

**Shapiro-Wilk Test of Normality**  
**Barium Detected in Brackett-Tarrant Association Soils**  
**Camp Stanley Storage Activity, Texas**

Number of Samples, n	Reverse Ordered					ln of Reverse Ordered				
	Concentrations	Concentration	Difference	$a(n-i+1)^a$	$b(i)^b$	ln of Ordered Concentration	Concentration	Difference	$a(n-i+1)^a$	$b(i)^b$
	x(i)	x(n-i+1)	x(n-i+1)-x(i)			ln x(i)	ln x(n-i+1)	ln x(n-i+1)- ln x(i)		
1	12	41	29	0.5739	16.64	2.48	3.71	1.23	0.5739	0.71
2	13	40.9	27.9	0.3291	9.18	2.56	3.71	1.15	0.3291	0.38
3	18	37	19	0.2141	4.07	2.89	3.61	0.72	0.2141	0.15
4	19	28	9	0.1224	1.10	2.94	3.33	0.39	0.1224	0.05
5	20.3	22	1.7	0.0399	0.07	3.01	3.09	0.08	0.0399	0.00
6	22	20.3	-1.7		b= 31.06	3.09	3.01	-0.08		b= 1.29
7	28	19	-9		S= 10.44	3.33	2.94	-0.39		S= 0.423
8	37	18	-19		W <sup>c</sup> = 0.885	3.61	2.89	-0.72		W <sup>c</sup> = 0.924
9	40.9	13	-27.9		W(0.05,10)= 0.842	3.71	2.56	-1.15		W(0.05,10)= 0.842
10	41	12	-29		Normality= Normal	3.71	2.48	-1.23		Normality= <b>Lognormal</b>

\*\*\* Distribution is lognormal because of higher W value.

<sup>a</sup> From An Analysis of Variance Test for Normality (complete samples), by S.S. Shapiro and M.B. Wilk, Biometrika, vol. 52, pp. 591-611.

<sup>b</sup>  $b(i) = [x(n-i+1) - x(i)] * a(n-i+1)$

<sup>c</sup>  $W = b*b/S*S*n$