TECHNICAL REVIEW DOCUMENT
for
OPERATING PERMIT 98OPPB199

to be issued to:

Broadacre Landfill Inc.
Pueblo County
Source ID 1010078

Prepared by Doris Jung on September 3, 1998
Revised by Vincent Brindley September 29, 1998 & December 4, 1998

I. Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA and during Public Comment. The conclusions made in this report are based on information provided in the original application submittal of June 18, 1998. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

On April 16, 1998, the Colorado Air Quality Control Commission directed the Division to implement new procedures regarding the use of short term emission and production/throughput limits on Construction permits. These procedures are being directly implemented in all operating permits that had not started their Public Comment period as of April 16, 1998. All short term emission and production/throughput limits that appeared in the construction permits associated with this facility that are not required by a specific State or Federal standard or by the above referenced Division procedures have been deleted and all annual emission and production/throughput limits converted to a rolling 12 month total. Note that, if applicable, appropriate modeling to demonstrate compliance with the National Ambient Air Quality Standards was conducted as part of the Construction Permit processing procedures. If required by this permit, portable monitoring results and/or EPA reference test method results will be multiplied by 8760 hours for comparison to annual emission limits unless there is a specific condition in the permit restricting hours of operation.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction

Permit.

II. Source Description

This source is classified as a municipal solid waste landfill defined under Standard Industrial Classification 4953. Solid waste is received by the facility for final disposal by burial in a landfill. Emissions of methane, nonmethane organic compounds (NMOC), and carbon monoxide gases result from the decomposition of solid waste placed in the landfill. Fugitive particulate emissions are emitted from earthmoving activities at the landfill: material extraction, handling, stockpiling, and refuse disposal

The facility is located at the intersection of Doyle Road and Brush Road, approximately 16 miles southeast of Pueblo. The area in which the plant operates is designated as attainment for all criteria pollutants. There are no affected states within 50 miles of the plant. There are no Federal Class I designated areas within 100 kilometers of the plant. The pollutants of concern are Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Particulate Matter (PM), and Particulate Matter less than 10 microns (PM_{10}), and Hazardous Air Pollutants (HAPs). Facility wide potential emissions based on data submitted with the Title V application and actual emissions based on the APENs on file with the Division are as follows in tons per year (tpy):

Pollutant	Potential Emissions (tpy)	Actual Emissions (tpy)
CO	6.66	0.304
VOC	30.16	1.54
PM	193	33.4
PM_{10}	88	15.2
HAPs	17.5	0.30

This source is considered to be a minor source (Potential to Emit < 250 tpy) for purposes of Prevention of Significant (PSD) regulations as defined in Colorado Regulation No. 3, Part A, Section I.B.58. This facility currently has no applicable MACTs but is subject to Standards of Performance for Municipal Solid Waste Landfills (Colorado Regulation No. 6, Part A, Subpart WWW, 40 CFR § 60.750 through § 60.759). A MACT for landfills is scheduled to be promulgated in November 2000. Broadacre indicated that this facility is not a 112(r) source and certified to operating in compliance with all applicable requirements at the time of their application submittal on June 18, 1998, except for the submittal of the Title V Operating Permit Application.

Although the facility does not emit equal to or greater than 100 tpy for any one criteria pollutant, the facility is required to obtain a Title V Operating Permit per 40 CFR § 60.752.

III. Emission Sources

The following sources are specifically regulated under terms and conditions of the Operating Permit for this Site:

Units M001 through M005 - Fugitive Particulate Emissions from Earthmoving Activities: Material Extraction, Handling, Stockpiling, and Refuse Disposal

1. Applicable Requirements

The sources of fugitive particulate emissions were first placed into service in 1992. Fugitive particulate emissions are generated from material extraction, handling, stockpiling, and refuse disposal. These emission units are permitted under final approval Colorado Construction Permit 87PB055. The applicable requirements for these units are the following:

- Minimize fugitive particulate emissions (Colorado Regulation No. 1, Section III.D.1.a)
- No off-property transport (Colorado Regulation No. 1, Section III.D.1.c)
- Particulate Emissions Control Plan (Colorado Construction Permit 87PB055)
- 20% Opacity limitation during normal operations (Colorado Regulation No. 1, Section II.A.1)
- APEN Reporting (Colorado Regulation No. 3, Part A, Section II)
- Daily acceptance limit of 221 loads per day (Colorado Construction Permit 87PB055)

However, the emission limitations, no off-property transport, and 20% opacity identified in Regulation No. 1, Section III.D.1.c are guidelines, not enforceable standards. Therefore, these guidelines are not included in the Operating Permit.

The short term limit of 221 loads per day will remain in the permit to monitor source compliance with the NAAQS particulate standards.

The Particulate Emissions Control Plan contains control measures that shall be used for enforcement purposes on the particulate emission producing sources, as required by Colorado Regulation No. 1 (Colorado Construction Permit 87PB055). The control measures are listed in Condition 1.2 of the Operating Permit.

2. Emission Factors

Fugitive PM and PM_{10} emissions are subject to APEN reporting requirements but are not subject to annual fees. A revised APEN was submitted with the Title V Operating Permit application for the fugitive particulate emissions. The emission factors included in this section for topsoil removal, topsoil stockpiles, disturbed areas, and vehicle travel on

unpaved roads were used by the Division to estimate fugitive particulate emissions for these sources.

Topsoil Removal

The Division used emission factors from AP-42 (EPA Compilation of Air Pollutant Emission Factors, September 1988), Section 11.9 for topsoil removal.

PM : 0.098 lb per ton of topsoil removed
PM_{10} : 0.0464 lb per ton of topsoil removed

In addition, a control efficiency of 75% is used for wet suppression control measures.

Topsoil Stockpiles and Disturbed Areas

The Division used emission factors for PM from AP-42 (EPA Compilation of Air Pollutant Emission Factors, September 1988), Section 11.9. The PM emission factor was adjusted using the particle size multipliers (k) taken from AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1996), Section 13.2.2 to determine the PM_{10} emission factor.

PM : 0.38 ton per acre-yr
PM_{10} : 0.18 ton per acre-yr

For topsoil stockpiles, a combined control efficiency of 86% shall be used to account for compaction, revegetation, and watering (as necessary) control measures.

For disturbed areas, revegetation and watering (as necessary) provides a combined control efficiency of 81%.

Vehicle Travel on Unpaved Roads

The Division used the predictive emission factor equation reported in AP-42 (EPA Compilation of Air Pollutant Emission Factors, January 1995), Section 13.2.2 to determine appropriate emission factors.

$$E = k(5.9)\left(\frac{s}{12}\right)\left(\frac{S}{30}\right)\left(\frac{W}{3}\right)^{0.7}\left(\frac{w}{4}\right)^{0.5}\left(\frac{365-p}{365}\right)$$

Where: E = emission factor (lb per vehicle miles traveled)
k = particle size multiplier ($k_{PM} = 1$, $k_{PM10} = 0.36$)
s = silt content of road surface material (s = 4.5%)
S = mean vehicle speed (S = 10 mph)
W = mean vehicle weight (ton)
w = mean number of wheels
p = number of days with at least 0.01 in. of precipitation per year (p = 65)

In addition, a combined control efficiency of 25% is used for wet suppression control measures.

3. Monitoring Plan

The fugitive particulate emission sources are subject to the requirements of Colorado Regulation No. 1, Section III.D, which requires existing sources to employ control measures and operating procedures to minimize fugitive particulate emissions using all available practical methods that are technologically feasible and economically reasonable. The particulate emission producing sources are subject to the control measures of the Particulate Emissions Control Plan. The source shall certify semi-annually that all appropriate measures have been taken to minimize fugitive emissions.

Source shall keep records of the number of loads accepted per day. Acceptance logs shall be made available to the Division upon request.

A revised APEN must be submitted to the Division as required by Colorado Regulation No. 3, Part A, Section II. C.

4. Compliance Status

A current APEN for these emission units is on file with the Division. No records indicating non-compliance were found in a review of the facility's Division files and the source certified in their application that they are currently in compliance with all current applicable requirements. Therefore, this unit is currently considered to be in compliance with all applicable requirements.

Unit M006 - Landfill Gas Emissions

1. Applicable Requirements

This landfill began accepting waste in 1992. The emissions resulting from the decomposition of solid waste placed in the landfill are VOC (39% of NMOC) and CO. This unit is permitted under final approval Colorado Construction Permit 87PB055. A waste acceptance rate limit of 73,000 loads per year is stated in the Construction Permit. This limit does not take into account the size of the loads. Therefore, a waste acceptance mass rate limit in tons per year will be included in the Operating Permit in place of the annual waste acceptance load limit. The waste acceptance mass rate limit in tons per year is the rate used by Broadacre to determine emissions in the Title V Operating Permit Application. The applicable requirements for this emission unit are the following:

- VOC: 30.16 tpy (Colorado Construction Permit 87PB055)

- CO: 6.66 tpy (Colorado Construction Permit 87PB055)
- Waste Acceptance Rate Limit: 509,637 tpy
- New Source Performance Standards (NSPS) for Municipal Solid Waste Landfills (Colorado Construction Permit 87PB055, Colorado Regulation No. 6, Part A, Subpart WWW)
- General Provisions of NSPS (Colorado Construction Permit 87PB055, Colorado Regulation No. 6, Part A, Subpart A)
- Odor Emission Regulation (Colorado Construction Permit 87PB055, Colorado Regulation No. 2)
- APEN Reporting (Colorado Regulation No. 3, Part A, Section II)

The emission limits for Colorado Construction Permit 87PB055 were chosen at maximum VOC and CO emission levels the landfill could emit to eliminate the necessity to modify the construction permit during the life of the landfill. The maximum VOC and CO emission levels were determined to occur during the last year of waste acceptance in the year of 2022. The estimated maximum emissions were determined with EPA's Landfill Air Emissions Estimation Model Version 2.0 and AP-42 (EPA Compilation of Air Pollutant Emission Factors, September 1997) Chapter 2.4, landfill gas emissions estimation equations.

NSPS Subpart WWW requires the source to recalculate the NMOC emission rate annually subsequent to the initial NMOC emission rate report. The initial NMOC emission rate report was submitted by the source on May 16, 1997. When the emission rate exceeds 50 Mg per yr, as calculated per NSPS Subpart WWW requirements, the source is required to install a collection and control system for landfill gases within 30 months. The source has the option of using Tier 2 or Tier 3 sampling per NSPS Subpart WWW to verify the emissions estimate.

2. Emission Factors

The annual gaseous emissions from the landfill are determined with the Landfill Air Emissions Estimation Model and AP-42 landfill gas emissions estimation equations. Therefore, there are no emission factors associated with this emission unit. The acceptable input values into the model and equations are described in the next paragraph.

Annual VOC and CO emissions rates for the years 1998 through 2057 were estimated with EPA's Landfill Air Emissions Estimation Model Version 2.0. Inputs into the model include the methane generation potential (L_o = 100 m^3 per Mg), methane generation rate constant (k = 0.02 per yr), NMOC concentration as hexane (C_{NMOC} = 595 ppmv), and an average waste acceptance rate of 462256.12 Mg per year. Actual refuse in place for 1998 was used. The estimated cumulative mass of refuse in the landfill for future years was determined by adding the average yearly waste acceptance rate to the previous year's cumulative refuse in the landfill. The estimated date of landfill closure is 2022.

The values of the parameters (L_o, k, and C_{NMOC}) used in the Landfill Model, as described above, were chosen to represent the conditions at the landfill. However, it should be noted that these same parameters are used to determine compliance with NSPS Subpart WWW requirements and the source must use the acceptable values and calculation methods described in 40 CFR § 60.754 for NSPS purposes.

3. Monitoring Plan

Waste acceptance quantities shall be recorded monthly. A new rolling twelve month total of waste acceptance will be determined each month. The rolling twelve month total of waste acceptance shall be used to monitor compliance with the annual waste acceptance rate limitation. In the absence of evidence to the contrary, compliance with the rolling twelve month total of waste acceptance rate shall indicate compliance with the emissions limitations.

A revised APEN must be submitted to the Division as required by Colorado Regulation No. 3, Part A, Section II. C. Emissions will be estimated with EPA's Landfill Air Emissions Estimation Model Version 2.0 or higher using acceptable input values that were discussed above.

NSPS Subpart WWW requires the source to prepare and submit a NMOC emission rate report according to Federal NSPS 40 CFR 60.752, 60.754, 60.757, and 60.758.

The source shall employ such measures and operating procedures as are necessary to minimize odor emissions.

4. Compliance Status

A current APEN for this emission unit is on file with the Division. Since the submittal of the Title V Operating Permit Application was due March 12, 1997, Broadacre was not in compliance with this applicable requirement. Therefore, the application shield was not granted to this source.

IV. Insignificant Activities

In the Title V Operating Permit Application, submitted June 18, 1998, emission units were identified by Broadacre that qualify as insignificant activities. The emission units are summarized below. The letter in parentheses after the equipment description indicates under which exemption in Colorado Regulation No. 3, Part C, Section II.E.3 the equipment qualifies as an insignificant activity.

Miscellaneous areas of disturbed surface not associated with landfill operations (j).
Waste latex paint recycling areas (n, mm).

Diesel fuel storage for site operations (fff).
Agriculture operations (g).
Miscellaneous landscaping devices (bb).

V. Alternate Operating Scenarios

There were no alternate operating scenarios requested.

VI. Permit Shield

No specific regulations were cited by Broadacre Landfill as non-applicable to this source.

VI. Accidental Release Program - 112(r)

The source has certified that they are not subject to the provisions of Section 112(r).

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provision must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Section 68.215(e) of the Federal Clean Air Act requires the Division to address four issues in regards to operating permit sources subject to 112(r):

1. Verify source submitted and register an RMP by deadline

EPA is in the process of setting up a Website specifically for 112(r) plans. All 112(r) sources will electronically submit their plans to this “designated central location”. The Division will require sources certify in their annual compliance certification that they are/are not subject to 112(r) and they have/have not submitted a Risk Management Plan (RMP) to the designated central location by June 20, 1999. In addition, the Division will check the 112(r) website to verify that a RMP was actually submitted to the website by the deadline. Failure to submit a RMP by the June deadline by sources subject to 112(r) will be considered a permit deviation for reporting purposes under Title V.

2. Verify that source owner/operator has submitted a source certification or in its absence has submitted a compliance schedule.

As mentioned above, the Division will require that sources certify in their annual compliance certification that they are/are not subject to 112(r) and they have/have not submitted a Risk Management Plan (RMP) to the designated central location by June 20,1999. If they are subject to 112(r) but did not submit an RMP on time, a compliance

schedule under the provisions of Title V must be submitted to the Division by the source. Failure to submit a RMP or a compliance schedule by the June deadline by sources subject to 112(r) will be considered a permit deviation for reporting purposes under Title V.

3. For some or all sources use one or more mechanisms such as completeness check, source audits, record review, or facility inspections to ensure permitted sources are in compliance with the requirements of this part

The Division may choose to perform any or all of the activities listed under this subsection. Although there is no specific number of such actions required in the 112(r) rule, a June 3, 1997 draft 112(r) implementation guidance from EPA states that "Congress considered a requirement that 1.4 percent of the RMPs be audited annually, but dropped that provision."

The Division will, at a minimum, perform a "completeness check" on an unspecified number of Title V 112(r) sources. The website that EPA is in the process of developing to accept 112(r) RMP's will include software that will electronically conduct a completeness check on the RMP's. For the purposes of this operating permit, such check shall serve as the completeness check required under 68.215(e)(3). As noted in the Preamble to the final 112(r) rule (June 20, 1996 Federal Register, page 31691), "EPA agrees that the review for quality or adequacy of the RMP is best accomplished by the implementing agency..." In Colorado, the implementing agency is the U.S. EPA. If the EPA website software indicates that a source did not submit a complete plan, it will be considered a permit deviation for reporting purposes under Title V and the Division may initiate an enforcement action for failure to meet the Title V permit condition (see below). Per the Preamble (page 31691), the Division may perform the completeness checks in a timeframe consistent with the source's Title V certifications.

4. Initiate enforcement action as necessary

This refers to enforcement under Title V, not under Part 68 (112(r)). If a source fails to file a RMP or a compliance schedule by the June deadline or the EPA software indicates that the RMP is not complete, it will be considered a permit deviation for reporting purposes under Title V and the Division may initiate an enforcement action.