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VIA E-MAIL: gerryp@pscleanair.org

March 13, 2017

Mr. Gerry Pade
Permit Engineer
Puget Sound Clean Air Agency
1904 Third Avenue, Suite 105
Seattle, WA 98101

RE: Comments on Worksheet for Notice of Construction 11265 at Targa Sound Terminal in Tacoma, Washington

Dear Mr. Pade:

Targa Sound Terminal LLC (Targa) respectfully submits these comments on the Puget Sound Clean Air Agency (PSCAA) worksheet for the notice of construction (NOC) 11265 application[1] to modify four existing fuel storage tanks (T-208H, T-209H, T-210H, T-211H) for their marine bulk fuel logistics terminal (Terminal) in Tacoma, Washington.

STORAGE TANK RVP LIMIT

In the recently provided NOC worksheet, PSCAA recommended a Reid Vapor Pressure (RVP) limit of 15 psi for natural gasoline storage. According to the worksheet, this limit was based on the following:

- Maximum previously reviewed RVP of gasoline;
- A belief that this limit would ensure the natural gasoline product would not exceed the NSPS Subpart Kb maximum true vapor pressure (TVP) limit of 11.1 psi.

Once the fixed roof tanks listed in this NOC are modified to internal floating roofs (IFRs), they will become subject to NSPS Subpart Kb. The regulatory vapor pressure limit for Subpart Kb is <11.1 psi or <76.6 kPa. Per Section 40 CFR 60.112b:

> "The owner or operator of each storage vessel either with a design capacity greater than or equal to 151 m3 containing a VOL that, as stored, has a maximum true vapor pressure equal to or greater than 5.2 kPA but less than 76.6kPa. "

[1] Targa submitted the NOC application for the tank modifications in October 2016.

Based on the regulatory NSPS Subpart Kb limit and information provided in PSCAA's Technological Review , Targa is requesting a TVP limit of <11 psi or RVP limit of <16.6 psi. In the Technological Review section of the NOC worksheet, the Best Available Control Technology (BACT) storage tank guidance from several regulatory agencies and actual permits from different companies were discussed. The first analysis was based on the Bay Area Air Quality Management District (AQMD) Reg. 8, Rule 5, which requires an internal or external floating roof when storing material with a TVP >1.5 to <11 psi. For a product with a TVP >11 psi, a pressure tank or approved emission control system is required. The Oklahoma Department of Environmental Protection (DEP) permitted an Explorer Pipeline Company (EPC) natural gasoline storage tank with a closed vent system and a control device (VCU). According to the EPC permit, the operation of the VCU is required under 40 CFR 60.112b(b) for any tank that contains liquids with a vapor pressure of 76.6 kPa (11.1 psi) or greater. PSCAA also cited a Texas DEP permit for Plains LPG Services. Texas DEP issued a permit for pressurized natural gas storage vessels that were designed to operate in excess of 204.9 kPa (29.79 psi), which is much higher than the Subpart Kb limit. For all of the examples referenced in the NOC worksheet, only tanks that store material with a TVP greater than 11 psi required controls more stringent than an IFR or EFR tank.

Targa believes the vapor pressure limit should be regulatory driven. The TVP of 11.1 psi is equivalent to a RVP of 16.8 psi. The 15 psi RVP limit proposed by PSCAA is below the 16.8 psi NSPS Subpart Kb regulatory limit. A similar permit covering marine loading of crude oil, gasoline and gasoline blendstocks for US Oil (NOC 10620) was referenced in the worksheet analysis. This permit currently does not list any RVP limits. It only states that US Oil must meet the federal TVP requirement of 11.1 psi for floating roof tanks. This is current the only listed requirement in Targa's permit for floating roofs tanks as well. For tanks T-208H, T-209H, T-210H, and T-211H, Targa is prepared to limit handling natural gas with higher vapor pressure and requests a TVP limit of <11 psi or RVP limit of <16.6 psi. In a November 2016 email to PSCAA, Targa outline how a limitation on the volatility of natural gasoline would be included in customer contracts. All products would have to meet certain specifications which include:

- Any material being stored in internal floating roof (IFR) tanks subject to NSPS Kb must not exceed a vapor pressure of 11 psi or 16.6 psi.

- For each stream that may be stored on the premise, the customer must supply a certificate of analysis (COA) or Safety Data Sheet (SDS) which clearly states the vapor pressure of the material.

It should be noted that Targa's recent permits for light product (gasoline, ethanol, and isooctane) storage tanks have largely followed the Bay Area AQMD BACT guidance, which goes well beyond NSPS Subpart Kb (adopted in 1987). This includes installing IFR tanks that have rim-mounted secondary seals, boots (or equivalent) for adjustable roof legs, controls for slotted guidepoles, 10-year minimum inspection frequencies, a 30% LEL limit for the air above the IFR, and a control device for degassing the tank.

SULFUR LIMIT

The second recommended requirement listed in the NOC worksheet pertains to the allowable weight percent of sulfur in the liquid natural gasoline product. To ensure Targa is able to meet the Section 9.07 of Regulation I regulation, PSCAA has proposed a liquid wt% limit of <0.5% sulfur. Per Section 9.07Sulfur Dioxide Emission Standard:

> "It shall be unlawful for any person to cause or allow the emission of sulfur dioxide from any source in excess of 1,000 parts per million by volume on a dry basis, 1-hour average."

The natural gasoline product will be loaded onto marine vessels and controlled using the existing marine vapor combustor (MVCU). As a result the MVCU vent will be required to meet the 1000 ppm limit for SO_2. Targa would like to modify this permit requirement to say:

> "During marine vessel loading, the MVCU vent will not exceed 1000 parts per million by volume on a dry basis"

Targa will verify that products with a sulfur liquid weight percentage greater than 0.5 wt% are in compliance with Reg 1, section 9.07. Targa will maintain records that show compliance with the rule for these products.

If Targa is presented with a future commercial opportunity to store a natural gasoline product with a higher liquid wt%, testing would be conducted on the material. The testing would determine how much SO_2 would be produced during combustion and if the SO_2 emissions would meet the 1000 ppm limit for the MVCU vent . Targa would have John Zink or another VCU vendor to complete the work. The testing records will be maintained to demonstration compliance with the Reg 1, section 9.07 requirement.

BENZENE CONTENT

As indicated in the PSCAA NOC worksheet, Targa relied on the safety data sheet (SDS) from UEO Buckeye to calculate the benzene emissions from natural gasoline. In order to provide flexibility to the facility, Targa requests to increase the benzene content from 1% by weight to 1.3% by weight of benzene[2] in the natural gasoline.

The benzene content was updated in the emission calculations using the same calculation methodologies from the original October 2016 NOC application. The revised speciation data was applied to the MVCU, tank, and fugitive emissions. Table 1 below shows the originally submitted benzene project emissions and compares them to the revised benzene project emissions. Updated speciation calculations are provided as an attachment (Attachment A).

Table 1. Revised Benzene Emission Rates

Pollutant	Averaging Period	SQER [a] (lb/averaging period)	Total TAP (lb/averaging period)	Modeling Required?
Benzene 1% (wt)	Year	6.62	142.13	Yes
Benzene 1.31% (wt)	Year	6.62	186.20	Yes

[a] WAC 173-460-150 provides the ASIL and SQER values.

The same modeling methodology as submitted in the October 2016 NOC application was applied with the updated benzene emission rates. The only parameter that changed in the benzene model run was the emission rates for each source.

[2] Note that a benzene content of 1.31% by weight was used in the revised calculations and modeling analysis, but for simplicity and conservatism Targa is requesting a benzene content of 1.3% by weight.

The revised modeling results for this change in benzene content are shown below in Table 2.

Table 2. Modeling Results

Pollutant	Averaging Period	October 2016 Modeling Results (µg/m³)	February 2017 Modeling Results (µg/m³)	ASIL (µg/m³)	Below ASIL?
Benzene	Annual	0.0260	0.0340	0.0345	Yes

The revised benzene modeling results continue to demonstrate compliance with the ambient source impact level (ASIL) for benzene. The revised benzene modeling files will be provided electronically.

If you have any questions or comments about the information presented in this letter, please do not hesitate to call me at (713) 584-1292.

Sincerely,

Tammy Wallace

Tammy Wallace
Targa Resources LLC
Senior Environmental Specialist

Attachments

cc: Mr. Matthew Kolata, Targa
Ms. Ashley Jones, Trinity

ATTACHMENT
Revised Calculations (Benzene Content)

Table 9. VOC Emission Speciations - Revised

Pollutant	CAS Number [a]	HAP [b]	TAP [a]	Estimated Concentrations								
				Gasoline Liquid Fraction [c] wt%	Annual Gasoline Vapor [d] wt%	Max Daily Gasoline Vapor [e] wt%	Natural Gasoline Liquid Fraction [f] wt%	Annual Natural Gasoline Vapor [d] wt%	Max Daily Natural Gasoline Vapor [e] wt%	Fuel Oil/ULSD Liquid Fraction [g] wt%	Fuel Oil/ULSD Annual Vapor [g] wt%	Max Daily Fuel Oil/ULSD Vapor [g] wt%
1,2,4-Trimethylbenzene	95-63-6	No	No	2.50	0.013	0.021	-	-	-	1.00	3.682	5.768
2,2,4 Trimethylpentane	540-84-1	Yes	No	4.00	0.592	0.824	-	-	-	-	-	-
Benzene	71-43-2	Yes	Yes	0.82	0.236	0.323	1.31	0.37	0.33	0.01	1.05	1.72
Carbon Monoxide	630-08-0	No	Yes	-	-	-	-	-	-	-	-	-
Cyclohexane	110-82-7	No	Yes	0.24	0.072	0.098	-	-	-	-	-	-
Ethyl benzene	100-41-4	Yes	Yes	1.40	0.038	0.058	-	-	-	0.013	0.21	0.33
Heptane	142-82-5	No	No	-	-	-	-	-	-	-	-	-
n-Hexane	110-54-3	Yes	Yes	1.00	0.474	0.632	10.00	4.65	5.25	0.001	0.20	0.33
Hydrogen Sulfide	7783-06-4	No	Yes	-	-	-	-	-	-	-	-	-
Isopropyl benzene	98-82-8	Yes	Yes	0.50	0.006	0.010	-	-	-	-	-	-
Iso-Pentane	78-78-4	No	No	-	-	-	-	-	-	-	-	-
Nitrogen Dioxide	101022-44-0	No	Yes	-	-	-	-	-	-	-	-	-
n-Pentane	109-66-0	No	No	-	-	-	-	-	-	-	-	-
Octane	111-65-9	No	No	-	-	-	-	-	-	-	-	-
Sulfur Dioxide	7446-09-5	No	Yes	-	-	-	-	-	-	-	-	-
Sulfuric Acid Mist	7664-93-9	No	Yes	-	-	-	-	-	-	-	-	-
Toluene	108-88-3	Yes	Yes	7.00	0.576	0.831	-	-	-	0.03	1.35	2.18
Xylenes (mixed isomers)	108-38-3, 106-42-3, 95-47-6	Yes	Yes	7.00	0.159	0.243	-	-	-	0.29	3.91	6.21
Unidentified Compounds				75.54	97.83	96.96	88.69	94.98	94.42	98.66	89.60	83.46
Total				100	100	100	100	100	100	100	100	100

[a] WAC 173-460-150 Table of TAPs

[b] 40 CFR 63 Subpart C - List of Hazardous Air Pollutants, Petitions Process, Lesser Quantity Designations, and Source Category List references 42 USC 7412 (b) for the list of hazardous air pollutants.

[c] The default speciation profile for gasoline in TANKS was used with the exception of benzene. The concentration of benzene is based on the limit of 0.62 percent benzene by volume in liquid per 40 CFR 80.1230(a)(1). TANKS 4.0.9d lists the density of benzene to be 7.365 lb/gal at 60 F and the density of gasoline at any RVP to be 5.6 lb/gal at 60 F. Using these densities, the 0.62 percent benzene by volume is converted to a per percent by weight basis in order to be used in the speciation profile in TANKS.

[d] The annual gasoline vapor fraction is based on the outputs from tank calculations using the Seattle-TAC AP, Washington default meteorological profile. Tank calculations included the vapor weight percent based on a Gasoline RVP 13 profile from January through April and October through December and a Gasoline RVP 9 profile from May through September. The Gasoline RVP 9 for May through September is per 40 CFR 80.27(a)(2) which lists the maximum RVP (Psia) during the summer months.

[e] The maximum daily gasoline speciation is based on the month in the tank calculations which produces that maximum speciated emissions so as to conservatively represent the worst-case short-term emissions.

[f] The speciation profile for natural gasoline is based the upper limit for each component from the Safety Data Sheet. Only HAP or TAP compounds are listed.

[g] ULSD/Fuel oil speciation data is the default values from TANKS 4.09d for distillate oil No. 2. Annual vapor fractions are determined based on the vapor fractions of all months, while the max daily vapor fractions are determined to the highest of all months.

Table 11. Post-Project TAP and HAP Annual Potential Emissions - REVISED

Pollutant [a,b]	CAS #	HAP	TAP	Tank 208H [c] (lb/hr)	Tank 209H [c] (lb/hr)	Tank 210H [c] (lb/hr)	Tank 211H [c] (lb/hr)	Tanks Fugitives [d] (lb/hr)	MVCU [e] (lb/hr)	Marine Barge Loading Fugitives [e] (lb/hr)	Rail Fugitives [e] (lb/hr)	Total HAP (lb/hr)	Total TAP (lb/hr)
2,2,4 Trimethylpentane (Isooctane)	540-84-1	Yes	No	0.07	0.07	0.11	0.07	8.13E-03	--	-	-	0.33	--
Benzene	71-43-2	Yes	Yes	1.71E-03	1.79E-03	2.92E-03	1.79E-03	1.07E-04	1.24E-02	1.93E-05	5.48E-04	0.0213	0.02
Cyclohexane	110-82-7	No	Yes	3.32E-04	3.47E-04	5.63E-04	3.47E-04	1.95E-05	--	-	-	--	1.61E-03
Ethyl benzene	100-41-4	Yes	Yes	3.59E-04	3.78E-04	5.57E-04	3.78E-04	1.14E-04	--	-	-	1.79E-03	1.79E-03
Isopropyl benzene	98-82-8	Yes	Yes	9.72E-05	1.03E-04	1.45E-04	1.03E-04	4.07E-05	--	-	-	4.88E-04	4.88E-04
n-Hexane	110-54-3	Yes	Yes	0.02	0.02	0.04	0.02	8.13E-04	0.16	1.48E-04	4.18E-03	0.26	0.26
Toluene	108-88-3	Yes	Yes	3.39E-03	3.55E-03	5.53E-03	3.55E-03	5.69E-04	--	-	-	0.02	0.02
Xylenes (mixed isomers)	108-38-3, 106-42-3, 95-47-6	Yes	Yes	1.67E-03	1.75E-03	2.56E-03	1.75E-03	5.69E-04	--	-	-	8.30E-03	8.30E-03
											Total (lb/hr)	**0.64**	**0.31**
											Total (tpy)	**2.80**	**1.36**

[a] Annual and hourly potential emissions are calculated assuming a continuous operation of 8,760 hours/yr.

[b] Since all three isomers of xylene have the same WAC 173-460-150 TAP factors, all were combined and one combined emission rate was presented for all three isomers. If the total emissions of all three xylene isomers is below the thresholds for HAPs and TAPs, then each of the individual isomers will be as well.

[c] Tanks emissions are determined as the maximum possible emissions from storing ULSD/fuel oil, gasoline/natural gasoline or isooctane (2,2,4 Trimethylpentane).

[d] Tanks fugitives emissions are calculated by multiplying the total VOC fugitive losses by the annual speciated vapor weight percent from diesel, gasoline or natural gasoline, whichever is the greatest. For isooctane, the worst-case emissions would be from loading isooctane and all VOC emissions will be isooctane emissions.

[e] The speciated fugitive for marine loading and rail loading, and MVCU emissions are calculated by multiplying the total fugitive VOC losses by the annual speciated vapor weight percent from natural gasoline, because marine loading of other products are not affected by this project.

Table 12. Post-Project TAP and HAP Maximum Daily Potential Emissions - REVISED

Pollutant [a,b]	CAS #	HAP	TAP	Tank 208H [c] (lb/hr)	Tank 209H [c] (lb/hr)	Tank 210H [c] (lb/hr)	Tank 211H [c] (lb/hr)	Tanks Fugitives [d] (lb/hr)	MVCU [e] (lb/hr)	Marine Barge Loading Fugitives [e] (lb/hr)	Rail Fugitives [e] (lb/hr)	Total HAP (lb/hr)	Total TAP (lb/hr)
2,2,4 Trimethylpentane (Isooctane)	540-84-1	Yes	No	3.02	3.16	5.10	3.16	8.13E-03	--	-	-	14.45	--
Benzene	71-43-2	Yes	Yes	0.08	0.08	0.14	0.08	1.07E-04	0.18	1.93E-05	5.48E-04	0.56	0.56
Cyclohexane	110-82-7	No	Yes	1.43E-02	1.49E-02	0.02	1.49E-02	1.95E-05	--	-	-	--	0.07
Ethyl benzene	100-41-4	Yes	Yes	1.41E-02	1.48E-02	0.02	1.48E-02	1.14E-04	--	-	-	0.07	0.07
Isopropyl benzene	98-82-8	Yes	Yes	3.53E-03	3.72E-03	5.39E-03	3.72E-03	4.07E-05	--	-	-	0.02	0.02
n-Hexane	110-54-3	Yes	Yes	0.95	1.00	1.64	1.00	8.13E-04	2.85	1.48E-04	4.18E-03	7.44	7.44
Toluene	108-88-3	Yes	Yes	0.14	0.15	0.24	0.15	5.69E-04	--	-	-	0.68	0.68
Xylenes (mixed isomers)	108-38-3, 106-42-3, 95-47-6	Yes	Yes	0.06	0.07	0.10	0.07	5.69E-04	--	-	-	0.30	0.30
										-	**Total (lb/hr)**	**23.52**	**9.14**

[a] The tank and MVCU potential emissions are calculated using the maximum daily throughput and turnovers. Fugitive component potential emissions are calculated assuming a continuous operation of 8,760 hours/yr.

[b] Since all three isomers of xylene have the same WAC 173-460-150 TAP factors, all were combined and one combined emission rate was presented for all three isomers. If the total emissions of all three xylene isomers is below the thresholds for HAPs and TAPs, then each of the individual isomers will be as well.

[c] Tanks emissions are determined as the maximum possible emissions from storing ULSD/fuel oil, gasoline/natural gasoline or isooctane (2,2,4 Trimethylpentane).

[d] Tanks fugitives emissions are calculated by multiplying the total VOC fugitive losses by the annual speciated vapor weight percent from diesel, gasoline or natural gasoline, whichever is the greatest. For isooctane, the worst-case emissions would be from loading isooctane and all VOC emissions will be isooctane emissions.

[e] The speciated fugitive for marine loading and rail loading, and MVCU emissions are calculated by multiplying the total fugitive VOC losses by the annual speciated vapor weight percent from natural gasoline, because marine loading of other products are not affected by this project.

Table 13. Project TAP Modeling Analysis [a]

Pollutant	CAS #	TAP	ASIL ($\mu g/m^3$)	Averaging Period	SQER (lb/averaging period)	Total TAP	Modeling Required? [b]
Benzene	71-43-2	Yes	0.0345	Year	6.62	186.20	Yes
Cyclohexane	110-82-7	Yes	6000	24-Hour	789	1.65	No
Ethyl benzene	100-41-4	Yes	0.4	Year	76.8	15.65	No
Isopropyl benzene	98-82-8	Yes	400	24-Hour	52.6	0.39	No
n-Hexane	110-54-3	Yes	700	24-Hour	92	178.64	Yes
Toluene	108-88-3	Yes	5000	24-Hour	657	16.41	No
Xylenes (mixed isomers)	108-38-3, 106-42-3, 95-47-6	Yes	221	24-Hour	29	7.21	No

[a] Obtained from WAC 173-460-150.

[b] Modeling is required if the TAP emission rate per the appropriate averaging period exceeds the SQER. The annual potential emission rates are used for the TAPs with an annual averaging period while the maximum daily emission rates are used for the TAPs with a 24-hour and 1-hour averaging period.