

Shapiro-Wilk Test of Normality
Lead Detected in Krum Complex Soils
Camp Stanley Storage Activity, Texas

Number of Samples, n	Ordered Concentrations	Reverse Ordered Concentrations	Difference $x(n-i+1)-x(i)$			In of Ordered Concentrations	In of Reverse Ordered Concentrations	Difference $\ln x(n-i+1) - \ln x(i)$		
	x(i)	x(n-i+1)		$a(n-i+1)^a$	$b(i)^b$	$\ln x(i)$	$\ln x(n-i+1)$		$a(n-i+1)^a$	$b(i)^b$
1	5.5	36	30.5	0.5739	17.50	1.70	3.58	1.88	0.5739	1.08
2	6.4	28	21.6	0.3291	7.11	1.86	3.33	1.48	0.3291	0.49
3	7.9	19	11.1	0.2141	2.38	2.07	2.94	0.88	0.2141	0.19
4	10	19	9	0.1224	1.10	2.30	2.94	0.64	0.1224	0.08
5	13	15	2	0.0399	0.08	2.56	2.71	0.14	0.0399	0.01
6	15	13	-2		$b=$ 28.17	2.71	2.56	-0.14		$b=$ 1.84
7	19	10	-9			2.94	2.30	-0.64		
8	19	7.9	-11.1		$W^c=$ 0.906	2.94	2.07	-0.88		$W^c=$ 0.969
9	28	6.4	-21.6		$W(0.05,10)=$ 0.842	3.33	1.86	-1.48		$W(0.05,10)=$ 0.842
10	36	5.5	-30.5		Normality= Normal	3.58	1.70	-1.88		Normality= Lognormal

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

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

^b $b(i) = [x(n-i+1) - x(i)] * a(n-i+1)$

^c $W = b*b/S*S*n$