Washington Utilities and Transportation Commission
Intrastate Propane/Air Peak Shaving System
Inspection Guide and Report

Docket Number: PG-100020

Operator Name: Puget Sound Energy

Company Official Name: Bert A. Valdman

Address: PO Box 90868 MS: EST-07W

City: Bellevue, WA 98009-0868

Telephone: 1-425-462-3770

FAX: **425-462-3770** **Emergency:** **1-888-225-5773**

District or Division Office Inspected

Name: Swarr Propane-Air Plant

Address: 2100 Benson Dr. South

City: Renton, WA 98055

Telephone: 253-395-6995

Operator Representative

Name and Title: **Darryl Hong, Compliance coordinator**

Name and Title: **Chuck Dougherty Supervisor**

WUTC Representative

Name and Title: Joe Subsits, Pipeline Safety Engineer

Inspection Dates **March 29, 2010-March 30, 2010**

Date of Last Inspection June 6, 2007

Amendments 192-87, 192-82, 192-88

PROPANE SYSTEM HISTORY

Age (Range): 1964, 1974, 1996 Size (Range): 2-inch to 10-inch dia.

Material Type: Steel A-106B Specifications: A-106B Seamless

Miles of Main: ~5,000 ft Number of Services: 0

Number of Leaks (Main): 0 (Service): N/A

Leaks Scheduled for Repair: 1 C leak

Unaccounted for Gas: negligable Period Ending: Monthly inventory reports

Pipeline Class locations: Class 3

Number of Gas Department employees: 2

Propane Supply Company: Turner Propane

REPORTING REQUIREMENTS

1. Telephonic notice of incidents and written reports filed with WUTC as required? (191.5, 192.615 & WAC 480-93-200 & 210)
   ___not in operation since 1996

2. Annual Gas Distribution reports filed with WUTC as required? (WAC 480-93-010 & 200 & 191.11)
   ___3/10/09

3. Safety-related conditions reports filed with WUTC as required? (191.11, 480-93-010, & 200)
   __N/A

4. Pipeline and system pressure reports filed with WUTC as required? (WAC 480-93-183 200, & 210)
   ___N/A

   a. Which exceed the established MAOP?
      ___N/A

   b. When raising pressure above 250 psig?
      ___N/A

   c. When raising pressure above 500 psig?
      ___N/A

d. When pressure drops below a safe operating condition?_
___N/A_____

e. When a pipeline (250 psig or more) is taken out of service?
____N/A_____

Liquefied Petroleum Distribution Systems PART 192 & NFPA 59

National Fire Protection Association (NFPA) applies to utility Liquefied Petroleum (LP) gas systems to the point where LP-Gas or a mixture of LP-Gas is introduced into the utility distribution system as required by NFPA 59. Title 49 CFR 192 and WAC 193 cover those portions of the LP Gas systems downstream of the unloading equipment, containers, vaporizer, and interconnecting piping.

Installations that have storage containers with an equivalent water capacity of 4000 gal or less will conform to NFPA 58 Standard.

GENERAL PROVISIONS

5. Are employees trained annually in handling, transferring, and operating procedures for LP Gas and are training documents available? (NFPA 59 1-1.3)
____OK, records checked for 2009&2010_____

LP-GAS ODORIZATION

6. Is the gas odorized to 1/5 LEL? (NFPA 59 1.5)
___>.44 % gas in air LEL is @ 2.2% of LEL_____

7. Are procedures available for odorization? (192.625)
____Section 2650 of the Gas Operating Standards_____

8. Chemical properties or brand name?
_____Ethal Mercaptin_____

9. Odorization method?
_____Gas Already odorized, When added-added directly to tank, last added in 2004

10. Operator conducted periodic sampling?
_____3 tanks inspected per month-All tanks are read annually (33 tanks)-consistent with O&M Manual_____

Note: Gas must be odorized by the addition of a warning agent of such character that they are detectable, by a distinct odor, down to a concentration in air of the lower limit of flammability. Propane has a flammability range of 2.2 to 9.5% gas in air.

11. Are containers and equipment protected from damage from vehicles by posting warning signs, devices, barricades, or other means? (NFPA 59 1-7)
___OK_____

12. Is there adequate lighting that will provide illumination to the operating facilities for walkways, essential control valves, and loading and unloading facilities? (NFPA 59 1-8.2)
____Lighting improved two years ago _____

13. Is smoking and non-process ignition sources within the protective enclosure prohibited? (NFPA 59 1-10.1)
____Appendix C, Section 25 of SWARR O&M _____

14. Is smoking permitted only in designated and properly signposted areas?
__Yes-Section 25.7 of SWARR O & M Manual_____

15. Are vehicles and other mobile equipment that constitute potential ignition sources prohibited within diked areas or within in 50 ft (15 m) of containers of LP-Gas? (NFPA 59 1-10.1.3)
Note: An exception for vehicles specifically authorized and under constant supervision or where loading or unloading at facilities specifically designed for that purpose.
____Section 25.5 of SWARR Manual_____

16. Is fixed electrical equipment and wiring installed in accordance with NFPA 70: (NFPA 59 1-8)
___Should be NFPA 59 4.7.1, not in O&M Manual_____

TRAINING

17. Has annual training for persons that are responsible for the LP systems on (NFPA 59 Section 1-1.3, 10-1.4):

☒ The safe handing of LP
x Properties of LP
☒ Operating LP equipment
☒ Emergency procedures
☒ Records maintained
☒ Use of personal protective gear 8-2.1

18. Is there suitable protective clothing and equipment available that would protect against the effects of frostbite and cold refrigerants? (NFPA 59 10-8.1)
____OK_____

19. Are self-contained breathing apparatus provided for those employees who may be required to enter an atmosphere that could be injurious during an emergency? (NFPA 59 10-8.3)
___Emergency Personnel would respond to emergency_____

CONTAINERS

20. Are containers located outside of buildings? (NFPA 59 2-4.1.1)
___in tank farm_____

21. Are containers designed, constructed, and tested in accordance with ASME Boiler and Pressure Vessel Code Section VIII "Rules for Construction of Unfired Pressure Vessels"? (NFPA 59 2-1.1)
___1965 on west and 1974 vintage on east_____

22. Are Data Report Forms U or Form U-1A available (ASME Section VIII)?
___electronic and hard copies kept_____

23. Do containers have an accessible nameplate? (NFPA 59 2-3)
___OK_____

24. Are containers marked for use:

☒ Underground ☐ Aboveground

25. Water capacity in gallon U.S. Standard___4 @ 28, 350 gal, 9 @ 86,600 gal, 20 @ 30,000 Gal_____

Pressure in psig _____250 MAOP_____250?)

With the outside surface area in square feet___9 @ 4798 ft sq, 4@ 2033 sq ft , 20 @ 1730 ft sq_____

Wording "This container shall not contain a product having a vapor pressure in excess of ___175_____ psig at 100 degree F."_for 30,000 gal tank_____

Maximum level to which the container may be filled at temperatures between 20 degrees F and 130 degrees F ___85% @ 20 deg, 100 % @ 130 deg_____

Aboveground

26. Are horizontal aboveground containers supported on solid masonry, concrete, or steel supports? (NFPA 59 2-5.1.2)
_____N/A All tanks are below grade_____

27. Are horizontal aboveground containers mounted on two saddles only and allow for expansion and contraction? (NFPA 59 2-5.1.3)
_____N/A_____

28. Are containers in contact with the saddles protected from corrosion? (NFPA 59 2-5.1.4)
_____N/A_____

29. Are containers properly painted and protected from the elements? (NFPA 59 2-5.1.5)
_____N/A_____

30. Are containers located a minimum distance away from buildings, not associate with the gas plant, as follows: (NFPA 59 Table 2-4.1.2)
_____N/A_____

Container Size	Minimum Distance	Between Containers
2,001 to 30,000 gal	50 feet	5 feet (NFPA 59 Table 2-4.12)
30,001 to 70,000 gal	75 feet	1/4 of the sum of diameters of adjacent containers.

31. Are there multiple aboveground containers in a single location? (NFPA 59 2-4.1.3)
__N/A_____

32. How many containers are in a single group? (NFPA 59 2-4.1.3)
Note: see Table 2-4.1.3 for separation of groups of 6 and 9 containers
___N/A_____

33. Are there groups of containers? (NFPA 59 2-4.1.3)
__N/A_____

34. What type of fire protection is provided? N/A
Note: See Table 2-4.1.3 for distance and fire protection

☐ Hose Streams ☐ Fixed Monitor Nozzles
☐ Fixed Water Spray ☐ Insulation per 10-5.4.1

35. Are there more than 6 containers in one group? If there are more than 6 containers in one group, what is the fire protection (NFPA 59 2-4.1.3):
_____N/A_____

36. Are there more than 9 containers in one group? (NFPA 59 2-4.1.3)
Note: Containers shall be limited to 9 containers at a single location.
_____N/A_____

37. Does the relief vent extend upward at least 7 feet above the top of the above ground container? (NFPA 59 6-3.1)
_____N/A_____

Underground

38. Are there loose or piled combustible material or weeds within 25 feet of any container? (NFPA 59 2-4.4)
_No_____

39. Are containers located less than 50 feet fom the nearest important building or group of building or line of adjacent property that can be built upon? (NFPA 59 2-4.2.5)
___OK_____

40. Has the container relief valve been sized to meet the requirements of NFPA 59 Appendix E Table E-1 or other standard? (NFPA 59 6-4.1)
___Calculated by engineering

PIPING, VALVES, AND EQUIPMENT

41. Pipe specification
___ASTM A106, Sch B piping_____

42. Valve specification
___ANSI 300 flanges and ball valves_____

43. Hose connection specification
____Rated at 1,750 psig for LP gas_____

44. Does all piping conform to NFPA 59? (NFPA 59 4-1.1) List the pipe standards to which it was manufacture
____ASTM 31.3_____

45. Are pipeline installed to provide for expansion, contraction, jarring, vibration, and settling without damage?(NFPA 59 4-1.7)
____OK_____

46. Are pipe and connections leak tight and have they been leak tested? (NFPA 59 4-1.6)
___preliminary pressure test on file-did not check_____

47. Is the piping connection to the container for sizes over 2 inches made by welding or with welded flanges? (NFPA 59 4-1.2)
___OK_____

48. Are cast-iron valves in use that carry LP gas? (NFPA 59 4-1.3)
_____N/A_____

49. Are gaskets used to retain LP-Gas in flanged connection in piping made of metal or other suitable material with melting point over 1500 degrees F? Are the

gaskets replaced whenever the flange is opened? ? (NFPA 59 4-1.5)
_____All metal gaskets_____

VAPORIZERS, HEAT EXCHANGERS, AND GAS-AIR MIXING

50. Are vaporizers designed and constructed in accordance with the ASME Code and marked as follows: (NFPA 59 5-2.3)

    a. Outside surface area in square feet
    ___Two units at 1,748 SF each_____

    b. Area of the heat exchange surface in square feet
    ___1,748 SF_____

    c. Maximum vaporizing capacity in gallons per hour
    ___9,200 Gal/hr_____

    d. Rated heat input in Btu/h
    ___10,500,000 BTU/hr_____

    e. Name or symbol of the manufacturer
    ____Sam Dick Manufacturer (1996)_____

51. Is the vaporizer:

    ☐ Indirect vaporizer

    ☐ Direct-fired vaporizer

    ☒ Water bath

52. Is there a manual gas burner valve? (NFPA 59 5-2.3 d)
    ___Yes, 2-inch main and 1-inch supply to each vaporizer_____

53. Is there a limit control to prevent the heater from raising the product pressure above the design pressure of the direct-fired vaporizer or container? (NFPA 59 5-2.3 f)
    ___N/A_____

54. Is there a relief valve installed to prevent raising the product pressure above the design pressure of the direct-fired vaporizer (NFPA 59 5-2.3 b)?
    ____N/A_____

RELIEF DEVICES

55. Is the relief device marked with (NFPA 59 6-1.2):

a. pressure (in psig) at which the device is set to start to discharge
__250 psig_____

b. Actual rate of discharge in cu ft per min of air at 60°F and 14.7 psia
___9,250 SCF/min_____

c. Manufacturer's name
__Gego_____

d. Catalog number
____A3149Mg_____

56. Is the relief device connected to the vapor space of the container? (NFPA 59 6-1.5)
_____yes, via multiport design_____

57. Are there any restrictions or valves in the relief device discharge vents? (NFPA 59 6-1.4; 6-1.6; 6-1.7.1)
__No_____

58. Are discharge vents from the relief valves installed in such a manner: (NFPA 59 6-1.9)
_____OK_____

☒ lead to the open air

☒ Be protected against mechanical damage

☒ Have rain caps or other devise to exclude moisture

59. Are discharge vents from the relief valves or common discharge headers shall be installed in such a manner as to discharge in an area that will: (NFPA 59 6-1.9.1)
_____OK_____

☒ Prevent possible flame impingement on containers, piping, equipment, and structures.

☒ Prevent possible vapor entry into enclose spaces

☒ Be above the heads of personnel who can be n the container or adjacent containers, stairs, platforms, or ground

☒ Be above the possible water levels, if from underground containers where there is a possibility of flooding.

60. Have relief devices been tested for proper operation at intervals not exceeding five years? (NFPA 59 6-2)
____Checked individual relief record with inspection summary sheet-looked OK_

HANDLING

Transfer Of Liquids Within A Utility Plant

61. Are transfer personnel familiar with the properties of the material and instructed in transfer and emergency procedures?
___OK –in annual training_____

62. Is at least one competent person in attendance during the entire period of transfer is from the time connections are made until the transfer is completed, shutoff valves are closed, and lines are disconnected? NFPA 59 7-1.3
Note: Define competent person
___Greg and Done only people that work at plant-both are qualified_____

Transfer Procedures

63. Does the operator have for each facility procedures for:

☒ Verification of connections to ensure proper delivery of gas

☒ Tightness of connections ☒ Hoses and fittings inspection

☒ Valve sequencing X Disconnection procedures

☒ Purging procedures (NFPA 59 8-3.1)

☒ Normal transfer operations ☒ Emergency transfer operation

64. Are provisions implemented to prevent moving of tank vehicles during transfer?
_____yes, chokes required in procedure_____

OPERATIONS (CP NFPA 59 5.4.3)

65. Does each facility have a written operating procedures manual covering NFPA 59 8-1.1;
___OK_____

☒ Startup

☒ Shut down

☒ Operations

X Actions to be taken if flammable concentrations of liquids or gases are detected (NFPA 59 8-1.2) using fixed detectors, portable detectors, operating malfunctions, and human senses.
☒ Purging and inerting equipment

☒ Vaporizers

☐ Refrigerated liquid (if applicable) NA

66. Does each utility gas plant have first-aid materials on hand in sufficient quantity to handle a reasonably anticipated emergency? (NFPA 59 8-2.2)
____OK_____

67. Are records of all operating log sheets and recorded data retained for at least 5 years? (NFPA 59 8-4.2)
__OK Checklist is maintained_____

MAINTENANCE

68. Are maintenance manuals for all equipment available to maintenance personnel? (NFPA 59 9-1.1)
Note: unattended facilities shall be permitted to be stored at a location where they will be accessible for maintenance personnel servicing the unattended location
____OK_____

69. Do the maintenance manuals include the following: (NFPA 59 9-1.2 & 9.2)
_____yes__________

☒ Drawings, procedures, and parts lists

☒ Preventative maintenance procedures and schedules

☒ Routine inspections to be performed

☒ Corrosion inspection and corrosion control procedures

☒ Maintenance of fire protection equipment

70. Is each auxiliary power source tested at least monthly to verify its operational capacity? (NFPA 59 9-3)
____N/A_____

71. Is all equipment containing flammable or hazardous materials purged in accordance with 8-1.3 prior to beginning maintenance procedures? (NFPA 59 9-4)
_____Should be 12.4, would be on work order and on tailgate documentation
See Appendix C of O&M

72. Are records of all maintenance log sheets of process equipment maintained for the life of the equipment, while in use, and for 3 years thereafter? (NFPA 59 9-1 and 9-2)
___OK_____

FIRE PROTECTION, SAFETY, AND SECURITY

73. Has a plan for fire fighting been developed?
___found in emergency operating plan Section 2.6.6

a. Does it address: (NFPA 59 10-1.1)
____Need to update checklist to 2004 _____

b. Does it address water supply 10-5.1 and Portable or wheeled extinguishers available at strategic locations NFPA 59 10-6.1?
___3 hydrants at plant_____

Note: The evaluation must be based on the type, quantity, and size of storage containers; an analysis of local conditions; hazards within the facility; and exposure to and from other property. The evaluation shall consider: local agency response times; type, quantity, and location of equipment needed for the detection and control of potential nonprocess and electrical fire; protection of equipment and structures; fire protection water systems; fire extinguishers; automatic shutdown equipment; availability of plant personnel; and protective equipment and special training by individuals for emergencies. See NFPA 59 10-1.1 for details requirements.

74. Has a detailed emergency procedures manual been prepared and include (NFPA 59 10-1.3):

☒ Shutdown or isolation of equipment to ensure that the escape of gas or liquid is promptly cut off or reduced as much as possible

☒ Use of fire protection ☒ Notification of public authorities

☒ First aid ☒ Duties of personnel

75. Has the emergency procedures manual been reviewed and updated at least annually? (NFPA 59 10-1.3)
___OK _____

76. Is the manual kept readily available in the operating control room or at a constantly attended location (if the plant site is not continually manned)? (NFPA 59 10-1.3)
_____OK, on site, desk copies and vehicle copies_____

77. Has fire fighting plan been reviewed with the local emergency response personnel (Fire & Police)?
Part of annual fire Dept audit, plan also e-mailed to local fire dept and hazmat team

Fire and leak detection

78. Are flammable gas detections systems used at a constantly attended location?

If not continuously monitored, will the alarm detect at not more than 25% LEL (0.525% gas in air) in accordance with NFPA 59 10-3.2?
__Gas continually monitored-plant not constantly attended_____

79. Do fire detectors alarm at the plant site and at a constantly attended location if the plant site is not manned continuously?
__Yes, monitored 24 hours at Detection logic out of Olympia_____

80. Is there a maintenance program for all plant fire protection equipment? (NFPA 59 10-7) Does it cover?

☒ Fire detectors alarm ☒ Flammable gas detections

☐ Water supply equipment NA hydrants

Personnel Safety

81. Is there suitable protective clothing and equipment available that would protect against the effects of frostbite and cold refrigerants? (NFPA 59 10-8.1)
_____OK_____

82. Are self-contained breathing apparatus provided for those employees who may be required to enter an atmosphere that could be injurious during an emergency? (NFPA 59 10-8.3)
___Equipment maintained by emergency response personnel_____

83. Are portable flammable gas detectors readily available? (NFPA 59 10-8.4)
__At engine room_____

Security

84. Is there a security system in place with controlled access to unauthorized personnel?
__Access controlled by access codes-Described Appendix D of O&M Manual___

85. Are the containers and LP equipment enclosed by a protective fence, wall, or barrier? (NFPA 59 10-9.2)
____Barbed wire fence, motion sensors_____

86. Are there at least two exit gates provided for rapid escape? (NFPA 59 10-9.3)
__There are two man gates next to vehicle gates_____

87. Is there lighting in the vicinity of protective enclosures to promote security? (NFPA 59 10-9.5)
___OK_____

Operation and Maintenance 49 CFR 192 & WAC 480-93

88. Procedures available for Valve maintenance? (192.747)
___OK, Section 32 of SWARR O&M Manual_____

89. Have valves which might be required during an emergency been checked and serviced at intervals not exceeding 15 months, but at least once each calendar year?
____OK-random checked several valves_____

90. Procedures for Leakage Surveys? (192.723 WAC 480-93-186, WAC 480-93-187 & WAC 480-93-188)
___Section 2625 Gas Operating Standards_____

    a. Have business district been identified?
    _____N/A_____

    b. Have gas detector surveys been conducted in the business districts at intervals not exceeding 15 months, but at least once each calendar year?
    _____N/A_____

    c. Have leakage surveys of the distribution system outside of the principal business areas been conducted as frequently as necessary, but at intervals not exceeding 5 years?
    ____OK_____

    d. Has the operator provided for calibration (propane) and maintenance of leak detection instruments?
    _____OK_____

e. Have leakage surveys of cast iron, wrought iron, ductile iron, or non-cathodically protected steel pipe been conducted at intervals not exceeding eight months, but at least twice each calendar year?
____N/A_____

91. Procedures for Leak Repairs? (192.703 & WAC 480-93-18601)
____Section 2575.1700 Gas Operating Standards_____

a. Have leaks been classified Grade 1, Grade 2 or Grade 3?
____OK_____

b. Have Grade 1 leaks been repaired or eliminated or continuous action taken as required?
____N/A-no grade 1 leaks_____

c. Have Grade 2 leaks been repaired or cleared within 15 or 21 months?
____N/A-no grade two leaks_____

d. Have Grade 2 leaks been reevaluated at least once every 6 months?
____N/A-no grade 2 leaks_____

e. Have Grade 3 leaks been reevaluated within 15 months?
____OK-one grade 3 leak found_____

92. Has the Maximum Allowable Operating Pressure (MAOP) been established for the 49 CFR 192 defined pipeline? (192.619, 192.621, 192.623 & WAC 480-93-183)
_____inplant piping at 450 psig, 250 psig going out of plant_____

93. Procedures for Inspecting and Testing Regulating Stations? (192.739 - 743)
_____N/A_____

a. Have regulating stations been inspected at intervals not exceeding 15 months, but at least once each calendar year?
____N/A_____

b. In good mechanical condition?
___N/A_____

c. Adequate from the standpoint of capacity and reliability of operation?
___N/A_____

d. Set to function at the correct pressure?
____N/A_____

e. Properly installed and protected from dirt, liquids or other conditions that might prevent proper operation?
_____N/A_____

94. Procedures for Testing Relief Valves? (192.743)
____N/A_____

a. Have relief devices (RV) been tested at intervals not exceeding 15 months, but at least once each calendar year?
____N/A_____

b. Have RV sufficient capacity?
_____N/A_____

c. Have RV been set at the proper set point?
_____N/A_____

95. Telemetering or Recording Gauges (192.741)
_____N/A_____

a. Is there a pipeline system supplied by more than one district regulating station?
____N/A_____

b. Are there telemetering or recording gauges installed?
____N/A_____

c. Are there any indications of abnormally high or low pressure?
___N/A_____

d. Are unsatisfactory operating conditions being corrected?
___N/A_____

96. Procedures for Damage Prevention (192.614, WAC 480-93-190 & RCW Title 19.122)
_____N/A_____

a. Written damage prevention program available?
__N/A_____

b. Member of a one-call system?
___N/A_____

c. Does the operator have available a current list of Excavators?
____N/A_____

d. Provide notification concerning the program to the public and excavators?
___N/A_____

e. Provide means for receiving and recording notification of pending excavations?
___N/A_____

f. Provide for markings within two business days?
___N/A_____

g. Provide for follow up inspections of the pipeline where there is reason to believe the pipeline could be damaged?
___N/A_____

97. Does the operator have a comprehensive public education program, that includes customers, the public, appropriate government and excavators, that teaches them how to recognize and report a gas pipeline emergency? (192.616)
__OK_____