

Exhibit No.: \_\_\_\_\_  
Witness: William C. Kallberg  
Type of Exhibit: Direct Testimony  
Issue: Need for MGE to Replace Lines and Regulator to  
Provide 8.5 psig at Superior Bowen Burner Tip  
Sponsoring Party: Superior Bowen Asphalt Company  
Case No.: GC-2011-0101

MISSOURI PUBLIC SERVICE COMMISSION

SUPERIOR BOWEN ASPHALT COMPANY

CASE NO. GC-2011-0101

DIRECT TESTIMONY OF

WILLIAM C. KALLBERG

June 3, 2011

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI

Superior Bowen Asphalt Company, LLC )  
v. ) Case No. GC-2011-0101  
Missouri Gas Energy )

AFFIDAVIT OF WILLIAM C. KALLBERG

STATE OF Ma )  
COUNTY OF Scott ) ss

William C. Kallberg, of lawful age, on his oath states: That he has reviewed the attached written testimony in question and answer form, all to be presented in the above case, that the answers in the attached written testimony were given by him; that he has knowledge of the matters set forth in such answers; that such matters are true to the best of his knowledge, information and belief.

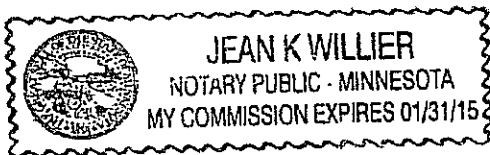
W C Kallberg  
William C. Kallberg

Subscribed and sworn to before me this 1 day of June, 2011.

Jean K Willier  
Notary Public

[SEAL]

My Commission expires: 1.31.2015



**SUPERIOR BOWEN ASPHALT COMPANY**

**GC-2011-0101**

**DIRECT TESTIMONY OF WILLIAM C. KALLBERG**

1 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

2 A. My name is William C. Kallberg. My address is: 2500 South  
3 Shore Drive, Prior Lake, Minnesota 55372.

4 **Q: ON WHOSE BEHALF ARE YOU APPEARING?**

5 A: Superior Bowen Asphalt Company.

6 **Q: WHAT IS YOUR OCCUPATION?**

7 A: I am a Pipeline Safety Engineer and consultant on gas  
8 pipeline matters.

9 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.**

10 A. I am a graduate of the University of Minnesota with a  
11 Bachelor's Degree in Civil Engineering. I have nearly 50  
12 years of training and experience in the natural gas and  
13 hazardous liquid pipeline industries. My qualifications are  
14 further set forth in my Resume/Curriculum Vitae, which is  
15 attached to my testimony as Appendix A. A List of Prior  
16 Cases in which I have participated is attached to my  
17 testimony as Appendix B.

18

1Q. **WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2A. I am providing testimony that supports Superior Bowen's  
3 complaint that there was little or no need for Missouri Gas  
4 Energy to increase the operating pressure in its gas  
5 distribution system in order for Superior Bowen to receive a  
6 pressure increase of only an additional 2 psig at the  
7 customer's delivery point (the new asphalt plant). Since  
8 the delivery rate would not change, any impact on MGE's gas  
9 system would be negligible. It is my opinion that the only  
10 actions required by anyone to accommodate Superior Bowen's  
11 need for increased gas delivery pressure was the  
12 modification or replacement by Superior Bowen of its  
13 existing pressure regulator at the delivery point and for  
14 MGE to have slightly increased its gas system operating  
15 pressure to meet Superior Bowen's need for an additional 2  
16 psig at the delivery point. This increase needed to be only  
17 as little as 2 psig and not to a pressure that would require  
18 replacement of the old cast iron pipe (limited by code to 25  
19 psig in segments of cast iron pipe in which there are  
20 unreinforced bell and spigot joints) in the area of the  
21 Superior Bowen plant.

22Q. **HAVE YOU PERFORMED AN INVESTIGATION OF THE DATA AND OTHER  
23 INFORMATION PERTAINING TO THE NEED FOR A PRESSURE INCREASE  
24 OF 2 PSIG (FROM 6.5 PSIG TO 8.5 PSIG) AT THE ASPHALT PLANT  
25 DELIVERY POINT?**

1A. Yes. I have familiarized myself with information and data  
2 pertinent to this matter in Superior Bowen's files and  
3 records. I have also had discussions with Trey Bowen and  
4 Larry Gervy at Superior Bowen and also with Bob Leonberger  
5 of the PSC Staff confirming the data. I have also reviewed  
6 the Complaint and Answer, the responses to Data Requests and  
7 the PSC Staff Report filed on February 25, 2011.

8Q. **AS A RESULT OF SUCH INVESTIGATION, WHAT DID YOU ASCERTAIN  
9 WAS PERTINENT TO DETERMINE WHETHER OR NOT IT WAS NECESSARY  
10 FOR MGE TO MAKE CHANGES ON ITS GAS SUPPLY SYSTEM TO ALLOW  
11 SUPERIOR BOWEN TO INCREASE ITS GAS PRESSURE AT THE DELIVERY  
12 POINT BY 2 PSIG?**

13A. In order for me to perform gas flow calculations and  
14 research pressure regulator capacities, I used the following  
15 data:

16 a) The new furnace requires a maximum natural gas input of  
17 137,000 cubic feet per hour (cfh).

18 b) The gas service line (from MGE main in street to  
19 Superior's new furnace) is 8-inch nominal diameter pipe,  
20 part steel and part plastic, and was increased from an  
21 original length of about 400 feet to a new length of about  
22 700 feet.

23 c) The normal operating pressure in the MGE main at the  
24 time of the original request by Superior to increase  
25 delivery pressure from 6.5 psig. to 8.5 psig. was 15 psig.

1 d) The Superior Bowen asphalt plant only operates during  
2 warm-weather months when other customer demands for gas are  
3 at minimum.

4 e) MGE claimed that in order to deliver a higher pressure  
5 to Superior (8.5 psig rather than 6.5 psig) it would need to  
6 replace 4 segments of cast iron main (over 1,400 feet of old  
7 gas main) not rated for a pressure over 25 psig and increase  
8 its operating pressure to some higher pressure (>25 psig to  
9 50 psig). Initially, this cost (some \$275,000) was to be  
10 entirely passed on to Superior, including an initial pre-  
11 payment of ~\$175,000 - an amount paid by Superior under  
12 protest in order for the MGE-claimed required work to be  
13 completed by the start of warm weather asphalt production in  
14 the spring of 2009.

15 f) MGE had included these very same main replacement  
16 segments in their long-range (within ~ 5 years) system  
17 upgrade plan.

18 **Q. WHAT IS YOUR UNDERSTANDING OF THE STATUS OF THE MATTER**  
19 **BEFORE SUPERIOR BOWEN ENGAGED YOUR SERVICES?**

20 A. I understand that in July or August of 2008, an MGE employee  
21 (Ray Wilson) told a Superior employee (Larry Gervy) that any  
22 cost to accommodate the increased pressure would be  
23 "minimal", thus Superior went ahead with the decision to  
24 replace the furnace used in producing asphalt. When MGE  
25 subsequently advised Superior that they would need a

1 substantial gas system upgrade at a cost estimated at over  
2 \$273,000.00, Superior engaged a consultant, Greg Elam of  
3 American Energy Solutions, in an effort to change MGE's  
4 mind. However, after MGE refused to change its mind,  
5 Superior was forced to sign a contract and make a partial  
6 payment toward the final actual cost, which they rightfully  
7 did under protest so as to not delay the process of  
8 increasing the gas delivery pressure to the new furnace.

9Q. **IS IT YOUR UNDERSTANDING THAT MGE CLAIMED TO STAFF DURING  
10 THE INFORMAL COMPLAINT PHASE OF THE CASE THAT SUPERIOR BOWEN  
11 HAD REFUSED MGE ACCESS TO ITS PREMISES TO EXAMINE AND AUDIT  
12 SUPERIOR BOWEN'S NEEDS AND THAT MGE BUILT WHAT THE CUSTOMER  
13 REQUESTED.**

14 Yes. It is my understanding that MGE informed the Staff that  
15 they were denied access to the plant to examine and audit  
16 the Superior needs and that MGE therefore built what the  
17 customer requested.

18Q. **IN YOUR OPINION BASED ON YOUR EXPERIENCE IS IT PLAUSIBLE  
19 THAT SUPERIOR BOWEN DENIED MGE ACCESS TO THEIR PREMISES  
20 UNDER THE CIRCUMSTANCES?**

21 I understand that the customer (Superior) requested  
22 increased gas delivery pressure, not an upgraded gas system.  
23 In my experience, which includes some ten years of direct  
24 responsible involvement in this type of situation, customers  
25 do not tell the gas company what to build - this is totally

1 beyond any policies or procedures in this industry. The  
2 customer request is limited to such things as where their  
3 facility is located, the gas flow rate required and the  
4 desired gas delivery pressure. The gas company determines  
5 the minimum appropriate action required to accommodate this  
6 request. If they choose to do more because of future  
7 expectations or other long-range plans, the extra cost is  
8 recovered in their gas rates and future revenues, not from  
9 this one customer.

10 I find it hard to believe that the customer denied MGE  
11 access to their plant because of time constraints. In the  
12 first place, Superior denies that it refused access and that  
13 the first time they ever heard of this claim was after MGE  
14 gave this as its defense to Bob Leonberger at the MO PSC,  
15 who was informally investigating the matter.

16 Secondly, the correspondence between Greg Elam of Superior's  
17 consultant, American Energy Solutions, on January 5, 2009,  
18 and January 15, 2009, and Ms. Patti Reardon of MGE clearly  
19 indicates that Superior was still trying to change MGE's  
20 mind as to the proposed expensive project and instead all  
21 that was needed was for Superior to just adjust (or replace  
22 as needed) the pressure regulator at the Superior plant to  
23 provide the needed 8.5 psi to the new furnace. A true copy  
24 of the January 5<sup>th</sup> e-mail is attached as Schedule WCK-1. A  
25 true copy of the January 15<sup>th</sup> e-mail is attached as Schedule



1 WCK-2.

2 Further, in Ms. Reardon's response to Mr. Elam dated January  
3 20, 2009, while denying Mr. Elam's request to negotiate  
4 further, she made absolutely no mention of Superior refusing  
5 MGE access to the plant to examine and audit Superior's  
6 needs or that they were building what the customer  
7 requested. A true copy of such January 20<sup>th</sup> e-mail is  
8 attached as Schedule WCK-3.

9 Since Superior was still in the negotiating mode, it makes  
10 no sense that they would deny MGE access.

11 Since the requested 2 psi pressure increase was to be at the  
12 customer delivery point (the asphalt plant), there was  
13 little, if any, need to increase operating pressure in the  
14 gas distribution system. The delivery rate would not  
15 change, thus any impact on MGE's gas system would be  
16 negligible.

17 **Q. WHAT METHODOLOGY DID YOU UTILIZE TO DETERMINE WHAT GAS  
18 PRESSURE WAS NEEDED BY SUPERIOR BOWEN TO SUPPLY 8.5 PSIG OF  
19 GAS PRESSURE TO THE NEW FURNACE?**

20 I used a simple "Gasflo High Pressure" Gas Flow Calculator,  
21 Copyright 1969 by Petroleum Engineer Publishing Company,  
22 which I have used on a regular basis since that time, to  
23 calculate the pressure drop in the 700 feet of 8 inch  
24 nominal diameter gas service line pipe with a gas flow of  
25 137,000 cfh 0.6 specific gravity natural gas and find that

1 at a starting pressure of 15 psig (30 pounds per square inch  
2 absolute) at the MGE main, the pressure drop would be  
3 negligible (substantially less than 1 psig). Even if the  
4 starting pressure were only 12 or 13 psig, this would be no  
5 different than the previous condition with the old furnace  
6 at Superior. I have attached Schedule WCK-4 displaying this  
7 simple calculator and instructions on how to use it.

8 I also randomly selected and used an online pressure drop  
9 calculator program, which gave me the same results. The  
10 only difference with the new furnace is the increase of  
11 input (delivery) pressure of 2 psig from 6.5 to 8.5 psig.  
12 There are a variety of pressure regulators that can deliver  
13 137,000 cfh with an inlet pressure of 12-15 psig and an  
14 outlet pressure of 8.5 psig. Since the gas demand would be  
15 the same with the new furnace, any impact on MGE's gas  
16 system would be negligible. I reinforce the initial informal  
17 opinion of the MO PSC Supervisor that there was no need from  
18 an engineering perspective to modify the system other than  
19 to adjust (or replace) the gas pressure regulator at the  
20 Superior plant and I would estimate the cost to Superior to  
21 be no more than a few thousand dollars.

22 **Q. WHAT CONCLUSIONS AND OPINIONS HAVE YOU ARRIVED AT IN THIS**  
23 **CASE?**

24 **A.** I have arrived at conclusions and formed opinions in this  
25 matter, all of which are based on my nearly 50 years of

1 training and experience in the natural gas industry. It is  
2 my opinion that since the requested 2 psig pressure increase  
3 was to be at the customer delivery point (the asphalt  
4 plant), there was little or no need to increase operating  
5 pressure in the gas distribution system. The delivery rate  
6 would not change, thus any impact on MGE's gas system would  
7 be negligible.

8 It is my opinion and conclusion that the only actions  
9 required by anyone to accommodate the Superior request for  
10 increased gas delivery pressure was the modification or  
11 replacement, by Superior, of its existing pressure regulator  
12 at the delivery point and a small (2 psig) increase by MGE  
13 in their system operating pressure. Thus, Superior should  
14 not have been subjected to paying for MGE's unnecessary and  
15 expensive plant replacements.

16 **Q. DO YOU HAVE ANY COMMENTS ON THE PSC STAFF REPORT?**

17A Staff claimed that it was unable to "calculate the pressure  
18 required on MGE's upstream cast iron mains. Neither  
19 Superior Bowen nor MGE could tell Staff the requested  
20 delivery point pressure." They further claimed that the  
21 delivery point pressure was unknown. The Superior Bowen  
22 regulator was sufficiently close to the furnace before and  
23 after that the real pressure at issue was the outlet  
24 pressure setting of this regulator. Staff had access to the  
25 same information as I did to be able to make this

1 evaluation. The type of regulator in use is capable of and  
2 typically equipped to sense pressure at some appropriate  
3 downstream point (say at the furnace control valve inlet) to  
4 compensate for any pressure drop between the regulator and  
5 the control valve.

6 **Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?**

7 **A. Yes it does.**

**RESUME/CURRICULUM VITAE**

William C. Kallberg  
 Pipeline Safety Engineer  
 Cell Phone: 612-910-7825

William C. (Bill) Kallberg began his career in the Natural Gas Distribution Industry immediately after graduation from the University of Minnesota in 1960. He served in the U.S. Army in 1961 and 1962, including an assignment at the Army Engineer Center at Ft. Belvoir, VA, followed by a one-year tour of duty at Osan Air Base in Korea. Upon separation from active duty, Bill returned to work as a Design Engineer for a major investor-owned gas distribution company. From 1963 to 1986, Bill progressed to Supervising Engineer, Superintendent of Construction and Maintenance, Manager of Construction and Maintenance, Manager of Engineering and Director of Long-Range Planning. During this period, he experienced the transition from the voluntary standards of ASME/ANSI B31.8 "Gas Transmission and Distribution Piping Systems" to the mandatory requirements of Title 49 CFR Part 192 "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards." In addition to his primary responsibilities, Bill was regularly involved in reviewing and responding to the rule-making process of Part 192.

Bill subsequently worked as a Construction Inspection Contractor in gas distribution, followed by employment as Gas Engineer and Operations Manager for a large municipal gas/electric/water utility. Since 1994, Bill has been a Contractor/Consultant and Expert Witness, specializing in issues related to pipeline safety regulations involving both gas (Part 192) and hazardous liquids (Part 195) pipeline systems.

During the period of 1973 to 1980, Bill served on the Metropolitan Utilities Coordinating Committee (MUCC), a Minnesota Twin Cities area group that promoted "Call Before You Dig", presented safety seminars on prevention of damage to underground utilities and developed the original specifications for the present Gopher State One-Call Center.

For over forty years in the gas industry, Bill performed and directed design, construction, operation, maintenance, record-keeping, craft training, development of operation and maintenance plans, construction standards, material standards, contractor audits, welder qualification, operator qualification programs and plans, pipeline safety inspector training, expert witness testimony and operator qualification evaluator training. Bill has been qualified and has qualified others in joining of plastic by heat fusion, electrofusion and mechanical joints.

As of June 2, 2011, Bill's current activities include:

- Expert Witness in Natural Gas Piping Defect Case in Texas.
- Expert Witness in Propane Gas Explosion Personal Injury/Property Damage Case in Connecticut.
- Expert Witness in Natural Gas Explosion Property Damage Case in Connecticut.
- Expert Witness in Natural Gas Fire Property Damage Case in Maryland.
- Expert Witness in Natural Gas Explosion Property Damage Case in Virginia.
- Expert Witness in Natural Gas Pipeline Installation Personal Injury Case in Michigan.
- Expert Witness in Natural Pipeline Installation Personal Injury Case in Ohio.
- Expert Witness in Natural Gas Distribution System PSC Complaint in Missouri.
- Expert Witness in Natural Gas Pipeline Facility Injury Case in North Dakota.
- Welding Qualification Consultant - Midwest Natural Gas Company, LaCrosse, WI
- Pipeline Safety Engineer - ProSource Technologies, Inc.

**EDUCATION:** University of Minnesota Bach. Civ. Eng. 1960

**EXPERT WITNESS:**

Non-Current Cases:	
Defective Pipeline Materials Case in Texas.	2009-2010
Pipeline-Related Personal Injury Case in Wisconsin	2007-2008
Pipeline Easement Case in Illinois	2007-2008
Pipeline-Facility-Related Personal Injury Case in California	2006-2009
Pipeline-Related Personal Injury Case in Michigan	2005-2006
Natural Gas Pipeline Damage Case in Michigan	2004-2006
Natural Gas-Related Personal Injury Case- in California	2004-2005
Pipeline Damage Case in Minnesota	2002-2003
Natural Gas Explosion in Michigan	2001-2002
Propane Gas Explosion in Minnesota	1999
Natural Gas Explosion in Wisconsin	1997

**PIPELINE SAFETY EXPERIENCE:**

Authorized Evaluator	MEA/ETN	Current
Operator Qualification Consultant	Ellingson Drainage	2008

Operator Qualification Consultant	Delta Environmental	2009
Hazardous Liquids Consultant	Midwest Energy Association	2007-2009
Gas Distribution Consultant	Minnesota Energy Resources Corporation	2006-2007
Master Evaluator	Midwest Energy Association	2000-2003
Evaluator Trainer	Midwest Energy Association	2002-2003
Consultant	Midwest Natural Gas Company	2001-Present
Subject Matter Expert	Midwest Energy Association	1999-2002
Consultant-Damage Prevention	Koch Pipeline	1998-2005
VP Engineering/Operations	P.A.C.E. (P.I.E.) Field Services	1997-1998
VP Midwest Regional Operations	Doran & Associates, Inc.	1995-1997
Gas Distribution Consultant		1994-Present
Operations Manager/Gas Engineer	Owatonna Public Utilities	1989-1994
Gas Distribution Consultant		1986-1989
Director Long Range Planning	Minnegasco, Inc. (Now Centerpoint Energy)	1983-1986
Manager of Engineering	Minnegasco, Inc. (Now Centerpoint Energy)	1980-1983
Manager of Constr/Maint	Minnegasco, Inc. (Now Centerpoint Energy)	1977-1980
Various Positions (Eng/Sup, etc)	Minnegasco, Inc. (Now Centerpoint Energy)	1960-1977

MEMBERSHIPS:

American Gas Association	Distribution Design/Development Committee	1982-1986
	Distribution Construction/Maintenance Committee	1976-1982
Midwest Energy Association/Energy Training Network	Distribution Division	1963-Current
	Operator Qualification	
	Q41-Q4All	
Metropolitan Utility Coordinating Committee		1973-1980

AWARDS:

American Gas Association	Award of Merit for 10 Years of Committee Activity and Service Award for Chairing a Committee of the Operating Section	1986
Midwest Energy Association	Certificate of Appreciation for Outstanding Service as a Participant in 1972 Operating Section Conference	1972

WORKSHOPS AND SEMINARS:

Midwest Energy Association	Annual Gas Operations Conference	2001-2003
Minnesota Office of Pipeline Safety	Educational Conferences	1996-1999
	Presenter – “Contract Language”	
Midwest Energy Association	Annual Gas Operations Conferences	1996-1998
Midwest Energy Association	Annual Management Conference	1997
Institute of Gas Technology	Economics of Gas Distribution Design	1982
American Gas Association	Annual Distribution Conference	1976-1986
	Planner, Presider and Presenter	
	“Repair of Plastic”	
	“Standardized Meter Sets”	
Institute of Gas Technology	Damage Prevention Symposium	1972
	Presenter: “Use of Plastic Gas Lines”	
Midwest Energy Association	10-12 Gas Operations Conferences	1963-1993
	Attendee, Presider and Presenter	

PUBLICATIONS:

O & M Manuals/Procedures:	Midwest Natural Gas, Inc. Sheehan’s Gas Company Racine Community Utilities Warren Community Utilities Stephen Community Utilities Hallock Community Utilities Argyle Community Utilities Hawley Community Utilities Lake Park Community Utilities	1999-2000
American Gas Association	Gas Engineering & Operating Procedures Contributing Author “Gas Line Design” and “Gas Line Installation”	1983-1985

OTHER:

Bill has been married to his wife, Elizabeth, since 1960. Together they have five children and twelve grandchildren.

## LIST OF PRIOR CASES

William C Kallberg

As of June 2, 2011

1. 1997 Natural gas explosion in Wisconsin:  
*Gave partial deposition in case involving failure of a particular type of gas line connector – no further information on this case.*
2. 1999 Propane gas explosion in Minnesota:  
*Subrogation: St. Paul Co's (For Bug-O Neg-A Sheg School), v. Bemidji Co-op.  
Retained by Pat O'Niell, Esq., attorney for **Plaintiff**.  
Pended in Beltrami County, MN.  
Gave expert opinion.  
Case settled favorable to **Plaintiff** before going to trial.*
3. 2001 Natural gas explosion fatality in Michigan:  
*Estate of Jodi Fearer, et al v. Dunigan Brothers, Inc. et al.  
Case No. 99 17525 NO, 00 17634 NO, 00 17633 NO, 00 17586, 00 17641 CZ, 01 18956 NO  
Retained by Jeff Smolek, Esq., attorney for **Defendant**.  
Pended in MI.  
Gave expert opinion.  
Case settled in 2002 favorable to **Defendant** before going to trial.*
4. 2002 Pipeline damage in Minnesota:  
*Williams Pipeline Company LLC, v. R.D. Offutt Co.  
Case No. Civil 01-1969(JEL/RLE).  
Retained by Tami Norgard, Esq., attorney for **Defendant**.  
Pended in Grant Co. (?), MN.  
Drafted an assessment and submitted an affidavit.  
Case settled in 2003 favorable to **Defendant** before going to trial.*
5. 2004 Natural gas-related fire in California:  
*Luz Moreno and Jose Luis Juarez v. Sempra Energy; Southern California Gas Company.  
Case No. L-01351.  
Pended in Imperial County, CA.  
Retained by George Heppner, Esq., attorney for **Plaintiff**.  
Examined relevant documents, prepared declaration, gave deposition.  
Case settled in 2005 favorable to **Plaintiff** before going to trial.*
6. 2004 Pipeline damage in Michigan:  
*Michigan Consolidated Gas Company v. Bacco Construction Company.  
File Number 3525-18/4069.  
Pended in MI.  
Retained by M. Sean Fosmire, Esq., attorney for **Defendant**.  
Advised on applicable pipeline safety and damage prevention rules, gave deposition.  
Case settled in 2006 favorable to **Defendant** before going to trial.*
7. 2005 Pipeline-related injury in Michigan:  
*James Kott v. Michels Corp. et al.  
File No. 05-8007-NO.  
Pended in MI.  
Retained by John Underhill, Esq., attorney for **Plaintiff**.  
Advised on applicable pipeline safety regulations, coordinated lab tests.  
No known activity since July, 2006.*

8. 2006 Pipeline facility injury case in California:  
*William Casto v. Joseph Pluta, et al.*  
Case No. N/A.  
Pended in Kern County, California.  
Retained by George Baltaxe, Esq., attorney for **Plaintiff**.  
Advised on applicable safety/prudent pipeline practices, inspected site, gave Declaration and Deposition.  
Case settled in February, 2009, favorable to **Plaintiff** before going to trial.
  
9. 2007 Pipeline easement case in Illinois:  
*Carlisle Kelly, et al v. Enbridge (U.S.) Inct.*  
Case No. 07-3245.  
Pended in United States District Court, Central District of Illinois, Springfield Division.  
Retained by Thomas Pliura, M.D., J.D., attorney for **Plaintiffs**.  
Submitted Draft Opinion Report and gave Deposition.  
Summary Judgement entered in favor of **Defendant**, case closed, May 16, 2008.
  
10. 2008 Pipeline installation injury case in Wisconsin:  
*Joy Peterson, et al v. Alliant Energy Corporation, et al.*  
Case No. 07 CV-355.  
Pended in Walworth County, WI.  
Retained by Michael J. Donovan, Esq., attorney for **Plaintiff**.  
Submitted Opinion Report and gave deposition.  
Case settled favorable to **Plaintiff** before going to trial.
  
11. 2009 Pipeline facility injury case in North Dakota:  
*Kevin Ross, v. Bear Paw Energy, LLC.*  
Case No. N/A.  
Pending in North Dakota.  
Retained by Thomas Dickson, Esq., and Wayne Aarestad, Esq., attorneys for **Plaintiff**, to advise on  
applicable safety and prudent pipeline practices.  
Case settled favorable to **Plaintiff** before going to court.
  
12. 2010 Defective pipeline material case in Texas:  
*Mobeetie Resource Development v. Polyflow; Polymeric Pipe Tech Corp.*  
Case No.09 CV – 309CVE PJC  
Pending in U.S. District, Northern District, Oklahoma  
Retained by Paige N. Shelton, Esq., attorney for **Plaintiff**, to advise on suitability of piping material for the  
intended use in gas gathering system.  
Case still in progress, submitted Initial Opinion, scheduled for deposition, February, 2010.
  
13. 2010 Pipeline installation injury case in Michigan:  
*Roger Orozco v. Chevron Phillips Chemical Company, LP and McJunkin Redman Corporation.*  
Case No. 11-cv-10235-TLL-CEB  
Pending in United States District Court, Eastern District of Michigan  
Retained by Susan Orozco and Wayne Walker, attorneys for **Plaintiff**, to advise on failure to follow proper  
procedures for delivery of gas line pipe, resulting in serious personal injuries.  
Case in early stages, had conference call with attorneys and Client, advised on standards of care, reviewed  
complaint.
  
14. 2010 Complaint to Public Service Commission resulting from charges for increased delivery pressure:  
*Superior Bowen Asphalt Company, LLC v. Missouri Gas Energy*  
Case No. GC-2011-0101  
Pending in Missouri  
Retained by Jeremiah Finnegan, Esq., attorney for **Plaintiff**, to advise on need for claimed system upgrades.  
Prepared preliminary report, completed Data Request stage, preparing to submit written testimony.



15. 2010 Pipeline installation injury case in Ohio:  
*Berkowitz v. Dominion East Ohio Gas, Bill Hawk, Inc. Dresser Industries.*  
Case No. CV-09-701196  
Pending in Ohio  
Retained by Stephen Doucette, Esq., attorney for **Plaintiff**, to advise on proper procedures while testing new pipe installation, resulting in serious personal injuries.  
Retained December, 2010, reviewed expert witness report and depositions, prepared report, awaiting further details for review and comment.
16. 2011 Natural gas explosion property damage case in Virginia:  
*[Nguyen] v. Washington Gas Light Co.*  
Case No. N/A  
Pending in Virginia  
Retained by Michael Kvetan, Esq., attorney for **Plaintiff**, to advise on cause of gas explosion that destroyed a home in Chantilly, VA.  
Retained in January, 2011, advised and communicated with on-site investigator, examined photos and related documents. Conference call update with attorneys and others, May, 2011.
17. 2011 Natural gas explosion property damage case in Maryland:  
*[Great American Assurance Company as Subrogee of Buzzoto & Associates, Inc.] v. John Ferguson, Jr. and Washington Gas Light Co.*  
Case No. 8:10-cv-00915-AW  
Pending in U.S. District Court for the District of Columbia.  
Retained by Ron L. Pingitore, Esq., attorney for **Plaintiff**, to advise on failure to comply with minimum safety standards resulting in extensive damage to multiple apartments.  
Retained in February, 2011, in early stage of reviewing complaint, fire report, photos and news articles.  
Visited site in May, 2011.
18. 2011 Natural gas explosion property damage case in Connecticut:  
*[James and Andrea Wulfleff] v. Yankee Gas*  
Case No. N/A  
Pending in N/A  
Retained by Ron L. Pingitore, Esq., attorney for **Plaintiff**, to advise on failure to comply with minimum safety standards resulting in extensive damage to private home.  
Retained in February, 2011, in early stage of reviewing complaint, fire report, photos and news articles.
19. 2011 Propane gas explosion personal injury/property damage case in Connecticut:  
*[Summer Meadows Condo Association] v. Unnamed Defendant*  
Case No. N/A  
Pending in N/A  
Retained by Joe Bevis, Esq., attorney for **Plaintiff**, to advise on failure to comply with minimum safety standards resulting in extensive damage to condominium.  
Retained in May, 2011, in early stage of reviewing complaint, fire report, photos and news articles.
20. 2011 Defective natural gas pipe product case in Texas:  
*[PolyPipe, Inc.] v. NiSource, Inc, and McJunkin Red Man Corporation*  
Case No. 11-00236  
Pending in District Court, 235<sup>th</sup> Judicial District, Cooke County, Texas  
Retained by Vince Murchison, Esq. attorney for **Plaintiff**, to advise in an ongoing litigation matter as determined by the assigned attorneys.  
Retained in May, 2011, in early stage of reviewing complaint.



January 5, 2009

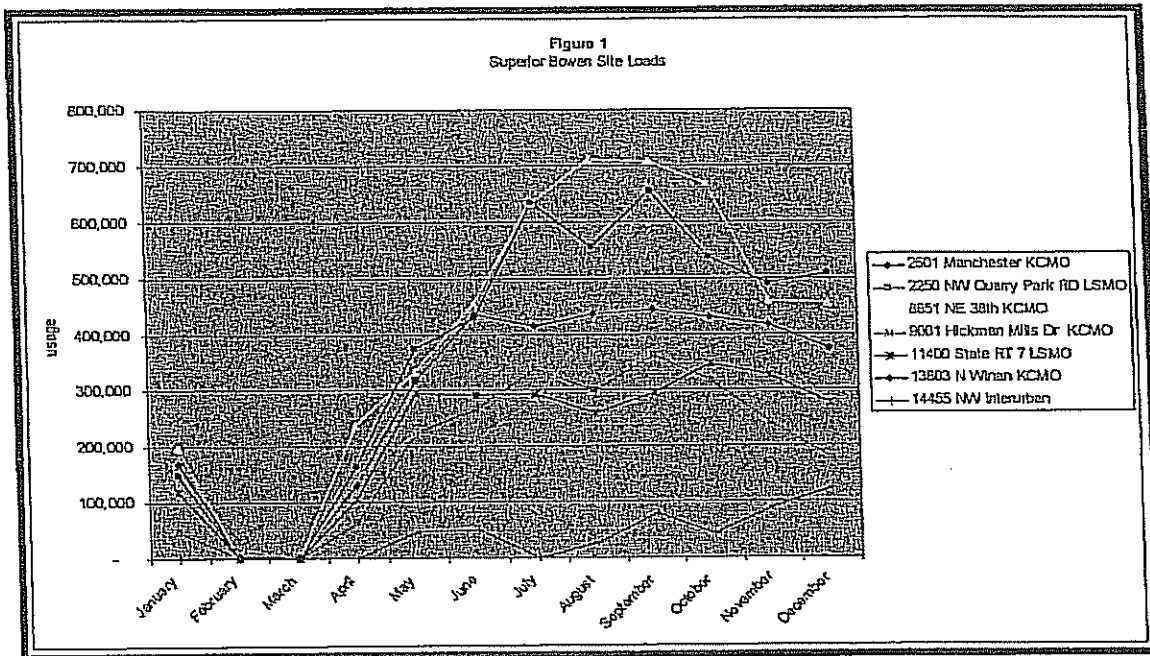
Ms Patti Reardon  
Missouri Gas Energy  
PO Box 412662  
Kansas City, MO 64141-2662

RE: Superior Bowen

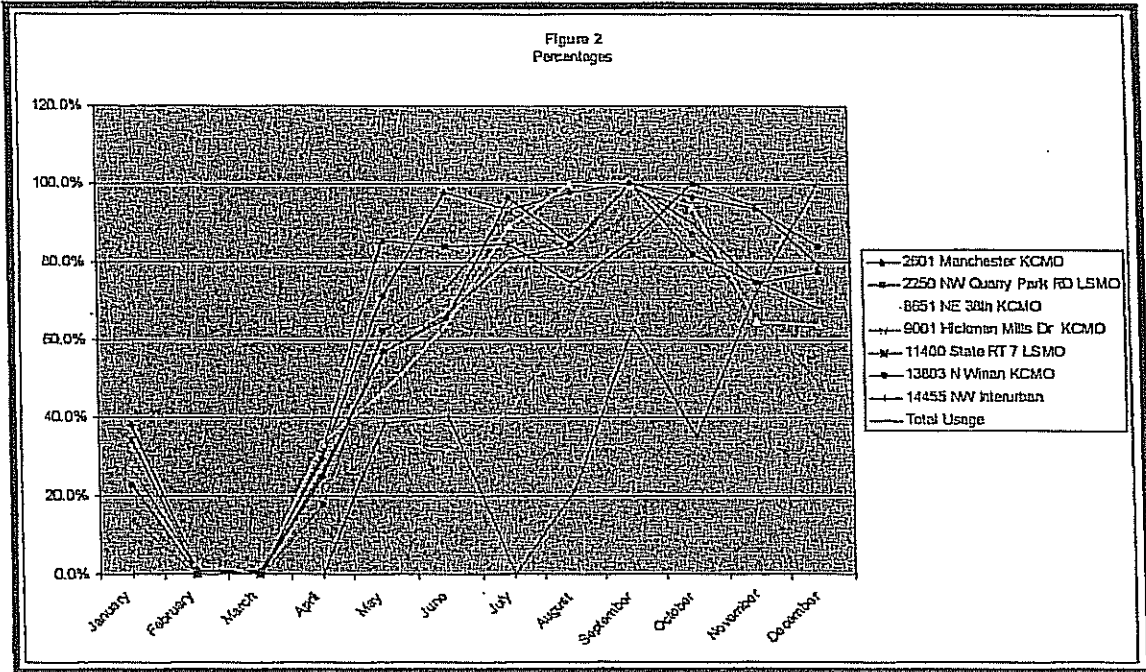
Dear Patti:

Thank you for reviewing this letter and other information regarding service for Superior Bowen's facility located at 2601 Manchester Road. Upon reviewing the enclosed information the goal will be to identify a mutually agreeable plan for the site. The information and analysis American Energy has provided is based on the gas usage data as provided by Missouri Gas Energy ("MGE") and is intended to determine whether improvements proposed by MGE are actually needed.

Based on American Energy's review of the usage data, we believe MGE has honestly erred in proposing such a drastic improvement to its distribution system. Figure 1 below shows that all of the Superior Bowen plants peak in the summer months and not when MGE is experiencing a peak in consumption. Any incremental load increase by Superior Bowen's plan will be during MGE's non-peak season. This will actually improve the overall load factor for MGE thereby lowering the incremental cost by spreading fixed costs over more volume.



Since American Energy is only able to see loads for the Superior Bowen sites, we are requesting MGE to provide the combined loads (no names) for all customers that are located between the substation and the Superior Bowen site located at 2601 Manchester. Without seeing the data, our assumption is that the loads will be nearly the inverse of the Superior Bowen load. As a result, the additional Superior Bowen load for the 2601 Manchester site will not present any challenge to the MGE system and in fact, as mentioned before, will actually improve the load factor. In reviewing usage for the site for the years 2004 through 2008, on a percentage of that site's peak usage, December averages barely above 80%, January is less than 40%, and February through March is less than 10% of the peak usage. See Figure 2 below.



While the previous discussion addresses the volumetric issue, it is also understood that MGE currently has 15psi in the street but supplies Superior Bowen through a regulator at an estimated 7.5psi at the burner tip. Based on the volumetric assumptions above, it is believed that MGE can adjust its regulator to provide Superior Bowen the needed 8.5psi at the burner tip.

If MGE still believes that the upgrade is necessary, American Energy will take issue with several cost components, including the over-inflated cost to provide the work. Most of our objections are related to the excessive overheads that escalate the price to an unreasonable level. Actually, based on pricing we developed, the installation of an on-site compressor would be less than the system upgrades being proposed by MGE. Finally, we do not believe that the Missouri Public Service Commission will support MGE's logic for using more than 4,757,822 CCF before any amounts are applied to the line upgrade, as the usage at other plants is independent of this plant.

The analysis and commentary American Energy has presented is based on limited information, so any additional information that MGE can provide that may shed additional light on this subject is welcomed.

As stated above, if MGE applies the gas load information to the proper months and to the existing load profiles then MGE will arrive at the same conclusion that the upgrades are not warranted.

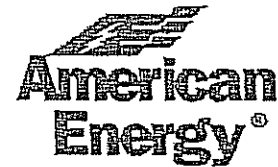
Regardless of MGE's decision, we look forward to working with you to develop a mutually agreeable resolution and to provide Superior Bowen with the service requirements they need.

Please feel free to call me to discuss this in more detail after you have been able to review these findings.

Sincerely,

Greg Elam  
American Energy Solutions





January 15, 2009

Ms Patti Reardon  
Missouri Gas Energy  
PO Box 412662  
Kansas City, MO 64141-2662

RE: Superior Bowen

Dear Patti:

I am following up to our discussions regarding natural gas service for Superior Bowen's facility located at 2601 Manchester Road. As you know, we have had a difficult time in understanding why MGE simply cannot increase the gas pressure needed to provide adequate service to Superior Bowen. Specifically, I am referring to the conversation you, David Glass and I had last week which included a discussion on the cast iron pipe that still exists on the MGE system, including the section that feeds the Superior Bowen facility.

During this discussion, David Glass confirmed that the cast iron pipe, which is part of the Public Service Commission's ("Commission") approved plan for replacement, cannot withstand the additional few pounds of pressure needed for Superior Bowen. Clearly, this is a safety issue and not a line extension application. Further, this safety issue has been approved by the Commission to be remedied. When I stated that "since this is a program already approved by the Commission, and the customer should not pay for the replacement", David stated that we (Superior Bowen) are forcing the project to occur sooner than MGE had planned for replacing the pipe. Specifically, he stated that because Superior Bowen is a transport customer MGE does not earn as much on their account as they do with other customers supplied by MGE. Additionally, he stated that this specific section of line, with the exception of a couple small accounts, only serves Superior Bowen and, therefore, is much further down the MGE priority list for replacement.

As I responded, if Superior Bowen is responsible for accelerating the replacement, then we should pay no more than the time value of money to expedite the replacement. However, after further thought on the issue, it appears that MGE is discriminating against Superior Bowen because they are a transport customer. Clearly, if Superior Bowen was purchasing its gas from MGE, the response to our request would be different.

In reviewing the cost proposed by MGE, after stripping away all of the overheads, we have estimated that the cost to accelerate the project 5 years is approximately \$30,000. I have been authorized to offer MGE this amount to move this project along. To the extent MGE insists on the full proposed cost, we will immediately seek a ruling from the Commission on the matter.

Obviously, we would rather move forward and not have to file a complaint, but Superior Bowen has emphasized that time is of the essence and they need to have their facility up and operating.

I am hopeful that you view our response as an indication of our desire to work with MGE to obtain service for Superior Bowen. However, we want Superior Bowen to be treated fair and we hope you understand our position. As stated prior, regardless of MGE's decision, we look forward to working with you to develop a mutually agreeable resolution and to provide Superior Bowen with the service requirements they need.

I look forward to hearing from you on this matter.

Sincerely,

Greg Elam  
American Energy Solutions





**MISSOURI GAS ENERGY**

3420 Broadway • Kansas City, MO • 64111-2404 • (816) 756-5261

January 20, 2009

Mr. Greg Elam  
American Energy  
10601 Mission Road, Suite 210  
Leawood, KS 66206

RE: Superior Bowen

Dear Greg,

Thank you for your letter dated January 15, 2009, concerning Superior Bowen's request for increased pressure and associated facilities upgrades in connection with gas service provided by MGE to 2601 Manchester in Kansas City, Missouri. We have reviewed your analysis and request for pricing of facilities upgrades and have concluded that we cannot accommodate that request. MGE's proposed contribution for the facilities upgrades Superior Bowen has requested, which we stand by, is within the guidelines of our MoPSC-approved tariff, in particular Sheet No. 61.3, item number 10 (see attached). Please contact me, should you need further explanation or discussion on this matter.

Thank you,

Patti Reardon



# How To Use the High Pressure Calculator

M = add 000

The Gasflo High Pressure Calculator is designed for use in making calculations necessary in daily operations in gas distribution and gas transmission. The High Pressure Calculator may be used too in piping design where pressures are greater than 1.5 psig. It may be used to solve problems that include:

- A. Flow of gas in cfh through a known pipe size.
- B. Pipe size required to deliver a specific quantity of gas.
- C. Suitable initial and terminal pressures where pipe size is known and specific quantity through the pipe is known.

The Gasflo High Pressure Calculator is based on the following formulas for flow of gas in pipe under high pressure:

For pipe of 3-in. and larger diameter, the Weymouth Formula:

$$Q = 18.062 \frac{T_0}{P_0} \left[ \frac{(P_1^2 - P_2^2) \times d^{10/3}}{GTL} \right]^{1/2}$$

For pipe under 3-in. diameter, the Cox Formula:

$$Q = 33.3 \left[ \frac{(P_1^2 - P_2^2) \times d^5}{GL} \right]^{1/2}$$

Where:

- Q = flow in cfh at 14.73 psia and 60 F
- T<sub>0</sub> = absolute temperature, 520 F
- P<sub>0</sub> = absolute pressure, 14.73 psia
- P<sub>1</sub> = inlet or initial pressure, psia
- P<sub>2</sub> = outlet or terminal pressure, psia
- d = internal diameter of pipe in inches
- G = specific gravity of gas where air = 1.0
- T = absolute flowing temperature of gas (520 F + T<sub>1</sub>)
- L = length of pipe in miles (for convenience shown as feet in lengths below one mile on the calculator)

## SAMPLE PROBLEMS

Case 1. Find flow in a pipe of known size.

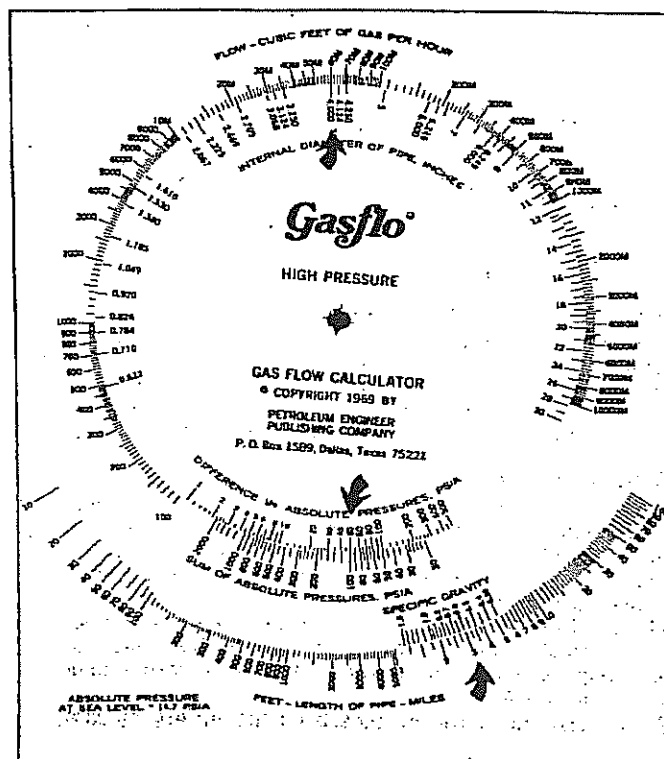
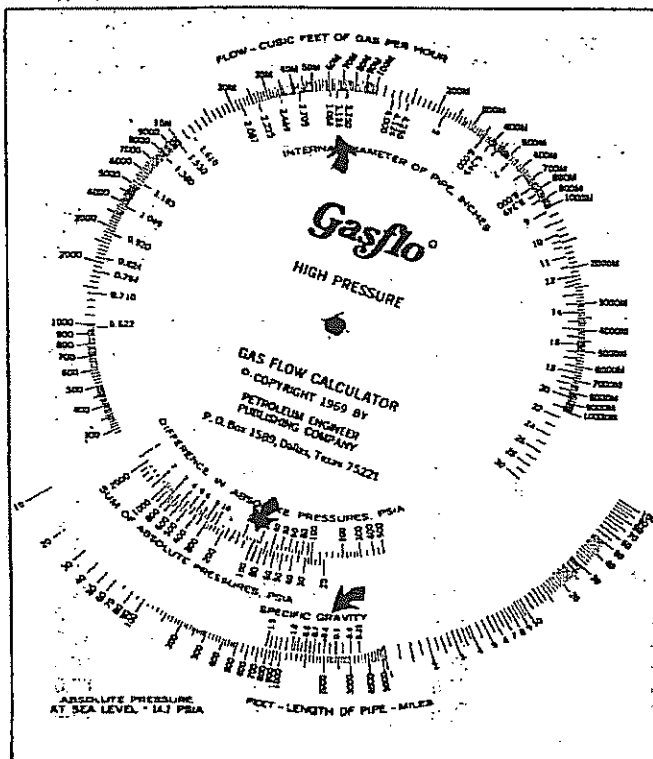
A new line 2000 ft in length, of 3-in. pipe of 0.188-in. wall thickness (3.124 I.D.) is installed. Inlet pressure is 50 psig. Outlet pressure is 25 psig. Gas is 0.60 specific gravity. What is flow of gas?

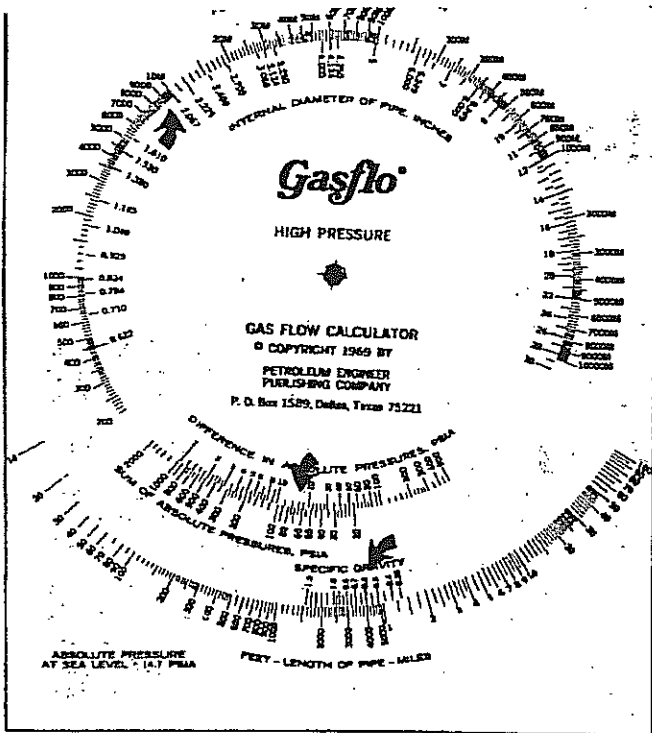
1. Set specific gravity of 0.60 opposite length of line, 2000 ft.
2. Set difference between inlet and outlet absolute pressures opposite the sum of the inlet and outlet absolute pressures *without moving the previous settings*. Absolute pressures are determined as follows:  
Inlet absolute pressure 40 = 50 + 14.73 = 64.73 psia  
Outlet absolute pressure 30 = 25 + 14.73 = 39.73 psia  
Sum of absolute pressures 100 = 104.46 psia  
Difference of absolute pressures 10 = 25.00 psia
3. Read capacity of line opposite the I.D. of the line (3.124)
4. Answer is 66,000 cfh

Case 2. Find pipe size.

A line 3 miles long is to deliver 60,000 cfh. Inlet pressure is 60 psig. Outlet pressure is 10 psig. Gas is 0.60 specific gravity. What size pipe is required?

1. Set specific gravity of 0.60 opposite length of line, 3 miles.
2. Set difference of inlet and outlet absolute pressures opposite sum of inlet and outlet absolute pressures. Inlet absolute pressure 40 = 60 + 14.73 = 74.73 psia  
Outlet absolute pressure 30 = 10 + 14.73 = 24.73 psia  
Sum of absolute pressures 100 = 99.46 psia  
Difference of absolute pressures 10 = 50.00 psia
3. Read the diameter of the pipe opposite flow of 60,000 cfh.
4. Answer is 4.062 (4-in. pipe of 0.219-in. wall thickness)





Elevation in feet	Add atmospheric pressure of
0 (sea level)	14.73
100	14.68
200	14.63
300	14.57
400	14.52
500	14.46
600	14.41
700	14.36
800	14.31
900	14.26
1000	14.21
1500	13.95
2000	13.70
2500	13.45
3000	13.21
3500	12.97
4000	12.74
4500	12.50
5000	12.28
5500	12.05
6000	11.84
6500	11.63
7000	11.44

Case 3. Select suitable inlet and outlet pressures that will provide a flow of 10,000 cfh in a 4000 ft length line of 2-in. pipe having I.D. of 2.067.

1. Set specific gravity of 0.60 opposite length of 4000 ft.
2. Set I.D. of pipe (2.067) opposite the flow, 10,000 cfh.
3. To find inlet and outlet pressures, first examine the two scales, "sum of absolute pressures, PSIA" and "difference of absolute pressures, PSIA" and select any of the coinciding lines. The following procedure is used to determine inlet and outlet pressures:

$$\text{Inlet pressure} = \frac{\text{Sum} + \text{Difference}}{2}$$

$$\text{Outlet pressure} = \frac{\text{Sum} - \text{Difference}}{2}$$

4. Checking the scales, it appears that 60 and 20 can be selected. Calculations then are:

$$\text{Inlet} = \frac{60 + 20}{2} = \frac{80}{2} = 40 \text{ psia}$$

$$\text{Outlet} = \frac{60 - 20}{2} = \frac{40}{2} = 20 \text{ psia}$$

5. Then determine gage pressure by subtracting atmospheric pressure (14.73) from the absolute pressure.

$$\text{Inlet} = 40 - 14.73 = 25.27 \text{ psig. Use 25 psig.}$$

$$\text{Outlet} = 20 - 14.73 = 5.27 \text{ psig. Use 5 psig.}$$

#### ABSOLUTE PRESSURE DETERMINATIONS

In all of the calculations, absolute pressure is used. To determine the correct absolute pressure, add atmospheric pressure to gage pressure. To determine the correct atmospheric pressure for the area or location for which calculations are made, the following table may be used:

#### CORRECTION OF VOLUME

A number of different measurement bases are used in the gas industry, with gas measured at some pressure other than 14.73 psia (30-in. of mercury) with atmospheric pressure at the point of measurement plus a small gage pressure used.

Where absolute pressure of measurement is between 14.4 and 15.25 psia, the accuracy of the formulas used do not require a correction for flow determination under normal conditions.

If the base pressure of measurement differs substan-

tially from 14.73 psia, or if a more exacting determination is desired, correction can be made as follows, based on the knowledge that volumes are inversely proportional to absolute pressures:

$$V_m = V_s \frac{P_s}{P_m}$$

Where:

$V_m$  = Volume under specified absolute pressure conditions.

$V_s$  = Volume under standard pressure conditions, 14.73 psia.

$P_m$  = Absolute pressure of measurement (see table of atmospheric pressures for various elevations in feet).

$P_s$  = 14.73 psia.

Volumes determined with this Gasflo High Pressure Calculator are corrected to standard conditions of 14.73 psia and 60 F. If other conditions are desired, correction must be made. If volume is known and conditions differ substantially, volume should be corrected to standard conditions before using it on the calculator.

#### EQUIVALENT LENGTHS OF FITTINGS

Where calculations involve a pipe section that may include fittings, additional "equivalent length" values must be added to the actual length of the pipe section. The following table provides equivalent length values suitable for use in making such determinations:

Size, inches	Equivalent Length in Feet		
	Tees and Ells	Service Taps	Valves
1/2	0.6	1.5	1.0
3/4	1.2	2.8	1.8
1	1.6	4.2	2.4
1 1/4	2.6	6.9	4.0
1 1/2	3.4	9.0	5.2
2	5.1	14.0	7.7
2 1/2	6.7	18.0	10.0
3	9.3	24.0	14.0
3 1/2	11.0	31.0	16.6
4	14.0	37.0	21.0
5	18.0	—	27.0
6	23.0	—	35.0
8	32.0	—	48.0
10	41.0	—	62.0
12	50.0	—	75.0