

Bend Test

MESHRITE® PULL TEST RESULTS

Test Procedure Summary

7" casing was manipulated into an arc to simulate a cased hole, vertical to horizontal bend. After each test, the casing was further curved until a 104.8°/100 ft build rate was achieved. At each test radius, 4 ½" base pipe MeshRite was pulled through the casing to simulate running-in through horizontal well bends. Because of the difficulty of "pushing" in a test environment, the casing was fixed stationary, and the MeshRite joint placed into the entry end of the casing. A cable was then run from a winch outside the exit end of the casing, through the casing and the MeshRite, then attached to the trailing end of the MeshRite, to simulate a push (see figure 1.) This technique allowed accurate force measurement while applying the force to the "top" of the MeshRite.

Test Result Summary

	TEST # 1.	TEST# 2.	TEST # 3.	TEST # 4.	TEST # 5.	TEST #6.
Calculated Radius (m)	82.2	58.4	36.7	28.66	24.43	16.67
Corresponding Build Rate (deg/100 ft)	21.2	29.9	47.6	60.94	71.5	104.8
Max Pull (lbs)	600	900	1500		2800	4800
Avg Pull (lbs)	500	500-700	1100-1300		2000	3000
Comments			Some plastic deformation	Some plastic deformation	Permanent deformation	Permanent deformation equal to 26.6°/100 ft build rate

No damage to couplings outer jacket or weld seems was observed during or after any of the tests.

Conclusion

Clearly the test results indicate that very little resistance will be encountered, and negligible damage incurred by running MeshRite through a tight radius arc created in a vertical to horizontal deviation. Earlier tests indicated that 75,000lbs can be applied to the outer jacket before failure. Compression applied to the stainless steel wool, as a result of bending, results in marginally higher sand retainment, i.e. the mechanism fails closed. Therefore we conclude that MeshRite will withstand running procedures through medium and short radius bends without damage, and will perform as designed.