Inspection Output (IOR)

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Inspection Information

Inspection Name	8287 NWN LNG Trailer Inspection	Operator(s)	NORTHWEST NATURAL GAS CO (13840)	Plan Submitted	--
Status	STARTED	Lead	Derek Norwood	Plan Approval	--
Start Year	2021	Observer(s)	Scott Rukke, David Cullom, Dennis Ritter, Lex Vinsel, Anthony Dorrough, Deborah Becker, Scott Anderson, Darren Tinnerstet, Rell Koizumi	All Activity Start	09/20/2021
System Type	LNG	Director	Sean Mayo	All Activity End	09/21/2021
Protocol Set ID	LNG.2021.02			Inspection Submitted	--
				Inspection Approval	--

Inspection Summary

Inspection Scope and Summary

The basis for this inspection is as noted below

Per 49 CFR Part 193.2019 Mobile and Temporary LNG facilities

(a) Mobile and temporary LNG facilities for peakshaving application, for service maintenance during gas pipeline systems repair/alterations, or for other short term applications need not meet the requirements of this part if the facilities are in compliance with applicable sections of NFPA 59A-2001.

Because there are no IA questions specific to Mobile LNG equipment, the questions are based out of NFPA 59A. Staff included 3 Generic questions in IA and procedural, records and observations questions from NFPA 59A are included in the results notes of the respective IA question.

Facilities visited and Total AFOD

NW Natural LNG Plant in Portland, Oregon

2 AFODs

Summary of Significant Findings
(DO NOT Discuss Enforcement options)

There were no findings as a result of this inspection.

Primary Operator contacts and/or participants

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Francis Aberin
Portland LNG Plant Superintendent

Dale Throm
LNG Plant Operator

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Scope (Assets)

#	Short Label	Long Label	Asset Type	Asset IDs	Excluded Topics	Planned	Required	Total Inspected	Required % Complete
1.	90889 (1911)	Northwest Natural-MOBILE LNG	unit	90889	ASMELNGTANK	3	3	3	100.0%

1. Percent completion excludes unanswered questions planned as "always observe".

Plans

#	Plan Assets	Focus Directives	Involved Groups/Subgroups	Qst Type(s)	Extent	Notes
1.	90889 (1911)	n/a	GENERIC	P, R, O, S	Detail	

Plan Implementations

#	Activity Name	SMART Act#	Start Date End Date	Focus Directives	Involved Groups/Subgroups	Assets	Qst Type(s)	Planned	Required	Total Inspected	Required % Complete
1.	LNG Trailer	--	09/20/2021 09/21/2021	n/a	all planned questions	all assets	all types	3	3	3	100.0%

1. Since questions may be implemented in multiple activities, but answered only once, questions may be represented more than once in this table.
2. Percent completion excludes unanswered questions planned as "always observe".

Forms

No.	Entity	Form Name	Status	Date Completed	Activity Name	Asset
1.	Attendance List	LNG Trailer	COMPLETED	09/23/2021	LNG Trailer	90889 (1911)

Results (all values, 3 results)

GENERIC.GENERIC: Generic Questions

1. Question Result, ID, References: Sat, GENERIC.GENERIC.GENPROCEDURE.P, N/A

Question Text: *Generic question - please provide context in result notes.*

Assets Covered: 90889 (1911)

Result Notes: 1. Do the operator's procedure state that the LNG transport vehicle comply with US DOT requirements for the supply trailer? 2.3.4(a)

Section 3.4.2 and Appendix A Steps 3-5 for driver and truck

2. Do the operator's procedures state that all portable LNG equipment shall be operated by at least one person qualified by experience and training in the safe operation of these systems? 2.3.4(b)

Section 1.1.6

3. Do the operator's procedures state that all other LNG operating personnel, at a minimum, shall be qualified by training? 2.3.4(b)

Portable LNG Training Plan – General Section

Portable LNG Training Plan – Module O-10 (Specific training requirements for trailer)

Section 1.1.6

4. Does the operator provide a **written plan** of initial training to instruct all designated operating and supervisory personnel in the characteristics and hazards of LNG used or handled at the site, including low LNG temperature, flammability of mixtures with air, odorless vapor, boil-off characteristics, and reaction to water and water spray; the potential hazards involved in operating activities; and how to carry out the emergency procedures that relate to personnel functions and to provide detailed instructions on mobile LNG operations? 2.3.4(c)

Training Module O-3, O-4 and E-3

Section 2.1.2 and 2.1.3

5. Do the operator's procedures make provisions to minimize the possibility of accidental discharge of LNG at containers endangering adjoining property or important process equipment and structures or reaching surface water drainage? 2.3.4(d)

Section 1.2.4 and 1.2.5

Section 3.3.10 and 3.3.14

6. Do the operator's procedures permit portable or temporary containment be used? 2.3.4(d)

Section 1.2.6

7. Do the operator's procedures for vaporizer controls comply with NFPA 59A:

> 5.3.1 Manifolded vaporizers shall have both inlet and discharge block valves at each vaporizer.
>
> **Appendix B Procedure 12 and 13**
>
> **Appendix C Procedure 5 and 6**

5.3.2 The discharge valve of each vaporizer and the piping components and relief valves installed upstream of each vaporizer discharge valve shall be designed for operation at LNG temperatures [-260°F (-162°C)].

Section 3.2 and Appendix A Step 8

8. Do the operator's procedures require each heated vaporizer be provided with a means to shut off the fuel source remotely and at the installed location? 5.9.1(8)

LEL detector for remote ESD

Section 1.2.4

Section 2.1.5

Automatic temperature shutoff and low water shutoff

9. Do the operator's procedures require equipment and operations comply with the following from NFPA 59A (2001):

11.4.5.1(b)- Written procedures shall be available to cover all transfer operations and shall cover emergency as well as normal operating procedures. They shall be kept up-to-date and available to all personnel engaged in transfer operations.

Section 3.4

Manual Reviewed every 2 years, Reviewed May 2019 and April 2021

11.4.5.1(b&c)- (b) Prior to connecting a tank car, the car shall be checked and the brakes set, the derailer or switch properly positioned, and warning signs or lights placed as required. The warning signs or lights shall not be removed or reset until the transfer is completed and the car disconnected.

N/A

(c) Unless required for transfer operations, truck vehicle engines shall be shut off. Brakes shall be set and wheels checked prior to connecting for unloading or loading. The engine shall not be started until the truck vehicle has been disconnected and any released vapors have dissipated.

Appendix A Steps 11 and 12

Section 3.3

Section 4.3

Part (c) Operating Procedures-8.4.3 Personnel responsibilities

8.7.1-Hoses or arms used for transfer shall be designed for the temperature and pressure conditions of the loading or unloading system. Hoses shall be approved for the service and shall be designed for a bursting pressure of at least five times the working pressure.

Maintenance Manual Section 7 requires annual testing of 75 psig

Section 1.2.3

8.7.2 Flexible metallic hose or pipe and swivel joints shall be used where operating temperatures can be below -60°F (-51°C)

Appendix A Step 8

NWN does not use swivel joints

8.7.3 Loading arms used for marine loading or unloading shall have alarms to indicate that the arms are approaching the limits of their extension envelopes.

N/A – Not a marine loading facility

8.7.4 Provisions shall be made for adequately supporting the loading hose or arm. Counterweights shall take into consideration any ice formation on uninsulated hoses or arms.

Loading hoses are on the ground during transfer, no need for supports

8.7.5 Hoses shall be tested at least annually to the maximum pump pressure or relief valve setting and shall be inspected visually before each use for damage or defects.

Appendix A Step 14

Maintenance Manual Section 7.3.1

Checked records for annual testing. Hoses tested for 1 hour at 75 psig

8.8.1 Communications shall be provided at loading and unloading locations to allow the operator to be in contact with other personnel associated with the loading or unloading operation.

Section 1.3.3

Section 2.5

Appendix B Procedure 2 and 8

Appendix C Procedure 3

Appendix D Procedure 3, 5 and 13

Emergency Procedures Section 2.5

9.1.2* Fire protection shall be provided for all LNG facilities. The extent of such protection shall be determined by an evaluation based on fire protection engineering principles, analysis of local conditions, hazards within the facility, and exposure to or from other property.

Section 1.1.3, 2.1.4 and 2.2

Section 9.2.1 Each LNG facility shall incorporate an ESD system(s) that, when operated, isolates or shuts off a source of LNG, flammable liquids, flammable refrigerant, or flammable gases, and shuts down equipment whose continued operation could add to or sustain an emergency. Any equipment, such as valves or control systems, that is specified in another chapter of this standard shall be permitted to be used to satisfy the requirements of an ESD system except where indicated in this standard.

Section 2.2.1

9.2.2 If equipment shutdown will introduce a hazard or result in mechanical damage to equipment, the shutdown of any equipment or its auxiliaries shall be omitted from the ESD system if the effects of the continued release of flammable or combustible fluids are controlled.

N/A

9.2.3 The ESD system(s) shall be of a fail-safe design or shall be otherwise installed, located, or protected to minimize the possibility that it will become inoperative in the event of an emergency or a failure at the normal control system. ESD systems that are not of a fail-safe design shall have all components that are located within 50 ft (15 m) of the equipment controlled in either of the following ways: (1) Installed or located where they cannot be exposed to a fire (2) Protected against failure due to a fire exposure of at least 10 minutes duration 5.9.1(4), with the exception of the clearance distance provisions?

Section 1.2.1

Appendix F and G show layouts for locating trailer, vaporizer and fire suppression

10. Do the operator's procedures comply with the LNG facility spacing specified in Table 2.2.4.1 (except where necessary to provide temporary service on a public right-of-way or on property where clearances specified in Table 2.2.4.1 are not feasible and the following additional requirements are met:

Traffic barriers shall be erected on all sides of the facility subject to passing vehicular traffic.

(2) The operation shall be continuously attended to monitor the operation whenever LNG is present at the facility.

(3) If the facility or the operation causes any restriction to the normal flow of vehicular traffic, in addition to the monitoring personnel required in 2.3.4(g)(2), flag persons shall be continuously on duty to direct such traffic) 2.3.4(g)

Section 1.2.6

Appendix F and G calls out 50 feet from structures

NFPA requires a minimum of 25 feet for this size tank

11. Do the operator's procedures require provisions be made to minimize the possibility of accidental ignition in the event of a leak? 2.3.4(h)

Section 2.1.6

Section 3.3.3 and 3.3.4

Appendix A Step 12

12. Do the operator's procedures require portable or wheeled fire extinguishers are available at strategic locations? 2.3.4(i)

Section 1.1.3 and 1.4.4

13. Do the operator's procedures require the site to be continuously attended and to restrict public access? 2.3.4(j)

Section 1.1.6 and 1.2.6

14. Do the operator's procedures state that the restrictions of 2.2.4.1 do not apply for odorizing equipment containing less than 20 gallons? 2.3.5

Appendix F and G calls out 50 feet from structures and the odorizer is attached to the trailer

2. Question Result, ID, References	Sat, GENERIC.GENERIC.GENRECORD.R, N/A
Question Text	*Generic question - please provide context in result notes.*
Assets Covered	90889 (1911)
Result Notes	1. Do records indicate the trailer complies with US DOT requirements? (8.5.1.1)

Inspected annually in January. Records reviewed for 2019, 2020 and 2021

Self-Insurance available for 2019, 2020 and 2021

2. Do records show at least one person was qualified?

Reviewed OQs for Jason Gardiner and Dale Throm, Due for requalification in 2022

3. Do records show other personnel were qualified?

Travis Landgren due for requalification in August 2022

Michael Corigan OQs, Sam requesting current and most previous

4. Note an approved written plan is the record.

Training Plan Reviewed every two years. Reviewed in 2019 and 2021

5. Do records indicate provisions have been made?

N/A, trailer has not been deployed since 2008

6. Do records support compliance with 5.3.1,5.3.2 and section 5.4?

Trailer relief valves inspected annually, reviewed records for 2019 and 2020. Due to be completed in December 2021

Trailer sent to Polar Service Centers for annual DOT inspection. Completed in March 2019, 2020 and 2021

7. Do records show the operator's shut off devices worked remotely during deployment?

NA – The LNG trailer has not deployed since 2008

8. Do records show the operator's operations comply with the following items from NFPA 59A sections 11.4.5(b), 11.4.5.2(b), Section 8.7, 8.8.1, 9.1.2, 9.2.1, 9.2.2, 9.2.3, and 2.3.4(c)?

Fire extinguishers water tank supply, methane detectors and foam system checked monthly

9. Do records show the operator complied with necessary NFPA 59A requirements for traffic barriers, continuous attendance and monitoring, and traffic control during deployment?

NA – The LNG trailer has not deployed since 2008

10. Do records indicate the operator minimized the ignition possibility during a leak?

NA – The LNG trailer has not deployed since 2008

11. Do records indicate appropriate fire fighting equipment was on hand during deployment?

NA – The LNG trailer has not deployed since 2008

12. Do records show the operator continuously monitored the site and restricted public access during deployments?

NA – The LNG trailer has not deployed since 2008

3. Question Result, ID, References: Sat, GENERIC.GENERIC.GENOBSERVE.O, N/A

Question Text: *Generic question - please provide context in result notes.*

Assets Covered: 90889 (1911)

Result Notes: 1. Is the trailer fit for DOT over the road service?

Based on visual observations the trailer looks to be in good condition with no visible defects. The trailer also has the most recent DOT inspection records onboard (completed Jan 21, 2021)

2. Are ESD's in place?

The trailer has 2 ESDs. One is toward the front of the trailer in case the rear ESD is not accessible

3. Are the hoses designed for a bursting pressure of 5 times the operating pressure?

Hoses are all 2-inch ANSI 150 which is rated for 285 psig. Maximum operating pressure is 50 psig

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Report Parameters: Results: all

Except as required to be disclosed by law, any inspection documentation, including completed protocol forms, summary reports, executive summary reports, and enforcement documentation are for internal use only by federal or state pipeline safety regulators. Some inspection documentation may contain information which the operator considers to be confidential. In addition, supplemental inspection guidance and related documents in the file library are also for internal use only by federal or state pipeline safety regulators (with the exception of documents published in the federal register, such as advisory bulletins). Do not distribute or otherwise disclose such material outside of the state or federal pipeline regulatory organizations. Requests for such information from other government organizations (including, but not limited to, NTSB, GAO, IG, or Congressional Staff) should be referred to PHMSA Headquarters Management.