EPA REGULATES HAZARDOUS AIR POLLUTANT EMISSIONS FROM PUBLICLY OWNED TREATMENT WORKS: THE POTW NESHAP

INTRODUCTION

In the 1990 Clean Air Act Amendments, Congress addressed the issue of hazardous air pollutant (HAP) emissions from Publicly Owned Treatment Works (POTW).[1] Concerned that wastewater treatment units may be sources of HAPs as a result of receiving chemical solvents, industrial process wastes, and discarded consumer waste along with wastewater and sewage, and concerned that the problem of HAP emissions was exacerbated by the treatment process due to aeration and chlorine addition, Congress mandated that the Environmental Protection Agency (EPA) regulate HAP emissions from POTWs.[2]

Citing a 1989 EPA study, Congress noted "that the 1,621 POTWs which handled the largest portion of industrial wastewaters indirectly discharged emit 4,840 metric tons of trichloethylene, 3,230 metric tons of perchloroethylene, 2,130 tons of methylene chloride, 439 tons of chloroform, 182 tons of acrylonitrile, 102 metric tons of ethylene chloride and 48 metric tons of carbon tetrachloride per year."[3] Cancer risks of 4.5 additional cases per 100 persons exposed were estimated for exposure to the highest degree of concentrated emissions "at the fenceline of a POTW over a period of 70 years."[4] Congress delegated a non-discretionary duty to the EPA to promulgate emission standards for POTWs which were defined as major sources no later than five years after the enactment of the 1990 Clean Air Act Amendments.[5] The EPA did so by promulgating a final rule on POTW HAP emissions in October 1999.[6] This Comment will evaluate the effectiveness with which these regulations address the problem of HAP emissions from POTWs that Congress sought to remedy.

Today, there are approximately 16,000 POTWs nationwide. Treatment works include wastewater treatment units, intercepting and outfall sewers, sewage collection systems, and the pumping, power, and other equipment used to treat wastewater.[7] The nation's POTWs treat an estimated thirty billion

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1. *See* S. REP. NO. 101-228, at 197 (1989), *reprinted in* 1990 U.S.C.C.A.N. 3385, 3582.
2. *See* Clean Air Act Amendments of 1990, Pub. L. No. 101-549, sec. 301, § 112(e)(5), 104 Stat. 2531, 2543 (codified as amended at 42 U.S.C. § 7412(e)(5) (1994)).
3. S. REP. NO. 101-228, at 197, *reprinted in* 1990 U.S.C.C.A.N. 3385, 3582.
4. *Id.*
5. *See id.*
6. *See* National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works, 64 Fed. Reg. 57,572 (1999) (to be codified at 40 C.F.R. pt. 63) [hereinafter Final HAP Standards].
7. *See* Clean Water Act § 212(2), 33 U.S.C. § 1292(2)(A) (1994).

gallons of domestic, commercial, and industrial wastewater each day.[8] These POTWs range in size from less than 0.1 to greater than 500 million gallons per day (mgd).[9] Approximately eighty percent of these facilities treat less than one million gallons per day.[10] HAPs that are regulated under the Clean Air Act are carried in the wastewater and can be released to the air from the wastewater during collection, storage, and treatment. HAPs can also be released into the air when the residual solids created by the treatment process, called sludge, are incinerated. Thus, treating wastewater may reduce or eliminate water pollution at the expense of creating air pollution.

EPA estimates that some POTWs are major sources of HAP emissions.[11] HAPs may be present in influents entering POTW treatment plants. HAPs present in POTW influents can biodegrade, volatize to the air, or pass through the treatment process while remaining in the wastewater.[12] Most HAP releases at POTWs occur from kinetic stripping,[13] which is caused by turbulent wastewater flow, aeration stripping which is the addition of air to wastewater for treatment purposes, or through evaporation.[14] While a POTW can receive any HAP constituent, and may therefore potentially emit any HAP, the EPA reports that the primary HAPs emitted by POTW sources include xylenes, mehtylene chloride, toluene, ethyl benzene, chloroform, tetrachloroethylene, benzene, and napthalene.[15] As previously noted, the Clean Air Act Amendments of 1990 required the EPA to promulgate emission standards for POTW HAPs by November 15, 1995.[16] EPA missed that deadline by nearly four years.

On October 26, 1999, the EPA promulgated its final rule for National Emission Standards for HAPs (known as a "NESHAP") for Publicly Owned Treatment Works.[17] This "POTW NESHAP" controls HAP emissions from POTWs by requiring air pollution controls on new or reconstructed POTW plants that are major sources of HAPs.[18] It also requires that new and existing

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8. *See* Final HAP Standards, 64 Fed. Reg. at 57,575.

9. *See* National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works, 63 Fed. Reg. 66,084, 66,086 (1998) (to be codified at 40 C.F.R. pt. 63) (proposed Dec. 1, 1998) [hereinafter Proposed HAP Standards].

10. *See id.*

11. *See id.*

12. *See* Final HAP Standards, 64 Fed. Reg. at 57,574.

13. Kinetic stripping releases chemicals present in the water through disturbance of settled chemicals as the water is stirred up in the treatment process.

14. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,087.

15. *See id.* at 66,084.

16. *See* Clean Air Act Amendments of 1990, Pub. L. No. 101-549, sec. 301, § 112(e)(5), 104 Stat. 2531, 2543 (codified as amended at 42 U.S.C. § 7412(e)(5) (1994)).

17. *See* Final HAP Standards, 64 Fed. Reg. at 57,572.

18. *See id.*

POTWs which treat regulated waste streams from an industrial user, for the purpose of allowing that industrial user to comply with another NESHAP, meet the treatment and control requirements of the other applicable NESHAP.[19] This Comment will examine the methods and effectiveness with which the POTW NESHAP confronts and controls the problem of HAP emissions from POTWs.

I. THE POTW NESHAP

Prior to the 1990 CAA Amendments, the EPA was required to publish a list of HAPs and to regulate HAP emissions based on a risk-based standard. EPA's failure to identify HAPs and implement the risk-based emissions standards of the 1977 CAA Amendments[20] led to the technology-based "maximum achievable control technology" or MACT standards established by the 1990 CAA Amendments.[21] Eight chemicals (including benzene), however, were still regulated under the 1977 emission-based standard instead of the 1990 technology-based or MACT standard.[22] The savings clause contained in section 112(g) of the CAA, however, preserved existing NESHAPs until and unless they were revised. Section 112(b) now lists 188 chemicals, and the EPA can revise the list by adding or deleting chemicals from the list.[23]

The EPA established the NESHAP for benzene waste operations under the risk-based standard, which bases the criteria on emissions rather than available technology.[24] As will be discussed, the MACT floor for new or reconstructed sources was set in accordance with the NESHAP for benzene waste operations.[25] Thus, the EPA uses risk-based standards of the 1977 CAA, as preserved through the savings clause of section 112(g), to set the emission controls following two decades of attempts to control HAPs. For the purpose of this discussion, the application of regulations to existing sources will also use the benzene NESHAP as an example. Nonetheless, the POTW NESHAP includes an alternative compliance option, called the "fraction

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19. *See id.*

20. *See* Clean Air Act Amendments of 1977, Pub. L. No. 95-95, sec. 110, § 112 (e)(1), 91 Stat. 685, 703.

21. *See* Clean Air Act Amendments of 1990, Pub. L. No. 101-549, sec. 301, § 112(d)(2), 104 Stat. 2531, 2539 (codified as amended at 42 U.S.C. § 7412(d)(2) (1994)).

22. *See* 40 C.F.R. § 61.348 (1999).

23. *See* Clean Air Act (CAA) § 112 (b), 42 U.S.C. § 7412(b) (1994).

24. *See* 40 C.F.R. § 61.349 (requiring a closed-vent system that operates with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, and a control device which recovers benzene emissions at a 98 weight percent or greater).

25. *See* Proposed HAP Standards, 63 Fed. Reg. 66084, 66,089 (1998) (to be codified at 40 C.F.R. pt. 63) (proposed Dec. 1, 1998).

emitted value," that may allow POTWs to avoid the strict emission controls the NESHAP requires.[26]

Section 112(e)(5) of the Act, as amended, required EPA to promulgate MACT standards for POTWs by November 15, 1995.[27] In 1992, the EPA published an initial list of categories of major sources, established pursuant to section 112(c)(1), and listed the POTWs.[28] The Act defines a "major source" as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit (considering controls) in the aggregate ten tons per year (tpy) of any HAP or twenty-five tpy or more of any combination of HAPs.[29] This definition may be particularly relevant where sludge from a POTW is disposed of by a connected or adjacent incinerator, which would be regulated under section 129 of the Act,[30] and would contribute towards the total HAP emissions in determining whether the facility is a major source.

The POTW source category includes emissions from wastewaters that are treated at the facility. These wastewaters come from domestic, commercial, and industrial sources.[31] While emissions may occur continuously following initial discharge through the collection system (sewers) to storage and treatment at the POTW, the final rule distinguishes wastewater treatment units as the most expected sources of HAP emissions.[32] Control alternatives include, but are not restricted to, pre-treatment of HAPs at the source prior to discharge into the collection system, adding emission controls to the collection system and at the POTW, and/or treatment process alterations and substitutions.[33] These controls represent the MACT for POTWs required under section 112.

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26. *See* discussion *infra* Part I.C.

27. Section 112(e)(5) of the CAA defines POTW by referring to the definition of treatment works in § 212 of the Clean Water Act, 33 U.S.C. § 1292(2). Treatment works include wastewater treatment units, intercepting sewers, outfall sewers, sewage collection, and pumping and power equipment. *See* Clean Water Act, § 212(2), 33 U.S.C. § 1292(2)(A) (1994).

28. *See* Initial List of Categories of Sources Under Section 112(c)(1) of the Clean Air Act Amendments of 1990, 57 Fed. Reg. 31,576, 31,585 (1992).

29. *See* CAA § 112 (a)(1), 42 U.S.C. § 7412(a)(1) (1994).

30. *See* CAA § 129, 42 U.S.C.§ 7429. Several comments to the proposed rule expressed a belief that a POTW that is not categorized as a major source should not be considered a major source simply by virtue of its being co-located with another major source (such as a sewage sludge incineration unit). EPA rejected that approach, and required that emissions and potential emissions from co-located sources must be considered in determining major source status. *See* Final HAP Standards, 64 Fed. Reg. 57,572, 55,575-76 (1999) (to be codified at 40 C.F.R. pt. 63). Sewage sludge incineration will be regulated under section 129, and will be included in the source category "Other Solid Waste Incinerators" that is scheduled for promulgation this year. Proposed HAP Standards, 63 Fed. Reg. at 66,087.

31. *See* Final HAP Standards, 64 Fed. Reg. at 57,574.

32. *See id.*

33. *See id.*

EPA did not promulgate MACT standards for POTWs by November 15, 1995, because the Agency was unable to collect and evaluate the necessary information to meet that deadline.[34] EPA then followed a separate standard under section 112(e)(1) and (3), which required promulgation of MACT standards for POTWs by November 15, 1997.[35] EPA failed to meet that deadline as well. With the MACT "hammer" date of May 15, 1999 approaching[36] (which would have required affected facilities to apply by permit for a case-by-case MACT emission limitation), EPA published a Notice of the Proposed Rule on December 1, 1998.[37] The Agency published the final rule barely two months shy of the general year 2000 deadline for promulgation of MACT standards under section 112. The final standards were developed through extensive consultation with the Association of American Metropolitan Sewerage Agencies (AMSA) over seven years,[38] and the final rule made several changes including control requirements for new or reconstructed non-industrial POTWs in response to nineteen public comment letters received on the proposed rule.[39]

A. Affected Source and Source Categories

The POTW NESHAP is codified at 40 C.F.R. Part 63, subpart VVV. POTWs are subject to this subpart if the affected source is located at a major source of HAP emissions and is owned or operated by a municipal, intermunicipal, state, or interstate agency, and is required to develop and implement a pretreatment program under the Clean Water Act.[40] POTWs owned or operated by a federal department, agency, or instrumentality which would meet the general criteria for development and implementation of a

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34. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,084.

35. *See id.*

36. *See* CAA § 112(j)(2), 42 U.S.C. § 7412(j)(2) (1994).

37. *See* Final HAP Standards, 64 Fed. Reg. at 57,573 (citing Proposed HAP Standards, 63 Fed. Reg. at 66,084).

38. *See* Final HAP Standards, 64 Fed. Reg. at 57,573. The Administrator is permitted to conduct studies in cooperation with the owners and operators of POTWs for the purposes of characterizing HAP emissions, identifying residential, commercial, and industrial discharges that contribute to HAP emissions, and demonstrating control measures. *See* CAA § 112(n)(3).

39. *See* Final HAP Standards, 64 Fed. Reg. at 57,573.

40. Under the Effluent Guidelines and standards promulgated under the Clean Water Act, "any POTW (or combination of POTWs operated by the same authority) with a total design flow of greater than 5 million gallons per day (mgd) and receiving pollutants from Industrial Users" is required to establish a Pretreatment Program. 40 C.F.R. § 403.8(a) (1999). "The Regional Administrator or Director may require that a POTW with a design flow of 5 mgd or less develop a POTW Pretreatment Program" depending upon the nature and volume of industrial influents, violations of effluent limitations, contamination of municipal sludge, and other circumstances. *See id.*

pretreatment program are also subject to the POTW NESHAP,[41] in accordance with section 118 of the CAA.[42] Finally, existing POTWs which become a major source after October 26, 1999, for any reason other than reconstruction are subject to the POTW NESHAP as an existing source,[43] and the Industrial POTW (described below) is a major source regardless of whether it meets other applicable criteria.[44]

The final rule breaks the POTW source category into subcategories. The regulations apply differently for industrial and non-industrial POTWs, as well as for new or reconstructed and existing POTWs. A POTW treatment plant "is an Industrial POTW (IPOTW) if an industrial discharger complies with its applicable NESHAP by using the treatment and controls located at the POTW."[45] The POTW accepts the regulated waste stream and "provides treatment and controls as an agent for the industrial discharger."[46]

An existing IPOTW must meet the emission points and control requirements specified in the appropriate NESHAP.[47] For example, if an IPOTW provides treatment for an industrial discharger of benzene, the HAP must meet the NESHAP for benzene waste operations.[48] Benzene is a known toxic and carcinogen following direct inhalation or exposure. The NESHAP standards for treatment of a benzene waste stream requires: 1) the waste stream be treated by a means or level that meets the benzene-specific effluent limitations under the Effluent Guidelines and Standards promulgated under the Clean Water Act;[49] and 2) that the treatment process be designed and operated with a closed vent system and control device meeting strict emission requirements.[50] If an IPOTW accepts more than one specific regulated industrial waste stream, the IPOTW is subject to the requirements of each

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41. *See* Final HAP Standards, 64 Fed. Reg. at 57,579 (to be codified at 40 C.F.R. § 63.1580(a)).

42. *See* CAA § 118, 42 U.S.C. § 7418 (1994).

43. *See* Final HAP Standards, 64 Fed. Reg. at 57,579 (to be codified at 40 C.F.R. § 63.1580(a)).

44. *See id.* (codified at 40 C.F.R. § 63.1580(c)).

45. Final HAP Standards, 64 Fed. Reg. at 57,579 (to be codified at 40 C.F.R. 63.1582 (a)). Although the EPA is not aware of any instance where an industrial user uses a POTW treatment plant to comply with emissions reductions for any other NESHAP, EPA believes that such dischargers exist now or may exist in the future. *See* Proposed HAP Standards, 63 Fed. Reg. 66,084, 66,089 (1998) (to be codified at 40 C.F.R. pt. 63) (proposed Dec. 1, 1998).

46. Final HAP Standards, 64 Fed. Reg. at 57,579 (to be codified at 40 C.F.R. 63.1582(a)). For the purposes of this paper, this will be called the IPOTW. The liability this implicates on the part of the industrial discharger, whether in enforcement fines or toxic torts, deserves mention but exceeds the scope of this paper.

47. *See id.* (to be codified at 40 C.F.R. § 63.1583(a)).

48. *See generally* 40 C.F.R. §§ 61.340-61.359. The air pollution controls required by the benzene NESHAP is discussed *infra* Part I.B.

49. *See* 40 C.F.R. §§ 401-464.

50. *See* 40 C.F.R.§§ 61.348(d)(4) and 61.328(2)(d).

appropriate NESHAP, and where such requirements overlap, the more stringent NESHAP will apply.[51]

A new or reconstructed IPOTW must meet either the requirements of the specific NESHAP, or those emission points and control requirements for the new or reconstructed non-IPOTW,[52] whichever requires the most stringent overall control of HAP emissions.[53] Reconstruction is defined for both IPOTW and non-IPOTW as the replacement of components of an affected or previously unaffected stationary source such that the fixed capital cost of the new components exceeds fifty percent of the fixed capital costs that would be required to construct a comparable new source, and it is technologically and economically feasible for the reconstructed source to meet the relevant standards established by the EPA or a state pursuant to section 112 of the CAA.[54]

While current information from the AMSA projects no new or reconstructed POTWs for the next five years,[55] the definition of "reconstruction" could have significant impacts on the effectiveness of the rule, if within that time more POTWs are reconstructed than built as new projects (as well as generating considerable litigation on technological and economic feasibility). The applicability of the POTW NESHAP would likely weigh strongly in the balance when a municipality is faced with a question of whether to build a new IPOTW, or to reconstruct an existing one. Meeting the control requirements of the POTW NESHAP would certainly add to the price tag of a new facility. Although such costs would eventually be recovered through the increased fees for permits required for an industrial HAP discharge,[56] local industry would probably not support the building of new POTWs at their expense. Applying the POTW NESHAP to new non-IPOTWs may create a disincentive to build new facilities, which may be sorely needed in the face of an inundated wastewater system trying to cope with industrial or population increases.

Existing non-IPOTW requirements are considerably less stringent. There are no control requirements for an existing non-IPOTW treatment plant.[57] Thus, the majority of the 16,000 existing POTWs, sources which were earmarked for regulation under the 1990 CAA Amendments,[58] will not be

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51. *See* Final HAP Standards, 64 Fed. Reg. at 57,579 (to be codified at 40 C.F.R § 63.1582(c)).
52. *See id.* at 57,580 (to be codified at 40 C.F.R. § 63.1586(a)).
53. *See id.* (to be codified at 40 C.F.R. § 63.1583(b)).
54. *See id.* at 57,572-83 (to be codified at 40 C.F.R. § 63.1583 (b)).
55. *See id.* at 57,575.
56. *See* Proposed HAP Standards, 63 Fed. Reg. 66,084, 66,093 (1998) (to be codified at 40 C.F.R. pt. 63) (proposed Dec. 1, 1998).
57. Final HAP Standards, 64 Fed. Reg. at 57,580 (to be codified at 40 C.F.R. § 63.1586).
58. See CAA § 112(e)(5), 42 U.S.C. § 4712(e)(5) (1994).

subject to control requirements under the new rule. The control requirements for a new or reconstructed non-IPOTW plant begin with calling for covers on the emission point, up to but not including, the secondary influent pumping station or the secondary treatment units; such emission points include, but are not restricted to, influent stream transport channels, grit chambers, bar screens, grinders, pump stations, aerated feeder channels, primary clarifiers, primary effluent channels, and primary screening stations.[59] All covered units, except primary clarifiers, must have air in the headspace ducted to a control device in accordance with the standards for control devices in the source category NESHAP for Off-Site Waste and Recovery Operations.[60] Thus, while existing non-IPOTWs have no control requirements, new or reconstructed non-IPOTWs must meet the strict standards for an IPOTW that specifically treat HAP-containing waste streams.

As discussed, the control requirements for a new or reconstructed non-IPOTW and a new or reconstructed IPOTW are the same, except that a new or reconstructed IPOTW must comply with the applicable NESHAP for the particular HAPs it accepts and treats as an agent for the industrial discharger if that standard requires the most stringent overall control of HAP emissions.[61] This equivalent MACT floor[62] for industrial and non-industrial new or reconstructed sources was put forward in the proposed rule on December 1, 1998,[63] and illicated comments "that the control requirements for non-industrial POTW[s] were too prescriptive and did not account for differences between POTW treatment plants."[64]

This seems a reasonable concern, in light of the fact that a new or reconstructed non-IPOTW must meet the stringent requirements of a new or reconstructed IPOTW which allows industrial chargers to comply with applicable NESHAPs by discharging HAPs into the IPOTW. While HAPs are likely to be present in the wastewater treated at a non-IPOTW, the chance is remote that HAPs would be present in the concentration to be found in an IPOTW. A more flexible rule was required that could control the particular

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59. Final HAP Standards, 64 Fed. Reg. at 57,580 (to be codified at 40 CFR 63.1586 (a)).

60. In response to comments that since the best-controlled facility on which EPA based its MACT floor for new and reconstructed facilities did not comply with 40 C.F.R. 63.693-63.697, EPA removed requirements from that subpart which are not appropriate for POTWs. The final rule does not require use of an organic vaporizer to check for leaks, but substitutes visual inspections, and allows use of the "fraction emitted value" as an alternative compliance option. Final HAP Standards, 64 Fed. Reg. at 57,576. *See also supra* Part I.C.

61. *See supra* notes 52-54 and accompanying text.

62. The MACT floor refers to the minimum level of control for major sources of HAP as prescribed by CAA § 112(d)(3), 42 U.S.C. § 7412(d)(3) (1994).

63. *See* Proposed HAP Standards, 63 Fed. Reg. 66,084, 66,095 (1998) (proposed Dec. 1, 1998) (to be codified at 40 C.F.R. pt. 63).

64. Final HAP Standards, 64 Fed. Reg. at 57,575.

HAP emissions of non-IPOTWs. EPA responded with an alternative compliance option called the "fraction emitted value."[65] This alternative compliance option will be considered following a discussion of the conventional control requirements.

B. POTW MACT

EPA considered the two different HAP control options utilized by POTW treatment plants in its determination of POTW MACT. Pretreatment involves controls on industrial users at the source of pollutant discharge.[66] The AMSA and representatives of state and local agencies recommended pretreatment as the preferred method of reducing HAP emissions from POTW treatment plants by reducing the concentration of HAPs entering the facilities in the first place.[67] Pretreatment reduces HAP emission from wastewater collection systems between the source and the POTW treatment plant. Pretreatment would make the polluter pay without the POTW incurring any of the costs of add-on controls, and would also avoid the administrative fees of cost recovery through the permit program.

Examples of pretreatment include reduction of HAPs at the source, which can be achieved through industrial process modifications involving substitution of HAP compounds with a non-HAP compound,[68] or physical/chemical treatment of the waste stream prior to discharge from the industrial or commercial facility.[69] Pretreatment information available to EPA on the use of pretreatment to control HAP emissions from POTWs, however, was insufficient to propose any regulatory action.[70] Nonetheless, pretreatment may be combined with wastewater treatment plant modifications and control devices to achieve the performance standard under the "fraction emitted value" alternative compliance option, discussed below.[71]

The second type of controls the EPA considered were add-on controls, such as covers or covers vented to a control device, and these are the preferred control option addressed in the POTW NESHAP.[72] Vented or unvented covers are like giant lids placed over treatment works, which are usually open to the

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65. *See infra* Part I.C.

66. Pretreatment programs are authorized by the Clean Water Act, and are a prerequisite for affected sources under the POTW NESHAP. *See infra* Part I.C. *See also* 40 C.F.R. 403.8(a) (1999).

67. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,088.

68. *Id.*

69. *Id.*

70. *See id.*

71. Final HAP Standards, 64 Fed. Reg. 57,572, 57,576 (1999) (to be codified at 40 C.F.R. pt. 63).

72. *See infra* notes 93-96 and accompanying text.

air. Some POTWs have covers on their existing treatment units.[73] Covers are vented to odor control devices, which include caustic scrubbers and granulated activated carbon (GAC) absorption units. While these odor control devices have little, if any effect on controlling HAP emissions, properly designed, operated and maintained GAC absorption units have been demonstrated to achieve at least a 95% reduction in HAP and volatile organic compound (VOC) emissions.[74]

GAC absorption units operated and maintained to reduce the risk of benzene emissions associated with refinery wastewater at one of the six identified major non-IPOTW sources set the MACT floor. These provide the basis for the MACT standard for the new or reconstructed sources in the non-IPOTW treatment plants subcategory.[75] The add-on controls at a California IPOTW were paid for by the petroleum refinery that discharged its benzene wastewater to the IPOTW.[76] Needless to say, the price tag for retrofitting an existing POTW or constructing a new POTW with these add-on controls would be quite hefty. Unlike pre-treatment options, the cost is ultimately borne by the taxpayers, and needs to be recovered through the permit program. The cost may be recouped through raising municipal water rates. Thus, polluters could possibly saddle the cost of their compliance on the backs of taxpayers.

As prescribed by section 112(d) of the CAA, the MACT floor for existing sources for each subcategory is determined by the average emissions limitation achieved by the best performing five sources because fewer than thirty sources were identified for each subcategory.[77] Only six potential major sources were identified in the non-IPOTW subcategory. The MACT floor was determined for existing sources using the average emission reduction attributed to controls among the five best performing sources of these six sources.[78]

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73. These covers are usually either: 1) vented using a high ventilation rate (e.g., twelve or more air changes per hour); 2) vented using a low ventilation rate; or 3) not vented. High-rate ventilation units (some equipment described by POTWs as "covers" are actually walkway grates placed over open treatment units to prevent personnel from falling in and provide no air emission control) greatly diminish (or negate) emission suppression, while low-rate ventilation units may suppress emissions depending on the efficacy of absorbtion devices. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,088.

74. *See id.* To provide effective HAP emission reduction, operation and maintenance, including frequent replacement or regeneration of GAC absorption units is required. *See id.*

75. *See* id. at 66,090. Recall also that a new or reconstructed IPOTW is also required to meet the emission points and control requirements required for the new or reconstructed non-IPOTW if such requirements result in more stringent overall HAP emissions control than the applicable NESHAP for the regulated waste stream the POTW treats as an agent of the industrial discharger. *See supra* notes 52-53 and accompanying text. This one plant therefore sets the MACT floor for both subcategories of POTW under the POTW NESHAP.

76. *See id.* at 66,088.

77. *See id.* at 66,089.

78. *See id.*

The California IPOTW that sets the MACT floor for new or reconstructed sources is substantially different from the other five identified potential major sources.[79] Although the EPA originally assumed that this source was meeting the NESHAP obligations for benzene-containing wastes,[80] the California POTW controls its benzene emissions in response to the California Air Toxics and Assessment Act of 1987.[81] Under section 16 of the CAA, states can set stricter standards than those called for in the Act. Additionally, the MACT "hammer" dates set in the CAA allow the states to set standards based on case-by-case determinations when the EPA is too dilatory in setting standards, which is what almost happened in the case of the POTW NESHAP.[82]

The other four of the "best performing" five POTW sources the EPA considered do not have effective HAP emission controls. Because the EPA has discretion in determining the applicable average in each category or subcategory,[83] EPA has determined that "[c]omputation of an arithmetic average, or mean is not appropriate in this case because the average emission reduction calculated from one well-controlled and four uncontrolled facilities does not correspond to any treatment technology."[84] Therefore, EPA reasoned that the measure of a central tendency other than the mean had to be used to determine the MACT floor.[85] Based on either the mode or the median, the EPA explained, the MACT floor would be no control.[86] Based on this rationale, EPA concluded that the MACT floor for existing sources in the existing non-IPOTW treatment plant subcategory required no additional controls for HAP emissions.[87] Thus, the majority of the nation's POTWs will remain unregulated for HAP emissions.

New sources, however, are a different story. The CAA mandates that "the maximum degree of reduction in emissions that is deemed achievable for new sources in a category or subcategory shall not be less stringent than the emission control achieved in practice by the best controlled similar

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79. *See* 40 C.F.R. pt. 61, subpt. FF.

80. *Id.*

81. Proposed HAP Standards, 63 Fed. Reg. 66,084, 66,089 (1998) (proposed Dec. 1, 1998) (to be codified at 40 C.F.R. pt. 63).

82. *See* CAA § 112 (j)(2), 42 U.S.C. § 4712(j)(2) (1994).

83. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,090.

84. *Id.* Judicial review of this final rule was available by filing a petition for review in the U.S. Court of Appeals for the District of Columbia by December 26, 1999. *See* CAA § 307(b)(1), 42 U.S.C. § 7607(b)(1) (1994).

85. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,090.

86. *See id.*

87. *See id.* While pretreatment by dischargers may be a viable option for controlling HAP emissions, EPA has not identified any additional emission controls which could be installed at the POTW treatment plants themselves which would achieve any meaningful HAP reductions at a reasonable cost. *See id.*

source . . . ."[88] The California POTW establishes the MACT floor for new or reconstructed sources in both the non-industrial and industrial subcategory.[89] The emission points and control requirements established by the California POTW were promulgated in the final rule.[90] In addition to the requirements for covers on the enumerated (but not exhaustive) list of emission points in the treatment and collection systems,[91] all covered units (except primary clarifiers) must have air in the headspace ducted to a control device with the closed-vent systems and in accordance with the benzene NESHAP standards for closed-vent systems.[92]

The National Emission Standard for Benzene Waste Operations for closed-vent systems and control devices requirements are appropriately exacting.[93] For instance, a closed-vent system is required to operate with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background, as determined initially and at least once per year thereafter.[94] The vapor recovery system, that is, the carbon adsorption system or condenser, must recover or control VOC emissions with an efficiency of ninety-five weight percent or greater, or recover or control benzene emissions with an efficiency of ninety-eight weight percent or greater.[95] As discussed earlier, a new or reconstructed IPOTW must meet these standards for closed-vent systems and control devices in addition to the other requirements of the POTW NESHAP. It also must meet the requirements of any specific NESHAPs for regulated waste streams it treats and controls as an agent for an industrial discharger if the specific NESHAP requires a more stringent overall control of HAP emissions.[96]

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88. CAA § 112(d)(3), 42 U.S.C. § 4712(d)(3) (1994).

89. *See* Proposed HAP Standards, 63 Fed. Reg. at 66,089-90. Recall, however, that "reconstruction" is defined as the replacement of components of an affected or previously unaffected stationary source such that the fixed capital cost of the new components exceeds fifty percent of the fixed capital costs that would be required to construct a comparable new source, and it is technologically and economically feasible for the reconstructed source to meet the relevant standards established by the EPA or a State pursuant to section 112 of the CAA. *See supra* note 54 and accompanying text.

90. Final HAP Standards, 64 Fed. Reg. 57,572, 57,580 (1999) (to be codified at 40 C.F.R. § 63.1856). *See supra* notes 38-39 and accompanying text.

91. *See id.* Covers must also be tightly fitted and designed to operate to minimize exposure of wastewater to the atmosphere, and must be maintained in a closed position except when plant personnel require access to closed areas. *See id.* at 57,580 (to be codified at 40 C.F.R. § 63.1586 (a)(1)-(2)).

92. *Id.* In addition to the fraction emitted value alternative compliance option, EPA removed the requirement of an organic vapor analyzer to check for leaks for POTWs, and permits visual leak inspections instead. *See id.* at 57,576, 57,580 (to codified at 40 C.F.R. § 63.1586 (a)).

93. 40 C.F.R. § 61.349 (1999).

94. *See id.* The initial and yearly emission detection test must be determined by the methods specified in 40 C.F.R. 61.355(h).

95. *See id.*

96. *See supra* notes 52-53 and accompanying text.

The irony is, of course, that EPA has promulgated a standard for a subcategory of POTWs, while failing to identify a single source (in the case of existing non-IPOTW sources, of which there are over 10,000, EPA determined no controls were required). While several POTWs have been identified as possible IPOTWs, and the POTW NESHAP does make the industrial NESHAP requirements directly enforceable on the POTW, "current information from POTW representatives projects no new or reconstructed major POTW[s] for the next five years."[97] The final rule read in isolation appears prospective at best. The "fraction emitted value" compliance option, discussed below, which offers flexibility in meeting compliance, may also limit the immediate beneficial effects the rule can have on controlling HAP emissions from all POTW sources by not requiring a "bright line" set of emission controls.

C. Alternative Compliance Option: The Fraction Emitted Value

EPA received several comments on the proposed rule expressing opinions that it was "inappropriate to require POTW[s] to be subject to" the NESHAP for Off-Site Waste Recovery Operations.[98] In response to these comments, EPA eliminated prerequisites from §§ 63.693 through 63.697 which were not appropriate for POTWs in the final rule.[99] Control requirements for POTWs do not require the use of an organic vapor analyzer to check for leaks on the closed-vent system, but allows a POTW to substitute visual inspections for leak checks.[100] More importantly, EPA added an "alternative compliance option" called the fraction emitted value based on a modeling study of the control requirements.[101] This option allows a new or reconstructed source to comply by demonstrating, for units up to but not including secondary treatment, that the weighted fraction emitted does not exceed 0.014 based on an annual average.[102]

Facilities calculate the weighted fraction emitted by dividing the sum total of emitted HAP by the sum total of HAP loading to the wastewater treatment plant, to determine and demonstrate that the result is an annual rolling fraction emitted no greater than 0.014.[103] A POTW may use any combination of pretreatment, wastewater treatment plant modifications, and

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97. Final HAP Standards, 64 Fed. Reg. 57,572, 57,575 (1999) (to be codified at 40 C.F.R. pt. 63).

98. *Id.* at 57,576. Commentators stated that the best-controlled facility, on which EPA based its MACT floor, does not comply with these requirements. *See* 40 C.F.R. §§ 63.693-63.697.

99. Final HAP Standards, 64 Fed. Reg. at 57,576 (to be codified at 40 C.F.R. § 63.1586(a)-(b)).

100. *See id.* at 57,580 (to be codified at 40 C.F.R. § 63.1586(a)).

101. *See id.* at 57,576 (to be codified at 40 C.F.R. § 63.1586(b)).

102. *Id.*

103. *Id.*

control devices to achieve this performance standard, provided that the facility can demonstrate to the Administrator's satisfaction that: 1) the POTWs annual HAP mass loadings and annual HAP emissions have been accurately determined as of the date of start-up; 2) the POTW meets the 0.014 or less fraction emitted value standard; and 3) the POTW has established procedures to demonstrate continuous compliance which are consistent with the inspection and monitoring plan criteria set forth in the final rule.[104] To achieve continuous compliance requires that the POTW emissions, when averaged over the course of a year, must not exceed the fraction emitted value.[105] Annual HAP emissions can be determined either by modeling or direct source measurement (CEMS).[106] This alternative compliance option, like all control requirements of the POTW NESHAP, are standards that are implemented and enforced through the Title V permit program.

CONCLUSION

The POTW NESHAP, while long overdue, appears to be at best prospective in terms of controlling HAP emissions from POTWs. Perhaps the government's regulation of itself is inherently problematic and ineffective to a certain degree. Clearly, the 101st Congress had some weighty and well-documented concerns in mind when it amended the Clean Air Act to include hazardous air emissions control of POTWs. The EPA study Congress relied on indicated that there were unacceptable risks associated with HAP emissions from indirect discharges of industrial wastewaters.

EPA concedes that it has identified only six potential major sources in the POTW source category. EPA has determined that no controls are required for over 10,000 existing non-POTW sources. As POTW representatives project no new or reconstructed major POTWs for the next five years, EPA has promulgated a standard for a subcategory of POTWs that do not exist, and will not exist in the near future. The rule offers little immediate benefit, and may pose cost allocation problems when it applies in the future.

Mark Lucas

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104. *See id.* at 57,580 (to be codified at 40 C.F.R. § 63.1588(c)).
105. *Id.* at 57,580 (to be codified at 40 C.F.R. § 63.1588(c)(4)).
106. *See id.* at 57,580 (to be codified at 40 C.F.R. § 63.1588(c)(2)).