

1045 - Best Practices for ILI - Transmission Pipelines - New Construction and Retrofits

Effective 07/01/20

Pipeline design recommendations for future in-line inspection (ILI) tool passage, typically transmission pipelines, are included in table below. The following recommendations are to be utilized to improve the potential for successful tool runs. Additional design requirements for all new construction of transmission pipe, valves, fittings, or other components (except for cases allowed in 192.150(b)), shall be designed and constructed in accordance with NACE SP0102, sec. 7 (192.7 incorporated by reference).

Pipeline design recommendations for ILI tool passage			
#	Design Issue	Preferred	Allowable, but not preferred
1	90° bend in alignment	Transition with two 45° 3D ells separated by 5 ft. spool with spool wall thickness matching fitting wall thickness.	Emphasis on 12 in and below pipelines in company owned r/w. If greater than 12 in, then 90° 3D ells allowed. Design priority: 1 - For 12in, use segment-able 3DR fittings, cut to 60° or less with 5ft spool 2 - For 12in, reduce the spool piece separating 45° 3DR ells from 5 ft to 3ft If unable to comply w/above, consult with IM dept. Internal diameter for adjoining pipes max difference of 1/16 in (0.0625 in) in.
2	Bends	3D radius minimum	
3	Transition between non- equal internal pipe diameters	Transition spool pieces are to be machined such that internal wall of transition fitting matches Pipe 1 wall thickness on one end and Pipe 2 wall thickness on other end. See attached Transition Fabrication detail .	3 ft. spool piece with max difference of 1/16in. If less than 1/16in (0.0625 in), then no modification required.
4	Back-to-back weld fittings without three foot spool, miter welds, drips, siphons, or coupon holders	Do not install	
5	Mueller Line Stopper fittings, Plidco bolt-on, Dresser bolt-on, Smith Plus (Smith Plidco) clamp	Must be removed prior to ILI tool run	
6	Tees	New Construction – Use barred tees for 4 in and larger off takes, regardless of size of inlet or outlet Retrofits – If unable to stop flow of 4in or larger	

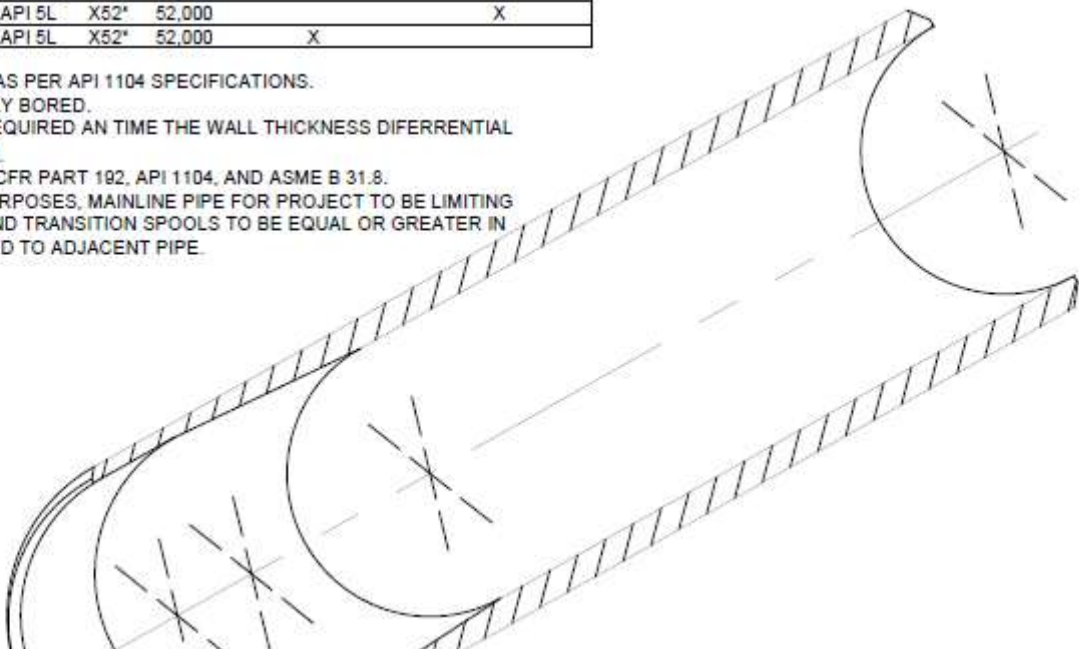
off take during tool run, then replace with barred tee

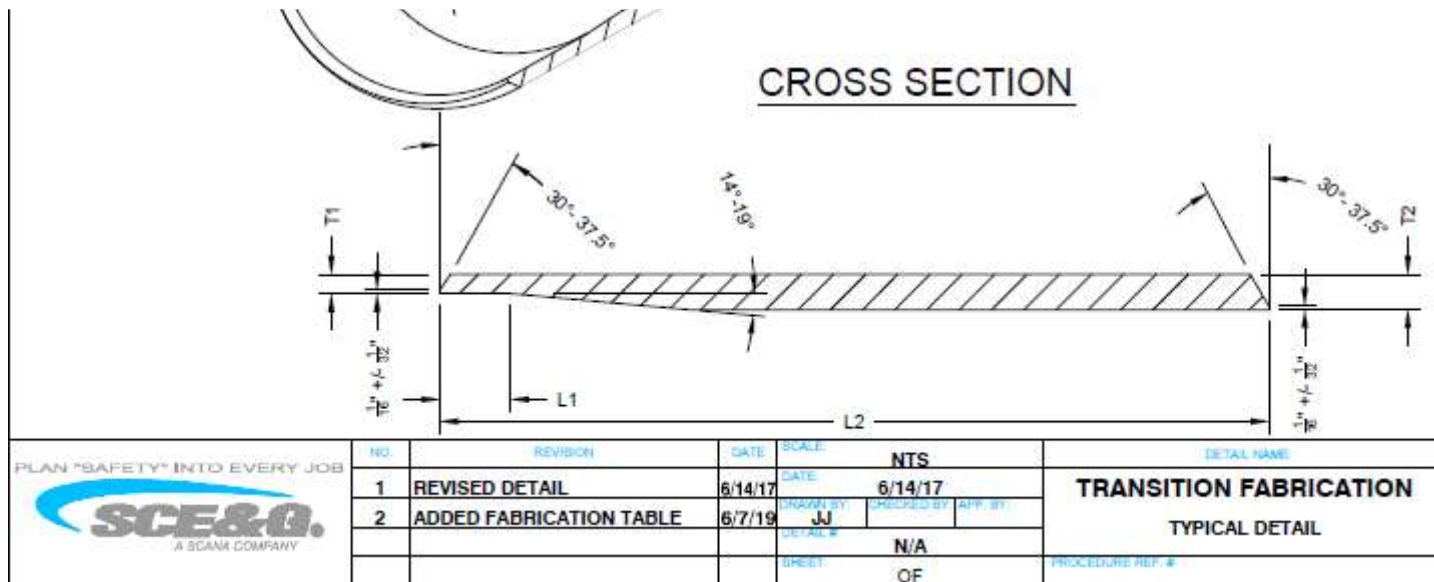
Transition Fabrication detail ([click to view full-size PDF](#))

FABRICATION SPECIFICATION								BILL OF MATERIAL			
DESCRIPTION	NOM (IN)	T1 (IN)	T2 (IN)	L1 (IN)	L2 (IN)	GRADE (IN)	ITEMS (EA)	MARK	QTY.	DESCRIPTION	SCANA / CPS ITEM NO.
IN TRANSITION											
EX. 8 IN TRANSITION	8.000	.235	.322	4	36	X-52	4	-	1	N/A	-

NOMINAL	OD	WT	STD.	GRADE	MIN YIELD	ACCEPTABLE PER TABLE DI 1040	REQUIRES ENGR. APPROVAL
6.000	6.625	0.188	API 5L	X52*	52,000	X	
6.000	6.625	0.219	API 5L	X52*	52,000		X
6.000	6.625	0.250	API 5L	X52*	52,000		X
6.000	6.625	0.280	API 5L	X52*	52,000		X
8.000	8.625	0.188	API 5L	X52*	52,000	X	
8.000	8.625	0.219	API 5L	X52*	52,000	X	
8.000	8.625	0.250	API 5L	X52*	52,000		X
8.000	8.625	0.322	API 5L	X52*	52,000		X
10.000	10.750	0.188	API 5L	X52*	52,000	X	
10.000	10.750	0.219	API 5L	X52*	52,000	X	
10.000	10.750	0.250	API 5L	X52*	52,000		X
10.000	10.750	0.365	API 5L	X52*	52,000		X
12.000	12.750	0.250	API 5L	X52*	52,000	X	
12.000	12.750	0.281	API 5L	X52*	52,000		X
12.000	12.750	0.312	API 5L	X52*	52,000		X
12.000	12.750	0.375	API 5L	X52*	52,000	X	

NOTES:
1. BEVEL ENDS 30°-37.5° AS PER API 1104 SPECIFICATIONS.
2. PIPE TO BE INTERNALLY BORED.
3. TRANSITION SPOOL REQUIRED AN TIME THE WALL THICKNESS DIFFERENTIAL EXCEEDS $\frac{1}{16}$ IN (0.0625 IN).
4. DESIGN BASED ON 49 CFR PART 192, API 1104, AND ASME B 31.8.
5. NOTE: FOR DESIGN PURPOSES, MAINLINE PIPE FOR PROJECT TO BE LIMITING DESIGN. ALL FITTINGS AND TRANSITION SPOOLS TO BE EQUAL OR GREATER IN STRENGTH AS COMPARED TO ADJACENT PIPE.





(UNCONTROLLED IF PRINTED)