From: Maryann Harper [mailto:mbharper17@gmail.com]
Sent: Monday, February 29, 2016 2:25 PM
To: Monroe, Pamela
Subject: Comments on Rule Number Site 300

Dear Ms. Monroe:
The attached two documents constitute my comments as requested for Rule Number Site 300 relative to siting high pressure gas pipelines and associated infrastructure. The first are my comments, the second an article referenced as attached in my comments. Please submit them as one complete filing.
thank you,
Maryann Harper

February 29, 2016

Pamela Monroe
Administrator, Site Evaluation Committee
21 S. Fruit St., Suite 10
Concord, NH 03301

RE: Request for Advance Public Comment on Subject Matter of Possible Rulemaking –
Rule Number Site 300

Dear Ms. Monroe:

I am pleased to offer comments on the above referenced request but I do wish there had been more advance notice of same. I urge the committee to extend the commenting time period and consider scheduling a public hearing to allow for adequate study and comment on a matter of great importance to New Hampshire citizens.

Please find my comments for the Site Evaluation Committee to consider regarding the adoption of rules relative to the siting of high pressure gas pipelines.

1. **Appropriate setbacks to mitigate potential health and safety impacts –**

    a. Setbacks for gas pipelines and all above ground infrastructures should be tied to calculations used to determine the impact blast radius. The impact blast radius (commonly referred to as the "incineration zone") for a gas pipeline is calculated based on the diameter of the pipe and the pressure under which it operates. Occupied structures should not be located within the impact blast radius as the chances to evacuate safely i.e.: without fatalities and/or severe injuries are greatly diminished for those who are located within said radius when a serious accident occurs. Additionally this calculated distance should be considered a "minimum" as blast damage can and does occur beyond the calculated radius. Please see the attached document: *Lessons Learned*.
    b. Once the minimum setback is calculated the siting should be done in such a manner to increase the protective distance to occupied structures and evacuation routes should be studied and specified. If an evacuation route is shown as possibly impacted during an incident and rendered useless, alternative evacuation routes should be identified. It is not uncommon in rural New Hampshire to have cul-de-sacs and dead end roads and these cannot be the only source of egress.
    c. A complete Cumulative Heath Impact Assessment should be completed for the entire project specifically aimed at addressing the cumulative health impacts associated with above ground gas infrastructures including but not limited to compressor stations, meter stations, valve stations and pig launching and receiving stations.

2. **Pipeline decommissioning plan requirements**

    a. Should include a timeline, techniques to be utilized and the means for establishing a fund for proper removal and disposal of all pipeline infrastructure.

b. Should include a provision not to allow conversion to another use without a full review process by the NH SEC and newly negotiated owner permissions.
c. All infrastructure should be removed/demolished at the companies' expense including proper disposal. A bond or escrow account should be established for this purpose.

3. Specific criteria to maintain property owner's ability to use and enjoy their property

a. Property owners should not be subjected to the loss of value or a visual buffer to install a pipeline and associated above ground structures. Visual buffers of mature trees should be maintained between pipeline infrastructure and occupied buildings and recreational uses. Unnecessary tree cutting for work corridors and temporary work areas should be avoided. These should be staged in areas away from property owners.
b. Where tree felling occurs property owners should have the option to have the company buy their entire property at a value determined by the average of three separate appraisals or at a specified amount set above the assessed (equalized) value of the property.
c. In the event that some trees must be cut, and the owner elects to continue ownership of the property, reforestation shall occur immediately after construction and shall include a similar mix of hard and soft wood trees as originally found and shall include plantings of trees no less than 10' in height and planted in close enough proximity to provide an immediate visual buffer. The reforestation plan must be approved by individual land owners prior to any tree felling occurring.
d. Trees that are used for income generating purposes including but not limited to maple syrup production or fruit production shall not be subject to tree felling unless an agreement can be reached with the property owner.
e. Only Town and State maintained roads should be used for construction access roads. Use of private roads (maintained by owners of a private road or way), private driveways and cartways for construction access roads or ways should be prohibited.
f. Municipal regulations regarding hours of operation for construction activities should be included as part of any approval.
g. Municipal regulations regarding blasting should be included as part of any approval.
h. Protective provisions regarding blasting and damages to wells and foundations of any building within one half mile should be included.
i. Removal of stone walls and/or other cultural and historical resources shall be expressly prohibited. In the event that such cannot be avoided an independent third party contractor approved by the property owner should be hired to assess, protect and restore any such disturbances at the companies' expense.
j. Any plans to reforest or replant areas shall include a study to avoid the influx of invasive species – both flora and fauna.

4. Project related sound and vibration impact assessments

a. All above ground infrastructure should be enclosed in a building to control and capture any release of emissions – fugitive or otherwise and should include acoustic and vibration control measures.
b. All infrastructures shall be powered electrically vs. gas to control and decrease noise and emissions.
c. Baseline Testing shall be conducted at a variety of locations and shall include the far edge of any distance buffer (farthest from the structure and closest to any occupied buildings) on winter days.

d. Noise Surveys, Noise Spectrum Analysis and Vibration Analysis shall be conducted prior to, during construction, post construction and during operation at all above ground structures and at various random locations along the pipeline route.

5. Application Requirements to ensure quality construction that minimizes safety issues

a. Only Class 3 or Class 4 pipeline shall be installed regardless of the location and relative proximity to populated areas.
b. All pipes shall be weld tested and buried at a minimum depth of 4' from the top of the pipe to the natural landscape elevation and well below the frost line to avoid heaving from frost – a common occurrence in New Hampshire.
c. An independent thirty party safety team of inspectors paid by the company and under the direction of the State of New Hampshire shall observe, monitor and report weekly construction progress, owner complaints and safety violations to the Attorney General's office.
d. Test water capture and waste water disposal plans must be approved by the NH DES and the Conservation Commission in each municipality that such operation occurs.

Thank you for the opportunity to provide these comments. Please don't hesitate to contact me with any questions of if additional information is needed.

Respectfully submitted,

Maryann B. Harper
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Rindge, NH

Lessons Learned: Pipeline Emergency Response at 2008 Appomattox (VA) Natural Gas Explosion

03/22/2013
By Larry Hjalmarson
http://www.fireengineering.com/articles/2013/03/-lessons-learned--pipeline-emergency-response-at-2008-appomattox.html

Deputy Maddox grabbed his camera and took a photo of the rupture. The blast had rocked his vehicle, the earth shook, the noise was deafening and a cloud of dust rose hundreds of feet into the air. Rocks were raining down. He put the camera under the seat of his patrol vehicle so people would know later how he died and he went door to door, rescuing people from their homes.

On Sunday, September 14, 2008 in Appomattox, Virginia, the town's worst fears came true. A pipeline ruptured, injuring people and destroying homes.

An 83-year-old veteran and former Special Forces soldier lived nearby. He heard the booming sound of the rupture as he was making his coffee. He was now in poor health--he was diabetic, on oxygen, and used a walker to move around, but his mind was spry. He lived in his family home with his daughter. The veteran had taught his daughter to always back their vehicles into the driveway, "military style," just in case of an emergency. By the time he and his daughter realized what happened, the gas was on fire. Realizing the danger, they were able to quickly flee to safety. Their home was damaged but not destroyed.

Another family, a couple in their 70s, was not so lucky. They went from spending a quiet Sunday morning together to losing their home and all that went with it. They almost lost their lives.

They had moved into their home in the early 1950s. In their lifetime, they saw the construction of two pipelines (Line B and C) on their land, and also experienced plenty of pipeline maintenance over the years. Pipeline A was previously built before they moved in.

When the line ruptured and ignited, the husband pulled his wife to the garage and into their SUV. But they had not backed in like the veteran. He hit the garage door opener, but backed out before it was fully up and hit the door. In a panic, his wife remembered something she wanted in the living room and opened her door as he was backing out. Her door hit the side of the garage and was now jammed and non-functional.

He yelled at her to stay in the vehicle; however he does not remember turning the vehicle around --he suffered memory loss from the emotional trauma. As they drove to safety, the radiant heat from the fire bubbled the paint on the roof of their car and melted the license plate holder. Minutes later their home ignited from the radiant heat and was consumed by fire.

A third family also narrowly escaped. They were a family of four--grandmother, mother and two children. Initially they hid in a closet, thinking that the ear-splitting noise was an airplane crash.

Since the noise did not dissipate, they soon determined it must be something else. They came out of their closet to find the front of their home on fire. They fled out the back door to the nearby creek; they suffered burn injuries, but survived. Their home did not--it was consumed by the flames.

In total, five residents were injured; three suffered second- and third-degree burns. Property damage was also extensive. Ninety-five homes were affected and two homes were destroyed. Though the county was primarily rural, there was a cluster of homes near the pipeline.

In the wake of a tragedy, the public seeks answers and explanations. The pipeline explosion in Appomattox is both an example of what to do and what we can do better. It is a prime lesson of how a county's knowledge of pipeline safety and a coordinated response effort can stave off injury and property damage.

The firefighters that responded to the explosion were all volunteers and well-trained. Williams, an energy company and the owner of the ruptured pipeline, previously worked with the fire department to prepare for emergency situations like pipeline explosions.

Because of the coordinated training, the fire department knew the actions Williams' employees would take, and Williams' employees knew the fire department's role: Williams blocked the gas while the fire department isolated the area. The fire department knew not to try to fight the fire. Instead, they knew to wait until the gas was dissipated and then go in and extinguish the surrounding fires. This knowledge ultimately resulted in fewer injuries.

In addition, Appomattox employed a local emergency operations plan. Freddy Godsey was the Appomattox County Emergency Planning Coordinator. An incident command was set up to coordinate the response. The command had a public information officer who spoke for everyone involved. Williams' District Manager Stuart Roach was part of the command, and was responsible for providing the officer information. The officer then spoke to the media. The result was clear and consistent information.

The following is a timeline of events at Appomattox:

- 7:44 a.m.: Line B ruptured
- Gas control received the alarm
- About two minutes later, a downed power line ignited the gas
- 7:59 a.m.: Compressor station emergency shutdown
- Greg Heath, administrator, initiated the emergency shutdown (ESD)
- The compressors were shut down and bypassed the station
- 8:10 a.m.: Blocked upstream valve
- Eddie Glover, technician, closed valve 170B1
- 8:20 a.m.: Blocked downstream valve
- Three technicians closed valve 170B10 and the crossover valves

Williams believes the rupture happened in three stages. These events likely took a total of two minutes to occur: (1) The pipe split with pressure just below the maximum allowable operating pressure (MAOP) of 800 psig. Gas, rocks, and dirt blew into the air. There was a deafening roar and shaking that many people believed was an airplane crash or earthquake. (2) A 32-foot section of the 30-inch diameter pipe tore loose and came out of the ground. Now there were two open 30-inch pipes blowing gas. The noise grew louder. (3) A nearby power line was caught in the gale of gas, came loose, and struck the ground, causing the spark that ignited the fire.

Williams employees were called, but most were already on the way to work. Some went to the station to initiate the emergency shutdown and close the upstream valve. Others went to close the downstream valves. Moreover, although the gas control room from Houston, Texas, was closed because of Hurricane Ike, a backup control center was manned in Pennsylvania. The control center immediately received a rate of drop alarm and began notifications.

Within 36 minutes, the gas was shut in. The fire gradually went out, allowing emergency responders to enter the area safely.

Following the day's whirlwind events, Williams wanted to meet with all the affected families. The public was injured, frightened, and angry. Officials were concerned and worried. Williams set up two public meetings the following Monday and Tuesday. Williams coordinated the meetings with the local emergency planning committee in an effort to reassure and care for affected families and repair and replace damaged property, where possible.

In the weeks following the explosion, Freddy Godsey asked emergency responders to give their perspective on how the response was handled. In summary, the responders found that the coordinated training with Williams greatly helped. Responders knew their roles. There was good communication and responders were able to safely secure a perimeter to keep people out of the dangerous area.

The greatest result of this coordinated effort was no loss of life.

The coordinated response at Appomattox highlights a growing trend in responder and gas industry liaison. The natural gas transmission industry, under the sponsorship of the Interstate Natural Gas Association of America (INGAA), has developed a program to facilitate coordinated responses.

The program is entitled Incident Mitigation Management (IMM). It adopts the best practices of emergency preparedness and response and encourages a very proactive approach to preplan and prepare for possible pipeline emergencies. The goal is to educate the police and firefighters to ensure that these leaders are familiar with the risks and hazards and appropriate emergency response protocols if there is a natural gas fire in their community.

The INGAA program works to help firefighters, police, and other local emergency providers practice how to react to a natural gas pipeline emergency. The INGAA hopes to improve reaction times with the number one goal being to "first save lives, then property." In addition, INGAA

members have made a commitment to close valves promptly within 60 minutes in populated areas, and more quickly if the potential consequences warrant it.

The Appomattox incident is a practical example to understand thermal radiation and the reactions of individuals, both residents and emergency responders. It also helps explain the development of the new emergency response protocols and why INGAA encourages all operators to consider the implementation of the best practices in IMM.

The lesson of Appomattox is that the more homeowners and local responders know about pipeline explosions and thermal radiation, the better they can protect themselves.

Even if automated rupture sensors begin closing valves at the time of a line break, there will be no noticeable reduction in the fuel release rate in the first five minutes. Thus, prompt valve closure will not impact the safety of humans escaping from a pipeline rupture and fire. **The instantaneous closure of valves would not have protected the people at Appomattox. Their injuries and escape all occurred in the first four or five minutes. Conversely, closing the valves promptly (in this case within 36 minutes) does reduce property damage.** Fires will continue until the natural gas is shut off and emergency responders can enter the area.

Knowing this, homeowners can protect themselves by not trying to put the fire out and moving as far away from the fire as possible. It is also important that people maintain barriers between themselves and the flames, such as trees, outbuildings, and hills. Local responders can also protect themselves and others by doing the same. Smart planning and development as described in the Pipeline and Informed Planning Alliance (PIPA) can also allow communities to build safely in proximity to pipelines.

Additional information on coordinated emergency response efforts will be available to all emergency responders at the Fire Department Instructors Conference (FDIC) when Larry Hjalmarson, retired vice president of safety, environmental, and pipeline integrity for Williams, will give a presentation and elaborate on details in this article on April 25, 2013.

Mr. Hjalmarson's presentation will be supported by The Pipeline Operators Safety Partnership (POSP). The POSP was formed by a group of gas and liquids pipeline operators in 2011 with the goal of reaching out to the emergency response community, specifically to FDIC attendees. The group will sponsor booth #9619 in Lucas Oil Stadium April 25-27.

For more information about POSP and its booth, please visit www.pipelinepartnership.com. When you stop by the booth, mention this article and your name will be placed in a drawing not once, but twice for the daily giveaway.

Larry Hjalmarson is the retired vice president of safety, environmental, and pipeline integrity for Williams Gas Pipeline He is a retired executive with 35 years of experience in the natural gas industry. He previously served as Williams vice president of operations. The system had 15,000 miles of pipeline crossing 20 states and transported 12 percent of the natural gas in the United States.He served as co-chair of the Pipeline Emergency Response Working Group (currently a member) and chair of the Southern Gas Association Transmission Operations and Maintenance Committee He is a member of the Pipeline Safety Committee for the Interstate Natural Gas Association of America (INGAA), member of the INGAA Task Force on Integrity Management Continuous Improvement, and led the emergency preparedness and response effort.