SWCAA
Southwest Clean Air Agency

11815 NE 99th Street, Suite 1294
Vancouver, WA 98682
(360) 574-3058
www.swcleanair.org

October 10, 2018

Ron Williams
Cowlitz County Department of Public Works
1600 South Thirteenth Ave.
Kelso, WA 98626

Re: Issuance of FINAL Title V Air Operating Permit SW14-20-R0

Dear Mr. Williams:

The comment period for your draft Air Operating Permit (SW14-20-R0) ended on July 25, 2018. The proposed permit, dated July 26, 2018, was submitted to Region 10 of the Environmental Protection Agency for the mandatory 45 day review period. The EPA's 45-day review period has passed without comment from EPA; therefore, the Southwest Clean Air Agency is issuing the final Air Operating Permit as proposed.

Copies of the Final Air Operating Permit and the Title V Basis Statement accompany this letter. In addition, copies of these documents will be available on SWCAA's website at http://www.swcleanair.org/permits/title5final.asp. If you have any questions or comments, please contact me at (360) 574-3058 ext. 131.

If you have any questions or comments, please contact me at (360) 574-3058 extension 131.

Sincerely,

Clint Lamoreaux
Air Quality Engineer

enclosures

Cowlitz County Headquarters Landfill

Air Operating Permit

SW14-20-R0

Issued: October 10, 2018

Southwest Clean Air Agency
11815 NE 99th Street, Suite 1294
Vancouver, WA 98682-2322
Telephone: (360) 574-3058

AIR OPERATING PERMIT #: SW14-20-R0

ISSUED TO: Cowlitz County Department of Public Works 1600 South Thirteenth Ave. Kelso, WA 98626	PLANT SITE: Cowlitz County Headquarters Landfill 3434 South Silver Lake Road Castle Rock, WA 98611
NATURE OF BUSINESS:	Municipal and industrial solid waste landfill
SIC / NAICS:	4953 / 562212
AIRS NUMBER:	53-015-00046
EFFECTIVE DATE:	October 10, 2018
EXPIRATION DATE:	October 10, 2023
RENEWAL APPLICATION DUE:	April 10, 2023

PERMIT ENGINEER: Clint H. Lamoreaux, Air Quality Engineer — Date: 10/10/2018

REVIEWED BY: Paul T. Mairose, Chief Engineer — Date: 10/10/18

APPROVED BY: Uri Papish, Executive Director — Date: 10/10/18

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I. ABBREVIATIONS

List of Common Abbreviations

Administrator	EPA Region X Administrator
AOP	Air Operating Permit
ASIL	Acceptable Source Impact Level listed in WAC 173-460 as in effect 2/14/1994
BACT	Best Available Control Technology
CAS #	Chemical Abstracts Service registry number
CO	Carbon monoxide
CO_2e	Carbon dioxide equivalent
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
EU	Emission unit
EU-#	Refers to a specific emission unit numbered "#"
FCAA	Federal Clean Air Act
G#	Refers to a specific general term and condition numbered "#"
gr/dscf	Grains per dry standard cubic foot
HAP	Hazardous air pollutant
IEU	Insignificant emission unit
IEU#	Insignificant emission unit numbered "#"
lb/hr	Pounds per hour
lb/MMBtu	Pounds per million British thermal units
M#	Refers to a specific monitoring/recordkeeping requirement numbered "#"
NO_X	Oxides of nitrogen
NSPS	New Source Performance Standards (40 CFR 60)
NSR	New source review
O_2	Oxygen
P#	Permit provision numbered "#"
PM	Particulate matter
ppmvd	Parts per million by volume, dry
PTE	Potential to emit
R#	Refers to a specific reporting requirement numbered "#"
RCW	Revised Code of Washington
Region 10	Region 10 of the U.S. Environmental Protection Agency
Req-#	Applicable requirement numbered "#"
SIP	State implementation plan
SO_2	Sulfur dioxide
SQER	Small Quantity Emission Rate identified in WAC 173-460
SWCAA	Southwest Clean Air Agency
TAP	Toxic air pollutant
tpy	Tons per year
VOC	Volatile organic compound
WAC	Washington Administrative Code

Terms not otherwise defined in this permit have the meaning assigned to them in the referenced regulations.

II. REGULATORY BASIS

This Air Operating Permit (AOP) is authorized under the procedures established in WAC 173-401 and Title V of the 1990 Federal Clean Air Act Amendments. As used in this permit, "term", "condition", standard", and "requirement" have the same meaning as "applicable requirement" specified under 40 CFR 70.2 and WAC 173-401-200.

The Permit is intended to contain a comprehensive list of the local, state, and federal air pollution regulations, standards, and other requirements applicable to the Permittee's facility and to assure compliance with those requirements. Sections V through VIII describe the applicable requirements and contain citations for the originating local, state, or federal regulations or requirements. Each citation in the tables includes one or two effective dates of the cited regulation. Where there are two dates for the same regulatory citation, the underlying requirement is substantially the same, but the date of the regulation used for enforcement purposes would be different (e.g. federally enforceable versus SWCAA enforceable).

SWCAA is the primary enforcement authority and can enforce all requirements listed in the Permit. However, EPA and private citizens may also take certain enforcement actions under the Permit for those requirements that are federally enforceable. Any requirement that is not federally enforceable is identified as "State Only" or "Local Only". Federal regulations, regulations that are approved elements of Washington's State Implementation Plan (SIP), and terms of Air Discharge Permits related to criteria air pollutants are federally enforceable requirements. State or local rules and regulations that are not approved in the Washington SIP are not federally enforceable. Requirements in Air Discharge Permits unrelated to emissions of criteria air pollutants are not federally enforceable.

The following tables list the applicable regulations and the effective dates of the regulations applicable to the facility. State or local rules without a date listed under the "SIP Regulation Version" are not federally enforceable.

Federal Regulations	Regulation Version	Local Delegation Date
40 CFR 51	7/1/2017	—
40 CFR 52	7/1/2017	—
40 CFR 60 Subpart WWW	7/1/2017	On May 24, 2010 EPA delegated the version of the rules in effect January 1, 2009
40 CFR 60 Subpart IIII	7/1/2017	
40 CFR 61 Subpart M	7/1/2017	
40 CFR 63 Subpart AAAA	7/1/2017	
40 CFR 68	7/1/2017	—

State Regulations	SIP Regulation Version	State Regulation Version
WAC 173-400-720	7/1/2016 Except: 173-400-720(4)(a)(i through iv) and 173-400-720(4)(b)(iii)(C)	7/1/2016
WAC 173-401	—	3/5/2016
WAC 173-441	—	10/16/2016
WAC 173-460[1]	—	2/14/1994

[1] Note that a newer version of WAC 173-460 has been published, however it has not been adopted by SWCAA. The version adopted by SWCAA was effective 2/14/1994.

Local Regulations	SIP Regulation Version	Local Regulation Version
SWCAA 400-036	10/9/2016	6/18/2017
SWCAA 400-040(1)	10/9/2016 except (1)(a), (c) and (d)	6/18/2017
SWCAA 400-040(2)	—	6/18/2017
SWCAA 400-040(3)	10/9/2016	6/18/2017
SWCAA 400-040(4)	—	6/18/2017
SWCAA 400-040(5)	10/9/2016	6/18/2017
SWCAA 400-040(6)	10/9/2016	6/18/2017
SWCAA 400-040(7)	10/9/2016	6/18/2017
SWCAA 400-040(8)(a)	10/9/2016	6/18/2017
SWCAA 400-060	10/9/2016	6/18/2017
SWCAA 400-075	—	6/18/2017
SWCAA 400-100	—	6/18/2017
SWCAA 400-105	10/9/2016 except reporting requirements related to toxic air pollutants	6/18/2017
SWCAA 400-106	10/9/2016 except (1)(d) through (g); and 400-106(2)	6/18/2017
SWCAA 400-107	9/21/1995	6/18/2017
SWCAA 400-109	10/9/2016 except toxic air pollutant emission thresholds contained in 109(3) and 109(4)	6/18/2017
SWCAA 400-110	10/9/2016 except 110(1)(d)	6/18/2017
SWCAA 400-111	10/9/2016 except 111(7)	6/18/2017
SWCAA 400-112	10/9/2016 except 112(6)	6/18/2017
SWCAA 400-114	10/9/2016	6/18/2017
SWCAA 400-115	—	6/18/2017
SWCAA 400-116	11/9/2003	6/18/2017
SWCAA 400-120	—	6/18/2017
SWCAA 400-130	10/9/2016	6/18/2017
SWCAA 400-270	—	6/18/2017
SWCAA 425	—	8/1/2002
SWCAA 476	—	3/18/2001

Regulatory Orders / Permits	Date Issued
15-3157R1	1/23/2018

III. EMISSION UNIT IDENTIFICATION

The following table contains emission unit identifications. Descriptions of each emission unit are contained in the Basis Statement for this Air Operating Permit.

EU #	Generating Equipment/Activity	Emission Control
EU-1	Landfill (active and closed areas) – 30 MMBtu/hr enclosed flare (Flare #1)	H_2S Scrubber (as necessary), enclosed flare
EU-2	Landfill (active and closed areas) – 30 MMBtu/hr enclosed flare (Flare #2)	H_2S Scrubber (as necessary), enclosed flare
EU-3	Emergency Generator Engine (303 bhp Cummins / QSB7-G5-NR3)	Ultra low sulfur diesel (≤ 0.0015% S) Limited operation - (≤ 100 hr/yr + emergency usage) EPA Tier 3 design
EU-4	Leachate Ponds	Aerators or air diffusers as necessary

IV. PERMIT PROVISIONS

P1. Credible Evidence

40 CFR 51.212
40 CFR 52.12
40 CFR 52.33
40 CFR 60.11

For the purposes of submitting compliance certifications or establishing whether a violation of any term or condition of this permit has occurred or is occurring, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether the Permittee would have been in compliance with a specific term or condition if the appropriate performance or compliance test or procedure would have been performed.

P2. Confidentiality of Records and Information

WAC 173-401-500(5)
WAC 173-401-620(2)(e)
SWCAA 400-270

The permittee is responsible for clearly identifying information that is considered proprietary and confidential prior to submittal to SWCAA. Requests for proprietary and confidential information shall be released only after legal opinion by SWCAA's legal counsel, and notice to the permittee of the intent to release or deny the release of information. [SWCAA 400-270]

In the case where the permittee has submitted information to SWCAA under a claim of confidentiality, SWCAA may also require the source to submit a copy of such information directly to the Administrator. [WAC 173-401-500(5)]

Upon request, the permittee must also furnish to the permitting authority copies of records required to be kept by the permittee or, for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality. Permitting authorities must maintain confidentiality of such information in accordance with RCW 70.94.205. [WAC 173-401-620(2)(e)]

P3. Permit Duration WAC 173-401-610

This permit shall be valid for a fixed term of 5 years from the date of issuance.

P4. Standard Provisions WAC 173-401-620(2)

(a) *Duty to comply.* The permittee must comply with all conditions of this AOP. Any permit noncompliance constitutes a violation of Revised Code of Washington (RCW) Chapter 70.94 and, for federally enforceable provisions, a violation of the FCAA. Such violations are grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

(b) *Need to halt or reduce activity not a defense.* It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(c) *Permit actions.* This permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

(d) *Property rights.* This permit does not convey any property rights of any sort, or any exclusive privilege.

(e) *Duty to provide information.* The permittee must furnish to the permitting authority, within a reasonable time, any information that the permitting authority may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the permittee must also furnish to the permitting authority copies of records required to be kept by the permittee or, for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality. Permitting authorities must maintain confidentiality of such information in accordance with RCW 70.94.205.

(f) *Permit fees.* The permittee must pay fees in accordance with RCW 70.94.162 as a condition of this permit in accordance with the permitting authority's fee schedule. Failure to pay fees in a timely fashion willl subject the permittee to civil and criminal penalties as prescribed in RCW 70.94.430 and 70.94.431.

(g) *Emissions trading.* No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.

(h) *Severability.* If any provision of this permit is held to be invalid, all unaffected provisions of the permit shall remain in effect and be enforceable.

(i) *Permit appeals.* This permit or any conditions in it may be appealed only by filing an appeal with the Pollution Control Hearings Board and serving it on the permitting authority within thirty days of receipt of the permit pursuant to RCW 43.21B.310. This provision for appeal

in this section is separate from and additional to any federal rights to petition and review under § 505(b) of the FCAA.

(j) *Permit continuation.* This permit and all terms and conditions contained herein shall not expire until the renewal permit has been issued or denied if a timely and complete application has been submitted. An application shield granted pursuant to WAC 173-401-705(2) shall remain in effect until the renewal permit has been issued or denied if a timely and complete application has been submitted.

P5. Insignificant Emission Unit - Permit Revision WAC 173-401-530(6)

Any emission unit or activity that qualifies as insignificant solely on the basis of provisions in WAC 173-401-530(1)(a) shall not exceed the emissions thresholds specified in WAC 173-401-530(4) until this permit is modified pursuant to WAC 173-401-725.

P6. Federally Enforceable Requirements WAC 173-401-625

(a) All terms and conditions in an air operating permit, including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the FCAA, except as indicated in paragraph (b) below.

(b) Notwithstanding subsection (a), any terms and conditions included in this permit that are not required under the FCAA or under any of its applicable requirements are specifically designated as "state" or "local" only, and are not federally enforceable under the FCAA. Terms and conditions so designated are not subject to the requirements of WAC 173-401-810.

P7. Permit Shield WAC 173-401-640

Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements that are specifically identified in this permit as of the date of permit issuance. Nothing in this permit shall alter or affect the following:

(a) The provisions of section 303 of the FCAA (emergency orders), including the authority of the Administrator under that section;

(b) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

(c) The applicable requirements of the acid rain program, consistent with section 408(a) of the FCAA;

(d) The ability of EPA to obtain information from a source pursuant to section 114 of the FCAA; and

(e) The ability of the permitting authority to establish or revise requirements for the use of reasonably available control technology (RACT) as defined in RCW 70.94.

P8. Permit Expiration – Application Shield WAC 173-401-705(2)
WAC 173-401-710(3)

Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted consistent with WAC 173-401-710(1) and WAC 173-401-500. All terms and conditions of the permit shall remain in effect after the permit expires if a timely and complete permit application has been submitted. Operation under the terms and conditions of the expired permit will be allowed until SWCAA takes final action on the renewal application.

P9. Permit Revocation WAC 173-401-710(4)

The permitting authority may revoke a permit only upon the request of the permittee or for cause. The permitting authority shall provide at least thirty days written notice to the Permittee prior to revocation of the permit or denial of a permit renewal application. Such notice shall include an explanation of the basis for the proposed action and afford the permittee/applicant an opportunity to meet with the permitting authority prior to the authority's final decision. A revocation issued under this section may be issued conditionally with a future effective date and may specify that the revocation will not take effect if the permittee satisfies the specified conditions before the effective date.

P10. Reopenings for Cause WAC 173-401-730

This permit shall be reopened and revised under any of the following circumstances:

(a) Additional applicable requirements become applicable to a major air operating permit source with a remaining permit term of 3 or more years. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions have been extended pursuant to WAC 173-401-620(2)(j);

(b) Additional requirements (including excess emissions requirements) become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit;

(c) The permitting authority or Administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit; or

(d) The Administrator or the permitting authority determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

Proceedings to reopen and issue this permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Reopenings under this section shall not be initiated before a notice of such intent is provided to the air operating permit source by the permitting authority. Such notice shall be made at least 30 days in advance of the date that the permit is to be reopened, except that the permitting authority may provide a shorter time period in the case of an emergency.

P11. Unavoidable Excess Emissions SWCAA 400-107

The provisions of SWCAA 400-107 do not apply to federal standards, emission limits or standards contained in a PSD permit issued solely by EPA, or to any event that causes a monitored exceedance of any relevant ambient air quality standard.

Excess emissions which the owner or operator wishes to be considered as unavoidable, shall be reported to the Agency as soon as possible, but no later than 48 hours after discovery. The owner or operator of a "source" shall have the burden of proving to the Agency or decision-making authority in an enforcement action that excess emissions were unavoidable.

(a) **Startup or shutdown.** Excess emissions due to startup or shutdown conditions shall be considered unavoidable provided the "source" reports as required under section (1) of SWCAA 400-107 and adequately demonstrates that:
   (i) Excess emissions could not have been prevented through careful planning and design;
   (ii) Startup or shutdown was done as expeditiously as practicable;
   (iii) All emission monitoring systems were kept in operation unless their shutdown was necessary to prevent loss of life, personal injury, or severe property damage;
   (iv) The emissions were minimized consistent with safety and good air pollution control practice during the startup or shutdown period;
   (v) If a bypass of control equipment occurs, that such bypass was necessary to prevent loss of life, personal injury, or severe property damage; and
   (vi) Excess emissions that occur due to upsets or malfunctions during routine startup or shutdown are treated as upsets or malfunctions under section (c) below.

(b) **Maintenance.** Excess emissions due to scheduled maintenance shall be considered unavoidable if the "source" reports as required under section (1) of SWCAA 400-107 and adequately demonstrates that the excess emissions could not have been avoided through reasonable design, better scheduling for maintenance or through better operation and maintenance practices.

(c) **Upsets or malfunctions.** Excess emissions due to upsets or equipment malfunctions shall be considered unavoidable provided the "source" reports as required under section (1) of SWCAA 400-107 and adequately demonstrates that:
   (i) The event was not caused by poor or inadequate design, operation, maintenance, or any other reasonably preventable condition;
   (ii) The event was not of a recurring pattern indicative of inadequate design, operation, or maintenance;
   (iii) The operator took immediate and appropriate corrective action in a manner consistent with safety and good air pollution control practice for minimizing emissions during the event, taking into account the total emissions impact of the corrective action, including slowing or shutting down the emission unit as necessary to minimize emissions, when the operator knew or should have known that an emission standard or permit condition was being exceeded;
   (iv) All emission monitoring systems and pollution control systems were kept operating to the extent possible unless their shutdown was necessary to prevent loss of life, personal injury, or severe property damage; and
   (v) The amount and duration of the excess emissions (including any bypass) were minimized to the maximum extent possible.

V. GENERAL TERMS AND CONDITIONS

G1. Asbestos 40 CFR 61 Subpart M
SWCAA 400-075
SWCAA 476

The permittee must comply with the provisions of SWCAA 476 "Standards for Asbestos Control, Demolition and Renovation" when conducting any renovation, demolition, or asbestos storage activities at the facility.

G2. Chemical Accident Prevention 40 CFR 68

The permittee must comply with the requirements of the Chemical Accident Prevention Provisions of 40 CFR 68 no later than the following dates:

(a) Three years after the date on which a regulated substance, present above the threshold quantity, is first listed under 40 CFR 68.130; or

(b) The date on which a regulated substance is first present above a threshold quantity in a process. [40 CFR 68.10]

G3. Protection of Stratospheric Ozone 40 CFR 82, Subparts B and F

The permittee must comply with the standards for recycling and emissions reduction as provided in 40 CFR Part 82, Subparts B and F.

G4. Duty to Supplement or Correct Application WAC 173-401-500(6)

The permittee, upon becoming aware that relevant facts were omitted or incorrect information was submitted in a permit application, must promptly submit such supplementary facts or corrected information. In addition, an applicant must provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a draft permit.

G5. Certification WAC 173-401-520

All application forms, reports, and compliance certifications must be certified by a responsible official. Certification must state that, based on information and belief formed after reasonable inquiry, the statements and information contained in the submittal are true, accurate, and complete.

G6. Inspection and Entry WAC 173-401-630(2)
SWCAA 400-105(2 & 3)

The permittee must allow inspection and entry, upon presentation of credentials and other documents as may be required by law, by the permitting authority or an authorized representative to perform the following:

(a) Enter upon the permittee's premises where an air operating permit source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

(d) As authorized by SWCAA 400-105 and the FCAA, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

G7. Emission Testing and Monitoring SWCAA 400-106

(a) SWCAA may conduct or require that emission testing be conducted of any "source" or emission unit within the jurisdiction of SWCAA to determine compliance, evaluate control equipment performance, evaluate RACT or quantify emissions.

(b) The operator of a "source" must provide the necessary platform and sampling ports for SWCAA personnel or others to perform a test of an emission unit. SWCAA must be allowed to obtain a sample from any emission unit. The operator of the "source" must be given an opportunity to observe the sampling and to obtain a sample at the same time.

G8. Schedule of Compliance WAC 173-401-630(3)

The permittee must continue to comply with all applicable requirements with which the source is currently in compliance, and meet on a timely basis any applicable requirements that become effective during the permit term.

G9. Permit Renewal Application WAC 173-401-710(1)

The permittee must submit a complete permit renewal application to SWCAA no later than the date established in the permit. This permit expires on October 10, 2023. A renewal application is due on [October 10, 2022 and a complete renewal application is due no later than [April 10, 2023].

G10. Transfer of Ownership or Operational Control WAC 173-401-720(1)(d)

A change in permittee due to transfer of ownership or operational control of an affected source requires a request for administrative permit amendment as governed by WAC 173-401-720.

G11. Portable Sources SWCAA 400-110(6)
SWCAA 400-036

Portable sources which locate temporarily at the site of an air operating permit source shall be allowed to operate at the temporary location without filing an Air Discharge Permit application provided that:

(a) The source/emissions units are registered with SWCAA;

(b) The source/emissions units have an Air Discharge Permit to operate as a portable source;

(c) The owner(s) or operator(s) notifies SWCAA of the intent to operate at the new location at least ten business days prior to starting the operation;

(d) The owner(s) or operator(s) supplies sufficient information including production quantities and hours of operation, to enable SWCAA to determine that the operation will comply with the emission standards for a new source, and will not cause a violation of applicable ambient air quality standards and, if in a nonattainment area, will not interfere with scheduled attainment of ambient standards; and

(e) Portable sources that do not have a valid air discharge permit issued by SWCAA, but do have a valid approval issued by a Washington air pollution control authority after July 1, 2010, may operate within SWCAA jurisdiction without filing an air discharge permit application pursuant to SWCAA 400-109 or obtaining an air discharge permit pursuant to SWCAA 400-110 provided the requirements of SWCAA 400-036 are met.

G12. Misrepresentation and Tampering SWCAA 400-105(5 & 6)

(a) The permittee must not make any false material statement, representation or certification in any form, notice, or report.

(b) The permittee must not render inaccurate any monitoring device or method required under Chapter 70.94 RCW, or any ordinance, resolution, regulation, permit, or order in force pursuant thereto.

G13. New Source Review

WAC 173-400-720
WAC 173-460-040 [Local Only]
SWCAA 400-109
SWCAA 400-110

The permittee must not construct or modify a source that requires an air discharge permit application under SWCAA 400-109 or review under SWCAA 400-110, WAC 173-400-720 or WAC 173-460 (effective 2/14/1994) without first receiving an approval or permit pursuant to those provisions. Portable sources may be exempt from this requirement if they fulfill the criteria described in **G10 – Portable Sources**. This requirement is not applicable to emission units that comply with the provisions of SWCAA 400-072.

G14. Replacement or Substantial Alteration of Emission Control Technology at an Existing Stationary Source

SWCAA 400-114

Prior to replacing or substantially altering emission control technology installed at an existing stationary source or emission unit, the permittee must file an air discharge permit application with SWCAA. Construction must not commence on a project subject to review until SWCAA issues a final air discharge permit or other regulatory order. However, any air discharge permit

application filed under this section shall be deemed to be approved without conditions if the Agency takes no action within thirty days of receipt of a complete application.

G15. Outdoor Burning SWCAA 425 – [Local Only]

The permittee is prohibited from conducting outdoor burning except as allowed by SWCAA 425.

G16. Reporting of Emissions of Greenhouse Gases WAC 173-441 – [State Only]

WAC 173-441 requires owners and operators of affected facilities to quantify and report emissions of greenhouse gases from applicable source categories listed in WAC 173-441-120. This regulation applies to any facility located in Washington State with total greenhouse gas emissions of ten thousand metric tons CO_2e or more per calendar year. The permittee must prepare and submit greenhouse gas reports to Ecology in accordance with the provisions of WAC 173-441-050 for each affected facility.

G17. Process Equipment SWCAA 400-116(1)

Any process equipment, including features, machines, and devices constituting parts of or called for by plans, specifications, or other information submitted for approval or required as part of an approval must be maintained and operate in good working order. SWCAA reserves the right to take any and all appropriate action to maintain compliance with approval conditions, including directing the facility to cease operations of defective or malfunctioning equipment until corrective action can be completed.

G18. Pollution Control Equipment SWCAA 400-116(2)

Any equipment that serves as air contaminant control or capture equipment must be maintained and operate in good working order at all times in accordance with good operations and maintenance practices and in accordance with SWCAA approval conditions. The Agency reserves the right to take any and all appropriate action to maintain compliance with approval conditions, including directing the facility to cease operations of defective or malfunctioning equipment until corrective action can be completed.

VI. OPERATING TERMS AND CONDITIONS

The following table lists all federal, state, and/or locally enforceable operating terms and conditions applicable to the permittee. The legal authority for each requirement is enclosed in brackets below each requirement. Applicable requirements identified as having "facilitywide" applicability apply to both EUs and IEUs. Some rules have been partially adopted into the Washington State Implementation Plan (SIP). Only those parts adopted into the Washington SIP are federally enforceable. Requirements that are not required under the FCAA are denoted as state or local only. Monitoring requirements are used to provide a reasonable assurance of compliance with the applicable requirements, and may or may not involve the use of a reference test method.

Req. #	Requirement	Emission Point	Monitoring
Req-1	Permittee must not cause or permit any emission which exceeds 20% opacity for more than three minutes in any one hour. Reference Method: SWCAA Method 9 [SWCAA 400-040(1)]	Facilitywide	M2
Req-2	Permittee must not cause or permit fallout of particulate matter beyond the source's property boundary in sufficient quantity to interfere unreasonably with the use and enjoyment of the property on which the fallout occurs. [SWCAA 400-040(2) Local Only]	Facilitywide	M2, M3
Req-3	Permittee must take reasonable precautions to prevent the release of fugitive emissions from any emission unit which is a source of fugitive emissions. [SWCAA 400-040(3)]	Facilitywide	M2, M3, M4, M5
Req-4	Permittee must use recognized good practice and procedures to reduce odors to a reasonable minimum. [SWCAA 400-040(4) Local Only]	Facilitywide	M3
Req-5	The permittee must not cause or permit the emission of any air contaminant if it is detrimental to the health, safety, or welfare of any person, or causes damage to property or business. [SWCAA 400-040(5)]	Facilitywide	M3
Req-6	Permittee shall not cause or permit any emission unit to emit a gas containing sulfur dioxide in excess of 1,000 ppm of sulfur dioxide on a dry basis, corrected to 7% O_2 for combustion sources, and based on an average of 60 minutes. Reference Method: 40 CFR 60 Appendix A Method 6C [SWCAA 400-040(6)]	Facilitywide	M6, M7
Req-7	Permittee must not cause or permit the installation or use of any means which conceals or masks an emission which would otherwise violate any provisions of SWCAA 400-040. [40 CFR 60.12 (applicable to EU-1, EU-2, & EU-3), 40 CFR 63.4 (applicable to EU-1 & EU-2), SWCAA 400-040(7)]	Facilitywide	N/A
Req-8	Permittee must take reasonable precautions to prevent emissions of fugitive dust and operate the source to minimize emissions. Reference Method: SWCAA Method 9 [SWCAA 400-040(8)(a)]	Facilitywide	M2, M3

Req. #	Requirement	Emission Point	Monitoring
Req-9	Permittee must not cause or allow emissions of particulate matter from a general process unit (excludes combustion) in excess of 0.1 gr/dscf of exhaust gas. Reference Method: EPA Method 5 [SWCAA 400-060]	Facilitywide	M3
Req-10	Facilitywide emissions from the landfill (including the flares) must not exceed the following: Pollutant — Annual Limit tons per year Volatile Organic Compounds as hexane — 45.60 Fugitive volatile organic compound (VOC) emissions must be calculated assuming a landfill gas capture efficiency of 75% and a 98% destruction efficiency in the flare(s) unless a higher capture or control efficiency has been demonstrated to SWCAA's satisfaction. Fugitive VOC emissions must be determined from the most recent measurement of VOCs in the landfill gas sent to the flare and the assumption that all uncaptured volatile organic compounds are emitted fugitively. VOC concentrations in the landfill gas, and VOC emissions from the flare must be measured in accordance with the methods specified in Appendix A of SWCAA 15-3157R1 (see M7). [SWCAA 15-3157R1 Condition 1]	Facilitywide	M6, M7

Req. #	Requirement	Emission Point	Monitoring
Req-11	Total emissions from each enclosed Landfill Gas Flare must not exceed the following: Pollutant — Short Term Limit (1-hour average) — Annual Limit (tons per year) Nitrogen Oxides — 0.06 lb/MMBtu — 7.65 Carbon Monoxide — 0.10 lb/MMBtu — 12.75 Volatile Organic Compounds[2] — 1.47 lb/hr — 6.44 Sulfur Dioxide — 4.44 lb/hr — 19.44 Hydrogen Chloride — 0.42 lb/hr — 1.84 Emissions of non-methane organic compounds must not exceed 20 ppmvd as hexane @ 3% O_2, 1-hour average or each flare must reduce non-methane organic compounds by 98 weight percent (1-hour average). [40 CFR 60.752(b)(2)(iii)] Emissions of sulfur dioxide must be calculated using a mass balance with the assumption that all sulfur measured at the flare inlet during quarterly sampling or source emissions tests is converted to sulfur dioxide by the flare. Emissions must be measured in accordance with the methods specified in Appendix A of SWCAA 15-3157R1 (see M7). [1] The landfill gas combustion system may consist of one or more of the approved flares in parallel. [2] VOCs must be expressed as hexane. [40 CFR 60.752(b)(2)(iii), SWCAA 400-115, SWCAA 15-3157R1 Condition 2]	EU-1, EU-2	M6, M7

<table>
<tr><th>Req. #</th><th>Requirement</th><th>Emission Point</th><th>Monitoring</th></tr>
<tr><td>Req-12</td><td>With the exception of the toxic air pollutants listed below, emissions of toxic air pollutants listed in WAC 173-460 (as in effect February 14, 1994) must not exceed the applicable small quantity emission rate listed in WAC 173-460.

Emissions from the landfill (flare and fugitive) must not exceed:

<table>
<tr><th>Pollutant</th><th>CAS #</th><th>Annual Limit (tons per year)</th><th>Daily Limit (lbs. per 24 hours)</th></tr>
<tr><td>Ethylene Dibromide</td><td>106-93-4</td><td>0.00065</td><td></td></tr>
<tr><td>Ethylene Dichloride</td><td>107-06-2</td><td>0.011</td><td></td></tr>
<tr><td>1,3-Butadiene</td><td>106-99-0</td><td>0.0065</td><td></td></tr>
<tr><td>Benzene</td><td>71-43-2</td><td>0.14</td><td></td></tr>
<tr><td>Methylene Chloride</td><td>75-09-2</td><td>0.38</td><td></td></tr>
<tr><td>Hydrogen Sulfide</td><td>7783-06-4</td><td>1.40</td><td>7.6</td></tr>
<tr><td>Trichloroethylene</td><td>79-01-6</td><td>0.079</td><td></td></tr>
<tr><td>Vinyl Chloride</td><td>75-01-4</td><td>0.064</td><td></td></tr>
<tr><td>Hydrogen Chloride</td><td>7647-01-0</td><td>3.68</td><td>20.2</td></tr>
</table>

Emissions must be calculated assuming a landfill gas capture efficiency of 75%, a 98% destruction efficiency in the flare for organic compounds, and a 99% destruction efficiency in the flare for hydrogen sulfide, unless a higher capture or control efficiency has been demonstrated to SWCAA's satisfaction. Emissions must be determined from the most recent measurement of each pollutant in the landfill gas sent to the flare and the assumption that all uncaptured pollutant is emitted fugitively.

[SWCAA 15-3157R1 Condition 3 – Local Only]</td><td>EU-1, EU-2</td><td>M6, M7</td></tr>
<tr><td>Req-13</td><td>Visible emissions from the Landfill Gas Flares must not exceed zero percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (See Appendix A of SWCAA 400).

Reference Method: SWCAA Method 9

[SWCAA 15-3157R1 Condition 4]</td><td>EU-1, EU-2</td><td>M2, M7</td></tr>
</table>

Req. #	Requirement	Emission Point	Monitoring
Req-14	Emissions from the Emergency Generator Engine must not exceed the following: Pollutant — Emission Limit Nitrogen Oxides — 0.31 tons per year Carbon Monoxide — 0.01 tons per year Annual emissions must be calculated using the emission factors presented in the Technical Support Document for Air Discharge Permit 15-3157R1 unless more recent source test data has been collected. These emission factors are also available in Section V of the Basis Statement for this Air Operating Permit. Reference Methods: EPA 7E and 10 [SWCAA 15-3157R1 Condition 5]	EU-3	M8
Req-15	Visible emissions from the Emergency Generator Engine must not exceed five percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (See Appendix A of SWCAA 400) except during startup. For the purposes of this requirement, the startup period ends when the earlier of the following operating events occurs: (a) The engine has reached normal operating temperature; or (b) The engine has been operating for 15 minutes. Reference Method: SWCAA Method 9 [SWCAA 15-3157R1 Condition 6]	EU-3	M2, M3
Req-16	Visible emissions from operation of mobile equipment on the landfill or unpaved roads at the landfill must not exceed 10% opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (See Appendix A of SWCAA 400). Visible emissions beyond the landfill boundary must not exceed 0% opacity. Reference Method: SWCAA Method 9 [SWCAA 15-3157R1 Condition 7]	EU-1, EU-2	M2, M3
Req-17	The enclosed flare(s) must be used to burn all collected landfill gas except that a shrouded flare may be utilized as a backup if a malfunction renders the enclosed flare(s) inoperable. In the event of a malfunction, the enclosed flare(s) must be returned to service as soon as practical. [SWCAA 15-3157R1 Condition 8]	EU-1, EU-2	M1, M5

Req. #	Requirement	Emission Point	Monitoring
Req-18	All of the collected landfill gas must be combusted in the flare system. The flare system must be operated at all times when the collected gas is routed to the system. In the event the collection or flare system is inoperable, the gas mover system must be shut down and all valves in the collection and landfill system contributing to venting of the gas to the atmosphere must be closed as soon as possible but no later than 1 hour after the gas collection or control system becomes inoperable. [40 CFR 60.753(e) & (f), SWCAA 15-3157R1 Condition 9]	EU-1, EU-2	M1, M5
Req-19	The landfill gas collection and control system must be operated at all times except as necessary to perform required maintenance or safety checks. To the extent practical, maintenance activities that result in temporary shutdown of control equipment must not be conducted during stagnant wind conditions. [SWCAA 15-3157R1 Condition 10]	EU-1, EU-2	M1, M5
Req-20	The permittee must operate the landfill gas collection and control system to comply with the operation and maintenance requirements of 40 CFR 63.6(e). 40 CFR 63.6(e) includes provisions for operating in accordance with good air pollution control practice and provisions for a startup, shutdown, and malfunction plan. [40 CFR 63.6(e), 40 CFR 63.1955, 40 CFR 63.1960 and Table 1 of Subpart AAAA of 40 CFR 63, SWCAA 400-075, SWCAA 15-3157R1 Condition 11]	EU-1, EU-2	M1
Req-21	With the exception of soils contaminated with diesel range hydrocarbons or less volatile petroleum products (e.g. lube oil), petroleum contaminated soils must not be stored on-site for more than 48 hours prior to placement in the landfill or use as daily cover. [SWCAA 15-3157R1 Condition 12]	EU-1, EU-2	N/A

Req. #	Requirement	Emission Point	Monitoring
Req-22	Unless otherwise approved by SWCAA, the active landfill gas collection system must utilize bottom-liner horizontal collectors and interim horizontal collectors to be installed before and during waste placement respectively. These collectors must be used to draw landfill gas to the flare(s) as soon as the waste depth is sufficient above the collector to prevent air infiltration into the landfill. The criteria found in 40 CFR 60.753(c) must be used to determine if air infiltration is occurring. The horizontal and vertical spacing of these collectors will be determined by the permittee. For each area, cell, or group of cells, in no case shall the landfill gas collection system approved in accordance with 40 CFR 60.752(b)(2)(i) be installed and operated later than: (a) 5 years or more after initial solid waste placement if active; (b) 2 years or more after initial solid waste placement if closed or at final grade. [40 CFR 60.752(b)(2)(ii)(A)(2), 40 CFR 60.753(a), SWCAA 400-115, SWCAA 15-3157R1 Condition 13]	EU-1, EU-2	M5
Req-23	The landfill gas collection system must: (a) Be designed to handle the maximum expected gas flow rate from the entire area of the landfill that warrants control over the intended use period of the gas control system equipment. [40 CFR 60.752(b)(2)(ii)(A)(1)] Compliance must be determined using the procedure identified in 40 CFR 60.755(a)(1). (b) Collect gas at a sufficient extraction rate. [40 CFR 60.752(b)(2)(ii)(A)(3)] (c) Be designed to minimize off-site migration of subsurface gas. [40 CFR 60.752(b)(2)(ii)(A)(4)] (d) Be constructed using the equipment or procedures listed in 40 CFR 60.759(b). [40 CFR 60.759(b)] (e) Convey the landfill gas to a control system in compliance with 40 CFR 60.752(b)(2)(iii) through the collection header pipe(s). The gas mover equipment must be sized to handle the maximum gas generation flow rate expected over the intended use period of the gas moving equipment. For existing collection systems, the flow data shall be used to project the maximum flow rate. If no flow data exists the maximum flow must be determined in accordance with 40 CFR 60.755(a)(1). [40 CFR 60.759(c)] [40 CFR 60.752(b)(2)(ii)(A)(1), 40 CFR 60.752(b)(2)(ii)(A)(3), 40 CFR 60.752(b)(2)(ii)(A)(4), 40 CFR 60.759(b, c), SWCAA 400-115, SWCAA 15-3157R1 Condition 14]	EU-1, EU-2	M4, M5

Req. #	Requirement	Emission Point	Monitoring
Req-24	The permittee must site active collection wells, horizontal collectors, surface collectors, or other extraction devices at a sufficient density throughout all gas producing areas using the procedures in 40 CFR 60.759(a) unless alternative procedures have been approved by the Administrator as provided in 40 CFR 60.752(b)(2)(i)(C) and (D). [40 CFR 60.759(a)] [40 CFR 60.759(a), SWCAA 400-115]	EU-1, EU-2	M4, M5
Req-25	For purposes of compliance with 40 CFR 60.753(a), the permittee must place each well or design component as specified in the approved design plan as provided in 40 CFR 60.752(b)(2)(i). Each well must be installed no later than 60 days after the date on which the initial solid waste has been in place for a period of: (a) 5 years or more if active; or; (b) 2 years or more if closed or at final grade. [40 CFR 60.755(b), SWCAA 400-115, SWCAA 15-3157R1 Condition 15]	EU-1, EU-2	M5, R5(m)
Req-26	The permittee must implement a program to monitor for final cover integrity and implement cover repairs as necessary on a monthly basis. [40 CFR 60.755(c)(5), SWCAA 400-115, SWCAA 15-3157R1 Condition 16]	EU-1, EU-2	M4, M9
Req-27	The permittee must operate each interior wellhead in the collection system with a landfill gas temperature less than 55°C and with either a nitrogen level less than 20 percent or an oxygen level less than 5 percent. The permittee may establish a higher operating temperature, nitrogen, or oxygen value at a particular well. A higher operating value demonstration must show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens. Nitrogen and/or oxygen concentrations must be determined as identified in 40 CFR 60.753(c). [40 CFR 60.753(c), SWCAA 400-115, SWCAA 15-3157R1 Condition 17]	EU-1, EU-2	M5

Req. #	Requirement	Emission Point	Monitoring
Req-28	The permittee must operate the collection system so that the methane concentration is less than 500 parts per million above background at the surface of the landfill. To determine if this level is exceeded, the permittee must conduct surface testing around the perimeter of the collection area and along a pattern that traverses the landfill at 30 meter intervals and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. The owner or operator may establish an alternative traversing pattern that ensures equivalent coverage. A surface monitoring design plan must be developed that includes a topographical map with the monitoring route and the rationale for any site-specific deviations from the 30 meter intervals. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. [40 CFR 60.753(d), SWCAA 400-115, SWCAA 15-3157R1 Condition 18]	EU-1, EU-2	M4
Req-29	The permittee must operate the landfill gas collection system with negative pressure at each wellhead except under the following conditions: (a) A fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in 40 CFR 60.757(f)(1); (b) Use of a geomembrane or synthetic cover. The owner or operator must develop acceptable pressure limits in the design plan; or (c) A decommissioned well. A well may experience a static positive pressure after shut down to accommodate for declining flows. All design changes must be approved by SWCAA. [40 CFR 60.753(b), SWCAA 400-115, SWCAA 15-3157R1 Condition 19]	EU-1, EU-2	M5
Req-30	Prior to the initial source emissions test, each flare must be operated at a minimum of 1,400°F (1-hour average). Thereafter, each flare must be operated within the range of operating temperatures (1-hour average) at which compliance with the permitted emission limits was demonstrated during the most recent source emissions test. [40 CFR 60.752(b)(2)(iii)(B)(2), SWCAA 400-115, SWCAA 15-3157R1 Condition 20]	EU-1, EU-2	M5(a)
Req-31	A flare alarm system must be installed and operated continuously to provide an alarm to operators if at any time combustion by a flare ceases and the flare does not automatically re-light. If operators are not on-site, the system must notify an off-site operator. [SWCAA 15-3157R1 Condition 38]	EU-1, EU-2	N/A

Req. #	Requirement	Emission Point	Monitoring
Req-32	The caustic scrubber may be used to scrub all, or specific portions of, the landfill gas in order to achieve the permitted emission levels. The caustic scrubber must reduce the concentration of hydrogen sulfide vented to it by 80% (1-hour average) when operating at the maximum landfill gas treatment rate unless an alternative control efficiency is approved by SWCAA. SWCAA may approve an alternative control efficiency requirement if the Permittee adequately demonstrates in a written analysis to SWCAA that the alternative control efficiency meets the requirements of Best Available Control Technology. SWCAA may approve the discontinuation of hydrogen sulfide scrubbing if the Permittee adequately demonstrates in a written analysis to SWCAA that the sulfur dioxide emission limits will continue to be met. [SWCAA 15-3157R1 Condition 21]	EU-1, EU-2	M6
Req-33	The caustic scrubber must be operated so that the flow and pH of the scrubbing liquor does not fall below the levels at which 80% removal of hydrogen sulfide has been demonstrated during the most recent testing. If continuous or multiple samples are taken, these limitations apply on a one-hour average basis. [SWCAA 15-3157R1 Condition 22]	EU-1, EU-2	M6
Req-34	The permittee must use recognized good practice and procedures to reduce odors to a reasonable minimum. [SWCAA 15-3157R1 Condition 23 – Local Only]	Facilitywide	N/A
Req-35	The gas collection and control system must be managed in accordance with good air pollution control practice for minimizing emissions from the landfill. For example, the amount of landfill gas collected and burned must be maximized to the greatest extent practicable without affecting safe operation of the system. [SWCAA 15-3157R1 Condition 24]	EU-1, EU-2	M3, M4, M5, M6, M9

Req. #	Requirement	Emission Point	Monitoring
Req-36	The following wastes must not be accepted for placement in the landfill: (a) Regulated asbestos-containing materials as defined in 40 CFR 61 Subpart M. (b) Gypsum except as incidental amounts accepted within demolition debris. Incidental amounts are intended to be no greater than approximately 10% of the demolition debris in any given load delivered for disposal. A visual inspection of construction and demolition debris loads is sufficient to determine if most drywall has been removed. Small pieces of drywall adhering to structural members would be an example of "incidental" gypsum in a load. The owner or operator must maintain written procedures within its landfill Plan of Operations to implement this requirement. The Plan must be available on-site for inspection and must be provided to SWCAA upon request. (c) Feathers and/or poultry wastes containing significant feathers. (d) Other wastes determined by SWCAA to be the cause of excess emissions or significant nuisance odors if excess emissions or significant nuisance odors cannot be corrected without ceasing the acceptance of such waste. For the purposes of this requirement, "significant nuisance odors" means odors significantly in excess of what would be normal for a municipal solid waste landfill and interfering with the use and enjoyment of private property by the owners of the private property. [SWCAA 15-3157R1 Condition 25]	EU-1, EU-2	R5(f)
Req-37	Before landfilling more than 8,000 tons of paper mill sludges in any calendar month, the permittee must: (a) Provide pre-notification to SWCAA. (b) Submit a management, monitoring and contingency plan to SWCAA for review and approval. The plan must include, at a minimum, the following elements: 1. A description on how the waste will be managed to minimize the generation of hydrogen sulfide gas. 2. A plan to monitor for the presence of increased levels of hydrogen sulfide gas in the affected area of the landfill. 3. A contingency plan to be implemented in the event hydrogen sulfide gas generation causes an exceedance of any permitted emission limit or creates nuisance odors off-site. The amount of paper mill sludges placed in the landfill must not exceed 8,000 tons in any calendar month until written approval of the plan is provided by SWCAA. [SWCAA 15-3157R1 Condition 26]	EU-1, EU-2	R5(f)

Req. #	Requirement	Emission Point	Monitoring
Req-38	For the purpose of demonstrating whether the gas collection system flow rate is sufficient to determine compliance with 40 CFR 60.752(b)(2)(ii)(A)(3), the owner or operator must measure gauge pressure in the gas collection header at each individual well monthly. If a positive pressure exists, action must be initiated to correct the exceedance within 5 calendar days, except for the three conditions allowed under 40 CFR 60.753(b). If negative pressure cannot be achieved without excess air infiltration within 15 calendar days of the first measurement, the gas collection system must be expanded to correct the exceedance within 120 days of the initial measurement of positive pressure. Any attempted corrective measure must not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to SWCAA for approval. [40 CFR 60.755(a)(3), 40 CFR 60.756(a)(1), SWCAA 400-115, SWCAA 15-3157R1 Condition 27]	EU-1, EU-2	M1(c), M5(c), R5(m)
Req-39	For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator must monitor each well monthly for temperature and nitrogen or oxygen as provided in 40 CFR 60.753(c). If a well exceeds one of these operating parameters, action must be initiated to correct the exceedance within 5 calendar days. If correction of the exceedance cannot be achieved within 15 calendar days of the first measurement, the gas collection system must be expanded to correct the exceedance within 120 days of the initial exceedance. Any attempted corrective measure must not cause exceedances of other operational or performance standards. An alternative timeline for correcting the exceedance may be submitted to the Administrator for approval. [40 CFR 60.755(a)(5), 40 CFR 60.756(a)(2 & 3), SWCAA 400-115, SWCAA 15-3157R1 Condition 28]	EU-1, EU-2	M1(c), M5(d), R5(m)
Req-40	The enclosed landfill gas flares must exhaust at a height of at least 40 feet above grade. The minimum stack height may be modified upon demonstration by the permittee that the modification will not cause a potential exceedance of the ASIL for any toxic air pollutant or the state or federal ambient air quality standards for any criteria air pollutant. If the permittee demonstrates to SWCAA's satisfaction that an alternative configuration will not cause an exceedance of any applicable standard, the minimum stack parameters used in the modeling demonstration may replace the minimum stack height listed above. [SWCAA 15-3157R1 Condition 29]	EU-1, EU-2	N/A

Req. #	Requirement	Emission Point	Monitoring
Req-41	Operation of the Emergency Generator Engine must be limited to maintenance checks, readiness testing, and as necessary to provide emergency electricity. [SWCAA 15-3157R1 Condition 30]	EU-3	M8
Req-42	The Emergency Generator Engine must only be fired on #2 fuel oil (diesel) or better. The sulfur content of the fuel fired in the engine must not exceed 0.0015% (15 ppm) by weight, and the fuel must either have a minimum cetane index of 40 or a maximum aromatic content of 35 percent by volume. A fuel certification from the fuel supplier may be used to demonstrate compliance with this requirement. [40 CFR 60.4207(b), SWCAA 400-115, SWCAA 15-3157R1 Condition 31]	EU-3	M8
Req-43	Operation of the emergency generator engine for maintenance checks and readiness testing must not exceed 100 hours per year. Emergency operation of the emergency generator engine is not limited. A nonresettable time totalizer must be installed and used to measure hours of operation. [40 CFR 60.4211(f)(2), SWCAA 400-115, SWCAA 15-3157R1 Condition 32]	EU-3	M8
Req-44	The exhaust from the Emergency Generator Engine must be exhausted vertically. Any rain cap that interferes with vertical dispersion is prohibited. [SWCAA 15-3157R1 Condition 33]	EU-3	N/A
Req-45	Except as provided in 40 CFR 60.4211(g), the Emergency Generator Engine must be installed, configured, operated and maintained according to the manufacturer's emissions-related written instructions and the permittee may only change those emissions-related settings that are permitted by the manufacturer. [40 CFR 60.4211(a) and (c)] The permittee must keep records documenting the manufacturer's written instructions for operation and maintenance of the emergency generator engine or the procedures the permittee developed that are approved in writing by the manufacturer. [WAC 173-401-615(1)(b)] 40 CFR 60.4211(g) contains alternative requirements, including a source test requirement, if the permittee chooses to deviate from the manufacturer's written instructions. [40 CFR 60.4211(a) and (c), WAC 173-401-615(1)(b), SWCAA 400-115]	EU-3	M8

Req. #	Requirement	Emission Point	Monitoring
Req-46	The leachate holding pond(s) must be maintained aerobic to minimize the generation of odorous emissions. The concentration of dissolved oxygen in the leachate holding pond(s) must be at least 1.5 parts per million (mg/L) (1-hour average). [SWCAA 15-3157R1 Condition 34 – Local Only]	EU-3	M6

VII. MONITORING AND RECORDKEEPING TERMS AND CONDITIONS

The permittee must conduct each of the monitoring and recordkeeping activities listed below. All monitoring information required by this permit must be recorded and readily available on-site for inspection. [WAC 173-401-615(2)] Pursuant to WAC 173-401-530(2)(c), none of the following monitoring or recordkeeping requirements apply to Insignificant Emission Units (IEUs).

With the exception of data logged by a computerized data acquisition system, each record required by this Air Discharge Permit must include the date and the name of the person making the record entry. [SWCAA 15-3157R1 Condition 40]

All records required by this permit must be kept for a minimum period of no less than five years and must be maintained in a form readily available for inspection by SWCAA representatives. [SWCAA 15-3131R1 Condition 41, WAC 173-401-615(2)(c)]

M1. General Recordkeeping

WAC 173-401-615(2)
SWCAA 15-3157R1 Conditions 39(k) & 46

The Permittee is required to keep the following records as applicable:

a. Inspections & Certifications
   1. The date, place, and time of the activity;
   2. Who conducted the inspection or certification;
   3. The operating conditions existing at the time of the activity;
   4. Compliance status of each monitored requirement as described in Sections VI and VII of this permit; and
   5. Corrective action taken in response to permit deviations and when action was initiated.

b. Upset Conditions
   1. Excess emissions, and upset conditions that cause excess emissions, must be recorded for each occurrence. [SWCAA 15-3157R1 Conditions 39(k) & 46]

c. Sampling and Emissions Testing
   1. The date sampling was performed;
   2. The entity that performed the sampling;
   3. The operating conditions existing at the time of sampling or measurement;
   4. The date analyses were performed;
   5. The entity that performed the analyses;
   6. The analytical techniques or methods used;

7. The results of such analyses;
8. Compliance status of each monitored requirement; and
9. Corrective action taken in response to permit deviations and parameter exceedances and when action was initiated.

d. General Recordkeeping (parameter logging requirements, design parameters, etc.)
   1. The date and time the data was collected (as applicable); and
   2. The relevant parameters or data.

M2. Visible Emission Monitoring

WAC 173-401-615(1)

The permittee must perform monthly inspections of the landfill and haul roads during daylight hours to identify potential visible emissions violations. The Emergency Generator Engine and flare(s) must be inspected for visible emissions if indicated by a complaint or if otherwise unusual emissions are observed. Inspections must consist of an initial survey of the affected equipment. Whenever visible emissions are apparent during the initial survey, SWCAA Method 9 must be used to determine the opacity of emissions.

Whenever fallout of particulate matter beyond the permittee's property boundary sufficient to interfere unreasonably with the use and enjoyment of the property upon which the material is deposited, or visible emissions in excess of the standard are observed during the monthly inspection, or any other time, the permittee must determine which equipment is causing the emissions. The permittee must initiate corrective action within 2 hours of observing particulate matter fallout or excess visible emissions. The permittee must confirm whether the pertinent equipment is or is not experiencing a malfunction and whether all relevant air pollution control equipment is operating properly. Within 24 hours of initial discovery, permittee must resolve the particulate matter fallout or excess emissions problem, or notify SWCAA by the next working day of progress made in resolving the operational problem.

Implementation of corrective action does not relieve the permittee from the obligation of reporting permit deviations as specified in WAC 173-401-615(3).

M3. Complaint Monitoring

WAC 173-401-615(1)
SWCAA 15-3157R1 Condition 39(l)

The Permittee must record, and maintain record of, any air quality related complaints received by the Permittee or received by SWCAA and provided to the Permittee. Each complaint must be investigated no later than one workday after the permittee has been notified of the complaint. The permittee must determine the validity of each complaint and the cause of any emissions that may have prompted the complaint, and initiate corrective action, if needed, in response to the complaint. Within 24 hours of notification and investigation, the permittee must resolve the subject of the complaint, or notify SWCAA by the next working day of progress made in resolving the complaint.

M4. Landfill Surface Methane Monitoring

40 CFR 60.753
40 CFR 60.755
SWCAA 400-115
SWCAA 15-3157R1 Condition 36

The following procedures must be used for compliance with the surface methane operational standard as provided in 40 CFR 60.753(d).

a. After installation of the collection system, 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 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 40 CFR 60.755(d). [40 CFR 60.755(c)(1)] 40 CFR 60.755(d) requires that the instrument be calibrated with methane in air at a nominal concentration of 500 parts per million immediately before commencing a surface monitoring survey in accordance with the procedures provided in Section 4.2 of EPA Method 21. See Appendix C of this permit for a copy of the EPA Method 21 version referenced in 40 CFR 60 Subpart WWW. Areas with steep slopes or other dangerous areas may be excluded from the surface testing. [40 CFR 60.753(d)]
b. 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. [40 CFR 60.755(c)(2)]
c. Surface emission monitoring must be performed in accordance with section 4.3.1 of Method 21 of appendix A of 40 CFR 60 as in effect July 1, 1997 (see Appendix C of this permit), except that the probe inlet must be placed within 5 to 10 centimeters of the ground. Monitoring must be performed during typical meteorological conditions. [40 CFR 60.755(c)(3)]
d. Any reading of 500 parts per million (ppm) or more above background at any location must be recorded as a monitored exceedance and the actions specified below must be taken. As long as the following actions are taken, the exceedance is not a violation of the operational requirements of 40 CFR 60.753(d). [40 CFR 60.755(c)(4)]
    1. The location of each monitored exceedance must be marked and the location recorded.
    2. 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.
    3. 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 (d)(4) below must be taken, and no further monitoring of that location is required until the action specified in paragraph (d)(4) below has been taken.
    4. 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 (d)(2) or (d)(3) must be re-monitored 1 month from the initial exceedance. If the 1-month remonitoring shows a concentration less than 500 parts per million above background, no further monitoring of that location is required until the next quarterly monitoring period. If the 1-month remonitoring shows an exceedance, the actions specified in paragraph (c)(4)(iii) or (v) of 40 CFR 60.755 must be taken.

5. 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 SWCAA for approval.

M5. Subpart WWW Gas Collection and Control Monitoring

40 CFR 60.756
40 CFR 60.758
SWCAA 400-115
SWCAA 15-3157R1 Condition 37

The following monitoring and recordkeeping must be conducted in accordance with 40 CFR 60 Subpart WWW, and the following results and records must be readily available on-site for inspection:

a. The temperature of each enclosed flare must be continuously monitored and recorded with a minimum accuracy of ±1 percent of the temperature being measured expressed in degrees Celsius or ±0.5 degrees Celsius, whichever is greater. [40 CFR 60.756(b)(1), 40 CFR 60.758(c)];
b. The landfill gas flow to the flare(s) must be continuously monitored and recorded. [40 CFR 60.756(b)(2)(i) or (c)(2)(i), 40 CFR 60.758(c)(2)];
c. The gauge pressure at each wellhead must be measured and recorded monthly. [40 CFR 60.756(a)(1)];
d. For the purpose of identifying whether excess air infiltration into the landfill is occurring, the owner or operator must monitor each well monthly for temperature and nitrogen or oxygen as provided in 40 CFR 60.753(c). [40 CFR 60.756(a)(2)];
e. Identification of all 3-hour periods of operation during which the average enclosed flare combustion temperature was more than 28°C below the average combustion temperature during the most recent performance test at which compliance with 40 CFR 60.752(b)(2)(iii) was determined. [40 CFR 60.758(c)(1)(i)]
f. If a shrouded flare is being used, up-to-date, continuous records of the flame or flare pilot flame monitoring specified under 40 CFR 60.756(c), and up-to-date, records of all periods of operation in which the flame or flare pilot flame was absent. [40 CFR 60.748(c)(4)];
g. Except as provided in 40 CFR 60.752(b)(2)(i)(B), an up-to-date, readily accessible plot map showing each existing and planned collector in the system and providing a unique identification location label for each collector. [40 CFR 60.748(d)];
h. Up-to-date, readily accessible records of the installation date and location of all newly installed collectors as specified under 40 CFR 60.755(b). [40 CFR 60.748(d)(1)];
i. Documentation of the nature, date of deposition, amount, and location of nondegradable waste excluded from collection as provided in 40 CFR 60.759(a)(3)(i) as well as any nonproductive areas excluded from collection as provided in 40 CFR 60.759(a)(3)(ii). [40 CFR 60.758(d)(2)];
j. Except as provided in 40 CFR 60.752(b)(2)(i)(B), up-to-date, readily accessible records of all collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance. [40 CFR 60.758(e)]
k. The design capacity report, the current amount of solid waste in-place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable; and [40 CFR 60.758(a)]

l. The maximum expected gas generation flow rate as calculated in 40 CFR 60.755(a)(1), and the density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1) when the initial flare performance tests were conducted shall be maintained readily accessible for the life of the flare control system. [40 CFR 60.758(b)]

M6. Landfill Emissions Related Monitoring

SWCAA 15-3157R1 Condition 39

The following information must be collected, recorded at the intervals specified below, and readily available on-site for inspection:

a. Maintenance activities that may affect emissions to the ambient air, including disruptions or shutdowns of the landfill gas control system, must be logged for each occurrence. Disruptions do not include brief outages associated with power outages in which the backup generator responds as designed or switches back to utility power when the flare and scrubber restart as designed; [SWCAA 15-3157R1 Condition 39(a)]
b. The total amount of landfill gas, in units of standard cubic feet, burned in the flare(s) must be recorded for each calendar month; [SWCAA 15-3157R1 Condition 39(b)]
c. The hydrogen sulfide and total reduced sulfur concentration of the landfill gas at the inlet to the flare(s) must be determined and recorded at least once per calendar quarter using ASTM Method D5504, or an alternative method approved in advance in writing by SWCAA; [SWCAA 15-3157R1 Condition 39(c)]
d. The methane, carbon dioxide, nitrogen, and oxygen content of the landfill gas at the inlet to the flare(s) must be determined and recorded at least once per calendar quarter using EPA Method 3C or an alternative approved in advance in writing by SWCAA; [SWCAA 15-3157R1 Condition 39(d)]
e. The scrubbing liquor flow rate must be monitored continuously and recorded at least once per day; [SWCAA 15-3157R1 Condition 39(e)]
f. If recycled scrubbing liquor is utilized, the pH of the recycled scrubbing liquor must be determined at least once per calendar week; [SWCAA 15-3157R1 Condition 39(f)]
g. The concentration of hydrogen sulfide in the landfill gas immediately upstream and downstream of the caustic scrubber must be determined at least once each calendar month. A colorimetric detector tube may be used to measure hydrogen sulfide concentrations. Other measurement methods may be used with pre-approval from SWCAA; [SWCAA 15-3157R1 Condition 39(g)]
h. The oxygen concentration (mg/L) in the leachate holding pond must be measured from a representative location and the results recorded in the site Operating Record at least once per week; and [SWCAA 15-3157R1 Condition 39(j)]
i. All air quality related complaints, including odor complaints, received by the permittee and the results of any subsequent investigation or corrective action must be recorded for each occurrence. [SWCAA 15-3157R1 Conditions 39(l), 48]

M7. Source Emissions Testing of Enclosed Flare System

40 CFR 60.752(b)(2)(iii)(B)
40 CFR 60.754(d)
SWCAA 400-115
SWCAA 15-3157R1 Condition 42 and Appendix A

a. Initial source emissions testing of the landfill gas control system was conducted in June 2015. Initial source emissions testing of the second flare must be conducted within 60 days of startup. Subsequent testing of the landfill gas control system (including both flares) must be conducted

no later than the end of June 2020 and no later than the end of June every 5 years thereafter. The use of an alternative test schedule or method must be pre-approved by SWCAA in writing.

b. A comprehensive test plan must be submitted to SWCAA for review and approval at least 10 business days prior to testing.

c. SWCAA must be notified of the test date at least 5 business days prior to testing.

Unless an alternative methodology has been approved in writing by SWCAA, testing for each constituent must consist of a minimum of three sampling runs using the test methods and durations listed in the tables below.

Flare Inlet

Constituent / Parameter	Test Method or Equivalent[1]	Minimum Test Run Duration
Landfill gas flow rate	EPA Methods 1 and 2, 2A, 2C, or 2D	N/A
Landfill gas composition (CO_2, CH_4, N_2, O_2)	EPA Method 3C	60 minutes
TAPs listed in Table 1 of EPA Compendium Method TO-15	EPA Compendium Method TO-15	~60 minutes (integrated sample)
NMOC	EPA Method 25C or 18	N/A
Ethane[4]	EPA Method 18	N/A
10 largest TICs[5]	EPA Method 18 (GC/MS)	N/A
Total sulfur compounds and H_2S	ASTM D5504	N/A

Outlet of Each Flare (operating at lowest flare operating temperature)

Constituent / Parameter	Test Method or Equivalent[1]	Minimum Test Run Duration
Stack gas velocity, flow rate	EPA Methods 1 and 2	N/A
O_2 and CO_2 concentrations	EPA Method 3A	60 minutes
Stack gas moisture content	EPA Method 4	60 minutes
NO_X	EPA Method 7E	60 minutes
CO	EPA Method 10	60 minutes
TAPs listed in Table 1 of EPA Compendium Method TO-15	EPA Compendium Method TO-15	~60 minutes (integrated sample)
VOC	EPA Method 25A/18[2]	60 minutes
HCl	EPA Method 26	60 minutes
Opacity of Emissions	SWCAA Method 9	20 minutes
Visual Emissions	EPA Method 22	2 hours (total)[3]

Outlet of Each Flare (operating at highest flare operating temperature)

Constituent / Parameter	Test Method or Equivalent[1]	Minimum Test Run Duration
Stack gas velocity, flow rate	EPA Methods 1 and 2	N/A
O_2 and CO_2 concentrations	EPA Method 3A	20 minutes
Stack gas moisture content	EPA Method 4	20 minutes
NO_X	EPA Method 7E	20 minutes

Scrubber Inlet

Constituent / Parameter	Test Method or Equivalent[1]	Minimum Test Run Duration
Landfill gas flow rate	EPA Methods 1 and 2, 2A, 2C, or 2D	N/A
Landfill gas composition (CO_2, CH_4, N_2, O_2)	EPA Method 3C	60 minutes
Total sulfur compounds and H_2S	ASTM D5504	N/A

Scrubber Outlet

Constituent / Parameter	Test Method or Equivalent[1]	Minimum Test Run Duration
Total sulfur compounds and H_2S	ASTM D5504	N/A

[1] The use of an alternate or equivalent test method must be pre-approved by SWCAA.

[2] The use of Method 25A with a "methane cutter" is acceptable to determine the VOC concentration. Alternatively, methane and ethane concentrations measured by Method 18 may be subtracted from the total hydrocarbon concentration measured by Method 25A to determine the VOC concentration. When using Method 25A, results must be reported as hexane.

[3] A two-hour test period is required by 40 CFR 60.18(f)(1).

[4] This will be used to subtract from the NMOC value to provide an estimate of VOC content.

[5] Gas chromatography / mass spectroscopy must be used to determine the tentative identity, and approximate the concentration of, the ten organic compounds (other than CH_4) that, based on the analysis, appear to be in the greatest abundance in the sample.

Tests conducted more than three months before the required due date will not satisfy the periodic source emission testing requirement without prior approval from SWCAA.

d. A complete record of production related parameters applicable to the testing, including but not limited to the following must be kept during emissions testing to correlate operations with emissions and must be recorded in the final report of the test results:

1. Flare operating temperature
2. Identification of the landfill gas collection wells in service
3. Startups and shutdowns
4. Landfill gas flow rate to each flare
5. Scrubbing liquor flow rate
6. Scrubbing liquor pH

e. Source operations during emissions testing must be conducted at the most challenging of the intended operating conditions.

M8. Emergency Generator Engine Monitoring

WAC 173-401-615(1)
SWCAA 15-3157R1 Conditions 39(h & i)

a. The total number of hours the Emergency Generator Engine is operated must be recorded for each calendar year. [SWCAA 16-3157R1 Condition 39(h)]
b. The permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours were spent for non-emergency operation. [WAC 173-401-615(1)]
c. Fuel certifications from the supplier or other analyses documenting the sulfur content of the diesel fuel purchased for the Emergency Generator Engine must be retained for each purchase. [SWCAA 15-3157R1 Condition 39(i)]
d. Fuel certifications from the supplier or other analyses documenting cetane index or aromatic content (percent by volume) of the diesel fuel purchased for the Emergency Generator Engine must be retained for each purchase. [WAC 173-401-615(1)]
e. The permittee must document and record each incidence of inspection, maintenance and repairs conducted to demonstrate compliance with the emissions-related maintenance requirements of 40 CFR 60.4211(a). The documentation must include a description of the inspection, maintenance and/or repair conducted and the hour meter reading on the engine at the time of the inspection, maintenance or repair. [WAC 173-401-615(1)]

M9. Cover Integrity Monitoring

40 CFR 60.755(c)(5)
40 CFR 60.756(d)

The permittee must implement a program to monitor for final cover integrity at least monthly. [40 CFR 60.755)(c)(5)]

Each owner or operator seeking to demonstrate compliance with 40 CFR 60.755(c), shall monitor surface concentrations of methane according to the instrument specifications and procedures provided in 40 CFR 60.755(d). Any closed landfill that has no monitored exceedances of the operational standard in three consecutive quarterly monitoring periods may skip to annual monitoring. Any methane reading of 500 ppm or more above background detected during the annual monitoring returns the frequency for that landfill to quarterly monitoring.

VII. REPORTING TERMS AND CONDITIONS

All required reports must be certified by a responsible official consistent with WAC 173-401-520. Where an applicable requirement requires reporting more frequently than once every six months, the responsible official's certification need only be submitted once every six months, covering all required reporting since the date of the last certification.

Addresses of regulatory agencies are the following, unless otherwise instructed:

Southwest Clean Air Agency
11815 NE 99th Street, Suite 1294
Vancouver, WA 98682-2322

Clean Air Act Compliance Manager
US EPA Region 10, Mail Stop: OCE-101
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

All required reports must be certified by a responsible official consistent with WAC 173-401-520. Where an applicable requirement requires reporting more frequently than once every six months, the responsible official's certification need only be submitted once every six months, covering all required reporting since the date of the last certification.

Where a reporting schedule is specified (e.g. quarterly, semi-annual, or annual), compliance with the reporting frequency is met when reports are submitted more frequently than required.

Each report that is required to be submitted to the EPA shall also be submitted to SWCAA by the deadline specified in the applicable requirement for that report. For submissions made electronically to an EPA database, the copy to SWCAA shall be in a format approved by SWCAA. [WAC 173-401-615(3)]

R1. Deviations from Permit Conditions WAC 173-401-615(3)(b)
SWCAA 400-107
SWCAA 15-3157R1 Conditions 46 & 47

Excess emissions that represent a potential threat to human health or safety must be reported as soon as possible, but no later than 12 hours after discovery. Excess emissions which the owner or operator wishes to be considered as unavoidable, must be reported to the Agency as soon as possible, but no later than 48 hours after discovery. [SWCAA 400-107, SWCAA 15-3157R1 Condition 46]

Deviations from permit requirements must be reported no later than thirty days after the end of the month during which the deviation is discovered. [SWCAA 400-107, SWCAA 15-3157R1 Condition 47]

Excess emission reports must contain the following information: [SWCAA 400-107]

a. Identification of the emission unit(s) involved;
b. A brief description of the event including identification of known causes;
c. Date, time and duration of the event;
d. For exceedances of non-opacity emission limitations, an estimate of the quantity of excess emissions;
e. Corrective action taken in response to the event; and
f. Preventive measures taken or planned to minimize future recurrence.

Reports of deviations from permit requirements shall include: [WAC 173-401-615(3)(b)]

g. Whether or not the deviation is or was due to upset conditions;
h. The probable cause of the deviation; and
i. The corrective action taken, and when the corrective action was initiated.

All reports shall be submitted in writing (e.g. e-mail, facsimile or letter).

R2. Complaint Reports SWCAA 15-3157R1 Condition 48

All air quality related complaints received by the permittee regarding activities controlled by the permittee and the results of any subsequent investigation or corrective action must be recorded for each occurrence and reported to SWCAA within three days of receipt. The report must include the results of any subsequent investigation or corrective action related to the complaint.

R3. Semi-annual Reports 40 CFR 63.10(d)(5)
SWCAA 400-115
SWCAA 15-3157R1 Condition 44
WAC 173-401-615(3)

Consistent with WAC 173-401-615(3) the permittee must submit to SWCAA by October 15th and April 15th for the six month periods January through June and July through December respectively, a report on the status of all monitoring requirements. All instances of deviation from permit requirements must be clearly identified. The semi-annual report must contain a certification of any reports submitted during the semi-annual period that have not already been certified. The certification must be consistent with WAC 173-401-520. [WAC 173-401-615(3)]

The Permittee must submit periodic startup, shutdown, and malfunction reports for the landfill gas collection and control system in accordance with 40 CFR 63.10(d)(5)(i). For the purposes of this requirement, each calendar half (January – June and July – December) is a separate reporting period. If a startup or shutdown occurred during the reporting period that caused, or may have caused, the short-term NMOC concentration emission limit to be exceeded, or a malfunction occurred with the landfill gas collection and control system during the reporting period, a report must be submitted to SWCAA no later than 30 days after the end of the reporting period. If the response to the startup, shutdown, or malfunction was not in accordance with the startup, shutdown and malfunction plan, then a report must be submitted within 2 working days after commencing actions inconsistent with the startup, shutdown and malfunction plan followed by a letter within 7 working days after the end of the event. [40 CFR 63.10(d)(5), SWCAA 15-3157R1 Condition 44]

R4. Annual Compliance Certification WAC 173-401-630(5)

The permittee shall submit to SWCAA and EPA a certification of compliance with all terms and conditions of this permit in accordance with WAC 173-401-630(5)(d). The permittee shall submit by March 15th of the following year the following information for the period of January through December:

a. Identification of each term or condition of the permit that is the basis of the certification; [WAC 173-401-630(5)(c)(i)]
b. Statement of compliance status; [WAC 173-401-630(5)(c)(ii)]

c. Whether compliance was continuous or intermittent; [WAC 173-401-630(5)(c)(iii)]
d. Method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with WAC 173-401-615; [WAC 173-401-630(5)(c)(iv)]
e. Such other facts as SWCAA may require to determine the compliance status of the source; and [WAC 173-401-630(5)(c)(vi)]
f. Such additional requirements as may be specified pursuant to Sections 114(a)(3) and 504(b) of the FCAA. [WAC 173-401-630(5)(e)]

R5. Annual Reports

40 CFR 60.757(f)
SWCAA 400-115
SWCAA 400-105
SWCAA 15-3157R1 Conditions 45 & 49

Emissions-Related Reports [SWCAA 15-3157R1 Condition 49]

The following emissions related records must be reported to SWCAA by March 15th for the previous calendar year:

a. The total amount of landfill gas burned in the landfill gas flares during each month of the calendar year; [SWCAA 15-3157R1 Condition 49(a)]
b. The results of hydrogen sulfide, methane, carbon dioxide, nitrogen, and oxygen content monitoring of the landfill gas conducted during the calendar year; [SWCAA 15-3157R1 Condition 49(b)]
c. The date, beginning time, duration and reason for each landfill gas control system disruption or shutdown that occurred during the calendar year; [SWCAA 15-3157R1 Condition 49(c)]
d. The results of hydrogen sulfide concentration monitoring immediately upstream and downstream of the caustic scrubber for each measurement conducted during the calendar year; [SWCAA 15-3157R1 Condition 49(d)]
e. The total number of hours the Emergency Generator Engine was operated; [SWCAA 15-3157R1 Condition 49(e)]
f. The total amount of each type of waste placed in each landfill cell; and [SWCAA 15-3157R1 Condition 49(f)]
g. Air emissions of criteria air pollutants, volatile organic compounds, hazardous air pollutants (HAPs), and toxic air pollutants (TAPs). [SWCAA 15-3157R1 Condition 49(g)]

Subpart WWW Reports [40 CFR 60.757(f), SWCAA 15-3157R1 Condition 45]

The following information must be reported to SWCAA by March 15th for the previous calendar year:

h. The parameter value and the length of time the following deviations from allowable values occurred: [40 CFR 60.757(f)(1)]
    1. Positive gauge pressure measured at any wellhead or landfill gas collection header;
    2. A nitrogen concentration in the landfill gas at or above 20% or an oxygen concentration in the landfill gas at or above 5% by volume unless an alternative standard has been approved for a specific wellhead in accordance with 60.753(c);
    3. A landfill gas temperature measured at a wellhead at or above 55°C; and

4. An enclosed flare temperature outside of the operating range allowed by this Air Discharge Permit. Until the initial source emissions test is conducted, the flare temperature shall be at least 1,400°F (1-hour average);

i. Description and duration of all periods when the gas stream is diverted from the control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.756; [40 CFR 60.757(f)(2)]
j. The date, beginning time, duration and reason for all periods when the flare system was not operating; [40 CFR 60.757(f)(3)]
k. All periods when the landfill gas collection system was not operating and the reason for the outage; [40 CFR 60.757(f)(4)]
l. The location of each exceedance of the 500 parts per million methane concentration as provided in 40 CFR 60.753(d) and the concentration recorded at each location for which an exceedance was recorded in the previous month; and [40 CFR 60.757(f)(5)]
m. The date of installation and the location of each well or collection system expansion added pursuant to paragraphs (a)(3), (b), and (c)(4) of 40 CFR 60.755. [40 CFR 60.757(f)(6)]

R6. Source Emission Test Plans and Reports

SWCAA 15-3157R1 Condition 50 and Appendix A

A comprehensive test plan must be submitted to SWCAA for review and approval at least 10 business days prior to testing. SWCAA personnel must be notified of the test date at least 5 business days prior to the testing campaign so that they may be present during testing.

The results of all required testing must be submitted to SWCAA within 45 days of test completion. Unless otherwise directed by SWCAA, a single hard copy of each report and an electronic copy (e.g. portable document format (.pdf)) of each report must be submitted. Each report must include:

a. A description of the source including manufacturer, model number and design capacity of the equipment, and the location of the sample ports or test locations.
b. Time and date of the test and identification and qualifications of the personnel involved.
c. A summary of results, reported in units and averaging periods consistent with the applicable emission standard or limit. VOC, H_2S, and SO_2 emissions must be reported in units of lb/MMBtu and lb/hr. NMHC must be reported in ppmvd as hexane @ 3% O_2.
d. A summary of control system or equipment operating conditions.
e. A summary of production related parameters.
f. A description of the test methods or procedures used including all field data, quality assurance/quality control procedures and documentation.
g. A description of the analytical procedures used including all laboratory data, quality assurance/quality control procedures and documentation.
h. Copies of field data and example calculations.
i. Chain of custody information.
j. Calibration documentation.
k. Discussion of any abnormalities associated with the results.
l. A statement signed by the senior management official of the testing firm certifying the validity of the source test report.

R7. Landfill Gas Generation Projection SWCAA 15-3157R1 Condition 51

The Permittee must provide an analysis of the anticipated future landfill gas generation rate at least once every 10 years. The first analysis on this schedule is due no later than the end of December 2023. Each subsequent report must be submitted before the end of the year in which it is due (e.g. December 2033, December 2043, etc.).

IX. NON-APPLICABLE REQUIREMENTS WAC 173-401-640(2)

The following table lists all federal, state, and/or local requirements that might reasonably apply to the permittee, but are deemed nonapplicable after review by SWCAA. In accordance with WAC 173-401-640, the Permittee is provided a permit shield for not complying with the requirements listed below where they have been identified to be non-applicable to specific emission units. Certain subsections describe requirements that may apply to the permittee but are not "applicable requirements" for the purposes of the Air Operating Permit program and therefore will not be included in an Air Operating Permit.

1. **Subpart Cc - Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills** [40 CFR 60.30c et seq., WAC 173-400-115]

   Subpart Cc applies to each existing MSW landfill for which construction, reconstruction or modification was commenced before May 30, 1991. The Headquarters Landfill was constructed in 1993 and approval to accept municipal solid waste was not provided until 2013, therefore this facility is not subject to this subpart.

5. **Registration Program** [SWCAA 400-100]

   Pursuant to SWCAA 400-100(1)(b) air operating permit sources are exempt from the registration requirements of SWCAA 400-100.

6. **Requirements for Sources in a Maintenance Plan Area** [SWCAA 400-111]

   The permittee is not located in a maintenance plan area for any criteria pollutant. Therefore, this regulation is not applicable.

7. **Requirements for New Sources in Nonattainment Areas** [SWCAA 400-112]

   The permittee is not located in a nonattainment area for any criteria pollutant. Therefore, this regulation is not applicable.

8. **Bubble Rules** [SWCAA 400-120]

   The permittee has not requested an emission bubble for any regulated pollutant. Therefore, this regulation is not applicable.

9. Acquisition and Use of Emission Reduction Credits [SWCAA 400-130]

The permittee has neither sought nor been issued emission reduction credits (ERCs). Therefore, this regulation is not applicable.

10. Federal Greenhouse Gas Reporting Requirements [40 CFR 98]

The EPA greenhouse gas (GHG) reporting rule was finalized September 22, 2009. In the preamble EPA responds to a question regarding whether it is an applicable requirement for the purposes of Title V:

"As currently written, the definition of "applicable requirement" in 40 CFR 70.2 and 71.2 does not include a monitoring rule such as today's action, which is promulgated under CAA sections 114(a)(1) and 208.

These requirements will be enforced directly by the USEPA outside of the Air Operating Permit Program."

11. Prevention of Significant Deterioration, Review of Major Stationary Sources and Major Modifications - Source Applicability and Exemptions [40 CFR 52.21(i), WAC 173-400-720]

This facility is a minor source for which Prevention of Significant Deterioration (PSD) permitting has not been conducted. With respect to past permitting actions, the pollutant that comes the closest to any major source threshold is greenhouse gases. EPA's "Deferral Rule" (Federal Register /Vol. 76, No. 139 /Wednesday, July 20, 2011) deferred biogenic CO_2 emissions from determinations of major source thresholds until July 21, 2014. Biogenic CO_2 emissions at this source include the CO_2 fraction of the fugitive landfill gas and the CO_2 emissions from combustion of the landfill gas. However, the United States Court of Appeals for the District of Columbia vacated the "Deferral Rule" on July 12, 2013 (No. 11-1101 Center for Biological Diversity, Et Al., v. Environmental Protection Agency and Lisa Perez Jackson); therefore, at the time of issuance of SWCAA 13-3068, all non-fugitive greenhouse gases needed to be counted when determining if the source is subject to PSD permitting. Since that time, the U.S. Supreme Court has ruled that a source is not required to obtain a PSD or Title V permit solely because the source emits, or has the potential to emit GHGs above the applicable major source thresholds.

On June 23, 2014, the U.S. Supreme Court issued its decision in Utility Air Regulatory Group v. EPA, 134 S. Ct. 2427 (2014) ("UARG"). The Court held that EPA may not treat GHGs as an air pollutant for purposes of determining whether a source is a major source required to obtain a PSD or Title V permit. The Court also held that PSD permits that are otherwise required (based on emissions of other pollutants) may continue to require limitations on GHG emissions based on the application of Best Available Control Technology (BACT). In accordance with the Supreme Court decision, on April 10, 2015, the D.C. Circuit issued an amended judgment in Coalition for Responsible Regulation, Inc. v. EPA, Nos. 09-1322, 10-073, 10-1092 and 10-1167 (D.C. Cir. April 10, 2015), which, among other things, vacated the PSD and Title V regulations under review in that case to the extent that they require a stationary source to obtain a PSD or Title V permit solely because the source emits or has the potential to emit GHGs above the applicable major source thresholds. The D.C. Circuit also directed EPA to consider whether any further revisions to its regulations are appropriate in light of UARG, and if so, to undertake to make such revisions. In response to the Supreme Court

decision and the D.C. Circuit's amended judgment, the EPA has undertaken various actions to explain the next steps in GHG permitting and also conduct rulemaking action to make the appropriate revisions to the PSD and operating permit rules.

The public comment period on EPA's proposal to amend the PSD and Title V rules closed December 16, 2016 (Federal Register / Vol. 81, No. 223 / Friday, November 18, 2016). No final action has yet been taken.

Fugitive emissions are "those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening" [40 CFR 52.21]. In the definition of major stationary source in 40 CFR 52.21 fugitive emissions "shall not be included in determining for any of the purposes of this section whether it is a major stationary source, unless the source belongs to one of the following categories…" Landfills are not included in any of the listed categories. However, most of the landfill gas is collected and burned and therefore is not considered fugitive.

EPA's October 21, 1994 memorandum "Classification of Emissions from Landfills for NSR Applicability Purposes" from John S. Seitz concluded that collected landfill gas should not be considered fugitive because it can be (and is regularly) collected. The memo went on to say: "To quantify the amount of landfill gas which could otherwise be collected at a proposed landfill for NSR applicability purposes, the air pollution control authority should assume the use of a collection system which has been designed to maximize, to the greatest extent possible, the capture of air pollutants from the landfill." This is stated more clearly in a December 1995 EPA Document (EPA-453/R-94-021) Air Emissions from Municipal Solid Waste Landfills – Background Information for Final Standards and Guidelines where EPA writes: "…Fugitive emissions are not included in determining whether the 250 tons/yr threshold is exceeded, but collectable emissions must be included. Because this NSPS and EG have found collection systems to be feasible, most landfill emissions are considered collectable for PSD purposes."

In a May 4, 1999 response to a Title V petition for the Roosevelt Regional Landfill the EPA discussed comparing non-fugitive VOC emissions to the PSD major source threshold: "EPA has carefully considered the Petitioner's claim that the Roosevelt Landfill is a major source of VOC emissions. The permitting authority, in consultation with EPA, calculated total VOCs for the Roosevelt Landfill by using a published emission factor for non-methane organic compound ("NMOC") emissions from MSW landfills. The resulting estimate of non-fugitive emissions was less than 250 tons per year."

Because the amount of landfill gas that is emitted fugitively can vary, we must determine what percentage of the landfill gas must be considered non-fugitive for determining PSD applicability. This is important, because a well-designed and operated landfill gas collection system will still result in a large percentage of the greenhouse gases (expressed as CO_2e) being emitted as fugitive emissions from the landfill surface, in part because the global warming potential of methane, which makes up approximately 50% of the fugitive emissions by volume, is 25 for regulatory purposes.

This issue has been previously addressed in Washington. From the Statement of Basis for Air Operating Permit 08-AQ-C090 First Revision for Roosevelt Regional Landfill "Ecology has received guidance from EPA on the topic of fugitive emissions at landfills. EPA has stated that a "well designed collection system," as required by the Standards of Performance for

Municipal Solid Waste Landfills (NSPS), is capable of collecting approximately 75% of the MSW landfill emissions. That means that approximately 75% of MSW landfill emissions could reasonably pass through a stack, chimney, vent, or other functionally equivalent opening so are non-fugitive; approximately 25% of MSW landfill emissions are fugitive."

Estimated non-fugitive greenhouse gas emissions fall short of the 100,000 tpy CO_2e major source threshold.

APPENDIX A

SWCAA METHOD 9
VISIBLE OPACITY DETERMINATION METHOD

1. Principle

The opacity of emissions from stationary sources is determined visually by a qualified observer.

2. Procedure

The observer must be certified in accordance with the provisions of Section 3 of 40 CFR Part 60, Appendix A, Method 9, as in effect on July 1, 2015.

2.1 Position

The observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140° sector to his/her back. Consistent with maintaining the above requirement, the observer shall, as much as possible, make his/her observations from a position such that his/her line of vision is approximately perpendicular to the plume direction, and when observing opacity of emissions from rectangular outlets (e.g., roof-monitors, open baghouses, noncircular stacks), approximately perpendicular to the longer axis of the outlet. The observer's line of sight should not include more than one plume at a time when multiple stacks are involved, and in any case, the observer should make his/her observations with his/her line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses).

2.2 Field Records

The observer shall record the name of the plant, emission location, type of facility, observer's name and affiliation, a sketch of the observer's position relative to the source, and the date on a field data sheet. The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background are recorded on a field data sheet at the time opacity readings are initiated and completed.

2.3 Observations

Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. The observer shall not look continuously at the plume, but instead shall observe the plume momentarily at 15 second intervals.

2.3.1 Attached Steam Plumes

When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water vapor is no longer visible. The observer shall record the approximate

distance from the emission outlet to the point in the plume at which the observations are made.

2.3.2 Detached Steam Plumes

When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

2.4 Recording Observations

Opacity observations shall be recorded to the nearest 5 percent at 15 second intervals on a field data sheet. A minimum of 24 observations shall be recorded. Each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15 second period.

2.5 Data Reduction

The number of observation at each opacity level shall be determined and recorded on the field data sheet. Opacity shall be determined by the highest 13 observations in any consecutive 60-minute period. The opacity standard or emissions limit is exceeded if there are more than 12 observations during any consecutive 60 minute period for which an opacity greater than the standard or emission limit is recorded. The opacity standard is a 1 hour standard (rolling 60 minutes). Only one violation of the standard per hour may be recorded meaning that a violation for any given consecutive 60 minute period may be recorded in substantially fewer than 60 minutes. No one hour time sets shall overlap for purpose of determining a violation or violations. Data used to establish a violation in one consecutive 60 minute period can not be used to establish a violation in a second consecutive 60 minute period. The opacity determination shall be recorded on the observational record sheet.

3. References

Federal Register, Vol. 36, No. 247, page 24895, December 23, 1971.

"Criteria for Smoke and Opacity Training School 1970 - 1971" Oregon-Washington Air Quality Committee."

"Guidelines for Evaluation of Visible Emissions" EPA 340/1-75-007

APPENDIX B

Manufacturer's Written Emissions-Related Instructions Regarding Maintenance of the Emergency Generator Engine

The following activities must be conducted daily when operating:

a. General Genset Inspection including checking for oil, fuel, cooling, and exhaust system leaks. Check exhaust system audibly and visually with set running and repair any leaks immediately;
b. Check oil level;
c. Check coolant level;

The following activities must be conducted weekly or after 50 hours, whichever comes first:

d. Check air cleaner;
e. Drain fuel filter(s);

The following activities must be conducted every 100 hours of operation or monthly, whichever comes first:

f. Check drive belt;

The following activities must be conducted every 250 hours of operation or annually, whichever comes first:

g. Replace lubricant oil and filters;
h. Change air cleaner element;

The following activities must be conducted every 500 hours of operation or annually, whichever comes first:

i. Change crankcase oil and filter;
j. Change fuel filter(s);
k. Clean cooling system.

APPENDIX C – EPA Method 21
(version referenced in 40 CFR 60 Subpart WWW)

level of the analyzer drift specified in Section 3, the O_2 or CO_2 correction can exceed 5 percent at the concentration levels expected in gas turbine exhaust gases. Therefore, O_2 or CO_2 analyzer stability and careful calibration are necessary.

7.3.1 Correction of Pollutant Concentration Using O_2 Concentration. Calculate the O_2 corrected pollutant concentration, as follows:

$$C_{adj}=C_d \frac{5.9}{20.9-\%O_2} \quad \text{Eq. 20–4}$$

where:

C_{adj}=Pollutant concentration corrected to 15 percent O_2 ppm.

C_d=Pollutant concentration measured, dry basis, ppm.

$\%O_2$=Measured O_2 concentration dry basis, percent.

7.3.2 Correction of Pollutant Concentration Using CO_2 Concentration. Calculate the CO_2 corrected pollutant concentration, as follows:

$$C_{adj}=C_d \frac{X_{CO2}}{\%CO_2} \quad \text{Eq. 20–5}$$

where:

$\%CO_2$=Measured CO_2 concentration measured, dry basis, percent.

7.4 Average Adjusted NO_x Concentration. Calculate the average adjusted NO_x concentration by summing the adjusted values for each sample point and dividing by the number of points for each run.

7.5 NO_x and SO_2 Emission Rate Calculations. The emission rates for NO_x and SO_2 in units of pollutant mass per quantity of heat input can be calculated using the pollutant and diluent concentrations and fuel-specific F-factors based on the fuel combustion characteristics. The measured concentrations of pollutant in units of parts per million by volume (ppm) must be converted to mass per unit volume concentration units for these calculations. Use the following table for such conversions:

CONVERSION FACTORS FOR CONCENTRATION

From	To	Multiply by
g/sm³	ng/sm³	10^9
mg/sm³	ng/sm³	10^6
lb/scf	ng/sm³	1.602×10^{13}
ppm (SO_2)	ng/sm³	2.660×10^6
ppm (NO_x)	ng/sm³	1.912×10^6
ppm (SO_2)	lb/scf	1.660×10^{-7}
ppm (NO_x)	lb/scf	1.194×10^{-7}

7.5.1 Calculation of Emission Rate Using Oxygen Correction. Both the O_2 concentration and the pollutant concentration must be on a dry basis. Calculate the pollutant emission rate, as follows:

$$E=C_dF_d \frac{20.9}{20.9-\%O_2} \quad \text{Eq. 20–6}$$

where:

E=Mass emission rate of pollutant, ng/J (lb/10^6 Btu).

7.5.2 Calculation of Emission Rate Using Carbon Dioxide Correction. The CO_2 concentration and the pollutant concentration may be on either a dry basis or a wet basis, but both concentrations must be on the same basis for the calculations. Calculate the pollutant emission rate using Equation 20–7 or 20–8:

$$E=C_dF_c \frac{100}{\%CO_2} \quad \text{Eq. 20–7}$$

$$E=C_wF_c \frac{100}{\%CO_{2w}} \quad \text{Eq. 20–8}$$

where:

C_w=Pollutant concentration measured on a moist sample basis, ng/sm³ (lb/scf).

$\%CO_{2w}$=Measured CO_2 concentration measured on a moist sample basis, percent.

8. *Bibliography*

1. Curtis, F. A Method for Analyzing NO_x Cylinder Gases-Specific Ion Electrode Procedure, Monograph available from Emission Measurement Laboratory, ESED, Research Triangle Park, NC 27711, October 1978.

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3. Shigehara, R.T., R.M. Neulicht, and W.S. Smith. Validating Orsat Analysis Data from Fossil Fuel-Fired Units. Emission Measurement Branch, Emission Standards and Engineering Division, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency, Research Triangle Park, NC 27711. June 1975.

METHOD 21—DETERMINATION OF VOLATILE ORGANIC COMPOUNDS LEAKS

1. *Applicability and Principle*

1.1 Applicability. This method applies to the determination of volatile organic compound (VOC) leaks from process equipment. These sources include, but are not limited to, valves, flanges and other connections, pumps and compressors, pressure relief devices, process drains, open-ended valves,

pump and compressor seal system degassing vents, accumulator vessel vents, agitator seals, and access door seals.

1.2 Principle. A portable instrument is used to detect VOC leaks from individual sources. The instrument detector type is not specified, but it must meet the specifications and performance criteria contained in Section 3. A leak definition concentration based on a reference compound is specified in each applicable regulation. This procedure is intended to locate and classify leaks only, and is not to be used as a direct measure of mass emission rates from individual sources.

2. *Definitions*

2.1 Leak Definition Concentration. The local VOC concentration at the surface of a leak source that indicates that a VOC emission (leak) is present. The leak definition is an instrument meter reading based on a reference compound.

2.2 Reference Compound. The VOC species selected as an instrument calibration basis for specification of the leak definition concentration. (For example: If a leak definition concentration is 10,000 ppmv as methane, then any source emission that results in a local concentration that yields a meter reading of 10,000 on an instrument calibrated with methane would be classified as a leak. In this example, the leak definition is 10,000 ppmv, and the reference compound is methane.)

2.3 Calibration Gas. The VOC compound used to adjust the instrument meter reading to a known value. The calibration gas is usually the reference compound at a concentration approximately equal to the leak definition concentration.

2.4 No Detectable Emission. Any VOC concentration at a potential leak source (adjusted for local VOC ambient concentration) that is less than a value corresponding to the instrument readability specification of section 3.1.1(c) indicates that a leak is not present.

2.5 Response Factor. The ratio of the known concentration of a VOC compound to the observed meter reading when measured using an instrument calibrated with the reference compound specified in the application regulation.

2.6 Calibration Precision. The degree of agreement between measurements of the same known value, expressed as the relative percentage of the average difference between the meter readings and the known concentration to the known concentration.

2.7 Response Time. The time interval from a step change in VOC concentration at the input of the sampling system to the time at which 90 percent of the corresponding final value is reached as displayed on the instrument readout meter.

3. *Apparatus*

3.1 Monitoring Instrument.

3.1.1 Specifications.

a. The VOC instrument detector shall respond to the compounds being processed. Detector types which may meet this requirement include, but are not limited to, catalytic oxidation, flame ionization, infrared absorption, and photoionization.

b. Both the linear response range and the measurable range of the instrument for each of the VOC to be measured, and for the VOC calibration gas that is used for calibration, shall encompass the leak definition concentration specified in the regulation. A dilution probe assembly may be used to bring the VOC concentration within both ranges; however, the specifications for instrument response time and sample probe diameter shall still be met.

c. The scale of the instrument meter shall be readable to ±2.5 percent of the specified leak definition concentration when performing a no detectable emission survey.

d. The instrument shall be equipped with an electrically driven pump to insure that a sample is provided to the detector at a constant flow rate. The nominal sample flow rate, as measured at the sample probe tip, shall be 0.10 to 3.0 liters per minute when the probe is fitted with a glass wool plug or filter that may be used to prevent plugging of the instrument.

e. The instrument shall be intrinsically safe as defined by the applicable U.S.A. standards (e.g., National Electric Code by the National Fire Prevention Association) for operation in any explosive atmospheres that may be encountered in its use. The instrument shall, at a minimum, be intrinsically safe for Class 1, Division 1 conditions, and Class 2, Division 1 conditions, as defined by the example Code. The instrument shall not be operated with any safety device, such as an exhaust flame arrestor, removed.

f. The instrument shall be equipped with a probe or probe extension for sampling not to exceed ¼ in. in outside diameter, with a single end opening for admission of sample.

3.1.2 Performance Criteria.

(a) The instrument response factors for each of the VOC to be measured shall be less than 10. When no instrument is available that meets this specification when calibrated with the reference VOC specified in the applicable regulation, the available instrument may be calibrated with one of the VOC to be measured, or any other VOC, so long as the instrument then has a response factor of less than 10 for each of the VOC to be measured.

(b) The instrument response time shall be equal to or less than 30 seconds. The instrument pump, dilution probe (if any), sample probe, and probe filter, that will be used during testing, shall all be in place during the response time determination.

c. The calibration precision must be equal to or less than 10 percent of the calibration gas value.

d. The evaluation procedure for each parameter is given in Section 4.4.

3.1.3 Performance Evaluation Requirements.

a. A response factor must be determined for each compound that is to be measured, either by testing or from reference sources. The response factor tests are required before placing the analyzer into service, but do not have to be repeated at subsequent intervals.

b. The calibration precision test must be completed prior to placing the analyzer into service, and at subsequent 3-month intervals or at the next use whichever is later.

c. The response time test is required prior to placing the instrument into service. If a modification to the sample pumping system or flow configuration is made that would change the response time, a new test is required prior to further use.

3.2 Calibration Gases. The monitoring instrument is calibrated in terms of parts per million by volume (ppmv) of the reference compound specified in the applicable regulation. The calibration gases required for monitoring and instrument performance evaluation are a zero gas (air, less than 10 ppmv VOC) and a calibration gas in air mixture approximately equal to the leak definition specified in the regulation. If cylinder calibration gas mixtures are used, they must be analyzed and certified by the manufacturer to be within ±2 percent accuracy, and a shelf life must be specified. Cylinder standards must be either reanalyzed or replaced at the end of the specified shelf life. Alternately, calibration gases may be prepared by the user according to any accepted gaseous standards preparation procedure that will yield a mixture accurate to within ±2 percent. Prepared standards must be replaced each day of use unless it can be demonstrated that degradation does not occur during storage.

Calibrations may be performed using a compound other than the reference compound if a conversion factor is determined for that alternative compound so that the resulting meter readings during source surveys can be converted to reference compound results.

4. *Procedures*

4.1 Pretest Preparations. Perform the instrument evaluation procedures given in Section 4.4 if the evaluation requirements of Section 3.1.3 have not been met.

4.2 Calibration Procedures. Assemble and start up the VOC analyzer according to the manufacturer's instructions. After the appropriate warmup period and zero internal calibration procedure, introduce the calibration gas into the instrument sample probe. Adjust the instrument meter readout to correspond to the calibration gas value.

NOTE: If the meter readout cannot be adjusted to the proper value, a malfunction of the analyzer is indicated and corrective actions are necessary before use.

4.3 Individual Source Surveys.

4.3.1 Type I—Leak Definition Based on Concentration. Place the probe inlet at the surface of the component interface where leakage could occur. Move the probe along the interface periphery while observing the instrument readout. If an increased meter reading is observed, slowly sample the interface where leakage is indicated until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately two times the instrument response time. If the maximum observed meter reading is greater than the leak definition in the applicable regulation, record and report the results as specified in the regulation reporting requirements. Examples of the application of this general technique to specific equipment types are:

a. Valves—The most common source of leaks from valves is at the seal between the stem and housing. Place the probe at the interface where the stem exits the packing gland and sample the stem circumference. Also, place the probe at the interface of the packing gland take-up flange seat and sample the periphery. In addition, survey valve housings of multipart assembly at the surface of all interfaces where a leak could occur.

b. Flanges and Other Connections—For welded flanges, place the probe at the outer edge of the flange-gasket interface and sample the circumference of the flange. Sample other types of nonpermanent joints (such as threaded connections) with a similar traverse.

c. Pumps and Compressors—Conduct a circumferential traverse at the outer surface of the pump or compressor shaft and seal interface. If the source is a rotating shaft, position the probe inlet within 1 cm of the shaft-seal interface for the survey. If the housing configuration prevents a complete traverse of the shaft periphery, sample all accessible portions. Sample all other joints on the pump or compressor housing where leakage could occur.

d. Pressure Relief Devices—The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere.

e. Process Drains—For open drains, place the probe inlet at approximately the center of the area open to the atmosphere. For covered drains, place the probe at the surface of

the cover interface and conduct a peripheral traverse.

f. Open-Ended Lines or Valves—Place the probe inlet at approximately the center of the opening to the atmosphere.

g. Seal System Degassing Vents and Accumulator Vents—Place the probe inlet at approximately the center of the opening to the atmosphere.

h. Access Door Seals—Place the probe inlet at the surface of the door seal interface and conduct a peripheral traverse.

4.3.2 Type II—"No Detectable Emission".

Determine the local ambient concentration around the source by moving the probe inlet randomly upwind and downwind at a distance of one to two meters from the source. If an interference exists with this determination due to a nearby emission or leak, the local ambient concentration may be determined at distances closer to the source, but in no case shall the distance be less than 25 centimeters. Then move the probe inlet to the surface of the source and determine the concentration described in 4.3.1. The difference between these concentrations determines whether there are no detectable emissions. Record and report the results as specified by the regulation.

For those cases where the regulation requires a specific device installation, or that specified vents be ducted or piped to a control device, the existence of these conditions shall be visually confirmed. When the regulation also requires that no detectable emissions exist, visual observations and sampling surveys are required. Examples of this technique are:

(a) Pump or Compressor Seals—If applicable, determine the type of shaft seal. Preform a survey of the local area ambient VOC concentration and determine if detectable emissions exist as described above.

(b) Seal System Degassing Vents, Accumulator Vessel Vents, Pressure Relief Devices—If applicable, observe whether or not the applicable ducting or piping exists. Also, determine if any sources exist in the ducting or piping where emissions could occur prior to the control device. If the required ducting or piping exists and there are no sources where the emissions could be vented to the atmosphere prior to the control device, then it is presumed that no detectable emissions are present. If there are sources in the ducting or piping where emissions could be vented or sources where leaks could occur, the sampling surveys described in this paragraph shall be used to determine if detectable emissions exist.

4.3.3 Alternative Screening Procedure. A screening procedure based on the formation of bubbles in a soap solution that is sprayed on a potential leak source may be used for those sources that do not have continuously moving parts, that do not have surface temperatures greater than the boiling point or less than the freezing point of the soap solution, that do not have open areas to the atmosphere that the soap solution cannot bridge, or that do not exhibit evidence of liquid leakage. Sources that have these conditions present must be surveyed using the instrument techniques of 4.3.1 or 4.3.2.

Spray a soap solution over all potential leak sources. The soap solution may be a commercially available leak detection solution or may be prepared using concentrated detergent and water. A pressure sprayer or a squeeze bottle may be used to dispense the solution. Observe the potential leak sites to determine if any bubbles are formed. If no bubbles are observed, the source is presumed to have no detectable emissions or leaks as applicable. If any bubbles are observed, the instrument techniques of 4.3.1 or 4.3.2 shall be used to determine if a leak exists, or if the source has detectable emissions, as applicable.

4.4 Instrument Evaluation Procedures. At the beginning of the instrument performance evaluation test, assemble and start up the instrument according to the manufacturer's instructions for recommended warmup period and preliminary adjustments.

4.4.1 Response Factor. Calibrate the instrument with the reference compound as specified in the applicable regulation. For each organic species that is to be measured during individual source surveys, obtain or prepare a known standard in air at a concentration of approximately 80 percent of the applicable leak definition unless limited by volatility or explosivity. In these cases, prepare a standard at 90 percent of the saturation concentration, or 70 percent of the lower explosive limit, respectively. Introduce this mixture to the analyzer and record the observed meter reading. Introduce zero air until a stable reading is obtained. Make a total of three measurements by alternating between the known mixture and zero air. Calculate the response factor for each repetition and the average response factor.

Alternatively, if response factors have been published for the compounds of interest for the instrument or detector type, the response factor determination is not required, and existing results may be referenced. Examples of published response factors for flame ionization and catalytic oxidation detectors are included in Bibliography.

4.4.2 Calibration Precision. Make a total of three measurements by alternately using zero gas and the specified calibration gas. Record the meter readings. Calculate the average algebraic difference between the meter readings and the known value. Divide this average difference by the known calibration value and mutiply by 100 to express the resulting calibration precision as a percentage.

4.4.3 Response Time. Introduce zero gas into the instrument sample probe. When the meter reading has stabilized, switch quickly

to the specified calibration gas. Measure the time from switching to when 90 percent of the final stable reading is attained. Perform this test sequence three times and record the results. Calculate the average response time.

5. *Bibliography*

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METHOD 22—VISUAL DETERMINATION OF FUGITIVE EMISSIONS FROM MATERIAL SOURCES AND SMOKE EMISSIONS FROM FLARES

1. *Introduction*

This method involves the visual determination of fugitive emissions, i.e., emissions not emitted directly from a process stack or duct. Fugitive emissions include emissions that (1) escape capture by process equipment exhaust hoods; (2) are emitted during material transfer; (3) are emitted from buildings housing material processing or handling equipment; and (4) are emitted directly from process equipment. This method is used also to determine visible smoke emissions from flares used for combustion of waste process materials.

This method determines the amount of time that any visible emissions occur during the observation period, i.e., the accumulated emission time. This method does not require that the opacity of emissions be determined. Since this procedure requires only the determination of whether a visible emission occurs and does not require the determination of opacity levels, observer certification according to the procedures of Method 9 are not required. However, it is necessary that the observer is educated on the general procedures for determining the presence of visible emissions. As a minimum, the observer must be trained and knowledgeable regarding the effects on the visibility of emissions caused by background contrast, ambient lighting, observer position relative to lighting, wind, and the presence of uncombined water (condensing water vapor). This training is to be obtained from written materials found in Citations 1 and 2 of Bibliography or from the lecture portion of the Method 9 certification course.

2. *Applicability and Principle*

2.1 Applicability. This method applies to the determination of the frequency of fugitive emissions from stationary sources (located indoors or outdoors) when specified as the test method for determining compliance with new source performance standards.

This method also is applicable for the determination of the frequency of visible smoke emissions from flares.

2.2 Principle. Fugitive emissions produced during material processing, handling, and transfer operations or smoke emissions from flares are visually determined by an observer without the aid of instruments.

3. *Definitions*

3.1 Emission Frequency. Percentage of time that emissions are visible during the observation period.

3.2 Emission Time. Accumulated amount of time that emissions are visible during the observation period.

3.3 Fugitive Emissions. Pollutant generated by an affected facility which is not collected by a capture system and is released to the atmosphere.

3.4 Smoke Emissions. Pollutant generated by combustion in a flare and occurring immediately downstream of the flame. Smoke occurring within the flame, but not downstream of the flame, is not considered a smoke emission.

3.5 Observation Period. Accumulated time period during which observations are conducted, not to be less than the period specified in the applicable regulation.

4. *Equipment*

4.1 Stopwatches. Accumulative type with unit divisions of at least 0.5 seconds; two required.

4.2 Light Meter. Light meter capable of measuring illuminance in the 50- to 200-lux range; required for indoor observations only.

5. *Procedure*

5.1 Position. Survey the affected facility or building or structure housing the process to be observed and determine the locations of potential emissions. If the affected facility is located inside a building, determine an observation location that is consistent with the requirements of the applicable regulation (i.e., outside observation of emissions escaping the building/structure or inside observation of emissions directly emitted from the affected facility process unit). Then select a position that enables a clear view of the potential emission point(s) of the affected facility or of the building or structure housing the affected facility, as appropriate for the applicable subpart. A position at least 15 feet, but not more than 0.25 miles, from the emission source is recommended. For outdoor locations, select a position where the sun is not directly in the observer's eyes.

5.2 Field Records.