[BILLING C

DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA-2026-0298]

Pipeline Safety: Advisory Bulletin on the Integrity Risks of Type A Repair Sleeves

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA), Department of Transportation (DOT).

ACTION: Notice; issuance of advisory bulletin.

SUMMARY: PHMSA is issuing this advisory bulletin to highlight the integrity risks associated with using Type A sleeves to repair hazardous liquid pipelines. Type A sleeve failures have resulted in significant environmental damage and costs to the industry. Incident data suggests these failures were due to improper installation, moisture intrusion, and the selection of ineffective assessment methods. This bulletin provides specific technical details for managing the integrity of Type A sleeves.

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SUPPLEMENTARY INFORMATION

Type A and B Repair Sleeves

Operators use Type A sleeves to repair hazardous liquid pipelines. A Type A sleeve consists of two halves of a steel cylinder that are placed around a carrier pipe at the location of an anomaly or defect. The two halves are then welded together to encircle the carrier pipe fully. A Type A sleeve works by reinforcing the carrier pipe at the location of the anomaly or defect to maintain the serviceability of the pipeline. In the absence of that structural reinforcement, the anomaly or defect would be subject to additional strain that could lead to a failure. When properly installed, a Type A sleeve can be used to provide effective structural reinforcement for many nonleaking anomalies or defects, such as nonpitting corrosion, scrapes, gouges, and dents.[1]

Operators also use Type B sleeves to repair hazardous liquid pipelines. A Type B sleeve is similar to a Type A sleeve, except that the ends of a Type B sleeve are welded to the carrier pipe itself. Like a Type A sleeve, a Type B sleeve provides structural reinforcement to the carrier pipe at the location of an anomaly or defect. However, because the ends are welded to the carrier pipe, a Type B repair sleeve is capable of withstanding the load and containing the pressure of that pipe as well. A properly installed Type B sleeve can therefore be used effectively to repair leaking anomalies or defects and areas of the carrier pipe experiencing severe wall loss.

Type A Sleeve Integrity Risks

Type A sleeves are subject to certain integrity risks. Type A sleeves that are not welded to the carrier pipe face a heightened corrosion risk due to potential water intrusion, particularly if the annular space at the end of the sleeve is not properly sealed. Type A sleeves can also shield the carrier pipe from receiving adequate cathodic protection. These risks are analogous to what is experienced in a shorted casing, where the presence of an electrolyte in the annular space

[1] Pipeline Research Council International, *Updated Pipeline Repair Manual Rev. 6* , p. 16 (Aug. 28, 2006); J.F. Kiefner and A. R. Duffy, *A Study of Two Methods For Repairing Defects in Line Pipe*, submitted to American Gas Association Pipeline Research Committee, p. 3, 12-14 (Oct. 31, 1974), but see p. 114 referencing the limitations of Type A sleeves for reinforcing gouges in dents; J. Kiefner, *GRI Guide for Locating and Using Pipeline Industry Research 8: Pipeline Repair Methods*, Gas Research Institute, p. 28 (Mar. 2001); J. F. Kiefner and R. Fournie, *A Review of Current Methods of Pipeline Repair*, Proceedings of the Fifth Annual International Pipeline Rehabilitation Seminar, p. 202 (Feb. 2-5, 1993).

between the casing and the carrier pipe can lead to accelerated corrosion. Proper installation of a Type A sleeve is necessary to mitigate such risks, *e.g.*, minimizing the width of the annular gap between the sleeve and the carrier pipe, and sealing the ends with a semi-liquid material, can prevent corrosion due to water intrusion.[2]

Pressure cycling in hazardous liquid pipelines increases the risk of a Type A sleeve failure. Repeated changes or fluctuations in pressure place additional stress on the carrier pipe, and that stress can lead to a failure over time. Type A sleeves that are not welded to the carrier pipe face a heightened risk of such failures at the sleeve ends, where stress concentration is more likely to occur due to pressure cycling.

Recent Type A Sleeve Incidents

Several recent incidents demonstrate the consequences that can result from failing to manage the risk associated with Type A sleeves properly. On December 8, 2014, a release of gasoline was discovered on the CNG pipeline in Belton, South Carolina. The leak originated under a Type A sleeve installed in 1991 to remediate a dent. Metallurgical analysis identified the cause of the failure as issues with the filler material used to fill the dent between the pipe and the sleeve.[3]

On August 14, 2020, a release of gasoline was discovered on the Colonial Line 1 pipeline in Huntersville, North Carolina. The leak originated under a Type A sleeve installed in 2004 to

[2] Pipeline Research Council International, *Updated Pipeline Repair Manual Rev. 6*, p. 15, 18 (Aug. 28, 2006); J. F. Kiefner and R. Fournie, *A Review of Current Methods of Pipeline Repair*, Proceedings of the Fifth Annual International Pipeline Rehabilitation Seminar, p. 192 (Feb. 2-5, 1993); J.F. Kiefner and A. R. Duffy, *A Study of Two Methods For Repairing Defects in Line Pipe*, submitted to American Gas Association Pipeline Research Committee, p. 3, 95 (Oct. 31, 1974); Michael Baker Jr., Inc., *Mechanical Damage Final Report*, submitted to U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Office of Pipeline Safety, Integrity Management Program, under Delivery Order DTRS56-02-D-70036, p. 116 (Apr. 2009).

[3] For more information, see CPF No. 2-2015-5001-S on PHMSA's Enforcement Transparency website.

remediate a dent. Metallurgical analysis identified the cause of the failure as a crack caused primarily by corrosion fatigue.[4]

On January 31, 2025, a release of jet fuel was discovered on the Twin Oaks Pipeline in Upper Makefield Township, Pennsylvania. The leak originated under a Type A sleeve that was installed in 1995 to repair a bottom-side dent. Metallurgical analysis revealed that the pipe had a 2.5-inch axial crack caused by near neutral Stress Corrosion Cracking (NN-SCC) resulting from water ingress between the carrier pipe and the sleeve.

I. Advisory Bulletin (ADB-2026-02)

PHMSA advises owners and operators of hazardous liquid pipeline systems to take the following steps to manage the integrity of Type A sleeves:

1. Record Maintenance and Confirmation. Operators are reminded that Type A sleeve installations are subject to the recordkeeping requirements in 49 CFR part 195. Operators should ensure that such records are available and contain all necessary and appropriate information. Operators should also:

- Evaluate maintenance records associated with sleeve repairs to ensure they include as-found and as-left defect conditions, the type of sleeve installed, welding and nondestructive testing records, coating and annular filler installation records, and photo documentation.
- If records are missing, unavailable, or incomplete, conduct additional searches or use available data, testing results, or other records to determine essential information about the Type A sleeve installation necessary for threat mitigation and integrity management.

[4] For more information, see CPF No. 4-2021-005-NOPSO on PHMSA's Enforcement Transparency website.

2. Review of ILI Data. Inline inspection (ILI) data is a valuable information source for operators to determine whether Type A sleeves could present an integrity threat to their pipelines. Operators should:

- Utilize ILI data to confirm the locations of all Type A sleeves and investigate Type A sleeve installation sites that lack adequate records.
- Verify that installation records exist for all installed Type A sleeves and the type of anomaly that is present.
- Confirm that ILI vendors do not determine without justification that an anomaly under a Type A sleeve is not an integrity threat.
- Determine if their ILI data is accurate and reliable for detection of anomalies at sleeve locations, and where the ILI data is not reliable, operators should immediately assess the pipeline's integrity at the installation site.

3. Inventory and Interactive Threat Assessment. Type A sleeves should be factored as a possible integrity threat on pipelines on which they are installed. Operators should:

- Create an inventory of all Type A sleeves which includes a determination of whether the repair is to be considered "temporary" or "permanent," with supporting analysis for any established repair lifespan.
- Risk models should account for the interaction between the original defect (such as a dent), the repair method, pressure cycling (fatigue), and the reliance on pipeline coatings to prevent moisture intrusion and corrosion between the carrier pipe and the Type A sleeve.

4. Fatigue Evaluation. Operators should conduct engineering fatigue analyses for any sleeve repair subjected to frequent pressure cycles in accordance with American Society of Mechanical Engineers (ASME) PCC-2: *Repair of Pressure Equipment and Piping*.

5. Enhanced Leak Detection and Monitoring. SCADA and static pressure tests may not be able to detect small leaks under sleeves. Operators should:

- Consider conducting targeted ground leak surveys in areas of Type A sleeve installations.
- Rigorously investigate all leak complaints, including excavating any Type A sleeve(s) that are proximal to a complaint, consistent with the commodity being transported in the pipeline.
- Consider enhanced leak detection methodologies, such as long-term over and short analysis, when analyzing a possible small leak.
- Review static testing procedures and modify as appropriate to assure small pipe sections can be isolated and tested with adequate pressures and consistent durations to identify small leaks.
- Consider additional continuous leak detection technologies, such as acoustics ball leak detection and fiber optic leak detection, in areas necessitating rapid identification of potential small leaks to the surrounding environment.

6. Mechanical and Installation Standards. Operators should ensure that Type A sleeve installation procedures are consistent with the requirements in 49 CFR part 195 and established industry standards and practices, including American Petroleum Institute (API) Recommended Practice (RP) 1160: *Standards for Hazardous Liquid Pipeline Integrity*, API RP 2201: *Safe Hot Tapping Practices in the Petroleum and Petrochemical Industries*, ASME standard B31.4: *Pipeline Transportation Systems for Liquids and Slurries*, and the recommendations of the Pipeline Research Council International and the ASME Post-Construction Committee.

Operators are reminded that under 49 CFR 195.422 repairs must be made safely and in a manner that prevents damage to persons or property.

Guidance and advisory bulletins are not rules; are not meant to bind the public in any way; and do not assign duties, create legally enforceable rights, or impose new obligations that are not otherwise contained in regulations.

Issued in Washington, D.C., on January 26, 2026, under the authority delegated in 49 CFR 1.97.

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Acting Associate Administrator for Pipeline Safety

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