OFFICE OF THE GOVERNOR
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

GARY E. JOHNSON
GOVERNOR

(505) 827-3000

January 7, 1997

Jane N. Saginaw
Regional Administrator (6-A)
U.S. Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Ms. Saginaw:

I am pleased to submit to the U.S. Environmental Protection Agency, New Mexico's Implementation Plan for municipal solid waste landfills. This implementation plan is designed to control emissions of non-methane organic compounds from municipal solid waste landfills. The plan fulfills requirements for "designated pollutants" under Section 111(d) of the Clean Air Act.

The State of New Mexico looks forward to your approval of our program and its continued success in helping to preserve and protect New Mexico's air quality. If there are any questions concerning our implementation plan or this submittal, please contact Peter Maggiore, Division Director of the New Mexico Environment Department at (505) 827-2855.

Sincerely,

Mary E Johnson

Gary E. Johnson
Governor of New Mexico

GEJ/MEW:jen(AQB)

Enclosures

cc: Mark E. Weidler, Secretary, Environment Department
Edgar T. Thornton, Deputy Secretary, Environment Department

START OF FILE

Elements Required by US EPA for Submittal of a Section 111(d) Municipal Solid Waste Landfill Implementation Plan

Attachment

1. New Mexico State Records Center NMAC Transmittal Form for 20 NMAC 2.64.

2. Regulation 20 NMAC 2.64 - Municipal Solid Waste Landfills.

3. Notice of public hearing for proposed 20 NMAC 2.64

4. Copies of affidavits of publication for the New Mexico Register and the Albuquerque Journal (newspaper).

5. Notice of intent to testify at the Environmental Improvement Board hearing on November 8, 1996 for proposed 20 NMAC 2.64.

6. Copy of official transcript of public hearing to consider proposed 20 NMAC 2.64.

7. Copies of testimonies submitted for the hearing:
   - A. New Mexico Environment Department. The New Mexico Environment Department's testimony and exhibits includes the following required elements:
     - i. New Mexico legal authority and enforceability
     - ii. A description of the rule and its requirements
     - iii. Identification of affected landfills
     - iv. Preliminary emissions inventory and future inventory plans
     - v. Demonstration of adequate resources
   - B. Waste Management of New Mexico, Inc.

8. Copy of written comments submitted to the Environment Department but not as testimony for the hearing: Browning-Ferris Industries.

9. List of known landfills in New Mexico

FILED WITH
STATE RECORDS CENTER

1996 NOV 14 AM 11:29

NMAC TRANSMITTAL FORM

1 NMAC 3.1.22 (7-1-94, 7-1-95) [Sequence No. ____]

1. Agency Name & Mailing Address

ENVIRONMENTAL IMPROVEMENT BOARD
P.O. BOX 26110/1190 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87502

2. Agency Account Code

667

3. Type of Rule Action

New X Emergency ____
Amending ____ Repealing ____

4. NMAC Title Name

ENVIRONMENTAL PROTECTION

NMAC Title Number

20

5. NMAC Chapter Name

AIR QUALITY

NMAC Chapter Number

2

6. NMAC Part Name

MUNICIPAL SOLID WASTE LANDFILLS

NMAC Part Number

64

7. Modified NMAC Name

Modified NMAC Number

Filing Date (if applicable) ____/____/____

8. Are there any materials incorporated by reference?

No ____

Yes X Please list attachments: 1. See attachment to this form.
2. ____
3. ____

9. If materials are attached, have copyright permissions been received?

No ____ Yes ____ Public domain ____

10. Total Number of Pages: 3

11. Hearing Date of Rule: 11 / 8 / 96

12. Effective Date of Rule: 12 / 20 / 96

13. Contact Person: CECILIA WILLIAMS

Phone Number: 827 - 0042

14. Signature & Title of Issuing Authority

Name: ~~DAVID M. STEINBORN~~ Jimi S. Gadzia

Title: ~~CHAIRMAN~~ Acting Chair

Jimi S. Gadzia 11/08/96
Signature Date Signed

SRC-95-04

START OF FILE

ATTACHMENT TO NMAC TRANSMITTAL FORM

#8. Materials incorporated by reference:

40 CFR Part 60, Subpart A, Standards of Performance for New Stationary Sources - Definitions.

40 CFR Part 60, Subpart WWW, Sections 751-759. [FR March 12, 1996, 9905-9944]. Standards of Performance for Municipal Solid Waste Landfills.

NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD
P.O. BOX 26110/1190 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87502-0110

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 2 AIR QUALITY (STATEWIDE)
PART 64 MUNICIPAL SOLID WASTE LANDFILLS

100. **ISSUING AGENCY:** Environmental Improvement Board. [12-20-96]

101. **SCOPE:** All geographic areas within the jurisdiction of the Environmental Improvement Board. [12-20-96]

102. **STATUTORY AUTHORITY:** Environmental Improvement Act, NMSA 1978, Section 74-1-8(A)(4) and (7), and Air Quality Control Act, NMSA 1978, Sections 74-2-1 et seq., including specifically, Section 74-2-5(A), (B) and (C). [12-20-96]

103. **DURATION:** Permanent. [12-20-96]

104. **EFFECTIVE DATE:** December 20, 1996. [12-20-96]

105. **OBJECTIVE:** The objective of this Part is to establish requirements for municipal solid waste landfills in order to control emissions of nonmethane organic compounds (NMOC). [12-20-96]

106. [RESERVED]

107. **DEFINITIONS:** In addition to the terms defined in Part 2 - Definitions, and those defined in 40 CFR 60 Subpart A, as used in this Part: [12-20-96]

A. **"Existing municipal solid waste landfill"** is an MSWL meeting the following conditions: [12-20-96]

1. Construction, reconstruction, or modification was commenced before May 30, 1991; and [12-20-96]

2. The MSWL has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. [12-20-96]

B. **"Municipal solid waste landfill (MSWL)"** means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSWL may

also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSWL may be separated by access roads. An MSWL may be publicly or privately owned. An MSWL may be new, existing, or a lateral expansion. [12-20-96]

C. **"New municipal solid waste landfill"** is an MSWL that commenced construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. [12-20-96]

D. **"NMOC"** means nonmethane organic compounds as measured according to the provisions of 40 CFR 60.754. This may include many compounds commonly referred to as VOC (volatile organic compounds) and HAP (hazardous air pollutants). [12-20-96]

108. **DOCUMENTS:** Documents cited in this Part may be viewed at the New Mexico Environment Department, Air Quality Bureau, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, NM 87505. [12-20-96]

109. **APPLICABILITY:**

A. **Existing Municipal Solid Waste Landfills:** An owner or operator of an existing MSWL is subject to all provisions specified in 40 CFR 60.751 through 60.759 as promulgated by US EPA on March 12, 1996, except as provided for in Section 111 of this Part. Physical or operational changes made to an existing MSWL solely to comply with this Part are not considered a modification or reconstruction and would not subject an existing MSWL to the requirements of 40 CFR 60 Subpart WWW. [12-20-96]

B. **New Municipal Solid Waste Landfills:** In addition to being subject to Section 110 of this Part new MSWLs are subject to 40 CFR Part 60, Subpart WWW as incorporated by reference in 20 NMAC 2.77 - New Source Performance Standards. [12-20-96]

110. **PERMITTING REQUIREMENTS:**

A. **Operating Permits:** New and existing MSWLs with design capacities greater than or equal to 2.5 million megagrams or 2.5 million cubic meters are subject to permitting requirements under Part 70 - Operating Permits. New and existing MSWLs with design capacities less than 2.5 million megagrams or 2.5 million cubic meters are not subject to permitting requirements under Part 70, unless they are major sources as defined in Part 70. [12-20-96]

B. **Construction Permits:** Emissions of NMOC from MSWLs subject to this Part (64) shall not be included in applicability determinations under Part 72 or be subject to permit requirements under that Part. [12-20-96]

111. REQUIREMENTS FOR EXISTING MUNICIPAL SOLID WASTE LANDFILLS:

A. **Reporting and Compliance:** Except as provided for below, reporting and compliance requirements for existing MSWLs shall be in accordance with 40 CFR 60.757 and 60.758. [12-20-96]

1. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL shall submit an initial design capacity report in accordance with 40 CFR 60.757(a)(2) to the Department. [12-20-96]

2. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL, with a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, shall submit an NMOC emission rate report in accordance with 40 CFR 60.757(b)(1) and (2) to the Department. [12-20-96]

3. Within 30 months after final US EPA approval of this Part, an existing MSWL with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters, and with an NMOC emission rate greater than or equal to 50 megagrams per year shall install a gas collection and control system as specified in 40 CFR 60.752(b). [12-20-96]

B. **Exceptions:** On a case by case basis, an existing MSWL may apply for a less stringent emission standard or longer compliance schedule than those otherwise required by this Part, provided that the owner or operator demonstrates to the Department: [12-20-96]

1. Unreasonable cost of control including, but not limited to MSWL age, location, or basic design; [12-20-96]

2. Physical impossibility or impracticability of installing necessary control equipment; or [12-20-96]

3. Other environmental factors specific to the MSWL that make application of a less stringent standard or final compliance time significantly more reasonable. [12-20-96]

Jim Nelleson

NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD
NOTICE OF PUBLIC MEETINGS and
NOTICE OF PUBLIC HEARINGS

November 8, 1996 Public Meeting

The New Mexico Environmental Improvement Board will hold a public meeting on November 8, 1996 beginning at 9:30 a.m., at the State Capitol Building, Room 317, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico. A copy of the agenda will be available after October 25, 1996 by contacting Gloria Miller, 1190 St. Francis Drive, Santa Fe, (505) 827-2842. During the meeting the Board will hold public hearings.

November 8, 1996 - Hazardous Waste Management Regulations (EIB 96-09(R)

The public hearing will consider proposed amendments to 20 NMAC 4.1 of the Hazardous Waste Management Regulations. The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Regulations by incorporating reference by recent charges to Federal hazardous waste management regulations. 40 CFR Parts 260-273.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4084, Santa Fe, New Mexico, and copies may be obtained by contacting Coby Muckelroy, NM Environment Department, 2044A Galisteo, Santa Fe, New Mexico, (505) 827-1558.

November 8, 1996 - Air Quality Regulations (EIB 96-10(R)

The public hearing will consider the adoption of proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills. The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the proposal is to adopt a new air quality regulation.

On March 12, 1996 the US EPA promulgated New Source Performance Standards (NSPS) and Emission Guidelines (EG) for municipal solid waste landfills (MSWL). The NSPS applies to "new" MSWL, i.e. those commencing construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. The EG applies to "existing" MSWL, those constructing, reconstructing, or modifying before May 30, 1991, and having accepted waste on or after November 11, 1987. These standards and guidelines are designed to reduce the emissions of non-methane organic compounds (NMOC) US EPA, in the March 12, 1996, Federal Register notice requires states to put together an implementation plan for the "existing" MSWL affected by the EG. Proposed 20 NMAC 2.64 will fulfill US EPA requirements to implement this plan. This plan is due to US EPA by December 19, 1996.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4084, Santa Fe, New Mexico, and copies may be obtained by contacting Jim Nellessen, NM Environment Department, 1190 St. Francis Drive, Santa Fe, New Mexico, (505) 827-0048.

December 13, 1996 Meeting

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December 13 Hearing - Underground Storage Tank Regulations (EIB 96-11(R)

The New Mexico Environmental Improvement Board will hold a public hearing during its regular meeting on December 13, 1996 beginning at 9:30 a.m., at the State Capitol Building, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico to consider proposed amendments to 20 NMAC 5.2 - Registration of Tanks; 20 NMAC 5.3 - Annual Fee; 20 NMAC 5.4 - New and Upgraded UST Systems; 20 NMAC 5.5 - Release Detection; 20 NMAC 5.6 - Release Detection; 20 NMAC 5.8 - Out-of-Service Systems and Closures; 20 NMAC 5.9 - Financial Responsibility; 20 NMAC 5.10 - Administrative Review; 20 NMAC 5.11 - Miscellaneous; 20 NMAC 5.14 - Certification of Tank Installers; 20 NMAC 5.16 - Certification of Contractors.

The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Underground Storage Tank Regulations.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4084, Santa Fe, New Mexico, and copies may be obtained by contacting Anna Richards, NM Environment Department, 1190 St. Francis Drive, Santa Fe, New Mexico, (505) 827-0158.

Hearing Procedures:

The hearings will be conducted in accordance with 20 NMAC 1.1, Rulemaking Procedures - Environmental Improvement Board, The New Mexico Environmental Improvement Act, NMSA 1978, Section 74-1-9, and other specific statutory procedures that may apply.

All interested persons will be given a reasonable opportunity at the hearing to submit relevant evidence, data, views, and arguments, orally or in writing, to introduce exhibits, and to examine witnesses. Persons desiring to present technical testimony must file with the Board on or before October 29, 1996 for: the Hazardous Waste Regulations (EIB 96-09(R), and the

Air Quality Regulations (EIB 96-10(R) hearings and on or before December 3, 1996 for the Underground Storage Tank Regulations (EIB 96-11(R) hearing, a written notice of intent to do so. The notice of intent shall:

- identify the party for whom the witness(es) will testify;
- identify each technical witness the party intends to present and state the qualifications of that witness, including a description of their educational and work background;
- summarize or include a copy of the direct testimony of each technical witness and state the anticipated duration of the testimony;
- include the text of any recommended modifications to the proposed regulatory change; and
- list and describe, or attach, all exhibits anticipated to be offered by that person at the hearing.

Notices of intent must be filed in the office of the Board and should state the date and title of the hearing. Any person who wishes to submit a non-technical written statement in lieu of oral testimony may do so at or before the hearing.

If you are an individual with a disability and you require assistance or an auxiliary aid, e.g. sign language interpreter, to participate in any aspect of this process, please contact Cliff Hawley by October 29, 1996 for the Air Quality Regulations and the Hazardous Waste Regulations hearings, or December 3, 1996 for the Underground Storage Tank Regulations hearing at the New Mexico Environment Department, Personnel Services Bureau, 1190 St. Francis Drive, P.O. Box 26110, Santa Fe, New Mexico 87502, (505) 827-2844 (TDD or TDY users please access his number via the New Mexico Relay Network. Albuquerque TDD users: (505) 275-7333; outside of Albuquerque: 1-800-659-1779.) Copies of the proposal will be available in alternative forms, e.g. audiotape, if requested by October 29, 1996.

At the close of each hearing, the Board may convene or reconvene a meeting to take action on the proposal.

Questions regarding the hearing may be directed to the Board's Hearing Clerk, Gloria Miller at (505) 827-2842.

ss/David Steinborn, Chairman

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The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Underground Storage Tank Regulations.

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ss/David Steinborn, Chairman

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NEW MEXICO HUMAN SERVICES DEPARTMENT

INCOME SUPPORT DIVISION

NOTICE OF RENUMBERING

The Human Services Department is renumbering Manual Section PFP-000 in order to comply with New Mexico Administrative Code requirements, to add sections 000.1 — 000.7, and to add history at the end of the sections and paragraphs.

NEW MEXICO HUMAN SERVICES DEPARTMENT

INCOME SUPPORT DIVISION

COMMUNITY DEVELOPMENT & COMMODITIES SECTION

NOTICE

The Human Services Department proposes to expand eligibility for crisis benefits to include households facing a cooling emergency. Such households must be eligible under established crisis income limits. Additionally the households must meet the following three criteria: 1) Have a disconnect notice from the utility providing energy for cooling (refrigeration or evaporative cooling and/or fans). 2) Include at least one member who is vulnerable (age 60 or over, age 5 or under or disabled). 3) Provide verification that cooling utility bills were paid in two out of the past three months. Households who received regular or crisis heating benefits may also receive crisis benefits if otherwise eligible. Crisis cooling benefits are determined by established crisis payment guidelines. The crisis cooling application period is proposed to be July through August, as long as funding is available.

The Department proposes to use the federal 130% of poverty guidelines that are effective each year on October 1st.

The Department proposes to reissue in its entirety the LIHEAP policy manual for the 1996 season and repeal the 1995 LIHEAP season policy manual.

The Department proposes to implement these regulations effective November 15, 1996.

The public hearing is rescheduled to meet the time frames defined by state regulations.

A public hearing to receive testimony on these proposed regulations will be held at 1:00 P.M. on Wednesday October 30, 1996, in the Stars Conference Room, Ark Plaza, 2025 S. Pacheco St. Santa Fe, New Mexico. Parking accessible to persons with physical impairments will be available.

If you are a person with a disability and you require this information in an alternative format or require a special accommodation to participate in any HSD public hearing, program or service, please contact the NM Human Services Department toll free at 1 800 648-7167, in Albuquerque at 841-2687, or through the New Mexico Relay System, toll free at 1 800 659-8331. The Department requests at least 10 days advance notice to provide requested formats and special accommodations.

Interested persons may address written or recorded comments to:

Duke Rodriguez, Secretary
Human Services Department
P O Box 2348
Santa Fe, NM 87504-2348

NEW MEXICO HUMAN SERVICES DEPARTMENT

INCOME SUPPORT DIVISION

PROGRAM PLANNING AND DEVELOPMENT BUREAU

NOTICE OF FINAL REGULATIONS

I DEPARTMENT

NEW MEXICO HUMAN SERVICES DEPARTMENT

II SUBJECT

APPLICANT JOB SEARCH AND WORK FOCUS

III PROGRAM AFFECTED

AFDC & JOBS

IV ACTION

FINAL REGULATION

If an operator fails to file a C-115 or if the Division finds errors in any C-115, the Division shall, within thirty (30) days of the appropriate filing date, prepare and send to the operator an error/omission message which identifies the specific well as to which the report has not been filed or is in error and a statement of the error. The operator to whom the error/omission message is addressed shall respond to the Division within thirty (30) days acknowledging receipt of the error/omission message and informing the Division of the operator's schedule to file the report or correct the error. If the Division does not receive the operator's response within thirty (30) days, the Division shall send notice to the operator that operator has failed to comply with the provisions of this rule and may be subjected to loss of authority to produce from the affected well if the operator does not respond to the Division.

Willful failure of the operator to respond to the notice and to correct the error or omission may result in the Division informing the operator by certified return receipt letter that thirty (30) days from the date of such letter the Division will cancel the C-104 authority of operator to produce or inject into the well. Any operator which receives such notice may contact the Division and request that the matter of the cancellation of authority to produce or inject be set for hearing before a hearing officer duly appointed by the Division. If the Division sends certified return receipt correspondence informing the operator of cancellation of authority to produce and the operator does not request a hearing, the Division may cancel the authority of the operator to produce the well on the date set forth in the letter.

The electronic filing requirements set forth in subparagraph (2) above shall be phased in with all operators of three hundred (300) or more wells being required to file electronically for January 1997 production, all operators of two hundred (200) or more wells being required to file electronically for July 1997 production and all operators of one hundred (100) or more wells being required to file electronically for January 1998 production.

Given under the Seal of the State of New Mexico Oil Conservation Commission at Santa Fe, New Mexico on this 11th day of September, 1996.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
WILLIAM J. LEMAY, Director

SEAL

NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD

NOTICE OF PUBLIC HEARINGS

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Hazardous Waste Management Regulations (EIB 96-09(R)

The public hearing will consider proposed amendments to 20 NMAC 4.1 of the Hazardous Waste Management Regulations. The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Regulations by incorporating reference by recent charges to Federal hazardous waste management regulations. 40 CFR Parts 260-273.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4084, Santa Fe, New Mexico, and copies may be obtained by contacting Coby Muckelroy, NM Environment Department, 2044A Galisteo, Santa Fe, New Mexico, (505) 827-1558.

Air Quality Regulations (EIB 96-10(R)

The public hearing will consider the adoption of proposed 20 NMAC 2.64 — Municipal Solid Waste Landfills. The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the proposal is to adopt a new air quality regulation.

On March 12, 1996 the US EPA promulgated New Source Performance Standards (NSPS) and Emission Guidelines (EG) for municipal solid waste landfills (MSWL). The NSPS applies to "new" MSWL, i.e. those commencing construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. The EG applies to "existing" MSWL, those constructing, reconstructing, or modifying before May 30, 1991, and having accepted waste on or after November 11, 1987. These standards and guidelines are designed to reduce the emissions of non-methane organic compounds (NMOC) US EPA, in the March 12, 1996, Federal Register notice requires states to put together an implementation plan for the "existing" MSWL affected by the EG. Proposed 20 NMAC 2.64 will fulfill US EPA requirements to implement this plan. This plan is due to US EPA by December 19, 1996.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4084, Santa Fe, New Mexico, and copies may be obtained by contacting Jim Nellessen, NM Environment Department, 1190 St. Francis Drive, Santa Fe, New Mexico, (505) 827-0048.

December 13, 1996 Hearing:

Underground Storage Tank Regulations (EIB 96-11(R)

The New Mexico Environmental Improvement Board will hold a public hearing during its regular meeting on December 13, 1996 beginning at 9:30 a.m., at the State Capitol Building, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico to consider proposed amendments to 20 NMAC 5.2 — Registration of Tanks; 20 NMAC 5.3 — Annual Fee; 20 NMAC 5.4 — New and Upgraded UST Systems; 20 NMAC 5.5 — Release Detection; 20 NMAC 5.6 — Release Detection; 20 NMAC 5.8 — Out-of-Service Systems and Closures; 20 NMAC 5.9 — Financial Responsibility; 20 NMAC 5.10 — Administrative Review; 20 NMAC 5.11 — Miscellaneous; 20 NMAC 5.14 — Certification of Tank Installers; 20 NMAC 5.16 — Certification of Contractors.

The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Underground Storage Tank Regulations.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4084, Santa Fe, New Mexico, and copies may be obtained by contacting Anna Richards, NM Environment Department, 1190 St. Francis Drive, Santa Fe, New Mexico, (505) 827-0158.

Hearing Procedures:

The hearings will be conducted in accordance with 20 NMAC 1.1, Rulemaking Procedures — Environmental Improvement Board, The New Mexico Environmental Improvement Act, NMSA 1978, Section 74-1-9, and other specific statutory procedures that may apply.

All interested persons will be given a reasonable opportunity at the hearing to submit relevant evidence, data, views, and arguments, orally or in writing, to introduce

NEW MEXICO
ENVIRONMENTAL
IMPROVEMENT BOARD
NOTICE OF PUBLIC MEETINGS
and
NOTICE OF PUBLIC HEARINGS

November 8, 1996 Public Meeting

The New Mexico Environmental Improvement Board will hold a public meeting on November 8, 1996 beginning at 9:30 a.m., at the State Capitol Building, Room 317, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico. A copy of the agenda will be available after October 28, 1996 by contacting Gloria Miller, 1190 St. Francis Drive, Santa Fe, (505) 827-2842. During the meeting the Board will hold public hearings.

November 8, 1996-Hazardous Waste Management Regulations (EIB 96-8(R))

The public hearing will consider proposed amendments to 20 NMAC 4.1 of the Hazardous Waste Management Regulations. The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Regulations by incorporating reference by recent changes to Federal hazardous waste management regulations, 40 CFR Parts 260-273. The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4064, Santa Fe, New Mexico, and copies may be obtained by contacting Coby Mocksley, NM Environment Department, 2044A Galisteo, Santa Fe, New Mexico, (505) 827-1558.

November 8, 1996-Air Quality Regulations (EIB 96-18(R))

The public hearing will consider the adoption of proposed 20 NMAC 2.64-Municipal Solid Waste Landfills. The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the proposal is to adopt a new air quality regulation:

On March 12, 1996 the US EPA promulgated New Source Performance Standards (NSPS) and Emission Guidelines (EG) for municipal solid waste landfills (MSWL). The NSPS applies to "new" MSWL, i.e. those commencing construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. The EG applies to "existing" MSWL, those constructing, reconstructing, or modifying before May 30, 1991, and having accepted waste on or after November 8, 1987. These standards and guidelines are designed to reduce the emissions of non-methane organic compounds (NMOC) US EPA. In the March 12, 1996, Federal Register notice requires states to put together an implementation plan for the "existing" MSWL affected by the E.G. Proposed 20 NMAC 2.64 will fulfill US EPA requirements to implement this plan. This plan is due to US EPA by December 19, 1996.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4064, Santa Fe, New Mexico, and copies may be obtained by contacting Jim Nellessen, NM Environment Department, 1190 St. Francis Drive, Santa Fe, New Mexico (505) 827-0048.

December 13, 1996 Meeting

The New Mexico Environmental Improvement Board will hold a public meeting on December 13, 1996 beginning at 9:30 a.m., at the State Capitol Building, Room 303, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico. A copy of the agenda will be available after November 27, 1996 by contacting Gloria Miller, 1190 St. Francis Drive, Santa Fe, (505) 827-2842. During the meeting the Board will hold a public hearing.

December 13 Hearing-Underground Storage Tank Regulations (EIB 96-11(R))

The New Mexico Environmental Improvement Board will hold a public hearing during its regular meeting on December 13, 1996 beginning at 9:30 a.m., at the State Capitol Building, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico the following proposed amendments to 20 NMAC 5.2-Registration of Tanks; 20 NMAC 5.3-Annual Fee; 20 NMAC 5.4-New and upgraded UST Systems; 20 NMAC 5.5-Release Detection; 20 NMAC 5.6-Release Detection; 20 NMAC 5.8-Out-of Service Systems

STATE OF NEW MEXICO
County of Bernalillo SS

Bill Tafoya being duly sworn declares and says that he is Classified Advertising manager of **The Albuquerque Journal**, and that this newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Session Laws of 1937, and that payment therefore has been made of assessed as court cost; that the notice, copy of which is hereto attached, was published in said paper in the regular daily edition, for one times, the first publication being of the 25 day of Sept, 1996, and the subsequent consecutive publications on _____, 1996

Bill Tafoya

OFFICIAL SEAL
Corrina Duncan
NOTARY PUBLIC
STATE OF NEW MEXICO
My Commission Expires: 4/8/99

Sworn and subscribed to before me, a notary Public in and for the County of Bernalillo and State of New Mexico, this 25 day of Sept 1996

PRICE 98.59
Statement to come at end of month.

Corrina Duncan

CLA-22-A (R-1/93) ACCOUNT NUMBER 0877944

The New Mexico Environmental Improvement Board will hold a public hearing during its regular meeting on December 13, 1996 beginning at 9:30 a.m., at the State Capitol Building, Corner of Paseo de Peralta and Old Santa Fe Trail, Santa Fe, New Mexico to consider proposed amendments to 20 NMAC 5.2-Registration of Tanks; 20 NMAC 5.3-Annual Fee; 20 NMAC 5.4-Registered Upgraded UST Systems; 20 NMAC 5.5-Release Detection; 20 NMAC 5.6-Release Detection; 20 NMAC 5.8-Out-of-Service Systems and Closure; 20 NMAC 5.9-Financial [illegible]; 20 NMAC 5.10-Administrative Review; 20 NMAC 5.13-Miscellaneous; 20 NMAC 5.14-Certificate of Tank Installers; 20 NMAC 5.15-Certification of Contractors.

The proponent of the regulatory change is the New Mexico Environment Department. The purpose of the amendments is to update the Underground Storage Tank Regulations.

The proposal may be reviewed during regular business hours at the office of the Board, Harold Runnels Building, 1190 St. Francis Drive, Room N-4064, Santa Fe, New Mexico, and copies may be obtained by contacting Anna Richards, NM Environment Department, 1190 St. Francis Drive, Santa Fe, New Mexico, (505) 827-0158.

Hearing Procedures:

The hearings will be conducted in accordance with 20 NMAC 1.1, Rulemaking Procedures-Environmental Improvement Board, The New Mexico Environmental Improvement Act, NMSA 1978, Section 74-1-9, and other specific statutory procedures that may apply.

All interested persons will be given a reasonable opportunity at the hearing to submit relevant evidence, data, views, and arguments, orally or in writing, to introduce exhibits, and to examine witnesses. Persons desiring to present technical testimony must file with the Board on or before October 29, 1996 for the Hazardous Waste Regulations (EIB 96-09(R), and the Air Quality Regulations (EIB 96-10(R) hearings and on or before December 3, 1996 for the Underground Storage Tank Regulations (EIB 96-11(R) hearing, a written notice of intent to do so. The notice of intent shall:

- identify the party for whom the witness(es) will testify;
- identify each technical witness the party intends to present and state the qualifications of that witness, including a description of their educational and work background;
- summarize or include a copy of the direct testimony of each technical witness and state the anticipated duration of the testimony;
- include the text of any recommended modifications to the proposed regulatory change; and
- list and describe, or attach, all exhibits anticipated to be offered by that person at the hearing.

Notices of intent must be filed in the office of the Board and should state the date and title of the hearing. Any person who wishes to submit a non-technical written statement in lieu of oral testimony may do so at or before the hearing. If you are an individual with a disability and you require assistance or an auxiliary aid, e.g. sign language interpreter, to participate in any aspect of this process, please contact Cliff Hawley by October 29, 1996 for the Air Quality Regulations and the Hazardous Waste Regulations hearings, on December 3, 1996 for the Underground Storage Tank Regulations hearing at the New Mexico Environment Department, Personnel Services Bureau, 1190 St. Francis Drive, P.O. Box 26110, Santa Fe, New Mexico 87502, (505) 827-2844 (TDD or TDY users please access this number via the New Mexico Relay Network. Albuquerque TDD users: (505) 275-7333; outside of Albuquerque: 1-800-659-1779.) Copies of the proposal will be available in alternative forms, e.g. audiotape, if requested by October 29, 1996.

At the close of each hearing, the Board may convene or reconvene a meeting to take action on the proposal.

Questions regarding the hearing may be directed to the Board's Hearing Clerk, Gloria Miller at (505) 827-2842.

s/David Steinborn, Chairman

Journal: September 25, 1996

STATE OF NEW MEXICO
ENVIRONMENTAL IMPROVEMENT BOARD

IN THE MATTER of:

Proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills

NEW MEXICO ENVIRONMENT DEPARTMENT'S
NOTICE OF INTENT TO PRESENT TECHNICAL TESTIMONY

The New Mexico Environment Department hereby submits its notice of intent to present technical testimony at the November 8, 1996 hearing.

1. Name and qualifications of each technical witness.

a. Mr. James Nellessen. Mr. Nellessen is an Environmental Specialist in the Control Strategy Section of the Department's Air Quality Bureau. He has worked in Control Strategy for over 2 years. During this time he has brought many regulations to hearing. He is the lead technical staff member in both nonattainment area issues and the state's air toxics program. In previous years he has developed and used computer databases designed to assess the fate of chemical pollutants in the environment and conducted research into air pollution effects on vegetation. He holds a Ph.D. in Botany from Ohio University, an M.S. in Plant Pathology, and a B.S. in Biology.

b. Ms. Lany Weaver. Ms. Weaver is the Program Manager for the Control Strategy Section of the Department's Air Quality Bureau. She has been program manager for over 2 years. For 4 years prior to this promotion, she was an Environmental Engineering Specialist in the same section. In addition she was employed for 3 years as an Air Resources Engineer for the California Air Resources Board. She holds a B.S. in Mechanical Engineering from the University of California at Davis.

c. Ms. Cecilia Williams. Ms. Williams is the Bureau Chief for the Air Quality Bureau. She has approximately 21 years of experience in the New Mexico Air Quality Bureau during which time she has either directly prepared or supervised development of many significant state air quality control regulations. Ms. Williams received her M.S. Degree in Air Resources Science and Engineering from the University of Washington. She has also pursued graduate work in environmental administration at the University of Southern California.

d. Mr. Richard Stafford. Mr. Stafford is an Environmental Engineering Specialist with the New Mexico Environment Department Solid Waste Bureau. He reviews permit

applications for conformance with solid waste regulations. He may be available to answer questions from the Board concerning landfills.

2. Name of person, organization, or agency all indicated witnesses represent.

New Mexico Environment Department

3. Statement indicating whether witnesses are proponents, opponents or interested parties.

The Department is a proponent of all proposed changes.

4. Summary of testimony.

Mr. Nellessen will describe proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills. This rule is being proposed to fulfill state implementation requirements to the U.S. EPA. Landfills defined as "existing" landfills will be required to meet the same requirements as landfills defined as "new" landfills, with certain exceptions. Any landfill needing an air permit will be routed to an operating permit rather than a construction permit. See attached written testimony.

Ms. Weaver, Ms. Williams, and Mr. Stafford will not present testimony, but will be available with Mr. Nellessen for cross examination.

5. Anticipated length of testimony.

Mr. Nellessen's direct testimony will take approximately 30 minutes.

6. Anticipated list of exhibits to be offered.

NMED EXHIBIT NO.	TITLE OF EXHIBIT
1	Proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills
2	Proposed alternative language for proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills
3	Standards of performance for new stationary sources and guidelines for control of existing sources: Municipal solid waste landfills (40 CFR Parts 51, 52, and 60). Federal Register, March 12, 1996. Pages 9905-9944.
4	Enabling Document for the New Source Performance Standards and Emission Guideline for Municipal Solid Waste Landfills. U.S. EPA, March 1996, EPA-453/R-96-004. (selected pages only) (the entire

document is about 150 pages)

5 40 CFR 60.24 Emission standards and compliance schedules. July 1, 1994, pages 53-54.

7. Proposed alternative language.

See attached document (anticipated NMED exhibit #2, above) entitled "PROPOSED ALTERNATIVE LANGUAGE"

Respectfully submitted,

Geoffrey Sloan
Assistant General Counsel
New Mexico Environment Department
Office of General Counsel
P.O. Box 26110
1190 St. Francis Drive
Santa Fe, NM 87502-6110
(505)-827-2982

BEFORE THE NEW MEXICO

ENVIRONMENTAL IMPROVEMENT BOARD

IN THE MATTER OF:

ADOPTION OF PROPOSED 20 NMAC 2.64, MUNICIPAL SOLID WASTE LANDFILLS, SANTA FE, NEW MEXICO.

TRANSCRIPT OF PROCEEDINGS

BE IT REMEMBERED that on the 8th day of November, 1996, this matter came on for hearing before the Environmental Improvement Board, at the State Capitol Building, Room 317, Santa Fe, New Mexico, at the hour of 10:24 AM.

START OF FILE

A P P E A R A N C E S

THE ENVIRONMENTAL IMPROVEMENT BOARD:

MS. JIMI GADZIA, Vice-Chair
MR. JACK FORTNER, Member
MR. LAURENCE H. LATTMAN, Member
MS. HILARY NOSKIN, Member
MR. BILL BRANCARD, Counsel

FOR THE NEW MEXICO ENVIRONMENT DEPARTMENT:

MR. JAMES E. NELLESSEN, Environmental Scientist
MS. LANY WEAVER
MR. RICHARD A. STAFFORD, Environmental Engineering Specialist
1190 St. Francis Drive
Harold Runnels Building
Santa Fe, New Mexico 87503

OTHER INTERESTED PARTIES:

WASTE MANAGEMENT OF NEW MEXICO
MR. JAMES W. JORDAN
P. O. Box 15700
Rio Rancho, New Mexico 87172

I N D E X

MS. GADZIA: This is a hearing of the New Mexico Environmental Improvement Board to consider the adoption of proposed 20 NMAC 2.64, Municipal Solid Waste Landfills. This hearing is conducted pursuant to Section 74-1-9, NMSA 1978, and the Rules of Procedure for the Environmental Improvement Board regulation hearings.

MR. FORTNER: Go ahead. I am looking at this, and this thing here that says, "In the matter of proposed regulations, presenter, notice of intent, location of hearing," and it says, "Auditorium of the Runnels Building at 1220 St. Francis." That was my confusion this morning. I called Gloria this morning. I wonder if that is why the presenters aren't here.

MR. NELLESSEN: I am the presenter.

MR. FORTNER: All right. No problem.

MS. GADZIA: Everyone from Waste is here that needs to be here, right?

MR. NELLESSEN: That is correct.

MS. GADZIA: I am Jimi Gadzia, the Vice-chair of the Board, and will be the hearing officer for this hearing. Board members present are Jack Fortner, secretary; Laurence Lattman, member; and Hilary Noskin, member. Also present are Assistant

Attorney General and the Board's attorney, Bill Brancard. The court reporter is Catherine Leon representing the firm of Kathy Townsend Court Reporters. Anyone wishing a transcript of this hearing may order one from that firm. The transcript will also be available for review in the Board's office.

The EIB hearings do not follow the Rules of Evidence as used in the courts, but do limit testimony which is irrelevant, redundant or unduly repetitious. The decision as to whether testimony is irrelevant, redundant or unduly repetitious will be made by me. I will also rule on whether evidence may be admitted into the record and on any motions or objections made.

We will begin each hearing with the proponent, the Environment Department, outlining the proposed regulations. We will then proceed to take testimony in order of names taken. If anyone has a problem with respect to time, please make that fact known to the hearing officer, and we will try to accommodate them. Witnesses will be sworn in by the court reporter prior to giving testimony. The witnesses will identify themselves for the record, giving their name, address and who they represent.

After a witness has testified, I will permit any interested party to examine the witnesses.

You must be aware that any statement you make for the record will be subject to examination by me or any member of the Board or by any of the other parties involved in the hearing. Before we proceed with the introduction of exhibits, I would like to ask all present to please sign the attendance sheet.

Are there any exhibits to be introduced in the record?

MR. BRANCARD: We received two notices of intent, one from the Environment Department and one from Waste Management of New Mexico.

MS. GADZIA: All right. Are you ready to begin?

MR. BRANCARD: How many witnesses do you have?

MR. NELLESSEN: Just myself.

MS. WEAVER: We have Jim Nellessen, who is with the Environment Department, Air Quality Bureau, and Lany Weaver, and we don't have an attorney. We do have exhibits.

MR. BRANCARD: I want to figure out who gets sworn in.

MS. WEAVER: Jim is giving testimony, and I

am available for questioning and also --

MR. NELLESSEN: Richard Stafford from Solid Waste is available for questions as well.

MS. GADZIA: All three of you get sworn in.

(Oath administered to Jim Nellessen, Richard Stafford and Lanny Weaver.)

DIRECT TESTIMONY

MR. NELLESSEN: The exhibits I have submitted, I have given you copies of my testimony and the exhibits, and I have turned in official copies to the court reporter.

MS. GADZIA: For the record, will you just state your name and address and your role?

MR. NELLESSEN: Jim Nellessen, Environmental Specialist with the Air Quality Bureau of the New Mexico Environment Department here in Santa Fe.

MS. GADZIA: Thank you.

MR. NELLESSEN: I don't know how you want to do this because -- has anybody read my written testimony? Because I can briefly summarize it or --

MS. GADZIA: Yes.

MR. NELLESSEN: I will very quickly summarize what I had already submitted to you.

MR. BRANCARD: How many exhibits are there?

MR. NELLESSEN: Let me go through the

exhibits. There is actually a total of seven at this point. I misidentified it as five initially, but I upped it two, so there are seven.

The first one is our original proposed 20 NMAC 2.64, Municipal Solid Waste Landfills, for the public comment period.

Exhibit Number 2 is the proposed alternative language to 20 NMAC 2.64.

The third one is the Federal Register publication of March 12, 1996, New Source Performance Standards on Municipal Solid Waste Landfills.

Exhibit 4 is an enabling document published by EPA on implementation of the landfill rule.

Exhibit Number 5 is 40 CFR 60.24, Emission Standards and Compliance Schedules.

Exhibit Number 6 is our preliminary nonmethane organic compound emissions inventory for the whole State of New Mexico, and EPA required this and wanted this of us for the hearing record here.

Exhibit Number 7 is a revised alternative proposed language through conversations I have had with the other submitted testimony.

Again, to briefly summarize, back on March 12, 1996, EPA promulgated a final ruling for municipal solid waste landfills. It is a New Source Performance

Standard that we incorporated under our 20 NMAC 2.77, New Source Performance Standards, but in there, there is also -- EPA required the states to do an implementation plan for existing sources, sources in a time period or window shortly before '91, from '87 to '91, that they want us to do a plan on. That is what the purpose of this particular rule actually is. It is to control emissions of nonmethane organic compounds from landfills.

As far as legal authority, in our statutes, we have got authority to prescribe standards for sources. Our proposed rule here pretty much adopts all of the federal NSPS as applicable for the existing sources. To briefly describe the rule here, existing landfills will have to submit design capacity reports. All of them will have to do that. That is how much waste they are designed to hold. Any landfills with greater than 2.5 million megagrams or 2.5 million cubic meters will have to submit emission reports, and those emitting more than 50 megagrams of NMOC will have to install control equipment.

We have specifically in here said that landfills meeting operating permits shall only be required to get operating permits, which is a federal requirement. They will not have to get the state

construction permit.

The reason for the proposed alternative language is I wanted to move one sentence from one part of the rule to another at the request of the state record center because it wasn't citable where it was originally located.

I mentioned permitting requirements already.

MS. GADZIA: Where is that sentence?

MR. NELLESSEN: It is in the definition of existing source, moving a sentence from existing source to applicability. If you look at Exhibit 2 in definition of existing source, we are moving that one sentence over to applicability --

MS. GADZIA: Okay.

MR. NELLESSEN: -- under existing sources. As far as compliance clocks, a compliance clock for the NSPS sources started when the rule was promulgated by the EPA. The compliance clock for these existing sources will start 90 days after EPA approves this program that we are proposing right here.

Then we have allowed for some -- in the last section of the proposed rule, Section 111, 111(B), some exceptions, and EPA allows this, and since our statutes say that we have to be no more or less stringent than the EPA, we are allowing these

exceptions as well, unreasonable cost of control, physical impossibility and other factors that may prohibit the installation of control equipment.

That basically very quickly summarizes the rule. The emissions inventory report that I have submitted here is an estimate of NMOC emissions in this state. It is a liberal estimate using EPA's Tier 1 methodology, which we understand may overpredict emissions by as much as tenfold using other methods, such as AP-42.

Then the last exhibit is another proposed alternative language, and this is -- I came up with this via discussions with Waste Management who submitted testimony. They had proposed making some additional changes. We had thought it over, and it looked reasonable. We also went ahead and discussed this with EPA, and they have no objections to those wording changes in Exhibit 7, and, basically, all it is is a clarification of the wording that is already in there.

For example, talking about physical impossibility or impracticability, well, something may not necessarily be impossible, but it may be rather impractical rather than impossible.

MS. GADZIA: Those are pretty subjective

terms, unreasonable cost.

MR. NELLESSEN: The exception section there is pretty wide open anyway. It was wide open --

MR. LATTMAN: It stopped me when I read it. It stopped me cold.

MR. NELLESSEN: It was wide open to begin with, and we haven't really changed anything, I don't think, with the wording changes in there.

MS. GADZIA: What constitutes unreasonable cost?

MR. LATTMAN: If it ends up in court, they will jump all over it for being too vague and unclear.

Can you give me an example of when a control system is impractical?

MR. NELLESSEN: Well, I guess my best understanding of this, and maybe Jim Jordan will have something to say about this later on, but I guess the cost of installing equipment might be so high that the reduction in the emissions they would get might not be worth the amount of money they are putting into it.

MR. LATTMAN: The first item says if the cost is excessive, but then the second one talks about a physical impossibility as distinct from the cost problem.

What is a physically impossible or impractical situation for installing? Cost, I can see, can become excessive.

MR. NELLESSEN: Right.

MR. LATTMAN: But what would be a situation where it is physically impossible to install control equipment, which, after all, can be specially designed for any situation?

MR. NELLESSEN: Not being an engineer myself, I am not sure I can give you a good example of what would be physically impossible.

MR. LATTMAN: Perhaps -- I was stopped by that second one. The first one, I didn't argue with, but the second one --

DIRECT TESTIMONY

MR. STAFFORD: Richard Stafford, engineer with the Solid Waste Bureau. I could maybe talk about it with you, then I am sure Jim could help us out. We talked about this yesterday, and in an engineering sense, nothing is impossible. With time and money, you can do practically anything. It is different. I think controlling emissions from a landfill is a little different than controlling emissions from stationary sources where we think of stacks and tail pipes and so on.

A landfill can cover acres and acres, it is terrain, it slopes, it's got vegetation on it. How do we go back in there and control the emissions? There is technology. People are doing this, primarily in areas where there is more rainfall, like the eastern part of the country. There, they have been doing this from the beginning. It's been designed to incorporate these controls.

We -- in New Mexico, a lot of this would be retrofitting if we had to, and I realize I am not answering your question directly right now, but this is the kind of thing we are going through. It is a thing we have to sit down and discuss, "How do we do this?"

MR. LATTMAN: For example, you say "physically impossible," then you say "control," but we haven't specified the degree of control. As you loosen the degree of control, it becomes more and more possible. If you raise the control standards, it becomes more and more impossible. So that sentence talks about something being possible from the engineering view, but it depends really on what degree of control you want, and it could be argued that if you can control 50 percent of the emissions, then let's go ahead, because 50 percent isn't getting into

the environment.

As I read it, it is a go/no-go situation. If it is decided to be impossible, then no controls are necessary, and there is no degree. Am I misreading it?

MR. BRANCARD: On a case-by-case basis, an existing landfill may apply for a less stringent standard or longer compliance schedule. This doesn't get people out of doing these requirements. It either gives them more time or gives them exactly what you have suggested, Mr. Lattman, which is a less stringent emission.

If I can give you my sense of this, the problem here in New Mexico is that we are looking, by this definition, at landfills that accepted waste anytime since November, 1987. Prior to 1989, this Board had never adopted any real regulations about landfills. Landfills prior to 1989 were dumps. They were in arroyos. They were anywhere you wanted to put them, so this is requiring the Department and landfill owners to go back to these old landfills, which don't have liners, they don't even have sides to them or bottoms, nobody knows where the bottoms are, what they look like, and trying to control the emissions of gas coming out of something like this. Plus things have

been put on top of them.

All of you folks who have been going to the Balloon Fiesta have been walking on top of an old landfill. I think there is a real problem here.

MR. LATTMAN: My only problem, when I read it, I saw a statement that said they can ignore these controls if they were too expensive or physically impossible. Too expensive, I can imagine. Physically impossible, I argue, is tied to the degree of control you want, so my impression was if it is decided to be physically impossible, then no control is needed. But maybe, as Mr. Brancard pointed out, it is very difficult, so we will take 20 percent, so rather than a go/no-go, there should be some shades of gray.

Some of the old dumps, people came to the edge of an arroyo and heaved it over, then the alluvial partially covered it and spread it around. It is impossible, I realize that, but that statement of physically impossible or not, I thought was too stringent.

Do you know what I am trying to say? Without getting too wordy about it, a degree of control.

MR. STAFFORD: We agreed with that.

MR. LATTMAN: Impracticality or extreme

difficulty rather than go/no-go, because I could see that ending up in court left and right. I am not an attorney, and Mr. Fortner is, and so is Bill, but the cases that I have been involved in as an expert witness, the judge is always looking for some kind of clear, definitive statement. If it is too vague, the judge gets angry, or the case gets hurt. I think it is something to consider.

MS. NOSKIN: In these regulations, are there any major changes or something really different from the federal regulations? Nothing really --

MR. NELLESSEN: No. We are basically adopting the federal rule word for word.

MS. NOSKIN: The other question is, in this emissions inventory, I guess I wasn't clear. Did I hear you say there could be a tenfold discrepancy?

MR. NELLESSEN: Tenfold overestimation. We have included an example in there of one landfill. We calculated two methods, and one method uses EPA's very liberal Tier 1, and the other one uses AP-42, which is a standard document EPA puts out that calculates emissions for various source categories. AP-42 is considered kind of the Bible as far as air emissions are concerned and tends to be more accurate.

The reason why EPA has got this Tier 1

method in their rule requiring landfills that do Tier 1 in their rule is that they want to use this as a screening technique to target those that may have a problem to basically -- I think the idea is to coax them into doing site-specific studies that really get to know what is going on.

MS. NOSKIN: So Tier 1 could potentially put somebody into that. If it is a tenfold overestimation, it could throw somebody into that category where they'd have to take a look, is that right?

MR. NELLESSEN: Right.

MS. NOSKIN: Then they'd have to go back and justify that they are not the tenfold, but much lower, is that what you are saying?

MR. NELLESSEN: Right.

MS. NOSKIN: Do you use this as a screening method?

MR. NELLESSEN: Yes. It will be used, because they will have to report their NMOC emissions using Tier 1.

MS. NOSKIN: If they use something more stringent and give you a good estimation that they don't fall into this, then that will be taken instead of Tier 1; right?

MR. NELLESSEN: Right. Once they do the Tier 1, then they can move up to Tier 2 and do the site-specific after that. As they do the Tier 1 and find out they have a much lower number, that may get them out of controls or get them out of an operating permit.

MS. GADZIA: Any other questions from the Board? Bill?

MR. BRANCARD: For an existing landfill that does not meet the 2.5 million cutoff, what do they have to do?

MR. NELLESSEN: All they have to do is they have to report their design capacity -- in other words, the quantity of waste that the landfill is designed to hold, so that is the minimal requirement. All landfills will have to report that. That is the minimal.

MR. BRANCARD: About how much work do you think that is?

MR. NELLESSEN: It shouldn't be a lot of work. It may be a little bit of a problem for landfills that may be closed that may not have as many records available, et cetera, but as long as there is a rough idea of the quantity of waste there, how long it was accepting waste, a calculation for that

determination should be able to be made.

MR. STAFFORD: If I could help out on that, we are looking at that right now. We are doing a lot of that ourselves. We realize we can't go to some people and say, "How much waste have you got there?" We are trying to do that looking through our records, the extent and depth, and come up with some quantities for existing ones.

The larger existing landfills that have been in operation that just have started in the past three or four years, we have a lot of the information in their permit applications and design drawings. The old ones that were the arroyo dumps, we do have site assessments we have collected from lots of landfills over the past few years, so a lot of that we have. It is not something we are going to throw on other people, then we would work with them.

MR. LATTMAN: On that page 2, you talk about 2.5 million megagrams, which is 2.5 million cubic meters. Do I deduce from this that one megagram in weight is equivalent to a cubic meter of landfill, and why are they both 2.5 million?

MR. NELLESSEN: That is what EPA came up with. They are not equal. No, they are definitely not equal.

MR. LATTMAN: That is kind of interesting, because you have nothing to do with it, but that unit, megagram, has got to be a dumb unit as far as I am concerned. That is quite interesting. Then the company or the municipal landfill operator can pick either the megagram or the cubic meters, whichever gives him -- if he can avoid it in one case or the other, because he has an "or" there.

MR. NELLESSEN: My understanding is that if they are over either one of those, that trips it, right.

MR. LATTMAN: Okay. You have got an analytical balance to measure megagrams. I know it is not you.

MR. BRANCARD: I tried to figure out what a megagram was. It comes out to be very close to a ton, so why don't they say a ton?

MR. LATTMAN: Because it's got to be metric. It used to be in geologic literature, miles, parentheses, kilometers. Now it is all kilometers, except our automobiles. I am getting off the subject, but that terminology comes directly from the federal EPA.

MR. NELLESSEN: Yes.

MR. LATTMAN: Okay.

MR. BRANCARD: I just had a little concern that you may be underestimating the impact of this regulation. In your Exhibit 6, you refer to that there will be 90 landfills to do an estimate on, of existing landfills.

A few years ago, the Solid Waste Bureau came to the Board with a Solid Waste Management plan which was adopted by the Board. I looked at that, and there is a statement that by 1989 that the number of landfills in New Mexico will be 280. To meet the qualification of an existing landfill, you have to have received waste since 1987, so, presumably, anything that was a landfill in 1989 would meet this definition.

Here is a number put out by the Department a couple years ago that there were 280 landfills in existence as of 1989. That is a lot more than what you are estimating in here, so I am sort of worried that you may be underestimating the impact of this regulation and the amount of work you are going to have to do.

MR. STAFFORD: That number, I'd have to go back and look into. Lots and lots of them closed in '89, and those were the very, very small ones. That is when the first regulations came in, then a lot of

them closed October of '92. That is when the second set of regulations came in. That may be -- I can't address that right now, I'm sorry, but the 90 is a pretty good number right now that we think we need to look at. We are looking at all of them, and Jim and I have worked on it.

263, that sounds high for 1989, but I wasn't here. I don't know. I know so many have closed in the past five or six years, but, again, we are going to look at everything that closed after November of '87, and we are in the process of doing it. I don't come up anywhere near 263.

MR. BRANCARD: I found in a Law Review article where somebody was citing testimony by the Department, and the testimony of the first solid waste hearing was that there were 300 landfills. Again, that is in 1989.

MR. LATTMAN: That sounds high.

MR. BRANCARD: The Board members should know that when the Board enacted the first set of semi-tough Solid Waste Regulations in '89, a huge number of landfills automatically shut rather than comply with the regs. That is the problem we are dealing with here. Unfortunately, with the timing of the EPA requirements, that hits right at that time

when all these old unregulated landfills went out of existence.

MR. LATTMAN: I don't want to belabor the point, but what Bill brings up and what I was trying to get at and didn't make clear on that 2.5 million megagrams, if the volume, which is a lot easier to measure than the weight of a landfill, although is a not easy, approaching -- the weight is what they are worried about, might we have landfills that refuse to take heavy concrete and what have you?

In other words, they say, "We don't want your heavy waste because it is going to put us over the 2.5 million megagrams. We will take your paper and diapers, but your metal and what have you, you can keep it to yourself." Could that happen?

MR. STAFFORD: Jim, you can give the definitive on this, but I know in that rule, if it is what we call construction demolition debris, the operator can document that and show us what is received that can be excluded from their calculation.

MR. LATTMAN: If it is inert, chemically inert?

MR. NELLESSEN: Yes.

MR. STAFFORD: Yes. We have asbestos landfills and construction demolition debris --

MS. NOSKIN: So this 90 figure is something you have gone through and sort of prioritized as the ones you are going to hit first?

MR. STAFFORD: Yes.

MS. NOSKIN: Over what kind of time frame are you talking about going through these 90?

MR. STAFFORD: We are doing it now. It is not a top priority in our work right now because they are all so tiny. The other difficulty is there is little to no records of these things. The further back you go, and prior to '89, we practically have no records. We might know a name, and it was out there. Since then, and starting with the '89 regs, as Bill was saying, we started getting some reports, at least the lateral extent, one acre, three acres, ten feet deep, and all that stuff is old, old records we are in the process of digging into.

It is not an urgent thing, because we don't feel it is a problem, as Jim has pointed out, they are so small, but we do want to come up with an aggregate.

MR. NELLESSEN: This reporting of design capacity is a one-time report so that we have a record of it. If they are small, and most of these are going to be small, it will just be in the file, and that will be it.

MR. LATTMAN: You hope you only have to be retroactive once, but they do pass a new regulation down the road, and it comes back at you.

MR. STAFFORD: Like October of '87 or November, 1987, those two years, from '89 to '87, it is almost impossible. That is what we are trying to dig into. The saving feature I feel, environmentally, is when we look at the large, new existing landfills, they account for almost 90 percent of the waste in the state. Each year, it is getting better that way. That is the thing that helps us.

MR. LATTMAN: I was asking Bill, we have -- you have jurisdiction over federal holdings in New Mexico, right?

MR. STAFFORD: Yes.

MR. LATTMAN: They have to comply with your regs?

MR. STAFFORD: Yes, sir.

MR. LATTMAN: Except perhaps for some classified areas like Los Alamos and what have you?

MR. STAFFORD: Not tribal lands, but all the federal lands.

MR. LATTMAN: Tribal lands are sovereign, which is why some people want to dump on tribal lands.

MS. GADZIA: Any other questions? Thank you, Jim.

Are there any questions from the audience? Jim?

MR. JORDAN: There is no need for me to testify.

MR. LATTMAN: You guys are in favor of this?

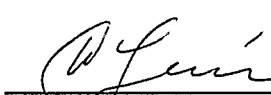
MR. JORDAN: Yes.

MS. GADZIA: Is there any other testimony from the audience?

(Proceedings concluded at 10:57 a.m.)

STATE OF NEW MEXICO)
)ss.
COUNTY OF BERNALILLO)

I, Catherine Leon, the officer before whom the foregoing hearing was taken, do hereby certify that the witnesses whose testimony appears in the foregoing hearing were duly sworn by me; that I personally recorded the testimony by machine shorthand; that said hearing is a true record of the testimony given by said witnesses; that I am neither attorney nor counsel for, nor related to or employed by any of the parties to the action in which this hearing is taken, and that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in the action.



NOTARY PUBLIC
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Expires: 12/31/96

Written testimony in support of proposed:

20 NMAC 2.64 - Municipal Solid Waste Landfills

Testimony before the Environmental Improvement Board
November 8, 1996
Presented by Jim Nellessen, Environmental Specialist
New Mexico Environment Department
Air Quality Bureau

LIST OF EXHIBITS FOR THE HEARING ON PROPOSED 20 NMAC 2.64

NMED EXHIBIT NO.	TITLE OF EXHIBIT
1	Proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills
2	Proposed alternative language for proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills
3	Standards of performance for new stationary sources and guidelines for control of existing sources: Municipal solid waste landfills (40 CFR Parts 51, 52, and 60). Federal Register, March 12, 1996. Pages 9905-9944.
4	Enabling Document for the New Source Performance Standards and Emission Guideline for Municipal Solid Waste Landfills. U.S. EPA, March 1996, EPA-453/R-96-004. (selected pages only) (the entire document is about 150 pages)
5	40 CFR 60.24 Emission standards and compliance schedules. July 1, 1994, pages 53-54.
6	NMOC Emissions Inventory Report for New Mexico
7	Revised proposed alternative language for proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills

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Mr. Chairman and members of the Board, I am here to present proposed air quality regulation 20 NMAC 2.64 - Municipal Solid Waste Landfills. A copy of this proposed regulation is included as Exhibit 1. Proposed alternative language (to be explained ahead) is included as Exhibit 2. From here on I will refer to this rule as Part 64.

Introduction and Overview

On March 12, 1996 the US EPA promulgated New Source Performance Standards (NSPS) and Emission Guidelines (EG) for municipal solid waste landfills (MSWL) [Exhibit 3]. The NSPS applies to "new" MSWL, i.e. those commencing construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. The EG applies to "existing" MSWL, those constructing, reconstructing, or modifying before May 30, 1991, and having accepted waste on or after November 11, 1987. These standards and guidelines are designed to reduce the emissions of non-methane organic compounds (NMOC) as well as methane gas. NMOC consist of volatile organic compounds (VOC) which are involved in photochemical reactions in the atmosphere in the generation of ground level ozone. Ground level ozone (as opposed to stratospheric ozone) is a pollutant causing human health effects such as lung irritation. NMOC may also contain some hazardous air pollutants (HAP) causing a variety of health effects. HAPs are a group of 188 compounds regulated under Section 112 of the Clean Air Act. Methane, a greenhouse gas involved in global warming, although not specifically targeted for control, will be controlled via the requirements to control NMOC.

US EPA, in the March 12, 1996, Federal Register (FR) notice requires states to put together an implementation plan for existing MSWL affected by the EG. Technically, this is called an implementation plan (IP) rather than a state implementation plan (SIP), because, by definition SIPs are for criteria pollutants. NMOC is a "designated" pollutant regulated under a different section, Section 111(d) of the Clean Air Act, while the criteria pollutants (e.g. ozone, carbon monoxide, sulfur dioxide) are regulated via SIPs under Section 110 [Exhibit 4, pg. 3-49]. But, for practical purposes it is the same as a SIP. This implementation plan is due to US EPA by December 19, 1996.

This testimony is divided into a number of specific sections according to the "required elements" needed by US EPA in our implementation plan. This will make it easier for US EPA to review our submittal, since this testimony will be part of our submittal.

New Mexico Legal Authority and Rule Making

Under the Environmental Improvement Act, Section 74-1-8, NMSA 1978, one of the duties of the Environmental Improvement Board (EIB) is air quality management. Under the Air Quality Control Act (74-3-1 to 74-3-16, NMSA 1978), Section 74-2-5(A), "The environmental improvement board or the local board shall prevent or abate air pollution." At 74-2-5(B)(2) the EIB shall "adopt a plan for the regulation, control, prevention or abatement of air pollution" and at 74-2-5(C)(2) "prescribe standards of performance for sources."

It is under this authority the New Mexico Environment Department is proposing this new rule affecting MSWLs in order to meet US EPA requirements. Proposed Part 64 - Municipal Solid Waste Landfills implements the requirements of the EG, which for the most part are the same as the NSPS. This is why the proposed rule is rather short since it mostly refers to and cites the NSPS. It sets permitting requirements for all MSWL, reporting and compliance requirements for existing MSWL, and allows for a case-by-case evaluation of existing MSWLs according to the EG. It meets state statutes for standards of performance in being "no more stringent than but at least as stringent as required by federal standards of performance." 74-2-5(C)(2)(a), NMSA 1978.

Summary of Proposed Part 64 - Municipal Solid Waste Landfills

Again, the proposed rule is listed as Exhibit 1.

The Federal NSPS, 40 CFR Part 60, Subpart WWW applies to "new" landfills as previously defined. The Federal Emission Guidelines, 40 CFR Part 60, Subpart Cc apply to "existing" landfills as previously defined. These rules have already been incorporated by reference into state rule 20 NMAC 2.77 - New Source Performance Standards. In addition, the Guidelines require states to derive an implementation plan, i.e. proposed Part 64, for existing landfills. Existing landfills will be required to meet all requirements within the NSPS (Subpart WWW) with certain exceptions, to be discussed ahead.

There are three main levels of requirements [Exhibit 3]:

1. All landfills will be required to report their design capacity. This is a one time reporting requirement, unless the landfill modifies or reconstructs to change its design capacity. Design capacity is the total quantity of refuse it is capable of holding. This number is based on their annual acceptance rate multiplied by the number of years till capacity is reached. The NMED Solid Waste Bureau issues permits for 10 or 20 years. The design capacity is not directly tied to the length of the permit because available space may easily exceed 10 or 20 years of acceptance.

2. Landfills with design capacities greater than or equal to 2.5 million megagrams (1 megagram = 10^6 grams = 1.1 tons) or 2.5 million cubic meters (3.3 million cubic yards) must submit NMOC emission reports. These reports may be annual or averaged over 5 year periods. These landfills are also subject to operating permits under Part 70.

3. Landfills with NMOC emissions greater than or equal to 50 megagrams per year must install gas collection and control equipment. The controls must be according to one of the following 3 approaches:
   a. A flare,
   b. A method to reduce NMOC emissions by 98% by weight, or
   c. An enclosed combustor to reduce released NMOC concentrations to 20 ppm.

I will now discuss the various sections. Section 102 (Statutory Authority) has already been explained and Sections 100, 101, 103, and 104 should be self explanatory.

Section 105 - Objective. The primary objective of this rule was to address requirements for "existing" landfills. Since the NSPS subjects large landfills to an operating permit, we broadened the objective to apply to all landfills, for the purpose of routing them to only one permit program, operating permits. I will explain this more when I get to Section 110 - Permitting Requirements.

Section 106 - is reserved for succession of prior regulations. Since there were no prior air regulations for landfills, this section remains reserved at this time.

Section 107 - Definitions. These definitions have been taken directly from 40 CFR Part 60.

A. "Existing municipal solid waste landfill" - This definition is taken from 40 CFR 60.32c and 60.33c.(a)(1) [Exhibit 3, pg. 9919]. At this time we would like to propose moving the one-line paragraph immediately following item 2. to the end of Section 109.A (in Applicability) where it will more appropriately belong [see Exhibit 2, proposed alternative language for Part 64]. The State Records Center, in reviewing this proposed rule, had a problem that this paragraph was not identified with a letter or number. Since it is not really a part of the definition of "existing landfill" it more appropriately goes under Applicability, Section 109.A. In fact, in 40 CFR 60.750 (Applicability) paragraph (a) is where this same sentence can be found [Exhibit 3, pg. 9919].

B. "Municipal solid waste landfill" - This definition is taken directly from 40 CFR 60.751 [Exhibit 3, pg. 9920]

C. "New municipal solid waste landfill" - This has been taken from 40 CFR 60.750(a) [Exhibit 3, pg. 9919-9920].

D. "NMOC" - The first sentence was taken from 40 CFR 60.751 [Exhibit 3, pg. 9920]. The second sentence was added to make the definition more user friendly and to clarify, so that it did more than just refer the reader to something else.

Section 108 - Documents. This section should be self explanatory.

Section 109 - Applicability.

Paragraph A. states that all existing landfills are subject to all of the NSPS requirements (40 CFR 60 Subpart WWW) except as provided in Section 111 of our proposed rule. This is precisely what US EPA is requiring all states to do to meet implementation requirements. The exceptions will be discussed ahead. As a reminder, we want to move the last sentence in Section 107.A to the end of this paragraph [Exhibit 2].

Paragraph B. states that new landfills are subject to 40 CFR Part 60 Subpart WWW already promulgated by US EPA and reminds them that we have incorporated this NSPS into state rule 20 NMAC 2.77. It also says that new landfills are subject to Section 110 of this rule (Part 64).

Section 110 - Permitting Requirements. This section applies to both new and existing landfills greater than or equal to a design capacity of 2.5 million megagrams or 2.5 million cubic meters. This section simply reiterates the requirement for an operating permit already stated in the federal rule [Exhibit 3]. It also states that landfills do not have to obtain a construction permit. In other words, operating permit requirements in conjunction with all other requirements in the NSPS will be deemed to fulfill new source review requirements and landfills will not have to obtain a construction permit under 20 NMAC 2.72. Since the NSPS requires controls on landfills emitting more than 50 megagrams NMOC and to reduce these emissions by 98%, it is unlikely landfills in New Mexico would trigger new source review permitting under federal PSD (prevention of significant deterioration) or nonattainment areas. For example, a landfill would have to exceed about 12,500 tons/year and 5000 tons/year NMOC emissions to be subject to PSD and nonattainment area permitting, respectively. The large Camino Real Landfill in Sunland Park, using the conservative Tier I EPA default calculations was only at 460 megagrams (507 tons). Consequently, sending landfills only through the operating permit program will simplify and streamline the permitting process for them. At this time there are 4 new landfills in New Mexico that will be subject to operating permits. We are not positive on how many existing landfills will be subject to operating permits, but we estimate maybe 6 or so (based on information supplied to us from the NMED Solid Waste Bureau).

Section 111 - Requirements for Existing Municipal Solid Waste Landfills.

Subsection A - Reporting and Compliance. This is one of the main differences in requirements between new and existing landfills. The compliance clock for new landfills started the day of publication of the Federal Register notice, March 12, 1996 [Exhibit 3].

The compliance clock for existing landfills does not start until 90 days after final US EPA approval of our rule [Exhibit 4, pg. 2-70]. In paragraph 3. of this subsection the rule gives 30 months from US EPA approval of this Part, for the very large landfills to install gas collection and control equipment [40 CFR 60.36c(a), Exhibit 3, pg. 9919].

Subsection B - Exceptions. The reference to this language is in 40 CFR 60.33c paragraph (c) "except as provided in 60.24." [Exhibit 3, pg. 9919]. If you look in 40 CFR 60.24, as referenced, you will see that our proposed language comes from paragraph (f) [Exhibit 5, pg. 54]. US EPA requires an explanation as to why these exceptions are being allowed in New Mexico [Exhibit 4, pg. 3-36]. As stated earlier, New Mexico statutes state that standards of performance "shall be no more stringent than but at least as stringent as required by federal standards of performance." 74-2-5(C)(2)(a), NMSA 1978. The federally promulgated EG [Exhibit 3], by referencing 40 CFR 60.24, allows for the exceptions listed in Section 111 of proposed Part 64. Consequently, New Mexico must allow these exceptions to meet its statutes. If New Mexico did not allow for these exceptions then the state would be more stringent than federal requirements and hence violate state statutes.

Affected MSWLs

This section summarizes how many landfills will be subject at each of the 3 levels of requirements in the NSPS and EG. At this time we do not know how many landfills would be classified as "existing" vs. "new." For many, it could be determined by examining permits issued by the NMED Solid Waste Bureau. For some we may not know until they report. We certainly will not know what their NMOC emissions are or whether they need controls until they report.

1. Reporting of design capacity: All landfills will be required to report design capacities. US EPA sent us a list of about 90 landfills they had identified in New Mexico. A list I obtained from the NMED Solid Waste Bureau shows 163, 10 of which are in Bernalillo Co and not under jurisdiction of the NMED Air Quality Bureau. Of the remaining 153, 50 are closed, 23 planned, 8 exempt, 4 withdrawn, leaving 68 open.

2. Reporting of NMOC emission rate and applying for an operating permit: Again, all landfills with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters must do this. To date, based on reports we have already received, we have identified 4 new landfills, Camino Real (Sunland Park), Sand Point (Eddy Co.), Otero/Lincoln (Lincoln Co.), and Corralitos (Las Cruces) to be large enough to meet these criteria. There may be anywhere from 6-11 existing landfills (based on information supplied by David Duran formerly with the NMED Solid Waste Bureau) meeting these criteria levels (e.g. Rio Rancho Landfill and San Juan Regional to name two).

3. Needing controls: All landfills with an NMOC emission rate greater than or equal to 50 megagrams per year need to install gas collection and control equipment. So far, there is only one landfill, classified as new, Camino Real in Sunland Park needing controls.

Emission Inventory Plans (Design Capacity and NMOC Reports)

Using information from permits issued by the NMED Solid Waste Bureau landfills could be identified as "new" versus "existing." Those potentially over the 2.5 million megagram or 2.5 million cubic meter design capacity could also be identified. Letters requesting design capacity reports will be sent out to all MSWLs. US EPA prepared sample reporting forms will be included in this mailing. NMOC emission reports will also be obtained from any MSWLs greater than or equal to the 2.5 million megagrams or 2.5 million cubic meters design capacity. The Department will provide assistance to landfill owners and operators, as necessary, in order to have the proper information reported on the forms. As stated in the EG and the Department's proposed rule, this reporting will be accomplished within 90 days of EPA approval of this plan.

Demonstration of Adequate Resources

Although Department staff are very busy working on many other projects in addition to this particular implementation plan, the Air Quality Bureau should have adequate resources to implement this plan. Landfills are a new source category for air bureau staff to work with. As necessary, staff may have to attend workshops and/or training sessions to become familiar with various control equipment needed by any landfills requiring an air permit due to being a major source. At this time there is only one landfill apparently needing control equipment and an air permit.

I will be happy to answer any questions about this regulation.

PROPOSED

NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD
P.O. BOX 26110/1190 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87502-0110

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 2 AIR QUALITY (STATEWIDE)
PART 64 MUNICIPAL SOLID WASTE LANDFILLS

100. **ISSUING AGENCY:** Environmental Improvement Board. [12-xx-96]

101. **SCOPE:** All geographic areas within the jurisdiction of the Environmental Improvement Board. [12-xx-96]

102. **STATUTORY AUTHORITY:** Environmental Improvement Act, NMSA 1978, Section 74-1-8(A)(4) and (7), and Air Quality Control Act, NMSA 1978, Sections 74-2-1 et seq., including specifically, Section 74-2-5(A), (B) and (C). [12-xx-96]

103. **DURATION:** Permanent. [12-xx-96]

104. **EFFECTIVE DATE:** December xx, 1996. [12-xx-96]

105. **OBJECTIVE:** The objective of this Part is to establish requirements for municipal solid waste landfills in order to control emissions of nonmethane organic compounds (NMOC). [12-xx-96]

106. [RESERVED]

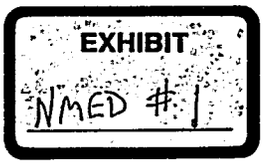
107. **DEFINITIONS:** In addition to the terms defined in Part 2 - Definitions, and those defined in 40 CFR 60 Subpart A, as used in this Part: [12-xx-96]

A. **"Existing municipal solid waste landfill"** is an MSWL meeting the following conditions: [12-xx-96]

1. Construction, reconstruction, or modification was commenced before May 30, 1991; and [12-xx-96]

2. The MSWL has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. [12-xx-96]

Physical or operational changes made to an existing MSWL solely to comply with this Part are



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not considered a modification or reconstruction and would not subject an existing MSWL to the requirements of 40 CFR 60 Subpart WWW. [12-xx-96]

B. **"Municipal solid waste landfill (MSWL)"** means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSWL may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSWL may be separated by access roads. An MSWL may be publicly or privately owned. An MSWL may be new, existing, or a lateral expansion. [12-xx-96]

C. **"New municipal solid waste landfill"** is an MSWL that commenced construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. [12-xx-96]

D. **"NMOC"** means nonmethane organic compounds as measured according to the provisions of 40 CFR 60.754. This may include many compounds commonly referred to as VOC (volatile organic compounds) and HAP (hazardous air pollutants). [12-xx-96]

108. **DOCUMENTS:** Documents cited in this Part may be viewed at the New Mexico Environment Department, Air Quality Bureau, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, NM 87505. [12-xx-96]

109. **APPLICABILITY:**

A. **Existing Municipal Solid Waste Landfills:** An owner or operator of an existing MSWL is subject to all provisions specified in 40 CFR 60.751 through 60.759 as promulgated by US EPA on March 12, 1996, except as provided for in Section 111 of this Part. [12-xx-96]

B. **New Municipal Solid Waste Landfills:** In addition to being subject to Section 110 of this Part new MSWLs are subject to 40 CFR Part 60, Subpart WWW as incorporated by reference in 20 NMAC 2.77 - New Source Performance Standards. [12-xx-96]

110. **PERMITTING REQUIREMENTS:**

A. **Operating Permits:** New and existing MSWLs with design capacities greater than or equal to 2.5 million megagrams or 2.5 million cubic meters are subject to permitting requirements under Part 70 - Operating Permits. New and existing MSWLs with design capacities less than 2.5 million megagrams or 2.5 million cubic meters are not subject to permitting requirements under Part 70, unless they are major sources as defined in Part 70. [12-xx-96]

B. **Construction Permits:** Emissions of NMOC from MSWLs subject to this Part (64) shall not be included in applicability determinations under Part 72 or be subject to permit

requirements under that Part. [12-xx-96]

111. **REQUIREMENTS FOR EXISTING MUNICIPAL SOLID WASTE LANDFILLS:**

A. **Reporting and Compliance:** Except as provided for below, reporting and compliance requirements for existing MSWLs shall be in accordance with 40 CFR 60.757 and 60.758. [12-xx-96]

1. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL shall submit an initial design capacity report in accordance with 40 CFR 60.757(a)(2) to the Department. [12-xx-96]

2. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL, with a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, shall submit an NMOC emission rate report in accordance with 40 CFR 60.757(b)(1) and (2) to the Department. [12-xx-96]

3. Within 30 months after final US EPA approval of this Part, an existing MSWL with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters, and with an NMOC emission rate greater than or equal to 50 megagrams per year shall install a gas collection and control system as specified in 40 CFR 60.752(b). [12-xx-96]

B. **Exceptions:** On a case by case basis, an existing MSWL may apply for a less stringent emission standard or longer compliance schedule than those otherwise required by this Part, provided that the owner or operator demonstrates to the Department: [12-xx-96]

1. Unreasonable cost of control resulting from MSWL age, location, or basic design; [12-xx-96]

2. Physical impossibility of installing necessary control equipment; or [12-xx-96]

3. Other factors specific to the MSWL that make application of a less stringent standard or final compliance time significantly more reasonable. [12-xx-96]

PROPOSED ALTERNATIVE LANGUAGE

NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD
P.O. BOX 26110/1190 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87502-0110

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 2 AIR QUALITY (STATEWIDE)
PART 64 MUNICIPAL SOLID WASTE LANDFILLS

100. **ISSUING AGENCY:** Environmental Improvement Board. [12-xx-96]

101. **SCOPE:** All geographic areas within the jurisdiction of the Environmental Improvement Board. [12-xx-96]

102. **STATUTORY AUTHORITY:** Environmental Improvement Act, NMSA 1978, Section 74-1-8(A)(4) and (7), and Air Quality Control Act, NMSA 1978, Sections 74-2-1 et seq., including specifically, Section 74-2-5(A), (B) and (C). [12-xx-96]

103. **DURATION:** Permanent. [12-xx-96]

104. **EFFECTIVE DATE:** December xx, 1996. [12-xx-96]

105. **OBJECTIVE:** The objective of this Part is to establish requirements for municipal solid waste landfills in order to control emissions of nonmethane organic compounds (NMOC). [12-xx-96]

106. [RESERVED]

107. **DEFINITIONS:** In addition to the terms defined in Part 2 - Definitions, and those defined in 40 CFR 60 Subpart A, as used in this Part: [12-xx-96]

A. **"Existing municipal solid waste landfill"** is an MSWL meeting the following conditions: [12-xx-96]

1. Construction, reconstruction, or modification was commenced before May 30, 1991; and [12-xx-96]

2. The MSWL has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. [12-xx-96]

~~Physical or operational changes made to an existing MSWL solely to comply with this Part are~~

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~~not considered a modification or reconstruction and would not subject an existing MSWL to the requirements of 40 CFR 60 Subpart WWW. [12-xx-96]~~

B. **"Municipal solid waste landfill (MSWL)"** means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSWL may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSWL may be separated by access roads. An MSWL may be publicly or privately owned. An MSWL may be new, existing, or a lateral expansion. [12-xx-96]

C. **"New municipal solid waste landfill"** is an MSWL that commenced construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. [12-xx-96]

D. **"NMOC"** means nonmethane organic compounds as measured according to the provisions of 40 CFR 60.754. This may include many compounds commonly referred to as VOC (volatile organic compounds) and HAP (hazardous air pollutants). [12-xx-96]

108. **DOCUMENTS:** Documents cited in this Part may be viewed at the New Mexico Environment Department, Air Quality Bureau, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, NM 87505. [12-xx-96]

109. **APPLICABILITY:**

A. **Existing Municipal Solid Waste Landfills:** An owner or operator of an existing MSWL is subject to all provisions specified in 40 CFR 60.751 through 60.759 as promulgated by US EPA on March 12, 1996, except as provided for in Section 111 of this Part. ~~Physical or operational changes made to an existing MSWL solely to comply with this Part are not considered a modification or reconstruction and would not subject an existing MSWL to the requirements of 40 CFR 60 Subpart WWW.~~ [12-xx-96]

B. **New Municipal Solid Waste Landfills:** In addition to being subject to Section 110 of this Part new MSWLs are subject to 40 CFR Part 60, Subpart WWW as incorporated by reference in 20 NMAC 2.77 - New Source Performance Standards. [12-xx-96]

110. **PERMITTING REQUIREMENTS:**

A. **Operating Permits:** New and existing MSWLs with design capacities greater than or equal to 2.5 million megagrams or 2.5 million cubic meters are subject to permitting requirements under Part 70 - Operating Permits. New and existing MSWLs with design capacities less than 2.5 million megagrams or 2.5 million cubic meters are not subject to permitting requirements under Part 70, unless they are major sources as defined in Part 70. [12-xx-96]

B. **Construction Permits**: Emissions of NMOC from MSWLs subject to this Part (64) shall not be included in applicability determinations under Part 72 or be subject to permit requirements under that Part. [12-xx-96]

111. **REQUIREMENTS FOR EXISTING MUNICIPAL SOLID WASTE LANDFILLS:**

A. **Reporting and Compliance:** Except as provided for below, reporting and compliance requirements for existing MSWLs shall be in accordance with 40 CFR 60.757 and 60.758. [12-xx-96]

1. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL shall submit an initial design capacity report in accordance with 40 CFR 60.757(a)(2) to the Department. [12-xx-96]

2. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL, with a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, shall submit an NMOC emission rate report in accordance with 40 CFR 60.757(b)(1) and (2) to the Department. [12-xx-96]

3. Within 30 months after final US EPA approval of this Part, an existing MSWL with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters, and with an NMOC emission rate greater than or equal to 50 megagrams per year shall install a gas collection and control system as specified in 40 CFR 60.752(b). [12-xx-96]

B. **Exceptions:** On a case by case basis, an existing MSWL may apply for a less stringent emission standard or longer compliance schedule than those otherwise required by this Part, provided that the owner or operator demonstrates to the Department: [12-xx-96]

1. Unreasonable cost of control resulting from MSWL age, location, or basic design; [12-xx-96]

2. Physical impossibility of installing necessary control equipment; or [12-xx-96]

3. Other factors specific to the MSWL that make application of a less stringent standard or final compliance time significantly more reasonable. [12-xx-96]

§ 706.2 Certifications of the Secretary of the Navy under Executive Order 11964 and 33 U.S.C. 1605.

* * * * *

TABLE FIVE

Vessel	No.	Masthead lights not over all other lights and obstructions. annex I, sec. 2(f)	Forward masthead light not in forward quarter of ship. annex I, sec. 3(a)	After masthead light less than ½ ship's length aft of forward masthead light. annex I, sec. 3(a)	Percentage horizontal separation attained
USS PAUL HAMILTON	DDG 60	X	X	X	20.4

Dated: February 25, 1996.

R. R. Pixa,

Captain, JAGC, U.S. Navy, Deputy Assistant Judge Advocate General (Admiralty).

[FR Doc. 96-5837 Filed 3-11-96; 8:45 am]

BILLING CODE 3810-FF-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 51, 52, and 60

[AD-FRL-5437-8]

RIN 2060-AC42

Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule and guideline.

SUMMARY: This action adds subparts WWW and Cc to 40 CFR part 60 by promulgating standards of performance for new municipal solid waste landfills and emission guidelines for existing municipal solid waste landfills. This action also adds the source category "municipal solid waste landfills" to the priority list in 40 CFR Part 60, § 60.16, for regulation under section 111 of the Clean Air Act. These standards and emission guidelines implement section 111 of the Clean Air Act and are based on the Administrator's determination that municipal solid waste landfills cause, or contribute significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare. The emissions of concern are non-methane organic compounds (NMOC) and methane. NMOC include volatile organic compounds (VOC), hazardous air pollutants (HAPs), and odorous compounds. VOC emissions contribute to ozone formation which can result in adverse effects to human health and vegetation. Ozone can penetrate into different regions of the respiratory tract and be absorbed through the respiratory system. The health effects of exposure to HAPs can include cancer, respiratory irritation, and damage to the nervous system. Methane emissions contribute to global climate change and can result in fires or explosions when they accumulate in structures on or off the landfill site. The intended effect of the standards and guidelines is to require certain municipal solid waste landfills to control emissions to the level achievable by the best demonstrated system of continuous emission reduction, considering costs, nonair quality health, and environmental and energy impacts.

EFFECTIVE DATE: Effective on March 12, 1996.

ADDRESSES: Background Information Document. The background information document for the promulgated standards may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Air Emissions from Municipal Solid Waste Landfills—Background Information for Final Standards and Emission Guidelines," EPA-453/R-94-021. The Background Information Document contains: (1) A summary of all the public comments made on the proposed standards and the Notice of Data Availability as well as the Administrator's response to these comments, (2) a summary of the changes made to the standards since proposal, and (3) the final Environmental Impact Statement, which summarizes the impacts of the standards.

Docket. Docket No. A-88-09, containing supporting information used in developing the promulgated standards, is available for public inspection and copying between 8:00 a.m. and 4:00 p.m., Monday through Friday, except for Federal holidays at the following address: U.S. Environmental Protection Agency, Air and Radiation Docket and Information Center (MC-6102), 401 M Street SW., Washington, DC 20460 [phone: (202) 260-7548]. The docket is located at the above address in Room M-1500, Waterside Mall (ground floor). A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: For information on the regulation of municipal solid waste landfills, contact Ms. Martha Smith, Waste and Chemical Processes Group, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-2421.

SUPPLEMENTARY INFORMATION:

Judicial Review

Under section 307(b)(1) of the Clean Air Act, judicial review of the actions taken by this notice is available *only* by the filing of a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under section 307(b)(2) of the Clean Air Act, the requirements that are the subject of today's notice may not be challenged

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later in civil or criminal proceedings brought by the EPA to enforce these requirements.

The following outline is provided to aid in locating information in the introductory text (preamble) to the final standards.

I. Acronyms, Abbreviations, and Measurement Units

The following definitions, acronyms, and measurement units are provided to clarify the preamble to the final rule.

A. Acronyms

BDT—best demonstrated technology
BID—background information document
CAA—Clean Air Act
CERCLA—Comprehensive Environmental Response, Compensation, and Liability Act
EG—emission guideline(s)
EPA—Environmental Protection Agency
FR—Federal Register
HAP—hazardous air pollutant
LFG—landfill gas
MSW—municipal solid waste
NMOC—nonmethane organic compounds
NPV—net present value
NSPS—new source performance standards
NSR—new source review
OMB—Office of Management and Budget
PSD—prevention of significant deterioration
RCRA—Resource Conservation and Recovery Act
VOC—volatile organic compound(s)

B. Abbreviations and Measurement Units

J/scm—joules per standard cubic meter
m—meter
Mg—megagram
mm—millimeter
ppm—parts per million
ppmv—parts per million by volume
tpy—tons per year
yr—year

C. Conversion Factors and Commonly Used Units

1 meter = 3.2808 feet
1 megagram = 1.1023 tons = 2204.6 pounds
1 cubic meter = 35.288 cubic feet = 1.3069 cubic yards
1 cubic meter = 0.0008101 acre-feet
Degrees Celsius = (degrees Fahrenheit − 32)/1.8

II. Background

The United States Environmental Protection Agency (EPA) originally considered regulating MSW landfill emissions under a RCRA subtitle D rulemaking. However, the Administrator decided to regulate MSW landfill emissions under the authority of the CAA, and announced the decision in the Federal Register on August 30, 1988 (53 FR 33314). The EPA decided to propose regulation of new MSW landfills under section 111(b) of the CAA and to propose EG for existing MSW landfills under section 111(d).

The EPA published a proposal of this NSPS and EG in the Federal Register on May 30, 1991 (56 FR 24468).

Following the receipt of new data and changes in the modeling techniques, the EPA published a Notice of Data Availability in the Federal Register on June 21, 1993 (56 FR 33790).

Under the authority of section 111(b)(1)(A) of the CAA, today's notice adds the source category MSW landfills to the priority list in 40 CFR 60.16 because, in the judgement of the Administrator, it contributes significantly to air pollution which may reasonably be anticipated to endanger public health and welfare. Further rationale for this finding is contained in section 1.1.1 of the promulgation BID (EPA–453/R–94–021).

Today's notice promulgates the final NSPS and EG for MSW landfills. The promulgation BID "Air Emissions from Municipal Solid Waste Landfills—Background Information for Final Standards and Guidelines" (EPA 453/R–94–021) summarizes all public comments on the proposed NSPS and EG and the EPA responses. For further discussion of stakeholder and public involvement in the development of the rules see section III.C. of this preamble.

Recent information suggests that mercury might be emitted from landfills. The EPA is still looking at the possibility and will take action as appropriate in the future under the landfill national emission standards for hazardous air pollutants.

III. Summary of Considerations in Developing the Standards and Emission Guidelines

A. Purpose of the Regulation

Landfill gas emissions contain methane, carbon dioxide, and more than 100 different NMOC, such as vinyl chloride, toluene, and benzene. Studies indicate that MSW landfill gas emissions can at certain levels have adverse effects on both public health and welfare. The EPA presented concerns with the health and welfare effects of landfill gases in the preamble to the proposed regulations (56 FR 24468).

Briefly, specific health and welfare effects from LFG emissions are as follows: NMOC contribute to ozone formation; some NMOC are known or suspected carcinogens, or cause other noncancer health effects; NMOC can cause an odor nuisance; methane emissions present a well-documented danger of fire and explosion on-site and off-site, and contribute to global climate change as a major greenhouse gas. Today's rules will serve to significantly reduce these potential problems associated with LFG emissions.

B. Technical Basis of the Regulation

Today's regulations are based on extensive data analysis and consideration of several alternatives. Prior to proposal, the EPA developed an extensive data base, using survey information from approximately 1,200 landfills, along with emissions information from literature, State and local agencies, and industry test reports. The preamble to the proposed regulations presented a detailed discussion of the data used to develop the rule and the regulatory alternatives considered (56 FR 24476).

After proposal, the EPA continued to gather new information and received new data through public comments. The EPA published this new information in a Notice of Data Availability on Jun 1993 (56 FR 33790). In addition to

public comments, the EPA held consultations with industry under the authority of Executive Order 12875 (See section VIII of this document for a detailed discussion of the Executive Order).

Based on the new information, the EPA re-assessed the impacts of the alternatives and made changes to the final regulation. The most significant changes to the regulation are summarized in section VI of this preamble. Detailed rationales for these changes as well as more minor changes are provided in the final BID (EPA 453/R-94-021).

In keeping with the EPA's common sense initiative, several of the changes were made to streamline the rule and to provide flexibility. Examples of this streamlining and increased flexibility include focusing control on the largest landfills, removing the gas collection system prescriptive design specifications, and more reasonable timing for the installation of collection wells. All of these changes are discussed further in section VI of this preamble.

C. Stakeholders and Public Involvement

Prior to proposal, in accordance with section 117 of the CAA, the EPA had consultations with appropriate advisory committees, independent experts, Federal departments and agencies. In addition, numerous discussions were held with industry representatives and trade associations.

After proposal, the EPA provided interested persons the opportunity to comment at a public hearing and through a written comment period. Comment letters were received from 60 commenters including industry representatives, governmental entities, environmental groups, and private citizens. A public hearing was held in Research Triangle Park, North Carolina, on July 2, 1991. This hearing was open to the public and five persons presented oral testimony on the proposed NSPS and EG.

On June 21, 1993, a supplemental notice of data availability to the May 30, 1991 proposal appeared in the **Federal Register** (58 FR 33790). The notice announced the availability of additional data and information on changes in the EPA's modelling methodology being used in the development of the final NSPS and EG for MSW landfills. Public comments were requested on the new data and comment letters were received from seven commenters.

Since the Notice of Data Availability, the EPA has held several consultations with State, local, and industry representatives in accordance with the October 26, 1993 Executive Order 12875 on *Enhancing the Intergovernmental Partnership.*

Major concerns expressed by participants in the consultations were identified by the EPA. These concerns included: the design capacity exemption level, collection system design and monitoring flexibility, and timing of well placement. These concerns and others raised at proposal and clarified in the consultations were addressed by revising the rule as described in section VI of this preamble.

IV. Summary of the Standards, Emission Guidelines, and Methods

The affected facility under the NSPS is each new MSW landfill. MSW landfills are also subject to the requirements of RCRA (40 CFR 257 and 258). A new MSW landfill is a landfill for which construction, modification, or reconstruction commences on or after the proposal date of May 30, 1991 or that began accepting waste on or after that date.

The EG require control for certain existing MSW landfills. An existing MSW landfill is a landfill for which construction commenced prior to May 30, 1991. An existing MSW landfill may be active, i.e., currently accepting waste, or have additional capacity available to accept waste, or may be closed, i.e., no longer accepting waste nor having available capacity for future waste deposition. The designated facility under the EG is each existing MSW landfill that has accepted waste since November 8, 1987.

The final rules (both the NSPS and EG) require affected and designated MSW landfills having design capacities below 2.5 million Mg or 2.5 million cubic meters to file a design capacity report. Affected and designated MSW landfills having design capacities greater than or equal to 2.5 million Mg or 2.5 million cubic meters are subject to the additional provisions of the standards or EG.

The final standards and EG for MSW landfill emissions require the periodic calculation of the annual NMOC emission rate at each affected or designated facility with a maximum design capacity greater than or equal to 2.5 million Mg or 2.5 million cubic meters. Those that emit more than 50 Mg/yr are required to install controls.

The final rules provide a tier system for calculating whether the NMOC emission rate is less than or greater than 50 Mg/yr, using a first order decomposition rate equation. The tier system does not need to be used to model the emission rate if an owner or operator has or intends to install controls that would achieve compliance. Chapter 1 of the promulgation BID (EPA 453/R-94-021) presents a complete discussion of the components of the tier system.

The BDT for both the NSPS and the EG requires the reduction of MSW landfill emissions from new and existing MSW landfills emitting 50 Mg/yr of NMOC or more with: (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 weight-percent.

A well-designed and well-operated collection system would, at a minimum: (1) Be capable of handling the maximum expected gas generation rate; (2) have a design capable of monitoring and adjusting the operation of the system; and (3) be able to collect gas effectively from all areas of the landfill that warrant control. Over time, new areas of the landfill will require control, so collection systems should be designed to allow expansion by the addition of further collection system components to collect gas, or separate collections systems will need to be installed as the new areas require control.

The BDT control device is a combustion device capable of reducing NMOC emissions by 98 weight-percent. While energy recovery is strongly recommended, the cost analysis is based on open flares because they are applicable to all affected and designated facilities regulated by the standards and EG. If an owner or operator uses an enclosed combustor, the device must demonstrate either 98-percent NMOC reduction or an outlet NMOC concentration of 20 ppmv or less. Alternatively, the collected gas may be treated for subsequent sale or use, provided that all emissions from any atmospheric vent from the treatment system are routed to a control device meeting either specification above.

The standards and EG require that three conditions be met prior to capping or removal of the collection and control system: (1) The landfill must be permanently closed under the requirements of 40 CFR 258.60; (2) the collection and control system must have been in continuous operation a minimum of 15 years; and (3) the annual NMOC emission rate routed to the control device must be less than the emission rate cutoff on three successive dates, between 90 and 180 days apart, based upon the site-specific landfill gas flow rate and average NMOC concentration.

Section VI.E. of this preamble describes a new section of the NSPS, § 60.753, "Operational Standards for Collection and Control Systems." The EG also refer to this section. The

provisions in this section include: (1) Collection of gas from each area, cell or group of cells in which non-asbestos degradable solid waste has been placed for a period of 5 years or more for active areas or 2 years or more for closed areas; (2) operation of the collection system with each wellhead under negative pressure, with a nitrogen level less than or equal to 20 percent (revised from 1 percent in the proposal, based on public comments) or an oxygen level less than or equal to 5 percent (a new provision); (3) operation with a landfill gas temperature less than 55 °C (a new provision) at each well transporting the collected gases to a treatment or control device designed and operated in compliance with § 60.752(b)(2)(iii) of the NSPS and operated at all times when the collected gas is vented to it; and (4) a requirement that the collection system be operated to limit the surface methane concentration to 500 ppm or less over the landfill as determined according to a specified monitoring pattern.

Owners and operators must determine compliance with the standards for the collection systems and control devices according to § 60.755. Changes made to the final compliance determination and monitoring procedures as a result of comments are discussed in detail in the BID (EPA 453/R–94–021). The §§ 60.757 and 60.758 of the NSPS and § 60.35(c) of the EG contain recordkeeping and reporting requirements. Changes have been made to the recordkeeping and reporting requirements to allow for consistency with the final compliance requirements.

V. Impacts of the Standards and Emission Guidelines

A. Environmental Impacts of Promulgated Action

The estimated environmental impacts have changed somewhat from those presented in the preamble to the proposed regulations as a result of changes in the final rules and changes in the estimation methodology. These changes were made in response to public comments. Additional data were also incorporated and are described in the supplemental Notice of Data Availability (56 FR 33790). The analysis of environmental impacts presented in this document, along with the proposal and promulgation BID's, and memoranda in the docket constitute the Environmental Impact Statement for the final standards and guidelines.

For most NSPS, emission reductions and costs are expressed in annual terms. In the case of the NSPS and EG for landfills, the final regulations require controls at a given landfill only after the increasing NMOC emission rate reaches the level of the regulatory cutoff. The controls are applied when the emissions exceed the threshold, and they must remain in place until the emissions drop below the cutoff. However, this process could take as long as 50 to 100 hundred years for some landfills. During the control period, costs and emission reductions will vary from year to year. Therefore, the annualized numbers for any impact will change from year to year. Because of the variability of emission reductions and costs of the final standards and EG over time, the EPA judged that the NPV of an impact is a more valuable tool in the decision process for landfills and has used NPV in the development of both the proposal and final nationwide impacts. The NPV is computed by discounting the capital and operating costs and emission reductions that will be incurred throughout the control periods to arrive at a measure of their current value. In this way, the NPV accounts for the unique emission patterns of landfills when evaluating nationwide costs and benefits over different discrete time periods for individual sources. Thus, the impacts presented include both annualized estimates and estimates expressed in terms of NPV in 1992.

1. Air Emissions

The methodology for estimating the impacts of the NSPS and EG is discussed in the proposal BID and in memoranda in the docket. The analysis of impacts for the NSPS is based on new landfills (beginning construction after May 30, 1991) that are projected to begin accepting waste over the first 5 years of the standards. The NPV of the emission reduction achieved by the final standards is estimated to be 79,300 Mg, which reflects a 50 percent reduction from the NPV of the baseline emissions of 160,000 Mg. Substantial reduction of methane emissions is also achieved. Table 1 presents the emission reductions of the final NSPS in annualized values as well as NPV.

TABLE 1.—SUMMARY OF EMISSION REDUCTION AND COST IMPACTS FOR THE NSPS

	NPV	Annualized
Baseline NMOC Emissions[a] (Mg)	160,000	13,400
NMOC Emission Reductions (Mg)	79,300	4,860
% NMOC Emission Reduction	50%	36%
Baseline Methane Emissions[a] (Mg)	10,600,000	899,000
Methane Emission Reduction[b] (Mg)	3,890,000	193,000
% Methane Emission Reduction	37%	21%
Cost (Million $)	97	4

[a] In the absence of an NSPS. This does not include landfills closed prior to November 8, 1987.
[b] This does not include landfills expected to undertake profitable energy recovery.

For existing landfills, the NPV of the NMOC emission reduction achieved by the final EG is estimated to be 1.1 million Mg, or a 53 percent reduction from a baseline of 2.07 million Mg (NPV). The NPV of the methane reduction is estimated to be 47 million Mg. Table 2 presents the emission reductions of the final EG in annualized values as well as NPV. Note that the baseline methane emissions do not include landfills closed prior to November 8, 1987, and that methane reductions shown in Tables 1 and 2 do not include landfills expected to undertake profitable energy recovery. Total methane reductions are anticipated to be on the order of 7 million megagrams in the year 2000.

TABLE 2.—SUMMARY OF EMISSION REDUCTION AND COST IMPACTS FOR THE EMISSION GUIDELINES

	NPV	Annualized
Baseline NMOC Emissions[a] (Mg)	2,070,000	145,000
NMOC Emission Reductions (Mg)	1,100,000	77,600
% NMOC Emission Reduction	53%	54%
Baseline Methane Emissions[b] (Mg)	120,000,000	8,440,000
Methane Emission Reduction (Mg)	47,000,000	3,370,000
% Methane Emission Reduction	39%	40%
Cost (Million $)	1,278	90

[a] In the absence of EG. This does not include landfills closed prior to November 8, 1987.
[b] This does not include landfills expected to undertake profitable energy recovery.

As existing landfills are filled, closed, and replaced by new landfills, the actual annual emissions reductions achieved by the guidelines will decrease, while the reductions achieved by the standards will increase.

Certain by-product emissions, such as NO_X, CO, SO_X, and particulates, may be generated by the combustion devices used to reduce air emissions from MSW landfills. The types and quantities of these by-product emissions vary depending on the control device. However, by-product emissions are very low compared to the achievable NMOC and methane emission reductions. Chapters 4 and 6 of the proposal BID (EPA–450/3–90–011a) present additional information about the magnitude of potential secondary air impacts.

2. Water

Landfill leachate is the primary potential source of water pollution from a landfill. Although there is no data on the effect of gas collection on leachate composition, the amount of water pollution present as NMOC in the leachate may be reduced under these standards and guidelines.

When LFG is collected, organics and water are condensed inside the header pipes of the gas collection system. This waste also contains NMOC and various toxic substances present in the LFG. The pH of this condensate is normally adjusted by adding caustic at the landfill and then routing it to a public treatment works where it would be treated and discharged. At this time, there is insufficient data available to quantify the effects of the rule on leachate.

3. Solid Waste

The final NSPS and EG will likely have little impact on the quantity of solid waste generated nationwide. Aside from the disposal of the collection and control system equipment once it can be removed from the landfill, no other solid wastes are expected to be generated by the required controls. The increased cost of landfill operation resulting from the control requirements may cause greater use of waste recycling and other alternatives to landfill disposal, leading to a decrease in landfill use. However, quantification of such an impact is not possible at this time.

4. Superfund Sites

Municipal solid waste landfill sites comprise approximately 20 percent of the sites placed by the EPA on the national priorities list. Often, remedial actions selected at these sites include venting methane and volatile organic contaminants, which would be controlled as necessary to protect human health and the environment.

The final NSPS and EG may affect remedial actions under Superfund for MSW landfills. Section 121(d)(2) of CERCLA requires compliance with the substantive standards of applicable or relevant and appropriate requirements (ARAR) of certain provisions in other environmental laws when selecting and implementing on-site remedial actions. "Applicable" requirements specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a Superfund site. "Relevant and appropriate" requirements are not legally applicable, but may address problems or situations sufficiently similar to those encountered so that their use is well suited to a particular site. See 40 CFR 300.5 (55 FR 8814, 8817, March 8, 1990).

These air emission rules will apply to new MSW landfills, as well as to those facilities that have accepted waste since November 8, 1987, or that have capacity available for future use. For CERCLA municipal landfill remediations, these requirements would be potential ARAR for all Records of Decision signed after the date of promulgation. These NSPS and EG will be applicable for those MSW landfill sites on the national priorities list that accepted waste on or after November 8, 1987, or that are operating and have capacity for future use. These standards may also be determined relevant and appropriate for sites that accepted wastes prior to November 8, 1987. The determination of relevance and appropriateness is made on a site-specific basis pursuant to 40 CFR 300.400(g) (55 FR 8841, March 8, 1990). Because the NSPS and EG apply only to landfills with design capacities greater than or equal to 2.5 million Mg or 2.5 million cubic meters, the collection and control requirements may not be relevant and appropriate for smaller landfills.

Given the significant public policy benefits that result from the collection and processing of landfill gas, Congress, as part of the 1986 SARA Amendments, enacted CERCLA Section 124 to provide broad liability protection for companies engaged in landfill gas recovery or processing. Landfill gas emissions, in addition to being a significant source of air pollution, can leach underground and cause explosions in nearby residences. If recovered, landfill gas could supply as much as 1 percent of the U.S. energy requirements.

CERCLA Section 124 states that owners or operators of equipment installed "for the recovery or processing (including recirculation of condensate) of methane" shall not be liable as a CERCLA "owner or operator" under CERCLA Section 101 (20) nor shall they be deemed "to have arranged for disposal or treatment of any hazardous substance* * *" pursuant to CERCLA Section 107. Exceptions are provided (1) where a release is primarily caused by activities of the landfill gas owner/operator or (2) where such owner/operator would be otherwise liable due to activities unrelated to methane recovery.

Since passage of CERCLA section 124, methane emissions have been targeted by the EPA as a large contributor to global warming (18 percent) and landfills are one of the largest source of methane emissions (36 percent). Because of this, the EPA's Atmospheric Pollution Prevention Division has initiated the Landfill Methane Outreach Program to promote landfill gas

collection projects at the 750 landfills where methane could profitably be recovered. Methane recovery, as compared with collection and flaring of landfill gas without recovery, results in significantly less emissions. It also can greatly reduce the financial burden on local governments (as well as taxpayers) since the energy recovered can be sold to utilities or other consumers and thereby create a revenue stream that may cover the costs of collection and recovery.

The EPA is aware that the standards and guidelines promulgated today for control of emissions at municipal solid waste landfills may change the focus of the landfill gas collection and processing for methane recovery. The landfill gas owner/operator will now need to consider how the collection and recovery of methane will impact on controlling the MSW landfill emissions. It is also likely that the landfill gas owner/operator will be asked to advise and in some cases help implement the MSW landfill's compliance obligations. These related objectives, the control of emissions at municipal solid waste landfills in order to comply with the Clean Air Act Amendments and the reduction of methane emissions in order to mitigate global warming, will need to be coordinated in carrying out common activities such as laying a system of collection piping at a given landfill.

In promulgating today's standards and guidelines, the EPA wants to promote the policy incorporated in CERCLA Section 124. Recognizing the chilling effect that potential CERCLA liability might otherwise have on landfill gas collection or processing activities, the EPA interprets CERCLA Section 124 in a manner that will encourage the beneficial recovery of methane. Specifically, EPA believes that Congress intended Section 124 to provide liability protection to owners and operators of equipment for the recovery or processing of methane with respect to all phases involved in landfill gas collection and methane processing. This includes any assistance (related to recovery or processing of methane) provided by the landfill gas equipment owner or operator to the landfill owner/operator for achieving compliance with the emission standards promulgated today or similar Federal, State, or local controls on landfill emissions. In general, Section 124 will be interpreted in a manner to provide owners and operators of equipment for the recovery or processing of methane with comprehensive protection from CERCLA liability, unless the release or threatened release was primarily caused by activities of the owners and operators of the equipment, or unless such owners or operators would be otherwise liable under CERCLA.

B. Energy and Economic Impacts of Promulgated Action

The energy and economic impacts are summarized in chapter 1 and fully discussed in chapter 3 and appendix A of the promulgation BID (EPA–453/R–94–021). The estimated impacts have changed somewhat as a result of changes in the final rules and changes in the impacts estimation methodology made in response to public comments.

1. Energy Impacts

Affected and designated landfills with NMOC emission rates of 50 Mg/yr or more are required to install a gas collection system and control device. The gas collection system would require a relatively small amount of energy to run the blowers and the pumps. If a flare is used for control, auxiliary fuel should not be necessary because of the high heat content of LFG, commonly 1.86×10^7 J/scm or more. If a recovery device such as an internal combustion (I.C.) engine or a gas turbine is used, an energy savings would result.

The EPA evaluated the overall energy impacts resulting from the use of flares, I.C. engines, or gas turbines for control of collected emissions at all affected landfills. The least cost control option was identified by taking the NPV costs of the three control options (flares, I.C. engines, and turbines), including any cost savings from the use of recovered landfill gas, and determining the option that costs the least. If landfills use the least cost control device, it is estimated that the NSPS will produce $170 million of energy revenue as NPV in 1992. The EG are estimated to generated $1.5 billion of energy revenue as NPV in 1992, if the least cost control device is used.

2. Control Costs and Economic Impacts

Nationwide annualized costs for collection and control of air emissions from new MSW landfills are estimated to be $4 million. The nationwide cost of the EG would be approximately $90 million. These values are annualized costs. Tables 1 and 2 present costs in both annualized and NPV values. In comparison to other solid waste-related rules, the nationwide costs of the recently promulgated RCRA Subtitle D (40 CFR 257 and 258) rule are estimated to be $300 million per year and the estimated nationwide costs of the MWC rules promulgated in 1991 are estimated to be $170 million per year for new combustors and $302 million per year for existing combustors (56 FR 5488 and 5514).

The incremental costs and benefits of the different options are presented in tables 3, 4, 5, and 6 in section VIII.E. For NMOC, the average cost effectiveness is approximately $1,200/Mg for both the NSPS and the EG. Preliminary economic analysis indicates that the annual cost of waste disposal may increase by an average of approximately $0.60 per Mg for the NSPS and $1.30 per Mg for the EG. Costs per household would increase approximately $2.50 to $5.00 per year, when the household is served by a new or existing landfill, respectively. Additionally, less than 10 percent of the households would face annual increases of $15 or more per household as a result of the final EG. However, the EPA anticipates that many landfills will elect to use energy recovery systems, and costs per household for those areas would be less. The EPA has concluded that households would not incur severe economic impacts. For additional information, please refer to the regulatory impact analysis (Docket No. A–88–09, Item No. IV–A–7) and chapter 3 of the promulgation BID (EPA–453/R–94–021).

VI. Significant Changes to the Proposed Standards and Emission Guidelines

All of the significant public comments received on the proposed standards and EG and the Notice of Data Availability are addressed in the promulgation BID (EPA–453/R–94–021). This section of the preamble reviews the major changes to the standards and EG resulting from public comments. A more detailed rationale for these changes is provided in chapters 1 and 2 of the promulgation BID (EPA–453/R–94–021).

A. Design Capacity Exemption

A design capacity exemption of 100,000 Mg was included in the proposed NSPS and EG to relieve owners and operators of small landfills that the EPA considered unlikely to emit NMOC above the emission rate cutoff requiring control from undue recordkeeping and reporting responsibilities. Commenters indicated that the exemption level was too low, and would still impact many small businesses and municipalities. In response to these comments and as a result of changes to the nationwide impacts analysis, the design capacity exemption in the final NSPS was revised to 2.5 million Mg. The 2.5 million Mg exemption level would exempt 90 percent of the existing landfills while only losing 15 percent of the total NMOC emission reduction. Most of the exempt landfills are owned

by municipalities. The 2.5 million Mg level was chosen to relieve as many small businesses and municipalities as possible from the regulatory requirements while still maintaining significant emission reduction.

This cutoff excludes those landfills who would be least able to afford the costs of a landfill gas collection and control system and are less likely to have successful energy recovery projects. However, depending on site-specific factors including landfill gas characteristics and local markets, some landfills smaller than the design capacity exemption level may be able to make a profit by installing collection and control systems that recover energy. While the rule does not require control of landfills smaller than 2.5 million Mg, the EPA encourages energy recovery in cases where it is profitable. The EPA has developed a Landfill Methane Outreach Program to encourage more widespread utilization of landfill gas as an energy source. Information can be obtained by calling the Landfill Methane Outreach Program Hotline at (202) 233–9042. Available publications are identified in section 1.2.1 of the promulgation BID.

Since some landfills record waste by volume and have their design capacities calculated in volume, the EPA also established an equivalent design capacity exemption of 2.5 million m^3 of waste. The density of solid waste within different landfills varies depending on several factors, including the compaction practices. Any landfill that reports waste by volume and wishes to establish a mass design capacity must document the basis for their density calculation.

B. Emission Rate Cutoff

Some commenters asserted that the proposed emission rate cutoff of 150 Mg/yr should be made more stringent, while others favored the proposal cutoff or higher. The commenters favoring the more stringent level indicated that the EPA's data on NMOC concentration, the benefits of energy recovery and reduced global warming, and the reduced health risks all supported an increased stringency level.

The Climate Change Action Plan, signed by the President in October, 1993, calls for EPA to promulgate a "tough" landfill gas rule as soon as possible. This initiative also supports a more stringent emission rate cutoff that will achieve greater emission reduction.

Due to the small-size exemption, only landfills with design capacities greater than 2.5 million Mg of waste or 2.5 million cubic meters of waste will be affected by this rule. It is estimated that a landfill of 2.5 million Mg design capacity corresponds to cities greater than about 125,000 people. On the whole, large landfills service areas with large population. A reasonable assumption is that many of these large landfills are in the 400 counties that have been designated as urban ozone nonattainment areas and are developing plans to address ozone nonattainment.

Finally, the new data and modeling methodologies, which were published in the Notice of Data Availability on June 21, 1993, significantly reduced the emission reduction and corresponding effectiveness of the rule. Therefore, a more stringent emission rate cutoff would achieve similar emission reductions at similar cost effectiveness to the proposed rule.

Based on all of these reasons, the EPA reevaluated the stringency level and chose an emission rate cutoff of 50 Mg/yr of NMOC for the final rules. This revision would affect more landfills than the proposal value of 150 Mg/yr of NMOC; however, the 50 Mg/yr of NMOC will only affect less than 5 percent of all landfills and is estimated to reduce NMOC emissions by approximately 53 percent and methane emissions by 39 percent. The 150 Mg/yr emission rate cutoff would have reduced NMOC emissions by 45 percent and methane emissions by 24 percent. The incremental cost effectiveness of control of going from a 150 Mg/yr cutoff level to a 50 Mg/yr cutoff level is $2,900/Mg NMOC reduction for new landfills and $3,300/Mg for existing landfills.

The values for NMOC cost effectiveness do not include any credit for the benefits for toxics, odor, explosion control, or the indirect benefit of methane control. A revised cost effectiveness could be calculated with an assumed credit value for one or more of the other benefits. As an example, assuming a $30/Mg credit for the methane emission reduction, the incremental cost effectiveness from the proposal cutoff of 150 Mg/yr to the final cutoff of 50 Mg/yr would be reduced to $660/Mg NMOC.

C. Collection System Design Specifications

Commenters indicated that the proposed design specifications for the collection system were overly prescriptive, discouraged innovation, and did not prevent off-site migration of LFG. In the new § 60.759 for design specifications, certain criteria still require proper landfill gas collection; however, the proposed design specifications for the LFG collection system were removed from the final regulations. Instead, the final rule allows sources to design their own collection systems. Design plans must meet certain requirements and be signed by a registered professional engineer, and are subject to agency approval. These changes were made to provide flexibility and encourage technological innovation.

D. Timing for Well Placement

The proposed regulations required the installation of collection wells at applicable landfills within 2 years of initial waste placement. Commenters indicated that the installation of wells within 2 years was not practiced at many landfills, because many cells were still active (receiving waste) 2 years after initial placement. Collection wells installed at these cells would have to be covered over, which would decrease the operational life of the well and be costly and inefficient.

The proposed timing for the placement of collection wells has been revised to reduce costs and better coincide with common operational practices at MSW landfills. The final regulation allows for well installation up to 5 years from initial waste placement for active cells. An area that reaches final grade or closure must install collection wells within 2 years of initial waste placement.

E. Operational Standards

In response to commenters concerns about the operation of collection systems, the final NSPS contains a new section, § 60.753, "Operational Standards for Collection and Control Equipment." Various operational provisions that had previously been located throughout the proposed rule have been organized under this one section, and new provisions on collection and control systems have been added. The new section addresses the following areas: (1) Collection of gas from active areas containing solid waste older than 5 years (changed from 2 years at proposal); (2) operation of the collection system with negative pressure at each wellhead (except as noted in the rule); (3) operation of the collection system with a landfill temperature less than 55° (or a higher established temperature) and either an N_2 level less than or equal to 20 percent or an O_2 level less than or equal to 5 percent; (4) operation of the collection system with a surface concentration less than 500 ppm methane; (5) venting all collected gases to a treatment or control device; and (6) operation of the treatment or control device at all times when the collected gas is routed to the control device. The numerical requirements (for the N_2 or O_2 levels, landfill temperature,

and surface concentration) are new requirements that will verify that the system is being adequately operated and maintained. In conjunction with the new operational provisions, the compliance, testing and monitoring sections were revised to reference and support these new or relocated provisions.

F. Surface Emission Monitoring

Numerous commenters asserted that the proposed rules did not address surface methane emissions resulting from insufficient well spacing or from breaks in the cover material. The commenters recommended that monitoring of surface emissions be required to ensure the proper operation of collection system equipment. Upon further analysis, the EPA decided to require surface emission monitoring and the maintenance of negative pressure at all wells, except under specified conditions, to ensure proper collection system design and operation. Based on information submitted by commenters, a maximum surface concentration of 500 ppm methane should be demonstrated to indicate proper operation of the collection system. Monitoring is to be done quarterly, with provisions for increasing monitoring and corrective procedures if readings above 500 ppm are detected. Instrumentation specifications, monitoring frequencies, and monitoring patterns have been structured to provide clear and straightforward procedures that are the minimum necessary to assure compliance.

G. Model Default Values

The EPA received additional data after proposal on the model defaults that were included in the tier system calculations. These default values are used to calculate whether the NMOC concentration is above the cutoff level for control requirements of 50 Mg/yr. The new information received lead the EPA to revise the default values for the site-specific methane generation rate constant (k), the methane generation potential (L_o), and the NMOC concentration (C_{NMOC}). In the absence of site-specific data, the landfill owner or operator would use the default values for k, L_o, and C_{NMOC} in order to estimate the annual NMOC emission rate. More information on the model defaults may be found in the final BID (EPA–453/R–94–021) and the memorandum "Documentation of Small-Size Exemption Cutoff Level and Tier 1 Default Values (Revised)," October 21, 1993, (Docket No. A–88–09, Item No. IV–B–5).

The Tier 1 default values of k, Lo, 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 recommended that these default values not 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 and other purposes.

VII. Permitting

A. New Source Review Permits

Today's rulemaking under section 111(b) establishes a new classification of pollutants subject to regulation under the CAA: "MSW landfill emissions." Therefore, PSD rules now apply to all subject stationary sources which have increases in landfill gas above the significance level, 50 tpy or more of NMOC. Landfills below the 2.5 million Mg design capacity exemption, which are not required by the regulations to install controls, may exceed this significance level. In this case, the State will need to determine if controls should be installed for purposes of PSD or NSR compliance.

The proposed significance level for MSW landfill emissions of 40 tpy of NMOC was changed to 50 tpy after consideration of public comments. The PSD significance level for VOC emissions is 40 tpy. At proposal, the landfill gas emission level was set at 40 tpy of NMOC to be consistent with the 40 tpy level for VOC. However, NMOC contains organic compounds that are not VOC. An NMOC emission rate of roughly 50 tpy corresponds to a VOC emission rate of 40 tpy.

The components of MSW landfill emissions that are regulated as pollutants or precursors of an air pollutant listed under section 108 of the CAA are also regulated by other provisions of CAA as applicable. For example, the components of MSW landfill emissions that are emitted as photochemically reactive VOCs are regulated, as applicable, under the nonattainment provisions for ozone contained in part D of title I of the CAA.

B. Operating Permits

Section 502 of the CAA and § 70.3(a) require any source subject to standards or regulations under section 111 of the CAA to obtain part 70 operating permits. However, landfills below 2.5 million Mg design capacity are not subject to standards under section 111 because they are not required to put on controls and are not subject to emission limits. These landfills are subject to a reporting requirement under the section 111 rule; however, this requirement determines applicability of the standard and does not make them "subject" for the purposes of part 70. Consequently, landfills below 2.5 million Mg design capacity are not subject to part 70, provided they are not major sources; and this is stated in § 60.752(a) of the rule. If landfills below 2.5 million Mg design capacity are major sources, they must obtain a part 70 permit under the same deadlines and requirements that apply to any other major source. States may request additional information to verify whether landfills have the potential to emit at major source levels.

For landfills above the 2.5 million Mg design capacity exemption, part 70 operating permits are required. These landfills are subject to emission limits and will most often be major sources. Since landfill emissions increase over time, a landfill over 2.5 million Mg may not be major in the beginning; however, as the landfill progresses to capacity, it may become major. Many of the landfills above the 2.5 million Mg exemption will be required to collect and control the gas under the regulation. The issuance of a permit will also help enforce and implement the standard. Therefore, the EPA has decided to require permits for all landfills with design capacities above 2.5 million Mg, whether or not the landfill will be required to install a collection and control system.

The regulation also provides for termination of operating permits. Landfill emissions, unlike emissions from other source categories, decrease over time after the landfill is closed. If a landfill has closed and a control system was never required or the conditions for control system removal specified in the regulation have been met, an operating permit is no longer necessary.

VIII. Administrative Requirements

A. Docket

The docket (Docket No. A–88–09) is an organized and complete file of all the information considered by the EPA in the development of this rulemaking. The docket is a dynamic file, since material is added throughout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they can effectively participat in the rulemaking process. Along with

the statement of basis and purpose of the proposed and promulgated standards and the EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review [section 307(d)(7)(A)].

B. Paperwork Reduction Act

The information collection requirements in this rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. An Information Collection Request (ICR) document has been prepared by the EPA (ICR No. 1557.03) and a copy may be obtained from Sandy Farmer, OPPE Regulatory Information Division; U.S. Environmental Protection Agency (2137); 401 M St., S.W.; Washington, DC 20460, or by calling (202) 260–2740. The information requirements are not effective until OMB approves them.

The information required to be collected by this rule is necessary to identify the regulated entities who are subject to the rule and to ensure their compliance with the rule. The recordkeeping and reporting requirements are mandatory and are being established under authority of section 114 of the Act. All information submitted as part of a report to the Agency for which a claim of confidentiality is made will be safeguarded according to the Agency policies set forth in title 40, chapter 1, part 2, subpart B—Confidentiality of Business Information (see 40 CFR 2; 41 FR 36902, September 1, 1976, amended by 43 FR 39999, September 28, 1978; 43 FR 42251, September 28; 1978; 44 FR 17674, March 23, 1979).

The total annual reporting and recordkeeping burden for this collection, averaged over the first 3 years of the NSPS applicability to new MSW landfills, is estimated to be 3,379 person hours per year. This is the estimated burden for 299 respondents (e.g., MSW landfill owners/operators) per year, at an estimated annual reporting and recordkeeping burden averaging 11.3 hours per respondent. The rule requires an initial one-time notification of landfill design capacity. If the landfill is larger than the design capacity cutoff, annual reports are required. The capital cost to purchase required monitoring equipment is $8,100 per monitor. The total annualized capital and startup costs for purchase of monitoring equipment are $80,250. The total national annual cost burden including all labor costs and annualized capital costs for recordkeeping and reporting is $188,850.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

C. Executive Order 12866

Under Executive Order 12866, (58 FR 51735 (October 4, 1993)) the EPA must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may: (1) Have an annual effect on the economy of $100 million or more or adversely effect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or Tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles met forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the public record.

D. Executive Order 12875

To reduce the burden of Federal regulations on States and small governments, the President issued E.O. 12875 on October 26, 1993. Under E.O. 12875, the EPA is required to consult with representatives of affected State, local, and tribal governments. Because this regulatory action imposes costs to the private sector and government entities in excess of $100 million per year, the EPA pursued the preparation of an unfunded mandates statement, consultations, and other requirements of the Unfunded Mandates Reform Act. The requirements are met as presented under the following unfunded mandates section (section VIII.E of this notice).

E. Unfunded Mandate Reform Act

Under section 202 of the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Act"), signed into law on March 22, 1995, the EPA must prepare a statement to accompany any rule where the estimated costs to State, local, or tribal governments, or to the private sector, will be $100 million or more per year. Section 203 requires the Agency to establish a plan for informing and advising any small governments that may be significantly or uniquely affected by the rule. Section 204 requires that the Agency "to the extent permitted in law, develop an effective process to permit elected officers of State, local, and tribal governments * * * to provide meaningful and timely input in the development of regulatory proposals containing significant Federal intergovernmental mandates". Under section 205(a), the EPA must select the "least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule" and is consistent with statutory requirements.

The unfunded mandates statement under section 202 must include: (1) A citation of the statutory authority under which the rule is proposed, (2) an assessment of the costs and benefits of the rule including the effect of the mandate on health, safety and the environment, and the Federal resources available to defray the costs, (3) where feasible, estimates of future compliance costs and disproportionate impacts upon particular geographic or social segments of the nation or industry, (4) where relevant, an estimate of the effect on the national economy, and (5) a description of the EPA's consultation with State, local, and tribal officials.

Because this rule is estimated to impose costs to the private sector and governments entities in excess of $100 million per year (based on tenth or fifteenth year annualized values), it is considered a significant regulatory action.

The EPA has thus prepared the following statement with respect to sections 202 through 205 of the Unfunded Mandates Act.

1. Statutory Authority

As discussed in section II of this preamble, the statutory authority for this rulemaking is section 111 of the CAA. The rule establishes emission guidelines

for existing MSW landfills and standards of performance for new MSW landfills. Section 111(a)(1) of the requires that standards of performance for new sources reflect the—

> * * * degree of emission limitation and the percentage reduction achievable through application of the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

Section 111(d) requires emission guidelines for existing sources to reflect a similar degree of emission reduction. These systems are referred to as BDT for new and existing sources.

Properly operated gas collection and control systems achieving 98 percent emission reduction have been demonstrated on landfills of the size affected by the standards and EG, and represent BDT. Control technologies and their performance are discussed in the preamble to the proposed rules (56 FR 24476, May 30, 1991).

In selecting BDT, the EPA also considered which landfills should be required to apply collection and control systems. A range of landfill design capacity and emission rate cutoffs were evaluated, as described below in section 2.b "Regulatory Alternatives Considered." The promulgated standards contain a design capacity exemption of 2.5 million Mg or 2.5 million cubic meters and an emission rate cutoff of 50 Mg NMOC/yr.

The EPA considered emission reduction, costs, and energy requirements, as required by the statutory language of section 111 of the CAA, in selecting the promulgated standards and EG. The promulgated standards represent BDT. They achieve significant reductions in landfill gas emissions—a 53 percent reduction in NMOC emissions, and a 39 percent reduction in methane reduction emissions nationwide. The cost impacts of the standards are presented in section V.B and in section VII.E.2 (below). The public entities and affected industries who were consulted, as required by the Unfunded Mandates Reform Act, understand the cost impacts and support the final rules (see Section 4, "Consultation with Government Officials" below). The energy impacts are discussed in section V.B of this notice. To the extent energy recovery devices are used to comply with the rules, the rules will result in a net energy savings (production of energy).

Compliance with section 205(a): Regarding the EPA's compliance with section 205(a), the EPA did identify and consider a reasonable number of alternatives, and presents a summary of these below. The EPA has chosen to adopt the alternative with a size cutoff of 2.5 million Mg capacity, and 50 Mg/yr emissions. The incremental cost effectiveness of this 50 Mg/yr option is $6,250 per ton of NMOC reduced (versus the less stringent 75 Mg/yr option). This cost effectiveness is much higher than is typical for NMOC (or VOC) controls in NSPSs. However, the EPA also considers the reductions in methane achieved by this 50 Mg/yr option as necessary to "achieve the objectives" of section 111. The additional methane reductions achieved by this option are also an important part of the total carbon reductions identified under the Administration's 1993 Climate Change Action Plan. The EPA thus concludes that the chosen alternative is the most cost-effective to achieve the objectives of section 111, as called for in section 205(a).

2. Social Costs and Benefits

This assessment of the cost and benefits to State, local, and tribal governments of the guidelines is based on EPA's "Economic Impact Analysis for Proposed Emission Standards and Guidelines for Municipal Solid Waste Landfills" and updates to the analysis contained in "Air Emissions from Municipal Solid Waste Landfills—Background Information for Final Standards and Guidelines" (EPA–453/R–94–021). Measuring the social costs of the guidelines requires identification of the affected entities by ownership (public or private), consideration of regulatory alternatives, calculation of the regulatory compliance costs for each affected entity, and assessment of the market implications of the additional pollution control costs. Considering the social benefits of the guidelines requires estimating the anticipated reductions in emissions at MSW landfills due to regulation and identifying the harmful effects of exposure to MSW landfill emissions. Quantitative valuation of the expected benefits to society was not done for this rule.

a. *Affected Entities.* The standards of performance for new sources will require control of approximately 43 new landfills constructed in the first 5 years the standards are in effect. The EG will require control of approximately 312 existing landfills. This represents less than 5 percent of the total number of landfills in the U.S.

Of the landfills required to install controls, about 30 percent of the existing landfills and 20 percent of the new landfills are privately owned. The remainder are publicly owned. (These percentages are taken from section 3.2.1 of the promulgation BID (EPA–453/R–94–021). While that analysis used a design capacity exemption level of 1 million Mg rather than the 2.5 million Mg exemption level contained in the final rule, the percentage of private versus publicly owned landfills would be similar.

b. *Regulatory Alternatives Considered.* Under section 205 of the Unfunded Mandates Act, the Agency must identify and consider a reasonable number of regulatory alternatives before promulgating a rule for which a budgetary impact statement must be prepared. The Agency must select from those alternatives the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the rule, unless the Agency explains why this alternative is not selected or the selection of this alternative is inconsistent with the law.

A number of alternatives were considered. These included design capacity exemption levels of 1, 2.5, and 3 million Mg and emission rate cutoffs of 50, 75, 100, and 150 Mg/year. Table 3 presents the impacts of alternative design capacity exemption levels for existing landfills. Table 4 presents the impacts of alternative emission rate cutoffs for existing landfills. Tables 5 and 6 present alternative design capacity exemption levels and emission rate cutoffs for new landfills.

TABLE 3.—ALTERNATIVE DESIGN CAPACITY EXEMPTION LEVEL OPTIONS FOR THE EMISSION GUIDELINES [a,b]

Small size cutoff (millions Mg)	Number landfills affected	Annual[c] NMOC emission reduction (Mg/yr)	Annual[d] methane emission reduction (Mg/yr)	Annual cost (million $/yr)	NMOC average cost eff. ($/Mg)	NMOC Incremental cost eff. ($/Mg)
Baseline[e]						
3,000,000	273	73,356	3,220,000	84	1,145	45

TABLE 3.—ALTERNATIVE DESIGN CAPACITY EXEMPTION LEVEL OPTIONS FOR THE EMISSION GUIDELINES[a,b]—Continued

Small size cutoff (millions Mg)	Number landfills affected	Annual[c] NMOC emission reduction (Mg/yr)	Annual[d] methane emission reduction (Mg/yr)	Annual cost (million $/yr)	NMOC average cost eff. ($/Mg)	NMOC Incremental cost eff. ($/Mg)
2,500,000	312	77,600	3,370,000	89	1,147	1,178
1,000,000	572	97,600	3,990,000	119	1,219	1,500
No cutoff[f]	7,299	142,000	8,270,000	719	5,063	13,514

[a] Emission rate cutoff level of 50 Mg NMOC/yr.
[b] All values are fifth year annualized.
[c] NMOC emission reductions are from a baseline of 145,000 Mg NMOC/yr.
[d] Methane emission reductions are from a baseline of 8,400,000 Mg methane/yr.
[e] In the absence of an emission guidelines.
[f] No emission rate cutoff and no design capacity exemption level.

TABLE 4.—ALTERNATIVE NMOC EMISSION RATE STRINGENCY LEVEL OPTIONS FOR THE EMISSION GUIDELINES[a,b]

Emission rate cutoff (Mg NMOC/yr)	Number landfills affected	Annual[c] NMOC emission reduction (Mg/yr)	Annual[d] methane emission reduction (Mg/yr)	Annual cost (million $/yr)	NMOC average cost eff. ($/Mg)	NMOC Incremental cost eff. ($/Mg)
Baseline[e]						
150	142	66,600	2,210,000	51	766	766
100	201	72,700	2,720,000	66	908	2,459
75	250	76,000	3,080,000	79	1,039	3,939
50	312	77,600	3,370,000	89	1,147	6,250
No cutoff[f]	7,299	142,000	8,270,000	719	5,063	9,783

[a] Design capacity exemption level of 2,500,000 Mg of refuse.
[b] All values are fifth year annualized.
[c] NMOC emission reductions are from a baseline of 145,000 Mg NMOC/yr.
[d] Methane emission reductions are from a baseline of 8,400,000 Mg methane/yr.
[e] In the absence of an emission guidelines.
[f] No emission rate cutoff and no design capacity exemption level.

TABLE 5.—ALTERNATIVE DESIGN CAPACITY EXEMPTION LEVEL OPTIONS FOR THE NEW SOURCE PERFORMANCE STANDARDS[a,b]

Small size cutoff (millions Mgr)	Number landfills affected	Annual[c] NMOC emission reduction (Mg/yr)	Annual[d] methane emission reduction (Mg/yr)	Annual[e] cost (million $/yr)	NMOC average cost eff. ($/Mg)	NMOC[f] Incremental cost eff. ($/Mg)
Baseline[g]						
3,000,000	41	4,900	193,000	4	816	N/A
2,500,000	43	4,900	193,000	4	816	N/A
1,000,000	89	4,900	193,000	4	816	N/A
No cutoff[h]	872	13,115	881,000	81	6,176	N/A

[a] Emission rate cutoff level of 50 Mg NMOC/yr.
[b] All values are fifth year annualized.
[c] NMOC emission reductions are from a baseline of 13,400 Mg NMOC/yr.
[d] Methane emission reductions are from a baseline of 899,000 Mg methane/yr.
[e] Due to rounding off to the nearest million dollar, cost values do not appear to change for each option. However, actual costs are slightly less for a less stringent option.
[f] Because the annual cost does not change enough to show a different cost from one option to the next, incremental cost effectiveness values are not applicable.
[g] In the absence of a standard.
[h] No emission rate cutoff and no design capacity exemption level.

TABLE 6.—ALTERNATIVE NMOC EMISSION RATE STRINGENCY LEVEL OPTIONS FOR THE NEW SOURCE PERFORMANCE STANDARDS[a,b]

Emission rate cutoff (Mg NMOC/yr)	Number landfills affected	Annual[c,d] NMOC emission reduction (Mg/yr)	Annual[c,e] methane emission reduction (Mg/yr)	Annual[f] cost (million $/yr)	NMOC average cost eff. ($/Mg)	NMOC[g] Incremental cost eff. ($/Mg)
Baseline[h]						
150	14	5,200	187,000	4	769	NA
100	25	5,100	203,000	4	784	NA
75	33	5,000	194,000	4	800	NA

TABLE 6.—ALTERNATIVE NMOC EMISSION RATE STRINGENCY LEVEL OPTIONS FOR THE NEW SOURCE PERFORMANCE STANDARDS [a,b]—Continued

Emission rate cutoff (Mg NMOC/yr)	Number landfills affected	Annual [c,d] NMOC emission reduction (Mg/yr)	Annual [c,e] methane emission reduction (Mg/yr)	Annual [f] cost (million $/yr)	NMOC average cost eff. ($/Mg)	NMOC incremental cost eff. ($/Mg)
50	43	4,900	193,000	4	816	NA
No Cutoff [i]	872	13,115	881,000	81	6,176	NA

[a] Design capacity exemption level of 2,500,000 Mg of refuse.
[b] All values are fifth year annualized.
[c] Because of the small number of landfills and the longer time period of control for a given landfill at a more stringent option, the average annual emission reduction appears to decrease for a more stringent option. However, the emission reduction for a given year increase for more stringent options.
[d] NMOC emission reductions are from a baseline of 13,400 Mg NMOC/yr.
[e] Methane emission reductions are from a baseline of 899,000 Mg NMOC/yr.
[f] Due to rounding off to the nearest million dollar, cost values do not appear to change for each option. However, actual costs are slightly less for a less stringent option.
[g] Because the annual cost does not change enough to show a different cost from one option to the next, incremental cost effectiveness values are not applicable.
[h] In the absence of a standard.
[i] No emission rate cutoff and no design capacity exemption level.

The design capacity cutoff of 2.5 million Mg or 2.5 million cubic meters was chosen as a result of changes to the nationwide impacts analysis and to relieve as many small businesses and municipalities as possible from the regulatory requirements while still maintaining significant emission reduction. The 2.5 million Mg cutoff level exempts landfills that serve populations of less than about 125,000 people from periodic reporting and control requirements. This cutoff excludes those landfills who would be least able to afford the costs of a landfill gas collection and control system. A less stringent design capacity exemption level (e.g., 3 million Mg) was not selected because it would result in less emissions reductions. A more stringent design capacity exemption level (e.g., 1 million Mg) was not selected because it would increase the number of landfills required to apply control by over 80 percent (572 vs. 312 existing landfills) while only achieving an additional 25 percent NMOC emission reduction (see table 3). It would also increase national costs and subject smaller government entities to the regulatory requirements, since smaller governments typically operate smaller landfills.

The emission rate cutoff of 50 Mg/yr of NMOC was chosen because, in conjunction with the 2.5 million Mg design capacity cutoff, it will require control of less than 5 percent of all landfills, yet is estimated to reduce NMOC emissions by approximately 53 percent and methane emissions by 39 percent. The Climate Change Action Plan, signed by the President in October 1993, calls for the EPA to promulgate a "tough" landfill gas rule as soon as possible.

The average cost effectiveness is about $1,150/Mg NMOC (see table 4). While the incremental cost effectiveness for NMOC control of going from a cutoff of 75 Mg/yr to a 50 Mg/yr cutoff is high ($6,250/Mg NMOC), this value does not include any credit for the benefits of toxics, odor, explosion control, or the indirect benefit of methane control. The economic analysis indicated that the final rule (including the 50 Mg/yr cutoff level) would cause a relatively small increase in waste disposal costs compared to the current costs and would not result in severe economic impacts on households (see section C. "Social Costs" below).

A more stringent option (e.g., no cutoff) was not chosen because the average and incremental cost and cost effectiveness was not reasonable (see table 4). Less stringent emission rate cutoff levels were not chosen because they result in less NMOC and methane reduction, and would not be consistent with the section 111 statutory requirement to base emission standards on BDT.

The public entities with whom the EPA consulted understood the EPA's concerns regarding the loss of emission reductions by changing the proposed capacity exemption level from 100,000 Mg to 5 million Mg and agreed that 2.5 million relieved 90 percent of the landfills from the burden of regulation and was reasonable.

c. *Social Costs.* The regulatory compliance costs of reducing air emissions from MSW landfills include the total and annualized capital costs; operating and maintenance costs; monitoring, inspection, recordkeeping, and reporting costs; and total annual costs. The annualized capital cost is calculated using a 7 percent discount rate. The total annual cost is calculated as the sum of the annualized capital cost; operating and maintenance costs; and the monitoring, inspection, recordkeeping, and reporting costs.

The total nationwide annualized cost for collection and control of air emissions from new MSW landfills are estimated to be $4 million. The nationwide costs of the EG for existing landfills is estimated to be about $90 million. The annual cost of waste disposal is estimated to increase by average of $0.60/Mg for the NSPS and $1.30/Mg for the EG. Costs per household would increase by approximately $2.50 to $5.00 per year for households served by a new or existing landfill, respectively, that is required to install a collection and control system. Because the rule requires control of only about 5 percent of the landfills in the U.S. many households would experience no increase in disposal costs. Furthermore, if affected landfills choose to use energy recovery systems, the cost per household in those areas would be less. The EPA has concluded that households would not incur severe economic impacts. For additional information, please refer to the regulatory impacts analysis (Docket No. A–88–09, Item IV-A–7) and chapter 3 of the promulgation BID (EPA–453/R–94–021). There are no Federal funds available to assist State and local governments in meeting these costs.

d. *Social Benefits.* Society will benefit from the NSPS and EG through the reduction of landfill gas emissions, including NMOC and methane reductions. The total nationwide annualized emission reduction of the EG is estimated to be 77,600 Mg/yr NMOC and 3,370,000 Mg/yr of methane.

The total nationwide annualized emission reduction for the NSPS is about 4,900 Mg/yr of NMOC and 1,000 Mg/yr of methane.

The NMOC's present several hazards to human health. The NMOC's participate in chemical reactions leading to the formation of ozone, which causes health effects. Also, certain NMOC's have cancer risks and cause noncancer health effects.

Ozone is created by sunlight acting on NO_X and NMOC's in ambient air. Ozone leads to alterations in pulmonary function, aggravation of pre-existing respiratory disease, damage to lung structure, and adverse effects on blood enzymes, the central nervous system, and endocrine systems. Ozone also warrants control due to its welfare effects, specifically, reduced plant growth, decreased crop yield, necrosis of plant tissue, and deterioration of certain synthetic materials such as rubber (Docket No. A–88–09, Item Nos. II-A–26, II-I–16, etc.).

There is also concern about cancer risks from landfill NMOC emissions. In reviewing limited emissions data from MSW landfills, EPA identified both known and suspected carcinogens such as benzene, carbon tetrachloride, chloroform, ethylene dichloride, methylene dichloride, perchloroethylene, trichloroethylene, vinyl chloride, and vinylidene chloride. Prior to proposal, the EPA attempted to apply statistical methods to the limited data to generate the average annual increased cancer incidence and the maximum individual risk (MIR). In evaluating the result of the calculations for annual incidence and MIR, the EPA could not determine reasonable estimates of either an annual incidence or the MIR. The EPA concluded, at proposal, that the uncertainties in the database are too great to calculate credible estimates of the cancer risks associated with MSW landfills.

Another benefit of the NSPS and EG is reduced fire explosion hazard through reduction of methane emissions. The EPA has documented many cases of acute injury and death caused by explosions and fires related to municipal landfill gas emissions. In addition to these health effects, the associated property damage is a welfare effect. Furthermore, when the migration of methane and the ensuring hazard are identified, adjacent property values can be adversely affected (Docket No. A–88–09, Item Nos. II–I–6, II–I–7, etc.)

Another aspect of MSW landfill emissions is the offensive odor associated with landfills. While the nature of the wastes themselves contribute to the problem of odor, the gaseous decomposition products are often characteristically malodorous and unpleasant. Various welfare effects may be associated with odors, but due to the subjective nature of the impact and perception of odor, it is difficult to quantify these effects. Studies indicate that unpleasant odors can discourage capital investment and lower the socioeconomic status of an area. Odors have been shown to interfere with daily activities, discourage facility use, and lead to a decline in property values, tax revenues, and payroll (Docket No. A–88–09, Item Nos. II–I–6, II–I–7, etc.)

An ancillary benefit from regulating air emissions from MSW landfills is a reduction in the contribution of MSW landfill emissions to global emissions of methane. Methane is a major greenhouse gas, and is 20 to 30 times more potent than CO_2 on a molecule-per-molecule basis. This is due to the radiative characteristics of methane and other effects methane has on atmospheric chemistry. There is a general concern within the scientific community that the increasing emissions of greenhouse gases could lead to climate change, although the rate and magnitude of these changes are uncertain.

In conclusion, while the social benefits of the rule have not been quantified, significant health and welfare benefits are expected to result from the reduction in landfill gas emissions caused by the rule.

3. Effects on the National Economy

The Unfunded Mandates Act requires that the EPA estimate "the effect" of this rule—

> "on the national economy, such as the effect on productivity, economic growth, full employment, creation of productive jobs, and international competitiveness of the U.S. goods and services, if and to the extent that the EPA in its sole discretion determines that accurate estimates are reasonably feasible and that such effect is relevant and material."

As stated in the Unfunded Mandates Act, such macroeconomic effects tend to be measurable, in nationwide econometric models, only if the economic impact of the regulation reaches 0.25 to 0.5 percent of gross domestic product (in the range of $1.5 billion to $3 billion). A regulation with a smaller aggregate effect is highly unlikely to have any measurable impact in macroeconomic terms unless it is highly focused on a particular geographic region or economic sector. For this reason, no estimate of this rule's effect on the national economy has been conducted.

4. Consultation with Government Officials

The Unfunded Mandates Act requires that the EPA describe the extent of the EPA's consultation with affected State, local, and tribal officials, summarize the officials' comments or concerns, and summarize the EPA's response to those comments or concerns. These goals were addressed through meetings held with a number of public entities over the course of six months. Those entities included the US Conference of Mayors, the National League of Cities, the National Governor's Association, the National Association of Counties, and the Solid Waste Association of North America (SWANA). Through these meetings, these entities were informed of the rule, educated about it, and advised as to whether or not they would be impacted by it. These initial education and information sharing meetings were followed by meetings in which consultations and analysis of various alternatives took place. Documentation of all meetings and public comments can be found in Docket A–88–09.

Various concerns were discussed during the meetings. These concerns included: (1) The design capacity cutoff; (2) collection wells, their costing and installation requirements; (3) design specifications for collection systems; (4) well head nitrogen measurement of 20 percent; and (5) the surface monitoring requirements.

As a result of these consultations, the EPA decided to modify the final regulatory package to address these concerns. In the final regulatory package promulgated today: (1) The design capacity cutoff has been raised from the proposed level of 100,000 to 2.5 million Mg; (2) Changes were made to the way the costing algorithm calculates the number of vertical collection wells. The rule was also changed to require active areas to install wells 5 years from initial waste placement instead of 2 years. Closed areas or areas at final grade must install a collection system within 2 years; (3) Prescriptive design specifications have been removed from the rule and replaced with general criteria. The EPA is developing an Enabling Document to assist State and local permitting agencies in their review of designs; (4) Well head pressure monitoring can meet either 20 percent nitrogen or 5 percent oxygen; (5) Surface monitoring is to be done quarterly instead of monthly, not to exceed 500 ppm methane above background.

These changes were made in response to consultations held regarding burden of the regulation and as a result of new

data presented by the entities with whom the EPA met. A letter from the Solid Waste Management of North America and SWAC to the EPA demonstrates their support of this decision. Detailed summaries of the meetings and the letter can be obtained from the Docket A–88–09.

Documentation of the EPA's consideration of comments on the proposed standards and guidelines is provided in the BID's for the proposed and final standards and guidelines. Refer to the **ADDRESSES** section of this preamble for information on how to acquire copies of these documents.

The final rule reflects a minimization of burden on small landfills and does not create an unreasonable burden for large public entities. The EPA has considered the purpose and intent of the Unfunded Mandate Act and has determined the landfill NSPS and EG are needed.

F. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires the EPA to give special consideration to the impact of regulation on small businesses, small organizations, and small governmental units. The Regulatory Flexibility Act specifies that EPA must prepare an initial regulatory flexibility analysis if a regulation will have a significant economic impact on a substantial number of small entities.

Pursuant to section 605(b) of the Regulatory Flexibility Act, 5 U.S.C. 605(b), the Administrator certifies that this rule will not have a significant economic impact on a substantial number of small entities.

The final NSPS and Eg exempt small landfills that have a design capacity below 2.5 million Mg of MSW. This design capacity exemption will exempt landfills that serve communities of 125,000 people or less, assuming the typical waste generation rate of 5 lb of waste per person per day and an average landfill age of 20 years. Section 601 of the Regulatory Flexibility Act defines a "small governmental jurisdiction" as governments of cities, counties, towns, or other districts with a population less than 50,000. The design capacity exemption will exempt landfills that serve small governmental jurisdictions. Therefore, the landfills NSPS and EG will have no impact on small entities.

The NSPS and EG will require periodic emissions calculations or control of emissions from only the largest 10 percent of landfills in the U.S. By controlling these large landfills, the rules will significantly reduce landfill gas emissions, which have adverse effects on human health and welfare, contribute to global warming, and can create odors and explosion hazards. In consideration of the potential regulatory burden on small entities and in response to public comment, the landfill design capacity in the proposed rule was raised to 2.5 million Mg/yr, thereby exempting small entities.

G. Miscellaneous

The effective date of this regulation is March 12, 1996. Section 111(b)(1)(B) of the CAA provides that standards of performance or revisions thereof become effective upon promulgation and apply to affected facilities of which the construction or modification was commenced after the date of proposal, May 31, 1991.

As prescribed by section 111, the promulgation of these standards was preceded by the Administrator's determination that MSW landfills contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare. In accordance with section 117 of the CAA, publication of these promulgated standards was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies.

This regulation will be reviewed 4 years from the date of promulgation as required by the CAA. This review will include an assessment of such factors as the need for integration with other programs, the existence of alternative methods, enforceability, improvements in emission control technology, and reporting requirements.

Section 317 of the CAA requires the Administrator to prepare an economic impact assessment for any NSPS promulgated under section 111(b) of the CAA. An economic impact assessment was prepared for this regulation and for other regulatory alternatives. All aspects of the assessment were considered in the formulation of the standards to ensure that cost was carefully considered in determining the BDT. The economic impact assessment is included in the BID for the proposed standards and in Chapter 3 of the promulgation BID.

List of Subjects

40 CFR Part 51

Environmental protection, Air pollution control.

40 CFR Part 52

Air pollution control.

40 CFR Part 60

Environmental protection, Air pollution control, Intergovernmental relations, reporting and recordkeeping requirements, Municipal solid waste landfills, Municipal solid waste.

Dated: March 1, 1996.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, title 40, chapter 1, parts 51, 52 and 60 of the Code of Federal Regulations are amended as follows:

PART 51—REQUIREMENTS FOR PREPARATION, ADOPTION AND SUBMITTAL OF IMPLEMENTATION PLANS

1. The authority citation for part 51 continues to read as follows:

Authority: 7401–7671q.

2. Section 51.166(b)(23)(i) is amended by adding an entry to the end of the *Pollutant and Emission Rate* list to read as follows:

§ 51.166 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(23) * * *

(i) * * * Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

* * * * *

PART 52—APPROVAL AND PROMULGATION OF IMPLEMENTATION PLANS

3. The authority citation for part 52 continues to read as follows:

Authority: 42 U.S.C. 7401–7671q.

4. Section 52.21(b)(23)(i) is amended by adding an entry to the end of the *Pollutant and Emission Rate* list to read as follows:

§ 52.21 Prevention of significant deterioration of air quality.

* * * * *

(b) * * *

(23) * * *

(i) * * * Municipal solid waste landfills emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

* * * * *

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

5. The authority citation for part 60 continues to read as follows:

Authority: 42 U.S.C. 7401, 7411, 7414, 7416, and 7601.

6. Section 60.16 of subpart A is amended by adding an entry to the end to read under *Other Source Cate ss* as follows:

§ 60.16 Priority list.

* * * * *

Other Source Categories

* * * * *

Municipal solid waste landfills.[4]

* * * * *

7. Section 60.30 is amended by adding a new paragraph (c) to read as follows:

§ 60.30 Scope.

* * * * *

(c) Subpart Cc—Municipal Solid Waste Landfills.

8. Part 60 is further amended by adding the Subpart Cc to read as follows:

Subpart Cc—Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

Sec.

Subpart Cc—Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills

§ 60.30c Scope.

This subpart contains emission guidelines and compliance times for the control of certain designated pollutants from certain designated municipal solid waste landfills in accordance with section 111(d) of the Act and subpart B.

§ 60.31c Definitions.

Terms used but not defined in this subpart have the meaning given them in the Act and in subparts A, B, and WWW of this part.

Municipal solid waste landfill or *MSW landfill* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill or a lateral expansion.

[4] Not prioritized, since an NSPS for this major source category has already been promulgated.

§ 60.32c Designated facilities.

(a) The designated facility to which the guidelines apply is each existing MSW landfill for which construction, reconstruction or modification was commenced before May 30, 1991.

(b) Physical or operational changes made to an existing MSW landfill solely to comply with an emission guideline are not considered a modification or reconstruction and would not subject an existing MSW landfill to the requirements of subpart WWW [see § 60.750 of Subpart WWW].

§ 60.33c Emission guidelines for municipal solid waste landfill emissions.

(a) For approval, a State plan shall include control of MSW landfill emissions at each MSW landfill meeting the following three conditions:

(1) The landfill has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition;

(2) The landfill has a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report; and

(3) The landfill has a nonmethane organic compound emission rate of 50 megagrams per year or more.

(b) For approval, a State plan shall include the installation of a collection and control system meeting the conditions provided in § 60.752(b)(2)(ii) of this part at each MSW landfill meeting the conditions in paragraph (a) of this section. The State plan shall include a process for State review and approval of the site-specific design plans for the gas collection and control system(s).

(c) For approval, a State plan shall include provisions for the control of collected MSW landfill emissions through the use of control devices meeting the requirements of paragraph (c)(1), (2), or (3) of this section, except as provided in § 60.24.

(1) An open flare designed and operated in accordance with the parameters established in § 60.18; or

(2) A control system designed and operated to reduce NMOC by 98 weight percent; or

(3) An enclosed combustor designed and operated to reduce the outlet NMOC concentration to 20 parts per million as hexane by volume, dry basis at 3 percent oxygen, or less.

§ 60.34c Test methods and procedures.

For approval, a State plan shall include provisions for: the calculation of the landfill NMOC emission rate listed in § 60.754, as applicable, to determine whether the landfill meets the condition in § 60.33c(a)(3); the operational standards in § 60.753; the compliance provisions in § 60.755; and the monitoring provisions in § 60.756.

§ 60.35c Reporting and recordkeeping guidelines.

For approval, a State plan shall include the recordkeeping and reporting provisions listed in §§ 60.757 and 60.758, as applicable, except as provided under § 60.24.

§ 60.36c Compliance times.

(a) Except as provided for under paragraph (b) of this section, planning, awarding of contracts, and installation of MSW landfill air emission collection and control equipment capable of meeting the emission guidelines established under § 60.33c shall be accomplished within 30 months after the effective date of a State emission standard for MSW landfills.

(b) For each existing MSW landfill meeting the conditions in § 60.33c(a)(1) and § 60.33c(a)(2) whose NMOC emission rate is less than 50 megagrams per year on the effective date of the State emission standard, installation of collection and control systems capable of meeting emission guidelines in § 60.33c shall be accomplished within 30 months of the date when the condition in § 60.33c(a)(3) is met (i.e., the date of the first annual nonmethane organic compounds emission rate which equals or exceeds 50 megagrams per year).

9. Part 60 is amended by adding a new subpart WWW to read as follows:

Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills

Sec.

Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills

§ 60.750 Applicability, designation of affected facility, and delegation of authority.

(a) The provisions of this subpart apply to each municipal solid waste

landfill that commenced construction, reconstruction or modification or began accepting waste on or after May 30, 1991. Physical or operational changes made to an existing MSW landfill solely to comply with Subpart Cc of this part are not considered construction, reconstruction, or modification for the purposes of this section.

(b) The following authorities shall be retained by the Administrator and not transferred to the State: None.

§ 60.751 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in subpart A of this part.

Active collection system means a gas collection system that uses gas mover equipment.

Active landfill means a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future.

Closed landfill means a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification as prescribed under § 60.7(a)(4). Once a notification of modification has been filed, and additional solid waste is placed in the landfill, the landfill is no longer closed. A landfill is considered closed after meeting the criteria of § 258.60 of this title.

Closure means that point in time when a landfill becomes a closed landfill.

Commercial solid waste means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

Controlled landfill means any landfill at which collection and control systems are required under this subpart as a result of the nonmethane organic compounds emission rate. The landfill is considered controlled at the time either

(1) A notification of intent to install a collection and control system or

(2) A collection and control system design plan is submitted in compliance with § 60.752(b)(2)(i).

Design capacity means the maximum amount of solid waste a landfill can accept, as specified in the construction or operating permit issued by the State, local, or Tribal agency responsible for regulating the landfill.

Disposal facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

Emission rate cutoff means the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required.

Enclosed combustor means an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered an enclosed combustor.

Flare means an open combustor without enclosure or shroud.

Gas-mover equipment means the equipment (i.e., fan, blower, compressor) used to transport landfill gas through the header system.

Household waste means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including, but not limited to, single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of the Resource Conservation and Recovery Act, parts 264 and 265 of this title. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Interior well means any well or similar collection component located inside the perimeter of the landfill. A perimeter well located outside the landfilled waste is not an interior well.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under § 257.2 of this title.

Lateral expansion means a horizontal expansion of the waste boundaries of an existing MSW landfill. A lateral expansion is not a modification unless it results in an increase in the design capacity of the landfill.

Municipal solid waste landfill or *MSW landfill* means an entire disp facility in a contiguous geographic space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (§ 257.2 of this title) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion.

Municipal solid waste landfill emissions or *MSW landfill emissions* means gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.

NMOC means nonmethane organic compounds, as measured according to the provisions of § 60.754.

Nondegradable waste means any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metals.

Passive collection system mea gas collection system that solely use positive pressure within the landfill to move the gas rather than using gas mover equipment.

Sludge means any solid, semisolid, o liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, exclusive of the treated effluent from a wastewater treatment plant.

Solid waste means any garbage, sludge from a wastewater treatment plant, water supply treatment plant, o air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseou material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid o dissolved material in domestic sewage or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subj to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (42 U.S.C 2011 et seq.).

Sufficient density means ar mb spacing, and combination of corrective

system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance set forth in this part.

Sufficient extraction rate means a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower.

§ 60.752 Standards for air emissions from municipal solid waste landfills.

(a) Each owner or operator of an MSW landfill having a design capacity less than 2.5 million megagrams by mass or 2.5 million cubic meters by volume shall submit an initial design capacity report to the Administrator as provided in § 60.757(a). The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. For purposes of part 70 permitting, a landfill with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters does not require an operating permit under part 70 of this chapter. Submittal of the initial design capacity report shall fulfill the requirements of this subpart except as provided for in paragraphs (a)(1) and (a)(2) of this section.

(1) The owner or operator shall submit to the Administrator an amended design capacity report, as provided for in § 60.757(a)(3), when there is any increase in the design capacity of a landfill subject to the provisions of this subpart, whether the increase results from an increase in the area or depth of the landfill, a change in the operating procedures of the landfill, or any other means.

(2) If any increase in the maximum design capacity of a landfill exempted from the provisions of § 60.752(b) through § 60.759 of this subpart on the basis of the design capacity exemption in paragraph (a) of this section results in a revised maximum design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, the owner or operator shall comply with the provision of paragraph (b) of this section.

(b) Each owner or operator of an MSW landfill having a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, shall either comply with paragraph (b)(2) of this section or calculate an NMOC emission rate for the landfill using the procedures specified in § 60.754. The NMOC emission rate shall be recalculated annually, except as provided in § 60.757(b)(1)(ii) of this subpart. The owner or operator of an MSW landfill subject to this subpart with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters is subject to part 70 permitting requirements. When a landfill is closed, and either never needed control or meets the conditions for control system removal specified in § 60.752(b)(2)(v) of this subpart, a part 70 operating permit is no longer required.

(1) If the calculated NMOC emission rate is less than 50 megagrams per year, the owner or operator shall:

(i) Submit an annual emission report to the Administrator, except as provided for in § 60.757(b)(1)(ii); and

(ii) Recalculate the NMOC emission rate annually using the procedures specified in § 60.754(a)(1) until such time as the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, or the landfill is closed.

(A) If the NMOC emission rate, upon recalculation required in paragraph (b)(1)(ii) of this section, is equal to or greater than 50 megagrams per year, the owner or operator shall install a collection and control system in compliance with paragraph (b)(2) of this section.

(B) If the landfill is permanently closed, a closure notification shall be submitted to the Administrator as provided for in § 60.757(d).

(2) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, the owner or operator shall:

(i) Submit a collection and control system design plan prepared by a professional engineer to the Administrator within 1 year:

(A) The collection and control system as described in the plan shall meet the design requirements of paragraph (b)(2)(ii) of this section.

(B) The collection and control system design plan shall include 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.

(C) The collection and control system design plan shall either conform with specifications for active collection systems in § 60.759 or include a demonstration to the Administrator's satisfaction of the sufficiency of the alternative provisions to § 60.759.

(D) The Administrator shall review the information submitted under paragraphs (b)(2)(i)(A),(B) and (C) of this section and either approve it, disapprove it, or request that additional information be submitted. Because of the many site-specific factors involved with landfill gas system design, alternative systems may be necessary. A wide variety of system designs are possible, such as vertical wells, combination horizontal and vertical collection systems, or horizontal trenches only, leachate collection components, and passive systems.

(ii) Install a collection and control system within 18 months of the submittal of the design plan under paragraph (b)(2)(i) of this section that effectively captures the gas generated within the landfill.

(A) An active collection system shall:

(*1*) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control or treatment system equipment;

(*2*) Collect gas from each area, cell, or group of cells in the landfill in which the initial solid waste has been placed for a period of:

(*i*) 5 years or more if active; or

(*ii*) 2 years or more if closed or at final grade;

(*3*) Collect gas at a sufficient extraction rate;

(*4*) Be designed to minimize off-site migration of subsurface gas.

(B) A passive collection system shall:

(*1*) Comply with the provisions specified in paragraphs (b)(2)(ii), (A) (*1*), (*2*), and (*4*) of this section.

(*2*) Be installed with liners on the bottom and all sides in all areas in which gas is to be collected. The liners shall be installed as required under § 258.40 of this title.

(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or (C) of this section.

(A) An open flare designed and operated in accordance with § 60.18;

(B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million by volume shall be established by an initial performance test, required under § 60.8 using the test methods specified in § 60.754(d).

(*1*) If a boiler or process heater is used as the control device, the landfill gas

stream shall be introduced into the flame zone.

(2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in § 60.756;

(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section.

(iv) Operate the collection and control device installed to comply with this subpart in accordance with the provisions of § § 60.753, 60.755 and 60.756.

(v) The collection and control system may be capped or removed provided that all the conditions of paragraphs (b)(2)(v) (A), (B), and (C) of this section are met:

(A) The landfill shall be no longer accepting solid waste and be permanently closed under the requirements of § 258.60 of this title. A closure report shall be submitted to the Administrator as provided in § 60.757(d);

(B) The collection and control system shall have been in operation a minimum of 15 years; and

(C) Following the procedures specified in § 60.754(b) of this subpart, the calculated NMOC gas produced by the landfill shall be less than 50 megagrams per year on three successive test dates. The test dates shall be no less than 90 days apart, and no more than 180 days apart.

§ 60.753 Operational standards for collection and control systems.

Each owner or operator of an MSW landfill gas collection and control system used to comply with the provisions of § 60.752(b)(2)(ii) of this subpart shall:

(a) Operate the collection system such that gas is collected from each area, cell, or group of cells in the MSW landfill in which solid waste has been in place for:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade;

(b) Operate the collection system with negative pressure at each wellhead except under the following conditions:

(1) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire. These records shall be submitted with the annual reports as provided in § 60.757(f)(1);

(2) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the design plan;

(3) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes shall be approved by the Administrator;

(c) Operate each interior wellhead in the collection system with a landfill gas temperature less than 55 °C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The owner or operator may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens.

(1) The nitrogen level shall be determined using Method 3C, unless an alternative test method is established as allowed by § 60.752(b)(2)(i) of this subpart.

(2) Unless an alternative test method is established as allowed by § 60.752(b)(2)(i) of this subpart, the oxygen shall be determined by an oxygen meter using Method 3A except that:

(i) The span shall be set so that the regulatory limit is between 20 and 50 percent of the span;

(ii) A data recorder is not required;

(iii) Only two calibration gases are required, a zero and span, and ambient air may be used as the span;

(iv) A calibration error check is not required;

(v) The allowable sample bias, zero drift, and calibration drift are ±10 percent.

(d) Operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the owner or operator shall conduct surface testing around the perimeter of the collection area along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan shall be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing.

(e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with § 60.752(b)(2)(iii). In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour; and

(f) Operate the control or treatment system at all times when the collected gas is routed to the system.

(g) If monitoring demonstrates that the operational requirement in paragraphs (b), (c), or (d) of this section are not met, corrective action shall be taken as specified in § 60.752(a) (3) through (5) or § 60.755(c) of this subpart. If corrective actions are taken as specified in § 60.755, the monitored exceedance is not a violation of the operational requirements in this section.

§ 60.754 Test methods and procedures.

(a)(1) The landfill owner or operator shall calculate the NMOC emission rate using either the equation provided in paragraph (a)(1)(i) of this section or the equation provided in paragraph (a)(1)(ii) of this section. The values to be used in both equations are 0.05 per year for k, 170 cubic meters per megagram for L_o, and 4,000 parts per million by volume as hexane for the C_{NMOC}.

(i) The following equation shall be used if the actual year-to-year solid waste acceptance rate is known.

$$M_{NMOC} = \sum_{i=1}^{n} 2\,k\,L_o M_i \left(e^{-kt_i}\right)\left(C_{NMOC}\right)\left(3.6\times10^{-9}\right)$$

where,

M_{NMOC}=Total NMOC emission rate from the landfill, megagrams per year
k=methane generation rate constant, year^{-1}
L_o=methane generation potential, cubic meters per megagram solid waste
M_i=mass of solid waste in the i^{th} section; megagrams
t_i=age of the i^{th} section, years
C_{NMOC}=concentration of NMOC, parts per million by volume as hexane
3.6×10^{-9}=conversion factor

The mass of nondegradable solid waste may be subtracted from the total mass of solid waste in a particular section of the landfill when calculating the value for M_i if the documentation provisions of § 60.758(d)(2) are followed.

(ii) The following equation shall be used if the actual year-to-year solid waste acceptance rate is unknown.

$$M_{NMOC} = 2L_o R (e^{-kc} - e^{-kt}) (C_{NMOC}) (3.6 \times 10^{-9})$$

where,

M_{NMOC}=mass emission rate of NMOC, megagrams per year
L_o=methane generation potential, cubic meters per megagram solid waste
R=average annual acceptance rate, megagrams per year
k=methane generation rate constant, year^{-1}
t=age of landfill, years
C_{NMOC}=concentration of NMOC, parts per million by volume as hexane
c=time since closure, years. For active landfill $c = 0$ and $e^{-kc} = 1$
3.6×10^{-9}=conversion factor

The mass of nondegradable solid waste may be subtracted from the average annual acceptance rate when calculating a value for R, if the documentation provisions of § 60.758(d)(2) are followed.

(2) *Tier 1.* The owner or operator shall compare the calculated NMOC mass emission rate to the standard of 50 megagrams per year.

(i) If the NMOC emission rate calculated in paragraph (a)(1) of this section is less than 50 megagrams per year, then the landfill owner shall submit an emission rate report as provided in § 60.757(b)(1), and shall recalculate the NMOC mass emission rate annually as required under § 60.752(b)(1).

(ii) If the calculated NMOC emission rate is equal to or greater than 50 megagrams per year, then the landfill owner shall either comply with § 60.752(b)(2), or determine a site-specific NMOC concentration and recalculate the NMOC emission rate using the procedures provided in paragraph (a)(3) of this section.

(3) *Tier 2.* The landfill owner or operator shall determine the NMOC concentration using the following sampling procedure. The landfill owner or operator shall install at least two sample probes per hectare of landfill surface that has retained waste for at least 2 years. If the landfill is larger than 25 hectares in area, only 50 samples are required. The sample probes should be located to avoid known areas of nondegradable solid waste. The owner or operator shall collect and analyze one sample of landfill gas from each probe to determine the NMOC concentration using Method 25C of appendix A of this part or Method 18 of appendix A of this part. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP–42). If composite sampling is used, equal volumes shall be taken from each sample probe. If more than the required number of samples are taken, all samples shall be used in the analysis. The landfill owner or operator shall divide the NMOC concentration from Method 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(i) The landfill owner or operator shall recalculate the NMOC mass emission rate using the equations provided in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using the average NMOC concentration from the collected samples instead of the default value in the equation provided in paragraph (a)(1) of this section.

(ii) If the resulting mass emission rate calculated using the site-specific NMOC concentration is equal to or greater than 50 megagrams per year, then the landfill owner or operator shall either comply with § 60.752(b)(2), or determine the site-specific methane generation rate constant and recalculate the NMOC emission rate using the site-specific methane generation rate using the procedure specified in paragraph (a)(4) of this section.

(iii) If the resulting NMOC mass emission rate is less than 50 megagrams per year, the owner or operator shall submit a periodic estimate of the emission rate report as provided in § 60.757(b)(1) and retest the site-specific NMOC concentration every 5 years using the methods specified in this section.

(4) *Tier 3.* The site-specific methane generation rate constant shall be determined using the procedures provided in Method 2E of appendix A of this part. The landfill owner or operator shall estimate the NMOC mass emission rate using equations in paragraph (a)(1)(i) or (a)(1)(ii) of this section and using a site-specific methane generation rate constant k, and the site-specific NMOC concentration as determined in paragraph (a)(3) of this section instead of the default values provided in paragraph (a)(1) of this section. The landfill owner or operator shall compare the resulting NMOC mass emission rate to the standard of 50 megagrams per year.

(i) If the NMOC mass emission rate as calculated using the site-specific methane generation rate and concentration of NMOC is equal to or greater than 50 megagrams per year, the owner or operator shall comply with § 60.752(b)(2).

(ii) If the NMOC mass emission rate is less than 50 megagrams per year, then the owner or operator shall submit a periodic emission rate report as provided in § 60.757(b)(1) and shall recalculate the NMOC mass emission rate annually, as provided in § 60.757(b)(1) using the equations in paragraph (a)(1) of this section and using the site-specific methane generation rate constant and NMOC concentration obtained in paragraph (a)(3) of this section. The calculation of the methane generation rate constant is performed only once, and the value obtained is used in all subsequent annual NMOC emission rate calculations.

(5) The owner or operator may use other methods to determine the NMOC concentration or a site-specific k as an alternative to the methods required in paragraphs (a)(3) and (a)(4) of this section if the method has been approved by the Administrator as provided in § 60.752(b)(2)(i)(B).

(b) After the installation of a collection and control system in compliance with § 60.755, the owner or operator shall calculate the NMOC emission rate for purposes of determining when the system can be removed as provided in § 60.752(b)(2)(v), using the following equation:

$$M_{NMOC} = 1.89 \times 10^{-3} Q_{LFG} C_{NMOC}$$

where,

M_{NMOC} = mass emission rate of NMOC, megagrams per year
Q_{LFG} = flow rate of landfill gas, cubic meters per minute
C_{NMOC} = NMOC concentration, parts per million by volume as hexane

(1) The flow rate of landfill gas, Q_{LFG}, shall be determined by measuring the total landfill gas flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the provisions of section 4 of Method 2E of appendix A of this part.

(2) The average NMOC concentration, C_{NMOC}, shall be determined by collecting and analyzing landfill gas sampled from the common header pipe before the gas moving or condensate

removal equipment using the procedures in Method 25C or Method 18 of appendix A of this part. If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP–42). The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The landfill owner or operator shall divide the NMOC concentration from Method 25C of appendix A of this part by six to convert from C_{NMOC} as carbon to C_{NMOC} as hexane.

(3) The owner or operator may use another method to determine landfill gas flow rate and NMOC concentration if the method has been approved by the Administrator as provided in § 60.752(b)(2)(i)(B).

(c) The owner or operator of each MSW landfill subject to the provisions of this subpart shall estimate the NMOC emission rate for comparison to the PSD major source and significance levels in §§ 51.166 or 52.21 of this chapter using AP–42 or other approved measurement procedures. If a collection system, which complies with the provisions in § 60.752(b)(2) is already installed, the owner or operator shall estimate the NMOC emission rate using the procedures provided in paragraph (b) of this section.

(d) For the performance test required in § 60.752(b)(2)(iii)(B), Method 25 or Method 18 of appendix A of this part shall be used to determine compliance with 98 weight-percent efficiency or the 20 ppmv outlet concentration level, unless another method to demonstrate compliance has been approved by the Administrator as provided by § 60.752(b)(2)(i)(B). If using Method 18 of appendix A of this part, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP–42). The following equation shall be used to calculate efficiency:

$$\text{Control Efficiency} = (NMOC_{in} - NMOC_{out})/(NMOC_{in})$$

where,

$NMOC_{in}$ = mass of NMOC entering control device

$NMOC_{out}$ = mass of NMOC exiting control device

§ 60.755 Compliance provisions.

(a) Except as provided in § 60.752(b)(2)(i)(B), the specified methods in paragraphs (a)(1) through (a)(6) of this section shall be used to determine whether the gas collection system is in compliance with § 60.752(b)(2)(ii).

(1) For the purposes of calculating the maximum expected gas generation flow rate from the landfill to determine compliance with § 60.752(b)(2)(ii)(A)(*1*), one of the following equations shall be used. The k and L_o kinetic factors should be those published in the most recent Compilation of Air Pollutant Emission Factors (AP–42) or other site specific values demonstrated to be appropriate and approved by the Administrator. If k has been determined as specified in § 60.754(a)(4), the value of k determined from the test shall be used. A value of no more than 15 years shall be used for the intended use period of the gas mover equipment. The active life of the landfill is the age of the landfill plus the estimated number of years until closure.

(i) For sites with unknown year-to-year solid waste acceptance rate:

$$Q_m = 2L_o R (e^{-kc} - e^{-kt})$$

where,

Q_m = maximum expected gas generation flow rate, cubic meters per year

L_o = methane generation potential, cubic meters per megagram solid waste

R = average annual acceptance rate, megagrams per year

k = methane generation rate constant, $year^{-1}$

t = age of the landfill at equipment installation plus the time the owner or operator intends to use the gas mover equipment or active life of the landfill, whichever is less. If the equipment is installed after closure, t is the age of the landfill at installation, years

c = time since closure, years (for an active landfill c = 0 and $e^{-kc} = 1$)

(ii) For sites with known year-to-year solid waste acceptance rate:

$$Q_M = \sum_{i=1}^{n} 2kL_o M_i \left(e^{-kt_i}\right)$$

where,

Q_M=maximum expected gas generation flow rate, cubic meters per year

k=methane generation rate constant, $year^{-1}$

L_o=methane generation potential, cubic meters per megagram solid waste

M_i=mass of solid waste in the i^{th} section, megagrams

t_i=age of the i^{th} section, years

(iii) If a collection and control system has been installed, actual flow data may be used to project the maximum expected gas generation flow rate instead of, or in conjunction with, the equations in paragraphs (a)(1) (i) and (ii) of this section. If the landfill is still accepting waste, the actual measured flow data will not equal the maximum expected gas generation rate, so calculations using the equations in paragraphs (a)(1) (i) or (ii) or other methods shall be used to predict the maximum expected gas generation rate over the intended period of use of the gas control system equipment.

(2) For the purposes of determining sufficient density of gas collectors for compliance with § 60.752(b)(2)(ii)(A)(*2*), the owner or operator shall design a system of vertical wells, horizontal collectors, or other collection devices, satisfactory to the Administrator, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

(3) For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with § 60.752(b)(2)(ii)(A)(*3*), the owner or operator shall measure gauge pressure in the gas collection header at each individual well, monthly. If a positive pressure exists, action shall be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under § 60.753(b). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure shall not cause exceedances of other operational or performance standards.

(4) Owners or operators are not required to install additional wells as required in paragraph (a)(3) of this section during the first 180 days after gas collection system start-up.

(5) For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator shall monitor each well monthly for temperature and nitrogen or oxygen as provided in § 60.753(c). If a well exceeds one of these operating parameters, action shall be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system shall be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure shall not cause exceedances of other operational or performance standards.

(6) An owner or operator seeking to demonstrate compliance with § 60.752(b)(2)(ii)(A)(*4*) through the use of a collection system not conforming to the specifications provided in § 60.759 shall provide information satisfactory to the Administrator as specified in § 60.752(b)(2)(i)(C) demonstrating t' off-site migration is being controlle

(b) For purposes of compliance with § 60.753(a), each owner or operator of a controlled landfill shall place each well or design component as specified in the approved design plan as provided in § 60.752(b)(2)(i). Each well shall be installed within 60 days of the date in which the initial solid waste has been in place for a period of:

(1) 5 years or more if active; or

(2) 2 years or more if closed or at final grade.

(c) The following procedures shall be used for compliance with the surface methane operational standard as provided in § 60.753(d).

(1) After installation of the collection system, the owner or operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a serpentine pattern spaced 30 meters apart (or a site-specific established spacing) for each collection area on a quarterly basis using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the specifications provided in paragraph (d) of this section.

(2) The background concentration shall be determined by moving the probe inlet upwind and downwind outside the boundary of the landfill at a distance of at least 30 meters from the perimeter wells.

(3) Surface emission monitoring shall be performed in accordance with section 4.3.1 of Method 21 of appendix A of this part, except that the probe inlet shall be placed within 5 to 10 centimeters of the ground. Monitoring shall be performed during typical meteorological conditions.

(4) Any reading of 500 parts per million or more above background at any location shall be recorded as a monitored exceedance and the actions specified in paragraphs (c)(4) (i) through (v) of this section shall be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of § 60.753(d).

(i) The location of each monitored exceedance shall be marked and the location recorded.

(ii) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance shall be made and the location shall be re-monitored within 10 calendar days of detecting the exceedance.

(iii) If the re-monitoring of the location shows a second exceedance, additional corrective action shall be taken and the location shall be monitored again within 10 days of the second exceedance. If the re-monitoring shows a third exceedance for the same location, the action specified in paragraph (c)(4)(v) of this section shall be taken, and no further monitoring of that location is required until the action specified in paragraph (c)(4)(v) has been taken.

(iv) Any location that initially showed an exceedance but has a methane concentration less than 500 ppm methane above background at the 10-day re-monitoring specified in paragraph (c)(4) (ii) or (iii) of this section shall be re-monitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in paragraph (c)(4) (iii) or (v) shall be taken.

(v) For any location where monitored methane concentration equals or exceeds 500 parts per million above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Administrator for approval.

(5) The owner or operator shall implement a program to monitor for cover integrity and implement cover repairs as necessary on a monthly basis.

(d) Each owner or operator seeking to comply with the provisions in paragraph (c) of this section shall comply with the following instrumentation specifications and procedures for surface emission monitoring devices:

(1) The portable analyzer shall meet the instrument specifications provided in section 3 of Method 21 of appendix A of this part, except that "methane" shall replace all references to VOC.

(2) The calibration gas shall be methane, diluted to a nominal concentration of 500 parts per million in air.

(3) To meet the performance evaluation requirements in section 3.1.3 of Method 21 of appendix A of this part, the instrument evaluation procedures of section 4.4 of Method 21 of appendix A of this part shall be used.

(4) The calibration procedures provided in section 4.2 of Method 21 of appendix A of this part shall be followed immediately before commencing a surface monitoring survey.

(e) The provisions of this subpart apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction shall not exceed 5 days for collection systems and shall not exceed 1 hour for treatment or control devices.

§ 60.756 Monitoring of operations.

Except as provided in § 60.752(b)(2)(i)(B),

(a) Each owner or operator seeking to comply with § 60.752(b)(2)(ii)(A) for an active gas collection system shall install a sampling port and a thermometer or other temperature measuring device at each wellhead and:

(1) Measure the gauge pressure in the gas collection header on a monthly basis as provided in § 60.755(a)(3); and

(2) Monitor nitrogen or oxygen concentration in the landfill gas on a monthly basis as provided in § 60.755(a)(5); and

(3) Monitor temperature of the landfill gas on a monthly basis as provided in § 60.755(a)(5).

(b) Each owner or operator seeking to comply with § 60.752(b)(2)(iii) using an enclosed combustor shall calibrate, maintain, and operate according to the manufacturer's specifications, the following equipment.

(1) A temperature monitoring device equipped with a continuous recorder and having an accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 °C, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity greater than 44 megawatts.

(2) A gas flow rate measuring device that provides a measurement of gas flow to or bypass of the control device. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(c) Each owner or operator seeking to comply with § 60.752(b)(2)(iii) using an open flare shall install, calibrate, maintain, and operate according to the manufacturer's specifications the following equipment:

(1) A heat sensing device, such as an ultraviolet beam sensor or

thermocouple, at the pilot light or the flame itself to indicate the continuous presence of a flame.

(2) A device that records flow to or bypass of the flare. The owner or operator shall either:

(i) Install, calibrate, and maintain a gas flow rate measuring device that shall record the flow to the control device at least every 15 minutes; or

(ii) Secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism shall be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line.

(d) Each owner or operator seeking to demonstrate compliance with § 60.752(b)(2)(iii) using a device other than an open flare or an enclosed combustor shall provide information satisfactory to the Administrator as provided in § 60.752(b)(2)(i)(B) describing the operation of the control device, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator shall review the information and either approve it, or request that additional information be submitted. The Administrator may specify additional appropriate monitoring procedures.

(e) Each owner or operator seeking to install a collection system that does not meet the specifications in § 60.759 or seeking to monitor alternative parameters to those required by § 60.753 through § 60.756 shall provide information satisfactory to the Administrator as provided in § 60.752(b)(2)(i) (B) and (C) describing the design and operation of the collection system, the operating parameters that would indicate proper performance, and appropriate monitoring procedures. The Administrator may specify additional appropriate monitoring procedures.

(f) Each owner or operator seeking to demonstrate compliance with § 60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in § 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

§ 60.757 Reporting requirements.

Except as provided in § 60.752(b)(2)(i)(B),

(a) Each owner or operator subject to the requirements of this subpart shall submit an initial design capacity report to the Administrator.

(1) The initial design capacity report shall fulfill the requirements of the notification of the date construction is commenced as required under § 60.7(a)(1) and shall be submitted no later than the earliest day from the following:

(i) 90 days of the issuance of the State, Local, Tribal, or RCRA construction or operating permit; or

(ii) 30 days of the date of construction or reconstruction as defined under § 60.15; or

(iii) 30 days of the initial acceptance of solid waste.

(2) The initial design capacity report shall contain the following information:

(i) A map or plot of the landfill, providing the size and location of the landfill, and identifying all areas where solid waste may be landfilled according to the provisions of the State, local, Tribal, or RCRA construction or operating permit;

(ii) The maximum design capacity of the landfill. Where the maximum design capacity is specified in the State or local construction or RCRA permit, a copy of the permit specifying the maximum design capacity may be submitted as part of the report. If the maximum design capacity of the landfill is not specified in the permit, the maximum design capacity shall be calculated using good engineering practices. The calculations shall be provided, along with such parameters as depth of solid waste, solid waste acceptance rate, and compaction practices as part of the report. The State, Tribal, local agency or Administrator may request other reasonable information as may be necessary to verify the maximum design capacity of the landfill.

(3) An amended design capacity report shall be submitted to the Administrator providing notification of any increase in the design capacity of the landfill, whether the increase results from an increase in the permitted area or depth of the landfill, a change in the operating procedures, or any other means which results in an increase in the maximum design capacity of the landfill above 2.5 million megagrams or 2.5 million cubic meters. The amended design capacity report shall be submitted within 90 days of the issuance of an amended construction or operating permit, or the placement of waste in additional land, or the change in operating procedures which will result in an increase in maximum design capacity, whichever occurs first.

(b) Each owner or operator subject to the requirements of this subpart shall submit an NMOC emission rate report to the Administrator initially and annually thereafter, except as provided for in paragraphs (b)(1)(ii) or (b)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.

(1) The NMOC emission rate report shall contain an annual or 5-year estimate of the NMOC emission rate calculated using the formula and procedures provided in § 60.754(a) or (b), as applicable.

(i) The initial NMOC emission rate report shall be submitted within 90 days of the date waste acceptance commences and may be combined with the initial design capacity report required in paragraph (a) of this section. Subsequent NMOC emission rate reports shall be submitted annually thereafter, except as provided for in paragraphs (b)(1)(ii) and (b)(3) of this section.

(ii) If the estimated NMOC emission rate as reported in the annual report to the Administrator is less than 50 megagrams per year in each of the next 5 consecutive years, the owner or operator may elect to submit an estimate of the NMOC emission rate for the n 5-year period in lieu of the annual report. This estimate shall include the current amount of solid waste-in-place and the estimated waste acceptance rate for each year of the 5 years for which an NMOC emission rate is estimated. All data and calculations upon which this estimate is based shall be provided to the Administrator. This estimate shall be revised at least once every 5 years. If the actual waste acceptance rate exceeds the estimated waste acceptance rate in any year reported in the 5-year estimate, a revised 5-year estimate shall be submitted to the Administrator. The revised estimate shall cover the 5-year period beginning with the year in which the actual waste acceptance rate exceeded the estimated waste acceptance rate.

(2) The NMOC emission rate report shall include all the data, calculations, sample reports and measurements used to estimate the annual or 5-year emissions.

(3) Each owner or operator subject to the requirements of this subpart is exempted from the requirements of paragraphs (b)(1) and (2) of this section, after the installation of a collection and control system in compliance with § 60.752(b)(2), during such time as collection and control system is in

operation and in compliance with §§ 60.753 and 60.755.

(c) Each owner or operator subject to the provisions of § 60.752(b)(2)(i) shall submit a collection and control system design plan to the Administrator within 1 year of the first report, required under paragraph (b) of this section, in which the emission rate exceeds 50 megagrams per year, except as follows:

(1) If the owner or operator elects to recalculate the NMOC emission rate after Tier 2 NMOC sampling and analysis as provided in § 60.754(a)(3) and the resulting rate is less than 50 megagrams per year, annual periodic reporting shall be resumed, using the Tier 2 determined site-specific NMOC concentration, until the calculated emission rate is equal to or greater than 50 megagrams per year or the landfill is closed. The revised NMOC emission rate report, with the recalculated emission rate based on NMOC sampling and analysis, shall be submitted within 180 days of the first calculated exceedance of 50 megagrams per year.

(2) If the owner or operator elects to recalculate the NMOC emission rate after determining a site-specific methane generation rate constant (k), as provided in Tier 3 in § 60.754(a)(4), and the resulting NMOC emission rate is less than 50 Mg/yr, annual periodic reporting shall be resumed. The resulting site-specific methane generation rate constant (k) shall be used in the emission rate calculation until such time as the emissions rate calculation results in an exceedance. The revised NMOC emission rate report based on the provisions of § 60.754(a)(4) and the resulting site-specific methane generation rate constant (k) shall be submitted to the Administrator within 1 year of the first calculated emission rate exceeding 50 megagrams per year.

(d) Each owner or operator of a controlled landfill shall submit a closure report to the Administrator within 30 days of waste acceptance cessation. The Administrator may request additional information as may be necessary to verify that permanent closure has taken place in accordance with the requirements of 40 CFR 258.60. If a closure report has been submitted to the Administrator, no additional wastes may be placed into the landfill without filing a notification of modification as described under § 60.7(a)(4).

(e) Each owner or operator of a controlled landfill shall submit an equipment removal report to the Administrator 30 days prior to removal or cessation of operation of the control equipment.

(1) The equipment removal report shall contain all of the following items:

(i) A copy of the closure report submitted in accordance with paragraph (d) of this section;

(ii) A copy of the initial performance test report demonstrating that the 15 year minimum control period has expired; and

(iii) Dated copies of three successive NMOC emission rate reports demonstrating that the landfill is no longer producing 50 megagrams or greater of NMOC per year.

(2) The Administrator may request such additional information as may be necessary to verify that all of the conditions for removal in § 60.752(b)(2)(v) have been met.

(f) Each owner or operator of a landfill seeking to comply with § 60.752(b)(2) using an active collection system designed in accordance with § 60.752(b)(2)(ii) shall submit to the Administrator annual reports of the recorded information in (f)(1) through (f)(6) of this paragraph. The initial annual report shall be submitted within 180 days of installation and start-up of the collection and control system, and shall include the initial performance test report required under § 60.8. For enclosed combustion devices and flares, reportable exceedances are defined under § 60.758(c).

(1) Value and length of time for exceedance of applicable parameters monitored under § 60.756(a), (b), (c), and (d).

(2) Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under § 60.756.

(3) Description and duration of all periods when the control device was not operating for a period exceeding 1 hour and length of time the control device was not operating.

(4) All periods when the collection system was not operating in excess of 5 days.

(5) The location of each exceedance of the 500 parts per million methane concentration as provided in § 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month.

(6) The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of § 60.755.

(g) Each owner or operator seeking to comply with § 60.752(b)(2)(i) shall include the following information with the initial performance test report required under § 60.8:

(1) A diagram of the collection system showing collection system positioning including all wells, horizontal collectors, surface collectors, or other gas extraction devices, including the locations of any areas excluded from collection and the proposed sites for the future collection system expansion;

(2) The data upon which the sufficient density of wells, horizontal collectors, surface collectors, or other gas extraction devices and the gas mover equipment sizing are based;

(3) The documentation of the presence of asbestos or nondegradable material for each area from which collection wells have been excluded based on the presence of asbestos or nondegradable material;

(4) The sum of the gas generation flow rates for all areas from which collection wells have been excluded based on nonproductivity and the calculations of gas generation flow rate for each excluded area; and

(5) The provisions for increasing gas mover equipment capacity with increased gas generation flow rate, if the present gas mover equipment is inadequate to move the maximum flow rate expected over the life of the landfill; and

(6) The provisions for the control of off-site migration.

§ 60.758 Recordkeeping requirements.

Except as provided in § 60.752(b)(2)(i)(B),

(a) Each owner or operator of an MSW landfill subject to the provisions of § 60.752(b) shall keep for at least 5 years up-to-date, readily accessible, on-site records of the maximum design capacity, the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.

(b) Each owner or operator of a controlled landfill shall keep up-to-date, readily accessible records for the life of the control equipment of the data listed in paragraphs (b)(1) through (b)(4) of this section as measured during the initial performance test or compliance determination. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years. Records of the control device vendor specifications shall be maintained until removal.

(1) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with § 60.752(b)(2)(ii):

(i) The maximum expected gas generation flow rate as calculated in § 60.755(a)(1). The owner or operator may use another method to determine the maximum gas generation flow rate,

if the method has been approved by the Administrator.

(ii) The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in § 60.759(a)(1).

(2) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with § 60.752(b)(2)(iii) through use of an enclosed combustion device other than a boiler or process heater with a design heat input capacity greater than 44 megawatts:

(i) The average combustion temperature measured at least every 15 minutes and averaged over the same time period of the performance test.

(ii) The percent reduction of NMOC determined as specified in § 60.752(b)(2)(iii)(B) achieved by the control device.

(3) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with § 60.752(b)(2)(iii)(B)(1) through use of a boiler or process heater of any size: a description of the location at which the collected gas vent stream is introduced into the boiler or process heater over the same time period of the performance testing.

(4) Where an owner or operator subject to the provisions of this subpart seeks to demonstrate compliance with § 60.752(b)(2)(iii)(A) through use of an open flare, the flare type (i.e., steam-assisted, air-assisted, or nonassisted), all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in § 60.18; continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operations during which the pilot flame of the flare flame is absent.

(c) Each owner or operator of a controlled landfill subject to the provisions of this subpart shall keep for 5 years up-to-date, readily accessible continuous records of the equipment operating parameters specified to be monitored in § 60.756 as well as up-to-date, readily accessible records for periods of operation during which the parameter boundaries established during the most recent performance test are exceeded.

(1) The following constitute exceedances that shall be recorded and reported under § 60.757(f):

(i) For enclosed combustors except for boilers and process heaters with design heat input capacity of 44 megawatts (150 million British thermal unit per hour) or greater, all 3-hour periods of operation during which the average combustion temperature was more than 28 oC below the average combustion temperature during the most recent performance test at which compliance with § 60.752(b)(2)(iii) was determined.

(ii) For boilers or process heaters, whenever there is a change in the location at which the vent stream is introduced into the flame zone as required under paragraph (b)(3)(i) of this section.

(2) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible continuous records of the indication of flow to the control device or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines, specified under § 60.756.

(3) Each owner or operator subject to the provisions of this subpart who uses a boiler or process heater with a design heat input capacity of 44 megawatts or greater to comply with § 60.752(b)(2)(iii) shall keep an up-to-date, readily accessible record of all periods of operation of the boiler or process heater. (Examples of such records could include records of steam use, fuel use, or monitoring data collected pursuant to other State, local, Tribal, or Federal regulatory requirements.)

(4) Each owner or operator seeking to comply with the provisions of this subpart by use of an open flare shall keep up-to-date, readily accessible continuous records of the flame or flare pilot flame monitoring specified under § 60.756(c), and up-to-date, readily accessible records of all periods of operation in which the flame or flare pilot flame is absent.

(d) Each owner or operator subject to the provisions of this subpart shall keep for the life of the collection system an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.

(1) Each owner or operator subject to the provisions of this subpart shall keep up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under § 60.755(b).

(2) Each owner or operator subject to the provisions of this subpart shall keep readily accessible documentation of the nature, date of deposition, amount, and location of asbestos-containing or nondegradable waste excluded from collection as provided in § 60.759(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in § 60.759(a)(3)(ii).

(e) Each owner or operator subject to the provisions of this subpart shall keep for at least 5 years up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in § 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.

§ 60.759 Specifications for active collection systems.

(a) Each owner or operator seeking to comply with § 60.752(b)(2)(i) shall site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the following procedures unless alternative procedures have been approved by the Administrator as provided in § 60.752(b)(2)(i)(C) and (D):

(1) The collection devices within the interior and along the perimeter areas shall be certified to achieve comprehensive control of surface gas emissions by a professional engineer. The following issues shall be addressed in the design: depths of refuse, refuse gas generation rates and flow characteristics, cover properties, gas system expandibility, leachate and condensate management, accessibility, compatibility with filling operations, integration with closure end use, al intrusion control, corrosion resistance, fill settlement, and resistance to the refuse decomposition heat.

(2) The sufficient density of gas collection devices determined in paragraph (a)(1) of this section shall address landfill gas migration issues and augmentation of the collection system through the use of active or passive systems at the landfill perimeter or exterior.

(3) The placement of gas collection devices determined in paragraph (a)(1) of this section shall control all gas producing areas, except as provided by paragraphs (a)(3)(i) and (a)(3)(ii) of this section.

(i) Any segregated area of asbestos or nondegradable material may be excluded from collection if documented as provided under § 60.758(d). The documentation shall provide the nature, date of deposition, location and amount of asbestos or nondegradable material deposited in the area, and shall be provided to the Administrator upon request.

(ii) Any nonproductive area of the landfill may be excluded from control, provided that the total of all excluded areas can be shown to contribute less than 1 percent of the total amour NMOC emissions from the landfill. The

amount, location, and age of the material shall be documented and provided to the Administrator upon request. A separate NMOC emissions estimate shall be made for each section proposed for exclusion, and the sum of all such sections shall be compared to the NMOC emissions estimate for the entire landfill. Emissions from each section shall be computed using the following equation:

$$Q_i = 2\,k\,L_o\,M_i\,(e^{-kt_i})\,(C_{NMOC})\,(3.6\times10^{-9})$$

where,

Q_i = NMOC emission rate from the i^{th} section, megagrams per year

k = methane generation rate constant, $year^{-1}$

L_o = methane generation potential, cubic meters per megagram solid waste

M_i = mass of the degradable solid waste in the i^{th} section, megagram

t_i = age of the solid waste in the i^{th} section, years

C_{NMOC} = concentration of nonmethane organic compounds, parts per million by volume

3.6×10^{-9} = conversion factor

(iii) The values for k, L_o, and C_{NMOC} determined in field testing shall be used, if field testing has been performed in determining the NMOC emission rate or the radii of influence. If field testing has not been performed, the default values for k, L_o and C_{NMOC} provided in § 60.754(a)(1) shall be used. The mass of nondegradable solid waste contained within the given section may be subtracted from the total mass of the section when estimating emissions provided the nature, location, age, and amount of the nondegradable material is documented as provided in paragraph (a)(3)(i) of this section.

(b) Each owner or operator seeking to comply with § 60.752(b)(2)(i)(A) shall construct the gas collection devices using the following equipment or procedures:

(1) The landfill gas extraction components shall be constructed of polyvinyl chloride (PVC), high density polyethylene (HDPE) pipe, fiberglass, stainless steel, or other nonporous corrosion resistant material of suitable dimensions to: convey projected amounts of gases; withstand installation, static, and settlement forces; and withstand planned overburden or traffic loads. The collection system shall extend as necessary to comply with emission and migration standards. Collection devices such as wells and horizontal collectors shall be perforated to allow gas entry without head loss sufficient to impair performance across the intended extent of control. Perforations shall be situated with regard to the need to prevent excessive air infiltration.

(2) Vertical wells shall be placed so as not to endanger underlying liners and shall address the occurrence of water within the landfill. Holes and trenches constructed for piped wells and horizontal collectors shall be of sufficient cross-section so as to allow for their proper construction and completion including, for example, centering of pipes and placement of gravel backfill. Collection devices shall be designed so as not to allow indirect short circuiting of air into the cover or refuse into the collection system or gas into the air. Any gravel used around pipe perforations should be of a dimension so as not to penetrate or block perforations.

(3) Collection devices may be connected to the collection header pipes below or above the landfill surface. The connector assembly shall include a positive closing throttle valve, any necessary seals and couplings, access couplings and at least one sampling port. The collection devices shall be constructed of PVC, HDPE, fiberglass, stainless steel, or other nonporous material of suitable thickness.

(c) Each owner or operator seeking to comply with § 60.752(b)(2)(i)(A) shall convey the landfill gas to a control system in compliance with § 60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment shall be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment using the following procedures:

(1) For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists, the procedures in paragraph (c)(2) of this section shall be used.

(2) For new collection systems, the maximum flow rate shall be in accordance with § 60.755(a)(1).

10. Part 60 is further amended by adding Methods 2E, 3C and 25C to appendix A as follows:

Appendix A—Reference Methods

* * * * *

Method 2E—Determination of Landfill Gas; Gas Production Flow Rate

1. Applicability and Principle

1.1 Applicability. This method applies to the measurement of landfill gas (LFG) production flow rate from municipal solid waste (MSW) landfills and is used to calculate the flow rate of nonmethane organic compounds (NMOC) from landfills. This method also applies to calculating a site-specific k value as provided in § 60.754(a)(4). It is unlikely that a site-specific k value obtained through Method 2E testing will lower the annual emission estimate below 50 Mg/yr NMOC unless the Tier 2 emission estimate is only slightly higher than 50 Mg/yr NMOC. Dry, arid regions may show a more significant difference between the default and calculated k values than wet regions.

1.2 Principle. Extraction wells are installed either in a cluster of three or at five locations dispersed throughout the landfill. A blower is used to extract LFG from the landfill. LFG composition, landfill pressures near the extraction well, and volumetric flow rate of LFG extracted from the wells are measured and the landfill gas production flow rate is calculated.

2. Apparatus

2.1 Well Drilling Rig. Capable of boring a 0.6 meters diameter hole into the landfill to a minimum of 75 percent of the landfill depth. The depth of the well shall not exceed the bottom of the landfill or the liquid level.

2.2 Gravel. No fines. Gravel diameter should be appreciably larger than perforations stated in sections 2.10 and 3.2 of this method.

2.3 Bentonite.

2.4 Backfill Material. Clay, soil, and sandy loam have been found to be acceptable.

2.5 Extraction Well Pipe. Polyvinyl chloride (PVC), high density polyethylene (HDPE), fiberglass, stainless steel, or other suitable nonporous material capable of transporting landfill gas with a minimum diameter of 0.075 meters and suitable wall-thickness.

2.6 Wellhead Assembly. Valve capable of adjusting gas flow at the wellhead and outlet, and a flow measuring device, such as an in-line orifice meter or pitot tube. A schematic of the wellhead assembly is shown in figure 1.

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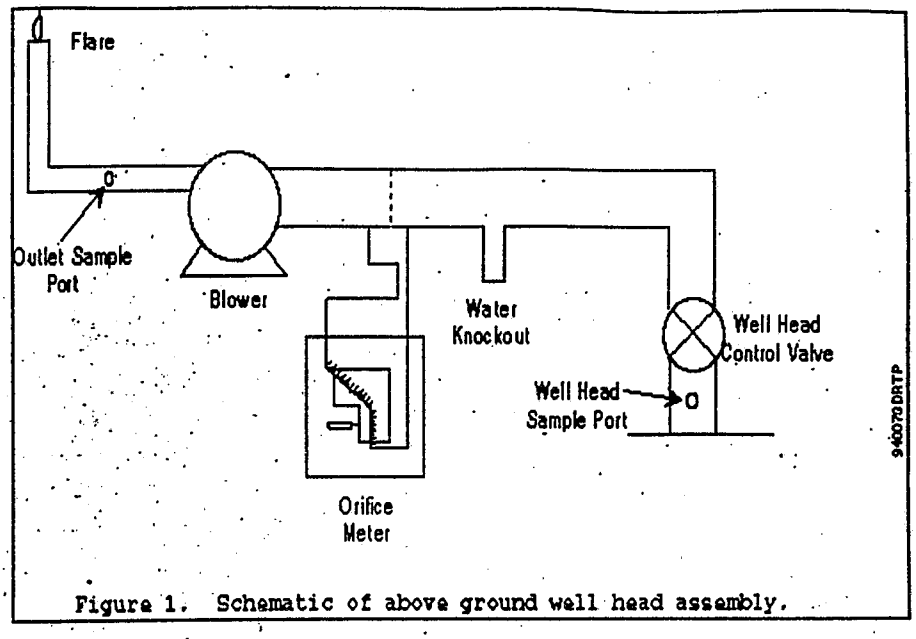

Figure 1. Schematic of above ground well head assembly.

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2.7 Cap. PVC, HDPE, fiberglass, stainless steel, or other suitable nonporous material capable of transporting landfill gas with a suitable wall-thickness.

2.8 Header Piping. PVC, HDPE, fiberglass, stainless steel, or other suitable nonporous material capable of transporting landfill gas with a suitable wall-thickness.

2.9 Auger. Capable of boring a 0.15 to 0.23 meters diameter hole to a depth equal to the top of the perforated section of the extraction well, for pressure probe installation.

2.10 Pressure Probe. PVC or stainless steel (316), 0.025 meters. Schedule 40 pipe. Perforate the bottom two thirds. A minimum requirement for perforations is slots or holes with an open area equivalent to four 6.0 millimeter diameter holes spaced 90° apart every 0.15 meters.

2.11 Blower and Flare Assembly. A water knockout, flare or incinerator, and an explosion-proof blower, capable of extracting LFG at a flow rate of at least 8.5 cubic meters per minute.

2.12 Standard Pitot Tube and Differential Pressure Gauge for Flow Rate Calibration with Standard Pitot. Same as Method 2, sections 2.1 and 2.8.

2.13 Gas flow measuring device. Permanently mounted Type S pitot tube or an orifice meter.

2.14 Barometer. Same as Method 4, section 2.1.5.

2.15 Differential Pressure Gauge. Water-filled U-tube manometer or equivalent, capable of measuring within 0.02 mm Hg, for measuring the pressure of the pressure probes.

3. Procedure

3.1 Placement of Extraction Wells. The landfill owner or operator shall either install a single cluster of three extraction wells in a test area or space five wells over the landfill. The cluster wells are recommended but may be used only if the composition, age of the solid waste, and the landfill depth of the test area can be determined. CAUTION: Since this method is complex, only experienced personnel should conduct the test. Landfill gas contains methane, therefore explosive mixtures may exist at or near the landfill. It is advisable to take appropriate safety precautions when testing landfills, such as installing explosion-proof equipment and refraining from smoking.

3.1.1 Cluster Wells. Consult landfill site records for the age of the solid waste, depth, and composition of various sections of the landfill. Select an area near the perimeter of the landfill with a depth equal to or greater than the average depth of the landfill and with the average age of the solid waste between 2 and 10 years old. Avoid areas known to contain nondecomposable materials, such as concrete and asbestos. Locate wells as shown in figure 2.

Because the age of the solid waste in a test area will not be uniform, calculate a weighted average to determine the average age of the solid waste as follows.

$$A_{avg} = \sum_{i=1}^{n} f_i A_i$$

where,

A_{avg}=average age of the solid waste tested, year

f_i=fraction of the solid waste in the i^{th} section

A_i=age of the i^{th} fraction, year

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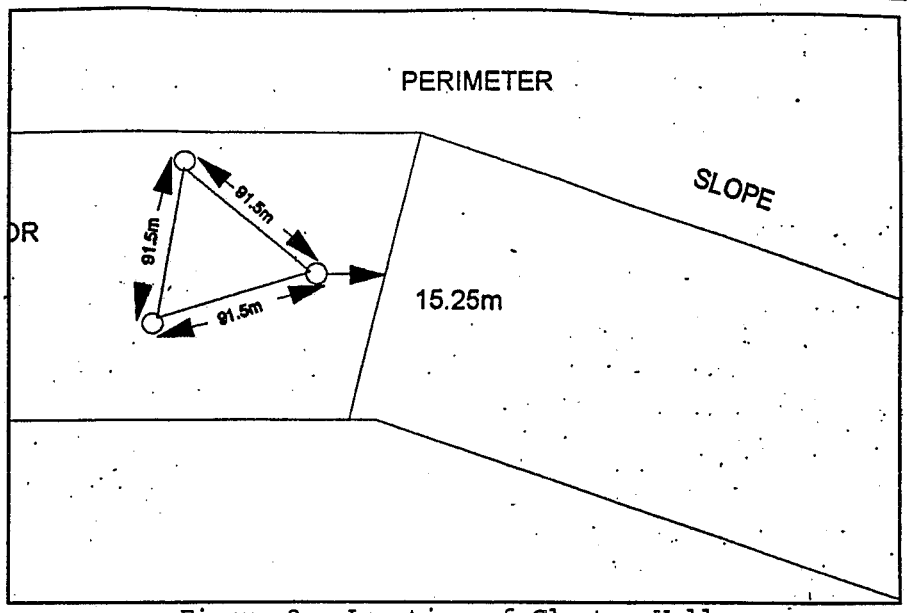

Figure 2. Location of Cluster Wells

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3.1.2 Equal Volume Wells. This procedure is used when the composition, age of solid waste, and landfill depth are not well known. Divide the portion of the landfill that has had waste for at least 2 years into five areas representing equal volumes. Locate an extraction well near the center of each area. Avoid areas known to contain nondecomposable materials, such as concrete and asbestos.

3.2 Installation of Extraction Wells. Use a well drilling rig to dig a 0.6 meters diameter hole in the landfill to a minimum of 75 percent of the landfill depth, not to exceed the bottom of the landfill or the water table. Perforate the bottom two thirds of the extraction well pipe. Perforations shall not be closer than 6 meters from the cover. Perforations shall be holes or slots with an open area equivalent to 1.0 centimeter diameter holes spaced 90 degrees apart every 0.1 to 0.2 meters. Place the extraction well in the center of the hole and backfill with 2.0 to 7.5 centimeters gravel to a level 0.3 meters above the perforated section. Add a layer of backfill material 1.2 meters thick. Add a layer of bentonite 1.0 meter thick, and backfill the remainder of the hole with cover material or material equal in permeability to the existing cover material. The specifications for extraction well installation are shown in figure 3.

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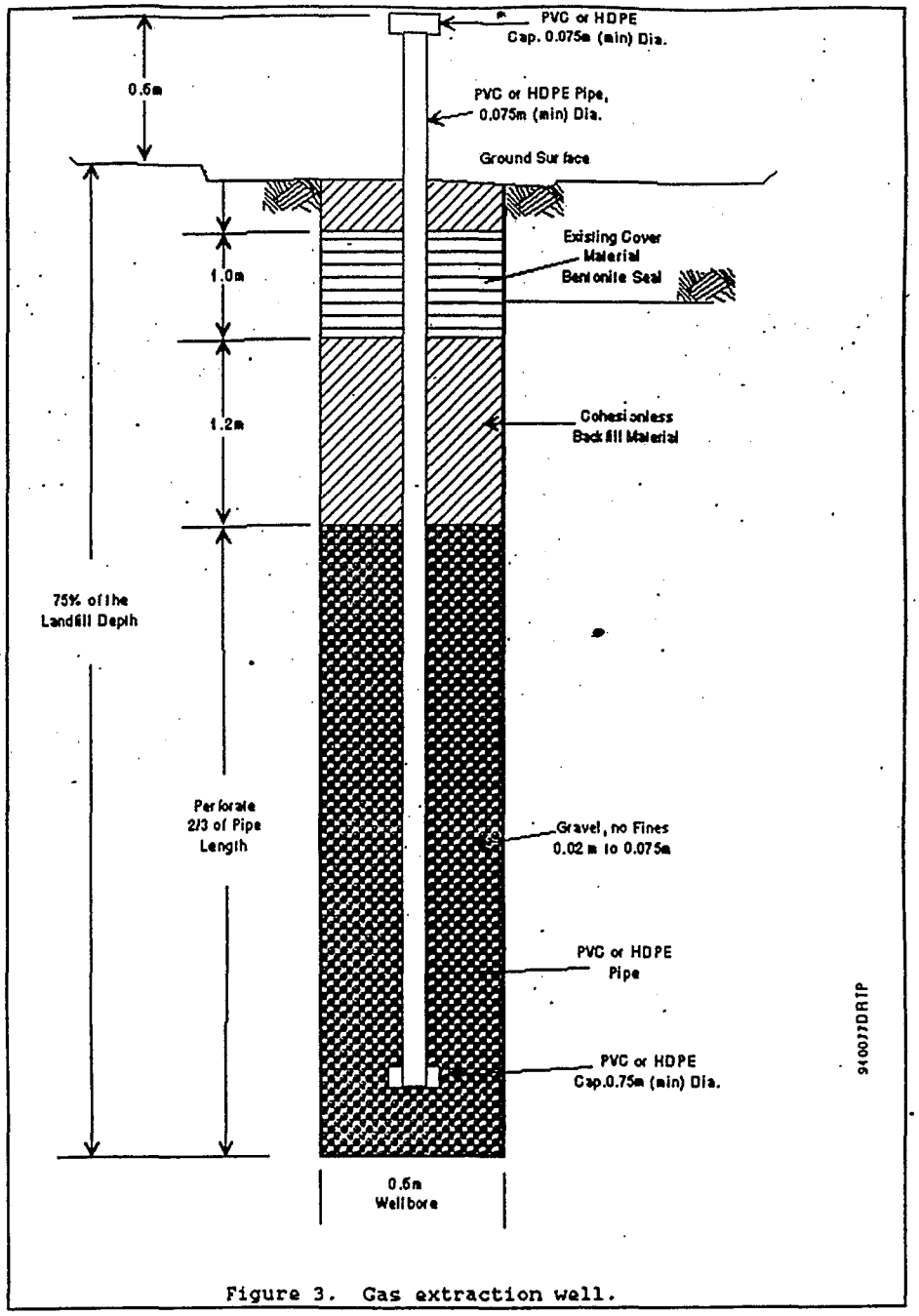

Figure 3. Gas extraction well.

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3.3 Pressure Probes. Shallow pressure probes are used in the check for infiltration of air into the landfill, and deep pressure probes are used to determine the radius of influence. Locate the deep pressure probes along three radial arms approximately 120 degrees apart at distances of 3, 15, 30, and 45 meters from the extraction well. The tester has the option of locating additional pressure probes at distances every 15 meters beyond 45 meters. Example placements of probes are shown in figure 4.

The probes located 15, 30, and 45 meters from each well, and any additional probes located along the three radial arms (deep probes), shall extend to a depth equal to the top of the perforated section of the extraction wells. Locate three shallow probes at a distance of 3 m from the extraction well. Shallow probes shall extend to a depth equal to half the depth of the deep probes.

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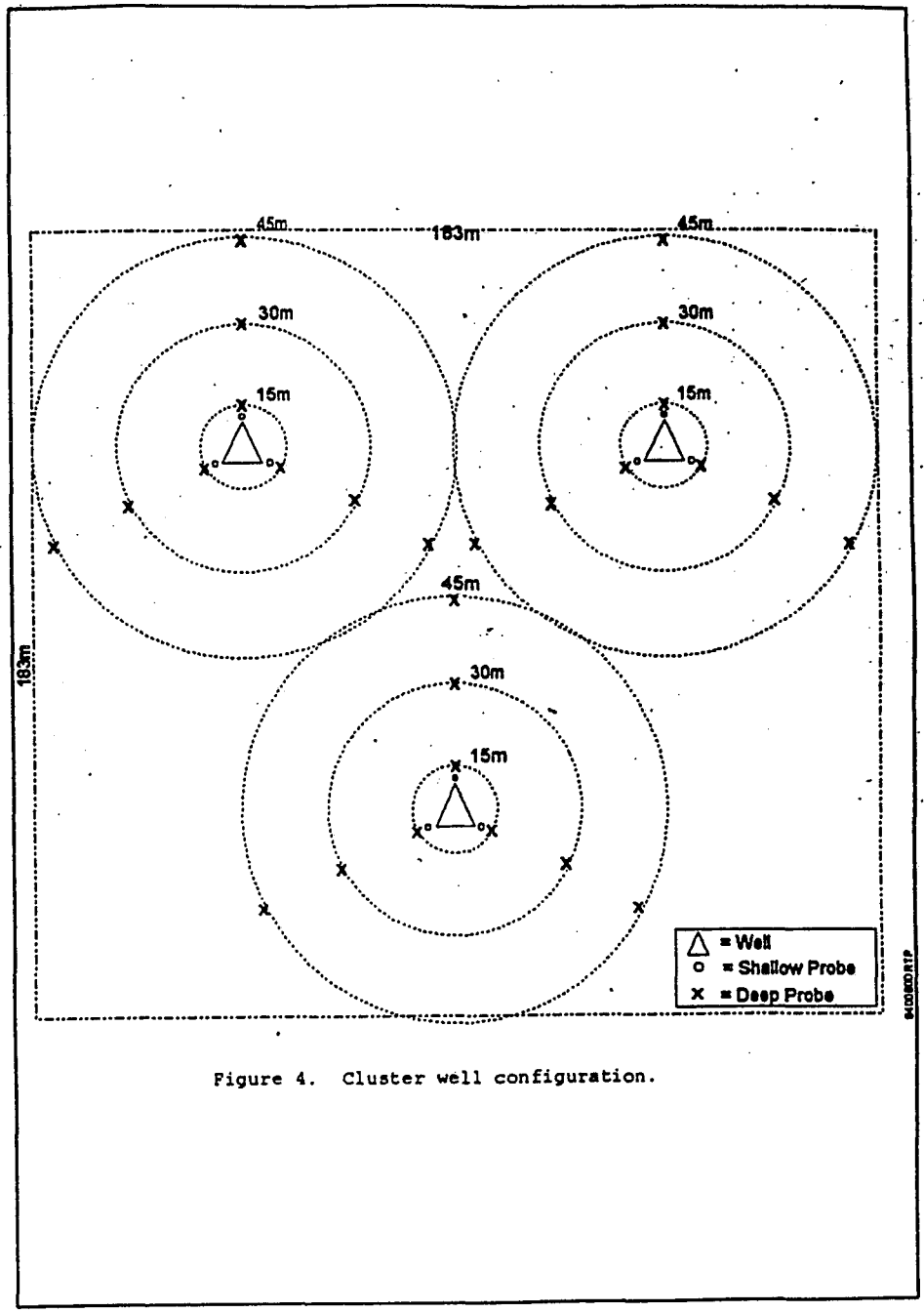

Figure 4. Cluster well configuration.

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Use an auger to dig a hole, approximately 0.15 to 0.23 meters in diameter, for each pressure probe. Perforate the bottom two thirds of the pressure probe. Perforations shall be holes or slots with an open area equivalent to four 6.0 millimeter diameter holes spaced 90 degrees apart every 0.15 meters. Place the pressure probe in the center of the hole and backfill with gravel to a level 0.30 meters above the perforated section. Add a layer of backfill material at least 1.2 meters thick. Add a layer of bentonite at least 0.3 meters thick, and backfill the remainder of the hole with cover material or material equal in permeability to the existing cover material. The specifications for pressure probe installation are shown in figure 5.

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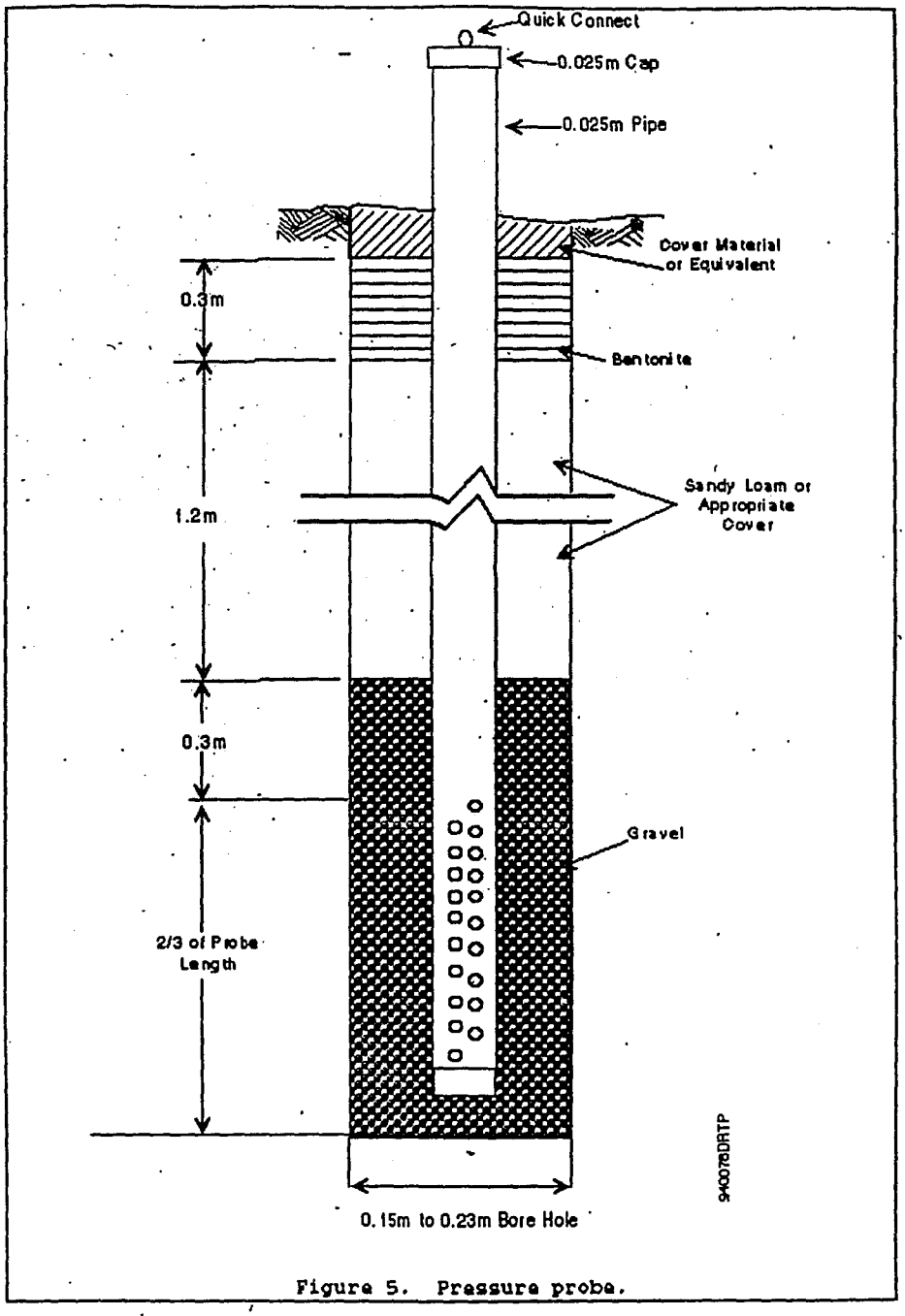

Figure 5. Pressure probe.

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3.4 LFG Flow Rate Measurement. Determine the flow rate of LFG from the test wells continuously during testing with an orifice meter. Alternative methods to measure the LFG flow rate may be used with approval of the Administrator. Locate the orifice meter as shown in figure 1. Attach the wells to the blower and flare assembly. The individual wells may be ducted to a common header so that a single blower and flare assembly and flow meter may be used. Use the procedures in section 4.1 to calibrate the flow meter.

3.5 Leak Check. A leak check of the above ground system is required for accurate flow rate measurements and for safety. Sample LFG at the wellhead sample port and at a point downstream of the flow measuring device. Use Method 3C to determine nitrogen (N_2) concentrations. Determine the difference by using the formula below.

$Difference = C_o - C_w$

where,

C_o=concentration of N_2 at the outlet, ppmv

C_w=concentration of N_2 at the wellhead, ppmv

The system passes the leak check if the difference is less than 10,000 ppmv. If the system fails the leak check, make the appropriate adjustments to the above ground system and repeat the leak check.

3.6 Static Testing. The purpose of the static testing is to determine the initial conditions of the landfill. Close the control valves on the wells so that there is no flow of landfill gas from the well. Measure the gauge pressure (P_g) at each deep pressure probe and the barometric pressure (P_{bar}) every 8 hours for 3 days. Convert the gauge pressure of each deep pressure probe to absolute pressure by using the following equation. Record as P_i.

$P_i = P_{bar} + P_g$

where,

P_{bar}=Atmospheric pressure, mm Hg

P_g=Gauge pressure of the deep probes, mm Hg

P_i=Initial absolute pressure of the deep probes during static testing, mm Hg

3.6.1 For each probe, average all of the 8 hr deep pressure probe readings and record as P_{ia}. The P_{ia} is used in section 3.7.6 to determine the maximum radius of influence.

3.6.2 Measure the LFG temperature and the static flow rate of each well once during static testing using a flow measurement device, such as a Type S pitot tube and measure the temperature of the landfill gas. The flow measurements should be made either just before or just after the measurements of the probe pressures and are used in determining the initial flow from the extraction well during the short term testing. The temperature measurement is used in the check for infiltration.

3.7 Short Term Testing. The purpose of short term testing is to determine the maximum vacuum that can be applied to the wells without infiltration of air into the landfill. The short term testing is done on one well at a time. During the short term testing, burn LFG with a flare or incinerator.

3.7.1 Use the blower to extract LFG from a single well at a rate at least twice the static flow rate of the respective well measured in section 3.6.2. If using a single blower and flare assembly and a common header system, close the control valve on the wells not being measured. Allow 24 hours for the system to stabilize at this flow rate.

3.7.2 Check for infiltration of air into the landfill by measuring the temperature of the LFG at the wellhead, the gauge pressures of the shallow pressure probes, and the LFG N_2 concentration by using Method 3C. CAUTION: Increased vacuum at the wellhead may cause infiltration of air into the landfill, which increases the possibility of a landfill fire. Infiltration of air into the landfill may occur if any of the following conditions are met: the LFG N_2 concentration is more than 20 percent, any of the shallow probes have a negative gauge pressure, or the temperature has increased above 55°C or the maximum established temperature during static testing. If infiltration has not occurred, increase the blower vacuum by 4 mm Hg, wait 24 hours, and repeat the infiltration check. If at any time, the temperature change exceeds the limit, stop the test until it is safe to proceed. Continue the above steps of increasing blower vacuum by 4 mm Hg, waiting 24 hours, and checking for infiltration until the concentration of N_2 exceeds 20 percent or any of the shallow probes have a negative gauge pressure, at which time reduce the vacuum at the wellhead so that the N_2 concentration is less than 20 percent and the gauge pressures of the shallow probes are positive. This is the maximum vacuum at which infiltration does not occur.

3.7.3 At this maximum vacuum, measure P_{bar} every 8 hours for 24 hours and record the LFG flow rate as Q_s and the probe gauge pressures for all of the probes as P_f. Convert the gauge pressures of the deep probes to absolute pressures for each 8-hour reading at Q_s as follows:

$P = P_{bar} + P_f$

where,

P_{bar}=Atmospheric pressure, mm Hg

P_f=Final absolute pressure of the deep probes during short term testing, mm Hg

P=Pressure of the deep probes, mm Hg

3.7.4 For each probe, average the 8-hr deep pressure probe readings and record as P_{fa}.

3.7.5 For each probe, compare the initial average pressure (P_{ia}) from section 3.6.1 to the final average pressure (P_{fa}). Determine the furthermost point from the wellhead along each radial arm where $P_{fa} \leq P_{ia}$. This distance is the maximum radius of influence (ROI), which is the distance from the well affected by the vacuum. Average these values to determine the average maximum radius of influence (R_{ma}).

The average R_{ma} may also be determined by plotting on semi-log paper the pressure differentials (P_{fa}-P_{ia}) on the y-axis (abscissa) versus the distances (3, 15, 30 and 45 meters) from the wellhead on the x-axis (ordinate). Use a linear regression analysis to determine the distance when the pressure differential is zero. Additional pressure probes may be used to obtain more points on the semi-long plot of pressure differentials versus distances.

3.7.6 Calculate the depth (D_{st}) affected by the extraction well during the short term test as follows. If the computed value of D_{st} exceeds the depth of the landfill, set D_{st} equal to the landfill depth.

$D_{st} = WD + R_{ma}^2$

where,

D_{st}=depth, m

WD=well depth, m

R_{ma}=maximum radius of influence, m

3.7.7 Calculate the void volume for the extraction well (V) as follows.

$V = 0.40\ \pi\ R_{ma}^2\ D_{st}$

where,

V=void volume of test well, m^3

R_{ma}=maximum radius of influence, m

D_{st}=depth, m

3.7.8 Repeat the procedures in section 3.7 for each well.

3.8 Calculate the total void volume of the test wells (V_w) by summing the void volumes (V) of each well.

3.9 Long Term Testing. The purpose of long term testing is to determine the methane generation rate constant, k. Use the blower to extract LFG from the wells. If a single blower and flare assembly and common header system are used, open all control valves and set the blower vacuum equal to the highest stabilized blower vacuum demonstrated by any individual well in section 3.7. Every 8 hours, sample the LFG from the wellhead sample port, measure the gauge pressures of the shallow pressure probes, the blower vacuum, the LFG flow rate, and use the criteria for infiltration in section 3.7.2 and Method 3C to check for infiltration. If infiltration is detected, do not reduce the blower vacuum, but reduce the LFG flow rate from the well by adjusting the control valve on the wellhead. Adjust each affected well individually. Continue until the equivalent of two total void volumes (V_w) have been extracted, or until $V_t = 2\ V_w$.

3.9.1 Calculate V_t, the total volume of LFG extracted from the wells, as follows.

$$V_t = \sum_{i=1}^{n} 60\ Q_i\ t_{vi}$$

where,

V_t=total volume of LFG extracted from wells, m^3

Q_i=LFG flow rate measured at orifice meter at the i^{th} interval, cubic meters per minute

t_{vi}=time of the i^{th} interval, hour (usually 8)

3.9.2 Record the final stabilized flow rate as Q_f. If, during the long term testing, the flow rate does not stabilize, calculate Q_f by averaging the last 10 recorded flow rates.

3.9.3 For each deep probe, convert each gauge pressure to absolute pressure as in section 3.7.4. Average these values and record as P_{sa}. For each probe, compare P_{ia} to P_{sa}. Determine the furthermost point from the wellhead along each radial arm where $P_{sa} \leq P_{ia}$. This distance is the stabilized radius of influence. Average these values to determine the average stabilized radius of influence (R_{sa}).

3.10 Determine the NMOC mass emission rate using the procedures in section 5.

3.11 Deactivation of pressure probe holes. Upon completion of measurements, if pressure probes are removed, restore the

integrity of the landfill cover by backfilling and sealing to prevent venting of LFG to the atmosphere or air infiltration.

4. Calibrations

Gas Flow Measuring Device Calibration Procedure. Locate a standard pitot tube in line with a gas flow measuring device. Use the procedures in Method 2D, section 4, to calibrate the orifice meter. Method 3C may be used to determine the dry molecular weight. It may be necessary to calibrate more than one gas flow measuring device to bracket the landfill gas flow rates. Construct a calibration curve by plotting the pressure drops across the gas flow measuring device for each flow rate versus the average dry gas volumetric flow rate in cubic meters per minute of the gas. Use this calibration curve to determine the volumetric flow from the wells during testing.

5. Calculations

5.1 Nomenclature.

A_{avg}=average age of the solid waste tested, year

A_i=age of solid waste in the ith fraction, year

A=age of landfill, year

A_r=acceptance rate, megagrams per year

C_{NMOC}=NMOC concentration, ppmv as hexane ($C_{NMOC}=C_t/6$)

C_t=NMOC concentration, ppmv (carbon equivalent) from Method 25C

D = depth affected by the test wells, m

D_{sa}=depth affected by the test wells in the short term test, m

D_{LF}=landfill depth, m

f = fraction of decomposable solid waste in the landfill

f_i=fraction of the solid waste in the i^{th} section

k=methane generation rate constant, $year^{-1}$

L_o=methane generation potential, cubic meters per megagram

L_o'=revised methane generation potential to account for the amount of nondecomposable material in the landfill, cubic meters per megagram

M_i=mass of solid waste of the i^{th} section, megagrams

M_r=mass of decomposable solid waste affected by the test well, megagrams

M_w=number of wells

P_{bar}=atmospheric pressure, mm Hg

P_g=gauge pressure of the deep pressure probes, mm Hg

P_i=initial absolute pressure of the deep pressure probes during static testing, mm Hg

P_{ia}=average initial absolute pressure of the deep pressure probes during static testing, mm Hg

P_f=final absolute pressure of the deep pressure probes during short term testing, mm Hg

P_{fa}=average final absolute pressure of the deep pressure probes during short term testing, mm Hg

P_s=final absolute pressure of the deep pressure probes during long term testing, mm Hg

P_{sa}=average final absolute pressure of the deep pressure probes during long term testing, mm Hg

Q_{adj}=required blow flow rate, cubic meters per minute

Q_f=final stabilized flow rate, cubic meters per minute

Q_i=LFG flow rate measured at orifice meter during the i^{th} interval, cubic meters per minute

Q_s=maximum LFG flow rate at each well determined by short term test, cubic meters per minute

Q_t=NMOC mass emission rate, cubic meters per minute

R_m=maximum radius of influence, m

R_{ma}=average maximum radius of influence, m

R_s=stabilized radius of influence for an individual well, m

R_{sa}=average stabilized radius of influence, m

t_i=age of section i, year

t_t=total time of long term testing, year

V=void volume of test well, m^3

V_r=volume of solid waste affected by the test well, m^3

V_t=total volume of solid waste affected by the long term testing, m^3

V_v=total void volume affected by test wells, m^3

WD=well depth, m

ρ=solid waste density, m^3 (Assume 0.64 megagrams per cubic meter if data are unavailable)

5.2 Use the following equation to calculate the depth affected by the test well. If using cluster wells, use the average depth of the wells for WD. If the value of D is greater than the depth of the landfill, set D equal to the landfill depth.

$D=WD+R_{sa}$

5.3 Use the following equation to calculate the volume of solid waste affected by the test well.

$V_r=R_{sa}^2\,\pi\,D$

5.4 Use the following equation to calculate the mass affected by the test well.

$M_r=V_r\rho$

5.5 Modify L_o to account for the nondecomposable solid waste in the landfill.

$L_o'=f\,L_o$

5.6 In the following equation, solve for k by iteration. A suggested procedure is to select a value for k, calculate the left side of the equation, and if not equal to zero, select another value for k. Continue this process until the left hand side of the equation equals zero, #0.001.

$$ke^{-k}A_{avg}-\left(5.256\times10^{5}\right)\frac{Q_f}{2\,L_o'\,M_r}=0$$

5.7 Use the following equation to determine landfill NMOC mass emission rate if the yearly acceptance rate of solid waste has been consistent (±10 percent) over the life of the landfill.

$Q_t = 2\,L_o'\,A_r\,(1-e^{-k\,A})\,C_{NMOC}\,/\,(5.256\times10^{11})$

5.8 Use the following equation to determine landfill NMOC mass emission rate if the acceptance rate has not been consistent over the life of the landfill.

$$Q_t=\frac{2\,kL_o'\,C_{NMOC}}{\left(5.256\times10^{11}\right)}\sum_{i=1}^{n}M_i e^{-kt_i}$$

6. Bibliography

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2. Emcon Associates, Methane Genera and Recovery from Landfills. Ann Arbor Science, 1982.

3. The Johns Hopkins University, Brown Station Road Testing and Gas Recovery Projections. Laurel, Maryland: October 1982.

4. Mandeville and Associates, Procedure Manual for Landfill Gases Emission Testing.

5. Letter and attachments from Briggum, S., Waste Management of North America, to Thorneloe, S., EPA. Response to July 28, 1988 request for additional information. August 18,1988.

6. Letter and attachments from Briggum, S., Waste Management of North America, to Wyatt, S., EPA. Response to December 7, 1988 request for additional information. January 16, 1989.

* * * * *

Method 3C—Determination of Carbon Dioxide, Methane, Nitrogen, and Oxygen From Stationary Sources

1. Applicability and Principle

1.1 Applicability. This method applies to the analysis of carbon dioxide (CO_2), methane (CH_4), nitrogen (N_2), and oxygen (O_2) in samples from municipal solid waste landfills and other sources when specified in an applicable subpart.

1.2 Principle. A portion of the sample is injected into a gas chromatograph (GC) and the CO_2, CH_4, N_2, and O_2 concentrations are determined by using a thermal conductivity detector (TCD) and integrator.

2. Range and Sensitivity

2.1 Range. The range of this method depends upon the concentration of samples. The analytical range of TCD's is generally between approximately 10 ppmv and the upper percent range.

2.2 Sensitivity. The sensitivity limit for a compound is defined as the minimum detectable concentration of that compound, or the concentration that produces a signal-to-noise ratio of three to one. For CO_2, CH_4, N_2, and O_2, the sensitivity limit is in the low ppmv range.

3. Interferences

Since the TCD exhibits universal response and detects all gas components except the carrier, interferences may occur. Choosing the appropriate GC or shifting the retention times by changing the column flow rate may help to eliminate resolution interferences.

To assure consistent detector response, helium is used to prepare calibration gases. Frequent exposure to samples or carrier gas containing oxygen may gradually destroy filaments.

4. Apparatus

4.1 Gas Chromatograph. GC having at least the following components:

4.1.1 Separation Column. Appropriate column(s) to resolve CO_2, CH_4, N_2, O_2, and other gas components that may be present in the sample.

4.1.2 Sample Loop. Teflon or stainless steel tubing of the appropriate diameter.

Note: Mention of trade names or specific products does not constitute endorsement or recommendation by the U. S. Environmental Protection Agency.

4.1.3 Conditioning System. To maintain the column and sample loop at constant temperature.

4.1.4 Thermal Conductivity Detector.

4.2 Recorder. Recorder with linear strip chart. Electronic integrator (optional) is recommended.

4.3 Teflon Tubing. Diameter and length determined by connection requirements of cylinder regulators and the GC.

4.4 Regulators. To control gas cylinder pressures and flow rates.

4.5 Adsorption Tubes. Applicable traps to remove any O_2 from the carrier gas.

5. Reagents

5.1 Calibration and Linearity Gases. Standard cylinder gas mixtures for each compound of interest with at least three concentration levels spanning the range of suspected sample concentrations. The calibration gases shall be prepared in helium.

5.2 Carrier Gas. Helium, high-purity.

6. Analysis

6.1 Sample Collection. Use the sample collection procedures described in Methods 3 or 25C to collect a sample of landfill gas (LFG).

6.2 Preparation of GC. Before putting the GC analyzer into routine operation, optimize the operational conditions according to the manufacturer's specifications to provide good resolution and minimum analysis time. Establish the appropriate carrier gas flow and set the detector sample and reference cell flow rates at exactly the same levels. Adjust the column and detector temperatures to the recommended levels. Allow sufficient time for temperature stabilization. This may typically require 1 hour for each change in temperature.

6.3 Analyzer Linearity Check and Calibration. Perform this test before sample analysis. Using the gas mixtures in section 5.1, verify the detector linearity over the range of suspected sample concentrations with at least three points per compound of interest. This initial check may also serve as the initial instrument calibration. All subsequent calibrations may be performed using a single-point standard gas provided the calibration point is within 20 percent of the sample component concentration. For each instrument calibration, record the carrier and detector flow rates, detector filament and block temperatures, attenuation factor, injection time, chart speed, sample loop volume, and component concentrations. Plot a linear regression of the standard concentrations versus area values to obtain the response factor of each compound. Alternatively, response factors of uncorrected component concentrations (wet basis) may be generated using instrumental integration. Note: Peak height may be used instead of peak area throughout this method.

6.4 Sample Analysis. Purge the sample loop with sample, and allow to come to atmospheric pressure before each injection. Analyze each sample in duplicate, and calculate the average sample area (A). The results are acceptable when the peak areas for two consecutive injections agree within 5 percent of their average. If they do not agree, run additional samples until consistent area data are obtained. Determine the tank sample concentrations according to section 7.2.

7. Calculations

Carry out calculations retaining at least one extra decimal figure beyond that of the acquired data. Round off results only after the final calculation.

7.1 Nomenclature.

A = average sample area

B_w = moisture content in the sample, fraction

C = component concentration in the sample, dry basis, ppmv

C_t = calculated NMOC concentration, ppmv C equivalent

C_{tm} = measured NMOC concentration, ppmv C equivalent

P_{bar} = barometric pressure, mm Hg

P_{ti} = gas sample tank pressure after evacuation, mm Hg absolute

P_t = gas sample tank pressure after sampling, but before pressurizing, mm Hg absolute

P_{tf} = final gas sample tank pressure after pressurizing, mm Hg absolute

P_w = vapor pressure of H_2O (from table 3C–1), mm Hg

T_{ti} = sample tank temperature before sampling, °K

T_t = sample tank temperature at completion of sampling, °K

T_{tf} = sample tank temperature after pressurizing, °K

r = total number of analyzer injections of sample tank during analysis (where j = injection number, 1 . . . r)

R = Mean calibration response factor for specific sample component, area/ppmv

TABLE 3C–1.—MOISTURE CORRECTION

Temperature °C	Vapor Pressure of H_2O, mm Hg
4	6.1
6	7.0
8	8.0
10	9.2
12	10.5
14	12.0
16	13.6
18	15.5
20	17.5
22	19.8
24	22.4
26	25.2
28	28.3
30	31.8

7.2 Concentration of Sample Components. Calculate C for each compound using Equations 3C–1 and 3C–2. Use the temperature and barometric pressure at the sampling site to calculate Bw. If the sample was diluted with helium using the procedures in Method 25C, use Equation 3C–3 to calculate the concentration.

$$B_w = \frac{P_w}{P_{bar}} \qquad 3C\text{-}1$$

$$C = \frac{A}{R(1-B_w)} \qquad 3C\text{-}2$$

$$C = \frac{\frac{P_{tf}}{T_{tf}}}{\frac{P_t}{T_t} - \frac{P_{ti}}{T_{ti}}} \quad \frac{A}{R(1-B_w)} \qquad 3C\text{-}3$$

8. Bibliography

1. McNair, H.M., and E.J. Bonnelli. Basic Gas Chromatography. Consolidated Printers, Berkeley, CA. 1969.

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Method 25C—Determination of Nonmethane Organic Compounds (NMOC) in MSW Landfill Gases

1. Applicability and Principle

1.1 Applicability. This method is applicable to the sampling and measurement of nonmethane organic compounds (NMOC) as carbon in MSW landfill gases.

1.2 Principle. A sample probe that has been perforated at one end is driven or augered to a depth of 1.0 meter below the bottom of the landfill cover. A sample of the landfill gas is extracted with an evacuated cylinder. The NMOC content of the gas is determined by injecting a portion of the gas into a gas chromatographic column to separate the NMOC from carbon monoxide (CO), carbon dioxide (CO_2), and methane (CH_4); the NMOC are oxidized to CO_2, reduced to CH_4, and measured by a flame ionization detector (FID). In this manner, the variable response of the FID associated with different types of organics is eliminated.

2. Apparatus

2.1 Sample Probe. Stainless steel, with the bottom third perforated. The sample probe shall be capped at the bottom and shall have a threaded cap with a sampling attachment at the top. The sample probe shall be long enough to go through and extend no less than 1.0 meter below the landfill cover. If the sample probe is to be driven into the landfill, the bottom cap should be designed to facilitate driving the probe into the landfill.

2.2 Sampling Train.

2.2.1 Rotameter with Flow Control Valve. Capable of measuring a sample flow rate of 500 ml/min or less (30.5±3.1 m^3/min). The control valve shall be made of stainless steel.

2.2.2 Sampling Valve. Stainless steel.

2.2.3 Pressure Gauge. U-tube mercury manometer, or equivalent, capable of measuring pressure to within 1 mm Hg in the range of 0 to 1,100 mm Hg.

2.2.4 Sample Tank. Stainless steel or aluminum cylinder, with a minimum volume of 4 liters and equipped with a stainless steel sample tank valve.

2.3 Vacuum Pump. Capable of evacuating to an absolute pressure of 10 mm Hg.

2.4 Purging Pump. Portable, explosion proof, and suitable for sampling NMOC.

2.5 Pilot Probe Procedure. The following are needed only if the tester chooses to use the procedure described in section 4.2.1.

2.5.1 Pilot Probe. Tubing of sufficient strength to withstand being driven into the landfill by a post driver and an outside diameter of at least 6.0 millimeters smaller than the sample probe. The pilot probe shall be capped on both ends and long enough to go through the landfill cover and extend no less than 1.0 meter into the landfill.

2.5.2 Post Driver and Compressor. Capable of driving the pilot probe and the sampling probe into the landfill.

2.6 Auger Procedure. The following are needed only if the tester chooses to use the procedure described in section 4.2.2.

2.6.1 Auger. Capable of drilling through the landfill cover and to a depth of no less than 0.9 meters into the landfill.

2.6.2 Pea Gravel.

2.6.3 Bentonite.

2.7 NMOC Analyzer, Barometer, Thermometer, and Syringes. Same as in sections 2.3, 2.4.1, 2.4.2, 2.4.4, respectively, of Method 25.

3. Reagents

3.1 NMOC Analysis. Same as in Method 25, section 3.2.

3.2 Calibration. Same as in Method 25, section 3.4, except omit section 3.4.3.

4. Procedure

4.1 Sample Tank Evacuation and Leak Check. Conduct the sample tank evacuation and leak check either in the laboratory or the field. Connect the pressure gauge and sampling valve to the sample tank. Evacuate the sample tank to 10 mm Hg absolute pressure or less. Close the sampling valve, and allow the tank to sit for 60 minutes. The tank is acceptable if no change is noted. Include the results of the leak check in the test report.

4.2 Sample Probe Installation. The tester may use the procedure in sections 4.2.1 or 4.2.2. CAUTION: Since this method is complex, only experienced personnel should perform this test. LFG contains methane, therefore explosive mixtures may exist on or near the landfill. It is advisable to take appropriate safety precautions when testing landfills, such as refraining from smoking and installing explosion-proof equipment.

4.2.1 Pilot Probe Procedure. Use the post driver to drive the pilot probe at least 1.0 meter below the landfill cover. Alternative procedures to drive the probe into the landfill may be used subject to the approval of the Administrator.

Remove the pilot probe and drive the sample probe into the hole left by the pilot probe. The sample probe shall extend not less than 1.0 meter below the landfill cover and shall protrude about 0.3 meters above the landfill cover. Seal around the sampling probe with bentonite and cap the sampling probe with the sampling probe cap.

4.2.2 Auger Procedure. Use an auger to drill a hole through the landfill cover and to at least 1.0 meter below the landfill cover. Place the sample probe in the hole and backfill with pea gravel to a level 0.6 meters from the surface. The sample probe shall protrude at least 0.3 meters above the landfill cover. Seal the remaining area around the probe with bentonite. Allow 24 hours for the landfill gases to equilibrate inside the augered probe before sampling.

4.3 Sample Train Assembly. Prepare the sample by evacuating and filling the sample tank with helium three times. After the third evacuation, charge the sample tank with helium to a pressure of approximately 325 mm Hg. Record the pressure, the ambient temperature, and the barometric pressure. Assemble the sampling probe purging system as shown in figure 1.

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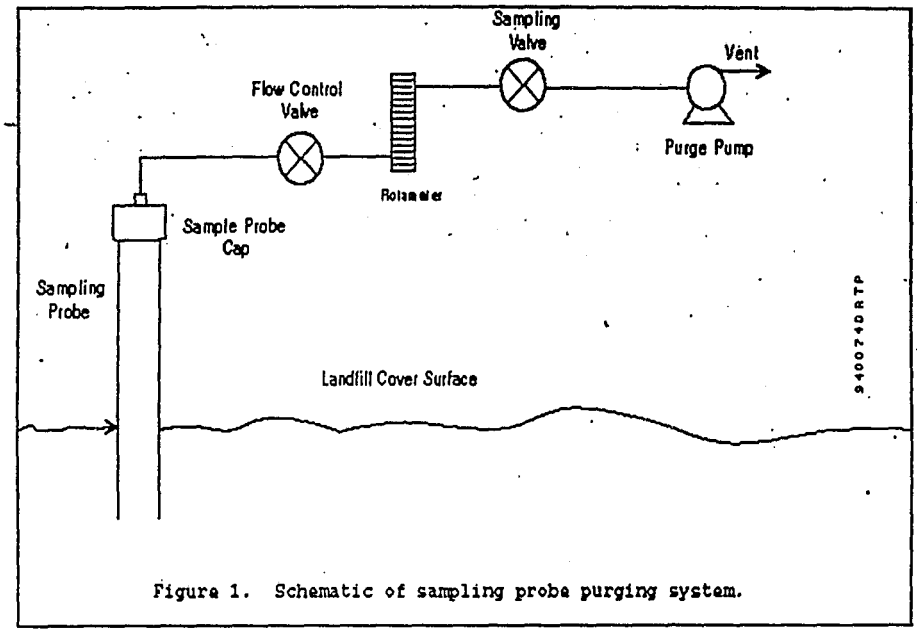

Figure 1. Schematic of sampling probe purging system.

4.4 Sampling Procedure. Open the sampling valve and use the purge pump and the flow control valve to evacuate at least two sample probe volumes from the system at a flow rate of 500 ml/min or less (30.5±3.1 m^3/min). Close the sampling valve and replace the purge pump with the sample tank apparatus as shown in figure 2. Open the sampling valve and the sample tank valves and, using the flow control valve, sample at a flow rate of 500 ml/min or less (30.5±3.1 m^3/min) until the sample tank gauge pressure is zero. Disconnect the sampling tank apparatus and use the carrier gas bypass valve to pressurize the sample cylinder to approximately 1,060 mm Hg absolute pressure with helium and record the final pressure. Alternatively, the sample tank may be pressurized in the lab. If not analyzing for N_2, the sample cylinder may be pressurized with zero air. Use Method 3C to determine the percent N_2 in the sample. Presence of N_2 indicates infiltration of ambient air into the gas sample. The landfill sample is acceptable if the concentration of N_2 is less than [illegible] percent.

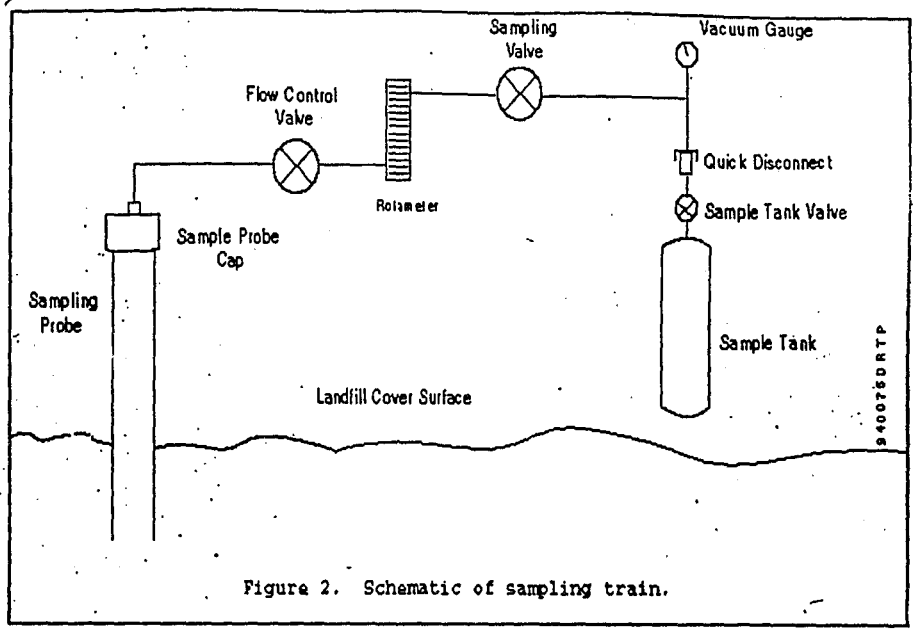

Figure 2. Schematic of sampling train.

4.5 Analysis. The oxidation, reduction, and measurement of NMOC is similar to Method 25. Before putting the NMOC analyzer into routine operation, conduct an initial performance test. Start the analyzer, and perform all the necessary functions to put the analyzer into proper working order. Conduct the performance test according to the procedures established in section 5.1. Once the performance test has been successfully completed and the NMOC calibration response factor has been determined, proceed with sample analysis as follows:

4.5.1 Daily Operations and Calibration Checks. Before and immediately after the analysis of each set of samples or on a daily basis (whichever occurs first), conduct a calibration test according to the procedures established in section 5.2. If the criteria of the daily calibration test cannot be met, repeat the NMOC analyzer performance test (section 5.1) before proceeding.

4.5.2 Operating Conditions. Same as in Method 25, section 4.4.2.

4.5.3 Analysis of Sample Tank. Purge the sample loop with sample, and then inject the sample. Under the specified operating conditions, the CO_2 in the sample will elute in approximately 100 seconds. As soon as the detector response returns to baseline following the CO_2 peak, switch the carrier gas flow to backflush, and raise the column oven temperature to 195 °C as rapidly as possible. A rate of 30 °C/min has been shown to be adequate. Record the value obtained for any measured NMOC. Return the column oven temperature to 85 °C in preparation for the next analysis. Analyze each sample in triplicate, and report the average as C_{tm}.

4.6 Audit Samples. Same as in Method 25, section 4.5.

4.7 Deactivation of Sample Probe Holes. Once sampling has taken place, either plug the sampling probes with a cap or remove the probes and refill the hole with cover material.

5. Calibration and Operational Checks

Maintain a record of performance of each item.

5.1 Initial NMOC Analyzer Performance Test. Same as in Method 25, section 5.2, except omit the linearity checks for CO_2 standards.

5.2 NMOC Analyzer Daily Calibration. NMOC response factors, same as in Method 25, section 5.3.2.

6. Calculations

All equations are written using absolute pressure; absolute pressures are determined by adding the measured barometric pressure to the measured gauge of manometer pressure.

6.1 Nomenclature.

B_w=moisture content in the sample, fraction
C_{N2}=measured N_2 concentration, fraction
C_t=calculated NMOC concentration, ppmv C equivalent
C_{tm}=measured NMOC concentration, ppmv C equivalent
P_b=barometric pressure, mm Hg
P_{ti}=gas sample tank pressure before sampling, mm Hg absolute
P_t=gas sample tank pressure at completion of sampling, but before pressurizing, mm Hg absolute
P_{tf}=final gas sample tank pressure after pressurizing, *mm* Hg absolute
P_w=vapor pressure of H_2O (from table 25C–1), mm Hg
T_{ti}=sample tank temperature before sampling, °K
T_t=sample tank temperature at completion of sampling, but before pressuring, °K
T_{tf}=sample tank temperature after pressurizing, °K
r=total number of analyzer injections of sample tank during analysis (where j=injection number, 1. . .r)

6.2 Water Correction. Use table 25C–1, the LFG temperature, and barometric pressure at the sampling site to calculate B_w.

$$B_w = \frac{P_w}{P_b}$$

TABLE 25C–1.—MOISTURE CORRECTION

Temperature, °C	Vapor Pressure of H_2O, *mm* Hg
4	6.1
6	7.0
8	8.0
1	9.2
12	10.5
14	12.0
16	13.6
18	15.5
20	17.5
22	19.8
24	22.4
26	25.2
28	28.3
30	31.8

6.3 NMOC Concentration. Use the following equation to calculate the concentration of NMOC for each sample tank.

$$C_t = \frac{\frac{P_{tf}}{T_{tf}}}{\frac{P_t}{T_t} - \frac{P_{ti}}{T_{ti}}} \quad \frac{1}{(1 - B_w - C_{N2})} \sum_{j=1}^{r} C_{tm}(j)$$

7. Bibliography

1. Salon, Albert E., Samuel Witz, and Robert D. MacPhee. Determination of Solvent Vapor Concentrations by Total Combustion Analysis: A Comparison of Infrared with Flame Ionization Detectors. Paper No. 75–33.2. (Presented at the 68th Annual Meeting of the Air Pollution Control Association. Boston, Massachusetts. June 15–20, 1975.) p. 14.

2. Salon, Albert E., William L. Oaks, and Robert D. MacPhee. Measuring the Organic Carbon Content of Source Emissions for Air Pollution Control. Paper No. 74–190. (Presented at the 67th Annual Meeting of the Air Pollution Control Association. Denver, Colorado. June 9–13, 1974.) p. 25.

[FR Doc. 96–5529 Filed 3–11–96; 8:45 am]
BILLING CODE 6560–50–P

FEDERAL MARITIME COMMISSION

46 CFR Part 501

The Federal Maritime Commission—General

AGENCY: Federal Maritime Commission.

ACTION: Final rule.

SUMMARY: The Federal Maritime Commission is revising its statement of delegations of authorities to include new authority delegated to the Director of the Bureau of Economics and Agreement Analysis to grant or deny applications for waivers of certain regulations.

EFFECTIVE DATE: March 12, 1996.

FOR FURTHER INFORMATION CONTACT: Austin L. Schmitt, Director, Bureau of Economics and Agreement Analysis, Federal Maritime Commission, 800 North Capitol Street, NW., Washington, DC 20573–0001, (202) 523–5787.

SUPPLEMENTARY INFORMATION: In Docket No. 94–31, *Information Form and Post-Effective Reporting Requirements for Agreements Among Ocean Common Carriers Subject to the Shipping Act of 1984*, the Federal Maritime Commission ("Commission") has amended its regulations set forth in 46 CFR Part 572 governing the filing, processing and review of agreements among ocean common carriers subject to the Shipping Act of 1984. The amended regulations provide that, upon a showing of good cause, the Commission may waive any part of their requirements, and set forth procedures and standards governing applications for a waiver.

This rule amends the Commission's statement of delegations of authorities in 46 CFR Part 501 to include a new delegation to the Director of the Commission's Bureau of Economics and Agreement Analysis to grant or deny applications for waivers of the agreement regulations. Review of the Director's grant or denial of a waiver is available under the procedures already in effect pursuant to 46 CFR 501.21(f).

Notice and opportunity for public comment were not necessary prior to issuance of this rule and because it deals solely with matters of agency organization and procedure. 5 U.S.C. 553.

List of Subjects in 46 CFR Part 501

Administrative practice and procedure; authority delegations; organization and functions; seals and insignia.

Therefore, pursuant to 5 U.S.C. 551–557, 701–706, 2903 and 6304; 31 U.S.C. 3721; 41 U.S.C. 414 and 418; 44 U.S.C. 501–520 and 3501–3520; 46 U.S.C. app. 801–848, 876, 1111 and 1701–1720; Reorganization Plan No. 7 of 1961, 26 FR 7315, August 12, 1961; Pub. L. 89–56, 79 Stat. 195; and 5 CFR Part 2638, Part 501 of Title 46, Code of Federal Regulations, is amended to read as follows:

PART 501—THE FEDERAL MARITIME COMMISSION—GENERAL

1. The authority citation for Part 501 continues to read as follows:

Authority: 5 U.S.C. 551–557, 701–706, 2903 and 6304; 31 U.S.C. 3721; 41 U.S.C. 414 and 418; 44 U.S.C. 501–520 and 3501–3520; 46 U.S.C. app. 801–848, 876, 1111 and 1701–1720; Reorganization Plan No. 7 of 1961, 26 FR 7315, August 12, 1961; Pub. L. 89–56, 79 Stat. 195; 5 CFR Part 2638.

2. In section 501.26, paragraph (f) is amended by changing the reference to "572.404" to "572.406," and by changing the references to "572.501 and 572.502" to "572.404 and 572.405;" paragraphs (g) through (m) are redesignated (i) through (o); newly redesignated (i) (6) is removed; and new paragraphs (g) and (h) are added, as follows:

§ 501.26 Delegation to the Director, Bureau of Economics and Agreement Analysis.

* * * * *

(g) Authority to grant or deny applications filed under § 572.505 of this chapter for waiver of the information form requirements of §§ 572.503 and 572.504 of this chapter.

By the Commission.

(h) Authority to grant or deny applications filed under § 572.709 of this chapter for waiver of the reporting and record retention requirements of §§ 572.701, 572.702, 572.703, 572.704, 572.705, 572.706, 572.707 and 572.708 of this chapter.

* * * * *

By the Commission.

Ronald D. Murphy,

Assistant Secretary.

[FR Doc. 96–5807 Filed 3–11–96; 8:45 am]
BILLING CODE 6730–01–M

FEDERAL COMMUNICATIONS COMMISSION

47 CFR PART 25

[CC Docket No. 92–166; FCC 96–54]

Mobile Satellite Service in the 1610–1626.5/2483.5–2500 MHz Frequency Band

AGENCY: Federal Communications Commission.

ACTION: Final rule: petition for reconsideration.

SUMMARY: The Commission has adopted, upon reconsideration, changes to the rules and policies establishing service and licensing rules for the Mobile Satellite Service in the 1610–1626.5/2483.5–2500 MHz Frequency Band. Specifically, we conclude that the "interim plan," designed to avoid interference between the Big LEO systems and the Russian Global Navigation Satellite System ("GLONASS"), is unnecessary at this time. We also clarify our views concerning position determination capabilities in Big LEO earth terminals, and modifications to feeder link proposals. In order to ensure that United States licensees do not engage in practices that are contrary to the goal of competitive markets world-wide, we also adopt a rule concerning exclusive arrangements for provision of Big LEO service. We also clarify our "two-tiered" processing scheme for financial qualifications. In addition, we make a number of minor editorial and clarifying changes to our technical rules.

EFFECTIVE DATE: April 11, 1996.

FOR FURTHER INFORMATION CONTACT: Karl Kensinger, International Bureau, Satellite and Radiocommunication Division, Satellite Policy Branch, (202) 418–0773.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's *Memorandum Opinion and Order* in CC Docket No. 92–166; FCC 96–54, adopted February 12, 1996 and released February 15, 1996. The complete text of this Memorandum Opinion and Order is

EPA-453/R-96-004

ENABLING DOCUMENT FOR THE NEW SOURCE PERFORMANCE STANDARDS AND EMISSION GUIDELINE FOR MUNICIPAL SOLID WASTE LANDFILLS

Emission Standards Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

The purpose of this document is to provide guidance to the implementing agency on the steps necessary to implement the municipal solid waste (MSW) landfills new source performance standards (NSPS) and emission guidelines (EG). The NSPS regulate emissions from new landfills and the EG regulate emissions from existing landfills. These standards and guidelines were proposed in the Federal Register on May 30, 1991 (58 FR 24468). On June 21, 1993, the EPA published a notice in the Federal Register (58 FR 33791) providing information on additional data used in developing the final NSPS and EG for MSW landfills. The final standards and guidelines appeared in the Federal Register on ___ __, 1996 (61 FR _____) and are contained in appendix A.

The NSPS implement section 111(b) of the Clean Air Act (Act) and are issued for categories of new emission sources which:

> "...cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare."

The responsibility of implementing the NSPS lies with the U.S. Environmental Protection Agency (EPA). However, the EPA has the ability to delegate authority to the State.

The EG implement section 111(d) of the Act. The EG require a State to submit plans that establish emission standards for existing sources when NSPS have been promulgated for a designated pollutant, such as landfill gas (LFG). The EPA publishes EG to establish minimum requirements that States can use in establishing their emission standards. States have responsibility for implementing EG and are required to submit an implementation plan to the EPA.

The NSPS and EG regulate MSW landfill emissions, which are generally referred to as LFG. Landfill gas is composed of many air pollutants, including methane and nonmethane organic compounds (NMOC). Since it would be difficult to measure all compounds in LFG, the EPA has specified NMOC as a surrogate for LFG.

1.2 BACKGROUND ON LANDFILL GAS

How is Landfill Gas Formed?

Landfill gas is generated by bacterial decomposition of organic materials in solid waste. General practice for landfills is to provide a daily cover of soil over the refuse. Therefore, refuse is insulated from the atmosphere and decomposition occurs anaerobically (without oxygen). However, air is always present initially and, in some circumstances, may never be fully expelled by anaerobic gases.

What is Contained in Landfill Gas and How Does it Affect the Public?

The composition of LFG is approximately 50 percent methane, 50 percent carbon dioxide, and less than 1 percent of many different "nonmethane" organic gases, described as NMOG. The NMOC originate from organic chemicals present in municipal waste that has been placed in a landfill and from products of refuse decomposition. Municipal wastes may include waste items such as paints, solvents, pesticides, and adhesives which contain numerous organic compounds. These organic compounds are stripped from the refuse by the generation of methane and carbon dioxide from decomposing refuse.

Evidence from EPA and State studies indicates that LFG has adverse effects on both public health and welfare. These adverse effects include:

(1) groundlevel ozone formation,
(2) cancer and noncancer health effects,
(3) odor nuisance,
(4) methane migration (fire hazard) potential, and
(5) global warming from methane emissions.

How are Landfills Different From Other Stationary Sources?

The primary difference between an MSW landfill and a typical stationary source is that a landfill may continue to generate and emit a significant quantity of emissions for more than 10 years after the facility has closed or has ceased to accept waste. A typical stationary source (e.g., a utility boiler) generates emissions only while it is in operation.

What are Current Methods for Controlling Landfill Gas?

Control of LFG emissions requires both an effective gas collection system and a control device. Landfill gas collection systems can be categorized as one of two basic types: active and passive gas collection systems. Active systems use mechanical blowers or compressors to create a vacuum that draws LFG through deposited refuse and into gas collection wells. Passive systems rely on the natural LFG pressure within the landfill, which creates a positive pressure gradient so LFG flows from the landfill into the gas collection wells.

The rule provides minimum criteria for an active gas collection system. The rule includes provisions for using alternative designs for a gas collection system (active or passive), as long as the alternative designs are demonstrated to be equivalent.

Once LFG enters a collection well, via either an active or passive collection system, the gas is directed to a control device through a network of piping. Landfill gas may be controlled by recovering the gas as a fuel source or by destroying the organic content of the gas.

Since methane comprises nearly 50 percent of LFG, the gas can be processed and sold as a fuel. Generally, the goal is to process LFG to a purity level equivalent to that of pipeline natural gas.

Control methods that destroy the organic content of LFG include flares, gas turbines, internal combustion engines, and boilers. The rule requires injecting LFG into the combustion zone of these combustion devices to ensure the complete destruction of the organic content. Gas turbines, internal

combustion engines, and boilers provide the opportunity for energy recovery, while flares do not. Energy recovery often provides an economic incentive since steam or power generated by these devices can be used on site or sold.

1.3 ORGANIZATION OF THE DOCUMENT

This document is organized into five sections and twelve appendices. Section 2 presents a brief overview of the regulations to provide the implementing agency with a basic understanding of the requirements of the NSPS and EG. Section 3 provides guidance on State plan development and activities to implement and ensure compliance with the NSPS and EG. Section 4 provides a discussion on procedures to prepare for and conduct on-site inspections to ensure compliance. Section 5 provides a discussion on New Source Review (NSR). It should be noted that this enabling document is intended to serve as a supplement to the regulations provided in appendix A.

"...a physical or operational change to an existing facility which results in an increased emission rate of any pollutant to which a standard applies."

The implementing agency determines whether proposed changes in landfill operations meet the definition of construction, reconstruction, or modification (§ 60.5). The determination is based on information in a "Notice of Construction, Reconstruction, or Modification" report submitted by a landfill owner/operator.

For MSW landfills, the only physical or operational change that results in increased landfill emissions is an increase in the landfill design capacity. Design capacity of a landfill is increased only with the addition of new disposal areas. New disposal areas can result by increasing the depth of refuse deposition, increasing refuse compaction, or by constructing additional disposal cells.

Other landfill operational changes were evaluated during the rulemaking that might meet the NSPS definition of modification, such as increasing waste acceptance rates. However, this example is analogous to a manufacturing plant increasing its production rate which is not considered a modification. If an increase in production rate at an existing facility can be accomplished without a capital expenditure, then the change is not a modification although the change results in an increase in emissions [§ 60.14(e)(2)]. Increases in landfill waste acceptance rates will increase landfill emissions in the short-term, but the total emission potential of a landfill is strictly based on its design storage capacity.

each year until such time as the recalculated NMOC emission rate is equal to or greater than 50 Mg/yr or the landfill ceases to accept waste [§ 60.752(b)(1)].

The NMOC emission rate is calculated periodically because landfill emissions change over time. These factors are described in greater detail in the background information document (BID) published at proposal and entitled "Air Emissions from Municipal Solid Waste Landfills - Background Information for Proposed Standards and Guidelines" (EPA-450/3-90-011a).

How Are NMOC Emissions Calculated?

The rule includes detailed procedures for calculating NMOC emissions from landfills (§ 60.754). The procedure consists of a three-tiered approach, with Tier 1 being the simplest. All "tier" calculations provide an estimate of NMOC emissions, as a function of site-specific information such as age of landfill and waste acceptance rate and three variables:

- Methane generation rate constant, (k);
- Refuse methane generation potential, (L_O); and
- NMOC concentration in LFG (C_{NMOC}).

Tier 1 calculations use default values for k, L_O, and C_{NMOC}, and they tend to overstate NMOC emission rates. If Tier 1 calculations indicate emissions greater than 50 Mg/yr, a landfill owner/operator has two compliance options. The first option requires the landfill owner/operator to initiate control of NMOC emissions from the landfill by submitting a design plan for a gas collection and control system. The second option requires the

landfill owner/operator to recalculate the NMOC emission rate using Tier 2 or Tier 3 procedures. These additional tier procedures determine site-specific data through testing. However, a landfill owner/operator may elect to skip any or all of the additional tier procedures and install landfill controls at any time after the NMOC emission rate has been calculated to exceed the emission limit.

Tier 2 calculations are based on site-specific NMOC concentrations and yield a more accurate estimate of the NMOC emission rate. The NMOC concentrations are determined by performing EPA Method 25C. If Tier 2 calculations result in NMOC emissions greater than 50 Mg/yr, then Tier 3 calculations may be performed.

Tier 3 calculations are based on both site-specific NMOC concentrations and a site-specific methane generation rate constant (k). Tier 3 calculations yield the most accurate determination of NMOC emission rate. The NMOC concentrations are determined by following the Tier 2 procedures. The methane generation rate (k) is determined by performing EPA Method 2E in conjunction with EPA Method 25C.

It is unlikely that a site-specific Tier 3 evaluation will lower the annual NMOC emission estimate below the 50 Mg/yr threshold unless the Tier 2 calculation is only slightly higher than the threshold. Dry, arid regions may show a more significant lowering of emissions at Tier 3 than wet regions.

(4) Calculations and the sum of LFG gas generation rates for areas where extraction wells have been excluded.

(5) Provisions for increasing gas mover capacity if future gas generation rates exceed current equipment limits.

(6) Documentation to demonstrate the control of off-site gas migration.

2.2 EMISSION GUIDELINES (40 CFR 60, SUBPART Cc)

This section summarizes the EG applicability, regulatory requirements, and compliance schedule. The requirements of the EG parallel the requirements of the NSPS. The similarities between the EG and the NSPS are as follows:

(1) The same design capacity (2.5 million Mg or 2.5 million m^3) and NMOC emission rate (50 Mg/yr) cut-off limits are used to determine control requirements.

(2) The same emission controls (installing a gas collection and control system that achieves a 98 percent reduction of NMOC emissions) are required.

(3) The same operating limits exist for the landfill and emission control system.

(4) The same monitoring, recordkeeping, and reporting requirements exist.

(5) The same time intervals are allowed for completing compliance requirements.

(6) The same testing and calculating procedures (tier calculating procedures, Method 2E, Method 3C or 3A, and Method 25C or 18) are used.

Since the majority of requirements specified in the EG are identical to those requirements specified by the NSPS, only the differences in EG requirements are discussed in this section. References are made to appropriate locations in section 2.1 for discussion of similar regulatory requirements. The main differences between the EG and the NSPS are as follows:

(1) Applicability criteria are for "existing" landfills;
(2) There is flexibility in establishing the control requirements for a State-implemented emission standard;
(3) States need to develop a plan to implement the requirements of the EG; and
(4) There are different landfill compliance schedules for a State-implemented emission standard.

Each of these differences are discussed below.

Applicability Criteria for "Existing" Landfills

The EG apply to all MSW landfills that satisfy the two conditions listed below:

(1) The construction, modification, or reconstruction of the landfill began before the proposal date of May 30, 1991; and
(2) The landfill received waste on or after November 8, 1987 or has additional capacity which may be filled in the future.

These landfills are defined as existing landfills. The EG do not apply to landfills which closed prior to November 8, 1987.

Flexibility in Establishing Control Requirements for State-Implemented Emission Standards

State emission standards and compliance times must generally be as stringent as the EG. However, the EG offer some flexibility in that States may develop more stringent standards to address State and local concerns. In certain case-by-case situations, less stringent control is allowed. Flexibility in establishing a State emission standard is discussed further in section 3.2.

Developing a State Plan to Implement Requirements of the EG

State agencies must develop a plan for implementing the EG. The procedure for developing and submitting implementation plans for EG was established in 40 CFR subpart B, Adoption and Submittal of State Plans for Designated Facilities.

The state implementation plan for controlling landfill emissions must be submitted to the EPA Administrator for review within 9 months after the promulgation date of the EG for MSW landfills [§ 60.23(a)]. The Administrator will approve or disapprove each State plan (or portion thereof) within 4 months after the receipt date of the plan. If an adequate State plan has not been submitted or approved by the Administrator within 6 months after the receipt date of the plan, the Administrator is authorized to promulgate an implementation plan for the State [§ 60.27(d)]. The requirements for developing a State plan to implement EG are discussed in more detail in section 3.2.

What is the Landfill Compliance Schedule for a State-Implemented Emission Standard?

All applicable landfills must begin complying with the requirements of the State emission standard within 90 days after a State plan is approved by the Administrator. Compliance begins with submittal of an Initial Landfill Design Capacity Report and an Annual or 5-Year NMOC Emission Rate Report to the implementing agency. The remaining compliance requirements are the same as the NSPS compliance requirements and must be met on the same schedule. (Refer to sections 2.1.2 and 2.1.3.)

3.0 IMPLEMENTATION AND COMPLIANCE

Three required actions will be triggered by promulgation of the MSW landfill rule. These actions are:

1. Delegated authorities, which in most cases are the States, must implement and ensure compliance with the NSPS;
2. States must develop a plan to implement requirements of the EG; and
3. States must implement and ensure compliance with requirements of the EG.

This section provides a discussion of these actions. Section 3.1 discusses the authority and activities for implementing and enforcing the NSPS. Section 3.2 discusses the authority and activities required by the States to submit their implementation and enforcement plans as specified by the EG. Section 3.3 discusses the activities required by States to implement and ensure compliance with their plan.

3.1 IMPLEMENTATION OF THE NEW SOURCE PERFORMANCE STANDARDS

New landfills are subject to the NSPS proposed under the authority of section 111(b) of the Act. The responsibility for implementing the NSPS lies with EPA, but States may become the

or plan revision deemed approvable by EPA within 6 months after the date required for State plan submission.

Stringency of Emission Standards

States may prescribe more or less stringent emission standards than the EG in their plans. These provisions give the States flexibility to address State and local concerns. According to § 60.24(c), the State emission standards shall be no less stringent than the EG, except as provided in § 60.24(f); but State emission standards may be more stringent than the EG. For example, a State could require control at an emission rate below the 50 Mg/yr emission rate cutoff specified in the EG.

Provisions for allowing less stringent emission standards are provided in § 60.24(f). This paragraph 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 if certain criteria are met. These criteria include unreasonable costs, physical impossibility, or other factors specific to the landfills(s) that make application of a less stringent standard significantly more reasonable. The State is responsible for demonstrating the reason for specifying less stringent emission standards in its plan.

Public comments on the landfill NSPS and EG summarized in the background information document (EPA-453/R-94-021) contain examples of situations where a state might want to consider a less stringent standard. For example, an existing landfill might already have installed a 95 percent efficient combustion control device prior to proposal of the EG. Engineering analysis might

show that the existing control device cannot be upgraded to achieve 98 percent. The state might judge the costs of replacing the control device to be unreasonable in light of the 3 percent additional reduction that would be achieved. Another example that might warrant special consideration may be a landfill that closed before proposal and has no means of obtaining funding for installation of a control system. A third situation might be a landfill that accepts very little MSW and because of the site-specific waste mixture and landfill design characteristics would experience unreasonable costs relative to typical landfills. It should be stressed that the State must demonstrate that one or more of the criteria in § 60.24(f) are met in order to apply a less stringent standard.

Compliance Times

The EG [§ 60.36(c)] specifies that landfill owners or operators must accomplish specific tasks within 30 months after the effective date of a State emission standard (approved State EG implementation plan) for MSW landfills. These tasks include planning, awarding of contracts, and installation of MSW landfill air emission collection and control equipment capable of meeting the EG.

States can require landfills to comply sooner than the dates specified in the EG. In fact, § 60.24(c) specifies that State plans must require compliance as expeditiously as practicable, but no later than the compliance times in the EG. The EPA believes that many landfills will need the compliance time specified in the EG to design and install collection and control systems. A shorter compliance time may be specified if a State

determines more rapid compliance is reasonable for certain landfills, or groups of landfills.

States have the option of allowing longer compliance times to particular landfills or classes of landfills on a case-by-case basis if certain criteria listed in § 60.24(f) are met. These criteria are:

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 compliance time significantly more reasonable.

These criteria allow States discretion in regulating individual facilities. In the plan, the State must demonstrate that one of these criteria apply when a less stringent compliance schedule is specified for a facility or class of facilities.

Provisions for Requirements Other Than Those in the EG

Requirements in State plans for compliance demonstration, monitoring, recordkeeping, and reporting must generally be at least as stringent as the EG. In developing the EG, EPA sought to develop a system that would provide all the information necessary to determine compliance, yet would not be burdensome to landfills and generate unnecessary paperwork. However, a State can choose to require more frequent reports or additional information in order to improve enforcement activities. Test methods and procedures for determining compliance that are

State Plans to Implement The EG Are Not SIP's

As discussed in section 1, the EG requires States to submit plans to implement emission standards for existing sources of designated pollutants, e.g. LFG.

Although the State plans are referred to as implementation plans, they are not State Implementation Plans (SIP's). Under section 110, SIP's only regulate criteria pollutants; i.e., those for which national ambient air quality standards have been established under section 109 of the Act.

According to the definition in § 60.21(a), designated pollutants are non-criteria pollutants. As discussed earlier, the EG is implemented under section 111(d). The pollutants to which section 111(d) applies (i.e. designated pollutants) are not controlled under SIP's.

Also, a SIP is more comprehensive since it applies to criteria pollutant emissions from any source in the State. An implementation plan for the MSW landfill EG only applies to existing MSW landfills.

3.3 STATE ACTIVITIES TO IMPLEMENT THEIR PLAN

This section provides an overview of the activities States must take to implement their plan and ensure that affected landfills are in compliance. For the purposes of this document, it is assumed that States will adopt the requirements of the EG completely. Compliance of a landfill with a State's plan includes determining the affected landfills and ensuring that monitoring, reporting, and recordkeeping requirements are fulfilled. Compliance with the monitoring and recordkeeping

Therefore, PSD review requirements now apply to major sources in attainment areas that undergo a modification resulting in increases in landfill gas emissions greater than the 50 tpy NMOC significance level. This level roughly corresponds to a VOC emission rate of 40 tpy, the PSD significance level for VOC.

Modified landfills below the 2.5 million Mg or 2.5 million m^3 design capacity exemption, which are not required by the NSPS or EG to install controls, may exceed the PSD significance level for NMOC. In this case, the State will need to determine if controls should be installed for purposes of PSD compliance.

Furthermore, new landfills in either attainment or nonattainment areas may exceed the PSD or NSR major source levels for VOC emissions, and be subject to PSD review (in an attainment area) or NSR (in a nonattainment area). In addition, if a modification of an existing landfill increases VOC emissions by more than the levels shown in tables 5-1 and 5-2, PSD or NSR review will be required. In these cases, the State will need to determine if controls should be installed for PSD or NSR compliance.

5.4 OPERATING PERMITS

Major sources and sources subject to standards or regulations under section 111 of the Act are required to obtain part 70 operating permits per section 502 of the CAA and 40 CFR part 70. However, landfills below 2.5 million Mg or 2.5 million m^3 design capacity are not subject to standards under section 111 because they are not required to put on controls and are not subject to emission limits. Thee landfills are subject to a

reporting requirement under the section 111 rule; however, this requirement determines applicability of the standard and does not make them "subject" for the purposes of part 70. Consequently, landfills below 2.5 million Mg or 2.5 million m^3 design capacity are not subject to part 70, provided they are not major sources [§ 60.752(a)]. If landfills below 2.5 million Mg or 2.5 million m^3 design capacity are major sources, they must obtain a part 70 permit under the same deadlines and requirements that apply to any other major source. States may request additional information to verify whether landfills have the potential to emit at major source levels.

For landfills above the 2.5 million Mg or 2.5 million m^3 design capacity exemption, part 70 operating permits are required. This requirement is specified in the NSPS [§ 60.752(b)]. These landfills are subject to emission limits and will most often be major sources. Since landfill emissions increase over time, a landfill just over 2.5 million Mg may not be major in the beginning; however, as the landfill progresses to capacity, it may become major. Many of the landfills above the 2.5 million Mg or 2.5 million m^3 exemption will be required to collect and control the gas under the NSPS or EG. For both major and area sources above 2.5 million Mg design capacity, the NSPS and EG require a permit to be obtained within the part 70 deadlines.

The NSPS and EG also provide for termination of operating permits. Landfill emissions, unlike emissions from other source categories, decrease over time after the landfill is closed. If a landfill has closed, emissions have decreased to the point that the landfill is no longer a major source and the conditions for

tion in at least one location in each region to which it will apply;

(3) Notification to the Administrator;

(4) Notification to each local air pollution control agency in each region to which the plan or revision will apply; and

(5) In the case of an interstate region, notification to any other State included in the region.

(e) The State shall prepare and retain, for a minimum of 2 years, a record of each hearing for inspection by any interested party. The record shall contain, as a minimum, a list of witnesses together with the text of each presentation.

(f) The State shall submit with the plan or revision:

(1) Certification that each hearing required by paragraph (c) of this section was held in accordance with the notice required by paragraph (d) of this section; and

(2) A list of witnesses and their organizational affiliations, if any, appearing at the hearing and a brief written summary of each presentation or written submission.

(g) Upon written application by a State agency (through the appropriate Regional Office), the Administrator may approve State procedures designed to insure public participation in the matters for which hearings are required and public notification of the opportunity to participate if, in the judgment of the Administrator, the procedures, although different from the requirements of this subpart, in fact provide for adequate notice to and participation of the public. The Administrator may impose such conditions on his approval as he deems necessary. Procedures approved under this section shall be deemed to satisfy the requirements of this subpart regarding procedures for public hearings.

§ 60.24 Emission standards and compliance schedules.

(a) Each plan shall include emission standards and compliance schedules.

(b)(1) Emission standards shall prescribe allowable rates of emissions except when it is clearly impracticable. Such cases will be identified in the guideline documents issued under § 60.22. Where emission standards prescribing equipment specifications are established, the plan shall, to the degree possible, set forth the emission reductions achievable by implementation of such specifications, and may permit compliance by the use of equipment determined by the State to be equivalent to that prescribed.

(2) Test methods and procedures for determining compliance with the emission standards shall be specified in the plan. Methods other than those specified in appendix A to this part may be specified in the plan if shown to be equivalent or alternative methods as defined in § 60.2 (t) and (u).

(3) Emission standards shall apply to all designated facilities within the State. A plan may contain emission standards adopted by local jurisdictions provided that the standards are enforceable by the State.

(c) Except as provided in paragraph (f) of this section, where the Administrator has determined that a designated pollutant may cause or contribute to endangerment of public health, emission standards shall be no less stringent than the corresponding emission 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.

(d) Where the Administrator has determined that a designated pollutant may cause or contribute to endangerment of public welfare but that adverse effects on public health have not been demonstrated, States may balance the emission guidelines, compliance times, and other information provided in the applicable guideline document against other factors of public concern in establishing emission standards, compliance schedules, and variances. Appropriate consideration shall be given to the factors specified in § 60.22(b) and to information presented at the public hearing(s) conducted under § 60.23(c).

(e)(1) Any compliance schedule extending more than 12 months from the date required for submittal of the plan shall include legally enforceable increments of progress to achieve compliance for each designated facility or category of facilities. Increments of

progress shall include, where practicable, each increment of progress specified in § 60.21(h) and shall include such additional increments of progress as may be necessary to permit close and effective supervision of progress toward final compliance.

(2) A plan may provide that compliance schedules for individual sources or categories of sources will be formulated after plan submittal. Any such schedule shall be the subject of a public hearing held according to § 60.23 and shall be submitted to the Administrator within 60 days after the date of adoption of the schedule but in no case later than the date prescribed for submittal of the first semiannual report required by § 60.25(e).

(f) 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 such 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 or final compliance time significantly more reasonable.

(g) Nothing in this subpart shall be construed to preclude any State or political subdivision thereof from adopting or enforcing (1) emission standards more stringent than emission guidelines specified in subpart C of this part or in applicable guideline documents or (2) compliance schedules requiring final compliance at earlier times than those specified in subpart C or in applicable guideline documents.

§ 60.25 Emission inventories, source surveillance, reports.

(a) Each plan shall include an inventory of all designated facilities, including emission data for the designated pollutants and information related to emissions as specified in appendix D to this part. Such data shall be summarized in the plan, and emission rates of designated pollutants from designated facilities shall be correlated with applicable emission standards. As used in this subpart, "correlated" means presented in such a manner as to show the relationship between measured or estimated amounts of emissions and the amounts of such emissions allowable under applicable emission standards.

(b) Each plan shall provide for monitoring the status of compliance with applicable emission standards. Each plan shall, as a minimum, provide for:

(1) Legally enforceable procedures for requiring owners or operators of designated facilities to maintain records and periodically report to the State information on the nature and amount of emissions from such facilities, and/or such other information as may be necessary to enable the State to determine whether such facilities are in compliance with applicable portions of the plan.

(2) Periodic inspection and, when applicable, testing of designated facilities.

(c) Each plan shall provide that information obtained by the State under paragraph (b) of this section shall be correlated with applicable emission standards (see § 60.25(a)) and made available to the general public.

(d) The provisions referred to in paragraphs (b) and (c) of this section shall be specifically identified. Copies of such provisions shall be submitted with the plan unless:

(1) They have been approved as portions of a preceding plan submitted under this subpart or as portions of an implementation plan submitted under section 110 of the Act, and

(2) The State demonstrates:

(i) That the provisions are applicable to the designated pollutant(s) for which the plan is submitted, and

(ii) That the requirements of § 60.26 are met.

(e) The State shall submit reports on progress in plan enforcement to the Administrator on an annual (calendar year) basis, commencing with the first full report period after approval of a plan or after promulgation of a plan by the Administrator. Information required under this paragraph must be

Environmental Protectio

included in the a...ual r
by § 51.321 of this chapter
(f) Each progress repor
(1) Enforcement act
against designated facili
reporting period, under
standard or compliance
plan.
(2) Identification of th
of any increment of pr
by the applicable plan
porting period.
(3) Identification of de
ties that have ceased o
the reporting period.
(4) Submission of emi
data as described in pa
this section for desig
that were not in operati
of plan development b
ation during the reporti
(5) Submission of add
necessary to update th
submitted under paragr
section or in previous p
(6) Submission of cop
reports on all performa
designated facilities co
paragraph (b)(2) of this
plete with concurrently
ess data.

[40 FR 53346, Nov. 17, 1975, FR 65071, Nov. 9, 1979]

§ 60.26 Legal aut...rity.

(a) Each plan shall
State has legal authori
the plan, including auth
(1) Adopt emission
compliance schedules ap
ignated facilities.
(2) Enforce applicabl
tions, standards, and co
ules, and seek injunctiv
(3) Obtain informatic
determine whether de
ties are in compliance
laws, regulations, stan
pliance schedules, incl
to require recordkeepi
inspections and conduc
ignated facilities.
(4) Require owners
designated facilities to
tain, and use emission
vices and to make per
the State on the nature
emissions from such fa
thority for the State

EMISSIONS INVENTORY FOR

MUNICIPAL SOLID WASTE LANDFILLS

IN NEW MEXICO

1996

New Mexico Environment Department
Air Quality Bureau
1190 St. Francis Drive
Santa Fe, NM 87503

This inventory has been prepared for both the U.S. Environmental Protection Agency (US EPA) and the general public. This report inventories emissions of non-methane organic compounds (NMOC) from municipal solid waste landfills. This report is part of an implementation plan to the US EPA. This is a preliminary inventory using the most liberal method to estimate landfill emissions (i.e. maximum projected emissions). This inventory uses the Tier I calculation method promulgated under 40 CFR Part 60, Subpart WWW. For comparative purposes, one landfill's emissions were calculated using both Tier I default values and AP-42 default values in the U.S. EPA's Landfill Air Emission Model obtained from the Technology Transfer Network (TTN) electronic bulletin board. Emissions using AP-42 values resulted in a 10-fold lower emission rate. This emphasizes that the Tier I method may greatly overestimate actual emissions. Its use is meant as an initial screening approach to identify landfills that may potentially be over the 50 Mg (megagram) level where controls are required. These facts should be kept in mind when reviewing the Tier I emissions calculations in this report. The Tier I method was used in lieu of the AP-42 Air Model method because the detailed information needed to run the model are not yet available for the landfills defined as "existing." This information will not be available until after proposed 20 NMAC 2.64 - Municipal Solid Waste Landfills is adopted and design capacity and NMOC reports are obtained from the "existing" landfills.

This inventory includes both "new" and "existing" landfills as defined in 40 CFR Part 60 and in proposed 20 NMAC 2.64. For comparative and inclusive purposes this inventory includes landfills in Albuquerque and Bernalillo County even though they have their own air program and will need to report to US EPA separately. Data used to calculate NMOC emissions were obtained from staff of the New Mexico Environment Department's (NMED) Solid Waste Bureau for the large "existing" landfills and from actual submitted reports from the "new" landfills. Emissions from the remaining small landfills are based on a gross, but reasonable estimate, also using the Tier I method.

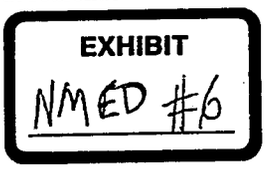

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TABLE 1. The largest "existing" landfills in New Mexico, outside of Bernalillo County. Average annual acceptance rate (in tons) and years operating data were obtained from staff of the NMED Solid Waste Bureau. NMOC emissions were calculated using the Tier I method in 40 CFR Part 60 Subpart WWW.

LANDFILL	Average Annual Acceptance Rate: Tons	Mg	Years Operating	Tier I NMOC Mg/yr
1. Clovis	43,770	39,699	15	102.6
2. Hobbs	39,350	35,690	21	113.6
3. Las Cruces	45,440	41,214	30	156.8
4. Rio Rancho	232,960	211,295	10	407.0
5. Roswell	37,710	34,203	16	92.2
6. San Juan Regional	89,930	81,566	8	131.6
7. Santa Fe City	93,130	84,469	27	306.3
8. Santa Fe County	29,430	26,693	37	110.1
9. Southern Sandoval County	107,430	97,439	24	333.4
10. Tri-Sect, Valencia County	5,890	5,342	8	8.6
TOTAL NMOC EMISSIONS				1762.2

TABLE 2. The largest "existing" landfills within Bernalillo County, New Mexico. Although these landfills are not under the direct jurisdiction of the NMED Air Quality Bureau and Environmental Improvement Board they have been included for comparative informational purposes. Average annual acceptance rate (in tons) and years operating data were obtained from staff of the NMED Solid Waste Bureau. NMOC emissions were calculated using the Tier I method in 40 CFR Part 60 Subpart WWW.

LANDFILL	Average Annual Acceptance Rate Tons	Mg	Years Operating	Tier I NMOC Mg/yr
1. Cerro Colorado	418,860	379,906	6	482.1
2. Kirtland	119,960	108,804	7	157.3
3. Southwest	na	na	na	100*
4. South Broadway (closed 1990)	na	na	na	100*
TOTAL NMOC EMISSIONS				839.4

na not available

* Gross estimate based on a figure representative of many of the "existing" landfills from Table 1 (e.g. 60% of those landfills are in the range 90-160 Mg NMOC).

TABLE 3. Largest "new" landfills in New Mexico, outside of Bernalillo County. These landfills, although not specifically part of the implementation plan on "existing" landfills, should non-the-less be included in an emissions inventory in order to derive an overall picture of NMOC emissions in New Mexico. The classification of "new" was based on data initially obtained from staff of the NMED Solid Waste Bureau. These data were ultimately obtained from design capacity and NMOC reports submitted by the respective landfills (or their contractors) to fulfill NSPS (40 CFR Part 60 Subpart WWW) requirements.

LANDFILL	Average Annual Acceptance Rate: Tons	Mg	Years Operating	Tier I NMOC Mg/yr
1. Camino Real, Sunland Park (modified)	129,000	117,000	19	461.3[a]
2. Caja del Rio, Santa Fe (under construction)	0	0	0	0
3. Corralitos, Las Cruces	---	---	<1	---
4. Otero/Lincoln, Otero County	52,921	48,000	2	27.4
5. Red Rocks, McKinley County	65,000	58,955	<1	---
6. Sand Point, Eddy County	55,127	50,000	1	16.7
7. Silver City, Grant County	12,000	10,884	1	2.6[b]
8. Smith Lake, Gallup, McKinley County (closed 1996)	7,373	6,687	4	5.9[b]
TOTAL NMOC EMISSIONS				513.9

a Using AP-42 input values in the US EPA Landfill Air Emissions Model results in an NMOC emission value of 41.1 Mg/yr, ten times smaller than the Tier I method. See the Appendix to this inventory report for AP-42 versus Tier I inputs and results.

b Not based on submitted reports since these landfills were below the design capacity requiring NMOC reports. Calculations performed using Tier I by the NMED Air Quality Bureau.

Estimated NMOC Emissions From All of the Remaining Small Landfills

1. NMED Solid Waste Bureau staff have data indicating that the large "new" and "existing" landfills listed in Tables 1, 2, and 3 should account for approximately 87% of the solid waste in the state.

2. Then assume that these large landfills will also account for 87% of NMOC emissions in the state. This leaves only 13% of the waste and NMOC emissions for the remaining landfills.

3. Using the Tier I calculations from Tables 1, 2, and 3, the total NMOC emissions from these largest "new" and "existing" landfills (22 landfills) is 3115.5 Mg/yr.

	NMOC (Mg/yr)
Table 1	1762.2
Table 2	839.4
Table 3	513.9
Total	3115.5

4. NMED Solid Waste Bureau has a list of 163 landfills in the state.
   163 - 22 (the large ones already listed in Tables 1, 2, and 3) = 141.
   141 - 24 (planned landfills, meaning no emissions yet) = 117
   117 - 27 (assume ½ of the 55 closed landfills closed before 1987 and hence are not subject to the rule) = 90
   This leaves 90 landfills to do an estimation on.

5. Assume the average annual acceptance rate for these 90 landfills is about ½ of the smallest (i.e. Tri-Sect at 5342 Mg/yr) of the 22 large landfills - resulting in about 2500 Mg/yr. Assume the average age is the same for the 22 large and the 90 small landfills - calculated to be 10 years for the large landfills.

6. Using the Tier I calculation results in an average of 4.8 Mg/yr NMOC for each of these 90 small landfills. 4.8 times 90 = 432.0 Mg NMOC total. Add this to the 3115.5 Mg/yr for large landfills gives **3547.5 Mg NMOC total for all landfills in New Mexico.** 432.0 divided by 3547.5 times 100 = 12.2%.

7. Hence these figures closely approximate the original assumption in items 1. and 2. above that the small landfills account for only 13% of the waste and NMOC emissions.

APPENDIX

Comparison of NMOC emissions for the Camino Real landfill (in Table 3) using Tier I and AP-42 input parameters. The US EPA Landfill Air Emissions Model available from the TTN electronic bulletin board was used.

Source: C:\TODD\MODELS\CAMINO.PRM

Model Parameters

: 124.91 m^3 / Mg
. . 0.0400 1/yr
NMOC : 595.00 ppmv
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

AP-42

Landfill Parameters

Year Opened : 1976 Current Year : 1997 Year Closed: 1997
Capacity : 2492000 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 0.00 Mg/year

Model Results

Year	Refuse In Place (Mg)	NMOC Emission Rate (Mg/yr)	(Cubic m/yr)
1977	8.500E+02	1.811E-02	5.054E+00
1978	1.700E+03	3.552E-02	9.909E+00
1979	2.550E+03	5.224E-02	1.457E+01
1980	3.400E+03	6.831E-02	1.906E+01
1981	4.250E+03	8.374E-02	2.336E+01
[illegible]82	5.100E+03	9.858E-02	2.750E+01
[illegible]83	5.950E+03	1.128E-01	3.148E+01
1984	6.800E+03	1.265E-01	3.530E+01
1985	7.650E+03	1.397E-01	3.897E+01
1986	8.500E+03	1.523E-01	4.249E+01
1987	9.350E+03	1.645E-01	4.588E+01
1988	1.604E+05	3.376E+00	9.419E+02
1989	3.734E+05	7.783E+00	2.171E+03
1990	5.994E+05	1.229E+01	3.430E+03
1991	8.384E+05	1.691E+01	4.716E+03
1992	1.115E+06	2.215E+01	6.178E+03
1993	1.389E+06	2.712E+01	7.565E+03
1994	1.672E+06	3.208E+01	8.951E+03
1995	1.949E+06	3.673E+01	1.025E+04
1996	2.220E+06	4.107E+01	1.146E+04

← 41.07 Mg/yr AP 42 default values.

Source: C:\TODD\MODELS\CAMINO.PRM

Model Parameters

Lo : 169.90 m^3 / Mg
k : 0.0500 1/yr
NMOC : 4000.00 ppmv
Methane : 50.0000 % volume
Carbon Dioxide : 50.0000 % volume

TIER 1

Landfill Parameters

Year Opened : 1976 Current Year : 1997 Year Closed: 1997
Capacity : 2492000 Mg
Average Acceptance Rate Required from
Current Year to Closure Year : 0.00 Mg/year

Model Results

Year	Refuse In Place (Mg)	NMOC Emission Rate (Mg/yr)	(Cubic m/yr)	
1977	8.500E+02	2.071E-01	5.777E+01	.2471
1978	1.700E+03	4.040E-01	1.127E+02	.4044
1979	2.550E+03	5.914E-01	1.650E+02	.5914
1980	3.400E+03	7.696E-01	2.147E+02	.7696
1981	4.250E+03	9.391E-01	2.620E+02	.9391
1982	5.100E+03	1.100E+00	3.070E+02	1.1
1983	5.950E+03	1.254E+00	3.498E+02	1.254
1984	6.800E+03	1.400E+00	3.905E+02	
1985	7.650E+03	1.538E+00	4.292E+02	
1986	8.500E+03	1.671E+00	4.660E+02	
1987	9.350E+03	1.796E+00	5.011E+02	
1988	1.604E+05	3.849E+01	1.074E+04	38.49
1989	3.734E+05	8.850E+01	2.469E+04	88.50
1990	5.994E+05	1.392E+02	3.885E+04	139.20
1991	8.384E+05	1.907E+02	5.319E+04	190.74
1992	1.115E+06	2.488E+02	6.942E+04	248.80
1993	1.389E+06	3.035E+02	8.466E+04	303.50
1994	1.672E+06	3.576E+02	9.976E+04	357.60
1995	1.949E+06	4.076E+02	1.137E+05	407.60
1996	2.220E+06	4.538E+02	1.266E+05	~~453.80~~

453.80 Mg/yr CAA default values

REVISED PROPOSED ALTERNATIVE LANGUAGE

NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD
P.O. BOX 26110/1190 ST. FRANCIS DRIVE
SANTA FE, NEW MEXICO 87502-0110

TITLE 20 ENVIRONMENTAL PROTECTION
CHAPTER 2 AIR QUALITY (STATEWIDE)
PART 64 MUNICIPAL SOLID WASTE LANDFILLS

100. **ISSUING AGENCY:** Environmental Improvement Board. [12-xx-96]

101. **SCOPE:** All geographic areas within the jurisdiction of the Environmental Improvement Board. [12-xx-96]

102. **STATUTORY AUTHORITY:** Environmental Improvement Act, NMSA 1978, Section 74-1-8(A)(4) and (7), and Air Quality Control Act, NMSA 1978, Sections 74-2-1 et seq., including specifically, Section 74-2-5(A), (B) and (C). [12-xx-96]

103. **DURATION:** Permanent. [12-xx-96]

104. **EFFECTIVE DATE:** December xx, 1996. [12-xx-96]

105. **OBJECTIVE:** The objective of this Part is to establish requirements for municipal solid waste landfills in order to control emissions of nonmethane organic compounds (NMOC). [12-xx-96]

106. [RESERVED]

107. **DEFINITIONS:** In addition to the terms defined in Part 2 - Definitions, and those defined in 40 CFR 60 Subpart A, as used in this Part: [12-xx-96]

A. **"Existing municipal solid waste landfill"** is an MSWL meeting the following conditions: [12-xx-96]

1. Construction, reconstruction, or modification was commenced before May 30, 1991; and [12-xx-96]

2. The MSWL has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. [12-xx-96]

~~Physical or operational changes made to an existing MSWL solely to comply with this Part are~~

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~~not considered a modification or reconstruction and would not subject an existing MSWL to the requirements of 40 CFR 60 Subpart WWW. [12-xx-96]~~

B. **"Municipal solid waste landfill (MSWL)"** means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSWL may also receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSWL may be separated by access roads. An MSWL may be publicly or privately owned. An MSWL may be new, existing, or a lateral expansion. [12-xx-96]

C. **"New municipal solid waste landfill"** is an MSWL that commenced construction, reconstruction, modification, or began accepting waste on or after May 30, 1991. [12-xx-96]

D. **"NMOC"** means nonmethane organic compounds as measured according to the provisions of 40 CFR 60.754. This may include many compounds commonly referred to as VOC (volatile organic compounds) and HAP (hazardous air pollutants). [12-xx-96]

108. **DOCUMENTS:** Documents cited in this Part may be viewed at the New Mexico Environment Department, Air Quality Bureau, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, NM 87505. [12-xx-96]

109. **APPLICABILITY:**

A. **Existing Municipal Solid Waste Landfills:** An owner or operator of an existing MSWL is subject to all provisions specified in 40 CFR 60.751 through 60.759 as promulgated by US EPA on March 12, 1996, except as provided for in Section 111 of this Part. Physical or operational changes made to an existing MSWL solely to comply with this Part are not considered a modification or reconstruction and would not subject an existing MSWL to the requirements of 40 CFR 60 Subpart WWW. [12-xx-96]

B. **New Municipal Solid Waste Landfills:** In addition to being subject to Section 110 of this Part new MSWLs are subject to 40 CFR Part 60, Subpart WWW as incorporated by reference in 20 NMAC 2.77 - New Source Performance Standards. [12-xx-96]

110. **PERMITTING REQUIREMENTS:**

A. **Operating Permits**: New and existing MSWLs with design capacities greater than or equal to 2.5 million megagrams or 2.5 million cubic meters are subject to permitting requirements under Part 70 - Operating Permits. New and existing MSWLs with design capacities less than 2.5 million megagrams or 2.5 million cubic meters are not subject to permitting requirements under Part 70, unless they are major sources as defined in Part 70. [12-xx-96]

B. **Construction Permits:** Emissions of NMOC from MSWLs subject to this Part (64) shall not be included in applicability determinations under Part 72 or be subject to permit requirements under that Part. [12-xx-96]

111. **REQUIREMENTS FOR EXISTING MUNICIPAL SOLID WASTE LANDFILLS:**

A. **Reporting and Compliance:** Except as provided for below, reporting and compliance requirements for existing MSWLs shall be in accordance with 40 CFR 60.757 and 60.758. [12-xx-96]

1. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL shall submit an initial design capacity report in accordance with 40 CFR 60.757(a)(2) to the Department. [12-xx-96]

2. Within 90 days of final US EPA approval of this Part, an owner or operator of an existing MSWL, with a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, shall submit an NMOC emission rate report in accordance with 40 CFR 60.757(b)(1) and (2) to the Department. [12-xx-96]

3. Within 30 months after final US EPA approval of this Part, an existing MSWL with a design capacity greater than or equal to 2.5 million megagrams or 2.5 million cubic meters, and with an NMOC emission rate greater than or equal to 50 megagrams per year shall install a gas collection and control system as specified in 40 CFR 60.752(b). [12-xx-96]

B. **Exceptions:** On a case by case basis, an existing MSWL may apply for a less stringent emission standard or longer compliance schedule than those otherwise required by this Part, provided that the owner or operator demonstrates to the Department: [12-xx-96]

1. Unreasonable cost of control including, but not limited to ~~resulting from~~ MSWL age, location, or basic design; [12-xx-96]

2. Physical impossibility or impracticability of installing necessary control equipment; or [12-xx-96]

3. Other environmental factors specific to the MSWL that make application of a less stringent standard or final compliance time significantly more reasonable. [12-xx-96]

STATE OF NEW MEXICO
BEFORE THE NEW MEXICO ENVIRONMENTAL IMPROVEMENT BOARD

IN THE MATTER OF PROPOSED)
REGULATIONS CONCERNING AIR)
QUALITY AT MUNICIPAL SOLID)
WASTE LANDFILLS)

WASTE MANAGEMENT OF NEW MEXICO, INC.'S NOTICE OF INTENT TO PRESENT TECHNICAL TESTIMONY AT THE NOVEMBER 8, 1996 HEARING

1.	Name of Presenter:	Marlene Feuer, Division President
	Qualifications:	20 years of operational experience in all aspects of solid waste management in the State of New Mexico
	Length of Testimony:	10 minutes
2.	Name of Presenter:	James W. Jordan, P.E. Manager of Landfill Operations
	Qualifications:	7 years of solid waste management experience including all aspects of landfill and transfer station design, environment monitoring and compliance with state, federal and local regulations.
	Length of Testimony:	10 minutes
3.	Name of Presenter:	Richard L.C. Virtue Attorney or another member of the firm of Virtue, Najjar & Bartell
	Qualifications:	Over 20 years of regulatory law practice, including environmental

regulations

Length of Testimony: 10 minutes

Summary of Testimony:

Witnesses will testify concerning the impact of the proposed rules on the regulated community, including but not limited to privately owned operators of solid waste collection, transportation and disposal facilities.

The testimony proposes two changes to Section 111B proposed regulations.

We propose to substitute the word "impracticability" for the word "impossibility" in Section 111B2. This change would provide more flexibility in granting exceptions. This change would also recognize the fact that situations exist where it is physically possible to install equipment, but installation would be impractable.

The second proposed change is to add the word "environmental" between the words "Other" and "factors" in Section 111B3. This change would clarify the regulations to be consistent with what we believe the intent to be.

A written statement for the public record may be submitted at or prior to the public hearing.

Location of hearing: Auditorium of the Runnels Building at 1220 St. Francis Drive, Santa Fe, New Mexico

List of Exhibits: None

wmm\wmm5.int

BROWNING-FERRIS INDUSTRIES
WESTERN REGION

Jim Nellessen
New Mexico Environmental Department
1190 St. Francis Drive
Santa Fe, New Mexico 87502

October 28, 1996

RE: New Mexico Environmental Improvement Board November 8, 1996 Hearing Regarding Proposed 20 NMAC 2.64 (Municipal Solid Waste Landfills, Air Quality Regulations)--Written Non-Technical Statement in Lieu of Oral Testimony

Dear Mr. Nellessen:

Browning-Ferris Industries ("BFI") appreciates the opportunity to submit the following non-technical written statement in lieu of oral testimony regarding the above-referenced proposed air quality regulations.

Although we do not operate a municipal solid waste landfill in New Mexico, we are interested in the development of state NSPS and Section 111(d) plans and programs that support the objectives of the Federal standards. We support the promgulation of the proposed regulations.

We also encourage the Department to, in the process of applying the regulation, develop and utilize a policy that expressly provides, both with regard to the class of facilities comprised of closed landfills and on a case-by-case basis, for consideration of the Section 111(d) criteria in order to provide needed flexibility and to avoid the unreasonable imposition of monitoring, recordkeeping, reporting, and other potentially applicable requirements.

INTRODUCTION

BFI worked extensively with the U.S. Environmental Protection Agency ("EPA") to revise the proposed New Source Performance Standard ("NSPS") for municipal solid waste ("MSW") landfills, and to fashion standards for new and existing facilities that are both cost-effective and environmentally protective. We believe that the final NSPS (Subpart WWW) and the Emission Guidelines ("EG") (applicable to "existing" sources) (61 Fed. Reg. 9905 (March 12, 1996)) represent both good science and good sense. Although BFI and other members of the solid waste disposal industry are discussing several implementation issues with the EPA, in this correspondence we discuss the need for the Department to apply the EG to existing

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closed landfills so as to fulfill the purposes of Section 111(d) of the Clean Air Act.

For a variety of reasons the Federal Section 111(d) criteria are of critical importance in the implementation of the EG.[1] As the Department is aware, the Federal standards apply to landfills that accepted waste at any time after November 8, 1987, even if the facility subsequently closed (before or after the date of issuance of the proposed NSPS). Recent judicial rulings regarding the issue of the ability of regulatory agencies to impose "retroactive" criteria, see, e.g., United States v. Olin Corp., No. 95-0526-BH-S (S.D. Ala. May 20, 1995); Landgraf v. USI Film Prods., 114 S. Ct. 1483 (1994), have raised doubts about the appropriateness of mandatory standards for closed landfills.

In order to avoid the potential for a need for judicial resolution of the issue, the Department can and should utilize Section 111(d) factors--including a consideration of the fact that a closed landfill, regardless of the nature of its ownership, cannot derive from the site operation revenues from the disposal of waste to offset the costs of required monitoring and, as applicable, air emission control equipment installation and operation--to provide needed flexibility. By recognizing that the issue of the appropriateness of a "retroactive" application of the EG to closed facilities--a highly unusual, if not extraordinary, activity--has never been fully resolved, the Department can utilize Section 111(d) criteria to ensure that the standards are not applied in an unreasonable, burdensome manner.

THE RULE AGAINST RETROACTIVE APPLICATION

The common law rule is "that statutes [as well as regulations, guidance documents, and policies] affecting substantive rights and liabilities are presumed to have prospective effect." Bennett v. New Jersey, 470 U.S. 632, 639 (1985). The United States Supreme Court has consistently recognized, in decisions such as Greene v. United States, 376 U.S. 149, 160 (1964), that the "first rule of construction is that legislation must be considered as addressed to the future, not to the past. . .(and) a retrospective operation will not be given to a statute which interferes with antecedent rights. . .unless such be the unequivocal and inflexible import of

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[1] The Section 111(d) factors provide that a state may adopt or apply less stringent requirements for "particular designated facilities or classes of facilities, if the state shows one or more of the following": (1) "(u)nreasonable cost of control resulting from plant age, location, or basic process design"; (2) "(p)hysical impossibility of installing necessary control equipment"; or (3) "(o)ther factors specific to the facility (or class of facilities) that makes application of a less stringent standard or final compliance time significantly more reasonable".

the terms, and the manifest intention of the legislature." See also 2 Sutherland Statutory Construction Section 41.04 (4th ed. 1986). The common law rule is that retroactive application is strongly disfavored, and in any event must not be arbitary. See, e.g., Usery v. Turner Elkorn Mining Co., 428 U.S. 1 (1976).

Courts have shown a disinclination to uphold retroactive rulemaking unless the enabling statute contains "an express authorization of retroactive rulemaking." Bowen v. Georgetown University Hospital, 488 U.S. 204, 213 (1988). If a statute does not specify whether it applies to conduct preceding its enactment, any ambiguity prevents the retroactive application of the statute. See Alpo Petfoods, Inc. v. Ralston Purina Co., 913 F.2d 958, 965 (D.C. Cir. 1990).

In Georgetown, the Court invalidated a regulation providing for retroactive adjustments under the Medicare Act. After reviewing the relevant statutory language and legislative history, the Court concluded that the Act did not authorize retroactive rulemaking. Accordingly, it invalidated the rule. Several Federal courts have applied the Georgetown rule of statutory construction in refusing to retroactively apply statutes or regulations. See, e.g., DeVargas v. Mason, 911 F.2d 1377, 1389 (10th Cir. 1990), cert. denied, 111 S. Ct. 799 (1991) (clear congressional intent required to impose a statute retroactively); Alpo Petfoods, Inc. v. Ralston Purina Co., 913 F.2d 958, 964 (D.C. Cir. 1990) (ambiguous statutory provision failed to overcome the presumption against retroactivity); Sierra Medical Center v. Sullivan, 902 F.2d 388, 392 (5th Cir. 1990); Texas American Bancshares, Inc. v. Clarke, 740 F. Supp. 1243, 1248 (N.D. Tex. 1990).

In a limited number of cases, particularly in the context of implementation of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA" or "Superfund"), courts have permitted retroactive application of EPA rules. Yet even these courts have admitted "the presumption against retroactive application of statutes." United States v. Shell Oil Co., 605 F. Supp. 1064, 1069 (D. Colo. 1985). The courts have engaged in a search of the statute and its legislative history in order to "determine whether Congress. . .has overridden the usual presumption against retroactive application." Id. See also United States v. Hooker Chemicals and Plastics Corp., 680 F. Supp. 546 (W.D.N.Y. 1988).

That courts have found "express authorization" in the context of CERCLA and, to some extent, the Resource Conservation and Recovery Act ("RCRA") is not surprising. Each statute evidences a congressional desire to apply statutory provisions retrospectively. CERCLA, for example, clearly seeks to address environmental consequences of past activities, even those which occur at long-abandoned sites. Because "the whole purpose and scheme of CERCLA is retrospective and remedial", Shell Oil, supra, 605 F. Supp. at

1079, the express legislative intent was to tackle releases at "inactive" hazardous waste sites. Id. at 1071 (emphasis added).

Similarly, the court in Chemical Waste Management, Inc. v. U.S. EPA, 869 F.2d 1526, 1536-37 (D.C. Cir. 1989), concluded that EPA could apply treatment standards under the land disposal restriction program to leachate derived from disposal activity which predated the rule. The court emphasized that no retroactive rule had, in fact, been promulgated. It reasoned that "the agency has made no effort to impose a legal penalty on the disposal of waste that was not deemed hazardous at the time it was disposed. Nor, in fact, does this regulation require the cleanup of any newly listed hazardous wastes." Id. at 1536. Instead, the court noted, "these residues could become subject to the land disposal restrictions for the listed waste from which they derive if they are actively managed after the effective date of the land disposal prohibition for the underlying waste." Id. at 1536 (emphasis in original) (citation omitted). Similarly, At least one court has specifically concluded that solid waste management "fitness" measures may not be applied retroactively. Indiana Department of Environmental Management v. Chemical Waste Management of Indiana, Inc., No. 49A02-9205-CV-209 (Ind. App. Dec. 3, 1992)

The recent decisions in Landgraf and Olin cast additional doubt upon regualatory standards that would apply in a "retroactive" manner. As the Agency may be aware, the Olin decision, which dealt with CERCLA, argues that in light of the Supreme Court's decision in Landgraf there must be express and unambiguous statutory authority for retroactive application to occur. See Freeman, A Public Policy Essay: Superfund Retroactivity Revisited, 50 Bus. Law. 663 (1995). In Landgraf, the Court held that

> (o)ur precedents on retroactivity left doubts about what default rule would apply in the absence of congressional guidance, and suggested that some provisions might apply to cases arising before enactment while others might not. Compare Bowen v. Georgetown Univ. Hospital, 488 U.S. 204, 109 S. Ct. 468, 102 L. Ed. 2d 493 with Bradley v. Richmond School Bd., 416 U.S. 696, 94 S. Ct. 2006, 40 L. Ed. 2d 476 (1974).

According to Olin, "(t)he majority opinion in Landgraf sets forth an analysis which, as here summarized, requires a court (1) to determine (a) whether Congress has expressly stated the statute's reach and (b) if not, whether the text and legislative history have 'clearly prescibed' Congress' intent to apply the provision retroactively; (2) if not, to determine whether the provision actually has 'retroactive effect on the party or parties in the litigation'; and (3) if so, to apply the traditional presumption against retroactivity--absent a clear congressional intent to the contrary." 1996 U.S. Dist. LEXIS 6996, at 29.

Likewise, it is a constitutional maxim that a government may not enact or promulgate an ex post facto law or regulation or a bill of attainder. See, e.g., U.S. Const. art. I, Sections 9 & 10, cl. 1; 2 F. Pollock & F. Maitland, The History of English Law 513 (2d ed. 1968); W. McKechnie, Magna Carta: A Commentary on the Great Charter of King John 334 (2d rev. ed. 1914). Ex post facto laws impose penalties retroactively on acts already completed or increases the penalties for such acts. See, e.g., Harisiades v. Shaughnessy, 342 U.S. 580, 594 (1952). Bills of attainder are "legislative punishments of individuals or fixed groups for past actions or status." Freeman, Inappropriate and Unconstitutional Retroactive Application of Superfund Liability, 42 Business Law. 215, 235 (1986). See also Wormuth, Legislative Disqualifications as Bills of Attainder, 4 Vand. L. Rev. 603 (1946). A determination that previously authorized MSW landfills--partically those that are no longer within the pre-Part 258 post-closure compliance period--now must comply with a new set of regulatory standards would be, or come perilously close to resembling, an ex post facto measure and bill of attainder in that property owners could be subject to sanctions for a failure to abide by requirements that did not exist while the facility was operational. See generally Nixon v. Administrator of Gen. Servs., 433 U.S. 425 (1977); American Communications Ass'n v. Douds, 339 U.S. 382 (1950); Vuitton v. Spencer Handbags Corp., 765 F.2d 966 (2d Cir. 1985).

THE RETROACTIVE NATURE OF THE NSPS AND EG

The proposed NSPS of May 30, 1991, like the final Standard, defined "designated facility" for Section 111(d) purposes (see 40 C.F.R. Section 60.21(b)) as a landfill that "has accepted waste at any time since November 8, 1987, or has additional capacity available for future waste deposition". Proposed Section 60.33c (56 Fed. Reg. at 24,511). The preamble to the proposal discussed the EPA's rationale for the retroactive application of the NSPS--and acknowledged that the proposal and final approach constitutes "retroactive" application:

> Unlike manufacturing facilities, which typically cease emissions once they have closed, a landfill will generate gas long after closure, in some cases as long as 100 years. During the development of today's proposed standards and guidelines, EPA found that a typical landfill is likely to generate landfill gas at a maximum rate at, or soon after, closure and that the generation rate would steadily decline thereafter. At some time after closure, emissions will no longer be a concern. . . .
>
> The retroactive application of operating requirements to closed facilities. . .raises policy concerns. The EPA generally does not require owners of closed sources to implement controls. These sources were presumably

operating in compliance with applicable regulations prior to closure and establishing post-closure requirements may place undue burdens on these facilities.

Faced with the administrative and policy complexities of regulating closed facilities, EPA looked for an approach that was likely to lead to reasonable success in reducing emissions without establishing unreasonable requirements. 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 emission guidelines for landfills that are no longer receiving wastes because EPA judged States would be able to identify active facilities as of this date. The EPA views this permit program as a readily available resource for States to use in implementing today's guidelines and compliance schedules under section 111(d). Therefore, EPA is proposing to define a designated facility as an existing landfill that received waste on or after November 8, 1987, or has additional capacity which may be filled in the future.

Id. at 24,475, 24,476.

BFI and several other commenters noted that the retroactive application of the NSPS to sites that may have been open on November 8, 1987 but subsequently closed would contravene the Agency's long-standing policy of applying CAA requirements to operating sources. The National Solid Wastes Management Association set forth the following arguments in opposition to the proposed approach:

1. EPA has historically not required owners of closed facilities/sources to implement controls. We know of no rationale, technical or otherwise, that would support EPA deviating from this policy.

2. Older closed landfills typically have emission levels that are much lower than newer sites because the degradation process typically occurs more rapidly at the beginning and declines over time. Therefore, the environmental benefit gained by the inclusion of older landfills would be much less.

3. Locational data for these facilities is not readily available and would be difficult to obtain because most

states did not require records despite the requirements of the 1984 RCRA amendments. It is uncertain today how many MSW landfills existed in 1990. EPA's data estimates that there were approximately 6,000 landfills in existence. However, other studies (GAO and Biocycle) estimate that the number was closer to 7,500. Additionally, comparing the GAO and Biocycle data that were obtained through a state survey process shows that states were not capable of reporting the same data consistently. Differences between the data sets are as great as 100 facilities.

4. The requirement for controlling landfill gas emissions was not previously included in any Federal or state regulation; therefore, most closed systems would not have gas collection systems in place unless they were for the control of methane. Landfill owners could not afford to install costly gas collection systems at a facility that is not generating revenues. The imposition of retroactive controls would unfairly place a substantial financial burden on owners who operated their sites in accordance with all Federal and state requirements.

Comments of Institute of Solid Waste Disposal, National Solid Wastes Management Association, regarding Proposed NSPS, at 9.

Moreover, the plain language and legislative history of the CAA demonstrate that the regulation of landfills that accepted waste or had the potential to accept waste on November 8, 1987 would arguably be contrary to Sections 111(a)(2) and (d) of the Act and inconsistent with Congress' intent. The unfairness that could result from application of a retroactive approach is exacerbated by the fact that the Agency clearly violated the statutory mandate to promulgate a NSPS within a specified time frame.

The primary rule of statutory construction is that "the legislative purpose is expressed by the ordinary meaning of the words used." United States v. Locke, 471 U.S. 84, 85 (1985). In general, the "plain meaning of legislation should be conclusive. . . ." United States v. Ron Pair Enterprises, Inc., 489 U.S. 235 (1989). See also Pyramid Lake Paiute Tribe of Indians v. U.S. Dept. of the Navy, 898 F.2d 1410, 1417 (9th Cir. 1990).

The "plain meaning" rule does not allow regulatory agencies to avoid the unambiguous wording of a statutory provision. The courts have consistently made clear that a court charged with interpreting a statute or regulation must respect the primacy of the text. See Blake Watson, Liberal Construction of CERCLA Under the Remedial

Purpose Canon: Have the Lower Courts Taken A Good Thing Too Far?, 20 Harv. Envtl. L. Rev. 199, 244 n.192 (1996).[2]

It is also worth noting that, apart from the question of whether the proposed rule is authorized by the statute, the courts have, even in instances in which the Chevron doctrine is applicable (the doctrine is not appropriately applied when the statute in question provides unambiguous guidance) simply not been deferential to Federal agency decisions made in the absence of substantial underlying data. The amount of deference accorded agency determinations "depends on the language of the authorizing statute and on the nature of the agency's functions." See, e.g., Note, 17 Harv. Envt'l L. Rev. 97, 145 (1993). Even in cases in which the Federal courts have determined that agency findings should, on the basis of the authorizing statute, be given "considerable deference", see, e.g., National Labor Relations Board v. Curtis Matheson Scientific, Inc., 494 U.S. 775 (1990), it is clear that no deference is warranted when a regulation is promulgated in the absence of sufficient justifying data. Monsanto Co. v. EPA, 19 F.3d 1201 (7th Cir. 1994); Motor Vehicle Mfrs. Ass'n v. New York Dep't of Envt'l Cons., 17 F.3d 521 (2d Cir. 1994); Chemical Mfrs. Ass'n v. EPA, 28 F.3d 1259 (D.C. Cir. 1994); Engine Mfgs. Ass'n v. EPA, 20 F.3d 1177 (D.C. Cir. 1994); Color Pigments Mfgs. Ass'n, Inc. v.

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[2] See, e.g., Central Bank of Denver v. First Interstate Bank, 114 S. Ct. 1439, 1453 (1994) ("Policy considerations cannot override our interpretation of the text and structure of the Act, except to the extent that they may help to show that adherence to the text and structure would lead to a result 'so bizarre' that Congress could not have intended it."); Ardestani v. INS, 502 U.S. 129, 138 (1991) (while "the broad purposes of the [Equal Access to Justice Act] would be served by making the statute applicable to deportation proceedings. . . we cannot extend the EAJA. . . when the plain meaning of the statute, coupled with the strict construction of waivers of sovereign immunity, constrain us to do otherwise"); Andrus v. Glover Constr. Co., 446 U.S. 608, 618-19 (1980) (explaining that cannon the remedial legislation benefiting Indians should be liberally construed is not license to disregard the plain meaning of the statute); Ernst & Ernst v. Hochfelder, 425 U.S. 185, 198-99 (1976) (rejecting an "effect-oriented approach" of the SEC to Section 10(b) of the 1934 Securities Exchange Act because it would "add a gloss to the operative language of the statute quite different from its commonly accepted meaning"); MacEvoy Co. v. United States, 322 U.S. 102, 107 (1944) (holding that fact that Miller Act is "highly remedial in nature" and "entitled to a liberal construction" nevertheless "does not justify ignoring plain words of limitation"); Mercado v. Calumet Fed. Sav. & Loan Ass'n, 763 F.2d 269, 271 (7th Cir. 1985) (Easterbrook, J.) ("The objective of a statute is not a warrant to disregard the terms of the statute").

Occupational Safety & Health Administration, 16 F.3d 1157 (11th Cir. 1994).

Recently, a federal appeals court ruled that the EPA's 40 C.F.R. Part 503 sewage sludge metal concentration limits were, in part, invalid because of the Agency's failure to demonstrate that they were risk-based. Leather Industries of America, Inc. v. EPA, No. 93-1187 (D.C. Cir. Nov. 15, 1994). As one commenter put it, the court "dissected" the EPA's justifications--hardly the kind of meek deference suggested by those who view Chevron broadly. Likewise, the same court rejected an EPA nitrogen oxide emission limitation in Alabama Power Co. v. U.S. Environmental Protection Agency, 40 F.3d 450 (D.C. Cir. 1994).

In our view, the "plain meaning" of the statutory provisions governing public notice--indeed, the only "common-sense reading of the statute" that would not "deconstruct" the provisions--lends itself to only one conclusion. The Act does not expressly authorize Federally-implemented controls upon closed sources, and the Act evidences no clear congressional intent to regulate closed facilities. Section 111(a)(2) of the Act defines "new source" as "any 'stationary source' the construction or modification of which is commenced after the publication of regulations (or, if earlier, proposed regulations) prescribing a standard of performance under this section which will be applicable to such source." Professor Currie discussed Congress' reasons for insisting on non-retroactive legislation:

> The statute's choice of the date when standards are adopted is an obvious point at which to draw the line. Although any source beginning operation after the enactment of the statutory provision causes the "new pollution problem" section 111 was meant to prevent, sources built before the standards are announced might require extensive modification if they were to comply. One of the justifications for imposing separate standards on new sources, as the House Report explained in 1977, is that it is generally more expensive to install control equipment in an existing plant than in a new one: "testimony. . .indicates that it costs about 25 percent less to purchase and install flue gas desulfurization technology on a new plant than it would cost to retrofit that plant subsequently." The statutory decision not to apply regulations retroactively seems to be a sensible concession to this fact of life.

D.P. Currie, Air Pollution: Federal Law & Analysis, Section ___ (1981).

Just as Section 111(a) provides that the date of proposal is the relevant date for determining the applicability of an NSPS to a source, that Act makes clear that an "existing source" is one which

is operational as of the date of the proposal. Section 111(a)(6) provides that the term means "any stationary source other than an new source." In turn, Section 111(a)(3) defines "stationary source" as "any building, structure, facility, or installation which emits or may emit any air pollutant." Likewise, there is no evidence that Congress intended that Section 111(d) apply to facilities that have closed.

Moreover, although little or no attention was placed on the issue in the premable to the final NSPS, the Agency has recognized that the proposed rule would impose a major compliance responsibility upon the owners or operators of landfills that, in some cases, were operational in November 1987 but closed before May 1991. Such retroactive application of regulations are, without question, disfavored by the courts. While it is true that Congress may impose retroactive liability, it is also a "venerable rule of statutory interpretation. . .that statutes affecting substantive rights and liabilities are presumed to have prospective effect." Bennett v. New Jersey, 470 U.S. 632, 639 (1985). Landgraf, in the view of some commenters and the Olin court, adds an additional requirement: the statute must have unambiguously provided for retroactive application. The EPA admits that "the retroactive application of operating requirements to closed facilities also raises policy concerns. The EPA generally does not require owners of closed sources to implement controls. These sources were presumably operating in compliance with applicable regulations prior to closure and establishing post-closure requirements may place undue burdens on these facilities." 56 Fed. Reg. at 24,475.

Here, in distinct contrast to (in the view of the majority of reviewing courts, excepting Olin) CERCLA, the Clean Air Act (as amended in 1977 and 1990) does not expressly state that Section 111 NSPS regulation should apply to any conduct or activity that occurred before the proposed date of a standard. Instead, the plain language of the Act refers to facilities existing within the time frame set forth in Section 111. Nowhere does the statute or the legislative history disclose any congressional desire to impose NSPS or equivalent requirements upon closed landfills. Likewise, in stark contrast to the RCRA scheme examined in Chemical Waste Management, supra, landfill gas is not pursuant to the Clean Air Act actively managed at closed solid waste landfills. While RCRA specifically envisions post-closure responsibilities at MSW landfills, the Clean Air Act does not. The EG would, however--as the EPA freely admits--impose a "legal penalty" upon landfill operators by requiring certain actions, including potentially the installation and maintenance of gas collection equipment.

Landfills which ceased operation before May 1991 were, as the Agency also acknowledges, closed pursuant to then-existing regulations. The application of the EG, particularly without utilization of Section 111(d) factors, to closed landfills could effectively make unlawful activity which was completely lawful at

the time of closure. Such regulatory activity is, one could argue, precisely what is condemned by the courts. The EG certainly could "retroactively impart() an obligation cum liability" by imposing an obligation to obtain a regulatory approval, and perhaps by requiring the installation, maintenance, and operation of control equipment, and by applying to regulated operations the full force of sanctions under Federal or New Mexico law for a failure to comply. See, e.g., Ralis v. RFE/RL, Inc., 770 F.2d 1121 (D.C. Cir. 1985).

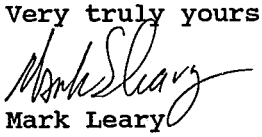
Finally, as the preamble to the proposed NSPS noted, "establishing post-closure requirements (upon facilities not in operation in May, 1991) may place undue burdens on these facilities." 56 Fed. Reg. at 24,475. Indeed, the courts place particular emphasis upon basic principles of fairness and equity in prohibiting retroactive rules. See, e.g., Usery v. Turner Elkhorn Mining Co., 428 U.S. 1, 17 (1976). An agency's purported interest in regulating retroactively must, therefore, be subordinate to the overriding maxim of "fairness to the regulated operator." United States v. Shelton Coal Corp., 829 F.2d 1336, 1340 (4th Cir. 1987).

The EPA, and the Agency in implementing the EG, have a legitimate interest in finding "an approach that (is) likely to lead to reasonable success in reducing emissions without establishing unreasonable requirements." 56 Fed. Reg. 24,475. But the application--in the absence of utilization of the Section 111(d) criteria to take into account the fact that the landfill, however owned, cannot at that site utilize disposal revenues to offset necessary costs--of the EG to landfills that closed before the date of the proposal, and hence had no opportunity to design and implement gas collection systems in accordance with the proposal, would be particularly unfair. These landfills, given their closed status (and assuming that questions of access and identification could be resolved) cannot engage in activity which can permit internalization of the compliance costs contemplated by the proposed NSPS. Instead, the are faced with the threat of new--and unforseen--regulatory obligations and liabilities merely because they accepted waste in the past.

The establishment of an applicability date other than May 30, 1991 for designated facilities arguably contravenes the statute and the well-established principles governing retroactive liability. Indeed, the judicial precedents cast considerable doubt on the ability of the EPA to require the imposition of standards upon closed landfills in general. The best way for the Department to seek to address these concerns is by applying the Section 111(d) criteria in a way that recognizes the closed nature of the facility, and that acknowledges that even though the landfill may be owned by an entity that owns or operates one or more other solid waste management facilities, the facility in question cannot be utilized for the disposal of waste so as to facilitate the "internalization" of any required costs of compliance.

We appreciate the opportunity to comment, and would be pleased to discuss our recommendations at any time.

Very truly yours,



Mark Leary
Area Manager, Regulatory Affairs

ENVIRONMENT DEPARTMENT
SOLID WASTE BUREAU
DATABASE SUMMARY
25-JUL-96

OWNER	FACILITY	STAT TYPE
ALBUQUERQUE, CITY OF DEWEY CAVE, ACTING DIRECTOR P.O. BOX 1293 ALBUQUERQUE NM 87103 761-8112	CERRO COLORADO (CITY OF ALBUQ) 10 MILES WEST OF ALBUQ. ON I-40. BERNALILLO ALBUQUERQUE NM	Open Landfill
	MESA DEL SOL / SOUTH BROADWAY BERNALILLO ALBUQUERQUE NM	Closed Landfill
ANACONDA MINERALS COMPANY ARCO COAL COMPANY 555 SEVENTEENTH STREET DENVER CO 80202 303-293-4272	ARCO COAL COMPANY P.O. BOX 638 CIBOLA GRANTS NM	Closed Landfill
ARTESIA, CITY OF THOMAS L. HOWELL, CITY SUPERVISOR P.O. DRAWER 1309 ARTESIA NM 88211 746-4612 3593	ARTESIA 5 MILES W. OF ARTESIA EDDY ARTESIA NM	Closed Landfill
BELEN, CITY OF LEONARD CARRILLO 525 BECKER AVENUE BELEN NM 87002 (505) 864-8221	BELEN 5 MILES SOUTH OF BELEN VALENCIA BELEN NM	Closed Landfill
BLUE HAVEN YOUTH CAMP VANCE E. CROWE, CAMP DIRECTOR BOX 304 MINERAL HILL ROUTE LAS VEGAS NM 87701 (806) 655-0772	BLUE HAVEN YOUTH CAMP 17 MILES W. OF LAS VEGAS SAN MIGUEL LAS VEGAS NM	Exempt Landfill
CAMINO REAL ENVIRONMENTAL CENTER, INC. 1000 CAMINO REAL BLVD. P.O. BOX 580 SUNLAND PARK NM 88063 (505) 589-9440	CAMINO REAL / SUNLAND PARK CAMINO REAL PROPERTIES, INC. 2 MILES SW OF AIRPORT DONA ANA SUNLAND PARK NM 88053	Open Landfill
CANNON AIR FORCE BASE BRUCE G. OSHITA, GM-13 27TH SUPPORT GROUP CANNON AFB NM 88103 (505) 784-4639	CANNON AFB SOUTHWEST OF CLOVIS. CURRY CLOVIS NM	Open Landfill

START OF FILE

CARLSBAD, CITY OF JAMES S. JORDAN, SANITATION SUPER. P.O. BOX 1569 CARLSBAD NM 88220 885-6262	CARLSBAD EDDY CARLSBAD NM	Closed Landfill
	SANDPOINT / EDDY COUNTY REGIONAL CAMINO REAL ENVIRONMENTAL EDDY CARLSBAD NM	Open Landfill
	SANDPOINT / MODIFICATION EDDY CARLSBAD NM	Planned Landfill
CARLSBAD/JOAB, INC. GARY KING OR STEVE MASSEY EDDY CO. P.O. BOX 2268 CARLSBAD NM 88221 589-2427	DARK CANYON EDDY CARLSBAD NM	Closed Landfill
CATRON COUNTY DANNY FRYAR, COUNTY MANAGER P.O. BOX 507 RESERVE NM 87830 (505) 533-6423	DATIL CATRON DATIL NM	Open Landfill
	GLENWOOD CATRON GLENWOOD NM	Open Landfill
	PIE TOWN CATRON PIE TOWN NM	Open Landfill
	QUEMADO CATRON QUEMADO NM	Closed Landfill
	RESERVE THREE MILES W. OF RESERVE CATRON RESERVE NM	Open Landfill
CHAMA, VILLAGE OF MAYOR, TONY GONZALES P.O. BOX 794 CHAMA NM 87520 756-2184	CHAMA 4 MILES W. OF CHAMA RIO ARRIBA CHAMA NM	Open Landfill
CHILILI, CITY OF JUAN SANCHEZ ESCABOSA ROUTE, BOX 265 CHILILI NM 87059	CHILILI BERNALILLO CHILILI NM	Closed Landfill

(505) 281-8444

CIBOLA COUNTY J.R. MURIETTA 515 W. HIGH STREET GRANTS NM 87020 287-9431	CUBERO CIBOLA CUBERO NM	Closed Landfill
	SAN MATEO CIBOLA SAN MATEO NM	Closed Landfill
	SEBOYETA CIBOLA SEBOYETA NM	Closed Landfill
CLAYTON, TOWN OF BILL FREEMAN, CITY MANAGER 1 CHESTNUT STREET CLAYTON NM 88415 374-8331	CLAYTON UNION CLAYTON NM	Open Landfill
	CLAYTON C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. UNION CLAYTON NM	Planned Landfill
CLOVIS, CITY OF JOE THOMAS P.O. BOX 760, 500 SYCAMORE CLOVIS NM 88102 769-2376	CLOVIS CURRY CLOVIS NM	Open Landfill
COBRE MINING COMPANY COBRE MINING P.O. BOX 424 HANOVER NM 88041 537-3391	COBRE MINING LANDFILL 3 MILES NORTH OF HANOVER 303 FIERRO ROAD GRANT HANOVER NM 88041	Exempt Landfill
COLUMBUS, VILLAGE OF WALTER T. SIMPSON P.O. BOX 350 COLUMBUS NM 88029 531-2246	COLUMBUS LUNA COLUMBUS NM	Open Landfill
CUBA, CITY OF MURPHY BRASUEL, MAYOR P.O. BOX 426 CUBA NM 87013 (505) 289-3758	CUBA SANDOVAL CUBA NM	Closed Landfill
DANLEY CONSTRUCTION COMPANY WILLIAM DANLEY P.O. DRAWER K ALAMOGORDO NM 88310 437-7155	DANLEY SOUTH OF ALAMOGORDO OTERO ALAMOGORDO NM	Open Landfill

DE BACA COUNTY FRANK MC REA P.O. BOX 347 FORT SUMNER NM 88119 355-2601	FORT SUMNER/DE BACA C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. DE BACA FORT SUMNER NM	Planned Landfill
	FORT SUMNER/DE BACA COUNTY 514 AVENUE G DE BACA FORT SUMNER NM 88119	Open Landfill
DEMING, CITY OF JOHN M. DELGADO P.O. BOX 706 DEMING NM 88031 546-8848	DEMING LUNA DEMING NM	Open Landfill
DEPARTMENT OF ENERGY JOSEPH YOZELLA P.O. BOX 1663, MS K 490 LOS ALAMOS NM 87545 665-5026	LANL INDUSTRIAL NW CORNER OF TECH. AREA 49E LOS ALAMOS LOS ALAMOS NM	Planned Landfill
	LOS ALAMOS NATIONAL LABORATORY MESITA DEL BUEY RD. TECHNICAL AREA 54-J LOS ALAMOS LOS ALAMOS NM	Open Landfill
EASTERN PLAINS COUNCIL OF GOVERNMENTS HIGH PLAINS WASTE MANAGEMENT CHET WYANT 104 W. 2ND ST. CLOVIS NM 88101 762-7714	ELIDA C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. ROOSEVELT ELIDA NM	Planned Landfill
	HIGH PLAINS REGIONAL/CURRY COUNTY 13 MILES WEST OF CLOVIS CURRY ST. VRAIN NM	Planned Landfill
EDDY COUNTY STEPHEN MASSEY, COUNTY MANAGER P.O. BOX 1139 CARLSBAD NM 87220 887-9511	LOVING LANDFILL EDDY LOVING NM	Closed Landfill
ENCINO, CITY OF JANET GALLEGOS P.O. BOX 163 ENCINO NM 88321	ENCINO TORRANCE ENCINO NM	Closed Landfill
ENVIRO TIRE DISPOSAL DAVIS PULLIAM	ENVIRO TIRE DISPOSAL, INC. NEAR BEVINS SAWMILL	Withdrawn Landfill

P.O. BOX 2189 MILAN NM 87021 505-285-6065	CIBOLA MILAN NM	
ESPANOLA, CITY OF FRED RIVERA P.O. DRAWER 37 ESPANOLA NM 87532 753-2377	ESPANOLA / EL LLANO SANTA FE SANTA CRUZ NM	Closed Landfill
EUNICE, CITY OF E.T. PEARCY, MAYOR P.O. BOX 147 EUNICE NM 88231 394-2576	EUNICE LEA EUNICE NM	Closed Landfill
FORT STANTON HOSPITAL PHIL KELLER P.O. BOX 8 FT. STANTON NM 88323 354-2211	FORT STANTON HOSPITAL LINCOLN FORT STANTON NM	Open Landfill
GALLUP, CITY OF TED LANDAVAZO, EXEC. DIRECTOR P.O. BOX 1270 GALLUP NM 87305 863-1212 6871	GALLUP LANDFILL 3 MILES NE OF GALLUP MCKINLEY GALLUP NM	Open Landfill
GRANT COUNTY MICHAEL CIESIELSKI P.O. BOX 898 SILVER CITY NM 88062 538-9581 3338	CLIFF/GILA TWO MILES SOUTH OF GILA GRANT GILA NM	Closed Landfill
	HACHITA GRANT HACHITA NM	Closed Landfill
GUADALUPE COUNTY RICHARD MARQUEZ, COUNTY MANAGER 420 PARKER AVENUE SANTA ROSA NM 88435 472-3306	ANTON CHICO GUADALUPE ANTON CHICO NM	Open Landfill
	ANTON CHICO C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. GUADALUPE ANTON CHICO NM	Planned Landfill
	COLONIAS GUADALUPE COLONIAS NM	Closed Landfill
	CUERVO GUADALUPE	Open Landfill

	CUERVO NM	
	DILIA GUADALUPE DILIA NM	Closed Landfill
	LA LOMA GUADALUPE LA LOMA NM	Closed Landfill
HAGERMAN, CITY OF MAYOR, LINDELL ANDREWS P.O. BOX 247 HAGERMAN NM 88232 752-3204	HAGERMAN CHAVES HAGERMAN NM	Closed Landfill
HIDALGO COUNTY TOM ANDERSON (CONTRACTOR) P.O. BOX 238 ANIMAS NM 88020 542-9428	ANIMAS HIDALGO ANIMAS NM	Open Landfill
HOLLOMAN AIR FORCE BASE HOWARD E. MOFFIT 49 CES/CEV, 550 TAPOSA AVENUE HOLLOMAN AFB NM 88330 475-3931	HOLLOMAN/MAIN BASE OTERO ALAMOGORDO NM 88330	Open Landfill
ICU, INC. ROY B. FOURR P.O. BOX 2896 FARMINGTON NM 87499 505-326-0472	HUERFANO ASBESTOS 6 MILES NE OF HUERFANO TRADING POST SAN JUAN EL HUERFANO NM	Withdrawn Landfill
JAL, CITY OF AUDREY HOBSON, CLERK/TREASURER DRAWER 340 JAL NM 88252 395-2222	JAL LEA JAL NM	Closed Landfill
KEERS ENVIRONMENTAL, INC. LUIS J. SENA P.O. BOX 6848 ALBUQUERQUE NM 87197 800-327-8642	KEERS ASBESTOS 14 MILES S. OF MOUNTAINAIR TORRANCE MOUNTAINAIR NM	Open Landfill
	KEERS ASBESTOS LANDFILL EXPANSION 14 MILES S. OF MOUNTAINAIR TORRANCE MOUNTAINAIR NM	Open Landfill
KIRTLAND AIR FORCE BASE WALTER S. DARR III 542D CTW/EM KAFB NM 87117	KIRTLAND AFB KAFB 377 ABW/EMC 2000 WYOMING BLVD. SE BERNALILLO	Open Landfill

846-0029	ALBUQUERQUE NM 87117	
LAS CRUCES / DONA ANA COUNTY SOUTH CENTRAL SOLID WASTE AUTHORITY LEN STOKES, DIRECTOR 180 W. AMADOR LAS CRUCES NM 88001 525-6601	CORRALITOS / LAS CRUCES REGIONAL 10 MILES W. OF LAS CRUCES DONA ANA LAS CRUCES NM	Planned Landfill
LAS CRUCES, CITY OF VICTOR GARCIA P.O. BOX CLC LAS CRUCES NM 88004 527-7845	LAS CRUCES DONA ANA LAS CRUCES NM	Open Landfill
LAS VEGAS, CITY OF LONNIE LUCERO P.O. BOX 179 LAS VEGAS NM 87701 454-1401	LAS VEGAS 2 MILES N. OF LAS VEGAS. SAN MIGUEL LAS VEGAS NM	Open Landfill
LAST FRONTIER LAND OWNER'S ASSOCIATION JIM TRAYLOR P.O. BOX 34 DATIL NM 87821	LAST FRONTIER CATRON DATIL NM	Closed Landfill
LEA LAND, INC. ROBERT G. HALL 22 NE 46TH STREET OKLAHOMA CITY OK 73105 (405) 842-1066	LEA LAND COUNTY INDUSTRIAL 32 MILES SW OF HOBBS, NM. LEA LAGUNA PLATA NM	Planned Landfill
LINCOLN COUNTY SOLID WASTE AUTHORITY CORLIS DOBSON P.O. BOX 2405 RUIDOSO DOWNS NM 88346 (505) 378-4697	LINCOLN COUNTY/CAPITAN CLASS B LINCOLN CAPITAN NM	Closed Landfill
	LINCOLN COUNTY/CAPITAN CLASS C LINCOLN CAPITAN NM	Open Landfill
	RUIDOSO LANDFILL LINCOLN RUIDOSO DOWNS NM	Withdrawn Landfill
LOGAN, CITY OF LARRY WALLIN P.O. BOX 7 LOGAN NM 88426 487-2239	LOGAN EAST PLAIN COUNCIL OF GOV. QUAY LOGAN NM	Open Landfill
	LOGAN C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT	Planned Landfill

	ASSO. QUAY LOGAN NM	
LORDSBURG, CITY OF ALEX DELA GARZA 206 S. MAIN STREET LORDSBURG NM 88045 542-3421	LORDSBURG HIDALGO LORDSBURG NM	Open Landfill
LOS ALAMOS COUNTY MIKE TOMLINSON P.O. BOX 30 LOS ALAMOS NM 87544 662-8163 8207	LOS ALAMOS COUNTY ON DOE PROPERTY, JEMEZ RD. LOS ALAMOS LOS ALAMOS NM	Open Landfill
LOS LUNAS, CITY OF LENONARD PADILLA P.O. BOX 1209 LOS LUNAS NM 87031 865-1377	LOS LUNAS 3.4 MILES W. OF LOS LUNAS VALENCIA LOS LUNAS NM	Open Landfill
LOVINGTON, CITY OF BOB CARTER P.O. BOX 1268 LOVINGTON NM 88260 396-2884	LOVINGTON SANITARY 3 MI. SOUTH OF LOVINGTON LEA LOVINGTON NM	Closed Landfill
MAGDALENA, VILLAGE OF JAMES M. BURSON, MAYOR P.O. BOX 145 MAGDALENA NM 87825 (505) 854-2261	MAGDALENA SOCORRO MAGDALENA NM	Closed Landfill
MAXWELL, VILLAGE OF JOE BERNAL P.O. BOX 356 MAXWELL NM 87728 375-2124	MAXWELL COLFAX MAXWELL NM 87728	Closed Landfill
MCKINLEY COUNTY IRVIN HARRISON, COUNTY MANAGER P.O. BOX 70 GALLUP NM 87301 863-1400	BLACK HAT 6 MILES WEST OF YA TA HEY MCKINLEY GALLUP NM	Withdrawn Landfill
	GAMERCO 4 MILES N. OF GALLUP MCKINLEY GAMERCO NM	Open Landfill
	THOREAU (OLD SITE) MCKINLEY THOREAU NM	Closed Landfill
	THOREAU / SMITH LAKE	Open

	8 MILES NE OF THOREAU MCKINLEY THOREAU NM	Landfill
	THOREAU/SMITH LAKE MODIFICATION 8 MILES NE OF THOREAU MCKINLEY THOREAU NM	Open Landfill
MCMAINS SANITARY SERVICES LINDA JONES, EXECUTIVE ASSISTANT P.O. BOX 759 GRANTS NM 87020 287-3773	LOBO CANYON ON LOBO CANYON ROAD CIBOLA GRANTS NM	Open Landfill
MORA, COUNTY OF COUNTY MANAGER P.O. BOX 580 MORA NM 87732 (505)387-5279	MORA 2 MILES N. OF MORA MORA MORA NM	Closed Landfill
	RAINSVILLE MORA RAINSVILLE NM	Open Landfill
MOSQUERO, VILLAGE OF ANDRES TRUJILLO P.O. BOX 116 MOSQUERO NM 87733 673-2322	MOSQUERO 3 MILES E. OF MOSQUERO HARDING MOSQUERO NM	Open Landfill
	MOSQUERO C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. HARDING MOSQUERO NM	Planned Landfill
MOUNTAIN REFUSE PAUL MCCOMB 114 STATE HWY 217 TIJERAS NM 87059	MOUNTAIN REFUSE BERNALILLO TIJERAS NM	Closed Landfill
MOUNTAINAIR, TOWN OF JOHN ROMERO P.O. BOX 115 MOUNTAINAIR NM 87036 (505) 847-2321	MOUNTAINAIR 3 MILES W. OF MOUNTAINAIR TORRANCE MOUNTAINAIR NM	Closed Landfill
NASA WHITE SANDS TEST FACILITY JOSEPH FRIES P.O. DRAWER MM LAS CRUCES NM 88004 (505) 524-5774	NASA WHITE SANDS TEST FACILITY WHITE SANDS MISSILE RANGE (700 AREA LANDFILL) DONA ANA WHITE SANDS NM	Open Landfill
NATIONAL PARK SERVICE	CHACO CULTURE PARK	Open

BOBBY CLARK, NATIONAL PARK SERVICE STAR ROUTE 4, BOX 6500 BLOOMFIELD NM 87413 988-6716	33 MILES S. OF BLOOMFIELD SAN JUAN BLOOMFIELD NM	Landfill
NMSU NEW MEXICO STATE UNIVERSITY BOX 30001, DEPT. 3545 LAS CRUCES NM 88003 646-2101	NMSU LANDFILL NEW MEXICO STATE UNIVERSITY DONA ANA LAS CRUCES NM 88003	Closed Landfill
NORTHEAST NM. REGIONAL LANDFILL ASSO. HAROLD DANIELS P.O. BOX 125 WAGON MOUND NM 87752 666-2222	NORTHEASTERN NM REGIONAL / DANIELS SITE 608 RAILROAD AVENUE MORA WAGON MOUND NM 87752	Planned Landfill
NORTHWEST NM REGIONAL SOLID WASTE AUTHORITY HENRY WILSON, EXECUTIVE DIRECTOR P.O. BOX 1330 / 39 FIRST AVE. THOREAU NM 87323 862-8402	RED ROCKS / NORTHWEST REGIONAL NW REGIONAL SOLID WASTE AUTHORITY 39 FIRST AVENUE / PO BOX 1330 MCKINLEY THOREAU NM 87323	Open Landfill
OTERO/LINCOLN COUNTY ROBERT STOCKWELL, CITY MAN. 511 TENTH STREET ALAMOGORDO NM 88310 439-4200	OTERO COUNTY / DOG CANYON 11 MILES S. OF ALAMOGORDO OTERO ALAMOGORDO NM	Closed Landfill
	OTERO/LINCOLN COUNTY REGIONAL NEAR PAXTON INTERSECTION OTERO ALAMOGORDO NM	Open Landfill
	OTERO/LINCOLN LINER MODIFICATION OTERO ALAMOGORDO NM	Planned Landfill
PECOS, CITY OF IRMA CHAVES, VILLAGE MANAGER P.O. DRAWER 337 PECOS NM 87552 757-6591	PECOS SOLID WASTE SAN MIGUEL PECOS NM	Closed Landfill
PHELPS DODGE CHINO MINES W.S. BRACK P.O. BOX 7 HURLEY NM 88043 537-3381	HURLEY SMELTER LANDFILL GRANT HURLEY NM 88043	Exempt Landfill
	SANTA RITA LANDFILL GRANT	Exempt Landfill

	SANTA RITA NM 88043	
PHELPS DODGE TYRONE BRANCH H.M. CONGER PHELPS DODGE MINING CO. TYRONE NM 88065 538-5331	TYRONE BRANCH LANDFILL 10 MILES SW OF SILVER CITY GRANT TYRONE NM	Exempt Landfill
PLAINS ELECTRIC ESCALANTE FACILITY ESCALANTE LANDFILL FACILITY P.O. BOX 6551 ALBUQUERQUE NM 87197 889-7211	ESCALANTE ASH LANDFILL MCKINLEY PREWITT NM 87197	Exempt Landfill
	ESCALANTE TRASH LANDFILL MCKINLEY PREWITT NM	Closed Landfill
PORTALES, CITY OF LAWRENCE C. PLAMER, CITY MANAGER 100 WEST FIRST STREET PORTALES NM 88130 356-6662	PORTALES ONE MILE SOUTH OF 18TH ST. ROOSEVELT PORTALES NM	Open Landfill
RAMAH, CITY OF RONALD E. MORSBACH P.O. BOX 416 RAMAH NM 87321 783-4339	RAMAH 1.5 MILES SW OF RAMAH MCKINLEY RAMAH NM	Closed Landfill
RATON, CITY OF SCOTT BERRY P.O. BOX 910 RATON NM 87740 445-9451 9551	RATON COLFAX RATON NM	Open Landfill
RIO ARRIBA COUNTY LORENZO VALDEZ, COUNTY MANAGER P.O. BOX 1256 ESPANOLA NM 87532 (505) 753-2992	CANJILON SOUTH OF CANJILON ON FOREST SERVICE LAND RIO ARRIBA CANJILON NM	Closed Landfill
	COYOTE / YOUNGSVILLE RIO ARRIBA YOUNGSVILLE NM	Open Landfill
	EL RITO ON U.S. FOREST SERVICE LAND RIO ARRIBA EL RITO NM	Closed Landfill
	LUMBERTON RIO ARRIBA BOARD OF COMMISSIONERS ESPANOLA BR. BOX 1256	Closed Landfill

	ESPANOLA RIO ARRIBA LUMBERTON NM	
	MEDANALES 5 MILES EAST OF MEDANALES RIO ARRIBA MEDANALES NM	Closed Landfill
	TIERRA AMARILLA 2 MILES EAST OF TIERRA AMARILLA COURTHOUSE RIO ARRIBA TIERRA AMARILL NM	Closed Landfill
RIVERSIDE GENERAL CONSTRUCTION GEORGE SENA SR. 2503 COORS BLVD. SW. ALBUQUERQUE NM 87121	RIVERSIDE GENERAL CONSTRUCTION BERNALILLO ALBUQUERQUE NM	Closed Landfill
ROSWELL, CITY OF CHARLIE SPARNON P.O. BOX 1838 ROSWELL NM 88201 624-6700	ROSWELL CHAVES ROSWELL NM	Open Landfill
	ROSWELL LANDFILL EXPANSION CHAVES ROSWELL NM	Planned Landfill
ROWE LANDFILL DISPOSAL ASSOCIATION VICTOR ORTIZ, JR. P.O. BOX 97 ROWE NM 87562	ROWE COMMUNITY OF ROWE P.O. BOX 97 SAN MIGUEL ROWE NM 87562	Closed Landfill
ROY MURPHY, ENVIRONMENTAL SCIENTIST BIA / NAVAJO AREA OFFICE P.O. BOX 26110 GALLUP NM 87305 863-8285	OJO ENCINO MCKINLEY OJO ENCINO NM	Open Landfill
ROY, VILLAGE OF MATTHEW SANDOVAL P.O. BOX 8 ROY NM 87743 485-2541	ROY HARDING ROY NM	Open Landfill
	ROY C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. HARDING ROY NM	Planned Landfill
SAN JON, VILLAGE OF BOBBY ROSE (MS.)	SAN JON ONE MILE WEST OF SAN JON	Open Landfill

P.O. BOX 37 SAN JON NM 88434 576-2922	QUAY SAN JON NM	
	SAN JON C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. QUAY SAN JON NM	Planned Landfill
SAN JUAN COUNTY TONY ATKINSON, MANAGER 112 S. MESA VERDE AZTEC NM 87410 (505)334-9481	SAN JUAN CO. REGIONAL / CROUCH MESA WASTE MANAGEMENT 8 MILES NE OF FARMINGTON SAN JUAN FLORA VISTA NM	Open Landfill
SAN MIGUEL COUNTY FRANCISCO APODACA, COUNTY MANAGER SAN MIGUEL COUNTY COURTHOUSE LAS VEGAS NM 87701 425-9333	VILLANUEVA SAN MIGUEL VILLANUEVA NM	Open Landfill
SAN YSIDRO, VILLAGE OF MAYOR BOB GARCIA P.O. BOX 190 SAN YSIDRO NM 87053 834-7398	SAN YSIDRO SANDOVAL SAN YSIDRO NM	Closed Landfill
SANDIA NATIONAL LABORATORY KATHLEEN A. CARLSON P.O. BOX 5400 ALBUQUERQUE NM 871855400 844-5678	SANDIA NATIONAL LABORATORY TECH AREA III BERNALILLO ALBUQUERQUE NM 87185	Open Landfill
SANDOVAL COUNTY DEBBIE HAYES, COUNTY MANAGER P.O. BOX 40 BERNALILLO NM 87004 (505) 867-7500	SOUTHERN SANDOVAL COUNTY 1 MILE W. OF HWY. 528 SANDOVAL RIO RANCHO NM	Open Landfill
SANTA FE COUNTY ~~RON MARTINEZ~~ P.O. BOX 276 SANTA FE NM 87504 (505)986-6330	AGUA FRIA SANTA FE AGUA FRIA NM	Open Landfill
Larry Velasquez Judy Gonzales - secretary Ray Cisneros P.O. Box 6152 Santa Fe, NM 87502	CAJA DEL RIO / SANTA FE REGIONAL CITY/COUNTY OF SANTA FE SANTA FE AGUA FRIA NM	Planned Landfill
SANTA FE RACING, INC. DAVID MITCHELL ROUTE 14, BOX 199 RT SANTA FE NM 87505	SANTA FE RACING, INC. ROUTE 14, BOX 199 RT SANTA FE SANTA FE NM 87505	Closed Landfill

Jim Chaisen - P.E.

SANTA FE, CITY OF CINDY P. CESSARICH, DIR. OF SOLID WASTE P.O. BOX 909 (1142 SILAR RD.) SANTA FE NM 87504 473-7209	SANTA FE LANDFILL CITY OF SANTA FE SANTA FE SANTA FE NM	Open Landfill
SANTA ROSA, CITY OF LORENZO T. CHAVEZ 141 SOUTH 5TH STREET SANTA ROSA NM 88435 472-3404	SANTA ROSA C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. GUADALUPE SANTA ROSA NM	Planned Landfill
	SANTA ROSA LANDFILL 2 MI. NORTH OF SANTA ROSA HWY 91 GUADALUPE SANTA ROSA NM	Open Landfill
SEAY BROTHERS, INC. MIKE SEAY, PRESIDENT P.O. BOX 80750 ALBUQUERQUE NM 87198 265-3641	SEAY BROTHERS 2 MI. N. OF RIO BRAVO ON COORS 3901 ERVIEN LANE SW BERNALILLO ALBUQUERQUE NM	Closed Landfill
SIERRA COUNTY RICHARD MILLARD 311 N. DATE ST. T. OR C. NM 87901	SIERRA COUNTY 6 MILES NORTH OF T. OR C. SIERRA TRUTH OR CONSE NM	Open Landfill
SILVER CITY THOMAS J. BATES, CITY MANAGER P.O. BOX 1188 SILVER CITY NM 88062 538-3731	SILVER CITY / TURNER RANCH 5 MILES S. OF SILVER CITY & 2 MILES E. OF TYRONE GRANT TYRONE NM	Open Landfill
	SILVER CITY LANDFILL 2.5 MILES SE OF SILVER CITY GRANT SILVER CITY NM	Closed Landfill
SOCORRO COUNTY COUNTY MANAGER P.O. BOX I SOCORRO NM 87801 (505) 835-0589	LA JOYA SOCORRO LA JOYA NM	Closed Landfill
	SAN ANTONIO SOCORRO SAN ANTONIO NM	Closed Landfill
	SOCORRO COUNTY REGIONAL SOCORRO	Planned Landfill

	SOCORRO NM 87801	
	VEGUITA SOCORRO VEGUITA NM	Closed Landfill
SOCORRO, CITY OF JAY SANGILLANES P.O. BOX K SOCORRO NM 87801 (505) 835-0240	SOCORRO CITY 4 MILES S. OF SOCORRO P.O. BOX K, 111 SCH OF MINES RD. SOCORRO SOCORRO NM 87801	Open Landfill
SOUTHWEST LANDFILL RAPHAEL VALDEPANA 5816 PAJARITO ROAD SW ALBUQUERQUE NM 87121 505-242-2020	SOUTHWEST ON WEST MESA BERNALILLO ALBUQUERQUE NM	Open Landfill
	SOUTHWEST EXPANSION ON WEST MESA BERNALILLO ALBUQUERQUE NM	Planned Landfill
SPRINGER, CITY OF LINDA MASCARENAS, CLERK-TREASURER P.O. BOX 488 SPRINGER NM 87747 483-2682	SPRINGER COLFAX SPRINGER NM	Closed Landfill
SWEETMEATS R.G. HUNT P.O. BOX 153 WATERFLOW NM 87421 598-5009	SWEETMEATS P.O. BOX 153 SAN JUAN WATERFLOW NM	Open Landfill
TAOS COUNTY / SANCO TOBY BAGGETT P.O. BOX 159 EL PRADO / TAOS NM 87529 751-0708	TAOS LANDFILL WALTER VIGIL, PUBLIC WORKS DIRECTOR 400 CAMINO DE LA PLACITA TAOS TAOS NM 87571	Open Landfill
TEXICO, VILLAGE OF MS. MARIE CHRISTAIN P.O. BOX 208 TEXICO NM 88135	TEXICO C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. CURRY TEXICO NM	Planned Landfill
TIMBERON C/O JEFF RHODES, BURROUGHS & RHODES 906 VIRGINIA AVENUE ALAMOGORDO NM 88310 (601) 264-1487	TIMBERON OTERO TIMBERON NM	Closed Landfill
TORRANCE COUNTY SOLID WASTE	TORRANCE COUNTY REGIONAL	Planned

AUTHORITY STEVE JONES P.O. BOX 48 ESTANCIA NM 87106 832-4476	7 MILES EAST OF MORIARTY TORRANCE MORIARTY NM	Landfill
TRI-CITY ASSOCIATION RUDY CHAPIN SR. P.O. BOX 95 NORTH HURLEY NM 88043 537-6143	TRI-CITY RUDY CHAPIN P.O. BOX 66 CENTRAL NM. 88020 GRANT HURLEY NM	Closed Landfill
TRI-SECT/SAFE-WASTE, INC. ARTHUR K. KRACKE P.O. BOX 2039 LOS LUNAS NM 87031 505-865-0180	TRI-SECT / MID AMERICA 20 MILES SW OF LOS LUNAS. VALENCIA LOS LUNAS NM	Open Landfill
TRUTH OR CONSEQUENCES, CITY OF GENE E. HOKINSON 505 SIMS ST. T. OR C. NM 87901	TRUTH OR CONSEQUENCES LANDFILL SIERRA TRUTH OR CONSE NM	Open Landfill
TUCUMCARI, CITY OF PAT MARTINEZ, LANDFILL SUPERVISOR P.O. BOX 1188 TUCUMCARI NM 88401 461-4551	TUCUMCARI QUAY TUCUMCARI NM	Open Landfill
	TUCUMCARI C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. QUAY TUCUMCARI NM	Planned Landfill
VALENCIA COUNTY PAUL GABALDON, COUNTY MANAGER P.O. BOX 1119 LOS LUNAS NM 87031 (505) 866-2053	VALENCIA COUNTY SOUTH OF BELEN VALENCIA BELEN NM	Closed Landfill
VAUGHN, TOWN OF LEANDRO ABEYTA P.O. BOX 278 VAUGHN NM 88353 584-2302	VAUGHN ONE MILE NE OF VAUGHN GUADALUPE VAUGHN NM	Open Landfill
	VAUGHN C&D LANDFILL HIGH PLAINS WASTE MANAGEMENT ASSO. GUADALUPE VAUGHN NM	Planned Landfill
VERMEJO PARK CORPORATION	VERMEJO PARK	Exempt

TERRY MUNDEN P.O. DRAWER E RATON NM 87740 (505) 445-3097	40 MILES WEST OF RATON COLFAX VERMEJO PARK NM	Landfill
WAGON MOUND, VILLAGE OF ARCELIA M. VALDEZ P.O. BOX 87 WAGON MOUND NM 87752 666-2408	WAGON MOUND EAST OF WAGON MOUND ON STATE RD. 120. MORA WAGON MOUND NM	Open Landfill
WASTE MANAGEMENT OF NEW MEXICO JAMES JORDAN P.O. BOX 15700 RIO RANCHO NM 87174 892-1200 2587	HOBBS / LEA COUNTY RICK WHITE 2608 LOVINGTON HIGHWAY LEA HOBBS NM 88240	Open Landfill
	RIO RANCHO SANDOVAL RIO RANCHO NM	Open Landfill
	RIO RANCHO MODIFICATION SANDOVAL RIO RANCHO NM	Open Landfill
WHITE SANDS MISSILE RANGE MAJOR THOMAS A. LADD US ARMY WSMR, STEWS-ES-E WHITE SANDS M.R. NM 88002 679-4275	MAIN POST LANDFILL MAIN POST AREA DONA ANA WHITE SANDS NM	Open Landfill
	STALLION RANGE CENTER STALLION RANGE AREA. SOCORRO SAN ANTONIO NM	Exempt Landfill
WILLARD, VILLAGE OF ALFONSO VALDEZ, MAYOR P.O. BOX 204 WILLARD NM 87063 (505) 384-2874	WILLARD TORRANCE WILLARD NM	Closed Landfill

NUMBER OF OWNERS = 110

NUMBER OF FACILITIES = 163 10 in Bernalillo Co.

55	closed	++++	50
24	planned	1	23
8	exempt		8
4	withdrawn		4
72	open	1111	68