

**Standard Values from
Gonzalez et al., (2004)**

Unit Name	Unit Symbol	Vs (ft/ sec)	+ 1 sigma	-1sigma	Density (lb/ft ³)	+ 1 sigma	-1sigma
Quaternary Alluvium	Qal	2336	2838.3	1833.7	115.62	122.78	108.46
pre-Rainier Mesa Bedded Tuff	Tmbt1	3318	3757.3	2878.7	113.4	118.83	107.97
Tuff unit "x"	Tpki	3488.9	3872.7	3105.1	98.157	103.85	92.467
post-Tiva Canyon bedded tuff	Tpbt5	3335	4016.7	2653.3	111.71	124.58	98.845
Crystal rich member of the Tiva Canyon Tuff	Tpcrn	3312.9	4062.8	2563	115.77	125.71	105.83
Upper lithophysal zone of the Canyon Tuff	Tpcpul	3712.7	4941.7	2483.7	129.19	136.65	121.73
Middle nonlithophysal zone of the Tiva Canyon Tuff	Tpcpmn	5192.9	6719.9	3665.9	144.91	148.25	141.57
Lower lithophysal zone of the Tiva Canyon Tuff	Tpcpll	5378	6706	4050	137.75	144.18	131.32
Lower nonlithophysal zone of the Tiva Canyon Tuff	Tpcpln	6213.3	7414.8	5011.8	132.75	137.65	127.85

UE25 RF-31	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft ³)
QAL	105.5	105.5	2336	115.62
Tmbt1	89.9	195.4	3318	113.4
Tpki	133.4	328.8	3488.9	98.157
Tpbt5	7.2	336	3335	111.71
Tpcrn	120.2	456.2	3312.9	115.77
Tpcpul	58.4	514.6	3712.7	129.19
Tpcpmn	40.4	555	5192.9	144.91
Tpcpll	7.9	562.9	5378	137.75

UE25 RF-33	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	87.6	87.6	2336	115.62
Tpki	49.7	137.3	3488.9	98.157
Tpbt5	6.2	143.5	3335	111.71
Tpcrn	25.5	169	3312.9	115.77

UE25 RF-34	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	74.7	115.4	2336	115.62
Tmbt1	22.7	138.1	3318	113.4
Tpki	127.9	266	3488.9	98.157
Tpbt5	11	277	3335	111.71
Tpcrn	116.5	393.5	3312.9	115.77
Tpcpul	45.1	438.6	3712.7	129.19
Fault Zone	44.1	482.7	N/A	N/A
Tpcpln	49.9	532.6	6213.3	132.75

UE25 RF-35	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	110.7	110.7	2336	115.62
Tmbt1	87.2	197.9	3318	113.4
Tpki	160.8	358.7	3488.9	98.157
Tpbt5	14.8	373.5	3335	111.71
Tpcrn	117.5	491	3312.9	115.77
Tpcpul	73	564	3712.7	129.19
Tpcpmn	55.5	619.5	5192.9	144.91
Tpcpll	5.1	624.6	5378	137.75

UE25 RF-36	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	171.8	171.8	2336	115.62
Tmbt1	209.5	381.3	3318	113.4
Tpki	165.1	546.4	3488.9	98.157
Tpbt5	6.8	553.2	3335	111.71
Tpcrn	35.1	588.3	3312.9	115.77

UE25 RF-37	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	130.1	130.1	2336	115.62
Tmbt1	175.6	305.7	3318	113.4
Tpki	148.8	454.5	3488.9	98.157
Tpbt5	8	462.5	3335	111.71
Tpcrn	129.9	592.4	3312.9	115.77
Tpcpul	85.7	678.1	3712.7	129.19
Tpcpmn	41.1	719.2	5192.9	144.91
Tpcpll	5.2	724.4	5378	137.75

UE25 RF-38	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	148.7	148.7	2336	115.62
Tmbt1	182.3	331	3318	113.4
Tpki	138.5	469.5	3488.9	98.157
Tpbt5	12.6	482.1	3335	111.71
Tpcrn	102.3	584.4	3312.9	115.77
Tpcpul	77.4	661.8	3712.7	129.19
Tpcpmn	15.3	677.1	5192.9	144.91

UE25 RF-39	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	100.4	100.4	2336	115.62
Tpki	90.8	191.2	3488.9	98.157
Tpbt5	8	199.2	3335	111.71
Tpcrn	104.8	304	3312.9	115.77
Tpcpul	93.8	397.8	3712.7	129.19
Tpcpmn	75.3	473.1	5192.9	144.91

UE25 RF-41	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	192.4	192.4	2336	115.62
Tmbt1	77.8	270.2	3318	113.4
Tpki	118.3	388.5	3488.9	98.157
Tpbt5	13.7	402.2	3335	111.71
Tpcrn	123	525.2	3312.9	115.77
Tpcpul	76.8	602	3712.7	129.19
Tpcpmn	48.1	650.1	5192.9	144.91

UE25 RF-57	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	173.6	173.6	2336	115.62
Tmbt1	347.9	521.5	3318	113.4
Tpki	133.4	654.9	3488.9	98.157
Fault Zone	44.8	699.7	N/A	N/A

UE25 RF-75	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	60.4	60.4	2336	115.62
Tpcrn	98.1	158.5	3312.9	115.77
Tpcpul	60.1	218.6	3712.7	129.19
Tpcpmn	23.5	242.1	5192.9	144.91
Tpcpll	30.4	272.5	5378	137.75
Tpcpln	80.9	353.4	6213.3	132.75

UE25 RF-76	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	132	132	2336	115.62
Tpki	91.9	223.9	3488.9	98.157
Fault Zone	26.1	250	N/A	N/A
Tpcpln	17	267	6213.3	132.75

UE25 RF-78	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	135.5	135.5	2336	115.62
Tmbt1	13.5	149	3318	113.4
Tpbt5	2.3	151.3	3335	111.71
Tpcrn	99	250.3	3312.9	115.77
Tpcpul	62.7	313	3712.7	129.19
Tpcpmn	63.3	376.3	5192.9	144.91
Tpcpll	13	389.3	5378	137.75
Tpcpln	8.3	397.6	6213.3	132.75

UE25 RF-79	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	132.3	132.3	2336	115.62
Tpki	55.4	187.7	3488.9	98.157
Tpbt5	25.9	213.6	3335	111.71
Tpcrn	38	251.6	3312.9	115.77

UE25 RF-80	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	127.9	127.9	2336	115.62
Tpcrn	34.8	162.7	3312.9	115.77

UE25 RF-83	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	131.2	131.2	2336	115.62
Tmbt1	144.5	275.7	3318	113.4
Tpki	160	435.7	3488.9	98.157
Tpbt5	12	447.7	3335	111.71
Tpcrn	34.8	482.5	3312.9	115.77

UE25 RF-95	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	182.1	182.1	2336	115.62
Tpki	107.2	289.3	3488.9	98.157
Tpbt5	19	308.3	3335	111.71
Tpcrn	118.7	427	3312.9	115.77
Tpcpul	92.3	519.3	3712.7	129.19
Tpcpmn	24.6	543.9	5192.9	144.91
Tpcpll	16.1	560	5378	137.75

UE25 RF-97	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	79.1	79.1	2336	115.62
Tmbt1	193.8	272.9	3318	113.4
Tpki	118.3	391.2	3488.9	98.157
Tpbt5	4.9	396.1	3335	111.71
Tpcrn	67.9	464	3312.9	115.77
Tpcpul	15.5	479.5	3712.7	129.19
Tpcpmn	7	486.5	5192.9	144.91
Tpcpln	8.9	495.4	6213.3	132.75

UE25 RF-104	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	50.3	50.3	2336	115.62
Tmbt1	67.9	118.2	3318	113.4
Tpki	121.3	239.5	3488.9	98.157
Fault Zone	10.9	250.4	N/A	N/A
Tpcpul	38.8	289.2	3712.7	129.19

UE25 RF-105	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	35.4	35.4	2336	115.62
Tmbt1	92.4	127.8	3318	113.4
Tpki	108	235.8	3488.9	98.157
Tpbt5	8.2	244	3335	111.71
Tpcrn	19.5	263.5	3312.9	115.77

fault zone between Tpcrv & Tpcrn

UE25 RF-106	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	62.6	62.6	2336	115.62
Tmbt1	62.7	125.3	3318	113.4
Tpki	19.6	144.9	3488.9	98.157
Tpbt5	9.1	154	3335	111.71
Tpcrn	123.2	277.2	3312.9	115.77
Tpcpul	47.8	325	3712.7	129.19
Tpcpmn	38.4	363.4	5192.9	144.91
Tpcpll	11.9	375.3	5378	137.75
Tpcpln	14.1	389.4	6213.3	132.75

UE25 RF- 107	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	72.2	72.2	2336	115.62
Tpki	65.5	137.7	3488.9	98.157
Tpbt5	7.7	145.4	3335	111.71
Tpcrn	32.7	178.1	3312.9	115.77

UE25 RF- 112	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	86.2	121	2336	115.62
Tmbt1	2.5	123.5	3318	113.4
Tpki	46.6	170.1	3488.9	98.157
Tpbt5	10	180.1	3335	111.71
Tpcrn	78.3	258.4	3312.9	115.77
Tpcpul	52.6	311	3712.7	129.19
Tpcpmn	68.5	379.5	5192.9	144.91
Fault Zone	15.8	395.3	N/A	N/A
Tpcpln	16.8	412.1	6213.3	132.75

UE25 RF- 30	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	131.8	131.8	2336	115.62
Tmbt1	216.2	348	3318	113.4
Tpki	100.1	448.1	3488.9	98.157
Tpbt5	7.3	455.4	3335	111.71
Tpcrn	124.6	580	3312.9	115.77
Tpcpul	78	658	3712.7	129.19
Tpcpmn	49	707	5192.9	144.91
Tpcpll	21.2	728.2	5378	137.75

UE25 RF- 40	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	91.1	91.1	2336	115.62
Tmbt1	148.2	239.3	3318	113.4
Fault Zone	48.7	288	N/A	N/A
Tpcpmn	43	331	5192.9	144.91
Tpcpll	10.2	341.2	5378	137.75
Tpcpln	13.8	355	6213.3	132.75

UE25 RF- 67	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	143.7	143.7	2336	115.62
Tmbt1	77.8	221.5	3318	113.4
Tpki	168	389.5	3488.9	98.157
Tpbt5	13.6	403.1	3335	111.71
Tpcrn	49.1	452.2	3312.9	115.77

UE25 RF- 69	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	142.6	142.6	2336	115.62
Tpki	140.9	283.5	3488.9	98.157
Tpbt5	10.3	293.8	3335	111.71
Tpcrn	142	435.8	3312.9	115.77
Tpcpul	57.3	493.1	3712.7	129.19
Tpcpmn	44.4	537.5	5192.9	144.91
Tpcpll	26.1	563.6	5378	137.75

UE25 RF- 71	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	161.8	161.8	2336	115.62
Tpki	7.1	168.9	3488.9	98.157
Tpbt5	21	189.9	3335	111.71
Tpcrn	112.3	302.2	3312.9	115.77
Tpcpul	55.2	357.4	3712.7	129.19
Tpcpmn	70.6	428	5192.9	144.91
Tpcpll	16.4	444.4	5378	137.75
Tpcpln	26.7	471.1	6213.3	132.75

UE25 RF- 81	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	176.1	176.1	2336	115.62
Tmbt1	89.7	265.8	3318	113.4
Tpki	107.5	373.3	3488.9	98.157
Tpbt5	11	384.3	3335	111.71
Tpcrn	57	441.3	3312.9	115.77

UE25 RF- 82	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	159.8	159.8	2336	115.62
Tmbt1	377.6	537.4	3318	113.4
Tpki	185.6	723	3488.9	98.157
Tpbt5	4.5	727.5	3335	111.71
Tpcrn	74.1	801.6	3312.9	115.77
Tpcpul	59.4	861	3712.7	129.19
Tpcpmn	19.9	880.9	5192.9	144.91
Fault Zone	4	884.9	N/A	N/A

UE25 RF- 85	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	174	174	2336	115.62
Tmbt1	293.2	467.2	3318	113.4
Tpki	182.1	649.3	3488.9	98.157
Tpbt5	9.4	658.7	3335	111.71
Tpcrn	86.5	745.2	3312.9	115.77
Tpcpul	111.1	856.3	3712.7	129.19
Tpcpmn	46.9	903.2	5192.9	144.91
Tpcpll	15.8	919	5378	137.75
Tpcpln	63.4	982.4	6213.3	132.75

UE25 RF- 86	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	136	136	2336	115.62
Tmbt1	221	357	3318	113.4
Tpki	165.6	522.6	3488.9	98.157
Tpbt5	12.4	535	3335	111.71
Tpcrn	36.9	571.9	3312.9	115.77

UE25 RF- 92	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	147.9	147.9	2336	115.62
Tmbt1	109.1	257	3318	113.4
Tpki	150.6	407.6	3488.9	98.157
Tpbt5	10.5	418.1	3335	111.71
Tpcrn	34.6	452.7	3312.9	115.77

UE25 RF- 94	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	139.3	139.3	2336	115.62
Tmbt1	123.2	262.5	3318	113.4
Tpki	173	435.5	3488.9	98.157
Tpbt5	11	446.5	3335	111.71
Tpcrn	98.6	545.1	3312.9	115.77
Tpcpul	61.4	606.5	3712.7	129.19

UE25 RF- 102	Thickness (ft)	Depth (ft)	Vs (ft/ sec)	Density (lb/ft³)
QAL	153.8	153.8	2336	115.62
Tmbt1	19.8	173.6	3318	113.4
Tpki	160.8	334.4	3488.9	98.157
Tpbt5	7.8	342.2	3335	111.71
Tpcrn	39.2	381.4	3312.9	115.77