



Updated Flow Reversals NTSB Recommendation P-22-2

Mary L. McDaniel, Sr. Technical Advisor



Objective



U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration

PHMSA: Your Safety is Our Mission



Flow Reversal

Background

Recent Flow Reversal Findings

NTSB Recommendation to PHMSA

Plans moving forward



Background

- September 2014 PHMSA issued ADB-2014-0040;
- PHMSA distributed guidance on flow reversals;
- PHMSA amendments to require notification as a Type F for flow reversals;
- NTSB Recommendation following Danville, Kentucky incident.



Advisory Bulletin

Advise operators of the potential significant impact flow reversals, product changes, and conversion to service may have on the integrity of a pipeline.

- Notification requirements;
- General O&M requirements;
- Integrity management requirements; and
- Additional actions should consider prior to taking action.



Guidance Document

Guidance to Operators Regarding Flow Reversals, Products Changes, and Conversion to Service.



Rulemaking Efforts

- In 2014 no rule requiring notifications for flow reversals, product changes, or conversion to service.
- Notification was only required if the changes met the criteria of \$10 million in costs.
- In January 2017, PHMSA amended 191.22 and 195.64 requiring notification of flow reversals, conversions to service and change in commodity.



Flow Reversal Projects

Notifications filed in the PHMSA Registry:

- 244 Flow Reversal;
- 114 Conversion to Service;
- 44 Change in Commodity.



Recent Incident Findings

The NTSB concluded that the probable cause of the Danville, KY incident included:

- Degraded coating, and ineffective cathodic protection applied following a 2014 gas flow reversal project, which resulted in hydrogen-induced cracking at the outer surface of Line 15 and the subsequent failure of the pipeline.



NTSB Advisory P-22-2

Advise natural gas transmission pipeline operators on:

- a) The circumstances of the Danville, KY incident;
- b) The need to evaluate the risks associated with flow reversals; and
- c) The impacts of such projects on hydrogen-induced cracking.



Advisory Bulletin

PHMSA will update the advisory bulletin for flow reversal (ADB-2014-04) to include any lessons learned since the advisory bulletin was published in September 2014 and provide additional considerations regarding the potential impacts of flow reversals on hydrogen-induced cracking. PHMSA also plans to present and discuss the circumstances of this accident at the December public meeting in Houston, Texas.



Plans Moving Forward

- PHMSA has initiated a review of flow reversal, conversion to service, and commodity change notifications;
- Plans underway to meet with individual operators to get pipe-specific data/information related to experience with conversions, flow reversals, and commodity changes;
- Potential revision of existing Advisory Bulletin.



Questions

Thank you

