



STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250

(360) 664-1160 • TTY (360) 586-8203

Docket No. PG-080292

**CERTIFIED MAIL**

March 14, 2008

Jeffrey D. Wiese  
Associate Administrator, Pipeline Safety  
Pipeline and Hazardous Materials  
Safety Administration  
1200 New Jersey Avenue, SE, Room E22-330  
Washington, DC 20590

Dear Mr. Wiese:

**Subject: Waiver Request – Operation and Maintenance of Critical Valves**

Please find attached a copy of a waiver request submitted by Northwest Natural Gas (NWN), seeking approval to waive a portion of the requirements found in WAC 480-93-100 relative to the operation of certain critical valves as part of their written valve maintenance program. This rule in part requires pipeline operators to detail which valves will be maintained under 49 CFR §192.745 and §192.747.

The Washington Utilities and Transportation Commission (UTC) reviewed and approved this petition for waiver at its open meeting on March 13, 2008. A copy of the Commission Order, supporting memo, safety regulation involved have also been attached.

The UTC concurs with NWN and the Oregon Public Utility Commission that operating these valves would cause a greater risk of failure, and that the conditions stipulated in the order offers the best possible safety for NWN employees, its customers and the general public is being provided.

This waiver does not affect any other Commission requirements, and NWN will meet all operation and maintenance requirements that pertain to other critical valves installed on their gas pipeline systems.



PHMSA/Office of Pipeline Safety

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If you have any questions or if we may be of any assistance, please contact David Lykken at (360) 664-1219. Please refer to Docket PG-080292 in any future correspondence regarding this matter.

Sincerely,



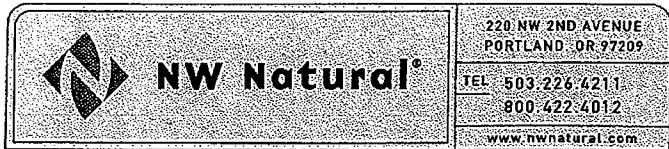
Carole J. Washburn  
Executive Secretary

Enclosures

cc: Barbara Betsock  
Acting Director, Office of Regulations  
1200 New Jersey Avenue, SE, Room E24-311  
Washington, DC 20590

Chris Hoidal  
Director, Western Region  
PHMSA/Office of Pipeline Safety  
12300 W. Dakota Ave.  
Suite 110  
Lakewood, CO 80228

Wayne Lemoi  
Transportation Specialist  
PHMSA/Office of Pipeline Safety  
233 Peachtree Street, Suite 600  
Atlanta, GA 30303



February 20, 2008

RECEIVED  
REGULATORY MANAGEMENT  
2008 FEB 27 AM 8:07  
STATE OF WASH.  
UTIL. AND TRANSP.  
COMMISSION

Mr. David Lykken  
Acting Pipeline Safety Director  
Washington Utilities and Transportation Commission  
1300 South Evergreen Park Drive SW  
P. O. Box 47250  
Olympia, Washington 98504-7250

Re: Waiver Request-Operation and Maintenance of 4"-12" PBV Valves

Dear Mr. Lykken:

By way of this letter, NW Natural is requesting a waiver of relevant state and federal pipeline safety regulations and company operation and maintenance (O & M) manual requirements relative to the partial operation of known and suspected 4"-12" PBV valves during regularly scheduled valve maintenance activities. The company is requesting the waiver for a period of time extending from February 1, 2008 through July 1, 2010.

As you are aware, NW Natural recently experienced a serious failure on a buried 12" steel valve manufactured by PBV shortly after operation of the valve. The valve is a Class 300 (MAOP 720 PSI), trunnion supported, full port, ball valve with gear operator. Company personnel excavated the valve to investigate the cause of the failure and found that all six of the cap screws that hold the trunnion in the valve body had fractured near the cap screw head allowing the trunnion to separate from the valve body. The bolt failure resulted in a significant release of natural gas.

On January 8, 2008 NW Natural requested that the Oregon Public Utility Commission (OPUC) waive O & M requirements relative to the partial operation of known and suspected 10" and 12" PBV steel valves during normal maintenance until such time as the company has determined a root cause of the trunnion bolt failures and completed appropriate remedial action. OPUC Staff approved the company's waiver request on January 22, 2008.

Subsequent to the company's January 8, 2008 waiver request to the OPUC, there has been significant additional information and findings related to the root cause of the original 12" PBV valve failure. The preliminary findings suggest that the bolts failed due to a time-dependant manufacturing defect. Based on these preliminary findings, NW Natural believes it is prudent to expand the scope of the investigation, and limitations on operation, to include other sizes of PBV valves with a similar design. Therefore, on February 18, 2008 NW Natural filed a second waiver request to the OPUC relative to the partial operation of known or suspected 4", 6", 8", 16" and 24" PBV valves during annual valve maintenance activities. OPUC Staff has indicated that they will approve the second waiver request as well.

Since NW Natural believes that there are PBV valves installed in the company's Washington pipeline infrastructure, NW Natural is requesting that the UTC approve a waiver of any relevant state or federal pipeline safety regulations and company O & M manual provisions relative to the partial operation of known or suspected 4"- 12" PBV valves during regularly scheduled valve maintenance inspections.

NW Natural proposes that during routine valve inspections field personnel would locate the valve, ensure that it is available (e.g. not paved over) and perform and document an instrumented leakage survey. However, until this issue is resolved appropriately, field personnel would not operate known or suspected PBV valves during normal maintenance. The valves would be operated if necessary, using a valve operation procedure developed specifically for PBV valves. These special procedures have been prepared and distributed to appropriate field personnel. NW Natural believes that the specialized valve maintenance procedures provide an improved level of safety for our employees, our customers and the general public.

NW Natural proposes the following conditions associated with the waiver request:

- 1) NW Natural will provide Staff with a copy of the revised inspection procedure for annual maintenance of known or suspected PBV valves (see enclosure).
- 2) NW Natural will provide Staff with a copy of the special procedure for operation (if necessary) of known or suspected PBV valves (see enclosure).
- 3) On or before March 13, 2008 NW Natural will provide Staff with a list of known and suspected PBV valves in Washington.
- 4) On or before July 15, 2008 NW Natural will provide Staff with findings on the root cause investigation and a remediation plan and schedule for addressing the subject valves.
- 5) NW Natural will provide Staff with periodic updates on the status of the project at mutually agreeable frequencies.

The company is strongly committed to the reliable delivery of natural gas to our customers, and to the safety of our customers, our employees and the general public. We intend to proceed rapidly with the failure investigation in order to identify and implement an appropriate remediation for this issue in a timely manner.

NW Natural wishes to thank Staff for your support relative to this issue.

Please contact me if you have questions.

Sincerely,



Bruce L. Paskett, P.E.  
Manager Code Compliance

Enclosures

# BULLETIN



# Construction TRAINING

<b>Bulletin #01-08</b>	<b>Subject:</b> Valve Maintenance Inspection Variance
	<b>Date:</b> 2-5-08

This bulletin is being distributed to communicate a change in procedure for some valve maintenance inspections being conducted by NWN personnel. This information should be shared with all field personnel but must be shared with crews performing valve maintenance across all departments. The procedure is to be used for annual maintenance inspection of known or suspected 4" through 12" PBV full port valves installed between 1994 and 2005. All crews shall perform the modified procedure for maintaining these valves. All other valves are to be fully maintained during the annual inspections.

In addition, the following procedures shall be implemented to assist in identifying these valves and distinguish between transmission line valves, gas supply valves, and distribution valves.

#### Transmission line valves:

- Paint valve frames red
- Paint valve covers yellow

#### Gas Supply valves:

- Paint valve frames blue
- Paint valve covers yellow

#### Distribution Valves:

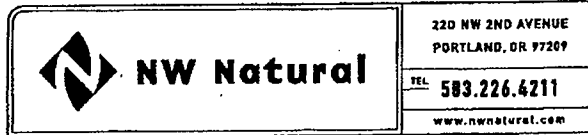
- Paint valve frames and covers yellow

Include a red slash through the center of the cover of identified or suspected PBV 4" through 12" valves installed between 1994 and 2005. Aervoe Survey Marker Paint (red locate paint) is available to purchase through American Barricade or United Rentals.

1-16-08 Original bulletin 10" and 12" valves only.

2-5-08 Amended to include 4" through 8" valves.

MEMORANDUM



**Date:** February 5, 2008

**To:** Construction Field Personnel, Gas Supply Personnel, Field Supervisors

**From:** Construction Training

**Subject:** Valve maintenance and emergency operating procedures for suspected or known 4" through 12" PBV valves

This memo is being distributed to clarify procedures for the maintenance and emergency operation of PBV 4" through 12" full port ball valves identified in revised bulletin #01-08 issued 2-4-08.

### Maintenance Procedure

This procedure is to be used for annual maintenance inspection of all known or suspected 4" through 12" PBV full port ball valves installed between 1994 and 2005. All other valves are to be fully maintained during annual inspections.

- DO NOT OPERATE THE VALVE
- Inspect the valve box for accessibility.
- Clean the valve box as required
- Conduct a leakage survey using a leakage instrument
- If leakage is detected classify as hazardous or non-hazardous
- If leak cannot be repaired by greasing, create an Advantica alert on the inspection screen indicating the presence of a leak and notify Ross Lisle on extension 4424.
- If leak is hazardous, contact Cliff Coulter 503-781-7243 or Brian Konrad 503-819-1796 prior to excavating.

- Paint valve frame and lid appropriate color for type of valve (transmission, gas supply, distribution see bulletin #01-08) and include a red slash across the lid to indicate a PBV valve.
- Complete Advantica inspection indicating “no” in the valve operated section.
- In comment section of Advantica inspection indicate “did not operate, suspected PBV valve. Leakage survey complete” as indicated below.

Compliance ID: 501647 (AR-ASSET DATA 7)  
 Line Valve ID: 1-031-031-L-07-V-A  
 Address: N17 STARK ST & BE EPLUSE 14 AV  
 Valve Size (in): 4  
 Valve Type: Plug Valve  
 Line MAAP Iner: 0

**Date**

Date Added: Monday, February 04, 2008  
 Date Start: Monday, February 04, 2008  
 Date End: Monday, February 04, 2008

**General**

Work Order ID:   
 Regulatory: DOT  
 Comments: Did not operate suspected PBV valve. Leakage survey complete.

**Alert**

Post an alert  
 Alert Comment:

Incomplete Event To set a blank Value, select a Variable in the left hand column of the list, and press Ctrl+0

Inspection | Maintenance

Variable	Value
● Locked	No
● Lubed	Yes
● Operated	No
● Cleaned Box	Yes
● Operational Condition	N/A
● Flagger Required	
● Atmospheric Corrosion	N/A
● Maintenance Required	
● Maintenance Performed	

OK Cancel Help

## Emergency Operation Procedure

If a suspected 4" through 12" PBV ball valve needs to be operated in an emergency situation the following procedure shall be performed.

- Identify and make available the nearest valves upstream and downstream of the suspected PBV valve.
- Immediately follow up operation of the valve with a leakage survey.
- Record the reason for valve operation and survey results and call information to Mickey Martin on extension 4390 or Sherry Tubbs on extension 4336.
- Conduct or schedule a follow up leakage survey the next day.

February 4, 2008



BEFORE THE WASHINGTON STATE UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Petition of ) DOCKET PG-080292
NORTHWEST NATURAL GAS ) ORDER 01
COMPANY, )
Petitioner, )
Seeking Exemption from the )
Provisions of WAC 480-93-100 )
Relating to the Operation of Certain )
Critical Valves During Regularly ) ORDER GRANTING
Scheduled Maintenance Activities ) EXEMPTION FROM RULE
..... )

BACKGROUND

- 1 On February 27, 2008, Northwest Natural Gas Company (NWN or Company) filed with the Washington Utilities and Transportation Commission (Commission) a petition requesting an exemption from WAC 480-93-100.
2 WAC 480-93-100 states that a company must operate and maintain annually, but not to exceed fifteen months, those valves selected in their "written valve installation and maintenance program."
3 NWN recently experienced a serious failure on a buried 12 inch steel valve manufactured by PBV-USA shortly after the operation of the valve. The valve is a Class 300 (MAOP 720 PSI), trunnion-supported, full port, ball valve with gear operator. NWN excavated the valve to investigate the cause of the gas leak. This particular valve that failed is a ball valve where the ball is supported by a trunnion. The trunnion is attached to the valve body by six bolts. The investigation found that all six cap bolts failed causing the trunnion to separate from the valve body, therefore causing a gas release. In addition to excavating the ball valve to investigate the failure, NWN began a study to determine the root cause of the failure. NWN found in its preliminary findings that the six bolts failed due to a time-dependent manufacturing defect. Based on these findings, NWN believes it is prudent to expand the investigation of the failure and asked for relief from WAC 480-93-100 for limited annual operations and maintenance relative to the partial operation of known and suspected PBV valves with a similar design. The exemption request will

grant NWN relief from partially operating these types of valves from February 1, 2008, through July 1, 2010, during the Company's remediation of the failure.

4 Commission Staff (Staff) reviewed the request and recommended granting the exemption request to allow NWN to operate and maintain these types of valves on a limited scope until the remediation is completed. NWN proposes the following additional safety measures:

- (a) Each potentially affected valve will be leak surveyed utilizing gas detection instrumentation at intervals not exceeding 4 ½ months, but at least four times each calendar year until such time as the valve is remediated or eliminated from consideration. This condition will provide additional safety measures that may help detect leaks in their early stage and prevent the leak from becoming a hazardous condition.
- (b) The Company will provide to Staff a list of all known suspect valves, their locations, size, and installation date as the information becomes available during the course of the investigation and remediation.
- (c) On or before July 15, 2008, the Company will provide to Staff its findings on the root cause investigation and a remediation plan and schedule for addressing the affected valves.
- (d) The Company will provide to Staff monthly updates on the status of this process until completion.

#### FINDINGS AND CONCLUSIONS

- 5 (1) The Washington Utilities and Transportation Commission is an agency of the State of Washington vested by statute with the authority to regulate gas pipeline companies as to safety. *RCW 81.88*.
- 6 (2) NWN is a gas company operating within the state of Washington and subject to Commission jurisdiction.

- 7 (3) NWN is subject to the provisions of WAC 480-93-100, which requires gas companies to operate and maintain certain selected valves annually but not to exceed fifteen months. These valves are those that are identified in the Company's written valve installation and maintenance program required under subsections (1) and (2).
- 8 (4) The Commission may grant an exemption from the provisions of any rule in WAC 480-93, if the exemption is consistent with the public interest, the purposes underlying regulation and applicable statutes. *WAC 480-93-230; WAC 480-07-110.*
- 9 (5) It is very possible that operating the known and suspected PBV-USA valves, as required as part of annual valve maintenance could cause damage. In order to protect NWN employees and the public as the remediation is being conducted the safest option is to grant the exemption.
- 10 (6) The Oregon Public Utility Commission approved on January 22, 2008 and on February 18, 2008, two exemptions filed by NWN for exemption from periodic maintenance of PBV-USA valves.
- 11 (5) This matter came before the Commission at its regularly scheduled meeting on March 13, 2008.
- 12 (6) After reviewing the petition filed in Docket PG-080292 on February 27, 2008, and giving due consideration, the Commission finds that the exemption is reasonable and should be granted.

### ORDER

#### THE COMMISSION ORDERS:


- 13 (1) After the effective date of this Order, Northwest Natural Gas Company is granted an exemption from WAC 480-93-100, for known and suspected valves manufactured by PBV-USA, through July 1, 2010.
- 14 (2) This exemption is subject to the following conditions:

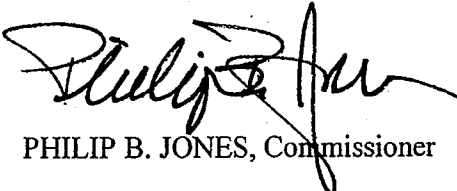
- (a) Each potentially affected valve will be leak surveyed utilizing gas detection instrumentation at intervals not exceeding 4 ½ months, but at least four times each calendar year until such time as the valve is remediated or eliminated from consideration.
  - (b) Northwest Natural Gas Company will provide to Commission Staff a list of all known suspect valves, their locations, size, and installation date as the information becomes available during the course of the investigation.
  - (c) On or before July 15, 2008, Northwest Natural Gas Company will provide to Commission Staff its findings on the root cause investigation and a remediation plan and schedule for addressing the affected valves.
  - (d) Northwest Natural Gas Company will provide to Commission Staff monthly updates on the status of this process until completion.
- 15 (3) The Commission retains jurisdiction over the subject matter and Northwest Natural Gas Company to effectuate the provisions of this Order.

DATED at Olympia, Washington, and effective March 13, 2008.

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

  
MARK H. SIDRAN, Chairman

  
PATRICK J. OSHIE, Commissioner

  
PHILIP B. JONES, Commissioner

Agenda Date: March 13, 2008  
Item Number: A4

**Docket:** PG-080292  
Company Name: Northwest Natural Gas Company

Staff: Kuang Chu, Pipeline Safety Industrial Expert

**Recommendation**

Approve Northwest Natural Gas Company's petition for exemption from WAC 480-93-100 regarding periodic maintenance of PBV-USA valves through July 1, 2010, based on the facts and the additional safety measures agreed to by NWN.

**Discussion**

On February 27, Northwest Natural Gas Company (NWN) petitioned the Commission for an exemption from WAC 480-93-100 regarding the company's obligation to write and follow a valve maintenance program.

The company had recently experienced a serious failure on a buried 12" steel ball valve manufactured by PBV-USA shortly after the operation of the valve. Company personnel excavated the valve to investigate the cause of the failure and found that all six of the bolts that hold the valve mechanism together had fractured near the bolt head. This allowed the mechanism to separate from the valve body and resulted in a significant release of gas. The preliminary analysis suggests that the bolts failed due to a manufacturing defect. Based on these preliminary findings, NWN believes it is prudent to expand the scope of its investigation and limitations on operation, to include other sizes of PBV valves with a similar design.

The company asked for relief from WAC 480-93-100 for limited annual operations and maintenance relative to the partial operation of similar known and suspected PBV valves. In addition to the requirements in WAC 480-93-100 applicable to valve operation, NWN is also required to comply with the requirements of Title 49 Code of Federal Regulations (CFR) Part 192, Sections 192.745 and 192.747 adopted by reference in WAC 480-93-999. If the commission approves this request for exemption, then staff will forward the commission's order to the Pipeline and Hazardous Material Safety Administration (PHMSA) for its approval as well.

This issue was first discovered in Oregon where NWN has a much larger gas distribution system. On January 8, 2008, NWN requested the Oregon Public Utility Commission (OPUC) to waive the requirements of partial operation of known and suspected 10" and 12" PBV steel valves during normal maintenance until such time as the company has determined a root cause of the bolt failures and has taken the appropriate remedial action. The OPUC approved the company's exemption request on January 22, 2008. On February 18, 2008, NWN filed a second exemption request to the OPUC relative to the partial operation of known or suspected 4", 6", 8", 16" and 24" PBV valves during annual maintenance activities. The second exemption request has also been approved by the OPUC. After the OPUC issues its order, it will be forwarded to

PHMSA for its approval.

Based on preliminary evaluation of the failed valves, the company has requested that the exemption from WAC 480-93-100 be in effect until July 1, 2010. This timeline represents the amount of time the company will need to complete a full analysis of their system and complete remediation.

Staff agrees it is very possible that operating the known and suspected PBV valves, as required as part of annual valve maintenance, could cause damage to those valves before the remediation of the defective valves has been completed. In order to protect NWN employees and the public as the remediation is being conducted, staff believes it is prudent to grant the exemption requested by NWN because we believe it is the safest option. While the exemption is in effect NWN has agreed to the following additional safety measures:

- (a) The company will conduct a gas leak survey of each potentially affected valve at intervals not exceeding 4 ½ months, but at least four times each calendar year until such time as the valve is remediated or eliminated from consideration. This condition will provide additional safety measures that may help detect leaks in their early stage and prevent the leak from becoming a hazardous condition.
- (b) The company will provide to commission staff a list of all known suspect valves, their locations, size and installation date as the information becomes available during the course of the investigation.
- (c) On or before July 15, 2008, the company will provide commission staff its findings on the root cause investigation and a remediation plan and schedule for addressing the affected valves.
- (d) The company will provide commission staff monthly updates on the status of this process until completion.

**Conclusion**

Staff supports NWN's petition for exemption from WAC 480-93-100 regarding periodic maintenance of known and suspected PBV-USA valves through July 1, 2010, based on the facts discovered through NWN's investigations and the additional safety measures agreed to by NWN.

**WAC 480-93-100**

**Valves.**

(1) Each operator must have a written valve maintenance program detailing the valve selection process, inspection, maintenance, and operating procedures. The written program must detail which valves will be maintained under 49 CFR § 192.745, 49 CFR § 192.747, and this subsection. The written program must also outline how the operator will monitor and maintain valves during construction projects to ensure accessibility. The following criteria and locations must be incorporated in the written program. The written program shall explain how each of the following are considered in selecting which valves require annual inspections and maintenance under 49 CFR § 192.747:

- (a) Each pressure regulating station.
- (b) Principal feeds into business districts.
- (c) Geographical size of the area to be isolated.
- (d) Number of potential customers affected.
- (e) Pipeline size and operating pressures.
- (f) Class locations.
- (g) Potential threats including, but not limited to, earthquakes, floods, and landslides.
- (h) Emergency response time.
- (i) High occupancy structures or areas.
- (j) Pipeline material: For example steel, polyethylene, or cast iron.

(2) Each operator must have a written service valve installation and maintenance program detailing the valve selection process, inspection, maintenance, and operating procedures. The written program must detail which new services will be required to have valves installed and maintained under this section. Service valve installation requirements do not apply to existing services (they are not retroactive). Existing service valves that historically have not been maintained but are deemed necessary for maintenance by the written valve maintenance program must be maintained in accordance with subsection (3) of this section (service valve maintenance requirements are retroactive). The written program shall explain how each of the following criteria and/or locations are considered in selecting which services will have valves installed and/or maintained under this section:

- (a) Services to churches, schools, hospitals.
- (b) Service line length and size.
- (c) Service line pressure.
- (d) Services to buildings occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate.
- (e) Services to commercial or industrial buildings or structures.
- (f) Services to high occupancy structures or areas.

(3) All service valves selected for inspection in the program required in subsection (2) of this section must be operated and maintained at least once annually, but not to exceed fifteen months between operation and maintenance.

(4) Each operator must select which valves to inspect based on the unique operating conditions of the operator's pipeline system.

(5) Each operator must install and maintain valves for the purpose of minimizing the hazards resulting from a gas pipeline emergency and to aid in the timely control of an uncontrolled release of gas. In determining the minimum number and spacing of valves, the operator's primary objective shall be the protection of life and property. The operator must consider this objective in conjunction with the criteria listed in subsections (1) and (2) of this section. Operators must also incorporate their valve programs established in subsections (1) and (2) of this section into their emergency plan and other plans and procedures designed to protect life and property in the event of an emergency.

(6) Operators must fully implement the requirements of this section within one year of the adoption date of this rule.

[Statutory Authority: RCW 80.01.040, 81.01.010, and 81.88.060. 07-18-010 (Docket PG-061027, General Order R-544), § 480-93-100, filed 8/23/07, effective 9/23/07. Statutory Authority: RCW 80.04.160, 80.28.210, and 80.01.040. 05-10-055 (Docket No. UG-011073, General Order No. R-520), § 480-93-100, filed 5/2/05, effective 6/2/05; Order R-28, § 480-93-100, filed 7/15/71; Order R-5, § 480-93-100, filed 6/6/69, effective 10/9/69.]