From: Li, Jing <jli@eprod.com>
Sent: Thursday, May 23, 2024 4:43 PM
To: Thomas Greinert
Cc: Bissonnette, Daniel
Subject: RE: TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant

Hi Thomas,

I see the status of this project is still pending. I will be on PTO starting tomorrow and return on 6/17. If you have any questions during my absence, please contact my supervisor Dan Bissonnette. Thanks.

From: Li, Jing
Sent: Thursday, May 16, 2024 3:38 PM
To: 'Thomas Greinert' <Thomas.Greinert@tceq.texas.gov>
Cc: Environmental Dept - Corporate <environmental@eprod.com>; Crystal DelaCruz <Crystal.DelaCruz@tceq.texas.gov>
Subject: RE: TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant

Hi Thomas,

The site does not have any units that commenced construction, reconstruction, or modification after December 6, 2022 and therefore, OOOOb is not appliable. Please let me know if you have any questions.

Also I will be on PTO from 5/24 and back in office on 6/17; I'd appreciate if you can let me know your questions before I leave so I can address them. Thanks. Jing

---

From: Thomas Greinert <Thomas.Greinert@tceq.texas.gov>
Sent: Thursday, May 16, 2024 11:53 AM
To: Li, Jing <jli@eprod.com>
Cc: Environmental Dept - Corporate <environmental@eprod.com>; Crystal DelaCruz <Crystal.DelaCruz@tceq.texas.gov>
Subject: [EXTERNAL] RE: TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant

[Use caution with links/attachments]
Good afternoon,

Thank you for the information provided. Please also address the following:

- The application addresses OOOOb applicability by stating that the site has not been modified after the OOOOb start date on December 6, 2022.
    - Please address OOOOb applicability for the site.

Failure to submit all of the requested information by **May 23, 2024** may result in the TCEQ closing the application with a deficiency. After TCEQ closes the application, you may re-apply through STEERS by filing a new application Form PI-7/PI-7 CERT (General Application for Registration for Permits by Rule) and any additional information necessary to demonstrate compliance with the requirements in 30 TAC Chapter 106. TCEQ will retain the original permit fee for six months and you will not need to submit additional fees with the new application if the original fee was paid correctly.

If you have questions or would like to discuss this project over the phone, feel free to contact me.

Mr. Thomas Greinert
Rule Registration Team
Air Permits Division, Office of Air, TCEQ
(512) 239-2254
Thomas.Greiner@tceq.texas.gov

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---

From: Li, Jing <jli@eprod.com>
Sent: Tuesday, May 7, 2024 9:31 AM
To: Thomas Greinert <Thomas.Greinert@tceq.texas.gov>
Subject: RE: TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant site

Good morning Thomas,

I have one update to make: the vapor collection efficiency for gasoline truck loading (EPNs: TL/FL3) should be 98.7% instead of 99.2% listed in the application, please see attached updated calculations. Please let me know if you have any questions. Thanks.

From: Thomas Greinert Thomas.Greinert@tceq.texas.gov
Sent: Friday, May 3, 2024 4:02 PM
To: Li, Jing <jli@eprod.com>
Cc: Environmental Dept - Corporate <environmental@eprod.com>; Trishia McDonald <Trishia.McDonald@tceq.texas.gov>
Subject: [EXTERNAL] TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant site

[Use caution with links/attachments]
Good afternoon,

I am the TCEQ Air Permit Reviewer assigned to the PBR Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P. and Armstrong Gas Plant in Dewitt County, Texas. You have been identified as a Technical Contact.

I have completed my initial review for this project and will need additional information/clarification before I can proceed with my review. Please address the following:

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Subject: RE: TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant site
Attachments: FL3.pdf; Summary.pdf; TL.pdf

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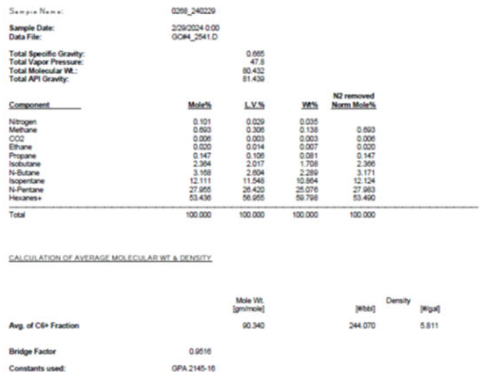
Gasoline Loading
Armstrong Gas Plant
Enterprise Hydrocarbons L.P.

Gasoline Loading (EPN: FL3&TL)

Throughput			Saturation Factor (S) [1]	True Vapor Pressure (P) [2] (psia)		Vapor MW (M) [3] (lb/lb-mole)	Temp (T) (deg R)		Loading Loss (L_L) [4] (lb/1,000 gal)		Emissions [5]		Collection Efficiency [6]	Emissions from Loading Rack	
bbl/day	bbl/yr	gal/hr		Annual	Short-term		Annual	Short-term	Annual	Short-term	lb/hr	ton/yr		lb/hr	ton/yr
1,019	372,016	7,500	0.6	6.27	9.80	65	529.6	554.6	5.76	8.58	64.37	44.97	98.7%	0.84	0.58

DRE 99% C3
98% C4

										To Flare (FL-3)		From FL-3		From TL	
Component	MW	Mol%	Net Heating value Btu/scf	Wt%	Btu/scf	Scf/hr	Scf/yr	Btu/hr	MMBtu/yr	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Methane	16.04	0.693%	909.4	0.14%	6.30	2.1	2908.07	1892.99	2.64	0.09	0.06	0.00	0.00	0.00	0.00
Ethane	30.07	0.020%	1618.7	0.01%	0.32	0.1	83.93	97.24	0.14	0.00	0.00	0.00	0.00	0.00	0.00
Propane	44.10	0.147%	2314.9	0.08%	3.40	0.4	616.86	1022.14	1.43	0.05	0.04	0.00	0.00	0.00	0.00
Butanes	58.12	5.532%	3010.8	3.94%	166.56	16.6	23214.16	50029.32	69.89	2.51	1.75	0.05	0.04	0.03	0.02
i-Pentane	72.15	12.111%	3699	10.72%	447.99	36.4	50821.90	134562.76	187.99	6.81	4.76	0.14	0.10	0.09	0.06
n-Pentane	72.15	27.955%	3706.9	24.74%	1036.26	84.0	117308.74	311265.45	434.85	15.72	10.98	0.31	0.22	0.21	0.14
Cyclohexane	84.16	20.409%	4179.7	21.07%	853.03	61.3	85643.14	256228.48	357.96	13.38	9.35	0.27	0.19	0.18	0.12
n-Hexane	86.18	10.384%	4403.8	10.97%	457.28	31.2	43573.56	137353.67	191.89	6.97	4.87	0.14	0.10	0.09	0.06
Heptanes	100.20	14.123%	5100	17.36%	720.28	42.4	59265.36	216351.93	302.25	11.03	7.70	0.22	0.15	0.15	0.10
Octanes	114.23	4.594%	5796	6.44%	266.29	13.8	19279.80	79987.21	111.75	4.09	2.86	0.08	0.06	0.05	0.04
Nonanes	128.26	0.359%	6493.2	0.56%	23.32	1.1	1506.86	7003.62	9.78	0.36	0.25	0.01	0.01	0.00	0.00
Decanes +	142.28	0.226%	7189.5	0.39%	16.21	0.7	946.28	4869.74	6.80	0.25	0.17	0.01	0.00	0.00	0.00
Benzene	78.11	1.517%	3590.9	1.45%	54.46	4.6	6363.79	16357.21	22.85	0.92	0.64	0.02	0.01	0.01	0.01
Toluene	92.14	1.382%	4273.7	1.56%	59.08	4.2	5800.98	17745.78	24.79	0.99	0.69	0.02	0.01	0.01	0.01
Ethylbenzene	106.17	0.036%	4970.4	0.05%	1.81	0.1	152.50	542.55	0.76	0.03	0.02	0.00	0.00	0.00	0.00
Xylenes	106.17	0.405%	4956.1	0.53%	20.07	1.2	1699.69	6029.74	8.42	0.34	0.23	0.01	0.00	0.00	0.00
H2S	34.08	0.000%	586.8	0.00%	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		100%		100.00%	4132.66	300.05	419185.61	#########	1734.21	63.54	44.38	1.27	0.89	0.84	0.58



Sample Name: 0268_240229
Sample Date: 2/29/2024 0:00
Data File: GO#4_2541.D

Total Specific Gravity: 0.665
Total Vapor Pressure: 47.8
Total Molecular Wt.: 80.432
Total API Gravity: 81.439

Component	Mole%	L.V.%	Wt%	N2 removed Norm Mole%
Nitrogen	0.101	0.029	0.035	
Methane	0.693	0.306	0.138	0.693
CO2	0.006	0.003	0.003	0.006
Ethane	0.020	0.014	0.007	0.020
Propane	0.147	0.105	0.081	0.147
Isobutane	2.364	2.017	1.708	2.366
N-Butane	3.168	2.604	2.289	3.171
Isopentane	12.111	11.548	10.864	12.124
N-Pentane	27.955	26.420	25.076	27.963
Hexanes+	53.436	56.955	59.798	53.490
Total	100.000	100.000	100.000	100.000

CALCULATION OF AVERAGE MOLECULAR WT & DENSITY

		Mole Wt. [gm/mole]	[lb/bbl]	Density [lb/gal]
Avg. of C6+ Fraction		90.340	244.070	5.811
Bridge Factor	0.9516			
Constants used:	GPA 2145-16			

Source: Y:\Permits\Permitting by State\TX\Armstrong GP\Armstrong SP application & PBR voidance Nov 2023\2.0 Supporting

Notes:

[1] Saturation factor for tank trucks and rail tank cars, submerged loading: dedicated normal service from AP-42 Section 5.2, Table 5.2-1

[2] Calculated according to Figure 7.1-14b in AP-42 Section 7.1 (Nov 2006) using a temperature of 70°F for annual and 95°F for short-term. VP calculated according to Figure 7.1-13b in AP-42 Section 7.1 (Nov 2006) using a temperature of 70°F for annual and 95°F for short-term. MW of Crude (RVP 5) from TANKS 4.09d.

[3] From EPA's TANKS 4.09d. Vapor MW for Gasoline (RVP 10).

[4] Calculated using AP-42 Section 5.2, Equation (1):

$$L_L = 12.46\frac{SPM}{T}$$

[5] Calculated using the following equations:

Short-term emissions (lb/hr) = Loading Loss (L_L) (lb/1,000 gal) × Throughput (gal/hr)

Annual emissions (ton/yr) = Loading Loss (L_L) (lb/1,000 gal) × Throughput (bbl/yr) × Conversion (42 gal/bbl) ÷ Conversion (2,000 lb/ton)

[6] Assume loading trucks are vapor tightness tested based on NSPS Subpart XX so 98.7% collection efficiency was used.

Conversions:

2,000 lb/gal
42 gal/bbl
R = °F + 459.6

Armstrong Gas Plant
Emissions Summary

Source ID	Source Description	Potential Emissions (tpy)													
		NO_X		CO		VOC		SO_2		PM_{10} [1]		HAPs		H2S	
		(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
FL1	Main Flare	0.66	2.90	1.32	5.80	2.61	11.43	0.004	0.02	--	--	0.07	0.30	4.02E-05	1.76E-04
TL-FUG	Truck Loading Hose Disconnect Emissions	--	--	--	--	4.66	2.72	--	--	--	--	0.25	0.04	--	--
FUG	Fugitive Emissions	--	--	--	--	2.027	8.88	--	--	--	--	0.313	1.37	3.01E-05	1.32E-04
H-1	4.9 MMBtu/hr Reboiler	0.53	2.34	0.45	1.96	0.03	0.13	0.003	0.01	0.04	0.18	0.0105	0.0459	--	--
H-3	7.8 MMBtu/hr Reboiler	0.85	3.72	0.71	3.13	0.05	0.20	0.01	0.02	0.06	0.28	0.02	0.07	--	--
TL	Gasoline Truck Loading	--	--	--	--	0.84	0.58	--	--	--	--	0.12	0.09	--	--
H-1 Vent	Key Treater Flash Gas Vent	--	--	--	--	0.00	0.01							9.62E-06	4.22E-05
T-501A	500 gal Methanol Tank	--	--	--	--	0.01	0.03	--	--	--	--	0.01	0.03	--	--
T-501B	500 gal Methanol Tank	--	--	--	--	0.01	0.03	--	--	--	--	0.01	0.03	--	--
T-501C	500 gal Methanol Tank	--	--	--	--	0.01	0.03	--	--	--	--	0.01	0.03	--	--
FL2	Acid Gas Flare	0.30	1.32	2.58	11.32	0.00902	0.0395	0.01	0.06	--	--	0.002	0.01	1.56E-04	6.84E-04
FL3	Gasoline Truck Loading Flare	0.25	0.48	0.51	0.96	1.27	0.89	--	--	--	--	0.19	0.13	--	--
Project Wide Routine Emissions		**2.60**	**10.76**	**5.58**	**23.16**	**11.52**	**24.98**	**0.03**	**0.12**	**0.11**	**0.46**	**0.99**	**2.15**	**2.36E-04**	**1.03E-03**

Armstrong Gas Plant
Flare Detail Sheet

FIN:	FL3		**Truck Dispensed Vapor Emissions**	Material Balance	
EPN:	FL3		Truck Vapor Heat Value[1]	4,133	Btu/scf
Equipment Usage	Gasoline Truck Loading		Loading vapor flow	300.05	Scf/hr
Equipment Make			Depressurization Volume	419,186	Scf/yr
Equipment Model			Heat Input	1.24	MMBtu/hr
Potential Operation	8,760	hrs/yr	Heat Input	1,732.35	MMBtu/yr
Control Efficiency	98% C4+ 99% C3				

Pilot Emissions

Heating Value of Natural Gas	1,020	Btu/scf
Fuel Gas Flowrate per Pilot	583	scf/hr-pilot
Number of Pilots	1	
Gas Stream Heat Input	0.59	MMBtu/hr
Gas Stream Heat Input	5,209	MMBtu/yr
Hours of Operation [1]	8,760	hrs/yr

Pollutant	Emission (lb/MMBTU)	Hours of (hrs/yr)	Estimated Emissions (lb/hr)	Estimated Emissions tpy	Emission Factor Source[1]
NOx	0.1380	8,760	0.0821	0.3594	TCEQ
CO	0.2755	8,760	0.1638	0.7176	
VOC		8,760	0.0007	0.0030	

Potential Flare Emissions (Controlled Hydrocarbon Streams)

Stream to Flare	VOC lb/hr	VOC tpy	HAPs lb/hr	HAPs tpy	Calculation Methodology
Gasoline Truck Loading	1.27	0.89	0.19	0.13	Material Balance

Potential Flare Combustion Emissions

Pollutant	Emission Factor[2] lb/MMBtu	Total Flare Gas MMBtu/hr	Total Flare Gas MMBtu/yr	Emission Rate lb/hr	Emission Rate tpy
NO_X	0.1380	1.24E+00	1.73E+03	1.71E-01	1.20E-01
CO	0.2755	1.24E+00	1.73E+03	3.42E-01	2.39E-01

Total Flare Emissions Increases

Pollutant	lb/hr	tpy
NO_X	0.25	0.48
CO	0.51	0.96
VOC	1.27	0.89
HAPs	0.185	0.13

[1] Gasoline heating value is from sample analysis.

[2] TCEQ Flare Guidance Document, Table 4 Flare Factors for "other", high BTU flare streams.

From: Li, Jing <jli@eprod.com>
Sent: Monday, May 6, 2024 7:29 AM
To: Thomas Greinert
Cc: Environmental Dept - Corporate; Trishia McDonald
Subject: RE: TCEQ Air Permit No. 99582 / Project No. 373387 at Enterprise Hydrocarbons L.P.'s Armstrong Gas Plant site

Good morning Mr. Greinert,

Yes these emissions sources are already authorized; however, Enterprise has found the authorized emissions do not reflect the actual operation a the plant. Therefore, I am submitting this permit revision to update the PTE using either most recent operating data or unit max capacity. Please let me know if you have any questions. Thanks. Jing

---

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Air Permits Division, Office of Air, TCEQ
(512) 239-2254
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