Appendix D

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Regression Equation to estimate Specific Conductance concentrations based on flow at the Arkansas River at Portland, the Arkansas River above Pueblo and the Arkansas River near Avondale

Regression Equation:

$$\ln(SC) = B_0 + B_1 \ln(Q/Qbar) + B_2 (\ln(Q/Qbar))^2 + B_3\sin(2\pi T) + B_4\cos(2\pi T) + E$$

where

ln is natural logarithm function;
SC is instantaneous specific conductance value in microsiemens per centimeter at 25° C;
B_n are model coefficients;
Q is mean-daily streamflow in cubic feet per second (input from values in Ch. 3, Sect. I ;
Qbar is centered, streamflow in cubic feet per second;
sin is sine function;
π is numerical constant approximated by the value 3.142857;
T is time measured in years to two decimal points;
Cos is cosine function;
E is independent random error.

Site name	B_0	B_1	B_2	B_3	B_4	Qbar[1]
AK River at Portland	5.8374	-.4108	-.111	-.0283	.0144	860.06
AK River ab. Pueblo	6.1987	-.0752	-.0229	.1306	.0705	514.91
AK River at Avondale	6.5576	-.2419	.0529	.0529	.1204	950.51

Month	*(T)*
Jan	2010.04
Feb	2010.12
Mar	2010.21
Apr	2010.29
May	2010.37
Jun	2010.46
Jul	2010.54
Aug	2010.62
Sep	2010.71
Oct	2010.79
Nov	2010.87
Dec	2010.96

The spreadsheets used to calculate monthly specific conductance values at each gage can be obtained by contacting Bureau of Reclamation's Eastern Colorado Area Office.

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[1] Qbar is a centering value, the Qbar values in this table are not published in SIR 2004-5024, they were obtained through consultation with author Rodger Ortiz, USGS.