

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

REVIEW REPORT
Addendum No. 1
LRAPA Initiated Simple Technical Modification

Costco Wholesale Corp.: Costco Gasoline #17

Permit No. 201304

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

1. General Background Information

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 has stage I vapor balance system on the USTs. Stage II vapor collection system on the dispensers are not required in Eugene.

2. Reasons for Permit Issuance

This is a LRAPA initiated modification to update emission factors (EFs) to the amended DEQ EFs for gasoline dispensing facilities (GDF). The updated the EFs Costco accepted result in a reduction in the allowable throughput from 29,400,000 gallons per year to 16,250,000 gallons per year to stay in the current Simple ACDP.

3. Performance Standards and Emission Limitations

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

VOC Emission Basis:

The Loading and Filling EF is based on EPA AP-42: *Compilation of Air Emission Factors*, Chapter 5, Table 5.2-7 for balance submerge filling (Loading and Filling) and 2014 DEQ GDF VOC Emission Estimates and GDF Vapor Recovery System Impact Evaluation 6/14/18.

The Breathing and Emptying EF is based on CARB, “*Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities*”, December 23, 2013; Table I-I: Pressure Driven Loses Revised (lbs/kgals) Pre-EVR.

The EF for Vehicle Refueling with onboard refueling vapor recovery (ORVR) control is based on calculations dependent on Lane County ORVR fleet penetration rates using 2014 fleet data as evaluated in 2018. Lane County EF for ORVR control assumes 35% of the fleet is Non-ORVR and 65% is ORVR. Utilizing the GDF Vapor Recovery System (VRS) Impact Evaluation, June 2018, EF for Lane County for gasoline dispensing, with only Stage 1 control, to Non-ORVR and ORVR, Lane County EF averages are 10.479 and 0.21, respectively. When

calculating the EF for Vehicle refueling for Non-ORVR and ORVR utilizing the information for Lane County: $(10.479 \times 35\%) + (0.21 \times 65\%) = 3.80$ lb/kgal for the EF.

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 the more conservative Pre-EVR data from Year 2013.

The EF for Liquid Spillage is based on is based on CARB, “*Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities*”, December 23, 2013; Table I-I: Phase II Fueling – Stillage using the data in UEF Revised (lb/kgals). LRAPA is using the more conservative EF.

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.

4. Public Notice

As a “Simple technical modification”, the permit action is a Category 1 permit action under LRAPA’s Title 31 – Public Participation Requirements and does not require prior public notice or opportunity for participation.

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

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Emission Source	Maximum Potential Throughput (gallons per/year)	Conversation Factor kgals	VOC Emission Factor	VOC Emissions	
				lb/year	tons/year
Loading and Filling ⁽¹⁾	16,250,000	0.001	0.34	5,525	2.76
Breathing and Emptying ⁽²⁾	16,250,000	0.001	0.09	1,495	0.75
Vehicle Refueling (ORVR Controlled) ⁽³⁾	16,250,000	0.001	3.80	61,823	30.91
Hose Permeation (2013) ⁽⁴⁾	16,250,000	0.001	0.062	1,008	0.50
Total Vapor Loss (Subtotal)	16,250,000	0.001	4.299	69,851	34.93
Liquid Spillage ⁽⁵⁾	16,250,000	0.001	0.61	9,913	4.96
Total Emitted VOC			4.909	79,763	39.88
References:					
1. EF for Loading and Filling are based on EPA AP-42, Table 5.2-7 and 2014 Oregon DEQ GDF VOC Emission Estimates and GDF Vapor Recovery System Impact Evaluation 6/14/18					
2. CARB, "Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities, December 23, 2013; Table I-I: Pressure Driven Losses (Breathing/Emptying) Revised (lbs/kgals) Pre-EVR, https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf					
3. EF calculations dependent on Lane County, Oregon ORVR fleet penetration rate 2014 fleet data as reviewed in 2018. Lane County 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 = (10.48 x 35%) + (0.21 x 65%) = 3.80 lb/k-gallons. https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf .					
4. CARB, "Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities, December 23, 2013; Table 1-1: Gasoline Dispensing Hose Permeation (2013) Revised (lbs/kgals). LRAPA is utilizing the more conservative EF per DEQ. https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf					
5. CARB, "Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities, December 23, 2013; Table 1-1: Phase II Fueling - Spillage using UEF Revised (lbs/kgals). LRAPA is utilizing the more conservative EF per DEQ. https://ww3.arb.ca.gov/vapor/gdf-emisfactor/gdfumbrella.pdf					