

APPENDIX C

**CRITERIA FOR EXCLUDING CANDIDATE SITES FROM CONSIDERATION AS
REGIONAL MODELING SITES**

Candidate sites for regional modeling were screened in an effort to exclude sites that showed evidence of error in one or more chemical parameter values or that showed evidence of large influence from geologic sources of SO_4^{2-} and/or Cl^- or terrestrial sources of NO_3^- . If the difference between titrated and calculated ANC exceeded 15 $\mu\text{eq/L}$ (low ANC sites) to 20 $\mu\text{eq/L}$ (higher ANC sites) and that difference could not reasonably be attributed to Al (c.f., Sullivan et al. 1989), then we assumed that there was a high probability of an error in one or more of the input parameters (used to calculate ANC: $\text{CALK} = \text{sum of base cations plus } \text{NH}_4^+ \text{ minus sum of mineral acid anions}$) and the site was deleted from consideration. Smaller differences between titrated and calculated ANC were used as the justification for deletion if those differences would result in different bin assignment, but only where there was an adequate number of alternative candidates. This was done to avoid confusion in interpretation in situations where alternative bin assignments were possible.

Sites that had Cl concentrations $\geq 100 \mu\text{eq/L}$ were presumed to be contaminated with road salt and were deleted. Four sites had high NO_3^- concentration ($> 100 \mu\text{eq/L}$) and were presumed impacted by land use or insect defoliation; two of those also had high Cl. Several sites showed evidence of geological sulfur (acid mine drainage), with streamwater SO_4^{2-} concentrations $> 400 \mu\text{eq/L}$.

Table C-1. Deleted candidate sites for regional MAGIC modeling.		
Site	Criteria for Deletion ^a	Data Used as Basis for Deletion
BJ51	1,3	CALK = -28; ANC = 125; CI = 783
BJ15	1,3	CALK = -37; ANC = 55; CI = 726
BJ55	1,3	CALK = -13; ANC = 18; CI = 344
BJ34	1,3	CALK = 6; ANC = 64; CI = 428
BJ27	1	CALK = 36; ANC = 14
BJ17	1	CALK = 35; ANC = 13
BJ02	1	CALK = 24; ANC = 4
BJ70	1	CALK = 30; ANC = 12
VT45	2	CALK = 51; ANC = 39
VT77	2	CALK = 51; ANC = 44
VT04	2	CALK = 52; ANC = 34
BJ06	1	CALK = 127; ANC = 178
BJ47	1	CALK = 100; ANC = 74
BJ31	1	CALK = 120; ANC = 87
BJ20	1	CALK = 84; ANC = 52
BJ37	1	CALK = 67; ANC = 37
BJ04	1	CALK = 114; ANC = 88
BJ52	1	CALK = 60; ANC = 32
BJ57	2	CALK = 51; ANC = 36
BJ80	1	CALK = 137; ANC = 92
2A068048U	2	CALK = 53; ANC = 43
2A07825U	2	CALK = 51; ANC = 41
WV754S	1	CALK = 34; ANC = 82
2B041032U	1	CALK = 71; ANC = 39
2B047032U	1,3	CALK = 69; ANC = 102; CI = 1323
FN2	1	CALK = -5; ANC = 18
WV529S	1,3,4	CALK = -1115; ANC = -326; SO ₄ = 3767; CI = 128
WV794S	1,4	CALK = -436; ANC = -194; SO ₄ = 1370
WV797S	1,4	CALK = -3579; ANC = -1460; SO ₄ = 5719
2C041040U	1	CALK = 39; ANC = 64
2C088003U	3,6	CI = 202; NO ₃ = 202
2C46050	3	CI = 279
2B088020L	3	CI = 130
2C040006U	3	CI = 103
2C046018U	1	CALK = 57; ANC = 81
2C046050L	1,3	CALK = 54; ANC = 87; CI = 279
2C047007U	1	CALK = 67; ANC = 120
2C088003L	3	CI = 100

Table C-1. Continued		
Site	Criteria for Deletion ^a	Data Used as Basis for Deletion
2C088004L	3	CI = 128
SP41	5	pH = 4.7; CALK = 102
2C46041	3	CI = 207
BJ13	3	CI = 182
BJ22	3	CI = 178
VA532S	3,4,6	CI = 183; NO ₃ = 1373
WV545S	3	CI = 110
2C046030U	6	NO ₃ = 129
2B088020U	5,6	NO ₃ = 157; pH = 5.6; CALK = 79
WV521S	4	SO ₄ = 3997
2C046046L	4	SO ₄ = 2384
2C046018L	4	SO ₄ = 551
2C046018U	4	SO ₄ = 444
VA789S	4	pH = 6.1; CALK = 114
BJ02	1	CALK=23; ANC=4
BJ04	1	CALK = 114; ANC = 88
BJ06	1	CALK = 127; ANC = 178
BJ15	1,3	CALK = -37; ANC = 55; CI=726
BJ17	1	CALK = 35; ANC = 13
BJ20	1	CALK = 84; ANC = 52
BJ21	1	CALK = 88; ANC = 65
BJ27	1	CALK = 36; ANC = 14
BJ28	1	CALK = 138; ANC = 116
BJ31	1	CALK = 120; ANC = 87
BJ34	1,3	CALK = 6; ANC = 64; CI=428
BJ36	1	CALK = 91; ANC = 68
BJ47	1	CALK = 100; ANC = 74
BJ51	1,3	CALK = -28; ANC = 125, CI=783
BJ55	1,3	CALK = -13; ANC = 18; CI=344
BJ70	1	CALK = 30; ANC = 12
BJ71	1	CALK = 19; ANC = 2
BJ80	1	CALK = 137; ANC = 92
SP10	1	CALK=49; ANC=80

^a Criteria for deletion

- 1 discrepancy between CALK and titrated ANC is too large and cannot be explained by Al
- 2 discrepancy between CALK and titrated ANC would place the stream into two different bins and there are other good candidate streams to choose in place of this stream
- 3 CI is too high and suggests road salt contamination
- 4 geological sulfur, based on streamwater SO₄²⁻ > 400 µeq/L in WV or Va, or > 300 µeq/L elsewhere
- 5 discrepancy between pH and CALC is too large and cannot be explained by Al
- 6 NO₃⁻ is too high to be reasonably attributable to atmospheric deposition