

Clean healthy air for
everyone, everywhere,
all the time.

June 21, 2017

Keith Faretra
Puget Sound Energy
Mailstop PSE-09S
10885 NE 4th Street
Bellevue, WA 98004

Puget Sound Energy – Registration No. 30022
NOC Application No. 11386 Incomplete

Board of Directors

Bremerton
Patty Lent, Mayor

Everett
Ray Stephanson, Mayor
Paul Roberts, Board Chair

King County
Dow Constantine, Executive

Kitsap County
Edward Wolfe, Commissioner

Pierce County
Pat McCarthy, Executive

Public-at-Large
Stella Chao

Seattle
Ed Murray, Mayor

Snohomish County
Dave Somers, Councilmember

Tacoma
Ryan Mello, Councilmember

Executive Director
Craig T. Kenworthy

Phone
206.343.8800
800.552.3565

Fax
206.343.7522

Mail
1904 Third Avenue, Suite 105
Seattle, WA 98101-3317

Dear Mr Feretra,

After reviewing the permit application submitted by Puget Sound Energy on May 22, 2017 for the Liquefied Natural Gas Project in Tacoma, we have found your application to be incomplete. Please provide the information requested below:

1) I noticed in the application section 3.2 Minor New Source Review, it was stated that “an NOC application must be filed and an Order of Approval issued by the PSCAA prior to beginning construction of any emitting unit absent the applicability of an exemption.” This is not correct. Section 6.03 of Reg 1 states the following:
It shall be unlawful for any person to cause or allow the establishment of a new source, or the replacement or substantial alteration of control equipment installed on an existing source, unless a "Notice of Construction application" has been filed and an "Order of Approval" has been issued by the Agency.

New source is defined in WAC 173-400-030 (53)(a):
The construction or modification of a stationary source 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;

Stationary source is then defined as
"Stationary source" means any building, structure, facility, or installation which emits or may emit any air contaminant...

I wanted to make sure PSE LNG understands that an NOC is required for the entire facility and not just the specific emission points as described in the application. As a result, please provide a complete list of any and all equipment (not related to construction) that will be onsite during normal operation.

2) I reviewed the air emission calculations in the Final Environmental Impact Statement (FEIS) for the project issued by the City of Tacoma on November 19, 2015 and compared them to the emissions in the air permit application, and there seem to be some discrepancies.

The FEIS Appendix D shows the following:

Air Emissions Summary																						
Tacoma LNG Project																						
Source		Potential to Emit (lb/hour)									Potential to Emit (ton/year)											
Description	PM ₁₀	PM _{2.5}	NOx	CO	SO ₂	VOC	H ₂ SO ₄	TAPS	HAPS	PM ₁₀	PM _{2.5}	NOx	CO	SO ₂	VOC	H ₂ SO ₄	TAPS	HAPS	CO ₂	CH ₄	H ₂ O	CO ₂ e (mt)
Emission Units																						
Pretreatment Heater	0.06	0.06	0.31	0.63	0.007	0.18	3.46E-04	0.95	1.58E-02	0.28	0.28	1.36	2.75	0.03	0.79	1.52E-03	4.14	6.90E-02	4.343	8.19E-02	8.19E-03	3.95E-01
Enclosed Ground Flare (pilot and vent gas)	0.10	0.10	1.44	2.95	1.24	1.65	0.06	5.62	6.25E-02	0.46	0.46	6.32	12.8	5.45	7.23	2.73E-01	24.6	2.75E-01	16.113	1.02E-01	1.02E-02	14.65
Emergency Flare	5.8E-03	5.8E-03	0.04	0.09	4.20E-04	0.03	2.15E-05	0.13	9.52E-04	0.02	0.02	0.19	0.39	0.002	0.11	9.21E-05	0.58	4.17E-03	199	3.76E-03	3.76E-04	181
LNG Vaporizer (Back-Up)	0.21	0.21	1.04	2.11	0.03	0.60	1.16E-03	3.17	5.28E-02	0.11	0.11	0.52	1.05	0.01	0.30	5.80E-04	1.59	2.64E-02	979	3.14E-02	3.14E-03	981
1600 kW Emergency Diesel Generator	0.71	0.71	21.4	12.3	0.02	1.13	-	34.6	0	0.28	0.28	5.36	3.09	0.01	0.28	-	8.65	5.90E-03	612	2.43E-02	4.96E-03	614
Total	1.09	1.09	24.3	18.1	1.30	3.59	0.06	44.5	0.16	1.03	1.03	13.8	20.1	5.50	8.72	0.27	39.6	0.38	22.246	2.44E-01	2.49E-02	20.38
Fugitives - Pretreatment, Liquefaction, Regasification, and Marine																						
Tacoma LNG Processes	-	-	-	-	-	6.6E-04	-	-	-	-	-	-	-	-	2.89E-03	-	-	-	-	2.1	-	51.2
Refrigerant losses	-	-	-	-	-	17.6	-	-	-	-	-	-	-	-	77.0	-	-	-	-	14	-	318
Total	0.0	0.0	0.0	0.0	0.0	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.0	0.0	0.0	0.0	0.0	16.1	0.0	369
Summary																						
Total for Permit (Pretreatment, Terminal, and Fugitives)	1.09	1.09	24.3	18.1	1.30	21.2	0.06	44.46	0.16	1.03	1.03	13.8	20.1	5.50	85.7	0.27	39.6	0.38	22.246	16.3	0.03	20.75
Grand Total																						
										Threshold												
Description																						
Title V Permit										100	100	100	100	100	100	100	10 individual or 25 combined	100	100	100	100.0	
PSD										250	250	250	250	250	250	250	10 individual or 25 combined	250	250	250	100.0	

The Permit application for PSCAA included the following table:

Table B-11
Project Emissions Summary
Puget Sound Energy – Liquefied Natural Gas Project
Tacoma, Washington

Pollutant	Vaporizer		Enclosed Ground Flare (Worst-case)		Fugitives		Total	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Criteria Pollutants								
PM/PM ₁₀ /PM _{2.5}	0.46	0.055	0.28	1.2	--	--	0.74	1.3
SO ₂	0.93	0.11	2.0	8.9	--	--	3.0	9.0
NO _x	0.72	0.086	2.3	9.9	--	--	3.0	10
CO	2.4	0.29	7.5	33	--	--	9.9	33
VOCs	0.33	0.040	10	45	1.0	4.4	12	50
Lead	3.0E-05	3.6E-06	1.9E-05	8.1E-05	--	--	4.9E-05	8.5E-05
Hazardous Air Pollutants	0.00012	0.014	0.084	0.37	8.3E-06	3.6E-05	0.084	0.38

As you can see from the two tables, the emissions are not the same. Of particular interest are the fugitive emission losses of refrigerant of 77 tpy VOC and any equipment emissions not included in the NOC application but were included in the FEIS. Please provide an explanation of the differences for all pollutants, including the PTE for exempt emission units.

- 3) Because odor is an air contaminant under the Washington Clean Air Act, please describe how PSE plans on controlling and minimizing odor from the H₂S and other potentially odorous compounds from the enclosed ground flares in the event that the Enclosed Ground Flare (Warm Burner) goes offline or needs maintenance.
- 4) The application states that a formal LDAR implementation manual will be prepared and submitted to us for review. Please provide this plan for our review.

- 5) The top down best available control technology (BACT) review provided with the application is lacking sufficient information. Section 4.0 of the application states that a thorough review of the RBLC was conducted for similar operations; however, the RBLC is not an exhaustive list of BACT information. There are specific Agency websites that contain very detailed information regarding their BACT determinations or what they currently consider BACT in their region as well as a review of other similar types of facilities permitted elsewhere. As an example, most of the California agencies have websites that you can use to develop a top down BACT analysis (San Joaquin Valley - <http://www.valleyair.org/busind/pto/bact/bactLoader.htm> , Bay Area - <http://www.baaqmd.gov/permits/permitting-manuals/bact-tbact-workbook>, etc). Texas and CARB also have BACT determination index's on their websites for review. California has also implemented standards within their local rules, which should also be used in your analysis for BACT. I pulled the following table from the Bay Area Reg 9, Rule 7 (<http://www.baaqmd.gov/~media/files/planning-and-research/rules-and-regs/reg-09/rg0907.pdf?la=en>) , which specifies NOX and CO standards for different types of boilers:

Emission Limit	Rated Heat Input (million BTU/hr)	Fuel	NOx Limit (ppmv, dry at 3% oxygen)	CO Limit (ppmv, dry at 3% oxygen)
307.1	>2 to 5	gaseous, except landfill or digester gas	30	400
307.2	>5 to <10		15	400
307.3	10 to <20		15	400
307.4	20 or more, load-following unit		15	400
307.5	20 to <75		9	400
307.6	75 or more		5	400
307.7	1 or more	landfill or digester gas	30	400
307.8	1 or more	non-gaseous	40	400
307.9	1 or more	multiple fuels	heat-input weighted average limit	400

- 6) The BACT analysis for the Enclosed Ground flares did not include SO₂. These flares are handling H₂S and converting it to SO₂, which is a regulated air pollutant. Please provide a BACT analysis for these units for SO₂.
- 7) The emission calculation section of the permit application provides sulfur concentrations from each pipeline "case" that are vented to the Enclosed Ground flares from CB&I. Please provide documentation for each of the sulfur inlet concentrations for each case:

Parameters	Natural Gas ^a	Flared Waste Gas ^b				
		Case 1	Case 2	Case 3	Case 4	Case 5
Heat Content (Btu/scf)	1,093	330	427	1,654	882	1,821
Density (lb/scf)	0.046	0.103	0.083	0.090	0.099	0.088
Sulfur Content (ppmw)	166	41	36	527	257	192

In addition to the above, please provide a copy of the tariff that was used to determine that untreated natural gas from Williams's Northwest pipeline will contain 166 ppm of Sulfur.

- 8) Please provide an explanation where the component count came from for all equipment, including which components are associated with which piece of equipment identified on the process flow diagram provided in the application (Facility Block Flow Emissions Diagram)
- 9) In the Amine Pretreatment System section of the application, it mentions the feed gas to the plant will contain nitrogen. It goes on to describe the amine solution and how the resulting gas streams would be treated, but did not mention whether or how nitrogen from the incoming gas would be treated. Explain how the nitrogen in the fuel was accounted for in the emission calculations.
- 10) The Amine pretreatment system section of the application states that, although mercury is not expected, there will be a mercury removal system. Please describe this system in more detail. How was the mercury that is not removed from the feed gas accounted for in the emission calculations?
- 11) The application discusses the heavy hydrocarbon removal and storage system. It mentions that a portion of the removed hydrocarbons would be stored and periodically trucked off site. Which compounds are included in the "heavy hydrocarbons"? Is storage of these hydrocarbons accounted for in emission calculations?
- 12) In the LNG vaporization process, an odorizer is used to add odorant to the natural gas before being put back in the pipeline. Is this odorizer a source of fugitive emissions? Where does this occur in the process flow diagram?
- 13) The application mentions nitrogen use in various places in the application (Truck loading, Marine Debunkering, Feed Gas removal, etc). Please explain how this nitrogen is accounted for in the emission calculations.
- 14) Please provide the dispersion modeling for the toxic air pollutants that are potentially emitted above their respective SQERs.

Sincerely,



Ralph Munoz
Reviewing Engineer