

Integrity Management for Gas Transmission Pipelines

Technical Pipeline Safety Standards
Committee

May 29, 2003

TPSSC Meeting 7/18/02

- Voted, with Comments, to Accept Preliminary Cost-Benefit Analysis as basis for proceeding with rulemaking
- Major Committee Comments:
 - Greater reliance on pigging, less on hydro
 - More “additional” pipe will need to be pigged
 - Programmatic costs were too low
 - Costs to modify pipe for pigging were too low

Changes for TPSSC Comments

- Increased percentage pigged in 2 scenarios:
 - All easily modified pipe would be changed
 - Some hard-to-pig pipe would be changed
- Increased assumed “additional” pipe from 25 to 200 percent (for pigging)
- Pipe mod costs raised: \$27K to \$40K /mile
- Increased all programmatic cost estimates

Programmatic Costs

(per operator, in thousands, large/small)

Element	7/02 Analysis	12/02 Analysis
Segment ID	30 / 2	60 / 15
IM Plans	125 / 75	200 / 125 ¹
Annual Reports	10 / 10	20 / 20
Data Integration	25 / 5 ²	50 / 25 ²
Valve Analysis	10 / 2	50 / 25

¹ Assumed 25% of large operators already have plans meeting rule (No small operators)

² Annual costs after year 1. First year costs assumed doubled for data system realignment

Other Analysis Changes

- Removed TX intrastate mileage from scope (covered by State requirement)
- Estimated percentage of pipe operating <50% SMYS, with 15-year interval (previously assumed as 10)
- Added confirmatory direct assessment at 7-year interval (legislative requirement)

Confirmatory Direct Assessment

- Focused assessment tool to meet 7-year legislative requirement between “full” assessments
- Assumed 50% of 10-year pipe would get CDA at 7, other 50% full assessments at 7-year intervals
- Assumed 15 year pipe would get CDA at 7 and full reassessment at 14 years

Gas IMP – Cost-Benefit

Costs: Results (annual, millions)

(7/2002 analysis)

Year	Seg. ID	Plans/ Reports	Testing	Data
1	9.63	71.95	16.28	17.04
2 – 5	0	6.68	16.28	8.52
6-7	0	6.68	23.82	8.52
8-10	0	6.68	18.44	8.52
11+	0	6.68	15.07	8.52

Percent Pipe Tested by Method

Scenario	ILI	Hydro	DA
Limited Modification	45	10	45
Pipe Modification	65	7	28

Revised Costs - Programmatic

(Annual costs, in millions, 2001 dollars)

Yr.	Segment ID	Plans	Reports	Data
1	23.34	91.27	13.36	31.5
All other	0	0	13.36	15.75

Revised Costs - Testing

(annual costs, in millions, 2001 dollars)

Yr	Limited Modification		Pipe Modification	
	Base	Subsequent	Base	Subsequent
1-5	51.3	0	181	0
6-7	51.3	15.92	181	9.9
8-10	39.93	29.38	173.9	27.79
11-14	0	29.04	0	29.18
15-20	0	31.08	0	32.08

Revised Costs - Total

(annual costs, in millions, 2001 dollars)

Year	Limited Modification	Pipe Modification
1	234.9	364.6
2-5	80.41	210.1
6-7	96.34	220
8-10	98.42	230.8
11-14	58.15	58.29
15-20	60.19	61.18
20-year total	1,638	2,938
Present Value	1,038	2,012

Proceeding with Rulemaking

- Costs are high, and exceed quantifiable benefits; why proceed?
- Non-quantifiable benefits
 - improved basis for public confidence
 - resulting effect on permits for new pipeline
 - facilitates considering pressure increases
- Legislative mandate

Effect of Potential Changes

- Revised HCA Definition (bifurcated option, 20 building criterion)
 - High-pressure pipe, mileage by circles is expected to be less than by class 3 or 4
 - Low-pressure pipe will have small impact circles, few HCAs – will reduce affected mileage
 - Programmatic costs for some small operators will drop, due to little or no pipe covered

Effect of Potential Changes

- Impact Radius Safety Margin
 - Little effect. Extended length along pipe already part of “additional pipe to be tested”
- Population Extrapolation
 - No effect. Simply allows shift in when expense is incurred
- Direct Assessment Equivalency
 - Reduce annual and overall costs

Effect of Potential Changes

- Low-stress Pipelines
 - Extended intervals (20 years) reduce assessment costs; reduction greater if require CDA only
 - Extra costs for leak surveys and preventive measures on class 3 and 4 pipelines
- Pressure testing (M&C defects)
 - No effect. Not treated in regulatory analysis.

Effect of Potential Changes

- Plastic Pipe
 - No effect. Not explicitly treated in regulatory analysis. Very little mileage.
- Repair Criteria Changes
 - No effect. Analysis does not treat explicitly. Assumes repairs required by other regulations.
- Application of Lessons Outside HCAs
 - Not previously treated. Small increase in programmatic costs

Effect of Potential Changes

- Testing costs
 - Comments indicated test costs underestimated
 - Costs based on 1990/92 OPS studies, escalated for inflation
 - Escalation probably inadequate
 - Costs in urban environment much higher
 - Changes reduce urban testing significantly
 - Will consider INGAA estimates for long-line testing