



## Plastic Pipe Timeline

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Administered by

American Gas Association

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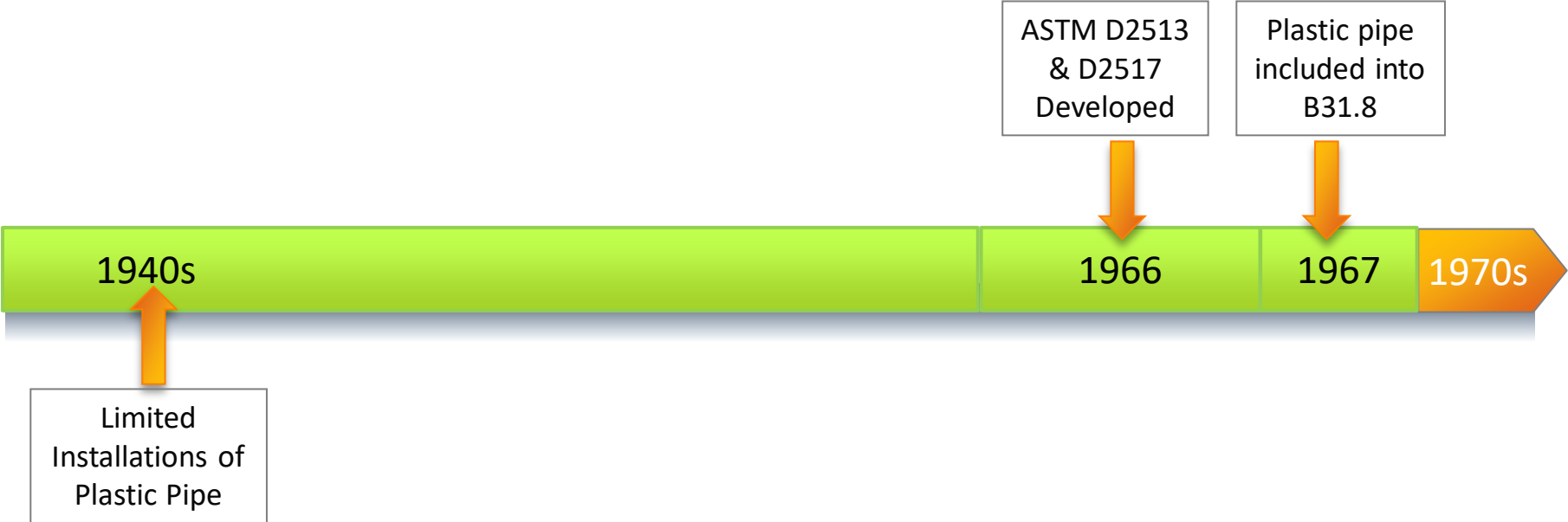
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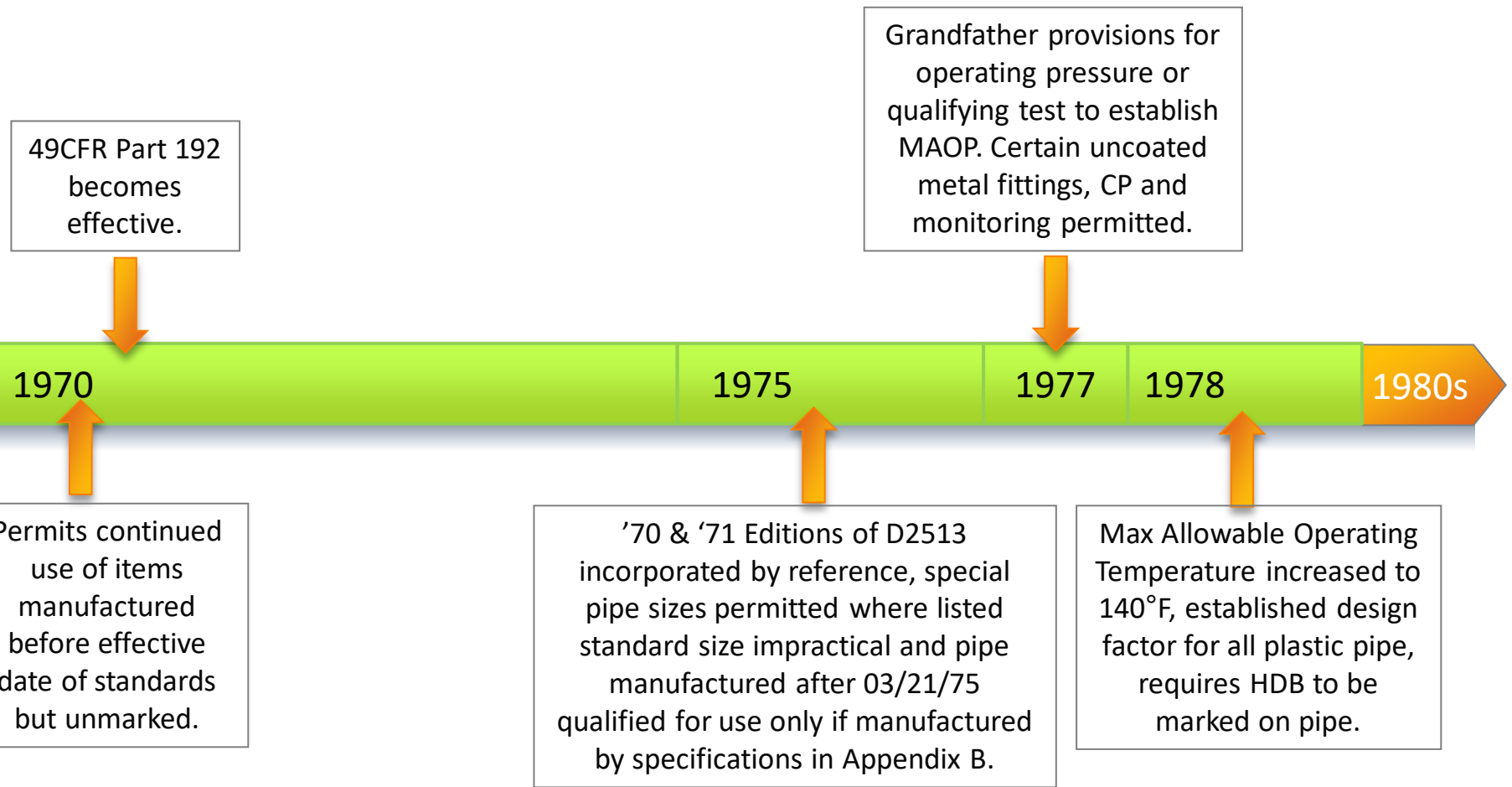
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# Plastic Pipe Timeline



1940s-1960s

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1970s

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Established and then refined tests for qualifying procedures and personnel to make joints.

Use of stainless steel band clamps for permanent repair of damaged plastic pipe is not in compliance with §192.311.

1980

1982

1985

Design of components based on pressure rating established by manufacturer by pressure testing allowed.

ASTM D2513 changes include PE34 designation and PB Type II Grade 1, new standard for joining procedures referenced, test requirements and procedures revised and referenced to D2290. Mechanical Joint Categorization added.

Removal of requirement for identifying location of each corrosion-resistant metal alloy fitting.

1980s

# Plastic Pipe Timeline

ASTM D2513 added reference to ASTM F678. Quality program up to 12" mandatory. CAB removed. Added requirement for melt index for PE/PB. Added outdoor storage stability requirement of at least 1 year. Added elevated temperature marking to fittings. Dropped CAB and PE3306 material designations.

ADB 86-02 Informed natural gas pipeline operators to review procedures for using mechanical couplings; ensure coupling designing, procedures, and personnel qualifications meet 49 CFR Part 192. The advisory explains that cyclic effects of temperature related contraction/expansion on plastic pipe in an improperly designed mechanical joint can be cumulative and lead to a failure even after several years of satisfactory service.

1985

1986

1987

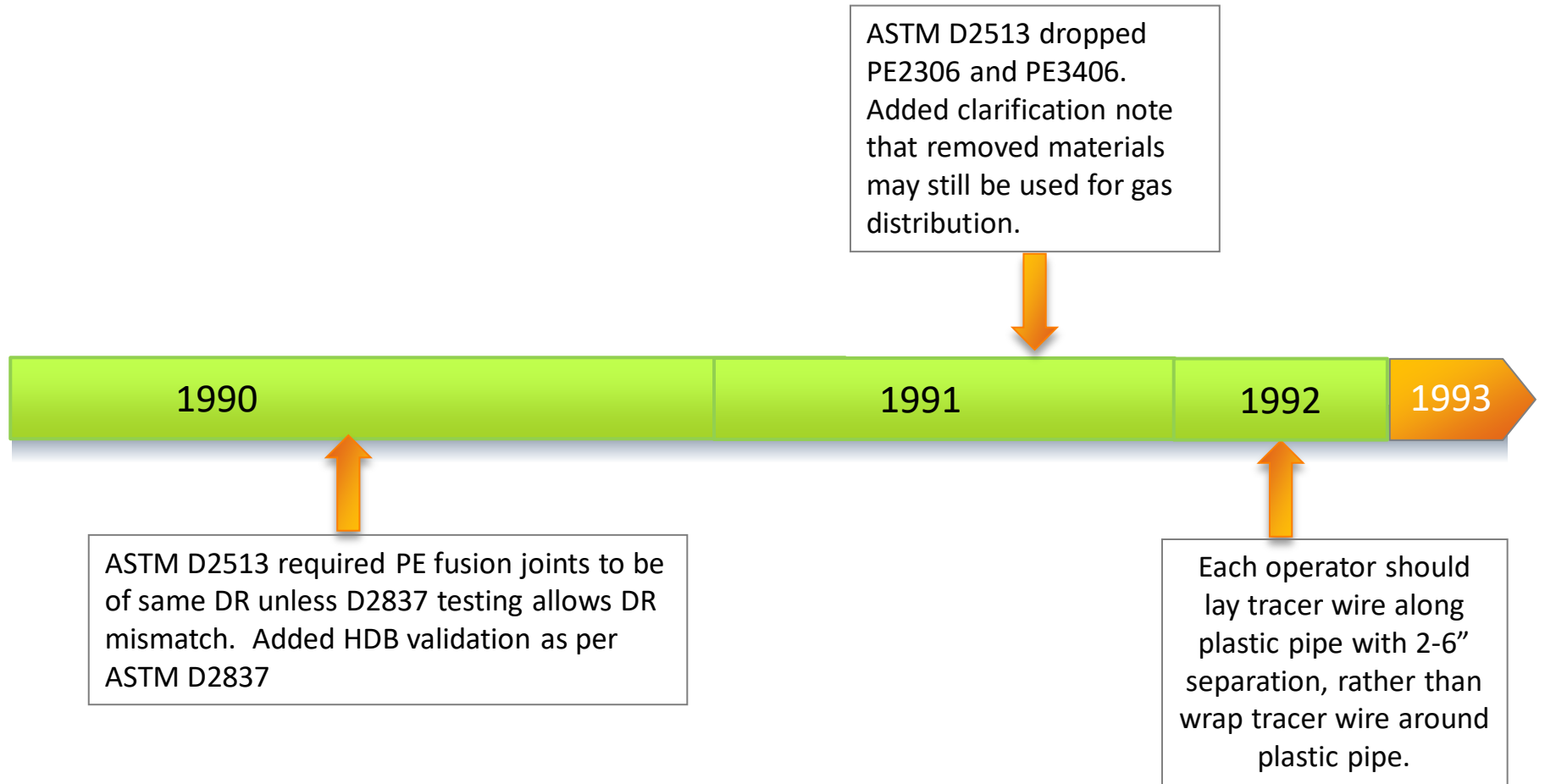
1988

1990s

ASTM D2513 Dropped ABS. PE requirements including sizes up through 24" moved to Annex A1. PVC requirements moved to Annex 2. PB requirements in Annex A3. InPlant QC up through 12" in Annex A4, 14-24" in Annex A5. Dropped reference to D1248. Added 1 letter marking for melt index range. Plastic gas valves must meet ANSI B16.40. Printline repeated 5 ft.

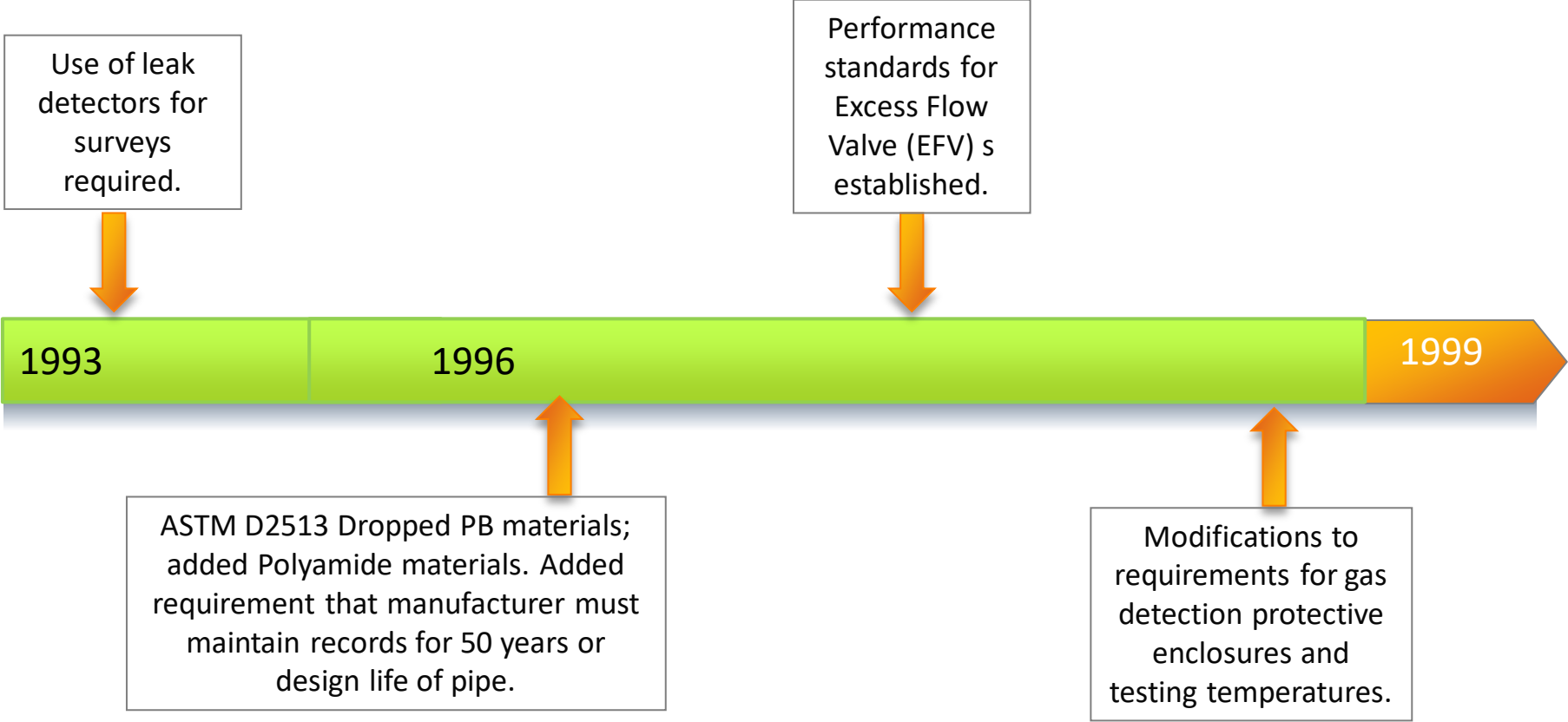
1980s

# Plastic Pipe Timeline



1990s

# Plastic Pipe Timeline



1990s



# Plastic Pipe Timeline

ADB 99-01 advised distribution operators that plastic pipe extruded by Century Utility Products Inc. from Union Carbide Corporation's DHDA 2077, Tan medium density polyethylene resin (Century pipe), manufactured between 1970 and 1973 may fail in service due to its poor resistance to brittle-like cracking. Operators with Century pipe in their systems were to closely monitor this pipe for leaks with increased leak survey frequency and to replace pipe improperly installed, repaired, or operated in an environment that impairs pipe strength.

PPI issues first edition of TR33 Generic Butt Fusion Joining Procedure

1999

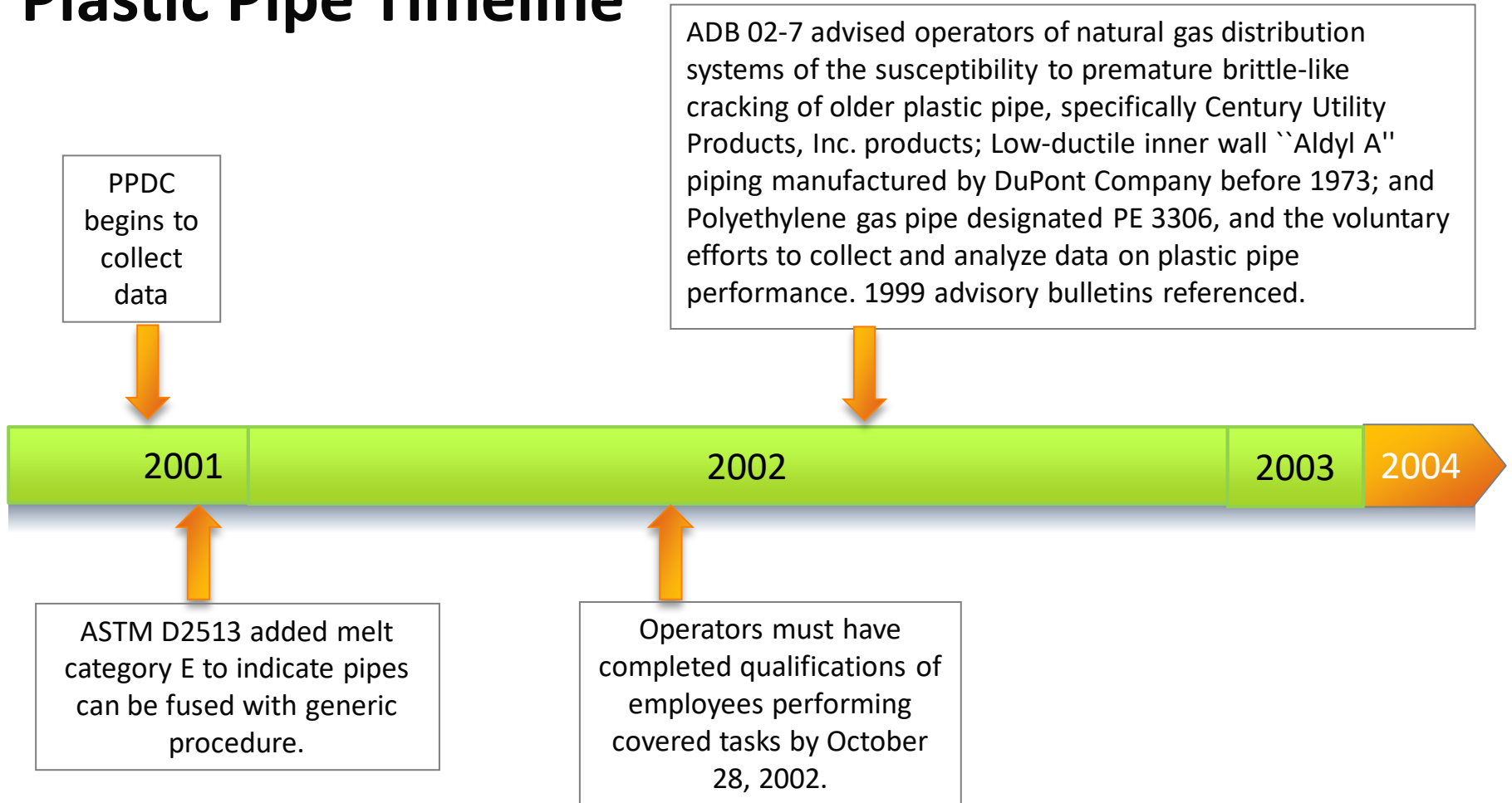
2000s

ASTM D2513 replaced ovality with requirement that installer must run coils larger than 3" through a re-rounder to reduce ovality to less than 5%. Added requirement of 100 hours PENT

ADB 99-02 advised operators of natural gas distribution systems of the potential vulnerability of older plastic gas distribution pipe to brittle-like cracking. The National Transportation Safety Board (NTSB) Special Investigation Report (NTSB/SIR-98/01), Brittle-like Cracking in Plastic Pipe for Gas Service, described how plastic pipe installed in natural gas distribution systems from the 1960s through the early 1980s may be vulnerable to brittle-like cracking resulting in gas leakage and potential hazards to the public and property.

1990s

# Plastic Pipe Timeline



2000s

# Plastic Pipe Timeline

12/16/2004: Training required for individuals performing covered tasks; Observation of on the job performance prohibited from being the sole method of evaluation

ADB 07-01 updated previous advisory bulletins concerning the susceptibility of older plastic pipe to premature brittle-like cracking. This advisory bulletin expanded on the information provided in three prior bulletins by adding Delrin insert tap tees and Plexco service tee Celcon (polyacetal) caps and by updating pipeline owners and operators on the ongoing voluntary efforts to collect and analyze data on plastic pipe performance.

2004

2005

2006

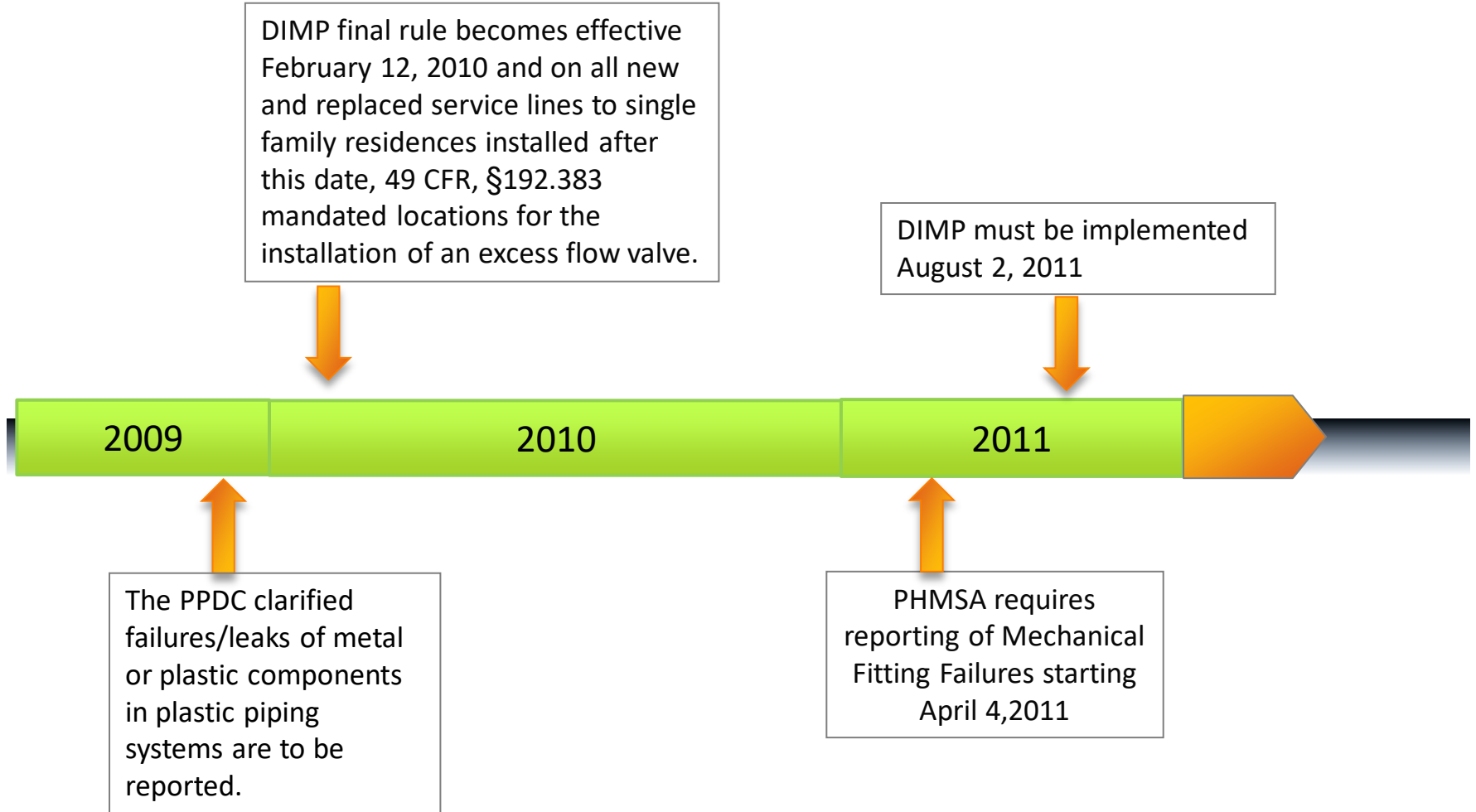
2007

2008

PPDC added Delrin Insert tap tees and Plexco service tee Celcon (polyacetal) caps to known materials susceptible to brittle-like cracking.

2000s

# Plastic Pipe Timeline



2010s

# Plastic Pipe Timeline

ADB 2012-03 issued to alert operators using Driscopipe® 8000 High Density Polyethylene Pipe (Drisco8000) of the potential for material degradation. Degradation has been identified on pipe between one-half inch to two inches in diameter that was installed between 1978 and 1999 in desert-like environments in the southwestern United States. However, since root causes of the degradation have not been determined, PHMSA cannot say with certainty that this issue is isolated to these regions, operating environments, pipe sizes, or pipe installation dates.



2012

2013

2014

2015

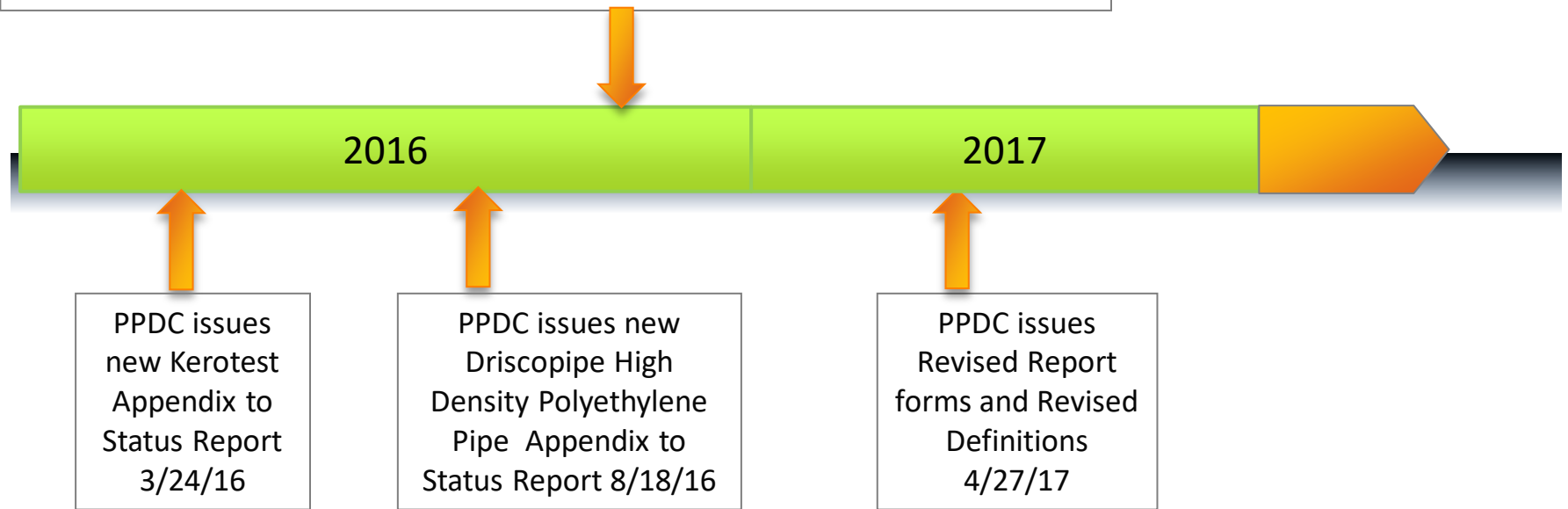


NTSB issues Safety Alert  
for plastic fusions  
6/2015

2010s

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EFV final rule issued October 14, 2016. With some exceptions, after April 14, 2017, each operator must install an EFV on any new or replaced service line serving a single service line to one single family residence; a new branched service line; a new branch off an existing service line; multifamily residences with known customer loads not exceeding 1,000 SCFH per service; a single, small commercial customer served by a single service line with a known, at time of installation, customer load not exceeding 1,000 SCFH.



2010s

# Plastic Pipe Timeline

PHMSA issues Plastic Pipe Rulemaking: 11/20/18

- Authorizes use of PA-12: Expands use of PA-11 and PA-12
- Revises design factor from 0.32 to 0.40
- Mechanical leak repair clamps installed after 1/19/19 may not be used as a permanent repair for plastic pipe
- Additional fusion and joining requirements, including qualification of personnel

- Additional design/testing requirements for risers
- More stringent standards for plastic fittings/joints and mechanical fittings
- Requires sufficient clearance from other underground utilities/structures at time of installation
- Incorporation by reference of new/updated consensus standards for pipe, fittings, and other components

2018

2019

PPDC issues  
Revised Report  
forms and Revised  
Definitions 5/1/18

6/25/2018: NTSB issues Safety Recommendations P-18-003 & P-18-004 for Honeywell:  
Update PermaLock mechanical tapping tee assembly installation instructions to

- Specify exact tools to be used during installation
- Explain what an installer should sense while using those tools during installation
- Specify a not-to-exceed torque limit for Nylon bolts and have that value checked and adjusted with a torque wrench immediately after installation

2010s

# Plastic Pipe Timeline



Dura-Line identified a thin wall pipe issue on small diameters NGD Pipe (specifically, NGD pipe of ½” to 1 ½” diameters 4/2021

2020s