

**NOTICE OF FINAL RULEMAKING  
MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321: EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

The Maricopa County Air Quality Department (MCAQD) revised Rule 321 (Existing Municipal Solid Waste (MSW) Landfills). The Control Officer is posting this Notice of Final Rulemaking on the MCAQD website as required by Arizona Revised Statute (A.R.S.) § 49-471.07(G). This notice includes the preamble, as prescribed in A.R.S. § 49-471.05, and the full text of the final rule. This notice also includes a list of all previous notices posted on the Maricopa County Enhanced Regulatory Outreach Program (EROP) website addressing the proposed rule and the concise explanatory statement prescribed in A.R.S. § 49-471.07(B).

**PREAMBLE**

**1. Statutory authority for the rulemaking (A.R.S. § 49-471.05(1)):**

A.R.S. §§ 49-112, 49-474, 49-479 and 49-480

**2. Name and address of department personnel with whom persons may communicate regarding the rulemaking (A.R.S. § 49-471.05(2)):**

Name: Will Adrian or Kimberly Butler  
Maricopa County Air Quality Department  
Planning and Analysis Division

Address: 301 W. Jefferson St., Suite 410  
Phoenix, AZ 85003

Telephone: 602-506-6010

Fax: 602-506-6179

Email: [AQPlanning@maricopa.gov](mailto:AQPlanning@maricopa.gov)

**3. Rulemaking process (A.R.S. § 49-471.05(3)):**

This rulemaking followed procedures identified in state statutes and the Maricopa County EROP Policy.

County Manager Briefing:	March 2017
Stakeholder Meetings and Workshops:	March 10, 2017 April 19, 2018 December 10, 2020 February 28, 2022
Board of Health Meeting to Initiate Regulatory Change:	February 25, 2019
Notice of Proposed Rulemaking:	May 4, 2022
Board of Health Meeting to Recommend Approval to the Board of Supervisors:	July 25, 2022
Board of Supervisors Formal Meeting to Set the Public Hearing:	August 17, 2022
Board of Supervisors Public Hearing:	September 28, 2022

**4. Explanation of the rule, including the control officer's reasons for initiating the rulemaking (A.R.S. § 49-471.05(4)):**

On August 29, 2016, the U.S. Environmental Protection Agency (EPA) promulgated emission guidelines for municipal solid waste (MSW) landfills under Clean Air Act (CAA) Section 111(d). The emission guidelines set forth specific requirements for controlling emissions of non-methane organic compounds (NMOC). The emission guidelines are codified at Title 40 of the Code of Federal Regulations (CFR), Part 60, Subpart Cf. Subpart Cf requires States to submit a plan to the EPA to implement the emission guidelines. For the purposes of the CAA Section 111(d) Plan, MCAQD is considered a “State”.

MCAQD has implemented the 2016 emission guidelines through incorporation of the guidelines into Rule 321. MCAQD originally drafted and adopted Rule 321 on May 14, 1997, in response to the issuance of the Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills (40 CFR 60, Subparts Cc and WWW, 61 FR 9905, March 12, 1996). Prior to this rulemaking, Rule 321 implemented the federal standards of performance set forth in 40 CFR 60, Subpart WWW (Standards of Performance for Municipal Solid Waste Landfills) and all accompanying appendices, excluding 40 CFR 60.750, which were adopted and incorporated by reference. MCAQD removed the federal standards set forth in 40 CFR 60, Subpart WWW from Rule 321 and replaced them with the emission guidelines set forth in 40 CFR 60, Subpart Cf.

In addition, MCAQD revised Rule 321 to implement requirements for MSW landfills with installed and operational gas collection and control systems (GCCS) that are not subject to the federal emission guidelines. MSW landfills in Maricopa County that are not subject to a federal emission standard or guideline but emit regulated air pollutants above the MCAQD permitting thresholds in Rule 200 (Permit Requirements) must implement reasonably available control technology (RACT) per Rule 241 (Minor New Source Review). MCAQD has determined the continued use of an installed and operational GCCS is RACT for these sources. Prior to this rulemaking, Maricopa County did not have specific rule requirements for the implementation of RACT for MSW landfills with emission rates below federal thresholds but MCAQD issued permits to these sources to implement RACT. Adding RACT rule requirements into Rule 321 standardizes the requirements and ensures consistent application of RACT for these sources.

The revisions to Rule 321 include the following:

- Revised Section 102 (Applicability) to clarify that a MSW landfill that commenced construction, reconstruction or modification on or before July 17, 2014 is subject to Rule 321
- Revised Section 301 to implement the requirements in 40 CFR 60, Subpart Cf
- Added Section 302 to codify RACT requirements for MSW landfills with installed and operational landfill gas collection and control systems with NMOC emission rates below the federal thresholds in 40 CFR 60, Subpart Cf
- Revised Section 400 to clarify the administrative requirements for MSW landfills
- Revised Section 500 to clarify the monitoring and recordkeeping requirements for MSW landfills

**5. Studies relied on in the control officer's evaluation of or justification for the rule and where the public may obtain or review the studies, all data underlying the studies, any analysis of the studies and other supporting material (A.R.S. § 49-471.05(5)).**

No studies were relied on in the control officer's evaluation of the rule.

**6. An economic, small business and consumer impact statement (A.R.S. § 49-471.05(6)):**

The following discussion addresses each of the elements required for an economic, small business and consumer impact statement, as prescribed by A.R.S. §§ 41-1055(A), (B), and (C), and 41-1035:

**An identification of the rulemaking, including all of the following (A.R.S. § 41-1055(A)(1)):**

This rulemaking revised Rule 321.

**(a) The conduct and its frequency of occurrence that the rule is designed to change (A.R.S. § 41-1055(A)(1)(a)).**

MCAQD revised Rule 321 to implement the federal emission guidelines set forth in 40 CFR 60, Subpart Cf. In addition, MCAQD revised Rule 321 to implement RACT requirements for MSW landfills with installed and operational gas collection and control systems that are not subject to the federal emission guidelines.

**(b) The harm resulting from the conduct the rule is designed to change and the likelihood it will continue to occur if the rule is not changed (A.R.S. § 41-1055(A)(1)(b)).**

If the rule was not changed, Title V MSW landfills would have remained subject indefinitely to the Federal Plan requirements in 40 CFR 62, Subpart OOO. In addition, RACT requirements for Non-Title V MSW landfills would not have been incorporated into the rule which may have led to inconsistent implementation of RACT requirement into Non-Title V MSW landfill permits.

**(c) The estimated change in frequency of the targeted conduct expected from the rule change (A.R.S. § 41-1055(A)(1)(c)).**

Permitting and inspection frequencies will not change with this rulemaking.

**A brief summary of the information included in the economic, small business and consumer impact statement (A.R.S. § 41-1055(A)(2)).**

The economic, small business, and consumer impact statement addresses each of the elements required for an economic, small business and consumer impact statement, as prescribed by A.R.S. §§ 41-1055(A), (B), and (C), and 41-1035.

**Name and address of agency employees who may be contacted to submit or request additional data on the information included in the economic, small business and consumer impact statement (A.R.S. § 41-1055(A)(3)).**

Name: Will Adrian or Kimberly Butler  
Maricopa County Air Quality Department  
Planning and Analysis Division

Address: 301 W. Jefferson St., Suite 410  
Phoenix, AZ 85003

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Fax: 602-506-6179

Email: [AQPlanning@maricopa.gov](mailto:AQPlanning@maricopa.gov)

**An identification of the persons who will be directly affected by, bear the costs of or directly benefit from the rulemaking (A.R.S. § 41-1055(B)(2)).**

This rulemaking affects owners and operators of existing municipal solid waste landfills in Maricopa County that have commenced construction, reconstruction or modification on or before July 17, 2014.

**A cost benefit analysis of the following:**

**(a) The probable costs and benefits to the implementing agency and other agencies directly affected by the implementation and enforcement of the rulemaking (A.R.S. § 41-1055(B)(3)(a)).**

This rulemaking should not impose any new costs on MCAQD or on any other agencies affected by the rulemaking.

**(b) The probable costs and benefits to a political subdivision of this state directly affected by the implementation and enforcement of the rulemaking (A.R.S. § 41-1055(B)(3)(b)).**

This rulemaking does not impose any significant costs on political subdivisions of this state affected by the rulemaking. Existing Title V MSW landfills in Maricopa County are currently subject to Federal Plan requirements in 40 CFR 62, Subpart OOO (Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014). The Federal Plan was promulgated to implement the 2016 MSW landfill emission guidelines set forth in 40 CFR 60, Subpart Cf. This rulemaking incorporates by reference the emission guidelines, 40 CFR 60, Subpart Cf, for existing Title V MSW landfills in Maricopa County and thereby introduces no new significant costs on political subdivisions directly affected by the rulemaking. The emission guidelines incorporated into Rule 321 will become effective locally once the EPA approves the MCAQD's Clean Air Act 111(d) Plan which includes the revised Rule 321.

Existing Non-Title V MSW landfills in Maricopa County with an installed and operational GCCS that are not subject to a federal emission guideline or standard but emit regulated air pollutants above the MCAQD permitting thresholds in Rule 200 must implement RACT. MCAQD has determined the continued use of an installed and operational GCCS is RACT for these sources. Prior to this rulemaking, Maricopa County did not have specific rule requirements for the implementation of RACT for MSW landfills below federal thresholds but did issue permits to these sources with specific RACT requirements. Added rule requirements for these sources in Rule 321 provide consistent implementation of RACT, but should not significantly impact these sources financially. The addition of these provisions may actually benefit these sources by providing standardized requirements for all Non-Title V MSW landfills in Maricopa County.

**(c) The probable costs and benefits to businesses directly affected by the rulemaking, including any anticipated effect on the revenues or payroll expenditures of employers who are subject to the rulemaking (A.R.S. § 41-1055(B)(3)(c)).**

This rulemaking should not have a significant cost impact on businesses directly affected by the rulemaking. Existing Title V MSW landfills in Maricopa County are currently subject to Federal Plan requirements in 40 CFR 62, Subpart OOO (Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction On

or Before July 17, 2014 and Have Not Been Modified or Reconstructed Since July 17, 2014). The Federal Plan was promulgated to implement the 2016 MSW landfill emission guidelines set forth in 40 CFR 60, Subpart Cf. This rulemaking incorporates by reference the emission guidelines, 40 CFR 60, Subpart Cf, for existing Title V MSW landfills in Maricopa County and thereby introduces no new significant costs on businesses directly affected by the rulemaking. The emission guidelines incorporated into Rule 321 will become effective locally once the EPA approves the MCAQD's Clean Air Act 111(d) Plan which includes the revised Rule 321.

Existing Non-Title V MSW landfills in Maricopa County with an installed and operational GCCS that are not subject to a federal emission guideline or standard but emit regulated air pollutants above the MCAQD permitting thresholds in Rule 200 must implement RACT. MCAQD has determined the continued use of an installed and operational GCCS is RACT for these sources. Prior to this rulemaking, Maricopa County did not have specific rule requirements for the implementation of RACT for MSW landfills below federal thresholds but did issue permits to these sources with specific RACT requirements. Added rule requirements for these sources in Rule 321 provide consistent implementation of RACT, but should not significantly impact these sources financially. The addition of these provisions may actually benefit these sources by providing standardized requirements for all Non-Title V MSW landfills in Maricopa County.

**A general description of the probable impact on private and public employment in businesses, agencies and political subdivisions of this state directly affected by the rulemaking (A.R.S. § 41-1055(B)(4)).**

This rulemaking should not have any impact on private and public employment in businesses, agencies, or political subdivisions of this state.

**A statement of the probable impact of the rulemaking on small businesses. The statement shall include:**

**(a) An identification of the small businesses subject to the rulemaking (A.R.S. § 41-1055(B)(5)(a)).**

There are no small businesses subject to this rulemaking.

**(b) The administrative and other costs required for compliance with the rulemaking (A.R.S. § 41-1055(B)(5)(b)).**

There are no small businesses subject to this rulemaking.

**(c) A description of the methods that the agency may use to reduce the impact on small businesses (A.R.S. § 41-1055(B)(5)(c)).**

**i. Establish less stringent compliance or reporting requirements in the rule for small businesses (A.R.S. § 41-1035(1)).**

There are no small businesses subject to this rulemaking.

**ii. Establish less stringent schedules or deadlines in the rule for compliance or reporting requirements for small businesses (A.R.S. § 41-1035(2)).**

There are no small businesses subject to this rulemaking.

**iii. Consolidate or simplify the rule's compliance or reporting requirements for small businesses (A.R.S. § 41-1035(3)).**

There are no small businesses subject to this rulemaking.

- iv. **Establish performance standards for small businesses to replace design or operational standards in the rule (A.R.S. § 41-1035(4)).**

There are no small businesses subject to this rulemaking.

- v. **Exempt small businesses from any or all requirements of the rule (A.R.S. § 41-1035(5)).**

There are no small businesses subject to this rulemaking.

- (d) **The probable cost and benefit to private persons and consumers who are directly affected by the rulemaking (A.R.S. § 41-1055(B)(5)(d)).**

This rulemaking should not result in any significant costs for private persons and consumers.

**A statement of the probable effect on state revenues (A.R.S. § 41-1055(B)(6)).**

The rulemaking will not impose increased monetary or regulatory costs on other state agencies, political subdivisions of this state, persons, or individuals so regulated. Without costs to pass through to customers, there is no projected change in consumer purchase patterns and, thus, no impact on state revenues from sales taxes.

**A description of any less intrusive or less costly alternative methods of achieving the purpose of the rulemaking, including the monetizing of the costs and benefits for each option and providing the rationale for not using nonselected alternatives (A.R.S. § 41-1055(B)(7)).**

MCAQD revised Rule 321 to implement the federal emission guidelines set forth in 40 CFR 60, Subpart Cf. In addition, MCAQD revised Rule 321 to implement RACT requirements for MSW landfills with installed and operational gas collection and control systems that are not subject to the federal emission guidelines.

**A description of any data on which a rule is based with a detailed explanation of how the data was obtained and why the data is acceptable data (A.R.S. § 41-1055(B)(8)).**

Not applicable.

7. **The effective date of the rule (A.R.S. § 49-471.05(7)):**

The effective date of this rulemaking was September 28, 2022.

8. **Such other matters as are prescribed by statute and that are applicable to the county or to any specific rule or class of rules (A.R.S. § 49-471.05(8)):**

Under A.R.S. § 49-479(C), a county may not adopt a rule or ordinance that is more stringent than the rules adopted by the Director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the applicable requirements of A.R.S. § 49-112.

§ 49-112 County regulation; standards

§ 49-112(A)

When authorized by law, a county may adopt a rule, ordinance or regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all of the following requirements are met:

1. The rule, ordinance or regulation is necessary to address a peculiar local condition.
2. There is credible evidence that the rule, ordinance or regulation is either;
  - (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible.
  - (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance, or regulation is equivalent to federal statutes or regulation.
3. Any fee or tax adopted under the rule, ordinance or regulation does not exceed the reasonable costs of the county to issue and administer the permit or plan approval program.

§ 49-112(B)

When authorized by law, a county may adopt rules, ordinances or regulations in lieu of a state program that are as stringent as a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if the county demonstrates that the cost of obtaining permits or other approvals from the county will approximately equal or be less than the fee or cost of obtaining similar permits or approvals under this title or any rule adopted pursuant to this title. If the state has not adopted a fee or tax for similar permits or approvals, the county may adopt a fee when authorized by law in the rule, ordinance or regulation that does not exceed the reasonable costs of the county to issue and administer that permit or plan approval program.

MCAQD is in compliance with A.R.S. §§ 49-112(A) and (B). Rule provisions for Title V sources in Rule 321 are no more stringent than those adopted by the State. Rule provisions for Non-Title V sources in Rule 321 are in addition to those adopted by the State but are required by MCAQD Rule 241 (Minor New Source Review) which requires the implementation of RACT. Rule 241 is part of MCAQD's minor source rules which address the peculiar local conditions in Maricopa County that address long-standing federal requirements for nonattainment areas, including the implementation of RACT.

**9. List of all previous notices posted to the Maricopa County EROP website addressing the rule and a concise explanatory statement, as prescribed by A.R.S. § 49-471.07, subsection B:**

**(a) List of all previous notices posted to the Maricopa County EROP website addressing the rule:**

<b>Notice</b>	<b>Date of Posting</b>
Briefing Notification to County Manager:	March 10, 2017
Notice of Stakeholder Workshops:	April 4, 2018 November 25, 2020 February 11, 2022
Notice of Board of Health Meeting:	February 8, 2019
Notice of Proposed Rulemaking:	May 4, 2022
Notice of Board of Health Meeting to Make a Recommendation to the Board of Supervisors:	July 11, 2022

**(b) The following discussion addresses each of the elements required for a concise explanatory statement, as prescribed by A.R.S. § 49-471.07, subsection B:**

**i. A description of any change between the proposed rule or ordinance, the final rule or ordinance or notice of final supplemental rule or ordinance.**

No changes were made after the Notice of Proposed Rulemaking was published on May 4, 2022.

**ii. A summary of the comments and arguments for and against the notice and the county's response to the comments and arguments.**

The following discussion evaluates the arguments for and against the rule and includes responses to comments received on the rule or the preamble in the Notice of Proposed Rulemaking. MCAQD received written comments from four stakeholders. All of the comments were reviewed and evaluated by MCAQD.

**Comments #1 and #2 are duplicate comments received from two stakeholders.**

**Comment #1:** Section 200 – Please include the definitions contained in Subpart XXX §60.761. Referencing the definitions in Rule 100 is fine.

**Response #1:** MCAQD incorporated by reference the definitions of 40 CFR 60, Subpart Cf in lieu of adding all definitions into Rule 321.

**Comment #2:** 102 The statement “The provisions of this rule shall apply to major and area sources” should be revised to match Subpart XXX §60.762. The landfill either has a design capacity over 2.5 million megagrams and is subject to regulation or it isn't. Since an area source is defined as any stationary source that is not a major source, the statement is basically saying the rule applies to all landfills, which is not the intent of the Federal regulations.

**Response #2:** MCAQD removed the terms "major and area sources" from the Applicability section of the rule and replaced the terms with the term “existing” in order to clarify that this rule applies to all existing MSW landfills as specified in §§ 102.1 and 102.2 and further clarified in §§ 301 and 302.

**Comment #3:** 302 This rule should apply to MSW landfills with NMOC emission rates ABOVE the Federal threshold of 34 megagrams per year of NMOCs. Those below the threshold do not need to install a GCCS, therefore 302.1 Operational Requirements for the GCCS would not apply since there would be no GCCS.

**Response #3:** There is no requirement in the rule language for landfills subject to § 302 to install a GCCS, however, if such landfills already have a GCCS installed, the requirements of § 302.1 pertain to maintaining operation of those systems. The rule language in Rule 321 § 301 applies to all existing MSW landfills that are subject to 40 CFR 60, Subpart Cf. Existing MSW landfills with emission rates below those specified in Subpart Cf but above the 17 megagrams (Mg) per year discontinuation threshold that have a GCCS installed are subject to § 302 as this constitutes local RACT requirements. Rule 241 requires implementation of RACT and MCAQD interprets maintaining an existing active GCCS as RACT.

**Comments #4 through #11 are duplicate comments received from two stakeholders.**

**Comment #4:** 302.1a(1) wants the GCCS installed in all areas that “warrants control” which is open to interpretation. Subpart XXX §60.763 requires the GCCS to be installed in areas where the waste has been in place for 5 years, or 2 years if the area has been closed or is at final grade.

**Response #4:** Rule language referred to in this comment was removed.

**Comment #5:** 302.1b “The GCCS shall reduce...”, should be The GCCS control device shall reduce NMOC by 98 weight percent...

**Response #5:** MCAQD revised § 302.1(b), and the reference in § 302.1(b)(2) to NMOC reduction now states "a control system".

**Comment #6:** 302.1c(3) “At all times when the collected gas is routed to the system” should be “At all times when the collected gas is routed to the control device”.

**Response #6:** MCAQD revised this section to refer to "control device" instead of "system".

**Comment #7:** 302.1c(4)(c) “Monitor any openings...” should be “Monitor any penetrations...”. Penetrations are landfill gas well casings penetrating the surface of the MSW cell. Note that Subpart XXX does not have a definition of penetration. An enhancement would be to narrowly define penetration as a landfill gas well casing. In discussions pertaining to draft Subpart XXX there was speculation that penetrations could be defined broadly as fence T-posts, and other items, that do not penetrate the intermediate soil cover layer.

**Response #7:** For this specific provision, Subpart Cf uses “openings”, but in other parts of Subpart Cf “penetrations” is used. Neither of these terms are defined. MCAQD maintained the language as written in this rule, as this is the way it is written in Subpart Cf.

**Comment #8:** 302.2m Source test reports take more than 30 days to finalize. Sometimes it takes 30 days just to get the laboratory results back with standard turn-around times. We typically request 45 days, and the request is typically granted. Please change to 45 days.

**Response #8:** Rule language referred to in this comment was removed. Rule 270 is now referenced with regards to performance testing submissions.

**Comment #9:** 302.3a(2) “For the purposes of determining sufficient density of gas collectors the owner or operator shall maintain a system of vertical wells, ..” should be changed to “For the purposes of determining sufficient density of gas collectors the owner or operator shall maintain a system of vertical or horizontal wells, ..”.

**Response #9:** MCAQD revised the rule language as follows: "For the purposes of determining sufficient density of gas collectors, the owner or operator shall maintain a system of vertical wells, horizontal collectors, or other collection devices consistent with the approved GCCS design plan, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards."

**Comment #10:** 302.3a(3) Modern flare stations have a shutdown valve that is fail-closed, which prevents venting of landfill gas to the atmosphere when an SSM event occurs. Because venting of landfill gas cannot occur, the GCCS cannot operate if

the flare is down for an SSM event. Please delete “and shall not exceed 1 hour for treatment or control devices.” An SSM event, such as a power outage, can occur at any time. A landfill gas technician will typically wait until daylight to troubleshoot the SSM issue and re-start the flare. Requiring that the flare be down for less than an hour is a serious safety issue.

**Response #10:** Rule language referring to start-up, shutdown, or malfunction was removed, and as per Subpart Cf, the provisions of Rule 321 apply at all times the GCCS is in operation. Additionally, per Subpart Cf, language was added regarding gas mover system shutdown and valve closure when the collection or control system is not operating: "The gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour of the collection or control system not operating."

**Comment #11:** The text in Subpart XXX §60.767 Reporting Requirements should be included.

**Response #11:** The reporting provisions in Cf (40 CFR 60.38f) are included in Section 400 (Administrative Requirements) of the rule and are applicable to landfills with NMOC emission rates above the federal threshold. Reporting requirements for landfills with NMOC emission rates below the federal threshold are included in § 302 of the rule.

**Comment #12:** 302.6 Would like to see this list reduced. Example, 302.6 h can be deleted since this cannot occur.

**Response #12:** For clarity, MCAQD revised the specified provision as follows: "Description and duration of all periods when the GCCS was not operating and length of time the GCCS was not operating, including periods of intermittent use of the GCCS." Most of the remaining recordkeeping provisions are already required in local air quality permits for landfills and also in 40 CFR 60 Subpart Cf.

**Comment #13:** 302.6e “Continuous combustion temperature of the flare as recorded by a continuous temperature recorder.” Recording devices continuously monitor temperature but do not continuously record temperature. Recording devices can be set to record the temperature at specific intervals, i.e. every 15 minutes. The data file associated with monitoring the temperature every second would be both huge and useless. Further, the temperature data is typically stored on electronic media, which is sometimes problematic. It is impossible to have a continuous monitoring record without having redundant recording devices.

**Response #13:** Specified provision moved to 302.5d and revised as follows: "A record of the enclosed flare temperature recorded every 15 minutes or less by a continuous temperature recorder."

**Comments #14 through #21 are duplicate comments received from two stakeholders.**

**Comment #14:** The Draft Rule requires a Landfill to demonstrate that the calculated non-methane organic compound (NMOC) emission rate is less than 1.5 tons per year (tpy) on three successive test dates to meet the GCCS removal criteria in Section 302.7(a) of the Draft Rule. [Our Company] believes this standard is unreasonable, unnecessary, and infeasible due to lack of available technology that low, landfill gas (LFG) generation potential in arid climates, and the cost effectiveness for implementation.

**Response #14:** MCAQD reevaluated the NMOC emission rate of 1.5 tons per year (tpy) (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year.

**Comment #15:** Section 302.7(b) allows for removal of the GCCS if the landfill demonstrates that continued use of the GCCS will create greater emissions of regulated air pollutants that would be created by the removal of the GCCS. However, it does not define which pollutants would be required to be demonstrated as greater or define what greater is in this context. It is unclear if removal criteria would require the total of all criteria pollutants or a single criteria pollutant. Continuing to destroy LFG and supplemental fuel will not include fugitive emissions, which cannot be measured directly but only modeled.

**Response #15:** The rule language referenced in the comment was removed from the rule.

**Comment #16:** It does not appear that a feasibility study or cost effectiveness analysis was completed in association with the proposed 1.5 tpy NMOC emissions rate. Absent these analyses, a realistic and achievable NMOC threshold cannot be set. It also does not appear that a cost per ton reduction effectiveness for the rule was ever completed. The best available control technology (BACT) criteria in MCAQD's Permitting Handbook discusses the completion of cost effectiveness analysis for volatile organic compounds (VOCs) and other pollutants. [...] Based on [Our Company's] experience, without conducting a feasibility study, the current threshold of 1.5 tpy NMOC is not technically feasible nor cost effective and would fail any BACT cost analysis.

**Response #16:** MCAQD views the requirement to continue to use an already installed GCCS under § 302 as the implementation of RACT, not BACT. As such, the BACT criteria in MCAQD's Permitting Handbook do not apply. In addition, as mentioned above, the 1.5 tpy (1.4 Mg per year) GCCS removal threshold was revised to 17 Mg per year.

**Comment #17:** Arid climates like Arizona significantly reduce the quantity of LFG available for collection. It has been [Our Company's] experience in Arizona that when a landfill requires a GGCS due to the federal NSPS and EG rules, the EPA landfill gas generation model (LandGEM) will predict LFG flow rates ten times greater than what an operational GCCS demonstrates. [...] As the Draft Rule requires a destruction device to be designed for the modeled maximum flow rate, a significantly over sized destruction device would be required, which will not be able to operate as designed when it is required to control NMOC emissions down to 1.5 tpy. [...] As proposed, this rule will result in oversized GCCS at all landfills, which will likely have control system that have to be replaced multiple times after the landfill is closed Dry climate landfills take longer to reach their peak LFG generation but also longer to reach minimum levels due to slow waste degradation. This The facility may also be forced to modify/redesign its controls and collection systems to accommodate low gas quality and quantity. These operating scenarios create operations and compliance issues and increased cost and fossil fuel emissions.

**Response #17:** Rule language regarding GCCS removal criteria was revised, and the demonstrated NMOC emission rate for removal was increased to 17 Mg per year.

**Comment #18:** Closed landfills that meet the EG rule closure requirements (at 34 or 50 Mg/yr NMOC), typically no longer generate enough flow at a high enough

methane content to support continuous operations. This makes control below 1.5 tpy NMOC infeasible, and the use of supplemental fossil fuel would increase criteria pollutant and greenhouse gas (GHG) emissions. This creates a waiting game until such time demonstrates that continued use of the GCCS will create greater emissions of regulated air pollutants than those that would be created by the removal of the GCCS per Section 302.7(b) of the Draft Rule.

**Response #18:** MCAQD reevaluated the NMOC emission rate of 1.5 tpy (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year.

**Comment #19:** As previously discussed, the operating, monitoring, recordkeeping, and reporting costs to maintain between 34 Mg (37.5 tpy) and 1.5 tpy NMOC as well as the overall technical feasibility of meeting the proposed rule requirements have not been assessed as part of this proposed rulemaking. This will make the problem worse by requiring many more years of GCCS operation before 1.5 tpy can be met. All of these costs should be included in a detailed cost effectiveness analysis as part of this rulemaking. Additionally, the costs to monitor and subsequent reporting costs for operation of the flare between 34 Mg and 1.5 tpy has not been assessed by this proposed rule.

**Response #19:** MCAQD reevaluated the NMOC emission rate of 1.5 tpy (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year.

**Comment #20:** Section 302.1(a)(1) of the Draft Rule states “The GCCS shall: Be designed and operated to handle the maximum expected gas flow rate from the entire area of the landfill...” for active and closed landfills in Arizona, this would lead to designing and building significantly oversized LFG GCCS which would not be able to sustain operations due to low LFG quality and quantity down to 1.5 tpy. [...] Under the current EG rule, a closed landfill may need one flare replacement until the closure criteria are met. Under the Draft Rule, a landfill could require multiple flare replacements after closure, resulting in millions of dollars of cost associated with post closure. In addition, to the flare cost, new LG blowers would have to be purchased, wells and piping would have to be replaced, and many more years of GCCS operations would be required.

**Response #20:** MCAQD reevaluated the NMOC emission rate of 1.5 tpy (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year. Additionally, landfills subject to Rule 321 are not required to use flares as the control device, they may also use alternative control devices such as an activated carbon capture system which may help reduce compliance costs.

**Comment #21:** The Draft Rule Section 302 states that “Each owner or operator of an affected facility with annual NMOC emission rates that are below those specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) with an active landfill gas collection and control system (GCCS) shall comply.” The agency must clarify the proposed rule is prospective and does not apply retrospectively to landfills that already met equipment removal criteria under 40 CFR 60 Subpart WWW, 40 CFR 62 Subpart GGG or Maricopa Rule 321 regardless whether these landfills continue to operate active GCCS. In addition, an existing landfill that becomes subject to the NSPS 40 CFR 60 Subpart XXX requirements due to a modification (e.g. landfill expansion), is no longer subject to Rule 321 requirements including proposed Section 302.

**Response #21:** The rule revisions in § 302 will apply to any landfill with an installed and operational GCCS and NMOC emissions below the federal threshold but above 17 Mg per year.

**Comment #22:** The California Air Resource Board (CARB) Landfill Methane Rule (LMR) is the most stringent landfill rule in the US." [...] "MCAQD's proposed threshold is about one third of the California threshold. The California LMR allows additional analysis including completion of surface emission monitoring (SEM), before controls are required, and the equipment removal criteria are based on 3.0 MMBtu/hr - much less stringent than 1.5 tpy NMOC. The technology for a flare to operate at 35 scfm at 50 percent methane content is not available today.

**Response #22:** The MCAQD reevaluated the NMOC emission rate of 1.5 tpy (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year.

**Comments #23 through #30 are duplicate comments received from two stakeholders.**

**Comment #23:** Per the MCAQD Permitting Handbook, dated November 2020, BACT is only required for proposed modification to a source if the potential to emit increases modified sources 40 tpy or more of VOCs. Closed landfills have declining emissions, and yet by imposing a 1.5 tpy limit MCAQD will effectively enforce BACT on these non-major sources without the ability to perform a determination if it is required.

**Response #23:** The MCAQD reevaluated the NMOC emission rate of 1.5 tpy (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year.

**Comment #24:** A cost benefit analysis was discussed in the Draft Rule, and it is unclear if one was completed as we did not see any such documentation. MCAQCD's Notice of Proposed Rulemaking for Rule 323 Fuel Burning Equipment from Industrial/Commercial/Institutional (ICI) Source conducted a full cost benefit analysis which included the probable cost and benefits to businesses directly affected by the proposed rulemaking, including any anticipated effect on the revenues or payroll expenditures of employers who are subject to the proposed rulemaking. There is no mention of cost benefit analysis in the Draft Rule, which appears to be a departure from MCAQCD practices.

**Response #24:** MCAQD prepared an economic, small business and consumer impact statement which was included in the Notice of Proposed Rulemaking for Rule 321 and posted to the EROP website on May 4, 2022. In addition, the analysis is included within this Notice of Final Rulemaking under item #6.

**Comment #25:** Per Maricopa County Air Pollution Control Regulations, Rule 100, there is a permitting threshold for all stationary sources that have a potential to emit 0.5 tpy of VOC. Therefore, under Rule 100 almost all landfills would be required to have a permit and the Draft Rule would not require any new or currently closed landfills to be regulated. [...] Implementing a MCAQD specific landfill rule with new and very stringent requirements such as those proposed, should be its own rulemaking process and not part of the implementation of the federal EG rule. By combining the two rules, this has not only caused confusion, but creates uncertainty for EG landfills in the future. Once NSPS or EG landfills exit the Federal program, they could still be potentially required to follow the Draft Rule once their emissions

drop below 34 Mg/yr if they still have an active GCCS due to odor control or migration issues, and then would be required to follow more stringent requirements.

**Response #25:** MCAQD determined maintaining the requirements for all existing landfills, above and below the federal emission thresholds, in one rule makes the most sense. Keeping all the requirements for all existing landfills in one rule will increase compliance, as landfill owners and operators will know exactly what provisions they must comply with after falling below federal emission levels. Prior to this rulemaking, all landfills that fell below federal emission levels were required to continue to operate an installed GCCS based on the RACT requirements in Rule 241, but those requirements were enforced through MCAQD permits and not in any rule. By including them in Rule 321, owners and operators of landfills will know exactly what those requirements are.

**Comment #26:** This new rule would also eliminate any voluntary carbon credit projects in Maricopa County. Under programs such as the Climate Action Reserve (CAR) or the American Climate Registry (ACR), voluntary GHG offset credits to projects who reduce GHG emission outside regulatory requirements. The most common landfill protocol in the U.S. is the CAR Landfill Project Protocol, which has a legal requirement test, which every landfill project must pass in order to qualify. The adoption of Draft Rule, would eliminate any possibility to have a voluntary carbon project, by installing a voluntary GCCS, and eliminate the incentive to install a GCCS early to generate offset credits to sell in the voluntary market.

**Response #26:** The provisions of § 302 were already locally required through the implementation of RACT and were therefore precluded from being used for any voluntary programs or emissions credit banking possibilities.

**Comment #27:** Many closed and small landfills were once in remote areas in Maricopa County when they were opened but are now surrounded by residential or commercial properties. As such, these small closed landfills have existing odor and migration systems to shield neighboring housing and commercial buildings. Typically, these systems will be partial GCCS with tie in perimeter wells to stop migration off of the landfill property or LFG odor concerns. A large fraction of these facilities would not generate enough LFG for a destruction device, so they use a carbon system to filter the gas for odors or prevent migration offsite, and vent the gas directly to the atmosphere. There are landfills in Maricopa County, which have been closed since the 1980 or 1990s and would be impacted by the Draft Rule. It is unclear if closed landfills with an active GCCS for odor or migration issues, that have exited the Federal EG rule due to meeting the Federal exit criteria or never triggered the Federal rule in the first place would be required to meet the Draft Rule's requirements under Section 302. If so, this would be extremely unreasonable and would punish landfill for installing GCCS for other purposes by forcing them to comply with a more stringent standard.

**Response #27:** Activated carbon capture systems are acceptable as a GCCS for applicable landfills. If a MSW landfill (including closed and small facilities) uses such a system, the landfill would only be required to maintain it as described in § 302. No new GCCS system is required to be installed under § 302.

**Comment #28:** The Draft Rule only provides performance testing procedures for enclosed flares and does not also include testing provisions for open flares consistent with NESHAPs, NSPS and current NSPS and EG rules (see 40 CFR 60.18 and 40

CFR 63.19). This would impose more stringent requirements on landfills below the Federal thresholds. In many Non-NSPS/EG landfills in arid climates, open flares or carbon systems are needed for the low LFG conditions. Enclosed combustion technology will fail or not meet stack testing requirements as they cannot maintain combustion temperatures in declining or low flow / methane content conditions. Enclosed flares are also significantly more expensive than open flares, which would greatly increase compliance costs without significantly improving emission reductions.

**Response #28:** The requirements in § 302 do not require sources to use a flare (enclosed or non-enclosed). Sources can use enclosed or non-enclosed flares or other systems such as a carbon system as long as they meet the operational requirements in § 302.1b. Additionally, MCAQD included language drawn from Subpart Cf, Section 60.18, regarding the use of non-enclosed ("open") flares within Operational Requirements (302.1b(1)) and Monitoring of Operations (302.4b).

**Comment #29:** The more rigorous test methods and procedures, such as in 302.2(e), (h), (i) and (p), are excessive, again creating more stringent criteria for Non-NSPS/EG landfills. It is unwarranted to require Non-NSPS/EG landfills perform additional performance testing at the Control Officers request if one detail is missed or if the test could not be conducted due to low flow or methane.

**Response #29:** Rule language regarding test methods and procedures such as in 302.2(e), (h), (i) and (p) were removed. Section 302.2 (Test Methods and Procedures) was revised to include reference to Rule 270 (Performance Tests) regarding test methods and procedures.

**Comment #30:** Section 302.4(c) allows for any closed Non-NSPS/EG landfills that has no monitored exceedance in three consecutive quarterly monitoring events to skip to annual monitoring. As this section of the Draft Rule applies to Non-NSPS/EG landfills only, it should apply to all EG landfills as well NSPS/Landfills in arid climates are likely to produce less LFG with a lower methane content and have fewer to no surface emission exceedances.

**Response #30:** The same exemption from quarterly testing is also included in 40 CFR 60 Subparts Cf and XXX and is therefore available for landfills that are subject to § 301 as well since all of the provisions of Subpart Cf are incorporated by reference. Specifically, §60.37f (Monitoring of Operations) states that "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 parts per million or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring." However, given the fact that older landfills will more easily fall below the 500 ppm requirement, MCAQD revised the rule language in § 302.4 to allow sources who have qualified for annual testing to stop surface monitoring levels completely after 3 years of consistent testing levels below 500 ppm.

**Comment #31:** It is our understanding that the MCAQD based the 1.5 tpy of NMOC emissions as it correlates to 0.5 tpy of volatile organic compound (VOC) emissions, in which a facility no longer needs an air permit. We also understand that MCAQD does not apply this threshold for VOCs to other permitted facilities in the County, which is inconsistent. The MCAQD's current VOC Reasonably Available Control Technology (RACT) threshold is \$5,000 per ton of VOC; however, the

MCAQD has not performed a cost analysis of the proposed rule to determine if the requirements of meeting compliance and operating a GCCS at these low NMOC emissions levels would cost more than the current RACT threshold.

**Response #31:** MCAQD uniformly applies the permitting thresholds of all regulated pollutants through Rule 200. All of the MCAQD's rules and ordinances are applied to applicable sources (not only to landfills) within Maricopa County through our air permits, whether they are Title V or Non-Title V sources. As specified in Rule 241, sources shall implement RACT for each pollutant emitted for which the increase in potential to emit is less than the BACT thresholds. MCAQD determined that the continued use of an installed and operational GCCS demonstrates RACT. The RACT financial thresholds are implemented when changes to facilities are made, however, these requirements are already enforced locally through RACT determination. The rule does not require MSW landfills to install a GCCS, but to maintain its use if they already have one in place. Furthermore, the rule language regarding GCCS removal criteria was revised so that the demonstrated NMOC emission rate for removal was increased to 17 Mg per year.

**Comment #32:** Under draft Section 101 and 301, [Our Company] requests that clarification be added to the purpose that defines "existing" MSW landfills. It is unclear if the term "existing" is referencing active and closed landfills or what we understand the regulation to be, which is for closed landfills. This also creates confusion with the federal definition of existing under NSPS/Emission Guidelines (EG).

**Response #32:** The term "existing" in Rule 321 is meant to imply any landfill that currently exists, whether it is active and holds a Title V permit or is closed and still has an operational GCCS on site. § 301 is applicable to landfills that emit more than 34 Mg NMOC if active or more than 50 Mg if closed, similar to Subpart Cf. § 302 is applicable to landfills that have NMOC emissions below the federal thresholds in Subpart Cf and have an installed and operational GCCS in place at that landfill.

**Comment #33:** Under draft Section 301, [Our Company] requests that the Control Officer be empowered to approve alternative test methods to determine the NMOC emission rate. Proposed Section 301 of Rule 321 is MCAQD's rule; therefore, it is unclear why additional language has been added to remove the Control Officer's power.

**Response #33:** The language in § 301 is incorporated from Subpart Cf which specifies that alternative test methods may only be approved by the EPA (the Administrator) and not by MCAQD (the Control Officer). However, MCAQD can approve alternative test methods for sources applicable to § 302.

**Comment #34:** Under draft Section 302, [Our Company] requests to add clarifying language that the requirements for existing MSW landfills with NMOC emission rates below federal thresholds shall apply to a facility with an installed and operational GCCS.

**Response #34:** MCAQD revised the introductory language in § 302 to read: "Each owner or operator of an affected facility with annual NMOC emission rates below those specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) with an installed and operational landfill gas collection and control system (GCCS) shall comply with the following requirements".

**Comment #35:** Under draft Section 302.1(a), the language recognizes that the GCCS should be designed and operated to handle the expected gas flow rate when the landfill is still generating landfill gas (LFG) in an upward curve. However, for closed landfills on the declining side of the LFG generation curve, it will be more difficult to meet the operational requirements set forth in Section 302.1(a). As such, [Our Company] requests that clarification language be added to Section 302.1(a)(3) that the GCCS shall collect gas at a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing excessive air infiltration, except when collected LFG flow rates are less than 500 standard cubic feet per minute (scfm) and with methane quality under 40 percent (%). Note that maintaining a negative pressure at all wellheads for landfills with low LFG flows may not be possible. In addition, the life of the blower has no influence on maintaining compliance without causing air infiltration and suggest this language be removed.

**Response #35:** With regards to the declining flow rate, MCAQD reevaluated the NMOC emission rate of 1.5 tpy (1.4 Mg per year) as the GCCS removal criteria and revised it to 17 Mg per year.

**Comment #36:** Under draft Section 302.1(b), [Our Company] requests to clarify the control device language to note that both enclosed and other control devices would meet the requirements of the rule, which would match the control devices allowed further in the rule, including open flares and LFG treatment devices. Please note that both open flares and LFG treatment systems are needed for most renewable energy projects that utilize LFG.

**Response #36:** § 302 of this rule does not prescribe any one control method to be used, and facilities may use enclosed flares, open flares, and other effective options - including carbon absorption - in order to control the amount of emissions related to the MSW landfill. Furthermore, MCAQD revised § 302.1(b) to include provisions for non-enclosed flares and gas treatment systems.

**Comment #37:** Under draft Section 302.1(c), [Our Company] requests that language be added to allow the facility to decommission or abandon wells as needed, which will be reported in the subsequent reporting period.

**Response #37:** § 302 of this rule does not prohibit the decommissioning of a well, when in compliance with all provisions of § 302. Decommissioning may be described through the reporting process, and records must be kept and made available as described in § 302.5.

**Comment #38:** Under draft Section 302.1(2)(e), [Our Company] requests that the proposed language “approved by the Control Officer” be removed. If the use of a passive venting system is included in the GCCS Design plan, there is language in the federal Subpart Cf rule where the Administrator may not require anything more than a copy of the GCCS Design Plan’s signature page.

**Response #38:** The MCAQD revised the language in § 302.1c(2)(e) to read: "When using a passive venting system, as included in the approved GCCS design plan".

**Comment #39:** Under draft Section 302.1(c)(4), [Our Company] requests that additional language reference to Section 302.4(c) is provided such that it is clear that the requirement is based upon different frequencies depending on the status of the landfill and previous monitoring results.

**Response #39:** The MCAQD revised the language in § 302.1(c)(4) to read: "So that the methane concentration is less than 500 parts per million above background at the surface of the landfill, as per the requirements and frequencies under § 302.4(c)".

**Comment #40:** Under draft Section 302.1(c)(4)(b), [Our Company] requests that the proposed language "Thus, the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required" be removed. This language has been added and is more stringent than the Cf rule.

**Response #40:** This language is from Subpart Cf (§60.34f(d)) so MCAQD maintained the revised language in the rule.

**Comment #41:** Under draft Section 302.2, [Our Company] requests that the owner or operator shall conduct an initial performance test of LFG emissions from an enclosed control device. Regular testing noted in the test methods and procedures relate to an enclosed device and regular testing would be difficult for a landfill with declining flows. The control device already monitors temperature to ensure proper operation.

**Response #41:** The five year performance testing requirement is a minimum standard in Maricopa County in order to demonstrate compliance with the requirements of the control device.

**Comment #42:** Under draft Section 302.2(b), [Our Company] requests clarification for the requirement for NMOC emission rate calculations every five (5) years and what value does the calculation bring for a closed landfill with NMOC emissions below 34 Mg. In addition, [Our Company] requests clarification if NMOC emission rates are required every five (5) years, does this necessitate the landfill to perform a new Tier 2 every five (5) years as well. For a closed landfill with declining emissions, additional Tier 2 testing and NMOC reporting is not warranted every five years once emissions are below 34 Mg/yr.

**Response #42:** MCAQD removed the requirement for the NMOC emission rate calculation to be performed every 5 years and added the following language in 302.2(b)(3), "The NMOC emission rate for the landfill will be assumed to be greater than 17 megagrams per year until the owner or operator calculates the NMOC rate for the landfill to be less than 17 megagrams per year".

**Comment #43:** Under draft Section 302.2(b)(1), [Our Company] requests that the flow rate of LFG shall be determined by measuring the total LFG flow rate at the common header pipe that leads to the control device using a gas flow measuring device calibrated according to the manufacturer recommendations. The reference to using a gas flow measuring device calibrated to Environmental Protection Agency (EPA) Method 2e is too stringent and unnecessary.

**Response #43:** MCAQD added the option to allow the use of manufacturer specifications in lieu of following EPA Method 2e.

**Comment #44:** Under draft Section 302.2(d), [Our Company] requests that the term "exhaust" be added to the condition as follows, "Exhaust sampling sites and velocity traverse points...".

**Response #44:** Rule language referenced in comment was removed.

**Comment #45:** Under draft Section 302.2(e), [Our Company] requests that the language referencing an Operations and Maintenance (O&M) plan be removed and the condition read as follows, “Performance tests shall be conducted under representative operation conditions and all equipment shall be properly operating during testing”.

**Response #45:** MCAQD removed § 302.2(e) and revised § 302.2 (Test Methods and Procedures) to reference Rule 270 (Performance Tests) regarding many performance test protocols.

**Comment #46:** Under draft Section 302.2(h) and (i), [Our Company] requests that the language for chain of custody and packaging and shipping procedures be removed. Chain of custodies will be properly completed per the laboratory requirements and the latest packaging and shipping requirements under the Department of Transportation will be followed, when necessary.

**Response #46:** MCAQD removed §§ 302.2(h) and 302.2(i) and revised § 302.2 (Test Methods and Procedures) to reference Rule 270 (Performance Tests) regarding many performance test protocols.

**Comment #47:** Under draft Section 302.2(n), [Our Company] requests clarification on what the MCAQD recommends if the test results do not demonstrate compliance with the requirements of the rule because the landfill does not generate enough gas to meet the testing and compliance requirements.

**Response #47:** Section 302.2(n) was removed from the rule and § 302.2 (Test Methods and Procedures) was revised to reference Rule 270 (Performance Tests) regarding many test protocols.

**Comment #48:** Under draft Section 302.3(a)(2), [Our Company] requests that for the purposes of determining sufficient density of gas collectors, the owner or operator shall maintain a system of vertical wells, horizontal collectors, or other collections devices consistent with the GCCS Design Plan, which would be satisfactory to the Control Officer. Therefore, [Our Company] requests the language requiring the system be maintained that would be satisfactory to the Control Officer be removed.

**Response #48:** MCAQD replaced the language “satisfactory to the Control Officer” with "consistent with the approved GCCS design plan".

**Comment #49:** Under draft Section 302.3(a)(3), the reference to the provision of 302.3 applying at all times that the GCCS is in operation, except during periods of startup, shutdown, or malfunction (SSM), appears inaccurate. The requirement in Subpart Cf is for the entire subpart, not just one section. Therefore, [Our Company] requests to modify the language from Section 302.3 to Section 302. In addition, [Our Company] requests that language be added to clarify that landfills operating intermittently may not be subject to the SSM requirements when the GCCS is scheduled to be non-operational.

**Response #49:** Section 302.3(a)(3) was revised as follows: "the provisions of this rule apply at all times that the GCCS is in operation. The gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour of the collection or control system not operating."

**Comment #50:** Under draft Section 302.3(b), [Our Company] requests to add a reference to frequency of monitoring for surface emissions monitoring (SEM) per Section 302.4(c).

**Response #50:** MCAQD revised the language in § 302.3(b) to read: "The following procedures must be used for compliance with the surface methane operational requirements as provided in § 302.1 and frequencies as provided in § 302.4c:"

**Comment #51:** Under draft Section 302.3(b)(1), [Our Company] requests to add language for the allowance of alternative technologies for conducting SEM if approved by the Administrator/Control Officer.

**Response #51:** MCAQD revised the language in § 302.3(b)(1) to read: "After startup of the GCCS, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (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 b(6) of this section, or through the use of alternative technologies if approved by the Control Officer."

**Comment #52:** Under draft Section 302.3(b)(5), [Our Company] requests an alternative for reduced frequency of monitoring for cover integrity. [Our Company] requests that closed landfills be allowed to follow the monitoring frequencies required under SEM. Cover integrity would be performed on a quarterly basis and if there are no cover issues identified for three consecutive quarterly monitoring periods, then the landfill may skip to annual monitoring. If any closed landfill that has skipped to annual monitoring has had no cover issues identified for three consecutive years, they may stop monitoring for cover integrity. Please note that monitoring for cover integrity is not required currently for existing closed landfills and it does not appear that costs associated with monthly cover integrity monitoring, and repairs, has been taken into consideration for a site that is unmanned.

**Response #52:** MCAQD revised the rule language in the rule to reflect this suggestion. Landfills subject to § 302 are required to conduct quarterly inspections until they can demonstrate there are no cover integrity issues for 3 consecutive quarterly inspection periods and then may go to annual inspections. If after 3 consecutive annual inspections there are still no cover integrity issues, the facility may stop conducting inspections except for after extreme weather events, including instances where 1" or more of rain is received in any 24 hour period, as measured from the nearest Maricopa County Flood Control District rain gauge.

**Comment #53:** Under draft Section 302.4(a)(2)(b), [Our Company] requests that language be added that notes that the owner or operator shall secure the bypass line valve in a closed position with a car-seal or a lock-and-key type configuration, if equipped. This condition should not apply to landfills that do not have a bypass line valve.

**Response #53:** MCAQD revised the language in § 302.4(a)(2)(b) to read: "If equipped, secure the bypass line valve in the closed position with a car-seal or a lock-and-key type configuration."

**Comment #54:** Under draft Section 302.5, [Our Company] requests that all language referencing an O&M Plan and its requirements be removed from Rule 321.

O&M Plans are not required in any NSPS language. Landfills are already required to maintain compliance through a GCCS Design Plan as well as meeting detailed requirements under proposed Rule 321. Adding a third set of requirements not only excessive but can complicate compliance by having multiple different documents that must be followed. In addition, an O&M Plan is meant for a steady-state operation that has operations that can be anticipated and maintained. A landfill and its GCCS is not this type of operation. In fact, the minimum requirements in the section reference adsorption temperature and effluent concentrations, neither of which are associated with landfills.

**Response #54:** MCAQD removed the dedicated section on O&M plans (§ 302.5) but incorporated some of these requirements into the recordkeeping requirements for maintaining a GCCS design plan.

**Comment #55:** Under draft Section 302.6, [Our Company] requests a reduction in recordkeeping for landfills no longer subject to Title V (Part 70) from five years to two years.

**Response #55:** MCAQD Rule 220 (§ 302.7) requires that all Non-Title V facilities maintain records for a period of at least 5 years.

**Comment #56:** Under draft Section 302.6(a), maintaining records for the maximum expected gas generation flow rate from performance tests or compliance demonstrations for each control device for closed landfills with declining generation rates is difficult to predict and would not provide value; therefore, [Our Company] requests that the recordkeeping requirement be removed.

**Response #56:** MCAQD removed the requirement.

**Comment #57:** Under draft Section 302.6(b), [Our Company] requests that maintaining 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 be excluded for closed landfills with declining flow rates. This requirement is unnecessary for landfills that installed a GCCS prior to closure and would have sufficient gas collection density since it was designed and built to meet compliance for LFG flow rates higher than after closure.

**Response #57:** MCAQD removed the requirement.

**Comment #58:** Under draft Section 302.6(e), [Our Company] requests that the reference to 40 CFR 60.13 be removed as this reference is for continuous stack emissions monitoring equipment.

**Response #58:** MCAQD removed the reference to 40 CFR 60.13.

**Comment #59:** Under draft Section 302.6(g), [Our Company] requests that in addition to maintaining records of the percent reduction of NMOC achieved by the control device during performance tests, the section also reference the allowance for meeting compliance by reducing the outlet NMOC concentration to less than 20 ppmv, dry basis as hexane at 3 percent oxygen, which is proven by monitoring combustion temperature in the federal regulations.

**Response #59:** § 302.1(b) provides for compliance through the reduction of outlet NMOC concentration as suggested.

**Comment #60:** [Our Company] suggests that Section 302.7 be removed from this regulation since it is much stricter than any federal regulation. The cost to comply with the regulation far exceeds the VOC RACT cost of \$5,000 per ton of VOCs. By making landfills with low LFG flows comply with all of the NSPS-like requirements, it will inevitably result in sites being in a continuous state of non-compliance. Furthermore, it is unfair to have this requirement apply to only currently open and operated sites, and not for existing closed sites that may still be above the 1.5 tpy NMOC criteria.

**Response #60:** § 302.7, now § 302.6, was revised to reflect a 17 Mg per year GCCS removal threshold, but sources will continue to be required to maintain a permit as long as they are emitting regulated pollutants above MCAQD's permitting thresholds.

**Comment #61:** Comments 61.1 through 61.6 were submitted via email in an attached strikethrough underline version of Rule 321. [See strikethrough underline Rule 321 provided by the commenter.](#)

**Response #61:** Below is a response to each proposed revision in the [strikethrough underline Rule 321 provided by the commenter](#). Proposed revisions in the commenter strikethrough underline Rule 321 are numbered in the right-hand margin and a response to each numbered revision is listed below. Each response is linked to the proposed revision it corresponds to in the commenter strikethrough underline Rule 321.

- [61.1](#) Proposed language is not necessary as § 302 does not preclude intermittent operations. Additionally, 302.5(g) describes recordkeeping for instances of intermittent operations.
- [61.2](#) MCAQD revised the introduction to § 302.2 Test Methods and Procedures as follows: "Each owner or operator of a control system described in § 302.1(b)(2) shall conduct a performance test of the control system at least once every five years in accordance with Rule 270 of these regulations and the provisions below".
- [61.3](#) MCAQD removed the requirement for the NMOC emission rate calculation to be performed every 5 years and added the following language in 302.2(b)(3), "The NMOC emission rate for the landfill will be assumed to be greater than 17 megagrams per year until the owner or operator calculates the NMOC rate for the landfill to be less than 17 megagrams per year".
- [61.4](#) § 302.1b revised to allow for non-enclosed flare compliance through design and operation parameters of 40 CFR 60.18, as well as § 302.4b to allow monitoring of non-enclosed flare by installation, calibration, maintenance, and operation per manufacturer's specifications.
- [61.5](#) Provision 302.3(a)(3) was revised as follows, "the provisions of this rule apply at all times that the GCCS is in operation. The gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour of the collection or control system not operating."
- [61.6](#) Provision 302.5(a)(3) was revised. The outline of O&M procedures for control device(s) is no longer required to be included in the GCCS design plan. The owner or operator shall maintain records of all control device

maintenance and additionally make available at all times either the control device's manufacturer written instructions for operation and maintenance or a written maintenance schedule.

**Comment #62:** Comments 62.1 through 62.14 were submitted via email in an attached strikethrough underline version of Rule 321. [See strikethrough Rule 321 provided by the commenter.](#)

**Response #62:** Below is a response to each proposed revision in the [strikethrough underline Rule 321 provided by the commenter](#). Proposed revisions in the commenter strikethrough underline Rule 321 are numbered in the right-hand margin and a response to each numbered revision is listed below. Each response is linked to the proposed revision it corresponds to in the commenter strikethrough underline Rule 321.

**62.1** Proposed revisions were incorporated into 302.1b with regards to control system requirements:

- b.** All collected gas shall be routed to a control system that complies with the requirements in either paragraph (1), (2), or (3) of this section.
  - (1)** A non-enclosed flare designed and operated in accordance with the parameters established in 40 CFR 60.18; or
  - (2)** 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 (ppm) by volume, dry basis as hexane at 3% oxygen. The reduction efficiency or ppm by volume must be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in § 302.2(a). The performance test is not required for boilers and process heaters with design heat input capacities equal to or greater than 44 megawatts that burn landfill gas for compliance with § 302.
    - (a)** If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.
    - (b)** The control device must be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in § 302.1(c);
  - (3)** Route all the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process. Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either paragraph (1) or (2) of this section.

- (4) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (1) or (2) of this section. For purposes of § 302, atmospheric vents located on the condensate storage tank are not part of the treatment system and are exempt from the requirements of paragraph (1) or (2) of this section.

- [62.2](#) Performance test parameter ranges addressed elsewhere in rule, MCAQD kept the language as revised in the rule.
- [62.3](#) These definitions do not exist within Subpart Cf so, to avoid confusion, MCAQD determined it best to not add them to the rule.
- [62.4](#) Rule language revised as suggested.
- [62.5](#) MCAQD removed the requirement for the NMOC emission rate calculation to be performed every 5 years and added the following language in 302.2(b)(3), "The NMOC emission rate for the landfill will be assumed to be greater than 17 megagrams per year until the owner or operator calculates the NMOC rate for the landfill to be less than 17 megagrams per year".
- [62.6](#) MCAQD removed the requirement for the NMOC emission rate calculation to be performed every 5 years and added the following language in 302.2(b)(3), "The NMOC emission rate for the landfill will be assumed to be greater than 17 megagrams per year until the owner or operator calculates the NMOC rate for the landfill to be less than 17 megagrams per year".
- [62.7](#) MCAQD revised § 302.3a(3) as follows: "The provisions of this rule apply at all times that the GCCS is in operation. The gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour of the collection or control system not operating."
- [62.8](#) Provision 302.5(a)(3) was revised. The outline of O&M procedures for control device(s) is no longer required to be included in the GCCS design plan. The owner or operator shall maintain records of all control device maintenance and additionally make available at all times either the control device's manufacturer written instructions for operation and maintenance or a written maintenance schedule.
- [62.9](#) Rule provision referred to in comment was removed.
- [62.10](#) Per § 302.3b(4), any exceedance requires a re-monitor within 10 calendar days. Upon compliant methane concentration measured at the 10-day re-monitoring, an additional 1 month re-monitoring must also be taken to demonstrate compliance. Higher than quarterly frequency checks are only required upon location of a methane concentration exceedance.
- [62.11](#) Rule provision referred to in comment was removed.
- [62.12](#) Proposed language determined unnecessary as recordkeeping requirement is in reference to § 302.1c(2)(c), and the suggested term is not mentioned within the rule.
- [62.13](#) Rule language evaluated and revised to 40 CFR 60.36f(b).
- [62.14](#) Rule language referred to in comment was removed.

**Comment #63:** Comments 63.1 through 63.12 were submitted via email in an attached strikethrough underline version of Rule 321. [See strikethrough underline Rule 321 provided by the commenter.](#)

**Response #63:** Below is a response to each proposed revision in the [strikethrough underline Rule 321 provided by the commenter](#). Proposed revisions in the commenter strikethrough underline Rule 321 are numbered in the right-hand margin and a response to each numbered revision is listed below. Each response is linked to the proposed revision it corresponds to in the commenter strikethrough underline Rule 321.

[63.1](#) MCAQD appreciates your support for the rule revision.

[63.2](#) MCAQD appreciates your support for the rule revision.

[63.3](#) Rule language was revised to include the suggested language. Section 302.1c(4)(b) states: "Conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations which extend into the waste mass."

[63.4](#) The requirement to calculate the NMOC emission rate every five (5) years in conjunction with permit renewal was removed. The NMOC emission rate is now assumed to be greater than 17 Mg per year until the owner or operator determines it to be less than 17 Mg per year as described in § 302.6(c) of the rule.

[63.5](#) The flow rate of landfill gas,  $Q_{LFG}$ , should be determined when the NMOC emission rate for the landfill is calculated.

[63.6](#) Rule language revised as follows: "Actual flow data may be used instead of, or in conjunction with, the equations in 40 CFR 60.36f(a)(1) to project the expected gas generation flow rate."

[63.7](#) Rule language revised as follows: "In the case of extreme weather events, such as receiving 1 inch or more of rain over any 24 hour period as measured from the nearest Flood Control District of Maricopa County rain gauge, all necessary cover repairs must be made as soon as practical." Additionally county rainfall data was reviewed to verify rainfall extreme weather value appropriateness.

[63.8](#) Rule language revised as follows: "Records shall be retained for 5 years, except for the GCCS design plan which shall be kept and made available upon request while the GCCS is in use."

[63.9](#) 302.5a(1) and (2) provide for the inclusion in the GCCS Design Plan of any alternatives to the provisions of § 302 of this rule proposed by the owner or operator, as well as any alternative provisions to 40 CFR 60.40f. If these alternatives are present, they must be included in the GCCS Design Plan for a complete inspection of the GCCS, but if no alternatives have been proposed then there would be no requirement to modify the Design Plan.

[63.10](#) § 302.5a(2) provides for the demonstration of alternative provision to 40 CFR 60.40f.

[63.11](#) Rule language revised per suggestion to allow for maintenance per the manufacturer's specifications.

[63.12](#) Rule language referred to in comment was removed.

## EXACT WORDING OF THE RULE

### MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS REGULATION III – CONTROL OF AIR CONTAMINANTS

#### RULE 321 EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS

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Adopted 05/14/1997; Revised 03/01/2000; Revised 03/07/2001; Revised 11/19/2003; Revised 03/15/2006; Revised 12/17/2008; Revised 09/16/2009; Revised 07/07/2010; Revised 08/17/2011; Revised 07/25/2012; Revised 03/26/2014; Revised 11/05/2014; Revised 11/18/2015; Revised 11/02/2016; **Revised 09/28/2022**

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321  
EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

**SECTION 100 – GENERAL**

**101 PURPOSE:** To limit the emissions of non-methane organic compounds (NMOC) from existing MSW landfills.

**102 APPLICABILITY:** ~~The provisions of this rule shall apply to each municipal solid waste landfill for which construction, reconstruction, or modification commenced prior to May 30, 1991, and which has accepted waste at any time since November 8, 1987 or has additional design capacity available for future waste deposition.~~ The provisions of this rule shall apply to existing MSW landfills that:

**102.1** Commenced construction, reconstruction or modification on or before July 17, 2014; and

**102.2** Have accepted waste at any time since November 8, 1987 or have additional design capacity available for future waste deposition.

**103 AVAILABILITY OF INFORMATION:** ~~Copies of 40 CFR Part 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills, are available as listed:~~

a. ~~Maricopa County Air Quality Department.~~

b. ~~Maricopa County Rules are available electronically at <http://www.maricopa.gov/aq>.~~

c. ~~EPA documents are available electronically at <http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR>.~~

d. ~~ASTM standards are available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, or from its website at [www.astm.org](http://www.astm.org).~~

**SECTION 200 – DEFINITIONS:** See Maricopa County Air Control Regulations, Rule 100 (General Provisions and Definitions) and 40 CFR 60, Subpart Cf for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 and 40 CFR 60, Subpart Cf. In the event of any inconsistency between any of the Maricopa County Air Pollution Control Regulations, the definitions in this rule take precedence.

**201 ADMINISTRATOR:** ~~The Control Officer, except that the Control Officer shall not be empowered to approve alternative or equivalent test methods.~~

**202 201 AFFECTED FACILITY:** Any MSW landfill to which this rule is applicable.

- 203 **202 COMMENCED:** State or condition where an owner or operator has undertaken a continuous program of construction; or where an owner or operator has entered into a contractual obligation to undertake and complete such a program.
- 204 ~~CONSTRUCTION:~~ The fabrication, erection, or installation of an affected facility.
- 205 ~~MODIFICATION:~~ Any physical change in, or change in the method of operation of, an affected facility which would result in a change in actual emissions.
- 206 ~~MUNICIPAL SOLID WASTE LANDFILL (MSW LANDFILL):~~ An entire, publicly or privately owned, disposal facility in a contiguous geographical space where household waste is placed in or on land. Portions of a MSW landfill may be separated by access roads.
- 207 ~~NMOC:~~ Non-methane organic compound.
- 208 ~~OWNER OR OPERATOR:~~ Any person who owns, leases, operates, controls, or supervises an affected facility.

## SECTION 300 – STANDARDS

- 301 ~~STANDARDS OF PERFORMANCE~~ **REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES AT OR ABOVE FEDERAL THRESHOLDS:** The federal standards of performance for municipal solid waste landfills set forth in 40 CFR Part 60, Subpart WWW is adopted as codified on July 1, 2016, and all accompanying appendices, excluding 40 CFR 60.750, are adopted and incorporated by reference with the amendments and revisions set forth in this section. This adoption by reference includes no future editions or revisions. Each owner or operator of an affected facility which reaches or exceeds the annual NMOC emission rates specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) shall comply with all the requirements of 40 CFR 60, Subpart Cf as adopted and, where applicable, revised herein. All references to the Administrator in 40 CFR 60, Subpart Cf shall be understood as the Control Officer, except that the Control Officer shall not be empowered to approve alternative test methods to determine the NMOC emission rate.
- 301.1 ~~Collection and Control System Design Plan:~~ 40 CFR 60.752(b)(2)(i) is amended to read: “Submit a collection and control design plan prepared by a professional engineer to the Administrator for approval not later than 12 months after submittal of the initial NMOC emission rate report.”
- 301.2 ~~Design Capacity Report:~~ 40 CFR 60.757(a) is amended to read “Each owner or operator of an affected facility shall submit an initial design capacity report to the Administrator within 90 days from May 14, 1997.” 40 CFR 60.757(a)(1) is deleted.
- 301.3 ~~NMOC Emission Rate Report:~~ 40 CFR 60.757(b) is amended to read “Each owner or operator of an affected facility 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.” 40 CFR 60.757(b)(1)(i) is amended to read: “The initial NMOC emission rate report shall be submitted within 90 days from May 14, 1997 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.<sup>22</sup>

302 ~~DELAYED APPLICABILITY: For an affected facility that first becomes subject to the collection and control system requirement of 40 CFR 60.752 after May 14, 1997, the design plan shall be due not later than 12 months after submittal or scheduled submittal of an NMOC emission rate report of 50 megagrams (55.12 tons) per year or more.~~

**302** **REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES BELOW FEDERAL THRESHOLDS:** Each owner or operator of an affected facility with annual NMOC emission rates below those specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) with an installed and operational landfill gas collection and control system (GCCS) shall comply with the following requirements:

**302.1** **Operational Requirements:** Each owner or operator shall operate and maintain an existing GCCS that meets the following requirements:

a. The GCCS shall:

- (1) Be designed and operated to handle the expected gas flow rate;
- (2) Contain extraction wells which shall be maintained in any number and spacing necessary to maintain emission and migration control and to collect gas from each area, cell, or group of cells in the landfill which are still generating gas as determined by measures of performance set forth in this rule;
- (3) Collect gas at 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; and
- (4) Be designed and operated to minimize off-site migration of subsurface gas and potential offsite impacts.

b. All collected gas shall be routed to a control system that complies with the requirements in either paragraph (1), (2), or (3) of this section.

- (1) A non-enclosed flare designed and operated in accordance with the parameters established in 40 CFR 60.18; or
- (2) 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 (ppm) by volume, dry basis as hexane at 3% oxygen. The reduction efficiency or ppm by volume must be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in § 302.2(a). The performance test is not required for boilers and process heaters with design heat input capacities equal to or greater than 44 megawatts that burn landfill gas for compliance with § 302.
  - (a) If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.



the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage.

(c) Develop a surface monitoring plan to be included in the design plan 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.

d. The owner or operator shall submit a revision to the most current GCCS design plan whenever a change is made to the GCCS.

**302.2 Test Methods and Procedures:** Each owner or operator of a control system described in § 302.1(b)(2) shall conduct a performance test of the control system at least once every five years in accordance with Rule 270 of these regulations and the provisions below:

a. Performance testing shall be conducted using the following test methods:

(1) EPA Method 25, 25C, or 18 shall be used to determine compliance with the 98 weight percent efficiency or the 20 ppm by volume outlet concentration level requirement.

(a) In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), EPA Method 25A should be used in place of EPA Method 25.

(b) If using EPA Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42).

(2) The following equation shall be used to calculate control efficiency:

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

where,

NMOC<sub>in</sub> = mass of NMOC entering control device

NMOC<sub>out</sub> = mass of NMOC exiting control device

(3) EPA Method 3 or 3A shall be used to determine the oxygen content for correcting the NMOC concentration as hexane to 3% oxygen. EPA Method 19 shall be used to determine the exhaust stream flowrate.

(4) EPA Method 7E shall be used to determine emissions of NO<sub>x</sub> and EPA Method 10 shall be used to determine emissions of CO.

(5) If using an enclosed flare, the owner or operator shall record the combustion chamber temperature and landfill gas flow rate during the performance test.

b. The NMOC emission rate for the landfill shall be calculated using the following equation:

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

where,

M<sub>NMOC</sub> = mass emission rate of NMOC, megagrams per year

Q<sub>LFG</sub> = flow rate of landfill gas, cubic meters per minute

C<sub>NMOC</sub> = NMOC concentration, ppm 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 10 of EPA Method 2E or according to manufacturer recommendations.
- (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 EPA Methods 25C or 18. If using EPA Method 18, the minimum list of compounds to be tested shall be those published most recently in AP-42. The sample location on the common header pipe shall be before any condensate removal or other gas refining units. The owner or operator shall divide the NMOC concentration from EPA Method 25C by six to convert from  $C_{NMOC}$  as carbon to  $C_{NMOC}$  as hexane.
- (3) The NMOC emission rate for the landfill will be assumed to be greater than 17 megagrams per year until the owner or operator calculates the NMOC rate for the landfill to be less than 17 megagrams per year as described in § 302.6(c).

**302.3 Compliance:** Each owner or operator shall utilize the following methods to determine compliance with the operational requirements of § 302.1.

- a. The following procedures must be used for compliance with the GCCS operational requirements as provided in § 302.1:
  - (1) Actual flow data may be used instead of, or in conjunction with, the equations in 40 CFR 60.36f(a)(1) to project the expected gas generation flow rate.
  - (2) For the purposes of determining sufficient density of gas collectors, the owner or operator shall maintain a system of vertical wells, horizontal collectors, or other collection devices consistent with the approved GCCS design plan, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.
  - (3) The provisions of this rule apply at all times that the GCCS is in operation. The gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within one hour of the collection or control system not operating.
- b. The following procedures must be used for compliance with the surface methane operational requirements as provided in § 302.1 and frequencies as provided in § 302.4(c):
  - (1) After startup of the GCCS, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (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 b(6) of this section, or through the use of alternative technologies if approved by the Control Officer.

- (2) The background concentration must 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 must be performed in accordance with EPA Method 21, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.
- (4) Any reading of 500 ppm or more above background at any location must be recorded as a monitored exceedance and the below actions must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of § 302.1:
- (a) The location of each monitored exceedance must be marked and the location and concentration recorded. Location shall be recorded as latitude and longitude coordinates using an instrument with an accuracy of at least four meters. The coordinates must be in decimal degrees with at least five decimal places.
- (b) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must be re-monitored within 10 calendar days of detecting the exceedance.
- (c) If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken and the location must 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 (b)(4)(e) of this section must be taken, and no further monitoring of that location is required until the action specified in paragraph (b)(4)(e) of this section has been taken.
- (d) 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 (b)(4)(b) or (c) of this section must be re-monitored one month from the initial exceedance. If the one-month re-monitoring shows a concentration less than 500 ppm above background, no further monitoring of that location is required until the next quarterly monitoring period. If the one-month re-monitoring shows an exceedance, the actions specified in paragraph (b)(4)(c) or (e) of this section must be taken.
- (e) For any location where monitored methane concentration equals or exceeds 500 ppm above background 3 times within a quarterly period, a new well or other collection device must 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 Control Officer for approval.
- (5) The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a quarterly basis. If there are no cover issues identified for three consecutive quarterly

monitoring periods, then the owner or operator may skip to annual monitoring. Any closed landfill that has skipped to annual monitoring and has had no cover issues identified for three consecutive years may stop monitoring for cover integrity, except after extreme weather events. In the case of extreme weather events, such as receiving 1 inch or more of rain over any 24 hour period as measured from the nearest Flood Control District of Maricopa County rain gauge, all necessary cover repairs must be made as soon as practical.

- (6) Each owner or operator seeking to comply with the provisions in this section must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:
  - (a) The portable analyzer must meet the instrument specifications provided in section 6 of EPA Method 21, except that “methane” replaces all references to “VOC”.
  - (b) The calibration gas must be methane, diluted to a nominal concentration of 500 ppm in air.
  - (c) To meet the performance evaluation requirements in section 8.1 of EPA Method 21, the instrument evaluation procedures of section 8.1 of EPA Method 21 must be used.
  - (d) The calibration procedures provided in sections 8 and 10 of EPA Method 21 must be followed immediately before commencing a surface monitoring survey.

**302.4 Monitoring of Operations:** Each owner or operator shall monitor landfill operations by complying with the following requirements, as applicable:

- a. If using an enclosed combustor, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including the following equipment:
  - (1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of +/- 1% of the temperature being measured expressed in degrees Celsius or +/- 0.5 degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.
  - (2) A device that records flow to, or bypass of, the control device. The owner or operator shall either:
    - (a) 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
    - (b) If equipped, 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.
- b. If using a non-enclosed flare, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including 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 the flare and bypass of the flare (if applicable). The owner or operator must:
    - (a) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and
    - (b) 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 must 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 demonstrate compliance with the 500 ppm surface methane operational standard in § 302.1 must monitor surface concentrations of methane according to the compliance procedures and instrument specifications provided in § 302.3. In addition:
- (1) Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring.
  - (2) Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.
  - (3) Any closed landfill that has skipped to annual monitoring and has had no monitored exceedances of the operational standard in three consecutive years may stop monitoring surface methane emissions.

**302.5 Recordkeeping:** Each owner or operator shall maintain the following records and make them available upon request. Records shall be retained for five years, except for the GCCS design plan which shall be kept and made available upon request while the GCCS is in use.

- a. A GCCS design plan that meets the design requirements in 40 CFR 60.33f(b) and 40 CFR 60.33f(c).
  - (1) The GCCS design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of § 302 proposed by the owner or operator.
  - (2) The GCCS design plan must either conform to specifications for active collection systems in 40 CFR 60.40f or include a demonstration to the Control Officer's satisfaction of the sufficiency of the alternative provisions to 40 CFR 60.40f.
  - (3) An owner or operator of a GCCS control device shall maintain records of all GCCS control device's maintenance (including the date when maintenance was performed and the maintenance procedures that were performed). In addition, one of the following documents shall be available at all times at the facility where the GCCS control device is located:

- (a) The manufacturer's written instructions for operation and maintenance of the GCCS control device; or
  - (b) A written maintenance schedule.
- b. Records of subsequent tests or monitoring shall be maintained for a minimum of five years.
- c. Records of the control device vendor specifications shall be maintained until removal of that control device.
- d. A record of the enclosed flare temperature recorded every 15 minutes or less by a continuous temperature recorder.
- e. Records of any cover integrity monitoring and repair, as described in § 302.3(b)(5).
- f. Records of any instance of wellhead positive pressure or insufficient pressure.
- g. Description and duration of all periods when the GCCS was not operating and length of time the GCCS was not operating, including periods of intermittent use of the GCCS.
- h. The calculation methodology used to estimate current emissions.
- i. A schedule for the replacement of the carbon canisters and any filter replacement for the leachate/condensate collection system, if applicable.
- j. Records of the location of each exceedance of the 500 ppm methane concentration as provided in § 302.3 and the concentration recorded at each location for which an exceedance was recorded in the previous month. Location shall be recorded as latitude and longitude coordinates using an instrument with an accuracy of at least four meters. The coordinates must be in decimal degrees with at least five decimal places.
- k. Records of any wells that have been decommissioned.
- l. Records of any supplemental fuel used in the operation of the GCCS.
- m. An up-to-date plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
- n. Records of the installation date and location of all newly installed collectors as specified under 40 CFR 60.36f(b).

**302.6 Discontinuation of the GCCS:** An owner or operator subject to this rule may submit a request to the Control Officer to cap, remove or decommission their GCCS if all of the following requirements are met:

- a. The landfill is a closed landfill, as defined in 40 CFR 60.41f;
- b. A closure report is submitted to the Control Officer as provided in 40 CFR 60.38f(f); and
- c. Following the procedures specified in 40 CFR 60.35f(b), the owner or operator demonstrates that the calculated NMOC emission rate at the landfill is less than 17 megagrams per year on 3 successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart and must be submitted to the Control Officer within 60 days after the date of calculating the NMOC emission rate.

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~**: For the purpose of this rule, sources subject to § 301 shall comply with the administrative requirements in 40 CFR 60.38f and 40 CFR 60.39f. Sources subject to § 302 shall comply with the administrative requirements in § 302 of this rule.

**SECTION 500 – MONITORING AND RECORDS ~~(NOT APPLICABLE)~~**: For the purpose of this rule, sources subject to § 301 shall comply with the monitoring and recordkeeping requirements in 40 CFR 60.37f and 40 CFR 60.39f. Sources subject to § 302 shall comply with the monitoring and recordkeeping requirements in § 302 of this rule.

**Strikethrough/Underline Rule 321**  
**Provided by the Commenter**

# Comments 61.1 through 61.6

[Return to NFR Comment and Response Section](#)



AQ-2017-002-Rule 321  
Draft Rule

Maricopa County Air Quality Dept.  
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**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321  
EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

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**SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~**

**SECTION 500 – MONITORING AND RECORDS ~~(NOT APPLICABLE)~~**



Adopted 05/14/1997; Revised 03/01/2000; Revised 03/07/2001; Revised 11/19/2003; Revised 03/15/2006; Revised 12/17/2008; Revised 09/16/2009; Revised 07/07/2010; Revised 08/17/2011; Revised 07/25/2012; Revised 03/26/2014; Revised 11/05/2014; Revised 11/18/2015; Revised 11/02/2016; **Revised MM/DD/YYYY**

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321  
EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

**SECTION 100 – GENERAL**

101 **PURPOSE:** To limit the emissions of non-methane organic compounds (NMOC) from existing municipal solid waste (MSW) landfills.

102 **APPLICABILITY:** ~~The provisions of this rule shall apply to each municipal solid waste landfill for which construction, reconstruction, or modification commenced prior to May 30, 1991, and which has accepted waste at any time since November 8, 1987 or has additional design capacity available for future waste deposition. The provisions of this rule shall apply to existing MSW landfills that commenced construction, reconstruction or modification on or before July 17, 2014.~~

103 **AVAILABILITY OF INFORMATION:** Copies of 40 CFR Part 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills, are available as listed:

- a. Maricopa County Air Quality Department.
- b. Maricopa County Rules are available electronically at <http://www.maricopa.gov/aq>.
- c. EPA documents are available electronically at <http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR>.
- d. ASTM standards are available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, or from its website at [www.astm.org](http://www.astm.org).

**Commented [BD1]:** this would regulate closed sites, is this your intent?

**SECTION 200 – DEFINITIONS:** See Rule 100 of these rules and 40 CFR 60, Subpart Cf for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules and 40 CFR 60, Subpart Cf. In the event of any inconsistency between any of the Maricopa County Air Pollution Control Rules, the definitions in this rule take precedence.

201 **ADMINISTRATOR:** ~~The Control Officer, except that the Control Officer shall not be empowered to approve alternative or equivalent test methods.~~

**202 201 AFFECTED FACILITY:** Any municipal solid waste (MSW) landfill to which this rule is applicable.



- 203 202 **COMMENCED:** State or condition where an owner or operator has undertaken a continuous program of construction; or where an owner or operator has entered into a contractual obligation to undertake and complete such a program.
- 204 ~~CONSTRUCTION:~~ The fabrication, erection, or installation of an affected facility.
- 205 ~~MODIFICATION:~~ Any physical change in, or change in the method of operation of, an affected facility which would result in a change in actual emissions.
- 206 ~~MUNICIPAL SOLID WASTE LANDFILL (MSW LANDFILL):~~ An entire, publicly or privately owned, disposal facility in a contiguous geographical space where household waste is placed in or on land. Portions of a MSW landfill may be separated by access roads.
- 207 ~~NMOC:~~ Non-methane organic compound.
- 208 ~~OWNER OR OPERATOR:~~ Any person who owns, leases, operates, controls, or supervises an affected facility.

**SECTION 300 – STANDARDS**

301 ~~STANDARDS OF PERFORMANCE REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES AT OR ABOVE FEDERAL THRESHOLDS:~~ The federal standards of performance for municipal solid waste landfills set forth in 40 CFR Part 60, Subpart WWW is adopted as codified on July 1, 2016, and all accompanying appendices, excluding 40 CFR 60.750, are adopted and incorporated by reference with the amendments and revisions set forth in this section. This adoption by reference includes no future editions or revisions. Each owner or operator of an affected facility which reaches or exceeds the annual NMOC emission rates specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) shall comply with all the requirements of 40 CFR Part 60, Subpart WWW Cf as adopted and, where applicable, revised herein. All references to the Administrator in 40 CFR Part 60, Subpart Cf shall be understood as the Control Officer, except that the Control Officer shall not be empowered to approve alternative test methods to determine the NMOC emission rate.

**Commented [BD2]:** Can't the County approve alternatives

- 301.1 ~~Collection and Control System Design Plan: 40 CFR 60.752(b)(2)(i) is amended to read: "Submit a collection and control design plan prepared by a professional engineer to the Administrator for approval not later than 12 months after submittal of the initial NMOC emission rate report."~~
- 301.2 ~~Design Capacity Report: 40 CFR 60.757(a) is amended to read "Each owner or operator of an affected facility shall submit an initial design capacity report to the Administrator within 90 days from May 14, 1997." 40 CFR 60.757(a)(1) is deleted.~~
- 301.3 ~~NMOC Emission Rate Report: 40 CFR 60.757(b) is amended to read "Each owner or operator of an affected facility 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." 40-~~



CFR 60.757(b)(1)(i) is amended to read: "The initial NMOC emission rate report shall be submitted within 90 days from May 14, 1997 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."

302 DELAYED APPLICABILITY: For an affected facility that first becomes subject to the collection and control system requirement of 40 CFR 60.752 after May 14, 1997, the design plan shall be due not later than 12 months after submittal or scheduled submittal of an NMOC emission rate report of 50 megagrams (55.12 tons) per year or more.

**302** REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES BELOW FEDERAL THRESHOLDS: Each owner or operator of an affected facility with annual NMOC emission rates below those specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) with an installed and operational landfill gas collection and control system (GCCS) shall comply with the following requirements:

**302.1** Operational Requirements: Each owner or operator shall operate and maintain an existing GCCS that meets the following requirements:

- a. The GCCS shall:
  - (1) Be designed and operated to handle the expected gas flow rate;
  - (2) Contain extraction wells which shall be maintained in any number and spacing necessary to maintain emission and migration control and to collect gas from each area, cell, or group of cells in the landfill which are still generating gas as determined by measures of performance set forth in this rule;
  - (3) Collect gas at 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 unless the well is in declining flow conditions, an abandoned well or operating on an intermittent or passive basis; and
  - (4) Be designed and operated to minimize off-site migration of subsurface gas and potential offsite impacts.
- b. The control device shall 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.
- c. The GCCS shall be operated:
  - (1) Within the parameter ranges established during the most recent performance test.
  - (2) With negative pressure at each wellhead except under the following conditions:



- (a) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire.
- (b) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the GCCS design plan.
- (c) A decommissioned well. The owner or operator shall record any decommissioning of wells.
- (d) When the GCCS is not operating. The owner or operator shall record instances when the GCCS is not operating or being used intermittently.
- (e) When using a passive venting system, as included in the approved GCCS Design Plan.
- (3) At all times when the collected gas is routed to the control device; however, the GCCS may be operated intermittently when the monitoring in (4) demonstrates that the GCCS is adequately and without repetitive surface monitoring exceedances.
- (4) So that the methane concentration is less than 500 parts per million above background at the surface of the landfill, as per the requirements and frequencies under Section 302.4c. To determine if this level is exceeded, the owner or operator must:
  - (a) Conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the compliance specifications in Section 302.3.b.
  - (b) Conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. Thus, the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage.
  - (c) Develop a surface monitoring design plan 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.

**302.2 Test Methods and Procedures:** Each owner or operator shall conduct regular, 5-year performance testing of landfill gas emissions as described below:

- a. Regular 5 year pPerformance testing shall be conducted using the following test methods:

Commented [WA(3)]: Proposed revision 61.1

[Return to Response #61.1](#)

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- (1) EPA Test Method 25, 25C, or 18 shall be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level requirement.
    - (a) In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), EPA Test Method 25A should be used in place of EPA Test Method 25.
    - (b) If using EPA Test Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42).
  - (2) The following equation shall be used to calculate control efficiency:  
$$\text{Control Efficiency} = (\text{NMOC}_{\text{in}} - \text{NMOC}_{\text{out}}) / (\text{NMOC}_{\text{in}})$$

where,  
 $\text{NMOC}_{\text{in}} = \text{mass of NMOC entering control device}$   
 $\text{NMOC}_{\text{out}} = \text{mass of NMOC exiting control device}$
  - (3) EPA Test Method 3 or 3A shall be used to determine the O<sub>2</sub> content for correcting the NMOC concentration as hexane to 3% O<sub>2</sub>. EPA Test Method 19 shall be used to determine the exhaust stream flowrate.
  - (4) EPA Test Method 7E and CO testing in accordance with EPA Test Method 10 shall be used to conduct NO<sub>x</sub> testing.
  - (5) If using an enclosed flare, the owner or operator shall record the combustion chamber temperature and landfill gas flow rate during the performance test.
- b. The NMOC emission rate for the landfill shall also be calculated every five (5) years using the following equation:

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

where,

$M_{\text{NMOC}} = \text{mass emission rate of NMOC, megagrams per year}$

$Q_{\text{LFG}} = \text{flow rate of landfill gas, cubic meters per minute}$

$C_{\text{NMOC}} = \text{NMOC concentration, parts per million by volume as hexane}$

- (1) The flow rate of landfill gas, Q<sub>LFG</sub>, 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 10 of EPA Test Method 2E or according to manufacturer recommendations.
- (2) The average NMOC concentration, C<sub>NMOC</sub>, 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 EPA Test Methods 25C or 18. If using EPA Test Method 18, 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

**Commented [BD5]:** Should bve amended to be only applicable when the NMOC rate is greater than 17 Mg/yr

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[Return to Response #61.3](#)



gas refining units. The owner or operator shall divide the NMOC concentration from EPA Test Method 25C by six to convert from CNMOC as carbon to CNMOC as hexane.

- c. Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures specified in this section unless otherwise specified by the Control Officer.
- d. Sampling sites and velocity traverse points shall be selected in accordance with EPA Test Method 1 or 1A. The gas volumetric flow rate shall be measured in accordance with EPA Test Method 2, 2A, 2C, 2D, 2F, 2G or 19. The dry molecular weight shall be determined in accordance with EPA Test Method 3, 3A or 3B. The stack gas moisture shall be determined in accordance with EPA Test Method 4. These methods must be performed, as applicable, during each test run.
- e. Performance tests shall be conducted under representative operating conditions and all equipment shall be operated during testing in accordance with the most recently approved GCCS design plan or according to its operations manual.
- f. The owner or operator shall make available to the Control Officer any records necessary to determine appropriate conditions for performance tests. Operations during periods of startup, shutdown, and equipment malfunction shall not constitute representative conditions for performance tests unless otherwise specified.
- g. The owner or operator shall record all process and control equipment information that are necessary to document operating conditions during the test and explain why the conditions represent normal operation. Operational parameters shall be monitored and recorded at least once every 30 minutes during each of the required test runs and documented in the test report. The operational parameters monitored shall be capable of indicating that the equipment is operating within the permitted limits, both during and after the performance tests.
- h. The Control Officer shall be notified in writing at least two weeks in advance of the actual date and time of each performance test, unless otherwise specified, so that the Control Officer may have a representative attend.
- i. The owner or operator shall install any and all sample ports or platforms necessary to conduct the performance tests, provide safe access to any platforms, and provide the necessary utilities for testing equipment.
- j. Each performance test shall consist of three separate test runs with each test run being at least one hour in duration unless otherwise specified. Performance tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control. Termination of a performance test without good cause after the first test run has commenced shall constitute a failure of the performance test.



- k. A separate test report for each performance test shall be submitted to the Control Officer within 45 days after the completion of testing unless otherwise specified. The Control Officer may extend the performance testing report deadline upon the request of the owner or operator. The test protocol shall be prepared in accordance with the most recent version of the Department's "Air Quality Performance Test Guidelines for Compliance Determination in Maricopa County."
- l. If test results do not demonstrate compliance with the requirements of this rule, the owner or operator shall make the necessary repairs and/or adjustments to the equipment, or shall make operational changes, such as intermittent collection system operation, and demonstrate compliance through retesting. In addition to compliance demonstrations, test results shall be used for annual emissions inventory purposes if the owner or operator is required to complete an emissions inventory survey.
- m. All test extension requests, test protocols, test date notifications, and test reports shall be submitted to the Control Officer and addressed to the attention of the Performance Test Evaluation Supervisor.
- n. The above testing requirements represent the minimum level of testing to monitor for compliance with the emission limits in this rule. Nothing in this section shall prevent the Control Officer from requiring additional performance testing as deemed necessary to ensure compliance and protection of the public health and welfare.
- o. Open flare combustion devices shall be tested initially in accordance with 40 CFR 60.18.

Permittee shall observe visible emissions from the open flare using Method 22.

The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

The gas composition and flow will be monitored to determine the gas heat content.

Flare exist velocity will be calculated and compared to the standards in 40 CFR 60.18 to confirm design combustion standards.

**302.3 Compliance:** Each owner or operator shall utilize the following methods to determine compliance with the operational requirements of Section 302.1.

- a. The following procedures must be used for compliance with the GCCS operational requirements as provided in Section 302.1:

  - (1) Actual flow data may be used instead of, or in conjunction with, the equations in 40 CFR 60.36f(a)(1) to project the maximum expected gas generation flow rate.
  - (2) For the purposes of determining sufficient density of gas collectors, the owner or operator shall maintain a system of vertical wells, horizontal

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[Return to Response #61.4](#)



collectors, or other collection devices consistent with the approved GCCS design plan, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.

- (3) The provisions of Section 302.3 apply at all times that the GCCS is in operation, 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, except during intermittent operation.

- b. The following procedures must be used for compliance with the surface methane operational requirements as provided in Section 302.1 and frequencies as provided in Section 302.4c:

- (1) After startup of the GCCS, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (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 b(6) of this section, or through the use of alternative technologies if approved by the Control Officer.
- (2) The background concentration must 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 must be performed in accordance with EPA Test Method 21, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.
- (4) Any reading of 500 parts per million or more above background at any location must be recorded as a monitored exceedance and the below actions must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Section 302.1:
- (a) The location of each monitored exceedance must be marked and the location and concentration recorded. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.
- (b) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must be re-monitored within 10 calendar days of detecting the exceedance.
- (c) If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken and the location must be monitored again within 10 days of the second exceedance. If the re-

**Commented [BD8]:** remove to allow intermittent operations

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- monitoring shows a third exceedance for the same location, the action specified in paragraph (b)(4)(e) of this section must be taken, and no further monitoring of that location is required until the action specified in paragraph (b)(4)(e) of this section has been taken.
- (d)** Any location that initially showed an exceedance but has a methane concentration less than 500 parts per million methane above background at the 10-day re-monitoring specified in paragraph (b)(4)(b) or (c) of this section must be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring 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 re-monitoring shows an exceedance, the actions specified in paragraph (b)(4)(c) or (e) of this section must be taken.
- (e)** 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 must 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 Control Officer for approval.
- (5)** The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a quarterly basis. If there are no cover issues identified for three consecutive quarterly monitoring periods, then the owner or operator may skip to annual monitoring. Any closed landfill that has skipped to annual monitoring and has had no cover issues identified for three consecutive years may stop monitoring for cover integrity, except for immediately after extreme weather events such as receiving 1" or more of rain over any 24 hour period, as measured from the nearest Maricopa County Flood Control District rain gauge.
- (6)** Each owner or operator seeking to comply with the provisions in this section must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:
- (a)** The portable analyzer must meet the instrument specifications provided in section 6 of EPA Test Method 21, except that "methane" replaces all references to "VOC".
- (b)** The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.
- (c)** To meet the performance evaluation requirements in section 8.1 of EPA Test Method 21, the instrument evaluation procedures of section 8.1 of EPA Test Method 21 must be used.



(d) The calibration procedures provided in sections 8 and 10 of EPA Test Method 21 must be followed immediately before commencing a surface monitoring survey.

**302.4 Monitoring of Operations:** Each owner or operator shall monitor landfill operations by complying with the following requirements, as applicable:

- a. If using an enclosed combustor, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including the following equipment:
  - (1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.
  - (2) A device that records flow to, or bypass of, the control device. The owner or operator shall either:
    - (a) 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
    - (b) If equipped, 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.
- b. If using a non-enclosed flare, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including 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 the flare and bypass of the flare (if applicable). The owner or operator must:
    - (a) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and
    - (b) 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 must 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 demonstrate compliance with the 500 parts per million surface methane operational standard in Section 302.1 must monitor



surface concentrations of methane according to the compliance procedures and instrument specifications provided in Section 302.3. In addition:

- (1) Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring.
- (2) Any methane reading of 500 parts per million or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.
- (3) Any closed landfill that has skipped to annual monitoring and has had no monitored exceedances of the operational standard in three consecutive years may stop monitoring surface methane emissions.

**302.5 Recordkeeping:** Each owner or operator shall maintain the following records and make them available upon request. Records shall be retained for 5 years:

- a.** A GCCS design plan that meets the design requirements in §60.33f(b) and (c).
  - (1) The GCCS design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of Section 302 proposed by the owner or operator.
  - (2) The GCCS design plan must either conform to specifications for active collection systems in §60.40f or include a demonstration to the Control Officer's satisfaction of the sufficiency of the alternative provisions to §60.40f.
  - (3) The GCCS design plan must include an addendum that outlines the operation and maintenance (O&M) procedures for the control device(s). O&M maintenance records shall, at a minimum, contain the following information: equipment identification; date of activity; identification of the individual performing the maintenance check; procedures to be performed including frequency of occurrence; results of inspection; and corrective action taken. An explanation shall be recorded for any scheduled maintenance that is not performed during the period designated in the design plan addendum.
- b.** Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years.
- c.** Records of the control device vendor specifications shall be maintained until removal of that control device.
- d.** A record of the enclosed flare temperature recorded every 15 minutes or less by a continuous temperature recorder.
- e.** Records of the average combustion temperature of the flare during the performance tests measured at least every 15 minutes and averaged over the same time period of the performance test.

**Commented [WA(10):** Proposed revision 61.6

**Commented [BD11]:** The LFG flare systems are simplistic and an additional O&M plan should be needed as the existing regulations are adequate to ensure compliance.

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- f. Records of the percent reduction or outlet concentration of NMOC achieved by the control device during each performance test.
- g. Records of any times when the collection system or control device is not operating, including during intermittent use of the GCCS.
- h. The calculation methodology used to estimate current emissions.
- i. A schedule for the replacement of the carbon canisters and any filter replacement for the leachate/condensate collection system, if applicable.
- j. Records of the location of each exceedance of the 500 parts per million methane concentration as provided in Section 302.3 and the concentration recorded at each location for which an exceedance was recorded in the previous month. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.
- k. Records of all collection and control system exceedances of the operational standards in Section 302.1, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.
- l. Records of any wells that have been decommissioned.
- m. Records of any supplemental fuel used in the operation of the GCCS.
- n. An up-to-date plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
- o. Records of the installation date and location of all newly installed collectors as specified under §60.755(b).

**302.6 Discontinuation of the GCCS:** An owner or operator subject to this rule may submit a request to the Control Officer to cap, remove or decommission their GCCS if all of the following requirements are met:

- a. The landfill is a closed landfill, as defined in 40 CFR 60.41f;
- b. A closure report is submitted to the Control Officer as provided in 40 CFR 60.38f(f); and
- c. Following the procedures specified in 40 CFR 60.35f(b), the owner or operator demonstrates that the calculated NMOC emission rate at the landfill is less than 17 megagrams (Mg) per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart and must be submitted to the Control Officer within 60 days after the date of calculating the NMOC emission rate.
- d. In addition, the owner or operator of the MSW landfill must also demonstrate that no odors from any regulated air pollutant will be discharged into the atmosphere which may:
  - (1) Cause damage to property; or



- (2) Unreasonably interfere with the comfortable enjoyment of life or property of a substantial part of a community.

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS** ~~(NOT APPLICABLE)~~: For the purpose of this rule, sources subject to Section 301 shall comply with the administrative requirements in 40 CFR 60.38f and 40 CFR 60.39f. Sources subject to Section 302 shall comply with the administrative requirements in Section 302 of this rule.

**SECTION 500 – MONITORING AND RECORDS** ~~(NOT APPLICABLE)~~: For the purpose of this rule, sources subject to Section 301 shall comply with the monitoring and recordkeeping requirements in 40 CFR 60.37f and 40 CFR 60.39f. Sources subject to Section 302 shall comply with the monitoring and recordkeeping requirements in Section 302 of this rule.

# Comments 62.1 through 62.14

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AQ-2017-002-Rule 321  
Draft Rule

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**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321  
EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

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**SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~**

**SECTION 500 – MONITORING AND RECORDS ~~(NOT APPLICABLE)~~**



Adopted 05/14/1997; Revised 03/01/2000; Revised 03/07/2001; Revised 11/19/2003; Revised 03/15/2006; Revised 12/17/2008; Revised 09/16/2009; Revised 07/07/2010; Revised 08/17/2011; Revised 07/25/2012; Revised 03/26/2014; Revised 11/05/2014; Revised 11/18/2015; Revised 11/02/2016; **Revised MM/DD/YYYY**

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321  
EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

**SECTION 100 – GENERAL**

101 **PURPOSE:** To limit the emissions of non-methane organic compounds (NMOC) from existing municipal solid waste (MSW) landfills.

102 **APPLICABILITY:** ~~The provisions of this rule shall apply to each municipal solid waste landfill for which construction, reconstruction, or modification commenced prior to May 30, 1991, and which has accepted waste at any time since November 8, 1987 or has additional design capacity available for future waste deposition. The provisions of this rule shall apply to existing MSW landfills that commenced construction, reconstruction or modification on or before July 17, 2014.~~

Commented [BD1]: this would regulate closed sites, is this your intent?

103 **AVAILABILITY OF INFORMATION:** ~~Copies of 40 CFR Part 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills, are available as listed:~~

- ~~a. Maricopa County Air Quality Department.~~
- ~~b. Maricopa County Rules are available electronically at <http://www.maricopa.gov/aq>.~~
- ~~c. EPA documents are available electronically at <http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR>.~~
- ~~d. ASTM standards are available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, or from its website at [www.astm.org](http://www.astm.org).~~

**SECTION 200 – DEFINITIONS:** See Rule 100 of these rules and 40 CFR 60, Subpart Cf for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules and 40 CFR 60, Subpart Cf. In the event of any inconsistency between any of the Maricopa County Air Pollution Control Rules, the definitions in this rule take precedence.

201 **ADMINISTRATOR:** ~~The Control Officer, except that the Control Officer shall not be empowered to approve alternative or equivalent test methods.~~

202 **201 AFFECTED FACILITY:** Any municipal solid waste (MSW) landfill to which this rule is applicable.



- 203 **202 COMMENCED:** State or condition where an owner or operator has undertaken a continuous program of construction; or where an owner or operator has entered into a contractual obligation to undertake and complete such a program.
- 204 **CONSTRUCTION:** The fabrication, erection, or installation of an affected facility.
- 205 **MODIFICATION:** Any physical change in, or change in the method of operation of, an affected facility which would result in a change in actual emissions.
- 206 **MUNICIPAL SOLID WASTE LANDFILL (MSW LANDFILL):** An entire, publicly or privately owned, disposal facility in a contiguous geographical space where household waste is placed in or on land. Portions of a MSW landfill may be separated by access roads.
- 207 **NMOC:** Non-methane organic compound.
- 208 **OWNER OR OPERATOR:** Any person who owns, leases, operates, controls, or supervises an affected facility.

**SECTION 300 – STANDARDS**

**301 STANDARDS OF PERFORMANCE REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES AT OR ABOVE FEDERAL THRESHOLDS:** ~~The federal standards of performance for municipal solid waste landfills set forth in 40 CFR Part 60, Subpart WWW is adopted as codified on July 1, 2016, and all accompanying appendices, excluding 40 CFR 60.750, are adopted and incorporated by reference with the amendments and revisions set forth in this section. This adoption by reference includes no future editions or revisions. Each owner or operator of an affected facility which reaches or exceeds the annual NMOC emission rates specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) shall comply with all the requirements of 40 CFR Part 60, Subpart WWW Cf as adopted and, where applicable, revised herein. All references to the Administrator in 40 CFR Part 60, Subpart Cf shall be understood as the Control Officer, except that the Control Officer shall not be empowered to approve alternative test methods to determine the NMOC emission rate: for Subpart Cf~~

- 301.1 ~~Collection and Control System Design Plan: 40 CFR 60.752(b)(2)(i) is amended to read: "Submit a collection and control design plan prepared by a professional engineer to the Administrator for approval not later than 12 months after submittal of the initial NMOC emission rate report."~~
- 301.2 ~~Design Capacity Report: 40 CFR 60.757(a) is amended to read "Each owner or operator of an affected facility shall submit an initial design capacity report to the Administrator within 90 days from May 14, 1997." 40 CFR 60.757(a)(1) is deleted.~~
- 301.3 ~~NMOC Emission Rate Report: 40 CFR 60.757(b) is amended to read "Each owner or operator of an affected facility 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." 40-~~

**Commented [BD2]:** Can't the County approve alternatives

**Commented [TD3R2]:** The County should be allowed to approve an alternative test method once the site is out of Federal Requirements, and only in the County ones (is below 34 Mg).



CFR 60.757(b)(1)(i) is amended to read: "The initial NMOC emission rate report shall be submitted within 90 days from May 14, 1997 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."

302 DELAYED APPLICABILITY: For an affected facility that first becomes subject to the collection and control system requirement of 40 CFR 60.752 after May 14, 1997, the design plan shall be due not later than 12 months after submittal or scheduled submittal of an NMOC emission rate report of 50 megagrams (55.12 tons) per year or more.

**302 REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC**

**EMISSION RATES BELOW FEDERAL THRESHOLDS:** Each owner or operator of an affected facility with annual NMOC emission rates below those specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) with an installed and operational landfill gas collection and control system (GCCS) shall comply with the following requirements:

**302.1 Operational Requirements:** Each owner or operator shall operate and maintain an existing GCCS that meets the following requirements:

a. The GCCS shall:

- (1) Be designed and operated to handle the expected gas flow rate;
- (2) Contain extraction wells which shall be maintained in any number and spacing necessary to maintain emission and migration control and to collect gas from each area, cell, or group of cells in the landfill which are still generating gas as determined by measures of performance set forth in this rule;
- (3) Collect gas at 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 unless the well is in declining flow conditions, an abandoned well, or operating on an intermittent or passive basis; and
- (4) Be designed and operated to minimize off-site migration of subsurface gas and potential offsite impacts.

b. Control system. Route all the collected gas to a control system that complies with the requirements in either paragraph (1), (2), or (3) of this section.

(1) A non-enclosed flare designed and operated in accordance with the parameters established in §60.18 except as noted in 302.2(a); or

(2) 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

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at 3 percent oxygen. The reduction efficiency or parts per million by volume must be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in 302.2(a). The performance test is not required for boilers and process heaters with design heat input capacities equal to or greater than 44 megawatts that burn landfill gas for compliance with this subpart.

(a) If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.

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(b) The control device must be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in 302.1(c);

(3) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process. Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either paragraph (1) or (2) of this section.

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(4) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (1) or (2) of this section. For purposes of this subpart, atmospheric vents located on the condensate storage tank are not part of the treatment system and are exempt from the requirements of paragraph (1) or (2) of this section.

The control device shall 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.

Commented [WA(4)]: Proposed revision 62.1

[Return to Response #62.1](#)

c. The GCCS shall be operated:

(1) Within the parameter ranges established during the most recent performance test, if applicable.

Commented [WA(5)]: Proposed revision 62.2

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(2) With negative pressure at each wellhead except under the following conditions:

(a) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire.

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



- (c) A decommissioned well. The owner or operator shall record any decommissioning of wells.
- (d) When the GCCS is not operating. The owner or operator shall record instances when the GCCS is not operating or being used intermittently.
- (e) When using a passive venting system, as included in the approved GCCS Design Plan.
- (3) At all times when the collected gas is routed to the control device; however, the GCCS may be operated intermittently when the monitoring in (4) demonstrates that the GCCS is adequately and without repetitive surface monitoring exceedances.
- (4) So that the methane concentration is less than 500 parts per million above background at the surface of the landfill, as per the requirements and frequencies under Section 302.4c. To determine if this level is exceeded, the owner or operator must:
  - (a) Conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the compliance specifications in Section 302.3.b.
  - (b) Conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations. Thus, the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage.
  - (c) Develop a surface monitoring ~~design plan to be included in the design plan~~ 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.

Commented [TD6]: Do we want a definition of decommission and abandon well?

Commented [WA(7)]: Proposed revision 62.3

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Commented [WA(8)]: Proposed revision 62.4

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**302.2 Test Methods and Procedures:** Each owner or operator shall conduct ~~regular, 5-year~~ performance testing of landfill gas emissions as described below:

- a. Regular 5 year pPerformance testing shall be conducted using the following test methods:
  - (1) EPA Test Method 25, 25C, or 18 shall be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level requirement.
    - (a) In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), EPA Test Method 25A should be used in place of EPA Test Method 25.



(b) If using EPA Test Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42).

(2) The following equation shall be used to calculate control efficiency:

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

where,

NMOC<sub>in</sub> = mass of NMOC entering control device

NMOC<sub>out</sub> = mass of NMOC exiting control device

(3) EPA Test Method 3 or 3A shall be used to determine the O<sub>2</sub> content for correcting the NMOC concentration as hexane to 3% O<sub>2</sub>. EPA Test Method 19 shall be used to determine the exhaust stream flowrate.

(4) EPA Test Method 7E and CO testing in accordance with EPA Test Method 10 shall be used to conduct NO<sub>x</sub> testing.

(5) If using an enclosed flare, the owner or operator shall record the combustion chamber temperature and landfill gas flow rate during the performance test.

b. The NMOC emission rate for the landfill shall also be calculated ~~every five (5) years~~ annually using the following equation:

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

where,

M<sub>NMOC</sub> = mass emission rate of NMOC, megagrams per year

Q<sub>LFG</sub> = flow rate of landfill gas, cubic meters per minute

C<sub>NMOC</sub> = NMOC concentration, parts per million by volume as hexane

(1) The flow rate of landfill gas, Q<sub>LFG</sub>, 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 10 of EPA Test Method 2E or according to manufacturer recommendations.

(2) The average NMOC concentration, C<sub>NMOC</sub>, shall be ~~tested for at a minimum of every 5 years.~~ The average NMOC concentration, C<sub>NMOC</sub>, 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 EPA Test Methods 25C or 18. If using EPA Test Method 18, 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 owner or operator shall divide the NMOC concentration from EPA Test Method 25C by six to convert from C<sub>NMOC</sub> as carbon to C<sub>NMOC</sub> as hexane.

[Return to Response #62.5](#)

**Commented [WA(9)]:** Proposed revision 62.5

**Commented [BD10]:** Should bve amended to be only applicable when the NMOC rate is greater than 17 Mg/yr

**Commented [TD11R10]:** Yes, and we can calculate annually if the site wants, but the NMOC value should be tested once every 5 years until the site is below 17 Mg.

**Commented [WA(12)]:** Proposed revision 62.6

[Return to Response #62.6](#)



- c. Performance tests shall be conducted and data shall be reduced in accordance with the test methods and procedures specified in this section unless otherwise specified by the Control Officer.
- d. Sampling sites and velocity traverse points shall be selected in accordance with EPA Test Method 1 or 1A. The gas volumetric flow rate shall be measured in accordance with EPA Test Method 2, 2A, 2C, 2D, 2F, 2G or 19. The dry molecular weight shall be determined in accordance with EPA Test Method 3, 3A or 3B. The stack gas moisture shall be determined in accordance with EPA Test Method 4. These methods must be performed, as applicable, during each test run.
- e. Performance tests shall be conducted under representative operating conditions and all equipment shall be operated during testing in accordance with the most recently approved GCCS design plan or according to its operations manual.
- f. The owner or operator shall make available to the Control Officer any records necessary to determine appropriate conditions for performance tests. Operations during periods of startup, shutdown, and equipment malfunction shall not constitute representative conditions for performance tests unless otherwise specified.
- g. The owner or operator shall record all process and control equipment information that are necessary to document operating conditions during the test and explain why the conditions represent normal operation. Operational parameters shall be monitored and recorded at least once every 30 minutes during each of the required test runs and documented in the test report. The operational parameters monitored shall be capable of indicating that the equipment is operating within the permitted limits, both during and after the performance tests.
- h. The Control Officer shall be notified in writing at least two weeks in advance of the actual date and time of each performance test, unless otherwise specified, so that the Control Officer may have a representative attend.
- i. The owner or operator shall install any and all sample ports or platforms necessary to conduct the performance tests, provide safe access to any platforms, and provide the necessary utilities for testing equipment.
- j. Each performance test shall consist of three separate test runs with each test run being at least one hour in duration unless otherwise specified. Performance tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control. Termination of a performance test without good cause after the first test run has commenced shall constitute a failure of the performance test.
- k. A separate test report for each performance test shall be submitted to the Control Officer within 45 days after the completion of testing unless otherwise specified. The Control Officer may extend the performance testing report



deadline upon the request of the owner or operator. The test protocol shall be prepared in accordance with the most recent version of the Department's "Air Quality Performance Test Guidelines for Compliance Determination in Maricopa County."

- l. If test results do not demonstrate compliance with the requirements of this rule, the owner or operator shall make the necessary repairs and/or adjustments to the equipment, or shall make operational changes, such as intermittent collection system operation, and demonstrate compliance through retesting. In addition to compliance demonstrations, test results shall be used for annual emissions inventory purposes if the owner or operator is required to complete an emissions inventory survey.
- m. All test extension requests, test protocols, test date notifications, and test reports shall be submitted to the Control Officer and addressed to the attention of the Performance Test Evaluation Supervisor.
- n. The above testing requirements represent the minimum level of testing to monitor for compliance with the emission limits in this rule. Nothing in this section shall prevent the Control Officer from requiring additional performance testing as deemed necessary to ensure compliance and protection of the public health and welfare.
- o. Open flare combustion devices shall be tested initially in accordance with 40 CFR 60.18.
  - Permittee shall observe visible emissions from the open flare using Method 22.
  - The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.
  - The gas composition and flow will be monitored to determine the gas heat content.
  - Flare exist velocity will be calculated and compared to the standards in 40 CFR 60.18 to confirm design combustion standards.

**302.3 Compliance:** Each owner or operator shall utilize the following methods to determine compliance with the operational requirements of Section 302.1.

- a. The following procedures must be used for compliance with the GCCS operational requirements as provided in Section 302.1:
  - (1) Actual flow data may be used instead of, or in conjunction with, the equations in 40 CFR 60.36f(a)(1) to project the maximum expected gas generation flow rate.
  - (2) For the purposes of determining sufficient density of gas collectors, the owner or operator shall maintain a system of vertical wells, horizontal collectors, or other collection devices consistent with the approved GCCS design plan, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.



- (3) The provisions of Section 302.3 apply at all times that the GCCS is in operation, 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. 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 shall not exceed 1 hour for treatment or control devices, except during intermittent operation.
- b. The following procedures must be used for compliance with the surface methane operational requirements as provided in Section 302.1 and frequencies as provided in Section 302.4c:
- (1) After startup of the GCCS, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (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 b(6) of this section, or through the use of alternative technologies if approved by the Control Officer.
- (2) The background concentration must 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 must be performed in accordance with EPA Test Method 21, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.
- (4) Any reading of 500 parts per million or more above background at any location must be recorded as a monitored exceedance and the below actions must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Section 302.1:
- (a) The location of each monitored exceedance must be marked and the location and concentration recorded. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.
- (b) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be made and the location must be re-monitored within 10 calendar days of detecting the exceedance.
- (c) If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken and the location must be monitored again within 10 days of the second exceedance. If the re-

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[Return to Response #62.7](#)



- monitoring shows a third exceedance for the same location, the action specified in paragraph (b)(4)(c) of this section must be taken, and no further monitoring of that location is required until the action specified in paragraph (b)(4)(c) of this section has been taken.
- (d) Any location that initially showed an exceedance but has a methane concentration less than 500 parts per million methane above background at the 10-day re-monitoring specified in paragraph (b)(4)(b) or (c) of this section must be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring 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 re-monitoring shows an exceedance, the actions specified in paragraph (b)(4)(c) or (e) of this section must be taken.
- (e) 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 must 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 Control Officer for approval.
- (5) The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a quarterly basis. If there are no cover issues identified for three consecutive quarterly monitoring periods, then the owner or operator may skip to annual monitoring. Any closed landfill that has skipped to annual monitoring and has had no cover issues identified for three consecutive years may stop monitoring for cover integrity, except for immediately after extreme weather events such as receiving 1" or more of rain over any 24 hour period, as measured from the nearest Maricopa County Flood Control District rain gauge.
- (6) Each owner or operator seeking to comply with the provisions in this section must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:
- (a) The portable analyzer must meet the instrument specifications provided in section 6 of EPA Test Method 21, except that "methane" replaces all references to "VOC".
- (b) The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.
- (c) To meet the performance evaluation requirements in section 8.1 of EPA Test Method 21, the instrument evaluation procedures of section 8.1 of EPA Test Method 21 must be used.



(d) The calibration procedures provided in sections 8 and 10 of EPA Test Method 21 must be followed immediately before commencing a surface monitoring survey.

**302.4 Monitoring of Operations:** Each owner or operator shall monitor landfill operations by complying with the following requirements, as applicable:

- a. If using an enclosed combustor, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including the following equipment:
  - (1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.
  - (2) A device that records flow to, or bypass of, the control device. The owner or operator shall either:
    - (a) 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
    - (b) If equipped, 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.
- b. If using a non-enclosed flare, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including 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 the flare and bypass of the flare (if applicable). The owner or operator must:
    - (a) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and
    - (b) 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 must 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 demonstrate compliance with the 500 parts per million surface methane operational standard in Section 302.1 must monitor



surface concentrations of methane according to the compliance procedures and instrument specifications provided in Section 302.3. In addition:

- (1) Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring.
- (2) Any methane reading of 500 parts per million or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.
- (3) Any closed landfill that has skipped to annual monitoring and has had no monitored exceedances of the operational standard in three consecutive years may stop monitoring surface methane emissions.

**302.5 Recordkeeping:** Each owner or operator shall maintain the following records and make them available upon request. Records shall be retained for 5 years:

- a. A GCCS design plan that meets the design requirements in §60.33f(b) and (c).
  - (1) The GCCS design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of Section 302 proposed by the owner or operator.
  - (2) The GCCS design plan must either conform to specifications for active collection systems in §60.40f or include a demonstration to the Control Officer's satisfaction of the sufficiency of the alternative provisions to §60.40f.
  - (3) ~~The GCCS design plan must include an addendum that outlines the operation and maintenance (O&M) procedures for the control device(s); O&M maintenance records shall, at a minimum, contain the following information: equipment identification; date of activity; identification of the individual performing the maintenance check; procedures to be performed including frequency of occurrence; results of inspection; and corrective action taken. An explanation shall be recorded for any scheduled maintenance that is not performed during the period designated in the design plan addendum.~~
- b. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years.
- c. Records of the control device vendor specifications shall be maintained until removal of that control device.
- d. A record of the enclosed flare temperature recorded every 15 minutes or less by a continuous temperature recorder.
- e. Records of the average combustion temperature of the flare during the performance tests measured at least every 15 minutes and averaged over the same time period of the performance test.

**Commented [BD15]:** The LFG flare systems are simplistic and an additional O&M plan should be needed as the existing regulations are adequate to ensure compliance.

**Commented [WA(16):** Proposed revision 62.8

[Return to Response #62.8](#)



- f. Records of the percent reduction or outlet concentration of NMOC achieved by the control device during each performance test or compliance with 20 ppm NMOC.
- g. Records of any times when the collection system or control device is not operating, including during intermittent use of the GCCS.
- h. The calculation methodology used to estimate current emissions.
- i. A schedule for the replacement of the carbon canisters and any filter replacement for the leachate/condensate collection system, if applicable.
- j. Records of the location of each exceedance of the 500 parts per million methane concentration as provided in Section 302.3 and the concentration recorded at each location for which an exceedance was recorded in the previous month monitoring event. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.
- k. Records of all collection and control system exceedances of the operational standards in Section 302.1, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.
- l. Records of any wells that have been decommissioned or abandoned.
- m. Records of any supplemental fuel used in the operation of the GCCS.
- n. An up-to-date plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
- o. Records of the installation date and location of all newly installed collectors as specified under §60.755(b).

**302.6 Discontinuation of the GCCS:** An owner or operator subject to this rule may submit a request to the Control Officer to cap, remove or decommission their GCCS if all of the following requirements are met:

- a. The landfill is a closed landfill, as defined in 40 CFR 60.41f;
- b. A closure report is submitted to the Control Officer as provided in 40 CFR 60.38f(f); and
- c. Following the procedures specified in 40 CFR 60.35f(b), the owner or operator demonstrates that the calculated NMOC emission rate at the landfill is less than 17 megagrams (Mg) per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart and must be submitted to the Control Officer within 60 days after the date of calculating the NMOC emission rate.
- d. In addition, the owner or operator of the MSW landfill must also demonstrate that no odors from any regulated air pollutant will be discharged into the atmosphere which may:
  - (1) Cause damage to property; or

Commented [WA(17)]: Proposed revision 62.9

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Commented [TD18]: In this rule, it goes from quarterly to even less

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Commented [TD20]: What is the intent here?

Commented [WA(21)]: Proposed revision 62.11 [Return to Response #62.11](#)

Commented [WA(22)]: Proposed revision 62.12 [Return to Response #62.12](#)

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[Return to Response #62.13](#)

Commented [TD25]: How does the site have to demonstrate this?

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[Return to Response #62.14](#)



AQ-2017-002-Rule 321  
Draft Rule

Maricopa County Air Quality Dept.  
Planning & Analysis Division  
3800 N. Central Ave. Ste. 1400  
Phoenix, AZ 85012

(2) Unreasonably interfere with the comfortable enjoyment of life or property of a substantial part of a community.

**SECTION 400 – ADMINISTRATIVE REQUIREMENTS** ~~(NOT APPLICABLE)~~: For the purpose of this rule, sources subject to Section 301 shall comply with the administrative requirements in 40 CFR 60.38f and 40 CFR 60.39f. Sources subject to Section 302 shall comply with the administrative requirements in Section 302 of this rule.

**SECTION 500 – MONITORING AND RECORDS** ~~(NOT APPLICABLE)~~: For the purpose of this rule, sources subject to Section 301 shall comply with the monitoring and recordkeeping requirements in 40 CFR 60.37f and 40 CFR 60.39f. Sources subject to Section 302 shall comply with the monitoring and recordkeeping requirements in Section 302 of this rule.

# Comments 63.1 through 63.12

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AQ-2017-002-Rule 321  
Draft Rule

Maricopa County Air Quality Dept.  
Planning & Analysis Division  
301 W. Jefferson St. Ste. 410  
Phoenix, AZ 85003

## MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS REGULATION III – CONTROL OF AIR CONTAMINANTS

### RULE 321 EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS

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- 301 STANDARDS OF PERFORMANCE REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES AT OR ABOVE FEDERAL THRESHOLDS
- 302 DELAYED APPLICABILITY REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES BELOW FEDERAL THRESHOLDS

#### SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~

#### SECTION 500 – MONITORING AND RECORDS ~~(NOT APPLICABLE)~~



Adopted 05/14/1997; Revised 03/01/2000; Revised 03/07/2001; Revised 11/19/2003; Revised 03/15/2006; Revised 12/17/2008; Revised 09/16/2009; Revised 07/07/2010; Revised 08/17/2011; Revised 07/25/2012; Revised 03/26/2014; Revised 11/05/2014; Revised 11/18/2015; Revised 11/02/2016; **Revised MM/DD/YYYY**

**MARICOPA COUNTY  
AIR POLLUTION CONTROL REGULATIONS  
REGULATION III – CONTROL OF AIR CONTAMINANTS**

**RULE 321  
EXISTING MUNICIPAL SOLID WASTE (MSW) LANDFILLS**

**SECTION 100 – GENERAL**

- 101 **PURPOSE:** To limit the emissions of non-methane organic compounds (NMOC) from existing municipal solid waste (MSW) landfills.
- 102 **APPLICABILITY:** ~~The provisions of this rule shall apply to each municipal solid waste landfill for which construction, reconstruction, or modification commenced prior to May 30, 1991, and which has accepted waste at any time since November 8, 1987 or has additional design capacity available for future waste deposition.~~

The provisions of this rule shall apply to existing MSW landfills that:

- a. Commenced construction, reconstruction or modification on or before July 17, 2014; and
- b. Have accepted waste at any time since November 8, 1987 or has additional design capacity available for future waste deposition.

- 103 **AVAILABILITY OF INFORMATION:** ~~Copies of 40 CFR Part 60, Subpart WWW—Standards of Performance for Municipal Solid Waste Landfills, are available as listed:~~
- ~~a. Maricopa County Air Quality Department.~~
  - ~~b. Maricopa County Rules are available electronically at <http://www.maricopa.gov/aq>.~~
  - ~~c. EPA documents are available electronically at <http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR>.~~
  - ~~d. ASTM standards are available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428, or from its website at [www.astm.org](http://www.astm.org).~~

**SECTION 200 – DEFINITIONS:** See Rule 100 of these rules and 40 CFR 60, Subpart Cf for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules and 40 CFR 60, Subpart Cf. In the event of any inconsistency between any of the Maricopa County Air Pollution Control Rules, the definitions in this rule take precedence.



- 201 ~~ADMINISTRATOR: The Control Officer, except that the Control Officer shall not be empowered to approve alternative or equivalent test methods.~~
- 202 **201 AFFECTED FACILITY:** Any municipal solid waste (MSW) landfill to which this rule is applicable.
- 203 **202 COMMENCED:** State or condition where an owner or operator has undertaken a continuous program of construction; or where an owner or operator has entered into a contractual obligation to undertake and complete such a program.
- 204 ~~CONSTRUCTION: The fabrication, erection, or installation of an affected facility.~~
- 205 ~~MODIFICATION: Any physical change in, or change in the method of operation of, an affected facility which would result in a change in actual emissions.~~
- 206 ~~MUNICIPAL SOLID WASTE LANDFILL (MSW LANDFILL): An entire, publicly or privately owned, disposal facility in a contiguous geographical space where household waste is placed in or on land. Portions of a MSW landfill may be separated by access roads.~~
- 207 ~~NMOC: Non methane organic compound.~~
- 208 ~~OWNER OR OPERATOR: Any person who owns, leases, operates, controls, or supervises an affected facility.~~

## SECTION 300 – STANDARDS

- 301 **STANDARDS OF PERFORMANCE REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES AT OR ABOVE FEDERAL THRESHOLDS:** ~~The federal standards of performance for municipal solid waste landfills set forth in 40 CFR Part 60, Subpart WWW is adopted as codified on July 1, 2016, and all accompanying appendices, excluding 40 CFR 60.750, are adopted and incorporated by reference with the amendments and revisions set forth in this section. This adoption by reference includes no future editions or revisions. Each owner or operator of an affected facility which reaches or exceeds the annual NMOC emission rates specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) shall comply with all the requirements of 40 CFR Part 60, Subpart WWW Cf as adopted and, where applicable, revised herein. All references to the Administrator in 40 CFR Part 60, Subpart Cf shall be understood as the Control Officer, except that the Control Officer shall not be empowered to approve alternative test methods to determine the NMOC emission rate.~~
- 301.1 ~~Collection and Control System Design Plan: 40 CFR 60.752(b)(2)(i) is amended to read: “Submit a collection and control design plan prepared by a professional engineer to the Administrator for approval not later than 12 months after submittal of the initial NMOC emission rate report.”~~
- 301.2 ~~Design Capacity Report: 40 CFR 60.757(a) is amended to read “Each owner or operator of an affected facility shall submit an initial design capacity report to the Administrator within 90 days from May 14, 1997.” 40 CFR 60.757(a)(1) is deleted.~~



301.3 ~~NMOC Emission Rate Report: 40 CFR 60.757(b) is amended to read “Each owner or operator of an affected facility shall submit an NMOC emission rate report to the Administrator initially and annually thereafter, except as provided for in paragraphs (b)(1)(i) or (b)(3) of this section. The Administrator may request such additional information as may be necessary to verify the reported NMOC emission rate.” 40 CFR 60.757(b)(1)(i) is amended to read: “The initial NMOC emission rate report shall be submitted within 90 days from May 14, 1997 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)(i) and (b)(3) of this section.”~~

302 ~~DELAYED APPLICABILITY: For an affected facility that first becomes subject to the collection and control system requirement of 40 CFR 60.752 after May 14, 1997, the design plan shall be due not later than 12 months after submittal or scheduled submittal of an NMOC emission rate report of 50 megagrams (55.12 tons) per year or more.~~

302 **REQUIREMENTS FOR EXISTING MSW LANDFILLS WITH NMOC EMISSION RATES BELOW FEDERAL THRESHOLDS:** Each owner or operator of an affected facility with annual NMOC emission rates below those specified in 40 CFR 60.33f(a)(3) or 40 CFR 60.33f(a)(4) with an installed and operational landfill gas collection and control system (GCCS) shall comply with the following requirements:

**302.1 Operational Requirements:** Each owner or operator shall operate and maintain an existing GCCS that meets the following requirements:

a. The GCCS shall:

- (1) Be designed and operated to handle the expected gas flow rate;
- (2) Contain extraction wells which shall be maintained in any number and spacing necessary to maintain emission and migration control and to collect gas from each area, cell, or group of cells in the landfill which are still generating gas as determined by measures of performance set forth in this rule;
- (3) Collect gas at 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; and
- (4) Be designed and operated to minimize off-site migration of subsurface gas and potential offsite impacts.

b. All collected gas shall be routed to a control system that complies with the requirements in either paragraph (1), (2), or (3) of this section.

- (1) A non-enclosed flare designed and operated in accordance with the parameters established in 40 CFR 60.18; or
- (2) A control system designed and operated to reduce NMOC by 98 weight percent, or, when an enclosed combustion device is used for control, to

Commented [BD1]: doesn't use maximum, OK

Commented [WA(2)]: Proposed revision 63.1

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either reduce NMOC by 98 weight or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at three percent oxygen. The reduction efficiency or parts per million by volume must be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in Section 302.2a. The performance test is not required for boilers and process heaters with design heat input capacities equal to or greater than 44 megawatts that burn landfill gas for compliance with Section 302.

- (a) If a boiler or process heater is used as the control device, the landfill gas stream must be introduced into the flame zone.
  - (b) The control device must be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in section 302.1c;
  - (3) Route all the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process. Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either paragraph (1) or (2) of this section.
  - (4) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (1) or (2) of this section. For purposes of Section 302, atmospheric vents located on the condensate storage tank are not part of the treatment system and are exempt from the requirements of paragraph (1) or (2) of this section.
- c. The GCCS shall be operated:
- (1) Within the parameter ranges established during the most recent performance test.
  - (2) With negative pressure at each wellhead except under the following conditions:
    - (a) A fire or increased well temperature. The owner or operator shall record instances when positive pressure occurs in efforts to avoid a fire.
    - (b) Use of a geomembrane or synthetic cover. The owner or operator shall develop acceptable pressure limits in the GCCS design plan.
    - (c) A decommissioned well. The owner or operator shall record any decommissioning of wells.
    - (d) When the GCCS is not operating. The owner or operator shall record instances when the GCCS is not operating or being used intermittently.

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- (e) When using a passive venting system, as included in the approved GCCS Design Plan.
- (3) At all times when the collected gas is routed to the control device.
- (4) So that the methane concentration is less than 500 parts per million above background at the surface of the landfill, as per the requirements and frequencies under Section 302.4c. To determine if this level is exceeded, the owner or operator must:
  - (a) Conduct surface testing using an organic vapor analyzer, flame ionization detector, or other portable monitor meeting the compliance specifications in Section 302.3.b.
  - (b) Conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover and all cover penetrations **which extend into the waste mass**. Thus, the owner or operator must monitor any openings that are within an area of the landfill where waste has been placed and a gas collection system is required. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage.
  - (c) Develop a surface monitoring plan to be included in the design plan 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.
- d. The owner or operator shall submit a revision to the most current GCCS Design Plan whenever a change is made to the GCCS.

**302.2 Test Methods and Procedures:** Each owner or operator of a control system described in Section 302.1(b)(2) shall conduct a performance test of the control system at least once every 5 years in accordance with Rule 270 of these rules and the provisions below:

- a. Performance testing shall be conducted using the following test methods:
  - (1) EPA Test Method 25, 25C, or 18 shall be used to determine compliance with the 98 weight-percent efficiency or the 20 ppmv outlet concentration level requirement.
    - (a) In cases where the outlet concentration is less than 50 ppm NMOC as carbon (8 ppm NMOC as hexane), EPA Test Method 25A should be used in place of EPA Test Method 25.
    - (b) If using EPA Test Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42).

**Commented [TD5]:** What about the exemptions such as survey stakes and signs?

**Commented [WA(6)]:** Proposed revision 63.3

[Return to Response #63.3](#)



(2) The following equation shall be used to calculate control efficiency:

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

where,

$\text{NMOC}_{\text{in}}$  = mass of NMOC entering control device

$\text{NMOC}_{\text{out}}$  = mass of NMOC exiting control device

(3) EPA Test Method 3 or 3A shall be used to determine the O<sub>2</sub> content for correcting the NMOC concentration as hexane to 3% O<sub>2</sub>. EPA Test Method 19 shall be used to determine the exhaust stream flowrate.

(4) EPA Test Method 7E shall be used to determine emissions of NO<sub>x</sub> and EPA Test Method 10 shall be used to determine emissions of CO.

(5) If using an enclosed flare, the owner or operator shall record the combustion chamber temperature and landfill gas flow rate during the performance test.

b. The NMOC emission rate for the landfill shall also be calculated at a minimum of every five (5) years ~~in conjunction with permit renewal~~ using the following equation, until the NMOC emission rate is calculated to be less than 17 megagrams (Mg) per year according to section 302.6c of this rule:

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

where,

$M_{\text{NMOC}}$  = mass emission rate of NMOC, megagrams per year

$Q_{\text{LFG}}$  = flow rate of landfill gas, cubic meters per minute

$C_{\text{NMOC}}$  = NMOC concentration, parts per million by volume as hexane

(1) The flow rate of landfill gas,  $Q_{\text{LFG}}$ , 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 10 of EPA Test Method 2E or according to manufacturer recommendations.

(2) The average NMOC concentration,  $C_{\text{NMOC}}$ , 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 EPA Test Methods 25C or 18. If using EPA Test Method 18, 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 owner or operator shall divide the NMOC concentration from EPA Test Method 25C by six to convert from  $C_{\text{NMOC}}$  as carbon to  $C_{\text{NMOC}}$  as hexane.

**302.3 Compliance:** Each owner or operator shall utilize the following methods to determine compliance with the operational requirements of Section 302.1.

a. The following procedures must be used for compliance with the GCCS operational requirements as provided in Section 302.1:

[Return to Response #63.4](#)

**Commented [TD7]:** Once a site is in, leave it up to the site to test and determine when they can get to 17 Mg instead of having the site be required to calculate to be less than 17 Mg. Otherwise, this is a lot of testing, calculations, and money to just demonstrate that a site is still required to operate.

**Commented [BD8]:** "with permit renewal" isn't consistent with current practice and would re-set the 5 yr. 5 yr used above in 302.2

**Commented [WA(9)]:** Proposed revision 63.4

**Commented [TD10]:** Do you want this at the time of testing?

**Commented [WA(11)]:** Proposed revision 63.5

[Return to Response #63.5](#)



- (1) Actual flow data may be used instead of, or in conjunction with, the equations in 40 CFR 60.36f(a)(1) to project the ~~maximum~~ expected gas generation flow rate.
  - (2) For the purposes of determining sufficient density of gas collectors, the owner or operator shall maintain a system of vertical wells, horizontal collectors, or other collection devices consistent with the approved GCCS design plan, capable of controlling and extracting gas from all portions of the landfill sufficient to meet all operational and performance standards.
  - (3) The provisions of this rule apply at all times that the GCCS is in operation. The gas mover system must be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere must be closed within 1 hour of the collection or control system not operating.
- b. The following procedures must be used for compliance with the surface methane operational requirements as provided in Section 302.1 and frequencies as provided in Section 302.4c:
- (1) After startup of the GCCS, the owner or operator must monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at no more than 30-meter intervals (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 b(6) of this section, or through the use of alternative technologies if approved by the Control Officer.
  - (2) The background concentration must 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 must be performed in accordance with EPA Test Method 21, except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions.
  - (4) Any reading of 500 parts per million or more above background at any location must be recorded as a monitored exceedance and the below actions must be taken. As long as the specified actions are taken, the exceedance is not a violation of the operational requirements of Section 302.1:
    - (a) The location of each monitored exceedance must be marked and the location and concentration recorded. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.
    - (b) Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of each exceedance must be

**Commented [BD12]:** on the decline side of the curver determining the maxium isnt practical use expected as in 302.1.a(1)

**Commented [WA(13):** Proposed revision 63.6

[Return to Response #63.6](#)



made and the location must be re-monitored within 10 calendar days of detecting the exceedance.

- (c) If the re-monitoring of the location shows a second exceedance, additional corrective action must be taken and the location must 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 (b)(4)(e) of this section must be taken, and no further monitoring of that location is required until the action specified in paragraph (b)(4)(e) of this section has been taken.
- (d) Any location that initially showed an exceedance but has a methane concentration less than 500 parts per million methane above background at the 10-day re-monitoring specified in paragraph (b)(4)(b) or (c) of this section must be re-monitored 1 month from the initial exceedance. If the 1-month re-monitoring 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 re-monitoring shows an exceedance, the actions specified in paragraph (b)(4)(c) or (e) of this section must be taken.
- (e) 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 must 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 Control Officer for approval.
- (5) The owner or operator must implement a program to monitor for cover integrity and implement cover repairs as necessary on a quarterly basis. If there are no cover issues identified for three consecutive quarterly monitoring periods, then the owner or operator may skip to annual monitoring. Any closed landfill that has skipped to annual monitoring and has had no cover issues identified for three consecutive years may stop monitoring for cover integrity, except for immediately after extreme weather events such as receiving 1<sup>1</sup>/<sub>4</sub> inch or more of rain over any 24 hour period as measured from the nearest Flood Control District of Maricopa County rain gauge.
- (6) Each owner or operator seeking to comply with the provisions in this section must comply with the following instrumentation specifications and procedures for surface emission monitoring devices:
- (a) The portable analyzer must meet the instrument specifications provided in section 6 of EPA Test Method 21, except that “methane” replaces all references to “VOC”.
- (b) The calibration gas must be methane, diluted to a nominal concentration of 500 parts per million in air.

**Commented [TD14]:** So how long after a rain event would a landfill have to do this additional testing – also note, that repairs cannot be made until the landfill has dried out.

How often does Maricopa County get an inch of rain?

**Commented [WA(15):** Proposed revision 63.7

[Return to Response #63.7](#)



(c) To meet the performance evaluation requirements in section 8.1 of EPA Test Method 21, the instrument evaluation procedures of section 8.1 of EPA Test Method 21 must be used.

(d) The calibration procedures provided in sections 8 and 10 of EPA Test Method 21 must be followed immediately before commencing a surface monitoring survey.

**302.4 Monitoring of Operations:** Each owner or operator shall monitor landfill operations by complying with the following requirements, as applicable:

- a. If using an enclosed combustor, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including the following equipment:
- (1) A temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degrees Celsius, whichever is greater. A temperature monitoring device is not required for boilers or process heaters with design heat input capacity equal to or greater than 44 megawatts.
  - (2) A device that records flow to, or bypass of, the control device. The owner or operator shall either:
    - (a) 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
    - (b) If equipped, 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.
- b. If using a non-enclosed flare, it shall be installed, calibrated, maintained, and operated according to the manufacturer's specifications, including 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 the flare and bypass of the flare (if applicable). The owner or operator must:
    - (a) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the control device at least every 15 minutes; and
    - (b) 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 must 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 demonstrate compliance with the 500 parts per million surface methane operational standard in Section 302.1 must monitor surface concentrations of methane according to the compliance procedures and instrument specifications provided in Section 302.3. In addition:
  - (1) Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring.
  - (2) Any methane reading of 500 parts per million or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.
  - (3) Any closed landfill that has skipped to annual monitoring and has had no monitored exceedances of the operational standard in three consecutive years may stop monitoring surface methane emissions.

**302.5 Recordkeeping:** Each owner or operator shall maintain the following records and make them available upon request. Records shall be retained for 5 years:

- a. A GCCS design plan that meets the design requirements in §60.33f(b) and (c).
  - (1) The GCCS design plan must include any alternatives to the operational standards, test methods, procedures, compliance measures, monitoring, recordkeeping, or reporting provisions of Section 302 proposed by the owner or operator.
  - (2) The GCCS design plan must either conform to specifications for active collection systems in §60.40f or include a demonstration to the Control Officer's satisfaction of the sufficiency of the alternative provisions to §60.40f.
  - (3) The GCCS design plan must include an addendum that outlines the operation and maintenance (O&M) procedures for the control device(s). O&M maintenance records shall, at a minimum, contain the following information: equipment identification; date of activity; identification of the individual performing the maintenance check; procedures to be performed including frequency of occurrence; results of inspection; and corrective action taken. An explanation shall be recorded for any scheduled maintenance that is not performed during the period designated in the design plan addendum.
- b. Records of subsequent tests or monitoring shall be maintained for a minimum of 5 years.
- c. Records of the control device vendor specifications shall be maintained until removal of that control device.

**Commented [TD16]:** I think you want a Design Plan for greater than 5 years.

**Commented [WA(17):** Proposed revision 63.8 [Return to Response #63.8](#)

**Commented [TD18]:** Currently, Legacy Controlled landfills under Cf/OOO don't have to modify the previous Design Plan – what is the intent here?

**Commented [WA(19):** Proposed revision 63.9 [Return to Response #63.9](#)

**Commented [TD20]:** What about passive systems?

**Commented [WA(21):** Proposed revision 63.10

[Return to Response #63.10](#)

**Commented [TD22]:** This is overkill and should be removed. A landfill is not static like a factory. Instead, the requirement should be to maintain per manufacture specifications

**Commented [WA(23):** Proposed revision 63.11

[Return to Response #63.11](#)



- d. A record of the enclosed flare temperature recorded every 15 minutes or less by a continuous temperature recorder.
- e. Records of any cover integrity monitoring and repair, as described in Section 302.3b(5).
- f. Records of any instance of wellhead positive pressure or insufficient pressure.
- g. Records of any times when the collection system or control device is not operating, including during intermittent use of the GCCS.
- h. The calculation methodology used to estimate current emissions.
- i. A schedule for the replacement of the carbon canisters and any filter replacement for the leachate/condensate collection system, if applicable.
- j. Records of the location of each exceedance of the 500 parts per million methane concentration as provided in Section 302.3 and the concentration recorded at each location for which an exceedance was recorded in the previous month. For location, you must determine the latitude and longitude coordinates using an instrument with an accuracy of at least 4 meters. The coordinates must be in decimal degrees with at least five decimal places.
- k. Records of all collection and control system malfunctions and the corrective actions taken.
- l. Records of any wells that have been decommissioned.
- m. Records of any supplemental fuel used in the operation of the GCCS.
- n. An up-to-date plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector.
- o. Records of the installation date and location of all newly installed collectors as specified under 40 CFR 60.36f(b).

**302.6 Discontinuation of the GCCS:** An owner or operator subject to this rule may submit a request to the Control Officer to cap, remove or decommission their GCCS if all of the following requirements are met:

- a. The landfill is a closed landfill, as defined in 40 CFR 60.41f;
- b. A closure report is submitted to the Control Officer as provided in 40 CFR 60.38f(f); and
- c. Following the procedures specified in 40 CFR 60.35f(b), the owner or operator demonstrates that the calculated NMOC emission rate at the landfill is less than 17 megagrams (Mg) per year on three successive test dates. The test dates must be no less than 90 days apart, and no more than 180 days apart and must be submitted to the Control Officer within 60 days after the date of calculating the NMOC emission rate.

**Commented [TD24]:** Where did this come from? Looks like from expired regulations.

**Commented [WA(25)]:** Proposed revision 63.12

[Return to Response #63.12](#)



AQ-2017-002-Rule 321  
Draft Rule

Maricopa County Air Quality Dept.  
Planning & Analysis Division  
301 W. Jefferson St. Ste. 410  
Phoenix, AZ 85003

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**SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~**; For the purpose of this rule, sources subject to Section 301 shall comply with the administrative requirements in 40 CFR 60.38f and 40 CFR 60.39f. Sources subject to Section 302 shall comply with the administrative requirements in Section 302 of this rule.

**SECTION 500 – MONITORING AND RECORDS ~~(NOT APPLICABLE)~~**; For the purpose of this rule, sources subject to Section 301 shall comply with the monitoring and recordkeeping requirements in 40 CFR 60.37f and 40 CFR 60.39f. Sources subject to Section 302 shall comply with the monitoring and recordkeeping requirements in Section 302 of this rule.