BEFORE THE

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

UNITED STATES DEPARTMENT OF TRANSPORTATION

WASHINGTON, D.C.

Pipeline Safety: Plastic Pipe Rule	)	Docket No. PHMSA–2014-0098

COMMENTS OF THE AMERICAN PUBLIC GAS ASSOCIATION

The American Public Gas Association ("APGA") is the national, non-profit association of publicly-owned natural gas distribution systems. APGA was formed in 1961 as a non-profit, non-partisan organization, and currently has over 700 members in 37 states. Overall, there are nearly 1,000 municipally-owned systems in the U.S. serving more than five million customers. Publicly-owned gas systems are not-for-profit retail distribution entities that are owned by, and accountable to, the citizens they serve. They include municipal gas distribution systems, public utility districts, county districts, and other public agencies that have natural gas distribution facilities.

In its May 21, 2015 Notice of Proposed Rulemaking (NOPR) the Pipeline and Hazardous Materials Safety Administration (PHMSA) proposed a number of changes to its natural gas pipeline safety regulations that would impact all natural gas operators that distribute natural gas through plastic pipe. That includes virtually all of APGA's members, therefore APGA and its members are vitally interested in this rulemaking.

Summary of Changes Proposed By PHMSA

The changes proposed by PHMSA in the NOPR include:

1. Prohibiting the installation of Polyvinyl Chloride (PVC) pipe except for repair of existing PVC distribution piping. (§ 192.59),

2. Requiring plastic pipe and fittings used in natural gas service to be marked according to the new ASTM F2897 standard for tracking and traceability (192.63),
3. Requiring operators to develop and follow written procedures for the storage and handling of plastic pipe and/or associated components (New § 192.67),
4. Increasing the design factor for PE pipe from 0.32 to 0.40 (§ 192.121),
5. Requiring operators to only use plastic fittings that meet a listed specification (§192.149),
6. Allowing plastic pipe to be installed and used above ground in risers at meter/regulator stations subject to certain conditions (§ 192.204),
7. Requiring heat-fusion joints on plastic pipe and/or component to comply with ASTM 2620-12 (§192.281(c)),
8. Prohibiting the use of socket fusion to join plastic pipe greater than 1 ¼ inch in diameter (§192.281(c)(2)),
9. Requiring all mechanical joints or fittings to be Category 1 as defined by ASTM F1924, ASTM F1948, or ASTM F1973, e.g. providing a seal plus resistance to a force on the pipe joint greater than the resistance of the pipe itself (§192.281(d)),
10. Requiring that all scratches or gouges exceeding 10% of wall thickness of pipe and/or components be repaired or removed (§192.311),
11. Prohibiting installation of plastic pipe containing bends that exceed the maximum radius specified by the manufacturer for the diameter of the pipe being installed (§192.313),
12. Establishing a minimum wall thickness of 0.090 inches for plastic pipe used in natural gas service (§192.321(d)),
13. Requiring that plastic pipe that is being encased be protected from damage at all entrance and all exit points of the casing (§192.321(f)),
14. Requiring that backfill material:
    a. Not contain materials that could be detrimental to the pipe, and
    b. Be properly compacted underneath, along the sides, and for predetermined distance above the pipe. (New §192.321(i)),
15. Allowing plastic mains to terminate above ground level under certain conditions (New §192.321(j)),
16. Requiring operators to maintain records for tracking and traceability information for the life of the pipeline. (New §192.321(k)),

    Traceability would include:
    a. Location of manufacture,
    b. Production,
    c. Lot information,

d. Size,
e. Material,
f. Pressure rating,
g. Temperature rating,
h. Type,
i. Grade, and
j. Model of pipe and components.

Tracking would include:

a. Location where the pipe and components were installed,
b. Date installed, and
c. The person who made the joints in the pipeline system.

17. Establishing new requirements for plastic pipe installed by trenchless excavation including:
    a. Ensuring that the path of the excavation will provide sufficient clearance from other underground utilities and/or structures for installation and maintenance activities,
    b. If pipe is to be pulled through the ground, requiring that a weak link be installed to ensure the pipeline will not be damaged by any excessive forces during the pulling process (New § 192.329),

    PHMSA has proposed to define a "weak link" as a device used when pulling polyethylene pipe, typically through methods such as horizontal directional drilling, to ensure that damage will not occur to the pipeline by exceeding the maximum tensile stresses allowed (§ 192.3),
18. Requiring electrically isolated metal alloy fittings in plastic pipelines to be cathodically protected and monitored in accordance with section §192.455 and § 192.465(a) unless the operator can show by test, investigation, or experience in the area of application that adequate corrosion control is provided by the alloy composition (New §192.455(g)),
19. Prohibiting the use of a leak repair clamp as a permanent repair method for plastic pipe. (New § 192.720),
20. Requiring operators to maintain and calibrate fusion equipment, alignment equipment, facing and adaptor equipment, heater plates, gauging devices and other equipment used in joining plastic pipe according to manufacturer's specifications and maintain records of such maintenance and calibration for the life of the pipeline (New § 192.756)
21. Allowing installation of PA–11 and PA-12 pipe for pressures up to 250 psi and diameters up to 6 inches, incorporating by reference several standards related to PA-11 and PA-12.

General Comments

Safety is the number one priority of APGA and its members. APGA supports regulations that promote good safety practices in the design, construction, operation and maintenance of natural gas pipeline systems. APGA supports many of the above proposed rule changes as written and offers the following suggested changes that APGA believes will better accomplish the intent of PHMSA in this rulemaking.

Specific Comments

In the following comments APGA addresses each of the 21 rule changes listed above:

1. *Prohibiting the installation of Polyvinyl Chloride (PVC) pipe except for repair of existing PVC distribution piping. (§ 192.59)*

APGA supports this change.

2. *Requiring plastic pipe and fittings used in natural gas service to be marked according to the new ASTM F2897 standard for tracking and traceability (192.63)*

APGA supports this change with one exception. APGA questions the need for these markings to be permanent <u>for the lifetime of the pipe</u> as PHMSA has proposed. The ASTM 2513 standard already requires that these markings be permanent, but not permanent "for the lifetime of the pipe." APGA's understanding of the intent of "permanent" in the context of the ASTM standard is that the marking must be permanently affixed to the pipe (as opposed to temporarily affixed, such as by a paper tag). Once pipe and components have been installed in a distribution system and an operator has recorded the information provided by the markings, there is no further need for the markings. APGA is concerned that the cost of plastic pipe and components will increase with no offsetting safety benefit if manufacturers were forced to prove that the markings would be permanent and legible for the lifetime of the pipe under all the varying geographic, climate and soil conditions where plastic pipe is installed.

Furthermore, under PHMSA's regulatory authority PHMSA and its state agents can only take enforcement actions against the operator, therefore it would be the operator that would be held responsible if at some time in the future the markings on a plastic pipe installed after the effective date of this rule are found to be unreadable. This proposed rule change would place on the operator the burden of testing the markings to prove they are permanently visible and legible. Few, if any,

of the approximately 1,000 public gas systems have the capability of performing such tests, therefore these operators would be placed in the untenable position of either accepting the risk that markings placed on the plastic pipe by manufacturer's is permanent without testing or installing only steel pipe. This provision would, therefore, adversely affect a significant number of small entities.

Rather than require that markings be permanent for the lifetime of the pipe PHMSA should require that markings should remain legible for the time that pipe and components are held in storage by the manufacturer and the operator. A period of 20 years should be sufficient.

3. *Requiring operators to develop and follow written procedures for the storage and handling of plastic pipe and/or associated components (New § 192.67).*

APGA agrees that proper storage and handling of plastic pipe and components is important to ensure that these pipe and components are not damaged during storage and/or handling prior to being installed by the operator. APGA seeks confirmation from PHMSA that a simple, generic storage and handling procedure provided by the pipe and component manufacturer, trade association or other central source will satisfy this requirement.

4. *Increasing the design factor for PE pipe from 0.32 to 0.40 (§ 192.121).*

APGA supports this change.

5. *Requiring operators to only use plastic fittings that meet a listed specification (§192.149).*

APGA supports this change.

6. *Allowing plastic pipe to be installed and used above ground in risers at meter/regulator stations subject to certain conditions (§ 192.204).*

APGA supports this change.

7. *Requiring heat-fusion joints on plastic pipe and/or component to comply with ASTM 2620-12 (§192.281(c)).*

APGA supports this change.

8. *Prohibiting the use of socket fusion to join plastic pipe greater than 1 ¼ inch in diameter (§192.281(c)(2)).*

APGA opposes this change. PHMSA has not provided any rationale for prohibiting socket fusion on any size of plastic pipe. Socket fusion is commonly used by APGA members to join pipe up to and including 4 inches diameter.

PHMSA must recognize that the majority of the operators that must comply with this rule are small. According to Energy Information Agency statistics, 581 out of the approximately 1,000 public gas utilities in the United States have total annual gross revenues from gas sales of $1 million or less.[1] Most of this revenue goes to pay for the purchase and pipeline transportation of gas. For these systems, the cost of purchasing butt fusion and/or electrofusion equipment can be prohibitive; therefore socket fusion is the preferred method of joining plastic pipe for many small operators. Prohibiting socket fusion to join plastic pipe over 1 ¼ inches diameter would leave these smaller systems little alternative to mechanically joining plastic pipe. PHMSA has not demonstrated any evidence that socket fusion is less safe than mechanically coupling pipe over 1 ¼ inch diameter.

APGA urges PHMSA to allow socket fusion to be used to join plastic pipe of 4 inches diameter or less.

9. *Requiring all mechanical joints or fittings to be Category 1 as defined by ASTM F1924, ASTM F1948, or ASTM F1973, e.g. providing a seal plus resistance to a force on the pipe joint greater than the resistance of the pipe itself (§192.281(d)).*

APGA supports this change.

10. *Requiring that all scratches or gouges exceeding 10% of wall thickness of pipe and/or components be repaired or removed (§192.311).*

APGA opposes this change. §192.311 already requires that each imperfection or damage that would impair the serviceability of plastic pipe must be repaired or removed. PHMSA has not offered technical support that 10% of wall thickness is the cutoff above which the serviceability of plastic pipe is impaired. 20% is the industry recommendation from manufacturers and industry organizations. In addition, the only industry research available on scratch or gouge depth in plastic pipe investigated scratches and gouges up to 30% of wall thickness.[2]

[1] EIA Form 176, 2013 data
[2] "Service Performance of PE Pipes Containing Surface Notches Subjected to Internal Pressures." Gas Research Institute, June, 2000.

11. *Prohibiting installation of plastic pipe containing bends that exceed the maximum radius specified by the manufacturer for the diameter of the pipe being installed (§192.313).*

APGA supports this change.

12. *Establishing a minimum wall thickness of 0.090 inches for plastic pipe used in natural gas service (§192.321(d)).*

APGA takes no position on this change, however points out that proposed §192.121(b)(3) states that "[u]nless specified for a particular material in this section, the wall thickness for plastic pipe may not be less than 0.062 inches." These appear to be inconsistent and, if so, one or the other should be changed to be consistent.

13. *Requiring that plastic pipe that is being encased be protected from damage at all entrance and all exit points of the casing (§192.321(f)).*

APGA supports this change.

14. *Requiring that backfill material:*
    a. *Not contain materials that could be detrimental to the pipe, and*
    b. *Be properly compacted underneath, along the sides, and for predetermined distance above the pipe. (New §192.321(i)).*

APGA supports ensuring that backfill does not contain materials detrimental to the pipe. As written this determination would be made by the operator based on sound practice to avoid stress on the pipe.

APGA does, however, have concerns about the proposed compaction requirements. Properly compacted soil underneath a pipeline is important to avoid subsidence that could place sheer stress on the plastic pipe. Typically operators trench only as deep as necessary to install a main or service line, therefore the plastic pipe will be resting on undisturbed soil (or on a layer of padding materials resting on undisturbed soil), therefore compaction below the pipe is not generally a safety issue. Where plastic pipe connects to a main via a tapping tee or enter or exits a pipe into which it has been inserted, subsidence may occur. It is common industry practice to install a plastic sleeve or other method to reduce any sheer stress due to soil subsidence at these locations. Many manufacturers of tapping tees provide such a sleeve in the package with the tapping tee.

Compaction above the pipe is important to operators in locations where subsidence must be prevented, e.g. where installed under paved surfaces or where the soil must support an external load. This is not a pipeline safety issue but

rather a surface restoration issue. The level of compaction can differ greatly depending upon jurisdictional requirements from permitting agencies, soil type and conditions and whether the installation is occurring in undisturbed ground or in a previously disturbed area. Proper compaction of soil above the pipeline is also important to avoid excessive stress on the pipe – operators typically compact in lifts to avoid undue stress on the pipe. Most of the reportable incidents that have occurred due to improper compaction, however, have been the result of improper compaction by third party excavators rather than the compaction practices of the operator and therefore would be unaffected by any PHMSA compaction requirements.

This code language is very ambiguous and will require additional clarification to ensure this does not become a compliance burden. As written, this provision could be interpreted to require operators to quantify the level of compaction underneath, around and on top of each plastic pipe main and service installation. Instruments to measure the degree of compaction are expensive and not typically possessed by APGA members. Bringing in an outside service to measure compaction would also be expensive.

Since PHMSA does not state what risk to pipeline safety this provision is intended to address APGA is uncertain how this provision can be modified to address those risks.

15. *Allowing plastic mains to terminate above ground level under certain conditions (New §192.321(j)).*

APGA supports this change.

16. *Requiring operators to maintain records for tracking and traceability information for the life of the pipeline. (New §192.321(k)).*

    Traceability would include:
    a. Location of manufacture,
    b. Production,
    c. Lot information,
    d. Size,
    e. Material,
    f. Pressure rating,
    g. Temperature rating,
    h. Type,
    i. Grade, and
    j. Model of pipe and components.

Tracking would include:

a. Location where the pipe and components were installed,
b. Date installed, and
c. The person who made the joints in the pipeline system.

APGA supports the intent of this change, however has several concerns about PHMSA's proposal. In the preamble PHMSA states that the purpose of this provision is to enable operators to "accurately locate and quickly identify the installed pipe and components in their systems when handling recalls and conducting failure investigations."

It is important to note that PHMSA is not suggesting the tracking and traceability information is something an operator would need for the safe day-to-day operation of a natural gas distribution system. The benefit of these data, according to PHMSA, is in the rare instances when certain pipe or components are found to pose a safety risk, the operator could "accurately" and "quickly" identify where in the system the problem materials exist. This is a laudable goal. Operators no doubt wish this capability existed when PHMSA issued advisory bulletins about brittle-like cracking problems with Century Pipe[3], DuPont Aldyl A piping manufactured before 1973[3] and polyethylene gas pipe designated PE 3306.[4]

To take full advantage of such a system an operator would need to have information stored in a Geographic Information System (GIS) or other computer-based database that allows automatic searching for the identified materials. The majority of the distribution systems regulated by PHMSA are small utilities, however, and do not have either GIS or computer-based recordkeeping systems. These systems will record the tracking and traceability information on paper and therefore will not have the benefit of quickly searching in the event other problem materials are identified in the future. PHMSA's proposal would, therefore, place a significant burden on a significant number of small entities with minimal offsetting benefits. Even for those systems having GIS, it will require significant time and effort to modify these systems to begin tracking the proposed tracking and traceability information.

PHMSA goes on to state that the revisions also support the requirements in the distribution integrity management programs for capturing and retaining certain information on new pipelines for the life of the lines (§ 192.1007(a)(5)), which requires that operators maintain records on any new pipeline installed including,

[3] Advisory Bulletin (ADB–99–01), March 11, 1999
[4] Advisory Bulletin (ADB–02–7), November 26, 2002

at a minimum, the location where the new pipeline is installed and the material of which it is constructed. PHMSA's proposal goes well beyond these minimum requirements.

PHMSA also states that the proposed requirement would also support the current plastic pipe-joiner qualification requirements in § 192.285. APGA does not find anything in 192.285 that requires any of the above data be maintained by the operator to support pipe-joiner qualification.

Because the proposed tracking and traceability requirements would pose a significant burden on an estimated 600 small utilities APGA recommends that PHMSA not promulgate tracking and traceability requirements at this time but rather work with APGA, the American Gas Association, the Plastic Pipe Institute and others to expedite the adoption of tracking and traceability capabilities in the industry.

Should PHMSA choose to go forward with tracking and traceability regulations, APGA urges PHMSA to limit traceability information to just the 6 fields required by the ASTM 2897 standard. PHMSA's proposal includes some fields not required by F2897 and excludes some fields required by F 2897. PHMSA's proposal and ASTM F2897 marking requirements are compared in the following table:

PHMSA Proposal vs. ASTM F2897-11a for Traceability

PHMSA Proposal	ASTM F2897-11a
	Manufacturer
	Production Date
Location of Manufacture	*
Production	?
Lot Information	Lot Information
Size	Size
Material	Material
Pressure Rating	*
Temperature Rating	*
Type	Type
Grade	*
Model	*

Note: Fields indicated by an * are not encoded into the 16 character bar code specified by ASTM F2897 but could be determined by the manufacturer from the lot code. APGA is unsure what PHMSA means by "production."

In the event of a product recall, advisory bulletin or other reason these other fields should be obtainable from the manufacturer through the lot # that is encoded in the bar code. Since, as pointed out above, none of these data is necessary for the safe, day-to-day operation of the distribution system, there is no reason the operator needs these data (location of manufacture, grade, model, etc.) on a real time basis. Each field would need to be manually entered, even if the operator has bar code scanning capability, so the cost of recording these fields would be greater that if PHMSA limited traceability to just the 6 F2897 fields.

APGA supports the position of the American Gas Association (AGA) that the tracking and traceability requirements should be subject to a separate rulemaking where the costs, benefits, practicality and technical feasibility of this proposal can be fully considered.

17. *Establishing new requirements for plastic pipe installed by trenchless excavation including:*
    a. *Ensuring that the path of the excavation will provide sufficient clearance from other underground utilities and/or structures for installation and maintenance activities,*
    b. *If pipe is to be pulled through the ground, requiring that a weak link be installed to ensure the pipeline will not be damaged by any excessive forces during the pulling process (New § 192.329),*

    PHMSA has proposed to define a "weak link" as a device used when pulling polyethylene pipe, typically through methods such as horizontal directional drilling, to ensure that damage will not occur to the pipeline by exceeding the maximum tensile stresses allowed (§ 192.3).

APGA supports the intent of PHMSA's proposed definition for a weak link, but would like to provide suggested modifications. As currently written, PHMSA could be interpreted to require that a weak link must be a specific device designed for that usage, such as a pull head with sheer pins. It is a common practice among APGA's members that install pipe by pulling to utilize as a weak link a field-fabricated assembly consisting of a plastic pipe of a smaller diameter that will fail before the carrier material yields. This is a sound engineering practices and should be acceptable in practice.

18. *Requiring electrically isolated metal alloy fittings in plastic pipelines to be cathodically protected and monitored in accordance with section §192.455 and § 192.465(a) unless the operator can show by test, investigation, or*

experience in the area of application that adequate corrosion control is provided by the alloy composition (New §192.455(g)).

APGA supports the proposal that isolated metal fittings on plastic pipelines be cathodically protected. In fact, some fitting manufacturers ship their fittings already pre-coated, with a sacrificial anode attached.

APGA does not support the proposed monitoring requirement however. Monitoring will add significant expense with little or no offsetting benefit.

The purpose of periodically monitoring cathodic protection levels is to detect whether cathodic protection requirements have changed due to changes in the soil or other conditions. The various components of a metallic distribution pipeline network may be exposed to very different soil chemistry across the extent of electrically contiguous pipe and components. These differences can create pipe-to-soil potential differences that cause a corrosion cell to develop. The large surface area of metallic pipe insulated from the soil can also create a large corrosive current flow at the anodic areas of the network. Large electrically contiguous metal pipeline networks are also at higher relative risk from stray currents than are isolated components in a plastic system.

By their very nature, isolated metal fittings in a plastic system are not subject to the same corrosion risks as similar fittings installed on a metallic piping system. The isolated fitting is exposed to relatively homogeneous, unchanging soil conditions and is insulated by the plastic pipe from other metallic components and is therefore unaffected by the soil conditions around those other isolated components. The isolated fitting has much less surface area than the same fitting installed in a large piping network therefore potential corrosion current flows would be smaller. Isolated components are less at risk from stray currents because an isolated, insulated metal fitting does not offer a lengthy, least resistance path for the stray current to complete its circuit.

To monitor isolated metallic fittings would require installing test stations on each such fitting. Under §192.465(a) the operator would be required to send personnel to each such isolated fitting test station at least once every ten years to measure cathodic protection levels. APGA believes the cost of equipment and labor to perform such testing could be better used elsewhere. It should be sufficient to install an anode to cathodically protect isolated fittings without requiring periodic monitoring.

19. *Prohibiting the use of a leak repair clamp as a permanent repair method for plastic pipe. (New § 192.720).*

APGA supports prohibiting the use of a leak clamp for new permanent repairs of plastic pipe. PHMSA has proposed to add this prohibition to Subpart M. Subpart M is one of the Subparts of 49 CFR Part 192 that is retroactive to existing installations therefore this proposed rule change would apply retroactively to leak repair clamps installed before the effective date of this rule. APGA does not support requiring operators to search for and replace any existing installations where leak repair clamps were used as a permanent repair prior to the effective date of this rule. PHMSA should add language to make clear this only applies to permanent repairs of plastic pipe made after the effective date of the final rule.

20. *Requiring operators to maintain and calibrate fusion equipment, alignment equipment, facing and adaptor equipment, heater plates, gauging devices and other equipment used in joining plastic pipe according to manufacturer's specifications and maintain records of such maintenance and calibration for the life of the pipeline (New § 192.756)*

APGA does not support this change. Joining plastic pipe with properly maintained and, if applicable, calibrated equipment promotes pipeline safety. Requiring the operator to keep records of this maintenance and calibration for the lifetime of the pipeline does nothing for pipeline safety. Once the next maintenance and/or calibration is performed on a particular piece of equipment there is no operational reason to keep the records of prior maintenance. Each operator should adopt and follow equipment maintenance procedures that are consistent with the equipment manufacturer's recommended practices.

21. *Allowing installation of PA–11 and PA-12 pipe for pressures up to 250 psi and diameters up to 6 inches, incorporating by reference several standards related to PA-11 and PA-12.*

APGA supports this change.

APGA appreciates the opportunity to comment on this proposal. Any questions concerning these comments should be directed to John Erickson, APGA Vice President, Operations (202-464-2742, ext 1002 or jerickson@apga.org).

Bert Kalisch, President and CEO