



RE: TESTING OF SAMPLES OF SOLENO (Hagersville) 900 mm (36") Type S non-perforated POLYETHYLENE PIPE TO AASHTO M294M-03 FOR THE ESC PROGRAM

CONDITIONING: Not less than 40 hours at 23±2° C (73°F)

TEST RESULTS:

SECTION 6.1 - BASIC MATERIALS

	DENSITY (g/cc)	MELT INDEX (g/10 min.)	CARBON BLACK (%)
TRI Environmental	.952	.189	3.19
Soleno	.952	.171	2.85

SPECIFICATION: Min Cell Class 335400C w/SP-NCTL @ 15% of 24 hr
 Density .945 to .955 g/cc
 Melt Index 0.15 to 0.40 g/10 min.
 Pipe Carbon Black Content 2% min. / 5% max.

CONCLUSION: Specification is met.

SECTION 7.1 - WORKMANSHIP

	RESULT
TRI Environmental	pass
Soleno	pass

SPECIFICATION: Pipe shall be free of foreign inclusions and visible defects. The inner liner shall be fused to the outer corrugated shell at all internal corrugation crests.

CONCLUSION: Specification is met.

SECTION 7.2 – PIPE DIMENSIONS

SECTION 7.2.2 – WALL THICKNESS

	WALL THICKNESS	WALL THICKNESS SPECIFICATION
TRI Environmental	.159	>.065
Soleno	.101	

SPECIFICATION: The inner wall shall have the specified minimum thickness.

CONCLUSION: Specification is met.

SECTION 7.2 – PIPE DIMENSIONS (con't)

SECTION 7.2.3 – INSIDE DIAMETER

	INSIDE DIAMETER	TOLERANCE
TRI Environmental	35.6 in	34.9 – 36.9 in
Soleno	35.5 in	

SPECIFICATION: The tolerance on the specified inside diameter shall be 4.5% oversize and 1.5% undersize, but not more than 37 mm oversize.

CONCLUSION: Specification is met.

SECTION 7.4 – PIPE STIFFNESS

	ORIENTATION	MEASURED PIPE STIFFNESS – kPa (psi)	MINIMUM PIPE STIFFNESS
TRI Environmental	0/45/90	248/248/255 (36/36/37)	150 kPa (22 psi)
Soleno	0/45	247/230 (36/33)	

SPECIFICATION: Minimum pipe stiffness at 5% deflection as specified.

CONCLUSION: Specification is met.

SECTION 7.5 – PIPE FLATTENING

	RESULT
TRI Environmental	pass
Soleno	pass

SPECIFICATION: There shall be no evidence of buckling, cracking, splitting or delamination when the vertical inside diameter is reduce by 20%.

CONCLUSION: Specification is met.

SECTION 7.6 – ENVIRONMENTAL STRESS CRACKING

	RESULT
TRI Environmental	pass
Soleno	Not performed on sample

SPECIFICATION: There shall be no cracking of the pipe.

CONCLUSION: Specification is met.

SECTION 7.7 – BRITTLENESS

	RESULT
TRI Environmental	pass
Soleno	pass

SPECIFICATION: Pipe specimens shall not crack or split. Five non-failures out of six impacts will be acceptable.

CONCLUSION: Specification is met.

SECTION 7.8 – FITTING REQUIREMENTS (JOINT INTEGRITY)

	RESULT
TRI Environmental	pass
Soleno	Not performed at time

SPECIFICATION: Pipe connections shall not separate to create a gap exceeding 5 mm when measured between the bell and spigot portions of pipe. Fittings shall not crack or delaminate.

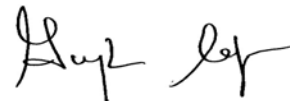
CONCLUSION: Specification is met.

SECTION 11 – MARKING

	MFG	SIZE	PLANT CODE	PRODUCTION DATE/CODE
TRI Environmental	soleno	900 mm (36")	HA	n/a
Soleno	soleno	900 mm (36")	HA	04/03/04

SPECIFICATION: Pipe and fittings shall be clearly marked at intervals not more than 3.5m with manufacturer’s name or trademark, nominal size, designation AASHTO M294, the plant designation code and date of manufacture or appropriate code.

CONCLUSION: Specification is met.



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