IN THE MATTER OF	:	APPLICATION NOS. 2014101398 & 201410892
NUTMEG STATE CREMATORIUM, LLC	:	JANUARY 8, 2018

FINAL DECISION

This proceeding concerns two applications submitted by Nutmeg State Crematorium, LLC ("the Applicant") for new stationary source review air permits to construct and operate equipment necessary for a proposed crematorium ("the Applications").[1] The proposed crematorium, for the purpose of cremating human remains, would be located at 35 Commerce Drive, Cromwell, Connecticut. The Parties to this proceeding are the Applicant, Staff of the Department of Energy and Environmental Protection ("Staff") and the following intervening parties: The Coles Brook Commerce Park Owners Association, Inc.; Prime Locations of CT, LLC; Hasson Holdings, LLC; SMS Realty, LLC; C&G Holdings, LLC; and C&G Holdings II, LLC (together, the "Intervening Parties").[2]

The procedural history of this matter is set out in the Hearing Officer's August 11, 2017 Proposed Final Decision ("PFD") and is not repeated here. In the PFD, the Hearing Officer recommends denial of the Applications. PFD, p.11. I also note that during the February 28 – March 2, 2017 evidentiary hearing, Staff recommended issuance of the permits applied for by the Applicant. However, after issuance of the PFD, Staff's position changed and Staff now, in

[1] The Applicant proposes to construct and operate two Matthews Cremation IE43-PPII Plus cremation machines. A permit is needed for each machine. These cremation machines meet the definition of and are considered incinerators. R.C.S.A.§ 22a-174-1(53)

[2] All the Intervening Parties in this matter were represented by the same counsel.

concurrence with the PFD, recommends denial of the Applications.[3] On August 28, 2017, the Applicant submitted exceptions to the PFD. On November 27, 2017, the Intervening Parties filed a brief in support of the PFD. Oral argument was held on December 13, 2017.

For the reasons set forth below, I concur with the Hearing Officer's recommendation that the Applications be denied. In issuing this Final Decision, except as noted below, I hereby incorporate the Findings of Fact and Conclusions of Law in the PFD.

I. BACKGROUND

There is evidence in the record that exposure to mercury at high levels can harm the brain, heart, kidneys, lungs and the immune system of people of all ages as well as cause death, reduced reproduction, slower growth and development, and abnormal behavior in other animals. (Ex. INT-#29).[4] The crematorium proposed by the Applicant will emit mercury, primarily from dental amalgam fillings. During the cremation process, mercury from fillings will turn into a vapor and will exit the stack of the proposed source with the exhaust as a vapor. After exiting the stack, this mercury cools and condenses, and in this case, will be in particulate form when it reaches the Applicant's property line.

Mercury is one of a number of hazardous air pollutants ("HAPs") regulated under R.C.S.A. § 22a-174-29. The question in this case is how to apply the rules in section 22a-174-29 regarding mercury emissions, in particular, the rules regarding the maximum allowable stack concentration ("MASC"). As discussed further below, if the rules require that a MASC be calculated for mercury emissions when such emissions leave the stack of the proposed source *in*

[3] On August 23, 2017, Staff submitted a Response to the Proposed Final Decision noting its agreement with the PFD.

[4] I add this additional Finding of Fact regarding the nature of mercury to the Findings of Fact incorporated into this Final Decision.

a vapor phase, those mercury emissions will exceed the MASC and for that reason the permits applied for by the Applicant cannot be issued. Conversely, if the rules permit the MASC to be calculated for mercury emissions when such emissions reach the property line of the proposed source *in particulate form*, those emissions would not exceed the MASC because a MASC could not be calculated, and the rules in section 22a-174-29 regarding mercury emissions would not prevent the permits applied for by the Applicant from being issued.[5]

II. DISCUSSION

The starting point for analysis is the language of the applicable regulations. R.C.S.A. § 22a-174-29-(b)(2) states that:

> [n]o person, who is required to maintain compliance with a permit under section 22a-174-3a of the Regulations of Connecticut State Agencies shall cause or permit the emission of any hazardous air pollutant from any stationary source or modification at a concentration at the discharge point in excess of the maximum allowable stack concentration . . . . [a]ll resources recovery facilities and all incinerators shall meet the standards of this subdivision for all hazardous air pollutants.[6]

The regulation prohibits the emission of any HAP listed in the Tables to R.C.S.A. § 22a-174-29, if the concentration of such emissions at the discharge point would exceed the maximum

[5] The Hearing Officer noted that, apart from compliance with R.C.S.A. § 22a-174-29, the Intervening Parties claimed that for other reasons the permits applied for by the Applicant could not be issued. PFD, p.2-3. The Hearing Officer did not address these issues having concluded that the issues regarding R.C.S.A. § 22a-174-29 were dispositive.

[6] This Final Decision cites the language of R.C.S.A. § 22a-174-29(b)(2) that was in effect when the Department received the Applications, in October 2014. I note that the PFD cited to section 22a-174-29(b)(2) as it was amended in April of 2016. PFD, p.5. As amended R.C.S.A. § 22a-174-29(b)(2) now contains the phrase "Tables 29-1, 29-2 and 29-3 of this section" after the term hazardous air pollutant and the requirement for the owner or operator of an incinerator to not allow emission of HAP at the discharge point in excess of MASC is now in R.S.C.A. § 22a-174-29(b)(6). None of the April 2016 amendments to R.C.S.A. § 22a-174-29(b) are material to this case. The amendments have no effect on either the analysis or outcome of this matter.

allowable stack concentration. Table 29-3 to R.C.S.A. § 22a-174-29 contains a listing for mercury.[7]

Interpretation of R.C.S.A. § 22a-174-29(b)(2) requires an understanding of the defined terms used in the regulation. The term "discharge point" means "any stack or area from which a hazardous air pollutant is released into the ambient air." R.C.S.A. § 22a-174-1(34). With the definition of the term "stack" inserted, the term discharge point means "any [point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct or flare] or area from which a hazardous air pollutant is released into the ambient air."[8] In this case, there is no dispute that the discharge point for the Applicant's proposed source is the stack where exhaust gases will be emitted into the air.

The term maximum allowable stack concentration is defined as "the maximum allowable concentration of a hazardous air pollutant in the exhaust gas stream at the discharge point of a stationary source under actual operating conditions." R.C.S.A. § 22a-174-1(66).[9] R.C.S.A. § 22a-174-29(c)(1) contains a formula for calculating MASC. In this case, since the proposed stack is less than twenty meters tall when measured vertically from the ground, the equation used to calculate MASC is in R.C.S.A. § 22a-174-29(c)(1)(A).[10] The equation is as follows:

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[7] The listing for mercury in Table 29-3 includes mercury in different forms. The Table lists mercury (alkyl compounds as Hg); mercury in all forms except alkyl as Hg; mercury as a vapor; and mercury as aryl and inorganic compounds.

[8] Stack is defined in R.C.S.A. § 22a-174-1(107) as the term stack is defined in 40 CFR § 51.100 (ff). 40 CFR § 51.100 (ff) defines stack as "any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct." Despite the exclusion from the federal definition, the state definition of stack includes a flare.

[9] One additional defined term in R.C.S.A. § 22a-174-29(b)(2), "stationary source" means stationary source as defined in 40 CFR 51.165(a)(1)(i) and (ii), provided that any portable emissions unit which is moved from site to site but remains stationary during operation is a stationary source. R.C.S.A. § 22a-174-1(111). In this case, there is no dispute that the source proposed by the Applicant is a stationary source.

[10] In its Exceptions, the Applicant asserts that the discharge point at the Applicant's proposed source would be "*more* than twenty meters measured vertically from the ground" and that it is erroneous to utilize the formula in R.C.S.A. § 22a-174(c)(1)(A) to calculate the MASC. Applicant's Exceptions, p.10-11. Were the assertion correct,

$$\frac{0.885HLV(X+1.08V_0^{0.64})1.56}{V_0} \quad [1]$$

Where "HLV" is the applicable "hazard limiting value" (in either micrograms per cubic meter or parts per million for 8-hour and 30-minute averaging times), "V_0" is the average actual flow rate (in actual cubic meters per second) from the "discharge point," and "X" is ten (10) meters, or the distance from the "discharge point" to the closest property line, whichever is greater.

Applying R.C.S.A. § 22a-174-29(b)(2), the mercury emissions from the discharge point of the Applicant's proposed source must be compared to the MASC. If the MASC is exceeded, the permits applied for by the Applicant cannot be issued.

As the PFD points out, the mercury emissions from the proposed source were calculated by the Intervening Parties using two different methodologies. PFD, p.4, Finding #6. The Intervening Parties then calculated a MASC using the hazard limiting value in Table 29-3 for mercury vapor, the form mercury will be in when it leaves the stack of the proposed source. Regardless of the methodology used for calculating mercury emissions, the result was the same, the mercury emissions exceeded the MASC.

Neither the Applicant nor Staff calculated a MASC for mercury. The Applicant claims that a MASC for mercury from the proposed source does not need to be calculated, indeed cannot be calculated. To support this claim, the Applicant points to one of the variables in the equation in R.C.S.A. § 22a-174-29(c)(1)(A) used to calculate the MASC, namely the hazard

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the MASC would be calculated using R.C.S.A. § 22a-174-(c)(1)(B), not § 22a-174-29(c)(1)(A). There is, however, no evidence in the record to support this assertion of the Applicant. The evidence in the record is that the height of the proposed stack was changed from seventeen (17) feet, to no less than ten (10) meters. (Ex. JNT-5). The Applicant, in its post-hearing brief, stated that it has agreed to raise the stack height to thirty-three (33) feet. Applicant's Post-Hearing Brief, p.20, which is less than twenty meters. Also, the Applicant raised no objection when the Intervening Parties calculated the MASC using the formula in R.C.S.A. § 22a-174(c)(1)(A). Even the Applicant's Exceptions themselves refer to the Applicant's "33 foot smoke stacks." Applicant's Exceptions, p.14. In short, I do not find support in the record for the contention in the Applicant's Exceptions that the stack of the proposed source would be more than twenty meters – or more than approximately 66 feet – high. As such, I conclude, as did the Hearing Officer, that in this case it was correct to calculate the MASC using R.C.S.A. § 22a-174-29(c)(1)(A).

limiting value or "HLV." HLV is defined as "the highest acceptable concentration of a hazardous air pollutant in the *ambient air*, pursuant to section 22a-174-29 of the Regulations of Connecticut State Agencies. The primary use of this term is in the derivation of the maximum allowable stack concentration for a source." R.C.S.A. § 22a-174-1(51) (Italics added for emphasis). The term "ambient air" means "that portion of the atmosphere, external to buildings, to which the general public has access." R.C.S.A. § 22a-174-1(9).

According to the Applicant, ambient air, by definition, does not begin until the boundary of the Applicant's property because the general public does not have access to the atmosphere within the boundary of the Applicant's property. For the Applicant then, R.C.S.A § 22a-174-29 only requires the calculation of a MASC for the phase that mercury will take upon reaching ambient air, at the boundary of its property. Since mercury will be in its particulate phase at this point, the Applicant claims that only an HLV for mercury in particulate form is required for the MASC calculation. However, unlike mercury in vapor form, there is no HLV for mercury in particulate form in Table 29-3.[11] The Applicant's position then is that since the formula for calculating a MASC utilizes an HLV, when there is no HLV to use in the formula a MASC cannot be calculated. There being no MASC, the Applicant argues that emissions from the proposed source cannot be said to exceed a MASC.

While the Applicant's claim may have some merit, like the Hearing Officer, ultimately I find it unavailing. When considering the Applicant's claims, as well as those of the Intervening Parties, the task is to determine what is the maximum allowable *stack* concentration. The very term, MASC, through its use of the word "stack," dictates that the focus is on what is occurring

[11] The applicable entry in Table 29-3 for mercury in the form of a particulate contains a dash. A note to Table 29-3 states that where there is such a dash, no hazard limiting value has been established.

in the stack, not what is occurring at the property line. The terms used to define MASC make this clear. MASC is the maximum allowable concentration of a hazardous air pollutant *in the exhaust gas stream* at the discharge point of a stationary source. The terms prescribe where the concentration of a HAP is determined – in the exhaust gas stream at the discharge point – which in this case is where the exhaust gas leaves the stack. Nothing in this definition points to or permits the use of a HAP in the form it occurs at the Applicant's property line when determining the MASC.[12] It would contradict both the definition and clear purpose of the MASC to ignore mercury in vapor form in the exhaust gas stream as it exits the stack and instead only calculate the MASC using mercury in particulate form at the Applicant's property line.

Moreover, R.C.S.A. § 22a-174-29(b)(2) by its own terms requires compliance with *all* HAPs, this would include any HAP listed in Tables 29-1, 29-2 or 29-3 of section 22a-174-29. As such, section 22a-174-29(b)(2) requires the calculation of MASC for mercury in all of the forms listed in Table 29-3 to the extent mercury is present in the emissions from the proposed source. Since Table 29-3 lists mercury as a vapor and mercury as a particulate, and since both are present in the emissions from the proposed source, a MASC calculation is required for both forms of mercury. Section 22a-174-29(b)(2) simply does not allow a HAP listed in Table 29-3 to be ignored.

It is true that the distance from the discharge point to the Applicant's closest property line plays a role in calculating MASC. This distance, or ten (10) meters, whichever is greater, is a

[12] As noted above, the term discharge point is defined as the stack or area from which a HAP is released into the ambient air. While "ambient air" appears in this definition it relates solely to a case where a HAP is released from an area, not from a stack. When the definition of discharge point is read with the definition of stack inserted this becomes clear. With the term stack inserted, the definition of "discharge point" is "any point in a source designed to emit solids, liquids or gases into the air…or an area from which a HAP is released into ambient air." As such, the term "ambient air" as used in the definition of "discharge point" has no application to this case. Indeed, during oral argument the Applicant made clear its agreement that in this case the discharge point is where the exhaust leaves the Applicant's proposed stack. (Oral argument at 6:10 – 6:40).

variable, "X," in the equation used to calculate MASC. Through X, as well as the other variables used in calculating MASC (i.e., HLV and the average actual flow rate of exhaust gas from the discharge point), the MASC calculation ensures that the mercury vapor coming out of the stack is at acceptable levels when any mercury emitted reaches the closest property line of the Applicant. This is the purpose of the MASC calculation. The variables used to calculate MASC, however, are either derived from or based on what is emitted from the stack. As such, like the definition of MASC itself, these variables make clear that MASC is to be determined based upon what is coming out of the stack. Since mercury is coming out of the stack as a vapor, the appropriate HLV to use to calculate MASC is mercury in vapor form.

This approach will not, as alleged by the Applicant in its Exceptions, always result in the MASC for mercury being calculated using mercury in the form of vapor. If, in another case, mercury in particulate form only is coming out of a stack, mercury in that form – as a particulate – would be used to calculate a MASC.

The Applicant's argument places too much weight on a single variable in an equation, HLV, to overcome both the plain meaning of the definition of MASC and as well as the equation used to calculate MASC. HLV must be understood and interpreted in context with the definitions of other terms, such discharge point and MASC, as well as the other variables used to calculate MASC. The term cannot itself eviscerate a significant portion of the intent of the MASC calculation and be interpreted to achieve an unworkable result. *See Turner v. Turner*, 219 703, 712 (1991) (statutes must be construed in a manner that will not thwart its purpose or lead to absurd results). The definitions and the equation used to calculate the MASC must work together and in this case point directly to mercury in vapor form as it leaves the stack.

There is also no evidence in the record to support the Applicant's contention that ambient air, as that term is used in the definition of HLV, means, or begins at, the Applicant's property line. The definition of ambient air in R.C.S.A. § 22a-174-1(9) does not mention or use the term property line. Rather, ambient air is defined as that portion of the atmosphere, external to buildings, to which the general public has access. The relevant question, then, is where does the general public have access? There is no indication in the record that the Applicant's property is fenced or that the public (even trespassers) are prohibited from gaining access to the Applicant's property, including beyond the Applicant's property line. As such, in this case, there is no evidentiary basis for the Applicant's claim that the definition of ambient air means, or that ambient air begins at, the Applicant's property line.

The Applicant also asserts that its position "is harmonious with every prior analogous case in which the calculation of MASC was at issue." Applicant's Exceptions at 10. Despite making this broad claim, the sole case cited by the Applicant is a previous final decision of the Department, *In the Matter of Connecticut Municipal Electric Energy Cooperative ("CMEEC")*, Final Decision, December 20, 2010. *CMEEC* involved permits to construct and operate four 2.5 megawatt peak generating diesel fired generators. In *CMEEC*, the Final Decision (with exceptions not relevant here) affirmed the Finds of Fact and Conclusions of Law in the Proposed Final Decision. *CMEEC*, at 1. The Proposed Final Decision noted that MASC calculations had been performed and that the expected emissions from the proposed source would comply with R.C.S.A. § 22a-174-29. Proposed Final Decision, *In the Matter of Connecticut Municipal Electric Energy Cooperative ("CMEEC")*, July 14, 2010, pgs. 11-12, 20-21.

CMEEC provides no help to the Applicant here. There is no indication in *CMEEC* that mercury was an issue, that MASC was calculated using the form a HAP was in at the property

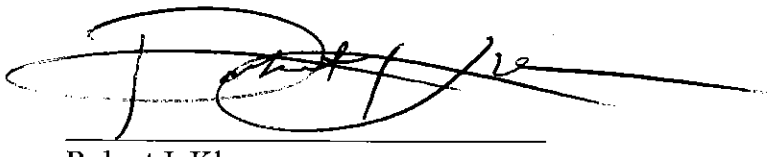
line, or when performing the MASC calculation what HLV was used. None of these issues are discussed in *CMEEC* since it does not appear that any were disputed. *CMEEC* clearly is not precedent for the position urged by the Applicant; the case provides no guidance on the issue in dispute in this matter.

There is some guidance in the record regarding another crematorium located in Rocky Hill where the Department's staff calculated the MASC for mercury. In that case, mercury in vapor form was used to calculate a MASC.

Finally, the Applicant in its Exceptions takes issue with a number of statements in the PFD. This includes the Hearing Officer's statement that MASC is a mechanism for controlling HAPs or for controlling the amount of mercury. The Applicant disagrees and asserts that MASC is a calculation of the density of a HAP and that MASC addresses the concentration, not the amount, of mercury. While I am not sure I agree with the Applicant's assertions, I think it is clear that MASC is a means to control HAP emissions. Nevertheless, further analysis of these issues would serve no useful purpose; it would not change my understanding of the regulations noted above and it is this understanding that is controlling in this case.

III. CONCLUSION

For all of the reasons noted above, I affirm the decision of the Hearing Officer in the Proposed Final Decision and deny the Applications submitted by the Applicant for two new source review permits.



Robert J. Klee
Commissioner of Energy and Environmental Protection

SERVICE LIST

In the matter of Nutmeg State Crematorium, LLC – 201410139 & 201410892

PARTY	REPRESENTED BY
The Applicant	
	Matthew Carlone, Esq. Terk & Carlone, LLC 81 Wolcott Hill Rd. Wethersfield, CT 06109 Ph:(860) 563-9494 mcarlone@terkcalone.com terkcarlone@gmail.com
Nutmeg State Crematorium, LLC	Joseph P. Williams, Esq. Shipman Goodwin One Constitution Plaza Hartford, CT 06103 Ph:(860) 251-5127 jwilliams@goodwin.com
	Allison Tyropolis Allison.tyropolis@ct.gov
Bureau of Air Management	
Intervening Parties	
Coles Brook Commerce Park Owners Association, Inc. Prime Locations of CT, LLC Hasson Holdings, LLC SMS Realty, LLC C&G Holdings, LLC C&G Holdings II, LLC	Richard D. Carella, Esq. Updike, Kelly & Spellacy, P.C. 203 Main St. Middletown, CT 06457 Ph:(860) 548-2681 rcarella@uks.com