

COMMENTS REGARDING GENERAL PERMIT CONDITIONS

MODULE V:

ADDITIONAL EXPLANATIONS/CLARIFICATION PROVIDED IN THIS FORMAT

In the Region's Response to Public Comment V-12, below, and specifically in response to one comment that the Region failed to provide support in the Administrative Record for the conditions imposed on the carbon regeneration unit in Draft Permit Module V, the Region clarifies the basis for these conditions. The Region has sought to provide clarification regarding the basis for specific conditions at appropriate places within these Responses to Public Comments. As a result, the Region more fully articulates the rationale for the imposition of specific standards on RF-2 (for which the commenter claims there is insufficient support on the record) in a highlighted/shaded format, like that used here for this "Additional Explanation." These highlighted/shaded sections are found throughout the Responses to Comments for Module V. Each of these specially formatted sections identifies the information that supports the rationale behind specifically identified conditions as part of the Region's overall Response to Public Comment V-12.

- V-1. One commenter suggested deleting a sentence from draft Permit condition V.A.3. that referenced 40 CFR Part 264 Subpart O regulations for incinerators and the 40 CFR Part 63 Subpart EEE standards for hazardous waste combustors. The commenter observed that these references were inappropriate as Permit conditions.

RESPONSE: The Region agrees with the commenter and has deleted the referenced sentence from Permit condition V.A.3.

- V-2. One commenter suggested that the language in draft Permit condition V.B.1.i. could be interpreted as precluding treatment of non-hazardous spent carbon in RF-2.

RESPONSE: The Region agrees with the commenter and has revised draft Permit condition V.B.1.i., now renumbered as Permit condition V.B.1.a., as suggested. The Region also added additional clarifying language to Permit condition V.B.1.a., regarding the treatment of spent carbon that is not a hazardous waste. See also the Region's Responses to Public Comments III-12, IV-11, and V-6.

- V-3. One commenter suggested deleting draft Permit condition V.B.1.ii and making certain modifications to draft Permit condition V.C.1.iv. The commenter argued that the inclusion of a provision addressing protection of workers from hazardous waste releases exceeded EPA's authority.

RESPONSE: The Region disagrees with the commenter's assertion regarding EPA's authority to protect human health, including worker health, from hazardous waste releases. RCRA's provisions

authorize the Agency to regulate activities at hazardous waste management facilities so as to prevent releases, spills or other management practices involving hazardous waste in order to protect human health and the environment in the surrounding community. These same requirements also, in tandem with Occupational Safety and Health Administration (OSHA) requirements, protect worker health irrespective of whether RCRA's requirements are specific to *worker* health. However, the Region acknowledges that Permit condition II.B.1. provides similar protections, although it applies Facility-wide, whereas, draft Permit conditions V.B.1.ii and V.C.1.iv were focused on other specific kinds of operations, *i.e.*, spent carbon loading operations and the operation of RF-2, respectively.

As a result, the Region has deleted draft Permit condition V.B.1.ii., since it was duplicative of the broader provision found at Permit condition II.B.1. The Region has also made the commenter's suggested modifications to draft Permit condition V.C.1.iv, renumbered as Permit condition V.C.1.d., although the changes of the terms "safely operate" and "properly monitor" to "operate" and "monitor" do not substantively alter the Permittees' obligations to perform all their operations in a safe and proper manner in accordance with the Permit. See, *e.g.*, Permit condition II.B.1.

V-4. One commenter objected to language in draft Permit condition V.B.1.iii as suggesting that there would be a requirement for a specific shaft speed, pointing out that the only important technical consideration is the 38-minute residence time, based upon a calculation at an assumed shaft speed. The commenter also brought it to the Region's attention that the rabble arm in the furnace rotates at one revolution every approximately 54 seconds and not every minute as the draft Permit condition V.B.1.iii. states.

RESPONSE: The Region agrees with the commenter and has revised draft Permit condition V.B.1.iii., now Permit condition V.B.1.b., to reflect the revisions suggested by the commenter, with additional changes clarifying that the 38-minute residence time is based on a calculation at an assumed shaft speed of one revolution every 54 seconds.

MINIMUM RESIDENCE TIME

The Region set a minimum residence time of 38 minutes for the waste carbon in the hearth because, during the trial burn, it was shown that, at this speed, the furnace and the associated air pollution control equipment are able to destroy or control and properly treat the hazardous waste contaminants that are on the spent carbon in a safe manner such that emissions are compliant with applicable standards and do not pose an unacceptable risk to human health or the environment. A minimum residence time also ensures the toxic organics are adequately desorbed from the spent carbon being treated so that the regenerated carbon can be safely reused. The risk assessment performed as part of the permit application process demonstrated that, when operated within these limits, the Facility's operations do not pose an unacceptable risk to human health or the environment.

V-5. One commenter objected to the Region’s use of the words “containing hazardous waste” in draft Permit condition V.B.2.i. and suggested changing the words to “bears a hazardous waste code.” The reason the commenter cited was that the status of spent carbon received at the Facility should not be determined by applying the ‘contained in’ rule. Rather, the commenter asserted, the status of the spent carbon should depend upon whether the carbon exhibits a hazardous characteristic or is a listed hazardous waste, as determined through waste profiling and application of the site’s Waste Analysis Plan, approved by EPA. In addition, the commenter suggested deleting the words “generated offsite,” since that would prevent the Permittees from treating spent carbon generated onsite in RF-2.

RESPONSE: The Region agrees with the commenter regarding the use of the words “containing hazardous waste” and has revised draft Permit condition V.B.2.i., renumbered Permit condition V.B.2.a., to reflect the change.²⁹ Similar changes were also made to Permit Conditions II.H.5.g and II.H.5.h. In addition, the Region has deleted the words “generated offsite” from Permit Condition V.B.2.a. However, the Region notes that Permit condition V.B.2.b. specifically allows the Permittees to treat spent carbon generated onsite in RF-2. Whether the carbon is generated onsite or offsite, the revised language would prohibit treatment of any hazardous waste spent carbon not permitted for treatment in accordance Permit Condition II.H.

A new sentence in Permit Condition V.B.2.a clarifies that mixtures of hazardous and non-hazardous spent carbon may also be treated in the unit.

RESTRICTION ON TREATMENT OF HAZARDOUS WASTE SPENT CARBON

The reason hazardous waste spent carbon not permitted for treatment in accordance with Permit Condition II.H is prohibited from being treated in RF-2 is to ensure the regeneration unit only treats carbon that contains toxic organics that are no more difficult to destroy relative to what was demonstrated in the trial burn test. For example, if carbon that contained harder to treat organics were processed under operating conditions that were identical to the conditions demonstrated during the test, there would be no assurance that the applicable emission limits were being achieved. In other words, the operating limits and parameters included in the Permit were based on those specific wastes identified in Permit Condition II.H.* Furthermore, the risk assessment performed as part of the permit application process demonstrated that, when operated to treat these waste codes, the Facility’s operations do not pose an unacceptable risk to human health or the environment.

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²⁹ EPA’s RCRA “contained-in” policy defines when certain contaminated media such as soil or groundwater can be considered to no longer “contain” hazardous waste and is inapplicable to the spent hazardous waste carbon treated in RF-2. See, e.g., 63 FR 65874 at 65878/1, Nov. 30, 1998.

* The Dellinger Scale is used to classify chemical constituents based on how difficult they are to destroy by thermal treatment. Wastes were chosen to be burned in the trial burn based on this scale, such that the test evaluated the effective treatment of the constituents that are the most difficult to destroy. The trial burn workplan established Principal Organic Compounds (POHCs), which, according to the trial burn workplan, were “selected for their ability to demonstrate the effectiveness of the unit in destroying compounds that are equal or more thermally stable, and are thus equal or more challenging to treat, than those currently found on the spent activated carbon. This provides assurance that the unit will be effective for all of the spent carbon contaminants.” See Permit Attachment Appendix V, Carbon Reactivation Furnace Performance Demonstration Test Plan and <http://www.tandfonline.com/doi/pdf/10.1080/1073161X.1993.10467126>.

V-6. One commenter objected to language in draft Permit condition V.B.2.ii., which the commenter asserted impermissibly limited the spent carbon that can be treated in RF-2.

RESPONSE: While the Region believes that draft Permit condition V.B.2.ii (now Permit Condition V.B.2.b.) did not impermissibly limit the spent carbon allowed to be treated in RF-2, it acknowledges that the broader language suggested by the commenter is preferable because it provides more clarity and does not restrict the sources of spent carbon generated onsite that may be treated in RF-2. Thus, Permit Condition V.B.2.b. has been revised accordingly and language has been added to reference Permit Condition II.H. Thus, any hazardous waste spent carbon generated onsite would be subject to the provisions of Permit Condition II.H. In addition, to better clarify what is not prohibited from treatment in RF-2, Permit Condition V.B.2.b. has been revised to also state that the Permittees are explicitly permitted to treat in RF-2: (1) hazardous waste spent carbon received from off-site sources; (2) any spent activated carbon that is not classified as a hazardous waste under 40 CFR Part 261; and (3) any spent activated carbon generated on-site as a result of the Permittees’ hazardous waste storage or treatment activities.

V-7. One commenter objected to draft Permit condition V.B.3. as a restatement of restrictions from other parts of the draft Permit.

RESPONSE: The Region agrees that draft Permit condition V.B.3, pertaining to hazardous wastes that are prohibited from treatment in RF-2, is duplicative of Permit condition V.B.2. Thus, the Region has deleted draft Permit condition V.B.3.

V-8. One commenter suggested adding the word “hazardous” in two places in draft Permit condition V.C.1 in order to limit the restrictions on waste being fed into RF-2 only to hazardous waste spent carbon as opposed to both hazardous and non-hazardous waste spent carbon. This commenter also recommended revisions to the language referring to the permissible feed limits.

RESPONSE: Permit condition V.C.1. includes the “General Operating Conditions” for RF-2. The restrictions on the feed to RF-2 are for all spent carbon wastes being fed and not just for hazardous waste spent carbon. The Region regulates RF-2 as a hazardous waste management unit any time it is in operation. The Commenter’s suggestion to add the word “hazardous” in draft Permit condition V.C.1 – and elsewhere – has implications that would require modifications to the Permit. If the

Permittees would like to operate RF-2 under different parameters while processing non-hazardous spent carbon than those that apply during the processing of hazardous spent carbon, they would need to first demonstrate that the emissions and other potential impacts from such operations would remain consistent with the conclusions of the risk assessment. See, e.g., 40 CFR § 264.601, (“Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment...”). To do that, a future trial burn would need to be designed in such a manner to support that analysis and to develop proposed modifications to the Permit.³⁰

Should the Permittees propose Permit modifications regulating RF-2 operations while processing non-hazardous spent carbon, the Permittees must demonstrate that any hazardous waste residues or constituents that might remain in RF-2’s air pollution control equipment would be sufficiently destroyed during such non-hazardous spent carbon processing. As it currently stands, to avoid limits on the operation of RF-2 during the processing of non-hazardous spent carbon, the Permit would first require the closure of RF-2 in accordance with the closure requirements of Module V.

The Facility operator is not permitted to turn on and off systems that are tied to the parameters set forth in the Permit based on when they are only treating non-hazardous spent carbon. Once the Facility has a Permit, the hearth is regulated by the Permit as a hazardous waste management unit. Therefore, the feed rate limits expressed in Table V-1 apply whenever spent carbon is fed into RF-2, whether hazardous or non-hazardous.

The feed rate limits in Table V-1 are established to ensure that the emission limits for certain categories of contaminants (*i.e.*, those categories of contaminants for which a feed rate limit is set forth in the third column of Table V-1) are being met. These feed rate limits, along with the other Permit conditions regulating RF-2, such as the parameters set forth in Table V-2, serve as the means by which the Permit ensures that Facility emissions are kept below the emission levels demonstrated to be protective of human health and the environment, and, in the case of sulfur dioxide (SO₂) and nitrogen oxide (NO_x), below the voluntary emission limits established in the Permit.

Therefore, the Region declines to add the word “hazardous” in Permit condition V.C.1, as requested by the commenter. See also clarifications made to Permit conditions V.B.1.b., V.C.2.a., V.C.3., V.C.4.b., V.C.5.b.i., V.C.5.c., V.C.5.e., V.C.5.f., V.C.5.g. and V.D.1.³¹

The commenter’s recommended changes to the reference to the feed rate limits for low-volatile metals, semi-volatile metals, total chlorine, and mercury set forth in Table V-1 were adopted in Permit condition V.C.1., because the commenter’s suggested language was simpler and more straight forward than the proposed draft Permit condition language. In addition, the language adopted for the sulfur feed rate limit for Table V-1 is based primarily on the commenter’s own letter dated September 19, 2016. See “2016 09 19 Evoqua Ltr to USEPA R9 re SO₂ and NO_x Limitations on Emissions.pdf.” The Facility

³⁰ The Region notes as well that, to the extent that the Permittees wish to rely on the RCRA permit as a “practically enforceable mechanism” in lieu of a Title V permit under the CAA, the RCRA permit should control emissions of sulfur and other criteria pollutants on a continuous basis. See, *Sierra Club v. EPA*, 551 F.3d 1019, 1028 (D.C. Cir. 2008).

³¹ See also the Region’s Responses to Public Comments III-12, V-2, V-6, and V-9.

operator agreed to control emissions by limiting the amount of sulfur in the spent carbon being fed into RF-2. The Facility operator/commenter's suggestion that the Region delete compliance schedule requirements pertaining to the Waste Analysis Plan and add language to Module II in order to establish waste analysis feed related requirements for sulfur feed is addressed in the Region's Response to Public Comment I-37. It is the Facility operator's responsibility to establish its sulfur feed rate limit in accordance with its September 19, 2016 letter, which describes using the following factors as part of its calculations: sulfur content of the feed, carbon reactivation production rate, and hours of operation over the course of the year, minus a 90% presumed sulfur removal rate for the packed bed scrubber system.

The Region has also clarified the operating parameter limits for SO₂ and NO_x that were used in draft Permit Table V-4. The references to the term "per consecutive 12 month period" in revised Table V-1 now include footnotes clarifying that the term is synonymous with the term "on a 12-month rolling sum basis." This clarification is consistent with the explanation provided in the Region's Statement of Basis, published with the draft Permit. However, in reviewing the proposed changes to draft Permit Table V-1 and the deletion of draft Permit Table V-4, the Region felt that the clarification of this term was appropriate to avoid any potential confusion. See Permit condition V.C.6. and Table V-1, at footnotes 15 and 18. See also USEPA Statement of Basis, Section 5.4.6., The Clean Air Act, p. 10/1064, at "2016 11 10 Evoqua-CRIT Revised Statement of Basis.pdf."

V-9. One commenter noted that the draft Permit condition V.C.1.ii. (renumbered V.C.1.b.) did not include the exception to meeting the emission standards and operating requirements during startup, shutdown, or malfunction events or when hazardous waste is not in the combustion chamber, as reflected in 40 CFR § 63.1206(b). In addition, the commenter pointed out redundancies and suggested changes to this draft Permit condition.

RESPONSE: The Region has incorporated some of the commenter's recommended changes into Permit condition V.C.1.b., and rejected others. The Region changed the commenter's suggested language regarding "hazardous waste" to "spent carbon" to clarify that the Permit regulates the operation of RF-2 at all times, regardless of whether or not the spent carbon being fed into RF-2 is a hazardous waste. Please see the Region's Response to Public Comment V-8, above.

Permit Attachment Section D (Process Information) lists the parameters (Group A1, A2, B and C) that are applicable to RF-2. See also Table V-2. Each of these parameters will be "continuously monitored," even during startup, shutdown, and malfunction events. The Region expects the Facility to monitor these parameters continuously when RF-2 is in operation, as described in Permit Attachment Section D.

For additional information about comments relating to the implementation of the SSMP, please see the Region's Response to Public Comment V-17.

V-10. One commenter requested that the Region add an explanation in the Permit regarding how the feed rate limits are designed to ensure the Facility doesn't exceed the emission limits. [See draft Permit condition V.C.]

RESPONSE: The Region has revised Tables V-1 and V-2 and deleted draft Permit Table V-4 in part to clarify the relationship between the feed rate limits and other operating parameter limits listed in Column 3 of Table V-1 and the referenced emissions standards to be used in performance testing, which are listed in Column 2 of Table V-1. (See also the Region’s Response to Public Comment V-12, below, for more information about the deletion of Table V-4 and the revisions to Tables V-1 and V-2.) Column 3 in Table V-1 references the 40 CFR § 63.1203 standards which were used as guidance at the time of the performance demonstration test (PDT) to develop proposed Permit conditions, which were included in the Permit application as appropriate to RF-2. According to Section D of the Permit Application, Permit Attachment Section D:

“Since completion of the PDT, the regulations at Subpart EEE have been changed, and revised standards have been added at 40 CFR [§] 63.1219. A review of the RF-2 PDT results indicate that the unit meets the new standards at 40 CFR [§] 63.1219.” See note under Table D-4, Section D.5.5., Permit Attachment Section D.

Column 2 in Table V-1 references the 40 CFR § 63.1219 standards, which are the replacement standards that shall be used as guidelines in future periodic PDTs the same way that the 40 CFR § 63.1203 standards were used during the 2006 PDT. The PDT reports should include the Permittees’ recommendations regarding any appropriate changes to the operating parameters in Table V-1, column 3. For example, if the Permittees are able to demonstrate that the hearth can be operated to achieve the 40 CFR § 63.1219 replacement standard for hydrogen chloride and chlorine gas (total chlorine) of 32 ppmdv, the Permittees should consider whether a Permit modification is appropriate for Table V-1, column 3. Such a Permit modification may involve both a recalculation of the feed rate limit, currently 60 lbs/hr, and/or the emission limit to be demonstrated during periodic PDTs, currently 77 ppmdv.

TABLE V-1

The “Performance Standards and Operating Parameter Limits” set forth in Table V-1 establish the RF-2 performance standards for the purposes of PDT testing and the RF-2 operating parameter limits. The RF-2 operating parameter limits set forth in column 3 of Table V-1 are based on: (1) the Permit Application Section D, Permit Attachment Section D, including Table D-4: and (2) for sulfur oxides and nitrogen oxides, the operator’s September 19, 2016 letter to USEPA Region 9. See “2016 09 19 Evoqua Ltr to USEPA R9 re SO2 and NOx Limitations on Emissions.pdf.” The 2006 Trial Burn utilized the interim emission standards from 40 CFR § 63.1203 as a guide for the development of the majority of these operating parameter limits (DRE, particulate matter, HCl/Chlorine, Mercury, Semi-volatile metals, Low volatile metals, Dioxin and furans, Carbon monoxide, and Total hydrocarbons). See the note below Table D-4 in Permit Attachment Section D. In addition, the operating parameter limits for SO2 and NOx were voluntarily agreed to by the operator.

The operating parameter limits set forth in Permit Attachment Section D have been supplemented by the requirement that, for each parameter, these standards shall be demonstrated during future, periodic trial

burns (or PDTs). These periodic (5 year) trial burn tests shall in part be designed to demonstrate the emissions limits established during the 2006 Trial Burn (i.e., the interim emission standards from 40 CFR § 63.1203 that are set forth in column 3 of Table V-1).

The Region maintains that such periodic trial burn testing is necessary to demonstrate the emissions limits, which in turn demonstrates that the unit's operations do not pose an unacceptable risk to human health or the environment based on the Human Health and Ecological Risk Assessment performed as part of the Permit application process and memorialized at Permit Attachment Appendix XI. The Region also maintains that periodic testing of emissions of sulfur oxides and nitrogen oxides is also appropriate to demonstrate the voluntary emissions limits for these parameters.

Below Table D-4 in Permit Attachment Section D, it is noted that the CAA MACT Air Emissions Replacement Standards, which are set forth in 40 CFR § 63.1219, were added after completion of the PDT but that "[a] review of the RF-2 PDT results indicate[s] that the unit meets the new standards at 40 CFR [§] 63.1219." Should the Trial Burn test results from future periodic PDT tests demonstrate that operations of the unit also meet the new (or "Replacement") standards, such information may form the basis for one or more Permit modifications to revise the limits set forth in column 3 of Table V-1. Thus, in addition to demonstrating the operating parameter limits, the periodic trial burn tests will also be used to evaluate whether these limits warrant updating over time.

In addition, an update of the Human Health and Ecological Risk Assessment -- to ensure its conclusions remain current and appropriately reliable -- requires that the initial trial burn test that is required after permit issuance also be performed in such a manner as to generate data that can be included in the Risk Assessment update.

V-11. One commenter claimed that the Region lacks authority to impose requirements under the RCRA permit based on the CAA's standards at 40 CFR Part 63, Subpart EEE (National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors.) [See draft Permit condition V.C.]

RESPONSE: The Region disagrees with the commenter. RCRA's regulations classify the Carbon Regeneration furnace, RF-2, as a 40 CFR Part 264 Subpart X, Miscellaneous Unit. The regulations for Miscellaneous Units specifically authorize the Region to incorporate terms and provisions in permits for Miscellaneous Units "as necessary to protect human health and the environment." 40 CFR § 264.601. These regulations specifically identify the requirements of 40 CFR Part 264 Subparts I through O and Subparts AA through CC, Part 270, Part 63 Subpart EEE, and Part 146 that should be considered as potentially appropriate for the miscellaneous unit being permitted.

In addition, the Facility's Permit application specifically identifies the CAA MACT EEE requirements as appropriate for RF-2. See, for example, Permit Attachment Section D, which states:

“Specific to the carbon reactivation furnace and associated equipment, [the operator] believes that it is appropriate to regulate emissions in accordance with the provisions of 40 CFR [Part] 63 Subpart EEE applicable to existing hazardous waste incinerators (although this unit is not an incinerator).”

The Region has, therefore, incorporated the standards that the application envisioned would apply.

Furthermore, in developing the work plan for the performance of the trial burn, the operator approached the establishment of operating limits in the Permit by following the specifications of 40 CFR Part 63 Subpart EEE and guidance prepared for RCRA incinerator permits. The PDT Workplan acknowledged that, while those regulations and guidance did not strictly apply to RF-2, they were nonetheless appropriate to use as guidelines for the development of some of the limits included in the Permit for RF-2. See Permit Attachment Appendix V, Carbon Reactivation Furnace Performance Demonstration Test Plan, Section 1.6. See also Permit Table V-1 and the Region’s Response to Public Comment V-10, above.

In addition, after the trial burn was completed, EPA modified the MACT EEE regulations and revised standards were added at 40 CFR § 63.1219 (the “Replacement Standards”). A review of the PDT results for RF-2 indicated that, in addition to the MACT EEE standards that were in place at the time of the trial burn, RF-2 was also operating within the more stringent parameters established under the Replacement Standards at 40 CFR § 63.1219. (See, e.g., Permit Attachment Section D, note at Table D-4.) Future, periodic PDTs will use the Replacement Standards as guidance.

Application of Certain MACT Hazardous Waste Combustor Standards
(40 CFR Part 63, Subpart EEE) to RF-2

The Region also maintains that Clean Air Act standards for Hazardous Waste Combustors are -- in certain, specific ways -- appropriate for this unit because this Facility uses thermal treatment* with air pollution control equipment to regenerate hazardous spent carbon with toxic organic compounds that are hazardous waste. This thermal treatment, with the associated air pollution control equipment, destroys, controls and reduces the toxic organic compounds that desorb from the carbon to less harmful or innocuous byproducts. For this reason, the Region deems it necessary to regulate this unit using certain relevant MACT EEE standards. The inclusion of these MACT EEE standards in the Permit ensures that volatile organic compounds are controlled before emissions reach the stack. The inclusion of these MACT EEE standards in the Permit ensures that the destruction of organic compounds is sufficiently completed before emissions reach the stack. It also ensures that the emissions levels from the stack (e.g., unburned organics that may be present at very low levels, byproducts of organic compound decomposition, low-volatile and semi-volatile metals) do not pose an unacceptable risk to human health or the environment, as demonstrated by the risk assessment.

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* “Thermal treatment” is defined at 40 CFR § 260.10 as the treatment of hazardous waste in a device that uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste.

V-12. One commenter asserted that EPA has already determined at the time it promulgated rules for boilers and industrial furnaces (the “BIF Rule”) that carbon regeneration units should not be subjected to the same standards as incinerators. The commenter suggested that language in the BIF Rule preamble precludes EPA from imposing permit conditions on RF-2 that are based on the requirements for incinerators. The commenter also objected to EPA including MACT EEE Rule requirements pursuant to 40 CFR § 264.601 without an appropriate rationale supported in the permitting record. The commenter claimed that extensive and costly compliance with MACT EEE standards is not justified in the administrative record. Although the commenter objected to the Region’s purported interchangeable use of the term “feed rate” and “feed limit” in Module V of the draft Permit, it did not object to certain substantive limitations set forth in the draft Permit, including, “feed rate, carbon monoxide, nitrogen oxides and sulfur oxide limits and appropriate monitoring in Tables V-1 and V-4 and ... the many specified operational limits in Table V-2 ...” [See draft Permit condition V.C.]

RESPONSE: The Region notes that the commenter’s objections appear to be focused on references to the MACT EEE Rule in the draft Permit as opposed to the substantive standards set forth in the draft Permit. The Region points out that many of the draft Permit conditions referred to MACT EEE requirements as references, but did not incorporate every condition in which these regulations were referenced. However, the Region acknowledges that, even in the case where a provision references but does not incorporate a MACT EEE regulation, a number of the draft Permit and Permit conditions were developed using the MACT EEE and RCRA incinerator requirements as guidance.

In addition, the Region has made a concerted effort to ensure that the Permit only imposes obligations on the Permittees that are necessary for the protection of human health and the environment. The Region recognizes that the Facility provides an environmentally beneficial service in terms of regenerating spent carbon and, although it takes its obligation to ensure protection of human health and the environment under RCRA and its regulations very seriously, the Region also has no interest in unnecessarily burdening or putting the Facility at a financial disadvantage with respect to its competitors. As set forth in more detail below, the Region has retained -- and in some cases modified -- Permit conditions as necessary to ensure protection of human health and the environment and has clarified the technical basis for these conditions. Where appropriate, the Region has removed conditions found to be unnecessary. (See, e.g., the Region’s Response to Public Comment V-9, above.)

The Region maintains that the rationale to support the inclusion of the MACT EEE Rule requirements was included in the administrative record for the draft decision. However, the Region supplements that information below.

Use of MACT EEE Requirements as Guidance for Permitting RF-2

RF-2 does not qualify as an incinerator because it is a carbon regeneration unit. A “hazardous waste incinerator” is defined in 40 CFR Part 63, Subpart EEE as a “device defined as an incinerator in § 260.10 of this chapter and that burns hazardous waste at any time.” (40 CFR § 63.1201). “Incinerator” is defined in 40 CFR § 260.10 as “any enclosed device that: (1) Uses controlled flame combustion **and neither meets the criteria for classification as a boiler, sludge dryer or carbon regeneration unit**, nor is listed as an industrial furnace; or (2) Meets the definition of infrared incinerator or plasma arc incinerator.” (Emphasis added.)

RF-2, instead, is designated by Subpart X of the RCRA regulations as a “Miscellaneous Unit.” According to 40 CFR § 264.601 of the Subpart X regulations, permit terms and provisions for a Miscellaneous Unit must include appropriate requirements of 40 CFR Part 264, Subparts I through O and Subparts AA through CC, 40 CFR Part 270, 40 CFR Part 63, Subpart EEE, and 40 CFR Part 146.

While the Region acknowledges that incinerators and carbon regeneration units are different in several ways, there are similarities that justify the imposition of similar standards on the units. Thus, the Region disagrees with the assertion that the BIF Rule preamble precludes the Region from imposing incinerator standards on a specific carbon regeneration unit under a RCRA permit. The BIF rule preamble acknowledged these similarities by classifying carbon regeneration units as thermal treatment units for the purposes of RCRA’s interim status standards at 40 CFR Part 265, Subpart P:

“... we are concerned... that emissions from the regeneration process can pose a serious hazard to public health if not properly controlled, and therefore are clarifying today that [carbon regeneration units] are regulated as thermal treatment units.” 56 FR 7134, at 7200/3, (Feb. 21, 1991).

See, also, 45 FR 33153, at 33161/3 (May 19, 1980) (“The risks associated with the thermal treatment of hazardous waste are similar to those posed by hazardous waste incineration.”)

Use of Subpart P Thermal Treatment Standards as a Baseline for CRU Permit Conditions

Since incinerators are a subset of thermal treatment units, many of the Part 265, Subpart P requirements, which are applicable to interim status carbon regeneration units, are similar to the Part 265, Subpart O, standards for interim status incinerators. The Subpart P requirements, for example, require that:

- before adding hazardous waste to a thermal treatment unit, the unit must be operating under steady-state (normal) conditions of operation (§265.373);
- owners/operators may use auxiliary fuel or other means to bring the unit to operational readiness before burning hazardous waste. The owner/operator must also perform waste analysis to determine the heating value of the waste, the halogen and sulfur content of the waste, and the concentrations of lead and mercury in the waste (§265.375);
- owners/operators are required to conduct monitoring and inspections of the temperature and emission control instruments, the stack plume, and all process and ancillary equipment (§265.377);
- at closure, all hazardous waste and hazardous waste residues must be removed from the thermal treatment unit (§265.381); and
- Finally, unless the thermal treatment unit receives a special certification, the unit may not treat dioxin-bearing hazardous wastes (F020, F021, F022, F023, F026, or F027) (§265.383).

The Region regards the interim status standards for carbon regeneration units as a baseline set of standards appropriate for RF-2, in part because these requirements have applied to the Facility since 1991. In addition, because the Facility was required to maintain operations in accordance with its Permit Application under 40 CFR Part 270, Subpart G, the standards established in the Permit Application are assumed, without evidence or a rationale to the contrary, to be a required set of standards appropriate for RF-2. See also “2016 04 26 Evoqua Letter.pdf.”

Use of Permit Application as Required Standards

Because of the similarities between the interim status requirements for incinerators and carbon regeneration units, the Region disagrees that it is inappropriate to have used the standards for incinerators as guidance in developing the Permit requirements for RF-2. In fact, in the Permit Application, the commenter/Facility operator included numerous references to using the MACT EEE requirements as guidance in the development of proposed operating parameters for RF-2. See, e.g., Permit Attachment Section D (Process Information), at Section D.5.

Comments Regarding Use of “Rates” and/or “Limits” in Module V

The Region notes that the standards set forth in Module V of the draft Permit included both air emission “limits” and feed rate “limits” for several parameters. While the commenter did not, apparently, object to the “feed rates” expressed in the draft Permit, the commenter did recommend that -- for the parameters of low-volatile metals, semi-volatile metals, chlorine/chloride, and mercury -- the feed rate be used as the “limit” rather than both the feed rate and emission “limits.”

When referring to the feed rate limit set forth in the revised Permit, the Region has revised the draft Permit to consistently use the term “feed rate limit.” When referring to the feed rate in general, the Region has revised the draft Permit to consistently use the term “feed rate.”

The air emission “limits” set forth in the third column of Table V-1 of the Permit are based on the hazardous waste combustor standards at 40 CFR Part 63 Subpart EEE, for which RF-2 has been shown to be in compliance, based on the trial burn test report. See Permit Attachment Appendix V; see also 40 CFR § 63.1203. As a practical matter, during normal operations, compliance with these standards is demonstrated in accordance with 40 CFR § 63.1209, which looks to a *feed* limit for these parameters, (*i.e.*, low-volatile metals, semi-volatile metals, chlorine/chloride, and mercury). The commenter has suggested that the air emission “limits” set forth in Table V-1 of the draft Permit be removed and the table list only the feed rate limit.

The Region has reconsidered the draft Permit’s Table V-1 and acknowledges that clarification of the Table’s requirements is appropriate. Moreover, upon a closer review of Tables V-1 and V-4, in light of the commenter’s suggestions, the Region merged the information in the two tables into a revised Table V-1, deleting Table V-4 in the process. In addition, the Region has revised references to both Tables V-1 and V-4 to reflect the revised Table V-1. As explained above in the Region’s Response to Public Comment V-10, the revised Table V-1 entitled “Performance Standards and Operating Parameter Limits” establishes the RF-2 performance standards for the purposes of PDT testing and the RF-2 operating parameter limits.

Because the practical enforcement of the air emission limits for low-volatile metals, semi-volatile metals, chlorine/chloride, and mercury is accomplished by monitoring and performing calculations based on the actual feed rates of these parameters, the feed rates establish the limits for the purposes of enforcement during normal operations. The feed rate “limits” expressed in the third column of Table V-1 for low-volatile metals, semi-volatile metals, chlorine/chloride, and mercury, calculated on a rolling 12-hour average, ensure that the emission limits, which are also set forth in the third column of Table V-1, are being met.

The Region does not interpret the comments as objections to the feed rate limits for low-volatile metals, semi-volatile metals, chlorine/chloride, or mercury, as expressed in Table V-1. Since these feed rate limits ensure that the emission limits are met, the feed rate limits suffice as the measure of compliance during normal operations.

The commenter suggested the Region delete the 40 CFR § 63.1219 “replacement standards” from Table V-1. However, the Region believes that the Permit application itself suggests that the unit

would also be able to meet these standards. See Permit Attachment Section D at the note under Table D-4, Section D.5.5. Therefore, as explained more fully in the Region's Response to Public Comment V-10, above, the Region has identified these standards in the second column of revised Table V-1 to be used as guidelines in the periodic trial burn tests. To the extent that future trial burn tests demonstrate that the feed limits and emissions limits set forth in the third column of Table V-1 could be revised to reflect these updated standards, this approach will facilitate appropriate changes to these operating parameters.

CHLORINE/CHLORIDE FEED RATE LIMIT AND EMISSION STANDARD

Acute (short-term) and chronic (long-term) exposures to varying levels of chlorine, chlorine gas or hydrogen chloride (HCl) may produce a wide variety of impacts to human health. See, *e.g.*, 67 FR 44713-44719, (July 3, 2002), https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=396 (HCl), and https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=405 (Chlorine).

The trial burn test report calculated the maximum total chlorine/chloride feed rate by using the average of the total chlorine/chloride feed rates during each test run. This demonstrated that the maximum total chlorine/chloride feed rate would allow the Facility to meet the emissions standard for total chlorine/chloride for hazardous waste combustors at 40 CFR § 63.1203. The site-specific risk assessment for the Facility established that emissions at or below the standard set forth in the permit do not pose an unacceptable risk to human health or the environment.

LOW-VOLATILE METALS FEED RATE LIMIT AND EMISSION STANDARD

Acute (short-term) and chronic (long-term) exposures to varying levels of low-volatile metals, such as arsenic, beryllium, and chromium, may produce a wide variety of impacts to human health. See, *e.g.*, https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=278 (Arsenic), https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=12 (Beryllium), https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=28 (Chrome +3), and https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=144 (Chrome +6).

The trial burn test report calculated the maximum low-volatility metal feed rate limit as the average of the low-volatility metal feed rates during each test run, extrapolated upward based on the measured system removal efficiency of the low-volatility metals. This demonstrated that the maximum low-volatility metal feed rate would allow the Facility to meet the emissions standard for low-volatile metals for hazardous waste combustors at 40 CFR § 63.1203. The site-specific risk assessment for the Facility established that emissions at or below the standard set forth in the permit do not pose an unacceptable risk to human health or the environment.

SEMI-VOLATILE METALS FEED RATE LIMIT AND EMISSION STANDARD

Acute (short-term) and chronic (long-term) exposures to varying levels of semi-volatile metals in the air, such as lead and cadmium, may produce a wide variety of impacts to human health. See, *e.g.*, https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=277 (Lead), and https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=141 (Cadmium).

The trial burn test report calculated the maximum semi-volatility metal feed rate limit as the average of the semi-volatility metal feed rates during each test run. This demonstrated that the maximum semi-volatility metal feed rate would allow the Facility to meet the emissions standard for semi-volatile metals for hazardous waste combustors at 40 CFR § 63.1203. The site-specific risk assessment for the Facility determined that approximately 90% of the direct inhalation risk for residents exposed to Facility stack emissions is from a single constituent – namely cadmium. It also established that emissions at or below the standard set forth in the permit do not pose an unacceptable risk to human health or the environment.

MERCURY FEED RATE LIMIT AND EMISSION STANDARD

Acute (short-term) and chronic (long-term) exposures to varying levels of mercury may produce a wide variety of impacts to human health. See, *e.g.*, https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=370 (Mercury), and <https://www.epa.gov/mercury/health-effects-exposures-mercury#metallic>.

Due to the low amounts of mercury expected in the spent activated carbon, the operator elected to comply with the mercury standard by calculating and complying with a 12-hour rolling average Maximum Theoretical Emission Concentration (MTEC), as described in 40 CFR § 63.1209(l)(1)(iii)(D), conservatively assuming no mercury removal across the air pollution control system. The MTEC is complied with as a maximum mercury feed rate limit. This limit has been calculated from the performance test data by using the stack gas flow rate and oxygen concentration, and the maximum allowable stack gas mercury concentration based on the MACT EEE regulations. The MACT EEE replacement standards at 40 CFR § 63.1219 include the same emissions limit for mercury as is found at 40 CFR § 63.1203. The site-specific risk assessment for the Facility established that emissions at or below the standard set forth in the permit do not pose an unacceptable risk to human health or the environment.

CARBON MONOXIDE AIR EMISSION STANDARD

The presence of excess carbon monoxide in stack emissions is an indicator of incomplete combustion of the hazardous contaminants on the spent carbon during reactivation. The carbon monoxide emission standard helps the operator of a carbon regeneration unit in ensuring adequate combustion and treatment of the organics that desorb from the spent carbon. See Permit Attachment Section D, D.5.1.

The commenter does not object to the emission “limit” or appropriate monitoring for carbon monoxide as set forth in Table V-1. See, *e.g.*, “2017 01 06 Comments of Evoqua Draft Permit Decision.pdf” (Supplemental AR) at p. 43/202. However, because the Region has revised Table V-1 to clarify that the second column reflects the MACT EEE replacement standards, as opposed to air emission “limits,” the third column for carbon monoxide has been revised to include the appropriate air emission “limit,” to be monitored by continuous emissions monitoring. The maximum stack gas CO concentration limit is 100 parts per million by volume, dry basis, corrected to 7% oxygen under the standards set forth in the MACT EEE requirements for hazardous waste combustors at both 40 CFR § 63.1203 and § 63.1219. Because carbon monoxide is continuously monitored at the stack, column 3 in Table V-1 includes an Air Emissions Limit for carbon monoxide, as opposed to a feed rate limit.

In addition, the references in draft Permit Conditions V.C.5.ii.a (renumbered as Permit condition V.C.5.b.i.), and V.C.5.v.b.(1)., (renumbered as Permit condition V.C.5.e.i.), were revised such that the broad reference in these provisions to the emission limits set forth in Table V-4 has been removed and replaced with a reference to the emission limit for carbon monoxide set forth in the revised Table V-1. This change was made because carbon monoxide is the only parameter tied to the Automatic Waste Feed Cutoff (AWFCO) system (Group A1 and A2 Parameters in Table V-2) that is listed in revised Table V-1. Draft Permit Condition V.C.5.v.a. was deleted and draft Permit conditions V.C.5.v.b.(1). and V.C.5.v.b.(2). were renumbered as Permit conditions V.C.5.e.i. and V.C.5.e.ii.

TOTAL HYDROCARBONS EMISSION STANDARD

Total Petroleum Hydrocarbons (TPH) is a term used to describe a broad family of several hundred chemical compounds that originally come from crude oil. In this sense, TPH is really a heterogenous mixture of chemical compounds. They are called hydrocarbons because almost all of them are made entirely from hydrogen and carbon. See, *e.g.*, ATSDR Public Health Statement, Total Petroleum Hydrocarbons, dated September 1999 at <https://www.atsdr.cdc.gov/ToxProfiles/tp123-c1-b.pdf>.

Health impacts from exposure to TPH depend on many factors. These include the types of chemical compounds in the TPH, how long the exposure lasts, and the amount of the chemicals contacted. Acute (short-term) and chronic (long-term) exposures to varying levels of some of the TPH compounds,

particularly the smaller compounds such as benzene, toluene, and xylene (which are present in gasoline), may produce a wide variety of impacts to human health. See, e.g., https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=276 (Benzene), https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=118 (Toluene), and https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=270 (Xylene).

In its 40 CFR Part 63, Subpart EEE MACT regulations for hazardous waste combustors, EPA adopted standards for carbon monoxide, hydrocarbons, and destruction and removal efficiency “to control the other organic hazardous air pollutants listed in CAA section 112(b)(1) that do not have specific emission standards established in” those requirements. See 64 FR 52828, at 52834/1 (Sept. 30, 1999). The Agency also stated that both carbon monoxide and hydrocarbon emissions exceeding the MACT EEE standards “are indicative of poor combustion conditions and the potential for increased emissions of nondioxin/furan organic hazardous air pollutants.” *Id.*, 64 FR at 52847/3.

The maximum stack gas total hydrocarbon concentration limit is 10 parts per million by volume, dry basis, corrected to 7% oxygen under the standards set forth in the MACT EEE requirements for hazardous waste combustors at both 40 CFR § 63.1203 and § 63.1219. During the trial burn test, the Facility operator documented compliance with this standard. The site-specific risk assessment for the Facility established that emissions at or below the standard set forth in the permit do not pose an unacceptable risk to human health or the environment.

CONTROLLING DIOXIN/FURAN EMISSIONS

Acute (short-term) and chronic (long-term) exposures to varying levels of dioxins and furans may produce a wide variety of impacts to human health. See, e.g., https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=1024 (Dioxin - 2,3,7,8-TCDD) and https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=56 (Furans). Dioxins and furans are potent carcinogens and EPA has established quantitative measures of their ability to increase the likelihood of developing cancer following chronic exposures.

The MACT EEE replacement standards at 40 CFR § 63.1219 include the same emissions limit for dioxins/furans as is found at 40 CFR § 63.1203. The Emission Standard for dioxins/furans set forth in the permit is based on the MACT EEE standard, 0.40 ng TEQ*/dscm, as corrected to 7 percent oxygen. The Facility operator has demonstrated this limit in the PDT data. The PDT Report states in Section 4.2:

“Dioxin and furan sampling results and emission concentrations are presented in Tables 4-3 through 4-5. The data presented show the PCDD/PCDF emissions are in compliance with the HWC MACT standard of 0.40 ng TEQ/dscm corrected to 7% O₂ applicable to existing systems with a temperature at the entrance to the primary particulate matter control device of 400°F or less. [40 CFR 63.1203(a)(1)(ii)].”

The site-specific risk assessment for the Facility established that emissions at or below the standard set forth in the permit do not pose an unacceptable risk to human health or the environment.

* TEQ – Toxic Equivalency, which means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989.

CONTROLLING PARTICULATE MATTER EMISSIONS

Particulate matter (PM), also known as particle pollution, is a complex mixture of extremely fine particles (less than 10 micrometers in diameter) and aerosols that become airborne. Once inhaled, these particles can elicit a wide range of adverse health effects. See, e.g., EPA Brochure: Particle Pollution and Your Health, at <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P1001EX6.txt> and <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects> (Particulate Matter).

The maximum stack gas particulate matter concentration limit is 0.013 gr/dscf, (listed in the regulation as 34 milligrams per dry cubic standard meter of air [mg/dscm]), corrected to 7% oxygen under the standard set forth in the MACT EEE requirements for hazardous waste combustors at 40 CFR § 63.1219. During the trial burn test, the Facility operator documented compliance with this standard. The site-specific risk assessment for the Facility established that emissions at or below the standard set forth in the Permit do not pose an unacceptable risk to human health or the environment.

The particulate matter standard is a surrogate to control non-mercury metallic hazardous air pollutants (HAP) under the MACT EEE regulations. When a hazardous waste combustor emits particulate matter, it also emits non-mercury HAP metals as part of that particulate matter, and when particulate matter is removed from emissions, the non-mercury HAP metals are removed as well. Non-mercury metal HAP emissions are therefore reduced whenever particulate matter emissions are reduced. The particulate matter standard under 40 CFR § 63.1219 thus is an effective and appropriate surrogate that assures sources are controlling these metallic HAPs with an appropriate back-end control technology. See, Environmental Justice Findings, USEPA Statement of Basis, Appendix E, p.27/1064, at “2016 11 10 Evoqua-CRIT Revised Statement of Basis.pdf.”

CONTROLLING SULFUR OXIDES AND NITROGEN OXIDES EMISSIONS

Acute (short-term) and chronic (long-term) exposures to varying levels of sulfur oxides and nitrogen oxides may produce a wide variety of impacts to human health. See, *e.g.*, <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics> (Sulfur Dioxide) and <https://www.epa.gov/no2-pollution/basic-information-about-no2> (Nitrogen Dioxide).

The emission limit for sulfur oxides is 30 tons per year. (See, Operating Parameter Limits on Table V-1, column 3.) This limit is based on the September 19, 2016 letter from Evoqua Water Technologies LLC (Mr. Monte McCue) to USEPA Region 9 (Mr. Gerardo Rios). See “2016 09 19 Evoqua Ltr USEPA R9 re SO2 NOx Limitations on Emissions.pdf.” This limit for sulfur oxides needs to be demonstrated on a 12-month rolling sum basis.

Compliance with the emission limit for sulfur oxides shall be demonstrated on a 12-month rolling sum basis, using sulfur content of the feed, carbon reactivation production rate, and hours of operation over the course of the year, minus a 90% presumed sulfur removal rate for the packed bed scrubber system, along with periodic Performance Demonstration Tests at least once every five years.

The emission limit for nitrogen oxides is 22 tons per year. (See, Operating Parameter Limits on Table V-1, column 3.) This limit is also based on the September 19, 2016 letter from Evoqua Water Technologies LLC (Mr. Monte McCue) to USEPA Region 9 (Mr. Gerardo Rios). See “2016 09 19 Evoqua Ltr USEPA R9 re SO2 NOx Limitations on Emissions.pdf.” Compliance with the emission limit for nitrogen oxides shall be demonstrated on a 12-month rolling sum basis by using the NOx stack gas concentration from the most recent stack test where NOx was measured (average of 3 runs), flow rate out of the stack, and the hours of operation of the reactivation unit, along with periodic Performance Demonstration Tests at least once every five years.

The Region notes here that the revisions described above with respect to the changes made in the second column of Table V-1 have also been made with respect to sulfur oxides. Here, however, the emission “standard” set forth in the second column refers to the emission standard provided by the Operator to EPA Region 9’s Air Program Office, since there is no MACT EEE standard for sulfur oxides. A footnote has been added to Table V-1 referring to the September 19, 2016 letter from Evoqua Water Technologies LLC (Mr. Monte McCue) to USEPA Region 9 (Mr. Gerardo Rios). See permit condition V.C.6. and Table V-1, at footnote 15.

Similarly, the emission “standard” in the second column of Table V-1 with respect to nitrogen oxides also includes a reference to the same September 19, 2016 letter as the source of this standard. See permit condition V.C.6. and Table V-1, at footnote 18.

The emission limits in the third column of Table V-1 for sulfur oxides and nitrogen oxides have been established because the permitting process required the evaluation of these parameters as part of the risk assessment. See Section 2.3.1, “Criteria Pollutants” at page 2-41, (91/810 of the pdf), and TABLE A1.6-5 in the Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities Final, 2005,

<https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10067PR.txt>. The specific operating parameters that ensure sulfur oxides and nitrogen oxides emissions stay within the limits agreed to by the operator are also set forth in the third column of Table V-1.

Sulfur Oxides and Nitrogen Oxides

The commenter has not objected to the emission “limits” or “appropriate monitoring” for sulfur oxides and nitrogen oxides as set forth in the draft Permit’s Table V-1. See p. 43/202 at “2017 01 06 Comments of Evoqua Draft Permit Decision.pdf.” The Region’s Response to Public Comment V-8 addressed the sulfur feed monitoring that would be used to demonstrate compliance with the air emission limit for sulfur oxides. See also the Region’s Responses to Public Comments V-17 and V-39.

With respect to controlling sulfur dioxide (SO₂) emissions from the carbon regeneration furnace, a packed bed scrubber is operated with a control efficiency of 90 percent for minimizing SO₂ emissions. See, e.g., “2016 09 19 Evoqua Ltr to USEPA R9 re SO₂ and NO_x Limitations on Emissions.pdf.” According to an August 2012 CAA Registration filed by the operator, the Facility’s pre-control SO₂ potential to emit (PTE) is estimated at 299.85 tons per year (tpy), which exceeds the NSR major source threshold of 250 tpy and the Title V major source threshold of 100 tpy. Based on this information, the Facility would need to adopt practically enforceable limits to maintain its SO₂ emissions below the NSR and Title V major source thresholds.

By including additional requirements for SO₂, the RCRA permit may be used as an enforceable permitting mechanism in place of obtaining a Tribal Minor NSR permit under the CAA. These practically enforceable requirements include an annual cap of 30 tpy, demonstrated on a 12-month rolling basis using sulfur content of the feed, carbon reactivation production rate, and hours of operation over the course of the year, minus a 90% presumed sulfur removal rate from the packed bed scrubber system. In addition to the operation of the packed bed scrubber, which minimizes the Facility’s SO₂ emissions, the RCRA permit’s “practically enforceable limits” on the sulfur feed rate ensure that emissions of SO₂ remain below the NSR and Title V major source thresholds. And, in addition to many other requirements imposed under the RCRA permit, these practically enforceable limits also include a requirement to conduct a trial burn test demonstrating the SO₂ emission standard of 30 tpy at least once every five years.

Additionally, the carbon regeneration furnace combusts natural gas, which produces nitrogen oxides (NO_x). The RCRA permit imposes a Facility-wide cap of 22 tpy demonstrated on a 12-month rolling sum basis, using the NO_x stack gas concentration from the most recent stack test where NO_x was measured (average of 3 runs), flow rate out of the stack, and the hours of operation of the reactivation unit. The amount of natural gas that can be combusted in the furnace must be tracked such that NO_x emissions will not exceed 22 tpy. The Permittees can ensure that NO_x emissions are kept below this operating parameter limit by monitoring and recording the Facility’s natural gas usage each month, the 12-month rolling sum of NO_x emissions in tons per year. See Permit Condition V.C.6. The

Facility is also subject to a requirement to conduct a trial burn test demonstrating the NOx emission standard of 22 tpy at least once every five years.

The Agency may rely on the practically enforceable limits imposed under the RCRA permit as an appropriate and efficient means of ensuring that a hazardous waste management unit's emissions of criteria and hazardous air pollutants are kept below levels that would otherwise trigger the need for a separate CAA permit. Alternatively, the operator could be required to submit an application for a CAA Title V permit if either of the following occurred: (1) changes were made to the RCRA permit that adversely affect the operation of the packed bed scrubber; or (2) the Facility's PTE emissions for any criteria pollutant or hazardous air pollutants exceed the applicable major source threshold.

The site-specific risk assessment for the Facility established that the SO2 and NOx emission limits set forth in Column 3 of Permit Table V-1 do not pose unacceptable risks to human health or the environment.

MAXIMUM SPENT CARBON FEED RATE LIMIT

Table V-2 sets the maximum spent carbon feed rate limit at 3049 lbs/hr. The maximum spent carbon feed rate limit was established using 40 CFR §§ 63.1209(j)(3), and 63.1209(k)(4) as references. In addition, the spent carbon feed rate needs to be limited since treatment efficiency can be adversely affected at higher organic loading to the unit.* Pollutant concentrations in emissions can also be adversely impacted at higher spent carbon feed rates, which could impact risk assessment assumptions. While the MACT EEE regulations call for establishing this limit on an hourly rolling average basis using the average of the highest hourly rolling average values from each test run, the operator preferred a block hour average limit from the average of feed rates demonstrated during each of the three runs of the PDT. This is a more conservative value because using an average of the highest hourly rolling average values would give the facility a higher feed rate, which in turn impacts treatment efficiency, potentially increasing pollutant concentrations in emissions as well as potentially impacting the risk assessment assumptions. If the 3049 lb/hr limit is exceeded, an AWFCO will be triggered.

* See, generally, discussions regarding treatment efficiency in US EPA's Risk Burn Guidance for Hazardous Waste Combustion Facilities, July 2001, at <https://archive.epa.gov/epawaste/hazard/tsd/td/web/pdf/burn.pdf>.

Other Operating Parameter Limits

The commenter has also not objected to "appropriate monitoring in Tables V-1 and V-4 and ... the many specified operational limits in Table V-2 ..." (Draft Permit Table V-4 has been merged into Permit Table V-1, as explained previously.) For these reasons, no additional revisions to Tables V-1 and V-2, beyond the changes reflected in these responses to comments, were appropriate.

MINIMUM AFTERBURNER TEMPERATURE

Table V-2 sets the minimum afterburner temperature to 1760° F. The minimum temperature Operating Parameter Limit has been established for the afterburner to ensure destruction of organic constituents using 40 CFR §§ 63.1209(j)(1), and 63.1209(k)(2) as references. An AWFCO will be triggered if this limit is exceeded.

MINIMUM TEMPERATURE FOR HEARTH #5

Table V-2 sets the minimum temperature for hearth #5 at 1350° F.

The operator established a minimum Hearth #5 temperature following the PDT. See, *e.g.*, 2012 04 Response to Request for Information and Comments on Feb 2007 App.pdf” at pp. 17-21. See, also, “2004 09 08 Letter re Minimum Bottom Hearth Furnace Temperature.pdf.”

Even though the main purpose of the reactivation furnace hearths is not to provide organic destruction but rather volatilization, a minimum temperature in Hearth #5 is a reasonable permit condition to ensure adequate volatilization of organic constituents from the spent carbon feeds. The operator undertook a review of boiling point data for the specific organic constituents associated with the waste codes accepted at the Facility, and determined that a temperature of 1000°F would ensure volatilization of those constituents, and documented this to the Region. See “2004 09 08 Minimum Bottom Hearth Furnace Temp w Attachment.pdf.” This is implemented as an Operating Parameter Limit, with an associated AWFCO, based on an hourly rolling average.

MINIMUM VENTURI SCRUBBER PRESSURE DIFFERENTIAL

Table V-2 sets the minimum venturi scrubber pressure differential at 18 inches of water column. The Quench/Venturi Scrubber is a dual-purpose device used to rapidly quench the hot combustion gases exiting the afterburner and to remove particulate matter. See Permit Attachment Section D, D.5.1.4. Venturi scrubber pressure differential is an important parameter because maintaining the minimum pressure differential helps to ensure proper operation of the venturi scrubber at the most efficient operating conditions.

“The effectiveness of a scrubbing system is usually directly related to the pressure drop across the scrubber. The higher the pressure drop, the greater the turbulence/mixing and, therefore, the more effective the scrubbing action . . . For a 21-1- particle, for instance, a pressure differential of 8 inches (WC) (Water column equivalent to water gauge, WG) will result in a removal efficiency of 95% whereas a 35-inch WC differential will provide almost total (99.9%) removal from the gas stream.” *

The minimum venturi pressure differential limit was established using 40 CFR §§ 63.1209(m)(1)(i)(A), 63.1209(o)(3)(i), and 63.1209(n)(3) as references. The limit is determined based on the average of the test run averages, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded.

* Brunner C.R. (1985) Wet Gas Scrubbers. In: Hazardous Air Emissions from Incineration. Springer, Boston, MA. See also https://link.springer.com/chapter/10.1007/978-1-4613-2539-0_13.

MINIMUM QUENCH VENTURI SCRUBBER TOTAL LIQUID FLOW RATE

Table V-2 set the minimum quench venturi scrubber total liquid flow rate at 75 gallons per minute. Minimum quench venturi scrubber total liquid flow rate is an important parameter to ensure proper saturation of the exhaust gases leaving the afterburner in order to remove the particulate. Scrubber liquid flow rate is a key indicator of performance provided the liquid is being properly distributed, and the liquid-gas interface is maintained. This limit was established using 40 CFR §§ 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3), which allow for the establishment of either a minimum liquid to gas ratio or a maximum stack gas flow rate and a minimum liquid flow rate. The limit was established as the average of the test run averages, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded.

MINIMUM PACKED BED SCRUBBER LIQUID FLOW RATE

Table V-2 set the minimum packed bed scrubber liquid flow rate at 63 gallons per minute. The minimum packed bed scrubber liquid flow rate is an important parameter to ensure removal of hydrogen chloride and chlorine gas. The packed bed scrubber is designed to remove a minimum of 99 percent of the incoming hydrogen chloride. Just as with the venturi scrubber, the liquid flow rate of the packed bed scrubber is a key indicator of performance. Where liquids are distributed evenly and liquid gas interface is maintained,

higher liquid flow rates are indicative of higher levels of control. The minimum packed bed liquid flow limit was established using 40 CFR §§ 63.1209 (m)(1)(C), 63.1209(o)(3)(v), and 63.1209(n)(3) as references. These requirements allow for the establishment of either a minimum liquid to gas ratio or a maximum stack gas flow rate and a minimum liquid flow rate. The limit was derived from the average of the test run averages, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded.

MINIMUM PACKED BED SCRUBBER pH

Table V-2 set the minimum packed bed scrubber at pH 4.4. The packed bed scrubber is the device used for acid gas control. Therefore, the packed bed scrubber pH needs to be controlled at a minimum of 4.4. The pH is continuously monitored to ensure efficient acid gas removal, and caustic is added to neutralize the scrubber water if the pH gets low. The minimum pH limit was established using 40 CFR § 63.1209(o)(3)(iv) as a reference. The limit was derived from the average of the test run averages, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded. See Permit Attachment Section D at Section D.1.1 on page D-2. See, also, "2012 04 Response to Request for Information and Comments on Feb 2007 App.pdf" at p. 21.

MINIMUM PACKED BED SCRUBBER PRESSURE DIFFERENTIAL

Table V-2 sets the minimum packed bed scrubber pressure differential at 0.1 inches of water column. The packed bed scrubber pressure differential is an important parameter because maintaining the minimum pressure differential helps to ensure proper operation of the packed bed scrubber at the most efficient operating conditions. The minimum packed bed scrubber pressure differential is based on past operating experience. The minimum pressure differential limit was derived using 40 CFR § 63.1209(o)(3)(ii) as a reference. It was established from manufacturer's information and the facility operator's operating experience. It will be implemented on an hourly rolling average basis. See Permit Attachment Section D at Section D.5.6.5. on page D-27.

MINIMUM WESP SECONDARY VOLTAGE

Table V-2 set the minimum wet electrostatic precipitator (WESP) secondary voltage at 22 kilovolts Direct Current (kVDC).

“A WESP is designed to operate at a relatively constant voltage. A significant decrease in voltage is indicative of a change in operating conditions that could lead to an increase in emissions. Low voltage can indicate electrical shorts or poor contacts that require maintenance or repair of electrical components.” (Revised Draft Technical Guidance Document: Compliance Assurance Monitoring, August 1998 at Appendix A.9. See also <https://www3.epa.gov/ttn/emc/cam/toc-ch3.pdf>.)

The WESP, in conjunction with the Venturi scrubber, is designed to help control particulate matter and metals emissions. See Permit Attachment Section D, D.5.1.6. WESP secondary voltage is used as the indicator of continuing WESP performance. The limit has been established from the average of the minimum hourly rolling averages recorded during each test run, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded.

MINIMUM WET SCRUBBER BLOWDOWN FLOW RATE

Table V-2 set the minimum wet scrubber blowdown flow rate at 58 gallons per minute. The minimum wet scrubber blowdown flow rate is an important parameter to prevent the buildup of dissolved solids in the recycled water. The packed bed scrubber minimum blowdown flow rate was established, based on the PDT and using 40 CFR §§ 63.1209(m)(1)(i)(B), and 63.1209(n)(3) as references. The limit was derived from the average of the test run averages, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded.

MAXIMUM STACK GAS FLOW RATE

Table V-2 set the maximum stack gas flow rate at 9550 actual cubic feet per minute (acfm). The treatment system’s organic destruction efficiency is primarily a function of the afterburner temperature and the stack gas flow rate (which is an indicator of combustion zone residence time). As stack gas flow rate increases treatment efficiency decreases because the organics are subjected to elevated temperatures for a shorter

period of time. The maximum stack gas flow rate limit was derived using 40 CFR §§ 63.1209(j)(2), 63.1209(k)(3), 63.1209(m)(2), 63.1209(n)(5), and 63.1209(o)(2) as references.

The maximum stack gas flow rate is based on the average of the stack gas flow rate measurements from each test run during the trial burn, and is implemented on an hourly rolling average basis. An AWFCO will be triggered if this limit is exceeded.

HAZARDOUS WASTE PROHIBITED FROM TREATMENT IN RF-2

Table V-2 sets the allowable hazardous constituents that may be treated in RF-2 by referencing Permit Condition II.H.5, which has been revised to reflect the wastes that are prohibited from treatment in RF-2. The only type of hazardous waste that the facility may treat is spent carbon.

Revised Permit Conditions II.H.5.b and II.H.5.c prohibit the Facility from receiving dioxin or furan hazardous waste or leachate. The operator has voluntarily agreed to not receive such waste for treatment, with the understanding that the MACT Subpart EEE requirement for 99.9999% destruction removal efficiency (DRE) standard would not be imposed on RF-2. Instead, the unit would be subject to a 99.99% DRE. See, e.g., 40 CFR § 63.1219(c).

Revised Permit Conditions II.H.5.a. and II.H.5.f. prohibit the facility from receiving radioactive, nuclear, or mixed waste. The operator has voluntarily agreed to not receive such waste for treatment, stating that “the Facility will not accept spent carbon containing . . . regulated levels of radioactive wastes (as regulated by the Nuclear Regulatory Commission) . . .” See Permit Attachment Section C at C.2.6.

Revised Permit Condition II.H.5.d. prohibits the Facility from receiving TSCA-regulated levels of PCBs. The operator has voluntarily agreed to not receive such waste for treatment, stating that “the facility will not accept spent carbon containing . . . TSCA-regulated levels of PCBs . . .” See Permit Attachment Section C at C.2.6.

Revised Permit Condition II.H.5.e. prohibits the Facility from receiving medical or infectious wastes. The operator has voluntarily agreed to not receive such waste for treatment, stating that “the facility will not accept spent carbon containing . . . infectious wastes . . .” See Permit Attachment Section C at C.2.6.

Revised Permit Condition II.H.5.g. prohibits the Facility from receiving corrosive or reactive wastes. The operator has voluntarily agreed to not receive such waste for treatment, stating that “the facility will not accept spent carbon containing . . . spent carbon exhibiting the characteristics of corrosivity (40 CFR 261.22) or reactivity (40 CFR 261.23).” See Permit Attachment Section C, at C.2.6.

Revised Permit Condition II.H.5.h. prohibits the Facility from receiving any benzidine-contaminated waste bearing the hazardous waste code U021. The operator has voluntarily agreed to not receive such waste for treatment.* See “2007 07 13 Email_Re_benzidine.pdf.”

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* The Facility operator’s risk assessment determined that roughly 30% of the total cancer risk is associated with a single constituent – namely benzidine. The type and nature of adverse health impacts associated with chronic benzidine exposure can be found in the IRIS website at:
https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=135.

V-13. One commenter asserted that RCRA compels EPA to “avoid duplication, to the maximum extent practicable, with the appropriate provisions of the Clean Air Act...” and that RCRA precludes EPA’s regulation of air emissions, including fugitive emissions, from carbon regeneration units because the Agency failed to promulgate air emissions regulations for carbon regeneration units in the 1980s. [See draft Permit conditions V.C. and V.E.]

RESPONSE: While the Region recognizes that it should seek to avoid duplication between RCRA and the CAA, it disagrees that EPA lacks the authority to promulgate air emission rules for the monitoring and control of air emissions, including fugitive emissions, at hazardous waste treatment, storage and disposal facilities. As noted by the commenter, RCRA section 3004(n) directs EPA to regulate air emissions from hazardous waste treatment, storage and disposal facilities:

“AIR EMISSIONS

Not later than thirty months after November 8, 1984, the Administrator shall promulgate such regulations for the monitoring and control of air emissions at hazardous waste treatment, storage, and disposal facilities, including but not limited to open tanks, surface impoundments, and landfills, as may be necessary to protect human health and the environment.” RCRA 3004(n).

(See also, e.g., 78 FR 9112, at 9128/2, Feb. 7, 2013 [discussing EPA’s authority to regulate certain types of uncontained gases under RCRA], and 45 FR 33154, at 33166/1-3, May 19, 1980 [explaining the Agency’s approach to the regulation of volatile hazardous waste air emissions under RCRA].)

While the Region appreciates the commenter’s concerns, it does not regard its regulation of these emissions under RCRA as an unauthorized duplication of its CAA authority. The full text of RCRA Section 1006(b)(1) reads as follows:

“The Administrator shall integrate all provisions of this chapter for purposes of administration and enforcement and shall avoid duplication, to the maximum extent practicable, with the appropriate provisions of the Clean Air Act [42 U.S.C. 7401 et seq.], the Federal Water Pollution Control Act [33 U.S.C. 1251 et seq.], the Federal Insecticide, Fungicide, and Rodenticide Act [7 U.S.C. 136 et seq.], the Safe Drinking Water Act [42 U.S.C. 300f et seq.], the Marine Protection,

Research and Sanctuaries Act of 1972 [16 U.S.C. 1431 et seq., 1447 et seq., 33 U.S.C. 1401 et seq., 2801 et seq.], and such other Acts of Congress as grant regulatory authority to the Administrator. Such integration shall be effected only to the extent that it can be done in a manner consistent with the goals and policies expressed in this chapter and in the other acts referred to in this subsection.”

To the extent that the draft Permit sought to impose the CAA requirements associated with the Facility’s benzene operations under 40 CFR Part 61, Subpart FF through the RCRA permitting authority, the Region acknowledges that such provisions in the draft RCRA permit were unnecessary and potentially duplicative. As a result, the draft Permit conditions that were based solely on these CAA benzene NESHAP regulations have been removed from the final Permit. To the extent that these requirements are applicable to the Facility’s emissions, they apply independently from the RCRA permit.

On the other hand, where the Region drew from the CAA requirements associated with emissions from hazardous waste combustion facilities found at 40 CFR Part 63, Subpart EEE, the final Permit retains the requirements for which the Region is providing a technical basis. The reason for retaining these specific Subpart EEE standards -- as opposed to the Subpart FF standards -- is that, while the Subpart FF standards apply to the Facility because it receives waste from facilities that are subject to Subpart FF, the Subpart EEE standards are *not* independently applicable to carbon regeneration units such as RF-2. Since carbon regeneration units are not defined under RCRA as incinerators, nor under the CAA as hazardous waste combustors, and are therefore not regulated as hazardous waste combustion units under Subpart EEE, the application of the standards to the Facility through the use of RCRA’s authority to regulate miscellaneous units in a permit is duplicative of no other statutory requirement. Thus, the inclusion of the Subpart EEE standards in the Permit in no way implicates RCRA 1006(b).

The Region disagrees that the language cited above from RCRA Section 3004(n) only provided EPA with a “limited window” within which to promulgate air emission standards, including fugitive emission standards, for TSDs under RCRA. Rather, the November 8, 1984 date constituted a deadline by which Congress wanted EPA to act. Nothing in this provision prohibits EPA from promulgating RCRA air emissions standards after November 8, 1984.

V-14. One commenter recommended deleting draft Permit condition V.C.1.ix as an inappropriate condition for a RCRA permit.

RESPONSE: Draft Permit condition V.C.1.ix, renumbered as Permit condition V.C.1.h., compelled compliance with monitoring standards for incinerators under the MACT EEE requirements. The Region agrees that the broad incorporation of these standards by reference into this Permit condition is inappropriate. Monitoring requirements for RF-2 are found in Permit attachment section D. Permit condition V.C.1.h. now refers to Permit Attachment Section D as the source for the monitoring requirements for RF-2. The Region notes that Permit Attachment Section D includes its own internal

references to 40 CFR § 63.1209 as the source for the monitoring standards included in Permit Attachment Section D.

The applicant/operator has proposed a number of different monitoring systems in Section D of its Permit application, which is incorporated into the Permit as Permit Attachment Section D. These monitoring systems, include, for example, the continuous emission monitoring system, the continuous monitoring system, and other means of ensuring that the carbon regeneration and air pollution control devices are operating properly. These monitoring systems ensure that the furnace and all its associated equipment meet the parameters established during the trial burn and the limits set as a result of the permitting process.

V-15. One commenter recommended deleting draft Permit condition V.C.1.x. as an inappropriate condition for a RCRA permit.

RESPONSE: Draft Permit condition V.C.1.x. repeated a standard found in the MACT EEE requirements that equates violations of operating requirements to violations of emission standards. The Region agrees that it is an inappropriate condition for a RCRA permit insofar as a violation of any permit requirement is a violation of the Permit and need not be equated to the failure to ensure compliance with an emission standard. As a result, the Region had deleted draft Permit condition V.C.1.x.

V-16. One commenter objected to the Region's inclusion of dioxin and particulate matter emission limits based on a number of factors pertaining to the specific design parameters associated with RF-2 and its pollution control equipment.

RESPONSE: The draft Permit included limits for dioxin that were established by the Permit applicant during the PDT and memorialized in Permit Attachment Section D (Table D-4). Based on the results of the Permittees' human health and ecological risk assessment, the Region accepted the dioxin limit in Section D and has included it as a performance parameter to be demonstrated during the PDTs required under the Permit. The Region acknowledges that many of the controls associated with RF-2 are likely to ensure dioxin emissions remain well beneath acceptable limits. However, the unique nature of RF-2 -- in terms of its particular combination of reactivation furnace, afterburner, packed bed scrubber, and wet electrostatic precipitator, in that order -- demands a periodic evaluation as part of the PDT. The Region also believes that the relatively small burden imposed on the Permittees to demonstrate the dioxin standard every five years is warranted. In making its Permit decision, the Region has considered the constituent-specific health risks associated with -- and community concerns raised during the permitting process about -- dioxin emissions. See also the Region's Response to Public Comment V-12, above, regarding the dioxin/furan emission standard.

The draft Permit included limits for particulate matter based on the standards for incinerators set forth at 40 CFR § 63.1219(a)(7), rather than the standard in the Permit Attachment Section D (Table D-4). As explained in the Region's Responses to Public Comments V-8, V-10, V11, and V-12 above, the Region merged the Draft Permit Tables V-1 and V-4. The revised Permit Table V-1 establishes the

particulate matter operating parameter limit (Column 3) based on the MACT EEE interim standard at 40 CFR § 63.1203, since this is the standard that was used during the 2006 trial burn test as a guide to developing the unit's operating parameter limits.

However, Permit Attachment Section D acknowledges that,

"[a]t the time of the PDT, the appropriate standards were found in 40 CFR 63.1203, and are reflected in the table [D-4]. Since completion of the PDT, the regulations at Subpart EEE have been changed, and revised standards have been added at 40 CFR 63.1219. A review of the RF-2 PDT results indicate that the unit meets the new standards at 40 CFR 63.1219." See Permit Attachment Section D at page D-20.

As a result, the Region is retaining the standard derived from 40 CFR § 63.1219(a)(7) for particulate matter in Table V-1 (Column 2) and is also requiring this MACT EEE replacement standard to periodically be used as a guide during the PDTs to occur every five years.

The Facility processes solid and liquid hazardous waste, of which small particles can form prior to and within the treatment system. These small particles can then get entrained in the stack gases and emitted into the atmosphere. Permit Attachment Section D includes numerous references to air pollution control equipment that is used to control particulate matter. See, e.g., Permit Attachment Section D at Section D.1.1. As with the dioxin standard, the relative burden on the Permittees to demonstrate continued compliance with the particulate matter interim standard is warranted considering the health concerns associated with inhalation of particulate matter. See the Region's Response to Public Comment V-12, above, regarding the particulate matter emission standard.

V-17. One commenter recommended revisions to draft Permit condition V.C.2.b. to clarify the circumstances in which the SSMP must be implemented.

RESPONSE: The Region agrees that the draft Permit condition was susceptible to further clarification and has revised Permit condition V.C.2.b. accordingly. As the commenter points out, the SSMP exists to provide procedures to follow when there is a start-up, shut down or malfunction, when the unit is not in steady state operation. While the Region believes that such events might result from events which themselves may be or were caused by permit violations, that was not the focus of this Permit condition V.C.2.b. However, in response to this commenter's concerns, the Region has revised Permit condition V.C.2.b. such that it now requires that the Permittees "implement" the SSMP anytime there is an SSMP event in order to ensure that impacts from such events are avoided or minimized. Thus, the focus of the provision has been clarified to pertain to minimizing impacts from start-up, shutdown or malfunction events.

The commenter has suggested a revision to the draft Permit that appears to provide for a temporary suspension of the emission standards and other operating requirements during startup, shutdown, or malfunction events. The Region notes that this language is also included in the SSMP:

“Emission standards and operating limits do not apply during periods of startup, shutdown, and malfunction. Facilities are exempted from emission standard and operating limit violations during startup, shutdown, and malfunction events, ***provided the SSMP procedures are followed and compliance with the SSMP is properly documented.***” See Permit Attachment Appendix XXII, at Section 1.0. (Emphasis added.)

The assertion that facilities are “exempted from emission standard and operating limit violations during startup, shutdown, and malfunction events, provided the SSMP procedures are followed and compliance with the SSMP is properly documented” presumes that the unit is subject to a prescribed set of requirements as opposed to a set of site-specific requirements imposed through a RCRA hazardous waste permit. Here, however, so long as the SSMP procedures are complied with and documented, the Permittees are subject to procedures spelled out in the SSMP, which are designed to minimize impacts from start-up, shutdown or malfunction events. These are spelled out in the SSMP with specific reference to the procedures for starting up RF-2, shutting down RF-2 (including emergency shutdowns), and responding to malfunctions relating to RF-2. These SSMP requirements restrict operations during start-ups, (e.g., maximum carbon monoxide stack gas flow rate must not be exceeded during a start-up event), and shutdowns, (e.g., the SSMP requires air pollution control equipment to remain operational to the extent possible during a malfunction, since there are approximately 38 minutes during which spent carbon may continue being processed after waste feed is cut-off).

Thus, despite the quoted language, miscellaneous units like RF-2 are subject to the conditions specified in the Facility’s RCRA hazardous waste Permit, based on the Agency’s determination on a site by site basis as to what is necessary to protect human health and the environment. Miscellaneous units may be “exempted” from some requirements during SSMP events so long as the permitting authority determines that operating requirements applicable during SSMP events continue to be protective of human health and the environment. See 40 CFR § 264.601. Here, certain controls for SO₂ and NO_x are also imposed by consent of the Permittees in order to control emissions of these pollutants below Title V major source limits.

The Region notes that RCRA provides alternatives with respect to SSMPs for incinerators, cement kilns, lightweight aggregate kilns, solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces in accordance with 40 CFR § 270.235. Comparison of the SSMP for this Miscellaneous Unit at Permit Attachment Appendix XXII with the options described in the RCRA regulations shows that this Facility’s SSMP generally follows the option listed at 40 CFR § 270.235(a)(2)(ii)(1), “RCRA Option B.” This option requires that permits include conditions “that ensure emissions of toxic compounds are minimized from startup, shutdown, and malfunction events, including releases from emergency safety vents, based on review of information including the source’s startup, shutdown, and malfunction plan, design, and operating history...” This Permit includes similar language at Permit Condition V.C.2.a. (“The Permittees shall implement the Start-up, Shutdown, and Malfunction Plan [SSMP] to minimize emissions of toxic compounds from startup, shutdown, and malfunction events.”)

The Facility's SSMP describes how startup, shutdown, and malfunction procedures were developed for the carbon regeneration system based on a review of information about the design and operating history of RF-2 by a multi-disciplinary team, and how the operator will respond if unforeseen malfunctions occur. The SSMP also describes the monitoring, recordkeeping, and reporting requirements associated with startup, shutdown, and malfunction events. These provisions – coupled with the SSMP as a whole -- satisfy the Region's need to ensure protection of human health and the environment during these events.

To the extent that SO₂ and NO_x emissions parameters have not been specifically addressed in the SSMP, the Region has endeavored to ensure that the RCRA permit's controls and emission limits for SO₂ and NO_x continue to apply even during start up, shutdown and malfunction events. For SO₂, once the Waste Analysis Plan (WAP) is modified to identify and include a sulfur feed rate limit as part of RF-2's SO₂ controls (pursuant to revised Permit Condition I.K.3), sulfur would then be treated like all other parameters associated with specific feed rate limits whereby sulfur levels in the feed would be sampled and analyzed regularly whenever spent carbon is fed into the unit. Thus, feed sampling would begin and end with waste fed into the unit, and waste feed is specifically addressed in the SSMP as part of any planned start up or shut-down, as part of any emergency or unplanned shutdown, and as part of any malfunction. Pursuant to this framework, there would be no operation of the unit without continuous controls (*i.e.*, feed rate limits) to ensure that SO₂ emissions remain below the Permit limit of 30 tons per year.

Similarly, NO_x emissions are controlled by monitoring and recording monthly natural gas usage in accordance with Permit Condition V.C.6.b. The Region has added clarifying language to this Permit Condition indicating that the monitoring of natural gas usage on a monthly basis must be maintained even for those months when startup, shutdown, or malfunction events occur. Thus, pursuant to this framework, there would also be no operation of the unit without continuous controls (*i.e.*, recording natural gas usage) to ensure that NO_x emissions remain below the Permit limit of 22 tons per year.

The Region has revised Permit Condition V.C.1.b, (which was draft Permit condition V.C.1.ii) to except SO₂ and NO_x emissions from the general requirement, such that, so long as the SSMP is followed, the emission standards and operating requirements are not applicable during periods of startup, shutdown and malfunction, and when spent carbon is not in the reactivation furnace (RF-2). This exception is necessary to allow the Permit's emission limits for SO₂ and NO_x to constitute practically enforceable limits in lieu of a CAA Title V permit.

Finally, Section 4.5 of the SSMP also states:

"If the SSMP fails to address or inadequately addresses an event that meets the characteristics of a malfunction, EWT will revise the SSMP within 45 days after the event to include detailed procedures for operating and maintaining the spent activated carbon reactivation process during similar malfunction events and a program of corrective action." See Permit Attachment Appendix XXII.

The Region notes that revisions to the SSMP will require a Permit modification because the SSMP is incorporated into the Permit as Permit Attachment Appendix XXII. Modifications to the SSMP should be proposed in accordance with Permit Condition I.G.7. Such changes might, as a practical matter, include the modification of SSMP Section 4.5 to clarify that changes to the SSMP should be **initiated** within 45 days after the malfunction event, but that, because the SSMP has been incorporated into the Permit at Permit Attachment Appendix XXII, such changes must also be undertaken in accordance with the permit modification procedures set forth at 40 CFR Parts 124, 264, and 270. Such modifications, where relatively minor, may be proposed as Class 1 permit modifications without prior Director approval, as appropriate.

In revising Permit condition V.C.2.b., the Region also incorporated the language from draft Permit condition V.C.1.viii. regarding implementation of the SSMP during continuous monitoring system (CMS) instrument malfunctions. This draft Permit condition V.C.1.viii. was then deleted, to avoid duplicative permit conditions.

STARTUP SHUTDOWN AND MALFUNCTION PLAN (SSMP)

The applicant/operator's SSMP is incorporated into the Permit as Permit Attachment Appendix XXII. According to this document, the purposes of the SSMP are as follows:

- To ensure that the reactivation furnace unit, including emission control equipment is operated and maintained in fulfillment of [the Permittees'] general duty to minimize emissions to the greatest extent in a manner consistent with good air pollution control practices.
- To ensure that owners and operators are prepared to correct malfunctions as soon as practicable.
- To minimize the reporting burden associated with excess emissions. The SSMP should address startup, shutdown, and malfunction events of the thermal treatment process that could result in an emission or operating limit exceedance.

Permit Condition V.C.2.d., continues to require the maintenance of an SSMP in the Operating Record for the operating life of the unit. This ensures that Facility personnel will always have ready access to the SSMP in the event of a malfunction, shutdown, or when restarting the unit.

V-18. One commenter stated that the Region failed to provide technical justification for requirements imposed on RF-2. To be comprehensive, the Region interprets this broad comment to include a comment seeking the Region's technical basis for requiring the maintenance, calibration and operation of monitoring equipment associated with RF-2 and the related obligation to record the data required by the Permit while the Facility is processing spent carbon in RF-2. [See draft Permit condition V.C.3.]

RESPONSE: Please refer to the Region’s Response to Public Comment V-14, above, regarding the reasons for including a variety of monitoring requirements associated with the operation of RF-2 in the Permit. It is important for the equipment to be maintained and calibrated to make sure it is functioning properly. Most of the data needs to be retained for three years in accordance with Permit Condition V.G.1 in order to ensure an adequate historical record of compliance with the requirements. Please refer to the Region’s response to Public Comment V-35, below, regarding the record keeping requirements of Module V, in general.

MAINTAINING INSTRUMENTATION

Draft Permit Condition V.C.4.i. has been renumbered as Permit Condition V.C.4.a. This provision references Table V-3, which includes the maintenance and calibration requirements for a variety of instruments necessary to ensure proper operation of RF-2. Each of these instruments is included in the Permit Application’s Table D-3, reflecting appropriate calibration and maintenance practices. See Permit Attachment Section D, at Table D-3. For all of these instruments, the reasons for requiring periodic calibration and maintenance are self-evident.

For example, it is important to calibrate the oxygen monitor since all emission standards listed in Table D-4 of Permit Attachment Section D (except DRE) are corrected to 7% oxygen. It is also important to calibrate the carbon monoxide CEMS, since it is the indication used for incomplete combustion and, if it exceeds the standard (100 ppm_{dv}), an automatic waste feed cutoff will be triggered. Both monitors are calibrated daily because they are so crucial to proper monitoring of system operations and stack emissions. See Table D-4 of Permit Attachment Section D.

Permit Condition V.C.4.a. also requires the performance of quality assurance and quality control in accordance with 40 CFR Part 60’s QA/QC requirements. Quality assurance and quality control procedures help in evaluating data quality correlating to emissions monitoring and unit performance. Maintaining appropriate records relating to these procedures helps ensure they are both in place and followed.

V-19. One commenter recommended deletion of draft Permit condition V.C.4.ii and revisions to draft Permit condition V.C.4.iii, which were cited as “burdensome and expensive,” “vague and malleable,” and “arbitrary and capricious.”

RESPONSE: In light of the commenter’s claims that the requirements as proposed in the draft Permit would be burdensome and expensive, the Region has deleted draft Permit condition V.C.4.ii and modified what was draft Permit condition V.C.4.iii., renumbered as Permit condition V.C.4.b. The Region has also modified Permit condition V.C.4.b. to address the commenter’s concerns, albeit with some changes from what was recommended by the commenter. The reference to 40 CFR § 63.8 has

been removed, given the broad language already included in Permit Condition V.C.4.a., Table V-3, and Permit Attachment Section D.

V-20. One commenter suggested changes to draft Permit conditions V.C.5.i. and V.C.5.v. in order: (1) to clarify that a malfunction of the Automatic Waste Feed Cutoff (AWFCO) system would not constitute a Permit violation if the SSMP were followed; and (2) to delete the requirement to follow the MACT EEE requirements in the operation of the AWFCO system.

RESPONSE: Certain operating parameters (*i.e.*, Group A1 and A2), when they are not met, trigger an automatic cutoff of the spent carbon being fed to RF-2. Because these parameters are crucial to proper system operations and controlling stack emissions, operations outside of these parameters leads to the automatic cutoff of the feed to the hearth.

The Region agrees that if the AWFCO system malfunctions and the SSMP is followed as a result, there would be no Permit violation and the Region deleted the word “functioning” from draft Permit condition V.C.5.i., renumbered as Permit condition V.C.5.a., to clarify that intent. The Region agrees with the comment to reference the Permit instead of the MACT EEE regulations for implementation of the AWFCO procedures and has made revisions accordingly to Permit conditions V.C.5.a. and V.C.5.e., (the latter of which was proposed as draft Permit condition V.C.5.v).

V-21. One commenter objected to language in the draft Permit requiring the Permittees to “automatically” cut off the feed to RF-2 upon the occurrence of certain specified events as duplicative of the draft Permit condition requiring the Permittees to have an “automatic” waste feed cut off system in place. [See draft Permit condition V.C.5.ii.]

RESPONSE: The Region agrees with the commenter and has revised the language in draft Permit condition V.C.5.ii., renumbered as Permit condition V.C.5.b., accordingly.

V-22. One commenter objected to the use of the words “met or exceeded” for the parameters in the draft Permit. [See draft Permit condition V.C.5.ii.a.]

RESPONSE: The Region agrees with the commenter and has modified the draft Permit condition V.C.5.ii.a., renumbered as Permit condition V.C.5.b.i., to use the word “exceeded” for the Group A1 and Group A2 parameters on Table V-2 that have associated “maximum” values and the word “met” for all the other Group A1 and Group A2 parameters, which have associated “minimum” values listed on Table V-2.

V-23. One commenter suggested deleting all of draft Permit condition V.C.5.v.c.

RESPONSE: The Region has revised draft Permit condition V.C.5.v.c., renumbered as Permit condition V.C.5.e.iii., to delete references to the MACT EEE requirements. However, the Region has retained the requirement to conduct an investigation and submit a summary report to the Director for approval after any 10 exceedances during any 60-day block of time. The Region is cautiously optimistic that exceedances will be few and far between and that the occurrence of 10 such events in any 60-day

period would signal a serious problem with the operation of RF-2. The Region maintains that the serious nature of the occurrence of 10 exceedances within a 60-day window warrants investigation and evaluation of the causes of the exceedances and potential remedies. Thus, while the substance of the draft Permit condition V.C.5.v.c. is preserved, unnecessary references to the MACT EEE regulations have been removed from Permit condition V.C.5.e.iii.

V-24. One commenter asserted that the Region failed to provide technical justification for certain feed rate limitations imposed on RF-2. To be comprehensive, the Region interprets this broad comment to include a comment seeking the Region's technical basis for prohibiting the Permittees from starting the waste feed to RF-2 until the operating parameters specified in Table V-2 and the CEMS have returned to within the operating limits. [See draft Permit condition V.C.5.vii.]

RESPONSE: Permit Attachment Appendix XXII, the SSMP, establishes appropriate procedures for restarting the waste feed after a shutdown. The SSMP requires that all AWFCOs "be satisfied in order to initiate a feed start." The Region understands this to mean that spent carbon feed would not begin until the operating parameters and emission levels are within the limits established in the Permit. Such a requirement is consistent with 40 CFR § 63.1206(c)(3)(iii) and with the Subpart P interim status requirement for thermal treatment units like RF-2 at 40 CFR § 265.373. The MACT Subpart EEE regulation requires continued monitoring during the cutoff of the operating parameters for which limits are established under 40 CFR § 63.1209. It also requires the emissions that are monitored by a CEMS, pursuant to 40 CFR § 63.1209 continue to be monitored. Owners and operators of facilities subject to the MACT Subpart EEE requirement may not restart the hazardous waste feed "until the operating parameters and emission levels are within the specified limits." 40 CFR § 63.1206(c)(3)(iii). Meanwhile, the RCRA interim status, baseline requirement for RF-2 set forth at 40 CFR § 265.373, requires thermal treatment units be brought "to steady state (normal) conditions of operation—including steady state operating temperature" before hazardous waste may be added to the system.

Consistent with the RCRA Subpart P interim status requirement, the MACT Subpart EEE requirement and the SSMP, draft Permit Condition V.C.5.vii., renumbered as Permit condition V.C.5.g., prohibits restarting the waste feed "until the operating parameters specified in Table V-2 and the CEMS have returned to within the operating limits."

V-25. One commenter suggested deleting draft Permit condition V.C.5.viii as duplicative of the SSMP.

RESPONSE: The Region has deleted draft Permit condition V.C.5.viii (Failure of an AWFCO) since it is duplicative of Section 4.6 of the SSMP (Appendix XXII), which also includes the language about stopping the waste feed as quickly as possible. It is important that the waste feed to RF-2 be stopped as quickly as possible if one of the Group A1 or A2 parameters listed in Table V-2 are not met, to ensure that the unit meets these operating parameters. If the AWFCO system fails to cut off the flow of spent carbon, the SSMP requires the feed be cut off as quickly as possible as a fallback, safety precaution.

V-26. One commenter suggested deleting draft Permit condition V.C.5.ix. as it duplicates the inspection schedule and checklist, Permit Attachment Section F and Permit Attachment Appendix XII, and imposes burdensome and unwarranted recordkeeping requirements.

RESPONSE: The Region has revised the first sentence of draft Permit condition V.C.5.ix., renumbered as Permit condition V.C.5.h., in order to refer to Permit Attachment Section F. Section F includes the monthly inspection table applicable to the AWFCO system including its associated alarm systems. [See also Permit condition II.F.1.] The Region has also removed the requirement to maintain the testing procedures in the Operating Record, since Permit Attachment Section F itself includes the procedures for testing the AWFCO system.

Both the RCRA incinerator standards at 40 CFR Part 264 Subpart O³² and the 40 CFR Part 63 Subpart EEE³³ MACT Combustor standards require the results of the AWFCO system testing be maintained. And, the Region wants the ability to review the AWFCO test results over the newly-referenced five-year period. Maintaining these records for five years ensures an adequate historical collection of AWFCO testing data is available to review during trial burn test result analysis. Therefore, the Region is requiring the Facility to keep the records for 5 years. Because of the importance of the AWFCO to ensure safe operation of the unit, the Region considers any burden imposed by the obligation to keep the records of the AWFCO testing procedures and results for 5 years to be entirely warranted and appropriate.

V-27. One commenter recommended a modification of draft Permit condition V.C.6.ii and the deletion of V.C.6.iii, arguing that the amount of natural gas burned should be preserved in regular units of gas used, not in millions of standard cubic feet (MMSCF) and, apparently, that the monthly rolling average for NOx emissions to be calculated should be changed to a calendar year basis.

RESPONSE: The Region deleted the requirement in draft Permit condition V.C.6.ii., renumbered as Permit condition V.C.6.b., to convert the natural gas used to MMSCF. However, the Region disagrees with the suggestion to deleting -- and has instead modified -- draft Permit condition V.C.6.iii., renumbered as Permit condition V.C.6.c. Permit condition V.C.6.c. reflects the calculation of NOx emissions required by the Permit. The NOx emissions limit is, in part, driven by CAA

³² 40 CFR §§ 264.347(c) and (d):

(c) The emergency waste feed cutoff system and associated alarms must be tested at least weekly to verify operability, unless the applicant demonstrates to the Regional Administrator that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. At a minimum, operational testing must be conducted at least monthly.

(d) This monitoring and inspection data must be recorded and the records must be placed in the operating record required by §264.73 of this part and maintained in the operating record for five years.

³³ 40 CFR § 63.1206(c)(3)(vii): Testing. The AWFCO system and associated alarms must be tested at least weekly to verify operability, unless you document in the operating record that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. At a minimum, you must conduct operability testing at least monthly. You must document and record in the operating record AWFCO operability test procedures and results.

requirements for synthetic minor sources and is based on the Permit applicant operator's agreement to be bound by this limit as a condition of the RCRA permit. Permit condition V.C.6. reflects the operator's agreement as reflected in a September 19, 2016 letter to EPA. See "2016 09 19 Evoqua Ltr to USEPA R9 re SO2 and NOx Limitations on Emissions.pdf." See also the Region's Responses to Public Comments V-8, V-12, V-17, above and V-39, below.

V-28. One commenter recommended deleting draft Permit condition V.C.5.v.a. as duplicative of draft Permit conditions V.C.5.ii.a. and V.C.5.viii. These draft Permit conditions addressed the operation of the automatic waste feed cutoff system for RF-2.

RESPONSE: The Region agrees with the commenter's assertion and has deleted draft Permit conditions V.C.5.v.a. and V.C.5.viii as duplicative of draft Permit condition V.C.5.ii.a, which has been renumbered as Permit condition V.C.5.b.i. Draft Permit condition V.C.5.v.a. required the AWFCO system to immediately and automatically cut off the hazardous waste feed, if the Permittees fail to meet an emission standard listed in Table V-4 or a Group A-1 or Group A-2 parameter specified in Table V-2. It also required the Permittees to cease feeding hazardous waste as quickly as possible, if the malfunction itself prevented immediate and automatic cut off of the hazardous waste feed.

Draft Permit conditions V.C.5.ii and V.C.5.ii.a., which were revised and renumbered as Permit conditions V.C.5.b. and V.C.5.b.i., respectively, require that the Permittees set the AWFCO system to stop the feed to RF-2 if the specified operating limits are not met. In addition, Permit condition V.C.5.e. requires that, during malfunctions, the Permittees are to comply with the AWFCO requirements of the Startup Shutdown and Malfunction Plan (Permit Attachment Appendix XXII).

After deleting draft Permit condition V.C.5.v.a., the Region renumbered draft Permit conditions V.C.5.v.b.(1). and V.C.5.v.b.(2). as Permit conditions V.C.5.e.1. and V.C.5.e.2., respectively.

V-29. One commenter claimed that the language of draft Permit conditions V.D.1. and V.D.2. was vague and confusing, that the use of two Tables to include "limits" is confusing and that the standards ought not apply unless hazardous waste is present in the combustion chamber.

RESPONSE: The Region made significant changes to Permit condition V.D.1 due to the merger of draft Permit Table V-1 with draft Permit Table V-4, the latter of which was then deleted. Otherwise, the Region incorporated the commenter's recommended changes to Permit condition V.D.1 to clarify the provision's intent and change the reference to the test protocols in Table V-1, as opposed to draft Permit Table V-4, which had been deleted. The Region also modified the revised Permit condition V.D.1. to clarify the meaning of the word "maintain" in the provision and to clarify that the provision applies only when there is spent activated carbon in the unit. The Region did not limit application of the provision to only when there is hazardous waste in RF-2, because the air pollution control systems need to be operated whenever RF-2 is in operation, i.e., whenever spent carbon is in the unit. See also the Region's Responses to Public Comments V-8 and V-12, above.

DRAFT FAN AND EMISSIONS STACK

A variable speed induced draft fan is provided to exhaust combustion gases from the furnace and afterburner and through the air pollution control system. The 110-foot high stack is used to exhaust the effluent stream to the atmosphere across a large dispersion area.

V-30. One commenter suggested deleting draft Permit condition V.D.3, which would have required the Permittees to perform any necessary operations and air pollution control equipment maintenance to minimize emissions.

RESPONSE: The Region agrees with the commenter and has deleted draft Permit condition V.D.3. Draft Permit condition V.D.3 is duplicative of draft Permit conditions that require the Permittees to meet emission limits. It is also potentially duplicative of Permit condition II.B.1, which requires the Permittees to “maintain and operate the Facility to minimize the possibility of . . . any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.”

V-31. One commenter suggested deleting draft Permit condition V.D.4 as beyond the Region’s authority, contending that the draft Permit condition is based on a CAA standard and cannot be imposed on the Permittees via a RCRA permit.

RESPONSE: The Region disagrees with the commenter because EPA has the authority to impose conditions in the RCRA permit that are necessary to protect human health and the environment. This is especially true where, as here, the unit in question is a “Miscellaneous Unit” regulated under 40 CFR Part 264, Subpart X, as explained previously. Here, the draft Permit condition required the Permittees, “to the extent practicable,” to maintain and operate RF-2’s equipment in a manner consistent with good air pollution control practice for minimizing emissions. It was based on a Clean Air Act requirement found at 40 CFR § 61.12(c), but mirrors statements made repeatedly in the Facility’s Permit application. See, e.g., Permit Attachment Appendix XXII, Startup, Shutdown and Malfunction Plan at Section 2 (“This SSMP has been developed to provide guidance for operating and maintaining the spent carbon thermal treatment process during startup, shutdown, and occurrence of malfunctions ***in a manner consistent with safety and good air pollution control practices for minimizing emissions.***” [Emphasis added.]

However, based on the commenter’s concerns, the Region has nonetheless deleted draft Permit condition V.D.4 as unnecessary. The existence of other Permit conditions that require proper operation and maintenance of RF-2 and all its associated equipment suffice for the purposes of ensuring that the Permittees exercise “good air pollution control practice.” See, e.g., Permit conditions II.B.1 and V.C.

V-32. One commenter suggested deleting draft Permit condition V.E.1. regarding fugitive emissions as a CAA requirement that is beyond the Region's authority to include in a RCRA permit.

RESPONSE: The basis for controlling fugitive emissions from RF-2 is that such a requirement is "necessitated by the danger of escape of fugitive emissions -- including hazardous waste constituents -- that could threaten human health or the environment." 46 FR 7666, Jan. 21, 1981. "Where feasible this should be through total sealing of the combustion zone." Id. The imposition of operating parameters on combustion unit fugitive emissions -- also referred to in some CAA requirements and preambles as "combustion system leaks" -- is necessary to ensure that these emissions do not leak from the combustion device, air pollution control devices, or any ducting connecting them. See 61 FR 17358, April 19, 1996.

Contaminants must be properly controlled and fugitive emissions from the combustion zone must be avoided to ensure that emissions from the Facility do not exceed the assumptions made regarding the Facility's emissions as part of the Facility's risk assessment.

For this Facility, the Permit application's attachment "Section D," incorporated as Permit Attachment Section D to the Permit, included an analysis of the potential for fugitive emissions from RF-2. This submittal from the Facility operator indicates that the design of RF-2 constitutes a complete seal such that fugitive emissions from the unit are not possible, and that this design, therefore, constitutes compliance with the MACT EEE standard for combustion units at 40 CFR § 63.1206(c)(5) (which is identical in all relevant ways to the RCRA fugitive emissions standards for incinerators and BIFs). See also Draft Permit Attachment Section D.

Permit Attachment Section D.5.6.3 describes how the Facility satisfies the fugitive emission standard in 40 CFR § 63.1206(c)(5) -- as applied to RF-2 -- by design. By design, the combustion chamber constitutes a sealed system. There are no locations for combustion system leaks to occur from the combustion zone. Therefore, the RF-2 system complies with 40 CFR § 63.1206(c)(5)(i)(A). The Region has evaluated the assertion regarding the unit's compliance with the standard and concurs with the information in the Permit Attachment Section D. However, the Region disagrees with the commenter's suggestion that draft Permit condition V.E.1. be deleted in its entirety. This unit meets this standard by design but it must also continue to do so.

"Fugitive" emissions are by nature, uncontrolled, and their causes may also be unforeseen. The Region has retained the language in Permit condition V.E.1. requiring compliance with the fugitive emissions standard described in the Permit application in part so that it can be properly enforced if there are any leaks from the combustion zone for any reason, including any currently unforeseen reason.

The Region deleted references to 40 CFR Parts 61 and 264 from Permit condition V.E.1, but kept the rest of the Permit condition with revisions and additional references to Permit Attachment Section D.

V-33. One commenter suggested deleting draft Permit condition V.E.2. regarding fugitive emissions as a CAA requirement that is beyond the Region's authority to include in a RCRA permit.

RESPONSE: The Region deleted draft Permit condition V.E.2 because: (1) the Region has removed references to 40 CFR Part 61, Benzene NESHAP requirements for reasons referenced previously in the Region's Response to Public Comment V-13, (regarding Permit conditions V.C. and V.E.); (2) the reference to 40 CFR Part 264 Subpart CC was unnecessary since RF-2 is already addressed in Permit Attachment Appendix XX, the CC Compliance Plan; and (3) regulation of the fugitive emissions from the hearth is also addressed under Permit condition V.E.

V-34. One commenter suggested revisions to draft Permit condition V.F.1, arguing that the Region lacks authority to impose on RF-2 either the inspection requirements of 40 CFR Part 264, Subpart O, or the inspection requirements for hazardous waste combustion units set forth at 40 CFR Part 63, Subpart EEE. The same commenter suggested deletion of draft Permit conditions V.F.2 and V.F.3 as duplicative of the inspection requirements included elsewhere in the draft Permit and deletion of draft Permit condition V.F.4 (and the similar requirements in draft Permit condition V.I) as unnecessary considering the Permittees' obligations to periodically test RF-2.

RESPONSE: The commenter's recommended citation, (referring to 40 CFR Part 264's general inspection requirements, rather than to the specific inspection requirements of 40 CFR Part 264, Subpart O, or the inspection requirements for hazardous waste combustion units set forth at 40 CFR Part 63, Subpart EEE), has been added to draft Permit condition V.F.1., which was renumbered as Permit condition V.F. This revision was appropriate because Permit Attachment Section F and Permit Attachment Appendix XII include specific requirements for the inspection of RF-2.

For example, routine inspections are required in order to find leaks, spills, fugitive emissions, and signs of tampering early enough to correct the deficiency and prevent consequences that could harm human health or the environment. See *e.g.*, the Daily RCRA Inspection Checklist in Permit Attachment Appendix XII. See also Permit Attachment Section F.

The Region also agrees with the commenter's suggestion to delete draft Permit conditions V.F.2. and V.F.3. These provisions required the Permittees to thoroughly, visually inspect RF-2 at least daily, for leaks, spills, fugitive emissions, and signs of tampering and to thoroughly, visually inspect the instrumentation for out-of-tolerance monitored and/or recorded operational data, respectively. The inspection obligations contained in draft Permit conditions V.F.2 and V.F.3 are already set forth in Permit Attachment Section F and need not be restated in these conditions.

Draft Permit Condition V.F.4. required the Permittees, upon request of the Director, to perform sampling and analysis of the waste and exhaust emissions to verify that the operating requirements established in the Permit are being met. The Region agrees with the commenter's suggestion to delete the provision, because the Performance Demonstration Tests required to be performed periodically on

RF-2 will satisfy the Region's need for routine, periodic sampling and analysis of the exhaust emissions. In addition, the Facility's waste analysis plan (WAP) should address and satisfy the Region's need for routine, periodic sampling and analysis of the waste streams being fed to RF-2. The Region has broader authority under Permit Condition I.E.7 to request information from the Permittees to "furnish to the Director or the Enforcement Director, as appropriate, within a reasonable time, any relevant information which that the Director or the Enforcement Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit." See Permit Condition I.E.7.

Draft Permit Condition V.I. also required the Permittees to conduct sampling and analysis of "the waste, soil and/or groundwater at or around the Facility, and exhaust emissions." The Region has deleted draft Permit Condition V.I., because the PDTs will satisfy the need for sampling and analysis of exhaust emissions and the WAP will satisfy the need for sampling and analysis of the waste. Additionally, sampling and analysis of soil and groundwater around the Facility may be required as part of closure of the Facility or if circumstances so warrant. See Permit Condition V.H and Permit Module VI.

If information not currently available to EPA becomes available later and that information warrants additional sampling and analysis beyond what the PDT, WAP, and closure provisions currently provide, the Region may explore a Permit modification in accordance with 40 CFR § 270.41, as well as other remedies and means of obtaining such information, including seeking the information in accordance with RCRA Section 3007, 42 USC § 6927. See, e.g., Permit Condition I.E.7.

V-35. One commenter objected to the five-year record-keeping requirement contained in draft Permit condition V.G.1 in favor of a three-year record-keeping requirement for monitoring and inspection data pertaining to RF-2. The same commenter also recommended revisions to draft Permit condition V.G.3 to change citations to regulatory provisions from the CAA MACT EEE standards to refer instead to the Start-up Shutdown and Malfunction Plan.

RESPONSE: In general, recordkeeping requirements are an integral part of EPA's implementation of its hazardous waste permitting program. See e.g., RCRA Section 3004(a)(1), 42 USC § 6924(a)(1). Recordkeeping requirements pertaining to RF-2 are required by the Permit to ensure that specific work practices are being followed.

During interim status, the RCRA Part 265, Subpart P standards for thermal treatment units like RF-2 require that most records be maintained in the Operating Record for three years (although some records must be kept until closure of the Facility). See 40 CFR § 265.73(b). The Region believes that records pertaining to RF-2's operations, including monitoring, testing or analytical data, must also be maintained *after* issuance of the Permit so that the Permittees, as well as the Region, are able to review and evaluate RF-2's performance and Permit compliance over time.

However, after reconsidering the Region's proposal that the Permittees maintain most records related to RF-2 for five years, the Region has revised Permit condition V.G. to reduce the records retention period for most records from the five-year retention period proposed in the draft Permit to a three-year records retention period. This change would not apply to any records that must be maintained until closure of the Facility. The three-year records retention requirement is consistent with RCRA's general operating record requirement at 40 CFR § 264.73(b).

The Region has retained the following three exceptions to the three-year record retention requirement such that the following records must be maintained for five years:

- Continuous monitoring records of combustion temperature, waste feed rate, the indicator of combustion gas velocity and carbon monoxide;
- Records of daily visual inspections of RF-2 and its associated equipment (pumps, valves, conveyors, pipes, etc.) for leaks, spills, fugitive emissions, and signs of tampering; and
- AWFCO operability test results.

For the three exceptions listed above, maintenance of these records for five years ensures that an adequate historical collection of the specified data is available to review during trial burn test result analysis (to occur at five-year intervals) and during periodic Facility inspections. See also 40 CFR § 264.347(d).³⁴ Therefore, the Region is requiring the retention of these three categories of records for five years. Because of the importance of maintaining system parameters for operation of the unit, the Region considers any burden imposed by the obligation to keep these particular records for five years to be entirely warranted and appropriate.

The Region agrees with and has made the commenter's suggested revisions to Permit condition V.G.3. Reference to the regulatory provisions from the CAA MACT EEE standards is unnecessary since the Start-up Shutdown and Malfunction Plan (SSMP) includes the relevant requirements. These references have been replaced with the reference to the SSMP.

V-36. One commenter recommended deletion of draft Permit condition V.G.4, pertaining to exceedances of applicable emissions limits where SSMP procedures are not followed. The commenter argued that this provision constitutes an inappropriate inclusion of the CAA MACT EEE requirements in a RCRA permit.

RESPONSE: The Region disagrees with the commenter's suggestion to delete Permit condition V.G.4, which requires a report within 7 days of a startup, shutdown, or malfunction, where the SSMP procedures were not followed and there was an exceedance of any emission standard or

³⁴ The Region is aware that the five-year records retention requirement for certain incinerator-related records at 40 CFR § 264.347 was developed to provide consistency with the CAA MACT EEE records retention requirements, which do not apply to carbon regeneration units such as RF-2. See 71 FR 16862, at 16865-16866, Apr. 4, 2006. However, the Region is setting the records retention period for these specific records at five years primarily in order to ensure the availability of five years' worth of data during the trial burn planning and review process.

operating limit while spent activated carbon was in RF-2. This report would inform the Region when and if the Facility has an exceedance of any emission standard or operating limit when the SSMP procedures were not followed. The Region would then work with the Permittees to evaluate potential causes and remedies.

The Region has retained most of the substantive requirements of the draft Permit condition as proposed, but has deleted the requirement to provide an initial report within 2 working days from Permit condition V.G.4., since the requirement that a report be submitted within 7 days of the occurrence will satisfy the Region's need for this information in relation to RF-2.

The Region has also deleted the reference to 40 CFR § 63.10(d)(5) from Permit condition V.G.4, since the revised Permit conditions are sufficient to provide guidance to the Permittees without incorporation of a MACT EEE requirement. Additional language to clarify the scope of the report has also been added. Finally, Permit condition V.G.4. has been revised to more closely track Section 9.2 of the SSMP with reference to the situation when "an exceedance of an emission standard or operating limit occurs while spent activated carbon is in RF-2."

V-37. One commenter recommended deletion of draft Permit conditions II.M.1.d and V.G.5, which reference 40 CFR § 63.8(d), since the commenter maintains that the MACT EEE requirements do not and should not apply to this Facility.

RESPONSE: The Region disagrees with the commenter's assertion that EPA lacks the authority to impose the CAA MACT requirements from 40 CFR Part 63, Subpart EEE, on a RCRA Miscellaneous Unit, as explained previously in these responses to comments. See, e.g., the Region's Response to Public Comment V-11, above. The Agency has authority where it deems the requirement to be appropriate for the Miscellaneous Unit.

Here, the Region has decided to retain the obligation to develop and maintain site specific CMS quality control performance evaluation test plan procedures. The CMS quality control performance evaluation test plan program required in accordance with Permit Condition V.I.1.c.vi. must include the items listed at 40 CFR § 63.8(d)(2)(i)-(vi). Such testing and record-keeping is appropriate for this Facility because it is important that the Facility establish a written protocol that describes procedures for each of the following operations: (i) Initial and any subsequent calibration of the CMS; (ii) Determination and adjustment of the calibration drift of the CMS; (iii) Preventive maintenance of the CMS, including spare parts inventory; (iv) Data recording, calculations, and reporting; (v) Accuracy audit procedures, including sampling and analysis methods; and (vi) Program of corrective action for a malfunctioning CMS. Each of these specific requirements ensures that continuous monitoring of critical operating parameters is performed by systems that are fully functional and reliable, ensuring that operating conditions remain within the parameters established in the Permit.

While each of the foregoing requirements is not in and of itself burdensome, the Region recognizes that the development of such a protocol and the implementation of quality control

performance tests for the CMS could be streamlined and included in the PDT work plan development and implementation process, although the testing itself need not occur, and probably should not, at the same time as the trial burn.

The goal of incorporating the development and implementation of this CMS quality control testing program into the PDT process would be to reduce the overall burden to the operator while ensuring that systems are properly and periodically assessed. In addition, by providing the Permittees the flexibility to propose the CMS quality control performance evaluation test plan procedures and schedule as part of their PDT work plan, the Region hopes to enable a tailored program specific to and appropriate for the CMS associated with RF-2. Existing CMS quality performance tests and procedures would be appropriate for inclusion in a protocol that collects this testing information and any standardized procedures for each of the continuous monitoring systems.

As a result, the Region deleted and replaced draft Permit condition II.M.1.d with revised language, and has also modified Permit condition V.G.5. As set forth in the Region's Response to Public Comment II-18, the Region revised Permit condition V.G.5. to remove the reference to Permit condition II.M.1.d., which formerly required the Permittees to maintain in the Operating Record the site-specific CMS quality control performance evaluation test plan procedures in accordance with 40 CFR § 63.8(d). The requirement to submit the proposed CMS quality control performance evaluation test plan *program* is now found in Permit Condition V.I.1.c.vi. and the three-year record-keeping provision for the documentation relating to this program, which is found at Permit condition V.G.5., now refers to Permit Condition V.I.1.c.vi instead of Permit condition II.M.1.d.

In addition, in considering this comment, the Region decided that it was also appropriate to revise Permit condition V.G. to include additional language in Permit condition V.G.1. to clarify that the provision includes PDT recordkeeping. Permit Condition V.G.1., which pertains to monitoring and inspection data required by Module V, now includes language to clarify that PDT records must be maintained in accordance with that Permit condition. The Region is not changing the requirement because monitoring and inspection data would encompass PDT records, but is rather attempting to eliminate any ambiguity regarding the requirement.

Permit condition V.C.4.a. requires quality assurance and quality control in accordance with 40 CFR Part 60's Appendix F QA/QC requirements. The term "Appendix F" was added to this Permit Condition to provide more clarity. The Region also added language to Permit condition V.C.4.a. requiring the Permittees to document their quality assurance and quality control activities, as prescribed by Table V-3, in the Operating Record. See also the Region's Response to Public Comment V-35, above.

V-38. One commenter suggested adding language to draft Permit condition V.H.4 to clarify that the Region's decision to approve, disapprove or condition the approval of a post closure plan is subject to the dispute resolution procedures set forth in Permit Condition I.L.

RESPONSE: The Region agrees with the commenter that the Region’s decision to approve, disapprove or condition the approval of a post-closure plan should be subject to the dispute resolution procedures set forth in Permit Condition I.L. Nonetheless, the Region declines to revise draft Permit condition V.H.4. as suggested. Rather, the Region has revised Permit Condition I.L. such that the Permittees may invoke the procedures whenever they are unable, after the use of best efforts and in good faith, to resolve a dispute. See the Region’s Response to Public Comment I-40, above.

RCRA’s interim status regulations require thermal treatment facilities to undergo facility closure, during which all hazardous waste and hazardous waste residues must be removed from the thermal treatment unit. See 40 CFR § 265.383. Similarly, the Region requires proper closure of permitted thermal treatment units to ensure they will not pose a future threat to human health and the environment.

V-39. One commenter recommended revisions to the draft Permit conditions I.K.1. through I.K.4, relating to performance of a trial burn test (also called a “Performance Demonstration Test” or PDT). Many of these revisions focus on the timing of these tests. The commenter argues that the prior trial burn results are sufficient to demonstrate that the operation of RF-2 meets and exceeds all risk criteria. Much of the focus of these comments is directed to the draft Permit’s requirements relating to the content of the trial burn test report. The commenter also suggested deleting the requirement regarding the subsequent trial burn test reports.

RESPONSE: As an initial matter, the Region notes that it has moved the trial burn test-related Permit conditions from the compliance schedule in Permit condition I.K to Module V. The Region has also deleted explanatory language from Permit condition I.K.1, that the Region has determined is not necessary as a Permit condition. (See Permit condition V.I.)

As explained in the Region’s Response to Public Comment V-11 above, the regulations for Miscellaneous Units, like RF-2, specifically authorize the Region to incorporate terms and provisions in permits for Miscellaneous Units “as necessary to protect human health and the environment.” 40 CFR § 264.601. The Region’s justification for the requirements associated with both the PDT work plan and the PDT report are included in this response.

The Region has included a list of authorities in the brackets at the end of Permit Conditions V.I.1. and V.I.4., which each include, among other things, a reference to RCRA’s omnibus provision for the requirements that the Permittees conduct periodic trial burn tests and supplement or update the human health and ecological risk assessment, respectively. See RCRA Section 3005(c)(3), 42 USC § 6925(c)(3),³⁵ and 40 CFR § 270.32(b)(2).³⁶ Although the Region considers the authority set forth in 40 CFR § 264.601³⁷ for miscellaneous units sufficient to justify the Permit’s requirements to perform

³⁵ “[E]ach permit issued under this section shall contain such terms and conditions as the Administrator (or the State) determines necessary to protect human health and the environment.”

³⁶ “Each permit issued under section 3005 of this act shall contain terms and conditions as the Administrator or State Director determines necessary to protect human health and the environment.”

³⁷ “A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. . .”

periodic PDTs and update the Human Health and Ecological Risk Assessment (HHERA), it has included the bracketed citations to RCRA's authority to regulate hazardous waste management units under 40 CFR Part 264, Subpart X and Part 270, Subparts B and C, at the end of these Permit conditions, in order to clarify the Agency's authority in this area. The bracketed citations were also added in response to the commenter's objections to the draft Permit conditions requiring periodic trial burn tests and the risk assessment update. See also 40 CFR §§ 264.601, 270.10(k), and 270.23(c) and (e), and the Region's Response to Public Comment V-41, below.

The Region considers the requirements of 40 CFR § 264.601 as the controlling standards for the Region's consideration of the appropriate Permit conditions applicable to RF-2, a miscellaneous unit. With respect to considerations regarding specific requirements necessary to protect human health or the environment, this regulation provides as follows:

"Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Permit terms and provisions must include those requirements of subparts I through O and subparts AA through CC of this part, part 270, part 63 subpart EEE, and part 146 of this chapter that are appropriate for the miscellaneous unit being permitted. Protection of human health and the environment includes, but is not limited to: ...

...(c) Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:

- (1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;
- (2) The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;
- (3) The operating characteristics of the unit;
- (4) The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;
- (5) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;
- (6) The potential for health risks caused by human exposure to waste constituents; and
- (7) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents."

See also 40 CFR § 270.23 (e).³⁸ The Region maintains that the specific references in the RCRA Subpart X regulations to the CAA MACT Subpart EEE standards for combustion units, and the seven considerations enumerated at 40 CFR § 264.601(c), in combination with the added authority of 40 CFR § 270.23, not only justify the obligations to perform a PDT, but also to periodically repeat performance testing to ensure that operating conditions remain within acceptable ranges over the life of the Permit. The Region points out as well that it has the authority under 40 CFR § 270.10(k) to require that the Permittees submit information to EPA regarding the performance of RF-2 and its potential to present risks to human health and the environment.

RCRA's "omnibus authority" at Section 3005(c)(3) applies to "each permit" the Region issues. Therefore, even though the Subpart X regulations codify RCRA's omnibus authority, the omnibus authority is *additional* authority for these particular permit requirements. See also *In Re: ESSROC Cement Corporation*, 16 EAD 433, 439-447 (EAB, July 2014) (addressing the risk assessment requirements applicable to hazardous waste combustion units at 40 CFR § 270.10(l)(1)).³⁹

The Region disagrees with the commenter's suggested timeframes for conducting PDTs and has retained the timeframes that were proposed in the draft Permit. In the Region's view, a 5-year cycle is reasonable, despite the associated burden on the permittees, to protect both human health and the environment. A 5-year interval between PDTs is appropriate for this Facility because several performance and emissions standards are being verified during the periodic PDTs because they do not have continuous emission monitoring. In addition, as RF-2 continues to age, it is important to make sure it remains efficient in destroying and removing contaminants and that it continues to operate in a manner that does not pose an unacceptable risk to human health or the environment and the PDT is an efficient way to make that determination.

Table V-1 in Module V, Performance Standards and Operating Parameter Limits, identifies the list of parameters needing verification during the PDT. Column 2 of Table V-1 identifies the performance standards to be used as a guide for each parameter in terms of developing future operating parameter limits. And, Column 3 of Table V-1 identifies the operating parameter limits to be demonstrated during the PDTs. In accordance with Permit Condition V.I.1.c.ii., the PDT work plans shall also address "each operating parameter and limit set forth in Table V-2 of this Permit." See also Permit Condition V.I.1.c.iii., which references the requirements of 40 CFR § 270.62(b)(2)(v), among other things. See, as well, the Region's Response to Public Comment V-12, above, regarding the reasons that these parameters require periodic performance demonstration testing.

³⁸ 40 CFR § 270.23(e) states that owners and operators of miscellaneous units must provide, "Any additional information determined by the Director to be necessary for evaluation of compliance of the unit with the environmental performance standards of §264.601."

³⁹ While the *ESSROC* decision addresses the authority applicable to hazardous waste combustors under 40 CFR § 270.10(l)(1), the "omnibus rule" at 40 CFR § 270.32(b)(2), along with its associated provision at 40 CFR § 270.10(k), applies to "each" RCRA permit issued by EPA and the states. Meanwhile, the authority specifically identified at 40 CFR §§ 270.23(c) and (e) applies to miscellaneous units under 40 CFR Part 264, Subpart X.

Of the parameters listed in Table V-1, only carbon monoxide requires monitoring with a CEMS. For some of these parameters, (e.g., destruction removal efficiency and dioxins/furans, etc.), the Region will be relying on the PDT results to ensure that the operations continue to meet the operating parameter limits in Column 3 in Table V-1, and can be demonstrated to be protective of human health and the environment. This periodic confirmation that operational parameters are working as expected and remain within Permit limits becomes even more important as the system ages.

The carbon reactivation unit (RF-2) started operating in 1996 and had its first EPA-monitored trial burn test 10 years later, in March 2006. It has now been over 10 years since the last trial burn test was performed and the Region has scheduled the next trial burn test to occur within a reasonably expeditious time after the Permit is effective. Subsequent trial burn tests will be conducted periodically every 5 years. By the time the first trial burn test required by the Permit is performed, the unit will be over 22 years old and more frequent trial burn tests, (i.e., one every 5 years instead of every 10 years), are appropriate as the system continues to age further. For example, long-term stress to the critical components of RF-2, such as its firing systems and emission control equipment, could adversely affect emissions. This is one of the reasons that the Agency requires both large and small sources regulated under the MACT EEE regulations to undergo comprehensive performance testing every five years. See 54 FR 52828, 52913 (Sept. 30, 1999). In addition, the carbon being regenerated at the Facility has been used to remove contaminants from processes where hazardous or toxic materials are being handled. Given the toxicity and quantity of hazardous or toxic organics desorbed from the carbon in this regeneration process, a five-year cycle of trial burn testing is warranted.

Most of the parameters listed in Table V-1 that rely on periodic trial burns to demonstrate the emissions standards are based on the typical trial burn parameters required for combustion units such as incinerators, boilers, and industrial furnaces. For example, the destruction and removal efficiency standards for incinerators and boilers and industrial furnaces (BIFs) require periodic trial burn tests to demonstrate performance under both RCRA and the CAA. A demonstration of the particulate matter emission standard is required for incinerators under RCRA and for all combustion units under the MACT Subpart EEE standards. See, e.g., July 2001 Risk Burn Guidance for Hazardous Waste Combustion Facilities, at <http://www.epa.gov/epawaste/hazard/tsd/td/combust/pdfs/burn.pdf>. Moreover, the regulations for miscellaneous units at 40 CFR 264.601(c)(1) specifically authorize EPA to assess the unit's potential for "emission and dispersal of gases, aerosols and particulates. . ."

For the Subpart X unit, RF-2, the Region will require periodic trial burns to assess the destruction and removal efficiency of the unit, and the degree to which it is effectively treating and controlling total hydrocarbons, particulate matter, and dioxins⁴⁰ and furans. This approach is consistent with the Agency's approach to gauging the efficiency of thermal units using combustion.

⁴⁰ Dioxins are formed during the combustion process in the presence of specific organics and particulate matter. Some of the conditions that are conducive to dioxin formation are the combustion of organic material in the presence of chlorine and particulate matter under certain thermodynamic conditions such as low temperatures and combustion times. Unstable transient combustion conditions as well as the presence of particulate matter containing metals and the presence of soot

Two of the parameters listed in Table V-1 are not typically associated with the RCRA or CAA MACT Subpart EEE emission standards and associated trial burn requirements, sulfur oxides and nitrogen oxides. Both of these compounds are criteria pollutants as defined by the CAA, which may subject facilities emitting sulfur oxides or nitrogen oxides to national ambient air quality standards. But, sulfur oxides and nitrogen oxides may be appropriate for inclusion in a RCRA quantitative risk assessment on a case by case basis. See September 2005 Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, at Section 2.3.1, page 2-41, (91/810 of the pdf) at <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10067PR.TXT>.

In this case, these two parameters, sulfur oxides and nitrogen oxides, are included in what needs to be evaluated under the Permit during the periodic trial burn tests. Emissions of criteria pollutants like sulfur oxides and nitrogen oxides may be regulated under a CAA Title V operating permit program or, if appropriate to protect human health or the environment, under a RCRA permit.⁴¹ Here, since there is no CAA Title V permit for this Facility, the Region has determined that it is appropriate to not only include emission standards for sulfur oxides and nitrogen oxides in the RCRA permit but to require as well that these parameters be evaluated during the periodic trial burn tests. In fact, where a RCRA permit effectively controls emissions of pollutants that might otherwise trigger a CAA Title V permit, the RCRA permit may operate in lieu of a CAA Title V permit as a “practically enforceable mechanism.”⁴² This is not only a benefit to the Facility operator, but also saves limited Regional permitting resources while ensuring protection of human health and the environment.

Criteria pollutant emissions may also be regulated under a CAA NSR permit program.

also favor the formation of dioxin. See, e.g., “1999 10 07 Landfill Gas to Energy _Dioxin_ Qs As.pdf,” and “2002 05 21 Apr 2002 Open House Participation.pdf.”

⁴¹ The Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS) for maximum allowable concentrations of six "criteria" pollutants in outdoor air. The six pollutants are carbon monoxide, lead, ground-level ozone, nitrogen dioxide, particulate matter, and sulfur dioxide. Ground level ozone is not emitted directly into the air, but is created by chemical reactions between nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of sunlight. See CAA section 109 and 40 CFR Part 50.

⁴² EPA’s Tribal Minor NSR regulations define “enforceable as a practical matter” as where “an emission limitation or other standard is both legally and practicably enforceable as follows:

- (1) An emission limitation or other standard is legally enforceable if the reviewing authority has the right to enforce it.
 - (2) Practical enforceability for an emission limitation or for other standards (design standards, equipment standards, work practices, operational standards, pollution prevention techniques) in a permit for a source is achieved if the permit's provisions specify:
 - (i) A limitation or standard and the emissions units or activities at the source subject to the limitation or standard;
 - (ii) The time period for the limitation or standard (e.g., hourly, daily, monthly and/or annual limits such as rolling annual limits); and
 - (iii) The method to determine compliance, including appropriate monitoring, recordkeeping, reporting and testing ...”
- 40 CFR § 49.152.

The 5-stage furnace hearth (RF-2) uses natural gas burners to heat the waste carbon so that the carbon pores open up to release the volatile organic compounds. Some of the volatile organic compounds are destroyed (combusted) in the furnace, while others get combusted in the afterburner, which also uses natural gas to further heat the volatile organic compounds to their destruction. The afterburner is also equipped with two low NO_x burners, which utilize heated combustion air. See “2012 08 30 Re_Minor New Source Review Program_Registration of Existing Source Under 40 CFR Part 49.pdf.”

The furnace and afterburner combustion processes produce nitrogen oxides (NO_x). The Facility’s August 2012 CAA Indian Country New Source Rule registration showed NO_x emissions during the “Mini-Burn Stack Test” at levels below 22 tons per year, indicating that the information was based on the “Mini-Burn Stack Test Results for RF-2.” The Facility operator, in a letter dated September 2016, voluntarily agreed to a 22-tons per year limit on NO_x emissions to be included in the RCRA permit in order to ensure that such emissions are kept below the major source threshold for the NSR permit program and the 100 tons per year major source threshold for the CAA Title V operating permit program. See “2016 09 19 Evoqua Ltr to USEPA R9 re SO₂ and NO_x Limitations on Emissions.pdf.”⁴³ The Facility operator volunteered to demonstrate the limit is met by monitoring and recording its natural gas usage.

The Draft Permit proposed an emission limit of 22.22 tons per year for nitrogen oxides. See Draft Permit Table V-1. The Draft Permit also proposed monitoring of the natural gas usage and the periodic 5-year trial burn tests as a means of ensuring that the emission limits are met. The final Permit imposes an emission limit of 22 tpy by monitoring and recording the natural gas usage and through the PDTs. The 22.22 tpy limit that was included in the Draft Permit was based on the Facility’s August 2012 CAA Indian Country New Source Rule registration. The revised emission limit of 22 tpy is based on the Facility operator’s September 2016 letter. The September 2015 letter also included a reference to the monitoring being performed on a calendar year basis. The Region disagrees with the commenter/operator and continues to require the monitoring be performed on a consecutive 12-month basis. Indeed, in order to clarify the term, the Region has added a footnote (Permit Condition Table V-1, at footnote 19) to reflect that this standard should be considered the same as a “12 month rolling sum basis,” as was specified in the Region’s Statement of Basis for the draft Permit. See Permit condition V.C.6. and Table V-1, at footnote 19, referring the reader to footnote 16. See also Section 5.4.6 The Clean Air Act, USEPA Statement of Basis, p.10/1064 at “2016 11 10 Evoqua-CRIT Revised Statement of Basis.pdf.” During the trial burn testing every 5 years, the NO_x emissions will be evaluated to ensure that these emissions remain below this 22 tons per year limit.

For sulfur oxide emissions from the carbon regeneration furnace, a packed bed scrubber is operated with a control efficiency of 90 percent for minimizing sulfur oxide emissions. According to the

⁴³ The operator agreed to the following limit: “[f]or NO_x, a 22 tons per year limit, demonstrated on a calendar year basis, using the NO_x stack gas concentration from the most recent stack test where NO_x was measured (average of 3 runs), flow rate out the stack and the hours of operation of the of the reactivation unit.” See, “2016 09 19 Evoqua Ltr to USEPA R9 re SO₂ and NO_x Limitations on Emissions.pdf.”

Facility's August 2012 CAA Indian Country New Source Rule registration, the Facility's pre-control sulfur oxide potential to emit (PTE) is estimated at 299.85 tpy, which exceeds the NSR major source threshold of 250 tpy and the Title V major source threshold of 100 tpy. The Facility operator, in its September 2016 letter, voluntarily agreed, based on the use of a packed bed scrubber and feed limits for sulfur, to a 30-tons per year limit on sulfur emissions to ensure that such emissions are kept below the major source threshold of 100 tons per year. Thus, the operator will continue to operate the packed bed scrubber and limit the feed rate on sulfur to control its sulfur oxide emissions. During the trial burn testing every 5 years, the SO₂ emissions will be evaluated to ensure that the Facility's emissions remain below the 30-tons per year limit set forth in the Permit. The Region has also revised draft Permit condition I.K.11, renumbered as Permit condition I.K.3, which requires the revision of the waste analysis plan to include sampling of the sulfur content in the waste carbon. See also the Region's Response to Public Comment I-37.

The 30.01 tpy limit that was included in the draft Permit was based on the Facility's August 2012 CAA Indian Country New Source Rule registration. The revised emission limit of 30 tpy is based on the Facility operator's September 2016 letter. The September 2016 letter also included a reference to the monitoring being performed on a calendar year basis. The Region disagrees with the commenter/operator and continues to require the monitoring be performed on a consecutive 12-month basis. Just as with the NO_x standard, to clarify the term, the Region has added a footnote (Permit Condition Table V-1, at footnote 16) to reflect that this standard should be considered the same as a "12 month rolling sum basis," as was specified in the Region's Statement of Basis for the draft Permit. See Permit condition V.C.6. and Table V-1, at footnote 16.

Permit Condition V.I.1.c. requires that the trial burn work plans, to be submitted in advance of the periodic trial burns, include the information listed in specific regulatory provisions identified in this Permit condition. As explained in the Region's Response to Public Comment V-11 above, the regulations for Miscellaneous Units, like RF-2, specifically authorize the Region to incorporate terms and provisions in permits for Miscellaneous Units "as necessary to protect human health and the environment." 40 CFR § 264.601. See also "2001 01 18 Letter re Applicability of 40 CFR Part 63 Subpart EEE for RCRA Permitting Requirements.pdf."

However, considering the commenter's concerns, the Region reevaluated the PDT Workplan requirements that had been included in the draft Permit. The Region agrees that the requirements for a trial burn for this Miscellaneous Unit deserve more specificity. The Region re-examined the options relating to and goals for performing trial burns and concluded, due to the public comments received, that the goals for future trial burns should use, as a point of departure, the trial burn objectives laid out in the PDT Workplan that was included in the Permit Application and which is incorporated into the Final Permit at Permit Attachment Appendix V. See revised Permit condition V.I.1.c.iii. In the May 2003 PDT Workplan, the following objectives for the PDT were identified: (1) demonstrate compliance with applicable USEPA regulatory performance standards based on Hazardous Waste Combustion (HWC) Clean Air Act Maximum Achievable Control Technology (MACT) standards for Existing Hazardous Waste Incinerators; (2) establish permit operating limits; and (3) gather information for use in a site-

specific risk assessment. See “2012 04 RCRA Application_Vol I-Appendix V_Rev 1-Perf Demo Test Plan_Rev 0.pdf.”

The first objective in the May 2003 PDT Workplan presumed that the PDT would show that RF-2 operated in conformance with “applicable” performance standards, based on the HWC MACT Standards for Existing Hazardous Waste Incinerators. The PDT Workplans required in accordance with Permit Condition V.I.1.c.i. must instead address “each performance standard and operating parameter limit set forth in Table V-1 of this Permit.” In accordance with Permit Condition V.I.1.c.ii., they must also address “each operating parameter and limit set forth in Table V-2 of this Permit.” See also Permit Condition V.I.1.c.iii., which references the requirements of 40 CFR § 270.62(b)(2)(v), among others. Each of the parameters and limits identified as elements of the first objective in the May 2003 PDT Workplan are addressed in Permit Conditions as elements of Table V-1 and/or one of the parameters and/or limits listed in Table V-2. Each of these is, therefore, included as parameters to be addressed in the PDT Workplan in accordance with Permit Conditions V.I.1.c.i. and V.I.1.c.ii.

The Workplan should, therefore, include a test strategy that will also enable the Permittees to:

- (1) demonstrate a DRE of greater than or equal to 99.99% for the selected principal organic hazardous constituents (POHCs) chlorobenzene and tetrachloroethene in accordance with Permit Conditions V.I.1.c.i. and V.I.1.c.iii.;
- (2) demonstrate stack gas carbon monoxide concentration less than or equal to 100 ppm_{dv}, dry basis, corrected to 7% oxygen in accordance with Permit Conditions V.I.1.c.i. and V.I.1.c.ii.;
- (3) demonstrate stack gas hydrocarbon concentration of less than or equal to 10 ppm_{dv}, dry basis, corrected to 7% oxygen in accordance with Permit Condition V.I.1.c.i.;
- (4) demonstrate a stack gas particulate concentration less than or equal to 0.013 gr/dscf corrected to 7% oxygen in accordance with Permit Condition V.I.1.c.i.;
- (5) demonstrate that the stack gas concentration of hydrogen chloride (HCl) and chlorine (Cl₂) are no greater than 32 ppm_{dv}, dry basis, corrected to 7% oxygen, expressed as HCl equivalents in accordance with Permit Conditions V.I.1.c.i. and V.I.1.c.ii.;
- (6) demonstrate that the stack gas mercury concentration is less than or equal to 130 µg/dscm, corrected to 7% oxygen in accordance with Permit Conditions V.I.1.c.i. and V.I.1.c.ii.;
- (7) demonstrate that the stack gas concentration of low volatility metals (arsenic, beryllium, and chromium, combined) is less than or equal to 92 µg/dscm, corrected to 7% oxygen in accordance with Permit Conditions V.I.1.c.i. and V.I.1.c.ii.; and
- (8) demonstrate that the stack gas concentration of dioxins and furans does not exceed 0.40 ng/dscm, corrected to 7% oxygen, expressed as toxic equivalents of 2,3,7,8-TCDD (TEQ) in accordance with Permit Condition V.I.1.c.i.

For stack gas particulate concentration, hydrogen chloride/chlorine concentration, and low and semi volatile metals concentrations, the values established as “interim standards” under 40 CFR § 63.1203 were further tightened when the “replacement standards” of 40 CFR § 63.1219 were promulgated. The values for all the parameters in the May 2003 PDT Workplan were derived from the 40 CFR § 63.1203 (Interim Emissions Standards). Future PDT workplans should include the evaluation

of these parameters in light of the Replacement Emissions Standards at 40 CFR § 63.1219. Because these four concentration values are lower than the values reflected in the Interim Emissions Standards, when the PDT Report is submitted in accordance with Permit Condition V.I.3., it should include an analysis of RF-2's operations in light of these Replacement Emissions Standards. That analysis should include any recommendations regarding modifications to operating parameters and limits that may be appropriate as a result of the PDT results. The Replacement Emissions Standards, which the commenter reminds the Region, are not directly applicable under the CAA to RF-2, are nevertheless, appropriate RCRA standards for the purposes of performing this miscellaneous unit's PDT. As guidelines, these emissions standards provide a standard against which RF-2's operational efficiency may be compared.

In addition, the Region has included requirements to ensure that sulfur and nitrogen emissions are addressed in the PDT Workplan at Permit Condition V.I.1.c. Permit Condition V.I.1.c.i. requires that PDT Workplans address the performance standards and operating parameter limits in Table V-1, which include SO_x and NO_x. And, Permit Condition V.I.1.c.iv. requires that PDT Workplans include "provisions for testing for SO_x and NO_x emissions," with reference to specific EPA Test Methods. See also Permit condition V.I.1.c.iii.

The second prime objective of the May 2003 PDT Workplan was to "establish permit operating limits." This objective will have been accomplished by the effective date of this Final Permit, and this objective would no longer be appropriate for future PDT Workplans. However, the subcomponents of this prime objective as described in the May 2003 PDT Workplan can provide a guide for future PDT Workplans. The PDT Workplans required in accordance with Permit Condition V.I.1.c.ii. must address "each operating parameter and limit set forth in Table V-2 of this Permit."

The Workplan should, therefore, include a test strategy that will enable the Permittees to:

- Demonstrate maximum feed rate for spent activated carbon;
- Demonstrate minimum afterburner gas temperature;
- Demonstrate maximum combustion gas velocity (or a suitable surrogate indicator);
- Demonstrate maximum total chlorine/chloride feed rate;
- Establish a Maximum Theoretical Emission Concentration (MTEC) limit for mercury;
- Demonstrate system removal efficiency (SRE) for semi volatile and low volatility metals so feed rate limits can be developed by extrapolation from test results; and
- Establish appropriate operating limits for the air pollution control system components.

For the reasons set forth above, the Region has the authority to mandate that the Permittees include in future PDT Workplans the information required in accordance with Permit condition V.I.1.

The quality assurance and quality control program is required in order for the Region to determine the validity of the trial burn test results and to verify that the trial burn test was conducted with properly operated and calibrated equipment by trained personnel. It also ensures the precision, accuracy, and completeness of the data collected in order to fully characterize the waste feed material

and stack gas emissions during the trial burn test. For additional discussion regarding the CMS quality control program requirements, see the Region's Responses to Public Comments V-19 and V-37.

Permit Condition V.I.1.e. (formerly draft Permit condition I.K.1.e.) requires that the Permittees utilize the appropriate methods and performance specifications set forth in the Appendices to 40 CFR Part 60. The methods and performance specifications set forth in these appendices cover a broad array of activities and provide guidance to Permittees and regulators regarding specific elements of performing a trial burn test. If any of these methods or performance specifications are not relevant, they need not be incorporated in the work plan. Where relevant or specifically required, however, incorporation of these methods and performance specifications into the work plan ensures that there are clear and concise protocols available for reference.

Permit Condition V.I.3.a. requires the PDT report to include an assessment as to whether the operating parameters and emission limits set forth in Module V have been demonstrated with specific reference to the Group A1, Group A2, Group B and Group C parameters set forth in Module V of the Permit at Table V-2 – Operating Limits and Parameters. These parameters are critical to the proper operation of the hearth and important to make sure it is operating within the acceptable risk range. A primary purpose of the PDT is to demonstrate these parameters, so it is vital that the PDT report include an assessment of these parameters.

Permit Condition V.I.3.c. requires the Permittees to include in the trial burn report recommendations as to whether any Permit modifications are appropriate. If the trial burn test demonstrates that changes to the Permit may be needed, the Region wants that information to be brought to its attention at the earliest opportunity. Including such recommendations in the trial burn report submitted to the Director for approval will enable the Region to review and approve such recommendations, if appropriate.

The Region has revised draft Permit condition I.K.1.b (now V.I.1.b) by incorporating some of the commenter's suggested language relating to the establishment of deadlines and has deleted some of the less artful language regarding these deadlines that was proposed in the draft Permit.

The Region disagrees with the commenter's suggested deletion of the references to Permit condition I.G.5 in draft Permit condition I.K.3 (now Permit Condition V.I.3). This requirement that the Director approve the PDT Report ensures the Region's agreement with the Permittees' conclusions regarding the results of the PDT.

The Region has also revised Permit Condition I.G.8, which is referenced in Permit Condition V.I.3.d, formerly, draft Permit condition I.K.3.b. The Region has retained the reference to Permit condition I.G.8 in Permit condition V.I.3.d. Permit condition I.G.8 sets forth a preferred orderly administrative process for Permit modifications that are recommended in reports or deliverables. And, only those types of Permit modifications that do not require EPA approval may be "put into effect" by the Permittees. See 40 CFR § 270.42. The Region would prefer that any request for a Permit

modification, because of the trial burn report recommendations, not be submitted until after the report has been approved by the Director. However, the revised Permit condition I.G.8 makes clear that the Permittees' authority under 40 CFR § 270.42 is not limited by this Permit condition. See also the Region's Response to Public Comment I-28 for additional discussion regarding these revisions.

The Region also disagrees with the commenter's recommended deletion of key provisions from draft Permit conditions I.K.3.a, I.K.3.b, and I.K.3.c, but recognizes that these draft Permit conditions could be clarified. The Region has merged the language from draft Permit conditions I.K.3.a. and I.K.3.c. into Permit condition V.I.3. Relevant portions of draft Permit condition I.K.4 have also been incorporated into Permit condition V.I.3. The reference in the deleted draft Permit condition I.K.3.c to 40 CFR § 63.9(h)(2) has been removed and replaced with specific reference to the information to be included in the PDT report. The additional requirements, now included in Permit condition V.I.3., are limited to pertinent items of information, such as confirmation that the methods and performance specifications identified in the work plan were employed during the trial burn. Thus, CAA requirements such as the description of hazardous air pollutants emitted, and impacts of the trial burn results on the CAA status of the facility, are no longer included.

V-40. One commenter objected to the draft Permit condition requiring notice to the Facility mailing list each time a PDT test plan is prepared. The commenter argued that the dates for submitting the plans and for conducting the testing will be clearly identified in the Permit, and the public can easily access these plans upon request.

RESPONSE: The Region believes that it is vital to provide notice to a community of upcoming performance demonstration tests for hazardous waste thermal treatment units such as RF-2. Notification to the public of an anticipated trial burn test is part of the Region's commitment to community involvement. However, the Region acknowledges that providing notice of the PDT to the entire Facility mailing list might be unduly cumbersome in light of the availability of alternative means of providing notice on a large scale. Therefore, the Region is revising draft Permit condition I.K.1.f, which has also been moved to Module V, at Permit condition V.I.1.d.⁴⁴ Permit condition V.I.1.d requires the Permittees to post the PDT Work Plan to the Information Repository required in accordance with Permit condition I.J. and put an ad in a local newspaper. The one-time publication of a newspaper ad, coupled with the requirement to make the work plan available to the public via the Facility's Information Repository, represent significant benefits in terms of public outreach and transparency. And, these steps represent only a small burden to the Permittees.

V-41. One commenter suggested deleting draft Permit conditions that require the Permittees to perform periodic HHERAs. The commenter argues that RCRA does not require carbon regeneration units to undergo risk assessments, much less repeat them every 5 years. The commenter points out that the Facility operator performed a *voluntary* risk assessment as part of its preparation of the Permit application. It argues that the conclusions from that study demonstrate that further risk analysis is not warranted considering the costs and burden to the

⁴⁴ Draft Permit condition I.K.1.c, which has also been revised, has been moved to Permit condition V.I.1.c.

Permittees. The commenter further argues that there is no evidence suggesting that the risk profile of the Facility will change during the ten-year Permit term.

RESPONSE: The Region has reevaluated the HHERA periodic update requirements and has revised the Permit to require one update after the initial PDT report is approved. However, in light of other suggestions made by the commenter regarding the schedule of compliance in draft Permit condition I.K. in general, the Region has opted to move the HHERA provisions to Module V, at V.I.4.

For the reasons explained above in the Region's Response to Public Comment V-39, the Region has included a list of authorities in the brackets at the end of Permit Condition V.I.4.a., which includes, among other things, a reference to RCRA's omnibus provision for the requirement that the Permittees conduct an updated, supplemental human health and ecological risk assessment. Although the Region considers the authority set forth in 40 CFR § 264.601⁴⁵ for miscellaneous units sufficient to justify the Permit's requirements to update the HHERA, it has included the bracketed citations at the end of this condition in order to clarify the Agency's authority in this area. The Region points out as well that it has the authority under 40 CFR § 270.10(k) to require that the Permittees submit information regarding the performance of RF-2 and its potential to pose unacceptable risks to human health and the environment. See also 40 CFR § 270.23(c).⁴⁶

As the carbon regeneration system ages, efficiency of the system potentially changes. In addition, the toxicity criteria and associated response actions for some of the contaminants are also subject to update by EPA. The air dispersion models used to predict the fate and transport of constituents that are released from the stack are also dependent upon site-specific meteorological data, which itself is variable with time. EPA's recommended models for site-specific analysis are also periodically updated based on the best available science.

To continue to ensure appropriate protection of human health and the environment, it is imperative that the HHERA be updated to verify that the Facility's emissions remain protective of human health and the environment. Permit conditions, V.I.4.a., V.I.4.b., and V.I.4.c., require the Permittees to update the site-specific risk analysis after approval of the initial PDT Report prepared after the Permit is effective. The Region notes that the 2008 risk assessment was conducted using methods and procedures that are no longer supported or have been updated by EPA. These include but are not limited to: updated air dispersion and deposition modeling analysis, updated toxicity criteria, and updated exposure assessment analysis. See, e.g., Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities Final, 2005, <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P10067PR.txt>.

⁴⁵ "A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment..."

⁴⁶ 40 CFR § 270.23(c) requires that owners and operators of miscellaneous units must provide, "[i]nformation on the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and on the potential magnitude and nature of such exposures."