

**GENERAL AIR QUALITY OPERATING PERMIT (#6096) FOR
NESHAP GASOLINE DISPENSING FACILITIES (GDF)**

TECHNICAL SUPPORT DOCUMENT (TSD)

I. GENERAL COMMENTS:

The Pima County Department of Environmental Quality (PDEQ) created this general permit and application for those sources that have a minimum yearly throughput of 6,000,000 gallons (40 tons VOC without controls) and a maximum yearly throughput of 28,000,000 gallons (< 40 tons with controls), subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP). This will streamline the permitting process for the large number of sources which would otherwise require substantially similar individual source permits. This action shall reduce PDEQ's workload and afford decreased permitting timeframes. To obtain coverage under this general permit, the applicant shall complete the general permit application form for NESHAP Gasoline Dispensing Facilities in order to obtain an Authorization to Operate (ATO). Sources that are or will be located in non-attainment areas may or may not qualify for this general permit and should contact the department to verify applicability.

II. SOURCE DESCRIPTION

Sources covered by this general permit include GDFs with a minimum yearly throughput of 6,000,000 gallons (40 tons VOC without controls) and a maximum yearly throughput of 28,000,000 gallons (40 tons VOC with controls). These sources must not otherwise require an air quality permit for other equipment or processes located or conducted on-site. Sources with other equipment or processes cannot obtain this general permit and are required to submit a complete permit application to obtain an individual source permit from PDEQ.

The primary pollutants emitted from GDFs are Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs). Sources covered by this general permit shall emit less than significant emission levels on an individual basis for all criteria pollutants either by operational design or via a federally enforceable limitation (i.e. voluntarily accepted limitation on throughput by the applicant).

The NESHAP requires all GDF with a minimum monthly throughput of 10,000 gallons to equip all gasoline storage tanks with a submerged filling device. Additionally, all sources with a minimum monthly throughput of 100,000 gallons are required to operate a vapor balance system on gasoline storage tanks. This permit covers sources subject to all of the NESHAP requirements based on the minimum 6,000,000 gallons yearly throughput criteria, which mathematically requires a monthly throughput of 100,000 gallons or more.

III. EMISSIONS ESTIMATES

Emission estimates will be calculated by PDEQ. PDEQ has set the maximum yearly throughput for this general permit at 28,000,000 gallons. This is based upon AP 42 emission rates, and the supplemental information from the EPA as follows:

Per AP 42, Table 5.2-7 provides the following emission rates for **uncontrolled** gasoline dispensing:

Balanced Submerged Filling	0.3 lb/10 ³ gal
Underground Tank Breathing and Emptying	1.0 lb/10 ³ gal
Uncontrolled Displacement Losses	11.0 lb/10 ³ gal
<u>Spillage</u>	<u>0.7 lb/10³ gal</u>
Total	13.0 lb/10³ gal (or 0.013 lbs/gal)

Since 1998, vehicle onboard refueling vapor recovery (ORVR) systems, which are demonstrated to achieve a 98% control efficiency for the displacement loss portion of the above emission rates, have been penetrating the national gasoline fueled vehicle fleet such that, as of 2020, it is estimated that 94.3 % of the percentage of gasoline dispensed is controlled through ORVR systems (Ref. Table A-1, EPA Memorandum ‘Guidance on Removing State II Gasoline Refueling Vapor Recovery Programs from State Implementation plans, dated August 7, 2012). Taking ORVR control efficiency and the market penetration into account, controlled displacement losses calculate to the following:

$$\begin{aligned}
 \text{Displacement Losses} &= 94.3\% \text{ of fleet with ORVR} &&= 11.0 \text{ lb/1000 gal} \times .02 \times .943 = 0.22 \text{ lb/1000 gal} \\
 &+ 5.7\% \text{ of fleet without ORVR} &&= 11.0 \text{ lb/1000 gal} \times .057 = 0.63 \text{ lb/1000 gal} \\
 &100\% &&= \mathbf{0.83 \text{ lb/1000 gal}}
 \end{aligned}$$

Recalculating the above emission rates with the adjusted displacement losses for ORVR market penetration as of 2020, yields an overall facility emission rate equal to the following:

Balanced Submerged Filling	0.3 lb/10 ³ gal
Underground Tank Breathing and Emptying	1.0 lb/10 ³ gal
Controlled Displacement Losses	0.83 lb/10 ³ gal
Spillage	0.7 lb/10 ³ gal
Total	2.83 lb/10³ gal (or 0.00283 lbs/gal)

The sum of all emissions from any source eligible to operate under this general permit shall be less than the following rates:

Pollutant	Emissions (tons/yr)
NO _x	N/A
CO	N/A
SO _x	N/A
VOC	<40
PM ₁₀	< 1
HAP (individual)	1.16
HAPs (combined)	5.46

PDEQ has capped sources eligible for this general permit at 40 tons a year to keep the facility emissions below the significant emissions threshold for VOC.

$$\begin{aligned}
 40 \text{ tons} \times 2000 &= 80,000 \text{ lbs} \\
 80,000 / .00283 \text{ lbs/gal} &= 28.3 \text{ million gallons} - \text{significant emissions threshold} \\
 20 \text{ tons} \times 2000 &= 40,000 \text{ lbs} \\
 40,000 / .00283 \text{ lbs/gal} &= 14.1 \text{ million gallons} - \text{State minor NSR threshold}
 \end{aligned}$$

In actual practice yearly throughputs greater than 28,000,000 gallons, based on a 365-day rolling total, will require a PDEQ individual permit.

PDEQ has calculated the combined HAP emission based upon 11.0% of VOCs for one half of the year and 16.3% VOCs for the other half. Using the average of those, 13.65%, combined HAPS for this permit are 40 tons * .1365 = 5.46 tpy. In one half of the year, Hexane, the individual HAP with the highest concentration is 4.4%. In the other half of the year, Hexane is 1.4%. Using the average of those at 2.9%, the highest concentration of an individual HAP is 2.61 tpy. (0.029 * 40 = 1.16 tpy)

Based on the above estimates, facilities covered by this General Permit shall be **Class II, Minor, Stationary Sources**.

IV. APPLICABLE REQUIREMENTS

A. NESHAP– Sources are subject to:

40 CFR 63, Subpart CCCCCC

National Emission Standards for Hazardous Air Pollutants for Source Categories: Gasoline Dispensing Facilities

These Standards were promulgated on January 10, 2008, amended on March 7, 2008 and finalized on January 24, 2011. All final and pending amendments have been included in the permit text. Any further updates will be incorporated as PDEQ becomes aware.

B. NSPS – (New Source Performance Standards) No NSPS rules apply to GDFs.

C. Pima County Code (PCC) – The following PCC rules apply:

17.13.020 Permit Contents for Class II and Class III permits

V. PERMIT CONTENTS—Specific Conditions

A. Applicability – Gasoline Dispensing Facility which is required to obtain a permit pursuant to Title 17 of the Pima County Code (PCC) 17.11.090.B.2.b.

B. Emissions Limits and Standards

1. Operational Limitations

Standard	Discussion	Authority
Condition 10.a	”Once in, always in,” rule for monthly throughput limits. If a Permittee exceeds a throughput threshold, the standards governing that higher throughput will be enforced permanently, despite any subsequent drop below the higher throughput limit. This was added in the revision of the Final Rule.	40 CFR 63.1111(i) PCC 17.12.190.B
Condition 10.b	Requirement to seek an individual permit, if any 365-day, rolling total throughput exceeds 28,000,000 gallons. This is the point at which the VOCs exceed the 40 tons per year emissions cap. See calculations in part III of this TSD.	PCC 17.11.190.B

2. Air Pollution Controls

Standard	Discussion	Authority
Condition 11.a	Requirement to minimize vapor releases by employing measures to minimize spills, employ expeditious cleanup, use gasketed seals and minimize gasoline sent to open waste collection systems.	40 CFR 63.11116(a)
Condition 11.b	Clarification for portable gasoline tanks filled from the GDF and used to dispense gasoline into engines on-site. Added in amendment of the Final Rule.	40 CFR 63.11111(j)

Condition 11.c	Requirement to install submerged filling devices on all gasoline storage tanks greater than 249 gallons. Those installed on or before 11/9/06 shall be no more than 12 inches from the bottom of the tank, while those installed after 11/9/06 must be no more than 6 inches from the bottom. An amendment to the Final Rule allows for submerged pipes not meeting these specifications to be considered if the Permittee can prove the tank's liquid level will always be above the entire opening of the tank.	40 CFR 63.11117(b) &(c)
Condition 11.d	Requirement for sources with monthly throughputs of 100,000 gallons or more, to operate a vapor balance system in compliance with one of three options: adherence to existing enforceable State, local or tribal rules; adherence to a specific list of management practices; or, achievement of a 95% emission reduction	40 CFR 63.11118, Table 1 to Subpart CCCCCC, 40 CFR 63.6(g), 40 CFR 63.11120(b)(1)

C. Monitoring and Recordkeeping Requirements

1. Operational Limitations

Standard	Discussion	Authority
Condition 12.a	Requirement to operate and maintain the GDF and all associated pollution control equipment and monitoring equipment in a manner consistent with safety and minimizing emissions. Standard operation and maintenance requirement.	40 CFR 63.6(e)(1)(i)
Condition 12.b	Requirement to provide proof of throughput.	40 CFR 63.11111 (e)
Condition 12.c	Calculation clarification for monthly throughputs. Each day's addition or subtraction of fuel must be added to previous 364 days and the current 365 readings divided by 12. This gives a rolling, monthly throughput updated each day. This was clarified in the additions to the Final Rule.	40 CFR 63.11132

2. Air Pollution Controls

Standard	Discussion	Authority
Condition 13.a	Requirement to inspect submerged fill devices at least annually. This equipment must be continuously operational to limit a source's potential to emit. This is a PDEQ-specific requirement.	PCC 17.13.020.A.3.c
Condition 13.b	Requirement to inspect vapor balance systems at least annually. This equipment must be continuously operational to limit a source's potential to emit. This is a PDEQ-specific requirement.	PCC 17.13.020.A.3.c

3. Recordkeeping

Standard	Discussion	Authority
Condition 14.a	Clarification as to when throughput documentation must begin. This was an amendment to the Final Rule.	40 CFR 63.11111(e)
Condition 14.b	Detailed explanation of recorded data required to comply with Conditions 13.a and b of the permit (annual inspections of submerged fill equipment and vapor balance equipment). This is a PDEQ-specific requirement.	PCC 17.13.020.A.3.c
Condition 14.c	Requirement to retain records of testing results performed under § 7 of the Specific Conditions, for 5 years and make available for inspection.	40 CFR 63.11125 & 40 CFR 63.11120(c)

Condition 14.d	Requirement to maintain all other records demonstrating compliance with permit for 5 years.	PCC 17.13.020.A.4.b
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D. Reporting Requirements

Standard	Discussion	Authority
Condition 15	Requirement to submit a Notification of Performance Test prior to testing required in Conditions 19 and 20 of the Specific Conditions.	40 CFR 63.9(e) 40 CFR 63.1124(b)(4)
Condition 16	Requirement to submit a Notification of Compliance Status within 60 days of completing required performance testing. Updated in amendment to Final Rule	40 CFR 63.1124(b)(2) & 40 CFR 63.9(h)(2)(ii)
Condition 17	Requirement to report results of all volumetric efficiency tests, required under section Condition 20 of the Specific Conditions, within 180 of performance test completion.	40 CFR 63.11126

Reporting Requirements (continued)

Standard	Discussion	Authority
Condition 18	Requirement to submit completed annual inventory questionnaire when requested.	PCC 17.12.320

E. Testing Requirements

Standard	Discussion	Authority
Condition 19.a	Requirement to demonstrate equivalency of alternative vapor balance system, operated according to Condition 11.d.iii of the Specific Conditions, to that detailed in Condition 11.d.ii.	40 CFR 63.11120(b)(1)
Condition 19.b	Requirement to determine and document alternative values for leak rates and static pressure requirements under the alternative vapor balance system.	40 CFR 63.11120(b)(2)
Condition 20.a	Requirement to test leak rate and pressure of vapor balance system at installation and every three (3) years thereafter. Test Method via CARB or equivalent.	40 CFR 63.11120(a)(1)
Condition 20.b	Requirement to test static pressure of vapor balance system at installation and every three (3) years thereafter. Test method via CARB or equivalent.	40 CFR 63.11120(a)(2)
Condition 20.c	Deadline requirements for completing initial compliance performance tests. This was added in an amendment to the Final Rule	40 CFR 63.11113(e)
Condition 21	Requirement for all testing to be conducted under normal operating conditions	40 CFR 63.11120(c)

VI. PERMIT CONTENTS—Attachments

A. Attachment 1

A listing of generally applicable rules or requirements.

B. Attachment 2

Authority to Operate (ATO)

Standard	Discussion	Authority
I	Facility Information including Business Name, Facility Name, Responsible Official, Contact and Source Location taken from Standard Application Form	PCC 17.13.010.A
II	Authorized Equipment regarding storage tanks and associate pollution control equipment including assigned ATO/permit number, tank ID, tank volume, tank manufacture date, tank installation date, submerged fill device installation date and clearance, and vapor balance system type and installation date.	40 CFR 63 Subpart CCCCCC
III	Throughput Limitation for facility-wide, maximum yearly rolling total in gallons. The limits of this permit require a throughput of 6,000,000 to 28,000,000 gallons.	40 CFR 63 Subpart CCCCCC

C. Attachment 3

General Conditions

§ 1: General Provisions applicable to all Class II and III permits

§ 2: NESHAP Subpart CCCCCC specific definitions

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