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ARTICLE X, SECTION 10.01: FINAL REPORT GRANT AGREEMENT: DTPH56-10-G-PHPT10

GRANTEE: Safety, Agriculture, Villages, & Environment (S.A.V.E.) Inc.

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Funding Opportunity Title: “Technical Assistance Grants (TAG) to Communities Program”

Funding Opportunity Number: DTPH56-10-SN-0002

CFDA Number: 20.710

Award Type: Grant Agreement

Award Number: DTPH56-10-G-PHPT10

Project Title: “Development and implementation of a dedicated Chester County coalition to generate informed communities who will play a vital role in safety and reliability of pipeline operations.”

Project Period: Twelve (12) months from the effective date of award.

Grant Amount: \$50,000.00

Submitted to:

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Article IV: Deliverables:

Final Report

Federal Financial Report

Federal Financial Form 425 – attached separately

FINAL REPORT

The Grantee, S.A.V.E., has fulfilled expected program outputs under Article III by providing continued technical assistance, informational resources and outreach to stakeholders in communities containing the existing Columbia gas line and the proposed AES Mid-Atlantic pipeline, and has continued to inform the broader public in Chester County and Pennsylvania regarding the safety and reliability of pipeline operations as described more fully herein. S.A.V.E. has done so through completion of stated project components. In accordance with Article X, Section 10.01, the Grantee herein submits this Final Report.

Informed communities play a vital role in the safety and reliability of pipeline operations. The Technical Assistance Grants (TAG) program, first authorized in the Pipeline Safety Improvement Act of 2002 (Pub. L. 107-355, codified at 49 U.S.C. 60130), enabled this project to strengthen the depth and quality of public participation in pipeline safety matters in southeastern Pennsylvania and on a statewide level.

With the funding assistance provided from this grant, S.A.V.E. continued promoting pipeline safety initiatives municipalities, Pennsylvania counties, and at opportunities with statewide impact regarding the institution of proactive land use ordinances regarding pipeline safety, and to educate the public on pipeline issues. The models developed under the first TAG grant project in 2010 were refined and adapted slightly to address new information and incorporate feedback received during the project. The models address new development in proximity to pipelines, surface uses affiliated with pipeline activity, street openings, and comprehensive planning. With the advent of the Marcellus Shale play in Pennsylvania, such a project could not be more timely.

Although dramatic shifts in the LNG industry, as well as continuing legal challenges, appeared to keep the proposed AES Sparrows Point LNG facility in Baltimore, and what would be the concomitant Mid-Atlantic Express pipeline expansion through Chester County, on hold, Marcellus Shale drilling now leads to the anticipation of even greater increased expansion of pipeline infrastructure throughout Pennsylvania. The proposed AES Sparrows Point project initially led to S.A.V.E.'s involvement in pipeline issues, but even as it has stalled, the Marcellus Shale play heightened the need for involvement in pipeline related safety initiatives.

In fulfillment of the terms of this agreement, S.A.V.E. hereby reports the demonstrates completion of the project through the following achievements:

Initiate the formal development of a coalition of stakeholders from the Mid-Atlantic mirrored after Washington State's Pipeline Safety Trust

The primary objective of the grant project was to create a Chester County coalition for pipeline safety. During the grant period, a dedicated 501(c)(3) nonprofit organization, the Pipeline Safety Coalition, was established and launched. Its web site is www.psccoalition.org. Its mission statement is: "To gather and serve as a clearinghouse for factual, unbiased information; to increase public awareness and participation through education; to build partnerships with residents, safety advocates, government and industry; and to improve public, personal and environmental safety in pipeline issues." Ms. Lynda Farrell is the designated administrator. The Coalition provides another source of information and technical assistance to the public and

elected officials as well as acts as a liaison to public agencies and pipeline companies. Funds received from the Pennsylvania Department of Community & Economic Development (\$10,000) and the GreenWatch Institute (\$1,000) were also secured to support the project and leverage the PHMSA TAG grant.

***Gather and serve as a clearinghouse for factual and unbiased information and education to communities, thereby increasing public participation and improving safety over time.
Enhance and manage a website dedicated to pipeline safety issues***

Through our initial TAG grant, S.A.V.E. developed a dedicated web site regarding pipeline safety, www.papipelinesafety.net. The site was launched in March 2011 and continued to be enhanced through the TAG II project period. Its goal is to better inform the public and safety and environmental issues related to pipelines, and offer unique resources from a citizen's perspective. Additionally, an overhauled S.A.V.E. organizational web site, www.savepa.org, also was enhanced to provide an introduction to the issues involved in this project and link directly to the newly launched dedicated pipeline web site.

Develop and maintain media contacts and respond to inquiries with equitable research

The Philadelphia Inquirer contacted our consultant John Gaadt about our work in Chester County and the region as the Inquirer prepared a major series on Marcellus Shale drilling and pipeline safety in Pennsylvania. The series was published in December 2011 and can be found on www.papipelinesafety.net and is enclosed here as an appendix.

Act as liaison to bring together local government officials, developers, pipeline operators and the public to address land use issues around pipelines thereby improving safety over time and to educate local government, planners and officials about careful land use practices near pipelines. Work collaboratively with pipeline operators, FERC, PHMSA to encourage involvement of all stakeholders at the inception of the pipeline siting process in order to proactively address and resolve safety issues.

With assistance from John Gaadt, Gaadt Perspectives, this TAG project focus was on the continuation of technical assistance and outreach to Pennsylvania municipalities and Counties to promote model ordinances designed to enhance safety and lessen environmental impact of new and expanding gas pipelines. As of the end of the grant period:

- West Marlborough, Londonderry and Willistown Townships have adopted or are in the process of adopting the models
- West Bradford and Newlin Townships have reported that they plan to adopt and are proceeding
- Wyoming County used the ordinances as the basis for countywide regulations
- Sullivan County is considering a tailored approach of a similar nature.
- East Fallowfield Township is still considering and follow up will continue, as well as with Upper and Lower Oxford Townships

- Outreach to additional Chester County municipalities has taken place where the models are under consideration and follow up will continue in 2012

S.A.V.E., Gaadt Perspectives and Mr. Vince Pompo, Esq., an attorney specializing in Pennsylvania municipal law, continued to work together to consider refinements and improvements to the model ordinances first drafted under the first TAG project in 2010 [current versions available [HERE](#) on the www.papipelinesafety.net web site]. Consideration is being given on developing and offering alternatives for larger setbacks within the model ordinances and may be released during the TAG III project time line..

Together with Karen Gentile from PHMSA, a presentation was given at the 2011 Pennsylvania Planning conference. Ms. Gentile has also been promoting the model ordinances developed and refined by S.A.V.E. and Gaadt Perspectives to a wider constituency.

Public workshops are tentatively being planned for 2012 in partnership with Chester County, with Charlestown Township TAG recipient group, and with the Pennsylvania State Association of Township Supervisors.

S.A.V.E. communicated with the Chester County Planning Commission regarding the County's position on pipeline safety and its willingness to co-sponsor a pipeline forum for all of the County's 73 municipalities. Initially, the County was reticent to formulate a policy position on pipeline safety given a presumption of preemption by the Federal Energy Regulatory Commission (FERC) and the State of Pennsylvania (PA Oil and Gas Act). Conversations with John Gaadt and Vince Pompo, our consultants on this project, alleviated much of this initial concern and the County is considering a role it might play as we move forward. Our objective remains to sponsor a county-wide pipeline safety event in 2012, possibly with attendance by Carl Weimer of the Pipeline Safety Trust, a national organization dedicated to disseminating information about pipeline safety.

We continue to monitor state legislative activity relating to Marcellus Shale drilling and the resultant anticipated onslaught of pipeline infrastructure in Pennsylvania. Proposed legislation, PA Senate Bill 1100 and House Bill 1950, are being closely watched as they potentially impact the viability of the model ordinances we are promoting and any final legal language will need to be assessed to decide if/how to modify the models appropriately to ensure citizen protection and municipal compliance. At the same time, the Pennsylvania Utility Commission may be charged with implementing similar models and S.A.V.E. could provide technical assistance and model ordinances to the PUC if it begins to investigate best practice models for implementation. Until legislation dictates otherwise, S.A.V.E. and Gaadt Perspectives continue to promote the model ordinances in order to promote increased safety regarding pipelines.

Federal Financial Report

Grant Agreement: DTPH56-10-G-PHPT10

Development & implementation of a dedicated Chester County Coalition to generate informed communities who will play a vital role in safety and reliability of pipeline operations

PROVIDE BREAK DOWN OF ACTUAL COSTS FOR EACH OBJECT CLASS CATEGORY – THE FOLLOWING PROVIDED FOR THE FEDERAL GRANT FUND COMPONENT ONLY (\$50,000):

Project Components:	Budgeted	Actuals
INCOME		
PHMSA TAG GRANT	\$50,000	\$50,000
PA DCED GRANT (Sen. Andy Dinniman)		\$10,000
GreenWatch Institute Grant		\$1,000
TOTAL INCOME	\$50,000	\$61,000
EXPENSES		
Development and implementation of Organization	\$5,000	
<ul style="list-style-type: none"> • Administer development of Coalition dedicated to achieving informed communities that will play a vital role in safety and reliability of pipeline operations in their geographic areas. • Provide oversight and guidance 		\$28,000 \$8,194
Centralized Website	\$2,500	\$6,269
Enhance and manage website dedicated to pipeline safety issues		
Public Workshops (2)	\$2,500	\$78
Hard costs (speaker travel, location rentals, printing, mailing promotion)		
Consultant & Organizational Services:	\$51,000	\$18,459
<ul style="list-style-type: none"> • Manage grant activities • Develop and maintain media contacts and respond to inquiries with equitable research • Research and implementation of project according to Project Abstract Statement of Work • Work collaboratively with pipeline operators, FERC, PHMSA to encourage involvement of all stakeholders • Identify, develop and engage secure dedicated funding for a 501c3 • Act as a public representative for the Organization at pipeline industry conferences/meetings • Act as liaison to bring together local government officials, developers, pipeline operators, commissions and the public to address land use issues around pipelines. • Website development, maintenance and enhancement • Facilitation of community awareness education, including web and public workshops • Act as Liaison to County Commissioners and PUC to create, organize and facilitate a state wide County Commissioners Education Course. • Maintain records, provide final report to PHMSA • Travel & mileage 		
TOTAL PROJECT BUDGET including additional non-federal matching funds	\$50,000	\$61,000

APPENDIX

Powerful Pipes, Weak Oversight

By Joseph Tanfani and Craig R. McCoy
INQUIRER STAFF WRITERS



Welders for Eagle Construction work on a pipeline near Waynesburg in southwestern Pennsylvania this summer. After problems with welds, the owners of the line, Consol Energy, fired a previous crew and brought in new welders, shown here. Later, after other safety problems on the job, Consol fired Eagle. (Michael Bryant / Staff Photographer)

WAYNESBURG, Pa. - Through the hilly fields here in southwestern Pennsylvania, crews worked for months this year, cutting a trench through woods and past farms for a new natural gas pipeline.

Like many other lines crisscrossing the state's Marcellus Shale regions, this pipe was big - a high-pressure steel line, 20 inches in diameter, large enough to help move a buried ocean of natural gas out of this corner of the state. It was also plenty big enough to set off a sizable explosion if something went wrong.

There was trouble on the job. Far too many of the welds that tied the pipe sections together were failing inspection and had to be done over.

A veteran welder, now an organizer for a national pipeline union, happened upon the line and tried to blow the whistle on what he considered substandard work.

But there was no one to call.

Pennsylvania's regulators don't handle those pipelines, and acknowledge they don't even know where they are. And when he reported what he saw to a federal oversight agency, an inspector told him there was nothing he could do, either.

Because the line was in a rural area, no safety rules applied.

"It's crazy," said Terry Langley, the union official, worried that any problems would literally be buried. "It seems to me that everyone is turning a blind eye."

In Pennsylvania's shale fields, where the giant Marcellus strike has unleashed a furious surge of development, many natural gas pipelines today get less safety regulation than in any other state in America, an Inquirer review shows.

Hundreds of miles of high-pressure pipelines already have been installed in the shale fields with no government safety checks - no construction standards, no inspections, and no monitoring.

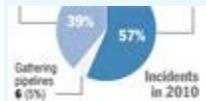
"No one - and absolutely no one - is looking," said Deborah Goldberg, a lawyer with Earthjustice, a nonprofit law firm focusing on the environment.

Belatedly, the state's elected officials and regulators are trying to catch up. The legislature is poised to give the state Public Utility Commission authority to enforce federal safety rules in the shale regions, as in other gas-producing states.

GRAPHICS



AN EXPANDING UNDERGROUND PIPELINE NETWORK



INTERSTATE PIPELINES: A GROWING CONCERN



THE ROCKIES EXPRESS PIPELINE

Still, because of a long-standing gap in the federal rules - the same issue that affected the line near Waynesburg - the new law would leave many gas pipelines unregulated over vast swaths of rural Pennsylvania, especially in the very shale regions that are ground zero for pipeline construction.

These new Marcellus Shale "gathering" pipelines that connect to the wells are going unregulated, even though they are large-diameter, high-pressure pipes - as powerful and potentially dangerous as the transmission lines that cut across the continent.

Although accidents in natural gas pipelines are rare, they can be devastating. Last year, 21 people died and 105 were hurt in 230 gas-line accidents in the United States, according to federal data, the highest death total in a decade.

This year, 16 people have died in gas explosions, including five people in Allentown and one in Philadelphia. The accidents in this region were all due to failures in old cast-iron pipelines, not the type of lines being installed in the shale regions.

Drilling and pipeline companies say the new generation of steel lines has never been safer. They say they have a huge financial stake in making sure the lines don't leak, and are building the pipes to meet federal standards - whether or not the rules require it.

"We're all about making sure we have safe and reliable operations in the commonwealth," said David J. Spigelmyer, vice president of Chesapeake Energy and the new chairman of the Marcellus Shale Coalition trade group.

And the industry notes that there are relatively few reports of accidents in gathering lines, and none so far in Pennsylvania.

As for the line near Waynesburg, its owner, Consol Midstream, said it also identified flawed welds, caught by independent inspectors hired by the firm. Consol fired welders and made repairs.

By using a stronger grade of steel and examining all welds, Consol ensured that the pipeline exceeded federal requirements, according to the company, a major coal and gas producer based outside Pittsburgh.

"While we are not required to do this, we felt it was very important to employ additional oversight and inspection services than is customary to protect our and the public's best interest," Joe Fink, Consol's manager, said in an e-mail.

An increasing number of Pennsylvanians in rural areas say corporate vigilance is not enough - they want government to step up oversight.

"We're taking all the risks up here. We should be afforded the same protections," said Emily Krafjack, a resident of Wyoming County and self-taught expert on pipelines who now works as a county consultant.

"We are not a risk assessment," she said. "We are real people. We pay taxes. We have kids. We are regular people like everybody else."

Second wave

Pipelines are the second wave of the Marcellus revolution that has revived Pennsylvania as a major oil- and gas-producing state.

Pennsylvania was home to the nation's first oil well, in Titusville, and the first petroleum pipeline, a 109-mile line that ended in Williamsport. The energy-drilling industry faded - until companies discovered huge gas reserves in the Marcellus Shale. This vast reservoir is now being unlocked with hydraulic fracturing, or "fracking," a technique that uses a mixture of high-pressure water, chemicals, and sand to blast gas loose from the rock.

Today, more drilling rigs are operating in Pennsylvania than on land in Louisiana, stoking the state economy with billions of dollars in royalty payments, paychecks, and infrastructure projects. Shale gas now accounts for 34 percent of U.S. production, and the Marcellus play is a major reason why.

Without pipelines, all that gas will stay in the ground. One study says Pennsylvania can expect anywhere from 10,000 to 25,000 miles of new natural gas pipelines - enough, in the higher estimate, to circle the globe at the equator.

Like fracking, the quickening pace of pipeline construction has heightened safety worries, aroused environmentalists, and divided communities.

Pipeline digs already have caused problems in Pennsylvania, with erosion clogging some high-quality streams and polluting some wells.

And the build-out will require the clearing of as much as 150,000 acres of forest, and bring dozens or even hundreds of new compressor stations, which will add to noise and air pollution.

"The scale of it, I don't think a lot of people really grasp yet," said Nels Johnson, deputy state director of the Nature Conservancy and the study's author.

While environmental inspectors keep a watch for pipeline damage to streams and landscapes, the wave of construction caught Pennsylvania's safety regulators unprepared.

Much of the gas in the state still arrives from western fields via interstate transmission lines, which are regulated by the federal Pipeline and Hazardous Materials Safety Administration, or PHMSA.

In urban areas, the PUC regulates gas lines for utilities such as Peco Energy and PGW.

But thus far, no one in the PUC or PHMSA has kept track of what gathering pipelines have been built in the shale fields, or where they are going.

"We have no idea," said Paul Metro, the PUC's top pipeline-safety regulator.

Under federal regulations, a rural area is defined as one with 10 or fewer homes along each mile of pipe, within a quarter-mile-wide right-of-way.

The new shale-well lines are not even included in the One Call system, the "Call 811" program that aims to prevent digging accidents with buried pipelines.

"I just can't believe that," said Jim Weaver, Tioga County planner. "That to me is one of the most ludicrous situations I have ever heard of." So far, he said, companies have built or planned 1,000 miles of pipeline in his north-central Pennsylvania county.

Rules gap

The loophole for rural America is part of a much larger vacuum in government oversight for pipelines, here and in Washington:

PHMSA, the main U.S. regulator, has been criticized for decades as ineffectual and overwhelmed.

The safety of the entire system largely hinges on industry self-policing. But when inspectors have visited job sites, they have turned up some shoddy welds, substandard steel, and other potentially dangerous construction errors - particularly about five years ago, when the industry was going through another boom period.

"Houston, we have a problem," one top inspector warned at a conference with the industry.

Throughout the country, pipeline firms have won the right to build lines with few if any restrictions from local governments. In Pennsylvania, the gas industry's clout is such that legislators are preparing to bar local officials from imposing tough restrictions on wells and pipelines in their communities.

U.S. Transportation Secretary Ray LaHood, whose agency oversees pipelines via PHMSA, has acknowledged that pipeline-safety oversight is a thin "patchwork" that needs to be made far tougher.

"We need to step up our enforcement," LaHood said in an interview. "We're going to do everything we can to make sure safety is the number-one priority when it comes to pipelines."

On Thursday, congressional leaders reached a compromise on a new pipeline-safety bill that authorizes adding 10 inspectors nationwide, requires new tests on some older pipelines, and doubles maximum fines for violations to \$2 million.

One key player in those negotiations was Rep. Bill Shuster (R., Pa.), a strong supporter of the Marcellus industry and chairman of a House subcommittee with oversight over pipelines. In the discussions, critics said, he managed to significantly weaken the bill.

Shuster says Congress needs to plug regulatory holes, but cautions that excess regulation would get in the way of industry investment. He says pipelines are safe, but can never be perfect.

"The reality is, if you're going to ship things through pipelines, there's going to be accidents," said Shuster, while the negotiations were under way. "And if you drive a car, you're going to have some accidents. If you don't want that, don't drive."

A deadly year

The massive pipeline construction in Pennsylvania is taking place during a debate in Washington and Harrisburg on how to improve safety - questions that took on more urgency after deadly line failures in the last year.

Overall, PHMSA argues that the safety record of gas pipelines is improving. Pipeline accidents in which someone died or was badly hurt have dropped over the last 20 years, Cynthia L. Quarterman, PHMSA administrator, said in congressional testimony in June.

But other statistics point to a dramatic increase in safety failures in big gas transmission lines. "Significant" incidents - those involving injuries, big leaks, or major repairs - have shot up by 55 percent since 2003.

In fact, an Inquirer analysis found that most of the safety improvements can be traced to a decrease in excavation accidents brought on by the spread of One Call programs.

Quarterman called the increase in transmission failures "troubling," even as she acknowledged that PHMSA doesn't know the reasons behind it. "We want to stop that trend and reverse it," she said.

Last year was the worst for pipeline deaths in a decade.

One early evening in September 2010, a steel gas transmission line, later found to be riddled with faulty welds, erupted in a neighborhood in San Bruno, outside San Francisco. The blast killed eight people, destroyed 38 homes, and left a crater 72 feet long. Dozens were injured, some suffering third-degree burns.

The explosions and the deaths have continued this year, in Pennsylvania.

In February, an 83-year-old cast-iron gas line blew up in downtown Allentown, killing five, including a 4-month-old baby. And in January, another old cast-iron main exploded in Northeast Philadelphia, sending a 50-foot fireball into the sky and fatally injuring a young gas company worker.

Cast-iron pipelines, which turn brittle with age, have long been identified as a safety hazard, but utilities have been slow to replace them. Pennsylvania still has thousands of miles of these lines. Philadelphia Gas Works, with more than 1,500 miles, has the highest percentage of cast iron in the nation.

Attention to detail

On a day of intermittent, spitting rain this spring, a pipeline welding crew was working under a blue tarp on the edge of a hillside in Bradford County in northeastern Pennsylvania - the epicenter of the Marcellus boom.

A deep trench had already been cut into a hillside, and the green sections of steel pipe, coated to resist corrosion, were already laid out on support frames waiting for the welders.

Parked on the highway was a square panel truck, a rolling darkroom. The owner of this line, Chesapeake Energy, was X-raying and visually inspecting each one of the pipeline welds. Another worker was using a sophisticated GPS device to record the precise location of every weld and connection.

Once the lines are done, they are electrically charged to resist rust and subjected to a hydrostatic test, pumped full of water to make sure there are no leaks. Chesapeake also is permanently marking its routes with bright-yellow pipeline signs.

The industry says that pipelines today are made of better steel and built and welded to higher standards than ever before.

"These are not yesterday's gathering systems," said Chesapeake's Spigelmyer.

In the absence of any regulations or inspections, though, it's impossible to know whether every company is following the same standards as Chesapeake. In short, Pennsylvania is depending on the companies to make sure the pipelines are built correctly.

"I've heard some companies only check 10 percent of the welds," said Jay Senozetnik of Buffalo, working as an X-ray inspector on the Chesapeake job. "The problem is, people living next to it don't know which lines are inspected 10 percent and which are 100 percent."

"The biggest concern is that one company may be a good actor, but another company may not be," said Lynda Farrell, a pipeline-safety activist in Chester County.

Many of the people living closest to the new pipelines say they are unconcerned - particularly if they have a lease and need the pipeline to start collecting their royalty payments. They say they trust the companies to build them safely.

Joan and Bill Carlson, of Chester Springs, have a gas well on their land in Springville, in Susquehanna County. They made lease deals for three more pipelines to cross their property.

"Could it happen? Sure," Joan Carlson said when asked if she was worried about an accident. "Anything could happen. But will it? Likely not. They've been doing this for a hundred years."

Given the expense of pipelines, gas-industry executives say the last thing they want is to spend millions more to dig up a faulty line, let alone risk an accident.

"There's no shortcuts being taken just because there isn't some type of public regulation," said Ted Topakas, marketing director of Henkels & McCoy, a pipeline contractor in Blue Bell.

"You want to make sure that what you're putting in the ground is of high quality and the safest construction," he said. "You want to protect the people, you want to protect the environment, you want to protect your investment."

'Extremely troubling'

When problems are caught, it's almost always by the companies themselves, or by their own inspectors.

The problem is, the companies sometimes make mistakes.

In recent years, there has been growing evidence that quality controls can break down - particularly during times of strong demand for new lines, as there is now in Pennsylvania.

"They've got so much construction going on, companies are really getting lean," said pipeline-safety expert Richard Kuprewicz. "And if you're spread so thin, you start to cut corners, and take risks. It's not like they do it intentionally; it's the system [that] takes over."

"The way things are going, 'Trust us' isn't cutting it," Kuprewicz said.

In late 2008, after a surge in projects left the industry stretched to find qualified workers, some serious problems began cropping up in big pipeline projects.

Alarmed, PHMSA engineers started spending more time in the field actually observing work crews. In all, they looked at 35 projects. What they found were "very serious issues covering all aspects of construction," according to Alan K. Mayberry, a top PHMSA official.

"It really paints a portrait of an industry that over the last year or so has really been stretched to capacity," Mayberry said during a conference in Texas to warn the industry to be more careful.

The agency found steel that didn't meet specifications, inadequate coating on pipes, and slipshod welding techniques. The agency found the problems were exacerbated when the lines cut through hills and streams - common terrain in Pennsylvania's shale fields.

Inspections were supposed to catch the bad welds, but those procedures suffered from their own "quality control problems," PHMSA found.

Some of the bad welds weren't caught until the lines failed during hydrostatic tests. Another PHMSA official said that was "extremely troubling."

Bad welds are supposed to be caught right away, not during final testing. Did that mean, Mayberry wondered during the conference, that there were other bad welds lurking?

Construction mistakes have caused other new pipelines to fail.

In January, pipeline company workers found bubbles in a stream in a remote section of southern New York - natural gas from a pinhole leak in a high-pressure transmission line just two years old.

The 182-mile Millennium Pipeline has announced expansion plans to accommodate demand from Marcellus Shale wells in Pennsylvania and New York.

A later investigation found that a section had flunked a visual inspection and was set aside - but was installed anyway, by mistake.

Last week, the pipeline's owner said it thoroughly inspected the pipeline after doing repairs and "verified the integrity" of the line. It is operating again at full pressure, Millennium Pipeline Co. said.

As for the line near Waynesburg, Langley, the union organizer, said he happened upon it at a road crossing while he was prowling the shale fields in Pennsylvania, looking to make sure none of his workers were doing jobs for nonunion contractors.

His union, Local 798, based in Tulsa, Okla., has been aggressively documenting what it considers slipshod, rushed work by nonunion contractors, particularly in Texas and Louisiana.

"It's happening everywhere, and the sad part is there's very, very little regulation," said Danny Hendrix, Local 798's business manager. "You and I are the ones who have to live around that stuff."

He said inferior construction practices mean that pipelines that should last 70 years might last only 10 or 20.

In the case of the Consol job, Michael Yazemboski, an inspector at a Pittsburgh office of PHMSA, got the call. "He didn't look at the pipe," Langley said. "He said, 'I wasn't allowed to do that because it does not fall under any regulations I have.'"

Because the gathering line was in a rural area, it fell outside safety rules, a PHMSA spokesman confirmed. The agency declined permission for an interview with Yazemboski.

Consol took action, firing a half-dozen welders from the job and eventually dismissing the subcontractor, Eagle Pipeline Construction, based outside Dallas. An Eagle spokesman declined to comment.

Accidents in Ohio

El Paso Corp.'s Tennessee pipeline system stretches across half the country, from the Texas Gulf Coast through the Marcellus regions of northern Pennsylvania and into New England.

One morning last month, near the town of Glouster, in a remote section of hills and hamlets in southern Ohio, the line blew up when a weld failed.

It was the third such failure on that pipeline in Ohio this year.

Two miles away, George Pallo, mayor and senior firefighter in the town of Jacksonville, spotted it: a 1,000-foot tower of flame. As he got closer, he said, he had to roll up the fire truck window so he could hear the radio.

"I still hear that roar," he said.

Three houses and two barns caught fire, not from the explosion but from the radiant heat. One woman waited almost too long to get out, fleeing only when her home's vinyl siding started to melt. The backs of her legs got burned as she ran away.

In February, a weld split and touched off another fireball 150 miles away; no one was hurt. Another weld failure created a big gas leak in March, but this time there was no fire.

For pipeline people and regulators, this is worrisome: The welds tying the sections together are supposed to be stronger than the steel itself. Three failures in one year means something has gone very wrong.

"You can bet we are paying a lot of attention to that pipeline," said Quarterman, the top pipeline regulatory official.

El Paso says it's not known yet whether the third failure is, like the first two, related to defective welds; the company says shifting soil may have cracked the pipe.

In a statement, El Paso said it is committed to safety, with an inspection program that "goes well beyond what is required by federal regulations."

This month, another explosion, in rural western Alabama, blew up another gas line that extends into Pennsylvania, without injuring anyone.

Integrity management

The national pipeline system's main line of defense against leaks and explosions of this type is "integrity management," a set of rules requiring companies to inspect older pipelines. Before the program went into effect in 2004, once pipelines were in the ground, companies never had to check them again.

Since then, companies have found, and repaired, more than 3,200 problems in big interstate transmission lines.

But the program can confer a false promise of safety.

The standards cover only 7 percent of lines, in "high-consequence areas" - a euphemism for densely populated neighborhoods, or malls or schools.

And pipeline inspections are usually audits of paper records, but these utility records are sometimes missing or wrong.

In the case of San Bruno, the utility's records didn't show that the pipeline was cobbled together out of short sections of leftover pipe, and had poor-quality steel and dangerous welds, according to a report by the National Transportation Safety Board, which investigates such major accidents.

Two audits by the state and PHMSA didn't find these issues, "despite the fact that many of them should have been easy to detect."

The Safety Board concluded that PHMSA's enforcement program has been "weak" and ineffective in supervising state regulators - the same criticism made by federal auditors 32 years ago.

"For government to do its job - safeguard the public - it cannot trust alone," NTSB Chairman Deborah Hersman said. "And as we saw in San Bruno, when the approach to safety is lax, the consequences can be deadly."

Quarterman said the agency was already attacking some of the issues raised by the NTSB, including better oversight of state safety programs and utilities.

"I think the agency is very strong and very well-respected by the companies we regulate," Quarterman said in a recent interview. "There's always room for improvement."

Declining inspections in Pa.

As companies have ramped up their pace of pipeline construction in Pennsylvania, the number of government safety inspections has actually gone down.

"They are the responsibility of PHMSA, but PHMSA doesn't have the resources," said Metro, Pennsylvania's top pipeline-safety regulator. "They do some inspections, but not a lot."

Overall, PHMSA says it has devoted a modest amount of time to inspections in the state in recent years - the equivalent, in 2009, of one inspector working half a year. Last year, inspector workdays fell by half.

In addition, the agency said, it spent 216 workdays reviewing records of companies active in Pennsylvania and other states. It couldn't say how much of that time was spent on Pennsylvania pipelines.

"No, I'm not satisfied," said Sen. Bob Casey (D., Pa.), who pushed PHMSA officials for details of their staffing in Pennsylvania last year, even before the explosions in Allentown and Philadelphia.

"I still have real concerns about staff resources and training and overall safety."

Casey said the oversight gaps were even more worrisome given the rapid expansion of the Marcellus Shale pipeline network. "We've got an even bigger challenge than we had two or three years ago," he said.

Elsewhere, state regulators pick up some of the slack, taking responsibility for most inspections via agreements to enforce federal pipeline rules. But Pennsylvania has yet to take on that role.

The reason, Metro believes, goes back to the industry's decades-old muscle in the Statehouse.

"The gas lobby, for 100 years now, has been very, very strong," he said. "It appears they were able to convince the legislature they were able to self-police."

The PUC has eight safety inspectors, working under Metro. But they typically handle only the 46,000 miles of lines owned by utility companies. The lines that ruptured in Allentown and Philadelphia, for example, were under PUC oversight.

Critics worry that Pennsylvania's inattention now could lead to disaster later.

"There's nothing but a bunch of bad things that are going to happen in the next 10 or 15 years," said Don Deaver, a former pipeline engineer from Texas who now works as a consultant.

"You've had so much of it happening so quickly up there that the regulatory oversight just isn't there to keep up."

In legislation pending in Harrisburg, the PUC would get the authority to hire an additional 13 inspectors; the money to pay them would come from fees paid by pipeline operators.

But there is just one training school for pipeline inspectors in the country, in Oklahoma City. Metro says he's hoping to get his people rushed through. But it could be a year before the inspectors could get out in the field.

As for One Call, the program that's supposed to prevent digging accidents, key state legislators and the Marcellus Shale Coalition support the idea of including the shale pipelines, even in rural areas. But the measure is opposed by a second trade group representing smaller drilling companies.

Pennsylvania's oversight gap has left regulators in handcuffs.

Even when the PUC hears about potential safety issues involving shale gas pipelines, Metro said, he has no authority to investigate.

Would-be whistle-blowers have called the agency, but Metro says he sent the calls along to PHMSA and didn't keep records of the complaints.

"Since it's not in our jurisdiction, we don't keep track of that stuff," he said.

Similar Pipes, Different Rules

By Craig R. McCoy and Joseph Tanfani
INQUIRER STAFF WRITERS



When the owners of the Tennessee natural gas pipeline decided to expand the pipe in the Marcellus Shale region of Pennsylvania's northern tier, the federal safety rules they had to follow filled a book.

For this interstate transmission line running north from the Gulf Coast, the regulations covered everything from the strength of the steel to the welding methods to how deep the pipeline must be buried.

Also in Bradford County, another company - Chesapeake Energy - is building a pipeline the same size as the Tennessee line, 24 inches in diameter. And it's designed to operate at even higher pressure - up to 1,440 pounds per square inch.

But for this line, in this rural section of shale country, there are no safety rules at all.

Because the second line is classified as a "gathering" pipeline, carrying gas from well fields to transmission lines, safety rules are less stringent. And because that line is in a rural area, it's totally unregulated.

Bill Wilson lives in neighboring Wyoming County, another crossroads for the new generation of powerful Marcellus gathering lines. He made a study of pipeline rules in his role as president of a group of landowners who negotiated gas and pipeline leases.

GRAPHICS



THE BIGGEST GAME IN TOWN



BRADFORD COUNTY NATURAL GAS INFRASTRUCTURE

He says the calculation that balances safety regulations against population numbers treats rural residents as "collateral damage."

"It's all about money. You know that as well as I do," he said.

This loophole in the law, a legacy of the industry's influence in Washington, has been evident for decades, but the mighty Marcellus gas strike in Pennsylvania has changed the rules.

The new wells, using the technique of hydraulic fracturing, generate tremendous torrents of gas that need big pipes, running at pressures far greater than traditional gathering lines.

That has federal regulators and some members of Congress once again pushing to extend safety rules to the 200,000 miles of gathering lines in rural America - with gas and pipeline companies pitted against them.

"I believe when a pipeline is put in the ground, there has to be some regulation," said Transportation Secretary Ray LaHood, whose agency oversees pipelines through the Pipeline and Hazardous Materials Safety Administration, PHMSA.

"Someone has to have some enforcement over them, some oversight on construction and safety - but also transparency, so people in these communities know when a pipeline is going through their front yard," he said.

This high-stakes battle - now playing out in Harrisburg, as well - has engaged politicians, environmentalists, and legions of lobbyists, arguing over arcane details in law offices, committee rooms, and before the state Public Utility Commission.

As Pennsylvania takes its place among the major gas-producing states, it is perhaps appropriate that a key figure in these regulatory debates is a congressman from Pennsylvania - Bill Shuster.

When Republicans gained control of the House in the 2010 elections, Shuster became chairman of a subcommittee with oversight of pipelines. He's hesitant to add rules that might slow natural gas development - including ones on gathering pipelines.

"If there's a glaring problem out there, we ought to take a look at it, but I haven't heard there's a problem," he said. "If it's not broke, why fix it?"

Gas and pipeline companies say that the oversight gap has no effect on public safety, and that their new gathering lines in the Marcellus are "state of the art."

Chesapeake Energy says the 24-inch line it is building in Bradford County, like its other pipelines, meets or exceeds all safety regulations.

"I would be surprised to find anybody building gathering lines out there that are not up to the highest integrity standards," said David J. Spigelmyer, vice president of Chesapeake and chairman of the Marcellus Shale Coalition, the leading industry trade group.

Though the industry insists accidents on gathering lines are rare, the stakes are high when the pipes do rupture. In recent years, they have blown up in Texas and Oklahoma, killing workers and burning one woman in her home.

"It doesn't matter what you call this thing," said Richard Kuprewicz, an engineer and consultant for the Pipeline Safety Trust. "You've got high diameter and high pressure - guess what? There needs to be more regulation."

But industry representatives, here and in Washington, are once again pushing back. Bills pending in Harrisburg say the state rules can't be tougher than the federal ones.

"It simply increases the cost of doing business in the area without really accomplishing much," said W. Jonathan Airey, a lawyer for the industry. He and others say the money could be better spent on protecting the public in more populated areas.

He was doubtful the move would gather much steam, especially given the long history of wrangling over the issue. "I don't know how enthusiastic DOT [the Department of Transportation] is to reopen something that took 30 or 35 years" to settle, he said.

Fewer people, less protection

As pipeline rules have become stricter, they have required companies to focus their greatest attention on what regulators officially term "high-consequence areas" - places where the injury or death toll would be massive.

That's of little comfort to Emily Krajack, who lives in Mehoopany, in rural Wyoming County.

"We're of no consequence, that's what I always say," said Krajack, who has become one of Pennsylvania's most persistent advocates for stronger pipeline regulations.

Much of the pipeline mileage in her county is designated "Class 1," the least-populated and least-regulated of four areas under PHMSA regulations. That means there are 10 or fewer homes along a one-mile section of pipeline within a quarter-mile right-of-way. No federal or state safety regulations apply to gathering lines in Class 1.

Pipeline companies building gathering lines in Wyoming County say they are following stricter standards anyway, using stronger steel and painstaking inspection procedures.

Krajjack said that's a welcome step - but she says it should not be voluntary. She says the Class 1 loophole must be closed - .

"While these run through the fields or the hills, eventually they go by people's homes," she said.

"All of these lines are being installed in a very short window of time. They can use shallower depth, they can use thinner pipe. They can do no inspections."

Though firms pledge to build to the best standards, she says, "We have no way of knowing."

For many other residents, though, these gathering lines represent more promise than peril. Many landowners now have wells drilled and "fracked" on their property - but won't start getting royalty checks until the pipes are hooked up and the gas starts flowing.

"We're pretty sure the black river runs right through here," said Phil Beardslee, 65, a truck driver from Springville, in Susquehanna County, saying the wells in his area had been big producers.

"And I hope so," he said. "We hope. It's my retirement."

He says he is unconcerned about pollution from the well pad near his home or safety problems from the pipelines. As he spoke, a crew from Williams was laying a pipe across the street from his house.

"They come in, do a good job, cover them up, and they're gone," Beardslee said. "By the time they get it all graded off, you don't know it's even here."

Fewer rules part of history

Lower safety standards for rural areas have been enshrined in federal rules since the dawn of federal pipeline regulation.

In 1965, a transmission pipeline fractured outside the small town of Natchitoches, La. The explosion killed 17 and prompted President Lyndon B. Johnson to call for the first time for federal pipeline regulation. The same pattern has been repeated ever since - explosion, deaths, reform.

With a push from Johnson, Congress enacted its first oversight laws in 1968.

But from the start, industry lobbyists made sure the rules explicitly exempted a huge segment of the pipeline infrastructure - the ones running from wells in more remote areas.

Soon, it became apparent that the exemption had created a massive regulatory gap.

"Although several serious accidents have occurred in recent years involving . . . gas gathering lines in rural areas, safety regulations governing these pipelines have not been issued," federal auditors warned in 1978.

Prodded by Congress, the Transportation Department tried to draft new rules in 1974 and 1986 and again in 1991. Each time, the industry fought back..

Companies questioned whether the lines were really that dangerous, and whether the extra expense of regulations would discourage natural gas exploration.

Each time, the agency ended up retreating.

One of the biggest obstacles has been an inability to solve the most basic question of all: When is a pipeline a gathering line?

For pipeline companies, names mean a lot: They pay user fees to the government, \$70 million this year, based in part on how their pipes are defined. More important, tougher regulations mean more compliance costs.

Generally, gathering lines run from well fields and feed into bigger "transmission lines" that cross the country, and deliver gas to the utilities that pump it into homes and businesses through "distribution lines."

For years, the official definition was circular - a gathering line was one that, in the supply chain, came before a transmission line. A transmission line was one that came after a gathering line.

"We all used to make jokes that we'd all retire before we figure out what that is," said Johnny Dreyer, a spokesman for the Gas Producers Association, the major trade group for gathering pipeline firms.

In 2006, PHMSA essentially gave up: It simply instructed companies to use a guide produced by the American Petroleum Institute.

"It's a joke," said Bill Kiger, of Pennsylvania One Call, the 811 number that construction crews can call before they dig to avoid striking a buried gas line.

"The problem with all that kind of stuff is the definitions are produced by the user group," he said. "If you were a user, would you make the definition tough? It's like setting your own parking fee."

But that didn't settle anything. In August, federal regulators admitted the guide was full of "conflicting and ambiguous language," with 20 bewildering diagrams that can result in the same pipeline system being classified in different ways.

"The regulations, as I look at them, begin starting to look like the tax code," Jeffrey D. Wiese, associate PHMSA administrator for pipeline safety, said at an agency meeting.

Some companies have gamed the system, regulators say, exploiting the confusion so their lines escape regulation - even though they may run as far as 76 miles from the gas well.

In fighting new rules, the industry has leaned on numbers. There are fewer accidents on gathering lines, the argument goes, so new rules would be overkill.

But critics say that's something of a Catch-22. Since the lines aren't regulated, there's no requirement that companies report incidents or accidents. Reliable statistics are hard to come by.

"It's hard to move forward with a rulemaking based on data when there's no data and no requirement for anybody to give us data," one PHMSA official said in an interview, speaking on condition that he not be named.

In fact, the only real attempt to study accidents on gathering lines was done by an industry trade group in 2004. The Gas Processors Association surveyed 40 operators and found 58 incidents during the previous five years, including one death and three injuries. The group said this showed the lines posed less threat than transmission lines.

The study was cited by PHMSA when, in 2006, it decided against tougher rules.

At the request of Congress, the Government Accountability Office is now trying to collect statistics on gathering-line accidents; auditors recently toured Pennsylvania.

In the effort to extend regulation, safety advocates and regulators have had to contend with opposition not only in the industry, but from elsewhere in the government.

In 2004, Energy Department officials cited a policy of President George W. Bush to protect domestic energy production and echoed industry lobbyists in warning that regulation would harm "marginal" operators.

The move to increase safety could force companies to shut down wells or discourage the drilling, wrote James Slutz, who was then deputy assistant secretary for natural gas and petroleum technology.

Lobbyists joined in, saying new regulations would have a "devastating impact" on gas exploration, and "drag producers into a regulatory scheme . . . with little or no benefit."

These worries found a sympathetic audience among regulators.

"We are very concerned that we not bring additional costs," Stacey L. Gerard, the chief safety officer at the time, said during a 2006 meeting with a PHMSA technical advisory panel heavy with industry representatives. "We are very sensitive to the limited margins of profit."

In the end, the agency in 2006 dropped its bid to push regulation into Class 1 rural areas, saying its proposal "does not appear to be a reasonable use of available resources." The agency tightened some rules on gathering lines but relaxed others.

The net result: No change in miles regulated.

Big explosion, no investigation

Near the town of Alex, in the oil-field plains southwest of Oklahoma City, a noise that sounded like a bomb shook people awake in the middle of the night three years ago.

The explosion, from a 20-inch gas gathering line, rattled their walls and sent up a 50-foot ball of flame that turned 3 a.m. as bright as afternoon. Three homes were destroyed, and a woman, Mildred Hull, suffered second- and third-degree burns.

Grady County Fire Chief Perry Wenzel said the blaze was ferocious, so intense that it melted the back of one of his fire trucks.

"It totally destroyed three homes that were there," Wenzel said in a recent interview. "It burned them to the ground."

The line was 32 years old. The company that owned it, Enogex Inc., said at the time an inspection the year before had turned up no problems. No one hit the line during an excavation.

What caused the pipe to blow up remains a mystery. The area, a center of oil and gas production since the 1920s, was rural, meaning pipes there fall outside any regulations. Oklahoma did not investigate.

"Our pipeline safety division didn't have jurisdiction over it," said Matt Skinner, a spokesman for the Oklahoma Corporation Commission.

"In terms of this agency, there were no reports," Skinner said.

Enogex conducted its own review but won't discuss the results.

"They just don't want to reveal that information," said Enogex spokeswoman Sandra Longcrier. She did say that since the accident, the company has begun to use internal devices to inspect larger gathering lines for corrosion: "That was a good lesson learned."

Two years later, another Enogex gathering line exploded in another town in the same county, injuring three workers doing maintenance on the line. One suffered a broken leg, burst eardrums, and second-degree burns over half his body.

Like the first line, this one was unregulated, and state officials did not investigate the accident. Longcrier said the company would not reveal that cause, either.

"More and more, these lines are not in a rural area - they get built up around the line after it's in," she said, stressing that the company's workers have a personal stake in safety: "All our men live and work in those areas where they have lines."

After the Alex accident, the Oklahoma Legislature took up a bill that would have given the state authority to regulate these rural gathering lines. It would have removed a legal ban on the state imposing any pipeline rules more stringent than federal ones.

But it drew fire from pipeline firms and died.

"The industry felt like it was a little too burdensome," said Republican State Sen. Brian Bingman, the sponsor.

With its long history of oil and gas production, Grady County is now a "spiderweb of pipelines," Wenzel, the fire chief, said.

"They should be regulated," he said. "Mainly for the safety of the people. These things are running next to towns and everything. They're everywhere."

"I wish there was a lot more support on this," he said. "But when it comes to the pipeline companies, they take that over."

A changing landscape

In Pennsylvania, like other oil and gas states, shallow gas wells - and pipelines - have been around for decades, dating to the first pioneering wave of oil and gas development that began 150 years ago.

About 350,000 conventional gas wells have been drilled in Western Pennsylvania, and 70,000 are still producing. Those types of wells generally require much smaller pipelines, six or eight inches in diameter. Pressures are lower.

The new natural gas rush has changed everything.

In the Marcellus, drillers pump water at high pressure to blast the gas loose from shale, a process known as hydraulic fracturing, and send as many as 16 wells underground horizontally from the same well pad.

Gas bursts from these wells at pressures as high as or higher than is typical for even the big interstate lines. Within a year or two, the pressure drops significantly.

A considerable amount of Marcellus gas arrives ready-made for the big interstate lines. Some companies operating in Pennsylvania, including Williams, typically use 24-inch for their gathering lines in the state. Some lines are even larger.

As a result, "the framework for regulating gas gathering lines may no longer be appropriate," PHMSA announced this year. In August, the agency once again opened a study on whether to close the rural regulation loophole.

"We're worried, too. We would like to have jurisdiction over those lines," said Cynthia L. Quarterman, PHMSA administrator.

For starters, officials proposed dumping the convoluted American Petroleum Institute guidebook and drafting a new definition.

More sweepingly, the agency asked for comment on whether it should impose "new, risk-based requirements for large-diameter, high-pressure gas gathering lines in rural locations."

"It's a little tough to defend to say that we don't regulate Class 1 locations," PHMSA official DeWitt Burdeaux told an industry conference in March. "That those folks that are in a little more rural areas are not as important as those in the higher-density population areas."

A pipeline-safety bill now close to passage in Washington once again brings up the issue of ending the exemption for rural gathering lines. Just as before, the bill calls only for yet another study - due in two years.

Industry representatives are still skeptical. Jeff Applekamp, director of government affairs for the Gas Producers Association, said he wasn't aware of the higher-pressure gathering lines in shale regions.

As for the possibility of new rules, he said: "All I can say is it would take more investigation" regarding the need to regulate in "these far-out remote areas."

A push for reform

In Pennsylvania, regulators were caught unprepared for the massive rollout of pipeline construction. Everywhere but Alaska and Pennsylvania, the perennially short-staffed PHMSA relies on state agencies to inspect gathering lines in gas-well fields.

Even before the Marcellus pipeline construction began in earnest, PHMSA had been imploring the Pennsylvania Public Utility Commission to take on that role, said Paul Metro, who oversees gas regulation for the PUC.

But the agency was slow to respond. Former commissioners said it just wasn't on their radar.

Starting in 2010, the PUC began holding hearings on what regulation should look like. The commission, industry, and legislators hashed out a rough consensus: Pennsylvania, like other states, would begin to enforce the federal rules.

As in Oklahoma and other states, legislators included a provision that would prohibit Pennsylvania regulators from adopting any rules more stringent than federal ones. The upshot: no rules for rural gathering lines.

"The industry wanted some assurances" that the PUC would not try to overstep federal law, said Fran Cleaver, staff director of the state Senate Consumer Protection Committee.

"I think this is what we could negotiate to get a consensus right now," she said. "This was as much as we could do."

The Pennsylvania House and Senate each passed versions of a pipeline regulation bill earlier this year. The two versions are similar, and a reconciled version is expected to become law soon.

The legislation will likely include a provision for a state registry for all gathering lines - but still no safety rules in rural areas.

That hasn't gone over well with landowners, activists, and some government officials in the shale fields.

"The safety of a selected class of citizens will be deemed expendable," Lynn Senick, a resident of Montrose in Susquehanna County, a center of shale drilling, testified before the PUC.

Those protests have apparently helped sway some players in Harrisburg.

Over the summer, Gov. Corbett's Marcellus Shale advisory commission voted, 27-0, to recommend extending rules to rural areas.

"Those citizens in those areas are saying, 'We want regulation,' " Robert Powelson, the PUC chairman and commission member, said in an interview.

"We heard them loud and clear."

State Sen. Lisa J. Baker, sponsor of the Senate version of the pipeline-regulation bill, said she was preparing another measure that would have the PUC oversee all lines, rural or not.

Her Luzerne County district is a hotbed of protest against pipelines.

"These are high-pressure lines carrying gas near their homes," Baker said of her constituents, "and they think they should have the same protections as people who live in more urban areas."

Even so, any move to extend regulation may face opposition from the industry and its supporters in Harrisburg.

State Rep. Matt Baker, a Republican from Tioga County who is a leader on pipeline issues in his chamber, said he remained opposed to having the state take the lead and regulate Class 1. Baker, no relation to Lisa Baker, represents a district that includes parts of Bradford and Tioga Counties, areas laced with well pads and pipelines.

"The reason the feds don't do it is that with the cost-benefit analysis, there just isn't a substantiated need to do so," he said.

The Marcellus Shale Coalition agrees. The influential trade group says the question of regulation in rural America should be settled at the federal level, not by every state passing its own rules.

The coalition chairman, Spigelmyer, says all Pennsylvania gas pipelines, rural or not, should be listed in a registry, but he stopped short of endorsing new regulation.

"We're trying to do what's right in the field," he said. "Let's face it - the Marcellus is being developed with the highest integrity standards."

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'Us vs. Them' in Pa. Gaslands

By Craig R. McCoy and Joseph Tanfani
INQUIRER STAFF WRITERS



Ronnie Moore, from Oklahoma City, OK, and working for Appalachian Pipeline Construction finishes off the top weld of the connection between the two pipe sections in the Springville Line just north of Dallas, PA. (Michael Bryant / Staff Photographer)

DALLAS TOWNSHIP, Pa. - The solicitor's voice shook as he tried to explain to a hostile crowd that natural gas pipelines are perfectly legal.

"If we have to have this," Tom Brennan said, "let's at least try to control it and have it on our own terms."

With that, to scattered applause and more groans, the township supervisors here decided to end a war over natural gas pipes that bitterly divided this town, a gateway to the rich Marcellus Shale region.

The compromise was a new, custom-tailored ordinance that banned high-pressure pipelines in residential neighborhoods, but permitted them in areas zoned for farms or factories.

Now, it appears the township's painstaking effort to craft a compromise between warring factions added up to nothing.

In what is shaping up as a key victory for the shale-gas industry, Gov. Corbett and the legislature appear close to stripping municipalities of the power to impose tough local restrictions on wells and pipelines. Under a pending measure, wells and pipelines would be permitted in every zoning district - even residential ones - statewide.

And the industry isn't stopping there.

GRAPHICS



THREE PIPELINES THAT DIVIDE

Two pipeline companies are seeking the clout of eminent domain. While the Pennsylvania Public Utility Commission has yet to rule, it signaled this year that it was leaning toward giving firms condemnation power to gain rights-of-way for their pipelines.

Dallas Township - an affluent suburb outside Wilkes-Barre in the Endless Mountains - is just one battlefield in a war that has flared in more and more Pennsylvania towns. The increasingly contentious conflict centers on proliferation of the new, large-diameter, high-pressure pipelines that carry Marcellus Shale gas to market.

In part, the war over pipelines is a proxy struggle over "fracking" itself.

As one Dallas Township opponent wrote in a Facebook message: "It is all one package. You cannot have a well without a pipeline, compressor and metering station, or vice versa. Stop just one, and stop all."

Political hardball

In its pursuit of its high-stakes agenda, the industry has been more than willing to play hardball, unleashing its lawyers and lobbyists.

Perhaps the most aggressive move came here in Dallas Township, in Luzerne County, when a Texas pipeline firm, Chief Gathering L.L.C., filed a lawsuit this fall threatening three of its opponents with potentially millions of dollars in damages. The suit said its opposition had subjected the firm to "public hatred, contempt, and ridicule in the community."

As evidence, Chief attached 22 pages of critical postings on Facebook.

In another instance, Chesapeake Energy - the biggest driller in Pennsylvania - sent off a mass letter this summer to leaseholders in five counties, asking them to write Congress and complain about the Army Corps of Engineers, which must approve many pipelines that cross streams.

The "Dear Mineral Owner" letter warned that a corps review of gas pipeline projects was unduly holding up production - and delaying "royalty payments to you."

David J. Spigelmyer, Chesapeake's vice president and in-house lobbyist and the letter's author, said in an interview that the firm simply wanted its leaseholders to know who was to blame; the corps denies creating serious delays.

"At the time we had over 100 wells waiting on pipelines," said Spigelmyer, also the new chairman of the Marcellus Shale Coalition, the leading industry trade group.

"I believe we had an obligation to communicate with those leaseholders who had royalties withheld until we could get pipelines built to those locations."

In Westmoreland County, near Pittsburgh, Range Resources successfully filed suit to strike down the drilling and pipelines ordinance in Salem Township.

The court case, said Township Solicitor Gary Falatovich, "did a really good job of dismantling every modest control that the township was trying to impose. What can I tell you?"

Then there was the epic battle waged for more than a year over the Marc 1 - for Marcellus - a 39-mile, \$257 million project that would open a new swath of Bradford, Lycoming, and Sullivan Counties to gas development.

The Marc 1 is not a gathering line running directly from wellheads, like most of the new pipeline construction in the state. It is a giant "hub" line of 30-inch-diameter steel pipe connecting two major interstate lines. Opponents fear many new clusters of wells will be drilled along the line and tie into it.

"If that Marc 1 pipeline goes through, it will be the equivalent of a superhighway for development," said Anne Harris Katz, a research biologist and activist.

Because it would link interstate lines, the Federal Energy Regulatory Commission (FERC) needed to grant approval before construction could start. And opponents of gas development thus got a rare chance to register loud disapproval in a public forum.

They flooded federal officials with thousands of letters opposing the line, and raising the specter of forest destruction and stream pollution.

In an unusual move, the U.S. Environmental Protection Agency aligned itself with skeptics, saying the line should not go forward without an in-depth study to consider the environmental impact of the drilling industry the new line would enable.

Last month, the industry prevailed after a bruising battle. FERC brushed aside EPA's concerns and granted the pipeline a green light.

Construction is to begin soon. Within days of approval, the line's builder filed scores of condemnation notices for the pipeline right-of-way.

Too late for harmony

Inside the stuffy, standing-room-only Dallas Township supervisors meeting in October, six children crouched in front of the table where the local officials sat, holding brightly colored placards. "Save the Earth," read one.

One woman held a sign showing an explosion with the words, "Sympathy and candles won't be enough."

Brennan, the solicitor, appealed for harmony.

"I'm trying to avoid this becoming 'us vs. them,' " he said.

It was already way too late for that.

Dallas Township found itself at the center of the pipeline debate because it is home to a stretch of a key interstate gas transmission line.

That's the Transcontinental, a 10,500-mile pipeline system that runs north from Texas. It is owned by Williams, of Tulsa, Okla., one of the nation's largest gas producers.

Williams and Chief, which is based in Dallas, Texas, have each stirred controversy by launching multimillion-dollar projects to lay new gathering pipelines to connect with the Transcontinental.

The new Williams line snakes 33 miles through three counties. It begins at drill sites in Susquehanna County, travels south through Wyoming County, and ends in Dallas Township.

The line, 24 inches wide, will operate at high pressure, up to 1,440 pounds per square inch. Every day, it will transport enough gas to heat roughly 6,000 homes for a year.

Chief's \$150 million pipeline, also 24 inches in diameter and high pressure, is a few miles shorter. It will run from Wyoming County into Dallas Township.

Even so, after Chief filed plans to equip the new line with a compressor station not far from the township's massive 2,700-student school complex - a high school, middle school, and two elementary schools - residents turned out by the scores for a heated municipal meeting.

"The only thing missing from the hearing were pitchforks and torches," said Norm Tomchak, 69, a retired railroad engineer and a leader in the area's Gas Drilling Awareness Coalition, which has papered the township with "pipelines no" signs.

Though the Transcontinental line has operated without incident in Dallas Township since it was buried in 1946 - running by the township building, a nursing home, and Misericordia University - residents now are studying up on pipelines and asking skeptical questions about them.

"Five years ago, who knew about gas lines, who cared about gas pipelines? Who cared about gas drilling here in the Northeast? Nobody," Tomchak said.

That has changed.

Critics in Dallas Township took note when a section of the Transcontinental line suddenly ruptured and exploded in Appomattox, Va., in 2008, injuring five people and destroying two homes.

Eight days ago, the same pipeline failed in Alabama. No one was hurt, but the explosion shot flames skyward 100 feet for more than an hour and sent a 47-foot-long piece of buried pipe flying 200 feet.

Now, the attitude is, "We don't want you. We don't want your money. We don't want your gas," Tomchak said.

But, of course, some residents *do* want the money. Though there are no wells in the township, about 50 property owners have signed leases to permit pipelines on their ground.

In Northeastern Pennsylvania, experts say the payments vary widely for pipeline right-of-way leases. At one point, Williams was offering Dallas residents \$10,000 for a 1,000-foot stretch of right-of-way.

Pipeline leases aside, many residents see the natural gas boom in general as an economic plus for the entire Marcellus Shale region, providing gas royalties, jobs, taxes, and fresh money spent in restaurants, shops, hotels, and other businesses.

Patrick Dougherty, a Dallas Township resident who signed a right-of-way lease with Chief, said he regretted the discord in his community. That said, Dougherty said he thought neighbors' fears over safety were misplaced.

"Could you have an accident? Could it blow up? Yeah," he said. "There's always risk. But it just goes with having a modern society."

As for environmental damage, Dougherty said the pipeline's pathway would fade back into the landscape once the digging was over.

"For six months, it might look like hell," he said. "After that, nobody will know they're there."

Pipe firm sues critics

As tempers flared, Chief this year hit hard at three Dallas Township families that had been among its most outspoken foes.

The firm sued them for "tortious interference" two days after the three families, who live in the town's wealthiest enclave, Goodleigh Estates, sued a fourth neighbor who had signed a pipeline right-of-way lease with Chief.

The families had argued that their neighbor had violated a residential covenant that banned commercial activity.

In its counterstrike, Chief said the three families had leveled "defamatory and malicious" statements against it on Facebook and in the local newspaper. Among other claims, the suit alleged that defendant Jeffrey Dickson had made a "false" statement when he told a local reporter that the pipeline would mean the felling of trees and ruin the area's "natural beauty."

In one Facebook posting cited by Chief, Dickson wrote: "I think the Gas Companies wished that they bypassed Dallas and ran their lines somewhere else. It's not too late for them to change their plans. Keep up the pressure until they explode!"

And in another, Dickson said: "We need to post a list of people that signed pipeline leases and sold out to the gas companies so they could build their stations! Everyone in the area needs to know which of their neighbors are only thinking of themselves and the \$\$'s."

In an interview with *The Inquirer* in October, Scott Watkins, a dentist sued by Chief along with his father, also a dentist, called it a case of "David vs. Goliath."

"I think they're obviously trying to penalize us for exercising our constitutional right to express ourselves," he said.

Late last month, Chief reached a deal with the Dicksons and the two Watkins families. Lawsuits have been dropped - and the pipeline project is going forward.

A spokeswoman for Chief said the firm made no payment to the families but agreed to change the pipeline route to spare trees.

Once so vocal, the three families are now silent. Their Facebook postings have ended.

Deborah Goldberg, managing attorney for the Northeast office of Earthjustice, a nonprofit law firm critical of the pipeline industry, denounced Chief's lawsuit.

"It's bullying," she said. "It's classic gas industry behavior, where they just throw their weight around and terrorize people to get them to back off."

A Chief spokeswoman, Kristi Gittins, disputed that, saying the suit was not about "taking away their right of speech," but the firm's need to respond to a threat to block the pipeline.

"Quite simply, it was a business decision," she said of the suit. "We have hundreds of wells, not only ours but those of other companies, waiting on the pipeline."

Refused to sign

The new Williams line has not escaped controversy, either.

Township residents Arlene and David Grudkowski and several neighbors refused to sign up when Williams offered to pay them to lay pipe across their properties. Williams ended up striking a deal with an absentee landowner who owned land adjoining theirs.

As a result, crews are now at work cutting down trees and digging a trench that wraps around the Grudkowskis' property, 100 feet or so from their house.

"We said no, and they went behind us," Arlene Grudkowski said. As she spoke to a reporter, a truck pulled up carrying massive sections of pipe.

"We're not happy about it," she said. "We're concerned that if there is any type of explosion, we're wiped, we're done."

"It's so close. It's just unbelievable for us. To stare at this all day, it makes you physically sick."

"It's not only an issue of safety," said Grudkowski's husband, David. "It's potentially changing the character of where we live. People are afraid that if they don't make a stand here, there's no end in sight."

At one point, the work in Dallas Township drew a violation notice from state environmental inspectors, for causing erosion and using an unauthorized access route.

Helen Humphreys, a spokeswoman for Williams, said its crews has fixed all the issues within 24 hours.

In interviews, officials with both Chief and Williams defended the industry's safety record.

Gittins, of Chief, and Mike Dickinson, of Williams, said pipelines were repeatedly and rigorously checked with visual inspections, X-rays of every weld, and scans with mechanical devices.

Both said their companies go beyond minimum federal safety standards when they install lines.

As far as the landscape, the industry says it strives to limit any impact during the digging and after.

At most, Dickinson said, lines create a "thin green corridor that would cut through the countryside that we can do our work on and maintain the pipe on, no different than maybe a corridor that a high-line wire runs through.

"We might say even less invasive than that because there's nothing visual to see except for grass on those corridors."

Firms said rules don't apply>

While neighbors quarreled over an ordinance to limit prospective new lines, township zoning officials struggled to bargain with Chief and Williams over projects already in the works - a difficult task, given that both firms suggested that zoning rules did not apply to them.

"Natural gas pipelines are not subject to zoning restrictions or approval proceedings," Chief wrote the township in June.

In the end, a deal was struck this summer. The firms got the right to lay their pipelines in the township, but dropped plans for compressors, odorizers, and communications towers.

Aside from metering stations, they said they would keep future facilities at least 13/4 miles from the township school campus. They also did not pursue challenges to the township's zoning.

As the township's zoning board took up Chief's case for a metering station last week, it grappled with a headache afflicting many shale communities - the increasingly common linkages between officials and the shale industry.

Zoning board member Conrad Higgins has signed a pipeline lease with Chief and has recused himself from votes on pipelines. But, under state ethics law, he can vote to break ties.

Another board member, chairman Robert Bayer, is an executive with Linde Corp., a firm whose website says it "specializes in Marcellus Shale, municipal and utility pipeline construction." Its jobs include the Williams pipeline project.

Bayer said he would recuse himself from the zoning hearings for Williams, but would take part in those for Chief. "I think I can remain impartial," he said.

Last week, Bayer and another board member voted to approve a Chief zoning request for a metering station on its pipeline. Higgins abstained.

Grass-roots movement

The effort to regulate pipelines in Dallas Township is part of a grass-roots movement in Pennsylvania.

Belatedly, many municipal leaders have come to realize that their communities have few land-use tools to deal with the drilling and pipeline-construction boom.

John Gaadt, a planning consultant in Chester County who won federal funding to draft model local pipe ordinances, said many communities' regulations do not even contain the word *pipeline*. In many rural communities in the heart of shale country, he and others note, there are no zoning codes at all.

While Dallas Township's new ordinance may be nipped in the bud by a statewide law, Gaadt urges communities to take other steps.

One suggestion is to limit construction near pipelines, especially of buildings like office plazas or retirement homes.

Beyond definite setback rules, Gaadt and other experts say towns should create even wider "consultation zones" - areas where developers and pipeline owners would have to at least talk with one another before building could take place.

In Dallas Township, the ordinance would have banned pipelines in residential areas.

While the Marcellus Shale industry has signaled its willingness to pay some sort of drilling tax or impact fee, it also has made it plain that it would like something in return: a strict limit on local government's power to regulate the industry.

Legislation that would turn this trade-off into law is in the works in Harrisburg. The Senate passed its bill last month, 29-20, and the House approved its proposal, 107-76. Passage of a reconciled final law is expected soon.

In any event, both measures treat local zoning the same way. They state that all local ordinances must "authorize oil and gas operations," including pipelines, in all zoning districts."

Significantly, the proposed law would require local governments to treat gas operations as "permitted" uses, not as "conditional" ones. The latter designation would require firms to go through more extensive reviews.

"Not only must you permit it, but you cannot put conditions on it," said Myron Arnowitt, the state director for Clean Water Action, an environmental group helping drum up opposition to the state preemption.

The Dallas Township ordinance would treat pipelines as conditional uses. The industry opposes this approach, saying it amounts to "death by a thousand paper cuts" by requiring far too many hearings, a Range Resources spokesman has said.

Before the state Senate and House took up the measure last month, Gov. Corbett released a statement calling for "a reasonable, consistent and uniform set of rules across the commonwealth."

While all Pennsylvanians want "clear air, clean water, and safety in this growing industry," Corbett wrote, a statewide set of standards was needed to advance "one other goal" - jobs.

The governor also noted that the statewide measure would impose some common controls, such as a noise limit for compressor stations. In residential areas, all wells must be at least 500 feet from the nearest building.

There would be no such setback restrictions for pipelines, though.

The bill has teeth. If the courts or the attorney general finds a community's local law in conflict with the state measure, the community will lose all of its impact-fee money.

Arnowitt said the law would undercut work in dozens of communities.

"This is not a compromise piece of legislation; this is allowing the gas industry to write our local laws," he said.

"I don't think there is a single township that passed a new zoning ordinance in the past three years that meets the new standards. The local laws that have been passed are stricter."

But Spigelmyer, the Chesapeake executive and Marcellus Shale Coalition chairman, said statewide uniformity was sorely needed.

In recent months, he said, more than 80 municipalities across the state have moved to adopt unduly restrictive and unfair rules.

"The way it was working," he said, "they were taking your rights away from you."

Spigelmyer said the pending measure reaffirmed past statutes giving the state government a virtual monopoly in gas and oil regulation.

The measure has stirred considerable conflict among municipal leaders - who want the revenue from the impact fees, but resent the loss of their local powers.

David M. Sanko, executive director of the State Association of Township Supervisors, said his organization was looking for a "sensible, reasonable common ground" that would strike a balance between state and local authority.

Larry Grimm, a supervisor in Mount Pleasant Township in Westmoreland County, was more emphatic. He said Corbett and the legislature were stripping local officials of the ability to tailor laws to fit their unique areas.

"We're different than they are up there in Potter County, enormously different," Grimm said. "They're taking that away from us. It's just that simple."

In Dallas, with opposition quieted, the Williams gathering line is now nearly done. Work on the Chief line is to start next month and finish by the summer.

As for the zoning law that galvanized the township, it is likely to be wiped out when a new state law passes next year.

Even Tomchak, once among the most outspoken pipeline fighters in Dallas, now says he's reluctant to speak out, for fear of being sued like his neighbors.

"I'll work in the background as much as I can," Tomchak said. "I don't want a lawsuit. I'm not rich. I can't afford to defend myself."

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[Aging pipes, deadly hazards](#)

By Joseph Tanfani and Craig R. McCoy
INQUIRER STAFF WRITERS



Sean Sellers stands outside the lot on Torresdale Avenue where a gas explosion killed a PGW worker on Jan. 19. Sellers said he was standing outside his home next door Disston Street when the pipe exploded, knocking him off his feet. (Michael Bryant / Staff Photographer)

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Sean Sellers was standing outside his Tacony home in January, a strong smell of natural gas in the air, pointing out the bubbles escaping through cracks in the street to a utility worker.

"Then I saw a bright-orange flash and, a split-second later, boom," he said. The explosion knocked him on his back, which was lucky: "There were bricks flying past my head."

The blast, caused by a leak in a 68-year-old cast-iron pipeline, killed Mark Keeley, 19, a Philadelphia Gas Works employee sent next door to try to fix the leak, and put six others in the hospital.

The explosion leveled an adjacent chiropractic office, broke windows for two blocks around, and tore the front wall off Sellers' home. "It looked like a geyser," he said, "a geyser of fire."

Despite a long history of accidents, and a stack of warnings from safety investigators, there are still thousands of miles of antiquated, leak-prone, cast-iron pipelines running under the streets of Pennsylvania cities and towns. Some are more than 100 years old.

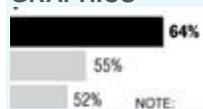
Just three weeks after the Tacony blast, another massive gas explosion, in Allentown, destroyed eight homes and killed five people, including a retired couple and a 4-month-old baby. This one, too, was caused by a leak in an aged cast-iron pipeline, installed in 1928.

When it comes to natural gas pipes, these failing older utility lines pose the greatest safety hazard in Pennsylvania and the rest of the country. Although the dangers have been known for decades, utilities have been moving slowly to replace the lines, and there are no rules requiring them to move faster.

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GRAPHICS



[PGW'S OLD, CAST-IRON, LEAKY PIPES](#)



REPORTS BY CONSULTANTS FOR PGW THAT LOOKED AT THE ISSUE OF PGW'S AGING PIPELINE:

- [Report, released in 2004, was prepared by Navigant Consulting. \(.pdf/2mb\)](#)
 - [Study, released in 2008, was prepared by Advantica.](#)
- [On page 93, there is a map of Philadelphia, displaying areas by the degree to which pipes are leak-prone. \(.pdf/2mb\)](#)

Last week, state utility regulators charged PGW with a number of safety violations regarding the Tacony accident, near the intersection of Torresdale Avenue and Disston Street. One violation was for a broken valve that went unrepaired for five months.

For PGW, owned by the City of Philadelphia, more than half of its 3,000 miles of gas mains are still made of cast iron, the highest percentage of any utility in the country. The city also ranks first in the share of pipeline installed before 1960.

At the current replacement rate, about 18 miles a year, it will take PGW 85 years to get rid of all the cast iron. "If we had our druthers, we'd replace all the pipe tomorrow," said Randall Gyory, PGW's senior vice president for operations.

But that's not practical, he said. The cost would be about \$1.6 billion. As it is, Gyory said, replacing iron pipes eats up 60 percent of PGW's capital budget every year.

In the meantime, these pipes keep leaking. A look beneath the surface of Philadelphia's streets reveals a PGW system where potentially fatal hazards are commonplace, and utility workers have to race to keep them in check:

Philadelphia has more than 2,000 leaks in its gas mains every year - most of them during cold weather, when frost causes the ground to buckle and the pipes to bend. During 2009, leaks spiked to more than 2,600.

By far, the most dangerous leaks happen when the old mains actually rupture, as happened in the Tacony accident in January. Each year, the city averages more than 300 such main breaks.

Philadelphia has some of the oldest gas pipes still in service in America. Nearly a quarter of them were put in the ground before 1920 - and 10 percent date from the 1800s.

More than 1,100 blocks in Philadelphia are served by gas mains that have broken three or more times, according to one 2007 report. At that time, there were still 57 blocks where the mains had broken five or more times.

The utility declined to reveal the locations of these leakiest pipes, citing the need to protect the system from terrorists.

Still, a map in a 2008 consulting study showed so-called hot zones of leak-prone gas mains scattered throughout the city's neighborhoods, including Fairmount, East Oak Lane, Kensington, and Kingsessing.

This block-by-block tracking system - used by PGW to prioritize its pipe replacements - doesn't always prevent accidents. There had never been a pipeline break in that block of Disston Street before the January accident, PGW said.

Meanwhile, the Pennsylvania Public Utility Commission, in its safety complaint on the Tacony accident, said the utility had not been recording enough details on the condition of its pipes - including how badly they were corroded.

As is the case with pipelines across the country, most of the responsibility for checking the safety of these old, failing, cast-iron pipes falls to the utilities themselves. Government safety checks are mostly handled by thinly staffed groups of state agencies; Pennsylvania has just eight PUC inspectors to cover the whole state.

And the federal safety agency - the Pipeline and Hazardous Materials Safety Administration, a small office within the Department of Transportation - was criticized this fall for its weak oversight of state safety programs.

Promising to do better, the federal agency last week began a series of utility safety audits - beginning in Pennsylvania. The agency's first stop was UGI Utilities Inc. in Allentown.

"We need some more regulation," said Allentown Mayor Ed Pawlowski, who after the accident became a national voice for tougher rules. "And if the state isn't going to do it, I'm going to keep fighting at the federal level to put regulations in place. Because I'm scared."

'The Twilight Zone'

In Allentown, on the night of Feb. 9, there was no smell of gas, no warning that a pipe was leaking.

When it blew up, at 10:45 p.m., the force ripped free the front door frame of Donald O'Shall's home and sent it flying, striking him in the head. O'Shall thought a bomb had gone off.

"It was tremendously loud," he said. "It's like the whole world jumped."

O'Shall, 61, a locksmith on disability due to cancer, rushed outside to find his neighborhood in ruins. "It was like something from 'The Twilight Zone,'" he said. "It was like seeing a desolate, war-strewn neighborhood. There was debris everywhere."

Killed in the blast were William Hall, 79, who was retired from a bank; his wife, Beatrice, 74; and three people next door - Ofelia Ben, 69; her granddaughter, Katherine Cruz, 16; and Cruz's son Matthew, just 4 months.

More than 600 were evacuated, and the fire burned for four hours.

O'Shall said he was glad the pipeline exploded late in the evening. That way, he said, there was no one at the school bus stop on the corner.

"If it had been the daytime, it would have been horrendous," he said. "Don't get me wrong. It was bad enough as it was. Five people died. Eight homes were destroyed. We lost everything we had. Everything."

Mayor Pawlowski says his fire department routinely scrambles on gas leaks.

He has been pushing UGI to move faster on getting the old pipe out of the ground.

After the Allentown accident, UGI said it would replace six miles of cast-iron pipe in Allentown, double what it did last year, leaving the city with 73 miles of cast-iron pipe. Replacing the pipe costs UGI about \$650,000 a mile.

At its current pace, it will take UGI more than a decade to replace all the cast-iron lines in Allentown.

"That's insane to me," Pawlowski said. "They're making some additional effort this year, but honestly, I think it's way too little, and it's way too late."

He said UGI wouldn't even provide the city with a detailed map of the old pipelines.

"They showed me a map once on my desk," Pawlowski said. "They quickly rolled it up and took it back."

Since 2001, UGI's three utilities in Pennsylvania replaced a total of 189 miles of cast- or wrought-iron mains, the company says.

"We continually evaluate our protocols to ensure we are making prudent decisions regarding our natural gas pipeline replacement program," a company statement said.

A report on the cause of the blast still hasn't been released. The Edison, N.J., lab that studied the mangled pipe was hired by UGI, standard practice in Pennsylvania.

"We don't have the resources to do it," said Jennifer Kocher, a PUC spokeswoman. She said that the labs were "independent" and that their findings were just one piece in the PUC's evaluation about what went wrong.

The PUC declined to make public the lab report from Allentown, saying it was part of a larger investigation.

A record of warnings

Cast-iron pipelines can operate without trouble for many decades, so long as they aren't disturbed. But as they age, they can become more brittle and susceptible to problems: cracks from frost, leaks from joints, buckling from the pressure of street traffic.

"It's damn amazing they should have lasted that long," said Don Deaver, a pipeline-safety consultant from Texas.

Smaller cast-iron pipes are particularly fragile - and the most dangerous. PGW still has more than 1,000 miles of smaller cast-iron mains in its inventory.

Studies have shown old cast-iron pipes are "highly and disproportionately" involved in serious accidents, said Jeffrey D. Wiese, a top pipeline-safety regulator with the Pipeline and Hazardous Materials Safety Administration, speaking at an industry conference.

In 1986, the National Transportation Safety Board, which investigates some pipeline accidents, said that leaks per mile in old cast-iron lines were increasing and that utilities should begin phasing out the pipe.

Before this year, cast-iron pipe failures have caused other deadly accidents, in both Philadelphia and Allentown.

Since 1985, 11 people were killed in natural gas accidents in Philadelphia - eight of them involving cast-iron mains, according to PGW.

The worst came in May 1979, when seven people were killed and 19 injured in an explosion that blew apart George's Bar & Restaurant at Tacony and Margaret Streets. In 1985, three people died in a blast that wrecked four rowhouses on North Mascher Street in West Kensington.

Both times, the mains cracked when leaking water eroded the ground underneath, leaving them hanging in the air unsupported. When that happens, the old cast-iron pipes are much more likely to crack than ones made of modern steel.

Fire officials also said they found a water-main break near the location of the 1942-vintage, 12-inch cast-iron gas main that caused the January explosion in Tacony, though the investigation results weren't complete.

In Allentown, a main snapped in August 1990, about a mile from the one that blew up this year, touching off an explosion that destroyed two rowhouses and killed a 44-year-old woman. Leaking water pipes were implicated in that incident, too, but the NTSB said the four-inch gas pipeline, dating from 1903, was so badly corroded that failure was "inevitable."

In that report, the NTSB laid blame on the "failure" of UGI Utilities to adequately monitor its pipelines and replace sections weakened by corrosion. It warned that the city was still riddled with century-old, cast-iron gas lines and leaky water pipes that had created dangerous, hidden sinkholes underneath them.

But UGI didn't exactly rush to respond to the NTSB's warnings. In the decade after that report, UGI replaced 55 miles of cast-iron pipe - 17 fewer miles than it had done the previous decade, company figures show.

A similar lack of urgency has pervaded the entire utility industry, according to the NTSB, which said the industry was not doing nearly enough to protect the public from dangerous pipelines.

For many utilities, the NTSB said, safety inspections consisted of workers' scraping suspect pipes with a knife to see if they were soft enough to produce shavings. When the pipes leaked, most utilities "normally do little more than install a leak clamp around the crack and keep the pipeline in operation."

Top executives at UGI and PGW say they work diligently to keep their pipes safe. "It's a core value of our business," said Daniel Adamo, a UGI spokesman, "and we take it very seriously."

Gyory says PGW moves aggressively to respond when people report smelling gas. In more than 97 percent of all reports of possible leaks, PGW has crews on the scene in less than an hour.

For gas utilities in places like Philadelphia, with vast miles of aging, brittle mains under their streets, winter is the anxious season. The best utilities can do is try to manage the leaks - and, when they happen, rush to plug them before an explosion.

At PGW, they move workers to the "leak-management" team and step up their so-called frost surveys. Every three years, PGW workers walk the whole city, looking for leaks.

In deciding which pipelines to replace first, PGW uses a formula that takes into account the size of the pipe, its age, and most important, how many times it has leaked before.

"They're rolling the dice with that old pipe in the ground," said Bob Ackley, owner of Gas Safety Inc., a Massachusetts firm that performs gas-leak surveys.

With so many miles of leaky pipe, and so few being replaced every year, Ackley said utilities' assurances of safety ring hollow. "They say the system is safe. They usually say it right after someone gets killed."

A push for more safety

After the Allentown explosion, U.S. Transportation Secretary Ray LaHood came to the city and, standing at the site of another deadly gas explosion in 1994, called for stronger safety rules - including an effort to step up replacement of older, riskier pipelines.

"People shouldn't have to worry when they flip a light switch in their kitchen that it could cause an explosion in their front yard," he said.

But nothing on the horizon in Washington or Harrisburg would force utilities to move faster.

U.S. Sen. Bob Casey (D., Pa.) pushed through a measure that would require utilities to make reports on their progress on replacing cast-iron pipelines, and for the Pipeline and Hazardous Materials agency to check up on them. But the agency's report isn't due to Congress for two more years.

The idea, Casey said, is to focus more attention on the utilities' performance and spur public pressure. He had pushed for more frequent reporting requirements, but they were stripped out of a compromise version.

"I think they have to take more responsibility than they have to date," he said in an interview. "A company like UGI would be wise to really focus on the outrage that people feel and the demand for change."

As for why there's no timetable for replacing the pipe, Casey said: "Sometimes, it's what you can pass and what's achievable."

Cost has been a formidable obstacle.

It's a particularly high hurdle for PGW, which serves the poorest big city in the country and already charges the highest gas bills in the state. The utility's past financial troubles mean it is still saddled with big debts that make borrowing more expensive.

Rina Cutler, a deputy mayor, says the city would like to move faster - but isn't sure PGW's customers could tolerate the added cost. "Whether we're talking about gas mains or water mains or roads or bridges, the infrastructure is crumbling fast," Cutler said, "and no one seems to want to figure out how to fund it. And it's disgraceful."

But there appears to be little appetite in Congress for providing money to replace these failing natural gas pipelines.

"That is a Philadelphia problem," said U.S. Rep. Bill Shuster, a Republican from south-central Pennsylvania, and chairman of a subcommittee that oversees pipeline safety.

"If the people of the city of Philadelphia care about that, they ought to act on it," Shuster said. "It's going to cost a lot of money. It shouldn't be something forced on consumers by the federal government."

Four years ago, State Rep. Dwight Evans (D., Phila.) proposed a \$1 billion loan fund for utilities to replace old pipes and other ancient infrastructure, but it went nowhere.

"As usual, the problem is no one pays attention to this stuff until someone gets killed," Evans said. "This is out-of-sight, out-of-mind."

The state House this year passed a bill that would allow utilities, with PUC permission, to apply a surcharge to bills to pay for replacement of the old lines.

That would allow utilities to recover costs without going through a long, expensive rate-hike proceeding before the PUC; a similar method is already in place for Pennsylvania's water utilities.

The bill is now before the state Senate, which is expected to take up action in January.

Once again, the measure has drawn opposition from some legislators and consumer advocates, who say they would give gas companies a way to raise customers' bills without having to justify it.

Irwin A. "Sonny" Popowsky, Pennsylvania's consumer advocate, says the law is flawed; he thinks it would allow utilities to use the surcharge as a backdoor way to boost profit.

If legislators were serious about boosting safety, he said, they would also require utilities to step up the pace of their cast-iron replacement - not allow them to set their own schedule. "The bill would allow them to continue with business as usual," he said.

Last month, the PUC said it wanted utilities to file new plans by next summer on how it would manage the risks of the cast-iron pipe - including a timetable to replace them altogether.

But neither the legislation nor the new PUC rules would require utilities to do the work faster.

"The companies want to do this," said Terrance Fitzpatrick, president of the Energy Association of Pennsylvania, a utility lobbying group. They'll move more quickly if they have an easier way to recover costs, he said.

Pennsylvania's utilities, he said, have done "a reasonable job" in replacing the old lines. "I do think we can do better, though."

Pawlowski said utilities like UGI could afford to invest more in replacing their old pipes. UGI reported \$232 million in net income last year. PGW reported net earnings of \$58 million.

"Though I understand the economics, I think safety has to trump here," the mayor said. "This is something that keeps me up at night."

Many of the Allentown victims are still putting their lives back together. Some have received settlements from UGI. Other legal cases are pending. Adamo, the UGI spokesman, said the company had worked "diligently" to try to help the victims.

"We were very proactive, reaching out to the families, going door to door, expediting our claims process," he said.

Since the explosion in February, O'Shall has been a vagabond. For a few nights, a Comfort Inn put him up for free. Then, his employer rented him an apartment. Finally, with money raised by a charity drive, he bought a foreclosed and vandalized house in Florida, near one of his sons.

"They were giving it away for next to nothing, and next to nothing was what I had left from the collection money," he said.

He says that he misses Allentown but that his new town has a big plus: "There's no gas lines anywhere. That's good."

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