

Final Numerical Model Report for the High Plains Aquifer System
Groundwater Availability Model

Table A.1.1 Water budget for the Ogallala Aquifer by county for the steady-state model.

County	Recharge	ET	Springs	Rivers	Draws	Escarpsments	Lateral	Cross-Formational
Armstrong	9,499	-28	-227	-4,313	0	-2,822	127	-2,235
Carson	12,471	-583	0	4,018	0	-206	-15,986	287
Dallam	24,489	-2,416	0	11,778	-389	0	-33,912	451
Donley	17,217	-2,417	-1,567	-15,735	-129	-7,035	9,666	0
Gray	26,145	-1,094	0	-4,840	0	-6,305	-13,907	0
Hansford	11,525	-4,540	0	-13,446	-133	0	6,594	0
Hartley	29,125	-7,346	-69	-14,320	0	-1,825	-4,325	-1,240
Hemphill	33,925	-24,895	-196	-21,966	-112	-3,600	16,844	0
Hutchinson	6,962	-5,977	-426	-18,842	-3,728	-12,165	34,176	0
Lipscomb	29,600	-8,292	0	-3,849	0	0	-17,459	0
Moore	17,353	-1,054	0	-3,600	-1,056	-3,809	-7,535	-298
Ochiltree	12,379	-487	0	1,938	0	0	-13,830	0
Oldham	18,225	-867	-262	-9,361	-1,183	-8,967	6,244	-3,830
Potter	7,110	-577	-199	-184	-263	-2,874	-1,311	-1,703
Randall	10,140	-1,784	-346	-10,779	-1,070	-1,524	8,607	-3,243
Roberts	13,084	-29,422	-4	-18,220	-3,014	-2,785	40,361	0
Sherman	17,547	-406	0	5,975	0	0	-23,170	54
Wheeler	28,093	-4,020	-1,194	-9,592	-2,223	-12,521	1,458	0
Total	324,889	-96,205	-4,490	-125,338	-13,300	-66,438	-7,358	-11,757

Table A.1.5 Water budget for the lower Dockum Group by county for the steady-state model.

County	Recharge	ET	Springs	Rivers	Draws	Escarpments	Lateral	Cross-Formational
Armstrong	226	0	-295	-509	-2,276	0	619	2,235
Carson	0	0	0	0	0	0	287	-287
Dallam	0	0	0	0	0	0	-51	51
Hartley	205	-314	0	969	0	0	-2,170	1,310
Hutchinson	0	0	0	0	0	0	0	0
Moore	64	0	0	-65	0	0	-298	298
Oldham	5,786	-3,674	-120	-10,130	0	0	4,310	3,828
Potter	2,211	-1,106	-22	-3,561	-395	0	1,171	1,703
Randall	80	0	0	-2,557	-748	0	-18	3,243
Sherman	0	0	0	0	0	0	53	-53

Table A.2.1 Water budget for the Ogallala Aquifer by county for year 1980 of the transient model.

County	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
Armstrong	9,535	-21	-80	-2,196	0	-2,585	0	-11,601	11,894	-2,775	-2,170
Carson	12,471	-477	0	4,704	0	-184	0	-130,462	125,886	-12,183	245
Dallam	24,600	-568	0	17,463	-133	0	0	-240,273	254,537	-53,776	-1,851
Donley	17,361	-2,052	-1,322	-13,937	-118	-6,958	0	-12,369	7,216	12,178	0
Gray	26,409	-876	0	-3,867	0	-6,403	0	-17,010	19,494	-17,748	0
Hansford	11,531	-1,259	0	6,513	-57	0	0	-185,400	164,777	3,894	0
Hartley	29,186	-5,641	-55	-11,245	0	-1,797	42	-254,606	252,128	-7,569	-442
Hemphill	34,367	-24,568	-198	-21,502	-101	-3,671	0	-2,333	3,620	14,385	0
Hutchinson	7,082	-3,484	-328	-11,145	-2,040	-9,275	0	-89,854	77,866	31,178	0
Lipscomb	29,621	-7,694	0	-2,334	0	0	0	-22,180	20,362	-17,775	0
Moore	17,436	-403	0	757	-485	-2,817	0	-250,594	238,494	508	-2,897
Ochiltree	12,379	-310	0	3,022	0	0	126	-109,713	100,872	-6,376	0
Oldham	18,476	-844	-260	-8,908	-1,167	-8,645	0	-21,643	22,513	4,178	-3,701
Potter	7,090	0	-103	210	-268	-1,977	0	-25,443	24,439	-2,475	-1,473
Randall	10,169	-1,048	-166	-3,285	-343	-1,327	0	-93,838	78,029	14,414	-2,606
Roberts	13,328	-28,523	0	-16,414	-2,835	-2,426	0	-6,372	10,180	33,062	0
Sherman	17,550	0	0	9,682	0	0	0	-323,195	293,807	2,309	-153
Wheeler	28,976	-4,028	-1,212	-9,218	-2,291	-12,868	0	-5,849	4,590	1,900	0

Lateral	Cross- Formation al
926	2,502
56	-97

Lateral	Cross- Formation al
3	-657
4	-441
0	-12
-2	-11
0	0
0	-141
0	0

Table A.2.5 Water budget for the lower Dockum Group by county for year 1980 of the transient mo

County	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells
Armstrong	228	0	-295	-509	-2,273	0	0	-117
Carson	0	0	0	0	0	0	0	-348
Dallam	0	0	0	0	0	0	0	-1,743
Hartley	205	-314	0	973	0	0	0	-1,399
Hutchinson	0	0	0	0	0	0	0	0
Moore	64	0	0	-59	0	0	0	-4,315
Oldham	5,906	-3,725	-120	-10,133	0	0	0	-458
Potter	2,217	-1,097	-22	-3,479	-395	0	0	-717
Randall	86	0	0	-2,512	-748	0	0	-1,060
Sherman	0	0	0	0	0	0	0	-562
Total	8706	-5136	-437	-15719	-3416	0	0	-10719

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Storage	Lateral	Cross- Formation al
156	641	2,170
271	322	-245
1,765	-23	1
2,230	-2,678	983
0	0	0
1,226	175	2,909
567	4,251	3,712
966	1,054	1,473
1,283	205	2,746
226	183	153
8690	4130	13902

Table A.3.1 Water budget for the Ogallala Aquifer by county for year 2012 of the transient model.

County	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
Armstrong	9,535	0	-39	-1,227	0	-2,339	0	-8,805	11,286	-6,262	-2,150
Carson	12,471	-367	0	5,470	0	-143	0	-129,816	124,865	-12,826	347
Dallam	24,600	-61	0	19,836	0	0	0	-429,574	379,136	7,428	-1,365
Donley	17,361	-1,688	-1,286	-11,948	-35	-6,715	0	-39,308	26,676	16,943	0
Gray	26,409	-764	0	-2,979	0	-6,240	0	-41,569	40,077	-14,934	0
Hansford	11,531	-483	0	10,052	0	0	419	-242,130	217,629	2,981	0
Hartley	29,186	-3,213	-2	-5,377	0	-1,636	42	-488,903	486,978	-17,996	920
Hemphill	34,367	-24,400	-198	-20,587	-101	-3,673	0	-21,951	21,931	14,614	0
Hutchinson	7,082	-2,367	-185	-4,744	-798	-6,860	0	-85,118	82,617	10,373	0
Lipscomb	29,621	-5,733	0	1,567	0	0	0	-56,294	47,145	-16,307	0
Moore	17,436	0	0	5,266	-164	-1,730	0	-282,841	256,336	7,024	-1,326
Ochiltree	12,379	-170	0	3,738	0	0	126	-113,704	100,672	-3,040	0
Oldham	18,476	-758	-258	-8,550	-1,015	-7,868	0	-14,397	11,621	6,315	-3,567
Potter	7,090	0	-64	597	-267	-1,655	0	-8,573	12,040	-7,587	-1,580
Randall	10,169	-559	-104	-45	-231	-991	0	-44,304	30,515	7,810	-2,258
Roberts	13,328	-26,681	0	-13,211	-2,354	-2,103	0	-79,392	84,930	25,483	0
Sherman	17,550	0	0	9,682	0	0	0	-397,598	370,112	246	9
Wheeler	28,976	-3,969	-1,184	-8,133	-2,274	-12,809	0	-13,605	8,623	4,376	0
Total	327,567	-71,213	-3320	-20,593	-7,239	-54,762	587	-2,497,882	2,313,189	24,641	-10970

Table A.3.2 Water budget for the Rita Blanca Aquifer by county for year 2012 of the transient model.

County	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
Dallam	0	0	0	0	0	0	0	-6,202	2,054	945	3,203
Hartley	0	0	0	0	0	0	0	0	92	1	-93

Table A.3.5 Water budget for the lower Dockum Group by county for year 2012 of the transient model.

County	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
Armstrong	228	0	-295	-509	-2,261	0	0	-173	274	586	2,150
Carson	0	0	0	0	0	0	0	-138	310	174	-347
Dallam	0	0	0	0	0	0	0	-2,757	3,466	22	-731
Hartley	205	-313	0	985	0	0	0	-2,022	3,826	-2,566	-115
Hutchinson	0	0	0	0	0	0	0	0	0	0	0
Moore	64	0	0	-55	0	0	0	-1,605	222	34	1,340
Oldham	5,906	-3,719	-120	-9,813	0	0	0	-1,129	1,112	4,192	3,571
Potter	2,217	-1,078	-22	-3,392	-395	0	0	-1,472	1,443	1,120	1,580
Randall	86	0	0	-2,328	-747	0	0	-2,634	2,811	336	2,476
Sherman	0	0	0	0	0	0	0	-485	252	241	-8
Total	8706	-5110	-437	-15112	-3403	0	0	-12415	13716	4139	9916

Table A.4.1 Water budget for the Ogallala Aquifer by groundwater conservation district for the steady-state model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Lateral	Cross-Formational
High Plains UWCD No.1	96,837	-25,448	-14,852	-13,000	-6,647	-13,316	-8,835	-14,740
North Plains GCD	136,985	-23,119	-69	-3,149	-1,450	-179	-108,714	-305
Panhandle GCD	112,392	-37,564	-2,964	-48,748	-5,629	-34,729	20,042	-2,799
Hemphill County UWCD	34,037	-24,895	-196	-21,966	-112	-3,600	16,732	0

Table A.4.5 Water budget for the lower Dockum Group by groundwater conservation district for the steady-state model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Lateral	Cross-Formational
High Plains UWCD No.1	271	0	0	43	-184	0	-14,749	14,619
North Plains GCD	49	0	0	189	0	0	-1,110	872
Panhandle GCD	2,325	-1,106	-318	-4,150	-2,487	0	2,936	2,799

Table A.5.1 Water budget for the Ogallala Aquifer by groundwater conservation district for year 1980 of the transient model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
High Plains UWCD No. 1	166,630	-1,635	-8,101	48,003	-2,657	-9,420	0	-3,124,756	2,958,995	-26,320	-739
North Plains GCD	137,167	-14,796	-55	35,924	-541	-63	168	-1,467,159	1,378,519	-64,557	-4,607
Panhandle GCD	113,935	-35,976	-2,636	-40,747	-5,512	-33,692	0	-193,656	189,713	11,252	-2,679
Hemphill County UWCD	34,479	-24,568	-198	-21,502	-101	-3,671	0	-2,333	3,621	14,273	0

Table A.5.2 Water budget for the Rita Blanca Aquifer by groundwater conservation district for year 1980 of the transient model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
North Plains GCD	0	0	0	0	0	0	0	-6,131	2,744	978	2,409

Table A.5.4 Water budget for the upper Dockum Group by groundwater conservation district for year 1980 of the transient model.											
Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
High Plains UWCD No.1	0	-5	0	-31	0	0	0	-37	9,867	17	-9,811
North Plains GCD	0	0	0	0	0	0	0	-17	1,120	7	-1,110

Table A.5.5 Water budget for the lower Dockum Group by groundwater conservation district for year 1980 of the transient model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
High Plains UWCD No.1	271	0	0	43	-184	0	0	-9,354	15,620	-13,428	7,033
North Plains GCD	49	0	0	194	0	0	0	-7,868	5,117	-796	3,305
Panhandle GCD	2,333	-1,097	-318	-4,068	-2,484	0	0	-752	959	2,746	2,679

Table A.6.1 Water budget for the Ogallala Aquifer by groundwater conservation district for year 2012 of the transient model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
High Plains UWCD No.1	349,939	-1,026	-5,512	56,240	-2,097	-6,779	0	-1,903,166	1,503,728	-2,108	10,781
North Plains GCD	137,167	-8,782	-2	54,089	-34	0	587	-2,085,798	1,909,608	-5,782	-1,053
Panhandle GCD	113,935	-33,469	-2,534	-31,468	-4,931	-32,430	0	-319,899	308,730	4,792	-2,725
Hemphill County UWCD	34,479	-24,400	-198	-20,587	-101	-3,673	0	-21,951	21,930	14,503	0

Table A.6.2 Water budget for the Rita Blanca Aquifer by groundwater conservation district for year 2012 of the transient model.											
Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
North Plains GCD	0	0	0	0	0	0	0	-6,202	2,147	941	3,114

Table A.6.4 Water budget for the upper Dockum Group by groundwater conservation district for year 2012 of the transient model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
High Plains UWCD No.1	0	-4	0	-30	0	0	0	-66	10,578	20	-10,499
North Plains GCD	0	0	0	0	0	0	0	-26	1,851	9	-1,835

Table A.6.5 Water budget for the lower Dockum Group by groundwater conservation district for year 2012 of the transient model.

Groundwater Conservation District	Recharge	ET	Springs	Rivers	Draws	Escarpments	Reservoirs	Wells	Storage	Lateral	Cross-Formational
High Plains UWCD No.1	274	0	0	45	-183	0	0	-11,368	23,997	-12,479	-284
North Plains GCD	49	0	0	194	0	0	0	-6,642	7,214	-585	-228
Panhandle GCD	2,333	-1,078	-317	-3,981	-2,473	0	0	-1,342	1,582	2,552	2,725