

Lane Regional Air Protection Agency
 Simple Air Contaminant Discharge Permit (Simple-ACDP)

REVIEW REPORT

Costco Wholesale Corp.: Costco Gasoline #17

Permit No. 201304

2828 Chad Drive
 Eugene, Oregon 97408
<https://www.costco.com/>

Source Information:

SIC	5541 – Gasoline Service Stations
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Source Categories: LRAPA Title 37 Table 1	Part B: 32. Gasoline dispensing facilities
Public Notice	III

Compliance and Emissions Monitoring Requirements:

Unassigned emissions	N
Emissions credits	N
Compliance schedule	N
Source test [date(s)]	Triennially

COMS	N
CEMS	N
Ambient monitoring	N

Reporting Requirements:

Annual report (due date)	Feb 15
Emission fee report (due date)	N
SACC (due date)	N
Quarterly report (due date)	N

Monthly report (due dates)	N
Excess emissions report	Y
Other report	N

Air Programs:

Synthetic Minor (SM)	N
SM-80	N
NSPS (list subparts)	N
NESHAP (list subparts)	CCCCC
CAO limits	N
NSR	N

PSD	N
GHG	N
RACT	N
TACT	Y
Other (specify)	N

1. General Background Information

Lane Regional Air Protection Agency (LRAPA) has reviewed the permit application received on August 20, 2019. The content of the application from the facility were the basis for the contents within this review report.

Costco Wholesale Corporation – Costco Gasoline #17 (Costco or “facility”) has operated a wholesale supercenter with gasoline dispensing facility (GDF) at 2828 Chad Drive, Eugene, Oregon 97408 since 1989. The facility’s GDF has three (3) 30,000-gallon underground gasoline storage tanks (UST) with twelve (12) Gilbarco Encore 700S Series NG3 two-product dispensers. The facility currently dispenses approximately 13 million gallons of gasoline a year. The facility has stage I vapor balance system on the USTs. Stage II vapor collection system on the dispensers are not required in Eugene.

In August 2010 and again in May 2016, Costco was assigned to General Air Contaminant Discharge Permit (ACDP) AQGP-022.

2. Reasons for Permit Issuance

Costco has applied for a Simple ACDP requesting a throughput increase from 13,900,000 to 29,400,000 gallons of gasoline per year. Costco is also requesting new updated emission factors (EFs) for VOC and HAP be utilized in lieu of the current EFs for stage I vapor balance systems in the LRAPA GDF General ACDP (AQGP-022). This would allow the facility to increase throughput without having to install stage II vapor collection system on the gasoline dispensers. Costco supplied all documentation, calculations and rationale for the EF updates. After reviewing the information LRAPA accepted the updated EFs for VOC and HAPs emissions and the associated request for an increased throughput to 29,400,000 gallons of gasoline per year.

Costco operates a process listed under LRAPA Title 37, Table 1, Part B: 32 – Gasoline dispensing facilities (GDF) but the facility’s operations will require a Simple ACDP because of the request to use EFs that are different from the General ACDP (AQGP-022). Costco will still maintain a generic PSEL for VOC.

3. Attainment Status

The facility is located in a maintenance area for PM₁₀ and CO and in an attainment area for all other pollutants.

4. Emission Units Description

Emission Unit	Emission Units ID	Pollution Control Device
Three (3) – Gasoline Underground Storage Tanks (USTs – 30,000 gallons each) with 12 Dispensers	EU-1	Vapor Balance System (stage I) on USTs

5. Performance Standards and Emission Limitations

5.a. Basis for Emission Factors (EF):

VOC Emission Basis:

Costco proposed updated EFs for stage I vapor balance systems that are different from the EFs used in their currently assigned General ACDP (AQGP-022). The facility provided all documentation and calculations for LRAPA to analyze and determine whether the updated EF for stage I vapor balance systems could be used in lieu of installing stage II vapor collection systems to the dispensers at the facility.

The gasoline VOC emission factors (EFs) are based on EPA AP-42: *Compilation of Air Emission Factors*, Chapter 5, Table 5.2-7 for balance submerge filling (Loading and Filling) and the underground tank breathing and emptying (Breathing and Emptying). These are the same EFs applied in LRAPA's current General ACDP (AQGP-022).

The VOC EF for Vehicle Refueling with onboard refueling vapor recovery (ORVR) control is based on information from two documents. One part of the EF calculation comes from the California Air Resource Board (CARB), *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities*, December 23, 2013, Table I-I, Revised (lb/kgal) Pre-EVR for Non-ORVR and ORVR Vehicles. Costco used 2.4 lb/kgal for Non-ORVR vehicles and 0.12 lb/kgal for ORVR vehicles as the base factors for their calculations. The second part of the EF calculations comes from Table I: 2014 Estimated ORVR fleet penetration: total vehicles vs. ORVR vehicles from Oregon DEQ, *2014 Oregon Gasoline Dispensing Facility (GDF) Volatile Organic Compound (VOC) Emissions Estimates and GDF Vapor Recovery System (VRS) Impact Evaluation*, June 14, 2018. Costco then multiplied the CARB factors by the percentage of ORVR and Non-ORVR vehicles within Lane County. The DMV ORVR fleet penetration estimates from 2014 were 65% for ORVR and 35% for Non-ORVR vehicles. Taking the base factors from CARB and multiplying them by the ORVR and Non-ORVR fleet percentages, Costco derived the EF of 0.918 lb/kgal for Vehicle Refueling.

The VOC EF for Hose Permeation and Liquid Spillage were taken from CARB, *Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities*, December 23, 2013, Table I-I, using Pre-EVR data Year 2017.

HAPs Emissions Basis:

The most significant HAPs emitted from a GDF are benzene, toluene, ethyl benzene, and xylene (BTEX). Costco is requesting new updated emission factors for these HAPs based on information from the California Air Pollution Control Officers Association (CAPCOA), *CAPCOA Air Toxics "Hot Spots" Program, Gasoline Service Station Industrywide Risk Assessment Guideline*, November 1997. Based on the CAPCOA information the HAP emissions at a GDF primarily result from the USTs, considered as vapor or from spillage when vehicles are refueling, considered as liquid. CAPCOA defines vapor in the UST as headspace. CAPCOA assumes that approximately 30% of the vapor in the headspace is considered to be volatilized gasoline and the remaining 70% is air. Benzene is the only HAP that CAPCOA has documented as a percent weight in the vapor. An EF of 0.3 percent by weight benzene is used calculate the amount of HAPs emitted when a UST is being filling/loading, breathing/emptying, vehicle refueling, and hose permeation. CAPCOA defines liquid as the spillage of gasoline when vehicles are refueling. To calculate the HAPs emitted from the liquid, CAPCOA utilizes the percent of each component of BTEX in gasoline and assumes that percentage is emitted. Using the amount of VOC emitted from "Liquid Spillage" and using the EFs for each of the four HAPs,

a conservative HAPs total for liquid is derived. The total HAPs emitted from both vapor and liquid is less than the one (1) ton/year de minimis level a single or combined HAP as defined in LRAPA title 12.

5.b. The facility must follow all operational and work practice to reduce emissions from the gasoline underground storage tanks (USTs) and the gasoline dispensers. The facility must operate and maintain the affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices. This includes minimizing spills, no topping off or overfilling vehicle tanks, covering all storage tank fill-pipes with gasketed seals and all gasoline containers when not in use, ensuring that all cargo tanks that unload at the facility are equipped with proper and functioning vapor balance system and is connected correctly and comply with all applicable work practices and have a valid annual certification for vapor tightness. The facility must keep fugitive dust emissions from leaving the property boundary.

6. Typically Achievable Control Technology (TACT)

LRAPA 32-008 requires an existing emission unit at a source to meet TACT if the emissions unit has emissions of criteria pollutants greater than ten (10) tons per year of any gaseous pollutant or five (5) tons per year of particulate, the emissions unit is not subject to the emissions standards under LRAPA Title 30, Title 32, Title 33, Title 38, Title 39, or Title 46 for the pollutants emitted, and the source is required to have a permit. Costco proposed new emission factors based on updated studies of stage I vapor recovery systems at a GDF. Stage I vapor recovery systems are considered TACT for USTs.

7. Permitting History

LRAPA has reviewed and issued the following permitting actions to this facility:

Date Reviewed/ Approved	Permit Action Type	Description
03/3/10	Initial Application to be assigned to the General ACDP	Initial application was submitted to LRAPA for a GDF General ACDP
08/30/10	Initial Assignment to the General ACDP	Issuance of Initial Assignment to the GDF General ACDP
08/20/13	Notice of Intent to Construct	Expansion of the GDF to add two (2) additional dispensers and extend underground product lines
03/27/15	Notice of Intent to Construct	Decommissioned stage II Vapor Recovery System
04/27/16	Re-assignment application for General ACDP	Application to be re-assigned to the 4/11/16 revised/reissued General ACDP AQGP-022
09/07/16	Notice of Intent to Construct	Removed and replace twelve (12) existing dispensers
09/08/17	Notice of Intent to Construct	Remove and replace two-product dispensers; replace hoses nozzles, and breakaway valves, replaced siphon line; and relocate one (1) tank turbine sump and remove one (1) existing turbine pump.

Date Reviewed/ Approved	Permit Action Type	Description
08/20/19	New Simple ACDP Application	Application to use different EFs than allowed/used in the General ACDP AQGP-022 and associated throughput increase request (there is no physical change occurring)

8. Compliance History:

A topping off compliant was received by LRAPA on March 11, 2010. LRAPA followed up with the manager at Costco and no violation was issued.

9. GDF NESHAP Notifications:

- Initial Notification was submitted on October 14, 2010: [LRAPA 44-260(2)]
- Notification of Compliance Status was submitted on January 1, 31 2011. [LRAPA 44-260(3)]
- Notification of Performance Test was submitted on July 20, 2012. [LRAPA 44-260(5)]

10. Performance Testing

Costco is required to performance test the stage I vapor balance system every three (3) years. A Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves test (CARB Vapor Recovery Test Procedure TP-201.1E) and the Determination of 2-Inch WC Static Pressure test (CARB Vapor Recovery Test Procedure TP-201.3).

Past Tests and Results

Date	TP-201.1E	Pass/Fail	TP-201.3	Pass/Fail
August 15, 2019	Yes	Pass	No	N/A
July 9, 2019	Yes	Fail	No	N/A
July 10, 2018	No	N/A	Yes	Pass
July 12, 2017	No	N/A	No	N/A
July 13, 2016	Yes	Pass	No	N/A
July 08, 2015	No	N/A	Yes	Pass
July 11, 2012	No	N/A	Yes	Pass
July 9, 2008	No	N/A	Yes	Pass

11. Plant Site Emissions Limits (PSELs)

The following annual (rolling 12-month) PSELs are detailed in the permit:

Annual Plant Site Emission Limits (PSELs)
 (tons per year)

Source	PM/PM ₁₀ / PM _{2.5}	CO	NO _x	SO ₂	VOC	GHGs	Individual HAP	Aggregate HAP
Totals	NA	NA	NA	NA	39	NA	de minimis	de minimis

- The proposed PSEL for VOC emissions are over the de minimis emission level but below the SER and are equal to the generic PSEL in accordance with LRAPA 37-0064(3)(b).
- The HAPs were demonstrated to be below the de minimis level at maximum annual throughput and was not incorporated into the permit. Costco calculated HAPs emissions below the de minimis level using emissions factors from CAPCAO, Air Toxics “Hot Spots” Program: Gasoline Service Station Industrywide Assessment Guideline; November 1997. The highest single HAP was toluene which, at a throughput of 29,400,000 gallons of gasoline per year, was 0.49 tons/year. Combined HAPs were estimated in the amount of 0.90 tons/year.
- PSELs for PM, PM₁₀, PM_{2.5}, CO, NO_x, SO₂, and GHGs are not included in this permitting action because the facility does not have any emission units that produce these pollutants.
- The facility is required to record monthly throughput of gasoline and calculate monthly VOC to determine compliance with the 12-month rolling VOC PSEL.

12. National Emission Standards for Hazardous Air Pollutants (NESHAP).

40 CFR 63 Subpart CCCCCC: Gasoline Dispensing Facilities has not been adopted by LRAPA. Under 37-006(3)(a), a Simple ACDP excludes federal requirements not adopted by the LRAPA Board of Directors. The 40 CFR 63 Subpart CCCCCC requirements that are applicable to the existing GDF at the facility are identified in the following table.

40 CFR 63 Subpart 6C Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
63.11110	Purpose	Yes	None	--
63.11111	Applicability	Yes	The facility is a GDF and has a monthly thought of more than 100,000 gallons per month	--
63.11112	Emission sources covered	Yes	Applies to the facility's gasoline storage tanks and associated equipment components	--
63.11113	Compliance dates	Yes	The compliance date for an existing source is not	--

40 CFR 63 Subpart 6C Citation	Description	Applicable to Source (Yes/No)	Comments	Permit Condition
			later than January 10, 2011	
63.11115	General duties	Yes	None	--
63.11116	Requirements: <10,000 gallons per month	Yes	The facility must follow the requirements	--
63.11117	Requirements: ≥10,000 gallons per month	Yes	The facility must follow the requirements	--
63.11118	Requirements: ≥100,000 gallons per month	Yes	The facility must follow the requirements	--
63.11120	Testing and Monitoring Requirements	Yes	The facility must test every 3 years	--
63.11124	Notifications	Yes	The facility must notify by stated dates	--
63.11125	Recordkeeping requirements	Yes	The facility must keep all applicable records	--
63.11126	Reporting requirements	Yes	The facility must submit all applicable records	--
63.11130	General provisions	Yes	None	--
63.11131	Implementation and enforcement	Yes	None	--
63.11132	Definitions	Yes	None	--

13. New Source performance Standards (NSPSs)

There are no emission units at the facility that are subject to any New Source Performance Standards.

14. Hazardous Air Pollutants/Toxic Air Contaminants

Under Cleaner Air Oregon (CAO) program, only existing sources that have been notified by LRAPA and new sources are required to perform risk assessments. Costco has not been notified by LRAPA and is therefore, not yet required to perform a risk assessment or report annual emissions of toxic air contaminants. The facility is considered an “existing source” under the definition in CAO program (OAR 340 division 245) since it was constructed prior to November 16, 2018. It is not a “reconstructed source” nor has it installed any “new Toxic Emission Unit (TEUs)” with this permit action.

LRAPA required reporting of approximately 600 toxic air contaminants in 2016 and regulates approximately 260 toxic air contaminants that have Risk based Concentrations established in rule. All 187 hazardous air pollutants are on the list of approximately 600 toxic air contaminants. To comply with the CAO emission inventory requirements, GDFs assigned to the General ACDP AQGP-022 in Lane County were only required to submit their 2016 gasoline throughputs. After the source is notified by LRAPA, they must update their inventory and perform a risk assessment to see if they must reduce risk from their toxic air contaminant emissions. Until then, sources will be required to report toxic air

contaminant emissions at least triennially. The HAPs listed below are the estimated potential emissions from the facility.

Pollutant	Potential Emissions (tons/year)
Benzene	0.16
Ethylbenzene	0.10
Toluene	0.49
Xylenes	0.15
Total	0.90

15. Recordkeeping

The facility is required to keep and maintain all records of the following information for a period of five (5) years:

- Records of annual and monthly throughputs of gasoline, in gallons, for each calendar year.
- Maintain records related to the operation and maintenance of the facility and associated vapor balance equipment such as:
 - Ensure all vapor connections and lines on the storage tanks are equipped with closures that seal upon disconnect;
 - Ensure the connection and proper operation of the vapor balance system whenever gasoline is being loaded;
 - To ensure the vapor balance equipment is maintained at its highest rate of efficiency the vapor balance equipment must be inspected on at least an annual basis to discover potential or actual equipment failures;
 - All equipment associated with the vapor balance system must be maintained to be vapor tight and in good working order;
 - Any vapor balance component defect must be logged and tracked by station personnel on a monthly basis; and
 - Replace, repair or modify any worn or ineffective component or design element within 24 hours of discovery to ensure that vapor-tight integrity and efficiency of the vapor balance system. If repair parts must be ordered, either a written or verbal order for those parts must be initiated within 2 working days of detecting such a leak. Such repair parts must be installed within 5 working days after receipt.
- Annual VOC emissions.
- Maintain records of all vapor balance system performance tests: CARB TP-101.1E (Leak Rate and Cracking Pressure of Pressure/vacuum Vent Valves and CARB TP-101.3 (Determination of 2 inches of WC Static Pressure Performance of Vapor Recovery System of Dispensing Facilities).

16. Reporting Requirements

The facility is required to submit an annual report by February 15th each year that includes the following information to document compliance. Records required to be submitted:

- Total gasoline throughput, in gallons, for each calendar month.
- List of all major maintenance performed on the vapor control system.
- The number, duration and a brief description of each type of malfunction which occurred during the previous calendar year and which caused or may have caused any applicable emission limitation to be exceeded.
- Brief description of actions taken during the malfunction to minimize emissions and to correct the malfunction.
- Upset log of all planned and unplanned excess emissions per General Condition G15 should have.
 - date and time of the event that was reported to LRAPA;
 - whether the process handling equipment and the air pollution control equipment were, at all times, maintained and operated in a manner consistent with good practice for minimizing emissions;
 - whether repairs or corrections were made in an expeditious manner;
 - whether the event was one in a recurring pattern of incidents which indicate inadequate design, operation, or maintenance; and
 - final resolution of the cause of the excess emissions.
- Any complaints the facility received.
- Performance testing notification must be submitted ten (10) day prior the performance test and all test results must be submitted within 30 days of the completion of the performance testing.

17. Public Notice

The draft permit was on public notice from November 26, 2019 to December 27, 2019. No written comments were submitted during the 30-day comment period

ABBREVIATIONS, ACRONYMS, AND DEFINITION

ACDP	Air Contaminant Discharge Permit	LRAPA	Lane Regional Air Protection Agency
Annual Throughput	Amount of gasoline transferred into a gasoline dispensing facility during 12 consecutive months.	NA	Not applicable
ASTM	American Society for Testing and Materials	NESHAP	National Emissions Standards for Hazardous Air Pollutants
AQMA	Air Quality Maintenance Area	NSR	New Source Review
Bbl	Barrel (42 gallons)	O ₂	Oxygen
BTEX	Benzene, Toluene, Ethylbenzene, & Xylene	OAR	Oregon Administrative Rules
CARB	California Air Resource Board	ORS	Oregon Revised Statutes
Calendar year	The 12-month period beginning January 1 st and ending December 31 st	O&M	Operation and Maintenance
CFR	Code of Federal Regulation	PCD	Pollution Control Device
Date	month/day/year	ppm	Part per million
DEQ	Oregon Department of Environmental Quality	ppmv	Part per million by volume
dscf	Dry Standard Cubic Foot	PSD	Prevention of Significant Deterioration
EF	Emission Factor	PSEL	Plant Site Emission Limit
EPA	US Environmental Protection Agency	PTE	Potential to Emit
FCAA	Federal Clean Air Act	PV	Pressure/Vacuum
Gal	gallons	scf	Standard Cubic Foot
GDF	Gasoline Dispensing Facility	SER	Significant Emission Rate
HAP	Hazardous Air Pollutant as defined by Section LRAPA 44-0020	SERP	Source Emission Reduction Plan
ID	Identification number	SIC	Standard Industrial Code
I&M	Inspection and Maintenance	TEU	Toxic emission unit
kgal	1,000 gallons	VE	Visible Emissions
lb	Pounds	VOC	Volatile Organic Compound
lb/kgal	Pounds per 1,000 gallons	Year	A period consisting of any 12-consecutive calendar months

Calculations Sheets:

TOTAL VOC PSEL

Emission Source	Maximum Potential Throughput (gallons per/year)	Conversion Factor kgals	VOC Emission Factor (lb/kgal)	VOC Emissions	
				lb/year	tons/year
Loading and Filling ⁽¹⁾	29,400,000	0.001	0.30	8,820	4.41
Breathing and Emptying ⁽¹⁾	29,400,000	0.001	1.00	29,400	14.70
Vehicle Refueling (ORVR Controlled) ⁽²⁾	29,400,000	0.001	0.918	26,989	13.49
Hose Permeation (2017) ⁽³⁾	29,400,000	0.001	0.009	265	0.13
Total Vapor Loss (Subtotal)	29,400,000	0.001	2.227	65,474	32.74
Liquid Spillage ⁽⁴⁾	29,400,000	0.001	0.42	12,348	6.17
Total Emitted VOC			2.647	77,822	38.91

References:

1. Emission factors are based on AP-42, Table 5.2-7
2. Lane Regional Emission Factors for Onboard Refueling Vapor Recovery (ORVR) Control: Assuming 35% Non-ORVR and 65% ORVR based on Lane County Data from Oregon DEQ, 2014 Oregon Gasoline Dispensing Facility (GDF) Volatile Organic Compound (VOC) Emissions Estimates and GDF Vapor Recovery System (VRS) Impact Evaluation, June 14, 2018, Table 1: Per LRAPA, the refueling ORVR penetration rate of 65%. Hence, at 65% ORVR vehicles, the resulting emission factor for Fueling with ORVR Control = $(2.4 \times 35\%) + (0.12 \times 65\%) = 0.918$ lb/k-gallons.
<https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf>
3. CARB, Revised Emission Factors for Gasoline Marketing Operations at Gasoline Dispensing Facilities, Table I-I Gasoline Dispensing Hose Permeation, Year 2017: <https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf>
4. CARB, Revised Emission Factors for Gasoline Marketing Operations at Gasoline Dispensing Facilities, Table I-I Phase II Fueling - Spillage (Pre-EVR): <https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf>

HAP Emission Estimations

Annual Throughput	29,400,000	gallons				
Total Vapor Loss (VOC)	65,474	lb/year				
Total VOC	12,348	lb/year				
HAP	Vapor*	Liquid*	Vapor Emissions	Liquid Emissions	Total Emissions (lb/year)	Total Emissions (ton/year)
Benzene	0.003	0.0100	196.42	123.48	319.90	0.16
Ethylbenzene	0.000	0.0164	0.00	202.51	202.51	0.10
Toluene	0.000	0.0800	0.00	987.84	987.84	0.49
Xylenes	0.000	0.0240	0.00	296.35	296.35	0.15
Emissions Factors	0.003	0.1304				
Total HAP					1806.60	0.90

*Vapor and Liquid HAP Emissions are based on California Air Pollution Control Officers Associaton (CAPCOA), *Gasoline Service Station Industrywide Risk Assessment Gudielines* , 1997, Table 1