ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 403 and 503

[FRL–6401–3]

RIN 2040–AC25

Standards for the Use or Disposal of Sewage Sludge

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's action amends the existing regulation regarding the land application, surface disposal, and incineration of sewage sludge. The amendments clarify existing regulatory requirements regarding operational standards for pathogen and vector attraction reduction and provide flexibility to the permitting authority and the regulated community in complying with the minimum frequency of monitoring requirements. The amendments also make the incineration subpart of the regulation totally self-implementing by providing information on air dispersion modelling, incinerator testing methods, and continuous emission monitors to the sewage sludge incinerator owner-operator. It also amends the existing General Pretreatment Regulation for Existing and New Sources of Pollution by adding a concentration for total chromium in land-applied sewage sludge to the list of pollutants that are eligible for a removal credit issued by a wastewater treatment works treating domestic sewage.

EFFECTIVE DATE: The final rule is effective September 3, 1999. For purposes of judicial review, this final rule is promulgated as of 1 pm eastern time on August 18, 1999 as provided in 40 CFR 23.7.

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SUPPLEMENTARY INFORMATION:

I. Regulated Entities

Entities potentially regulated by today's action are those that prepare sewage sludge and use or dispose of the sewage sludge through application to the land, placement on a surface disposal site, placement in a municipal solid waste landfill unit, or firing in a sewage sludge incinerator. Regulated categories and entities include:

Category	Examples of regulated entities
State/Local/Tribal Gov	Publicly-owned treatment works that treat domestic sewage.
Federal Government	Federally-owned treatment works that treat domestic sewage.
Industry	Privately-owned treatment works that treat domestic sewage, and persons who receive sewage sludge and change the quality of the sewage sludge before it is used or disposed.

The above list of regulated categories and entities is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. The list includes the type of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed above also could be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability section in § 503.1 (Purpose and Applicability) of part 503 of Title 40 of the Code of Federal Regulations. If you have questions regarding the applicability of this action to a particular entity, contact the individual whose name is in the preceding **FOR FURTHER INFORMATION CONTACT** section.

II. Authority

The amendments to part 503 are promulgated pursuant to the authority of section 405 of the Clean Water Act (CWA), which requires EPA to establish numerical limits and management practices that protect public health and the environment from the reasonably anticipated adverse effects of toxic pollutants in sewage sludge. Section 405(e) prohibits any person from disposing of sewage sludge from a publicly owned treatment works (POTWs) or any other treatment works treating domestic sewage for any use or disposal for which regulations have been established pursuant to subsection (d) of section 405 except in compliance with such regulations.

The amendment to part 403 is promulgated under the authority of sections 307 and 405 of the CWA. In section 307(b) of the CWA, Congress directed EPA to establish categorical pretreatment standards for industrial discharges of toxic pollutants to POTWs. Congress authorized POTWs in defined circumstances to provide relief from categorical pretreatment standards in the form of a removal credit to

indirect dischargers. Section 307(b) authorizes a removal credit where, among other things, grant of the removal credit does not prevent the POTW from using or disposing of its sewage sludge in compliance with section 405 of the CWA.

III. Background

A. Part 503 Amendments

On February 19, 1993, EPA promulgated, pursuant to section 405(d) of the CWA, Standards for the Use or Disposal of Sewage Sludge (58 FR 9248). This regulation establishes the requirements that protect public health and the environment when sewage sludge is: (1) Applied to the land to either condition the soil or fertilize crops grown in the soil; (2) placed on a surface disposal site; (3) placed in a municipal solid waste landfill unit; or (4) fired in a sewage sludge incinerator. EPA amended the part 503 sewage sludge regulation on February 25, 1994 (59 FR 9095) and again on October 25, 1995 (60 FR 54764) to address various issues.

On October 25, 1995, EPA published a document in the **Federal Register** proposing several technical changes to part 503 (60 FR 54771). These changes were intended to address a number of issues identified since promulgation of the regulation. The proposed changes clarify certain requirements, provide additional flexibility to the regulated community in complying with the part 503 requirements, and modify the requirements for sewage sludge incinerators to make the requirements self-implementing. Comments on the October 1995 proposal were considered in developing the changes in today's final rule.

B. Part 403 Amendment

Industrial facilities that discharge specific pollutants to POTWs for treatment must pretreat their effluent to meet categorical pretreatment standards promulgated under section 307(b) of the CWA. Section 307(b) also provides that where POTWs provide some or all of the treatment of an industrial user's wastewater required to meet a categorical pretreatment standard, POTWs may grant ''a removal credit'' to such an indirect discharger. The credit, in the form of a less stringent categorical pretreatment standard, allows an increased concentration of a pollutant in the discharge from the indirect discharger to the POTW.

Section 307(b) of the CWA establishes three criteria that a POTW has to meet to obtain authority to grant a removal credit to a discharger of a toxic pollutant to the POTW: (1) The POTW removes all or any part of the toxic pollutant, (2) the POTW's ultimate discharge does not violate the effluent limitation or standard that would be applicable to the toxic pollutant if it were discharged directly rather than through a POTW, and (3) the discharge to the POTW does not prevent sewage sludge use or disposal by the POTW in accordance with section 405 of the CWA. EPA promulgated removal credit regulations that are codified at 40 CFR 403.7.

On February 19, 1993, EPA amended the part 403 General Pretreatment Regulations to add a new Appendix G that includes two lists of pollutants eligible for a removal credit with respect to the use or disposal of sewage sludge if the other procedural and substantive requirements of 40 CFR 403.7 are met. The first list (Appendix G—Section I) includes, by sewage sludge use or disposal practice, the pollutants regulated in EPA's Standards for the Use or Disposal of Sewage Sludge (40 CFR part 503). The second list (Appendix G—Section II) includes, by sewage sludge use or disposal practice, additional pollutants eligible for a removal credit if the concentration of the pollutant in sewage sludge does not exceed the prescribed concentration. The pollutants in Appendix G—Section II are the pollutants EPA evaluated and decided not to regulate during the development of the part 503 regulation. See 58 FR 9381–9385, February 19, 1993.

The October 1995 proposal addressed the concentration for total chromium for land-applied sewage sludge on the list of pollutants in Appendix G—Section II of the part 403 regulations. EPA concluded after reviewing comments on the proposed concentration to establish the concentration at the value in today's final rule.

IV. Final Amendments to the Part 503 Land Application, Surface Disposal, Pathogen, and Vector Attraction Reduction Requirements

A. Ceiling Concentration Limits—Land Application

In the October 25, 1995, document, EPA proposed to amend the applicability section of the land application requirements to clarify that the ceiling concentration limits (Table 1 of § 503.13) apply to all sewage sludge that is land-applied. Specifically, EPA proposed to amend § 503.10(b)(1), (c)(1), (d), (e), (f), and (g) to expressly provide that the ceiling concentration limits have to be met in all cases. All commenters on this proposed change concurred with the change. Thus, today's action amends § 503.10(b)(1), (c)(1), (d), (e), (f), and (g) to require that the ceiling concentration limits in Table 1 of § 503.13 be met.

B. Frequency of Monitoring

Sections 503.16, 503.26, and 503.46 require periodic monitoring of sewage sludge for pollutants as well as periodic demonstration of compliance with certain pathogen density and vector attraction reduction requirements. The frequency of monitoring varies with the amount of sewage sludge used or disposed. The current regulation allows the permitting authority, after two years of monitoring, to reduce the frequency, but in no case may the permitting authority authorize monitoring less frequently than once a year. EPA proposed to amend the regulation to authorize the permitting authority to reduce the frequency of monitoring for pollutants and certain pathogen density requirements [1] to less than once a year.

Several commenters opposed the proposed change because they believed it would undermine public confidence in the quality of sewage sludge that is used or disposed. They stated that consistent monitoring of sewage sludge is essential to retaining public support for the part 503 regulation.

The Agency does not agree that the proposed change to the frequency of monitoring requirements means that consistent monitoring of sewage sludge will not continue. The reduction in the frequency only applies to pollutant concentrations and certain pathogen density requirements, and only can be made by the permitting authority.

EPA has decided to modify § 503.16, § 503.26, and § 503.46 to delete the requirement to monitor at least once per year. This change provides flexibility to permitting authority to tailor monitoring requirements to specific circumstances without jeopardizing public health and the environment.

Today's change allows, but does not require, the permitting authority to reduce the frequency of monitoring. Moreover, the permitting authority's ability to reduce the monitoring frequency is limited to monitoring for pollutants and the enteric virus and viable helminth ova density requirements in pathogen Class A,

[1] For example, EPA proposed to authorize the permitting authority to reduce the frequency of monitoring for the pathogen densities in § 503.32(a)(5)(ii) and § 503.32(a)(5)(iii). The frequency of monitoring for all other pathogen densities (e.g., the 1000 MPN per gram of total solids fecal coliform requirement for all Class A pathogen alternatives), and for the vector attraction reduction options (e.g., 38 percent volatile solids reduction) cannot be reduced by the permitting authority.

Alternative 3 (see § 503.32(a)(5)(ii) and (5)(iii)). This change does not apply to any other pathogen density requirement or to the vector attraction reduction requirements. Further, this change does not preclude the permitting authority from increasing the frequency of monitoring even if they reduce the frequency after two years of monitoring at the part 503 frequency.

Thus, EPA is today amending § 503.16(a)(2), § 503.26(a)(2), and § 503.46(a)(3) by deleting the phrase ''* * * but in no case shall the frequency of monitoring be less than once per year when * * *'' Note that the part 503 frequency of monitoring requirements do not apply if sewage sludge is not land-applied, surface-disposed, or fired in a sewage sludge incinerator during the year.

C. Certification Language

Sections 503.17 and 503.27 of the current sewage sludge regulation require sewage sludge preparers and land appliers, and the owner/operator of a surface disposal site, respectively, to keep certain records, and in the case of a Class I sludge management facility, to report this information to the permitting authority. The regulation also requires the recordkeepers to certify to compliance with applicable requirements. Failure to certify may result in significant penalties.

The October 1995 notice proposed to change the certification language in the part 503 recordkeeping sections because the effect of requiring the appropriate person to certify compliance may be to discourage self-reporting of violations. If a requirement is not being met, the applicable person obviously cannot certify to compliance with the requirement without perjury. EPA proposed only to require that the applicable person certify to the accuracy of the information that was collected to show compliance. Compliance with the requirement then would be determined by the permitting authority.

Commenters supported the proposed change. One commenter expressed concern, however, that the language change may be construed to relieve preparers of land-applied sewage sludge from meeting certain requirements. This is not the case. As indicated in § 503.7, the preparer of land-applied sewage sludge is responsible to ensure that the applicable land application requirements are met. The change in the certification language does not relieve a preparer from this duty. Under the regulation, as amended, the appropriate person must certify that information collected to show compliance with a requirement was prepared under his/her direction and supervision in accordance with the system designed to ensure that qualified personnel gather and evaluate information properly.

Another commenter suggested that the certifications in the land application recordkeeping section (§ 503.17) for the preparer be combined into one certification. The commenter also suggested this be done for the certifications for the applier. EPA has decided to retain the current certifications in the land application recordkeeping section without change because they contain the applicable certification for each requirement (i.e., pollutants, pathogens, and vector attraction reduction), and ensure there is no confusion about who is to certify to what.

Today's action amends § 503.17 by revising the certification language as described above in paragraphs (a)(1)(ii), (a)(2)(ii), (a)(3)(i)(B), (a)(3)(ii(A), (a)(4)(i)(B), (a)(4)(ii)(A), (a)(5)(i)(B), (a)(5)(ii)(F), (a)(5)(ii)(H), (a)(5)(ii)(J), (a)(5)(ii)(L), (a)(6)(iii), and (b)(6). EPA is also amending § 503.27 by revising the certification language in paragraphs (a)(1)(ii), (a)(2)(ii), (b)(1)(i), and (b)(2)(i).

D. Time of Application

In the October 25, 1995 Notice, EPA proposed to change certain of the recordkeeping requirements for land-applied sewage sludge and for domestic septage applied to agricultural land, forest, or a reclamation site. EPA proposed to delete the requirement in § 503.17(a)(5)(ii)(C) and § 503.17(b)(3) to record the time of application of bulk sewage sludge and domestic sewage, respectively, to a site. At the same time, EPA proposed to add a new requirement in § 503.17(a)(4)(ii)(E) for Class B sewage sludge. This change would require appliers of Class B sewage sludge to record the date bulk sewage sludge is applied to each site. EPA concluded that, because the regulation restricts the use of sites to which Class B sewage sludge is applied,[2] it is important to record the date Class B sewage sludge is land-applied. For the reasons discussed at proposal, EPA is today adopting these changes.

E. Definition of pH

EPA also proposed a change to the definition of pH to clarify that pH should be measured at 25 degrees Centigrade (C) or be converted to an equivalent value at 25 degrees C. Twenty-five degrees C is the reference temperature for reporting pH values in the scientific literature.

Commenters favored the proposed change, which EPA is today adopting as proposed. Today's notice amends the definition of pH in § 503.31(g) to read as follows: pH means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

The following equation from Smith and Farrell can be used to adjust pH values taken at temperatures other than 25 degrees C to equivalent values at 25 degrees C:

$$\text{pH correction} = [0.03 \text{ pH units}/1.0^\circ \text{ C}] \times [\text{Temp}^\circ C_{meas} - 25^\circ \text{ C}]$$

This equation indicates that for each degree difference between the measured temperature in degrees C and 25 degrees C, there is a change in pH of 0.03 units. Thus, if a pH of 12 is measured at 20 degrees C, the pH at 25 degrees C is 11.85 [12 + (0.03 × −5)]. There is an inverse relationship between temperature and pH.

F. Class B, Alternative 1—at the Time of Use or Disposal

EPA also proposed to amend § 503.32(b)(2) to change the pathogen reduction requirements in pathogen Class B, Alternative 1 to allow those requirements to be met any time before the sewage sludge is used or disposed. Under the current regulation, these requirements must be met ''at the time the sewage sludge is used or disposed.''

There were two reasons for EPA's decision to propose this change. First, the requirement in § 503.32(b)(2) is inconsistent with the requirements in the two other Class B pathogen alternatives.[3] Part 503 does not require that the requirements in either Class B, Alternative 2 or Class B, Alternative 3 be met at the time the sewage sludge is used or disposed. For example, when the requirements in Class B, Alternative 2 are met, the sewage sludge can be stored and then land-applied. Part 503 does not require additional treatment after the storage period.

Second, EPA concluded that protection of public health and the environment does not require that the Class B pathogen requirements be met at the time sewage sludge is used or disposed. The part 503 rule imposes site restrictions for Class B sewage sludge that is land-applied and management

[2] For example, § 503.32(b)(5) prohibits the harvesting of food crops with harvested parts below the land surface up to 38 months after land application of a Class B sewage sludge.

[3] These alternatives are Class B, Alternative 2 (treat sewage sludge in a Process to Significantly Reduce Pathogens (PSRP)) and Class B, Alternative 3 (treat sewage sludge in a process that is equivalent to a PSRP). See § 503.32(b)(3) and § 503.32(b)(4).

practices for surface-disposed Class B sewage sludge irrespective of which Class B pathogen alternative is selected. The site restrictions and management practices allow time for the environment to further reduce remaining pathogens in the sewage sludge to below detectable levels.

To make the Class B pathogen alternatives consistent, the Agency proposed to delete the requirement that the fecal coliform density in Class B, Alternative 1 be met at the time of use or disposal. This means that the fecal coliform density requirement can be met any time (e.g., before storage) before the sewage sludge is used or disposed. As mentioned above, the site restrictions for land-applied Class B sewage sludge and the surface disposal management practices provide time for the environment to further reduce the remaining pathogens in Class B sewage sludge to below detectable levels.

One commenter opposed the proposed change believing that it would increase the public health risk, particularly when the sewage sludge is stored before it is used or disposed. The Agency disagrees and is adopting the change as proposed.

There is no evidence of increased incidences of disease from exposure to Class B sewage sludge that is either stored, or used or disposed. There is evidence, however, that over time the densities of *Salmonella sp.* bacteria, enteric viruses, and viable helminth ova in sewage sludge are reduced to below detectable levels by environmental conditions. Thus, in EPA's judgement, public health and the environment are protected when the Class B pathogen requirements and the land application site restrictions for a Class B sewage sludge are met. With respect to the concern about stored sewage sludge, the U.S. Department of Agriculture and EPA are preparing guidance on storage of sewage sludge. This guidance will address, among other things, good practices for storing sewage sludge. Today's action amends § 503.32(b)(2)(i) to indicate that seven representative samples of the sewage sludge that is used or disposed shall be collected.

G. Site Restriction for Grazing of Animals

EPA also proposed to change the site restriction in § 503.32(b)(5)(v). The current regulation indicates that animals shall not be allowed to graze for 30 days after land application of a Class B sewage sludge. The language in the proposed change indicates that animals shall not be grazed for 30 days after land application of a Class B sewage sludge. This restriction applies to the intentional, not inadvertent, grazing of animals. Commenters supported this change, and EPA is adopting it today.

H. Vector Attraction Reduction Equivalency

Sewage sludge has a number of qualities that may attract disease-spreading agents—''vectors''—like birds, flies and rats. The part 503 regulation includes requirements for reducing what is called ''vector attraction'' potential. The regulation allows use of any of 10 vector attraction reduction options when sewage sludge is applied to the land (or 11 options in the case of sewage sludge that is placed on a surface disposal site). See 40 CFR 503.33.

In the October 25, 1995, notice, EPA proposed to allow the use of other vector attraction reduction options for any of the eight treatment options if the permitting authority determined that such an option was ''equivalent,'' (i.e, equally effective in reducing vector attraction). This flexible approach is similar to that provided currently in the part 503 regulation for Class A and Class B pathogen reduction processes. Processes other than those prescribed in the regulation may be used to reduce pathogens if the permitting authority determines they are equivalent.

All of the commenters supported the proposed change. However, none of the commenters provided information necessary to develop appropriate measures that could be used to determine whether an option is equivalent to one of the first eight vector attraction reduction options. Without such measures, equivalency cannot be determined.

Because no measures exist currently that can be used to determine whether a vector attraction reduction option is equivalent to one of the first eight vector attraction reduction options, EPA concluded that the part 503 regulation should not be amended at this time to allow for vector attraction reduction equivalency. For this reason, today's action does not amend § 503.15(c), § 503.25(b), and § 503.33(a).

The Agency encourages anyone with information that can be used to develop appropriate measures for vector attraction reduction equivalency to submit the information to EPA. If measures can be developed, EPA will consider reproposing the changes to § 503.15(c), § 503.25(b), and § 503.33(a) to allow an option that is equivalent to one of the first eight vector attraction reduction options, if the equivalent option is approved by the permitting authority.

I. Vector Attraction Reduction at the Time of Use or Disposal

Another proposed change in the October 25th notice was the time when certain vector attraction reduction options have to be met. Under the current regulation, vector attraction reduction Options 1 through 8 can be met any time before the sewage sludge is used or disposed. In the case of Options 9, 10, and 11, however, they must be met at the time the sewage sludge is used or disposed.

The October 25th notice proposed to change the time when vector attraction reduction Options 6, 7, and 8 have to be met. The proposed change required that those options be met at the time the sewage sludge is used or disposed rather than any time before the sewage sludge is used or disposed.

As explained in the proposal (60 FR 54775, October 25, 1995), vector attraction reduction achieved by pH adjustment (Option 6) may not always be permanent. The target pH conditions in Option 6 allow sewage sludge to be stored for some period before use or disposal without the pH dropping. If the sewage sludge is stored for some longer period of time, however, the pH may drop. At that point, biological activity in the sewage sludge may resume, and the sewage sludge may putrefy and attract vectors.

Similarly, in the case of vector attraction reduction Options 7 and 8, the moisture content of the sewage sludge may increase during storage after the percent solids requirements are met, and biological activity could increase. This also could cause vectors to be attracted to the sewage sludge.

EPA received a significant number of comments opposing the proposed change for Option 6—pH adjustment. Several commenters stated that the proposed change to Option 6 would require them to adjust the pH of the sewage sludge twice—once before storage and then again after storage before use or disposal. This would increase the cost of Option 6.

The commenters assumed incorrectly that part 503 requires the pH of the sewage sludge to be adjusted prior to storage. EPA only proposed to require that the pH be adjusted at the time of use or disposal. Thus, the only cost attributable to part 503 would be the cost of one pH adjustment at the time of use or disposal.

The commenters presented several other reasons for retaining Option 6 in its current form. These include the following. First, nutrient problems could result when high pH sewage sludge is land-applied (micro nutrients

are less available for plant uptake in high pH soils, particularly in coastal plains). Second, the high calcium content of the sewage sludge will lower the agronomic rate for the application site. Third, the effectiveness of herbicides applied to a site will be reduced because herbicides are less available in high pH soils. Finally, sewage sludge with a high pH may induce manganese deficiency because manganese is more water soluble at high pH and, thus, may be removed from a site through leaching to ground water. Some commenters also indicated that if Option 6 is changed, ''unstabilized'' sewage sludge could be stockpiled or stored and could cause harm to public health. Other commenters indicated there have been no vector attraction problems in cases where the pH of the sewage sludge is adjusted prior to storage, but not at the time of use or disposal.

The only comment on the proposed change to Options 7 and 8 (i.e., percent solids) suggest that these options are often relied on by small POTWs. Thus, the change may have an economic impact on those POTWs.

After further review, EPA concluded that the time when vector attraction reduction Options 6, 7, and 8 have to be met should not be changed. In cases where Option 6 is met prior to storage of the sewage sludge, the pH of the sewage sludge could drop during storage. The Agency agrees, however, that there have been no documented cases of vector attraction problems when this occurs, and that it is desirable to reduce the attractiveness of stored sewage sludge to vectors. In addition, there are measures that can be taken to keep the pH of the sewage sludge from dropping during storage. Thus, the time when Option 6 can be met (i.e., any time before the sewage sludge is used or disposed) remains unchanged.

In the case of Options 7 and 8, the Agency is not aware of any documented cases concerning protection of public health and the environment when those options are met prior to use or disposal. Thus, the time when Options 7 and 8 can be met (i.e., any time before the sewage sludge is used or disposed) also remains unchanged.

J. Time Period for Vector Attraction Reduction Option 10

In the October 25, 1995, notice, EPA proposed to modify the part 503 regulation to allow the permitting authority to change the time period sewage sludge has to be incorporated into the soil in vector attraction reduction Option 10. Vector attraction reduction Option 10 requires incorporation of sewage sludge into the soil within six hours after it is land-applied or surface-disposed. This reduces the attraction of vectors to the sewage sludge by placing a barrier between the sewage sludge and the vectors. EPA proposed this change to allow the permitting authority to consider site-specific conditions (e.g., the remoteness of the land application site) that may affect the time period during which sewage sludge can be incorporated into the soil.

Commenters supported the proposed change. However, one commenter asked EPA to modify the language so as to make it clear that, while the permitting authority may relax the time requirements in Option 10, the permitting authority could not tighten them. EPA is rejecting this suggestion because there may be circumstances in which more rapid soil incorporation is necessary to protect public health and the environment.

The current regulation authorizes the permitting authority to modify the existing part 503 requirements where warranted by circumstances. Section 503.5(a) indicates that a permitting authority may impose additional or more stringent requirements than the requirements in part 503 if necessary to protect public health and the environment. Section 503.5(b) indicates that a State or political subdivision thereof can establish additional or more stringent requirements than those in part 503 for any reason.

EPA is today amending § 503.33(b)(10)(i) to allow the permitting authority to increase the time period during which sewage sludge has to be incorporated into the soil. Only the permitting authority can authorize a time period that is different from the time period in part 503.

K. Technical Corrections

In the October 25, 1995 Notice, EPA proposed several technical corrections to part 503 that were minor in nature and that clarified some of the technical requirements of the part 503 regulation. Commenters supported the clarifications. Today's final amendment makes the following technical corrections to the part 503 regulation with the one exception discussed below.

1. Sections 503.16(a)(1) and 503.26(a)(1)—Frequency of Monitoring

Sections 503.16(a)(1) and 503.26(a)(1) contain the requirements for monitoring for pollutants, pathogen densities, and vector attraction reduction. Those sections indicate there are pathogen density requirements in § 503.32(b)(3) and (b)(4). This is incorrect. Today's final amendment deletes the reference to § 503.32(b)(3) and (b)(4) from § 503.16(a)(1) and § 503.26(a)(1).

Sections 503.16(a)(1) and 503.26(a)(1) also indicate that the frequency of monitoring requirements apply to vector attraction reduction Option 5 in § 503.33(b)(5) and Option 6 in § 503.33(b)(6). This also is incorrect. Today's final amendment deletes the reference to vector attraction reduction Options 5 and 6 from § 503.16(a)(1) and § 503.26(a)(1).

2. Section 503.17(b)(7)—Recordkeeping for Land Application of Domestic Septage

Today's final amendment changes § 503.17(b)(7) by changing an incorrect reference.

3. Section 503.18—Reporting

Today's final amendment corrects the omission of a reporting date in the part 503 regulation by inserting February 19th in § 503.18(a)(2).

4. Section 503.21(c)—Contaminate An Aquifer

Today's final amendment corrects the reference to the maximum contaminant level for nitrate in § 503.21(c). On January 30, 1991, EPA published a regulation (56 FR 3526) that changed the reference for the maximum contaminant level for nitrate from 40 CFR 141.11 to 40 CFR 141.62(b). That change was effective July 30, 1992. For this reason, the reference to the maximum contaminant level for nitrate in the definition of contaminate an aquifer is being changed to 40 CFR 141.62(b) in today's final rule.

5. Section 503.22(b)—General Requirements

Today's final amendment changes § 503.22(b) by correcting the statutory reference and by inserting the appropriate date.

6. Section 503.32(a)(3)—Pathogens

In the October 1995 notice, EPA indicated that pathogen Class A, Alternative 1 only applies to thermal processes such as anaerobic digestion, and does not apply to composting. Upon further review, EPA concluded that the time/temperature conditions in Class A, Alternative 1 can be achieved through composting. If the temperature of every particle of the composted sewage sludge is raised to the appropriate value for the appropriate time period, *Salmonella sp.* bacteria, enteric viruses, and viable helminth ova in the sewage sludge are reduced to below detectable levels. For this reason, the proposed change to

§ 503.32(a)(3) to exclude composting is not being made.

7. Appendix B to Part 503—Pathogen Treatment Processes

The description of Process to Further Reduce Pathogens (PFRP) No. 6 (Gamma ray irradiation) is corrected to insert the phrase ''at dosages of at least 1.0 megarad at room temperature (ca. 20° C)'' that was omitted inadvertently.

V. Final Amendments to the Part 503 Incineration Requirements

A. Compliance Period

In the October 25, 1995, proposal, EPA proposed to amend § 503.2 to require compliance with the revised incineration requirements in subpart E of part 503 as expeditiously as practicable, but in no case later than 90 days after publication of the final amendment. If compliance with the revised subpart E requirements required construction of new pollution control facilities compliance had to be achieved as expeditiously as practicable but no later than 12 months after publication of today's final amendment.

Commenters indicated that 90 days are not enough to comply with the revised incineration requirements, particularly the requirement to install continuous emission monitors for total hydrocarbons (THC). EPA agrees, and has increased the time to comply with the revised requirements in subpart E.

Today's final rule amends § 503.2 by adding a new paragraph (d) that, unless otherwise specified in subpart E, requires compliance with the revised subpart E requirements in the final rule as expeditiously as practicable, but in no case later than 12 months after the effective date for the final rule. If new pollution control facilities have to be constructed to comply with the revised requirements, compliance with the revised subpart E requirements shall be achieved as expeditiously as practicable, but no later than 24 months after the effective date for the final rule.

B. Site-Specific Exemption From Frequency of Monitoring, Recordkeeping, and Reporting Requirements

The October 25, 1996, notice proposed to amend the applicability section in § 503.40 to exempt sewage sludge incinerators on a site-specific basis from the frequency of monitoring, recordkeeping, and reporting requirements for a specific pollutant in defined circumstances. Under the proposed approach, if the limit for arsenic, cadmium, chromium, lead or nickel, determined pursuant to § 503.43, is significantly higher than the measured concentration for the pollutant, the permitting authority could exempt the pollutant from the above requirements so long as the incinerator continued to operate within the values for the incinerator operating parameters established during the performance test required by the regulation. The notice requested comments on whether this approach is appropriate, and how to determine whether the calculated limit for a pollutant is significantly higher than the measured concentration of the pollutant in sewage sludge.

All commenters favored allowing such an exemption. With respect to how to determine whether a calculated pollutant limit is significantly higher than the measured concentration, commenters suggested two different approaches. The first limits the availability of the exemption for a pollutant to circumstances in which the monthly average pollutant concentration did not exceed 50 percent of the calculated limit. The second approach varies the frequency of monitoring, based on the percentage the measured concentration bore to the calculated limit. For example, the frequency of monitoring could be reduced to once per year if the measured concentration is 80 percent of the calculated limit. If the measured concentration is 60 percent of the calculated limit or less, there would be no monitoring requirement for that pollutant.

After considering this proposed change further, EPA has decided not to amend the regulation for the following reasons. Although several commenters offered suggestions on how to determine whether a calculated limit is significantly higher than the measured concentration for a pollutant, no commenter provided any test the permit writer could apply for ensuring that, in fact, the actual concentration for the pollutant falls substantially below the calculated limit. Moreover, there are questions about how much data are needed to support an exemption and the period of the exemption (e.g., one year, five years, or forever). In addition, there are many factors that could affect the actual concentration of a pollutant in sewage sludge (e.g., variability of the pollutant in the influent to the treatment works).

Another concern EPA has about the proposed change is the assumption that the incinerator will be operated as it was during the performance test. There are many factors that affect the performance test results (e.g., feed rate and excess oxygen). If these factors change, the calculated limits for a pollutant could change.

Given the concerns about changes in both the calculated limit and the measured concentration of a pollutant in sewage sludge, EPA concluded that the part 503 regulation should not provide for a site-specific exemption from the frequency of monitoring, recordkeeping, and reporting requirements in subpart E. Thus, today's notice does not amend § 503.40 to add a new paragraph (d).

C. Pollutant Limits for Arsenic, Cadmium, Chromium, Lead and Nickel

In the October 25, 1995 notice, EPA proposed several changes to the requirements in § 503.43 for sewage sludge that is incinerated. As explained in greater detail in the preamble to the proposal (60 FR 54777–54779, October 25, 1995), 40 CFR 503.43 establishes limits on the allowable ''daily concentration'' of arsenic, cadmium, chromium, lead and nickel in sewage sludge. The allowable limits are calculated using equations set forth in the regulation, and are dependent on a number of factors that vary with specific conditions at an incinerator site. To calculate the limit for each of the five pollutants, the regulation requires determination of two factors that are dependent on site-specific conditions. They are: (1) A dispersion factor (DF)—how pollutants are dispersed when they exit the incinerator stack, and (2) the incinerator's control efficiency (CE)—how efficiently the incinerator removes a pollutant in the sewage sludge that is incinerated. The regulation requires use of an air dispersion model to determine the DF and a performance test to establish the CE, both of which must be specified by the permitting authority. In addition, in the case of chromium, the regulation requires the permitting authority to determine whether the risk specific concentration (RSC) for chromium, which is used to establish the allowable chromium sewage sludge pollutant concentration, should be based on default values provided in the regulation (Table 2 of § 503.43) or determined by a site-specific calculation.

The requirement for site-specific action by the permitting authority has significant implications for compliance and enforcement of the regulation. Site-by-site tailoring of a particular incinerator's requirements effectively defers the determination of an individual incinerator's limits until action by the permitting authority. Given the resource-intensive nature of these site-by-site determinations and constraints on available resources, EPA

proposed to adopt a different approach. The Agency proposed to delete the requirement for the permitting authority to approve the air dispersion modeling and performance tests used to determine DF and CE, respectively, as well as modify the requirement for the permitting authority to determine the appropriate chromium RSC. EPA also proposed to clarify the definition of the allowable concentration of a pollutant in sewage sludge.

1. Average Daily Concentration

EPA proposed to revise 40 CFR 503.43(c)(1) and (d)(1) to clarify that the calculated sewage sludge concentration is an *average* daily concentration based on the number of days in a month that the incinerator operates. This change made the calculated concentration consistent with the risk specific concentration (i.e., the allowable ambient air concentration for a pollutant developed through risk assessment) for a pollutant.

Comments on this proposed changed were generally favorable, but the commenters asked for a clarification with respect to the number of days in the month the incinerator operates. Commenters questioned whether the calculated limit was a monthly average. Upon further review, EPA concluded that it is not appropriate to calculate the allowable concentration of a pollutant in sewage sludge fed to a sewage sludge incinerator using the number of days in the month the incinerator operates. Instead, the average daily concentration should be the arithmetic mean of the concentration of a pollutant in the samples collected and analyzed during a month. Thus, if one sample is collected and analyzed during the month, the average daily concentration is the concentration of a pollutant in that sample. If two samples are collected and analyzed during the month, the average daily concentration is the arithmetic mean of the concentration of a pollutant in those two samples. Likewise, if only one sample is collected and analyzed during the year, the average daily concentration is the concentration for a pollutant in that one sample.

After considering the comments on the proposed change to the allowable concentration of a pollutant in sewage sludge, EPA concluded that the allowable concentration should be an average daily concentration. Thus, today's notice amends § 503.43(c)(1) and (d)(1) by changing the definition of ''C'' in equations (4) and (5), respectively, to average daily concentration. Today's notice also amends § 503.41—Special Definition—by adding the following definition for average daily concentration: ''Average daily concentration is the arithmetic mean of the concentration of a pollutant in milligrams per kilogram of sewage sludge (dry weight basis) in the samples collected and analyzed in a month.''

2. Approval of Air Dispersion Model and Performance Test

As noted above, the October 1995 notice proposed to amend the regulation to delete the requirement in § 503.43(c)(2), (c)(3), (d)(4), and (d)(5) for the permitting authority to specify the air dispersion model and performance test used to calculate the sewage sludge pollutant limits. EPA received no comments on these proposed changes. Therefore, today's notice amends § 503.43 (c)(2), (c)(3), (d)(4), and (d)(5) by deleting the requirement for the permitting authority to specify how to meet these requirements.

EPA also proposed amending § 503.43(d)(3) to delete the requirement for the permitting authority to specify one of the two means of calculating the risk specific concentration for chromium. EPA received only one comment, and it favored the proposed change. Thus, today's final rule amends § 503.43(d)(3) by deleting the requirement for the permitting authority to specify how to meet this requirement.

The October 1995 notice also proposed to add a new paragraph (e) to § 503.43. This paragraph contains requirements for air dispersion modeling and performance tests to serve the purpose of the deleted requirements in § 503.43(c)(2), (c)(3), (d)(4), and (d)(5) that the permitting authority specify the air dispersion model and performance test.

The proposed § 503.43(e)(1) required that any air dispersion model and performance test be ''consistent with good air pollution control practices for minimizing air pollution.'' One commenter objected to this provision asserting that such a requirement was inappropriate. In the commenter's view, an air dispersion model and a performance test are used to measure something, not to minimize air emissions. EPA concurs with the comment on § 503.43(e)(1). Thus, today's final amendment only requires that the air dispersion model be appropriate for the geographical, physical, and population characteristics at the incinerator site, and that the performance test be appropriate for the type of sewage sludge incinerator.

Proposed § 503.43(e)(2) required that an air dispersion modeling protocol be submitted to the permitting authority within 30 days of the publication date of this final amendment. The permitting authority would then have 30 days to review the protocol, including the selected air dispersion model, and provide comments on the protocol. If the permitting authority did not object within 30 days, the protocol could be used to determine the dispersion factor for the incinerator site. No comments were received on this proposed requirement.

Upon further review, EPA concluded that the air dispersion model protocol should not be submitted to the permitting authority 30 days from the date of publication of this final amendment because the Agency lacks the resources to review and comment on the protocol within 30 days after it is received. Instead, today's action amends § 503.43(e)(2) to require that results of air dispersion modeling initiated after September 3, 1999, be submitted to the permitting authority no later than 30 days after completion of the modeling. This requirement does not apply to air dispersion modeling completed prior to September 3, 1999.

EPA encourages the person who conducts the air dispersion modeling to coordinate with the permitting authority prior to conducting the modeling. This could prevent future problems if the permitting authority has concerns about the air dispersion modeling.

As indicated in the October 1995 notice, EPA has published several guidance documents that contain recommendations on how to select appropriate air dispersion models. These models consider such site-specific factors as stack height, stack diameter, stack gas temperature, exit velocity and topography of surrounding terrain. See Guidelines on Air Quality Models in Appendix W to 40 CFR part 51 and in the U.S. EPA, ''Technical Support Document for Sewage Sludge Incineration'' at Section 5.6.1 (EPA 822/R–93–003, November 1992). Information on air quality models also can be obtained from the Support Center for Regulatory Air Models (SCRAM) on the Technology Transfer Network, (http://ttnwww.rtpnc.epa.gov/).

Proposed § 503.43(e)(3) contained the minimum procedures for conducting a performance test. A performance test measures the degree to which a sewage sludge incinerator and associated air pollution control devices remove a pollutant. As previously explained, the pollutant control efficiency from a performance test is used to calculate the allowable concentration of a pollutant in sewage sludge fired in the incinerator.

The procedures in the proposed § 503.43(e)(3) parallel the procedures in 40 CFR 60.8, a regulation that describes the general procedures for conducting performance testing under the Clean Air Act. EPA concluded that it is necessary to specify minimum procedures for conducting performance tests now that the part 503 incineration requirements are self-implementing.

The procedures in proposed § 503.43(e)(3)(i) require that the performance test be conducted under representative incinerator conditions at the highest expected sewage sludge feed rate within design specifications. A commenter suggested that EPA should recognize the variability in the feed rate during the operation of the sewage sludge incinerator.

EPA agrees that the feed rate used in performance tests may well differ from the sewage sludge feed rate during day-to-day operation of the incinerator. Part 503 takes this into account by requiring that the ''highest expected'' feed rate be used in the performance test. Because the actual feed rate is expected to be equal to or less than the highest expected feed rate, the actual feed rate should not cause the control efficiency for a pollutant to decrease during the day-to-day operation of the incinerator.

The above comment is more applicable to the feed rate used to calculate the limit for a pollutant than to the feed rate during a performance test. As provided in the current rule, the sewage sludge feed rate used in the equations in § 503.43(c)(1) and (d)(1) to calculate the limit for a pollutant takes the feed rate during operation into account. The feed rate used in these equations is either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365 day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located (see § 503.41(j)). This definition recognizes potential variability in the actual feed rate, and accounts for the variability by providing for averaging over a 365 day period.

The October 25, 1995, proposal required in § 503.43(e)(3)(ii) that the permitting authority be notified at least 30 days prior to a performance test so that the permitting authority may have the opportunity to comment on the test protocol and test methods, and to observe the test. This requirement does not apply in cases where performance tests were conducted prior to September 3, 1999. This change is included in today's final rule as proposed.

EPA has decided not to adopt a provision it proposed as § 503.43(e)(3)(iii) that would have required that performance testing facilities contain safe sampling platforms and safe access to them because that provision is not related directly to the use or disposal of sewage sludge. In addition, for sewage sludge incinerators subject to 40 CFR part 60, subpart O, the proposed provision reflects a similar provision in 40 CFR 60.8 concerning performance tests. There also may be other federal or state safety requirements that govern the way performance tests are conducted. Therefore, the Agency concluded that this provision does not need to be in today's final rule.

Today's final § 503.43(e)(3)(iii), proposed as subparagraph (e)(3)(iv), concerns the number of runs for a performance test. Each performance test shall consist of three runs. The arithmetic mean of the results of the three runs is the control efficiency for a pollutant. All commenters on this proposal agreed with the requirement. Thus, this requirement in today's final rule is the same as it was in the proposal.

Today's action also promulgates § 503.43(e)(4) as proposed on October 25, 1995. This provision requires that the calculated pollutant limits be submitted to the permitting authority within 30 days of completion of air dispersion modeling and performance tests.

As proposed, § 503.43(e)(5) requires new air dispersion modeling and performance testing when there are ''significant changes'' in specific aspects of the site or in incinerator operating conditions. One commenter asked how high above the feed rate in the performance tests or the feed rate used to calculate pollutant limits can the actual feed rate be before a new performance test or a new limit for a pollutant is required. One possibility is to allow the actual feed rate to increase by a certain percentage (e.g., 10 percent) of the feed rate in the performance test or the feed rate used to calculate a limit before a new performance test has to be conducted or a new limit for a pollutant calculated.

Another possibility is to decide how much the actual feed rate can increase on a case-by-case basis. Under this approach, all the factors that affect the decision on whether to conduct a new performance test or calculate a new limit can be considered. For example, if the measured concentration of a pollutant in sewage sludge is significantly lower than the calculated limit for the pollutant, public health may still be protected if the feed rate increases by more than 10 percent, while in another case, an increase of 10 percent in the feed rate may result in a pollutant limit being exceeded.

Today's final rule does not specify when new performance tests have to be conducted or when new pollutant limits have to be calculated. Section 503.43(e)(5) indicates that significant changes in incinerator operating conditions will require that new performance tests be conducted. The decision on whether a change in operating conditions, including feed rate, is significant will be determined on a case-by-case basis by the permitting authority. Protection of public health should be the major factor in deciding whether to conduct new performance tests or calculate new pollutant limits.

3. Technical Corrections

The October 1995 notice also proposed three technical corrections to § 503.43(d)(1) and (d)(2). Two of the changes corrected typographical errors in the definition of terms in (d)(1) and the other change corrected a reference in (d)(2). These changes are included in today's final rule.

4. Air Emissions Analytical Methods

The preamble in the October 1995 notice requested comments on whether to specify methods to analyze emissions from sewage sludge incinerator stacks in part 503. Commenters on the proposal recommended that EPA not include specific test methods for air emissions in part 503 because EPA approved methods already are required in other regulations. EPA agrees with the commenters.

EPA's Office of Air Quality Planning and Standards has approved Method 29 in 40 CFR part 60, Appendix A as a method for determining compliance with the particulate emissions standards in subpart O of 40 CFR part 60 (Standards of Performance for Sewage Treatment Plants), and the beryllium and mercury emissions standards in subparts C and E, respectively, of 40 CFR part 61 (National Emission Standards for Hazardous Air Pollutants). This method only requires that one sampling train be used. The methods in 40 CFR part 266 (Boilers and Industrial Furnaces), Appendix IX, section 3.1 also can be used to measure emission rates. When those methods are used, more than one sampling train is needed. Because both methods are available, today's final rule does not specify a method to measure emission rates. EPA recommends, however, that Method 29

be used during the performance test required by part 503 because that method only requires one sampling train.

D. Management Practices

Sections 503.45(a)(1) and § 503.45(b)–(d) of the sewage sludge regulation require the installation of instruments that continuously monitor total hydrocarbons (THC) concentration, oxygen concentration, information to determine moisture content in the sewage sludge incinerator stack emissions, and combustion temperature, respectively. These instruments must be installed, calibrated, operated, and maintained ''as specified by the permitting authority.''

As explained in the October 1995 proposal (60 FR 54779), the part 503 regulation required the permitting authority to specify the manner in which the above instruments are installed calibrated, operated, and maintained because, at the time the regulation was published, there was only limited EPA guidance in this area. Because there is now EPA guidance on how to install, calibrate, operate, and maintain the above instruments, EPA proposed to amend § 503.45(a)(1) and § 503.45(b)–(d) to delete the requirement that the permitting authority specify how the instruments required by those sections are installed, calibrated, operated, and maintained. With one exception, all comments received on the proposed changes concurred with the changes.

EPA received one comment suggesting alternative means of demonstrating compliance with the total hydrocarbons or carbon monoxide operational standards. The commenter suggested that EPA consider providing for the site-specific establishment and continuous monitoring of a minimum incinerator exhaust temperature, in lieu of continuous monitoring of total hydrocarbons or carbon monoxide. The commenter also suggested that the incinerator owner/operator be allowed to demonstrate a site-specific correlation between total hydrocarbons and carbon monoxide emissions as an alternative method of demonstrating compliance with either emissions limit. The Agency did not propose either of these alternatives in the October 25, 1995 proposal. However, in the preamble to the proposal, the Agency stated that it would study monitoring for other parameters, including temperature, to measure compliance with either the total hydrocarbon limit or the carbon monoxide limit and would decide whether further amendments to part 503 were needed as a result of the study. (60 FR 54779). EPA undertook this study and produced a report on the feasibility of alternatives to continuous monitoring of total hydrocarbons or carbon monoxide. A copy of the report, entitled ''An Investigation of Alternative Means for Demonstrating Compliance with the part 503 Total Hydrocarbon Operational Standards,'' EPA 822–R–98–001 is in the rulemaking docket. The study indicated that, while technically feasible on a site-specific basis , either of these options would be extremely resource intensive and would involve the permitting authority in complex procedures to determine and approve site-specific temperature limits or site-specific total hydrocarbons/carbon monoxide correlations. As a result of these findings, the Agency, has decided not to pursue either the option of establishing and continuously monitoring for site-specific temperature limits or the option of establishing site-specific correlations between total hydrocarbons and carbon monoxide emissions in lieu of complying independently with either the 100 ppm total hydrocarbons or carbon monoxide emissions limits. However, the Agency invites the public to comment on whether these options for demonstrating compliance should be pursued further and to provide any additional information to supplement the report that EPA relied on in deciding not to allow for these alternatives at this time. Thus, the above changes are included in today's final rule.

In the October 1995 notice, EPA also proposed to delete the requirements in § 503.45 (e) and (f) for the permitting authority to specify the maximum combustion temperature for a sewage sludge incinerator and the values for the operating parameters for the air pollution control devices, respectively. These proposed changes help make the part 503 incineration requirements self-implementing. Commenters supported the proposed modifications, and they are included in today's final rule.

EPA also proposed to amend § 503.45 (e) to require that the maximum combustion temperature for the incinerator, which is based on information obtained during the performance test, not be exceeded significantly. EPA recognized that the combustion temperature of a sewage sludge incinerator could vary. Consequently, the Agency asked for comment on: (1) What averaging period should be used to determine the maximum allowable combustion temperature (daily average, hourly?) and (2) how much the maximum combustion temperature could vary from the performance test maximum combustion temperature.

Commenters' suggestions ranged from measuring maximum operating combustion temperature as a hourly average to a daily average, with temperature monitored hourly. EPA concluded that the operating combustion temperature for a sewage sludge incinerator should be the arithmetic mean of the hourly average temperature in the hottest zone of the furnace for the hours during the day the incinerator operates, and that the maximum allowable operating combustion temperature be based on the average combustion temperature during the performance test (see discussion below). Any variation in the operating combustion temperature over a day is not expected to significantly impact either the concentration of a pollutant in the emissions from the sewage sludge incinerator or the ambient air concentration for the pollutant and, therefore, is not expected to significantly impact public health. Thus, EPA is amending the part 503 regulation to add a new definition to § 503.41—Special Definitions—for incinerator operating combustion temperature as follows: ''Incinerator operating combustion temperature is the arithmetic mean of the temperature readings in the hottest zone of the furnace recorded in a day (24 hours) when the temperature is averaged and recorded at least hourly during the hours the incinerator operates in a day.''

As indicated above, EPA proposed that the maximum allowable operating combustion temperature be based on information obtained during the incinerator performance test required by § 503.43 (c)(3) and (d)(5). The proposed regulation required three separate runs for each performance test. Commenters argued that the maximum combustion temperature from each of the runs should be averaged to determine the maximum combustion temperature for the performance test and that temperature should then be increased by a certain percentage (e.g., 20 percent) to determine the maximum operating combustion temperature.

EPA agrees that an average should be used to describe the combustion temperature in a performance test. The Agency does not agree, however, that the maximum temperature from each run should be averaged and that average increased by a certain percentage to obtain the maximum operating combustion temperature. EPA concluded that the performance test combustion temperature should be the arithmetic mean of the average combustion temperature in the hottest

zone of the furnace from each of the runs in a performance test. This accounts for variability in the combustion temperature because all of the continuously measured temperature readings are used to calculate the arithmetic mean. Thus, today's final rule amends § 503.41—Special Definitions—by adding the following definition for performance test combustion temperature: ''Performance test combustion temperature is the arithmetic mean of the average combustion temperature in the hottest zone of the furnace for each of the runs in a performance test.''

EPA also agrees that the performance test combustion temperature should be increased by a certain percentage to determine the maximum operating combustion temperature for an incinerator. After further review, EPA concluded that a 20 percent increase in the performance test combustion temperature is reasonable. The change in control efficiency resulting from a 20 percent increase in performance test combustion temperature is not expected to be significant because that change is not expected to result in a significant change in the concentration of a pollutant in the incinerator stack emissions and is not expected to result in a significant change in the allowable limit for a pollutant (control efficiency is one of the variables used to calculate the limit for a pollutant). Because neither the stack emissions concentration nor the allowable limit for a pollutant are expected to change significantly, public health is not expected to be impacted significantly with a 20 percent increase in performance test combustion temperature on an average daily basis. This is particularly true with respect to the pollutant limits because the limits are designed to protect public health from a lifetime of exposure (i.e., 70 years). In addition, most of the calculated pollutant limits for sewage sludge incinerators are higher (sometimes several orders of magnitude higher) than the measured sewage sludge concentration for a pollutant. Also, as indicated in the report titled ''Human Health Risk Assessment for Use & Disposal of Sewage Sludge: Benefits of the Regulation'' (EPA 822–R–93–005, November 1992), the estimated aggregate risk (i.e., risk to the entire exposed population) from exposure to emissions from sewage sludge incinerators prior to the establishment of the part 503 incineration requirements (i.e., baseline risk) is low. Because the baseline aggregate risk is low, a 20 percent increase in the performance test combustion temperature on an average daily basis is not expected to impact the risk to the exposed population from incineration of sewage sludge.

A 20 percent increase also provides flexibility needed to operate a sewage sludge incinerator, particularly multiple hearth incinerators. In addition, one of the commenters on the proposal recommended a 20 percent increase even though their recommended increase was in the maximum performance test combustion temperature. As mentioned above, EPA concluded that it is reasonable to apply the increase to the average temperature from the performance test. Thus, § 503.45(e) in today's final rule indicates that the arithmetic mean of the temperature readings in the hottest zone of the furnace recorded in a day when the temperature is average and recorded at least daily (i.e., the operating combustion temperature) shall not exceed the arithmetic mean of the average combustion temperature in the hottest zone of the furnace for each of the runs in the performance test (i.e., the performance test combustion temperature) by more than 20 percent.

Today's final rule amends § 503.45(f) to delete the requirement that the permitting authority specify the air pollution control device operating parameters. Instead, § 503.45(f) requires that the air pollution control device be appropriate for the sewage sludge incinerator and that the operating parameters for the air pollution control device indicate adequate performance of the device. As explained in the preamble to the proposal (60 FR 54780, October 25, 1995), EPA intended that the values for the air pollution control device operating parameters be expressed as a range, and requested comment on what the allowable range of values should be relative to the values determined during the performance test. EPA also requested comments on whether to standardize operating parameters for different air pollution control devices in today's final rule. Operating parameters for different types of air pollution control devices are presented in the ''Technical Support Document for Sewage Sludge Incineration'' in section 7.5 and Appendix M (EPA 822/R–93–003, November 1992).

All commenters opposed EPA establishing standardized operating parameters in part 503 for the different types of air pollution control devices. The operating parameters and the value for the operating parameter should be established on a case-by-case basis. However, if EPA decides to standardize operating parameters, commenters recommended that EPA establish average daily values, and allow flexibility in selecting the values for the operating parameters (e.g., allow values for the operating parameters that are as low as 70 percent of the average daily value in the performance test).

Because the operating parameters vary depending on the type of air pollution control device used and the values for the operating parameters depend on site-specific conditions, EPA agrees that those parameters and values should be determined on a case-by-case basis. Thus, today's § 503.45(f) does not standardize the operating parameters for the different types of air pollution control devices.

Section 503.45(f) in the proposal indicated that operation of the sewage sludge incinerator shall not cause a significant exceedence of the values for the air pollution control device operating parameters. One commenter requested that EPA define ''significant exceedence'' as the phrase was used in proposed § 503.45(f). The commenter suggested that EPA employ a concept that uses 20 percent and 40 percent ranges to define ''significant exceedence.''

Subpart O of 40 CFR part 60 (Standards for Performance for Sewage Sludge Plants) applies to sewage sludge incinerators when the material charged is at least 10 percent sewage sludge or when more than 2205 pounds of sewage sludge are charged per day, and when construction or modification of the incinerator commences after June 11, 1973. That subpart contains the requirements for the operation of the incinerator air pollution control device. For this reason, § 503.45 (f) in today's final rule requires that for sewage sludge incinerators subject to subpart O of 40 CFR part 60, operation of the air pollution control device shall not violate the requirements for the air pollution control device in subpart O.

For all other sewage sludge incinerators, § 503.45 (f) in today's final rule indicates that operation of the sewage sludge incinerator shall not cause a significant exceedence of the average value for the air pollution control device operating parameters from the performance tests required by § 503.43 (c)(3) and (d)(5). EPA decided not to define ''significant exceedance'' in this case at this time. The Agency is considering whether to request comments on the allowable ranges for the values for the air pollution control device parameters in a subsequent proposal to amend the part 503 regulation.

EPA also proposed to add a new section § 503.45(h). As proposed, this provision would require that the instruments required in § 503.45(a)–(d) be appropriate for the type of sewage sludge incinerator, and shall be installed, calibrated, operated, and maintained ''consistent with good air pollution control practice for minimizing air emissions.'' EPA received only one comment on this provision. The commenter argued that the phrase ''consistent with good air pollution control practice for minimizing air emissions'' is not pertinent. EPA agrees that the requirement to install certain instruments for measuring emissions, temperature, etc. is not directly related to emissions capture, and has deleted this phrase from the final rule.

E. Frequency of Monitoring

EPA proposed several changes to the frequency of monitoring requirements in § 503.46 for sewage sludge incinerators. 60 FR 54780–82, October 25, 1995.

1. *Mercury and beryllium*. In the case of mercury and beryllium [4], EPA proposed to delete the requirement that the permitting authority specify the monitoring frequency, and that the frequency be the frequency in the National Emission Standard for Hazardous Air Pollutant (NESHAP) for beryllium in subpart C of 40 CFR part 61 and in the NESHAP for mercury in subpart E of 40 CFR part 61. EPA also requested comment on whether to establish a periodic monitoring frequency for beryllium and mercury for sewage sludge incinerators that is different from the monitoring frequencies in the NESHAP.

The October 1995 notice stated that the Agency was considering three options for the frequency of monitoring for mercury. The options were: (1) Periodic (quarterly or annual) stack or sewage sludge sampling, (2) periodic (monthly, quarterly, or annual) sewage sludge sampling, and (3) sewage sludge sampling based on the amount of sewage sludge fired in a sewage sludge incinerator. For beryllium, EPA indicated that periodic stack sampling only for sewage sludge incinerators that must comply with the beryllium emission standard in 40 CFR 61.32(a) was being considered.

Most of commenters opposed additional beryllium and mercury monitoring beyond that required by the current NESHAP for beryllium and mercury. One commenter recommended a semi-annual frequency for mercury monitoring if mercury in the stack emissions exceeds 1600 grams per day (the NESHAP requires annual monitoring if mercury in the stack emissions exceeds 1600 grams per day). Another commenter recommended sewage sludge sampling for mercury according to the part 503 frequency of monitoring for arsenic, cadmium, chromium, lead, and nickel rather than stack emission sampling. Another commenter recommended no stack sampling and that the monitoring frequency for mercury be based on the amount of sewage sludge fired in a sewage sludge incinerator. [5]

EPA has decided not to establish additional monitoring requirements for beryllium and mercury. The Agency concluded that monitoring frequencies in the beryllium and mercury NESHAPs are reasonable. Thus, today's final regulation amends § 503.46(a)(1) to delete the requirement for the permitting authority to designate the frequency of monitoring for beryllium and mercury in emissions. The regulation, as amended, now provides that the monitoring frequency for beryllium and mercury is the frequency in the beryllium and mercury NESHAP, respectively.

Even though the mercury NESHAP only requires annual monitoring if mercury in the stack emissions exceeds 1600 grams per day, the frequency can be increased on a case-by-case basis by the permitting authority when necessary to protect public health and the environment (see § 503.5). Thus, in areas like the Great Lakes where mercury emissions are a major concern, the monitoring frequency for mercury may be increased by the permitting authority, or the person who fires sewage sludge in a sewage sludge incinerator could elect to increase the mercury monitoring frequency.

2. *Reduction in frequency of sewage sludge monitoring.* The October 1995 notice also proposed to amend § 503.46(a)(3). This section currently allows the permitting authority to reduce the frequency of monitoring for pollutants after the sewage sludge has been monitored for two years at the frequency in Table 1 of § 503.46. In no event, however, may monitoring be less frequent than once per year. EPA proposed to delete the requirement for monitoring at least once per year.

Commenters supported the proposed change. Thus, for the reasons explained above in the previous discussions for the frequency of monitoring for land application and surface disposal, today's final rule amends § 503.46(a)(3) by deleting the at-least-once-per-year monitoring frequency requirement.

3. *Continuous monitoring of THC, oxygen concentration, information to determine moisture content, and combustion temperature.* As previously explained, the current regulation requires continuous monitoring of THC, oxygen concentration, information to determine moisture content, and combustion temperature. EPA proposed in the October 1995 notice to amend this requirement so as to permit monitoring at less frequent intervals. The Agency requested comment on how to determine when less frequent monitoring should be authorized (e.g., should the frequency of monitoring be based on the amount of sewage sludge fired annually or on the number of days in a year an incinerator operates?).

All commenters supported the proposed change to delete the requirement for continuous monitoring for the four parameters. They also offered several recommendations on when to allow less than continuous monitoring of the exit gas. Some commenters recommended exempting fluidized bed incinerators from the continuous monitoring requirement entirely or any incinerator after two years of continuous monitoring if the monitoring results indicate minimal THC concentrations in the emissions. Others recommended exempting an incinerator when the amount of sewage sludge fired is below a specified amount or exempting an incinerator if a demonstration can be made that temperature can be measured continuously in lieu of measuring THC continuously. After reviewing the comments, EPA has decided not to adopt any of the recommendations. EPA concluded that the commenters had failed to provide adequate technical or scientific support for relieving an incinerator from the continuous monitoring requirements. The commenters failed to show how compliance with the applicable requirements could be demonstrated in the absence of continuous monitoring.

4. *Operating parameters for air pollution control devices.* As explained in the preamble to the proposal (60 FR 54779, October 25, 1995), and as discussed above, § 503.45 currently requires the operation of a sewage

[4] The preamble to the proposal explains the current standards and monitoring requirements for incineration of sewage sludge containing mercury and beryllium. 60 FR 54780, October 25, 1995.

[5] One commenter also requested clarification of the applicability of the beryllium NESHAP to sewage sludge incinerators. The beryllium NESHAP applies to incinerators that process beryllium-containing waste, as defined in 40 CFR 61.31(g). Thus, if sewage sludge contains beryllium-containing waste and the sewage sludge is fired in a sewage sludge incinerator, the sewage sludge incinerator is subject to the beryllium NESHAP.

sludge incinerator's air pollution control device be specified by the permitting authority. Section 503.46(c) requires the permitting authority to specify the frequency of monitoring for the air pollution control device operating parameters. EPA proposed to change § 503.46(c) to delete the requirement for the permitting authority to specify the monitoring frequency for air pollution control device operating parameters and to require that those parameters be monitored at least daily. Commenters supported these proposed changes.

Currently, incinerators that charge more than 10 percent sewage sludge (dry weight) or that charge more than 2205 pounds of sewage sludge per day; that commence construction or modification after June 11, 1973; and that have a wet scrubbing device are required to measure and record the pressure drop of the gas flow through the wet scrubber continuously (see 40 CFR 60.153). Incinerators that meet the first two of the above requirements and that have another type of air pollution control device also may have to monitor air pollution control device operating parameters continuously, if required by the EPA Administrator. The Agency decided not to establish additional frequency of monitoring requirements in today's final rule for sewage sludge incinerators subject to 40 CFR part 60. Thus, the final rule indicates for sewage sludge incinerators subject to part 60, the frequency of monitoring for the air pollution control device operating parameters shall be the frequency of monitoring in subpart O of part 60.

For all other sewage sludge incinerators, the frequency of monitoring for the air pollution control device operating parameters in today's rule is at least daily, as proposed. EPA is considering whether to establish a continuous monitoring requirement for the air pollution control device operating parameters in a subsequent proposal to amend the part 503 regulation. Continuous monitoring is consistent with the monitoring requirements for air pollution control device operating parameters now being considered by other EPA programs. Until a different frequency of monitoring requirement is established, however, the frequency of monitoring for the air pollution control device operating parameters for sewage sludge incinerators not subject to the requirements in subpart O of part 60 is at least daily.

F. Recordkeeping

Today's action amends § 503.47(f) by changing the requirement to record the maximum combustion temperature for the sewage sludge incinerator to a requirement to record the operating combustion temperatures for the sewage sludge incinerator. This change makes § 503.47(f) consistent with the new definition of operating combustion temperature in § 503.41(i).

VI. Final Amendment to Part 403

Part 503, as published on February 19, 1993, restricted the total chromium concentration of land-applied sewage sludge to prevent possible plant injury (i.e., phytotoxicity). On November 15, 1994, the U.S. Court of Appeals for the D.C. Circuit remanded the total chromium land application pollutant limits for modification or additional justification, concluding that EPA lacked an adequate evidentiary basis for the risk-based total chromium limits. *Leather Industries of America* v. *Environmental Protection Agency,* 40 F.3d 392 (DC Cir. 1994). On October 25, 1995, EPA promulgated a final rule that deleted total chromium from the pollutants regulated when sewage sludge is applied to the land (60 FR 54764, October 25, 1995). EPA concluded that there is no current basis for establishing total chromium limits for land-applied sewage sludge.

At the same time EPA deleted the total chromium limits from the part 503 land application requirements, the Agency took two other actions. First, EPA removed total chromium from the list of pollutants in Appendix G—Section I (40 CFR part 403) for which a removal credit is available when sewage sludge is land-applied. EPA removed total chromium because the Appendix G—Section I list is limited to those pollutants specifically regulated in part 503. Second, to ensure the continued eligibility of chromium for a removal credit when sewage sludge is land-applied, EPA added a footnote to the table in Appendix G—Section II. This table lists pollutants not regulated in part 503 that are eligible for a removal credit so long as the concentration of the pollutant in sewage sludge does not exceed the concentration for the pollutant in the table. The footnote stated that determination of a concentration limit for total chromium in sewage sludge that is land-applied would be made on a case-by-case basis. Case-by-case determinations would continue until EPA published a concentration for total chromium in Appendix G—Section II for land-applied sewage sludge.

EPA reviewed the part 503 land application risk assessment for total chromium, and on October 25, 1995, proposed to establish the concentration for total chromium for removal credit purposes in Appendix G—Section II at 12,000 mg/kg (60 FR 54771). This is the value determined to be protective of ground water in the part 503 land application risk assessment. The ground-water pathway was the pathway that resulted in the most stringent limit for total chromium after the phytotoxicity and animal grazing pathways were found to be inappropriate (see EPA's reanalysis of the exposure pathways for total chromium in land-applied sewage sludge in the docket for the October 25, 1995, proposal). Several comments were received on the proposal.

One commenter stated that a numerical value for total chromium in Appendix G—Section II for land-applied sewage sludge is not necessary as a condition for granting a removal credit for total chromium. The commenter believes that the Clean Water Act, as amended, provides EPA the authority to grant a removal credit without having a numerical value for the pollutant in Appendix G—Sections I or II. EPA disagrees with this comment. EPA's position is that a numerical value for the pollutant must be established in Appendix G—Sections I or II for the POTW to be able to grant a removal credit to the indirect discharger for that pollutant. As articulated in the preamble to EPA's recent pretreatment streamlining rule, a POTW or industrial user can currently petition the Agency to establish a Part 503 standard or an amendment to Part 403, Appendix G—Section II for a pollutant along with an analysis of the impact of the pollutant on the use or disposal of its sewage sludge. Upon promulgation of the Part 503 standard or listing of the pollutant in Part 403, Appendix G—Section II, the pollutant would be eligible for inclusion in an application for a removal credit.

With respect to the numerical limit for total chromium, several commenters took issue with some of the assumptions underlying the proposed numeric limit in Appendix G—Section II. Specifically, the commenters indicated that there are problems with the Agency's land application ground-water pathway exposure assessment, which was the basis for the proposed numerical value for total chromium in land-applied sewage sludge in Appendix G—Section II. In the commenters' views, the values for the land application site parameters and the pollutant-specific parameters used in the ground-water pathway analysis are too conservative. Moreover, the commenters believe that EPA's assessment erroneously relied on parameters associated with chromium

in its hexavalent form rather than in the trivalent form.

EPA disagrees that the values for the land application site parameters (i.e., soil type, depth to groundwater, and thickness of aquifer) used in the ground-water pathway exposure analysis are too conservative. Because food crops are grown in sandy soils and because sewage sludge is applied to sandy soils, the Agency assumed sand, which has a high pollutant transmission potential, as the soil type when evaluating the ground-water pathway. Likewise, it is not unreasonable to assume that there will be circumstances in which crops will be grown on land that has a depth to groundwater of one meter. Similarly, it is likely that in dryer climates the thickness of the aquifer below the application site could be as small as one meter. Given the potential for land application in such conditions, the values EPA used for the site parameters in the ground-water pathway analysis are reasonable.

EPA agrees, however, that the numerical values for pollutant-specific parameters used in the ground-water pathway analysis are inappropriate for modeling either trivalent chromium or total chromium. This is because the numerical value for the human health endpoint (i.e., maximum contaminant level) used in the ground-water pathway analysis is based on exposure to hexavalent chromium (see 56 FR 3537, January 30, 1991), and because the numerical value for the partition coefficient (KD value) used in the ground-water pathway analysis is what would be expected for hexavalent chromium. EPA concluded, therefore, that the 12,000 mg-chromium/kg-sewage sludge value proposed for total chromium in Appendix G—Section II on October 25, 1995, is for the hexavalent form of chromium in sewage sludge that is land-applied.

Given that the 12,000 mg/kg concentration is for hexavalent chromium only, EPA could either establish the concentration limit in Appendix G—Section II for hexavalent chromium, or determine an appropriate concentration for total chromium. EPA rejected the option of setting a concentration limit for hexavalent chromium only. It is extremely difficult to determine the concentration of hexavalent chromium in sewage sludge for two reasons. First, it is present in sewage sludge at very low levels relative to trivalent chromium levels. Second, hexavalent chromium's high chemical reactivity characteristics make it extremely difficult to quantify in analytical procedures. Therefore, EPA concluded that the chromium limit for land-applied sewage sludge on the list in Appendix G—Section II should be for total chromium.

To determine a limit for total chromium, which represents a mixture of both hexavalent and trivalent chromium, EPA had to determine concentrations for both hexavalent chromium and trivalent chromium that do not cause a reasonably anticipated adverse effect. As noted above, EPA already determined that if the hexavalent chromium concentration does not exceed 12,000 mg/kg, hexavalent chromium in sewage sludge that is land-applied will not have an adverse effect on public health and the environment. For trivalent chromium, formal ground-water modeling has not been performed. Therefore, EPA derived the concentration value for trivalent chromium for the ground-water pathway based on some assumptions.

EPA made two assumptions in using a simple model to determine the trivalent chromium concentration. First, the Agency assumed that all of the values for the land application site parameters in the ground-water model for hexavalent chromium are the same for trivalent chromium. That is, the soil type is sand, the depth to groundwater is one meter, and the thickness of the aquifer is one meter.

Second, EPA assumed that, with the exception of the oral reference dose (RfD), the pollutant-specific parameters for hexavalent chromium are the same for trivalent chromium, including the KD value of 59 l/kg. The RfD for hexavalent chromium used to derive the human health endpoint in the ground-water pathway is 5×10^{-3} mg/kg-day. The RfD for trivalent chromium is 1 mg/kg-day—some 200 times greater. Because the ratio of the numerical values for the RfDs of trivalent to hexavalent chromium is 200, with all other land application site parameters and pollutant-specific parameters being equal for the two chromium valence species, the estimated allowable concentration value for trivalent chromium in sewage sludge is 200 times the allowable concentration for hexavalent chromium or 2,400,000 mg/kg. This is only a theoretical value because the actual concentration can never exceed one million milligrams per kilogram.

The above theoretical concentration for trivalent chromium is an extremely conservative estimate based on many comments that stated that the KD values for trivalent chromium are reported as high as several thousand l/kg. If KD values like these are used in the analysis, the estimated theoretical concentration for trivalent chromium would be higher.

As indicated in the Technical Support Document for Land Application of Sewage Sludge (EPA 822/R–93–001a, November 1992) on page 5–107, sewage sludge contains little, if any, hexavalent chromium because hexavalent chromium is reduced to trivalent chromium during sewage sludge treatment. Thus, EPA believes the concentration of hexavalent chromium in sewage sludge compared to the concentration of trivalent chromium is negligible. At most, hexavalent chromium should not exceed one percent (i.e., 10,000 mg/kg) of the total chromium in sewage sludge.

EPA is today establishing the total chromium concentration in Appendix G—Section II for land-applied sewage sludge at 100,000 mg/kg. The Agency concluded that, although trivalent chromium is the prevalent form of chromium in sewage sludge, it is the hexavalent form of chromium that the total chromium concentration for land-applied sewage sludge must limit. Two commenters recommended a concentration of 100,000 mg/kg as appropriate to protect ground water from total chromium in land-applied sewage sludge. This concentration is consistent with the total chromium concentration limit established for granting a removal credit for sewage sludge placed in a lined active sewage sludge unit. Because the percentage of hexavalent chromium in total chromium is expected to be less than one percent, there is virtually no potential that the hexavalent chromium concentration in land-applied sewage sludge will exceed the allowable concentration for hexavalent chromium (i.e, 12,000 mg/kg) in the 100,000 mg/kg total chromium concentration limit.

A total chromium concentration of 100,000 mg/kg in land-applied total chromium also ensures that the total chromium limit from other pathways in the part 503 land application risk assessment is not exceeded. For example, the total chromium limit for the animal grazing pathway is 190,000 mg/kg, which is almost twice the total chromium concentration in Appendix G—Section II in today's rulemaking.

Finally, it is important to note that the value for total chromium the Agency is adopting today in Appendix G—Section II for land-applied sewage sludge is 1–2 orders of magnitude greater than the highest concentration of total chromium ever measured in sewage sludge based on the results of the 1989 National Sewage Sludge Survey. This too should ensure that the granting of a removal credit for total chromium will not

adversely affect public health and environmental when sewage sludge is applied to the land.

VII. Regulatory Requirements

A. Executive Order 12866, Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735, October 4, 1993), the Agency must determine whether a regulatory action is ''significant'' and therefore subject to review by the Office of Management and Budget (OMB) and the requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal government or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

It has been determined that this final rule is not a ''significant'' regulatory action under the terms of Executive Order 12866 and is not subject, therefore, to OMB review. Further, because the effect of today's rule is to modify current requirements and provide additional flexibility to the regulated community in complying with the part 503 requirements, and to allow a removal credit for chromium in land applied sewage sludge under part 403, costs to the regulated community should be reduced or at least remain unchanged.

B. Regulatory Flexibility Act

Under the Regulatory Flexibility Act (RFA), 5 U.S.C. 601 *et seq.*, as amended by the Small Business Regulatory Enforcement Fairness Act, EPA generally is required to conduct a regulatory flexibility analysis describing the impact of the regulatory action on small entities as part of rulemaking. However, under section 605(b) of the RFA, if EPA certifies that the rule will not have a significant economic impact on a substantial number of small entities, EPA is not required to prepare a regulatory flexibility analysis. Pursuant to section 605(b) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities.

This action to amend the part 503 regulation provides added flexibility in complying with the part 503 requirements and technical clarification for some of the requirements. For example, the permitting authority has been given the discretion to reduce the frequency of monitoring for some of the pollutants subject to the rule. Today's action also makes the incineration requirements self-implementing by specifying how an incinerator owner/operator is to determine pollutant limits applicable to sewage sludge to be combusted. The incineration amendments include requirements to provide notice to the permitting authority prior to performance testing and to report information that was previously obtained by the permitting authority during the permitting process. These requirements involve minimal additional cost, because the requirements to develop the information needed to calculate the pollutant limits are not new. Only the need to provide prior notice of testing and to report the results are new, and these requirements involve little expense.

In addition, this action amends the part 403 regulation to establish a total chromium in sewage sludge concentration to allow a wastewater treatment works to issue a removal credit for chromium in land applied sewage sludge. This relieves the wastewater treatment works from having to perform a site-specific evaluation and calculation to establish a total chromium concentration in sewage sludge in order to issue a pre-treatment removal credit for chromium to an industrial discharger. As such, the amendments impose no significant new requirements on the regulated community, including small entities.

Accordingly, I certify that this regulation will not have a significant economic impact on a substantial number of small entities. Therefore, this final regulation does not require a regulatory flexibility analysis.

C. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A major rule cannot take effect until 30 days after it is published in the **Federal Register**. This rule is not a ''major rule'' as defined by 5 U.S.C. § 804(2). This rule will be effective September 3, 1999.

D. Paperwork Reduction Act

The information collection requirements for existing 40 CFR part 503 were approved by OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* OMB approved the information collection requirements for the existing regulation (part 503) and assigned OMB Control Nos. 2040–0004 and 2040–0086. Today's action amending part 503 reduces information collection requirements in part 503 by allowing the permitting authority to reduce the frequency of monitoring for certain part 503 pollutants.

However, today's action also adds a new notice requirement in § 503.43(e). The information collection request for this new provision is currently under development. EPA expects to publish a proposed Information Collection Request (ICR) for these requirements in the **Federal Register** for comment within the next 60 days. The ICR will be submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* after public comment. The information requirements will be published in the **Federal Register** again for public comment when EPA submits them to OMB for review and approval. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9 and 48 CFR chapter 15.

E. Unfunded Mandate Reform Act

Title II of the Unfunded Mandate Reform Act of 1995 (UMRA), Public Law 104–4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with ''Federal mandates'' that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before

promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that today's amendments do not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. The final amendments either clarify existing regulatory requirements or provide additional flexibility to the regulated community in complying with current part 503 requirements and allow for the issuance of removal credits under part 403.

For example, EPA is making a number of changes to reduce the reporting and recordkeeping burden of the current requirements. These include an amendment to authorize the permitting authority to reduce the frequency of monitoring of sewage sludge for pollutants and certain pathogen density requirements. In addition, the amendments modify the provision to certify that compliance with certain requirements was achieved. Under today's amendment, a person certifies to the accuracy of the submitted information and not, as is the case at present, to compliance with regulatory requirements.

Today's amendments also delete the language from the current regulation that requires the permitting authority to specify certain factors used to calculate site-specific pollutant limits for sewage sludge incinerators and to specify how to install, calibrate, operate, and maintain incinerator continuous emission monitors. Instead, the rule contains the information needed by the incinerator owner/operator to make the site-specific calculations and properly monitor emissions of total hydrocarbons. These self-implementing provisions contain a one-time requirement for the owner/operator to provide notice and report calculations which were previously obtained from the permitting authority. In addition, today's amendments contain technical changes that correct inaccurate cross-references and add omitted reporting dates and inadvertently omitted phrases. Therefore, to the extent that today's final regulation reduces the costs of complying with the current part 503 requirements and allow for the issuance of removal credits under part 403, the final regulation will lessen the regulatory burden on State, local, and tribal governments and the private sector.

As noted above, there are minimal costs or reduced costs associated with the other changes in today's final amendments. Thus, today's amendments are not subject to the requirements of sections 202 and 205 of the UMRA.

EPA has determined that today's amendments contain no regulatory requirements that might significantly or uniquely affect small governments. The final amendments do not significantly affect small governments because, as explained above, the amendments provide additional flexibility in complying with existing regulatory requirements, provide for self-implementation, or clarify those requirements. The final amendments also do not uniquely affect small governments because the changes are applicable to facilities operated by small governments to the same extent they are to other sewage sludge preparers and users or disposers. Thus this rule is not subject to the requirements of section 203 of UMRA.

F. Executive Order 12875, Enhancing Intergovernmental Partnerships

Under Executive Order 12875, EPA may not issue a regulation that is not required by statute and that creates a mandate on a State, local, or tribal government, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by those governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 12875 requires EPA to provide to the Office of Management and Budget a description of the extent of EPA's prior consultation with representatives of affected State, local, and tribal governments, the nature of their concerns, any written communications from the governments, and a statement supporting the need to issue the regulation. In addition, Executive Order 12875 requires EPA to develop an effective process permitting elected officials and other representatives of State, local, and tribal governments ''to provide meaningful and timely input in the development of regulatory proposals containing significant unfunded mandates.''

EPA has concluded that this rule will create a mandate on State, local, and tribal governments and that the Federal government will not provide the funds necessary to pay the direct costs incurred by the State, local and/or tribal governments in complying with the mandate. However, the mandate created by these amendments to parts 503 and 403 will have only a minimal impact on these governments as described in sections VII A and E of this preamble.

In developing this rule, EPA consulted with State, local, and tribal governments to enable them to provide meaningful and timely input in the development of this rule. Over the past three years in the development of this rule, EPA on numerous occasions has had communication with State, local, and tribal governments on this rule. EPA has solicited and received suggestions for improving its implementation. This outreach effort culminated in the formation of a National Biosolids (Sewage Sludge) Partnership which serves as an accessible forum for these exchanges to take place. The representatives of these governments have expressed their approval of this communications process.

The concerns of these governments as this rule was developed centered around their need to have greater flexibility in complying with certain provisions of the original part 503 rule. EPA recognized these governments' concerns by providing an option for the permitting authority to allow for a reduction in the frequency of monitoring of certain part 503 pollutants and allowing for increased flexibility in complying with certain pathogen and vector attraction reduction requirements in the part 503 rule. EPA's conclusion is that the incorporation of these provisions of increased flexibility into the part 503 rule still results in adequate protection of public health and the environment from pollutants in land applied sewage sludge.

G. Executive Order 13084, Consultation and Coordination With Indian Tribal Governments

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian tribal governments ''to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities.''

Today's rule does not significantly or uniquely affect the communities of Indian tribal governments and it does not impose substantial direct compliance costs on them. The amendments clarify existing part 503 requirements and provide the regulated community additional flexibility in complying with the regulatory requirements and make other requirements self-implementing. In addition, the amendment to part 403 allows for the issuance of a removal credit for chromium when sewage sludge is land applied, thereby reducing a regulatory burden to the private sector. As explained in sections VII A and E in this preamble, today's changes do not impose substantial direct costs. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

H. Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045 (62 FR 19885, April 23, 1997) applies to any rule initiated after April 21, 1997, or proposed after April 21, 1998, that: (1) Is determined to be ''economically significant'' as defined under EO 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

Because this rule was proposed on October 25, 1995, it is not subject to EO 13045. Also as explained in the section on EO 12866, today's final rule is not an economically significant rule. In addition, EPA does not have reason to believe that today's amendments pose any environmental health or safety risks presenting a disproportionate risk to children. However, EPA reviewed the impact of this rule on children's health in light of the Agency's Policy on Evaluating Health Risks to Children.

Today's amendments to part 503 do not alter any of the existing part 503 pollutant limits, which are based on the results of the risk assessments undertaken for the part 503 rule as published on February 19, 1993 (58 FR 9248). Today's amendment to part 403 establishes a limit for total chromium in land-applied sewage sludge for the purpose of granting a removal credit. That limit is based on the results of the ground-water pathway analysis. A child is protected in this case because the limit based on the ground-water pathway results is more stringent than the limit based on the results of the child ingestion pathway.

I. National Technology Transfer and Advancement Act

Under section 12(d) of the National Technology Transfer and Advancement Act (''NTTAA''), the Agency is required to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, business practices, etc.) that are developed or adopted by voluntary consensus standards bodies. Where available and potentially applicable voluntary concensus standards are not used by EPA, the Act requires the Agency to provide Congress, through OMB, an explanation of the reasons for not using such standards.

Today's final rule does not involve technical standards. Therefore, EPA did not consider the use of any voluntary consensus standards.

List of Subjects

40 CFR Part 403

Environmental protection, Incineration, Land application, Pollutants, Removal credits, Sewage sludge, Surface disposal.

40 CFR Part 503

Environmental protection, Frequency of monitoring, Incineration, Land application, Management practices, Pathogens, Pollutants, Reporting and recordkeeping requirements, Surface disposal, Vector attraction reduction.

Dated: July 15, 1999.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40 of the Code of Federal Regulations is amended as set forth below:

PART 403—GENERAL PRETREATMENT REGULATIONS FOR EXISTING AND NEW SOURCES OF POLLUTION

1. The authority citation for part 403 continues to read as follows:

Authority: 33 U.S.C. 1251 *et seq.*

2. Appendix G to part 403 is amended by revising section II to read as follows:

Appendix G to Part 403—Pollutants Eligible for a Removal Credit

* * * * *

II. ADDITIONAL POLLUTANTS ELIGIBLE FOR A REMOVAL CREDIT

[Milligrams per kilogram—dry weight basis]

Pollutant	Use or disposal practice			
	LA	Surface disposal		I
		Unlined [1]	Lined [2]	
Arsenic			[3] 100	

II. ADDITIONAL POLLUTANTS ELIGIBLE FOR A REMOVAL CREDIT—Continued

[Milligrams per kilogram—dry weight basis]

Pollutant	Use or disposal practice			
	LA	Surface disposal	Lined [2]	I
		Unlined [1]		
Aldrin/Dieldrin (Total)	2.7	.....	.....	.....
Benzene	[3] 16	140	3400	.....
Benzo(a)pyrene	15	[3] 100	[3] 100	.....
Bis(2-ethylhexyl)phthalate	.....	[3] 100	[3] 100	.....
Cadmium	.....	[3] 100	[3] 100	.....
Chlordane	86	[3] 100	[3] 100	.....
Chromium (total)	[3] 100	.....	[3] 100	.....
Copper	.....	[3] 46	100	1400
DDD, DDE, DDT (Total)	1.2	2000	2000	.....
2,4 Dichlorophenoxy-acetic acid	.....	7	7	.....
Fluoride	730	.....	.....	.....
Heptachlor	7.4	.....	.....	.....
Hexachlorobenzene	29	.....	.....	.....
Hexachlorobutadiene	600	.....	.....	.....
Iron	[3] 78	.....	.....	.....
Lead	.....	[3] 100	[3] 100	.....
Lindane	84	[3] 28	[3] 28	.....
Malathion	.....	0.63	0.63	.....
Mercury	.....	[3] 100	[3] 100	.....
Molybdenum	.....	40	40	.....
Nickel	.....	.....	[3] 100	.....
N-Nitrosodimethylamine	2.1	0.088	0.088	.....
Pentachlorophenol	30	.....	.....	.....
Phenol	.....	82	82	.....
Polychlorinated biphenyls	4.6	<50	<50	.....
Selenium	.....	4.8	4.8	4.8
Toxaphene	10	[3] 26	[3] 26	.....
Trichloroethylene	[3] 10	9500	[3] 10	.....
Zinc	.....	4500	4500	4500

[1] Active sewage sludge unit without a liner and leachate collection system.
[2] Active sewage sludge unit with a liner and leachate collection system.
[3] Value expressed in grams per kilogram—dry weight basis.
Key: LA—land application.
I—incineration.

PART 503—STANDARDS FOR THE USE OR DISPOSAL OF SEWAGE SLUDGE

1. The authority citation for part 503 continues to read as follows:

Authority: Sections 405(d) and (e) of the Clean Water Act, as amended by Pub. L. 95–217, Sec. 54(d), 91 Stat. 1591 (33 U.S.C. 1345 (d) and (e)); and Pub. L. 100–4, Title IV, Sec. 406(a), (b), 101 Stat., 71, 72 (33 U.S.C. 1251 *et seq.*)

2. Section 503.2 is amended by adding a new paragraph (d) to read as follows:

§ 503.2 Compliance period.

* * * * *

(d) Unless otherwise specified in subpart E, compliance with the requirements in §§ 503.41(c) through (r), 503.43(c), (d) and (e), 503.45(a)(1), (b) through (f), 503.46(a)(1), (a)(3), and (c), and 503.47(f) that were revised on September 3, 1999 shall be achieved as expeditiously as practicable, but in no case later than September 5, 2000. When new pollution control facilities must be constructed to comply with the revised requirements in subpart E, compliance with the revised requirements shall be achieved as expeditiously as practicable but no later than September 4, 2001.

3. Section 503.10 is amended by revising paragraphs (b)(1), (c)(1), (d), (e), (f), and (g) to read as follows:

§ 503.10 Applicability.

* * * * *

(b)(1) Bulk sewage sludge. The general requirements in § 503.12 and the management practices in § 503.14 do not apply when bulk sewage sludge is applied to the land if the bulk sewage sludge meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8).

* * * * *

(c)(1) The general requirements in § 503.12 and the management practices in § 503.14 do not apply when a bulk material derived from sewage sludge is applied to the land if the derived bulk material meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8).

* * * * *

(d) The requirements in this subpart do not apply when a bulk material derived from sewage sludge is applied to the land if the sewage sludge from which the bulk material is derived meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8).

(e) Sewage sludge sold or given away in a bag or other container for

application to the land. The general requirements in § 503.12 and the management practices in § 503.14 do not apply when sewage sludge is sold or given away in a bag or other container for application to the land if the sewage sludge sold or given away in a bag or other container for application to the land meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8).

(f) The general requirements in § 503.12 and the management practices in § 503.14 do not apply when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land if the derived material meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8).

(g) The requirements in this subpart do not apply when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land if the sewage sludge from which the material is derived meets the ceiling concentrations in Table 1 of § 503.13 and the pollutant concentrations in Table 3 of § 503.13; the Class A pathogen requirements in § 503.32(a); and one of the vector attraction reduction requirements in § 503.33 (b)(1) through (b)(8).

4. Section 503.16 is amended by revising paragraphs (a)(1) and (a)(2) to read as follows:

§ 503.16 Frequency of monitoring.

(a) *Sewage sludge.* (1) The frequency of monitoring for the pollutants listed in Table 1, Table 2, Table 3 and Table 4 of § 503.13; the pathogen density requirements in § 503.32(a) and § 503.32(b)(2); and the vector attraction reduction requirements in § 503.33 (b)(1) through (b)(4) and § 503.33 (b)(7) through (b)(8) shall be the frequency in Table 1 of § 503.16.

TABLE 1 OF § 503.16—FREQUENCY OF MONITORING—LAND APPLICATION

Amount of sewage sludge [1] (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	Once per year.
Equal to or greater than 290 but less than 1,500	Once per quarter (four times per year).
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (six times per year).
Equal to or greater than 15,000	Once per month (12 times per year).

[1] Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge prepared for sale or give-away in a bag or other container for application to the land (dry weight basis).

(2) After the sewage sludge has been monitored for two years at the frequency in Table 1 of § 503.16, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in § 503.32(a)(5)(ii) and (a)(5)(iii).

* * * * *

5. Section 503.17 is amended by revising paragraphs (a)(1)(ii), (a)(2)(ii), (a)(3)(i)(B), (a)(3)(ii)(A), (a)(4)(i)(B), (a)(4)(ii)(A), (a)(5)(i)(B), (a)(5)(ii)(C), (a)(5)(ii)(F), (a)(5)(ii)(H), (a)(5)(ii)(J), (a)(5)(ii)(L), (a)(6)(iii), (b)(3), (b)(6), and (b)(7), and by adding a new paragraph (a)(4)(ii)(E) to read as follows:

§ 503.17 Recordkeeping.

(a) *Sewage sludge.* (1) * * *

(ii) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in § 503.32(a) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in § 503.33(b)(1) through § 503.33(b)(8)] was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(2) * * *

(ii) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in § 503.32(a) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(3) * * *

(i) * * *

(B) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in § 503.32(a) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(ii) * * *

(A) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in § 503.14 and the vector attraction reduction requirement in (insert either § 503.33(b)(9) or (b)(10)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(4) * * *

(i) * * *

(B) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in § 503.32(b) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8)if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(ii) * * *

(A) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine

compliance with the management practices in § 503.14, the site restrictions in § 503.32(b)(5), and the vector attraction reduction requirement in (insert either § 503.33(b)(9) or (b)(10) if one of those requirements is met) was prepared for each site on which bulk sewage sludge is applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(E) The date bulk sewage sludge is applied to each site.

(5) * * *

(i) * * *

(B) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements in (insert either § 503.32(a) or § 503.32(b)) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in § 503.33(b)(1) through (b)(8) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(ii) * * *

(C) The date bulk sewage sludge is applied to each site.

* * * * *

(F) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the requirement to obtain information in § 503.12(e)(2) was prepared for each site on which bulk sewage sludge was applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(H) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in § 503.14 was prepared for each site on which bulk sewage sludge was applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(J) The following certification statement when the bulk sewage sludge meets the Class B pathogen requirements in § 503.32(b):

I certify, under penalty of law, that the information that will be used to determine compliance with the site restrictions in § 503.32(b)(5) for each site on which Class B sewage sludge was applied was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(L) The following certification statement when the vector attraction reduction requirement in either § 503.33(b)(9) or (b)(10) is met:

I certify, under penalty of law, that the information that will be used to determine compliance with the vector attraction reduction requirement in (insert either § 503.33(b)(9) or § 503.33(b)(10)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(6) * * *

(iii) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the management practice in § 503.14(e), the Class A pathogen requirement in § 503.32(a), and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in § 503.33(b)(1) through § 503.33(b)(8)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(b) * * *

(3) The date domestic septage is applied to each site.

* * * * *

(6) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements (insert either § 503.32(c)(1) or § 503.32(c)(2)) and the vector attraction reduction requirement in [insert § 503.33(b)(9), 503.33(b)(10), or § 503.33(b)(12)] was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

(7) A description of how the pathogen requirements in either § 503.32(c)(1) or (c)(2) are met.

* * * * *

6. Section 503.18 is amended by revising paragraph (a)(2) to read as follows:

§ 503.18 Reporting.

(a) * * *

(2) The information in § 503.17(a)(5)(ii)(A) through (a)(5)(ii)(G) on February 19th of each year when 90 percent or more of any of the cumulative pollutant loading rates in Table 2 of § 503.13 is reached at a land application site.

* * * * *

7. Section 503.21 is amended by revising paragraph (c) to read as follows:

§ 503.21 Special definitions.

* * * * *

(c) *Contaminate an aquifer* means to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR 141.62(b) to be exceeded in the ground water or that causes the existing concentration of nitrate in ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR 141.62(b).

* * * * *

8. Section 503.22 is amended by revising paragraph (b) to read as follows:

§ 503.22 General requirements.

* * * * *

(b) An active sewage sludge unit located within 60 meters of a fault that has displacement in Holocene time; located in an unstable area; or located in a wetland, except as provided in a permit issued pursuant to either section 402 or 404 of the CWA, shall close by March 22, 1994, unless, in the case of an active sewage sludge unit located within 60 meters of a fault that has displacement in Holocene time, otherwise specified by the permitting authority.

* * * * *

9. Section 503.26 is amended by revising paragraphs (a)(1) and (a)(2) to read as follows:

§ 503.26 Frequency of monitoring.

(a) *Sewage sludge (other than domestic septage).* (1) The frequency of

monitoring for the pollutants in Tables 1 and 2 of § 503.23; the pathogen density requirements in § 503.32(a) and in § 503.32(b)(2); and the vector attraction reduction requirements in § 503.33(b)(1) through (b)(4) and § 503.33(b)(7) through (b)(8) for sewage sludge placed on an active sewage sludge unit shall be the frequency in Table 1 of § 503.26.

TABLE 1 OF § 503.26.—FREQUENCY OF MONITORING—SURFACE DISPOSAL

Amount of sewage sludge [1] (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	Once per year.
Equal to or greater than 290 but less than 1,500	Once per quarter (four times per year).
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (six times per year).
Equal to or greater than 15,000	Once per month (12 times per year).

[1] Amount of sewage sludge placed on an active sewage sludge unit (dry weight basis).

(2) After the sewage sludge has been monitored for two years at the frequency in Table 1 of this section, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in § 503.32(a)(5)(ii) and (a)(5)(iii).

* * * * *

10. Section 503.27 is amended by revising paragraphs (a)(1)(ii), (a)(2)(ii), (b)(1)(i), and (b)(2)(i) to read as follows:

§ 503.27 Recordkeeping.

(a) * * *

(1) * * *

(ii) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements in (insert § 503.32(a), § 503.32(b)(2), § 503.32(b)(3), or § 503.32(b)(4) when one of those requirements is met) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in § 503.33 (b)(1) through (b)(8) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(2) * * *

(ii) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in § 503.24 and the vector attraction reduction requirement in (insert one of the requirements in § 503.33(b)(9) through § 503.33(b)(11) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.''

* * * * *

(b) * * *

(1) * * *

(i) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the vector attraction reduction requirements in § 503.33(b)(12) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

* * * * *

(2) * * *

(i) The following certification statement:

I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in § 503.24 and the vector attraction reduction requirements in (insert § 503.33(b)(9) through § 503.33(b)(11) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine or imprisonment.

* * * * *

11. Section 503.31 is amended by revising paragraph (g) to read as follows:

§ 503.31 Special definitions.

* * * * *

(g) *pH* means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

* * * * *

12. Section 503.32 is amended by revising paragraphs (b)(2)(i) and (b)(5)(v) to read as follows:

§ 503.32 Pathogens.

* * * * *

(b) * * *

(2) * * *

(i) Seven representative samples of the sewage sludge that is used or disposed shall be collected.

* * * * *

(5) * * *

(v) Animals shall not be grazed on the land for 30 days after application of sewage sludge.

* * * * *

13. Section 503.33 is amended by revising paragraph (b)(10)(i) to read as follows:

§ 503.33 Vector attraction reduction.

* * * * *

(b) * * *

(10)(i) Sewage sludge applied to the land surface or placed on an active sewage sludge unit shall be incorporated into the soil within six hours after application to or placement on the land, unless otherwise specified by the permitting authority.

* * * * *

14. Section 503.41 is amended by redesignating paragraphs (c), (d), (e) (f), (g), (h), (i),(j), (k), (l), (m), (n), and (o) as paragraphs (d), (e), (f), (g), (h), (j), (l), (m), (n), (o), (p), (q), and (r), respectively, and by adding new paragraphs (c), (i), and (k) to read as follows:

§ 503.41 Special definitions.

* * * * *

(c) *Average daily concentration* is the arithmetic mean of the concentration of a pollutant in milligrams per kilogram of sewage sludge (dry weight basis) in the samples collected and analyzed in a month.

(i) *Incinerator operating combustion temperature* is the arithmetic mean of the temperature readings in the hottest zone of the furnace recorded in a day (24 hours) when the temperature is averaged and recorded at least hourly during the hours the incinerator operates in a day.

(k) *Performance test combustion temperature* is the arithmetic mean of

the average combustion temperature in the hottest zone of the furnace for each of the runs in a performance test.

15. Section 503.43 is amended by revising paragraphs (c) and (d), and by adding a new paragraph (e) to read as follows:

§ 503.43 Pollutant limits.

* * * * *

(c) *Pollutant limit—lead.* (1) The average daily concentration for lead in sewage sludge fed to a sewage sludge incinerator shall not exceed the concentration calculated using Equation (4).

$$C = \frac{0.1 \times NAAQS \times 86{,}400}{DF \times (1 - CE) \times SF} \qquad \text{Eq. (4)}$$

Where:

C = Average daily concentration of lead in sewage sludge.
NAAQS = National Ambient Air Quality Standard for lead in micrograms per cubic meter.
DF = Dispersion factor in micrograms per cubic meter per gram per second.
CE = Sewage sludge incinerator control efficiency for lead in hundredths.
SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

(2) The dispersion factor (DF) in equation (4) shall be determined from an air dispersion model in accordance with § 503.43(e).

(i) When the sewage sludge stack height is 65 meters or less, the actual sewage sludge incinerator stack height shall be used in the air dispersion model to determine the dispersion factor (DF) for equation (4).

(ii) When the sewage sludge incinerator stack height exceeds 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.100(ii) and the creditable stack height shall be used in the air dispersion model to determine the dispersion factor (DF) for equation (4).

(3) The control efficiency (CE) for equation (4) shall be determined from a performance test of the sewage sludge incinerator in accordance with § 503.43(e).

(d) *Pollutant limit—arsenic, cadmium, chromium, and nickel.* (1) The average daily concentration for arsenic, cadmium, chromium, and nickel in sewage sludge fed to a sewage sludge incinerator each shall not exceed the concentration calculated using equation (5).

$$C = \frac{RSC \times 86{,}400}{DF \times (1 - CE) \times SF} \qquad \text{Eq. (5)}$$

Where:

C = Average daily concentration of arsenic, cadmium, chromium, or nickel in sewage sludge.
CE = Sewage sludge incinerator control efficiency for arsenic, cadmium, chromium, or nickel in hundredths.
DF = Dispersion factor in micrograms per cubic meter per gram per second.
RSC = Risk specific concentration for arsenic, cadmium, chromium, or nickel in micrograms per cubic meter.
SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

(2) The risk specific concentrations for arsenic, cadmium, and nickel used in equation (5) shall be obtained from Table 1 of § 503.43.

TABLE 1 OF § 503.43.—RISK SPECIFIC CONCENTRATION FOR ARSENIC, CADMIUM, AND NICKEL

Pollutant	Risk specific concentration (micrograms per cubic meter)
Arsenic	0.023
Cadmium	0.057
Nickel	2.0

(3) The risk specific concentration for chromium used in equation (5) shall be obtained from Table 2 of § 503.43 or shall be calculated using equation (6).

TABLE 2 OF § 503.43.—RISK SPECIFIC CONCENTRATION FOR CHROMIUM

Type of Incinerator	Risk specific concentration (micrograms per cubic meter)
Fluidized bed with wet scrubber	0.65
Fluidized bed with wet scrubber and wet electrostatic precipitator	0.23
Other types with wet scrubber	0.064
Other types with wet scrubber and wet electrostatic precipitator	0.016

$$RSC = \frac{0.0085}{r} \qquad \text{Eq. (6)}$$

Where:

RSC=risk specific concentration for chromium in micrograms per cubic meter used in equation (5).
r=decimal fraction of the hexavalent chromium concentration in the total chromium concentration measured in the exit gas from the sewage sludge incinerator stack in hundredths.

(4) The dispersion factor (DF) in equation (5) shall be determined from an air dispersion model in accordance with § 503.43(e).

(i) When the sewage sludge incinerator stack height is equal to or less than 65 meters, the actual sewage sludge incinerator stack height shall be used in the air dispersion model to determine the dispersion factor (DF) for equation (5).

(ii) When the sewage sludge incinerator stack height is greater than 65 meters, the creditable stack height shall be determined in accordance with 40 CFR 51.100(ii) and the creditable stack height shall be used in the air dispersion model to determine the dispersion factor (DF) for equation (5).

(5) The control efficiency (CE) for equation (5) shall be determined from a performance test of the sewage sludge incinerator in accordance with § 503.43(e).

(e) *Air dispersion modeling and performance testing.* (1) The air dispersion model used to determine the dispersion factor in § 503.43 (c)(2) and (d)(4) shall be appropriate for the geographical, physical, and population characteristics at the sewage sludge incinerator site. The performance test used to determine the control efficiencies in § 503.43 (c)(3) and (d)(5) shall be appropriate for the type of sewage sludge incinerator.

(2) For air dispersion modeling initiated after September 3, 1999, the modeling results shall be submitted to the permitting authority 30 days after completion of the modeling. In addition to the modeling results, the submission shall include a description of the air dispersion model and the values used for the model parameters.

(3) The following procedures, at a minimum, shall apply in conducting performance tests to determine the control efficiencies in § 503.43(c)(3) and (d)(5) after September 3, 1999:

(i) The performance test shall be conducted under representative sewage sludge incinerator conditions at the highest expected sewage sludge feed rate within the design capacity of the sewage sludge incinerator.

(ii) The permitting authority shall be notified at least 30 days prior to any performance test so the permitting authority may have the opportunity to observe the test. The notice shall include a test protocol with incinerator operating conditions and a list of test methods to be used.

(iii) Each performance test shall consist of three separate runs using the applicable test method. The control efficiency for a pollutant shall be the arithmetic mean of the control

efficiencies for the pollutant from the three runs.

(4) The pollutant limits in § 503.43 (c) and (d) of this section shall be submitted to the permitting authority no later than 30 days after completion of the air dispersion modeling and performance test.

(5) Significant changes in geographic or physical characteristics at the incinerator site or in incinerator operating conditions require new air dispersion modeling or performance testing to determine a new dispersion factor or a new control efficiency that will be used to calculate revised pollutant limits.

16. Section 503.45 is amended by revising paragraphs (a)(1), (b), (c), (d), (e), and (f), and by adding a new paragraph (h) to read as follows:

§ 503.45 Management practices.

(a)(1) An instrument that continuously measures and records the total hydrocarbons concentration in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated, and maintained for a sewage sludge incinerator.

* * * * *

(b) An instrument that continuously measures and records the oxygen concentration in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated, and maintained for a sewage sludge incinerator.

(c) An instrument that continuously measures and records information used to determine the moisture content in the sewage sludge incinerator stack exit gas shall be installed, calibrated, operated, and maintained for a sewage sludge incinerator.

(d) An instrument that continuously measures and records combustion temperatures shall be installed, calibrated, operated, and maintained for a sewage sludge incinerator.

(e) Operation of a sewage sludge incinerator shall not cause the operating combustion temperature for the sewage sludge incinerator to exceed the performance test combustion temperature by more than 20 percent.

(f) An air pollution control device shall be appropriate for the type of sewage sludge incinerator and the operating parameters for the air pollution control device shall be adequate to indicate proper performance of the air pollution control device. For sewage sludge incinerators subject to the requirements in subpart O of 40 CFR part 60, operation of the air pollution control device shall not violate the requirements for the air pollution control device in subpart O of 40 CFR part 60. For all other sewage sludge incinerators, operation of the air pollution control device shall not cause a significant exceedance of the average value for the air pollution control device operating parameters from the performance test required by § 503.43 (c)(3) and (d)(5).

* * * * *

(h) The instruments required in § 503.45(a)–(d) shall be appropriate for the type of sewage sludge incinerator.

17. Section 503.46 is amended by revising paragraphs (a)(1), (a)(3), and (c) to read as follows:

§ 503.46 Frequency of monitoring.

(a) Sewage sludge.

(1) The frequency of monitoring for beryllium shall be as required in subpart C of 40 CFR part 61, and for mercury as required in subpart E of 40 CFR part 61.

* * * * *

(3) After the sewage sludge has been monitored for two years at the frequency in Table 1 of § 503.46, the permitting authority may reduce the frequency of monitoring for arsenic, cadmium, chromium, lead, and nickel.

* * * * *

(c) Air pollution control device operating parameters.

For sewage sludge incinerators subject to the requirements in subpart O of 40 CFR part 60, the frequency of monitoring for the appropriate air pollution control device operating parameters shall be the frequency of monitoring in subpart O of 40 CFR part 60. For all other sewage sludge incinerators, the appropriate air pollution control device operating parameters shall be at least daily.

18. Section 503.47 is amended by revising paragraph (f) to read as follows:

§ 503.47 Recordkeeping.

* * * * *

(f) The operating combustion temperatures for the sewage sludge incinerator.

* * * * *

19. Appendix B to 40 CFR part 503 is amended by revising the description No. 6 under B. Processes to Further Reduce Pathogens (PFRP) to read as follows:

Appendix B to Part 503—Pathogen Treatment Processes

* * * * *

B. * * *

(6) Gamma ray irradiation—Sewage sludge is irradiated with gamma rays from certain isotopes, such as ^{60}Cobalt and ^{137}Cesium, at dosages of at least 1.0 megarad at room temperature (ca. 20° Celsius).

* * * * *

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