Puget Sound Energy
P.O. Box 97034
Bellevue, WA 98009-9734
pse.com

July 12, 2024

BY EMAIL

Mr. Alasdair Graham (AlasdairG@pscleanair.gov)
Puget Sound Clean Air Agency
1904 3rd Avenue, Suite 105
Seattle, WA 98101-3317

Re: Tacoma LNG (Registration No. 30022)
GNOV Nos. 3-A001207 and 3-A001208

Dear Mr. Graham:

Puget Sound Energy, Inc. (PSE) received the above-named General Notice of Violation (GNOVs) from the Puget Sound Clean Air Agency (PSCAA) relating to the Tacoma LNG facility. This letter responds to the Corrective Action Order in each GNOV requesting that PSE identify the actions taken to correct the violation and achieve compliance with PSCAA's regulations.

Background

Tacoma LNG operates a flare to control process emissions from the liquefaction and loading operations. There are four burners associated within the flare:

- The large warm burner;
- The large cold burner;
- The small warm burner; and
- The small cold burner.

Two continuous pilots (one for the small warm burner and one for the small cold burner) operate at all times the flare is in service along with two intermittent pilots (one for the large warm burner and one for the large cold burner).

One warm burner (either small or large) operates when the flare is in service. The British thermal unit (Btu) content of the gas stream routed to the flare is continuously monitored. As long as the heat input to the warm burners is less than approximately 8 million Btus per hour (MMBtu/hr), only the small warm burner operates. When the heat input exceeds approximately 8 MMBtu/hr, the large warm burner starts up. Once the heat input reaches 10 MMBtu/hr, the small warm burner shuts down and the large warm burner exclusively operates.

Separately, the small cold burner combusts the purge effluent from the purge/blowdown of the transfer pipes, loading arm and hoses after the loading of a vessel or truck. When the small cold burner is not in purge mode, it reverts to standby mode.

A sudden increase in heat input, which is not consistent with normal operations, can momentarily extinguish the burner flame. Standard safety protocol before relighting a gas burner is that the combustion area must be cleared of potentially combustible gases that might have built up post-flame loss. That standard requirement is equally applicable to the Tacoma LNG flare burners. If the burners on the cold or warm side are extinguished, then the combustion zone must be evacuated and those gases routed to the bypass stack as part of the unit's safety procedures. Once the burner is relit, then the bypass valve can be closed by the system. In accordance with the original equipment manufacturer's (OEM) specifications, bypass stack venting of volatile organic compounds (VOCs) prior to relighting an extinguished flame cannot be eliminated without compromising facility and personnel safety.

GNOV No. 3-A001208

GNOV No. 3-A001208 addresses two situations that occurred in December 2023. On December 2, 2023, the small and large warm burners experienced a temporary loss of flame as the result of a process upset causing the flare combustion temperature to exceed the primary controller's setpoint range, triggering the secondary controller (i.e., the air ratio controller) to assume control. This transition caused fluctuations in the combustion air flow which then resulted in a loss of flame in the small and large warm burners. Per standard safety protocols upon loss of flame, the waste gas going to the warm burner combustion area was diverted to the bypass stack for approximately 1 minute to enable relighting of the burner and a resumption of normal operation. Operation of the small cold burner was not affected. During this incident, approximately 0.1 pounds of VOCs were vented to the bypass stack as a result of this incident. [1]

On December 13, 2023, the warm burner side experienced a temporary loss of flame when the depressurizing of the bunkering line caused a rapid change in heat input to the flare enclosure. Operation of the small cold burner was not affected, but flame was lost in the warm burners. Per standard safety protocols, the waste gas in the warm burner combustion area was diverted to the bypass stack for approximately 2 minutes to enable relighting of the burner and a resumption of normal operation. During this incident, approximately 0.2 pounds of VOCs were vented to the bypass stack. [2]

As noted above, bypasses prior to relighting an extinguished flame cannot be eliminated without compromising facility and personnel safety. However, in a diligent effort to limit the recurrence of any such event, immediately following each incident the Tacoma LNG team assessed the root cause of the flame loss events and identified improvements. These are summarized below.

> *December 2, 2023*: The Tacoma LNG team determined that adjusting the temperature range over which the primary controller remains in control would decrease the potential for flame loss. This change was implemented on December 4, 2023.

[1] The amount of diverted VOC emissions were 0.04% of the Notice of Construction (NOC) No. 11386A Condition 15.b flare VOC limit of 244 pounds per day.
[2] The amount of diverted VOC emissions were 0.08% of the NOC No. 11386A Condition 15.b flare VOC limit of 244 pounds per day.

December 13, 2023: The Tacoma LNG team determined that if the bunkering line is depressurized at a slower pace, the likelihood of flame loss is materially decreased. The team developed new instructions related to controlling depressurization rates and retrained the operators on the updated procedures. These actions were completed on December 15, 2023.

GNOV No. 3-A001207

GNOV No. 3-A001207 addresses a situation that occurred on March 12, 2024, when the small cold burner was operating in standby mode and the small warm burner was transitioning to the large warm burner. An unexpected pressure surge occurred which extinguished the cold burner flame. Operation of the warm burners was not affected. Per standard safety protocols upon loss of flame, the waste gas going to the cold burner combustion area was diverted to the bypass stack for approximately 1 minute to enable relighting of the small cold burner. Less than 0.01 pounds of VOCs were vented to the bypass stack as a result of this incident—the de minimis amount released is due to the fact that the small cold burner was in standby mode at the time flame was lost.[3]

As noted above, bypasses prior to relighting an extinguished flame cannot be eliminated without compromising facility and personnel safety. However, in a diligent effort to limit the recurrence of any such event, immediately following each incident the Tacoma LNG team assessed the root cause of the flame loss. At the time of the event, while the small cold burner was in standby mode, the stack louvers were at their minimum allowed position. This restricted air flow to the small cold burner leaving it more susceptible to being extinguished by pressure surges on the warm side of the flare. In response, the Tacoma LNG team increased the minimum allowed position for the stack louvers to increase air flow to the small burners. This change was completed on March 15, 2024.

Conclusion

We appreciate this opportunity to have a dialog with you regarding the December 2023 and March 2024 bypass events. PSE takes these events very seriously and took immediate steps to minimize any uncontrolled emissions. In all three instances, the flare controls implemented real time safety protocols to protect personnel and the facility. Corrective actions were identified and implemented within a timely manner including making process changes to reduce the risk of future upsets and revising the flare control settings to improve performance and further reduce the likelihood of diversion events in the future. At no time did these bypasses or the emissions associated with them threaten Tacoma LNG's compliance with its permit limits or cause or contribute to air pollution in such a quantity as to create a threat to the public health or welfare.

If you have any questions after reviewing this letter, I can be reached at (425) 213-6638 or at Dustin.Cornidez-Pittman@pse.com.

[3] The amount of diverted VOC emissions were less than 0.004% of the NOC No. 11386A Condition 15.b flare VOC limit of 244 pounds per day.

Sincerely,

Dustin Cornidez-Pittman
Manager Environmental Services
Puget Sound Energy, Inc.

cc: (by email)
Thor Angle
Ruth Juris
Sara Leverette
Lorna Luebbe
Allison Watkins Mallick
Tom Wood

PUGET SOUND
Clean Air Agency

GENERAL NOTICE OF VIOLATION No. 3-A001208

1904 3rd Avenue, Suite 105 Seattle, WA 98101 • p 206.343.8800 toll-free 800.552.3565

Case #:	**Registration #:** 30022		**Violation #:** 3-A001208
Violation Date: 12/2/2023	**Time:**	**Certified Mail #:**	9214 8901 9403 8361 6433 99
Violation Location (Address): 1001 Alexander Ave E			
City: Tacoma	**Zip:** 98421	**County:** Pierce	
Responsible Person (Name, Title): Dustin Cornidez-Pittman, Env. Services Manager			
Facility Name *(If applicable)*: Puget Sound Energy			
Mailing Address: P.O. Box 97034, BEL10W			
City, State: Bellevue, WA	**Zip:** 98009-9734	**Phone:** (425) 213-6638	

Violation of Regulations, WAC, etc.:

NC Order of Approval 11386A Cond. 10 The following processes shall have their vapor waste gases routed to the enclosed ground flare: a. Feed Gas Compressor b. Amine Pretreatment Unit c. Heavies storage and fuel systems d. Liquefaction e. Post Load Purge

Alleged Reason(s) for Violation:

1) On December 2, 2023, the warm side diversion vent opened automatically for one (1) minute before the vent was closed. This event was due to a temporary loss of flame on the warm stream burners.

2) On December 13, 2023, the warm side diversion vent opened automatically for two (2) minutes before the vent was closed. The event was due to a temporary loss of flame on the warm stream burners.

Both of the above reported incidents are a deviation of NOC OOA Condition #10.

CORRECTIVE ACTION ORDER: You must take the corrective action described below.

Within 10 days of the date you receive this Notice of Violation, submit a written report describing the action(s) you have taken to correct this violation and achieve compliance with Agency regulations.

Issued By: A. Graham **Date:** 5/14/2024

Ally Graham, Inspector, 206-689-4064
AlasdairG@pscleanair.gov

Received By: Dustin Cornidez-Pittman Dustin Cornidez-Pittman 7/2/2024

Signature *Print Name* *Date*

(Signing is not an admission of guilt)

PUGET SOUND
Clean Air Agency

GENERAL NOTICE OF VIOLATION No. 3-A001207

1904 3rd Avenue, Suite 105 Seattle, WA 98101 • p 206.343.8800 toll-free 800.552.3565

Case #:	**Registration #:** 30022		**Violation #:** 3-A001207
Violation Date: 3/12/2024	**Time:**	**Certified Mail #:**	9214 8901 9403 8361 6428 42
Violation Location (Address): 1001 Alexander Ave E			
City: Tacoma	**Zip:** 98421	**County:** Pierce	
Responsible Person (Name, Title): Dustin Cornidez-Pittman, Env. Services Manager			
Facility Name *(If applicable)*: Puget Sound Energy			
Mailing Address: P.O. Box 97034, BEL10W			
City, State: Bellevue, WA	**Zip:** 98009-9734	**Phone:** (425) 213-6638	

Violation of Regulations, WAC, etc.:

NC Order of Approval 11386A Cond. 10 Liquefaction processes shall have their vapor waste gases routed to the enclosed ground flare before being released to the atmosphere.

NC Order of Approval 11386A Cond. 12 a The enclosed ground flare shall be operated with a flame present at all times during normal operation.

Alleged Reason(s) for Violation:

On March 12th, 2024, while the facility was in liquefaction, during transition from the warm low fire burner to the warm high fire burner, the cold low fire burner was inadvertently extinguished as the result of an unexpected pressure surge. Consequentially, cold stream waste gas was safely directed to the diversion vent for approximately one (1) minute until the cold low fire burner was relit and returned to service.

This is a violation of conditions 10 and 12 a of NOC OOA 11386A.

CORRECTIVE ACTION ORDER: You must take the corrective action described below.

Within 10 days of the date you receive this Notice of Violation, submit a written report describing the action(s) you have taken to correct this violation and achieve compliance with Agency regulations.

Issued By: A. Graham **Date:** 5/14/2024

Ally Graham, Inspector, 206-689-4064
AlasdairG@pscleanair.gov

Received By: [signature] Dustin Cornidez-Pittman 2/2/2024

Signature *Print Name* *Date*

(Signing is not an admission of guilt)