

MUNICIPAL SOLID WASTE LANDFILL NEW SOURCE
PERFORMANCE STANDARDS (NSPS) AND EMISSION
GUIDELINES (EG) -- QUESTIONS AND ANSWERS

Revised

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GUIDELINES (EG) -- QUESTIONS AND ANSWERS

Disclaimer: *It is important that the user understand the purpose and limitation of the "Municipal Solid Waste Landfill New Source Performance Standards and Emission Guidelines Questions and Answers" file. The questions and answers are not intended to fully represent or be used in place of the regulations. These questions can be used to explore the application of the regulations in different scenarios or to shed light on complex issues. The answers provided are not rules nor are they binding upon the Agency in any context. The EPA may withdraw, modify, or depart from the answers provided in this file at any time without notice. For an understanding of the actual regulatory requirements in any given situation, the reader must consult the appropriate sections of Title 40 of the Code of Federal Regulations (CFR), pertinent Federal Registers and EPA guidance documents, as well as relevant State regulations. We recommend that the EPA Regional Offices and States be consulted for specific applicability determinations.*

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INTRODUCTION AND SOURCES OF ADDITIONAL INFORMATION

The following list of questions and answers are provided as a guide for those subject to the new source performance standards (NSPS) or emission guidelines (EG), as well as those implementing the NSPS or EG. It is the intent of EPA to update this list as new questions and issues are raised. If you have a concern you feel should be addressed here, please fax or E-mail your question to:

| Questions Concerning | Name | Fax | E-mail |
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| Technical/Rule Implementation | Martha Smith | 919-541-2421 | smith.martha@epamail.epa.gov |
| | Mary Ann Warner | 919-541-2664 | warner.maryann@epamail.epa.gov |
| Monitoring and Sampling Methods | Foston Curtis | 919-541-1039 | curtis.foston@epamail.epa.gov |
| Landfill Air Emissions Model | Susan Thorneloe | 919-541-2382 | thorneloe.susan@epamail.epa.gov |
| Part 70 and 71 Permitting | Joanna Swanson | 919-541-5282 | swanson.joanna@epamail.epa.gov |
| New Source Review Permitting | Dan DeRoeck | 919-541-5593 | deroeck.dan@epamail.epa.gov |

Additional information regarding the Municipal Solid Waste Landfill New Source Performance Standards and Emission Guidelines can be obtained from the following documents. These documents are available as indicated; however, a new EPA TTN Website under development will accommodate many of these documents at <http://www.epa.gov/ttn/uatw/landfill/landflpg.html>.

- C Municipal Solid Waste Landfills Proposed Rule and Guideline, May 30, 1991 (56 FR 24468).
- C Municipal Solid Waste Landfills Final Rule and Guideline, March 12, 1996 (61 FR 9905). Also available on the TTN Web (<http://www.epa.gov/docs/fedrgstr/EPA-AIR/1996/March>) and in the docket (see address below).

- C Amendments to Municipal Solid Waste Landfills Final Rule and Guideline, June 16, 1998 (63 FR 32743). Available on the TTN Web(<http://www.epa.gov/docs/fedrgstr/EPA-AIR/1998/June>).
- C "Air Emissions from Municipal Solid Waste Landfills - Background Information for Proposed Standards and Emission Guidelines," March 1991, EPA-450/3-90-011(a). This document contains technical information on landfill emissions and controls assembled prior to proposal of the standards. It may be obtained from the U.S. EPA Library in Research Triangle Park, NC or from the docket (see address below).
- C "Air Emissions from Municipal Solid Waste Landfills - Background Information for Final Standards and Guidelines," December 1995, EPA-453/R-94-021. This document summarizes all public comments on the proposed NSPS and EG and the EPA responses. This document may be obtained from the TTN Web, the U.S. EPA Library in Research Triangle Park, or from the docket (see addresses below).
- C "Municipal Solid Waste Landfills, Volume 1: Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills," EPA-456R-96-004 (MSW Landfills, Volume 1) has been posted on the TTN Web (see address below) and explains the requirements of the NSPS and EG. Explanations and tools are provided to help implementing agencies determine applicability, ensure compliance, collect and review reports, and conduct inspections. The document will also be available in the docket (see address below) and EPA Regional libraries (Regions I-X).
- C "Municipal Solid Waste Landfills, Volume 2: Summary of the Requirements for Section 111(d) State plans for Implementing the Municipal Solid Waste Landfill Emission Guidelines," EPA-456R/96-005 (MSW Landfills, Volume 2) has been posted on the TTN Web (see address below), and explains the State plan development and approval process. MSW Landfills, Volume 2 outlines and explains the required content of State plans, outlines the timeline and responsibilities for developing and submitting State plans, and answers general questions about how to prepare State plans. The document is also available in the

docket (see address below) and EPA Region Libraries (Regions I-X).

The docket is available at the following address. A reasonable fee may be charged for copying.

U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
Air and Radiation Docket and Information Center
Room M-1500 Waterside Mall, Ground Floor
Phone: (202) 260-7548
Refer to Docket Number: A-88-09

The U.S. EPA Library in Research Triangle Park address and phone number are as follows:

U.S. EPA Library (MD-33)
Research Triangle Park, NC 27711
Phone: (919) 541-2777

Electronic file(s) can be accessed through the EPA Technology Transfer Network Website (TTN Web). The files are located under "OAR Policy and Guidance Information". The TTN Web can be accessed through the World Wide Web at <http://www.epa.gov/ttn/oarpg>. Many of these landfills files are available at <http://www.epa.gov/ttn/uatw/landfill/landflpg.html>. The TTN Web help number is (919) 541-5384.

The EPA Regional offices may also be contacted for assistance. The appropriate contacts are listed below:

| Name | Region | Phone | Fax |
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I. OVERVIEW AND APPLICABILITY

A. Overview of Requirements and Applicability

1. Question: What is required of landfills to which the NSPS or the EG applies?

Answer: All sources to which the NSPS or EG applies must submit a design capacity report -- regardless of their size or capacity. Those sources with a design capacity greater than or equal to 2.5 million Mg and 2.5 million m³ must also submit periodic emissions reports. If those sources emit more than 50 Mg/yr of non-methane organic compounds (NMOC), they are required to comply with the emission control requirements of the NSPS (new landfills) or the EG (existing landfills).

2. Question: A commenter submitted an applicability table to summarize which requirements apply to landfills depending on their size and emission rates and asked if the table was correct for both existing landfills and new landfills as defined under Subparts Cc (EG) and WWW (NSPS).

Answer: The following table is a correct summary of the applicability of the requirements of the NSPS and EG.

Applicability Table based on §§ 60.33c(a) and 60.752

| Design Capacity (Million Mg and/or Million m ³) | Emissions (Mg/yr NMOC) | Design Capacity Report Required | Periodic NMOC Emission Reports Required | Controls Required | Title V Permit Required |
|--|---------------------------|------------------------------------|---|----------------------|-------------------------------|
| <2.5 (Mg or m ³) | < 50 | Yes | No | No | * |
| <2.5 (Mg or m ³) | ≥ 50 | Yes | No | No | * |
| ≥2.5 (Mg and m ³) | < 50 | Yes | Yes | No | Yes |
| ≥2.5 (Mg and m ³) | ≥ 50 | Yes | Yes | Yes | Yes |

* The landfills NSPS and EG does not require a part 70 or 71 operating permit for these landfills, but part 70 or 71 requires a permit if the landfill is a major source as defined in part 70 or 71 or is subject to part 70 or 71 for some other reason (e.g., subject to another NSPS or NESHAP). A landfill is a major source and requires a title V permit if the air emissions are > 100 tons/yr or the HAP emissions are >10 tons/yr for one HAP or 25 tons/yr for a combination of HAP's or if it emits major source levels of criteria pollutants such as VOC (major source thresholds are different for attainment and nonattainment areas-- see the definition in 40 CFR section 70.3(a)).

3. Question: What is the difference between the NSPS and the EG? Is there any freedom of ability to modify the standards in the EG which is not available in the NSPS?

Answer: There are two main differences between the NSPS and EG. First, the NSPS applies to new, modified, or reconstructed municipal solid waste (MSW) landfills. The recent amendments (63 FR 32743, June 16, 1998) clarify that a new, modified, or reconstructed landfill is defined as a landfill that commenced construction, modification, or reconstruction on or after May 30, 1991. The EG applies to existing MSW landfills. An existing landfill is defined as a landfill that accepted waste on or after November 8, 1987 and is not new, modified, or reconstructed.

In addition, the NSPS is a single federal rule that applies to all new sources, the EG provides guidance for regulating landfill gas emissions which the States are required to implement through individual State plans. While State plans must generally be as stringent as the EG, there is flexibility, on a case-by-case basis, to apply less stringent limitations or compliance schedules if certain criteria are met (see section V.E. for additional details). State plans could also be more stringent than the EG. (See section II.E for additional details).

4. Question: What is the significance of the November 8, 1987 date that is specified in the EG? Are landfills that accepted waste after this date subject to the EG or the NSPS?

Answer: A cutoff date of 1987 was established to focus on landfills that accepted waste more recently and would thus have a higher emission potential. Another important consideration was the potential difficulty of locating landfills that closed prior to 1987 and establishing responsibility for installation of controls at older closed landfills for which ownership may be uncertain.

The Hazardous and Solid Waste Amendments to RCRA of 1984 required States to establish a permit program or other system of prior approval to ensure that facilities that receive household hazardous waste or small quantity generator hazardous waste are in compliance with 40 CFR part 257, "Criteria for Classification of Solid Waste Disposal Facilities and Practices." This permit program was to be established by November 8, 1987. This date was selected as the regulatory cutoff in the EG for landfills that are no longer receiving wastes because EPA judged States would be able to identify active facilities as of this date. [See pages 24475 and 24476 of the proposal preamble (in the May 30, 1991, Federal Register), Section IV Rationale, Selection of Affected and Designated Facilities]. Landfills that accept waste after this date could be subject to either the EG or NSPS depending upon when they are permitted to exceed 2.5 million Mg

and 2.5 million cubic meters in design capacity (see the following questions and answers).

B. Applicability for Modified Landfills

5. Question: If an existing landfill subject to the EG is modified, does it remain subject to the EG or become subject to the NSPS?

Answer: The recent amendments (63 FR 32743) clarify that all landfills that commence modification on or after May 30, 1991 (regardless of size) are classified as new, and subject to the NSPS.

6. Question: What constitutes a "modification"? Some State solid waste regulations specify that a vertical or horizontal expansion constitutes a modification.

Answer: The recent amendments clarify that a modification is an increase in the permitted volume design capacity of a landfill by either vertical or horizontal expansion. For the modification to have occurred, the owner or operator must have commenced construction on the horizontal or vertical expansion. For landfills, modifications that increase capacity and emissions are typically implemented by horizontal (lateral) or vertical (upward) expansion of the existing landfill. If a vertical (upward) or horizontal (lateral) expansion increases the design capacity of the landfill above the previously permitted level then it is a modification. Furthermore, adding a new MSW landfill area at the same location as an existing MSW landfill causes the entire site (contiguous geographic area) to be considered a modified landfill subject to the NSPS. (See section I.D.)

If an existing landfill makes an operational change, then it will continue to be subject to the EG rather than becoming subject to the NSPS. For example, an increase in design capacity may result from not only an increase in the permitted volume of the landfill but also from an increase in the density as documented in the annual recalculation required in § 60.758(f). This density change is not a modification, and does not subject an existing landfill to the NSPS; but if capacity is increased to \$ 2.5 million Mg and 2.5 million m³ in this way, the landfill would file an amended design capacity report under the EG and perform the NMOC emission rate calculation to determine if control is required.

7. Question: Is there a minimum amount of increase in design capacity that triggers the requirements of the NSPS?

Answer: No, any vertical or horizontal expansion that increases the design capacity is a modification and triggers NSPS applicability for landfills. If the capacity is increased to or above 2.5 million Mg and 2.5 million m³, an amended design capacity report must be filed and the landfill must begin calculating the annual NMOC emission rate using the tier procedures in the rule and must submit NMOC emission rate reports.

8. Question: Suppose an MSW landfill is subject to the EG, but the facility then makes a modification that increases the design capacity. Is the entire landfill then subject to the NSPS, or is the "new" modification to the landfill subject to the NSPS while the rest of the landfill remains subject to the EG?

Answer: If the landfill is modified (an increase in the design capacity by vertical or horizontal expansion) after May 30, 1991, then the entire landfill is subject to the NSPS.

C. Date of Commenced Construction

9. Question: Does the NSPS apply based on the date of permit issuance or initial waste placement? Which permit should serve as the basis for establishing the date of commenced construction?

Answer: As clarified in the recent amendments (63 FR 32743), a new landfill is a landfill that commences construction, modification, or reconstruction on or after May 30, 1991. The definition of "commenced" is contained in the NSPS General Provisions in 40 CFR 60 subpart A § 60.2. "Commenced means...that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake, within a reasonable time, a continuous program of construction or modification". Depending on the specific case, the date a permit was issued, the date a contract was signed, or the date that physical construction began could be the date of "commenced" construction. Because one or more of these events would need to occur prior to the date of initial waste acceptance, it is likely that the date of waste acceptance would not be the date construction "commenced". The regulatory authority has responsibility for determining the appropriate date considering the sequence of events for the specific landfill.

D. Definition of Source/Contiguous Area

10. Question: How are contiguous or adjacent landfills handled? For example, a county landfill, built in the early 1970s, is in the process of closing, however, it is still accepting waste. As an

expansion to the existing landfill, another cell obtained a permit in February 1993, but is still under construction. These two landfill sites are separated by an access road. In order to calculate its emissions, is this considered one landfill or two? Also, is the addition of these cells a modification, or would it be considered a new source? Another county landfill has two cells separated by a county road. Is this considered one landfill or two? A third landfill has cells or sites separated by a golf course.

Answer: A landfill is considered a single landfill if the cells are contiguous and under common ownership or control, even if a road or golf course separates the cells. This is the historical interpretation for source definition for all NSPS, and it has been adopted for landfills. The addition of a cell that increases the permitted volumetric design capacity for one of these landfills would be considered a modification, not the opening of a separate new landfill. A modification causes the entire landfill (the existing cells and the newly permitted cell) to become subject to the NSPS.

11. Question: If a landfill expands by opening a new area, must inactive as well as active areas be controlled? For example, suppose a landfill with a design capacity of 1.6 million m³ (est 1979) decides to expand such that the design capacity totals 4.0 million m³; and therefore it becomes subject to the NSPS. The 1.6 million m³ will be closed in 1998. Since the site will be inactive, will a flare be required for the closed area or just the new area once 50 Mg/yr of NMOC emissions is exceeded?

Answer: The entire landfill is included in both the design capacity and the NMOC emission rate calculation. The entire area becomes subject to the landfill gas collection and control requirements once the calculated NMOC emission rate equals or exceeds 50 Mg/yr.

E. Applicability to Closed Landfills

12. Question: What are the requirements for landfills that close after 1987?

a) Upon reading the rule it appears that these landfills must submit an initial maximum design capacity and initial NMOC emission rate report. Are they required to submit annual reports documenting the NMOC emissions? Since their NMOC emissions are only going to go down it does not seem to make sense to require a closed landfill with NMOC emissions < 50 Mg/yr to submit annual NMOC reports.

b) If a closed landfill has NMOC emissions ≤ 50 Mg/yr, what are the retrofit collection/control requirements including design parameters? Are these requirements different than for an active landfill that can design these systems as they grow? Retrofitting may be more expensive.

c) Are closed landfills required to have controls on for 15 years from the date of installation?

Answer: All landfills operating after November 8, 1987, whether closed or open, are required to submit a design capacity report -- regardless of their size or capacity. Only those sources (closed or open) with a design capacity greater than or equal to 2.5 million Mg and 2.5 million m³ are required to submit an initial NMOC emission rate report. They are also required to submit periodic (e.g., annual) reports until the calculated NMOC emission rate is ≥ 50 Mg/yr or until the landfill is closed. If the initial or a subsequent NMOC rate emission report shows emissions of 50 Mg/yr or more, the landfill must install controls or demonstrate, using Tier 2 or 3 procedures, that NMOC emissions are less than 50 Mg/yr.

If the landfill is closed, they can stop doing annual NMOC emission rate calculations and reports, as provided in § 60.752(b)(1)(ii). A "closed" landfill means a landfill in which solid waste is no longer placed, and in which no additional solid waste will be placed without first filing a notification of modification. Once a notification of modification is filed and additional waste is placed in a landfill, it is no longer closed and must resume NMOC emissions reporting.

Closed and active landfills have the same control requirements. These control systems are appropriate for installation in existing landfills, such as closed landfills or existing landfills with waste in place. In either case, the wells are drilled into the existing waste. The collection system of header pipes is installed above the ground. It would generally be easier and cheaper to install a well and collection system in a closed landfill area because it would be separate from the day-to-day landfill operations and no additional waste would be deposited in the area (see section II.B for additional details).

Closed landfills must have controls on for at least 15 years from the date of installation and until the NMOC emissions are less than 50 Mg per year in three successive emission rate reports.

13. Question: What should a State do about a landfill that accepted waste after November 8, 1987 but is now closed? How can the

collection and control system be installed if there are no funds available?

Answer: Once a closed landfill has been identified, the State will need to identify and locate the owner/operator or responsible party. Identifying and locating owners or operators of closed landfills may be difficult. However, only landfills that have accepted MSW since November 8, 1987 are subject to the EG. Therefore, these landfills should have permits that would identify the owner/operator.

The source of funding for collection and control systems on landfills that are closed will vary depending on the landfill ownership and circumstances surrounding its closure. If the landfill is of private ownership, the owner would be responsible for the costs. If the landfill is of State or local ownership the costs could be borne by a reallocation of State or local funds, bonds, or other State or local budget mechanisms.

It is also possible that the State plan could establish a less stringent standard for a specific landfill or class of landfills. To do this, the State must apply to EPA and demonstrate that the criteria listed in § 60.24(f) of subpart B are met. These criteria include (1) unreasonable cost of control resulting from age, location, or design, (2) physical impossibility of installing the necessary control equipment, or (3) other factors specific to the landfills that make application of a less stringent standard significantly more reasonable.

F. Applicability to Superfund Sites

15. Question: What is the applicability of the MSW landfill NSPS and EG to superfund sites? Is this a part of their clean-up plan? Who will calculate the design capacity for Superfund sites? Are they required to provide the Design Capacity Report? Also, how does this relate to the preamble language that implies "that the standards may also be determined relevant and appropriate for sites that accepted waste prior to November 8, 1987." Also, if a cell was classified as a Superfund site and closed prior to 1987, is this site considered part of the larger landfill?

Answer: The landfills NSPS or EG apply to MSW landfills including ones determined to be Superfund sites if they have accepted waste since November 8, 1987 or have additional design capacity available for future waste acceptance. This would include the requirement to submit a design capacity report. The design capacity report is required by the NSPS and EG under the Clean Air Act and is

a separate activity from the Superfund clean-up plan. The responsible party should calculate the design capacity.

An MSW landfill Superfund site may be required, under Superfund, to install collection and controls if it is determined that controls are "relevant" and "appropriate" even if the landfill did not receive MSW after November 8, 1987. Superfund landfills are individually reviewed on a case-by-case basis, under Superfund, to determine relevant and appropriate controls. (See the preamble to the final rule [61 FR 9909, March 12, 1996] for additional discussion of Superfund sites.)

The classification of a landfill cell as a Superfund site would not affect the determination of whether or not it is part of the larger landfill. See section I.D. for related questions and answers.

G. Independent Power Producers

16. Question: Is an independent power producer located on an MSW landfill exempt from complying with the NSPS/EG?

Answer: If the independent power producer is combusting landfill gas it would be subject to the NSPS or EG.

II. CONTROL REQUIREMENTS AND COMPLIANCE TIMES

A. General

1. Question: What emission controls are required for the NSPS or the EG?

Answer: Both the NSPS and EG require the use of best demonstrated technology (BDT) for reduction of NMOC landfill emissions. BDT for MSW landfills includes: (1) a well designed and well operated gas collection system, and (2) a control device capable of reducing NMOC in the collected gas by 98 percent by weight.

B. Design and Installation of Collection Systems

2. Question: For purposes of submitting a collection and control system design plan, does this design submittal cover the entire permitted landfill area (even those areas that are not currently constructed, although permitted)? Since the influence from extraction wells is predicted on the depth of waste, the design of the system will vary as landfilling continues. As such, is the design submittal called out in the NSPS for the entire permitted area, or for only those areas warranting control (i.e., those active

areas that have waste in place that is 5 years or older or closed areas 2 years or older)? This is an important issue. A registered engineer who must sign the design for the entire permitted footprint may not feel comfortable because the interim system installations may be different than his total plan. Please clarify.

Answer: The plan must cover the area to be controlled over the intended period of use (lifetime) of the gas control system, not the entire landfill. As specified in § 60.752(b)(2)(ii), the collection system must be designed to handle the maximum expected gas generation rate from the entire area of the landfill that warrants control over the intended period of use of the gas control or treatment system. Active areas in which the initial waste has been in place 5 years and closed or final grade areas where the initial waste has been in place 2 years must be controlled. As the landfill expands, the collection system must be expanded into areas that meet these criteria. Thus, if a control system is expected to last 15 years (for example), the design plan must take into account all active areas of the landfill that are expected to meet the 2 year/5 year criteria within the next 15 years, given the expected waste acceptance rate. The design plan should include the initial design and plans for system expansion.

3. Question: For those landfills that equal or exceed 50 Mg NMOC/yr, but only have waste in place for 1 or 2 years (have no areas that are active which are 5 years or older or 2 years or older in areas that are closed), is a collection and control system design plan required within 1 year of reporting to the agency that the facility exceeds 50 Mg NMOC/yr?

Answer: A situation where a landfill that has accepted waste for only 1 or 2 years exceeds the 50 Mg/yr emission rate is expected to be infrequent. However, in such a case, the design plan is due within 1 year of the report showing NMOC emissions \$ 50 Mg/yr, unless the owner or operator elects to perform Tier 2 or 3 testing to demonstrate that emissions are less than 50 Mg/yr. The collection and control system must be installed within 30 months of the first report showing emissions over 50 Mg/yr. These systems must be installed in active areas that have waste in place for 5 or more years or areas at final grade that have waste in place for at least 2 years. However, in the commenter's example, if a landfill that had been accepting waste for only 1 year submitted a report showing NMOC emissions \$ 50 Mg/yr, and 30 months after that (e.g., 3 ½ years after the landfill began accepting waste) had no active areas where waste had been in place 5 years and no areas at final grade where waste had been in place 2 years, they could wait to install and operate the collection and control system until an area of the landfill met the 5 year/2 year criteria above.

If the landfill elected to perform Tier 2 testing to demonstrate that NMOC emissions are less than 50 Mg/yr, they would wait to perform Tier 2 measurements until the first waste has been in place for 2 years because the Tier 2 measurement procedures can only be done where waste has been in place for 2 years [see § 60.754(a)(3)]. If Tier 2 shows emissions < 50 Mg/yr, the design plan and control would not be required until after the annual NMOC emission rate reports show that emissions have increased to 50 Mg/yr or more.

4. Question: What are the requirements for installing a collection system in cells that have not yet reached final grade, but are subject to collection, where adjacent cells are being developed? Is it possible to allow landfills to install a collection system in applicable cells only when they reach final grade, provided it is done within a specified time period (i.e., they can't stall reaching final grade to put off installing a collection system)?

Answer: The rule requires collection and control of NMOC from all applicable areas that warrant control (those meeting the 2 or 5 year criteria), regardless of the activity at adjacent cells.

5. Question: Suppose a landfill subject to the NSPS has total NMOC emissions greater than 50 Mg/yr and therefore is required to install a gas collection system. Are there any exceptions to the NSPS requirement to install collection and control systems in active areas where waste has been in place 5 years? For example, suppose one portion of the landfill contains waste that is over 5 years old, but will be covered with an additional 200 feet of waste. The installation of collection wells in this portion of the landfill appears impractical given that the well piping would have to extend at least 200 feet above the present surface of the waste and machinery to place waste would need to maneuver around the wells. What options does this landfill have?

Answer: There are no exceptions to the requirement to install collection systems in active areas where the initial solid waste has been placed for 5 years, however the landfill does not need to install wells that extend into the air. The system can be built incrementally. The landfill can install wells in the existing waste and connect the well headers with lateral piping routed to a control device. After waste is later placed in the area above these wells, new wells can be sunk into the new waste. The new wells will be above the old wells. Landfills should keep the collection system requirements in mind when planning their filling practices, in order to allow efficient collection system design and installation.

C. Passive Collection Systems

6. Question: Can a landfill use trenches to prevent the off-site migration of gases from the landfill even after a gas collection system is installed?

Answer: The use of trenches to stop off-site migration of landfill gases is often done for safety considerations, often in problem cases where a landfill gas collection system is installed. In some instances, the installed collection system of vertical wells did not capture all the landfill gas, whereas the lateral trenches did. The off-site migration of landfill gas could result in an emergency situation, especially when adjacent properties are operating such that a fire could be started and/or fueled by the migrating landfill gas.

The NSPS allows for the use of alternative system designs to incorporate the many site-specific factors involved with landfill gas system design. Section 60.752(b)(2)(i)(D) states that a wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal collection systems, leachate collection components, and passive systems. In the situation where a trench is used to prevent off-site migration, a pipe must be put into a lateral trench to stop the landfill gas migration and lateral gas extraction will be accomplished through a vacuum. The gas collection system and trench gas extraction system are operated simultaneously.

7. Question: For passive collection systems, what kind of liners can be put in as new cells are built? Should the liners be Subtitle D or State equivalent? Do landfills have to put liner on the sides as well as bottom as new cells are built?

Answer: Section 60.752(b)(2)(ii) states that passive collection systems must be installed with liners on the bottom and all sides in all areas in which gas is to be collected. Thus, liners must be installed on the sides as well as the bottom as new cells are built. The NSPS also specifies that the requirements of § 258.40 (RCRA solid waste regulations) be followed for liner installation. Section 258.40 requires that new MSW landfills and lateral expansions be constructed in accordance with a design approved by the Director of an approved State or as specified in § 258.40(e) for unapproved States. Performance standards and criteria for liners are included in § 258.40.

8. Question: The language for collection systems seems inconsistent with the requirement of a negative pressure gradient at

wellheads. The regulation allows the use of either passive or active collection systems, but then goes on to require a negative pressure gradient at each wellhead. A negative pressure gradient can only be accomplished with an active system.

Answer: The rule allows flexibility for the owner or operator to propose the use of alternative collection systems and alternative monitoring in their collection and control system design plan. Specifically, § 60.752(b)(2)(i)(B) allows the owner or operator to "include (in the collection and control system design plan) any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping or reporting provisions of §§ 60.753 through 60.758 proposed by the owner or operator." Therefore, when an owner/operator submits a design plan for a passive collection system, they can also specify that the negative pressure requirement does not apply and propose alternative monitoring. The regulatory agency will review the proposed design plan and monitoring requirements, and the landfill will be subject to the specific requirements that are approved.

D. Landfills with Existing Collection and Control Systems

9. Question: Several sites subject to the NSPS already have existing gas collection and control systems. For the purposes of the design plan submittal (due within one year of reporting to the Agency that the facility equals or exceeds 50 Mg NMOC/yr), the landfill owner/operator plans to conduct an inspection of the gas system to ensure that all required monitoring can be conducted and a surface scan to verify that the system collects all the gas from those areas warranting control and meets the criteria stated under § 60.752. These results along with as built documentation of the system will be submitted as part of the collection and control system design submittal. Is this an acceptable demonstration of compliance?

Answer: The general compliance demonstration approach described in the question sounds acceptable. However, keep in mind that the documentation submitted must also show that the criteria in § 60.752(b)(2)(ii) are met (e.g., that the system is designed to handle the maximum expected gas flow rate over the life of the control equipment, that gas will be collected from each area meeting the 5 year/2 year waste in place criteria, and that off-site migration is minimized). Furthermore, if the system does not conform with the specifications for active collection systems in § 60.759, a demonstration of the sufficiency of the alternative design must be included. The landfill will also be required to submit a performance test to show that the control device achieves 98 percent reduction (or must use a flare that meets the criteria specified in § 60.18).

Section 60.757(g) requires information about the collection system design to be submitted with the test report.

10. Question: If existing MSW landfills have a flare system, but do not meet the exact specifications in 40 CFR 60, Subparts Cc and WWW, are they required to "upgrade" and/or replace their system? Or can the State "control" through permitting requirements?

Answer: In general, State plans for existing landfills must be at least as stringent as subpart Cc. This includes compliance with the flare specifications. However, in a few situations the State standards for a specific existing landfill may be less stringent than the EG. In such cases, the State must demonstrate that less stringent requirements are warranted based on specific criteria contained in § 60.24(f) of subpart B. These criteria include unreasonable costs, physical impossibility, or other factors specific to the landfill that make application of a less stringent standard significantly more reasonable. If the State believes that an upgrade of the flare would meet one of these criteria and wants to prescribe less stringent specifications, it could make such a demonstration. These demonstrations must be reviewed by EPA as part of the State plan approval process. Any new landfills that are subject to the NSPS and use a flare to comply with the NSPS control requirements must meet the specifications in subpart WWW and § 60.18.

E. Other Control Concerns

11. Question: If a facility submitted the Tier 1 report in June 1996 and that report indicated emissions greater than 50 Mg NMOC/yr, can Tier 2 still be used to demonstrate a lower emissions rate? Some States are allowing the submittal of Tier 2 reports later than the cutoff schedule published in the NSPS.

Answer: The NSPS requires submittal of the Tier 2 report within 180 days of the Tier 1 report.

12. Question: One commenter stated that the maximum 500 ppm methane surface concentration required in monitoring would result in reduced Btu value of the gas they supply to a client. This commenter supplies gas that is 55 percent methane to their client. Remaining below the 500 ppm methane surface concentration would increase the chance of air intrusion in their system. This may result in the methane concentration being reduced to 40 percent methane, which their client is not able to handle. They base their conclusions on California, which has less rain and apparently has more sand in the cover than in Minnesota (In Minnesota it is mostly clay). The

commenter would like to know if the EPA has any information on this issue.

Answer: The purpose for the surface monitoring is to ensure that the landfill cover or cap and gas extraction system are properly designed and operated to ensure capture of the landfill gas. Landfills with properly designed and operated systems should not have air intrusion that would lower the BTU content of the gas. If air intrusion occurs. The owner/operator may need to reduce the vacuum, improve the cover, install additional collection wells, or a combination of these.

F. Compliance Times

13. Question: When does a facility become subject to the EG? If the State/local authority has not yet adopted the guidelines, is the facility considered "subject" to them, or must the regulation be adopted first? Is the compliance date for existing landfills 30 months from the effective date of a State standard or 30 months from the date EPA approves the State standard? Is there any "no later date" for complying other than this date? If a landfill is subject to the NSPS (not EG), what is the time frame for compliance with the NSPS rule?

Answer: An existing facility is not subject to any Federal requirements until either a State plan is approved by EPA or a Federal plan is promulgated for existing facilities. A facility becomes subject to the State standard upon the effective date of the State standard. The EG, as recently amended, States that the compliance date for existing landfills ≥ 2.5 million Mg and 2.5 million m³ is 30 months after the initial or subsequent NMOC emission rate report which first shows that NMOC emissions equal or exceed 50 Mg/yr. However, States may adopt compliance schedules more stringent than the EG and NSPS, consistent with 40 FR part 60, subpart B. Section 60.24(c) of subpart B requires "emission standards shall be no less stringent than the corresponding guideline(s) specified in subpart C of this part, and final compliance shall be required as expeditiously as practicable but no later than the compliance times specified in subpart C of this part." There is no later date for complying with the EG. If the State agency does not submit an approvable plan, a Federal plan will be implemented to require control of landfills in that State.

The time frame for NSPS compliance is as follows: A facility must submit a design capacity report by June 10, 1996 or within 90 days after commencement of construction, modification, or reconstruction. If the facility has a design capacity ≥ 2.5 million

Mg and 2.5 million m³, then it must calculate its NMOC emissions potential using the tier 1 calculations in the rule and report the results. If this report indicates NMOC emissions \geq 50 Mg/yr it must submit a collection and control design plan within 1 year, and install a collection and control system within 30 months of the first report indicating emissions \geq 50 Mg NMOC/yr, unless the landfill performs tier 2 or 3 measurements that show NMOC emissions <50 Mg/yr.

III. DESIGN CAPACITY DETERMINATIONS

1. Question: The maximum design capacity of a landfill is specified in its solid waste permit. If a landfill was never permitted but has a closure/post-closure plan which specifies the projected volume of waste in place upon closure, can those estimations be used instead of design calculations?

Answer: The landfill owner/operator should use the best credible information to estimate the design capacity in the absence of a permit limit. The basis for the estimate must be fully documented. A closure plan could be a good source of information, but the regulatory agency would likely want the landfill owner to verify it with calculations to be sure it is a reasonable estimate.

2. Question: In § 60.33c(a)(2), does the design capacity include planned but not permitted landfill capacity?

Answer: No. Design capacity is based upon the most recent permit issued by the State, local or Tribal agency responsible for regulating the landfill (plus any waste already in place that is not accounted for in the most recent permit).

3. Question: In determining the design capacity, do Mg take precedence over m³?

Answer: Section 60.752(a) of the rule states that the owner or operator may calculate the design capacity in either Mg or m³ for comparison with the exemption values. Under the NSPS and EG, design capacity is used to determine whether or not a landfill is below the design capacity cutoff. If the design capacity in the permit is below either 2.5 million Mg or 2.5 m³, the landfill is exempt (except for design capacity reporting requirements). A landfill with a volumetric permit may choose to calculate design capacity on a mass basis, or vice versa, based on a site-specific density. The initial design capacity report must provide supporting documentation.

For example, a landfill may have a permitted design capacity greater than 2.5 million m³ by volume; but the landfill may have documented calculations showing that, based on the actual waste density, the design capacity is less than 2.5 million Mg by weight. Because the design capacity is less than 2.5 million Mg, the landfill is below the design capacity cutoff. If such a conversion is made, records must be kept of the annual recalculation of the site-specific density and design capacity with supporting documentation. If such a landfill changes its compaction practices such that the density of the waste placed in the landfill increases, the design capacity could

become greater than 2.5 million Mg, and the landfill would then need to submit an amended design capacity report.

4. Question: What density should be used to convert volume waste to weight of waste?

Answer: If a landfill chooses to convert design capacity from a volume basis to a mass basis for comparison with the 2.5 million Mg exemption level (instead of the 2.5 million m³ exemption level), the owner or operator must document the calculations. The site-specific density must be recalculated and documented annually.

An appropriate site-specific density should be used and documented since density will depend on the type of waste and compaction practices at the landfill. Landfill densities range from 0.18 to 1.2 Mg/m³ (300-1800 lbs/yd³), with more typical values between 0.5 and 0.6 Mg/m³ (800-1000 lbs/yd³). A landfill's density depends on the composition of the waste, its original density, and its compactability. For example, residential waste, which is usually not as dense as construction debris, is more easily compacted than construction debris. A landfill with more residential waste would be more dense than one with construction waste.

5. Question: Can non-degradable waste such as auto fluff (shredded cars without the metal) or low level petroleum contaminated soil that is used as daily cover be excluded from waste calculations. Also, can process industrial sludge such as paper mill sludge be excluded from waste calculations? What documentation is required to subtract non-degradable waste from the design capacity?

Answer: In a landfill that has municipal solid waste all the waste is included in calculating the design capacity. Non-degradable waste cannot be subtracted from the permitted landfill design capacity. However, nondegradable waste can be subtracted from the mass of solid waste when calculating the NMOC emission rate because such waste would not produce NMOC emissions. Nondegradable waste is defined as waste that does not break down through chemical or microbiological activity. Examples include concrete, municipal waste combustor ash, and metals. Petroleum contaminated soils (PCS) and paper mill sludges likely contain organics that could be emitted as MSW landfill gas emissions. Therefore, emissions from PCS and sludges would need to be accounted for in the emission estimate only. The direct final notice clarifies that documentation of the nature and amount of non-degradable waste needs to be maintained when subtracting the mass of non-degradable waste from the total mass of waste for NMOC emission rate calculations (See question 1 in section IX Miscellaneous).

IV. ESTIMATING EMISSIONS

A. NMOC vs VOC

1. Question: What is the difference between NMOC and VOC? Is NMOC for landfills only?

Answer: NMOC is non-methane organic compounds, which include volatile organic compounds (VOC) as well as other organic compounds. At this time, NMOC is only used for landfill purposes.

B. Tier Calculations

2. Question: When there is insufficient information to use the emissions calculation formulas, can landfill owners/operators use AP-42 emissions calculations?

Answer: No, to determine applicability consistently, the owner/operator must use the equations and Tier 1 default values provided in the NSPS and EG to determine NMOC emissions or develop site-specific values using the Tier 2 or 3 procedures in § 60.754 of the NSPS or EG. The tier calculations are a purposely conservative approach to predict the eventual need for controls. The Tier 1 default values of k , L_0 , and C_{NMOC} in the NSPS and the EG tend to overstate NMOC emission rates to predict the eventual need for controls, to encompass a wide range of landfills, and to encourage site-specific data. The AP-42 calculations are for determining more typical landfill emissions for inventories, PSD and NSR permitting, and other purposes. Two equations are provided in the tier calculations: one for use if the actual year-to-year acceptance rate is known and the other for use if it is unknown. For Tier 1 calculations, the only information needed to use these equations is the mass of solid waste in each section and the age of each section, or the average annual acceptance rate, age of the landfill, and time since closure. Landfills generally have or can calculate the information needed to use the procedures in the NSPS and EG. The AP-42 procedures require the same information.

3. Question: In the promulgated rule § 60.754(a)(1) requires sources to use assumed values of k , L_0 , and C_{NMOC} when calculating emissions for the purpose of applicability. Many sources in Region 9, particularly in Southern California and Arizona, argue that these assumed values should not apply to them because of the arid environment in which they are located. Can other values be used?

Answer: The recent amendments (63 FR 32743) includes a separate default k value to be used in arid areas (those with 30-year

average annual precipitation of less than 25 inches as measured at the nearest representative official meteorological site). The arid k value accounts for the slower decomposition rate of waste in those areas. This optional k value should allow arid areas to account for the lower gas production rate without having to incur the additional cost of Tier 3 site-specific testing. Furthermore, the 3-tier emission estimation procedure in § 60.754(a)(4) allows any owner/operator to use site-specific values for k and C_{NMOC} , based on testing, in lieu of the default constants if a landfill uses Tier 2 or 3 emission estimation procedures. The site-specific values would reflect any unique characteristics that would affect the emission rate of NMOC for that particular landfill.

4. Question: If an existing landfill greater than 2.5 million Mg and 2.5 million m^3 already has a collection system in place that is controlled, how should it be determined if it emits NMOC greater than/less than 50 Mg/year? Under Tier 1 calculations they would probably show landfill gas emissions \leq 50 Mg/year. Tier 2 calculations also may not be appropriate.

Answer: This issue was raised in one case where Tier 1 calculations for a landfill that already had a control system indicated emissions greater than 50 Mg/yr. The tier procedures in the NSPS do not specifically address how to estimate uncontrolled emissions from already controlled landfills for purposes of determining if the emissions exceed 50 Mg/yr and whether the landfill must meet the NSPS or EG control requirements and emission limits. The State agency reasoned that to determine uncontrolled emissions for a landfill with a collection and control system already in place, it would be appropriate to use the equation and NMOC concentrations measurement procedure in § 60.754(b). This equation is the one used for controlled landfills to determine if uncontrolled emissions have fallen below 50 Mg/yr such that the control system can be removed. It requires measuring NMOC at the common header pipe of the collection system prior to the control device.

Using this approach, landfills that already have collection and control systems would calculate uncontrolled NMOC emissions for the portion of the landfill from which gas is collected using the equation and NMOC concentration measurement procedures in § 60.754(b). (If there are areas of the landfill from which gas is not collected, the tier procedures would be used for these areas.) In order for the equation in § 60.754(b) to be appropriate, the collection system must be well designed and operated. In particular, for an active collection system, a negative pressure should be maintained at the wellheads without excess air infiltration. Also,

if surface monitoring has been done at the landfill, it should show methane concentrations below 500 ppm.

In addition to using the equation found in § 60.654(b) in combination with the actual measured NMOC concentration collected at the header, the NMOC concentration measured at the header (as described in VII.E.13, Testing and Monitoring) could also be used in the equation found in § 60.754(a)(1) to determine if the landfill should be subject to the requirements found in the NSPS or EG.

If total uncontrolled emissions are < 50 Mg/yr, the landfill is not subject to the control requirements of the NSPS or EG, but must continue to submit annual NMOC emission rate reports (unless it is closed). If the annual NMOC report shows that the uncontrolled emission rate has increased to 50 Mg/yr or greater, the landfill would become subject to the control requirements of the NSPS or EG. The landfill would then have 1 year to submit a design plan to either document that the existing system meets the requirements of the NSPS or EG or to specify plans to upgrade the system to achieve compliance. The landfill would need to come into compliance and begin required testing and monitoring within the time frames specified in the NSPS or EG.

5. Question: Can a landfill with uncontrolled emissions \$ 50 Mg/yr install a control system that does not meet NSPS or EG requirements to reduce actual emissions to <50 Mg/yr and thereby avoid being subject to NSPS or EG control requirements?

Answer: No. As explained in the answers to the previous questions, the uncontrolled emission rate is used to determine whether the landfill is subject to NSPS or EG control requirements.

6. Question: Has EPA recognized any alternative models, other than the Landfills Air Emissions Estimation Model? If one is proposed at the State level, what would be the mechanism for getting this model approved?

Answer: Currently the EPA has not approved any models that can be used as alternatives to the Landfills Gas Emissions Model (LandGEM). Version 2.01 of this model and the user's manual can be found on the web at:<http://www.epa.gov/ttn/catc/products.html>. Alternative models should be sent to Susan Thorneloe of EPA/ORD for evaluation (see e-mail address in the Introduction to this document). In order for an alternative model to be approved, it should use the emissions estimation equations in the rule (which are the same as those used in the LandGEM) or another approach that is demonstrated to provide a reasonable measure of landfill gas generation.

7. Question: Does the landfill air emissions model handle the situation where leachate is recycled through the landfill?

Answer: The landfill air emissions model does not contain specific factors that would address the recycling of leachate through the landfill. However, under Tier 3 of the NMOC calculation procedure [§ 60.754(a)(4)] the owner/operator can substitute a site-specific methane generation rate in lieu of the methane generation rate constant (k). The site-specific methane generation rate is determined by the owner/operator by using gas flow testing (Method 2E). This site-specific methane generation rate could incorporate the effects of leachate recycling on the methane generation rate for that specific landfill.

C. Estimating Emissions for Inventory or Permitting Purposes

8. Question: Should the equations and assumed default values for K , L_0 and C_{NMOC} in the NSPS and EG for estimating NMOC emissions be used for title V and emission inventory purposes? Should these same values be used for determination of applicability under PSD and nonattainment NSR permitting?

Answer: The Tier 1 default values of k , L_0 , and C_{NMOC} tend to overstate NMOC emission rates for most landfills, and are intended to be used to indicate the need to install a collection and control system or perform a more detailed Tier 2 analysis. It is not recommended that these default values be used for estimating landfill emissions for purposes other than the NSPS and EG. The EPA document "Compilation of Air Pollution Emission Factors" (AP-42) provides emission estimation procedures and default values that can be used for emissions inventories, PSD and NSR permitting, and other purposes.

V. ELEMENTS OF A STATE PLAN

A. List of Plan Elements

1. Question: What should be included in a State plan for implementing the EG?

Answer: In some cases, local agencies, tribal agencies, or protectorates of the United States may submit plans for landfills on their jurisdictions. The same guidance applies. The term "State plan" used throughout this document includes plans developed by local or tribal agencies or protectorates. A State plan must include the following components:

1. Identification of enforceable State mechanisms selected by the State for implementing the EG,
2. A demonstration of the State's legal authority to carry out the Section 111(d) State plan as submitted,
3. An inventory of MSW landfills in the State affected by the EG. This includes existing MSW landfills that have accepted waste since November 8, 1987, or have additional capacity for future waste deposition. An existing landfill may be active (currently accepting waste or having additional capacity available for waste deposition) or closed (no longer accepting waste nor having available capacity for future waste deposition),
4. An inventory of NMOC emissions from MSW landfills in the State,
5. Emission standards for MSW landfills that are "no less stringent" than those in the EG¹,
6. A State process, as specified in § 60.33c(b) of Subpart Cc, for State review and approval of site-specific gas collection and control system design plans,

¹On a case-by-case basis, the State may provide for a less stringent standard or a longer compliance schedule if the State demonstrates to EPA that the criteria in § 60.24(f) of Subpart B are met, and the EPA approves the standard or schedule. The State may also provide for a more stringent standard (see section II.F).

7. Compliance schedules extending no later than 30 months after the date the annual NMOC emission rate equals or exceeds 50 Mg/yr¹,
8. Testing, monitoring, recordkeeping, and reporting requirements,
9. A record of public hearing(s) on the State plan, and
10. Provision for annual State progress reports to EPA on implementation of the State plan.

These components are described in detail in MSW Landfills, Volume 2.

B. Emission Inventories

2. Question: Is an emission inventory required only for major sources or only for landfills with design capacities \leq 2.5 million Mg and \leq 2.5 million m³? Is this also true of the emissions report that is to be part of the State plan?

Answer: An emission inventory of all landfills, including those that are not major sources or are $<$ 2.5 million Mg or 2.5 million m³, is a required part of the State plan. This is specified in Subpart B [40 CFR § 60.25]. Subpart B also requires annual updates of the State emissions inventory for all existing landfills, regardless of design capacity. This is discussed further in MSW landfills, Volume 2. However, in view of the limited requirements of the EG and NSPS on owners and operators of small MSW landfills, the EPA will allow States, in limited circumstances, to submit emission inventories as part of State plans without requiring that, in all cases, that States develop emissions data for MSW landfills below 2.5 million Mg or 2.5 million m³ where development of such data would be unreasonable and impractical. However, where accurate data are already available, or can reasonably be generated without undue expense or effort, States should require and include such data in their State plans. Details of this policy are discussed in a memorandum entitled "Emission Inventories for Existing MSW Landfills with Design Capacities Below 2.5 Million m³". The memorandum is available on the EPA TTN under recently issued policy and guidance memorandums at <http://www.epa.gov/ttn>. The memorandum also discusses situations where it may be "unreasonable or impractical" to estimate NMOC emissions.

This easing of the NMOC emission inventory requirement, however, does not relieve States of the obligation to provide, as part of their State plan, an inventory of all existing MSW landfills

within the State. Also, landfills with design capacity ≤ 2.5 million Mg and ≤ 2.5 million m^3 must submit an annual NMOC emission report to the EPA or State.

3. Question: Can the submittal of design capacities for small landfills substitute for the emission inventory?

Answer: No. The inventory is a requirement as part of subpart B. Also, the public has the right to know what the landfills are emitting. (See the preceding question for an exception to the emission inventory requirement.)

C. Enforceable Mechanisms including Incorporation by Reference or use of Title V Permits

4. Question: If States adopt by reference the NSPS or the EG, will States still have to go through rulemaking, if not, is EPA implying that the States can simply include the requirements in a title V permit? If the latter scenario is true, will the EPA have to receive a copy of the title V permits on or before December 12, 1996, as satisfying section 111(d), and the public hearing requirements as well? In addition, do States have to submit a 111(d) plan if they are adopting the landfill NSPS by reference for both existing and new sources. If the State's rulemaking procedure includes public participation, would this fulfill the required element?

Answer: The State will have to provide the underlying authority through a mechanism that is enforceable by the State such as rulemaking, State operating permit, or regulatory compliance or administrative orders. Title V permits may not have that underlying authority. If a State uses a mechanism other than rulemaking, an Attorney General's opinion is strongly encouraged.

Under 40 CFR § 60.23(a), States are required to adopt and submit to the Administrator a plan implementing requirements of the EG within 9 months after promulgation of the EG. This plan is required regardless of the enforceable mechanism that is chosen. Even if the State adopts the landfill NSPS by reference for both existing and new sources, a State plan is still required to be submitted that has all of the required elements as specified in 40 CFR Subpart B. The rule is only one part of this plan and typically does not contain all of the required elements for a State plan. In addition, even though there was public participation in the development of the rule, a separate public hearing is required on the State plan, of which the rule is only one part.

5. Question: Can States revise their existing landfill rules instead of writing new ones? California stated that they will only need to revise portions of their current landfill rules. Wisconsin stated that they wish to use their existing landfill rules also, because, in their opinion, they are more stringent in some ways. However, since title V permits are a requirement for some landfills, Wisconsin does not believe their State Attorney will allow them to apply (or revise, if necessary) their current State landfill rules (developed in the Solid Waste Division) as a means of regulating MSW landfills under rules not developed from the Air Division.

Answer: To go in a title V permit, the underlying authority such as the rule must be an applicable requirement of the Clean Air Act (CAA). If the State landfill rules are not an applicable requirement of the CAA, a separate rulemaking would likely be needed. This requirement of this rule could then go into title V permits.

6. Question: Can States incorporate the EG by reference?

Answer: Yes, as long as the State demonstrates that it has the legal authority to enforce its rule against a landfill owner or operator. The State may want to add a clause to say that designated facilities under the respective subpart shall comply with the requirements for State plan approval in 40 CFR 60.33c, 60.34c, and 60.35c. This will ensure that the State would be able to enforce its rule directly against sources. Also, some States that incorporate the EG by reference may want to provide an attorney's opinion regarding the State regulation to ensure that the State could enforce the rule directly against a landfill owner or operator.

7. Question: Can the NSPS be adopted as the State rule for existing sources with the provision for the submittal and compliance dates that are specified in the EG?

Answer: Yes, if a State has the legal authority to do this. Any compliance schedule that extends more than 1 year beyond the date of EPA's approval of the plan must include all the increments of progress required under §§60.24(a) and 60.24(e)(1). The NSPS does not contain dates for awarding contracts, initiating construction, and completing construction (unless this date is the same as the compliance date).

D. Public Hearings

8. Question: If individual air districts (as in California) have public hearings for the district State plans, does the State also have to have a public hearing for the overall plan?

Answer: No, the individual public hearings will suffice.

E. Stringency of State Standards

9. Question: The Agency has indicated that the State programs must generally be at least as stringent as the EG, and can be more stringent. Does the Act allow for less stringent requirements, as long as there is justification? Can the EPA provide guidance on criteria and specific conditions which may allow for a less stringent emission standard or a longer compliance schedule to apply.

Answer: Section 60.24(f) of subpart B states that:

"On a case-by-case basis for particular designated facilities, or classes of facilities, States may provide for the application of less stringent emission standards or longer compliance schedules than those otherwise required by paragraph (c) of this section, provided that the State demonstrates with respect to each facility (or class of facilities):

- (1) Unreasonable cost of control resulting from plant age, location, or basic process design;
- (2) Physical impossibility of installing necessary control equipment; or
- (3) Other factors specific to the facility (or class of facilities) that make application of a less stringent standard of final compliance time significantly more reasonable."

More specific conditions cannot be provided at this time because the decisions must be made on a case-by-case basis considering the specific situations.

If a State believes that one of these criteria apply and wants to prescribe less stringent specifications, they can make such a demonstration as part of the State plan. These demonstrations must be approved by EPA as part of the State plan approval process.

10. Question: Why would a State plan be more stringent than the NSPS?

Answer: States have the discretion of developing a State plan for implementing the EG, or a State standard for new sources, that is more stringent than the NSPS or EG (see section II.F for additional details). Sometimes, States have more stringent standards to address State and local air quality issues or public health concerns. If a State has a regulation or law that limits its ability to adopt and implement regulations more stringent than the Federal requirements, then such a State should make clear its authority for adopting more stringent requirements than the Federal requirements.

F. Plan Approval Notices, Other State Plans

11. Question: How can I get a copy of a FR notice that has already been published for a State plan?

Answer: 40 CFR Part 62, Approval and Promulgation of State plans for Designated Facilities and Pollutants, lists State plans that have been approved by EPA. Each State plan is referenced to a Federal Register citation by location and date.

12. Question: Which States have developed rules/plans already? Can these State rules be made available to States that are further behind in developing a rule?

Answer: The EPA will keep an up-to-date list of State plan submittals and approvals on the EPA TTN Web at <http://www.epa.gov/ttn/oarpg>. Also you may contact your Regional EPA office for information on which States have adopted rules.

G. SIP Program

13. Question: Since the landfill rule also deals with criteria pollutants (i.e., VOCs), will the State/EPA also have to do a SIP revision?

Answer: The section 111(d) designated pollutant is landfill gas, which includes both toxics and VOC and other elements. The State must prepare a section 111(d) State plan to implement the landfills EG for landfill gas. The NSPS and EG regulate NMOC emissions as a surrogate for landfill gas. Thus, the section 111(d) State plans for landfills must address NMOC. This rule in no way adds to or deletes from any obligation for VOC control or toxics control. Therefore, A SIP revision would not be required because of this rule. However, if a landfill meets a VOC or toxics threshold, that may trigger other requirements, such as PSD review or a MACT standard or title V permit, independent of the NSPS and the EG.

H. Other

14. Question: When is the State delegated authority to implement the EG or NSPS?

Answer: For the EG, States have authority to implement and enforce the EG upon EPA approval of their State plans. For the NSPS, many States have already been given the authority to implement and enforce all NSPS. However, other States have been delegated authority only for certain subparts, but not for all NSPS. Such States may request delegation of the landfills NSPS. A list of States that have been delegated authority appears in 40 CFR 60, § 60.4(b).

VI. REPORTING REQUIREMENTS

A. General

1. Question: What format should be used for the reports?

Answer: Appendix H of MSW Landfills, Volume 1 provides an example format for the reports required by the NSPS and EG. States and landfills have discretion to use any format as long as all the information specified by the NSPS or EG is included.

2. Question: To whom should the reports be submitted?

Answer: For landfills subject to the NSPS, the General Provisions of Part 60 require that reports be sent to the appropriate EPA regional office. Reports must also be submitted to the appropriate State air agency contacts where the State has been delegated authority to implement and enforce the NSPS. Addresses for EPA regional offices and State agencies that have been delegated authority are listed in 40 CFR 60, § 60.4.

For landfills subject to the EG, if the State in which the landfill is located has an approved State plan, reports are submitted to the State. If the State or tribal area in which the landfill is located does not have an approved plan that covers that landfill, then a Federal plan will be promulgated. Enforcement of the Federal plan may be delegated to the State or retained by EPA. If a landfill is subject to a Federal plan and enforcement has been delegated to the State, then reports should be sent to both the State and the EPA regional office. If enforcement of the Federal plan has not been delegated, reports should be sent to the EPA regional office.

B. Design Capacity Reports

3. Question: In developing their section 111(d) plan, do the States need to require all landfills to submit design capacity reports? If a State is addressing the EG by regulating large landfills with Compliance Orders instead of a rulemaking, will they also need to require the small landfills to do design capacity reports? Do States that submit a negative declaration stating that they do not have any large landfills need to require that all of the small landfills submit design capacity reports?

Answer: The State must require that all landfills submit the initial design capacity report unless an alternative approach is approved for the State under § 60.24(f) of 40 CFR 60 subpart B. Submittal and review of these reports helps ensure that the landfill

has correctly calculated their landfill capacity. The State may calculate design capacities for small landfills as part of the State plan as long as the State verifies their calculations with the small landfill owner or operator.

4. Question: Section 60.757(a)(2) lays out the requirements of the design capacity report (map, maximum design capacity from permit or calculations, etc.). If the State already has this information in its records from when the landfill was initially constructed (maybe even 30 years ago), and the information is still accurate, must the landfill owner/operator submit this information himself?

Answer: Unless an alternative reporting approach is approved for the State under § 60.24(f), a report must be submitted. The State may allow the owner/operator to submit a letter indicating that the information has been submitted previously, the date it was submitted, why it was submitted, and a signed statement that the previously submitted information is still current.

5. Question: Is there any lower design capacity below which a facility does not have to submit an initial design capacity report pursuant to § 60.752(a)?

Answer: No, all landfills must submit an initial design capacity report.

6. Question: For the NSPS, is it true that only modifications which result in a maximum design capacity greater than or equal to 2.5 million Mg and 2.5 million m³ are required to submit an amended capacity report?

Answer: Landfill owners/operators who are already subject to the NSPS but are <2.5 million Mg or 2.5 million m³ are required to submit an amended design capacity report only if there is an increase in the design capacity to or above 2.5 million Mg and 2.5 million m³. Such a capacity increase could be a result of a modification (i.e., an increase in permitted volume by vertical or horizontal expansion) or a change in density if a site-specific density has been used to convert from mass to volume or from volume to mass. The amended design capacity report must be submitted within 90 days of the capacity increase.

If an existing landfill subject to the emission guidelines is modified, then it becomes subject to the NSPS and must submit the NSPS initial design capacity report. This report must be submitted within 90 days after the date the modification is commenced as required by § 60.757(a) of the rule, as recently amended. This

requirement applies even if the modified capacity is <2.5 million Mg or 2.5 million m³.

7. Question: The information requested in 40 CFR Part 60 Subparts Cc and WWW (§ 60.757) requires that depth of refuse be specified. The depth of refuse will vary in different cells and will even vary within a single cell when base grades of the cell are sloped to facilitate leachate collection. What is EPA looking for as an acceptable response? A range? Why is this information needed if the permitted volume is specified? Regarding compaction practices, what kind of response is desired? A description of the compaction equipment used? A gate-to-bank compaction ratio with gate density specified? An in-place waste density? With regard to the annual refuse acceptance rate, is this a projected maximum for the life of the landfill, the project waste receipts for the current year, or is it the average waste receipts since the landfill began receiving waste?

Answer: Section 60.757(a)(2)(ii) specifies that the maximum design capacity that is specified in the permit issued by the State, local, or Tribal agency responsible for regulating the landfill be submitted in the initial design capacity report. A copy of the permit may be included. Only if this permitted value is not available, or if the permit is by volume and the owner/operator wishes to convert it to a mass basis (or vice versa) is the owner or operator required to submit engineering calculations supported with data. The direct final rule clarifies that values of appropriate parameters must be submitted with the calculations. The owner/operator must provide sufficient data to support the calculations. If depth varies or waste acceptance rate used in the calculation varies, the calculations and supporting documentation should show what values were used in the calculations and explain why these values were used and how the variation was accounted for. If the design capacity is being converted from volume to mass, or from mass to volume, a site-specific density must be used in the calculations. Supporting documentation must document and justify the density value used in the calculation. Typical landfill densities range from 0.5 to 0.6 Mg/m³, but they can range from about 0.18 to 1.2 Mg/m³. A landfill's density depends on the composition of the waste, its original density, and its compactability.

C. Timing of Reports

8. Question: When must the required reports be submitted? What should the EPA do if design capacity and emission reports are not submitted by June 10, 1996?

Answer: For landfills subject to the NSPS, the initial design capacity report must be submitted no later than:

- C June 10, 1996, for landfills that commenced construction, reconstruction or modification on or after May 30, 1991, but before March 12, 1996.
- C 90 days after the date of commenced construction, modification, or reconstruction for landfills that commence construction, modification, or reconstruction on or after March 12, 1996.

The initial NMOC emission rate report (required if the design capacity is ≥ 2.5 million Mg and ≥ 2.5 million m³) must also be submitted by these same dates and may be combined with the initial design capacity report. Subsequent NMOC emission rate reports must be submitted annually thereafter, except as provided in § 60.757(b)(1)(ii) and (b)(3).

For existing landfills, the report is due to the State 90 days after the effective date of the State's section 111(d) plan approval unless a different date is specified in the approved State plan. This due date is consistent with the NSPS. It is also consistent with the recent amendment's (63 FR 32743) clarification that landfills ≥ 2.5 million Mg and ≥ 2.5 million m³ become subject to the requirement to submit a Title V permit application 90 days after the effective date of State 111(d) program approval. Design capacity reports would need to be submitted at or before this time to determine which landfills are subject to Title V permitting requirements as well as NMOC emission reporting and control requirements. The report due date will differ from State to State, depending upon how soon the State develops and obtains approval for a State plan for implementing the EG.

The enforcement agency can take enforcement action on those landfill owners or operators that fail to submit reports by the required date. The exact nature of the appropriate enforcement action would be determined by the enforcement agency.

D. Monitoring Reports

9. Question: Is there no collection system reporting if the system is passive?

Answer: If the landfill uses a passive collection system, then it must designate and submit parameters to be monitored and reported

that indicate the correct performance of the passive collection system.

VII. TESTING AND MONITORING

A. General

1. Question: a) When do monitoring requirements start for existing and new sources? b) For those facilities that have emissions greater than 50 Mg NMOC/yr, but already have a complying gas collection and control system (although not currently approved by the Agency), when does the compliance monitoring begin?

Answer: a) Monitoring starts for both existing and new sources upon startup of the required collection and control system. The first monitoring report is due 180 days after installation and start-up of the new collection and control system, per § 60.757(f). b) In the case of a landfill that is already controlled with a complying system, the landfill owner would submit documentation that the system design meets the requirements of the NSPS or EG at the time the design plan is due. The EPA or the State agency will review the plan. The landfill should begin monitoring within 180 days of becoming subject to the NSPS or EG requirements and submit the first monitoring report.

2. Question: Is surface monitoring required for NMOC?

Answer: No, surface monitoring is required for only methane.

3. Question: Are there any air monitoring standards for landfills in terms of parts per million of NMOCs or methane?

Answer: There are no fence line ambient air monitoring requirements in the standards. Proper collection system design and operation are ensured through landfill surface monitoring for methane and monitoring of operating parameters. In § 60.753(d) of the rule, owners and operators are required to operate collection systems so that the methane concentration is less than 500 ppm above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator is required to conduct surface testing around the perimeter of the collection area and along a path traversing the landfill at 30 meter intervals.

B. Surface Methane Monitoring

4. Question: One commenter stated that it is infeasible to conduct surface methane sampling in the winter due to icy slopes and the sensitivity of the monitoring equipment in freezing temperatures. Is it acceptable to exempt landfills from surface methane sampling in the winter? Minnesota plans to do this in their rule, requiring monitoring at least three times per year. The timing of the sampling will coincide with other sampling at landfills in Minnesota.

Answer: Section 60.755(c) of the NSPS requires that each owner and operator monitor the surface concentrations of methane on a quarterly basis. However, the NSPS allows some flexibility in this requirement. General flexibility is provided for in the general allowances for alternative programs that the owner/operator can demonstrate would be as effective as the rule. In addition, Section 60.753(d) states that "areas with steep slopes or other dangerous areas may be excluded from the surface testing." Although it would not exempt a landfill from all winter testing, this clause would allow the owner or operator to exclude monitoring of dangerous icy slopes.

Under the authority of § 60.13(i) of the NSPS General Provisions, owners and operators of landfills subject to the Landfill NSPS can submit written requests to the Administrator for alternative monitoring procedures or requirements.

For existing landfills subject to the EG, § 60.24(f) of Subpart B gives States some flexibility for State plans to request EPA approval for "less stringent emission standards or longer compliance schedules." To do this, it must be demonstrated that a particular landfill or class of landfills would incur unreasonable costs, installing controls is a physical impossibility, or there are other factors that make application of a less stringent standard or final compliance time significantly more reasonable. Less frequent monitoring might be considered a less stringent standard. The State should discuss this issue with the EPA Regional Office that will be reviewing their State plan.

5. Question: For monitoring, the rule allows the owner/operator to establish an alternative traversing pattern that ensures equivalent coverage. Would a well-to-well monitoring method be equivalent to the method of monitoring at a 30-meter spacing and where visual observations indicate elevated concentrations of landfill gas (e.g. cracks) as required in the rule?

According to the commenter the monitoring method in the rule would require the landfill to:

1. Mow and resurvey each quarter. The well-to-well path is already mowed as it is used to periodically balance the well field.
2. Walk 9 miles to cover the landfill, whereas, sampling from well to well would only be 2.5 miles.

The commenter believes that one is most likely to see high concentrations between wells.

A possible alternative method would be to have them do the full 9 mile pattern once per year, then well to well the other 3 times. A commenter noted that cracks may not be an issue with a synthetic liner, so they should only be required to monitor from well to well.

Answer: Section 60.753(d) of the NSPS allows the owner and operator to establish alternative traversing patterns that ensure equivalent coverage as the 30 meter interval pattern. Therefore, in order for the commenter to implement their alternative sampling pattern, the commenter must apply to the regulatory authority for approval of an alternative approach.

6. Question: Why didn't the EPA require well-to-well surface sampling in the rule?

Answer: The 30-meter interval sampling pattern provides a systematic method that ensures adequate landfill coverage. Collection system problems or cracks and fissures resulting in areas of high surface emissions could occur at random throughout the landfill, not just on direct lines between wells. The 30-meter traverse pattern assures systematic coverage of the landfill area and will measure surface concentrations at varying distances and directions from wells. The well-to-well sampling pattern would differ from landfill to landfill depending on the spatial configuration of the wells, may be more difficult to define, and may not always ensure adequate coverage.

7. Question: A commenter suggested two options to surface monitoring based on a California model. The first is "integrated sampling", which allows composite sampling over an area. Why did the EPA use a point basis rather than a composite basis for sampling?

The second option suggested was to obtain a range of extraction rates that would meet 500 ppm and then maintain gas extraction within that range, updating the effective range every two years.

Answer: The rule is based on point sampling because the purpose of the testing is to determine where the landfill gas collection system is insufficiently designed or operated. With point sampling the location of the landfill gas emissions is pin-pointed so that the adjacent well vacuum can be adjusted, cover maintenance can be performed, or additional wells can be installed. Integrated sampling provides an average value over an area. This averaging could mask areas of poor system performance by dilution. In addition, integrated sampling has a much lower action level and is more an indicator of emission rate than system performance. Since the purpose of the testing is to identify locations of poor system performance, integrated testing is not indicated.

Regarding the second suggested option, a consistent extraction rate would not work because landfill gas production is a dynamic process that is not consistent in all areas. Also, cracks and fissures can occur at any time and would result in emissions that would not be detected or corrected by maintaining a constant extraction rate.

8. Question: Would remote sensing not be a more efficient, if not more accurate means to measure surface emissions? (By doing two sides I would assume you could even locate hot points.)

Answer: In general, remote sensing would not be feasible for the purpose of monitoring surface methane concentrations. The purpose of performing Method 21 along a pattern that traverses the landfill at 30 m intervals is to cover the entire surface area of the landfill and to identify specific locations of high methane concentration so that cover and collection system performance problems can be identified and corrected. Method 21 uses portable hydrocarbon analyzers that can be easily carried by the person performing the sampling and provides readings for specific locations. Remote sampling would not be an effective way to pinpoint problem spots. With remote sampling, the equipment is set up at a fixed location and monitors along a straight line from one point to another. In order to cover the entire surface area of the landfill, the remote sensing equipment would need to be moved and set up a large number of times. Also, if the surface of the landfill is not flat, this could cause difficulties for remote sensing since measurements must be conducted just above the landfill surface to minimize effects of dispersion and dilution. It should be noted that the NSPS allows landfill owners and operators to apply to use

alternative monitoring methods. If remote sensing or another method would be effective for a particular landfill, they can apply to use it.

C. Gas Flow Monitoring

9. Question: The rule requires a gas flow rate measuring device that records the flow to the control device every 15 minutes or a lock and key to prevent bypass. The commenter stated that their systems are designed to shut everything off (e.g. the blower) if there is a problem, for example, with the flare. Can they disregard the gas flow/lock & key requirements as long as their system is designed with no means to bypass the control device?

Answer: The gas flow measurement or lock and key requirements would not apply to a system that is designed such that there is no physical means to bypass the gas flow before it reaches the control device.

D. Use of Alternative Test Methods

10. Question: Can test data obtained using TO-14 be used in lieu of data obtained using Method 25C? The enabling document provides only one reason for not allowing TO-14--the cost. Is there another reason, or are the methods otherwise equivalent?

A landfill already has test data using this method and shows that one of Minnesota's larger landfills would not be subject to the standard because of too low of an NMOC concentration. This landfill has a gas extraction system already.

Answer: The rule requires that landfills measure NMOC, which includes numerous organic components. TO-14 (toxic organic test #14) measures specific toxic compounds which may not total to NMOC. Therefore, Test Method 25C must be used.

11. Question: Would EPA accept the site-specific testing conducted in compliance with the Chapter 115 rule in nonattainment areas?

Answer: Testing must meet the requirements in the NSPS and EG, in terms of test methods and procedures. A landfill owner or operator or State could apply to use a different method if they can demonstrate that it is equivalent.

E. Test Methods 18 and 25C

12. Question: Does Method 18 give lower NMOC results than Method 25C? A recent talk given at a conference indicated this and concluded that, although Method 18 is somewhat more costly, it should be the preferred method due to the lower results it gives.

Answer: No comparison studies have been done to indicate that Method 18 gives lower NMOC results than Method 25C. Method 18 was allowed as a flexibility option in case some unforeseen special need developed. Method 18 is significantly more costly than Method 25C. With Method 18, the sample must be analyzed for all of the compounds on the latest AP-42 list. This means calibrating an analyzer at 3 points for each compound. As a minimum, each calibration point requires duplicate injections. This results in a burdensome calibration of approximately 246 injections. Add to this the requirement to obtain an acceptable recovery of each 10th sample which is spiked with approximately 40 compounds. If Method 18 is performed correctly, the time and expense required will greatly exceed that of Method 25C.

13. Question: Can NMOC samples be collected from passive vent systems or collection system headers already in place? This will give a more representative sample and help protect synthetic membranes used at some landfills. In sampling for landfill gas, the method requires one to insert the ss probe 3 feet into the landfill. How does one accomplish this through a HDPE geomembrane cap, without destroying cap integrity?

Answer: Sampling using Method 25C or 18 may be done for two purposes: (1) Tier 2 calculations to determine the NMOC emission rate as specified in §60.754(a), and (2) testing after installation of collection and control systems to calculate NMOC emission rate for purposes of determining whether the control system can be removed, as specified in § 60.754(b).

For the purposes of tier calculations, Tier 1 calculations are performed first. Tier 1 uses default values and does not require any sampling. Owners are not required to perform Tier 2 sampling. However, if Tier 1 shows NMOC emissions ≤ 50 Mg/yr, a landfill owner may elect to perform Tier 2 sampling to try to demonstrate that emissions are < 50 Mg/yr. Method 25C or 18 is used for Tier 2. The rule (§ 60.754(a)) requires at least two sample probes per hectare of landfill surface where waste has been in place for at least 2 years, up to a total of 50 samples. Method 25C provides specifics on the collection of the samples using the sample probes. If the landfill already has a collection and control system and is being sampled to determine whether the system can be removed, the sample is taken from the common header pipe as described in § 60.754(b).

Many landfills with covers such as that described in the question have in place passive vents (venting to the atmosphere). If passive vents are in place, a sample could be taken through these, but with caution. If collection lines and a control system are in place, it is possible to tap into the collection lines to withdraw a sample, again with caution (i.e., allowing minimal oxygen to enter to avoid creating an explosive situation).

Testing passive vents and header systems is evaluated on a case-by-case basis. The landfill needs to contact the EPA and State agency with a written request and diagram so that the specific plan can be reviewed to assure that the sample will be representative. The main criteria for passive systems are that at least 2 wells be located per hectare and the sampling location can be made leak-tight. Many passive systems are vertical vents connected to a network of horizontal tubing that traverses the landfill. With this arrangement, the 2 vertical wells/hectare criterion may be met with fewer wells if samples representative of the affected area can be taken. Sampling at collection system headers is allowable if they will provide representative samples and the gas is collected before any condensate traps. A minimum of 3 samples must be taken from headers to constitute a compliance test. Therefore, it is acceptable to take samples from either passive vents or collection system headers to avoid degradation of cap integrity if the criteria discussed above have been met including the securing of prior approval.

Furthermore, the rule allows for alternative procedures to determine the NMOC concentration if the method has been approved by the Administrator.

14. Question: For GC/FID method 25C, is it necessary to analyze all 100 species known to be present in LFG? If not, which compounds should be included, and how is total NMOC determined? Should air toxics be identified individually for health risk assessment? How about evaluating odor potential?

Answer: Method 25C does not speciate (or separate) individual organic compounds. Rather, the procedure provides a single peak of all the organic compounds except methane. The instrument response to the peak is referenced to a single calibration peak. Individual toxics cannot be reported using Method 25C and do not need to be reported. The NSPS and EG do not require health risk assessment or evaluation of odor potential.

15. Question: Method 18 is allowed in the final rule to analyze NMOC concentrations. What sampling procedure should be followed if method 18 is used for analysis of the samples?

Answer: Method 18 specifies sampling equipment and procedures. It requires samples be taken by one of three means: 1) Tedlar bag, 2) direct instrumental interface, or 3) adsorption tube. In addition, a detailed discussion of the procedures is discussed in Section 5 of Method 18 (see 40 CFR Part 60, Appendix A, Method 18). Section 60.754(a) and (b) also provide specifications for sample probe location and number of samples for Tier 2 or control system removal testing. Alternative testing media will be considered on a case-by-case basis.

16. Question: What are the requirements for composite sampling with Method 25C?

Answer: Composite sampling with Method 25C is allowed under § 60.754. In compositing, samples from more than one probe are collected in a single evacuated cylinder. The following conditions are required for acceptable compositing.

- (a) A cylinder's composite samples must be of equal volume
- (b) Equal sampling must be documented by recording the appropriate flow rate/sampling time/tank vacuums
- (c) Each composite sample must have a minimum volume of 1 liter
- (d) The tank must be under vacuum after the last composite sample is collected vacuum

17. Question: Is a nitrogen analysis of each sample required for Method 25C? What if some samples show nitrogen analyses higher than 20% but corresponding oxygen levels are very low and do not reflect the ratio in ambient air?

Answer: A nitrogen analysis for leak determination is required of all Method 25C samples. In cases where the sample nitrogen analysis is greater than 20% but an additional oxygen analysis is less than 5%, the samples may be considered valid for purposes of leak determination only. If samples are collected from other purposes, they may not be representative of normal landfill conditions.

18. Question: For the Method 25C analysis, can less than triplicate injections be performed?

Answer: All Method 25C analytical injections must be performed in triplicate.

19. Question: There is a DOT container size limitation of 2.5 liters when shipping methane at certain concentration levels. Method 25C specifies 4-liter canisters as a minimum.

Answer: Containers smaller than 4 liters will be allowed to comply with this DOT limitation. However, in most cases where the sample tank is filled to 325 mm with dry helium as prescribed before sampling, this critical methane limit will not be exceeded.

F. Test Method 21

20. Question: When using Method 21 for monitoring methane concentration, does one move continuously across the surface? Doesn't method 21 require sampling time be related to response time of the instrument? Does this mean that the sample must stop at intervals? If so, what intervals?

Answer: The sampler should walk slowly across the surface, there is no need to stop.

VIII. NONATTAINMENT NEW SOURCE REVIEW/PREVENTION OF SIGNIFICANT DETERIORATION PERMITTING ISSUES

1. Question: What are the requirements for NSR? What are the thresholds? Will landfill owners and operators of new or modified landfills also be required to install controls to meet New Source Review (NSR)? Do States have to amend their NSR rules on the same track as this rule?

Answer: Nonattainment NSR applies to new or modified major stationary sources located in nonattainment areas. Nonattainment areas are areas not meeting air quality standards for one or more air pollutants. If a new landfill locates in a nonattainment area and emits, or has the potential to emit, major amounts of a nonattainment pollutant then nonattainment NSR applies. The major source threshold for nonattainment NSR may vary for different air pollutants. For example, the major source threshold for ozone nonattainment areas ranges from 100 tons per year to as low as 10 tons per year depending on the severity of the ozone problem. A modification at an existing landfill may be subject to nonattainment NSR if the existing landfill is a major source for the nonattainment pollutant and the modification results in a significant net emissions increase of the nonattainment pollutant. For ozone nonattainment areas the significant threshold for VOC and NO_x is any increase for extreme areas, 25 tpy for serious and severe areas, and 40 tpy for all other ozone nonattainment areas. The technology requirement for nonattainment NSR is that the source meet the lowest achievable emissions rate, known as LAER. In meeting LAER it is likely that pollution controls or other emissions reduction techniques may be needed. In general, nonattainment NSR also requires that the proposed emissions increase of the nonattainment pollutant (or its precursors in some cases) be offset by actual emissions reductions from existing sources. Other nonattainment NSR requirements include an alternatives analysis and a certification that all major sources owned by the applicant in the State are in compliance, or on a schedule for compliance, with air program requirements. For new or modified landfills in nonattainment areas the air pollutants of concern are typically VOC and NO_x (both precursors of ozone) and CO. The NO_x and CO emissions are typically products of combustion.

The major NSR requirements for prevention of significant deterioration (PSD) apply to new or modified major stationary sources in attainment areas. An area is attainment for an air pollutant if area is in compliance with the ambient air quality standard for the pollutant. The PSD requirements apply if a new landfill will emit, or has the potential to emit, major amounts of one or more PSD regulated pollutants. In general, the PSD major source threshold for

new landfills is 250 tons per year of any PSD regulated pollutant. For PSD the technology requirement is best available control technology (BACT). For example, in meeting BACT for new or modified landfills, controls may be needed for NO_x. Also, under PSD the applicant must demonstrate that the proposed emissions will not violate ambient air quality standards and increments, not adversely impact Class I areas, and must consider the impacts on soils, vegetation, and visibility. For existing landfills that are major sources, the PSD requirements apply to modifications that result in a significant net emissions increase of a PSD regulated pollutant. For modifications, a PSD significance level of 50 tpy for landfill gas emissions (measured as NMOC) has been established concurrent with promulgating the NSPS and EG.

The EPA's NSR regulations for nonattainment areas are set forth at 40 CFR 51.165, 52.24 and Part 51, Appendix S. States with existing nonattainment areas were required by the Act to have nonattainment NSR rules adopted by November 15, 1992. The EPA's PSD program rules are at 40 CFR 52.21 and 51.166. States' PSD rules should be amended within nine months after the effective date of the change to EPA's PSD rules to add landfill gases. Landfill owners or operators are encouraged to contact the appropriate State or local air permitting authority to discuss construction permitting requirements prior to landfill construction or modification.

2. Question: If small landfills are only required to report their design capacity, how would a State determine if they had an emissions increase of NMOC that may or may not be subject to NSR?

Answer: The NSPS and EG only require reporting of design capacity for purposes of determining applicability of the NSPS or EG. However, State construction permit programs may apply independently to new or modified landfills. State major NSR programs apply to new landfills that may be major sources as defined in the NSR program or modifications of existing major sources that have a significant net increase in emissions. In other words, State preconstruction approval programs are not determined by the applicability of the NSPS and EG.

IX. MISCELLANEOUS

1. Question: What should be done about landfills that have asbestos in them where the location of the asbestos is not accurately documented? Would controls be required if asbestos is present throughout the landfill?

Answer: The NSPS [§ 60.759(a)(3)(i)] states that segregated areas of asbestos or nondegradable materials may be excluded from collection if there is documentation of the nature, date of deposit, amount, and location of the material. The reason for the exclusion is that such areas would not emit NMOC. If asbestos is co-mingled with MSW, these areas will emit NMOC. If a landfill requires control and the location, amount, and date of deposit of asbestos is not documented, or if the asbestos is co-mingled with MSW, collection and control systems will need to be installed throughout the landfill, including areas that may contain asbestos. Asbestos in landfills may also be subject to the asbestos NESHAP regulations.

2. Question: Is there any prohibition from using chemical contaminated soils for landfill daily cover if the soil has not first been treated to remove the NMOCs?

Answer: If the spill is a hazardous waste under RCRA, it could not be put in an MSW landfill. If the soil is determined to be a non-hazardous waste, then there would be no Federal restrictions on using the soil as cover material or disposing of it in an MSW landfill. However, some States specifically exclude these materials from landfills.

3. Question: Is EPA aware of any energy tax credit program that is operating now or anticipated in the immediate future that would provide a tax credit for landfills installing gas collection and energy recovery systems?

Answer: There are currently two Federal programs potentially available for landfill gas energy recovery systems:

1. the Federal tax credit under section 29 of the IRS code for production and sale of gas from biomass, and
2. the Department of Energy (DOE) renewable energy production incentives program (REPI).

The section 29 tax credit offers privately owned landfills approximately 1 cent/kilowatt hour (kWh) (or \$1.00/million Btu) for projects that involve the beneficial use of landfill gas. To

qualify, the landfill needs to have signed a binding gas rights agreement for the sale of their gas to another party by December 31, 1996. They also needed to have installed the landfill gas collection system by June 30, 1998.

REPI offers municipally owned landfills that produce electricity from landfill gas approximately 1.5 cents/kWh. The final rule for this program was published in the Federal Register on July 19, 1995. Applications must be submitted to DOE between October 1 and December 31 of each year. However, REPI is subject to annual appropriations by Congress, and in some years there may not be sufficient allocations to pay all projects the full amount.

In addition, State and local agencies are beginning to establish programs to promote or provide incentives for utilizing renewable energy sources including landfill gas. A report summarizing some of these State and local programs can be obtained by calling toll-free landfill methane outreach program hotline at 1-888-782-7937. The hotline can also provide other general landfill gas-to-energy information.

4. Question: It was mentioned that there is litigation on the rule. How does this affect the State plan schedule?

Answer: The landfill rule remained in effect, throughout the litigation settlement discussions and States were required to have submitted their plans by December 1996. As a result of litigation settlement agreements, a Federal Register notice to revise the rule was published on June 16, 1998 and the revisions become effective on August 17, 1998. These revisions are mainly clarifications and do not change the basic control, monitoring, recordkeeping or reporting requirements of the rule. The revisions do not change the required content or due date of State plans. States that have not already submitted State plans are encouraged to submit them as soon as possible. (Indeed many States are actively working on their State plans.) A Federal plan is being developed to cover landfills in States that do not submit an approvable State plan.

5. Question: Are NMOC emissions creditable for the Attainment Demonstration? If so, at what rates? (Region VI)

Answer: Yes, if the emissions were included in the 1990 base year inventory and the emissions and reductions in those emissions were accounted for in the rate of progress plan. This inventory served as the basis for determining rate of progress emissions reductions that would be necessary to achieve a 15 percent reduction in VOC emissions by 1990 and 3 percent per year thereafter until

attainment of the ozone standard. The portion of NMOC emissions that are VOC will need to be calculated for use in the attainment demonstration and rate of progress demonstration.

6. Question: Is an MSW landfill that burns landfill gas and produces electricity for sale to the grid subject to title IV acid rain requirements?

Answer: An MSW landfill is not subject to title IV acid rain requirements as long as the landfill is not burning a supplemental fuel. Burning a supplemental fuel such as coal, oil, or natural gas could trigger title IV acid rain program requirements.