



Washington State Implementation Plan Revision

Revised Southwest Clean Air Agency
491 Emission Standards and Controls
for Sources Emitting Gasoline Vapors

By Jack Millard
For the Air Quality Program

Washington State Department of Ecology
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Contact Information

Air Quality Program

P.O. Box 47600

Olympia, WA 98504-7600

Phone: 360-407-6800

Website: <https://ecology.wa.gov/contact>

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Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400
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Region	Counties Served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	PO Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	PO Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 W Alder St Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 N Monroe Spokane, WA 99205	509-329-3400
Headquarters	Across Washington	PO Box 46700 Olympia, WA 98504	360-407-6000

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- Clint Lamoreaux, Chief Engineer
- Wess Safford, Air Quality Engineer

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- Randall Ruddick, Air and Planning Section – Team Lead
- Jeff Hunt, Air Quality Planner

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Washington State Department of Ecology
Headquarters
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DEPARTMENT OF
ECOLOGY
State of Washington

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Acronyms and Abbreviations

ADA	Americans with Disabilities Act
CAA.....	United States Clean Air Act
Ecology	Washington State Department of Ecology
EFSEC.....	Energy Facility Site Evaluation Council
EPA	United States Environmental Protection Agency
FR.....	Federal Register
LCAA	Local Clean Air Agency
NAAQS.....	National Ambient Air Quality Standards
ORVR	Onboard Refueling Vapor Recovery
RCW.....	Revised Code of Washington
SIP.....	State Implementation Plan
SSM	Startup, Shutdown, and Malfunction
Stage II.....	Stage II Gasoline Vapor Recovery
SWCAA	Southwest Clean Air Agency
SWCAA 400	Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources
SWCAA 491	Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors
U.S.C.....	United States Code
WAC.....	Washington Administrative Code
WSR.....	Washington State Register

Executive Summary

This is one of three State Implementation Plan (SIP) revisions proposed by the Southwest Clean Air Agency (SWCAA) that the Washington State Department of Ecology (Ecology) is submitting to the United States Environmental Protection Agency (EPA) after public comment and review.

This SIP revision relates to SWCAA 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors (SWCAA 491). Ecology is submitting separate SIP revision packages relating to SWCAA 400—one for the Startup, Shutdown, and Malfunction (SSM) provisions in SWCAA 400, and another for the non-SSM provisions in SWCAA 400. SWCAA proposed updating the SIP because it amended local regulations that impact how the agency complies with requirements of the federal Clean Air Act (CAA).

The SIP is a collection of state and local regulations that shows how the state will attain, maintain, and enforce National Ambient Air Quality Standards (NAAQS) and other requirements of the CAA. To update state and local regulations in the SIP, Ecology submits proposed SIP revisions to EPA. The EPA's approval of SIP revisions does not change existing local regulations; instead, it outlines which portions of those local regulations are enforceable in federal court under the Citizen Suit provision of the CAA.

The changes in this SIP revision include regulations for gasoline vapor recovery in SWCAA 491, which SWCAA amended in January 2020, following public comment and review. The new rule, effective February 7, 2020, phases out Stage II gasoline vapor recovery systems in SWCAA's jurisdiction. An impact analysis conducted by SWCAA shows the new rule will reduce emissions and benefit all counties in SWCAA's jurisdiction.

SWCAA is one of seven local clean air agencies in Washington State. SWCAA has jurisdiction over most air pollution sources in Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties, except for sources located on tribal lands and sources subject to federal or state jurisdiction. This SIP revision is only applicable within SWCAA's jurisdiction.

Ecology invited the public to comment on the proposed SIP revision from March 13, 2023, through April 21, 2023. In addition, Ecology offered to host a public hearing upon request. Nobody commented, offered testimony, or requested a hearing pursuant to the public notice. Ecology made no substantive adjustments to content in response to feedback from the public, as none was received, and no public hearing was held, as none was requested.

With this submittal, Ecology is requesting that EPA approve the revised portions of SWCAA 491, as identified, for inclusion in the SIP. This SIP revision does not change state or local regulations that have already taken effect, nor does it relax existing federal protections under the CAA.

SWCAA 491 SIP Revision

Background

The federal Clean Air Act (CAA) authorizes the United States Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide. The CAA requires each state to develop an implementation plan that shows how it will attain, maintain, and enforce NAAQS and other federal requirements of the CAA.

The Washington State Implementation Plan (SIP) includes various air quality regulations and programs that have been adopted by the Washington State Department of Ecology (Ecology), the Energy Facility Site Evaluation Council (EFSEC), and seven local clean air agencies (LCAAs). In Washington, the Director of Ecology is designated to handle SIP-related matters. Thus, Ecology develops or receives SIP-eligible rules implemented by the state and local agencies, and the Director of Ecology approves the adoption of proposed SIP revisions.

To include new and revised state and local agency rules in the Washington SIP, Ecology submits proposed SIP revisions to EPA after a reasonable notice, comment period, and public hearing upon request. When EPA approves state and local regulations for inclusion in the SIP, those regulations become federally enforceable. EPA reviews SIP revisions to ensure each state has the regulatory infrastructure to attain and maintain NAAQS and other requirements of the CAA. Congress established EPA's oversight through the SIP review process to prevent backsliding in states' implementation of NAAQS, and to provide an enforcement tool for private citizens under the Citizen Suit provision of the CAA.

The Revised Code of Washington (RCW), previously RCW 70.94 and currently RCW 70A.15, and the federal CAA (42 U.S.C. 7401 et seq.) authorize the Southwest Clean Air Agency (SWCAA), one of Washington's seven LCAAs, to adopt regulations for the control of air contaminant emissions within SWCAA's jurisdiction.

SWCAA primarily adopts, implements, and enforces state rules. In some instances, however, SWCAA adopts its own rules and standards in lieu of statewide provisions outlined in the Washington Administrative Code (WAC). SWCAA has jurisdiction over most air pollution sources in Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties, except for sources located on tribal lands and sources subject to federal or state jurisdiction.

Scope of SIP Revision

This is one of three SIP revision packages that Ecology is submitting to EPA on behalf of SWCAA.

- In this submittal, Ecology requests that EPA incorporate certain revised portions of SWCAA 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors (SWCAA 491), as identified later in this document.
- Concurrently, Ecology is submitting separate SIP revisions that relate to SWCAA 400—one for Startup, Shutdown, and Malfunction (SSM) provisions in SWCAA 400, and another for the non-SSM provisions in SWCAA 400.

We are submitting separate SIP revision packages to streamline the EPA’s approval process. Each SIP revision relates to different portions of SWCAA’s rules.

This SIP revision applies where SWCAA has jurisdiction in Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties. This SIP revision does not apply where SWCAA does not have jurisdiction, including major energy facilities under EFSEC’s jurisdiction and any area with tribal jurisdiction.

Purpose of SIP Revision

The purpose of this SIP revision is to ensure that the SIP contains updated SWCAA 491 rules for sources emitting gasoline vapors that are no less stringent than the rules in the current SIP.

Project Origins

The current SIP contains an old version of SWCAA 491 that EPA last approved on May 19, 1997. The old rule prescribes Stage II gasoline vapor recovery (Stage II) systems. Since the early 2000s, gasoline-powered vehicles have been equipped with onboard refueling vapor recovery (ORVR), which largely reduces the need for Stage II systems. The continued use of Stage II systems that are incompatible with ORVR-equipped vehicles leads to increased emissions at those facilities.

In 2012, after determining that ORVR systems are in widespread use in the motor vehicle fleet, EPA relaxed requirements for Stage II systems in SIPs. In a memorandum dated April 7, 2012, EPA provided technical and policy guidance for state and local agencies to phase out existing Stage II requirements from SIPs. In January 2020, after public comment and review, the SWCAA Board of Directors adopted changes to SWCAA 491 in accordance with EPA's 2012 guidance.

The new rule, effective February 7, 2020, phases out Stage II vapor recovery systems in SWCAA’s jurisdiction. SWCAA conducted an impact analysis that shows the rule change will reduce total emissions and benefit every county in SWCAA’s jurisdiction. The impact analysis also demonstrates that the rule change will not interfere with any requirement concerning attainment, reasonable further progress, or any other applicable requirement under the CAA.

SIP Revision Documents

This SIP revision request outlines which provisions of SWCAA 491 to revise in the current SIP. All other portions of the SIP not specifically mentioned below remain unchanged.

- Appendix A contains a SIP Revision Table of changes to SWCAA 491.
- Appendix B contains strikethrough rule language of the changes in Appendix A.
- Appendix C contains the current version, effective February 7, 2020, of SWCAA 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors.
- Appendix D contains SWCAA’s proposal for the SIP update, including an impact analysis that demonstrates the rule change does not interfere with requirements of the CAA.
- Appendix E contains the EPA’s memorandum dated August 7, 2012, regarding “Guidance on Removing Stage II Gasoline Refueling Vapor Recovery Programs from State Implementation Plans.”
- Appendix F contains documentation of the public involvement process.
- Appendix G contains the SIP Adoption Order.

Ecology’s Request

Ecology requests that EPA approve and incorporate into the SIP the submitted portions of SWCAA 491, as described by Appendix A, Table A1, to apply within SWCAA’s jurisdiction.

Public Involvement

Ecology invited the public to comment on the proposed SIP revision from March 13, 2023, through April 21, 2023. Additionally, Ecology offered to hold a public hearing for the SIP revision if one was requested by April 12, 2023, as allowed by 40 C.F.R. Section 51.102.

No comments were received by Ecology, and no testimony was offered at a public hearing. Ecology did not hold a hearing because none was requested pursuant to the public notice. To satisfy state and federal requirements for public review, Ecology took the following actions to notify the public about the comment period and opportunity to request a hearing:

- Published a legal notice in the *Seattle Daily Journal of Commerce* on March 14, 2023.
- Transmitted emails to subscribers of Ecology’s “Air Quality Rule and SIP” distribution list.
- Posted public notice information to Ecology’s “Infrastructure, rule & program plans” webpage.
- Updated Ecology’s “Events Listing” public calendar with additional details about the comment period and tentative hearing date.

Differences Between Public Review Draft and Final SIP Revision

- The executive summary, this subsection, and Appendix F were updated with details about the completed public involvement process.
- Minor, non-substantive changes, such as page numbering and formatting adjustments, were made in preparation for final submission to EPA. No substantive changes were made between the public review draft and this final document.

Appendices

Appendix A. SIP Revision Table

Table A1: SWCAA 491 for Proposed Approval and Incorporation into the SIP

State/Local Citation	Title/Subject	State/Local Effective Date	SIP Action	Explanation
491-010	Policy and Purpose	11/21/96	Replace version effective 11/21/96 with 2020 version	
49-015	Applicability	11/21/96	Replace version effective 11/21/96 with 2020 version	
491-020	Definitions	11/21/96	Replace version effective 11/21/96 with 2020 version	
491-030	Registration	11/21/96	Replace version effective 11/21/96 with 2020 version	
491-040	Gasoline Vapor Control Requirements	11/21/96	Replace version effective 11/21/96 with 2020 version	
491-050	Failures, Certification, Testing & Recordkeeping	11/21/96	Replace version effective 11/21/96 with 2020 version	
491-060	Severability	11/21/96	Replace version effective 11/21/96 with 2020 version	

Appendix B. Strikethrough Rule Language of Changes to SWCAA 491

WSR 00-11-149

This document contains strikethrough rule language of changes to SWCAA 491 that took effect on June 24, 2000. SWCAA adopted subsequent changes to SWCAA 491 in 2001, 2017, and 2020.

WSR 00-11-149
PERMANENT RULES
SOUTHWEST AIR
POLLUTION CONTROL AUTHORITY

[Filed May 24, 2000, 9:14 a.m.]

Date of Adoption: May 4, 2000.

Purpose: To update SWAPCA 491 to be consistent with chapter 173-491 WAC and to incorporate language similar to that adopted by Oregon DEQ for gasoline marine vessel loading and unloading vapor control requirements and to incorporate annual air-to-liquid testing on all vacuum assisted Stage II systems.

Citation of Existing Rules Affected by this Order: Amending SWAPCA 491-015, 491-020, 491-030, 491-040, and 491-050.

Statutory Authority for Adoption: RCW 70.94.141.

Other Authority: RCW 70.94.165.

Adopted under notice filed as WSR 00-06-005 on February 18, 2000.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 3, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 5, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 5, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 5, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Effective Date of Rule: Thirty-one days after filing.

May 22, 2000

Robert D. Elliott
Executive Director

SWAPCA 491
EMISSION STANDARDS AND CONTROLS FOR
SOURCES EMITTING GASOLINE VAPORS

491-010	Policy and Purpose
491-015	Applicability
491-020	Definitions
491-030	Registration
491-040	Gasoline Vapor Control Requirements
491-050	Failures, Certification, Testing and Recordkeeping
491-060	Severability

SWAPCA 491-010 Policy and Purpose

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; 96-21-102 filed 10/21/96, effective 11/21/96]

(1) It is the policy of the Southwest Air Pollution Control Authority (SWAPCA) under the authority provided in Chapter 70.94.141, 70.94.152 and 70.94.331 RCW to provide for the systematic control of air pollution from air contaminant sources within the jurisdiction of SWAPCA.

(2) It is the purpose of this regulation to establish standards for the control of air contaminants emitted from gasoline marketing and dispensing sources within the jurisdiction of SWAPCA including Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties.

AMENDATORY SECTION

SWAPCA 491-015 Applicability

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; 96-21-102 filed 10/21/96, effective 11/21/96]

This regulation applies to gasoline marketing operations within SWAPCA jurisdiction, including the storage, transport, and transfer of gasoline, transfer from storage tanks into transport tanks, marine vessel loading and unloading, and transfer from storage tanks into motor vehicles. This regulation applies to facilities with above ground and underground storage tanks.

AMENDATORY SECTION

WAC 491-020 Definitions

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; 96-21-102 filed 10/21/96, effective 11/21/96]

The definitions of terms contained in SWAPCA 400 are by this reference incorporated into this regulation. Unless a different meaning is clearly required by context, the following words and phrases, as used in this regulation, shall have the following meanings:

(1) "Bottom loading" means the filling of a tank through a line entering the bottom of the tank.

(2) "Bulk gasoline plant" means a gasoline storage and transfer facility that receives more than ninety percent of its annual gasoline throughput by transport tank, and reloads gasoline into transport tanks.

(3) "Bunkering" means, for purpose of this rule, refueling a vessel with a fuel product where the intended use of that gasoline or fuel product is for combustion in the onboard engine of the marine vessel.

(4) "Canister capture rate" means canister effectiveness times the percent of light duty vehicles that have onboard vapor recovery systems.

(5) "Canister effectiveness" means the percent of refueling vapors recovered by a representative onboard vapor recovery system.

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(6) "Centroid" means the geometric center of a gas pump or a bank of gas pumps or, if a station has more than one bank of pumps, the geometric center of each bank of pumps.

((3)7) "Certified vapor recovery system" means a vapor recovery system which has been certified by the California Air Resources Board (CARB). Only Stage II vapor recovery systems with a single coaxial hose can be certified. SWAPCA may certify vapor recovery systems in addition to those certified by the California Air Resources Board as of the effective date of the regulation.

(8) "Gas freed" means a marine vessel's cargo tank has been certified by a Marine Chemist as "Safe for Workers" according to the requirements outlined in the National Fire Protection Association Rule 306.

((4)9) "Gasoline" means a petroleum distillate which is a liquid at standard conditions and has a true vapor pressure greater than four pounds per square inch absolute (4.0 psia) at twenty degrees C (20 °C), and is used as a fuel for internal combustion engines. Also any liquid sold as a vehicle fuel with a true vapor pressure greater than four pounds per square inch absolute at twenty degrees C (20 °C) shall be considered "gasoline" for purpose of this regulation.

((5)10) "Gasoline dispensing facility" means any site dispensing gasoline into motor vehicle fuel tanks from stationary storage tanks (above ground or underground).

((6)11) "Gasoline loading terminal" means a gasoline transfer facility that receives more than ten percent of its annual gasoline throughput solely or in combination by pipeline, ship or barge, and loads gasoline into transport tanks.

((7)12) "Leak free" means a liquid leak of less than four drops per minute.

(13) "Lightering" means the transfer of fuel product into a cargo tank from one marine tank vessel to another.

(14) "Loading event" means the loading or lightering of gasoline into a marine tank vessel's cargo tank, or the loading of any product into a marine tank vessel's cargo tank where the prior cargo was gasoline. The event begins with the connection of a marine tank vessel to a storage or cargo tank by means of piping or hoses for the transfer of a fuel product from the storage or cargo tank(s) into the receiving marine tank vessel. The event ends with disconnection of the pipes and/or hoses upon completion of the loading process.

(15) "Marine tank vessel" means any marine vessel constructed or converted to carry liquid bulk cargo that transports gasoline.

(16) "Marine terminal" means any facility or structure used to load or unload any fuel product cargo into or from marine tank vessels.

(17) "Marine vessel" means any tugboat, tanker, freighter, passenger ship, barge or other boat, ship or watercraft.

(18) "Modified" means any physical change in equipment, or change in the method of operation, of a gasoline dispensing facility, terminal, or loading or unloading facility, that increases the amount of any air contaminant emitted by such source or that results in the emission of any air contaminant not previously emitted. The term modified shall be construed consistent with the definitions of modification in Section 7411, Title 42, United States Code, and with rules

implementing that section. Section 7411 exempts changes in gasoline throughput not resulting directly from a physical change.

(19) "NAAQS" means National Ambient Air Quality Standard.

(20) "Ozone contributing county" means a county in which the emissions have contributed to the formation of ozone in any county or area where violation of federal ozone standards have been measured, and includes: Cowlitz, Island, Kitsap, Lewis, Skagit, Thurston, Wahkiakum, and Whatcom counties.

(21) "Permanent residence" means a single-family or multi-family dwelling or any other facility designed for use as permanent housing.

((8)22) "SWAPCA" means the Southwest Air Pollution Control Authority.

((9)23) "Stage I" means gasoline vapor recovery during all gasoline marketing transfer operations except motor vehicle refueling.

((10)24) "Stage II" means gasoline vapor recovery during motor vehicle refueling operations from stationary tanks.

((11)25) "Submerged fill line" means any discharge pipe or nozzle which meets either of the following conditions:

- Where the tank is filled from the top, the end of (upper cut of the bevel on) the discharge pipe or nozzle must be totally submerged when the liquid level is six inches from the bottom of the tank, or;

- Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is eighteen inches from the bottom of the tank.

((12)26) "Submerged loading" means the filling of a tank with a submerged fill line.

((13)27) "Suitable cover" means a door, hatch, cover, lid, pipe cap, pipe blind, valve, or similar device that prevents the accidental spilling or emitting of gasoline. Pressure relief valves, aspirator vents, or other devices specifically required for safety and fire protection are not included.

((14)28) "Throughput" means the amount of material passing through a facility.

((15)29) "Top off" means to attempt to dispense gasoline to a motor vehicle fuel tank after a vapor recovery dispensing nozzle has shut off automatically.

((16)30) "Transport tank" means a container used for shipping gasoline over roadways.

((17)31) "True vapor pressure" means the equilibrium partial pressure of a petroleum liquid as determined by methods described in American Petroleum Institute (API) Bulletin 2517, 1980.

((18)32) "Upgraded" means the modification of a gasoline storage tank, including tank installation or replacement, or piping to add cathodic protection, tank lining or spill and overflow protection that involved removal of ground or ground cover above a portion of the product piping.

((19)33) "Vapor balance system" means a system consisting of the transport tank, gasoline vapor transfer lines, storage tank, and all tank vents designed to route displaced gasoline vapors from a tank being filled with liquid gasoline.

((20)34) "Vapor collection system" means a closed system to conduct vapors displaced from a tank being filled

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into the tank being emptied, a vapor holding tank, or a vapor control system.

~~((21))35~~ "Vapor control system" means a system designed and operated to reduce or limit the emission of gasoline vapors emission into the ambient air.

~~((22))36~~ "Vapor-mounted seal" means a primary seal mounted continuously around the circumference of the tank so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

~~((23))37~~ "Vapor tight" means a leak of less than one hundred percent of the lower explosive limit on a combustible gas detector measured at a distance of one inch from the source or no visible evidence of air entrainment in the sight glasses of liquid delivery hoses.

~~((24))38~~ "WDOE" or "Ecology" means the Washington Department of Ecology.

~~((25))39~~ "Western Washington counties" means the following counties: Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, and Whatcom.

AMENDATORY SECTION

SWAPCA 491-030 Registration

[Statutory Authority: Chapter 70.94.141 RCW, 70.94.151 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; 96-21-102 filed 10/21/96, effective 11/21/96]

(1) The owner or operator of a gasoline loading terminal, bulk gasoline plant, or gasoline dispensing facility subject to the provisions of SWAPCA 491-040 (2) through (5) shall register the facility annually ~~((the facility))~~ with SWAPCA. ~~((Annual registration shall be made by the owner or operator on a form provided by SWAPCA within sixty days of receipt of the form. Such registration form shall require information relevant to determining whether the facility is in compliance with this regulation and be accompanied by the following fee:~~

~~Gasoline loading terminals—five hundred dollars~~

~~Bulk gasoline plants—two hundred dollars~~

~~Gasoline dispensing facilities—one hundred dollars~~

~~Gasoline transport tankers—fifty dollars.~~

~~The amount of the fees collected shall only be used to administer the registration program for facilities subject to this regulation.))~~ Facilities subject to registration under this section shall be assessed fees consistent with and as required in SWAPCA 400-100.

(2) Administration of the registration program shall be consistent with the Registration Program requirements of SWAPCA 400-100. ~~((include:~~

~~(a) Initial registration and annual or other periodic reports from the source owner providing information directly related to air pollution.~~

~~(b) On-site inspections necessary to verify compliance with registration requirements.~~

~~(c) Data storage and retrieval systems necessary for support of the registration program.~~

~~(d) Emission inventory reports and emission reduction credits computed from information provided by sources pursuant to registration.~~

~~(e) Staff review, including engineering analysis for accuracy and currentness, of information provided by sources pursuant to registration program requirements.~~

~~(f) Clerical and other office support provided in direct furtherance of the registration program.~~

~~(g) Administrative support provided in directly carrying out the registration program.))~~

(3) SWAPCA will provide a written verification of registration to owners or operators of facilities subject to the provisions of SWAPCA 491-040 (2) through ~~((56))~~. Such verification shall be available for inspection by SWAPCA personnel during normal business hours.

(4) The owner or operator of a gasoline loading terminal or a gasoline dispensing facility (non-major source) shall maintain total annual gasoline throughput records for the most recent ~~((two))~~ three calendar years. Such records shall be available for inspection by SWAPCA personnel during normal business hours.

AMENDATORY SECTION

SWAPCA 491-040 Gasoline Vapor Control Requirements

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; 96-21-102 filed 10/21/96, effective 11/21/96]

(1) Fixed-roof gasoline storage tanks.

(a) All fixed-roof gasoline storage tanks having a nominal storage capacity greater than forty thousand (40,000) gallons shall comply with one of the following:

(i) Meet the equipment specifications and maintenance requirements of the federal standards of performance for new stationary sources - Storage Vessels for Petroleum Liquids (40 CFR 60, subparts K, Ka and Kb).

(ii) Be retrofitted with a floating roof or internal floating cover using a metallic seal or a nonmetallic resilient seal at least meeting the equipment specifications of the federal standards referred to in (a)(i) of this subsection or its equivalent.

(iii) Be fitted with a floating roof or internal floating cover meeting the manufacturer's equipment specifications in effect when it was installed.

(b) All seals used in (a)(ii) and (iii) of this subsection are to be maintained in good operating condition and the seal fabric shall contain no visible holes, tears, or other openings consistent with 40 CFR 60 subparts Ka and Kb.

(c) All openings not related to safety are to be sealed with suitable closures.

(d) Tanks used for the storage of gasoline in bulk gasoline plants and equipped with vapor balance systems as required in subsection (3)(b) of this section shall be exempt from the requirements of subsection (1) of this section.

(e) All fixed roof gasoline storage tanks subject to this section shall comply no later than December 31, 1993 or at the time that the throughput is exceeded.

(2) Gasoline loading terminals.

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(a) This section shall apply to all gasoline loading terminals with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993 or when the throughput is exceeded.

(b) ~~((Loading facilities--))~~ Facilities loading gasoline into any transport tank shall be equipped with a vapor control system (VCS) as described in (c) of this subsection and comply with the following conditions:

(i) The loading facility shall employ submerged or bottom loading for all transport tanks.

(ii) The VCS shall be connected during the entire loading of all transport tanks.

(iii) The loading of all transport tanks shall be performed such that the transfer is at all times vapor tight. Emissions from pressure relief valves shall not be included in the controlled emissions when the back pressure in the VRS collection lines is lower than the relief pressure setting of the transport tank's relief valves.

(iv) All loading lines and vapor lines shall be equipped to close automatically when disconnected. The point of closure shall be on the tank side of any hose or intermediate connecting line.

(c) ~~((Vapor control system (VCS)--))~~ The VCS shall be designed and built according to accepted industrial practices and meet the following conditions:

(i) The VCS shall not allow organic vapors emitted to the ambient air to exceed thirty-five milligrams per liter (35 mg/l) (three hundred twenty-two milligrams per gallon or 322 mg/gal) of gasoline loaded.

(ii) The VCS shall be equipped with a device to monitor the system while the VCS is in operation.

(iii) The back pressure in the VCS collection lines shall not exceed the transport tank's pressure relief settings.

(3) Bulk gasoline plants and transport tanks.

(a) This section shall apply to all bulk gasoline plants with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993, or when the throughput is exceeded, and gasoline transport tanks.

(b) Deliveries to bulk gasoline plant storage tanks.

(i) The owner or operator of a bulk gasoline plant shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated properly. The vapor balance system shall prevent at least ninety percent of the displaced gasoline vapors from entering the ambient air. A vapor balance system that is designed, built, and operated according to accepted industrial practices will satisfy this requirement.

(ii) Storage tank requirements. All storage tanks with a nominal capacity greater than five hundred fifty (550) gallons and used for the storage of gasoline shall comply with the following conditions:

(A) Each storage tank shall be equipped with a submerged fill line.

(B) Each storage tank shall be equipped for vapor balancing of gasoline vapors with transport tanks during gasoline transfer operations.

(C) The vapor line fittings on the storage tank side of break points with the transport tank vapor connection pipe or hose shall be equipped to close automatically when disconnected.

(D) The pressure relief valves on storage tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety but in no case greater than ninety percent of the tank's safe working pressure.

(iii) Transport tank requirements. All transport tanks transferring gasoline to storage tanks in a bulk gasoline plant shall comply with the following conditions:

(A) The transport tank shall be equipped with the proper attachment fittings to make vapor tight connections for vapor balancing with storage tanks.

(B) The vapor line fittings on the transport tank side of break points with the storage tank connection pipe or hose shall be equipped to close automatically when disconnected.

(C) The pressure relief valves on transport tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety.

(c) Gasoline transfer operations.

(i) No owner or operator of a bulk gasoline plant or transport tank shall allow the transfer of gasoline between a stationary storage tank and a transport tank except when the following conditions exist:

(A) The transport tanks are being submerged filled or bottom loaded.

(B) The loading of all transport tanks, except those exempted under (c)(ii) of this subsection are being performed using a vapor balance system.

(C) The transport tanks are equipped to balance vapors and maintained in a leak tight condition in accordance with subsection (6) of this section.

(D) The vapor return lines are connected between the transport tank and the stationary storage tank and the vapor balance system is operated properly.

(ii) Transport tanks used for gasoline that meet all of the following conditions shall be exempt from the requirement to be equipped with any attachment fitting for vapor balance lines if:

(A) The transport tank is used exclusively for the delivery of gasoline into storage tanks of a facility exempt from the vapor balance requirements of subsection (4) of this section; and

(B) The transport tank has a total nominal capacity less than four thousand gallons and is constructed so that it would require the installation of four or more separate vapor balance fittings.

(4) Gasoline dispensing facilities (Stage I).

(a) This section shall apply to the delivery of gasoline to gasoline dispensing facilities with an annual gasoline throughput greater than three hundred sixty thousand gallons in Cowlitz, Lewis, Skamania and Wahkiakum Counties. For Clark County, this section applies to gasoline dispensing facilities with greater than 200,000 gallons annual throughput on a calendar year basis. All facilities subject to this section shall comply when the throughput is exceeded.

(b) All gasoline storage tanks of the facilities defined in (a) of this subsection shall be equipped with submerged or

bottom fill lines and fittings to vapor balance gasoline vapors with the delivery transport tank.

(c) Gasoline storage tanks with offset fill lines shall be exempt from the requirement of (b) of this subsection if installed prior to January 1, 1979.

(d) The owner or operator of a gasoline dispensing facility shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily. In addition, no owner or operator of a transport tank shall load gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily.

(e) All gasoline dispensing facilities subject to this section shall be equipped with CARB or SWAPCA certified Stage I vapor recovery fittings or equipment.

(f) Only two point Stage I fittings shall be used with vacuum assist type Stage II systems. Coaxial Stage I fittings may continue to be used for balance type Stage II systems and systems without Stage II gasoline vapor recovery controls.

(g) All Stage I gasoline vapor recovery equipment shall be maintained in proper working order at all times. All Stage I gasoline vapor recovery equipment shall be maintained in accordance with the CARB Executive Order(s) certifying the equipment or system. Whenever a Stage I gasoline vapor recovery system or component is determined to be defective or not operating properly, the owner or operator shall immediately take the system out of service until repairs are made. Systems shall not be returned to service until the defective system is operating properly.

(h) Any alteration of the equipment, parts, design, or operation of the Stage I gasoline vapor recovery system as certified by CARB is prohibited, and shall not be performed without submittal of a Notice of Construction application and prior approval from SWAPCA.

(i) All new gasoline dispensing facilities shall have a tank tightness test performed at the time of installation to ensure proper connection and absence of leaks refer to WDOE publication 91-43 "Tank Owner/Operator's Guide to Tightness Testing"). Results of the testing shall be submitted to SWAPCA within 14 calendar days of testing.

(j) Pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.

(5) Gasoline dispensing facilities (Stage II).

(a) This section shall apply to the refueling of motor vehicles for the general public from stationary tanks at all gasoline dispensing facilities (~~located in Cowlitz, Lewis, and Wahkiakum Counties with an annual gasoline throughput greater than one million two hundred thousand gallons (1,200,000). For Clark county, this section shall apply to gasoline dispensing facilities with an annual gasoline throughput greater than six hundred thousand gallons (600,000); these facilities shall install Stage II controls by December 31, 1998 or at the time of a facility upgrade (see definition). Skamania County is exempt from Stage II requirements as provided in~~

~~Substitute House Bill 2376, as passed by the Washington State Legislature in 1996-)~~ as follows:

(1) For Clark County, all facilities dispensing 600,000 gallons in a calendar year or greater;

(2) For Cowlitz County, all facilities dispensing 1.2 million gallons in a calendar year or greater;

(3) For Lewis, Skamania and Wahkiakum Counties, Stage II vapor control equipment is not required unless the facility exceeds the throughput and distance requirements below:

Gallons Throughput (millions)	Distance to Property Line (meters)
1.5	20
2.0	25
2.5	28
3.0	32
3.5	35
4.0	38
5.0	43
6.0	49
8.0	58
10.0	66
12.0	75
16.0	90
20.0	103
25.0	118

(i) When the throughput is not shown in the chart, interpolate to get the distance for that throughput.

(ii) The allowable distance shall be measured from the centroid of the pumps to the nearest point on the property line of the nearest lot on which a permanent residence is located. However, if the permanent residence is located at least twice the allowable distance from the centroid of the pumps, the requirements of (3) of this subsection shall not apply.

(b) Stage II vapor control equipment may be removed from any gasoline dispensing facility located in Lewis, Wahkiakum or Skamania County as in (a) above, or from any facility in Cowlitz County dispensing less than 1.2 million gallons annually, by submittal of a complete Notice of Construction and receipt of an Order of Approval, provided that the requirements of subsection (a) above are met.

(c)(i) Beginning on July 1, 2001, and each year thereafter, the Department of Ecology will publish the canister capture rate for use with this rule.

(ii) When the canister capture rate reaches 15% and there are no major exceptions, waivers, or other adjustments to the EPA onboard canister regulations or program implementation, the Department of Ecology will revise the state rules and incorporate the effect of canisters.

(d) The owner or operator of a new or modified gasoline dispensing facility shall file a Notice of Construction as provided in SWAPCA 400-110, and obtain an Order of Approval prior to commencing construction or modification.

(e) The owner or operator of any gasoline dispensing facility may elect to submit a site-specific analysis of the requirement for a Stage II vapor recovery system under (a) of this subsection and request the Department of Ecology to evaluate it subject to the fees described in (f) of this subsection. The Department of Ecology will review and evaluate a

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second tier analysis described under WAC 173-460-090 within 45 days of determining that the analysis submitted is complete and no additional information is needed. The requirements for gasoline vapor control shall be determined as a result of that process.

(f) The fee for new source review of a gasoline dispensing facility under this section shall be the same as the fee under SWAPCA 400-110 except, if a site-specific review is elected under (e) of this subsection, the fee shall be as provided under WAC 173-400-116 (3)(c) for a tier two analysis.

((b)g) All gasoline dispensing facilities subject to this section shall be equipped with a CARB or SWAPCA certified Stage II vapor recovery system.

((e)h) The owner or operator of a gasoline dispensing facility subject to this section shall not transfer or allow the transfer of gasoline from stationary tanks into motor vehicle fuel tanks unless a certified Stage II vapor recovery system is used.

((d)i) All Stage II vapor recovery equipment shall be installed in accordance with the system's certification requirements and shall be maintained to be leak free, vapor tight, and in good working order.

((e)j) Whenever a Stage II vapor recovery system component is determined to be defective, the owner or operator shall take the system out of service until it has been repaired, replaced, or adjusted, as necessary.

((f)k) The owner or operator of each gasoline dispensing facility utilizing a Stage II system shall conspicuously post operating instructions for the system in the gasoline dispensing area. The instructions shall clearly describe how to fuel vehicles correctly using the vapor recovery nozzles and include a warning against topping off. Additionally, the instructions shall include a prominent display of SWAPCA's or Department of Ecology's toll free telephone number (800-633-0709 or 800-272-3780) for complaints regarding the operation and condition of the vapor recovery system (nozzles).

((g)l) Every retailer and wholesale purchaser-consumer (gasoline dispensing facility) handling over 10,000 gallons per month shall equip each pump from which gasoline or methanol is introduced into motor vehicles with a nozzle that dispenses fuel at a flowrate not to exceed 10 gallons per minute as provided in 40 CFR 80.22 Subpart B.

((h)m) All new or upgraded facilities with Stage II gasoline vapor recovery controls shall conduct a performance test upon installation prior to placing in service. For balance type systems, the owner/operator shall conduct and pass a back pressure/blockage test. For vacuum assist systems, the owner/operator shall conduct and pass performance testing every 12 months ~~(in accordance with the applicable CARB Executive Order certifying the system)~~. Results of all testing shall be submitted to SWAPCA within 14 calendar days of test completion.

((i)n) Pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.

(6) Loading or Unloading Gasoline into Marine Tank Vessels

(a) Applicability. This rule applies to loading events at any location within the Vancouver ozone air quality maintenance area when gasoline is placed into a marine tank vessel cargo tank; or when any liquid is placed into a marine tank vessel cargo tank that had previously held gasoline. The owner or operator of each marine terminal and marine tank vessel is responsible for and must comply with this rule. All facilities shall be in compliance no later than June 1, 2001.

(b) Exemptions. The following activities are exempt from the marine vapor control emission limits of this rule:

(i) Marine vessel bunkering (refueling);

(ii) Lightering when neither vessel is berthed at a marine terminal dock.

(iii) Loading when both of the following conditions are met:

The vessel has been gas freed (regardless of the prior cargo), and

When loading any products other than gasoline.

(c) Vapor Collection System. The owner or operator of a marine terminal subject to this rule must equip each loading berth with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The owner or operator of a marine tank vessel subject to this rule must equip each marine tank vessel with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The collection system must be designed such that all displaced VOC vapors collected during any loading event are vented only to the control device.

(d) Marine Vapor Control Emission Limits. Vapors that are displaced and collected during marine tank vessel loading events must meet one of the following:

(i) Vapors must be reduced from the uncontrolled condition by at least 95 percent by weight, as determined by EPA Method 25 or other methods approved in writing by SWAPCA, or

(ii) Vapor emissions shall not exceed 5.7 grams per cubic meter (2 pounds per 1000 barrels) of liquid loaded.

(e) Operating Practice and Maintenance.

(i) All hatches, pressure relief valves, connections, gauging ports and vents associated with the loading of fuel product into marine tank vessels must be maintained to be leak free and vapor tight.

(ii) The owner or operator of any marine tank vessel must certify to SWAPCA that the vessel is leak free, vapor tight, and in good working order based on an annual inspection using EPA Method 21 or other methods approved in writing by SWAPCA.

(iii) Gaseous leaks must be detected using EPA Method 21 or other methods approved in writing by SWAPCA.

(iv) Loading must cease anytime gas or liquid leaks are detected. Loading may continue only after leaks are repaired or if documentation is provided to SWAPCA that the repair of leaking components is technically infeasible without dry-docking the vessel or cannot otherwise be undertaken safely. Subsequent loading events involving the leaking components are prohibited until the leak is repaired. Any liquid or gas-

ous leak detected by SWAPCA staff is a violation of this rule.

(f) Monitoring and Record-Keeping.

Marine terminal operators must maintain operating records for at least five years of each loading event at their terminal. Marine tank vessel owners and operators are responsible for maintaining operating records for at least five years for all loading events involving each of their vessels. Records must be made available to SWAPCA upon request. These records must include but are not limited to:

(i) The location of each loading event.

(ii) The date of arrival and departure of the vessel.

(iii) The name, registry and legal owner of each marine tank vessel participating in the loading event.

(iv) The type and amount of fuel product loaded into the marine tank vessel.

(v) The prior cargo carried by the marine tank vessel. If the marine tank vessel has been gas freed, then the prior cargo can be recorded as gas freed.

(vi) The description of any gaseous or liquid leak, date and time of leak detection, leak repair action taken and screening level after completion of the leak repair.

(g) Lightering exempted from controls by subsection 6(b) of this rule must be curtailed from 2:00 AM until 2:00 PM when SWAPCA declares a Clean Air Action (CAA) day. If SWAPCA declares a second CAA day before 2:00 PM of the first curtailment period, then such uncontrolled lightering must be curtailed for an additional 24 hours until 2:00 PM on the second day. If a third CAA day in a row is declared, then uncontrolled lightering is permissible for a 12 hour period starting at 2 PM on the second CAA day and ending at 2 AM on the third CAA day. Uncontrolled lightering must be curtailed from 2 AM until 2 PM on the third CAA day. If SWAPCA continues to declare CAA days consecutively after the third day, the curtailment and loading pattern used for the third CAA day will apply.

(h) Safety/Emergency Operations. Nothing in this rule is intended to:

(i) Require any act or omission that would be in violation of any regulation or other requirement of the United States Coast Guard; or

(ii) Prevent any act that is necessary to secure the safety of a vessel or the safety of passengers or crew.

AMENDATORY SECTION

SWAPCA 491-050 Failures, Certification, Testing and Recordkeeping

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; 96-21-102 filed 10/21/96, effective 11/21/96]

This section shall apply to all gasoline transport tanks equipped for gasoline vapor collection and all vapor collection systems at gasoline loading terminals, and bulk gasoline plants as described in subsections (2) and (3) of SWAPCA 491-040.

(1) Failures.

During the months of May, June, July, August, and September any failure of a vapor collection system at a bulk gas-

oline plant or gasoline loading terminal to comply with this section requires the immediate discontinuation of gasoline transfer operations for the failed part of the system. Other transfer points that can continue to operate in compliance may be used. The loading or unloading of the transport tank connected to the failed part of the vapor collection system may be completed during the other months of the year. Upon completion of loading or unloading of a transport tank connected at the time of the failure, gasoline transfer operations shall be discontinued for the failed part of the system.

(2) Certification.

(a) The owner or operator of a gasoline loading terminal or bulk gasoline plant shall only allow the transfer of gasoline between the facility and a transport tank or a marine vessel if a current leak test certification for the transport tank is on file with the facility or a valid inspection sticker is displayed on the vehicle or marine vessel. Certification is required annually as provided in SWAPCA 490-202 and SWAPCA 491-040 (6)(e).

(b) The owner or operator of a transport tank shall not make any connection to the tank or marine vessel for the purpose of loading or unloading gasoline, except in the case of an emergency, unless the gasoline transport tank or marine vessel has successfully completed the annual certification testing requirements in (3) of this subsection, and such certification is confirmed either by:

(i) Having on file with each gasoline loading or unloading facility at which gasoline is transferred a current leak test certification for the transport tank; or

(ii) For transport tanks (tanker trucks), displaying a sticker near the Department of Transportation certification plate required by 49 CFR 178.340-10b which:

(A) Shows the date that the gasoline tank truck last passed the test required in (3) of this subsection;

(B) Shows the identification number of the gasoline tank truck tank; and

(C) Expires not more than one year from the date of the leak tight test.

(iii) For marine vessels, displaying a sticker/certification with the other Coast Guard required certifications (e.g. in the vessel ecology box, ship's bridge or tankerman's shack) which:

(A) Shows the date that the marine vessel last passed the test required in (3) of this subsection;

(B) Shows the identification number of the marine vessel; and

(C) Expires not more than one year from the date of the leak tight test.

(c) The owner or operator of a vapor collection system shall:

(i) Operate the vapor collection system and the gasoline loading equipment during all loadings and unloadings of transport tanks and marine vessels equipped for emission control such that:

(A) The tank pressure will not exceed a pressure of eighteen inches of water or a vacuum of six inches of water;

(B) The concentration of gasoline vapors is below the lower explosive limit (LEL, measured as propane) at all points a distance of one inch from potential leak sources; and

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(C) There are no visible liquid leaks except for a liquid leak of less than four drops per minute at the product loading connection during delivery.

(D) Upon disconnecting transfer fittings, liquid leaks do not exceed ten milliliters (0.34 fluid ounces) per disconnect averaged over three disconnects.

(ii) Repair and retest a vapor collection system that exceeds the limits of (2)(c)(i) of this subsection within fifteen days.

(d) SWAPCA may, at any time, monitor a gasoline transport tank, marine vessel and vapor collection system during loading or unloading operations by the procedure in (3) of this subsection to confirm continuing compliance with this section.

(3) Testing and monitoring.

(a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall, at his own expense, demonstrate compliance with (1) and (2) of this subsection, respectively. All tests shall be made by, or under the direction of, a person qualified to perform the tests and approved by WDOE or SWAPCA.

(b) Testing to determine compliance with this section shall use procedures approved by SWAPCA. See testing requirements in SWAPCA 490 for transport tanks and section 491-040 (6)(e) for marine vessels.

(c) Monitoring to confirm continuing leak tight conditions shall use procedures approved by SWAPCA.

(4) Recordkeeping.

(a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall maintain records of all certification tests and repairs for at least two years after the test or repair is completed.

(b) The records of certification tests required by this section shall, as a minimum, contain:

(i) The transport tank or marine vessel identification number;

(ii) The transport tank or marine vessel capacity;

(iii) The transport tank initial test pressure and the time of the reading;

(iv) The transport tank final test pressure and the time of the reading;

(v) The transport tank initial test vacuum and the time of the reading;

(vi) The transport tank final test vacuum and the time of the reading;

(vii) At the top of each report page the company name, date, and location of the tests on that page; and

(viii) Name and title of the person conducting the test.

(c) The owner or operator of a gasoline transport tank shall annually certify that the transport tank or marine vessel passed the required tests.

(d) Copies of all records required under this section shall immediately be made available to SWAPCA (~~the department~~), upon written request, at any reasonable time.

(5) Preventing evaporation. All persons shall take reasonable measures to prevent the spilling, discarding in sewers, storing in open containers, or handling of gasoline in a manner that will result in evaporation to the ambient air.

SWAPCA 491-060 Severability

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption WSR 96-21-102 filed 10/21/96, effective 11/21/96]

The provisions of this regulation are severable and if any provision is held invalid, the application of such provision to the other circumstances and the remainder of this regulation shall not be affected.

Reviser's note: The brackets and enclosed material in the text above occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

WSR 00-12-011

PERMANENT RULES

LIQUOR CONTROL BOARD

[Filed May 25, 2000, 4:15 p.m.]

Date of Adoption: February 22, 2000.

Purpose: The Liquor Control Board has reviewed all of its rules to make them clear and usable, per Governor Locke's Executive Order 97-02. WAC 314-16-250 Retail sale of malt liquor in kegs, has been replaced by WAC 314-02-115 What are the requirements for licensees that sell keg beer?

Citation of Existing Rules Affected by this Order: Repealing WAC 314-16-250.

Statutory Authority for Adoption: RCW 66.08.030, 66.28.200, 66.28.210.

Adopted under notice filed as WSR 99-23-105 on November 17, 1999.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 0, Repealed 1.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 0, Repealed 1.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 1.

Effective Date of Rule: Thirty-one days after filing.

March 24, 2000

Eugene Prince

Chair

REPEALER

The following section of the Washington Administrative Code is repealed:

WAC 314-16-250

Retail sale of malt liquor in kegs.

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WSR 01-05-067

This document contains strikethrough rule language of changes to SWCAA 491 that took effect on March 18, 2001. SWCAA adopted subsequent changes to SWCAA 491 in 2017 and 2020.

~~((SWAPCA))~~ SWCAA 490-208. All alternative coating evaluations shall contain, as a minimum:

- (a) Types of products to be coated,
- (b) Types of coatings evaluated,
- (c) Results of performance tests,
- (d) Status of research into development of low VOC coatings for the application,
- (e) Feasibility of installing control equipment,
- (f) Mitigating measures that could be implemented to reduce VOC emissions.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

- 491-030 Registration
- 491-040 Gasoline Vapor Control Requirements
- 491-050 Failures, Certification, Testing and Recordkeeping
- 491-060 Severability

AMENDATORY SECTION (Amending WSR 96-21-102, filed 10/21/96, effective 11/21/96)

~~((SWAPCA))~~ SWCAA 491-010 Policy and Purpose

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96]

(1) It is the policy of the Southwest Clean Air ~~((Pollution Control Authority))~~ Agency ~~((SWAPCA))~~ SWCAA under the authority provided in Chapter 70.94.141, and 70.94.152 and 70.94.~~((334))~~165 RCW to provide for the systematic control of air pollution from air contaminant sources within the jurisdiction of ~~((SWAPCA))~~ SWCAA.

(2) It is the purpose of this regulation to establish standards for the control of air contaminants emitted from gasoline marketing and dispensing sources within the jurisdiction of ~~((SWAPCA))~~ SWCAA including Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 00-11-149, filed 5/24/2000, effective 6/24/2000)

~~((SWAPCA))~~ SWCAA 491-015 Applicability

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96, WSR 00-11-149 filed 5/24/2000, effective 6/24/2000]

This regulation applies to gasoline marketing operations within ~~((SWAPCA))~~ SWCAA jurisdiction, including the storage, transport, and transfer of gasoline, transfer from storage tanks into transport tanks, marine vessel loading and unloading, and transfer from storage tanks into motor vehicles. This regulation applies to facilities with above ground and underground storage tanks.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 00-11-149, filed 5/24/2000, effective 6/24/2000)

~~((SWAPCA))~~ SWCAA 491-020 Definitions

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96, WSR 00-11-149 filed 5/24/2000, effective 6/24/2000]

The definitions of terms contained in ~~((SWAPCA))~~ SWCAA 400 are by this reference incorporated into this regulation. Unless a different meaning is clearly required by context, the following words and phrases, as used in this regulation, shall have the following meanings:

**WSR 01-05-067
PERMANENT RULES
SOUTHWEST CLEAN AIR AGENCY**

[Filed February 15, 2001, 10:19 a.m.]

Date of Adoption: February 1, 2001.

Purpose: The purpose of the proposed changes was to reflect a name change for the agency. All changes were administrative in nature.

Citation of Existing Rules Affected by this Order: Amending SWCAA 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors.

Statutory Authority for Adoption: RCW 70.94.141.

Adopted under notice filed as WSR 00-24-094 on December 5, 2000.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 1, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 1, Repealed 0.

Effective Date of Rule: Thirty-one days after filing.

February 9, 2001

Robert D. Elliott

Executive Director

~~((SWAPCA))~~ SWCAA 491

**EMISSION STANDARDS AND CONTROLS FOR
SOURCES EMITTING GASOLINE VAPORS**

491-010 Policy and Purpose

491-015 Applicability

491-020 Definitions

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(1) "Bottom loading" means the filling of a tank through a line entering the bottom of the tank.

(2) "Bulk gasoline plant" means a gasoline storage and transfer facility that receives more than ninety percent of its annual gasoline throughput by transport tank, and reloads gasoline into transport tanks.

(3) "Bunkering" means, for purpose of this rule, refueling a vessel with a fuel product where the intended use of that gasoline or fuel product is for combustion in the onboard engine of the marine vessel.

(4) "Canister capture rate" means canister effectiveness times the percent of light duty vehicles that have onboard vapor recovery systems.

(5) "Canister effectiveness" means the percent of refueling vapors recovered by a representative onboard vapor recovery system.

(6) "Centroid" means the geometric center of a gas pump or a bank of gas pumps or, if a station has more than one bank of pumps, the geometric center of each bank of pumps.

(7) "Certified vapor recovery system" means a vapor recovery system (~~which~~) that has been certified by the California Air Resources Board (CARB). Only Stage II vapor recovery systems with a single coaxial hose can be certified. (~~SWAPCA~~) SWCAA may certify vapor recovery systems in addition to those certified by the California Air Resources Board as of the effective date of the regulation.

(8) "Gas freed" means a marine vessel's cargo tank has been certified by a Marine Chemist as "Safe for Workers" according to the requirements outlined in the National Fire Protection Association Rule 306.

(9) "Gasoline" means a petroleum distillate (~~which~~) that is a liquid at standard conditions and has a true vapor pressure greater than four pounds per square inch absolute (4.0 psia) at twenty degrees C (20°C), and is used as a fuel for internal combustion engines. Also any liquid sold as a vehicle fuel with a true vapor pressure greater than four pounds per square inch absolute at twenty degrees C (20°C) shall be considered "gasoline" for purpose of this regulation.

(10) "Gasoline dispensing facility" means any site dispensing gasoline into motor vehicle fuel tanks from stationary storage tanks (above ground or underground).

(11) "Gasoline loading terminal" means a gasoline transfer facility that receives more than ten percent of its annual gasoline throughput solely or in combination by pipeline, ship or barge, and loads gasoline into transport tanks.

(12) "Leak free" means a liquid leak of less than four drops per minute.

(13) "Lightering" means the transfer of fuel product into a cargo tank from one marine tank vessel to another.

(14) "Loading event" means the loading or lightering of gasoline into a marine tank vessel's cargo tank, or the loading of any product into a marine tank vessel's cargo tank where the prior cargo was gasoline. The event begins with the connection of a marine tank vessel to a storage or cargo tank by means of piping or hoses for the transfer of a fuel product from the storage or cargo tank(s) into the receiving marine tank vessel. The event ends with disconnection of the pipes and/or hoses upon completion of the loading process.

(15) "Marine tank vessel" means any marine vessel constructed or converted to carry liquid bulk cargo that transports gasoline.

(16) "Marine terminal" means any facility or structure used to load or unload any fuel product cargo into or from marine tank vessels.

(17) "Marine vessel" means any tugboat, tanker, freighter, passenger ship, barge or other boat, ship or watercraft.

(18) "Modified" means any physical change in equipment, or change in the method of operation, of a gasoline dispensing facility, terminal, or loading or unloading facility, that increases the amount of any air contaminant emitted by such source or that results in the emission of any air contaminant not previously emitted. The term modified shall be construed consistent with the definitions of modification in Section 7411, Title 42, United States Code, and with rules implementing that section. Section 7411 exempts changes in gasoline throughput not resulting directly from a physical change.

(19) "NAAQS" means National Ambient Air Quality Standard.

(20) "Ozone contributing county" means a county in which the emissions have contributed to the formation of ozone in any county or area where violation of federal ozone standards have been measured, and includes: Cowlitz, Island, Kitsap, Lewis, Skagit, Thurston, Wahkiakum, and Whatcom counties.

(21) "Permanent residence" means a single-family or multi-family dwelling or any other facility designed for use as permanent housing.

(22) "~~(SWAPCA)~~ SWCAA" means the Southwest Clean Air (~~Pollution Control Authority~~) Agency.

(23) "Stage I" means gasoline vapor recovery during all gasoline marketing transfer operations except motor vehicle refueling.

(24) "Stage II" means gasoline vapor recovery during motor vehicle refueling operations from stationary tanks.

(25) "Submerged fill line" means any discharge pipe or nozzle which meets either of the following conditions:

- Where the tank is filled from the top, the end of (upper cut of the bevel on) the discharge pipe or nozzle must be totally submerged when the liquid level is six inches from the bottom of the tank, or;

- Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is eighteen inches from the bottom of the tank.

(26) "Submerged loading" means the filling of a tank with a submerged fill line.

(27) "Suitable cover" means a door, hatch, cover, lid, pipe cap, pipe blind, valve, or similar device that prevents the accidental spilling or emitting of gasoline. Pressure relief valves, aspirator vents, or other devices specifically required for safety and fire protection are not included.

(28) "Throughput" means the amount of material passing through a facility.

(29) "Top off" means to attempt to dispense gasoline to a motor vehicle fuel tank after a vapor recovery dispensing nozzle has shut off automatically.

(30) "Transport tank" means a container used for shipping gasoline over roadways.

(31) "True vapor pressure" means the equilibrium partial pressure of a petroleum liquid as determined by methods described in American Petroleum Institute (API) Bulletin 2517, 1980.

(32) "Upgraded" means the modification of a gasoline storage tank, including tank installation or replacement, or piping to add cathodic protection, tank lining or spill and overfill protection that involved removal of ground or ground cover above a portion of the product piping.

(33) "Vapor balance system" means a system consisting of the transport tank, gasoline vapor transfer lines, storage tank, and all tank vents designed to route displaced gasoline vapors from a tank being filled with liquid gasoline.

(34) "Vapor collection system" means a closed system to conduct vapors displaced from a tank being filled into the tank being emptied, a vapor holding tank, or a vapor control system.

(35) "Vapor control system" means a system designed and operated to reduce or limit the emission of gasoline vapors emission into the ambient air.

(36) "Vapor-mounted seal" means a primary seal mounted continuously around the circumference of the tank so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

(37) "Vapor tight" means a leak of less than one hundred percent of the lower explosive limit on a combustible gas detector measured at a distance of one inch from the source or no visible evidence of air entrainment in the sight glasses of liquid delivery hoses.

(38) "WDOE" or "Ecology" means the Washington Department of Ecology.

(39) "Western Washington counties" means the following counties: Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, and Whatcom.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 00-11-149, filed 5/24/2000, effective 6/24/2000)

((SWAPCA)) SWCAA 491-030 Registration

[Statutory Authority: Chapter 70.94.141 RCW, 70.94.151 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96, WSR 00-11-149 filed 5/24/2000, effective 6/24/2000]

(1) The owner or operator of a gasoline loading terminal, bulk gasoline plant, or gasoline dispensing facility subject to the provisions of ((SWAPCA)) SWCAA 491-040 (2) through (5) shall register the facility annually with ((SWAPCA)) SWCAA. Facilities subject to registration under this section shall be assessed fees consistent with and as required in ((SWAPCA)) SWCAA 400-100.

(2) Administration of the registration program shall be consistent with the Registration Program requirements of ((SWAPCA)) SWCAA 400-100.

(3) ((SWAPCA)) SWCAA will provide a written verification of registration to owners or operators of facilities subject to the provisions of ((SWAPCA)) SWCAA 491-040 (2) through (6). Such verification shall be available for inspection by ((SWAPCA)) SWCAA personnel during normal business hours.

(4) The owner or operator of a gasoline loading terminal or a gasoline dispensing facility (non-major source) shall maintain total annual gasoline throughput records for the most recent three calendar years. Such records shall be available for inspection by ((SWAPCA)) SWCAA personnel during normal business hours.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 00-11-149, filed 5/24/2000, effective 6/24/2000)

((SWAPCA)) SWCAA 491-040 Gasoline Vapor Control Requirements

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96, WSR 00-11-149 filed 5/24/2000, effective 6/24/2000]

(1) Fixed-roof gasoline storage tanks.

(a) All fixed-roof gasoline storage tanks having a nominal storage capacity greater than forty thousand (40,000) gallons shall comply with one of the following:

(i) Meet the equipment specifications and maintenance requirements of the federal standards of performance for new stationary sources - Storage Vessels for Petroleum Liquids (40 CFR 60, subparts K, Ka and Kb).

(ii) Be retrofitted with a floating roof or internal floating cover using a metallic seal or a nonmetallic resilient seal at least meeting the equipment specifications of the federal standards-referred to in (a)(i) of this subsection or its equivalent.

(iii) Be fitted with a floating roof or internal floating cover meeting the manufacturer's equipment specifications in effect when it was installed.

(b) All seals used in (a)(ii) and (iii) of this subsection are to be maintained in good operating condition and the seal fabric shall contain no visible holes, tears, or other openings consistent with 40 CFR 60 subparts Ka and Kb.

(c) All openings not related to safety are to be sealed with suitable closures.

(d) Tanks used for the storage of gasoline in bulk gasoline plants and equipped with vapor balance systems as required in subsection (3)(b) of this section shall be exempt from the requirements of subsection (1) of this section.

(e) All fixed roof gasoline storage tanks subject to this section shall comply no later than December 31, 1993 or at the time that the throughput is exceeded.

(2) Gasoline loading terminals.

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(a) This section shall apply to all gasoline loading terminals with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993 or when the throughput is exceeded.

(b) Facilities loading gasoline into any transport tank shall be equipped with a vapor control system (VCS) as described in (c) of this subsection and comply with the following conditions:

(i) The loading facility shall employ submerged or bottom loading for all transport tanks.

(ii) The VCS shall be connected during the entire loading of all transport tanks.

(iii) The loading of all transport tanks shall be performed such that the transfer is at all times vapor tight. Emissions from pressure relief valves shall not be included in the controlled emissions when the back pressure in the VRS collection lines is lower than the relief pressure setting of the transport tank's relief valves.

(iv) All loading lines and vapor lines shall be equipped to close automatically when disconnected. The point of closure shall be on the tank side of any hose or intermediate connecting line.

(c) The VCS shall be designed and built according to accepted industrial practices and meet the following conditions:

(i) The VCS shall not allow organic vapors emitted to the ambient air to exceed thirty-five milligrams per liter (35 mg/l) (three hundred twenty-two milligrams per gallon or 322 mg/gal) of gasoline loaded.

(ii) The VCS shall be equipped with a device to monitor the system while the VCS is in operation.

(iii) The back pressure in the VCS collection lines shall not exceed the transport tank's pressure relief settings.

(3) Bulk gasoline plants and transport tanks.

(a) This section shall apply to all bulk gasoline plants with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993, or when the throughput is exceeded, and gasoline transport tanks.

(b) Deliveries to bulk gasoline plant storage tanks.

(i) The owner or operator of a bulk gasoline plant shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated properly. The vapor balance system shall prevent at least ninety percent of the displaced gasoline vapors from entering the ambient air. A vapor balance system that is designed, built, and operated according to accepted industrial practices will satisfy this requirement.

(ii) Storage tank requirements. All storage tanks with a nominal capacity greater than five hundred fifty (550) gallons and used for the storage of gasoline shall comply with the following conditions:

(A) Each storage tank shall be equipped with a submerged fill line.

(B) Each storage tank shall be equipped for vapor balancing of gasoline vapors with transport tanks during gasoline transfer operations.

(C) The vapor line fittings on the storage tank side of break points with the transport tank vapor connection pipe or hose shall be equipped to close automatically when disconnected.

(D) The pressure relief valves on storage tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety but in no case greater than ninety percent of the tank's safe working pressure.

(iii) Transport tank requirements. All transport tanks transferring gasoline to storage tanks in a bulk gasoline plant shall comply with the following conditions:

(A) The transport tank shall be equipped with the proper attachment fittings to make vapor tight connections for vapor balancing with storage tanks.

(B) The vapor line fittings on the transport tank side of break points with the storage tank connection pipe or hose shall be equipped to close automatically when disconnected.

(C) The pressure relief valves on transport tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety.

(c) Gasoline transfer operations.

(i) No owner or operator of a bulk gasoline plant or transport tank shall allow the transfer of gasoline between a stationary storage tank and a transport tank except when the following conditions exist:

(A) The transport tanks are being submerged filled or bottom loaded.

(B) The loading of all transport tanks, except those exempted under (c)(ii) of this subsection are being performed using a vapor balance system.

(C) The transport tanks are equipped to balance vapors and maintained in a leak tight condition in accordance with subsection (6) of this section.

(D) The vapor return lines are connected between the transport tank and the stationary storage tank and the vapor balance system is operated properly.

(ii) Transport tanks used for gasoline that meet all of the following conditions shall be exempt from the requirement to be equipped with any attachment fitting for vapor balance lines if:

(A) The transport tank is used exclusively for the delivery of gasoline into storage tanks of a facility exempt from the vapor balance requirements of subsection (4) of this section; and

(B) The transport tank has a total nominal capacity less than four thousand gallons and is constructed so that it would require the installation of four or more separate vapor balance fittings.

(4) Gasoline dispensing facilities (Stage I).

(a) This section shall apply to the delivery of gasoline to gasoline dispensing facilities with an annual gasoline throughput greater than three hundred sixty thousand gallons in Cowlitz, Lewis, Skamania and Wahkiakum Counties. For Clark County, this section applies to gasoline dispensing facilities with greater than 200,000 gallons annual throughput on a calendar year basis. All facilities subject to this section shall comply when the throughput is exceeded.

(b) All gasoline storage tanks of the facilities defined in (a) of this subsection shall be equipped with submerged or

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bottom fill lines and fittings to vapor balance gasoline vapors with the delivery transport tank.

(c) Gasoline storage tanks with offset fill lines shall be exempt from the requirement of (b) of this subsection if installed prior to January 1, 1979.

(d) The owner or operator of a gasoline dispensing facility shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily. In addition, no owner or operator of a transport tank shall load gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily.

(e) All gasoline dispensing facilities subject to this section shall be equipped with CARB or ((SWAPCA)) SWCAA certified Stage I vapor recovery fittings or equipment.

(f) Only two point Stage I fittings shall be used with vacuum assist type Stage II systems. Coaxial Stage I fittings may continue to be used for balance type Stage II systems and systems without Stage II gasoline vapor recovery controls.

(g) All Stage I gasoline vapor recovery equipment shall be maintained in proper working order at all times. All Stage I gasoline vapor recovery equipment shall be maintained in accordance with the CARB Executive Order(s) certifying the equipment or system. Whenever a Stage I gasoline vapor recovery system or component is determined to be defective or not operating properly, the owner or operator shall immediately take the system out of service until repairs are made. Systems shall not be returned to service until the defective system is operating properly.

(h) Any alteration of the equipment, parts, design, or operation of the Stage I gasoline vapor recovery system as certified by CARB is prohibited, and shall not be performed without submittal of a Notice of Construction application and prior approval from ((SWAPCA)) SWCAA.

(i) All new gasoline dispensing facilities shall have a tank tightness test performed at the time of installation to ensure proper connection and absence of leaks refer to WDOE publication 91-43 "Tank Owner/Operator's Guide to Tightness Testing". Results of the testing shall be submitted to ((SWAPCA)) SWCAA within 14 calendar days of testing.

(j) Pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.

(5) Gasoline dispensing facilities (Stage II).

(a) This section shall apply to the refueling of motor vehicles for the general public from stationary tanks at all gasoline-dispensing facilities as follows:

(1) For Clark County, all facilities dispensing 600,000 gallons in a calendar year or greater;

(2) For Cowlitz County, all facilities dispensing 1.2 million gallons in a calendar year or greater;

(3) For Lewis, Skamania and Wahkiakum Counties, Stage II vapor control equipment is not required unless the facility exceeds the throughput and distance requirements below:

Gallons Throughput (millions)	Distance to Property Line (meters)
1.5	20
2.0	25
2.5	28
3.0	32
3.5	35
4.0	38
5.0	43
6.0	49
8.0	58
10.0	66
12.0	75
16.0	90
20.0	103
25.0	118

(i) When the throughput is not shown in the chart, interpolate to get the distance for that throughput.

(ii) The allowable distance shall be measured from the centroid of the pumps to the nearest point on the property line of the nearest lot on which a permanent residence is located. However, if the permanent residence is located at least twice the allowable distance from the centroid of the pumps, the requirements of (3) of this subsection shall not apply.

(b) Stage II vapor control equipment may be removed from any gasoline dispensing facility located in Lewis, Wahkiakum or Skamania County as in (a) above, or from any facility in Cowlitz County dispensing less than 1.2 million gallons annually, by submittal of a complete Notice of Construction and receipt of an Order of Approval, provided that the requirements of subsection (a) above are met.

(c)(i) Beginning on July 1, 2001, and each year thereafter, the Department of Ecology will publish the canister capture rate for use with this rule.

(ii) When the canister capture rate reaches 15% and there are no major exceptions, waivers, or other adjustments to the EPA onboard canister regulations or program implementation, the Department of Ecology will revise the state rules and incorporate the effect of canisters.

(d) The owner or operator of a new or modified gasoline dispensing facility shall file a Notice of Construction as provided in ((SWAPCA)) SWCAA 400-110, and obtain an Order of Approval prior to commencing construction or modification.

(e) The owner or operator of any gasoline dispensing facility may elect to submit a site-specific analysis of the requirement for a Stage II vapor recovery system under (a) of this subsection and request the Department of Ecology to evaluate it subject to the fees described in (f) of this subsection. The Department of Ecology will review and evaluate a second tier analysis described under WAC 173-460-090 within 45 days of determining that the analysis submitted is complete and no additional information is needed. The requirements for gasoline vapor control shall be determined as a result of that process.

(f) The fee for new source review of a gasoline dispensing facility under this section shall be the same as the fee under ((SWAPCA)) SWCAA 400-110 except, if a site-specific review is elected under (e) of this subsection, the fee

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shall be as provided under WAC 173-400-116 (3)(c) for a tier two analysis.

(g) All gasoline dispensing facilities subject to this section shall be equipped with a CARB or ((SWAPCA)) SWCAA certified Stage II vapor recovery system.

(h) The owner or operator of a gasoline dispensing facility subject to this section shall not transfer or allow the transfer of gasoline from stationary tanks into motor vehicle fuel tanks unless a certified Stage II vapor recovery system is used.

(i) All Stage II vapor recovery equipment shall be installed in accordance with the system's certification requirements and shall be maintained to be leak free, vapor tight, and in good working order.

(j) Whenever a Stage II vapor recovery system component is determined to be defective, the owner or operator shall take the system out of service until it has been repaired, replaced, or adjusted, as necessary.

(k) The owner or operator of each gasoline dispensing facility utilizing a Stage II system shall conspicuously post operating instructions for the system in the gasoline dispensing area. The instructions shall clearly describe how to fuel vehicles correctly using the vapor recovery nozzles and include a warning against topping off. Additionally, the instructions shall include a prominent display of ((SWAPCA)) SWCAA's or Department of Ecology's toll free telephone number (800-633-0709 or 800-272-3780) for complaints regarding the operation and condition of the vapor recovery system.

(l) Every retailer and wholesale purchaser-consumer (gasoline dispensing facility) handling over 10,000 gallons per month shall equip each pump from which gasoline or methanol is introduced into motor vehicles with a nozzle that dispenses fuel at a flowrate not to exceed 10 gallons per minute as provided in 40 CFR 80.22 Subpart B.

(m) All new or upgraded facilities with Stage II gasoline vapor recovery controls shall conduct a performance test upon installation prior to placing in service. For balance type systems, the owner/operator shall conduct and pass a back pressure/blockage test. For vacuum assist systems, the owner/operator shall conduct and pass performance testing every 12 months. Results of all testing shall be submitted to ((SWAPCA)) SWCAA within 14 calendar days of test completion.

(n) Pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.

(6) Loading or Unloading Gasoline into Marine Tank Vessels

(a) Applicability. This rule applies to loading events at any location within the Vancouver ozone air quality maintenance area when gasoline is placed into a marine tank vessel cargo tank; or when any liquid is placed into a marine tank vessel cargo tank that had previously held gasoline. The owner or operator of each marine terminal and marine tank vessel is responsible for and must comply with this rule. All facilities shall be in compliance no later than June 1, 2001.

(b) Exemptions. The following activities are exempt from the marine vapor control emission limits of this rule:

- (i) Marine vessel bunkering (refueling);
- (ii) Lightering when neither vessel is berthed at a marine terminal dock;
- (iii) Loading when both of the following conditions are met:

The vessel has been gas freed (regardless of the prior cargo), and

When loading any products other than gasoline.

(c) Vapor Collection System. The owner or operator of a marine terminal subject to this rule must equip each loading berth with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The owner or operator of a marine tank vessel subject to this rule must equip each marine tank vessel with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The collection system must be designed such that all displaced VOC vapors collected during any loading event are vented only to the control device.

(d) Marine Vapor Control Emission Limits. Vapors that are displaced and collected during marine tank vessel loading events must meet one of the following:

(i) Vapors must be reduced from the uncontrolled condition by at least 95 percent by weight, as determined by EPA Method 25 or other methods approved in writing by ((SWAPCA)) SWCAA, or

(ii) Vapor emissions shall not exceed 5.7 grams per cubic meter (2 pounds per 1000 barrels) of liquid loaded.

(e) Operating Practice and Maintenance.

(i) All hatches, pressure relief valves, connections, gauging ports and vents associated with the loading of fuel product into marine tank vessels must be maintained to be leak free and vapor tight.

(ii) The owner or operator of any marine tank vessel must certify to ((SWAPCA)) SWCAA that the vessel is leak free, vapor tight, and in good working order based on an annual inspection using EPA Method 21 or other methods approved in writing by ((SWAPCA)) SWCAA.

(iii) Gaseous leaks must be detected using EPA Method 21 or other methods approved in writing by ((SWAPCA)) SWCAA.

(iv) Loading must cease anytime gas or liquid leaks are detected. Loading may continue only after leaks are repaired or if documentation is provided to ((SWAPCA)) SWCAA that the repair of leaking components is technically infeasible without dry-docking the vessel or cannot otherwise be undertaken safely. Subsequent loading events involving the leaking components are prohibited until the leak is repaired. Any liquid or gaseous leak detected by ((SWAPCA)) SWCAA staff is a violation of this rule.

(f) Monitoring and Record-Keeping.

Marine terminal operators must maintain operating records for at least five years of each loading event at their terminal. Marine tank vessel owners and operators are responsible for maintaining operating records for at least five years for all loading events involving each of their vessels. Records must be made available to ((SWAPCA)) SWCAA

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upon request. These records must include but are not limited to:

- (i) The location of each loading event.
- (ii) The date of arrival and departure of the vessel.
- (iii) The name, registry and legal owner of each marine tank vessel participating in the loading event.
- (iv) The type and amount of fuel product loaded into the marine tank vessel.
- (v) The prior cargo carried by the marine tank vessel. If the marine tank vessel has been gas freed, then the prior cargo can be recorded as gas freed.
- (vi) The description of any gaseous or liquid leak, date and time of leak detection, leak repair action taken and screening level after completion of the leak repair.

(g) Lightering exempted from controls by subsection 6(b) of this rule must be curtailed from 2:00 AM until 2:00 PM when ((SWAPCA)) SWCAA declares a Clean Air Action (CAA) day. If ((SWAPCA)) SWCAA declares a second CAA day before 2:00 PM of the first curtailment period, then such uncontrolled lightering must be curtailed for an additional 24 hours until 2:00 PM on the second day. If a third CAA day in a row is declared, then uncontrolled lightering is permissible for a 12 hour period starting at 2 PM on the second CAA day and ending at 2 AM on the third CAA day. Uncontrolled lightering must be curtailed from 2 AM until 2 PM on the third CAA day. If ((SWAPCA)) SWCAA continues to declare CAA days consecutively after the third day, the curtailment and loading pattern used for the third CAA day will apply.

(h) Safety/Emergency Operations. Nothing in this rule is intended to:

- (i) Require any act or omission that would be in violation of any regulation or other requirement of the United States Coast Guard; or
- (ii) Prevent any act that is necessary to secure the safety of a vessel or the safety of passengers or crew.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

Reviser's note: The typographical error in the above material occurred in the copy filed by the Southwest Clean Air Agency and appears in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 00-11-149, filed 5/24/2000, effective 6/24/2000)

((SWAPCA)) SWCAA 491-050 Failures, Certification, Testing and Recordkeeping

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96, WSR 00-11-149 filed 5/24/2000, effective 6/24/2000]

This section shall apply to all gasoline transport tanks equipped for gasoline vapor collection and all vapor collection systems at gasoline loading terminals, and bulk gasoline plants as described in subsections (2) and (3) of ((SWAPCA)) SWCAA 491-040.

(1) Failures.

During the months of May, June, July, August, and September any failure of a vapor collection system at a bulk gas-

oline plant or gasoline loading terminal to comply with this section requires the immediate discontinuation of gasoline transfer operations for the failed part of the system. Other transfer points that can continue to operate in compliance may be used. The loading or unloading of the transport tank connected to the failed part of the vapor collection system may be completed during the other months of the year. Upon completion of loading or unloading of a transport tank connected at the time of the failure, gasoline transfer operations shall be discontinued for the failed part of the system.

(2) Certification.

(a) The owner or operator of a gasoline loading terminal or bulk gasoline plant shall only allow the transfer of gasoline between the facility and a transport tank or a marine vessel if a current leak test certification for the transport tank is on file with the facility or a valid inspection sticker is displayed on the vehicle or marine vessel. Certification is required annually as provided in ((SWAPCA)) SWCAA 490-202 and ((SWAPCA)) SWCAA 491-040 (6)(e).

(b) The owner or operator of a transport tank shall not make any connection to the tank or marine vessel for the purpose of loading or unloading gasoline, except in the case of an emergency, unless the gasoline transport tank or marine vessel has successfully completed the annual certification testing requirements in (3) of this subsection, and such certification is confirmed either by:

(i) Having on file with each gasoline loading or unloading facility at which gasoline is transferred a current leak test certification for the transport tank; or

(ii) For transport tanks (tanker trucks), displaying a sticker near the Department of Transportation certification plate required by 49 CFR 178.340-10b which:

(A) Shows the date that the gasoline tank truck last passed the test required in (3) of this subsection;

(B) Shows the identification number of the gasoline tank truck tank; and

(C) Expires not more than one year from the date of the leak tight test.

(iii) For marine vessels, displaying a sticker/certification with the other Coast Guard required certifications (e.g. in the vessel ecology box, ship's bridge or tankerman's shack) which:

(A) Shows the date that the marine vessel last passed the test required in (3) of this subsection;

(B) Shows the identification number of the marine vessel; and

(C) Expires not more than one year from the date of the leak tight test.

(c) The owner or operator of a vapor collection system shall:

(i) Operate the vapor collection system and the gasoline loading equipment during all loadings and unloadings of transport tanks and marine vessels equipped for emission control such that:

(A) The tank pressure will not exceed a pressure of eighteen inches of water or a vacuum of six inches of water;

(B) The concentration of gasoline vapors is below the lower explosive limit (LEL, measured as propane) at all points a distance of one inch from potential leak sources; and

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(C) There are no visible liquid leaks except for a liquid leak of less than four drops per minute at the product loading connection during delivery.

(D) Upon disconnecting transfer fittings, liquid leaks do not exceed ten milliliters (0.34 fluid ounces) per disconnect averaged over three disconnects.

(ii) Repair and retest a vapor collection system that exceeds the limits of (2)(c)(i) of this subsection within fifteen days.

(d) ((SWAPCA)) SWCAA may, at any time, monitor a gasoline transport tank, marine vessel and vapor collection system during loading or unloading operations by the procedure in (3) of this subsection to confirm continuing compliance with this section.

(3) Testing and monitoring.

(a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall, at his own expense, demonstrate compliance with (1) and (2) of this subsection, respectively. All tests shall be made by, or under the direction of, a person qualified to perform the tests and approved by WDOE or ((SWAPCA)) SWCAA.

(b) Testing to determine compliance with this section shall use procedures approved by ((SWAPCA)) SWCAA. See testing requirements in ((SWAPCA)) SWCAA 490 for transport tanks and section 491-040 (6)(e) for marine vessels.

(c) Monitoring to confirm continuing leak tight conditions shall use procedures approved by ((SWAPCA)) SWCAA.

(4) Recordkeeping.

(a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall maintain records of all certification tests and repairs for at least two years after the test or repair is completed.

(b) The records of certification tests required by this section shall, as a minimum, contain:

(i) The transport tank or marine vessel identification number;

(ii) The transport tank or marine vessel capacity;

(iii) The transport tank initial test pressure and the time of the reading;

(iv) The transport tank final test pressure and the time of the reading;

(v) The transport tank initial test vacuum and the time of the reading;

(vi) The transport tank final test vacuum and the time of the reading;

(vii) At the top of each report page the company name, date, and location of the tests on that page; and

(viii) Name and title of the person conducting the test.

(c) The owner or operator of a gasoline transport tank shall annually certify that the transport tank or marine vessel passed the required tests.

(d) Copies of all records required under this section shall immediately be made available to ((SWAPCA)) SWCAA, upon written request, at any reasonable time.

(5) Preventing evaporation. All persons shall take reasonable measures to prevent the spilling, discarding in sewers, storing in open containers, or handling of gasoline in a manner that will result in evaporation to the ambient air.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

AMENDATORY SECTION (Amending WSR 96-21-102, filed 10/21/96, effective 11/21/96)

((SWAPCA)) SWCAA 491-060 Severability

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption WSR 96-21-102 filed 10/21/96, effective 11/21/96]

The provisions of this regulation are severable and if any provision is held invalid, the application of such provision to the other circumstances and the remainder of this regulation shall not be affected.

Reviser's note: The brackets and enclosed material in the text of the above section occurred in the copy filed by the agency and appear in the Register pursuant to the requirements of RCW 34.08.040.

WSR 01-06-014

PERMANENT RULES

LIQUOR CONTROL BOARD

[Filed February 26, 2001, 4:14 p.m.]

Date of Adoption: February 7, 2001.

Purpose: The Liquor Control Board is currently undergoing a review of all of its rules to make them clear and usable, per Governor Locke's Executive Order 97-02. Chapter 314-11 WAC outlines general requirements for liquor licenses.

Citation of Existing Rules Affected by this Order: Repealing WAC 314-10-020, 314-12-115, 314-12-120, 314-12-125, 314-12-130, 314-12-195, 314-16-025, 314-16-030, 314-16-050, 314-16-060, 314-16-070, 314-16-075, 314-16-090, 314-16-120, 314-16-122, 314-16-125, 314-16-145, 314-70-020, 314-70-040 and 314-70-050; and amending WAC 314-16-020, 314-16-040, and 314-16-160.

Statutory Authority for Adoption: RCW 66.08.030, 66.28.100, 66.28.040, 66.28.090, 66.44.010, 66.44.070, 66.44.200, 66.44.270, 66.44.291, 66.44.292, 66.44.310, 66.44.316, 66.44.318, 66.44.340, 66.44.350, and chapter 66.44 RCW.

Adopted under notice filed as WSR 00-23-109 on November 21, 2000.

Changes Other than Editing from Proposed to Adopted Version:

- Change to proposed WAC 314-11-015 (3)(c) to clarify licensee's responsibilities to control behavior on their licensed premises that presents a threat to public safety.
- Change to proposed WAC 314-11-015 (3)(d) to clarify the exception to licensees or employees consuming liquor while working on the licensed premises that would allow breweries and wineries, under the limited circumstances outlined in the rule, to sample product.
- Technical change for clarification to proposed WAC 314-11-050 regarding conduct on licensed premises.
- Change to proposed WAC 314-11-055 to clarify the lighting standards (change from the standards being able to read 8 point type to standard being the ability to check ID and observe patrons).

PERMANENT

WSR 17-11-080

This document contains strikethrough rule language of changes to SWCAA 491 that took effect on June 18, 2017. SWCAA adopted subsequent changes to SWCAA 491 in 2020.

**WSR 17-11-080
PERMANENT RULES
SOUTHWEST CLEAN
AIR AGENCY**

[Filed May 18, 2017, 3:39 p.m., effective June 18, 2017]

Effective Date of Rule: Thirty-one days after filing.

Purpose: This proposed change is part of a process to consolidate all agency fees into a single location to make it easier for affected parties to locate applicable fees. It will remove fees from the rule and establish a process for public notice and board consideration of changes without going through the complicated and lengthy rule-making process. The procedure for adoption and revision of the Consolidated Fee Schedule is provided for under SWCAA 400-098.

Citation of Existing Rules Affected by this Order: Amending SWCAA 491-030.

Statutory Authority for Adoption: RCW [70.94.141](#).

Adopted under notice filed as WSR 17-04-109 on February 1, 2017.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's Own Initiative: New 0, Amended 1, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 1, Repealed 0.

Number of Sections Adopted Using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 1, Repealed 0.

Date Adopted: May 4, 2017.

Uri Papish
Executive Director

AMENDATORY SECTION (Amending WSR 01-05-067, filed 2/15/01, effective 3/18/01)

SWCAA 491-030 Registration

(1) The owner or operator of a gasoline loading terminal, bulk gasoline plant, or gasoline dispensing facility subject to the provisions of SWCAA 491-040 (2) through (5) shall register the facility annually with SWCAA. Facilities subject to registration under this section shall be assessed fees as provided in the current Consolidated Fee Schedule established in accordance with SWCAA 400-098 (~~consistent with and as required in SWCAA 400-100~~).

(2) Administration of the registration program shall be consistent with the Registration Program requirements of SWCAA 400-100.

(3) SWCAA will provide a written verification of registration to owners or operators of facilities subject to the provisions of SWCAA 491-

040 (2) through (6). Such verification shall be available for inspection by SWCAA personnel during normal business hours.

(4) The owner or operator of a gasoline loading terminal or a gasoline dispensing facility (non-major source) shall maintain total annual gasoline throughput records for the most recent three calendar years. Such records shall be available for inspection by SWCAA personnel during normal business hours.

WSR 20-03-031

This document contains strikethrough rule language of changes to SWCAA 491 that took effect on February 7, 2020. Portions of this version of rule text, as identified by Appendix A, Table A1, are submitted for approval and incorporation into the SIP.

WSR 20-03-031
PERMANENT RULES
SOUTHWEST CLEAN
AIR AGENCY

[Filed January 7, 2020, 8:19 a.m., effective February 7, 2020]

Effective Date of Rule: Thirty-one days after filing.

Purpose: SWCAA 491-020 Definitions. The proposed rule changes add definitions for enhanced conventional (ECO) nozzles, low permeation hoses, and onboard refueling vapor recovery.

SWCAA 491-030 Registration. The proposed rule changes correct rule references that will no longer be valid as a result of proposed changes to SWCAA 491-040.

SWCAA 491-040 Gasoline Vapor Control Requirements. The proposed rule changes:

- Correct an incorrect emission standard applicable to vapor control systems at gasoline loading terminals;
- Remove a requirement that two-point Stage I fittings be used with vacuum assist type Stage II systems;
- Add pressure and leak rate standards for pressure/vacuum valves;
- Add a requirement to install ECO nozzles by January 1, 2023;
- Add a requirement that low permeation hoses be installed at higher volume gasoline dispensing facilities (GDF), without balance type Stage II vapor recovery equipment, by no later than January 1, 2023;
- Require annual testing of Stage I vapor recovery systems;
- Allow the use of an approved continuous pressure monitoring system in lieu of annual Stage I vapor recovery system testing;
- Add a requirement that spill containers be maintained free of liquid and solid materials;
- Add a requirement that all gasoline dispenser hoses be equipped with emergency breakaway devices;
- Add a requirement that new or upgraded gasoline storage tanks be equipped with Stage I enhanced vapor recovery equipment;
- Remove a requirement that GDF install Stage II vapor recovery equipment;
- Allow removal from service of Stage II vapor recovery equipment compatible with onboard refueling vapor recovery (ORVR) on or after January 1, 2023;
- Allow removal from service of Stage II vapor recovery equipment incompatible with ORVR on or after January 3, 2020;
- Require removal from service of Stage II vapor recovery equipment incompatible with ORVR no later than January 1, 2023;
- Clarify construction approval and permitting requirements;
- Correct an outdated fee reference;
- Remove the applicability threshold for low flow nozzles to align SWCAA rules with federal rules; and
- Correct rule references that will no longer be valid as a result of proposed changes to SWCAA 491-040.

SWCAA 491-050 Failures, Certification, Testing and Recordkeeping. The proposed rule changes correct rule references that will no longer be valid as a result of proposed changes to SWCAA 491-040.

Citation of Rules Affected by this Order: Amending SWCAA 491-020, SWCAA 491-030, SWCAA 491-040, SWCAA 491-050.

Statutory Authority for Adoption: RCW [70.94.141](#).

Adopted under notice filed as WSR 19-21-005 on October 3, 2019.

Number of Sections Adopted in Order to Comply with Federal Statute: New 0, Amended 0, Repealed 0; Federal Rules or Standards: New 0, Amended 0, Repealed 0; or Recently Enacted State Statutes: New 0, Amended 0, Repealed 0.

Number of Sections Adopted at the Request of a Nongovernmental Entity: New 0, Amended 0, Repealed 0.

Number of Sections Adopted on the Agency's own Initiative: New 0, Amended 4, Repealed 0.

Number of Sections Adopted in Order to Clarify, Streamline, or Reform Agency Procedures: New 0, Amended 4, Repealed 0.

Number of Sections Adopted using Negotiated Rule Making: New 0, Amended 0, Repealed 0; Pilot Rule Making: New 0, Amended 0, Repealed 0; or Other Alternative Rule Making: New 0, Amended 0, Repealed 0.

Date Adopted: January 2, 2019 [2020].

Uri Papish
Executive Director

AMENDATORY SECTION (Amending WSR 01-05-067 filed 2/15/01, effective 3/18/01)

SWCAA 491-020 Definitions

The definitions of terms contained in SWCAA 400 are by this reference incorporated into this regulation. Unless a different meaning is clearly required by context, the following words and phrases, as used in this regulation, shall have the following meanings:

- (1) "Bottom loading" means the filling of a tank through a line entering the bottom of the tank.
- (2) "Bulk gasoline plant" means a gasoline storage and transfer facility that receives more than ninety percent of its annual gasoline throughput by transport tank, and reloads gasoline into transport tanks.
- (3) "Bunkering" means, for purpose of this rule, refueling a vessel with a fuel product where the intended use of that gasoline or fuel product is for combustion in the onboard engine of the marine vessel.
- (4) "Canister capture rate" means canister effectiveness times the percent of light duty vehicles that have onboard vapor recovery systems.
- (5) "Canister effectiveness" means the percent of refueling vapors recovered by a representative onboard vapor recovery system.
- (6) "Centroid" means the geometric center of a gas pump or a bank of gas pumps or, if a station has more than one bank of pumps, the geometric center of each bank of pumps.
- (7) "Certified vapor recovery system" means a vapor recovery system that has been certified by the California Air Resources Board (CARB). Only Stage II vapor recovery systems with a single coaxial hose can be certified. SWCAA may certify vapor recovery systems in addition to those certified by the California Air Resources Board as of the effective date of the regulation.
- (8) "Enhanced Conventional (ECO) Nozzle" means a nozzle that is used to dispense gasoline and complies with the California Air Resources Board performance standards in CP-207.
- ~~((8))~~(9) "Gas freed" means a marine vessel's cargo tank has been certified by a Marine Chemist as "Safe for Workers" according to the requirements outlined in the National Fire Protection Association Rule 306.
- ~~((9))~~(10) "Gasoline" means a petroleum distillate that is a liquid at standard conditions and has a true vapor pressure greater than four pounds per square inch absolute (4.0 psia) at twenty degrees C (20°C), and is used as a fuel for internal combustion engines. Also any liquid sold as a vehicle fuel with a true vapor pressure greater than four pounds per square inch absolute at twenty degrees C (20°C) shall be considered "gasoline" for purpose of this regulation.
- ~~((10))~~(11) "Gasoline dispensing facility" means any site dispensing gasoline into motor vehicle fuel tanks from stationary storage tanks (above ground or underground).
- ~~((11))~~(12) "Gasoline loading terminal" means a gasoline transfer facility that receives more than ten percent of its annual gasoline throughput solely or in combination by pipeline, ship or barge, and loads gasoline into transport tanks.
- ~~((12))~~(13) "Leak free" means a liquid leak of less than four drops per minute.
- ~~((13))~~(14) "Lightering" means the transfer of fuel product into a cargo tank from one marine tank vessel to another.
- ~~((14))~~(15) "Loading event" means the loading or lightering of gasoline into a marine tank vessel's cargo tank, or the loading of any product into a marine tank vessel's cargo tank where the prior cargo was gasoline. The event begins with the connection of a marine tank vessel to a storage or cargo tank by means of piping or hoses for the transfer of a fuel product from the storage or cargo tank(s) into the receiving marine tank vessel. The event ends with disconnection of the pipes and/or hoses upon completion of the loading process.
- (16) "Low Permeation Hose" means a hose that is used to dispense gasoline and complies with the permeation performance standard as determined by UL 330 (seventh edition).

~~((15))~~(17) "Marine tank vessel" means any marine vessel constructed or converted to carry liquid bulk cargo that transports gasoline.

~~((16))~~(18) "Marine terminal" means any facility or structure used to load or unload any fuel product cargo into or from marine tank vessels.

~~((17))~~(19) "Marine vessel" means any tugboat, tanker, freighter, passenger ship, barge or other boat, ship or watercraft.

~~((18))~~(20) "Modified" means any physical change in equipment, or change in the method of operation, of a gasoline dispensing facility, terminal, or loading or unloading facility, that increases the amount of any air contaminant emitted by such source or that results in the emission of any air contaminant not previously emitted. The term modified shall be construed consistent with the definitions of modification in Section 7411, Title 42, United States Code, and with rules implementing that section. Section 7411 exempts changes in gasoline throughput not resulting directly from a physical change.

~~((19))~~(21) "NAAQS" means National Ambient Air Quality Standard.

(22) "ORVR" refers to the Onboard Refueling Vapor Recovery system incorporated into the design of a vehicle that captures the gasoline vapors displaced from the vehicle fuel tank during refueling.

~~((20))~~(23) "Ozone contributing county" means a county in which the emissions have contributed to the formation of ozone in any county or area where violation of federal ozone standards have been measured, and includes: Cowlitz, Island, Kitsap, Lewis, Skagit, Thurston, Wahkiakum, and Whatcom counties.

~~((21))~~(24) "Permanent residence" means a single-family or multi-family dwelling or any other facility designed for use as permanent housing.

~~((22))~~(25) "SWCAA" means the Southwest Clean Air Agency.

~~((23))~~(26) "Stage I" means gasoline vapor recovery during all gasoline marketing transfer operations except motor vehicle refueling.

~~((24))~~(27) "Stage II" means gasoline vapor recovery during motor vehicle refueling operations from stationary tanks.

~~((25))~~(28) "Submerged fill line" means any discharge pipe or nozzle which meets either of the following conditions:

- Where the tank is filled from the top, the end of (upper cut of the bevel on) the discharge pipe or nozzle must be totally submerged when the liquid level is six inches from the bottom of the tank, or;
- Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is eighteen inches from the bottom of the tank.

~~((26))~~(29) "Submerged loading" means the filling of a tank with a submerged fill line.

~~((27))~~(30) "Suitable cover" means a door, hatch, cover, lid, pipe cap, pipe blind, valve, or similar device that prevents the accidental spilling or emitting of gasoline. Pressure relief valves, aspirator vents, or other devices specifically required for safety and fire protection are not included.

~~((28))~~(31) "Throughput" means the amount of material passing through a facility.

~~((29))~~(32) "Top off" means to attempt to dispense gasoline to a motor vehicle fuel tank after a vapor recovery dispensing nozzle has shut off automatically.

~~((30))~~(33) "Transport tank" means a container used for shipping gasoline over roadways.

~~((31))~~(34) "True vapor pressure" means the equilibrium partial pressure of a petroleum liquid as determined by methods described in American Petroleum Institute (API) Bulletin 2517, 1980.

~~((32))~~(35) "Upgraded" means the modification of a gasoline storage tank, including tank installation or replacement, or piping to add cathodic protection, tank lining or spill and overfill protection that involved removal of ground or ground cover above a portion of the product piping.

~~((33))~~(36) "Vapor balance system" means a system consisting of the transport tank, gasoline vapor transfer lines, storage tank, and all tank vents designed to route displaced gasoline vapors from a tank being filled with liquid gasoline.

~~((34))~~(37) "Vapor collection system" means a closed system to conduct vapors displaced from a tank being filled into the tank being emptied, a vapor holding tank, or a vapor control system.

~~((35))~~(38) "Vapor control system" means a system designed and operated to reduce or limit the emission of gasoline vapors emission into the ambient air.

~~((36))~~(39) "Vapor-mounted seal" means a primary seal mounted continuously around the circumference of the tank so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.

~~((37))~~(40) "Vapor tight" means a leak of less than one hundred percent of the lower explosive limit on a combustible gas detector measured at a distance of one inch from the source or no visible evidence of air entrainment in the sight glasses of liquid delivery hoses.

~~((38))~~(41) "WDOE" or "Ecology" means the Washington Department of Ecology.

~~((39))~~(42) "Western Washington counties" means the following counties: Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, and Whatcom.

AMENDATORY SECTION (Amending WSR 17-11-080 filed 5/18/17, effective 6/18/17)

SWCAA 491-030 Registration

(1) The owner or operator of a gasoline loading terminal, bulk gasoline plant, or gasoline dispensing facility subject to the provisions of SWCAA 491-040 (2) through ~~((5))~~(4) shall register the facility annually with SWCAA. Facilities subject to registration under this section shall be assessed fees as provided in the current Consolidated Fee Schedule established in accordance with SWCAA 400-098.

(2) Administration of the registration program shall be consistent with the Registration Program requirements of SWCAA 400-100.

(3) SWCAA will provide a written verification of registration to owners or operators of facilities subject to the provisions of SWCAA 491-040 (2) through ~~((6))~~(4). Such verification shall be available for inspection by SWCAA personnel during normal business hours.

(4) The owner or operator of a gasoline loading terminal or a gasoline dispensing facility (non-major source) shall maintain total annual gasoline throughput records for the most recent three calendar years. Such records shall be available for inspection by SWCAA personnel during normal business hours.

AMENDATORY SECTION (Amending WSR 01-05-067 filed 2/15/01, effective 3/18/01)

SWCAA 491-040 Gasoline Vapor Control Requirements

(1) Fixed-roof gasoline storage tanks.

(a) All fixed-roof gasoline storage tanks having a nominal storage capacity greater than forty thousand (40,000) gallons shall comply with one of the following:

(i) Meet the equipment specifications and maintenance requirements of the federal standards of performance for new stationary sources - Storage Vessels for Petroleum Liquids (40 CFR 60, subparts K, Ka and Kb).

(ii) Be retrofitted with a floating roof or internal floating cover using a metallic seal or a nonmetallic resilient seal at least meeting the equipment specifications of the federal standards referred to in (a)(i) of this subsection or its equivalent.

(iii) Be fitted with a floating roof or internal floating cover meeting the manufacturer's equipment specifications in effect when it was installed.

(b) All seals used in (a)(ii) and (iii) of this subsection are to be maintained in good operating condition and the seal fabric shall contain no visible holes, tears, or other openings consistent with 40 CFR 60 subparts Ka and Kb.

(c) All openings not related to safety are to be sealed with suitable closures.

(d) Tanks used for the storage of gasoline in bulk gasoline plants and equipped with vapor balance systems as required in subsection (3)(b) of this section shall be exempt from the requirements of subsection (1) of this section.

(e) All fixed roof gasoline storage tanks subject to this section shall comply no later than December 31, 1993 or at the time that the throughput is exceeded.

(2) Gasoline loading terminals.

(a) This section shall apply to all gasoline loading terminals with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993 or when the throughput is exceeded.

(b) Facilities loading gasoline into any transport tank shall be equipped with a vapor control system (VCS) as described in (c) of this subsection and comply with the following conditions:

(i) The loading facility shall employ submerged or bottom loading for all transport tanks.

(ii) The VCS shall be connected during the entire loading of all transport tanks.

(iii) The loading of all transport tanks shall be performed such that the transfer is at all times vapor tight. Emissions from pressure relief valves shall not be included in the controlled emissions when the back pressure in the VRS collection lines is lower than the relief pressure setting of the transport tank's relief valves.

(iv) All loading lines and vapor lines shall be equipped to close automatically when disconnected. The point of closure shall be on the tank side of any hose or intermediate connecting line.

(c) The VCS shall be designed and built according to accepted industrial practices and meet the following conditions:

(i) The VCS shall not allow organic vapors emitted to the ambient air to exceed thirty-five milligrams per liter (35 mg/l) (~~three hundred twenty-two milligrams per gallon or 322 mg/gal~~) of gasoline loaded.

(ii) The VCS shall be equipped with a device to monitor the system while the VCS is in operation.

(iii) The back pressure in the VCS collection lines shall not exceed the transport tank's pressure relief settings.

(3) Bulk gasoline plants and transport tanks.

(a) This section shall apply to all bulk gasoline plants with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993, or when the throughput is exceeded, and gasoline transport tanks.

(b) Deliveries to bulk gasoline plant storage tanks.

(i) The owner or operator of a bulk gasoline plant shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated properly. The vapor balance system shall prevent at least ninety percent of the displaced gasoline vapors from entering the ambient air. A vapor balance system that is designed, built, and operated according to accepted industrial practices will satisfy this requirement.

(ii) Storage tank requirements. All storage tanks with a nominal capacity greater than five hundred fifty (550) gallons and used for the storage of gasoline shall comply with the following conditions:

(A) Each storage tank shall be equipped with a submerged fill line.

(B) Each storage tank shall be equipped for vapor balancing of gasoline vapors with transport tanks during gasoline transfer operations.

(C) The vapor line fittings on the storage tank side of break points with the transport tank vapor connection pipe or hose shall be equipped to close automatically when disconnected.

(D) The pressure relief valves on storage tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety but in no case greater than ninety percent of the tank's safe working pressure.

(iii) Transport tank requirements. All transport tanks transferring gasoline to storage tanks in a bulk gasoline plant shall comply with the following conditions:

(A) The transport tank shall be equipped with the proper attachment fittings to make vapor tight connections for vapor balancing with storage tanks.

(B) The vapor line fittings on the transport tank side of break points with the storage tank connection pipe or hose shall be equipped to close automatically when disconnected.

(C) The pressure relief valves on transport tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety.

(c) Gasoline transfer operations.

(i) No owner or operator of a bulk gasoline plant or transport tank shall allow the transfer of gasoline between a stationary storage tank and a transport tank except when the following conditions exist:

(A) The transport tanks are being submerged filled or bottom loaded.

(B) The loading of all transport tanks, except those exempted under (c)(ii) of this subsection are being performed using a vapor balance system.

(C) The transport tanks are equipped to balance vapors and maintained in a leak tight condition in accordance with subsection ~~((6))~~(5) of this section.

(D) The vapor return lines are connected between the transport tank and the stationary storage tank and the vapor balance system is operated properly.

(ii) Transport tanks used for gasoline that meet all of the following conditions shall be exempt from the requirement to be equipped with any attachment fitting for vapor balance lines if:

(A) The transport tank is used exclusively for the delivery of gasoline into storage tanks of a facility exempt from the vapor balance requirements of subsection (4) of this section; and

(B) The transport tank has a total nominal capacity less than four thousand gallons and is constructed so that it would require the installation of four or more separate vapor balance fittings.

(4) Gasoline dispensing facilities (~~(((Stage I)))~~).

(a) This section shall apply to the delivery of gasoline to gasoline dispensing facilities with an annual gasoline throughput greater than three hundred sixty thousand gallons in Cowlitz, Lewis, Skamania and Wahkiakum Counties. For Clark County, this section applies to gasoline dispensing facilities with greater than 200,000 gallons annual throughput on a calendar year basis. All facilities subject to this section shall comply when the throughput is exceeded.

(b) All gasoline storage tanks of the facilities defined in (a) of this subsection shall be equipped with submerged or bottom fill lines and fittings to vapor balance gasoline vapors with the delivery transport tank.

(c) Gasoline storage tanks with offset fill lines shall be exempt from the requirement of (b) of this subsection if installed prior to January 1, 1979.

(d) The owner or operator of a gasoline dispensing facility shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily. In addition, no owner or operator of a transport tank shall load gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily.

(e) All gasoline dispensing facilities subject to this section shall be equipped with CARB or SWCAA certified Stage I vapor recovery fittings or equipment.

~~((f) Only two point Stage I fittings shall be used with vacuum assist type Stage II systems. Coaxial Stage I fittings may continue to be used for balance type Stage II systems and systems without Stage II gasoline vapor recovery controls.))~~

(f) All new or upgraded gasoline storage tanks subject to this section shall be equipped with CARB certified Stage I Enhanced Vapor Recovery equipment or an equivalent approved by SWCAA.

(g) All Stage I gasoline vapor recovery equipment shall be maintained in proper working order at all times. All Stage I gasoline vapor recovery equipment shall be maintained in accordance with the CARB Executive Order(s) certifying the equipment or system. Whenever a Stage I gasoline vapor recovery system or component is determined to be defective or not operating properly, the owner or operator shall immediately take the system out of service until repairs are made. Systems shall not be returned to service until the defective system is operating properly.

(h) Any alteration of the equipment, parts, design, or operation of the Stage I gasoline vapor recovery system as certified by CARB is prohibited, and shall not be performed without submittal of an ~~an~~ ~~(Notice of Construction)~~ Air Discharge Permit application and prior approval from SWCAA.

(i) All new gasoline dispensing facilities shall have a tank tightness test performed at the time of installation to ensure proper connection and absence of leaks ~~((refer to WDOE publication 91-43 "Tank Owner/Operator's Guide to Tightness Testing"))~~. Results of the testing shall be submitted to SWCAA within 14 calendar days of testing.

(j) Until January 1, 2023, ~~((P))~~ pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.

(k) Effective January 1, 2023, pressure/vacuum valves shall be installed on all gasoline storage tanks. Pressure/vacuum valve(s) shall be installed and maintained with a positive pressure setting of 2.5 - 6.0 inches water column, and a negative pressure setting of 6.0 - 10.0 inches water column. The leak rate of each pressure/vacuum valve, including connections, shall not exceed 0.05 cubic foot per hour at a pressure of 2.0 inches water column and 0.21 cubic foot per hour at a vacuum of 4 inches water column. The total leak rate for all pressure/vacuum valves, including connections, shall not exceed 0.17 cubic foot per hour at a pressure of 2.0 inches water column and 0.63 cubic foot per hour at a vacuum of 4 inches water column.

(l) All gasoline dispensing nozzles at a facility not in Stage II vapor recovery service shall be Enhanced Conventional Nozzles by no later than January 1, 2023.

(m) All gasoline dispensing hoses that carry liquid fuel against the outermost hose wall at a gasoline dispensing facility with greater than 1,400,000 gallons annual gasoline throughput on a calendar year basis shall permeate no more than 10.0 grams per square meter per day, as determined by Underwriters Laboratories' Standard 330, by no later than January 1, 2023.

(n) Effective January 1, 2023 the testing listed in Table 1 shall be conducted and passed for each Stage I vapor recovery system. For new Stage I systems, initial testing shall be conducted and passed prior to placing new systems into service. For existing systems that have not yet conducted initial testing, initial testing shall be completed before January 1, 2023. The results of all testing shall be reported to SWCAA within 14 days of test completion.

Table 1 - Stage I Vapor Recovery System Testing

Test	Frequency ¹
CARB Test Procedure 201.3 (TP-201.3) "Determination of 2 Inch w.c. Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities"	Annually
CARB Test Procedure 201.1B (TP-201.1B) "Static Torque of Rotatable Phase I Adaptors"	Annually ²
Depending on the system configuration, either Test Procedure 201.1C (TP-201.1C) "Leak Rate of Drop Tube/Drain Valve Assembly" or Test Procedure 201.1D (TP-201.1D) "Leak Rate of Drop Tube Overfill Prevention Devices and Spill Container Drain Valves."	Annually ³
CARB Test Procedure 201.1E (TP-201.1E) "Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves" adopted October 8, 2003	Every 3 calendar years

¹ All tests shall be conducted at the frequency indicated in Table 1 no later than the end of the calendar month during which the initial test was conducted unless otherwise approved by SWCAA.

² Only applicable to EVR system with rotatable adaptors.

³ Only applicable to EVR system with drop tube/drain valve assembly, overfill prevention devices, and/or spill container drain valves.

(o) In lieu of (n) of this subsection, SWCAA may approve a continuous pressure monitoring system that is installed and maintained in accordance with CARB Vapor Recovery Test Procedures CP-201 and TP-201.7 and manufacturer instructions. An Air Discharge Permit application is required if requesting SWCAA approval of a continuous pressure monitoring system.

(p) Spill containers shall be maintained free of liquid and solid materials.

(q) Dispenser hoses shall be equipped with a CARB or SWCAA approved emergency breakaway device designed to retain liquid on both sides of a breakaway point. When hoses are attached to a hose-retrieving mechanism, the emergency breakaway device shall be located between the hose nozzle and the point of attachment of the host retrieval mechanism to the hose.

~~(((5) Gasoline dispensing facilities (Stage II:))~~

~~(((a) This section shall apply to the refueling of motor vehicles for the general public from stationary tanks at all gasoline dispensing facilities as follows:))~~

~~(((1) For Clark County, all facilities dispensing 600,000 gallons in a calendar year or greater;))~~

~~(((2) For Cowlitz County, all facilities dispensing 1.2 million gallons in a calendar year or greater;))~~

~~(((3) For Lewis, Skamania and Wahkiakum Counties, Stage II vapor control equipment is not required unless the facility exceeds the throughput and distance requirements below:))~~

Gallons Throughput (millions)	Distance to Property Line (meters)
1.5	20
2.0	25
2.5	28
3.0	32
3.5	35
4.0	38
5.0	43
6.0	49
8.0	58
10.0	66
12.0	75
16.0	90
20.0	103
25.0	118

~~(((i) When the throughput is not shown in the chart, interpolate to get the distance for that throughput.))~~

~~((ii) The allowable distance shall be measured from the centroid of the pumps to the nearest point on the property line of the nearest lot on which a permanent residence is located. However, if the permanent residence is located at least twice the allowable distance from the centroid of the pumps, the requirements of (3) of this subsection shall not apply.))~~

~~((b) Stage II vapor control equipment may be removed from any gasoline dispensing facility located in Lewis, Wahkiakum or Skamania County as in (a) above, or from any facility in Cowlitz County dispensing less than 1.2 million gallons annually, by submittal of a complete Notice of Construction and receipt of an Order of Approval, provided that the requirements of subsection (a) above are met.))~~

~~((c)(i) Beginning on July 1, 2001, and each year thereafter, the Department of Ecology will publish the canister capture rate for use with this rule.))~~

~~((ii) When the canister capture rate reaches 15% and there are no major exceptions, waivers, or other adjustments to the EPA onboard canister regulations or program implementation, the Department of Ecology will revise the state rules and incorporate the effect of canisters.))~~

~~(r) New gasoline dispensing facilities, or existing gasoline dispensing facilities without Stage II vapor recovery, are not required to install Stage II vapor recovery equipment. Owners or operators of new or existing facilities that wish to install Stage II vapor recovery systems may request to install ORVR-compatible Stage II vapor recovery systems by submittal of an Air Discharge Permit in accordance with SWCAA 400-109.~~

~~(s) Stage II vapor recovery equipment compatible with ORVR may be removed from service on or after January 1, 2023. An Air Discharge Permit application must be submitted in accordance with SWCAA 400-109 for approval to remove the Stage II vapor recovery equipment from service.~~

~~(t) Stage II vapor recovery equipment not compatible with ORVR may be removed from service on or after the effective date of this rule and must be removed from service no later than January 1, 2023. An Air Discharge Permit application must be submitted in accordance with SWCAA 400-109 for approval to remove the Stage II vapor recovery equipment from service.~~

~~((d)) (u) The owner or operator of a new or modified gasoline dispensing facility shall file ~~((a-Notice of Construction))~~ an Air Discharge Permit application as provided in SWCAA 400-109~~((110))~~, and obtain an ~~((Order of Approval))~~ Air Discharge Permit prior to commencing construction or modification.~~

~~((e) The owner or operator of any gasoline dispensing facility may elect to submit a site-specific analysis of the requirement for a Stage II vapor recovery system under (a) of this subsection and request the Department of Ecology to evaluate it subject to the fees described in (f) of this subsection. The Department of Ecology will review and evaluate a second tier analysis described under WAC 173-460-090 within 45 days of determining that the analysis submitted is complete and no additional information is needed. The requirements for gasoline vapor control shall be determined as a result of that process.))~~

~~((f)) (v) The fee for new source review of a gasoline dispensing facility under this section shall be the same as the fee under SWCAA's consolidated fee schedule ~~((400-110 except, if a site-specific review is elected under (e) of this subsection, the fee shall be as provided under WAC 173-400-116 (3)(e) for a tier two analysis))~~.~~

~~((g) All gasoline dispensing facilities subject to this section shall be equipped with a CARE or SWCAA certified Stage II vapor recovery system.))~~

~~((h) The owner or operator of a gasoline dispensing facility subject to this section shall not transfer or allow the transfer of gasoline from stationary tanks into motor vehicle fuel tanks unless a certified Stage II vapor recovery system is used.))~~

~~((i)) (w) All Stage II vapor recovery equipment shall be installed in accordance with the system's certification requirements and shall be maintained to be leak free, vapor tight, and in good working order.~~

~~((j)) (x) Whenever a Stage II vapor recovery system component is determined to be defective, the owner or operator shall take the system out of service until it has been repaired, replaced, or adjusted, as necessary.~~

~~((k) The owner or operator of each gasoline dispensing facility utilizing a Stage II system shall conspicuously post operating instructions for the system in the gasoline dispensing area. The instructions shall clearly describe how to fuel vehicles correctly using the vapor recovery nozzles and include a warning against topping off. Additionally, the instructions shall include a prominent display of SWCAA's or Department of Ecology's toll free telephone number (800-633-0709 or 800-272-3780) for complaints regarding the operation and condition of the vapor recovery system.))~~

~~((H)) (y) Every retailer and wholesale purchaser-consumer (gasoline dispensing facility) ~~((handling over 10,000 gallons per month))~~ shall equip each pump from which gasoline or methanol is introduced into motor~~

vehicles with a nozzle that dispenses fuel at a flowrate not to exceed 10 gallons per minute as provided in 40 CFR 80.22(j)(~~Subpart B~~).

~~((m))~~ (z) All new or upgraded facilities with Stage II gasoline vapor recovery controls shall conduct a performance test upon installation prior to placing in service. For balance type systems, the owner/operator shall conduct and pass a back pressure/blockage test. ~~((For vacuum assist systems, the owner/operator shall conduct and pass performance testing every 12 months.))~~ Results of all testing shall be submitted to SWCAA within 14 calendar days of test completion.

~~((n))~~ Pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.)

~~((6))~~ (5) **Loading or Unloading Gasoline into Marine Tank Vessels**

(a) Applicability. This rule applies to loading events at any location within the Vancouver ozone air quality maintenance area when gasoline is placed into a marine tank vessel cargo tank; or when any liquid is placed into a marine tank vessel cargo tank that had previously held gasoline. The owner or operator of each marine terminal and marine tank vessel is responsible for and must comply with this rule. All facilities shall be in compliance no later than June 1, 2001.

(b) Exemptions. The following activities are exempt from the marine vapor control emission limits of this rule:

- (i) Marine vessel bunkering (refueling);
- (ii) Lightering when neither vessel is berthed at a marine terminal dock,
- (iii) Loading when both of the following conditions are met: The vessel has been gas freed (regardless of the prior cargo), and ~~W~~when loading any products other than gasoline.

(c) Vapor Collection System. The owner or operator of a marine terminal subject to this rule must equip each loading berth with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The owner or operator of a marine tank vessel subject to this rule must equip each marine tank vessel with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The collection system must be designed such that all displaced VOC vapors collected during any loading event are vented only to the control device.

(d) Marine Vapor Control Emission Limits. Vapors that are displaced and collected during marine tank vessel loading events must meet one of the following:

- (i) Vapors must be reduced from the uncontrolled condition by at least 95 percent by weight, as determined by EPA Method 25 or other methods approved in writing by SWCAA, or
- (ii) Vapor emissions shall not exceed 5.7 grams per cubic meter (2 pounds per 1000 barrels) of liquid loaded.

(e) Operating Practice and Maintenance.

(i) All hatches, pressure relief valves, connections, gauging ports and vents associated with the loading of fuel product into marine tank vessels must be maintained to be leak free and vapor tight.

(ii) The owner or operator of any marine tank vessel must certify to SWCAA that the vessel is leak free, vapor tight, and in good working order based on an annual inspection using EPA Method 21 or other methods approved in writing by SWCAA.

(iii) Gaseous leaks must be detected using EPA Method 21 or other methods approved in writing by SWCAA.

(iv) Loading must cease any time gas or liquid leaks are detected. Loading may continue only after leaks are repaired or if documentation is provided to SWCAA that the repair of leaking components is technically infeasible without dry-docking the vessel or cannot otherwise be undertaken safely. Subsequent loading events involving the leaking components are prohibited until the leak is repaired. Any liquid or gaseous leak detected by SWCAA staff is a violation of this rule.

(f) Monitoring and Record~~((K))~~keeping.

Marine terminal operators must maintain operating records for at least five years of each loading event at their terminal. Marine tank vessel owners and operators are responsible for maintaining operating records for at least five years for all loading events involving each of their vessels. Records must be made available to SWCAA upon request. These records must include but are not limited to:

- (i) The location of each loading event.
- (ii) The date of arrival and departure of the vessel.

- (iii) The name, registry and legal owner of each marine tank vessel participating in the loading event.
- (iv) The type and amount of fuel product loaded into the marine tank vessel.
- (v) The prior cargo carried by the marine tank vessel. If the marine tank vessel has been gas freed, then the prior cargo can be recorded as gas freed.
- (vi) The description of any gaseous or liquid leak, date and time of leak detection, leak repair action taken and screening level after completion of the leak repair.

(g) Lightering exempted from controls by subsection ((6))(5)(b) of this rule must be curtailed from 2:00 AM until 2:00 PM when SWCAA declares a Clean Air Action (CAA) day. If SWCAA declares a second CAA day before 2:00 PM of the first curtailment period, then such uncontrolled lightering must be curtailed for an additional 24 hours until 2:00 PM on the second day. If a third CAA day in a row is declared, then uncontrolled lightering is permissible for a 12 hour period starting at 2 PM on the second CAA day and ending at 2 AM on the third CAA day. Uncontrolled lightering must be curtailed from 2 AM until 2 PM on the third CAA day. If SWCAA continues to declare CAA days consecutively after the third day, the curtailment and loading pattern used for the third CAA day will apply.

(h) Safety/Emergency Operations. Nothing in this rule is intended to:

(i) Require any act or omission that would be in violation of any regulation or other requirement of the United States Coast Guard; or

(ii) Prevent any act that is necessary to secure the safety of a vessel or the safety of passengers or crew.

Reviser's note: The typographical errors in the above material occurred in the copy filed by the Southwest Clean Air Agency and appear in the Register pursuant to the requirements of RCW [34.08.040](#).

AMENDATORY SECTION (Amending WSR 01-05-067 filed 2/15/01, effective 3/18/01)

SWCAA 491-050 Failures, Certification, Testing and Recordkeeping

This section shall apply to all gasoline transport tanks equipped for gasoline vapor collection and all vapor collection systems at gasoline loading terminals, and bulk gasoline plants as described in subsections (2) and (3) of SWCAA 491-040.

(1) Failures.

During the months of May, June, July, August, and September any failure of a vapor collection system at a bulk gasoline plant or gasoline loading terminal to comply with this section requires the immediate discontinuation of gasoline transfer operations for the failed part of the system. Other transfer points that can continue to operate in compliance may be used. The loading or unloading of the transport tank connected to the failed part of the vapor collection system may be completed during the other months of the year. Upon completion of loading or unloading of a transport tank connected at the time of the failure, gasoline transfer operations shall be discontinued for the failed part of the system.

(2) Certification.

(a) The owner or operator of a gasoline loading terminal or bulk gasoline plant shall only allow the transfer of gasoline between the facility and a transport tank or a marine vessel if a current leak test certification for the transport tank is on file with the facility or a valid inspection sticker is displayed on the vehicle or marine vessel. Certification is required annually as provided in SWCAA 490-202 for transport tanks and SWCAA 491-040 ((6))(5)(e) for marine vessels.

(b) The owner or operator of a transport tank shall not make any connection to the tank or marine vessel for the purpose of loading or unloading gasoline, except in the case of an emergency, unless the gasoline transport tank or marine vessel has successfully completed the annual certification testing requirements in (3) of this subsection, and such certification is confirmed either by:

(i) Having on file with each gasoline loading or unloading facility at which gasoline is transferred a current leak test certification for the transport tank; or

(ii) For transport tanks (tanker trucks), displaying a sticker near the Department of Transportation certification plate required by 49 CFR 178.340-10b which:

(A) Shows the date that the gasoline tank truck last passed the test required in (3) of this subsection;

(B) Shows the identification number of the gasoline tank truck tank; and

(C) Expires not more than one year from the date of the leak tight test.

(iii) For marine vessels, displaying a sticker/certification with the other Coast Guard required certifications (e.g. in the vessel ecology box, ship's bridge or tankerman's shack) which:

- (A) Shows the date that the marine vessel last passed the test required in (3) of this subsection;
- (B) Shows the identification number of the marine vessel; and
- (C) Expires not more than one year from the date of the leak tight test.
- (c) The owner or operator of a vapor collection system shall:
 - (i) Operate the vapor collection system and the gasoline loading equipment during all loadings and unloadings of transport tanks and marine vessels equipped for emission control such that:
 - (A) The tank pressure will not exceed a pressure of eighteen inches of water or a vacuum of six inches of water;
 - (B) The concentration of gasoline vapors is below the lower explosive limit (LEL, measured as propane) at all points a distance of one inch from potential leak sources; and
 - (C) There are no visible liquid leaks except for a liquid leak of less than four drops per minute at the product loading connection during delivery.
 - (D) Upon disconnecting transfer fittings, liquid leaks do not exceed ten milliliters (0.34 fluid ounces) per disconnect averaged over three disconnects.
 - (ii) Repair and retest a vapor collection system that exceeds the limits of (2)(c)(i) of this subsection within fifteen days.
 - (d) SWCAA may, at any time, monitor a gasoline transport tank, marine vessel and vapor collection system during loading or unloading operations by the procedure in (3) of this subsection to confirm continuing compliance with this section.
- (3) Testing and monitoring.
 - (a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall, at his own expense, demonstrate compliance with (1) and (2) of this subsection, respectively. All tests shall be made by, or under the direction of, a person qualified to perform the tests and approved by WDOE or SWCAA.
 - (b) Testing to determine compliance with this section shall use procedures approved by SWCAA. See testing requirements in SWCAA 490 for transport tanks and section 491-040 ~~((6))~~(5)(e) for marine vessels.
 - (c) Monitoring to confirm continuing leak tight conditions shall use procedures approved by SWCAA.
- (4) Recordkeeping.
 - (a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall maintain records of all certification tests and repairs for at least two years after the test or repair is completed.
 - (b) The records of certification tests required by this section shall, as a minimum, contain:
 - (i) The transport tank or marine vessel identification number;
 - (ii) The transport tank or marine vessel capacity;
 - (iii) The transport tank initial test pressure and the time of the reading;
 - (iv) The transport tank final test pressure and the time of the reading;
 - (v) The transport tank initial test vacuum and the time of the reading;
 - (vi) The transport tank final test vacuum and the time of the reading;
 - (vii) At the top of each report page the company name, date, and location of the tests on that page; and
 - (viii) Name and title of the person conducting the test.
 - (c) The owner or operator of a gasoline transport tank shall annually certify that the transport tank or marine vessel passed the required tests.
 - (d) Copies of all records required under this section shall immediately be made available to SWCAA, upon written request, at any reasonable time.
- (5) Preventing evaporation. All persons shall take reasonable measures to prevent the spilling, discarding in sewers, storing in open containers, or handling of gasoline in a manner that will result in evaporation to the ambient air.

Reviser's note: The typographical errors in the above material occurred in the copy filed by the Southwest Clean Air Agency and appear in the Register pursuant to the requirements of RCW [34.08.040](#).

Appendix C. SWCAA 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors



SWCAA 491

Emission Standards and Controls for Sources Emitting Gasoline Vapors

Effective: February 7, 2020

Filed with Code Reviser (CR-101) - None
Preliminary Notice Published - None

Filed with Code Reviser (CR-102) - WSR 19-21-005, October 3, 2019
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Final Regulation Published - WSR 20-03, February 5, 2020

Effective Date of Final Rules – February 7, 2020

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**EMISSION STANDARDS AND CONTROLS FOR
SOURCES EMITTING GASOLINE VAPORS**

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SWCAA 491-010 Policy and Purpose

- (1) It is the policy of the Southwest Clean Air Agency (SWCAA) under the authority provided in Chapter 70.94.141, and 70.94.152 and 70.94.165 RCW to provide for the systematic control of air pollution from air contaminant sources within the jurisdiction of SWCAA.
- (2) It is the purpose of this regulation to establish standards for the control of air contaminants emitted from gasoline marketing and dispensing sources within the jurisdiction of SWCAA including Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties.

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96; WSR 01-05-067 filed 2/15/01, effective 3/18/01]

SWCAA 491-015 Applicability

This regulation applies to gasoline marketing operations within SWCAA jurisdiction, including the storage, transport, and transfer of gasoline, transfer from storage tanks into transport tanks, marine vessel loading and unloading, and transfer from storage tanks into motor vehicles. This regulation applies to facilities with above ground and underground storage tanks.

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96; WSR 00-11-149 filed 5/24/2000, effective 6/24/2000; WSR 01-05-067 filed 2/15/01, effective 3/18/01]

SWCAA 491-020 Definitions

The definitions of terms contained in SWCAA 400 are by this reference incorporated into this regulation. Unless a different meaning is clearly required by context, the following words and phrases, as used in this regulation, shall have the following meanings:

- (1) "Bottom loading" means the filling of a tank through a line entering the bottom of the tank.

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- (2) "Bulk gasoline plant" means a gasoline storage and transfer facility that receives more than ninety percent of its annual gasoline throughput by transport tank, and reloads gasoline into transport tanks.
- (3) "Bunkering" means, for purpose of this rule, refueling a vessel with a fuel product where the intended use of that gasoline or fuel product is for combustion in the onboard engine of the marine vessel.
- (4) "Canister capture rate" means canister effectiveness times the percent of light duty vehicles that have onboard vapor recovery systems.
- (5) "Canister effectiveness" means the percent of refueling vapors recovered by a representative onboard vapor recovery system.
- (6) "Centroid" means the geometric center of a gas pump or a bank of gas pumps or, if a station has more than one bank of pumps, the geometric center of each bank of pumps.
- (7) "Certified vapor recovery system" means a vapor recovery system that has been certified by the California Air Resources Board (CARB). Only Stage II vapor recovery systems with a single coaxial hose can be certified. SWCAA may certify vapor recovery systems in addition to those certified by the California Air Resources Board as of the effective date of the regulation.
- (8) "Enhanced Conventional (ECO) Nozzle" means a nozzle that is used to dispense gasoline and complies with the California Air Resources Board performance standards in CP-207.
- (9) "Gas freed" means a marine vessel's cargo tank has been certified by a Marine Chemist as "Safe for Workers" according to the requirements outlined in the National Fire Protection Association Rule 306.
- (10) "Gasoline" means a petroleum distillate that is a liquid at standard conditions and has a true vapor pressure greater than four pounds per square inch absolute (4.0 psia) at twenty degrees C (20 °C), and is used as a fuel for internal combustion engines. Also any liquid sold as a vehicle fuel with a true vapor pressure greater than four pounds per square inch absolute at twenty degrees C (20 °C) shall be considered "gasoline" for purpose of this regulation.
- (11) "Gasoline dispensing facility" means any site dispensing gasoline into motor vehicle fuel tanks from stationary storage tanks (above ground or underground).
- (12) "Gasoline loading terminal" means a gasoline transfer facility that receives more than ten percent of its annual gasoline throughput solely or in combination by pipeline, ship or barge, and loads gasoline into transport tanks.
- (13) "Leak free" means a liquid leak of less than four drops per minute.
- (14) "Lightering" means the transfer of fuel product into a cargo tank from one marine tank vessel to another.
- (15) "Loading event" means the loading or lightering of gasoline into a marine tank vessel's cargo tank, or the loading of any product into a marine tank vessel's cargo tank where the prior cargo was gasoline. The event begins with the connection of a marine tank vessel to a storage or cargo tank by means of piping or hoses for the transfer of a fuel product from the storage or cargo tank(s) into the receiving marine tank vessel. The event ends with disconnection of the pipes and/or hoses upon completion of the loading process.
- (16) "Low Permeation Hose" means a hose that is used to dispense gasoline and complies with the permeation performance standard as determined by UL 330 (seventh edition).
- (17) "Marine tank vessel" means any marine vessel constructed or converted to carry liquid bulk cargo that transports gasoline.
- (18) "Marine terminal" means any facility or structure used to load or unload any fuel product cargo into or from marine tank vessels.

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- (19) "Marine vessel" means any tugboat, tanker, freighter, passenger ship, barge or other boat, ship or watercraft.
- (20) "Modified" means any physical change in equipment, or change in the method of operation, of a gasoline dispensing facility, terminal, or loading or unloading facility, that increases the amount of any air contaminant emitted by such source or that results in the emission of any air contaminant not previously emitted. The term modified shall be construed consistent with the definitions of modification in Section 7411, Title 42, United States Code, and with rules implementing that section. Section 7411 exempts changes in gasoline throughput not resulting directly from a physical change.
- (21) "NAAQS" means National Ambient Air Quality Standard.
- (22) "ORVR" refers to the Onboard Refueling Vapor Recovery system incorporated into the design of a vehicle that captures the gasoline vapors displaced from the vehicle fuel tank during refueling.
- (23) "Ozone contributing county" means a county in which the emissions have contributed to the formation of ozone in any county or area where violation of federal ozone standards have been measured, and includes: Cowlitz, Island, Kitsap, Lewis, Skagit, Thurston, Wahkiakum, and Whatcom counties.
- (24) "Permanent residence" means a single-family or multi-family dwelling or any other facility designed for use as permanent housing.
- (25) "SWCAA" means the Southwest Clean Air Agency.
- (26) "Stage I" means gasoline vapor recovery during all gasoline marketing transfer operations except motor vehicle refueling.
- (27) "Stage II" means gasoline vapor recovery during motor vehicle refueling operations from stationary tanks.
- (28) "Submerged fill line" means any discharge pipe or nozzle which meets either of the following conditions:
 - Where the tank is filled from the top, the end of (upper cut of the bevel on) the discharge pipe or nozzle must be totally submerged when the liquid level is six inches from the bottom of the tank, or;
 - Where the tank is filled from the side, the discharge pipe or nozzle must be totally submerged when the liquid level is eighteen inches from the bottom of the tank.
- (29) "Submerged loading" means the filling of a tank with a submerged fill line.
- (30) "Suitable cover" means a door, hatch, cover, lid, pipe cap, pipe blind, valve, or similar device that prevents the accidental spilling or emitting of gasoline. Pressure relief valves, aspirator vents, or other devices specifically required for safety and fire protection are not included.
- (31) "Throughput" means the amount of material passing through a facility.
- (32) "Top off" means to attempt to dispense gasoline to a motor vehicle fuel tank after a vapor recovery dispensing nozzle has shut off automatically.
- (33) "Transport tank" means a container used for shipping gasoline over roadways.
- (34) "True vapor pressure" means the equilibrium partial pressure of a petroleum liquid as determined by methods described in American Petroleum Institute (API) Bulletin 2517, 1980.
- (35) "Upgraded" means the modification of a gasoline storage tank, including tank installation or replacement, or piping to add cathodic protection, tank lining or spill and overflow protection that involved removal of ground or ground cover above a portion of the product piping.

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- (36) "Vapor balance system" means a system consisting of the transport tank, gasoline vapor transfer lines, storage tank, and all tank vents designed to route displaced gasoline vapors from a tank being filled with liquid gasoline.
- (37) "Vapor collection system" means a closed system to conduct vapors displaced from a tank being filled into the tank being emptied, a vapor holding tank, or a vapor control system.
- (38) "Vapor control system" means a system designed and operated to reduce or limit the emission of gasoline vapors emission into the ambient air.
- (39) "Vapor-mounted seal" means a primary seal mounted continuously around the circumference of the tank so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank wall, the liquid surface, and the floating roof.
- (40) "Vapor tight" means a leak of less than one hundred percent of the lower explosive limit on a combustible gas detector measured at a distance of one inch from the source or no visible evidence of air entrainment in the sight glasses of liquid delivery hoses.
- (41) "WDOE" or "Ecology" means the Washington Department of Ecology.
- (42) "Western Washington counties" means the following counties: Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skagit, Skamania, Snohomish, Thurston, Wahkiakum, and Whatcom.

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96; WSR 00-11-149 filed 5/24/2000, effective 6/24/2000; WSR 01-05-067 filed 2/15/01, effective 3/18/01; WSR 20-03-031 filed 1/7/2020, effective 2/7/2020]

SWCAA 491-030 Registration

- (1) The owner or operator of a gasoline loading terminal, bulk gasoline plant, or gasoline dispensing facility subject to the provisions of SWCAA 491-040 (2) through (4) shall register the facility annually with SWCAA. Facilities subject to registration under this section shall be assessed fees as provided in the current Consolidated Fee Schedule established in accordance with SWCAA 400-098.
- (2) Administration of the registration program shall be consistent with the Registration Program requirements of SWCAA 400-100.
- (3) SWCAA will provide a written verification of registration to owners or operators of facilities subject to the provisions of SWCAA 491-040 (2) through (4). Such verification shall be available for inspection by SWCAA personnel during normal business hours.
- (4) The owner or operator of a gasoline loading terminal or a gasoline dispensing facility (non-major source) shall maintain total annual gasoline throughput records for the most recent three calendar years. Such records shall be available for inspection by SWCAA personnel during normal business hours.

[Statutory Authority: Chapter 70.94.141 RCW, 70.94.151 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96; effective 11/21/96; WSR 00-11-149 filed 5/24/2000, effective 6/24/2000; WSR 01-05-067 filed 2/15/01, effective 3/18/01; WSR 17-11-080 filed 5/18/17, effective 6/18/17; WSR 20-03-031 filed 1/7/2020, effective 2/7/2020]

SWCAA 491-040 Gasoline Vapor Control Requirements

- (1) **Fixed-roof gasoline storage tanks.**
- (a) All fixed-roof gasoline storage tanks having a nominal storage capacity greater than forty thousand (40,000) gallons shall comply with one of the following:
 - (i) Meet the equipment specifications and maintenance requirements of the federal standards of performance for new stationary sources - Storage Vessels for Petroleum Liquids (40 CFR 60, subparts K, Ka and Kb).
 - (ii) Be retrofitted with a floating roof or internal floating cover using a metallic seal or a nonmetallic resilient seal at least meeting the equipment specifications of the federal standards referred to in (a)(i) of this subsection or its equivalent.
 - (iii) Be fitted with a floating roof or internal floating cover meeting the manufacturer's equipment specifications in effect when it was installed.
 - (b) All seals used in (a)(ii) and (iii) of this subsection are to be maintained in good operating condition and the seal fabric shall contain no visible holes, tears, or other openings consistent with 40 CFR 60 subparts Ka and Kb.
 - (c) All openings not related to safety are to be sealed with suitable closures.
 - (d) Tanks used for the storage of gasoline in bulk gasoline plants and equipped with vapor balance systems as required in subsection (3)(b) of this section shall be exempt from the requirements of subsection (1) of this section.
 - (e) All fixed roof gasoline storage tanks subject to this section shall comply no later than December 31, 1993 or at the time that the throughput is exceeded.
- (2) **Gasoline loading terminals.**
- (a) This section shall apply to all gasoline loading terminals with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993 or when the throughput is exceeded.
 - (b) Facilities loading gasoline into any transport tank shall be equipped with a vapor control system (VCS) as described in (c) of this subsection and comply with the following conditions:
 - (i) The loading facility shall employ submerged or bottom loading for all transport tanks.
 - (ii) The VCS shall be connected during the entire loading of all transport tanks.
 - (iii) The loading of all transport tanks shall be performed such that the transfer is at all times vapor tight. Emissions from pressure relief valves shall not be included in the controlled emissions when the back pressure in the VRS collection lines is lower than the relief pressure setting of the transport tank's relief valves.
 - (iv) All loading lines and vapor lines shall be equipped to close automatically when disconnected. The point of closure shall be on the tank side of any hose or intermediate connecting line.
 - (c) The VCS shall be designed and built according to accepted industrial practices and meet the following conditions:
 - (i) The VCS shall not allow organic vapors emitted to the ambient air to exceed thirty-five milligrams per liter (35 mg/l) of gasoline loaded.
 - (ii) The VCS shall be equipped with a device to monitor the system while the VCS is in operation.

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- (iii) The back pressure in the VCS collection lines shall not exceed the transport tank's pressure relief settings.
- (3) **Bulk gasoline plants and transport tanks.**
- (a) This section shall apply to all bulk gasoline plants with an average annual gasoline throughput greater than 7.2 million gallons on a calendar basis and shall comply no later than December 31, 1993, or when the throughput is exceeded, and gasoline transport tanks.
 - (b) Deliveries to bulk gasoline plant storage tanks.
 - (i) The owner or operator of a bulk gasoline plant shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated properly. The vapor balance system shall prevent at least ninety percent of the displaced gasoline vapors from entering the ambient air. A vapor balance system that is designed, built, and operated according to accepted industrial practices will satisfy this requirement.
 - (ii) Storage tank requirements. All storage tanks with a nominal capacity greater than five hundred fifty (550) gallons and used for the storage of gasoline shall comply with the following conditions:
 - (A) Each storage tank shall be equipped with a submerged fill line.
 - (B) Each storage tank shall be equipped for vapor balancing of gasoline vapors with transport tanks during gasoline transfer operations.
 - (C) The vapor line fittings on the storage tank side of break points with the transport tank vapor connection pipe or hose shall be equipped to close automatically when disconnected.
 - (D) The pressure relief valves on storage tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety but in no case greater than ninety percent of the tank's safe working pressure.
 - (iii) Transport tank requirements. All transport tanks transferring gasoline to storage tanks in a bulk gasoline plant shall comply with the following conditions:
 - (A) The transport tank shall be equipped with the proper attachment fittings to make vapor tight connections for vapor balancing with storage tanks.
 - (B) The vapor line fittings on the transport tank side of break points with the storage tank connection pipe or hose shall be equipped to close automatically when disconnected.
 - (C) The pressure relief valves on transport tanks shall be set at the highest possible pressure consistent with local and state codes for fire and safety.
 - (c) Gasoline transfer operations.
 - (i) No owner or operator of a bulk gasoline plant or transport tank shall allow the transfer of gasoline between a stationary storage tank and a transport tank except when the following conditions exist:
 - (A) The transport tanks are being submerged filled or bottom loaded.
 - (B) The loading of all transport tanks, except those exempted under (c)(ii) of this subsection are being performed using a vapor balance system.

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- (C) The transport tanks are equipped to balance vapors and maintained in a leak tight condition in accordance with subsection (5) of this section.
- (D) The vapor return lines are connected between the transport tank and the stationary storage tank and the vapor balance system is operated properly.
- (ii) Transport tanks used for gasoline that meet all of the following conditions shall be exempt from the requirement to be equipped with any attachment fitting for vapor balance lines if:
 - (A) The transport tank is used exclusively for the delivery of gasoline into storage tanks of a facility exempt from the vapor balance requirements of subsection (4) of this section; and
 - (B) The transport tank has a total nominal capacity less than four thousand gallons and is constructed so that it would require the installation of four or more separate vapor balance fittings.
- (4) **Gasoline dispensing facilities.**
 - (a) This section shall apply to the delivery of gasoline to gasoline dispensing facilities with an annual gasoline throughput greater than 360,000 gallons in Cowlitz, Lewis, Skamania and Wahkiakum Counties. For Clark County, this section applies to gasoline dispensing facilities with greater than 200,000 gallons annual throughput on a calendar year basis. All facilities subject to this section shall comply when the throughput is exceeded.
 - (b) All gasoline storage tanks of the facilities defined in (a) of this subsection shall be equipped with submerged or bottom fill lines and fittings to vapor balance gasoline vapors with the delivery transport tank.
 - (c) Gasoline storage tanks with offset fill lines shall be exempt from the requirement of (b) of this subsection if installed prior to January 1, 1979.
 - (d) The owner or operator of a gasoline dispensing facility shall not permit the loading of gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily. In addition, no owner or operator of a transport tank shall load gasoline into a storage tank equipped with vapor balance fittings unless the vapor balance system is attached to the transport tank and operated satisfactorily.
 - (e) All gasoline dispensing facilities subject to this section shall be equipped with CARB or SWCAA certified Stage I vapor recovery fittings or equipment.
 - (f) All new or upgraded gasoline storage tanks subject to this section shall be equipped with CARB certified Stage I Enhanced Vapor Recovery equipment or an equivalent approved by SWCAA.
 - (g) All Stage I gasoline vapor recovery equipment shall be maintained in proper working order at all times. All Stage I gasoline vapor recovery equipment shall be maintained in accordance with the CARB Executive Order(s) certifying the equipment or system. Whenever a Stage I gasoline vapor recovery system or component is determined to be defective or not operating properly, the owner or operator shall immediately take the system out of service until repairs are made. Systems shall not be returned to service until the defective system is operating properly.
 - (h) Any alteration of the equipment, parts, design, or operation of the Stage I gasoline vapor recovery system as certified by CARB is prohibited, and shall not be

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performed without submittal of an Air Discharge Permit application and prior approval from SWCAA.

- (i) All new gasoline dispensing facilities shall have a tank tightness test performed at the time of installation to ensure proper connection and absence of leaks. Results of the testing shall be submitted to SWCAA within 14 calendar days of testing.
- (j) Until January 1, 2023, pressure/vacuum valves shall be installed as required by the CARB Executive Order that certified the particular Stage I or Stage II vapor recovery system or equipment. Relief set points shall be as provided in the applicable CARB Executive Order and local fire ordinances.
- (k) Effective January 1, 2023, pressure/vacuum valves shall be installed on all gasoline storage tanks. Pressure/vacuum valve(s) shall be installed and maintained with a positive pressure setting of 2.5 – 6.0 inches water column, and a negative pressure setting of 6.0 – 10.0 inches water column. The leak rate of each pressure/vacuum valve, including connections, shall not exceed 0.05 cubic foot per hour at a pressure of 2.0 inches water column and 0.21 cubic foot per hour at a vacuum of 4 inches water column. The total leak rate for all pressure/vacuum valves, including connections, shall not exceed 0.17 cubic foot per hour at a pressure of 2.0 inches water column and 0.63 cubic foot per hour at a vacuum of 4 inches water column.
- (l) All gasoline dispensing nozzles at a facility not in Stage II vapor recovery service shall be Enhanced Conventional Nozzles by no later than January 1, 2023.
- (m) All gasoline dispensing hoses that carry liquid fuel against the outermost hose wall at a gasoline dispensing facility with greater than 1,400,000 gallons annual gasoline throughput on a calendar year basis shall permeate no more than 10.0 grams per square meter per day, as determined by Underwriters Laboratories' Standard 330, by no later than January 1, 2023.
- (n) Effective January 1, 2023 the testing listed in Table 1 shall be conducted and passed for each Stage I vapor recovery system. For new Stage I systems, initial testing shall be conducted and passed prior to placing new systems into service. For existing systems that have not yet conducted initial testing, initial testing shall be completed before January 1, 2023. The results of all testing shall be reported to SWCAA within 14 days of test completion.

Table 1 – Stage I Vapor Recovery System Testing

Test	Frequency¹
CARB Test Procedure 201.3 (TP-201.3) "Determination of 2 Inch w.c. Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities"	Annually
CARB Test Procedure 201.1B (TP-201.1B) "Static Torque of Rotatable Phase I Adaptors"	Annually ²
Depending on the system configuration, either Test Procedure 201.1C (TP-201.1C) "Leak Rate of Drop Tube/Drain Valve Assembly" or Test Procedure 201.1D (TP-201.1D) "Leak Rate of Drop Tube Overflow Prevention Devices and Spill Container Drain Valves."	Annually ³
CARB Test Procedure 201.1E (TP-201.1E) "Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves" adopted October 8, 2003	Every 3 calendar years

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¹ All tests shall be conducted at the frequency indicated in Table 1 no later than the end of the calendar month during which the initial test was conducted unless otherwise approved by SWCAA.

² Only applicable to EVR system with rotatable adaptors.

³ Only applicable to EVR system with drop tube/drain valve assembly, overflow prevention devices, and/or spill container drain valves.

- (o) In lieu of (n) of this subsection, SWCAA may approve a continuous pressure monitoring system that is installed and maintained in accordance with CARB Vapor Recovery Test Procedures CP-201 and TP-201.7 and manufacturer instructions. An Air Discharge Permit application is required if requesting SWCAA approval of a continuous pressure monitoring system.
- (p) Spill containers shall be maintained free of liquid and solid materials.
- (q) Dispenser hoses shall be equipped with a CARB or SWCAA approved emergency breakaway device designed to retain liquid on both sides of a breakaway point. When hoses are attached to a hose-retrieving mechanism, the emergency breakaway device shall be located between the hose nozzle and the point of attachment of the host retrieval mechanism to the hose.
- (r) New gasoline dispensing facilities, or existing gasoline dispensing facilities without Stage II vapor recovery, are not required to install Stage II vapor recovery equipment. Owners or operators of new or existing facilities that wish to install Stage II vapor recovery systems may request to install ORVR-compatible Stage II vapor recovery systems by submittal of an Air Discharge Permit in accordance with SWCAA 400-109.
- (s) Stage II vapor recovery equipment compatible with ORVR may be removed from service on or after January 1, 2023. An Air Discharge Permit application must be submitted in accordance with SWCAA 400-109 for approval to remove the Stage II vapor recovery equipment from service.
- (t) Stage II vapor recovery equipment not compatible with ORVR may be removed from service on or after the effective date of this rule and must be removed from service no later than January 1, 2023. An Air Discharge Permit application must be submitted in accordance with SWCAA 400-109 for approval to remove the Stage II vapor recovery equipment from service.
- (u) The owner or operator of a new or modified gasoline dispensing facility shall file an Air Discharge Permit application as provided in SWCAA 400-110, and obtain an Air Discharge Permit prior to commencing construction or modification.
- (v) The fee for new source review of a gasoline dispensing facility under this section shall be the same as the fee under SWCAA's consolidated fee schedule.
- (w) All Stage II vapor recovery equipment shall be installed in accordance with the system's certification requirements and shall be maintained to be leak free, vapor tight, and in good working order.
- (x) Whenever a Stage II vapor recovery system component is determined to be defective, the owner or operator shall take the system out of service until it has been repaired, replaced, or adjusted, as necessary.
- (y) Every retailer and wholesale purchaser-consumer (gasoline dispensing facility) shall equip each pump from which gasoline or methanol is introduced into motor vehicles with a nozzle that dispenses fuel at a flowrate not to exceed 10 gallons per minute as provided in 40 CFR 80.22(j).

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- (z) All new or upgraded facilities with Stage II gasoline vapor recovery controls shall conduct a performance test upon installation prior to placing in service. For balance type systems, the owner/operator shall conduct and pass a back pressure/blockage test. Results of all testing shall be submitted to SWCAA within 14 calendar days of test completion.
- (5) **Loading or Unloading Gasoline into Marine Tank Vessels**
 - (a) **Applicability.** This rule applies to loading events at any location within the Vancouver ozone air quality maintenance area when gasoline is placed into a marine tank vessel cargo tank; or when any liquid is placed into a marine tank vessel cargo tank that had previously held gasoline. The owner or operator of each marine terminal and marine tank vessel is responsible for and must comply with this rule. All facilities shall be in compliance no later than June 1, 2001.
 - (b) **Exemptions.** The following activities are exempt from the marine vapor control emission limits of this rule:
 - (i) Marine vessel bunkering (refueling).
 - (ii) Lightering when neither vessel is berthed at a marine terminal dock.
 - (iii) Loading when both of the following conditions are met:
 - The vessel has been gas freed (regardless of the prior cargo), and when loading any products other than gasoline.
 - (c) **Vapor Collection System.** The owner or operator of a marine terminal subject to this rule must equip each loading berth with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The owner or operator of a marine tank vessel subject to this rule must equip each marine tank vessel with a vapor collection system that is designed to collect all displaced VOC vapors during the loading of marine tank vessels. The collection system must be designed such that all displaced VOC vapors collected during any loading event are vented only to the control device.
 - (d) **Marine Vapor Control Emission Limits.** Vapors that are displaced and collected during marine tank vessel loading events must meet one of the following:
 - (i) Vapors must be reduced from the uncontrolled condition by at least 95 percent by weight, as determined by EPA Method 25 or other methods approved in writing by SWCAA, or
 - (ii) Vapor emissions shall not exceed 5.7 grams per cubic meter (2 pounds per 1000 barrels) of liquid loaded.
 - (e) **Operating Practice and Maintenance.**
 - (i) All hatches, pressure relief valves, connections, gauging ports and vents associated with the loading of fuel product into marine tank vessels must be maintained to be leak free and vapor tight.
 - (ii) The owner or operator of any marine tank vessel must certify to SWCAA that the vessel is leak free, vapor tight, and in good working order based on an annual inspection using EPA Method 21 or other methods approved in writing by SWCAA.
 - (iii) Gaseous leaks must be detected using EPA Method 21 or other methods approved in writing by SWCAA.
 - (iv) Loading must cease anytime gas or liquid leaks are detected. Loading may continue only after leaks are repaired or if documentation is provided to SWCAA that the repair of leaking components is technically infeasible without dry-docking the vessel or cannot otherwise be undertaken safely.

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Subsequent loading events involving the leaking components are prohibited until the leak is repaired. Any liquid or gaseous leak detected by SWCAA staff is a violation of this rule.

- (f) **Monitoring and Recordkeeping.**

Marine terminal operators must maintain operating records for at least five years of each loading event at their terminal. Marine tank vessel owners and operators are responsible for maintaining operating records for at least five years for all loading events involving each of their vessels. Records must be made available to SWCAA upon request. These records must include but are not limited to:

 - (i) The location of each loading event.
 - (ii) The date of arrival and departure of the vessel.
 - (iii) The name, registry and legal owner of each marine tank vessel participating in the loading event.
 - (iv) The type and amount of fuel product loaded into the marine tank vessel.
 - (v) The prior cargo carried by the marine tank vessel. If the marine tank vessel has been gas freed, then the prior cargo can be recorded as gas freed.
 - (vi) The description of any gaseous or liquid leak, date and time of leak detection, leak repair action taken and screening level after completion of the leak repair.
- (g) Lightering exempted from controls by subsection (5)(b) of this rule must be curtailed from 2:00 AM until 2:00 PM when SWCAA declares a Clean Air Action (CAA) day. If SWCAA declares a second CAA day before 2:00 PM of the first curtailment period, then such uncontrolled lightering must be curtailed for an additional 24 hours until 2:00 PM on the second day. If a third CAA day in a row is declared, then uncontrolled lightering is permissible for a 12 hour period starting at 2 PM on the second CAA day and ending at 2 AM on the third CAA day. Uncontrolled lightering must be curtailed from 2 AM until 2 PM on the third CAA day. If SWCAA continues to declare CAA days consecutively after the third day, the curtailment and loading pattern used for the third CAA day will apply.
- (h) **Safety/Emergency Operations.** Nothing in this rule is intended to:
 - (i) Require any act or omission that would be in violation of any regulation or other requirement of the United States Coast Guard; or
 - (ii) Prevent any act that is necessary to secure the safety of a vessel or the safety of passengers or crew.

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96; WSR 00-11-149 filed 5/24/2000, effective 6/24/2000; WSR 01-05-067 filed 2/15/01, effective 3/18/01; WSR 20-03-031 filed 1/7/2020, effective 2/7/2020]

SWCAA 491-050 Failures, Certification, Testing and Recordkeeping

This section shall apply to all gasoline transport tanks equipped for gasoline vapor collection and all vapor collection systems at gasoline loading terminals, and bulk gasoline plants as described in subsections (2) and (3) of SWCAA 491-040.

- (1) **Failures.**

During the months of May, June, July, August, and September any failure of a vapor collection system at a bulk gasoline plant or gasoline loading terminal to comply with this

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section requires the immediate discontinuation of gasoline transfer operations for the failed part of the system. Other transfer points that can continue to operate in compliance may be used. The loading or unloading of the transport tank connected to the failed part of the vapor collection system may be completed during the other months of the year. Upon completion of loading or unloading of a transport tank connected at the time of the failure, gasoline transfer operations shall be discontinued for the failed part of the system.

(2) Certification.

- (a) The owner or operator of a gasoline loading terminal or bulk gasoline plant shall only allow the transfer of gasoline between the facility and a transport tank or a marine vessel if a current leak test certification for the transport tank is on file with the facility or a valid inspection sticker is displayed on the vehicle or marine vessel. Certification is required annually as provided in SWCAA 490-202 for transport tanks and SWCAA 491-040(5)(e) for marine vessels.
- (b) The owner or operator of a transport tank shall not make any connection to the tank or marine vessel for the purpose of loading or unloading gasoline, except in the case of an emergency, unless the gasoline transport tank or marine vessel has successfully completed the annual certification testing requirements in (3) of this subsection, and such certification is confirmed either by:
 - (i) Having on file with each gasoline loading or unloading facility at which gasoline is transferred a current leak test certification for the transport tank; or
 - (ii) For transport tanks (tanker trucks), displaying a sticker near the Department of Transportation certification plate required by 49 CFR 178.340-10b which:
 - (A) Shows the date that the gasoline tank truck last passed the test required in (3) of this subsection;
 - (B) Shows the identification number of the gasoline tank truck tank; and
 - (C) Expires not more than one year from the date of the leak tight test.
 - (iii) For marine vessels, displaying a sticker/certification with the other Coast Guard required certifications (e.g. in the vessel ecology box, ship's bridge or tankerman's shack) which:
 - (A) Shows the date that the marine vessel last passed the test required in (3) of this subsection;
 - (B) Shows the identification number of the marine vessel; and
 - (C) Expires not more than one year from the date of the leak tight test.
- (c) The owner or operator of a vapor collection system shall:
 - (i) Operate the vapor collection system and the gasoline loading equipment during all loadings and unloadings of transport tanks and marine vessels equipped for emission control such that:
 - (A) The tank pressure will not exceed a pressure of eighteen inches of water or a vacuum of six inches of water;
 - (B) The concentration of gasoline vapors is below the lower explosive limit (LEL, measured as propane) at all points a distance of one inch from potential leak sources; and
 - (C) There are no visible liquid leaks except for a liquid leak of less than four drops per minute at the product loading connection during delivery.

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- (D) Upon disconnecting transfer fittings, liquid leaks do not exceed ten milliliters (0.34 fluid ounces) per disconnect averaged over three disconnects.
 - (ii) Repair and retest a vapor collection system that exceeds the limits of (2)(c)(i) of this subsection within fifteen days.
- (d) SWCAA may, at any time, monitor a gasoline transport tank, marine vessel and vapor collection system during loading or unloading operations by the procedure in (3) of this subsection to confirm continuing compliance with this section.
- (3) Testing and monitoring.
 - (a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall, at his own expense, demonstrate compliance with (1) and (2) of this subsection, respectively. All tests shall be made by, or under the direction of, a person qualified to perform the tests and approved by WDOE or SWCAA.
 - (b) Testing to determine compliance with this section shall use procedures approved by SWCAA. See testing requirements in SWCAA 490 for transport tanks and section 491-040(5)(e) for marine vessels.
 - (c) Monitoring to confirm continuing leak tight conditions shall use procedures approved by SWCAA.
- (4) Recordkeeping.
 - (a) The owner or operator of a gasoline transport tank, marine vessel or vapor collection system shall maintain records of all certification tests and repairs for at least two years after the test or repair is completed.
 - (b) The records of certification tests required by this section shall, as a minimum, contain:
 - (i) The transport tank or marine vessel identification number;
 - (ii) The transport tank or marine vessel capacity;
 - (iii) The transport tank initial test pressure and the time of the reading;
 - (iv) The transport tank final test pressure and the time of the reading;
 - (v) The transport tank initial test vacuum and the time of the reading;
 - (vi) The transport tank final test vacuum and the time of the reading;
 - (vii) At the top of each report page the company name, date, and location of the tests on that page; and
 - (viii) Name and title of the person conducting the test.
 - (c) The owner or operator of a gasoline transport tank shall annually certify that the transport tank or marine vessel passed the required tests.
 - (d) Copies of all records required under this section shall immediately be made available to SWCAA, upon written request, at any reasonable time.
- (5) Preventing evaporation. All persons shall take reasonable measures to prevent the spilling, discarding in sewers, storing in open containers, or handling of gasoline in a manner that will result in evaporation to the ambient air.

[Statutory Authority: Chapter 70.94.141 RCW and 70.94.165 RCW. Original adoption WSR 93-16-011 filed 7/22/93, effective 8/22/93; WSR 96-21-102 filed 10/21/96, effective 11/21/96; WSR 00-11-149 filed 5/24/2000, effective 6/24/2000; WSR 01-05-067 filed 2/15/01, effective 3/18/01; WSR 20-03-031 filed 1/7/2020, effective 2/7/2020]

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SWCAA 491-060 Severability

The provisions of this regulation are severable and if any provision is held invalid, the application of such provision to the other circumstances and the remainder of this regulation shall not be affected.

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption WSR 96-21-102 filed 10/21/96; effective 11/21/96; WSR 01-05-067 filed 2/15/01, effective 3/18/01]

Appendix D. Proposal by SWCAA for SIP Update of SWCAA 491, including Impact Analysis of Rule Change

Proposal by the Southwest Clean Air Agency (SWCAA) for SIP Update of SWCAA 491

Background

The version of SWCAA 491 that is incorporated into the Washington SIP (dated November 21, 1996) requires Stage II vapor recovery as follows:

SWCAA 491-040(5)(a) " This section shall apply to the refueling of motor vehicles for the general public from stationary tanks at all gasoline dispensing facilities located in Cowlitz, Lewis, and Wahkiakum Counties with an annual gasoline throughput greater than one million two hundred thousand gallons (1,200,000). For Clark County, this section shall apply to gasoline dispensing facilities with an annual gasoline throughput greater than six hundred thousand gallons (600,000); these facilities shall install Stage II controls by December 31, 1998 or at the time of a facility upgrade (see definition). Skamania County is exempt from Stage II requirements as provided in RCW 70.94.165.

The current version of SWCAA 491-040 (effective February 7, 2020) differs in a number of important ways:

1. Stage II vapor recovery is not required for new installations.
2. For stations with Stage II vapor recovery systems that are not compatible with onboard refueling vapor recovery (ORVR), the Stage II systems must either be removed or upgraded to be ORVR-compatible by January 1, 2023.
3. All Stage I nozzles must be enhanced conventional nozzles no later than January 1, 2023.
4. All gasoline dispensing hoses that carry liquid fuel against the outermost hose wall at a gasoline dispensing facility with greater than 1,400,000 gallons annual gasoline throughput on a calendar year basis shall permeate no more than 10.0 grams per square meter per day, as determined by Underwriters Laboratories' Standard 330, by no later than January 1, 2023.
5. All stations with a gasoline throughput of more than 200,000 gallons per year in Clark County, or 360,000 gallons per year in Cowlitz, Lewis, Skamania or Wahkiakum Counties must conduct the following testing:

Test	Frequency
CARB Test Procedure 201.3 (TP-201.3) "Determination of 2 Inch w.c. Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities"	Annually
CARB Test Procedure 201.1B (TP-201.1B) "Static Torque of Rotatable Phase I Adaptors"	Annually
Depending on the system configuration, either Test Procedure 201.1C (TP-201.1C) "Leak Rate of Drop Tube/Drain Valve Assembly" or Test Procedure 201.1D (TP-201.1D) "Leak Rate of Drop Tube Overflow Prevention Devices and Spill Container Drain Valves."	Annually
CARB Test Procedure 201.1E (TP-201.1E) "Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves" adopted October 8, 2003	Every 3 calendar years

Previously, these tests were only required when incorporated into the facility's Air Discharge Permit. Some grandfathered facilities were not subject to any testing.

With the increasing penetration of onboard refueling vapor recovery (ORVR) in the motor vehicle fleet, the control of refueling emissions by Stage II vapor recovery systems at the refueling facilities is becoming unnecessary for ORVR-compatible systems, and counter-productive for incompatible vacuum-style systems. Leaving Stage II vapor recovery systems in place that are not compatible with vehicles equipped with ORVR will result in increased emissions ("incompatibility excess emissions") from those facilities. These increases would eventually exceed the benefit of the Stage II vapor recovery program overall. Balance-style Stage II vapor recovery systems and ORVR-compatible vacuum-assist Stage II vapor recovery systems, if operating properly, would provide a diminishing benefit as the ORVR fleet penetration increases.

Calculating Methodology

SWCAA calculated the impact of the removing Stage II vapor requirements consistent with EPA's August 7, 2012, guidance labeled "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures."

SWCAA calculated the impact of the new requirement to install enhanced conventional nozzles as follows:

1. For each facility without Stage II vapor recovery, the total gasoline throughput in 2019 was multiplied by the difference in emission factors for conventional and enhanced conventional nozzles. SWCAA used the following emission factors:
 - a. A factor of 0.61 lb/1,000 gallons dispensed for conventional nozzles; and
 - b. A factor of 0.24 lb/1,000 gallons dispensed for enhanced conventional nozzles.
2. For each facility with Stage II vapor recovery, the total gasoline throughput in 2019 was multiplied by the difference in emission factors for Stage II and enhanced conventional nozzles. SWCAA used the following emission factors:
 - a. A factor of 0.42 lb/1,000 gallons dispensed for Stage II nozzles; and
 - b. A factor of 0.24 lb/1,000 gallons dispensed for enhanced conventional nozzles.

For any facility that chooses to retain, or upgrade to, ORVR-compatible Stage II vapor recovery, the impact of the additional Stage II controls more than offsets the difference in the nozzle emission factors until more than 98.5% of the fuel is dispensed to ORVR vehicles.

SWCAA calculated the impact of the new requirement to install low permeation hoses as follows:

3. For each facility without balance-style Stage II vapor recovery and a throughput of over 1,400,000 gallons or more per year, the total gasoline throughput in 2019 was multiplied by the difference in emission factors for normal and low permeation hoses. SWCAA used the following emission factors:
 - a. A factor of 0.062 lb/1,000 gallons dispensed for normal hoses; and
 - b. A factor of 0.009 lb/1,000 gallons dispensed for low permeation hoses.

Hose permeation from balance-style hoses is relatively small because these hoses do not carry fuel (only vapor) against the outermost hose.

The nozzle and hose emission factors cited above originate from a California Air Resources (CARB) document titled "Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities" dated December 23, 2013.

Calculation of ORVR Fleet Penetration

The ORVR fleet penetration was estimated conservatively from 2020 Washington Department of Licensing data. Because this data did not identify vehicles using the same "bins" as the ORVR phase-in schedule (e.g., LDVs, LLDTs, HLDTs, HDGVs, etc.), SWCAA made the following conservative assumptions:

1. Only vehicles with a vehicle use classification of "PAS" or "CAB" were classified as passenger vehicles. "PAS" refers to a passenger vehicle. "CAB" refers to a taxi cab.
2. If the vehicle use classification was not "PAS" or "CAB" and the vehicle weight was not provided, it was conservatively classified as a heavy truck.
3. If the vehicle use classification was not "PAS" or "CAB" and the vehicle weight was equal to or greater than 5,750 lbs, the vehicle was classified as a heavy truck.
4. If the vehicle use classifications was not "PAS" or "CAB" and the vehicle weight was less than 5,750 lbs, the vehicle was classified as a light truck.
5. Vehicles did not contain ORVR systems until the model year required by the federal regulations.

The ORVR fleet penetration values resulting from this analysis were approximately four to eight years behind the estimated national average provided by EPA's National Canister Penetration Forecast based on MOVES 2010(a) for the counties impacted by the rule change. If the actual penetration in these counties is closer to the national average, then the changes proposed to SWCAA 491 will provide an emissions benefit that much earlier than calculated.

Results

The results of the SWCAA's impact analysis are presented in the following table. SWCAA's analysis demonstrates that the rule provides a benefit to air quality in all counties when fully implemented in 2023.

Rule Impact Summary – Impact in 2023

County	Increment; ¹	Annual Emissions Impact of Removing Stage II Requirements (Increment) (Tons) ¹	Impact of Low Permeation Hoses and ECO Nozzles (Tons)	Total Rule Impact (Tons)
Clark	1.1%	8.91	-18.99	-10.08
Cowlitz	2.1%	5.63	-7.48	-1.85
Lewis	1.4%	3.77	-7.23	-3.46
Wahkiakum	0.0%	0.00	-0.14	-0.14
Skamania	N/A ²	N/A ²	-0.47	-0.47
All		18.31	-33.84	-15.99

¹ This is the amount by which the combination of the existing Stage II program combined with ORVR-equipped vehicles reduces VOC emissions when compared to the ORVR system alone.

² Stage II vapor recovery was not required in Skamania County and no gas stations currently utilize Stage II vapor recovery in Skamania County.

This analysis indicates that the rule change will reduce gasoline vapor emissions by 15.99 tons in 2023. This emissions benefit will continue to increase in later years because, without the rule change, "incompatibility excess emissions" would have continued to increase as the percentage of ORVR-equipped vehicles increased.

Conclusions

The proposed changes to SWCAA 491 will provide a benefit to air quality when fully implemented in 2023 and therefore will not interfere with maintenance of the National Ambient Air Quality Standards for ozone.

Calculation Details

The default values presented in "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures" EPA-457/B-12-001 (August 7, 2012) were used except as indicated below:

1. η_{iUSII} (Stage II vapor recovery system in-use control efficiency) = 62%. SWCAA conducts inspections of gasoline stations on a 5-year schedule. EPA's "Technical Guidance—Stage II Vapor Recovery Systems for Control of Vehicle Refueling at Gasoline Dispensing Facilities Volume I: Chapters," (EPA-450/3-91-022a, November 1991) indicates an in-use effectiveness of 62% for an inspection frequency that is less than annual.
2. Q_{SII} (Fraction of highway gasoline throughput dispensed by Stage II vapor recovery systems). SWCAA inventories the gasoline throughput of each dispensing facility each year and tracks what type of vapor recovery system (if any) is in use at each facility. This value is from year-end 2019 data. It was assumed that this value would also be representative of future years without a rule change.
3. Q_{SIIva} (fraction of highway gasoline throughput dispensed through ORVR-incompatible Stage II vapor recovery systems). SWCAA inventories the gasoline throughput of each dispensing facility each year and tracks what type of vapor recovery system (if any) is in use at each facility. This value is from 2019 data and assumes that all vacuum-assist systems utilizing the Healy 800 or 900 nozzles are ORVR compatible. For calculation purposes it was assumed that the 2019 ratio would also be representative of future years without a rule change.
4. The ORVR vehicle population percentage for Clark and Cowlitz counties was determined for the end of 2020 from Washington Department of Motor Vehicles vehicle registration data. This value was correlated to the national fleet values from Table A-1 to determine the correlating "VMT Percentage" and "Gasoline Dispensed Percentage." The data as conservatively processed, indicates that the vehicle fleets in SWCAA's jurisdiction are older than the national average indicated in Table A-1 with respect to canister penetration. The "Gasoline Dispensed Percentage" for each year in each county was calculated by interpolating from Table A-1 using the year matching the fleet canister penetration percentage. For example, the "VMT Percentage" for 2020 in Clark County was determined by interpolating between the 2015 and 2016 values in Table A-1.

References

1. "Vancouver Portion of the Portland-Vancouver AQMA Ozone Maintenance Plan" November 2, 2006
2. "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures" EPA-457/B-12-001. August 7, 2012
3. SWCAA 491 "Emission Standards and Controls for Sources Emitting Gasoline Vapors" (local only version) February 7, 2020.
4. SWCAA 491 "Emission Standards and Controls for Sources Emitting Gasoline Vapors" (SIP Approved Version) November 21, 1996.
5. CARB "Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities" December 23, 2013.

Appendix E. EPA Guidance on Removing Stage II Vapor Recovery Systems



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 07 2012

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Guidance on Removing Stage II Gasoline Refueling Vapor Recovery Programs from State Implementation Plans

FROM: Stephen D. Page, Director
Office of Air Quality Planning and Standards

TO: Regional Air Division Directors

The purpose of this memorandum is to distribute a guidance document titled "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures" (EPA-457/B12-001, August 07, 2012). Effective May 16, 2012, the Environmental Protection Agency has used its authority under Clean Air Act (CAA) section 202(a)(6) to waive certain statutory requirements for states to implement Stage II gasoline vapor recovery at gasoline dispensing facilities in all Serious, Severe, and Extreme ozone nonattainment areas. Accordingly, states implementing Stage II programs under CAA section 182(b)(3) are now legally able to phase out those programs if doing so does not interfere with attaining or maintaining the ozone standards. This guidance provides information and tools states can use to develop a Stage II program phase-out plan and an accompanying state implementation plan revision request.

States in the ozone transport region (OTR) also have a statutory obligation to implement Stage II vapor recovery programs or "comparable measures." The EPA does not have statutory authority to waive this requirement. However, this document contains new guidance on how OTR states can phase out Stage II control programs in a manner consistent with the CAA section 184(b)(2) comparable measures requirement.

Please distribute this guidance to your respective state and local air agencies. For questions on this guidance, please contact Mr. H. Lynn Dail, (919) 541-2363, dail.lynn@epa.gov.

Attachment

cc: Margo Oge, OTAQ
Anna Wood, OAQPS
Richard Wayland, OAQPS
Sara Schneeberg, OGC

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Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures

EPA-457/B-12-001
August 7, 2012

**Guidance on Removing Stage II Gasoline Vapor Control Programs from State
Implementation Plans and Assessing Comparable Measures**

Prepared By:

H. Lynn Dail, Environmental Scientist
State and Local Programs Group
Air Quality Policy Division

Glenn W. Passavant, Senior Mechanical Environmental Engineer
Assessment and Standards Division
Office of Transportation and Air Quality

U. S. Environmental Protection Agency
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

List of Selected Acronyms and Abbreviations

A/L	air to liquid ratio
ARB	Air Resources Board (California)
CAA	Clean Air Act
CAPCOA	California Air Pollution Control Officers Association
CF	Compatibility Factor
EE	Excess Vent Emissions
EPA	Environmental Protection Agency
EVR	California enhanced vapor recovery program
FR	Federal Register
GDF	gasoline dispensing facility
GPM	gallons per month
GVWR	gross vehicle weight rating
IUVP	Input Use Verification Program
MOVES	Motor Vehicle Emissions Simulator
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
OBD	onboard diagnostics
ORVR	onboard refueling vapor recovery
OTR	Ozone Transport Region
RFP	reasonable further progress
RFG	reformulated gasoline
RVP	Reid vapor pressure
SIP	state implementation plan
VOC	volatile organic compound
UST	underground storage tank
VMT	vehicle miles traveled
VRS	vapor recovery systems

Preface

On May 9, 2012, the EPA Administrator signed a notice of final rulemaking determining that onboard refueling vapor recovery (ORVR) systems are in widespread use throughout the motor vehicle fleet which was published in the *Federal Register* on May 16, 2012 (77 FR 28772). In that notice the Administrator also exercised her authority to waive the statutory requirement that Serious, Severe, and Extreme ozone nonattainment areas adopt and implement EPA programs requiring Stage II gasoline vapor recovery systems (VRS) at certain gasoline dispensing facilities (GDFs). Many states and local areas have previously adopted Stage II programs into their state implementation plans (SIPs). This guidance document provides both technical and policy recommendations to states and local areas on how to develop and submit an approvable SIP revision seeking to remove or phase-out an existing Stage II program. This guidance introduces methods and equations that could be used to calculate the emissions consequences of discontinuing Stage II control programs for purposes of demonstrating compliance with specific CAA provisions in sections 110(l) and 193 governing EPA approval of SIP revisions. This document also includes new technical and policy guidance, updating that previously issued by EPA in 1995, for areas of the Ozone Transport Region (OTR) on implementing measures capable of achieving emissions reductions comparable to those achievable by ongoing implementation of Stage II controls.

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1. Introduction

Stage II VRS were adopted by some states beginning in the 1980s to meet the ozone National Ambient Air Quality Standards (NAAQS). Stage II and ORVR are two types of emission control systems that capture fuel vapors from vehicle gas tanks during refueling. Stage II and vehicle ORVR were initially both required by the 1990 Amendments to the CAA under sections 182(b)(3) and 202(a)(6), respectively. In some areas Stage II VRS has been in place for over 25 years, but was not widely implemented by the states until the early to mid-1990s as a result of the CAA requirements for Moderate, Serious, Severe, and Extreme ozone nonattainment areas and for states in the Northeast Ozone Transport Region (OTR) under CAA section 184(b)(2). CAA section 202(a)(6) required EPA to promulgate regulations for ORVR for light-duty vehicles (passenger cars). The EPA adopted these requirements in 1994; at which point Moderate ozone nonattainment areas were no longer subject to the section 182(b)(3) Stage II requirement. However, some Moderate areas retained Stage II VRS requirements to provide a control method to comply with rate-of-progress emission reduction targets.¹ ORVR equipment has been phased in for new passenger vehicles beginning with model year 1998, and starting in 2001 for light-duty trucks and most heavy-duty gasoline-powered vehicles. ORVR equipment has been installed on nearly all (~99%) new gasoline-powered light-duty vehicles, light-duty trucks and heavy-duty vehicles since 2006.

During the phase-in of ORVR controls, which began in 1997, Stage II vapor recovery has provided volatile organic compound (VOC) reductions in ozone nonattainment areas and certain attainment areas of the OTR. Congress recognized that ORVR and Stage II would eventually become largely redundant technologies, and provided authority to the EPA to allow states to remove Stage II from their SIPs after EPA finds that ORVR is in widespread use. Effective May 16, 2012, the date the final rule was published in the Federal Register (77 FR 28772), the EPA determined that ORVR is in widespread nationwide use for control of gasoline emissions during refueling of vehicles at gasoline dispensing facilities (GDFs). Currently, more than 75 percent of gasoline refueling nationwide occurs with ORVR-equipped vehicles, so Stage II programs have become largely redundant control systems and Stage II VRS achieve an ever-declining emissions benefit as more ORVR-equipped vehicles continue to enter the on-road motor vehicle fleet. In fact, in areas where certain types of vacuum-assist Stage II control systems are used, the limited compatibility between ORVR and some configurations of this Stage II hardware may ultimately result in an area-wide emissions disbenefit. Therefore, EPA also exercised its authority under CAA section 202(a)(6) to waive certain federal statutory requirements for Stage II gasoline vapor recovery at GDFs.² This decision exempts all new ozone nonattainment areas classified Serious or above from the requirement to adopt Stage II control programs. Similarly, any state currently implementing Stage II programs may decide to seek SIP revisions that, once approved by EPA, would allow them to phase out Stage II control systems. Appendix Table A-5 provides a list of states currently implementing Stage II programs under sections 182(b)(3) and 184(b)(2).

¹ Kentucky, Tennessee, Michigan, Ohio, Virginia, West Virginia, Nevada, California, Oregon and Washington have implemented Stage II for some areas. If these states/areas included Stage II vapor control programs in their SIPs, they will have to amend their SIPs if Stage II is no longer required, and will have to address the provisions of CAA section 110(f).

² 77 FR 28772, May 16, 2012. Widespread Use for Onboard Refueling Vapor Recovery and Stage II Waiver.

Ozone nonattainment areas previously required under the CAA to have Stage II gasoline VRS on GDFs may choose to remove the requirement from their SIPs, but states may also retain their Stage II requirements if they wish. A small fraction of the on-road vehicle fleet is not covered by EPA's ORVR regulations, so Stage II controls would not be redundant for such vehicles refueling in areas subject to existing Stage II programs. Even though Stage II controls are capable of achieving some small level of area-wide benefit for non-ORVR refueling events, they may become a less cost-effective method than other alternatives for addressing area-wide VOC emissions and, as noted above, may ultimately result in a disbenefit to air quality in the areas.

In order to phase out existing Stage II programs in SIPs, states would need to submit SIP revisions to EPA meeting applicable CAA requirements and receive approval from the EPA. States in the OTR remain obligated under CAA section 184(b)(2) to implement either a Stage II program or other measures capable of achieving emissions reductions comparable to those achievable by Stage II. The EPA issued guidance on this latter requirement in 1995, and is now updating that guidance to account for ORVR's widespread use in the motor vehicle fleet and its increasing displacement of Stage II as the primary means of controlling refueling emissions

This guidance document contains the information needed for a state to conduct an emissions inventory analysis related to phasing out an existing Stage II program and is designed to facilitate this assessment. The ORVR phase-in and fuel consumption data presented here are derived from the same core approach as used in EPA's MOVES model and incorporates all major elements of that work. Furthermore, it relies on the latest technical information and data available to EPA on both ORVR and Stage II, and in some cases incorporates information not yet in MOVES models. Given these differences, even though the ORVR phase-in and fuel consumption data presented here are derived from the same core approach as used in MOVES, it is expected that the results from using MOVES to assess the inventory impact would be different than the approach suggested below. This is further discussed in Section 3.

How is this guidance document organized? Section 2 discusses the statutory and regulatory framework governing removal of Stage II control programs from SIPs. Section 3 provides technical information that states may consider using to calculate the impact of phasing out Stage II control programs. Section 4 discusses general strategies and considerations for phasing out Stage II control programs. Section 5 presents information on developing SIP revisions for submission to EPA for review and approval. The appendix contains look up tables associated with the equations presented in this guidance and a chart indicating the specific CAA requirement applicable to each state.

2. When can a state or a GDF stop implementing existing Stage II programs?

The CAA section 182(b)(3) requirements for Stage II have been waived as a result of EPA's exercise of waiver authority under CAA section 202(a)(6). This waiver extends to areas classified as Serious or above for the 1997 or 2008 8-hour ozone NAAQS, and to those that were classified Serious or above for the 1-hour ozone NAAQS at the time that the 1-hour NAAQS was revoked.³ However, areas where a Stage II program is part of an EPA-approved SIP need to continue implementing Stage II until EPA approves a SIP revision that removes the requirement from the SIP.

The EPA is aware that new GDF construction undertaken prior to the approved phase-out date may incur capital costs for installing Stage II that may only be required for a short time. It is evident from the public comments on the EPA's proposed waiver rule and other materials that states and members of the regulated industry are seeking to curtail Stage II installations at newly constructed GDFs. Changing Stage II applicability requirements contained in state rules that have been approved into SIPs is ultimately an issue that each state would need to address. The EPA cannot unilaterally change existing state regulations or lawfully-adopted SIPs containing Stage II requirements, and the May 16, 2012, waiver does not directly alter those state regulations or revise SIPs.

2.1 What are the CAA requirements that govern EPA approval of a Stage II removal SIP revision?

There are three main CAA provisions that affect EPA's ability to propose approval of any SIP revision seeking to discontinue an existing SIP-approved Stage II control program. Section 110(l) governs EPA approval of all SIP revisions, including SIP revisions involving phase out of Stage II controls. Section 193 applies to any current nonattainment area that adopted a Stage II control program into its SIP prior to November 15, 1990. Section 184(b)(2) applies to any area of the northeast OTR.

2.2 Complying with the "noninterference" clause (CAA section 110(l))

Under CAA section 110(l), the EPA cannot approve a SIP revision if it would interfere with attainment of the NAAQS, reasonable further progress toward attainment, or any other applicable requirement of the Clean Air Act. Therefore, the EPA could propose to approve a SIP revision that removes or modifies Stage II gasoline refueling vapor control measure(s) in the SIP only if there is a basis in the state's submittal for concluding that approval of the revision would

³ The EPA codified anti-backsliding provisions governing the transition from the revoked 1-hour ozone NAAQS to the 1997 8-hour ozone NAAQS in 40 CFR part 51.905(a). These provisions indicate that some control measures may not be removed from a SIP even if their removal would not interfere with air quality goals. These measures are listed as "applicable requirements" because the CAA requires that they be included in a SIP for an area based on the area's designation status and classification. The authority in CAA section 202(a)(6) makes it possible for EPA to waive Stage II control programs such that they are no longer an "applicable requirement" or a required contingency measure.

not interfere with attainment of the NAAQS, reasonable further progress (RFP) or any other applicable requirement of the CAA.

Specifically, section 110(ℓ) states:

Each revision to an implementation plan submitted by a State under this Act shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 171), or any other applicable requirement of this Act.

A Federally approved SIP is viewed as the state's blueprint for maintaining clean air, and from time to time a state may choose to revise its SIP and demonstrate that the revision would not interfere with air quality goals. Accordingly, states should explain how the SIP revision that modifies an existing SIP-approved Stage II control program does not interfere with attainment of all applicable ozone NAAQS, including the 2008 NAAQS, and any applicable reasonable further progress requirements. In evaluating whether a given SIP revision would interfere with attainment or maintenance, as required by section 110(ℓ), the EPA generally considers whether the SIP revision will allow for an increase in actual emissions into the air over what is allowed under the existing EPA-approved SIP. The EPA has not required that a state produce a new complete attainment demonstration for every SIP revision, provided that the status quo air quality is preserved. *See, e.g., Kentucky Resources Council, Inc., v. EPA*, 467 F.3d 986 (6th Cir. 2006); *see also*, 61 FR 16,050, 16,051 (April 11, 1996) (actions on which the *Kentucky Resources Council* case were based). Section 3 of this guidance document provides information that states may consider using to develop noninterference demonstrations, including methods to assess the VOC emissions impact in the affected area during the Stage II phase-out period.

As one considers this non-interference assessment, it should be noted that the potential emission control losses from removing Stage II VRS are transitional and relatively small. ORVR-equipped vehicles will continue to phase in to the fleet over the coming years and will exceed 80 percent of all highway gasoline vehicles and 85 percent of all gasoline dispensed during 2015. As the number of these ORVR-equipped vehicles increase, the control attributed to Stage II VRS will decrease even further, and the potential foregone Stage II VOC emission reductions are generally expected to be no more than one percent of the VOC inventory in the area.

Substituting new control measures. The EPA believes that a planned Stage II phase-out that is shown not to result in an increase in area-wide VOC emissions would be consistent with the conditions of CAA section 110(ℓ). A planned Stage II phase-out that would otherwise result in an area-wide VOC emissions increase could also be consistent with the conditions of CAA section 110(ℓ) if the state offsets the increase in emissions by adopting and implementing additional emissions controls into the SIP. One example of substitution is where a state or area may substitute refueling emissions at GDFs with stationary source controls or area source controls, including additional controls on other gasoline vapor emissions points at GDFs (See section 4.4). States have wide latitude to select additional emissions controls to make up for the absence of Stage II VRS, including substituting NO_x controls. The offsetting emissions controls should be generally contemporaneous with the Stage II VRS phase-out period.

Offset of emissions due to excess emission reductions not accounted for in the current SIP. An additional factor that may be relevant in evaluating whether a SIP revision removing Stage II vapor recovery programs is consistent with the provisions of section 110(l) is the consideration of emission reductions not otherwise included in the current SIP. Changes in an area's stationary or area source inventories resulting from changes in industrial population or activity in that area could result in a decrease in VOC emissions compared to that the emissions considered in the SIP. There are too many potential examples to list, but this could include a plant closure or the continued decline in GDF population. Also, there may be changes in the motor vehicle fleet VMT or fleet populations that provide VOC and NO_x emission reductions not accounted for in the SIP. With an increased penetration of newer model year ORVR-equipped vehicles, the amount of additional emission reduction achieved by Stage II over time is smaller in comparison to areas with lower percentages of ORVR penetration into the fleet. In these circumstances it may also be true that the lower exhaust and evaporative emission rates from these newer vehicles in the fleet relative to those being scrapped will offset any transitional VOC emission increases from phasing out Stage II VRS. Furthermore, there may be additional VOC and NO_x emission reductions from non-road sources that could be considered if states have not already sought SIP credit for them.

Emissions increases that do not interfere with attainment. Under the circumstances created by the CAA's widespread use waiver, a planned Stage II phase-out that is shown to result in an area-wide VOC emissions increase may also be consistent with the conditions of CAA section 110(l). A phase-out plan that would result in very small foregone emissions reductions in the near term that continue to diminish rapidly over time as ORVR phase-in continues, may result in temporary increases that are too small to interfere with attainment or progress toward attainment. This may be particularly evident in areas that are already attaining the ozone NAAQS or where emissions and/or air quality projections already demonstrate that an area is likely to maintain the NAAQS into the future. Similarly, in areas where ozone formation is limited by the availability of NO_x emissions, a small (and ever-declining) increase in VOC emissions may have little or no effect on future ozone levels. The EPA would consider any air quality analyses and supporting information provided by a state to show that a proposed SIP revision would not interfere with attainment and maintenance of the NAAQS.

2.3 Complying with the OTR “comparable measures” requirement (CAA section 184(b)(2))

All areas of the Northeast OTR, both attainment and nonattainment, are subject to the requirements of CAA section 184(b)(2), commonly referred to as the “comparable measures requirement.”⁴ Section 184(b)(2) directs these areas to adopt and implement either Stage II controls meeting the general requirements for Stage II gasoline vapor recovery programs under CAA section 182(b)(3), or “control measures capable of achieving emissions reductions comparable to those achievable” by Stage II. Section 3 of this guidance document provides information that states may consider in developing a comparability analysis that includes an estimate of lost Stage II reductions incremental to ORVR during the Stage II phase out period.

⁴ The States of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and the District of Columbia are in the OTR and are subject to these provisions.

States in the OTR can conduct comparability analyses on a state-wide basis, or separately for nonattainment and attainment areas within the state.

Demonstrating Comparability. The CAA does not require OTR states to implement measures that would achieve reductions “equivalent” to a Stage II control program; the CAA requires that the reductions be “comparable.” Now that ORVR is in widespread use in the motor vehicle fleet, the EPA believes it may be appropriate for states to demonstrate that the comparable measures requirement is satisfied if phasing out a Stage II control program in a particular area is estimated to have no, or a *de minimis*, incremental loss of area-wide emissions control— i.e., when no alternative reductions are needed to achieve reductions comparable to those achievable in the area by the Stage II control program stipulated in CAA section 182(b)(3).

As the fraction of total gasoline dispensed into ORVR-equipped vehicles continues each year to increase in relation to the fraction of total gasoline dispensed into non-ORVR vehicles, the incremental emission reduction benefit achieved by Stage II controls over ORVR controls declines. Accordingly, in the specific context of the comparable measures requirement, EPA believes it is reasonable to conclude that the incremental emissions control that Stage II achieves beyond ORVR is *de minimis* if it is less than 10 percent of the area-wide emissions inventory associated with refueling highway motor vehicles. This is because the Stage II control program stipulated by Congress in CAA section 182(b)(3) exempts some GDFs from Stage II controls, such that even where Stage II was required approximately 10 percent of the gasoline throughput was not subject to the statutory requirement. Specifically, GDFs that sell 10,000 gallons or less per month, and GDFs identified as independent small business marketers that sell 50,000 gallons or less per month, are exempt from the statutory Stage II control requirements. For a typical area implementing the CAA-based exemption program EPA estimates that about 10 percent of highway motor vehicle fleet gasoline consumption was therefore exempted from the statutory requirement for Stage II controls.⁵ In light of the Congressional judgement that Stage II controls need only apply to 90 percent of gasoline sales, no new control measure may be necessary to demonstrate comparability to Stage II when the difference between retaining Stage II and removing Stage II affects less than 10 percent of the refueling emissions from area-wide gasoline consumption.

Agencies can consider using the calculations explained in this guidance document to determine the point in time at which *de minimis* incremental benefits are reached in a specific area, based on the area’s fleet profile and Stage II control program parameters. The EPA is aware that some states are implementing Stage II control programs that are nominally more stringent than the minimum program requirements in CAA section 182(b)(3). For example, in some states exemptions are provided only for GDFs dispensing 10,000 gallons or less per month. For the purposes of addressing comparability under CAA section 184(b)(2), states only need to consider the reductions achievable by the minimum program required by CAA section 182(b)(3), as section 182(b)(3) defined the scope of applicability of Stage II within the GDF source category – and therefore the scope of expected emissions reductions from Stage II – against which alternative control measures were to be compared under section 184(b)(2).

⁵ See “Technical Guidance – Stage II Vapor Recovery Systems for Control of Gasoline Refueling Emissions at Gasoline Dispensing Facilities Vol. 1,” EPA-450/3-91-022a, November 1991.

2.4 Complying with the “general savings clause” for pre-1990 Stage II control programs (CAA section 193)

Section 193 prohibits modification of any control requirement in effect before November 15, 1990 in a current nonattainment area, unless modification “insures equivalent or greater emissions reductions.” This means that, in areas currently designated nonattainment for ozone, any Stage II control program implemented under a SIP prior to November 15, 1990 could not be removed from the SIP until the ORVR control requirement (or some other requirement or set of requirements) is shown to achieve equal or greater emissions reductions compared to the emissions reductions attributable to Stage II vapor recovery. Alternatively, States can show that removing the area’s pre-1990 Stage II control program would have no impact on area-wide emissions reductions. The EPA anticipates that the later showing is inherently more conservative than the former.

Agencies can consider using the assessment method described in Section 3 to determine the point in time the ORVR control requirement achieves equivalent emissions reductions to the reductions credited to the pre-1990 Stage II vapor recovery program. The assessment method is similar to the method the EPA used for establishing the national ORVR widespread use finding and waiver of the section 182(b)(3) requirement, except that here it would be applied on a state or local area level rather than a national level.

3. Assessing Area-Wide Impacts on Vehicle Refueling Emissions

This section covers many of the technical issues states may need to address in developing SIP revisions to phase out existing Stage II programs. Note that the analyses for purposes of section 110(ℓ) and section 193 may not be identical. However, in some cases, an area may be able to show that, due to disbenefits from simultaneous implementation of Stage II and ORVR, phasing out Stage II will result in a net improvement in emissions reductions, satisfying the provisions of both section 110(ℓ) and section 193.

Section 3.1 describes some key terms. Section 3.2 identifies and describes a series of parameters and variables related to the implementation of Stage II and ORVR. Section 3.3 combines these parameters and variables into two equations that states can consider using to evaluate and compare the emission reduction impacts of various combinations of Stage II and ORVR control technologies in the context of the provisions of CAA sections 110(ℓ), 184(b)(2), and 193. Section 3.4 provides guidance on selecting parameter values and ways to determine the variables in the equations. Section 3.5 presents a series of examples of how this information can be used to conduct SIP-related analyses.

States may be accustomed to running the MOVES model in support of SIP revisions. And, while the use of the MOVES model is certainly allowed, without additional analyses and inputs from outside the model, it may not yield outcomes similar to those obtained using Equations 1, 2 and 3 that are presented in this section. For these reasons, and the fact that all previous EPA ORVR/Stage II inventory comparison analyses have been conducted in a similar

manner, EPA believes the approach discussed in this document would be preferable for these assessments.⁶

3.1 Discussion of Terms

The EPA's emission factors document divides vehicle refueling emissions into three broad categories.⁷ These include vehicle fuel tank displacement emissions, gasoline spillage, and underground storage tank (UST) breathing and emptying losses.⁸ In a previous analysis EPA concluded that removing Stage II vapor recovery would potentially impact overall vehicle fuel tank displacement emissions and breathing/emptying losses from UST vent pipes where Stage II vacuum assist technology is used. The analysis further concluded that removing Stage II would neither increase nor decrease gasoline spillage during refueling and that with appropriate measures such as the pressure/vacuum valves now widely employed on UST vent pipes, breathing/emptying losses from non-Stage II nozzles and balance type Stage II nozzles would be similar.^{9,10} Thus, this guidance need only address impacts on vehicle fuel tank displacement emissions and impacts on UST vent pipe emission rates from non-ORVR compatible Stage II nozzles.¹¹

Described below are key terms used in the calculations and discussions which follow.

Gasoline dispensing facility (GDF): A location which dispenses gasoline to highway motor vehicles and serves as a fueling point for nonroad engines and equipment. It includes all retail outlets such as traditional service stations, convenience stores, truck stops, and hypermarkets (e.g., warehouse clubs and big box stores) as well as private and commercial outlets such as those for centrally-fueled fleets, government operations, and private businesses as well as private outlets such as centrally-fueled fleet and government operations. For these purposes, it generally does not include marinas and general aviation airports dispensing aviation gasoline. Note that some lower throughput GDFs are exempt from Stage II vapor recovery by state regulations.

⁶ In previous publications, (footnote 9 below) EPA concluded that for these purposes factors such as spillage emission rates and traditional breathing/emptying loss emission rates would not be affected by removing Stage II vapor recovery. MOVES runs should not include spillage. Also, it is important to note that the gasoline consumption data in Appendix Table A-1 includes ORVR for Class III HDGVs beginning in 2006. When the last version of the MOVES model was released, EPA was not aware that manufacturers had voluntarily incorporated ORVR on these vehicle models. This guidance document does not include every potential minor emission impact that has been identified for either Stage II or ORVR. For example, vacuum assist Stage II may capture a fraction of the refueling emissions released from an ORVR vehicle fillpipe during a refueling event (~0.05g/gal) and through testing, API has identified that emissions released from the fillpipe immediately after the fuel cap is removed are lower for ORVR vehicles than non-ORVR vehicles. The delta in emissions (about 0.10 g/gal) depends on RVP and fuel tank temperature. These offsetting minor differences are not included in the calculations in this guidance.

⁷ AP-42, Fifth Edition, "Compilation of Air Pollutant Emission Factors – Volume 1, Stationary Point and Area Sources" January 1995. The EPA's emission factors document, identifies three sources of refueling emissions: displacement, spillage, and breathing losses..

⁸ See Chapter 5 of AP-42, <http://www.epa.gov/ttn/chief/ap42/ch05/final/c05s02.pdf>

⁹ See EPA memorandum, "Onboard Refueling Vapor Recovery Widespread Use Assessment," June 9, 2011.

¹⁰ There would still be breathing and emptying losses from some systems at various times. These could be addressed by one of the post-processor technologies now being marketed for addition to the GDF UST vent pipes

¹¹ Dispensers using traditional gasoline nozzles, balance-type Stage II nozzles, and specially certified ORVR compatible vacuum-assist type nozzles would not be expected to increase UST vent emissions.

Stage II Vapor Recovery System (VRS): A system designed to capture displaced vapors that emerge from inside a vehicle's fuel tank, when gasoline is dispensed into the tank. There are two basic types of Stage II systems, the balance type and the vacuum assist type.

Balance-type Stage II system: The balance system transfers vapors from the vehicle tank to the GDF UST based on pressure differential. A key feature in the balance system is a hose nozzle that makes a tight connection with the fill pipe on the vehicle fuel tank. The nozzle spout is fitted with an accordion-like bellows that presses snugly against the fill pipe lip. The vapors flow into the port, through the nozzle bellows, through a coaxial hose that connects the nozzle to the dispenser, and finally on through a vapor-return pipe back into the UST.

Vacuum assist-type Stage II system: This system relies on a vacuum source to help move the vapors out of the vehicle tank and into the UST. Current designs do not rely on a tight-fitting seal at the nozzle-fillpipe interface. Traditional vacuum systems are of two types: passive and active. In a passive vacuum-assist system, which is the dominant approach today, an electrically driven vacuum pump, typically in the dispenser cabinet, provides the vacuum power. An active system maintains a vacuum on the entire Stage II vapor recovery system through a central pump (jet pump) to recover vapors from the entire system to the tank. A key feature of vacuum assist system design and operation is the design air/liquid (A/L) volume ratio which is a measure of the volume of air returned to the tank to the volume of liquid dispensed. (When refueling a non-ORVR vehicle this "air" also contains gasoline vapor.) The larger the design A/L ratio the greater the amount of fresh air returned to the UST. Some passive vacuum assist systems employ loose-fitting mini-bellows to help reduce the design A/L ratio. Sometimes these are called hybrid systems. Active vacuum assist systems often have A/L ratios somewhat greater than unity and employ a post-processor to reduce excess vent pipe emissions created by the higher A/L ratio with these systems.

Vent pipe: A pipe from the UST to the atmosphere which allows the tank to "breathe" during normal operation. This allows the tank to bring in fresh air to relieve negative pressure or release vapor to reduce positive pressure in the UST as needed. Vent pipes are generally 12 feet in height and two inches in diameter.

Pressure vacuum vent valve: A device, usually referred to as a "P/V vent valve," installed at the discharge end of a vent pipe connected to a gasoline storage tank, to regulate the pressure at which vapor is allowed to escape from the tank, and the vacuum at which outside air is allowed to enter the tank. The inflow/outflow of air through the vent pipe is controlled at specified pressures. These vent valves generally inhibit vapor release and are used to ensure the proper operation of Stage II balance systems. These P/V vent valves are now widely required as a result of EPA's GDF "Stage I" NESHAP regulation (40 CFR 63 CCCCCC).

Onboard Refueling Vapor Recovery (ORVR): A system employed on gasoline-powered highway motor vehicles to capture gasoline vapors displaced from a vehicle fuel tank during refueling events. These systems are required under section 202(a)(6) of the CAA and implementation of these requirements began in the 1998 model year. Currently they are now used on all gasoline-powered passenger cars, light trucks, and complete heavy trucks of less than 14,000 lbs GVWR. ORVR systems typically employ a liquid fill neck seal to block vapor escape to the atmosphere and otherwise share many components with the vehicle's evaporative emission control system including the onboard diagnostic system (OBD) sensors.

ORVR/Stage II Compatibility: Compatibility problems can result in an increase in emissions from the UST vent pipe and other system fugitive emissions related to the refueling of ORVR vehicles with some types of vacuum assist-type Stage II systems. This occurs during refueling an ORVR vehicle when the vacuum assist system draws fresh air into the UST rather than an air vapor mixture from the vehicle fuel tank. Vapor flow from the vehicle fuel tank is blocked by the liquid seal in the fill pipe which forms at a level deeper in the fill pipe than can be reached by the end of the nozzle spout. The fresh air drawn into the UST enhances gasoline evaporation in the UST which increases pressure in the UST. Unless it is lost as a fugitive emission, any tank pressure in excess of the rating of the pressure/vacuum valve is vented to the atmosphere over the course of a day. The magnitude of these emissions at a specific GDF is primarily a function of the fraction of total gasoline throughput dispensed to the ORVR vehicles and the A/L ratio of the dispensers.

The compatibility factor is an especially important consideration in calculating the emissions impacts of Stage II controls. Even if a state/local area wishes to keep Stage II controls to address non-ORVR equipped vehicles being refueled at Stage II GDFs, for non-ORVR compatible Stage II vacuum assist systems there will come a point where the emissions impact of the compatibility factor surpasses any gain from controlling non-ORVR vehicles. After that point, Stage II would lead to a net area-wide loss in emissions control. The point in time when this occurs depends on the nature of the Stage II program and the rate of ORVR penetration into the fleet.

ORVR-compatible vacuum assist-type Stage II system: A vacuum assist type Stage II system that is designed to sense when an ORVR vehicle is being refueled and reduces the A/L ratio to near zero to avoid compatibility emission effects. Current ORVR compatible nozzles are certified to meet ARB requirements for Stage II enhanced vapor recovery (EVR) efficiency with up to 80 percent ORVR vehicles in the fleet mix. Balance type nozzles are ORVR compatible as well.

3.2 Parameters and Variables Related to Implementing Stage II VRS and ORVR

To conduct analyses of the impact of phasing out Stage II VRS, several key pieces of information and data are needed for the equations used in the assessments, which are presented in section 3.3. Each of these is described below, first for Stage II VRS, and then for ORVR.

3.2.1 Terms for Estimating Area-Wide Stage II VRS Control Efficiency

$\eta_{iu,II}$ - Stage II VRS in-use control efficiency: This is the current best estimate of the average in-use control efficiency for Stage II VRS in the state/area when applied to vehicles that are not equipped with ORVR. It is expressed as a fraction of 1. This value considers not only vapor capture at the vehicle fillpipe opening but also its transmittal to and storage in the UST. This value likely varies somewhat by state/area depending on how well GDF operators follow the inspection, testing, and maintenance activities specified in the state's implementing regulations and the frequency of inspection and follow-on enforcement actions by state/local authorities in implementing the regulations. This judgment should be informed by test data if available either from within the state/area or from other sources if no local data is available. Publicly available data suggests typical current values are in the range of 60-75 percent (0.60 –

0.75).^{12,13,14,15} As a result, it may be appropriate to identify significantly lower Stage II in-use control efficiencies than were identified in EPA’s 1991 technical guidance on Stage II systems (see footnote 5).

Q_{SII} - Fraction of highway gasoline throughput covered by Stage II VRS: The fraction of gasoline that is sold through dispensers equipped with Stage II VRS equipment expressed as a fraction of 1. This likely varies somewhat by state/area and can be derived from state data. Typical default values are 0.9 for states/areas that adopted the CAA allowed exemption value of 10,000 gallons per month (gpm) for private GDFs and 50,000 gpm for independent small business marketers and 0.95-0.97 for states/areas that adopted 10,000 gpm exemption criteria for all GDFs.

Q_{SIIva} - Fraction of highway gasoline throughput dispensed through vacuum-assist type Stage II VRS: The fraction of annual gasoline consumption in the state/area dispensed through vacuum assist type Stage II VRS expressed as a fraction of 1. This would not include gasoline dispensed through dispensers with traditional nozzles, balance-type Stage II VRS nozzles, or ORVR-compatible Stage II nozzles. If the fraction dispensed through traditional vacuum assist VRS is not known, then the fraction of GDFs with traditional vacuum assist Stage II VRS may be substituted based on the assumption that throughput is evenly distributed across the various GDFs that are not exempt from Stage II requirements.

VMT_{ORVRi} - ORVR Vehicle Miles Traveled: The fraction of annual area-wide VMT traveled by ORVR-equipped vehicles. The subscript i denotes that this term varies by calendar year.

CF_i - Compatibility Factor: This is an increase in UST vent pipe emissions over the normal breathing/emptying loss emissions. As discussed above, this is a function of the fraction of gasoline dispensed to ORVR vehicles in any given year (using VMT of ORVR vehicles as a surrogate), the design features of the traditional vacuum assist Stage II nozzles, and the proportion of vacuum assist Stage II stations with various A/L ratios. This term may be calculated as the product of VMT_{ORVRi} and a constant term 0.07645. It should be noted that for a state/area with all balance systems or with a requirement for ORVR compatible nozzles, the CF term is zero because there is no compatibility problem by definition.

$$CF_i = (0.07645)(VMT_{ORVRi})$$

¹² “Stage II Vapor Recovery Systems Issues Paper,” U.S. EPA, Office of Air Quality Planning and Standards, August, 2004.

¹³ “Analysis of Future Option’s for Connecticut’s Gasoline Dispensing Facility Vapor Control Program,” Connecticut Department of Energy and Environmental Protection, December 2011.

¹⁴ “Draft Vapor Recovery Test Report,” CARB and CAPCOA, April, 1999. This data was used in CARB’s analyses of their Enhanced Vapor Recovery rules. See, “Enhanced Vapor Recovery Emissions Reduction Calculations” (available at <http://www.arb.ca.gov/regact/march2000evr/march2000evr.htm>), Appendix D to “Enhanced Vapor Recovery: Initial Statement of Reasons for Proposed Amendments to the Vapor Recovery Certification and Test Procedures for Gasoline Loading and Motor Vehicle Gasoline Refueling at Service Stations,” February 4, 2000; and CARB, “Updated ISD Emission Reductions” (available from <http://www.arb.ca.gov/regact/evrtech/isor4d.pdf>), Appendix 3 to “Enhanced Vapor Recovery Technology Review”, Staff Report, October 2002.

¹⁵ “Performance of Balance Vapor Recovery Systems at Gasoline Dispensing Facilities,” San Diego Air Pollution Control District, May 18, 2000.

The constant term 0.07645 is an estimate of the control efficiency loss with vacuum assist systems derived by weighting two technologies tested in a California ARB study.¹⁶ This testing was conducted with the P/V valve in place on the vent pipe and with frequent monitoring of the A/L ratio to be certain that it stayed close to the design values. The technologies are weighted by about 65 percent for the higher A/L ratio dispenser and 35 percent for the lower A/L ratio dispenser.^{17,18,19} The results in lbs/1000 gallons are divided by the uncontrolled emission factor for the area where and when this testing occurred (7.6 lbs/1000 gal). The equation yields a term expressed as a fraction of the displacement emission factor (dimensionless) thus allowing it to be used in calculations with the other fractions above.²⁰ The subscript *i* denotes that this term varies by calendar year.

The compatibility factor can also be calculated as a function of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles, where the constant term 0.0777 is derived based on the national average gasoline throughput that corresponds to the ORVR VMT data.

$$CF_i = (0.0777)(Q_{ORVRi}) \dots \text{defined below}$$

For completeness sake, it should be noted that the excess vent emissions (EE) on a lb/1000 gal basis can be estimated using the equations:

$$EE_i = 0.581(VMT_{ORVRi}) \text{ or}$$

$$EE_i = 0.591(Q_{ORVRi})$$

¹⁶ EPA Memorandum “Calculating Stage II Vacuum Assist Stage II VRS and ORVR Excess Emissions,” Glenn W. Passavant, May 2012.

¹⁷ California ARB, Preliminary Draft Test Report, Total Hydrocarbon Emissions from Two Phase II Vacuum Assist Vapor Recovery Systems During Baseline Operations and Simulated Refueling of Onboard Refueling Vapor Recovery (ORVR) Equipped Vehicles, Project Number ST-98-XX, June 1999.

¹⁸ See Letter from William Loscutoff, Chief, Monitoring and Laboratory Division ARB to Prentiss Searles, Senior Marketing Issues Associate, American Petroleum Institute, “Comments on Enhanced Vapor Recovery (EVR) Technology Review.” August 5, 2002, p.6.

¹⁹ Keeping the in-use A/L ratio close to the design value is very important. A significant variation upward in the A/L ratio would increase CF because more air would be ingested while a significant decrease could decrease capture efficiency and send less vapor to the UST and thus perhaps also increase CF.

²⁰ This approach gives a different value than that presented in a previous EPA report titled “Stage II Vapor Recovery Systems - Option Paper,” February 2006, because this methodology allows for an estimation of the compatibility factor as a function of the fraction of gasoline dispensed to ORVR vehicles rather than at full fleet turnover, and because the results for the two technologies tested in California are weighted by an estimate of their relative fraction of use in the GDF population rather than using only the higher value. Finally, the result is divided by the displacement refueling emission factor in the area of California where and when this testing was conducted to get a factor expressed in the same terms as control efficiency. (see California ARB, Uncontrolled Vapor Emission Factor at Gasoline Dispensing Facilities, January 5, 2000).

3.2.2 Terms for Estimating Area-Wide ORVR Control Efficiency

Q_{ORVRI} - Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles: This is likely to vary by state/area depending on the fleet turnover/scrapage rate, annual VMT, and fuel economy of the vehicles involved in the analysis. The subscript i denotes that this term varies by calendar year. Table A-1, column 4 in the Appendix shows national average values that a state could use or adapt by extrapolation or interpolation as appropriate. For example, if the fleet in the state was one year newer than the national average then the analysis would use the data for the next calendar year (e.g., 2014 for 2013). Conversely, for example, if the fleet in the state was on average six months older than the national average then the analysis would interpolate between the current and past year (e.g., halfway between 2012 and 2013). Data on the fleet average age distributions by vehicle class for 2012 used in these calculations is provided in Appendix Table A-9.

η_{ORVR} - In-use control efficiency for ORVR: EPA recommends a value of 0.98.²¹ States may use a lower or higher value, if justified. This value is based on testing of over 1,600 in-use vehicles with mileages ranging from about 6,000 – 135,000. This value does not reflect other adjustments found in the MOVES emissions model. The current MOVES model does not fully consider the in-use verification program (IUVP) test results as mentioned above. Other MOVES model efficiency adjustments are based on data from older vintage evaporative emission control systems and do not fully reflect the benefits derived from OBD, I/M, or improved durability resulting from the integrated ORVR/evaporative control systems used in vehicles meeting the progressively more stringent evaporative emission standards which were implemented in the mid-1990s and later.

3.3 Calculating Impacts on the Refueling Emission Inventory

This section presents the two main equations that use the terms discussed in section 3.2 as inputs to calculate area-wide control efficiency impacts of Stage II VRS and ORVR. States can consider using the results of these equations to support SIP actions phasing out Stage II control programs.

3.3.1 Key Equation for Assessing and Demonstrating Compliance with the Noninterference Provisions of CAA Section 110(l) and the Comparable Measures Requirement of CAA Section 184(b)(2)

Overall Stage II-ORVR increment: The overall *increment* identifies the annual area-wide emission control gain from Stage II installations at GDFs as ORVR technology phases in. Thus, it also indicates the emission reduction potential loss (in year i) from removing Stage II.

Equation 1

$$increment_i = (Q_{SII})(1-Q_{ORVRI})(\eta_{iuSII}) - (Q_{SIIva})(CF_i)$$

²¹ EPA Memorandum, “Updated ORVR In-Use Efficiency,” Glenn W. Passavant. February, 2012.

Under the current regulatory construct for ORVR, there is a small and declining number of non-ORVR equipped vehicles and thus a small level of future emission reduction achievable from Stage II. However, due to the vacuum assist compatibility factor, this emission reduction will eventually go to zero and become negative for states/areas that do not use properly calibrated ORVR-compatible nozzles because the incompatibility effect will be larger than the Stage II increment. If the value is greater than zero for the year under consideration there is still a remaining emission reduction benefit for Stage II for the year relative to ORVR. If it is zero there is no net difference in the inventory. If it is zero or negative, this would indicate that removing Stage II would not increase the refueling emissions inventory because the higher efficiency from ORVR and the incompatibility emissions offset the increment due to non-ORVR vehicles being refueled at Stage II GDFs. It should be noted that for a state/area with all balance systems or with a requirement for ORVR compatible nozzles, the CF term is zero.

3.3.2 Key Equation for Assessing and Demonstrating Compliance with CAA Section 193

Overall Stage II - ORVR *delta*: The overall *delta* is the comparison between the Stage II efficiency and the ORVR efficiency with both technologies in place.

Equation 2

$$\mathit{delta}_i = (Q_{\text{SII}})(\eta_{\text{iUSII}}) - (Q_{\text{SIIva}})(\text{CF}_i) - (Q_{\text{ORVR}_i})(\eta_{\text{ORVR}})$$

This is not the same as the increment calculation in *Equation 1* above because it considers the greater efficiency of ORVR relative to non-ORVR vehicles refueling at Stage II equipped GDFs.

3.3.3 Developing Area-Specific Values for the Terms Used in Equations 1 and 2

To conduct analyses using Equations 1 and 2, a state would first select a base year or date for the analysis. The base year or date would correspond to the date the state is considering for starting to allow decommissioning for affected GDFs. Alternatively, this could be a set of base years/dates if a state is considering phasing-out Stage II in a specific area over a longer time period such as two or more years.

Second, the state would develop the values needed for the equations. The information and values in Table 2 are provided for consideration.

**Table 2
Values and Information Sources for Analysis Terms**

Term	Values/Sources	Other Comments
η_{iuSII} In-use Stage II control efficiency	This refers to the in-use efficiency of the Stage II vapor recovery system when refueling a non-ORVR equipped vehicle. State/area specific value based on best estimate of in-use efficiency when Stage II decommissioning begins. Consider available test data. ²²	Prior EPA guidance links in-use efficiency to the level of inspection, testing, and maintenance by the GDF and follow up by the state. ²³ We recommend an efficiency value consistent with field test data and the expected future investment of state inspection and enforcement resources during the base year and any subsequent year if a phase-out is used. We advise against relying solely on prior EPA guidance, new system certification efficiency, or what your state regulations claim regarding efficiency.
Q_{SII} Fraction of gasoline throughput covered by Stage II VRS	Appropriate default values are 0.90 if the state adopted the CAA exemption provisions and 0.95-0.97 if the state used 10,000 gpm for all GDFs	Other values may be justified based on state data. This fraction has the effect of excluding throughput at exempt GDFs.
Q_{SIIva} Fraction of gasoline throughput covered by traditional vacuum assist Stage II VRS	State/area specific value; state could use GDF survey data for throughput or GDF population by dispenser type. Estimated default values are provided in Appendix Table A-6	Zero if all GDFs use the balance type approach or dispenser nozzles are required to be ORVR compatible.
VMT_{ORVR} Fraction of annual VMT of gasoline-powered highway motor vehicles by ORVR equipped vehicles	See Appendix Table A-1, Column 3.	May use state/area specific data or adjust Appendix Table A-1 as appropriate (interpolation) if fleet characteristics are different. Does not include diesels or any off road vehicles.
CF Compatibility factor term	EPA recognizes a value for this constant of 0.07645 associated with the VMT_{ORVR} value, or 0.0777 associated with Q_{ORVR} value. CF is zero by definition for balance and ORVR compatible dispensers.	May calculate using data derived from traditional vacuum assist Stage II dispensers based on knowledge of the distribution of the different types of Stage II vacuum-assisted equipment designs (e.g., high A/L vs. low A/L ratio) and field test data. ²⁴
Q_{ORVR} Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles	See Appendix Table A-1, Column 4. Note that $Q_{ORVRi} = 0.9826(VMT_{ORVRi})$	May use state/area specific data or adjust Appendix Table A-1 as appropriate (interpolation) if fleet is older or newer, or more or less fuel efficient. Does not include diesels or any off road vehicles.

²² See reference in footnotes 12-15 above.

²³ EPA report, "Enforcement Guidance for Stage II Vehicle Refueling Control Programs," U.S. EPA, Office of Air and Radiation, Office of Mobile Sources, December 1991.

²⁴ See reference 16 for an example of how this work could be done.

Table 2 Values and Information Sources for Analysis Terms		
Term	Values/Sources	Other Comments
η_{ORVR} ORVR in-use control efficiency	EPA recommends 0.98.	May use a locally derived value if state/local authority believes EPA in-use testing data is unrepresentative.

3.4 Example Calculations for Equations 1 and 2

3.4.1 Example Scenario #1

Calculate the increment for a potential deactivation of Stage II requirements in mid-2013 assuming 70 percent in-use Stage II control efficiency, a relatively low Stage II GDF exemption level of 10,000 gpm, a relatively high use of vacuum assist-type dispensers of 90 percent, national fleet ORVR penetration values (interpolated between 2012 and 2013 from columns 3 and 4 of Appendix Table A-1), and EPA's recommended 98 percent ORVR control efficiency. The inputs are as follows:

$$\eta_{iuSII} = 0.70; Q_{SII} = 0.97; Q_{SIIva} = 0.9; VMT_{ORVRmid2013} = 0.8169; Q_{ORVRmid2013} = 0.7935; \eta_{ORVR} = 0.98$$

Compatibility factor calculation:

$$CF_{mid2013} = (0.07645)(VMT_{ORVRmid2013}) = (0.07645)(0.8169) = 0.0625$$

Increment calculation using Equation 1:

$$\begin{aligned} \text{Increment}_{mid2013} &= (Q_{SII})(1 - Q_{ORVRmid2013})(\eta_{iuSII}) - (Q_{SIIva})(CF_{mid2013}) \\ &= (0.97)(1 - 0.7935)(0.70) - (0.9)(0.0625) \\ &= 0.084 \end{aligned}$$

In this example the Stage II - ORVR *increment* is 8.4 percentage points at the midpoint of 2013 and would decrease over time.

For comparison, it is interesting to look at the overall *delta* using the same input values as above in Equation 2:

$$\begin{aligned} \text{Delta}_{mid2013} &= (Q_{SII})(\eta_{iuSII}) - (Q_{SIIva})(CF_{mid2013}) - (Q_{ORVRmid2013})(\eta_{ORVR}) \\ &= (0.97)(0.70) - (0.9)(0.0625) - (0.7935)(0.98) \\ &= -0.155 \end{aligned}$$

In this case the ORVR control program provides 15.5 percent greater emission reduction benefits than the Stage II control program alone.

3.4.2 Example Scenario #2

Calculate the increment for a potential deactivation of Stage II requirements beginning in 2013 assuming a 75 percent in-use Stage II control efficiency, a relatively low Stage II GDF exemption level of 10,000 gpm, no traditional vacuum assist-type pumps, and ORVR penetration in the fleet lags the national average by one year (using end of 2011 values from columns 3 and 4 of Appendix Table A-1). The inputs are as follows:

$$\eta_{iuSII} = 0.75; Q_{SII} = 0.97; Q_{SIIva} = 0.0; VMT_{ORVR2013} = 0.76; Q_{ORVR2013} = 0.7385; \eta_{ORVR} = 0.98$$

Compatibility factor calculation:

$$CF_{2013} = (0.07645)(VMT_{ORVR2013}) = (0.07645)(0.76) = 0.0581$$

Increment calculation using Equation 1:

$$\begin{aligned} \text{Increment}_{2013} &= (Q_{SII})(1 - Q_{ORVR2013})(\eta_{iuSII}) - (Q_{SIIva})(CF_{2013}) \\ &= (0.97)(1 - 0.7385)(0.75) - (0)(0.0581) \\ &= 0.1902 \end{aligned}$$

In this example the Stage II - ORVR *increment* is 19.02 percentage points at the beginning of 2013 (end of 2012). For comparison, it is interesting to look at the overall *delta* using the same input values as above in Equation 2:

$$\begin{aligned} \text{Delta}_{2013} &= (Q_{SII})(\eta_{iuSII}) - (Q_{SIIva})(CF_{2013}) - (Q_{ORVR2013})(\eta_{ORVR}) \\ &= (0.97)(0.75) - (0.0)(0.0581) - (0.7385)(0.98) \\ &= 0.0038 \end{aligned}$$

In this case the Stage II program provides 0.38 percentage points greater emission reduction benefits than Stage II at the beginning of 2013 (end of 2012). The programs are essentially equivalent.

Using the same scenario for the beginning of 2014, $(Q_{SII})(\eta_{iuSII})$ would stay the same while $(Q_{ORVR})(\eta_{ORVR})$ would increase from 0.7237 to 0.7611. Thus, Delta_{2014} indicates 3.36 percentage points more reduction from ORVR than Stage II. Similarly, for 2015, Delta_{2015} indicates 6.67 percentage points more reduction from ORVR than Stage II. This difference in effectiveness would be larger if a CF effect from traditional vacuum assist Stage II nozzles was included.

3.4.3 Example Scenario #3

Calculate the increment for a potential deactivation of Stage II requirement beginning in 2013 for GDFs dispensing less than 100,000 gpm, beginning in 2014 for GDFs dispensing between 100,000 and 200,000 gpm, and beginning in 2015 for all larger throughput GDFs. In this scenario, the state/area must also know the fraction of covered throughput in these three segments and conduct the analysis for each of the three years. For the sake of this example, assume that the less than 100,000 gpm segment is 40 percent of throughput, the over 100,000 gpm but less than 200,000 gpm segment is 30 percent of throughput, and the over 200,000 gpm segment is 30 percent of throughput. Thus, beginning in 2013 Stage II would be deactivated at

GDFs representing 40 percent of throughput, beginning in 2014 Stage II would be deactivated at GDFs representing an additional 30 percent of throughput, and beginning in 2015 at the remaining GDFs. In this example, assume the ORVR fleet in the state/area is typical of the national average and 75 percent in-use Stage II control efficiency.

For the beginning of 2013 segment of the analysis use the following values:

$$\eta_{iuSII} = 0.75; Q_{SII} = 0.97; Q_{SIIva} = 0.6; VMT_{ORVR2013} = 0.7997; Q_{ORVR2013} = 0.7766; \eta_{ORVR} = 0.98$$

Compatibility factor calculation:

$$CF_{2013} = (0.07645)(VMT_{ORVR2013}) = (0.07645)(0.7997) = 0.0611$$

Increment calculations for 2013 using Equation 1, in two parts:

2013, Part A: Stage II removed in 2013 at GDFs representing 40 percent of consumption:

$$\begin{aligned} \text{Increment}_{2013} &= (0.4)[(Q_{SII})(1 - Q_{ORVR2013})(\eta_{iuSII}) - (Q_{SIIva})(CF_{2013})] \\ &= (0.4)[(0.75)(0.97)(1 - 0.7766) - (0.6)(0.0611)] \\ &= (0.40)[(.7275)(0.2234 - 0.0366)] \\ &= 0.054 \end{aligned}$$

2013, Part B: Stage II is not removed in 2013 for GDFs over 100,000 gpm, so the increment would be zero.

In this example the Stage II - ORVR *increment* is 5.4 percentage points for 2013. For comparison, note that the increment would be 12.59 percent if all Stage II VRS were removed in 2013.

For the beginning of 2014 segment of the analysis use the following values:

$$\eta_{iuSII} = 0.75; Q_{SII} = 0.97; Q_{SIIva} = 0.6; VMT_{ORVR2014} = 0.8341; Q_{ORVR2014} = 0.8104; \eta_{ORVR} = 0.98$$

Compatibility factor calculation:

$$CF_{2014} = (0.07645)(VMT_{ORVR2014}) = (0.07645)(0.8341) = 0.0638$$

Increment calculations for 2014 using Equation 1, in two parts:

2014, Part A: Stage II removed in 2014 at GDFs representing 70 percent of consumption:

$$\begin{aligned} \text{Increment}_{2014} &= (0.7)[(Q_{SII})(1 - Q_{ORVR2014})(\eta_{iuSII}) - (Q_{SIIva})(CF_{2014})] \\ &= (0.7)[(0.75)(0.97)(1 - 0.8104) - (0.6)(0.0638)] \\ &= (0.7)[(0.1379) - (0.0383)] \\ &= 0.070 \end{aligned}$$

2014, Part B: Stage II is not removed in 2014 for GDFs over 200,000 gpm so the increment would be zero.

In this example the Stage II - ORVR *increment* is 7.0 percentage points for 2014.

For the beginning of 2015 segment of the analysis use the following values:

$$\eta_{iuSII} = 0.75; Q_{SII} = 0.97; Q_{SIIva} = 0.6; VMT_{ORVR2015} = 0.8633; Q_{ORVR2015} = 0.8397; \eta_{ORVR} = 0.98$$

Compatibility factor calculation:

$$CF_{2015} = (0.07645)(VMT_{ORVR2015}) = (0.07645)(0.8633) = 0.066$$

Increment calculations for 2015 using Equation 1:

$$\begin{aligned} \text{Increment}_{2015} &= (Q_{SII})(1 - Q_{ORVR2015})(\eta_{iuSII}) - (Q_{SIIva})(CF_{2015}) \\ &= (0.75)(0.97)(1 - 0.8397) - (0.6)(0.066) \\ &= [(0.1166) - (0.0288)] \\ &= 0.0878 \end{aligned}$$

In this example the Stage II - ORVR *increment* is 8.8 percentage points for 2015 and would continue to decrease over time. To summarize, the increment values for scenario #3 are:

$$2013 - 0.054 \qquad 2014 - 0.070 \qquad 2015 - 0.088$$

The cumulative Stage II-ORVR *increment* for the three years would be 0.21 for the gradual phase-out scenario which is lower than an increment of 0.30 for the same three year period if the controls were fully removed in 2013.

3.5 Calculating the Impact on the Area-Wide VOC Inventory

Calculating the impact on the VOC inventory is important in the context of assessing a SIP action against the provisions of CAA section 110(l), though the methodology in this section can be applied equally to the outputs of either Equation 1 or Equation 2. The methodology involves multiplying three different terms, which are area/state specific, as well as appropriate unit conversion factors, and is shown in Equation 3.

Equation 3

$$\text{Tons}_i = (\text{Increment}_i)(GC_i)(EF)$$

3.5.1 Terms for Calculating Tons VOC

Increment: This is the increment percentage impact on the refueling inventory of removing Stage II as discussed above, and is the output from Equation 1. The *delta* percentage from Equation 2 can also be substituted here.

EF: The uncontrolled displacement refueling emission factor (g/gal). This depends on the Reid vapor pressure (RVP), dispensed fuel temperature (T_d), and the difference between tank fuel temperature and the dispensed fuel temperature (ΔT). While there are various forms of equations used to calculate these values we recommend using the equation presented in EPA's

ORVR widespread use determination final rule.²⁵ This equation reflects a wider variety of vehicle models than used in the data set to develop the equation in AP-42.²⁶

$$EF \text{ (g/gal)} = \exp[-1.2798 - 0.0049(\Delta T) + 0.0203(T_d) + 0.1315(\text{RVP})]$$

where RVP is in psi and temperatures are in °F

There are three terms needed for this calculation. These terms vary by region/state by month or season. Values used by the EPA for ΔT and T_d are contained in the Appendix Tables A-2 and A-3.²⁷ The RVP value is derived from 40 CFR 80.27 unless there are more specific state requirements or lower RVP values such as the 7.0 psi RVP gasoline needed to meet the RFG VOC performance standard. While there is normally some in-use compliance margin for RVP, to be conservative we recommend that modeling of emissions assume that the in-use RVP is at the level of the standard. Information on EPA volatility standards and RFG can be found at the referenced websites.²⁸ States should refer to and rely on any governing federal and state regulations in lieu of these websites. Default emission factors based on the latest available RVP information from footnote 28 and temperature information in Tables A-2 and A-3 are provided in Table A-7 in the Appendix. These were calculated using the equation provided.

GC: The projected gasoline consumption (gal) for the time period(s) and state/area of interest in gallons. A good publicly available source for information on recent consumption is the Federal Highway Administration.²⁹ This source provides past gasoline consumption by state and by month. Information may also be available from other authorities within the state. Forecast information may be derived from the U.S. Department of Energy's national annual forecasts of future gasoline consumption in millions of barrels per day, however, this forecast is not disaggregated to the state/area level.³⁰ (Note that 1 barrel equals 42 gallons.) A simple approach for projecting state/area-level consumption would be to apply the national average growth rate to the latest state-level reported values. States may develop their own approach for disaggregation or use the state/area gasoline consumption breakouts provided in Table A-4 in the Appendix. The values in Appendix Table A-4 are EPA estimates based on the ratio of county-level highway gasoline consumption to national consumption generated from national MOVES 2010b runs based on Department of Energy Annual Energy Outlook 2011 VMT.

²⁵ See EPA Memorandum Onboard Refueling Vapor Recovery Widespread Use Assessment, Glenn W. Passavant, June 2011. This equation was also used in EPA's RIA for the original ORVR Final Rule 77 FR 28772, May 16, 2012.

²⁶ Exp is the root of the natural logarithm e , it has a value of 2.71828. In this case it is e raised to the power of the term in the brackets.

²⁷ See pp. 3-16 to 3-18 of, "Technical Guidance – Stage II Vapor Recovery Systems for Control of Vehicle Refueling at Gasoline Dispensing Facilities Volume I: Chapters" EPA-450/3-91-022a, November 1991, for basic information. Additional references are listed in this document.

²⁸ <http://www.epa.gov/otaq/fuels/gasolinefuels/volatility/standards.htm>

²⁹ Use the latest version available of the DoT FHWA Highway Statistics; see the table entitled "Monthly gasoline reported by States – MF33GA." The 2010 version of "Highway Statistics" is found at: <http://www.fhwa.dot.gov/policyinformation/statistics/2010/33ga.cfm>

³⁰ Use the motor gasoline projection from the latest version available of the Department of Energy EIA Annual Energy Outlook (AEO); see the table entitled "Liquid Fuels Supply and Distribution - Reference Case." The 2011 AEO is found at: <http://www.eia.gov/oiaf/aeo/tablebrowser/#release=AEO2011&subject=0-AEO2011&table=11-AEO2011®ion=0-0&cases=ref2011-d020911a>

Example 1: Assume we are conducting this calculation for a State in Region 1 of the EPA fuels temperature matrix for the five-month ozone season May-September, and assume we are using the $Increment_{mid2013}$ value from Example Scenario #1 above, which is 8.4 percentage points in mid-2013. Since this is an area in Region 1 of the EPA fuels temperature matrix with an ozone season gasoline RVP of 7.0 psi, the EF calculates to 3.0 g/gal ($T_d=74^\circ\text{F}$ and $\Delta T=11.4^\circ\text{F}$). Using Table MF-33GA from the 2010 Highway Statistics report, determine Massachusetts' annual gasoline consumption (i.e., 2,795,148,000 gallons per year). For the five month ozone season the monthly data in the table indicates that about 43 percent of gasoline is being consumed during May-September. Growth from 2010-2013 is about 3.44 percent. So, $GC_{mid2013} = 2,795,148,000 * 0.43 * 1.0344 = 1,243,259,400$ gal/ozone season.

For the five month ozone season selected here the overall emissions effect of removing Stage II would be:

$$\begin{aligned} Tons_{mid2013} &= Increment_{mid2013} * GC_{mid2013} * EF * (\text{conversion factors}) \\ &= (0.084)(1,243,259,400 \text{ gal/season})(3.0 \text{ g/gal})[(1 \text{ lb}/453.59 \text{ g})(1 \text{ ton}/2000 \text{ lbs})] \\ &= 341.9 \text{ tons/ozone season} \end{aligned}$$

In the above equation, in order to obtain an answer in tons per ozone season, we have introduced conversion factors into the equation where 453.59 grams equal 1 pound, and 2,000 pounds equal 1 ton. These conversion factors are also used in the equation below.

On a daily basis this would be about 2.23 tons per day on average for the 153 days in this five-month ozone season. There are approximately 3,200 GDFs in Massachusetts with Stage II VRS. On a daily basis this represents about 1.4 lbs/day per GDF.

States can further disaggregate these calculations to individual ozone nonattainment areas in the state using the estimates in Appendix Table A-4. The effect would be proportional to gasoline consumption.

Example 2: Looking at this same Example Scenario #1 above for $Delta_{mid2013}$, the emissions impact calculation shows a net gain of tons reduction per ozone season for ORVR over Stage II alone:

$$\begin{aligned} Tons_{mid2013} &= (0.155)(1,243,259,400 \text{ gal/season})(2.97 \text{ g/gal})[(1 \text{ lb}/453.59 \text{ g})(1 \text{ ton}/2000 \text{ lbs})] \\ &= 630.9 \text{ tons/ozone season} \end{aligned}$$

On a daily basis this net difference would be about 4.12 tons per day on average for the 153 days in this five-month ozone season.

3.6 States/Areas with Stage II but not Affected by 182(b)(3) or 184(b)(2)

Portions of six states have implemented Stage II for some areas even though they were not required to do so under the CAA to meet a requirement under sections 182(b)(3) or 184(b)(2). These include Kentucky, Tennessee, Nevada, California, Oregon, and Washington. If these states/areas included Stage II-related emission reductions in their SIPs, they will have to amend their SIPs if Stage II is no longer required, and will have to address the provisions of

CAA section 110(l). To facilitate any assessments for SIP revisions (as discussed above), we have included the relevant input parameters in Table A-8 in the Appendix.

4. Strategies and Considerations for Phasing Out Stage II Controls

Even though EPA has determined that ORVR is in widespread use in the motor vehicle fleet, and has waived the statutory requirement to implement Stage II programs in ozone nonattainment areas, states are not obligated to remove the programs. States and local areas may elect to retain Stage II because it provides VOC and hazardous air pollutant emission reductions for non-ORVR equipped vehicles. States that wish to phase out Stage II controls do not necessarily need to wait until the foregone emissions control approaches zero before seeking a SIP revision. There may come a point where retaining Stage II controls is otherwise unattractive for cost and cost-effectiveness reasons and, as discussed above, the foregone emission reductions are small enough that the loss of control would not affect compliance with the NAAQS. This is especially relevant here since the increment in the first year of Stage II removal will not remain constant in the future but will continue to decrease going forward in time. This will provide added assurance that any potential impact on air quality would also diminish. The state would need to maintain its Stage II program until it is fully phased out and until the state has begun implementing any needed new measures to ensure there will not be a harmful gap in area-wide emissions control.

4.1 Gradual Phase-out Strategy

If a state determines that decommissioning all Stage II control in an area all at one time or by a date certain would result in an unacceptable area-wide emissions increase, then states might consider a gradual phase-out strategy. A strategy of this nature is illustrated in Example Scenario #3 above. Using this approach a state might design a phase-out strategy that first exempts new GDFs from Stage II controls starting in 2013, and provides for subsequent decommissioning of existing Stage II-equipped GDFs starting with the lowest throughput stations in 2014 and ending with the highest throughput stations in 2017. An example phase-out strategy might also use some of the original Stage II program phase-in parameters in CAA section 182(b)(3) (e.g., new facilities exempted first, then GDFs that dispense less than 100,000 gallons per month, and then all remaining GDFs).

4.2 Cost Considerations

To support their decision making, states may wish to conduct an economic analysis of their Stage II control program to evaluate the ongoing annualized cost per ton of VOC removed. The EPA conducted this type of assessment to support the final widespread use determination rule.³¹ The EPA estimates that for an average size GDF the annual cost to maintain existing Stage II systems is about \$3,000 per year. These total costs would be incurred by GDF operators each year to cover ever decreasing annual emission reduction benefits as measured by the increment calculation (Equation 1) described above. The EPA also estimates that the additional

³¹ See Final Regulatory Support Document - Widespread Use for Onboard Refueling Vapor Recovery and Stage II Waiver: Decommissioning Stage II Vapor Recovery, Financial Benefits and Costs, March 2012.

costs of installing Stage II vapor recovery equipment at new GDFs, which typically include USTs, associated piping, pumps and ancillary equipment, ranges from \$20,000 to \$60,000. If this cost is amortized over a short period of time as ORVR continues to phase-in (e.g., 3 years) the new control may not be attractive from a cost effectiveness view point.

4.3 Decommissioning Issues

Whatever approach a state decides upon for phasing out Stage II controls, consideration should be given to proper decommissioning of Stage II-related equipment, including the underground vapor piping, and to ensuring that consistent procedures are in place to address liquid and vapor leak issues associated with decommissioning. The EPA recommends that currently available industry association codes and standards be followed (where applicable) to ensure that Stage II systems are properly designed, constructed, installed, and, in this case, dismantled or decommissioned. These codes and standards of practice provide a means for states to monitor methods of Stage II system decommissioning and we encourage state and local agencies to reference these codes. The EPA realizes that industry codes and standards may be updated periodically, and the EPA also recognizes that state and local requirements may supersede industry codes and standards or be inherently more stringent. The EPA regulations do not require the use of a particular issue of code. The Petroleum Equipment Institute (PEI) and at least four states have recommended practices or specific requirements for decommissioning Stage II systems. The PEI guidance, “Recommended Practices for Installation and Testing of Vapor Recovery Systems at Vehicle Fueling Sites, PEI/RP300-09,” is especially instructive as it was developed by industry experts with a focus on regulatory compliance and safety. It contains the steps involved in dismantling Stage II hardware and applies to both balance and vacuum assist type systems. Please be aware that there may be other codes or standards not listed here that may also be appropriate to ensure proper Stage II decommissioning.

4.4 Potential Emission Reduction Programs for GDFs

By viewing the GDF in its entirety as a fuel storage and dispensing system, existing GDF emissions control systems can be enhanced to achieve a higher level of in-use efficiency, and to deliver more environmental benefit. Of course, additional system design, maintenance, and enforcement provisions add cost to the installation and ongoing operation of the systems. Examples of extra design and monitoring features include: 1) ORVR compatible Stage II nozzles; 2) systems to help better manage UST pressure and control emissions lost from the UST through vent lines and fugitive leak sources during normal operations; 3) post processors to control or eliminate normal UST breathing/emptying loss emissions; 4) standards for specially designed nozzles that reduce emissions from liquid retention, drips, and spills; and 5) low permeation fuel hoses.

5. Submission, Review and Approval of SIP Revisions

When submitting a SIP revision seeking removal of an existing Stage II vapor recovery program, the SIP revision package should include the information necessary for the EPA to determine that the action complies with all relevant CAA provisions, including, as applicable, sections 110(l), 193, and 184(b)(2). States are encouraged to work closely with EPA Regional Offices to develop SIP revision packages.

5.1 Elements of SIP Revision Package

The state should coordinate with the appropriate EPA Regional Office on the necessary format and procedures for submitting a SIP revision. Submittal and cover letters should be addressed to the EPA Regional Administrator (RA) or the Regional Air Division Director (ADD) if the RA has delegated that authority to the ADD to accept SIP revisions submittals. The SIP revision should clearly identify the portion of the state regulation pertaining to the Stage II regulatory program that the state is requesting to revise. If following this guidance document, the state could include the results of area-wide emissions and emissions control calculations based on Equation 1 (*increment*) and/or Equation 2 (*delta*). The submittal should also include analysis, discussion, and any other relevant materials supporting a request for SIP approval with regards to sections 110(l), 184 (b)(2) and 193, as applicable. If new emissions control regulations are being adopted to offset emissions controls forgone by the phasing out of a Stage II program, an analysis of the expected net area-wide emissions change would be appropriate.

5.2 EPA SIP Review Process

The EPA expects that state submission to revise the SIP should show how the revision satisfies the requirement in section 110(l) not to interfere with attainment or maintenance of the NAAQS or any other applicable requirement. First, the EPA must determine that the submittal is complete within 6 months of the submission date. If deemed complete, the EPA must either approve or disapprove the submittal within one year of the determination of completeness. The EPA will act on SIP revisions through notice and comment rulemaking.

The EPA is not limited to only considering the calculations presented in this memorandum when considering a SIP revision seeking to remove Stage II control requirements. There is no specific value in terms of percentage control or tons of emissions that a state must meet before EPA can propose to approve a SIP revision. Each SIP revision will be reviewed on a case-by-case basis against the criteria of CAA section 110(l), and if applicable, sections 193 and/or 184(b)(2), with due consideration to the basis for the values used in supporting calculations and any related emissions inventory and/or air quality analyses.

Appendix

**Table A-1 - Projected Penetration of ORVR in the National Gasoline Fueled Vehicle Fleet
by Year**

[Based on MOVES 2010(a)]

1	2	3	4
End of Calendar Year	Vehicle Population Percentage	VMT Percentage	Gasoline Dispensed Percentage
2006	42.6%	51.2%	49.2%
2007	48.4%	57.3%	55.5%
2008	53.3%	62.3%	60.5%
2009	57.7%	66.8%	64.8%
2010	62.4%	71.6%	69.5%
2011	67.1%	76.0%	73.9%
2012	71.4%	80.0%	77.7%
2013	75.3%	83.4%	81.0%
2014	78.7%	86.3%	84.0%
2015	81.8%	88.8%	86.5%
2016	84.5%	90.9%	88.6%
2017	86.8%	92.5%	90.3%
2018	88.8%	93.9%	91.9%
2019	90.5%	95.0%	93.2%
2020	92.0%	95.9%	94.3%

See EPA Memorandum “Updated data for ORVR Widespread Use Assessment” February 29, 2012, in docket (number EPA-HQ-OAR-2010-1076) addressing details on values in this table and providing more calendar years.

Note: In this table, the columns have the following meaning.

1. Calendar year that corresponds to the percentages in the row associated with the year.
2. Percentage of the gasoline-powered highway vehicle fleet that have ORVR.
3. Percentage of gasoline-fueled vehicle miles traveled (VMT) by vehicles equipped with ORVR.
4. Amount of gasoline dispensed into ORVR-equipped vehicles as a percentage of all gasoline dispensed to highway motor vehicles.

Table A-2 - Monthly Average Dispensed Liquid Temperature
Dispensed liquid temperature (°F)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Weighted Average		
													Summer (Apr-Sep)	Winter (Oct-Mar)	Annual Average
National Average	51	54	54	58	69	76	82	81	76	70	62	54	74	58	66
Region 1	43	45	48	53	66	74	78	78	72	66	59	46	70	51	61
Region 2	69	74	73	80	84	87	90	91	78	85	83	73	85	76	81
Region 3	54	57	61	67	76	82	83	84	79	76	67	54	79	62	70
Region 4	50	51	41	47	63	74	88	85	83	75	63	52	74	56	65
Region 5	54	NA	NA	NA	72	77	83	83	79	74	67	58	79	63	72
Region 6	NA	48	49	53	59	63	NA	73	71	60	49	42	64	50	57

Regional Boundaries

Region 1: ME, VT, NH, MA, CT, RI, NY, NJ, PA, DE, MD,VA,WV,DC, KY, OH, IN, IL, MI, WI

Region 2: NC, SC, GA, FL, AL, MS, AR, LA, TN

Region 3: OK, TX, NM, AZ

Region 4: MN, IA, MO, ND, SD, NE, KS, MT, WY, CO

Region 5: CA, NV, UT

Region 6: WA, OR, ID

Source: McNally Michael and Dickerman J.C., "Summary and Analysis of Data from Gasoline Temperature Survey," conducted by API, Radian Corporation, May, 1976.

Table A-3 - Seasonal Variation In Temperature Difference Between Vehicle Fuel Tank and Dispensed Fuel
(

Temperature Difference (

	Average Annual	Summer (Apr – Sep)	Winter (Oct – Mar)	5-Month Ozone Season (May – Sep)	2-Month Ozone Season (Jul – Aug)
National Average	4.4	8.8	-0.8	9.44	9.9
Region 1	5.7	10.7	-0.3	11.5	12.5
Region 2	4.0	6.8	0.9	7.5	8.2
Region 3	3.7	7.6	-0.4	7.1	7.0
Region 4	5.5	11.7	-2.4	12.1	13.3
Region 5	0.1	3.9	-4.4	5.1	3.2
Region 6	Use Region 4 data				

Regional Boundaries

Region 1: ME, VT, NH, MA, CT, RI, NY, NJ, PA, DE, MD, VA, WV, DC, KY, OH, IN, IL, MI, WI

Region 2: NC, SC, GA, FL, AL, MS, AR, LA, TN

Region 3: OK, TX, NM, AZ

Region 4: MN, IA, MO, ND, SD, NE, KS, MT, WY, CO

Region 5: CA, NV, UT

Region 6: WA, OR, ID

Source: Rothman, Dale and Johnson, Robert, Technical Report, “Refueling Emissions from Uncontrolled Vehicles,” EPA.OMS, EPA-AA-SDSB-85-6. June 1985.

Table A-4 - Percent of 50 State Gasoline Consumption for Areas Covered by CAA Sections 182(b)(3) or 184(b)(2)

State	Counties	Historical Ozone Nonattainment Areas	Area Name	% of 50 State Gasoline Consumption
AZ	3	1	Phoenix	1.079%
CA	21	8	Sacramento	0.7181%
			San Joaquin	1.140%
			East Kern	0.0532%
			LA - South Coast	4.545%
			Southeast Desert	0.6764%
			San Diego	1.096%
			Santa Barbara	0.1270%
CT	8	1	Ventura	0.2201%
			All CT	1.061%
			Greater CT	1.041%
DC	1	1	NY-NJ-CT	0.0196%
			DC	0.1270%
DE	3	2	All DE	0.3079%
			Philadelphia-Wilmington-Trenton	0.2345%
			Sussex	0.0763%
GA	13	1	Atlanta	1.677%
IL	8	1	Chicago-Gary-Lake	1.678%
IN	4	1	Chicago-Gary-Lake	0.2906%
LA	6	1	Baton Rouge	0.2221%
MA	14	2	All MA	1.922%
			Boston (Eastern MA)	1.960%
			Springfield (Western MA)	0.2314%
MD	12	3	Baltimore	0.85859%
			DC/MD/VA	0.7161%
			Philadelphia-Wilmington-Trenton	0.043%
ME	3	0	Portland	0.1943%
MO	5	1	St. Louis	0.7764%
NH	4	1	Portsmouth-Dover-Rochester	0.2950%

State	Counties	Historical Ozone Nonattainment Areas	Area Name	% of 50 State Gasoline Consumption
NJ	21	2	All NJ	2.598%
			New York-New Jersey-Long Island	1.736%
			Philadelphia-Wilmington-Trenton	0.8621%
NY	10	1	New York-New Jersey-Long Island	2.427%
PA	12	2	Philadelphia-Wilmington-Trenton	0.8480%
			Pittsburgh-Beaver Valley	0.652%
RI	5	1	All RI	0.307%
TX	16	4	Houston-Galveston-Brazoria	1.646%
			El Paso	0.1841%
			Dallas-Ft. Worth	1.786%
			Beaumont-Port Arthur	0.1230%
VA	17	2	DC/MD/VA	0.7082%
			Richmond	0.3390%
VT	14	0	All VT	0.362%
WI	6	4	Milwaukee-Racine & Kenosha	0.5779%
	1		Sheboygan	0.0383%
	1		Manitowoc	0.0349%
	1		Kewaunee	0.0084%

Table A-5 - Applicability of Clean Air Act Requirements to Areas Implementing Stage II Gasoline Vapor Recovery Programs for the Ozone NAAQS

State	Nonattainment Areas	§110(t) Only ¹	§184(b)(2) (OTR Comparable Measures)	§193 (Pre-1990 Savings Provision)	Attaining Ozone NAAQS ²			
					1-hour ³	1997 8-hour ⁴	2011 DV	2008 8-hour ⁵
AZ	Phoenix	X			Yes	Yes	0.077	No
CA	LA-South Coast			X	No	No	0.107	No
	LA-San Bernardino Co (West Mojave Desert) ⁶			X	No	No	0.097	No
	Sacramento Metro			X	Yes	No	0.095	No
	San Joaquin Valley ⁶			X	No	No	0.094	No
	Riverside Co (Coachella Valley) ⁶			X	Yes	No	0.093	No
	Ventura Co			X	Yes	Yes	0.083	No
	San Diego			X	Yes	Yes	0.082	No
	Santa Barbara-Santa Maria-Lompoc			X	Yes	Yes	0.076	No
CT	NYC-Long Is., NY-NJ-CT		X		Yes	Yes	0.084	No
	Greater CT Area		X		Yes	Yes	0.076	No
DE	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE		X		Yes	Yes	0.083	No
	Sussex County, DE OTR Area		X		Yes	Yes	0.077	No
GA	Atlanta	X			Yes	Yes	0.080	No
IL	Chicago-Gary, IL-IN	X			Yes	Yes	0.077	No
	St. Louis, MO-IL	X			Yes	Yes	0.077	No
IN	Chicago-Gary, IL-IN	X			Yes	Yes	0.077	No
LA	Baton Rouge	X			Yes	Yes	0.082	No
ME	ME OTR Area		X		Implementing Stage II in 3 Southern ME Counties.			Yes
MD	Baltimore		X		Yes	No	0.092	No
	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE		X		Yes	Yes	0.083	No
	Washington DC-MD-VA		X		Yes	Yes	0.082	No
MA ⁷	Boston-Lawrence-Worcester (E. MA)		X		Yes	Yes	0.075	Yes
	Springfield (W. MA)		X		Yes	Yes	0.074	Yes
MO	St. Louis, MO-IL			X	Yes	Yes	0.079	No
NH	Boston-Lawrence-Worcester (E. MA)		X		Yes	Yes	0.075	Yes
	Portsmouth-Dover-Rochester		X		Yes	Yes	0.063	Yes
	Rest of NH OTR Area		X		Implementing Stage II and RFG to meet comparable measures.			Yes

State	Nonattainment Areas	§110(l) Only ¹	§184(b)(2) (OTR Comparable Measures)	§193 (Pre-1990 Savings Provision)	Attaining Ozone NAAQS ²			
					1-hour ³	1997 8-hour ⁴	2011 DV	2008 8-hour ⁵
NJ	NYC-Long Is., NY-NJ-CT		X	X	Yes	Yes	0.084	No
	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE		X		Yes	Yes	0.083	No
	Rest of NJ OTR Areas		X		Implementing Stage II in all counties.			Yes
NY	NYC-Long Is., NY-NJ-CT		X	X	Yes	Yes	0.084	No
PA	Philadelphia-Wilmington-Atlantic City, PA-NJ-MD-DE		X		Yes	Yes	0.083	No
	Pittsburgh-Beaver Valley, PA (1-hour Moderate area under §182(b)(3))	X			Yes	Yes	0.080	No
RI	Providence and all RI Areas		X		Yes	Yes	0.073	Yes
TX	Houston	X			No	No	0.089	No
	Dallas-Ft. Worth	X			Yes	No	0.090	No
	Beaumont-Port Arthur	X			Yes	Yes	0.074	Yes
	El Paso	X			Yes	Yes	0.071	Yes
VT	All of VT (OTR)		X		Implementing Stage II in all counties.			Yes
VA	Washington DC-MD-VA (Northern VA)		X		Yes	Yes	0.082	No
	Richmond, VA	X			Yes	Yes	0.075	Yes
WI	Milwaukee-Racine	X			Yes	Yes	0.077	No

¹ All states and all areas are required to comply with CAA section 110(l), chart shows states/areas where 110(l) is the only constraint.

² Based on air quality data from 2009-2011. ³ The 1-hour ozone NAAQS was promulgated in 1979 and was 0.12 ppm.

⁴ The first 8-hour ozone NAAQS was promulgated in 1997 and is 0.08 ppm and is attained if the area design value is less than or equal to 0.084 ppm. Once an area was designated under the 1997 ozone standard, the 1-hour standard was revoked for that area. As of April 15, 2008, all areas were designated under the 1997 ozone standard.

⁵ The 2008 8-0hour Ozone NAAQS is 0.075 ppm.

⁶ History of redistricting and boundary changes between air districts with pre-1990 requirements. District may have Stage II gasoline dispensing rules in some parts of district prior to 1990.

⁷ The MA Stage II program was adopted prior to 11/15/1990 but was not approved into the SIP until 12/14/1992.

Table A-6 - Percent of State/Area GDF Dispensers Using Vacuum Assist Stage II Technology (June 2012)

State	Number Counties	Area name	% GDFs using Vacuum Assist
ARIZONA	3	Phoenix	85%
CALIFORNIA ³²	21	Average Q _{SIIVa}	70%
		Sacramento	ORVR Compatible
		San Joaquin	ORVR Compatible
		East Kern	ORVR Compatible
		LA - South Coast	ORVR Compatible
		Southeast Desert	ORVR Compatible
		San Diego	ORVR Compatible
		Santa Barbara	ORVR Compatible
		Ventura	ORVR Compatible
CONNECTICUT	8	All CT	88%
DELAWARE	3	All DE	88%
DC	1	DC	97%
GEORGIA	13	Atlanta	95%
ILLINOIS	8	Chicago metro	92%
INDIANA	4	Chicago-Gary metro	95%
LOUISIANA	6	Baton Rouge	90%
MAINE	3	Portland	95%
MARYLAND	12	Baltimore and Wash DC areas	94%
MASSACHUSETTS	14	All MA	90%
MISSOURI	5	St. Louis	0%
NEW HAMPSHIRE	4	Portsmouth Dover Rochester	93%
NEW JERSEY	21	All NJ	48%
NEW YORK	10	NYC metro	73%
PENNSYLVANIA	12	Philadelphia metro	80%
		Pittsburgh -Beaver Valley	96%
RHODE ISLAND	5	All RI	93%
TEXAS ³³	16	Average Q _{SIIVa}	90%
		Houston-Galveston-Brazoria	ORVR Compatible
		El Paso	ORVR Compatible
		Dallas-Fort Worth	ORVR Compatible
		Beaumont -Port Arthur	ORVR Compatible
VIRGINIA	17	Wash DC metro area	93%
		Richmond	85%
VERMONT	14	All VT	95%
WISCONSIN	9	All Counties	85%

³² Estimates for California provided by state sources, all vacuum assist must be ORVR compatible.

³³ Estimates for Texas provided by state sources, all vacuum assist must be ORVR compatible.

**Table A-7 - Five –Month (May-September) Uncontrolled Displacement (non-ORVR)
Refueling Emission Factors (g/gal)**

State	Number Counties	Area name	RVP (psi)	Emission Factor
ARIZONA	3	Phoenix	7.8	3.5
CALIFORNIA	58	All CA	7.0	3.4
CONNECTICUT	8	All CT	7.0	3.0
DELAWARE	3	All DE	7.0	3.0
DC	1	DC	7.0	3.0
GEORGIA	13	Atlanta	7.0	4.6
ILLINOIS	8	Chicago metro	7.0	3.0
INDIANA	4	Chicago-Gary metro	7.0	3.0
LOUISIANA	6	Baton Rouge	7.8	5.1
MAINE	3	Portland	7.8	3.3
MARYLAND	12	Baltimore and Wash DC areas	7.0	3.0
MASSACHUSETTS	14	All MA	7.0	3.0
MISSOURI	5	St. Louis	7.0	3.3
NEW HAMPSHIRE	4	Portsmouth Dover Rochester	7.0	3.0
NEW JERSEY	21	All NJ	7.0	3.0
NEW YORK	10	NYC metro	7.0	3.0
PENNSYLVANIA	12	Philadelphia metro	7.8	3.0
		Pittsburgh -Beaver Valley	7.0	3.3
RHODE ISLAND	5	All RI	7.0	3.0
TEXAS	16	All TX	7.0	3.5
VIRGINIA	17	All VA	7.0	3.0
VERMONT	14	All VT	9.0	3.9
WISCONSIN	6	Milwaukee-Racine	7.0	3.0
		Sheboygan, Manitowoc, Kewaunee	9.0	3.9

Table A-8 - Input Data for States/Areas with Stage II but not Affected by 182(b)(3) or 184(b)(2) (July 2012)

State	Number Counties	Area name	Percent of 50 State Gasoline Consumption	% GDFs using Vacuum Assist ³⁴	RVP (psi)	Five – Month (May-September Refueling Emission Factors (g/gal)
CALIFORNIA ³⁵	37	All AQMDs & APCDs not listed in tables above	2.565%	70% ORVR Compatible	7.0	3.4
KENTUCKY	3	Jefferson	0.2498%	98%	7.0	3.0
		N KY	0.1299%	98%	7.0	3.0
NEVADA	2	Washoe County	0.1087%	40%	7.8	3.9
		Clark County	0.430%	70%	9.0	4.4
OHIO	16	Cleveland-Akron	0.8076%	97%	9.0	3.9
		Cincinnati	0.4775%	96%	7.8	3.4
		Dayton	0.2884%	94%	7.8	3.4
OREGON	3	Portland	0.426%	50%	7.8	3.7
TENNESSEE	1	Davidson	0.2409%	98%	7.8	4.6
	4	Nashville Metro	1.1687%	95%	7.8	4.6
WASHINGTON	5	Seattle	1.088%	80%	9.0	4.3
	2	Vancouver	0.1542%	80%	9.0	4.3

³⁴ Estimates for California provided by state sources; all vacuum assist must be ORVR compatible.

³⁵ This data provided by the Petroleum Equipment Institute.

Table A-9 – MOVES 2012 Vehicle Class Age Distribution

Calendar		Model	Gasoline				
Year	Age	Year ID	Motorcycle	Pass Car	LDT1	LDT2	HDGV
2012	30	1982	0.001966	0.000668	0.002037	0.002037	0.005699
2012	29	1983	0.001689	0.000718	0.002178	0.002178	0.005426
2012	28	1984	0.002310	0.001094	0.003234	0.003234	0.006327
2012	27	1985	0.002585	0.001559	0.004318	0.004318	0.008814
2012	26	1986	0.003071	0.002170	0.004989	0.004989	0.011413
2012	25	1987	0.003696	0.002585	0.006043	0.006043	0.009350
2012	24	1988	0.003741	0.003538	0.007146	0.007146	0.011049
2012	23	1989	0.004419	0.004355	0.007774	0.007774	0.011843
2012	22	1990	0.005962	0.005407	0.008745	0.008745	0.010388
2012	21	1991	0.007355	0.006255	0.008972	0.008972	0.009462
2012	20	1992	0.009290	0.008232	0.011363	0.011363	0.011102
2012	19	1993	0.011102	0.011132	0.014774	0.014774	0.014453
2012	18	1994	0.013623	0.015221	0.018422	0.018422	0.020989
2012	17	1995	0.011840	0.018786	0.020574	0.020574	0.023061
2012	16	1996	0.015718	0.023545	0.024745	0.024745	0.025302
2012	15	1997	0.017935	0.028620	0.028422	0.028422	0.027497
2012	14	1998	0.018745	0.034619	0.034691	0.034691	0.032089
2012	13	1999	0.021968	0.044520	0.039503	0.039503	0.045460
2012	12	2000	0.029065	0.054649	0.047137	0.047137	0.048348
2012	11	2001	0.036410	0.056862	0.051960	0.051960	0.052218
2012	10	2002	0.042963	0.057388	0.056257	0.056257	0.047379
2012	9	2003	0.048226	0.056194	0.061399	0.061399	0.052367
2012	8	2004	0.056980	0.057747	0.066770	0.066770	0.058223
2012	7	2005	0.067163	0.060876	0.070393	0.070393	0.064607
2012	6	2006	0.076695	0.063183	0.068310	0.068310	0.063641
2012	5	2007	0.080950	0.062722	0.068566	0.068566	0.063843
2012	4	2008	0.089568	0.056968	0.046968	0.046968	0.048232
2012	3	2009	0.047643	0.051356	0.037902	0.037902	0.040547
2012	2	2010	0.067916	0.061669	0.054558	0.054558	0.052774
2012	1	2011	0.089591	0.070362	0.059917	0.059918	0.057786
2012	0	2012	0.109815	0.076999	0.061931	0.061930	0.060313
Total			1.000000	1.000000	1.000000	1.000000	1.000000
Avg Age			6.9	8.0	8.9	8.9	9.6

LDT1: ≤6000 lbs GVWR

LDT2 : >6000 but ≤8500 lbs GVWR

HDGV: > 8500lbs GVWR

United States
Environmental Protection
Agency

Office of Air Quality Planning and
Standards
Research Triangle Park, NC

Publication No. EPA-
EPA-457/B-12-001
August 7, 2012

Appendix F. Public Involvement Records

This appendix contains the following records of Ecology’s actions to meet and exceed state and federal requirements for public involvement:

- Legal Notice published in Seattle Daily Journal of Commerce.
- Email announcement to subscribers of Ecology’s “Air Quality Rule and SIP Updates” distribution list.
- Public Notice details on Ecology’s SIP “Infrastructure, rule & program plans” webpage, including at the start of the comment period (March 13, 2023), and after the deadline to request a hearing (April 12, 2023).
- Additional information posted to Ecology’s “Events Listing” public calendar.
- Public Comment Form for SIP Revision of SWCAA 491 Gasoline Vapor Recovery Regulations.

Legal Notice Published in Seattle Daily Journal of Commerce

STATE OF WASHINGTON -- KING COUNTY

--SS.

415088

No.

DEPT OF ECOLOGY

Affidavit of Publication

The undersigned, on oath states that he is an authorized representative of The Daily Journal of Commerce, a daily newspaper, which newspaper is a legal newspaper of general circulation and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continuously as a daily newspaper in Seattle, King County, Washington, and it is now and during all of said time was printed in an office maintained at the aforesaid place of publication of this newspaper. The Daily Journal of Commerce was on the 12th day of June, 1941, approved as a legal newspaper by the Superior Court of King County.

The notice in the exact form annexed, was published in regular issues of The Daily Journal of Commerce, which was regularly distributed to its subscribers during the below stated period. The annexed notice, a

PN:SWCAA COMMENT PERIOD

was published on

03/14/23

The amount of the fee charged for the foregoing publication is the sum of \$173.25.



Affidavit of Publication

A handwritten signature in blue ink, appearing to be "Kee".

Subscribed and sworn to before me on

03/15/2023

A handwritten signature in blue ink, appearing to be "J. Barlow".

Notary public for the State of Washington,
residing in Seattle

State of Washington, King County

State of Washington

Legal Notice: State of Washington

Public Comment Period and Opportunity to Request a Public Hearing

On behalf of the Southwest Clean Air Agency (SWCAA), Ecology proposes to submit to EPA three revisions of Washington's air quality State Implementation Plan (SIP). The proposed SIP revisions update SWCAA's air quality regulations currently in the SIP, which apply in SWCAA's jurisdiction of Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties. The federal Clean Air Act requires Ecology to submit such SIP revisions to EPA to ensure SWCAA's rules are federally enforceable. No new rules or changes to existing state or local regulations are proposed.

Ecology invites the public to comment on the proposed SIP revisions from March 13, 2023, through April 21, 2023. If requested, a public hearing will be held on April 19, 2023, at 3:00 PM by webinar. The deadline to request a hearing is April 12, 2023, at 5:00 PM. If no hearing is requested, Ecology will post the cancellation on the agency Public Involvement Calendar.

Find how to request a hearing or comment online at: <https://ecology.wa.gov/Regulations-Permits/Plans-policies/State-implementation-plans/Infrastructure-SIPs>

Alternative options:

- Comment by mail: Jack Millard, Department of Ecology, PO Box 47600, Olympia, WA 98504

- Testify at hearing on April 19, 2023 (if held)

To request ADA accommodation including printed materials in a format for the visually impaired, contact Ecology at 360-280-4325 or ecyadacoordinator@ecy.wa.gov. Persons with impaired hearing may call Washington Relay Service at 711. Persons with a speech disability may call TTY at 877-833-6341.

Date of publication in the Seattle Daily Journal of Commerce, March 14, 2023.

3/14(415088)

Email Announcement to Subscribers of Ecology’s “Air Quality Rule and SIP Updates” Distribution List



Ecology opens public comment period for SWCAA SIP revisions

Request a hearing or comment online

At the request of the Southwest Clean Air Agency (SWCAA), Ecology is proposing three revisions to the Washington State Implementation Plan (SIP). These incorporate rule updates for local regulations that SWCAA adopted between 2017 and 2021. No new rules or changes to existing state or local regulations are being proposed.

Ecology is seeking public comments regarding the SIP revisions before they are submitted to the Environmental Protection Agency (EPA) for inclusion in the SIP.

The comment period ends on **April 19, 2023**, and the deadline to request a public hearing is 5:00 PM on **April 12, 2023**.

Proposed SIP Revisions

The proposed SIP revisions update SWCAA’s air quality regulations currently in the SIP, which apply in SWCAA’s jurisdiction of Clark, Cowlitz, Lewis, Skamania, and Wahkiakum Counties. The Clean Air Act requires Ecology to submit such SIP revisions to EPA to ensure that SWCAA’s rules are federally enforceable. The rule updates are organized into three SIP revision packages, summarized below.

1. State Implementation Plan Revision: Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources

The changes in this SIP revision include updated references to fee schedules and test standards and other general regulations in SWCAA 400. These provisions became outdated in the SIP after SWCAA conducted rulemaking processes in 2017, 2020, and 2021, each with public comment and review. The main effect of this SIP revision is to replace now-outdated SWCAA 400 general regulations in the SIP.

- [Read draft SIP revision online.](#)
- [Comment or request a public hearing online.](#)

2. State Implementation Plan Revision: Startup, Shutdown, & Malfunction Provisions in SWCAA 400

This SIP revision specifically relates to Startup, Shutdown, and Malfunction (SSM) provisions in SWCAA 400. SWCAA amended its SSM regulations in 2021 after public comment and review. The changes, effective September 10, 2021, align with statewide SSM regulations under Chapter 173-400 WAC. This SIP revision is intended to address the EPA's 2015 SSM SIP Call for the Southwest Clean Air Agency.

- [Read draft SIP revision online.](#)
- [Comment or request a public hearing online.](#)

3. State Implementation Plan Revision: Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors

This SIP revision is for gasoline vapor regulations that SWCAA updated in January 2020. The new policy, effective February 7, 2020, phases out requirements for Stage II gasoline vapor recovery systems. An impact analysis by SWCAA shows the change will reduce emissions and benefit all counties in SWCAA's jurisdiction. This is because modern vehicles have onboard vapor recovery systems that render Stage II systems counterproductive.

- [Read draft SIP revision for online.](#)
- [Comment or request a public hearing online.](#)

Public Engagement

Ecology invites the public to comment on the proposed SIP revisions from March 13, 2023, through **April 21, 2023**. If requested, a public hearing will be held on **April 19, 2023**, by webinar. The deadline to request a public hearing is 5:00 PM on **April 12, 2023**.

- Ecology will post details about the public hearing, including cancellation details if no hearing is requested, to the [Public Involvement Calendar](#).
- Find how to request a public hearing or comment online at Ecology's [Infrastructure, rule, & program plans](#) page.

More Information

To learn more about the Washington State Implementation Plan, including its purpose and Ecology's role, please refer to the Ecology SIP page online.

[Ecology SIP Page](#)

Accessibility

To request an ADA accommodation, including printed materials in a format for the visually impaired, please contact Ecology at 360-280-4325 or ecyadacoordinator@ecy.wa.gov.

Persons with impaired hearing may call Washington Relay Service at 711. Persons with a speech disability may call TTY at 877-833-6341.

[Subscribe/Unsubscribe](#)

[Our Website](#)

[Accessibility](#)

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Public Notice on Ecology’s SIP “Infrastructure, rule & program plans” Webpage at Start of Public Comment Period (March 13, 2023)

Infrastructure, rule, & program plans

We submit plans as well as state and local rules to EPA that show Washington has tools in place to meet national air quality standards. Once approved by EPA, these plans for infrastructure, rules, and programs become part of Washington's State Implementation Plan (SIP) for air quality. Plans and rules in Washington's State Implementation Plan are enforceable by EPA and the public.

I want to...

- Learn about the regional haze state implementation plan
- Find out about Washington's air quality targets
- Sign up for email updates about current projects [↗](#)

Public comment

We propose revisions to Washington's State Implementation Plan for air quality. These revisions show Washington's ability to attain, maintain, enforce, and implement federal air quality standards through infrastructure requirements and updated rules.

Open public comment	Closed public comment
<p>State Implementation Plan documents</p> <p>We propose to send EPA the revised air quality SIP to include Southwest Clean Air Agency's updated rules.</p> <p>Washington State Implementation Plan Revision: Including Revised Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources ↗</p> <p>Washington State Implementation Plan Revision: Including Startup, Shutdown, and Malfunction Provisions in Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources ↗</p> <p>Washington State Implementation Plan Revision: Including Revised Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors ↗</p>	<p>Comment or request a public hearing</p> <p>Public comment period: March 13, 2023 – April 21, 2023</p> <p>Comment or request a public hearing online ↗</p> <p>Comment or request a public hearing online ↗</p> <p>Comment or request a public hearing online ↗</p> <p>Mail comments to: Jack Millard, Air Quality Program Washington Department of Ecology P.O. Box 47600; Olympia, WA 98504-7600</p> <p>Tentative public hearing: (if requested by April 12, 2023) April 19, 2023, 3 p.m. online</p> <p>For more information, contact Jack Millard at 360-742-4142.</p>

Accessibility

To request ADA accommodation for the public hearing, email [ADA coordinator](#) or call 360-407-6831, 711 (relay service), or 877-833-6341 (TTY).

Public Notice on Ecology’s SIP “Infrastructure, rule & program plans” Webpage after Deadline to Request Public Hearing (April 12, 2023)

Infrastructure, rule, & program plans

We submit plans as well as state and local rules to EPA that show Washington has tools in place to meet national air quality standards. Once approved by EPA, these plans for infrastructure, rules, and programs become part of Washington’s State Implementation Plan (SIP) for air quality. Plans and rules in Washington’s State Implementation Plan are enforceable by EPA and the public.

I want to...

- › Learn about the regional haze state implementation plan
- › Find out about Washington’s air quality targets
- › Sign up for email updates about current projects

Public comment

We propose revisions to Washington’s State Implementation Plan for air quality. These revisions show Washington’s ability to attain, maintain, enforce, and implement federal air quality standards through infrastructure requirements and updated rules.

Open public comment	Closed public comment
<p>State Implementation Plan documents</p> <p>We propose to send EPA the revised air quality SIP to include Southwest Clean Air Agency’s updated rules.</p> <ol style="list-style-type: none">1. Washington State Implementation Plan Revision: Including Revised Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources2. Washington State Implementation Plan Revision: Including Startup, Shutdown, and Malfunction Provisions in Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources3. Washington State Implementation Plan Revision: Including Revised Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors	<p>Comment or request a public hearing</p> <p>Public comment period: March 13, 2023 – April 21, 2023</p> <ol style="list-style-type: none">1. Comment online2. Comment online3. Comment online <p>Mail comments to: Jack Millard, Air Quality Program Washington Department of Ecology P.O. Box 47600; Olympia, WA 98504-7600</p> <p>Public hearing CANCELLED: (We did not get a request by April 12, 2023.) April 19, 2023, 3 p.m. online</p> <p>For more information, contact Jack Millard at 360-742-4142.</p>
<p>Accessibility</p> <p>To request ADA accommodation for the public hearing, email ADA coordinator or call 360-407-6831, 711 (relay service), or 877-833-6341 (TTY).</p>	

Additional Information Posted to Ecology's "Events Listing" Public Calendar

Southwest Clean Air Agency Rule Changes

State Implementation Plan

March 13, 2023 - April 21, 2023, 11:59 p.m.

We propose to send EPA the revised air quality State Implementation Plan (SIP) to include Southwest Clean Air Agency's updated rules.


The revised SIP:

- Removes Southwest Clean Air Agency's outdated rules
- Adds their current rules


Documents for review and how to comment or request a public hearing:

[Washington State Implementation Plan Revision: Including Revised Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources](#) 

[Comment or request a public hearing online](#) 

[Washington State Implementation Plan Revision: Including Startup, Shutdown, and Malfunction Provisions in Southwest Clean Air Agency 400 General Regulations for Air Pollution Sources](#) 

[Comment or request a public hearing online](#) 

[Washington State Implementation Plan Revision: Including Revised Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors](#) 

[Comment or request a public hearing online](#) 

Tentative public hearing:

(if requested by April 12, 2023)

April 19, 2023, 3 p.m. online

We will cancel the public hearing if we do not receive a request by April 12, 2023. We will update this webpage if the public hearing is cancelled. To comment or request a public hearing, use one of the ways listed.

Background

A [State Implementation Plan](#) is a general cleanup plan for air. It describes how Washington carries out, maintains, and enforces national air quality standards.

The SIP explains how Washington will lower air pollution from sources like transportation, wood smoke, and industry. Sections of the plan are customized to meet regional air quality needs.

Comment by mail

Jack Millard
Washington Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

Questions

Jack Millard
Environmental Planner
jack.millard@ecy.wa.gov
360-742-4142

To request ADA accommodation, contact Ecology's ADA Coordinator by email at ecyadaordinator@ecy.wa.gov, or call 360-407-6831, 711 (relay service), or 877-833-6341 (TTY). More about our [accessibility services](#).

Public Comment Form for SIP Revision of SWCAA 491 Gasoline Vapor Recovery Regulations



Search Comment Items

Public Comment Form

Commenting open: **March 13, 2023 12:00AM PT - April 21, 2023 11:59PM PT.**

SIP Revision of SWCAA 491 Gasoline Vapor Recovery Regulations

Please note that this comment form is for the purpose of submitting a comment to the Washington State Department of Ecology. Contact information is necessary if you want to receive future notices or responses related to this topic.

Ecology is proposing three revisions to the Washington State Implementation Plan (SIP) on behalf of the Southwest Clean Air Agency (SWCAA). These are rule updates for local regulations that SWCAA adopted between 2017 and 2021. Ecology is required to submit such SIP revisions to the Environmental Protection Agency (EPA) to ensure that SWCAA's rules are federally enforceable. No new rules or changes to existing state or local regulations are proposed.

This SIP revision is for regulations that SWCAA updated in 2020 to phase out requirements for Stage II gasoline vapor recovery systems. Ecology is seeking public comments on whether the revised provisions should be approved in the SIP and submitted to EPA for approval. The comment period ends on **April 21, 2023.**

Let us know by 5:00 PM on **April 12, 2023**, if you would like to request a public hearing.

- We have scheduled a tentative public hearing on **April 19, 2023.**
- If we do not receive a request by the deadline, we will cancel the public hearing.
- We will update the [Public Involvement Calendar](#) with hearing information.

Contact Information

All fields are optional unless otherwise indicated.

Submitted By

Individual

First Name

Last Name

Address

City

Country

United States

State

Washington

ZIP

Email

Your Comment

To make a comment, please enter comment(s) in the text area. To submit attachments, use the 'Upload File' button below. Then hit 'Continue' to review your comment(s).

To submit comments for a group please visit our [Commenting Tips webpage](#).

Next steps

After the comment period ends, we will:

- Review and respond to comments.
- Finalize our recommendation and send it to EPA.
- Update those who provide contact information.

Any information (e.g., personal or contact) you provide on this comment form or in an attachment may be publicly disclosed and posted on the Internet.

 View Comments

 View Draft

Insert comments on SIP Revision of SWCAA 491 Gasoline Vapor Recovery Regulations

Upload A File

Uploading a file is optional


You may attach up to five 30 MB files to accompany your submission. Allowed formats are pdf, jpg, jpeg, png, txt, gif, doc, docx. If you experience technical difficulties submitting your comment please contact the person listed at the bottom of this page.

Continue »



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Jack Millard

 (360) 742-4142

 jack.millard@ecy.wa.gov

<https://ecology.wa.gov/About-us/Accessibility-equity/Accessibility>

Appendix G. SIP Adoption Order

In the matter of adopting a State Implementation Plan (SIP) Revision to update Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors in the Washington State Implementation Plan.

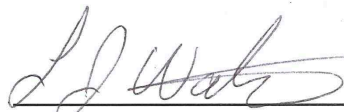
SIP ADOPTION ORDER

In this SIP revision, the Southwest Clean Air Agency (SWCAA) requests that the Washington State Department of Ecology (Ecology) submit to the United States Environmental Protection Agency (EPA) changes to SWCAA 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors (SWCAA 491) for inclusion in the Washington State Implementation Plan (SIP). EPA approval of this SIP revision will make portions of SWCAA 491 federally enforceable.

Ecology invited the public to request a hearing and comment on the draft SIP revision of **Revised Southwest Clean Air Agency 491 Emission Standards and Controls for Sources Emitting Gasoline Vapors**. Ecology took the following actions to satisfy state and federal procedural requirements for public involvement:

- Announced the public comment period (March 13, 2023, through April 21, 2023) and the tentative public hearing date (April 19, 2023) on Ecology's "Infrastructure, rule & program plans" and "Events Listing" webpages, as well as in emails to subscribers of Ecology's "Air Quality Rule and SIP Updates" distribution list.
- Published a legal notice in the *Seattle Daily Journal of Commerce* on March 14, 2023. This allowed Ecology to meet the requirement to provide at least 30 days of notice to request a hearing. Ecology did not receive a request for a public hearing, so we did not hold one, as allowed by 40 CFR 51.102.

IT IS HEREBY ORDERED that the referenced documents, constituting this revision, are approved and adopted by the Washington State Department of Ecology as part of the Washington State Implementation Plan. All provisions of the Washington State Implementation Plan inconsistent with the attached documents are superseded.



LAURA WATSON, Director
Department of Ecology

June 6, 2023

Date