Table DR1—GSA Data Repository

Hydrogeothermal studies across the Pecos River Valley, southeastern New Mexico

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TABLE DR1. HEAT-FLOW DATA CALCULATED USING BOTTOM-HOLE TEMPERATURES (BHTs) FROM TOWNSHIPS 16, 17, AND 18 SOUTH, AND RANGES 12 THROUGH 38 EAST

Range East	Elev. (ft)	Average depth ± SD ± SE (ft)	Average temp ± SD ± SE[+] (°F)	n[*] (BHT values)	Γ_u, Γ_u, Γ_c[++] (°F/100 ft, °C/km, °C/km)	TC[**] (mW m^{-1} s^{-1} K^{-1})	*n* (TC samples)	Q_u, Q_c[+++] (mW m^{-2})
12	9370	2514	90	1	1.83, 33.4, 32.2	2.60	64[1]	87, 84
12	9370	3259 ± 53 ± 38	96.5 ± 0.7 ± 0.5	2	1.61, 29.4, 28.3	2.55	113[1]	75, 72
13	none							
14	none							
15	6372	3953	94	1	1.05, 19.1, 18.2	2.56	35	49, 47
15	6372	8325	142	1	1.07, 19.5, 20.1	2.56	79	50, 51
16	6159	2510	83	1	1.19, 21.6, 20.5	3.23	12	70, 66
16	6159	3004	92	1	1.29, 23.5, 22.4	3.23	12	76, 72
16	6159	6533	124	1	1.08, 19.7, 19.5	2.62	51	52, 51
16	6574	2179	82	1	1.38, 25.1, 23.9	3.15	10	79, 75
16	6574	2974	99	1	1.58, 28.8, 27.7	3.23	12	93, 89
16	5986	3160	110	1	1.78, 32.5, 31.4	3.57	16	116, 112
17	5474	5450	120	1	1.19, 21.6, 21.1	2.74	42[2]	59, 58
18	5180	2705		1	2.40, 43.8, 42.7	2.84	14	124, 121
18	5237	5133 ± 315 ± 157	113.0 ± 5.2 ± 2.6	4	1.11, 20.3, 19.7	2.67	29	54, 53
18	5278	5869 ± 49 ± 25	119.2 ± 4.5 ± 2.3	4	1.08, 19.7, 19.4	2.60	31	51, 50
18	5123	6538 ± 25 ± 18	124.0 ± 0 ± 0	2	1.04, 18.9, 18.8	2.53	34	48, 48
19	5057	5290	133	1	1.45, 26.4, 25.9	2.80	55[2]	74, 73
19	4803	6396	140	1	1.30, 23.6, 23.5	2.82	65[2]	67, 66
20	4852	4985 ± 233 ± 165	110.0 ± 2.8 ± 2.0	2	1.06, 19.4, 18.8	2.97	25	57, 56
20	4459	6750	129	1	1.05, 19.1, 19.1	3.11	32	60, 60
21	4116	7483 ± 88 ± 63	133 ± 7.1 ± 5.0	2	0.99, 18.0, 18.2	3.09	60[2]	56, 56
22	Range 22 east not present at Townships 16, 17, and 18 South							
23	4059	1806	81	1	1.20, 21.9, 20.7	3.49	9	76, 72
23	3818	4811	102	1	0.87, 15.9, 15.2	3.44	20	55, 52
23	3945	6555 ± 355 ± 251	125.5 ± 7.8 ± 5.5	2	1.00, 18.3, 18.2	3.10	26	57, 56

TABLE DR1. *(Continued)*

Range East	Elev. (ft)	Average depth ± SD ± SE (ft)	Average temp ± SD ± SE[+] (°F)	n[*] (BHT values)	Γ_u, Γ_u, Γ_d[++] (°F/100 ft, °C/km, °C/km)	TC[**] (mW m^{-1} s^{-1} K^{-1})	*n* (TC samples)	Q_u, Q_c[+++] (mW m^{-2})
23	4040	7473 ± 72 ± 36	122.3 ± 4.2 ± 2.1	4	0.85, 15.4, 15.6	3.07	29	47, 48
23	4048	8439 ± 474 ± 335	161.0 ± 26.9 ± 19.0	2	1.21, 22.0, 22.6	3.07	29	67, 69
24	3774	1930	84	1	1.24, 22.6, 21.4	3.62	24[2]	82, 77
24	3732	7102 ± 76 ± 34	120.2 ± 7.5 ± 3.3	5	0.85, 15.4, 15.4	3.18	93[2]	49, 49
24	3697	8781 ± 189 ± 50	140.9 ± 7.9 ± 2.1	14	0.92, 16.7, 17.4	3.12	99[2]	52, 54
25	3516	1449 ± 38 ± 22	77.7 ± 2.5 ± 1.5	3	1.17, 21.3, 20.0	3.51	9	75, 70
25	3385	1750 ± 44 ± 31	89.0 ± 1.4 ± 1.0	2	1.59, 28.9, 27.7	3.63	13	105, 101
25	3361	3100 ± 271 ± 156	91.7 ± 1.5 ± 0.9	3	0.98, 17.9, 16.8	3.92	26	70, 66
25	3521	8428 ± 59 ± 14	133.5 ± 9.2 ± 2.2	18	0.86, 15.7, 16.3	3.17	70	50, 52
26	3360	1426 ± 112 ± 65	85.3 ± 0.6 ± 0.3	3	1.68, 30.7, 29.4	3.22	26[2]	99, 95
26	3314	1811 ± 78 ± 20	84.7 ± 6.3 ± 1.6	15	1.29, 23.4, 22.2	3.43	32[2]	80, 76
26	3315	3133 ± 35 ± 20	89.0 ± 2.6 ± 1.5	3	0.88, 16.1, 15.0	3.68	56[2]	59, 55
26	3325	6509 ± 259 ± 129	113.5 ± 5.3 ± 2.6	4	0.80, 14.6, 14.4	3.51	115[2]	51, 51
26	3356	8198 ± 222 ± 70	129.0 ± 8.9 ± 2.8	10	0.82, 15.0, 15.5	3.29	138[2]	49, 51
26	3326	9220 ± 159 ± 42	141.7 ± 6.4 ± 1.7	14	0.87, 15.9, 16.7	3.14	147[2]	50, 53
27	3555	1443 ± 56 ± 25	87.4 ± 8.3 ± 3.7	5	1.85, 33.7, 32.4	2.97	17	100, 96
27	3536	1991 ± 7 ± 2	87.3 ± 7.6 ± 2.5	9	1.33, 24.3, 23.1	3.17	21	77, 73
27	3495	3216 ± 231 ± 87	90.9 ± 9.0 ± 3.4	7	0.93, 17.0. 15.9	3.49	33	59, 56
27	3523	4416 ± 425 ± 213	102.0 ± 10.9 ± 5.4	4	0.93, 17.0, 16.3	3.70	39	63, 60
27	3536	6105 ± 53 ± 8	106.7 ± 10.0 ± 1.4	49	0.75, 13.7, 13.7	3.66	52	50, 50
27	3531	8795 ± 167 ± 37	131.2 ± 4.7 ± 1.1	20	0.80, 14.6, 15.3	3.29	67	48, 50
27	3493	10,232 ± 217 ± 53	154.6 ± 8.7 ± 2.1	17	0.92, 16.7, 17.9	3.18	79	53, 57
28	3620	1624 ± 134 ± 32	84.2 ± 4.4 ± 1.1	17	1.46, 26.6, 25.3	2.95	10	78, 75
28	3613	2318 ± 159 ± 28	87.1 ± 3.7 ± 0.6	33	1.14, 20.8, 19.6	3.24	13	67, 64
28	3617	2806 ± 79 ± 17	89.5 ± 3.0 ± 0.6	21	1.03, 18.8, 17.7	3.41	16	64, 60
28	3502	3508 ± 83 ± 41	94.5 ± 3.0 ± 1.5	4	0.96, 17.5, 16.5	3.59	21	63, 59
28	3610	4022 ± 115 ± 81	97.5 ± 4.9 ± 3.5	2	0.92, 16.7, 15.8	3.67	25	61, 58
28	3664	6347 ± 24 ± 4	106.6 ± 4.4 ± 0.8	34	0.73, 13.3, 13.1	3.77	39	50, 49
28	3602	9366 ± 180 ± 57	137.4 ± 8.2 ± 2.6	10	0.82, 14.9, 15.8	3.47	55	52, 54
28	3626	10,317 ± 166 ± 55	139.1 ± 7.0 ± 2.3	9	0.76, 13.9, 15.2	3.41	60	47, 52
28	3560	11,174 ± 112 ± 27	159.3 ± 8.9 ± 2.1	18	0.88, 16.1, 17.6	3.33	66	53, 59
29	3650	1847 ± 33 ± 9	86.7 ± 5.2 ± 2.2	15	1.42, 25.8, 24.6	3.11	21[2]	80, 77
29	3549	2843 ± 60 ± 8	90.1 ± 6.1 ± 0.8	53	1.03, 18.8, 17.7	3.40	32[2]	64, 60
29	3578	3574 ± 68 ± 17	95.0 ± 6.9 ± 1.7	17	0.96, 17.5, 16.5	3.59	41[2]	63, 59
29	3600	4557 ± 69 ± 17	103.0 ± 2.9 ± 0.7	16	0.93, 17.0, 16.3	3.65	51[2]	62, 59
29	3613	6334 ± 74 ± 21	108.0 ± 11.5 ± 3.3	12	0.75, 13.6, 13.4	3.82	71[2]	52, 51
29	3560	9245 ± 290 ± 103	137.9 ± 8.9 ± 3.1	8	0.83, 15.2, 16.1	3.46	95[2]	53, 56
29	3606	10,814 ± 207 ± 46	142.8 ± 7.3 ± 1.6	20	0.76, 13.9, 15.4	3.32	105[2]	46, 51
29	3521	11,355 ± 244 ± 37	156.2 ± 10.6 ± 1.6	44	0.84, 15.3, 17.0	3.24	110[2]	50, 55
30	3659	2098 ± 6 ± 5	88.5 ± 6.4 ± 4.5	2	1.34, 24.4, 23.2	3.11	10	76, 72
30	3726	2862 ± 25 ± 4	90.4 ± 6.1 ± 1.0	35	1.05, 19.2, 18.1	3.30	15	63, 60
30	3606	3446 ± 31 ± 4	94.0 ± 5.2 ± 0.7	56	0.97, 17.7, 16.6	3.37	17	60, 56
30	3585	4277 ± 159 ± 56	97.3 ± 4.5 ± 1.6	8	0.86, 15.6, 14.8	3.59	21	56, 53
30	3643	6917 ± 59 ± 15	110.8 ± 3.2 ± 0.8	16	0.73, 13.3, 13.3	3.87	33	51, 51
30	3773	9071 ± 201 ± 71	129.4 ± 6.5 ± 2.3	8	0.76, 13.9, 14.7	3.64	38	51, 54

TABLE DR1. *(Continued)*

Range East	Elev. (ft)	Average depth ± SD ± SE (ft)	Average temp ± SD ± SE[+] (°F)	n[*] (BHT values)	Γ_u, Γ_u, Γ_d[++] (°F/100 ft, °C/km, °C/km)	TC[**] (mW m^{-1} s^{-1} K^{-1})	*n* (TC samples)	Q_u, Q_c[+++] (mW m^{-2})
30	3582	11,681 ± 107 ± 32	155.4 ± 11.7 ± 3.5	11	0.81, 14.8, 16.6	3.18	43	47, 53
31	3866	2662 ± 31 ± 8	93.4 ± 2.2 ± 0.6	14	1.26, 23.0, 21.9	3.30	13	76, 72
31	3761	3299 ± 61 ± 19	93.6 ± 5.3 ± 1.7	10	1.02, 18.5, 17.4	3.47	15	64, 61
31	3872	3844 ± 26 ± 5	96.0 ± 7.2 ± 1.3	32	0.94, 17.2, 16.3	3.62	18	62, 59
31	3703	5303 ± 188 ± 37	102.5 ± 5.7 ± 1.1	26	0.80, 14.5, 14.0	3.62	25	53, 51
31	3729	7503 ± 373 ± 108	115.4 ± 10.2 ± 2.9	12	0.74, 13.4, 13.6	3.79	35	51, 52
31	3728	9050 ± 230 ± 41	135.0 ± 12.2 ± 2.2	32	0.83, 15.1, 15.9	3.59	42	54, 57
31	3695	11,661 ± 298 ± 72	156.6 ± 9.7 ± 2.3	17	0.83, 15.1, 16.9	3.15	50	47, 53
31	3692	13,076 ± 254 ± 70	165.0 ± 10.0 ± 3.2	13	0.80, 14.6, 16.8	2.91	56	42, 49
32	3965	1349	81	1	1.59, 29.0, 27.7	2.26	9	65, 63
32	3926	2546 ± 192 ± 73	88.7 ± 5.9 ± 2.2	7	1.14, 20.8, 19.9	2.81	14	58, 56
32	4121	3506 ± 71 ± 19	93.1 ± 6.3 ± 1.7	14	0.97, 17.7, 16.7	2.92	16	52, 49
32	4004	4487 ± 147 ± 23	98.3 ± 6.4 ± 1.0	41	0.87, 15.8, 15.1	2.93	19	46, 44
32	3890	5377 ± 198 ± 36	106.1 ± 9.3 ± 1.7	30	0.86, 15.7, 15.3	3.07	22	48, 47
32	3767	6503 ± 280 ± 68	116.5 ± 9.0 ± 2.2	17	0.87, 15.8, 15.7	3.14	25	50, 49
32	3834	8727 ± 181 ± 27	132.3 ± 8.0 ± 1.2	45	0.83, 15.1, 15.8	3.18	33	48, 50
32	3939	10,422 ± 301 ± 69	142.7 ± 15.2 ± 3.5	19	0.80, 14.5, 15.8	3.08	38	45, 49
32	4052	13,575 ± 330 ± 59	173.8 ± 15.3 ± 2.7	31	0.85, 15.4, 17.7	2.78	60	43, 49
33	3842	3525 ± 495 ± 350	99.5 ± 2.1 ± 1.5	2	1.12, 20.5, 19.5	2.38	7	49, 46
33	4006	4270 ± 90 ± 21	100.2 ± 5.9 ± 1.4	19	0.95, 17.4, 16.6	2.44	10	42, 41
33	3846	5320 ± 173 ± 48	110.4 ± 8.2 ± 2.3	13	0.95, 17.3, 16.9	2.63	12	46, 44
33	4037	8960 ± 133 ± 23	127.2 ± 8.0 ± 1.4	33	0.76, 13.8, 14.6	3.18	21	44, 46
33	4052	11,483 ± 207 ± 33	146.2 ± 10.2 ± 1.6	40	0.76, 13.8, 15.5	3.05	27	42, 47
33	4004	13,941 ± 860 ± 166	166.1 ± 11.5 ± 2.2	27	0.76, 13.9, 16.3	2.79	35	39, 45
34	3663	2276	89	1	1.25, 22.9, 21.7	1.88	7	43, 41
34	4067	3963 ± 31 ± 8	97.0 ± 5.1 ± 1.4	14	0.94, 17.2, 16.3	2.28	13	39, 37
34	4026	4780 ± 53 ± 10	106.4 ± 10.9 ± 2.1	26	0.98, 17.9, 17.3	2.41	16	43, 42
34	4041	6858 ± 88 ± 23	113.6 ± 4.5 ± 1.2	15	0.79, 14.4, 14.4	2.86	25	41, 41
34	4008	8969 ± 86 ± 22	130.1 ± 5.7 ± 1.5	15	0.78, 14.3, 15.1	3.10	32	44, 47
34	4100	11,477 ± 218 ± 39	146.6 ± 9.5 ± 1.8	31	0.78, 14.3, 16.0	3.07	40	44, 49
34	4041	13,528 ± 205 ± 92	168.6 ± 10.6 ± 4.7	5	0.81, 14.7, 16.9	3.07	40	45, 52
35	3934	3215 ± 57 ± 28	91.0 ± 1.8 ± 0.9	4	0.98, 17.8, 16.7	2.06	18[2]	37, 34
35	3897	3815 ± 80 ± 46	95.0 ± 4.6 ± 2.6	3	0.93, 16.9, 16.0	2.18	22[2]	37, 35
35	3955	4834 ± 57 ± 8	105.9 ± 6.4 ± 0.8	57	0.96, 17.5, 16.8	2.31	28[2]	40, 39
35	3945	6241 ± 42 ± 10	120.6 ± 11.0 ± 2.6	18	0.98, 17.8, 17.6	2.64	39[2]	47, 46
35	3923	9058 ± 124 ± 15	135.6 ± 8.0 ± 1.0	64	0.84, 15.3, 16.1	2.95	59[2]	45, 47
35	3954	11,544 ± 269 ± 48	152.2 ± 9.0 ± 1.6	32	0.80, 14.6, 16.3	2.93	77[2]	43, 48
35	3992	13,500 ± 347 ± 100	177.8 ± 10.8 ± 3.1	12	0.88, 16.0, 18.2	2.89	82[2]	46, 53
36	3863	2217 ± 303 ± 214	79.5 ± 6.4 ± 4.5	2	0.88, 16.1, 14.9	2.07	6	33, 31
36	3835	3310 ± 135 ± 96	91.5 ± 9.2 ± 6.5	2	0.95, 17.4, 16.4	2.05	8	36, 35
36	3849	4692 ± 73 ± 27	99.4 ± 5.3 ± 2.0	7	0.84, 15.3, 14.6	2.67	13	41, 39
36	3836	6260 ± 48 ± 10	120.2 ± 2.6 ± 0.5	22	0.96, 17.5, 17.3	2.57	18	45, 44
36	3841	8485 ± 51 ± 11	138.9 ± 5.2 ± 1.1	22	0.93, 17.0, 17.6	2.95	27	50, 52
36	3866	11,474 ± 310 ± 83	159.6 ± 6.4 ± 1.7	14	0.87, 15.8, 17.5	2.92	38	46, 51
36	3923	13,328 ± 327 ± 146	181.6 ± 17.7 ± 7.9	5	0.91, 16.6, 18.8	2.89	43	48, 54

TABLE DR1. *(Continued)*

Range East	Elev. (ft)	Average depth ± SD ± SE (ft)	Average temp ± SD ± SE+ (°F)	n* (BHT values)	Γ_u, Γ_u, Γ_c++ (°F/100 ft, °C/km, °C/km)	TC** (mW m^{-1} s^{-1} K^{-1})	*n* (TC samples)	Q_u, Q_c+++ (mW m^{-2})
37	3772	1397	82	1	1.56, 28.5, 27.2	2.05	5[2]	58, 56
37	3788	3148 ± 66 ± 47	88.0 ± 5.7 ± 4.0	2	0.88, 16.1, 15.0	2.10	15[2]	34, 32
37	3706	4041 ± 32 ± 16	97.0 ± 3.9 ± 2.0	4	0.91, 16.5, 15.6	2.20	20[2]	36, 34
37	3824	6272 ± 36 ± 11	118.4 ± 3.9 ± 1.2	10	0.93, 17.0, 16.7	2.57	30[2]	44, 43
37	3790	8532 ± 180 ± 34	136.7 ± 7.2 ± 1.4	28	0.90, 16.4, 17.1	2.87	44[2]	47, 49
37	3807	11,550 ± 242 ± 37	157.5 ± 8.3 ± 1.3	42	0.84, 15.4, 17.1	2.86	63[2]	44, 49
37	3816	13,772 ± 119 ± 69	178.3 ± 7.4 ± 4.3	3	0.86, 15.6, 18.0	2.79	75[2]	44, 50
38	3788	3189	92	1	1.00, 18.2, 17.1	2.19	8	40, 37
38	3694	3232 ± 32 ± 14	112.6 ± 5.5 ± 2.5	5	1.61, 29.4, 28.3	2.19	8	64, 62
38	3703	5052 ± 52 ± 15	105.6 ± 6.0 ± 1.7	11	0.89, 16.3, 15.7	2.32	11	38, 36
38	3666	8168 ± 276 ± 104	124.7 ± 4.6 ± 1.7	7	0.78, 14.3, 14.8	2.80	19	40, 41
38	3718	10,226 ± 503 ± 190	138.7 ± 5.3 ± 2.0	7	0.77, 14.0, 15.3	2.81	23	39, 43
38	3700	12,330 ± 187 ± 42	173.1 ± 14.4 ± 3.2	20	0.91, 16.7, 18.7	2.79	30	46, 52
38	3730	13,288 ± 95 ± 32	162.4 ± 9.5 ± 3.2	7	0.77, 14.0, 16.2	2.79	33	39, 45

Notes: (1) Thermal conductivities estimated from samples across equivalent lithologic intervals from Ranges 15 and 18 East. (2) Thermal conductivities value obtained by averaging sample values over approximately the same depth interval from wells one range east and one range west.

+SD = standard deviation, SE = standard error.

**n* = number of data.

++Γ = temperature gradient, Γ_u = uncorrected (°F/100ft, °C/km), Γ_c (°C/km) = corrected using American Association of Petroleum Geologists (AAPG) correction.

**TC = thermal conductivity

+++Q = heat flow, Q_u = uncorrected, Q_c = corrected using AAPG correction to gradient.