

## **Small Gas Piping Systems In the State of Washington**

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### **Second Consultant Report (With Input from Public Workshop)**

#### **EXECUTIVE SUMMARY**

The State of Washington Utilities and Transportation Commission (UTC) has requested Oleksa and Associates to perform a study to identify system characteristics that pose risks warranting a regulatory or policy response, to identify the types of small gas systems operating in Washington, and to identify the range of regulatory/policy responses for those systems. This second report, with input resulting from a public workshop held on October 4, 2006, covers master meter and other small gas piping systems that have buried piping, without regard for whether the systems are currently covered by regulations or industry codes, and that either serve more than one building or have piping in locations accessible to the public. This study applies only to natural gas, propane, and landfill gas pipelines. (See Section 2.)

Small gas systems that are currently under UTC jurisdiction are “master meters”, as defined in federal and Washington rules. There are serious problems with the current definition of “master meter”. A piping system is a “master meter” only if gas is resold – this is not an indicator of risk. Many piping systems (e.g., prison complexes, colleges, schools, industrial piping systems) may have high risk situations, yet they may not be “master meters,” and they are not covered by any regulations or industry codes that cover operation and maintenance. A small gas piping system could be reclassified to or from master meter status over and over again simply by making minor changes (such as by installing or removing a water heater or overhead air heater) that would affect whether gas is resold or not. It could be difficult or impossible for UTC inspectors to be aware of all these changes. (See Section 3.)

Risk is the result of the probability of an event happening multiplied by the consequence of that event (see Section 7.1.1).

There is insufficient data available to calculate precise numerical risk for small gas piping systems, but there is enough information to rank relative risks of various piping systems (see Section 7.5). Risk in a small gas piping system is no less than that in a large system, and in fact may be greater on a per foot basis (see Section 7.1.2).

Similarly, risk in non-jurisdictional piping cannot be expected to be less than that in large jurisdictional piping systems. An additional factor that affects non-jurisdictional piping is that there is neither any regulatory oversight nor any industry code to provide operations and maintenance guidance to an operator of such a system. The result is that, while deficiencies in jurisdictional systems are being identified through inspections and remedied (decreasing overall risk with time), deficiencies in non-jurisdictional piping may be overlooked. Overlooked deficiencies will deteriorate over time, and may create hazards (increasing overall risk with time). As these two contrasting trends continue, non-jurisdictional piping, overall, will likely become the highest risk. (See Sections 7.1.3 and 7.1.4.) The National Transportation Safety Board (NTSB) indicates that lack of adequate oversight can be a contributing factor to very serious accidents (see Section 7.1.4 (b)).

Propane piping systems can generally follow the same rules as those for natural gas pipeline systems, with some exceptions to address the fact that propane is heavier than air and has a much lower LEL (lower explosive level). Additional rules covering leak detection techniques and venting are appropriate. (See Sections 7.1.5 and 9.3, and Appendix D, Section 8.)

## **Small Gas Piping Systems In the State of Washington**

March 5, 2007

There are three risks applicable to small gas piping systems: risk due to leaks, risk due to overpressure, and risk due to asphyxiation (see Section 7.2). There are eight causes of leaks identified on the federal annual report form (see Section 7.3). Using the three identified risks and the eight causes of leaks, 21 areas of concern have been identified (see Section 7.4 and Appendix C). Based on experience, 8 areas of concern have been identified as high risk (see Section 7.5.2). A piping system is considered very high risk if it is both non-jurisdictional and contains a high risk area of concern. This information is shown in table form in Appendix C.

There is insufficient information available at this time to identify how many or where all the small gas systems in Washington are. Many (likely most) of the privately-owned master meter systems have been identified, and many other systems have been identified. Additional input might be available from propane distributors and from government agencies such as fire departments. The UTC should begin with information that is available and recognize that the data base of small gas piping systems will continue to grow as information becomes available. (See Section 8.)

A range of four regulatory/policy responses is provided (see Section 9.4):

- (1) Continue with the status quo,
- (2) Establish separate regulations specifically for small gas piping systems,
- (3) Establish an on-going education program, and
- (4) Encourage LDCs to take over small gas piping systems.

These responses may be used individually or in combinations.

Since federal pipeline safety rules already apply to all master meter systems, Washington cannot promulgate separate rules for small gas pipelines that are master meters unless a waiver is obtained from the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) (see Section 9.6).

### **RECOMMENDATIONS**

Based on the information presented in this report, Oleksa and Associates makes the following recommendations.

- (1) Work with propane distributors to obtain a listing of all small propane piping systems that meet the scope of this study (see Section 8(b)).
- (2) Work with city, county, or other governmental units to identify publicly-owned small gas piping systems (see Section 8(c)).
- (3) Work with the Washington Fire Marshal and local fire chiefs to identify all commercial and industrial small gas piping systems. Fire officials can identify locations that operate underground gas piping systems as they perform their normal inspections. (see Section 8(d)).
- (4) Work with the Washington legislature to obtain authority to inspect and enforce pipeline safety rules on publicly-owned gas piping systems (see Section 9.2).
- (5) Work with the Washington legislature to obtain authority to inspect and enforce pipeline safety rules on all small gas piping systems covered in this report, including those that do not meet the definition of "master meter" .

## **Small Gas Piping Systems In the State of Washington**

March 5, 2007

- (6) Ensure that the UTC has regulatory and enforcement oversight for all propane small gas piping systems (see Sections 7.1.4(b) and Appendix D, Section 8).
- (7) Promulgate pipeline safety rules for small gas piping systems. See Section 9.4.2 and Appendix D for material that should be included in the rules. Because of the small and simple nature of most small gas piping systems, these rules should be much simpler and more straight-forward than the full regulations found in 49 CFR Part 192. At the present time, these new rules cannot be applied to gas piping systems that meet the definition of “master meter”. Furthermore, the UTC may not have the authority to apply any safety rules to small gas pipeline systems that are not master meter systems.
- (8) Include in item (7) above a requirement for operators of small gas piping systems to prepare an annual report. This could be done electronically. UTC could then begin to track information over the years to identify trends and potential problems so that further modifications can be made to its pipeline safety program to increase public safety (see Appendix D, Section 10).
- (9) Petition the Pipeline and Hazardous Materials Safety Administration (PHMSA) for a waiver to apply the new Washington rules to master meters (see Section 9.6). Such a waiver is justified if it streamlines the applicable rules and eliminates material that is not applicable, making it more likely that small pipeline system operators do what is necessary to improve the level of public safety.
- (10) Establish an on-going education program for appropriate small gas pipeline operators, particularly industrial system operators (see Section 9.4.3). Operators participating in the on-going education program would not be subject to routine pipeline safety inspections, but should be inspected in the event of an incident or other unusual circumstance. The operators should be required to submit an annual report (see item (8) above).
- (11) Encourage local distribution companies (LDCs) to take over small gas piping systems (see Section 9.4.4). Provision must be made to reimburse the LDCs for the cost of bringing the small gas piping systems up to their own standards.
- (12) The pipeline safety rules for small gas piping systems (item (7) above) should include a simplification of the Operator Qualification rules in 49 CFR Part 192, Subpart N (see Appendix D, Section 7). Standardized “covered tasks” may be appropriate. Qualification of personnel qualified by other entities should be accepted, but provision must be made such that the original qualifying entity would not assume any liability if its qualification were to be used by an operator of a small gas piping system.
- (13) A federal notice of proposed rulemaking (NPRM) for pipeline safety rules for distribution Integrity Management Plans (DIMP) is expected in the near future (see Section 9.5). While these rules may be appropriate for large gas piping systems, they would be counterproductive to the simplified rules that are recommended for small gas piping system operators (see Section 9.4.2 and Appendix D). It is recommended that UTC provide comment to PHMSA to this effect.

# Small Gas Piping Systems In the State of Washington

March 5, 2007

TABLE OF CONTENTS	
Section	Page
-- EXECUTIVE SUMMARY	3
-- RECOMMENDATIONS	4
<b>1. BACKGROUND</b>	7
1.1 Purpose of the Study	7
1.2 Required Tasks	9
<b>2. SCOPE OF THE STUDY</b>	10
2.1 Type of Gas	10
2.2 Above-Ground Piping	10
2.3 Existence of Rules, Regulations, or Standards	11
2.4 Number of Buildings Served	11
2.5 Public Access	11
2.6 Exceptions	12
<b>3. MASTER METER SYSTEMS</b>	12
3.1 Definition	12
3.2 Problems with the Definition	12
3.2.1 Resale of Gas	12
3.2.2 No Consideration of Risk	13
3.2.3 Many Piping Systems Not Included in Definition	13
3.2.4 Classification can Change from Year to Year	14
3.2.5 Piping Systems Included in Master Meter Definition but Not in the UTC Study	14
3.2.6 Publicly-Owned Master Meter Systems	14
<b>4. TYPES OF SMALL GAS PIPING SYSTEMS</b>	14
<b>5. MEETINGS AND SITE INSPECTIONS</b>	15
<b>6. LITERATURE REVIEW</b>	15
<b>7. RISK</b>	16
7.1 General	16
7.1.1 The concept of Risk	16
7.1.2 Risk of Small versus Large Gas Piping Systems	16
7.1.3 Risk as a Function of Piping Classification	17
7.1.4 Risk in Non-jurisdictional Gas Piping Systems	17
7.1.5 Risk in Propane Piping Systems	19
7.2 Specific Risk Concerns	19
7.3 Causes of Leaks (Threats) (From Annual Report Form)	21
7.4 Areas of Concern for Small Gas Piping Systems	21

## Small Gas Piping Systems In the State of Washington

March 5, 2007

<b>TABLE OF CONTENTS – Continued</b>	
<b>Section</b>	<b>Page</b>
7.5 Ranking of Relative Risk	22
7.5.1 Non-Jurisdictional Piping	22
7.5.2 High Risk Areas of Concern	22
7.5.3 High-Risk Areas of Concern Combined with Non-Jurisdictional Piping	24
7.5.4 Summary of Relative Risk	24
<b>8. IDENTIFICATION OF SMALL GAS PIPING SYSTEMS</b>	24
<b>9. RANGE OF REGULATORY / POLICY RESPONSES</b>	25
9.1 Applicability of Minimum Federal Pipeline Safety Standards	25
9.2 Publicly-Owned Small Gas Piping Systems	25
9.3 Propane Piping Systems	25
9.4 Policy Options	26
9.4.1 Continue with Current Federal Regulatory Model	26
9.4.2 Establish Separate Regulations Applicable to Small Gas Piping Systems	27
9.4.3 Establishing an On-going Education Program	28
9.4.4 Encourage LDCs to Take Over Small Gas Piping Systems	30
9.5 Integrity Management Plans	30
9.6 State Waiver from Federal Regulations	31
<b>10. APPENDICES</b>	32
Appendix A: Examples of Master Meter Systems	33
Appendix B: Types of Small Gas Piping Systems in Washington	35
Appendix C: Ranking of Relative Risk – Summary	38
Appendix D: Summary of Proposed Rules	41