

Appendix E. Observed and Simulated Ground-Water Levels, 1987–92 and 2002

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Table E1. Measured heads, simulated 1987–92 and 2002 heads, head differences, error criteria in wells used for previous model calibration (Clarke and West, 1998).

[Negative residuals indicate simulated values lower than observed values; —, no data]

Well number	Model			Error criteria (foot)	Water-level altitudes (foot)						1992–2002	
					1987–92			2002			Observed difference (foot)	Simulated difference (foot)
	Layer	Row	Column		Observed	Simulated	Residual	Observed	Simulated	Residual		
30W009	2	121	8	12.8	153.6	166.6	13.0	147.8	134.2	–13.6	–5.8	–32.4
30X007	2	115	9	14.0	174.5	195.5	21.0	161.6	170.6	9.0	–12.9	–24.9
30Z009	2	63	27	12.9	163.1	151.4	–11.7	185.4	150.8	–34.6	22.3	–0.6
30Z020	2	72	22	11.8	188.7	177.3	–11.4	178	173.8	–4.2	–10.7	–3.5
31Y019	2	96	38	12.2	149.3	152	2.7	130.6	148.3	17.7	–18.8	–3.7
31Z015	2	91	45	14.6	111.4	113.3	1.9	106.6	110.5	4.0	–4.9	–2.8
31Z030	2	78	38	15.1	134.7	117.2	–17.5	126.2	115.8	–10.4	–8.5	–1.4
31Z037	2	78	38	15.1	134.7	117.2	–17.5	131.2	116	–15.2	–3.5	–1.2
31Z045	2	83	36	13.3	150.4	152	1.6	171	151	–20.1	20.6	–1.0
31Z073	2	90	42	—	—	—	—	101.4	128.6	27.2	—	—
31Z074	2	90	43	15.3	—	—	—	97.4	123.7	26.3	—	—
31Z076	2	93	45	14.4	103.3	115.2	11.9	104.9	114.8	9.9	1.6	–0.4
31Z077	2	90	44	15.3	106.5	118.8	12.3	96.0	117.1	21.1	–10.5	–1.7
31Z083	2	78	41	14.9	116	105.5	–10.5	111.9	107.3	–4.6	–4.1	1.8
31Z109	2	91	39	12.1	—	—	—	127.4	143.7	16.3	—	—
33W025	2	128	50	—	—	—	—	73.1	80.8	7.7	—	—
AK–623	2	70	69	14.6	—	—	—	139.8	149.4	9.6	—	—
AK–849	2	36	100	18.3	252.8	260.1	7.3	253.3	260.1	6.8	0.5	0
AK–868	2	56	83	17.1	212.4	213.4	1.0	206.8	209.9	3.1	–5.6	–3.5
AK–875	2	78	50	14.3	93.5	85.7	–7.8	110.1	84.4	–25.7	16.5	–1.3
AK–876	2	78	50	14.3	93.5	85.7	–7.8	100.5	84.3	–16.2	7.0	–1.4
AK–883	2	70	70	12.3	146.5	156.3	9.8	142.3	153.6	11.2	–4.2	–2.7
AK–890	2	67	63	12.9	166.2	164.6	–1.6	159.3	162.2	2.9	–6.9	–2.4
AK–895	2	58	69	15.7	209.3	212.7	3.4	202.4	207.5	5.1	–6.9	–5.2
AK–2352	2	77	49	14.3	94.7	83.0	–11.7	81.0	83.9	2.9	–13.7	0.9
AL–365	2	111	81	12.8	124.2	145.9	21.7	114.7	142.7	28.0	–9.5	–3.2
AL–366	2	111	81	12.8	124.2	145.9	21.7	115.1	142.6	27.5	–9.1	–3.3
AL–375	2	123	90	13.6	136.1	144.5	8.4	122	137.9	16.0	–14.1	–6.6
BW–45	2	101	98	13.0	205.9	175.9	–30.0	201.3	171.4	–29.9	–4.7	–4.5
BW–302	2	103	68	12.1	—	—	—	117.4	135.5	18.0	—	—
BW–313	2	77	67	13.2	168.7	168.7	0	164	166.1	2.1	–4.7	–2.6
BW–321	2	93	78	12.8	174.2	179.3	5.1	167.8	171.8	4.1	–6.4	–7.5
BW–322	2	88	72	13.6	177.8	176.4	–1.4	204.4	170.3	–34.1	26.6	–6.1
BW–354	2	111	99	14.6	165.3	166.5	1.2	156.3	159.5	3.2	–9.0	–7.0
BW–367	2	84	98	11.9	217	224.8	7.8	205.5	217.5	12.0	–11.5	–7.3
BW–387	2	72	92	13.1	228	228.2	0.2	221.6	220.2	–1.4	–6.4	–8.0
BW–398	2	80	85	14.1	195.1	196.9	1.8	189.9	190.6	0.7	–5.2	–6.3
BW–404	2	102	68	12.6	133.9	143.7	9.8	121	137.7	16.7	–12.9	–6.0
BW–408	2	100	87	11.0	153.2	171.9	18.7	146.3	165.4	19.1	–6.9	–6.5
BW–415	2	90	60	14.6	137.7	155.5	17.8	133.6	152.9	19.3	–4.1	–2.6
BW–419	2	88	80	13.0	191.4	185.2	–6.2	184.3	179.5	–4.8	–7.1	–5.7
BW–427	2	86	66	13.5	178.3	179.9	1.6	174.8	173.2	–1.5	–3.5	–6.7

Table E1. Measured heads, simulated 1987–92 and 2002 heads, head differences, error criteria in wells used for previous model calibration (Clarke and West, 1998).—Continued

[Negative residuals indicate simulated values lower than observed values; —, no data]

Well number	Model			Error criteria (foot)	Water-level altitudes (foot)						1992–2002	
					1987–92			2002			Observed difference (foot)	Simulated difference (foot)
	Layer	Row	Column		Observed	Simulated	Residual	Observed	Simulated	Residual		
BW-433	2	74	76	14.5	179.6	181.2	1.6	175.6	178.3	2.7	−4.0	−2.9
BW-436	2	77	67	13.2	168.7	168.7	0	164.4	166.1	1.7	−4.3	−2.6
BW-455	2	91	94	12.3	214.5	204.6	−9.9	205.2	197.3	−8.0	−9.3	−7.3
BW-545	2	75	80	—	—	—	—	184.8	185.7	1.0	—	—
BW-590	2	78	73	16.4	188	179.5	−8.5	179.9	176.4	−3.5	−8.1	−3.1
BW-595	2	79	73	—	—	—	—	184.8	176.2	−8.6	—	—
BW-604	2	80	73	18.5	187.2	184.1	−3.1	180.8	176.2	−4.6	−6.4	−7.9
BW-725	2	88	65	—	—	—	—	170.7	164.4	−6.3	—	—
BW-730	2	89	68	—	—	—	—	166.5	163.9	−2.6	—	—
30X006	3	116	8	13.7	169.3	172.9	3.6	155.6	162.6	7.1	−13.8	−10.3
31Y007	3	94	37	12.6	152.9	156.1	3.2	134.4	151	16.6	−18.5	−5.1
BW-403	3	102	68	12.9	134.9	149.9	15.0	122.1	143.6	21.5	−12.8	−6.3
BW-407	3	100	87	11.8	154	172.8	18.8	147	165.8	18.9	−7.0	−7.0
BW-414	3	90	60	11.4	—	—	—	139.7	152.7	13.0	—	—
BW-426	3	86	66	13.8	172.4	173.5	1.1	167.6	168	0.4	−4.8	−5.5
BW-456	3	91	94	12.6	211.9	204	−7.9	204.3	196.5	−7.9	−7.6	−7.5
31Z043	4	83	36	11.6	149.6	156.7	7.1	136.5	154.2	17.7	−13.1	−2.5
AK-601	4	73	74	11.6	—	—	—	175.2	172.9	−2.3	—	—
AK-683	4	73	72	—	—	—	—	174.6	170.5	−4.0	—	—
AK-825	4	35	69	14.6	239.9	249.8	9.9	235.3	244.4	9.1	−4.6	−5.4
AK-848	4	36	100	14.7	262.6	260.8	−1.8	260.1	260.7	0.6	−2.5	−0.1
AK-860	4	67	63	13.1	168.6	163	−5.6	163.2	160.2	−3.0	−5.4	−2.8
AK-862	4	70	70	11.8	175	165.4	−9.6	171.7	163.9	−7.9	−3.3	−1.5
AK-863	4	78	50	12.2	146.5	137	−9.5	143.5	135	−8.5	−3.0	−2.0
AK-870	4	56	83	12.6	219.2	213.1	−6.1	213.2	209.6	−3.6	−6.0	−3.5
AK-894	4	58	69	13.1	206.1	206.9	0.8	201.4	201.8	0.4	−4.7	−5.1
AL-367	4	111	81	11.5	154.6	159.7	5.1	148.1	151.7	3.6	−6.5	−8.0
BW-326	4	71	83	11.4	—	—	—	183.5	187.6	4.1	—	—
BW-329	4	93	78	11.5	174	178.5	4.5	169	171.4	2.3	−5.0	−7.1
BW-332	4	88	71	11.3	170.9	174.9	4.0	165.3	169.5	4.2	−5.6	−5.4
BW-333	4	88	72	11.3	176.6	175.5	−1.1	170.2	169.7	−0.5	−6.4	−5.8
BW-353	4	111	99	12.1	169.7	169.6	−0.1	160	160.6	0.6	−9.7	−9.0
BW-368	4	84	98	11.8	209.9	220.4	10.5	198.8	213.4	14.6	−11.1	−7.0
BW-372	4	82	76	11.4	178.3	183.4	5.1	174.8	177.8	3.0	−3.5	−5.6
BW-374	4	72	95	12.0	215.7	227.3	11.6	209.3	219.4	10.1	−6.3	−7.9
BW-375	4	80	85	11.4	189.2	195.8	6.6	184.2	189.6	5.5	−5.0	−6.2
BW-376	4	102	68	11.5	166	162.7	−3.3	157.7	155.1	−2.6	−8.3	−7.6
BW-378	4	88	80	11.5	177.6	184.3	6.7	174.7	178.7	4.1	−2.9	−5.6
BW-380	4	74	76	11.4	179.4	180.8	1.4	176.6	177.9	1.2	−2.8	−2.9
BW-413	4	90	60	11.4	162.3	163	0.7	157.9	157.7	−0.1	−4.4	−5.3
BW-440	4	91	94	12.6	192.9	203.1	10.2	185.7	195.5	9.8	−7.2	−7.6
BW-464	4	86	66	11.4	168.5	172.9	4.4	165	167.4	2.4	−3.5	−5.5

Table E1. Measured heads, simulated 1987–92 and 2002 heads, head differences, error criteria in wells used for previous model calibration (Clarke and West, 1998).—Continued

[Negative residuals indicate simulated values lower than observed values; —, no data]

Well number	Model			Error criteria (foot)	Water-level altitudes (foot)						1992–2002	
					1987–92			2002			Observed difference (foot)	Simulated difference (foot)
	Layer	Row	Column		Observed	Simulated	Residual	Observed	Simulated	Residual		
BW–638	4	83	67	—	—	—	—	169.3	170.1	0.8	—	—
26AA06	5	17	2	—	—	—	—	369.2	360.2	–9.0	—	—
29AA06	5	42	19	13.6	—	—	—	137.3	175.1	37.8	—	—
30Z025	5	66	33	12.8	157.2	148.3	–8.9	148.9	144.9	–4.0	–8.3	–3.4
32Y029	5	106	43	11.4	164.1	162.1	–2.0	154.9	152.3	–2.6	–9.2	–9.8
AK–290	5	45	80	10.8	255.1	260.6	5.5	249.2	256	6.8	–5.9	–4.6
AK–600	5	73	74	11.6	—	—	—	175.1	173.1	–2.1	—	—
AK–824	5	35	69	14.6	238.1	248.9	10.8	233.2	243.5	10.3	–4.9	–5.4
AK–847	5	36	100	14.7	270.9	261.2	–9.7	266.2	261	–5.2	–4.7	–0.2
AK–859	5	56	83	12.6	221.7	213	–8.7	215.9	209.6	–6.4	–5.8	–3.4
AK–888	5	67	63	13.1	170.4	162.5	–7.9	165.6	159.6	–6.0	–4.8	–2.9
AK–893	5	58	69	13.1	205.8	200.7	–5.1	198.7	196.4	–2.3	–7.1	–4.3
AK–898	5	70	71	11.5	174.7	167.6	–7.1	171.9	164.4	–7.6	–2.8	–3.2
AK–2379	5	48	55	16.3	187.4	165.8	–21.6	161.2	161.3	0.2	–26.2	–4.5
AL–368	5	111	81	11.5	153.4	159.7	6.3	148.3	151.8	3.4	–5.1	–7.9
AL–369	5	111	81	11.5	153.4	159.7	6.3	148.4	151.6	3.2	–5.0	–8.1
BW–324	5	71	83	11.4	189.5	191.9	2.4	185.4	187.6	2.2	–4.1	–4.3
BW–328	5	93	78	11.5	174.2	178.5	4.3	167.5	171.4	3.9	–6.7	–7.1
BW–331	5	88	72	11.3	173.7	175.4	1.7	168.6	169.9	1.3	–5.1	–5.5
BW–355	5	111	99	12.1	169.8	170.7	0.9	159.3	161.2	1.9	–10.5	–9.5
BW–365	5	84	98	11.8	211.2	220.4	9.2	198.7	213.4	14.8	–12.5	–7.0
BW–389	5	72	95	12.0	214.6	227.4	12.8	209.6	219.4	9.8	–5.0	–8.0
BW–392	5	82	76	11.4	178.6	183.3	4.7	175.2	177.7	2.5	–3.4	–5.6
BW–402	5	102	68	11.5	166.1	162.7	–3.4	158.3	155.1	–3.2	–7.8	–7.6
BW–406	5	100	87	11.7	175.2	179.7	4.5	166.7	171.3	4.5	–8.5	–8.4
BW–412	5	90	60	11.4	164.4	163.7	–0.7	161.7	158.3	–3.4	–2.7	–5.4
BW–418	5	89	80	11.5	177.6	183.4	5.8	174.5	178.7	4.2	–3.1	–4.7
BW–425	5	86	66	11.4	168.5	172.4	3.9	165.4	166.9	1.6	–3.1	–5.5
BW–432	5	74	76	11.4	179.4	180.6	1.2	176.7	177.7	1.1	–2.8	–2.9
BW–437	5	77	67	11.4	171.2	168.5	–2.7	168.8	166.0	–2.8	–2.4	–2.5
30Z023	6	66	33	11.4	157.2	149.8	–7.4	148.7	146.3	–2.3	–8.5	–3.5
AK–818	6	35	69	12.8	238.3	247.8	9.5	232.7	242.5	9.7	–5.6	–5.3
AK–845	6	36	100	14.8	272.1	267.5	–4.6	265.7	266	0.3	–6.4	–1.5
AK–864	6	70	70	10.8	173.6	167.5	–6.1	171.6	168.8	–2.8	–2.0	1.3
AK–866	6	58	69	12.3	200.5	193.8	–6.7	192.1	189.9	–2.2	–8.4	–3.9
AK–871	6	56	83	12.0	221.6	214.1	–7.5	216	211.4	–4.5	–5.6	–2.7
AK–887	6	67	63	11.5	170.4	163.1	–7.3	165.8	160.1	–5.7	–4.6	–3.0
AK–2380	6	48	55	13.1	192.9	161.9	–31.0	162.1	158.9	–3.2	–30.8	–3.0
AL–370	6	111	81	11.6	182.5	188.3	5.8	180.6	182.9	2.3	–1.9	–5.4
AL–377	6	123	90	11.0	193.1	188.5	–4.6	182.2	183.1	0.9	–10.9	–5.4
BW–303	6	82	76	11.3	179.3	182.4	3.1	175.9	178.2	2.3	–3.4	–4.2
BW–327	6	93	78	11.2	182.5	185.3	2.8	177	180.4	3.4	–5.5	–4.9

Table E1. Measured heads, simulated 1987–92 and 2002 heads, head differences, error criteria in wells used for previous model calibration (Clarke and West, 1998).—Continued

[Negative residuals indicate simulated values lower than observed values; —, no data]

Well number	Model			Error criteria (foot)	Water-level altitudes (foot)						1992–2002	
					1987–92			2002			Observed difference (foot)	Simulated difference (foot)
	Layer	Row	Column		Observed	Simulated	Residual	Observed	Simulated	Residual		
BW–330	6	88	71	11.0	178.3	179.1	0.8	173.2	175.2	2.0	–5.2	–3.9
BW–335	6	102	68	11.3	180.7	181.3	0.6	175.3	176.1	0.8	–5.3	–5.2
BW–356	6	111	99	14.4	192.6	199.3	6.7	187.5	193.9	6.3	–5.1	–5.4
BW–366	6	84	98	11.6	213	212.9	–0.1	204.4	209.4	5.0	–8.6	–3.5
BW–370	6	74	76	11.5	178.8	179.6	0.8	176.1	177.9	1.7	–2.7	–1.7
BW–382	6	72	95	12.5	215.8	216.6	0.8	209.5	211.3	1.8	–6.3	–5.3
BW–383	6	100	87	11.4	188.1	191.9	3.8	182.5	186.6	4.1	–5.6	–5.3
BW–384	6	90	60	10.8	168	171.8	3.8	164	167.3	3.3	–4.0	–4.5
BW–385	6	89	80	11.3	183.6	186.8	3.2	179.2	183	3.7	–4.4	–3.8
BW–423	6	86	66	11.3	172.4	173.8	1.4	168.8	169.8	1.0	–3.6	–4.0
BW–438	6	77	67	11.1	171.5	169.6	–1.9	168.9	167.2	–1.7	–2.6	–2.4
27AA02	7	13	7	26.5	383	367.9	–15.1	365.7	358.5	–7.2	–17.3	–9.4
29BB01	7	20	29	15.7	116.6	133.2	16.6	118.1	135.1	17.0	1.5	1.9
29BB04	7	26	25	14.4	149.3	157	7.7	150.9	154.4	3.4	1.6	–2.6
29BB05	7	23	27	15.6	131.3	145.5	14.2	129.7	148.2	18.5	–1.6	2.7
30AA06	7	32	31	11.8	83.9	112.4	28.5	78.4	113.8	35.4	–5.5	1.4
30AA09	7	34	30	12.9	73.0	113.3	40.3	58.2	110.6	52.4	–14.8	–2.7
30AA10	7	34	30	12.9	73.0	113.3	40.3	55.7	113.4	57.6	–17.3	0.1
30BB33	7	28	30	13.2	115.2	122.2	7.0	117.9	123.7	5.8	2.7	1.5
30Z017	7	66	33	11.4	158.1	149.8	–8.3	150.3	146.3	–3.9	–7.8	–3.5
31Z112	7	82	43	11.4	154.8	156.3	1.5	153.6	153.7	0.1	–1.2	–2.6
AK–582	7	73	74	10.8	—	—	—	174.3	173.8	–0.5	—	—
AK–613	7	67	86	—	—	—	—	189.6	198	8.4	—	—
AK–643	7	56	83	12.0	217.5	214.2	–3.3	212.3	211.5	–0.8	–5.2	–2.7
AK–817	7	35	69	12.8	236.3	247.8	11.5	230.8	242.4	11.6	–5.5	–5.4
AK–865	7	67	63	11.5	170.4	163.1	–7.3	166.1	160.2	–5.9	–4.3	–2.9
AK–878	7	70	70	10.8	173.5	168.5	–5.0	171.4	169.3	–2.1	–2.1	0.8
AK–892	7	58	69	12.3	192.2	193.4	1.2	185.1	189.4	4.3	–7.1	–4.0
AK–902	7	48	55	13.1	197.3	161.9	–35.4	161.8	158.8	–3.0	–35.5	–3.1
AL–358	7	111	81	11.6	180.4	188.3	7.9	181.2	182.9	1.8	0.8	–5.4
BW–243	7	93	78	11.2	182.9	185.4	2.5	177.1	180.5	3.4	–5.8	–4.9
BW–246	7	88	71	11.0	178.3	179.1	0.8	173.1	175.2	2.1	–5.2	–3.9
BW–308	7	71	83	12.1	188.7	193.6	4.9	184.4	190.3	5.9	–4.3	–3.3
BW–312	7	72	95	12.5	215.4	216.5	1.1	208.6	211.2	2.6	–6.8	–5.3
BW–314	7	100	87	11.4	188.6	192	3.4	182.7	186.7	3.9	–5.9	–5.3
BW–316	7	90	60	10.8	168.7	171.8	3.1	164.2	167.3	3.1	–4.5	–4.5
BW–349	7	111	99	14.4	195.4	199.3	3.9	187.2	193.9	6.6	–8.2	–5.4
BW–358	7	84	98	11.6	212.6	212.9	0.3	204.6	209.4	4.8	–8.0	–3.5
BW–379	7	86	66	—	—	—	—	169.5	169.9	0.4	—	—
BW–391	7	77	67	11.1	172.1	169.6	–2.5	169	167.2	–1.8	–3.1	–2.4
BW–417	7	89	80	11.3	182.6	186.9	4.3	179	183.1	4.1	–3.6	–3.8
BW–430	7	74	76	11.5	177.3	179.2	1.9	175.1	177.7	2.6	–2.2	–1.5

¹Clarke and West (1998)

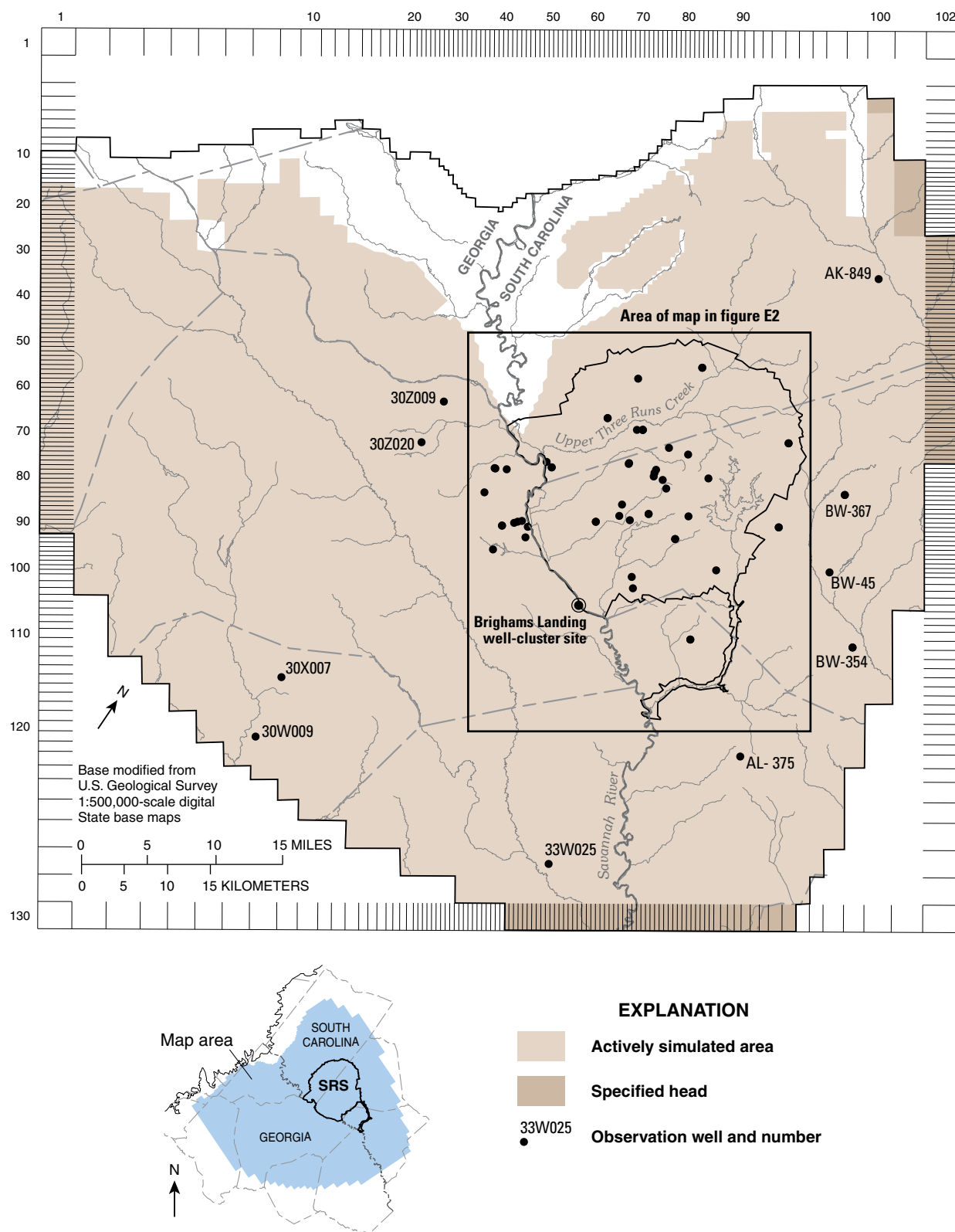


Figure E1. Location of wells used for the 2002 dry simulation for the Gordon aquifer (layer A2) in the Savannah River Site (SRS) area, South Carolina.



Base modified from U.S. Geological Survey
1:500,000-scale digital State base maps

0 1 2 3 4 5 6 MILES
0 1 2 3 4 5 6 KILOMETERS

EXPLANATION

■ Actively simulated area ● AL-366 Observation well and number

Figure E2. Location of wells used for the 2002 dry simulation for the Gordon aquifer (layer A2) (enlargement of area shown in figure E1) in the Savannah River Site (SRS) area, South Carolina.

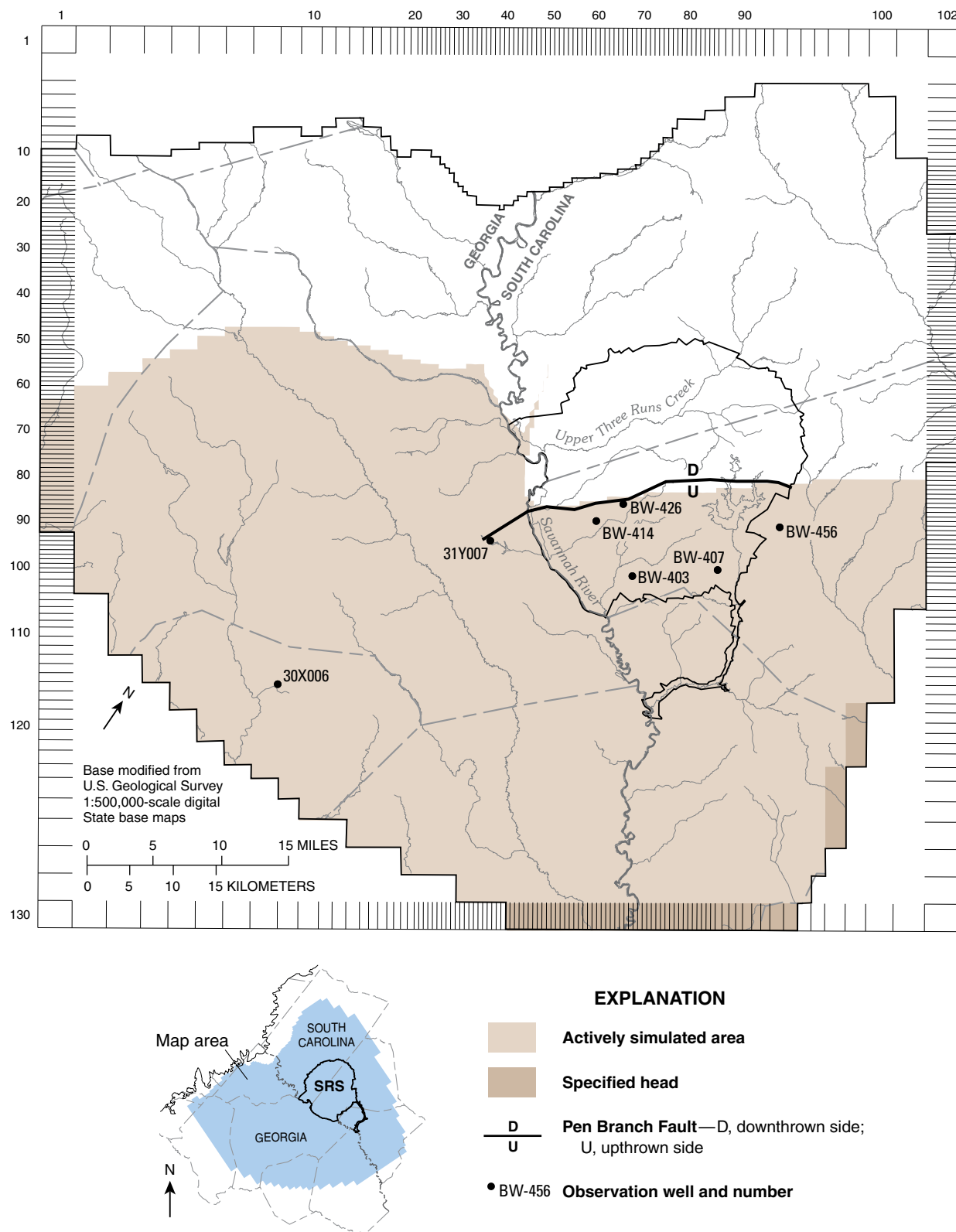


Figure E3. Location of wells used for the 2002 dry simulation for the Millers Pond aquifer (layer A3) in the Savannah River Site (SRS) area, South Carolina.

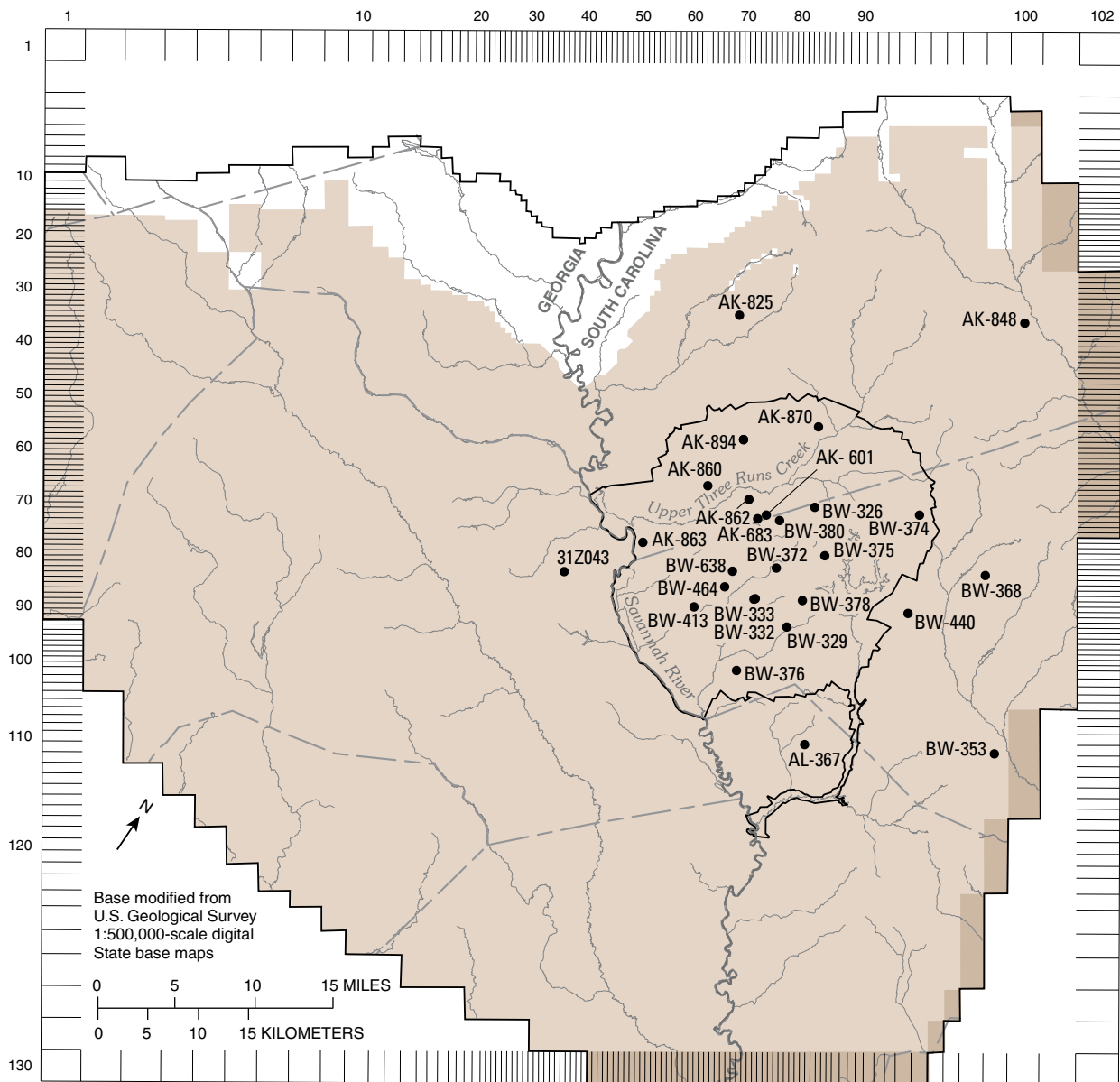


Figure E4. Location of wells used for the 2002 dry simulation for the upper Dublin aquifer (layer A4) in the Savannah River Site (SRS) area, South Carolina.

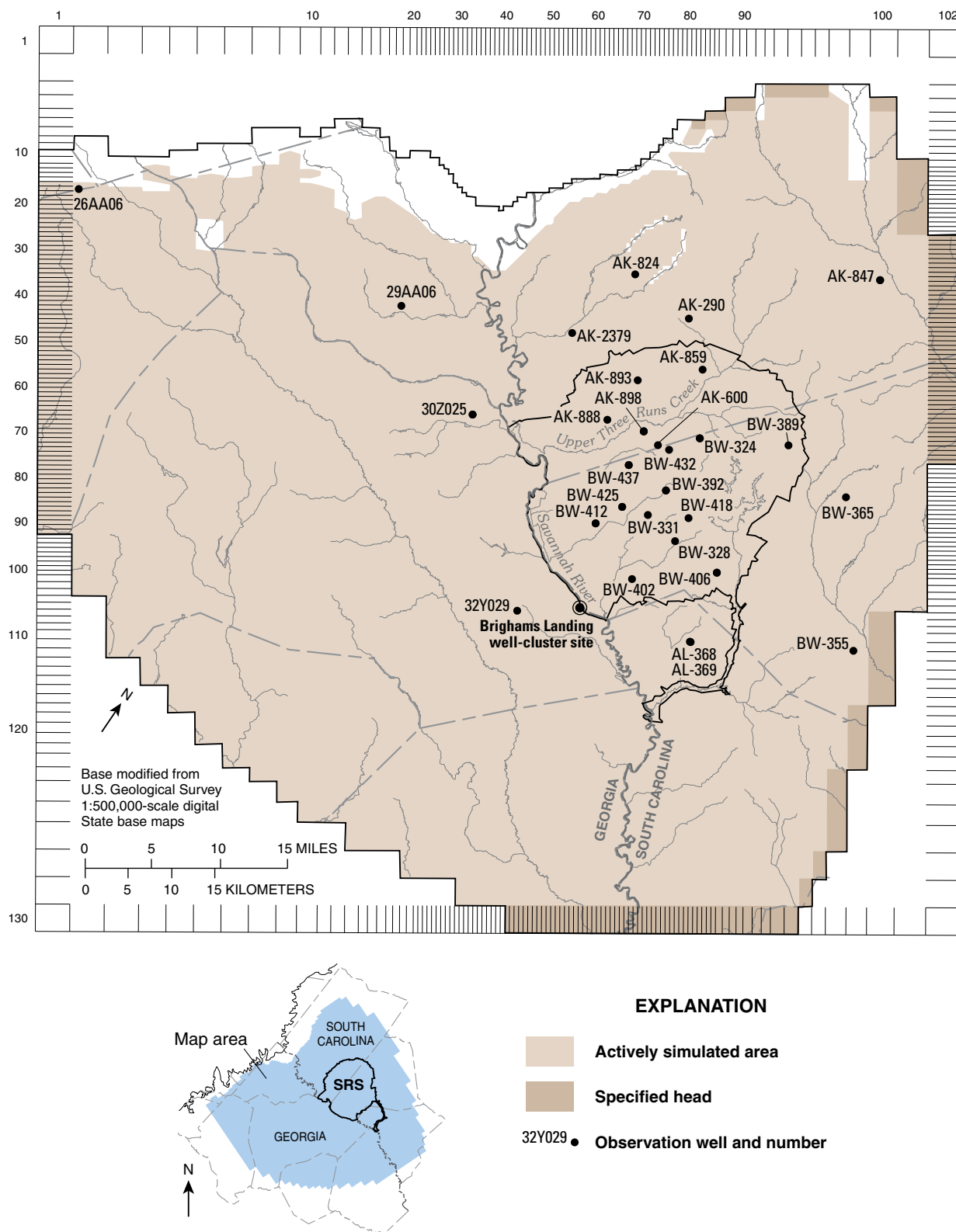


Figure E5. Location of wells used for the 2002 dry simulation for the lower Dublin aquifer (layer A5) in the Savannah River Site (SRS) area, South Carolina.

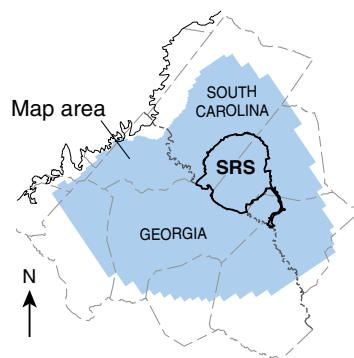
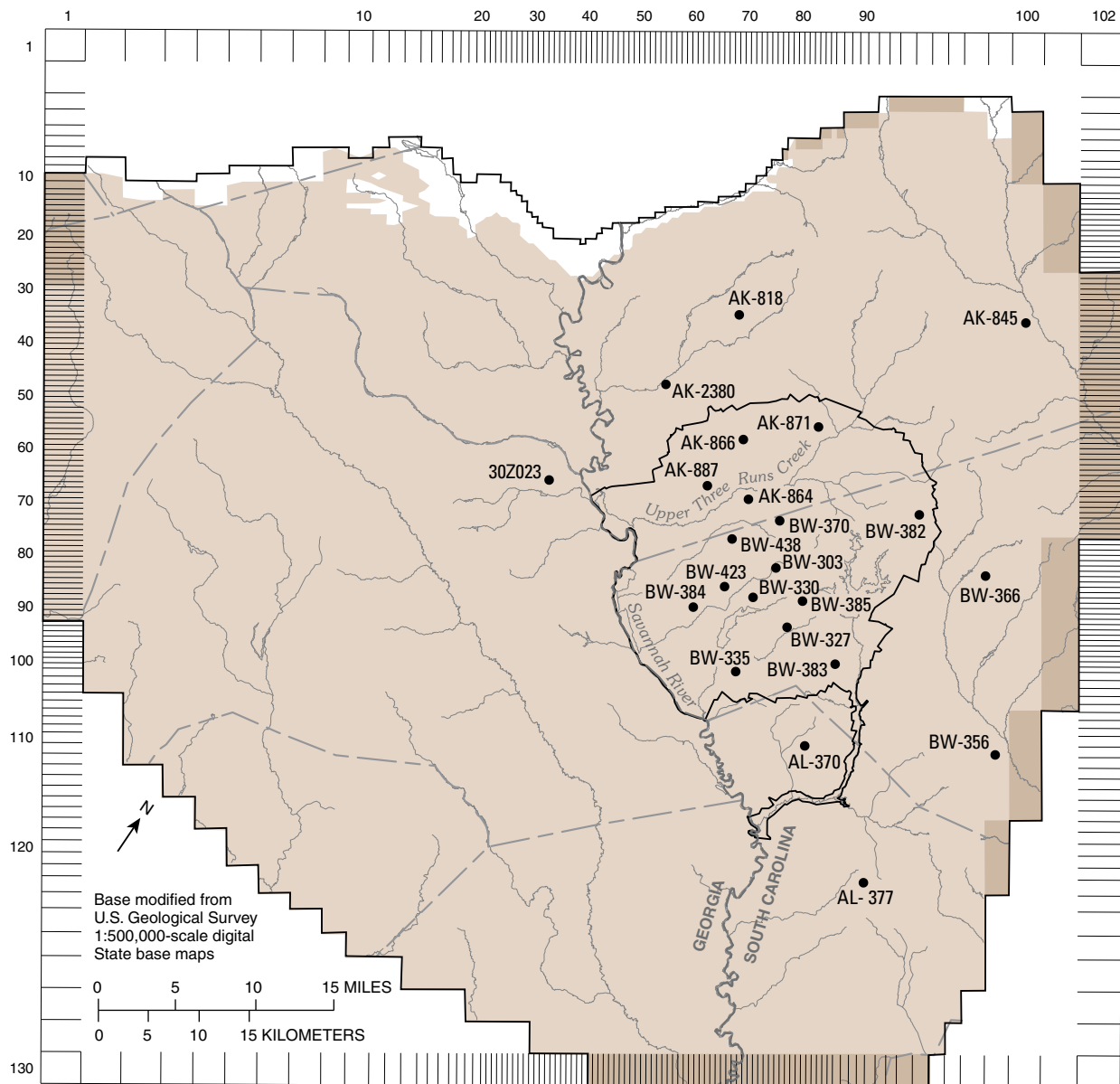


Figure E6. Location of wells used for the 2002 dry simulation for the upper Midville aquifer (layer A6) in the Savannah River Site (SRS) area, South Carolina.

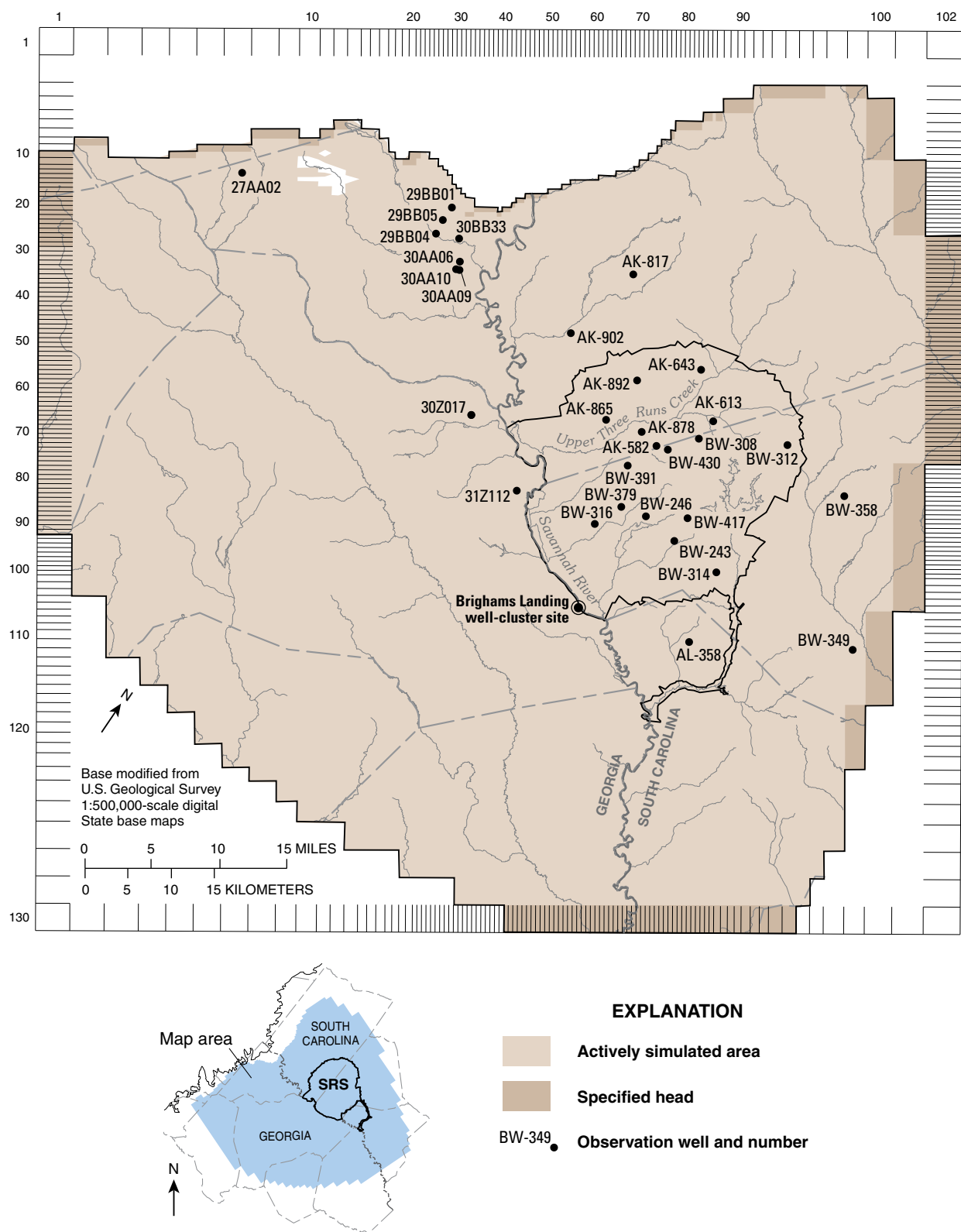


Figure E7. Location of wells used for the 2002 dry simulation for the lower Midville aquifer (layer A7) in the Savannah River Site (SRS) area, South Carolina.