

(k) The dispersion factor for the site where the sewage sludge incinerator is located.

(l) The control efficiency for lead, arsenic, cadmium, chromium, and nickel for each sewage sludge incinerator.

(m) The risk specific concentration for chromium calculated using equation (6), if applicable.

(n) A calibration and maintenance log for the instruments used to measure the total hydrocarbons concentration and oxygen concentration in the exit gas from the sewage sludge incinerator stack, the information needed to determine moisture content in the exit gas, and the combustion temperatures.

(Approved by the Office of Management and Budget under control number 2040-0157)

[58 FR 9387, Feb. 19, 1993, as amended at 64 FR 42573, Aug. 4, 1999]

**§ 503.48 Reporting.**

Class I sludge management facilities, POTWs (as defined in 40 CFR 501.2) with a design flow rate equal to or greater than one million gallons per day, and POTWs that serve a population of 10,000 people or greater shall submit the information in §503.47(b) through §503.47(h) to the permitting authority on February 19 of each year.

(Approved by the Office of Management and Budget under control number 2040-0157)

**APPENDIX A TO PART 503—PROCEDURE TO DETERMINE THE ANNUAL WHOLE SLUDGE APPLICATION RATE FOR A SEWAGE SLUDGE**

Section 503.13(a)(4)(ii) requires that the product of the concentration for each pollutant listed in Table 4 of §503.13 in sewage sludge sold or given away in a bag or other container for application to the land and the annual whole sludge application rate (AWSAR) for the sewage sludge not cause the annual pollutant loading rate for the pollutant in Table 4 of §503.13 to be exceeded. This appendix contains the procedure used to determine the AWSAR for a sewage sludge that does not cause the annual pollutant loading rates in Table 4 of §503.13 to be exceeded.

The relationship between the annual pollutant loading rate (APLR) for a pollutant and the annual whole sludge application rate (AWSAR) for 1a sewage sludge is shown in equation (1).

$$APLR = C \times AWSAR \times 0.001 \quad (1)$$

Where:

APLR=Annual pollutant loading rate in kilograms per hectare per 365 day period.

C=Pollutant concentration in milligrams, per kilogram of total solids (dry weight basis).

AWSAR=Annual whole sludge application rate in metric tons per hectare per 365 day period (dry weight basis).

0.001=A conversion factor.

To determine the AWSAR, equation (1) is rearranged into equation (2):

$$AWSAR = \frac{APLR}{C \times 0.001} \quad (2)$$

The procedure used to determine the AWSAR for a sewage sludge is presented below.

**PROCEDURE:**

1. Analyze a sample of the sewage sludge to determine the concentration for each of the pollutants listed in Table 4 of §503.13 in the sewage sludge.

2. Using the pollutant concentrations from Step 1 and the APLRs from Table 4 of §503.13, calculate an AWSAR for each pollutant using equation (2) above.

3. The AWSAR for the sewage sludge is the lowest AWSAR calculated in Step 2.

**APPENDIX B TO PART 503—PATHOGEN TREATMENT PROCESSES**

**A. Processes to Significantly Reduce Pathogens (PSRP)**

1. Aerobic digestion—Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

2. Air drying—Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

3. Anaerobic digestion—Sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

4. Composting—Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40 degrees Celsius or higher and remains at 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

5. Lime stabilization—Sufficient lime is added to the sewage sludge to raise the pH of

the sewage sludge to 12 after two hours of contact.

**B. Processes to Further Reduce Pathogens (PFRP)**

1. Composting—Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days.

Using the windrow composting method, the temperature of the sewage sludge is maintained at 55 degrees or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of five turnings of the windrow.

2. Heat drying—Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the sewage sludge particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the

sewage sludge as the sewage sludge leaves the dryer exceeds 80 degrees Celsius.

3. Heat treatment—Liquid sewage sludge is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

4. Thermophilic aerobic digestion—Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is 10 days at 55 to 60 degrees Celsius.

5. Beta ray irradiation—Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).

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

7. Pasteurization—The temperature of the sewage sludge is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

[58 FR 9387, Feb. 19, 1993, as amended at 64 FR 42573, Aug. 4, 1999]

**SUBCHAPTER P [RESERVED]**