

Pumped 5 bbls. of 10# brine down the tubing to obtain the Cavern Compressibility Factor. Casing and tubing pressure were both 376 psi. CAVERN COMPRESSIBILITY FACTOR = 5 bbls./ (376 - 357) = 5 bbls./19 psi = 0.263 bbls./psi.

Daily test guage pressures were recorded:

7/12/91	-	Casing pressure	376 psi	--	Tubing pressure	-	376 psi
7/13/91	"	"	376		"	"	374
7/14/91	"	"	376	"	"	"	374
7/15/91	"	"	374	"	"	"	374
7/16/91	"	"	374	"	"	"	374
7/17/91	"	"	374	"	"	"	374

Cavern pressure had stabilized for test..

July 19, 1991 a dual pen pressure recorder was connected to the well head. A 0 to 500 psi to the tubing and a 0 to 2000 psi to the casing. Valves and fittings were also installed on the tubing and casing for connecting a deadweight tester. A deadweight tester with measurement capability of from 5 psi to 2000 psi in increments of 0.1 psi was used for the test.

1:10 P.M. started pumping nitrogen down casing at 300 SCF/Min. 3:45 P.M. had pumped 48,000 SCF of N₂. Nitrogen/brine interface below casing seat as indicated by N₂ injection pressure leveling off. Pumped additional 4,500 SCF of N₂ below casing seat. Total volume of nitrogen pumped was 52,500 SCF.

$\Delta T = 0$ at 4:00 P.M. 7/19/91.

Date	-	Real Time	-	ΔT	-	Casing Pressure	-	Tubing Pressure	-	ΔP_c	-	ΔP_t
7/19/91		4:00 P.M.		0		1184.8		381.6				
7/20/91		11:30 A.M.		19.5		1183.9		380.0		-0.9		-1.6
7/21/91		12:30 P.M.		44.5		1182.0		380.2		-1.9		0.2
7/22/91		11:30 A.M.		67.5		1180.7		377.5		-1.3		-2.7
7/23/91		11:15 A.M.		91.25		1180.0		377.1		-0.7		-0.4
7/24/91		11:30 A.M.		115.5		1178.7		376.6		-1.3		-0.5
7/25/91		12:15 P.M.		140.5		1177.8		375.9		-0.9		-0.7

Test Concluded.

TEST DISCUSSION:

The slope of the brine pressure curve during the last 48 hrs. of the test is 0.6 psi/day. The slope of the nitrogen pressure curve is 0.9 psi/day. The yearly loss using the higher nitrogen slope is: 0.9 psi/day X 0.263 bbls./psi X 365 days/year = 86.4 bbls./year. This is not a significant loss without using the accepted ratio of nitrogen to LPG leakage rate of 10/1. The well has Mechanical Integrity with no significant loss.