an emission factor that is specific to this subset of components. This emission factor more accurately corresponds to the subset of valves in heavy liquids service that will be subject to the proposed amendments.

Comment EERC-3: The commenter states that Air District staff did not consider emissions related data for SQPs as provided by WSPA in 2021. The commenter asserted that this data indicates an emission factor for SQPs that is nearly 20 times lower than the 1979 emission factor used in the Staff Report calculations.

Response EERC-3: The data referenced by the commenter were submitted by WSPA, prior to the completion and subsequent publication of the HLS report and were duly considered by Air District staff prior to publication of the HLS report. As indicated in the Air District's 2021

response (also attached to the commenter's letter), there are numerous deficiencies with the emissions data provided during the HLS. A significant number of the measurements were not measured within 1 centimeter from the leak interface as required by U.S. EPA Method 21 and the screening distance was not recorded for those measurements that did not conform with U.S. EPA Method 21. As noted in the HLS report, studies have shown that the measured leak concentration is directly related to the screening distance; therefore, the distance at which the measurement is taken is crucial in ensuring the validity of any emissions data obtained. As such and as indicated in the HLS report, the emissions could not be evaluated and thus an emission factor for SQPs could not be determined as part of the HLS results. Please refer to pages ES-4, 231, and 248 of the HLS Report.

Comment EERC-4: The commenter states that Air District staff has not shown the derivation of the emission factor for valves with initial boiling points (IBPs) below 372 °F used in staff's calculations. The commenter also states that the HLS report does not list the initial boiling point (IBP) data for the components studied and that staff overestimated emissions reductions.

Response EERC-4: The emission factor used by Air District staff to calculate emissions from valves processing organic liquids with an IBP below 372 °F was derived by averaging the emissions determined in the HLS for HLS components processing materials with IBPs greater than 302 ºF to less than or equal to 372 ºF. The data on the IBP of materials were reported by the refineries as part of the HLS (BAAQMD, 2022). Data related to the initial boiling point of materials handled by the components were not included in the published HLS Report as some facilities had identified this data as confidential business information. This data is too voluminous to provide in this summary, but the Air District is able to make these records available under the California Public Records Act, subject to exemptions as provided by the law. Procedures are in place to ensure that records made available do not include trade secret information or any other information that may be kept confidential under state or federal law.

Comment EERC-5: The commenter refers to previous comments made in December 2023 on the preliminary draft version of the rule to restate that Air District staff inaccurately calculated post-rule emissions by applying correlation equations to action levels since the rule cannot prevent leaks from occurring at all times. The commenter questions the use of "a screening value of 10 ppmv for valves and a screening value of 20 ppmv for steam quenched pumps, non-steam quenched pumps, and pressure relief devices based on staff's review of historical LDAR screening data for light liquid components." The commenter states that there are no SQPs in light liquid service and that many SQPs cannot be screened with the available methods. The commenter further claims that the Air District has not allowed this logic for estimating emissions from Regulation 8: Organic Compounds, Rule 18: Equipment Leak (Rule 8-18) - controlled equipment since 2013. The commenter states that for purposes of permitting, the Air District has required facilities to calculate equipment emissions based on an assumption that at least some equipment leaks in between the inspection cycles will have a screening value of 10,000 ppmv or what is termed as a 'pegged leaker.' The commenter believes that this approach errs too far towards inaccuracy, and the assumed screening value and percentage of leaking equipment is measurably higher compared to what available data show. The commenter states that the staff's estimate of post-control emissions based on 10-20 ppmv is highly unlikely to be achieved in practice, and therefore the associated emissions reductions are overly exaggerated.

Response EERC-5: Air District staff derived the screening values of 10 ppmv for valves and 20 ppmv for steam-quenched pumps, non-steam quenched pumps, and pressure relief devices from historical LDAR screening data for light liquid components. This LDAR screening data is too voluminous to provide in this summary, but the Air District is able to make these records available under the California Public Records Act, subject to exemptions as provided by the law. Procedures are in place to ensure that records made available do not include trade secret information or any other information that may be kept confidential under state or federal law. Staff reviewed published emissions data and studies but did not identify any available controlled emission factors specific to screening values for heavy liquid service components. Since heavy liquids are less volatile in comparison to light liquids (and would typically be associated with lower emissions), the actual screening values for heavy liquid components are expected to be significantly lower than those of light liquid components. Therefore, use of these screening values based on light liquid components is unlikely to overstate the estimated emission reductions associated with the heavy liquid service components. In the absence of emission factors based on mass emissions data specific to heavy liquid service components under LDAR program, derivation of emission factors using historical LDAR concentration data and a correlation equation is the highest ranked method for estimating emissions in the Air District's Petroleum Refinery Emissions Inventory Guidelines (BAAQMD, 2019). Moreover, use of a correlation equation to estimate emissions reductions has been used in past Rule 8-18 amendments and by other air districts including South Coast Air Quality Management District, since early 2000s (SCAQMD 2002, 2007). This approach has been regularly utilized in both permitting and in emission inventories for Air District purposes.

Comment EERC-6: The commenter states that WSPA welcomes a collaborative effort with the Air District to develop and apply a consistent methodology for the estimation of emissions from equipment subject to Rule 8-18 to be used by facilities submitting permit applications for that same equipment. The commenter further states that WSPA members would also welcome a work effort with the Air District to review the available LDAR data to come up with such a methodology.

Response EERC-6: As stated earlier in Response EERC-5, use of emission factors derived using historical LDAR concentration data along with a correlation equation is the highest ranked method for estimating emissions in the Air District's Petroleum Refinery Emissions Inventory Guidelines (BAAQMD, 2019), and this approach has been regularly utilized in both permitting and in emission inventories for Air District purposes. Air District staff appreciates this offer from WSPA and believes it is in keeping with the collaborative spirit of the HLS in which the Air District conducted a joint study with the five Bay Area petroleum refineries and WSPA. Prior to initiating the HLS, and throughout the course of gathering data and compiling results, staff met with representatives of the refineries and WSPA on numerous occasions. Staff anticipates continued collaboration to advance the goal of decreasing emissions from equipment leaks at affected facilities.

Feasibility of Screening and Sampling Steam Quenched Pumps (SQP)

Comment SQP-1: The commenter cites the HLS report to indicate the Air District's acknowledgement that SQPs cannot be screened by standard methods: "While screening at the pilot refinery, screening personnel encountered a type of pump that prevented screening at the required screening distance. Pumps that were designed with a steam quenching system were found to be difficult to monitor…. In some instances, steam from these pumps billowed at and near the seal and would condense within the screening instrument, causing it to malfunction."

The commenter concludes that the SQPs were excluded from the HLS by the Air District due to this reason and further states that during the study, WSPA members indicated that it would not be possible to bag these pump seals for purposes of quantifying mass emissions, and that this was not contested by the Air District. The commenter cites a May 2021 letter from WSPA where a variety of alternative approaches for SQPs was proposed and which states that the Air District asserted the methodology proposed by WSPA was "flawed" without offering alternatives and claims that the Air District preferred expediting completion of the HLS rather than including emissions from SQPs in the HLS report.

The commenter asks how mass emission calculations will be performed for SQPs that are on the list of non-repairable equipment should the provisions of Section 8-18-306 be triggered, given the infeasibility of using standard sampling methods for this type of equipment.

Response SQP-1: Although screening personnel encountered difficulties obtaining readings at some SQPs during the HLS, this was not the case with the vast majority of SQPs. The HLS cites one case of a SQP where it was suspected that a high steam injection rate may have caused a leak resulting in high screening readings when taken at some distance from the seal. This particular SQP could not be sampled or screened near the seal because steam caused the screening instrument to malfunction. However, not all SQPs had steam billowing out of the seals to an extent that prevented screening, and some pumps were able to be screened per the comment letter. Please refer to page 231 of the HLS report.

It is an oversimplification to cite these difficulties with some pumps as the reason that SQPs were excluded from the study. Among other considerations were the number of SQPs able to be screened and the high readings of a small number of SQPs as described in the HLS report. In addition, LDAR programs have been required by the Air District for various components for several decades. In instances where the Air District determines that a component cannot be monitored at a distance as required by the rule, the Air District's past and current practice has been to work with the facility to determine the cause as to why a component cannot be monitored and attempt to obtain a measurement at a closest distance possible for a component.

In anticipation that a similar approach may be implemented for steam-quenched pumps as appropriate, the proposed amendments to the Rule have been revised to allow for alternative monitoring in Section 8-18-602, as approved in writing by the Air Pollution Control Officer (APCO). This provision is intended to provide flexibility to affected facilities in meeting the administrative requirements of the Rule using other appropriate methods and techniques. Operators of affected facilities may propose alternative, equivalent methods, or detectors to accomplish the screening or sampling that may differ from the current US EPA method listed. Alternative monitoring methods and techniques would be considered, provided that these

methods and techniques can provide equivalent information and sufficient data to evaluate compliance with applicable standards. Approval of any alternative monitoring method or technique by the APCO would require a thorough and robust technical review by Air District staff.

Comment SQP-2: The commenter states that WSPA has offered and welcomes a collaborative work effort with the Air District to develop a reasonable and feasible process for the detection and repair of leaking SQPs. The commenter reiterates the request from WSPA to exclude SQPs from the requirements of Rule 8-18 as the provisions, as currently written, are infeasible to implement.

Response SQP-2: The commenter has not provided sufficient evidence to justify the suggested exclusion of SQPs from rule requirements. Please see Response SQP-1, for more discussion on the feasibility of including these components in LDAR programs. Air District staff appreciates this offer from WSPA and believes it is in keeping with the collaborative spirit of HLS in which the Air District conducted a joint study with five Bay Area petroleum refineries and WSPA. Prior to initiating the HLS, and throughout the course of gathering data and compiling results, the Air District met with representatives of the refineries and WSPA on numerous occasions. Staff looks forward to continued collaboration to advance the goal of decreasing emissions equipment leaks at affected facilities.

Cost-Effectiveness Analysis

Comment CEA-1: The commenter references comments submitted in response to the Air District's November 2023 Request for Comments on draft amendments to Rule 8-18 in WSPA's December 2023 letter. In that letter, WSPA stated that the Air District had not provided a detailed cost-effectiveness analysis of the amended rule as required by the 2017 Enforcement Agreement and Agreement to Stay Litigation between the District and refineries (Settlement Agreement). The commenter now states that the analysis provided by the Air District is flawed due to the measurably exaggerated emissions reductions as estimated in Appendix D of the Staff Report.

Response CEA-1: A complete cost-effectiveness analysis is provided in Section VI.A of the Staff Report. The current and controlled emissions provided in the Staff Report were calculated using emission factors that are the best available and most appropriate based on a review of available published emission factors. Further, in response to the commenter's assertion that the analysis provided by the Air District is flawed due to the measurably exaggerated emissions reductions as estimated in Appendix D of the Staff Report, staff performed a comparative analysis using the emission factors provided by WSPA. The following table (Table RTC-1) illustrates the changes to the estimated emission reductions and associated cost-effectiveness using the WSPA-provided cost effectiveness values relative to the analysis present in the Staff Report.

Table RTC-1
Summary of the Comparison of Emissions Reductions and Cost-Effectiveness Using WSPA-Recommended Emission Factors

Component Type	**TOC Emission Reduction - Staff Report** (tons/year)	**TOC Emission Reduction - WSPA Recommended EFs** (tons/year)	**% Change to Emissions Reductions in SR**	**Compliance Cost** ($/year)	**Cost-Effectiveness - Staff Report** ($/ton)	**Cost-Effectiveness - WSPA Recommended EFs** ($/ton)
Valves	3.9	2.4	-39%	$111,790 - $175,774	$28,766 - $45,230	$47,112 - $74,078
Steam Quenched Pumps	76.1	2.1	-97%	$6,911 - $11,590	$91 - $152	$3,237 - $5,428
Pressure Relief Valves	49.9	2.4	-95%	$18,278 - $18,278	$369	$7,691
Total	**129.9**	**6.9**	-	-	-	-

While the estimated emissions reductions using the emission factors provided by WSPA are less than those estimated by Air District staff, the resulting cost effectiveness estimates using those emission factors remain in the range of historic cost effectiveness estimates for TOCs. Please see the attachment to this document for more details on the comparative analysis (RTC Attachment A: Rule 8-18 – Emissions Reduction and Cost-effectiveness Value Comparisons). Please refer to Responses EERC-1, 2, 3, 4, and 5 in the *Emissions and Emissions Reduction Calculations* section above for more information regarding the rationale for the choice of emission factors and the assumptions used in the emission calculations provided in the Staff Report.

Outreach to Affected Stakeholders (OAS)

Comment OAS-1: The commenter questions whether the Air District has conducted sufficient outreach to facilities potentially affected by proposed amendments to the rule. The commenter cites Table 3 of the Staff Report "Current Total Organic Compound Emissions from Affected Facilities" which shows seven non-refinery and five refinery facilities. The commenter further references a 2009 Staff Report for amendments to Regulation 8: Organic Compounds, Rule 33: Gasoline Bulk Terminals and Gasoline Cargo Tanks (Rule 8-33); and Regulation 8: Organic Compounds, Rule 39: Gasoline Bulk Plants and Gasoline Delivery Vehicles (Rule 8-39), which identified 26 non-refinery facilities subject to those rules. The commenter expresses the belief that these facilities were not included in Air District outreach efforts, and that such outreach efforts were insufficient given the difference between the facilities cited in Table 3 of the 2024 Staff Report for Rule 8-18 and those identified in the 2009 Staff Report for Rules 8-33 and 8-39.

Response OAS-1: In conducting public outreach for both the November 2023 Request for Comments and the May 2024 Proposed Amendments, the Air District identified over 40 facilities that may be affected by the proposed amendments to Rule 8-18. The list of facilities was compiled from Air District records of facilities that had previously submitted LDAR reports as part of Rule 8-18 requirements combined with records of permitted facilities that process organic materials. Although many of these facilities are unlikely to contribute significantly to the total organic compound emissions and projected emissions reductions resulting from the Rule 8-18 amendments, they may be affected by the proposed amendments. The Air District sent email announcements for both rule development packages to contacts for these facilities, as well as all contacts signed up for notifications regarding Air District Rules and Regulations.

Preliminary estimates of emissions, emission reductions and costs as provided in the Preliminary Staff Report (November 2023) were limited to those associated with the five refineries. In combination with the outreach efforts described above, the Air District expanded the list of potentially affected facilities to include terminals, as indicated in the estimates provided in the May 2024 Staff Report. The commenter's comparison of the number of facilities affected by amendments to Rule 8-18 and the number affected by amendments to Rules 8-33 and 8-39 is not appropriate, as the Rule 8-18 amendments are largely associated with heavy liquids and the Rules 8-33 and 8-39 amendments are largely associated with gasoline.

Rule Language by Section (RL)

Comment RL-1 (Section 8-18-401.12): The commenter recognizes that as per Section 8-18-113, valves handling organic liquids with an initial boiling point greater than 372 ºF are exempt from the requirements in the 400 section, but requests that in order to eliminate confusion, the wording in Section 8-18-401.12 be changed from "…all valves handling organic liquids with initial boiling points greater than 302 ºF…" to "…all valves handling organic liquids with initial boiling points greater than 302 ºF and less than or equal to 372 ºF…"

Response RL-1: The Air District believes that the proposed rule language is sufficiently clear and that restating the exemption language in the administrative requirements section (Sections 8-18-401 through 8-18-407) would be unnecessary given the inclusion of exemptions in the general section (Sections 8-18-110 through 8-18-119). Moreover, the language change suggested by the commenter would not be appropriate given that valves in gas/vapor service do not qualify for exemption in Section 8-18-113.

Comment RL-2 (Section 8-18-231): The commenter asks that the definition text be changed so that it matches the text in the definition of "In gas/vapor service" provided in federal regulations (40 CFR 60.481 and 60.481a). The commenter suggests that this change is necessary to ensure that Air District regulations are not in conflict or contradictory to existing federal regulations as required by Health and Safety Code section 40727 (b)(4).

Response RL-2: The proposed definition is consistent with and does not conflict with existing federal regulations. Neither the federal definition for "in gas/vapor service" nor the Air District definition for "Gas/Vapor Service" refer to equipment that exclusively contains only gas or only vapor. While the terms "vapor" and "gas" are not identical, they are often used interchangeably. The federal and Air District definitions are functionally equivalent because such equipment will contain both gas and vapor. The cited federal regulations provide a definition that states "In gas/vapor service means that the piece of equipment contains process fluid that is in the gaseous state at operating conditions." Section 8-18-231 provides the definition of Gas/Vapor Service as: "Containing vapors of an organic liquid at operating conditions, as applied to equipment subject to this rule." The federal definition for "in gas/vapor service" is functionally equivalent to the definition provided in Section 8-18-231, and the proposed definition is consistent with and does not conflict with existing federal regulations.

Comment RL-3 (Section 8-18-503.6): The commenter asks that the reporting requirements of this section only be required of equipment that was not previously subject to rule requirements but will be subject due to the amendments made to the exemption in Section 8-18-113. The commenter further states that providing this data would be time-consuming and would not result in any emission reductions.

Response RL-3: In order to accurately review LDAR programs and monitor all equipment that will be subject to rule requirements as a result of the proposed amended rule, the Air District must know both the equipment subject to, as well as the equipment that is not subject to, the Section 400 requirements in Rule 8-18. The language in Section 8-18-503.6 allows for this

distinction to be made by Air District staff through review of the inventories provided as required by the section.

Comment RL-4 (Sections 8-18-503.7 & 503.8): The commenter requests that the deadline for submittal of these inventories be extended from one year following adoption to two years. The commenter states that resources in the Bay Area are limited for tagging, updating compliance databases, and monitoring. Extending the deadline would allow for facilities to train tagging and monitoring technicians to execute the requirements of the rule.

Response RL-4: There is no Section 8-18-503.8 in the proposed amended rule. The Air District understands that the commenter may have intended to reference Sections 8-18-503.5, 503.6 and 503.7. The Air District anticipates that a full year is sufficient to compile these inventories and notes that some facilities have already begun the process of identifying and tagging heavy liquid service components. The commenter has not provided sufficient evidence to support the need to change the deadlines provided in Section 8-18-503.

References

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RTC Attachment A

Rule 8-18 – Emissions Reduction and Cost-effectiveness Value Comparisons

RTC Attachment: Rule 8-18 – Emissions Reduction and Cost-effectiveness Value Comparisons

- Valves (Staff Report) - derived from emission data and initial boiling point of materials as reported by the respective refineries as part of the Heavy Liquids Study (BAAQMD, 2022). The POC emission factor is for valves and non-steam quenched pumps handling material with an initial boiling point greater than 302 ºF and less than or equal to 372 ºF.
    - Source: Emissions data and initial boiling of materials data reported by the refineries during Heavy Liquids Study.
- Valve (WSPA Comment - HLS EF for entire HL IBP Range) – WSPA recommended emissions factor is from emission factor for valves handling materials with an initial boiling point greater than 302 ºF and no upper bound.
    - Source: Heavy Liquids Study (pg. ES-4 or PDF pg. 22)
- Steam Quenched Pumps (Staff Report) - This is the interim emission factor from the Rule 12-15 Settlement Agreement, used in the Staff Report and referenced in the 1999 CAPCOA guidance document. The original source of the emission factor is the 1979/1980 EPA Study.
    - Source: Table IV-1a – heavy liquid – pump seals EF from 1999 CAPCOA Guidance document (pg. 9 or PDF pg. 14); Table 4-2 of 1979/1980 EPA Study (pg. 22 or PDF pg. 30)
- Steam Quenched Pumps (Emission Factor provided by WSPA in 2021) – This was the emission factor recommended by WSPA or Todd Tamura in 2021 prior to the publication of the Heavy Liquids Study in 2022 and also submitted in January 2024 during amendment of Rule 8-18. According to the Response to the Comment Summary for the Heavy Liquids Study, the Air District did not agree with the information provided by WSPA.
    - Source: SQP EF proposal email from Todd Tamura on 9/1/2021 (PDF pg. 2)
- Pressure Relief Valves (Staff Report) - was obtained from Table 4-2 of EPA Report (U.S. EPA, 1979) and was derived using field data.
    - Source: 1979/1980 EPA Study (pg. 22 or PDF pg. 30)
- Pressure Relief Valves (WSPA Comment - 12-15 Interim EF - Correlation Eqn. at 500 PPM SV) – This is the emission factor in the Rule 12-15 Settlement Agreement, which is derived using correlation equation and screening value limit in the rule for PRVs which is 500 ppmv. The correlation equation was sourced from CAPCOA Guidance document.
    - Source: 2018 Rule 12-15 Enforcement Agreement (pg. 11 or PDF. Pg. 15); Correlation equation from Table IV-3a of 1999 CAPCOA Guidance document (pg. 20 or PDF pg. 25)

Table 1 RTC Attachment: Emission Reduction Calculation and Comparison

Component Type	**Component Counts**	**POC Emission Factor** (lb/hour-component)	**Current TOC Emissions** (tons/year)	**Controlled - POC Emission Factor** (lb/hour-component)	**Controlled TOC Emissions** (tons/year)	**TOC Emission Reduction** (tons/year)	**% Change. to Emission Reduction in SR**
Valves (Staff Report)	15,629	8.47E-05	5.8	2.79E-05	1.9	3.9	-
Valves (WSPA Comment - HLS EF for entire HL IBP Range)	15,629	6.26E-05	4.3	2.79E-05	1.9	2.4	-39%
Steam Quenched Pumps (Staff Report)	381	4.63E-02	77.3	7.20E-04	1.2	76.1	-
Steam Quenched Pumps (Emission Factor provided by WSPA in 2021)	381	2.00E-03	3.3	7.20E-04	1.2	2.1	-97%
Pressure Relief Valves (Staff Report)	600	1.90E-02	49.9	1.31E-04	0.3	49.6	-
Pressure Relief Valves (WSPA Comment - 12-15 Interim EF - Correlation Eqn. at 500 PPM SV)	600	1.04E-03	2.7	1.31E-04	0.3	2.4	-95%

Table 2 RTC Attachment: Cost-effectiveness Calculation and Comparison

Component Type	**TOC Emission Reduction** (tons/year)	**Min. Compliance Cost** ($/year)	**Max. Compliance Cost** ($/year)	**Min. Cost-Effectiveness** ($/ton of emissions reduced)	**Max. Cost-Effectiveness** ($/ton of emissions reduced)
Valves (Staff Report)	3.9	$111,790	$175,774	$28,766	$45,230
Valves (WSPA Comment - HLS EF for entire HL IBP Range)	2.4	$111,790	$175,774	$47,112	$74,078
Steam Quenched Pumps (Staff Report)	76.1	$6,911	$11,590	$91	$152
Steam Quenched Pumps (Emission Factor provided by WSPA in 2021)	2.1	$6,911	$11,590	$3,237	$5,428
Pressure Relief Valves (Staff Report)	49.6	$18,278	$18,278	$369	$369
Pressure Relief Valves (WSPA Comment - 12-15 Interim EF - Correlation Eqn at 500 PPM SV)	2.4	$18,278	$18,278	$7,691	$7,691