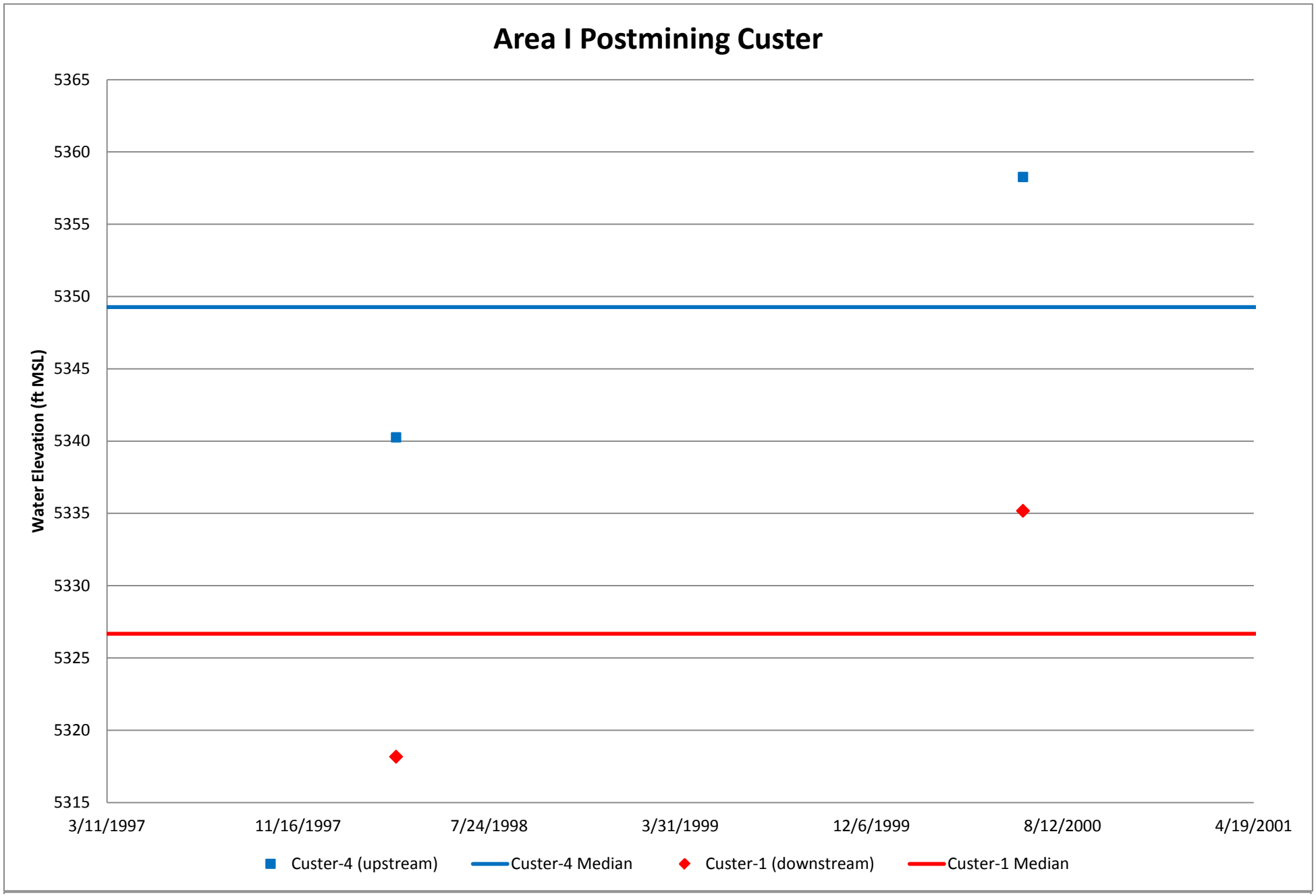
Appendix F: Groundwater Data Summary

Alluvial Water Level Data

Well	n (% Not Dry)	% Not Dry	n (Water Level)	Water Level Range (ft MSL)	Median	MAD	Average	StDev	%RSD	Q3	Q1	95th%	5th%
CUSTER-4	8	25	2	(5358.27-5340.26)	5349.27	9.01	5349.27	12.73	0.24	5353.77	5344.76	5357.37	5341.16
CUSTER-4	8	25	2	(5358.27-5340.26)	5349.27	9.01	5349.27	12.73	0.24	5353.77	5344.76	5357.37	5341.16
BIGHAN-1	21	100	12	(5416.16-5413.51)	5414.08	0.51	5414.37	0.90	0.02	5414.86	5413.69	5415.83	5413.52
BIGHAN-1	21	100	12	(5416.16-5413.51)	5414.08	0.51	5414.37	0.90	0.02	5414.86	5413.69	5415.83	5413.52
CUSTER-1	8	25	2	(5335.18-5318.17)	5326.68	8.51	5326.68	12.03	0.23	5330.93	5322.42	5334.33	5319.02
CUSTER-1	8	25	2	(5335.18-5318.17)	5326.68	8.51	5326.68	12.03	0.23	5330.93	5322.42	5334.33	5319.02
QAC-1	110	100	61	(5192.92-5188.12)	5189.95	0.68	5190.24	1.06	0.02	5191.02	5189.37	5192.18	5188.95
QAC-1	110	100	61	(5192.92-5188.12)	5189.95	0.68	5190.24	1.06	0.02	5191.02	5189.37	5192.18	5188.95
QACW-1	48	54	15	(5280.79-5279.08)	5279.46	0.08	5279.59	0.44	0.01	5279.54	5279.38	5280.43	5279.23
QACW-1	48	54	15	(5280.79-5279.08)	5279.46	0.08	5279.59	0.44	0.01	5279.54	5279.38	5280.43	5279.23
QACW-2	59	66	20	(5192.34-5179.93)	5187.22	0.50	5185.82	3.12	0.06	5187.39	5184.54	5188.04	5180.22
QACW-2	59	66	20	(5192.34-5179.93)	5187.22	0.50	5185.82	3.12	0.06	5187.39	5184.54	5188.04	5180.22
QACW-2B	44	100	36	(5236.64-5230.)	5235.73	0.48	5235.33	1.66	0.03	5236.22	5235.27	5236.60	5230.41
QACW-2B	44	100	36	(5236.64-5230.)	5235.73	0.48	5235.33	1.66	0.03	5236.22	5235.27	5236.60	5230.41
PA-1	27	96	23	(5341.9-5340.7)	5341.20	0.30	5341.23	0.37	0.01	5341.49	5340.90	5341.88	5340.76
PA-1	27	96	23	(5341.9-5340.7)	5341.20	0.30	5341.23	0.37	0.01	5341.49	5340.90	5341.88	5340.76
PA-2	28	100	22	(5426.43-5422.23)	5423.19	0.48	5423.34	1.03	0.02	5423.54	5422.69	5425.82	5422.40
PA-2	28	100	22	(5426.43-5422.23)	5423.19	0.48	5423.34	1.03	0.02	5423.54	5422.69	5425.82	5422.40
NNA-1	26	27	6	(5418.76-5417.93)	5418.40	0.12	5418.38	0.27	0.01	5418.49	5418.32	5418.70	5418.02
NNA-1	26	27	6	(5418.76-5417.93)	5418.40	0.12	5418.38	0.27	0.01	5418.49	5418.32	5418.70	5418.02

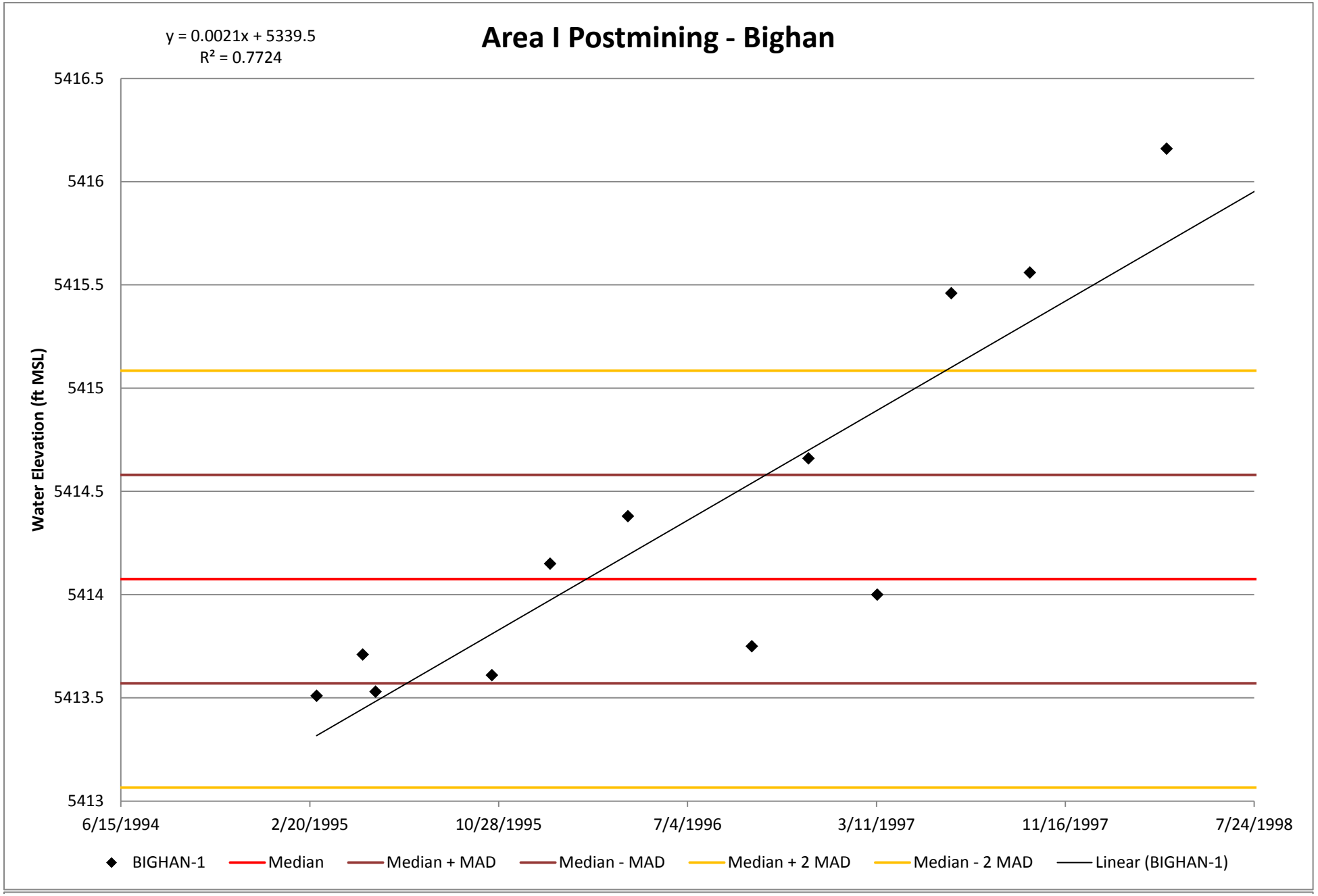
Appendix F: Groundwater Data Summary

Alluvial Water Level Data



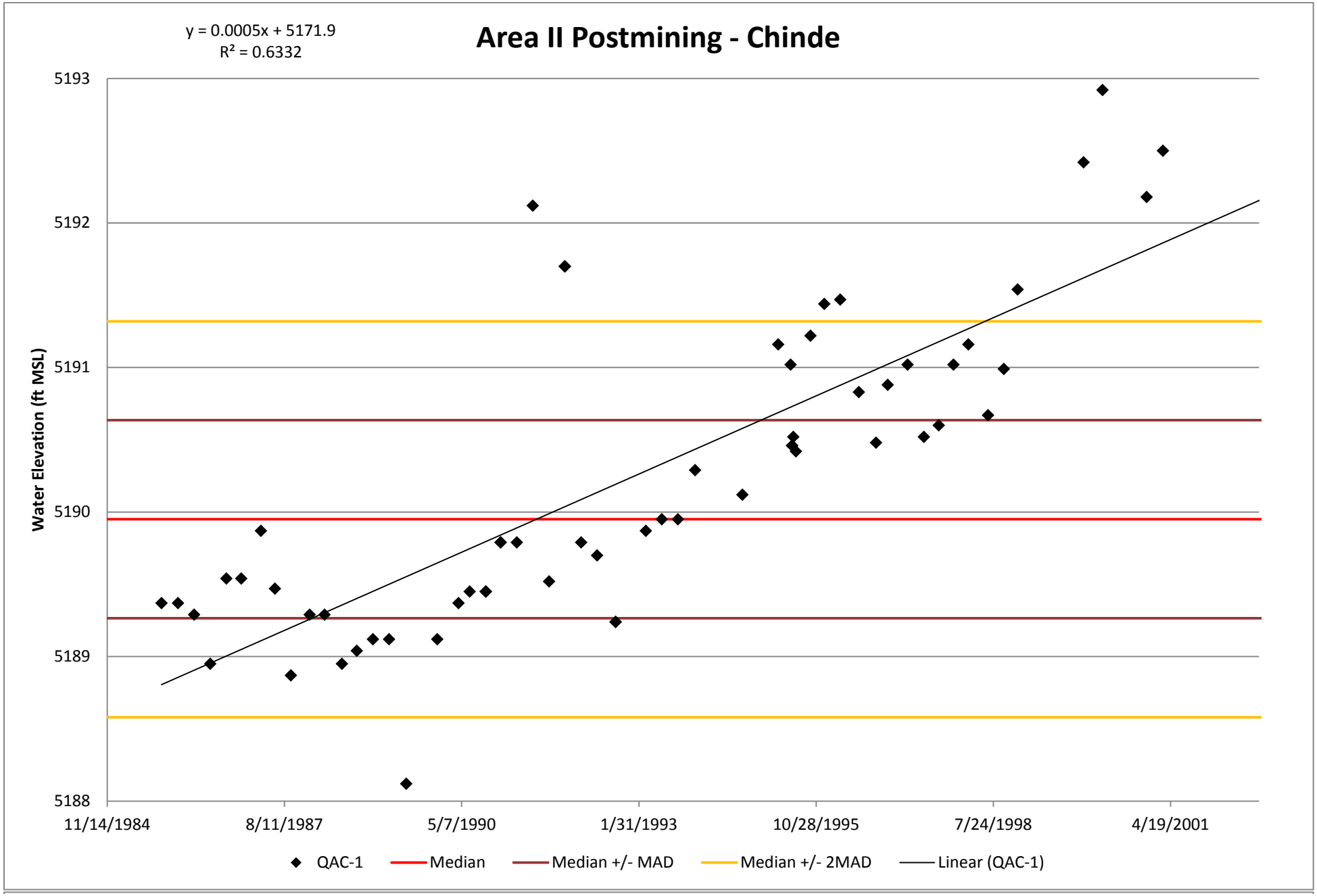
Appendix F: Groundwater Data Summary

Alluvial Water Level Data



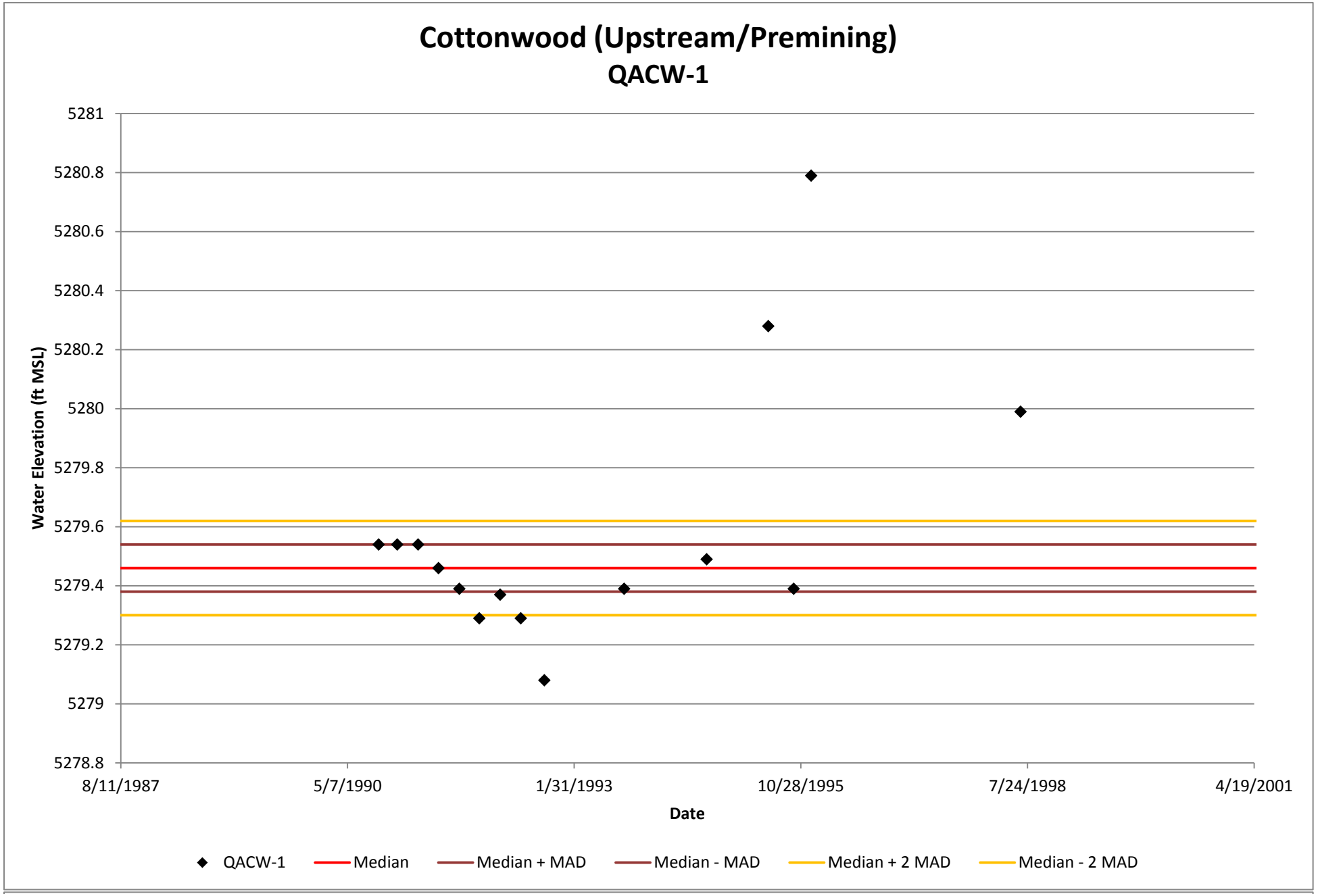
Appendix F: Groundwater Data Summary

Alluvial Water Level Data



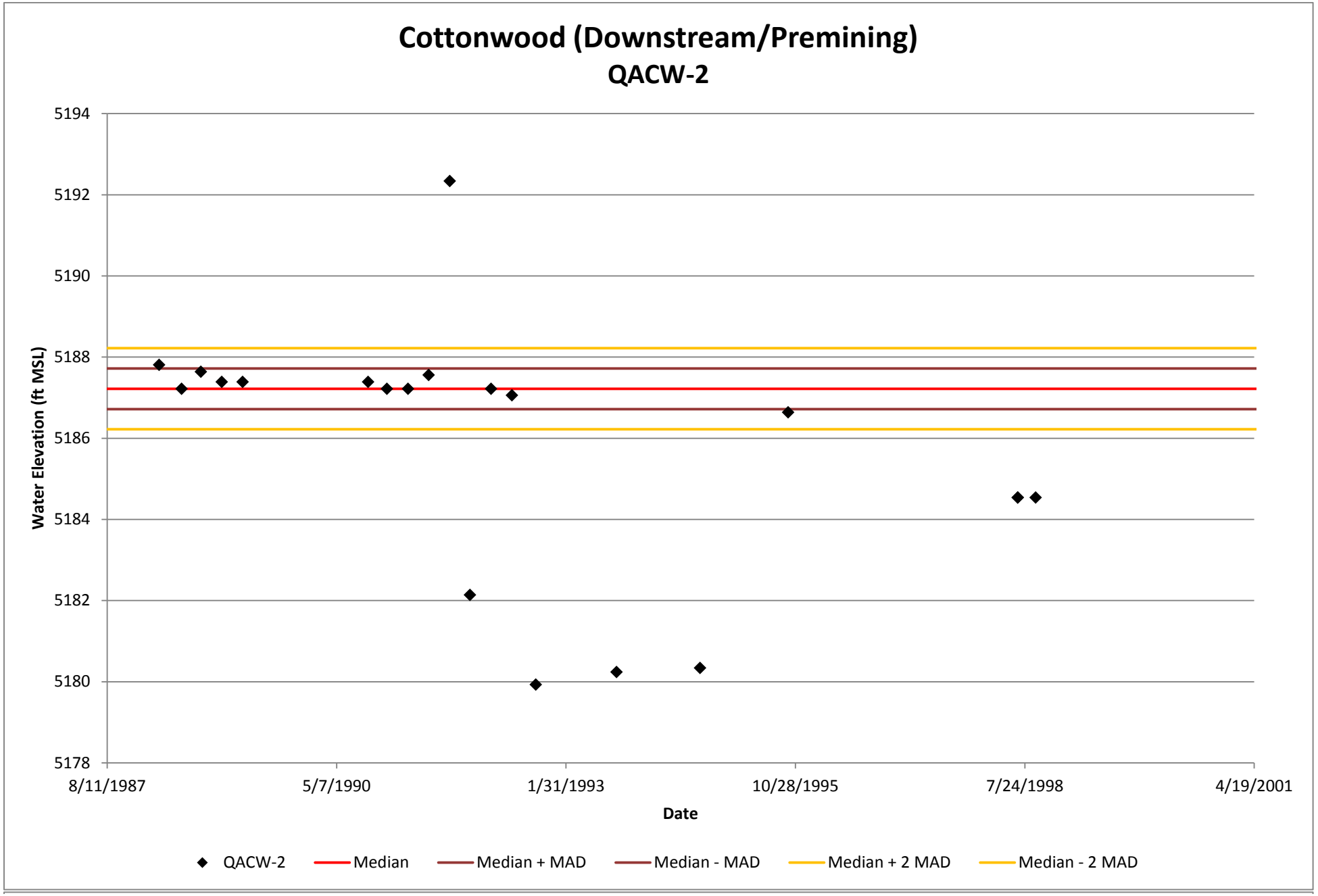
Appendix F: Groundwater Data Summary

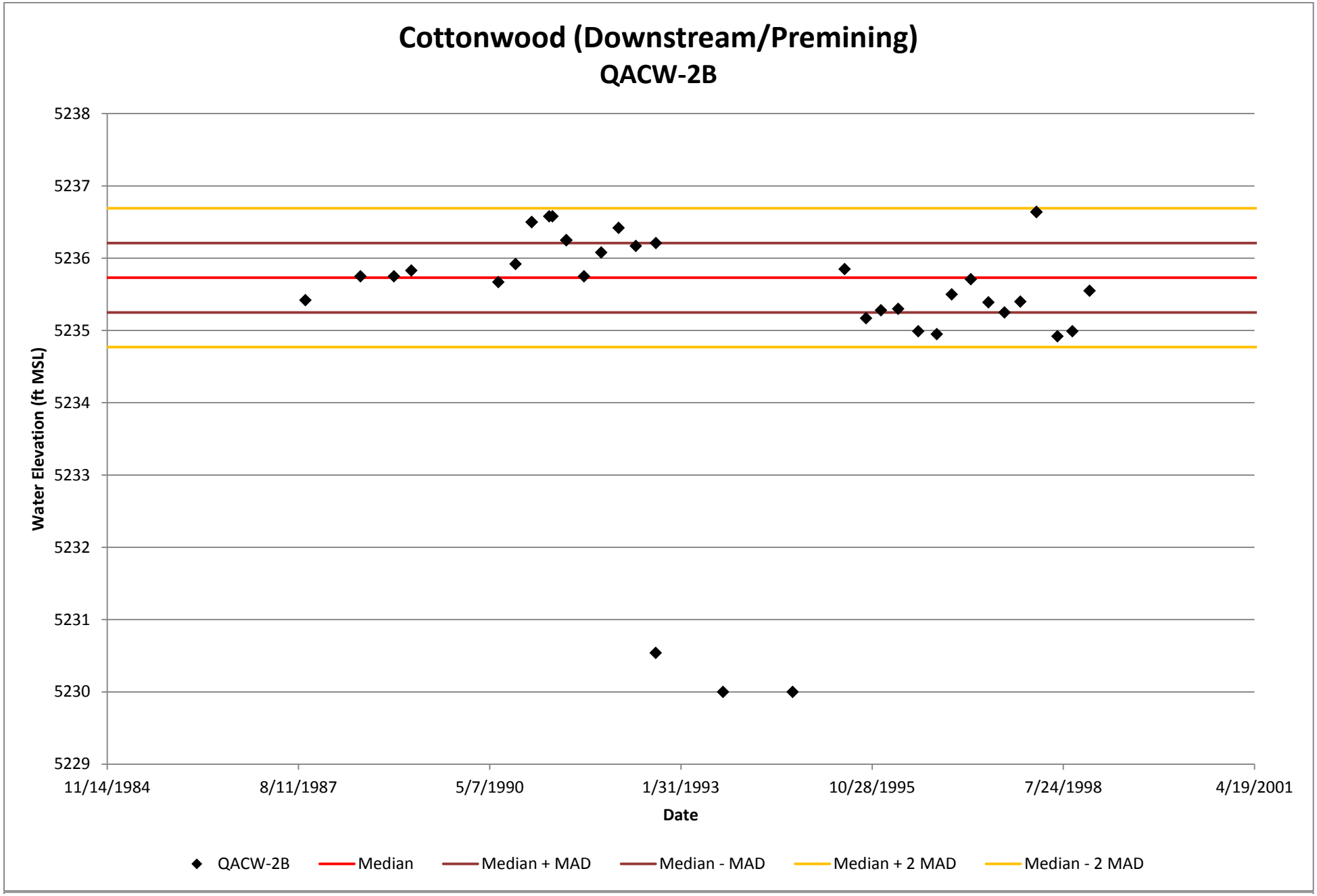
Alluvial Water Level Data



Appendix F: Groundwater Data Summary

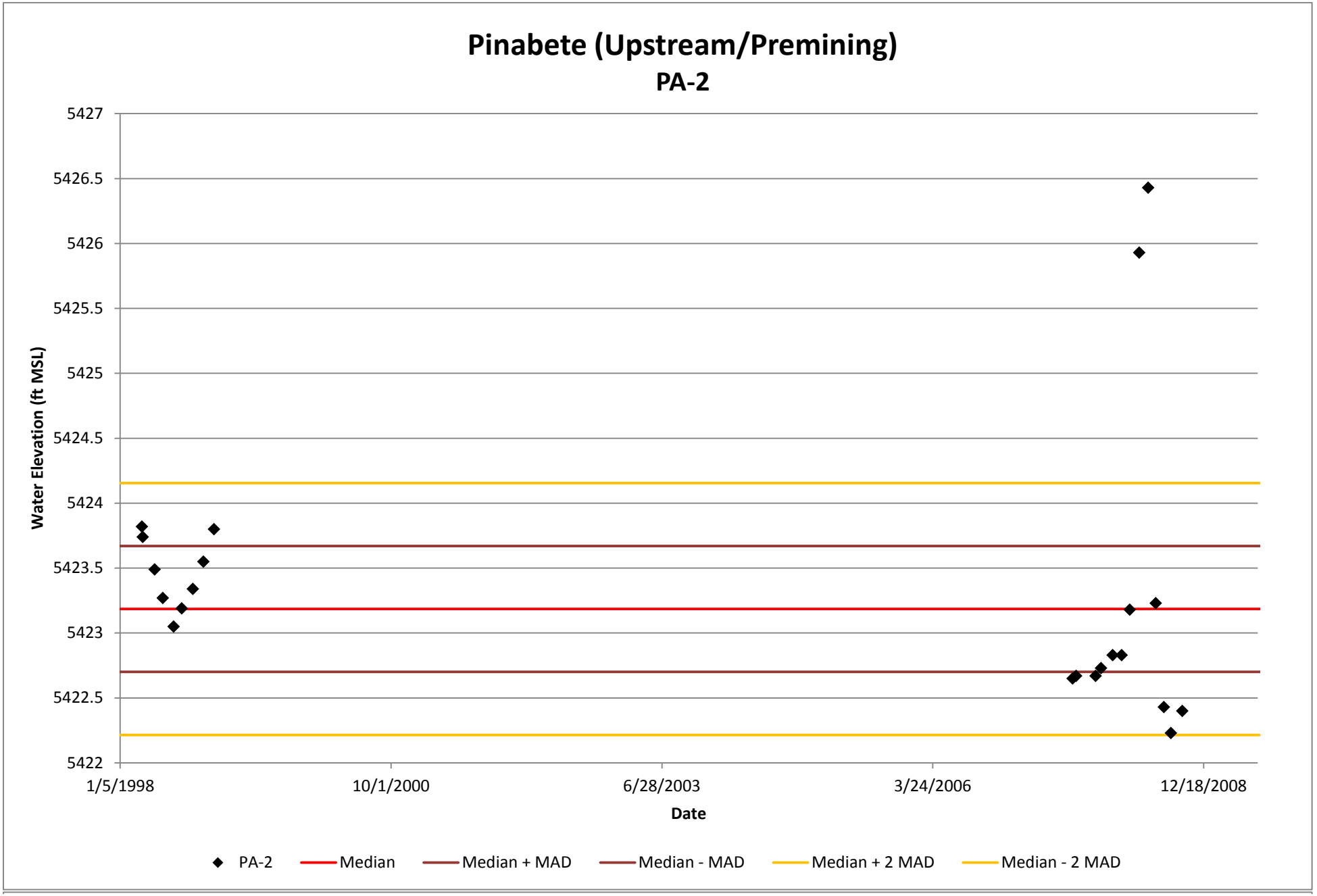
Alluvial Water Level Data




Cottonwood (Downstream/Premining)
QACW-2B
Water Elevation (ft MSL)
5238
5237
5236
5235
5234
5233
5232
5231
5230
5229
11/14/1984
8/11/1987
5/7/1990
1/31/1993
10/28/1995
7/24/1998
4/19/2001
Date
QACW-2B
Median
Median + MAD
Median - MAD
Median + 2 MAD
Median - 2 MAD

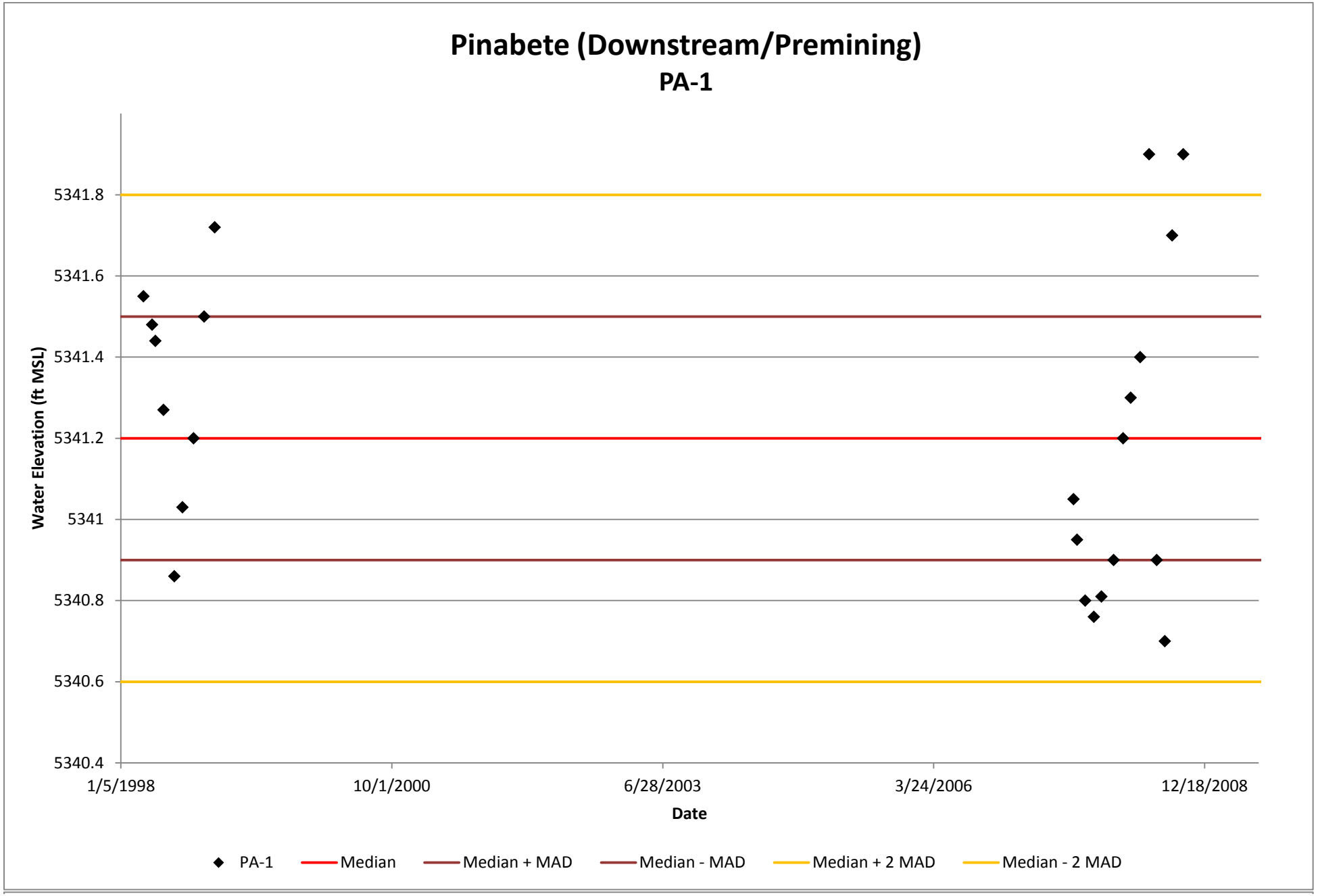
Appendix F: Groundwater Data Summary

Alluvial Water Level Data



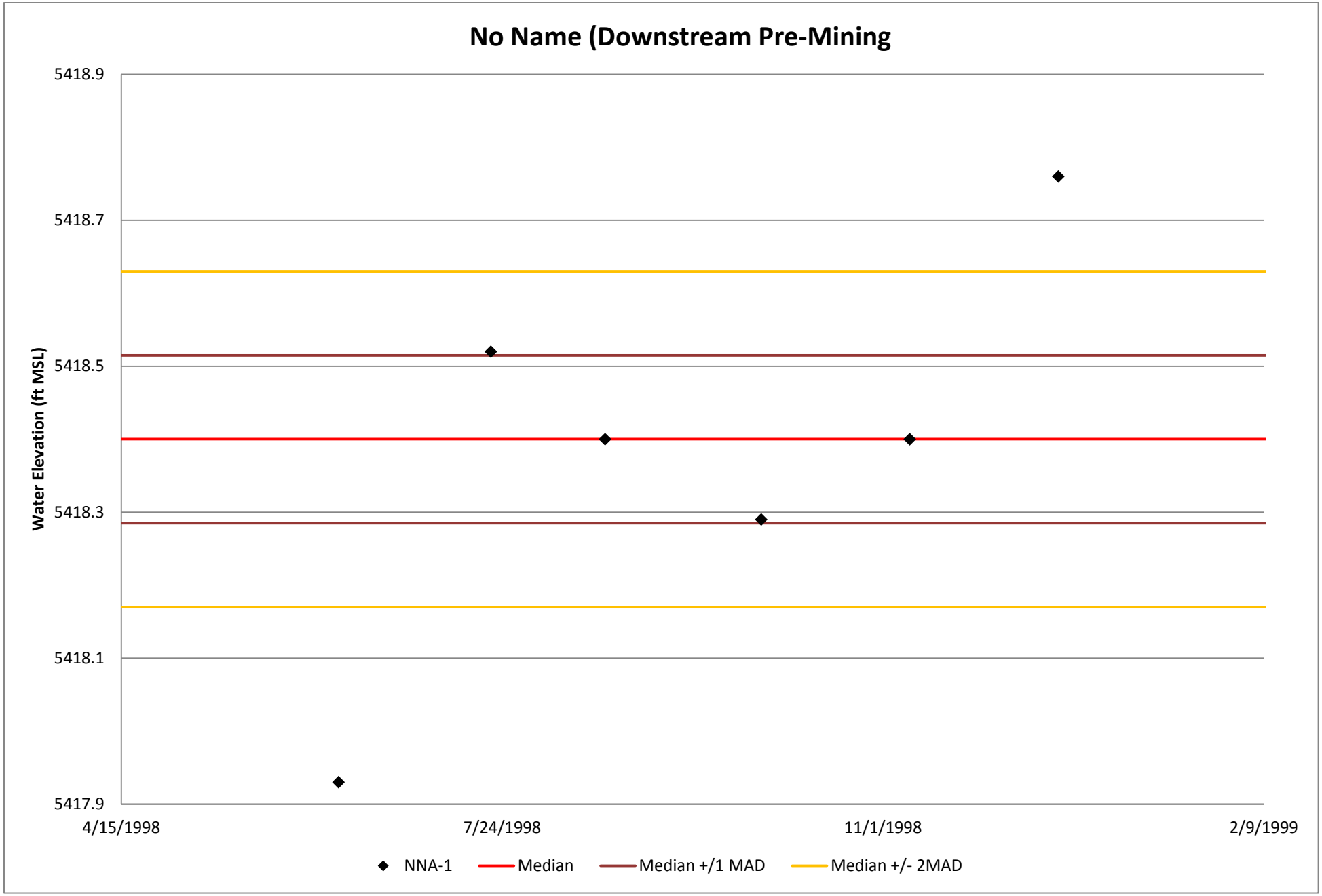
Appendix F: Groundwater Data Summary

Alluvial Water Level Data



Appendix F: Groundwater Data Summary

Alluvial Water Level Data



Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chaco Alluvial Wells (GM-24, GM-25 and GM-34)	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(11/16/1974-03/04/1977)	**18**	(6.5-8.1)	**7.67**	0.1	**7.61**	0.35	**4.59**	7.72	**8.10**	0	**0**
Conductivity (umho/cm)	(11/16/1974-03/04/1977)	**18**	(1350.-24300.)	**4500**	2590	**6687**	7207	**108**	6360	**23875**	0	**0**
Arsenic	(11/16/1974-03/04/1977)	**19**	(0.005-0.4)	**0.01**	0.005	**0.091**	0.136	**149.689**	0.150	**0.400**	4	**21**
Boron	(11/16/1974-03/04/1977)	**19**	(0.05-1.1)	**0.3**	0.1	**0.32**	0.23	**74.27**	0.39	**0.65**	0	**0**
Cadmium	(11/16/1974-03/04/1977)	**19**	(0.0005-0.005)	**0.0005**	0	**0.0026**	0.0023	**87.7211**	0.0050	**0.0050**	0	**0**
Chromium												
Copper	(11/16/1974-03/04/1977)	**19**	(0.002-0.496)	**0.008**	0.006	**0.037**	0.111	**298.734**	0.020	**0.081**	0	**0**
Iron (total)												
Lead	(11/16/1974-03/04/1977)	**19**	(0.0005-0.13)	**0.003**	0.0025	**0.0192**	0.0326	**169.9202**	0.0250	**0.0715**	1	**5**
Manganese	(11/16/1974-03/04/1977)	**19**	(0.055-4.6)	**1.98**	0.74	**1.863**	1.286692	**69.0656**	2.25	**4.06**	0	**0**
Mercury	(11/16/1974-03/04/1977)	**18**	(0.000014-0.013)	**0.000225**	0.000025	**0.00112**	0.00300	**267.85978**	0.00063	**0.00365**	1	**6**
Selenium	(11/16/1974-03/04/1977)	**19**	(0.0005-0.25)	**0.005**	0	**0.037**	0.068	**182.443**	0.025	**0.160**	3	**16**
Zinc	(11/16/1974-03/04/1977)	**19**	(0.012-0.864)	**0.076**	0.054	**0.187**	0.263	**141.028**	0.159	**0.838**	0	**0**
Chloride	(11/16/1974-03/04/1977)	**18**	(5.-920.)	**86.5**	81.05	**267**	305	**114**	503	**835**	2	**11**
Fluoride	(11/16/1974-03/04/1977)	**18**	(0.48-2.1)	**0.86**	0.335	**1.01**	0.43	**42.24**	1.29	**1.59**	1	**6**
Nitrate	(05/19/1976-03/04/1977)	**7**	(0.05-0.51)	**0.2**	0.15	**0.25**	0.20	**78.26**	0.41	**0.51**	0	**0**
Sulfate	(11/16/1974-03/04/1977)	**18**	(384.-24443.)	**1800**	1271	**3549**	5737	**162**	2900	**11274**	12	**67**
TDS - 180°C	(11/16/1974-03/04/1977)	**18**	(1216.-54730.)	**4101.5**	1802.5	**10079**	14692	**146**	6167	**37399**	13	**72**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chaco Alluvial Well GM-24	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(11/16/1974-03/04/1977)	**7**	(8.1-8.1)	**7.6**	0.2	**7.49**	0.51	**6.79**	7.75	**8.01**	0	**0**
Conductivity (umho/cm)	(11/16/1974-03/04/1977)	**7**	(2800.-2800.)	**1670**	110	**1904**	559	**29**	2150	**2740**	0	**0**
Arsenic	(11/16/1974-03/04/1977)	**7**	(0.4-0.4)	**0.01**	0.005	**0.118**	0.157	**133.234**	0.200	**0.355**	2	**29**
Boron	(11/16/1974-03/04/1977)	**7**	(1.1-1.1)	**0.3**	0.2	**0.39**	0.36	**91.51**	0.47	**0.95**	0	**0**
Cadmium	(11/16/1974-03/04/1977)	**7**	(0.005-0.005)	**0.005**	0	**0.0031**	0.0024	**78.3138**	0.0050	**0.0050**	0	**0**
Chromium												
Copper	(11/16/1974-03/04/1977)	**7**	(0.025-0.025)	**0.005**	0.002	**0.011**	0.009	**83.308**	0.018	**0.024**	0	**0**
Iron (total)												
Lead	(11/16/1974-03/04/1977)	**7**	(0.13-0.13)	**0.005**	0.0045	**0.0269**	0.0467	**173.5468**	0.0250	**0.0985**	1	**14**
Manganese	(11/16/1974-03/04/1977)	**7**	(2.4-2.4)	**1.42**	0.58	**1.286**	0.8303	**64.56457**	1.75	**2.28**	0	**0**
Mercury	(11/16/1974-08/06/1976)	**6**	(0.001-0.001)	**0.000225**	0.00003	**0.00038**	0.00032	**84.57580**	0.00037	**0.00085**	0	**0**
Selenium	(11/16/1974-03/04/1977)	**7**	(0.15-0.15)	**0.01**	0.005	**0.032**	0.053	**164.099**	0.025	**0.113**	1	**14**
Zinc	(11/16/1974-03/04/1977)	**7**	(0.864-0.864)	**0.05**	0.026	**0.154**	0.314	**203.615**	0.054	**0.622**	0	**0**
Chloride	(11/16/1974-08/06/1976)	**6**	(820.-820.)	**23**	15.05	**224**	342	**153**	353	**730**	1	**17**
Fluoride	(11/16/1974-08/06/1976)	**6**	(1.1-1.1)	**0.8**	0.03	**0.80**	0.18	**22.65**	0.82	**1.03**	0	**0**
Nitrate	(05/19/1976-08/06/1976)	**2**	(0.51-0.51)	**0.355**	0.155	**0.36**	0.22	**61.75**	0.43	**0.49**	0	**0**
Sulfate	(11/16/1974-08/06/1976)	**6**	(1400.-1400.)	**606**	191.5	**790**	452	**57**	1161	**1375**	2	**33**
TDS - 180°C	(11/16/1974-08/06/1976)	**6**	(3194.-3194.)	**1663.5**	446.5	**1944**	832	**43**	2505	**3073**	1	**17**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chaco Alluvial Well GM-25	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Livestock Criteria Exceedance	
											n	%
pH	(11/16/1974-03/03/1977)	**4**	(7.9-7.9)	**7.675**	0.05	**7.71**	0.13	**1.70**	7.75	**7.87**	0	**0**
Conductivity (umho/cm)	(11/16/1974-03/03/1977)	**4**	(24300.-24300.)	**18915**	5135	**18520**	6445	**35**	23925	**24225**	0	**0**
Arsenic	(11/16/1974-03/03/1977)	**4**	(0.25-0.25)	**0.015**	0.0075	**0.071**	0.119	**167.480**	0.078	**0.216**	1	**25**
Boron	(11/16/1974-03/03/1977)	**4**	(0.4-0.4)	**0.39**	0.01	**0.32**	0.15	**45.93**	0.40	**0.40**	0	**0**
Cadmium	(11/16/1974-03/03/1977)	**4**	(0.005-0.005)	**0.0005**	0	**0.0016**	0.0023	**138.4615**	0.0016	**0.0043**	0	**0**
Chromium											0	**0**
Copper	(11/16/1974-03/03/1977)	**4**	(0.035-0.035)	**0.01**	0.0035	**0.015**	0.014	**90.921**	0.018	**0.032**	0	**0**
Iron (total)											0	**0**
Lead	(11/16/1974-03/03/1977)	**4**	(0.025-0.025)	**0.002**	0.00125	**0.0074**	0.0118	**159.9938**	0.0085	**0.0217**	0	**0**
Manganese	(11/16/1974-03/03/1977)	**4**	(4.-4.)	**2.99**	0.96	**2.99**	1.110015	**37.12425**	3.925	**3.985**	0	**0**
Mercury	(11/16/1974-03/03/1977)	**4**	(0.00025-0.00025)	**0.0002**	0	**0.00021**	0.00003	**11.76471**	0.00021	**0.00024**	0	**0**
Selenium	(11/16/1974-03/03/1977)	**4**	(0.025-0.025)	**0.005**	0.00225	**0.009**	0.011	**123.463**	0.010	**0.022**	0	**0**
Zinc	(11/16/1974-03/03/1977)	**4**	(0.177-0.177)	**0.0835**	0.0205	**0.099**	0.055	**55.844**	0.113	**0.164**	0	**0**
Chloride	(11/16/1974-03/03/1977)	**4**	(920.-920.)	**596.5**	41.35	**658**	179	**27**	680	**872**	1	**25**
Fluoride	(11/16/1974-03/03/1977)	**4**	(0.9-0.9)	**0.68**	0.14	**0.69**	0.18	**26.80**	0.80	**0.88**	0	**0**
Nitrate	(05/19/1976-03/03/1977)	**3**	(0.51-0.51)	**0.3**	0.21	**0.29**	0.23	**80.33**	0.41	**0.49**	0	**0**
Sulfate	(11/16/1974-03/03/1977)	**4**	(24443.-24443.)	**8318.5**	4259.5	**10378**	10100	**97**	12823	**22119**	3	**75**
TDS - 180°C	(11/16/1974-03/03/1977)	**4**	(54730.-54730.)	**32142.5**	9459.5	**33609**	16236	**48**	39438	**51672**	4	**100**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chaco Alluvial Well GM-34	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Livestock Criteria Exceedance	
											n	%
pH	(11/16/1974-03/04/1977)	**7**	(8.1-8.1)	**7.69**	0.04	**7.68**	0.22	**2.86**	7.71	**7.99**	0	**0**
Conductivity (umho/cm)	(11/16/1974-03/04/1977)	**7**	(6880.-6880.)	**4790**	190	**4707**	1222	**26**	4800	**6256**	0	**0**
Arsenic	(11/16/1974-03/04/1977)	**8**	(0.4-0.4)	**0.015**	0.01	**0.078**	0.139	**179.622**	0.056	**0.313**	1	**13**
Boron	(11/16/1974-03/04/1977)	**8**	(0.4-0.4)	**0.28**	0.065	**0.25**	0.11	**44.69**	0.31	**0.38**	0	**0**
Cadmium	(11/16/1974-03/04/1977)	**8**	(0.005-0.005)	**0.00275**	0.00225	**0.0028**	0.0024	**87.4673**	0.0050	**0.0050**	0	**0**
Chromium												
Copper	(11/16/1974-03/04/1977)	**8**	(0.496-0.496)	**0.0115**	0.009	**0.072**	0.172	**239.695**	0.021	**0.331**	0	**0**
Iron (total)												
Lead	(11/16/1974-03/04/1977)	**8**	(0.065-0.065)	**0.00275**	0.00225	**0.0184**	0.0258	**140.6399**	0.0313	**0.0598**	0	**0**
Manganese	(11/16/1974-03/04/1977)	**8**	(4.6-4.6)	**1.67**	0.9	**1.804375**	1.440688	**79.84415**	2.275	**3.97**	0	**0**
Mercury	(11/16/1974-03/04/1977)	**8**	(0.013-0.013)	**0.000475**	0.000275	**0.00213**	0.00444	**207.95377**	0.00103	**0.00915**	1	**13**
Selenium	(11/16/1974-03/04/1977)	**8**	(0.25-0.25)	**0.005**	0	**0.056**	0.093	**165.189**	0.056	**0.215**	2	**25**
Zinc	(11/16/1974-03/04/1977)	**8**	(0.835-0.835)	**0.136**	0.075	**0.260**	0.285	**109.806**	0.290	**0.739**	0	**0**
Chloride	(11/16/1974-03/04/1977)	**8**	(306.-306.)	**67.4**	26.5	**105**	97	**92**	123	**265**	0	**0**
Fluoride	(11/16/1974-03/04/1977)	**8**	(2.1-2.1)	**1.3**	0.115	**1.32**	0.44	**33.10**	1.45	**1.89**	1	**13**
Nitrate	(10/06/1976-03/04/1977)	**2**	(0.14-0.14)	**0.095**	0.045	**0.10**	0.06	**66.99**	0.12	**0.14**	0	**0**
Sulfate	(11/16/1974-03/04/1977)	**8**	(3380.-3380.)	**2329**	529	**2204**	906	**41**	2676	**3251**	7	**88**
TDS - 180°C	(11/16/1974-03/04/1977)	**8**	(6728.-6728.)	**4209.5**	219	**4414**	984	**22**	4386	**5942**	8	**100**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Area I Alluvial Well GM-7	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Criteria**			
											Live-stock		**Cotton-wood Baseline Median + 2MAD**	
											n	**%**	n	**%**
pH	(03/24/1975-10/16/1976)	**4**	(7.1-7.9)	**7.525**	0.35	**7.51**	0.42	**5.60**	7.86	**7.89**	0	**0**	1	**25**
Conductivity (umho/cm)	(03/24/1975-10/16/1976)	**4**	(2630.-4500.)	**3530**	510	**3548**	770	**22**	3863	**4373**	0	**0**	1	**25**
Arsenic	(03/24/1975-10/16/1976)	**4**	(0.005-0.4)	**0.0125**	0.0075	**0.108**	0.195	**181.515**	0.115	**0.343**	1	**25**	4	**100**
Boron	(03/24/1975-10/16/1976)	**4**	(0.05-0.75)	**0.45**	0.175	**0.43**	0.29	**68.26**	0.56	**0.71**	0	**0**	3	**75**
Cadmium	(03/24/1975-10/16/1976)	**4**	(0.0005-0.005)	**0.00275**	0.00225	**0.0028**	0.0026	**94.4755**	0.0050	**0.0050**	0	**0**	0	**0**
Chromium											0	**0**	0	**0**
Copper	(03/24/1975-10/16/1976)	**4**	(0.008-0.025)	**0.014**	0.006	**0.015**	0.009	**56.504**	0.021	**0.024**	0	**0**	0	**0**
Iron (total)											0	**0**	0	**0**
Lead	(03/24/1975-10/16/1976)	**4**	(0.0005-0.025)	**0.00275**	0.00225	**0.0078**	0.0117	**150.8905**	0.0100	**0.0220**	0	**0**	1	**25**
Manganese	(03/24/1975-10/16/1976)	**4**	(0.012-0.047)	**0.0195**	0.0065	**0.0245**	0.016052	**65.51836**	0.0305	**0.0437**	0	**0**	0	**0**
Mercury	(03/24/1975-10/16/1976)	**4**	(0.0002-0.001)	**0.00022**	0.00002	**0.00041**	0.00039	**96.04513**	0.00043	**0.00089**	0	**0**	0	**0**
Selenium	(03/24/1975-10/16/1976)	**4**	(0.005-0.25)	**0.005**	0	**0.066**	0.123	**184.906**	0.066	**0.213**	1	**25**	1	**25**
Zinc	(03/24/1975-10/16/1976)	**4**	(0.075-0.12)	**0.0945**	0.017	**0.096**	0.022	**22.838**	0.112	**0.118**	0	**0**	0	**0**
Chloride	(03/24/1975-10/16/1976)	**4**	(180.-650.)	**204**	14	**310**	227	**73**	319	**584**	1	**25**	4	**100**
Fluoride	(03/24/1975-10/16/1976)	**4**	(4.62-6.)	**5.63**	0.37	**5.47**	0.67	**12.17**	6.00	**6.00**	4	**100**	4	**100**
Nitrate	(03/24/1975-10/16/1976)	**3**	(0.5-1.62)	**0.79**	0.29	**0.97**	0.58	**59.93**	1.21	**1.54**	0	**0**	1	**33**
Sulfate	(03/24/1975-10/16/1976)	**4**	(730.-1706.)	**1290**	253	**1254**	407	**32**	1462	**1657**	3	**75**	0	**0**
TDS - 180°C	(03/24/1975-10/16/1976)	**4**	(2583.-3027.)	**2700.5**	65	**2753**	191	**7**	2792	**2980**	1	**25**	0	**0**
Radium (pCi/l)														

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Area I Alluvial Well Bighan-1	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Criteria**			
											Live-stock		**Cotton-wood Baseline Median + 2MAD**	
											n	**%**	n	**%**
pH	(03/01/1995-08/07/2001)	**21**	(7.6-8.17)	**7.95**	0.05	**7.92**	0.15	**1.84**	8.00	**8.10**	0	**0**	0	**0**
Conductivity (umho/cm)	(03/01/1995-08/07/2001)	**20**	(1460.-2260.)	**1760**	65	**1810**	198	**11**	1905	**2232**	0	**0**	0	**0**
Arsenic	(03/01/1995-08/07/2001)	**19**	(0.0005-0.019)	**0.0025**	0	**0.004**	0.004	**109.574**	0.003	**0.006**	0	**0**	18	**95**
Boron	(03/01/1995-08/07/2001)	**20**	(0.99-1.67)	**1.4**	0.205	**1.39**	0.20	**14.42**	1.57	**1.63**	0	**0**	20	**100**
Cadmium	(03/01/1995-08/07/2001)	**20**	(0.0005-0.0025)	**0.001**	0.0005	**0.0010**	0.0006	**62.8281**	0.0010	**0.0025**	0	**0**	0	**0**
Chromium	(03/01/1995-08/07/2001)	**19**	(0.0025-0.03)	**0.005**	0.0025	**0.008289**	0.005896	**71.12221**	0.01	**0.012**	0	**0**	1	**5**
Copper	(03/01/1995-08/07/2001)	**19**	(0.0025-0.005)	**0.005**	0	**0.005**	0.001	**16.641**	0.005	**0.005**	0	**0**	0	**0**
Iron (total)	(03/01/1995-08/07/2001)	**20**	(0.05-58.)	**1.7**	0.975	**6.4595**	13.30538	**205.9816**	4.77	**25.51**	0	**0**	10	**50**
Lead	(03/01/1995-08/07/2001)	**20**	(0.002-0.005)	**0.0025**	0	**0.0026**	0.0006	**22.1473**	0.0025	**0.0026**	0	**0**	0	**0**
Manganese	(03/01/1995-08/07/2001)	**20**	(0.0025-0.15)	**0.01**	0.00625	**0.02515**	0.032966	**131.0765**	0.0265	**0.0645**	0	**0**	0	**0**
Mercury	(03/01/1995-08/07/2001)	**19**	(0.00005-0.0005)	**0.0005**	0	**0.00045**	0.00014	**31.34686**	0.00050	**0.00050**	0	**0**	0	**0**
Selenium	(03/01/1995-08/07/2001)	**20**	(0.01-0.026)	**0.016**	0.003	**0.017**	0.004	**26.237**	0.020	**0.026**	0	**0**	20	**100**
Zinc	(03/01/1995-08/07/2001)	**19**	(0.0025-0.05)	**0.01**	0.005	**0.014**	0.011	**74.977**	0.020	**0.027**	0	**0**	0	**0**
Chloride	(03/01/1995-08/07/2001)	**20**	(12.-59.)	**29**	9	**30**	12	**42**	36	**50**	0	**0**	0	**0**
Fluoride	(03/01/1995-08/07/2001)	**20**	(4.81-21.)	**9.045**	0.785	**10.06**	3.71	**36.86**	10.13	**19.10**	20	**100**	20	**100**
Nitrate	(03/01/1995-03/12/1997)	**11**	(23.3-30.2)	**28.5**	0.7	**28.45**	1.90	**6.69**	29.70	**30.10**	11	**100**	11	**100**
Sulfate	(03/01/1995-08/07/2001)	**20**	(260.-428.)	**328**	26.5	**334**	50	**15**	347	**424**	0	**0**	0	**0**
TDS - 180°C	(03/01/1995-08/07/2001)	**13**	(1020.-1360.)	**1250**	70	**1232**	100	**8**	1310	**1360**	0	**0**	0	**0**
Radium (pCi/l)	(01/04/1996-03/30/1998)	**9**	(0.7-3.6)	**1.8**	0.2	**1.81**	0.83	**46**	1.9	**3.04**	0	**0**	1	**11**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chinde Alluvial Wells (GM-9, GM-10, QAC-1)	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Criteria**			
											Live-stock		**Cotton-wood Baseline Median + 2MAD**	
											n	**%**	n	**%**
pH	(03/23/1975-09/24/2008)	**106**	(6.45-8.19)	**7.295**	0.195	**7.37**	0.30	**4.08**	7.58	**7.88**	1	**1**	25	**24**
Conductivity (umho/cm)	(03/23/1975-09/24/2008)	**106**	(1280.-26700.)	**18050**	4050	**16998**	6010	**35**	21500	**25075**	0	**0**	100	**94**
Arsenic	(03/23/1975-09/09/2002)	**69**	(0.00005-0.4)	**0.0005**	0.0003	**0.009**	0.048	**553.434**	0.003	**0.013**	1	**1**	30	**43**
Boron	(03/23/1975-09/09/2002)	**89**	(0.05-2.92)	**1.42**	0.12	**1.30**	0.41	**31.49**	1.50	**1.60**	0	**0**	87	**98**
Cadmium	(03/23/1975-09/09/2002)	**90**	(0.00005-0.12)	**0.0025**	0.002	**0.0059**	0.0141	**238.4930**	0.0045	**0.0250**	1	**1**	14	**16**
Chromium	(09/10/1979-09/09/2002)	**41**	(0.002-0.13)	**0.02**	0.01	**0.022634**	0.024737	**109.2912**	0.03	**0.06**	0	**0**	21	**51**
Copper	(03/23/1975-09/09/2002)	**37**	(0.002-0.28)	**0.02**	0.015	**0.038**	0.062	**163.496**	0.025	**0.190**	0	**0**	7	**19**
Iron (total)	(09/10/1979-09/09/2002)	**54**	(0.01-70.)	**2.855**	1.62	**6.416111**	12.28497	**191.4706**	6.275	**24.065**	0	**0**	40	**74**
Lead	(03/23/1975-09/09/2002)	**66**	(0.0005-0.43)	**0.009**	0.0065	**0.0325**	0.0784	**241.6349**	0.0195	**0.2325**	5	**8**	34	**52**
Manganese	(03/23/1975-09/09/2002)	**90**	(0.019-11.9)	**4.695**	0.675	**4.2198**	2.359095	**55.90539**	5.33	**6.8**	0	**0**	79	**88**
Mercury	(03/23/1975-03/06/2002)	**35**	(0.0000005-0.001)	**0.0001**	0.00007	**0.00020**	0.00023	**114.31215**	0.00021	**0.00050**	0	**0**	0	**0**
Selenium	(03/23/1975-09/24/2008)	**114**	(0.000005-0.5)	**0.002**	0.0015	**0.022**	0.065	**291.804**	0.005	**0.100**	8	**7**	28	**25**
Zinc	(03/23/1975-03/06/2002)	**67**	(0.0025-5.3)	**0.05**	0.0475	**0.394**	0.935	**237.204**	0.246	**2.294**	0	**0**	6	**9**
Chloride	(03/23/1975-09/24/2008)	**113**	(200.-5400.)	**3730**	820	**3467**	1418	**41**	4640	**5100**	104	**92**	113	**100**
Fluoride	(03/23/1975-09/09/2002)	**90**	(0.005-7.5)	**0.84**	0.135	**1.33**	1.35	**101.85**	1.02	**4.60**	10	**11**	10	**11**
Nitrate	(03/23/1975-12/05/1996)	**33**	(0.06-36.4)	**0.37**	0.27	**1.70**	6.26	**367.51**	0.73	**2.10**	1	**3**	6	**18**
Sulfate	(03/23/1975-03/23/2006)	**103**	(440.-6565.)	**4300**	500	**4169**	1018	**24**	4825	**5390**	101	**98**	98	**95**
TDS - 180°C	(03/23/1975-09/24/2008)	**112**	(830.-17200.)	**12700**	1250	**12281**	3129	**25**	14300	**15700**	110	**98**	109	**97**
Radium (pCi/l)	(09/16/1985-12/15/1999)	**28**	(0.2-22.3)	**1.8**	1.85	**4.87**	5.77	**118**	4.375	**19.145**	0	**0**	14	**50**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chinde Alluvial Wells GM-9	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Live-stock		Cotton-wood Baseline Median + 2MAD	
											n	%	n	%
pH														
Conductivity (umho/cm)														
Arsenic	(09/10/1979-09/23/1980)	**3**	(0.0005-0.0008)	**0.0008**	0	**0.001**	0.000	**24.744**	0.001	**0.001**	0	**0**	2	**67**
Boron	(09/10/1979-09/23/1980)	**3**	(0.11-0.51)	**0.3**	0.19	**0.31**	0.20	**65.24**	0.41	**0.49**	0	**0**	2	**67**
Cadmium	(09/10/1979-09/23/1980)	**3**	(0.0005-0.005)	**0.005**	0	**0.0035**	0.0026	**74.2307**	0.0050	**0.0050**	0	**0**	0	**0**
Chromium	(09/10/1979-09/23/1980)	**3**	(0.004-0.04)	**0.03**	0.01	**0.024667**	0.018583	**75.33708**	0.035	**0.039**	0	**0**	2	**67**
Copper	(09/10/1979-09/23/1980)	**3**	(0.005-0.12)	**0.02**	0.015	**0.048**	0.063	**129.345**	0.070	**0.110**	0	**0**	1	**33**
Iron (total)	(09/10/1979-09/23/1980)	**3**	(0.01-0.06)	**0.06**	0	**0.043333**	0.028868	**66.61734**	0.06	**0.06**	0	**0**	0	**0**
Lead	(09/10/1979-09/23/1980)	**3**	(0.014-0.43)	**0.03**	0.016	**0.1580**	0.2357	**149.1739**	0.2300	**0.3900**	1	**33**	3	**100**
Manganese	(09/10/1979-09/23/1980)	**3**	(0.06-1.02)	**0.19**	0.13	**0.423333**	0.520801	**123.0238**	0.605	**0.937**	0	**0**	1	**33**
Mercury	(09/10/1979-09/23/1980)	**3**	(0.00004-0.00019)	**0.0001**	0.00006	**0.00011**	0.00008	**68.63486**	0.00015	**0.00018**	0	**0**	0	**0**
Selenium	(09/10/1979-09/23/1980)	**3**	(0.0006-0.002)	**0.0016**	0.0004	**0.001**	0.001	**51.508**	0.002	**0.002**	0	**0**	0	**0**
Zinc	(09/10/1979-09/23/1980)	**3**	(0.03-3.)	**0.13**	0.1	**1.053**	1.687	**160.121**	1.565	**2.713**	0	**0**	1	**33**
Chloride	(09/10/1979-09/23/1980)	**3**	(211.-227.)	**218**	7	**219**	8	**4**	223	**226**	0	**0**	3	**100**
Fluoride	(09/10/1979-09/23/1980)	**3**	(1.38-1.8)	**1.6**	0.2	**1.59**	0.21	**13.18**	1.70	**1.78**	0	**0**	0	**0**
Nitrate	(09/10/1979-09/23/1980)	**3**	(0.59-1.9)	**1.5**	0.4	**1.33**	0.67	**50.48**	1.70	**1.86**	0	**0**	2	**67**
Sulfate	(09/10/1979-09/23/1980)	**3**	(440.-6565.)	**5440**	1125	**4148**	3260	**79**	6003	**6453**	2	**67**	2	**67**
TDS - 180°C	(09/10/1979-09/23/1980)	**3**	(830.-10060.)	**9235**	825	**6708**	5107	**76**	9648	**9978**	2	**67**	2	**67**
Radium (pCi/l)														

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chinde Alluvial Wells GM-10	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Criteria**			
											Live-stock		**Cotton-wood Baseline Median + 2MAD**	
											n	**%**	n	**%**
pH	(03/23/1975-09/29/1982)	**10**	(6.45-7.5)	**6.95**	0.15	**6.98**	0.28	**4.02**	7.10	**7.37**	1	**10**	8	**80**
Conductivity (umho/cm)	(03/23/1975-09/29/1982)	**10**	(3600.-18600.)	**4650**	665	**6437**	4521	**70**	6850	**13830**	0	**0**	6	**60**
Arsenic	(03/23/1975-09/29/1982)	**15**	(0.00005-0.4)	**0.0002**	0.00015	**0.030**	0.103	**347.986**	0.003	**0.141**	1	**7**	5	**33**
Boron	(03/23/1975-09/29/1982)	**14**	(0.05-1.33)	**0.73**	0.145	**0.73**	0.33	**45.72**	0.84	**1.31**	0	**0**	13	**93**
Cadmium	(03/23/1975-09/29/1982)	**15**	(0.00005-0.01)	**0.001**	0.00095	**0.0028**	0.0034	**120.6141**	0.0050	**0.0100**	0	**0**	2	**13**
Chromium	(09/10/1979-09/29/1982)	**11**	(0.005-0.13)	**0.03**	0.01	**0.038182**	0.034516	**90.3994**	0.04	**0.095**	0	**0**	9	**82**
Copper	(03/23/1975-09/29/1982)	**15**	(0.002-0.187)	**0.01**	0.008	**0.031**	0.051	**165.875**	0.025	**0.133**	0	**0**	2	**13**
Iron (total)	(09/10/1979-09/29/1982)	**10**	(0.05-70.)	**7.87**	7.17	**15.398**	22.22039	**144.307**	15.575	**55.15**	0	**0**	6	**60**
Lead	(03/23/1975-09/29/1982)	**15**	(0.0005-0.27)	**0.005**	0.004	**0.0321**	0.0722	**225.1755**	0.0100	**0.1650**	2	**13**	7	**47**
Manganese	(03/23/1975-09/29/1982)	**15**	(0.08-0.92)	**0.47**	0.267	**0.4742**	0.282505	**59.575**	0.7	**0.885**	0	**0**	8	**53**
Mercury	(03/23/1975-09/29/1982)	**15**	(0.0000005-0.001)	**0.00011**	0.00009	**0.00016**	0.00025	**155.37990**	0.00018	**0.00045**	0	**0**	0	**0**
Selenium	(03/23/1975-09/29/1982)	**15**	(0.000005-0.25)	**0.0005**	0.00045	**0.031**	0.079	**253.382**	0.005	**0.215**	2	**13**	2	**13**
Zinc	(03/23/1975-09/29/1982)	**15**	(0.22-5.3)	**0.56**	0.21	**1.212**	1.529	**126.122**	1.005	**4.432**	0	**0**	4	**27**
Chloride	(03/23/1975-09/29/1982)	**15**	(200.-4190.)	**660**	280	**1076**	1069	**99**	1280	**2797**	9	**60**	15	**100**
Fluoride	(03/23/1975-09/29/1982)	**15**	(0.6-5.8)	**0.72**	0.08	**1.10**	1.31	**118.25**	0.87	**2.51**	1	**7**	1	**7**
Nitrate	(03/23/1975-09/29/1982)	**15**	(0.1-2.)	**0.45**	0.25	**0.66**	0.61	**92.55**	0.89	**1.82**	0	**0**	2	**13**
Sulfate	(03/23/1975-09/29/1982)	**15**	(1340.-4090.)	**2915**	285	**2819**	775	**27**	3190	**3845**	15	**100**	12	**80**
TDS - 180°C	(03/23/1975-09/29/1982)	**15**	(2903.-13200.)	**6075**	1065	**6401**	2572	**40**	7295	**10351**	14	**93**	13	**87**
Radium (pCi/l)														

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Chinde Alluvial Wells QAC-1	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Criteria**			
											Live-stock		**Cotton-wood Baseline Median + 2MAD**	
											n	**%**	n	**%**
pH	(09/16/1985-09/24/2008)	**96**	(6.885-8.19)	**7.325**	0.175	**7.41**	0.27	**3.69**	7.59	**7.88**	0	**0**	17	**18**
Conductivity (umho/cm)	(09/16/1985-09/24/2008)	**96**	(1280.-26700.)	**18450**	4450	**18098**	5003	**28**	21825	**25100**	0	**0**	94	**98**
Arsenic	(09/16/1985-09/09/2002)	**51**	(0.0005-0.05)	**0.0005**	0	**0.003**	0.007	**236.973**	0.003	**0.011**	0	**0**	23	**45**
Boron	(09/16/1985-09/09/2002)	**72**	(0.74-2.92)	**1.455**	0.07	**1.45**	0.24	**16.38**	1.53	**1.62**	0	**0**	72	**100**
Cadmium	(09/16/1985-09/09/2002)	**72**	(0.0005-0.12)	**0.0025**	0.0015	**0.0067**	0.0156	**234.7339**	0.0030	**0.0250**	1	**1**	12	**17**
Chromium	(09/16/1985-09/09/2002)	**27**	(0.002-0.09)	**0.01**	0.005	**0.016074**	0.017584	**109.3951**	0.025	**0.0299**	0	**0**	10	**37**
Copper	(12/11/1997-09/09/2002)	**19**	(0.0025-0.28)	**0.025**	0.02	**0.042**	0.072	**170.750**	0.025	**0.208**	0	**0**	4	**21**
Iron (total)	(12/17/1992-09/09/2002)	**41**	(0.29-51.7)	**3.11**	1.29	**4.691707**	7.912922	**168.6576**	4.43	**8.9**	0	**0**	34	**83**
Lead	(09/16/1985-09/09/2002)	**48**	(0.0005-0.32)	**0.008**	0.0055	**0.0247**	0.0594	**239.9986**	0.0185	**0.0700**	2	**4**	24	**50**
Manganese	(09/16/1985-09/09/2002)	**72**	(0.019-11.9)	**5.05**	0.55	**5.158319**	1.576917	**30.57037**	5.5625	**6.935**	0	**0**	70	**97**
Mercury	(12/11/1997-03/06/2002)	**17**	(0.00005-0.0005)	**0.0001**	0.00005	**0.00025**	0.00022	**89.50370**	0.00050	**0.00050**	0	**0**	0	**0**
Selenium	(09/16/1985-09/24/2008)	**96**	(0.0005-0.5)	**0.0025**	0.002	**0.021**	0.064	**296.536**	0.014	**0.100**	6	**6**	26	**27**
Zinc	(09/16/1985-03/06/2002)	**49**	(0.0025-2.)	**0.025**	0.0125	**0.104**	0.284	**274.178**	0.125	**0.241**	0	**0**	1	**2**
Chloride	(09/16/1985-09/24/2008)	**95**	(1200.-5400.)	**3910**	750	**3947**	862	**22**	4725	**5100**	95	**100**	95	**100**
Fluoride	(09/16/1985-09/09/2002)	**72**	(0.005-7.5)	**0.85**	0.12	**1.36**	1.39	**102.16**	1.01	**4.60**	9	**13**	9	**13**
Nitrate	(12/13/1990-12/05/1996)	**15**	(0.06-36.4)	**0.23**	0.15	**2.82**	9.31	**329.67**	0.70	**12.49**	1	**7**	2	**13**
Sulfate	(09/16/1985-03/23/2006)	**85**	(500.-5700.)	**4380**	370	**4408**	723	**16**	4900	**5300**	84	**99**	84	**99**
TDS - 180°C	(09/16/1985-09/24/2008)	**94**	(7700.-17200.)	**13000**	1050	**13397**	1513	**11**	14575	**15770**	94	**100**	94	**100**
Radium (pCi/l)	(09/16/1985-12/15/1999)	**28**	(0.2-22.3)	**1.8**	1.85	**4.87**	5.77	**118**	4.375	**19.145**	0	**0**	14	**50**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Cottonwood Alluvial Wells (GM-17, GM-16, QACW-2, and QACW-2B)	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(11/16/1974-03/10/1999)	**51**	(6.1-8.39)	**7.7**	0.25	**7.64**	0.45	**5.88**	7.95	**8.17**	1	**2**
Conductivity (umho/cm)	(11/16/1974-03/10/1999)	**44**	(1720.-13200.)	**3695**	360	**4003**	2155	**54**	4043	**4864**	0	**0**
Arsenic	(11/16/1974-03/10/1999)	**36**	(0.0005-0.4)	**0.0005**	0	**0.029**	0.085	**291.402**	0.003	**0.207**	2	**6**
Boron	(11/16/1974-03/10/1999)	**57**	(0.005-1.4)	**0.13**	0.05	**0.21**	0.25	**121.72**	0.20	**0.66**	0	**0**
Cadmium	(11/16/1974-03/10/1999)	**44**	(0.0005-0.02)	**0.0025**	0.0015	**0.0029**	0.0035	**118.7268**	0.0030	**0.0094**	0	**0**
Chromium	(09/19/1990-03/10/1999)	**12**	(0.005-0.12)	**0.0075**	0.0025	**0.016667**	0.032637	**195.82**	0.01	**0.0595**	0	**0**
Copper	(11/16/1974-03/10/1999)	**14**	(0.0005-0.15)	**0.02**	0.01	**0.026**	0.037	**143.773**	0.029	**0.072**	0	**0**
Iron (total)	(09/10/1979-03/10/1999)	**29**	(0.01-41.4)	**0.62**	0.56	**3.67931**	8.874139	**241.1903**	2.12	**19.6**	0	**0**
Lead	(11/16/1974-03/10/1999)	**28**	(0.0005-0.1)	**0.0025**	0.00175	**0.0120**	0.0217	**180.5377**	0.0100	**0.0510**	0	**0**
Manganese	(11/16/1974-03/10/1999)	**59**	(0.005-4.95)	**0.11**	0.105	**0.669542**	1.046685	**156.3285**	0.765	**2.731**	0	**0**
Mercury	(11/16/1974-03/10/1999)	**14**	(0.000043-0.0029)	**0.0005**	0.0003	**0.00080**	0.00078	**97.90787**	0.00100	**0.00232**	0	**0**
Selenium	(11/16/1974-03/10/1999)	**54**	(0.00005-0.25)	**0.0025**	0.0015	**0.010**	0.039	**397.595**	0.003	**0.012**	2	**4**
Zinc	(11/16/1974-03/10/1999)	**36**	(0.0125-21.9)	**0.2915**	0.2665	**1.221**	3.684	**301.785**	0.885	**3.200**	0	**0**
Chloride	(11/16/1974-03/10/1999)	**59**	(0.7-800.)	**124**	23	**137**	132	**96**	145	**268**	2	**3**
Fluoride	(11/16/1974-03/10/1999)	**58**	(0.1-6.2)	**1.38**	0.475	**1.69**	1.21	**71.48**	2.08	**4.12**	15	**26**
Nitrate	(03/27/1975-03/27/1997)	**26**	(0.005-4.56)	**0.505**	0.42	**0.73**	0.98	**133.58**	1.02	**2.28**	0	**0**
Sulfate	(11/16/1974-03/10/1999)	**58**	(740.-9810.)	**1730**	340	**2952**	2916	**99**	2290	**9572**	53	**91**
TDS - 180°C	(11/16/1974-12/08/1998)	**58**	(210.5-16000.)	**3035**	423.5	**5101**	4763	**93**	3920	**15615**	32	**55**
Radium (pCi/l)	(06/18/1987-06/09/1992)	**17**	(0.1-6.8)	**1.2**	1	**1.78**	1.70	**95**	2.6	**4.24**	0	**0**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Cottonwood Alluvial Wells GM-17	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(10/14/1975-09/29/1982)	**7**	(6.1-7.4)	**6.9**	0.2	**6.84**	0.42	**6.19**	7.10	**7.31**	1	**14**
Conductivity (umho/cm)	(10/14/1975-05/18/1976)	**2**	(13200.-13200.)	**13200**	0	**13200**	0		13200	**13200**	0	**0**
Arsenic	(10/14/1975-05/18/1976)	**2**	(0.005-0.01)	**0.0075**	0.0025	**0.008**	0.004	**47.140**	0.009	**0.010**	0	**0**
Boron	(10/14/1975-09/29/1982)	**11**	(0.005-0.66)	**0.28**	0.12	**0.27**	0.19	**71.15**	0.31	**0.59**	0	**0**
Cadmium	(10/14/1975-05/18/1976)	**2**	(0.002-0.005)	**0.0035**	0.0015	**0.0035**	0.0021	**60.6092**	0.0043	**0.0049**	0	**0**
Chromium											0	**0**
Copper	(10/14/1975-05/18/1976)	**2**	(0.021-0.025)	**0.023**	0.002	**0.023**	0.003	**12.298**	0.024	**0.025**	0	**0**
Iron (total)	(09/10/1979-09/29/1982)	**9**	(0.05-10.)	**0.62**	0.57	**2.766667**	3.794799	**137.1614**	4.75	**9.08**	0	**0**
Lead	(10/14/1975-05/18/1976)	**2**	(0.006-0.025)	**0.0155**	0.0095	**0.0155**	0.0134	**86.6776**	0.0203	**0.0241**	0	**0**
Manganese	(10/14/1975-09/29/1982)	**11**	(0.005-2.7)	**1.02**	1.015	**1.124091**	1.114656	**99.16071**	2.18	**2.5**	0	**0**
Mercury	(10/14/1975-05/18/1976)	**2**	(0.0002-0.001)	**0.0006**	0.0004	**0.00060**	0.00057	**94.28090**	0.00080	**0.00096**	0	**0**
Selenium	(10/14/1975-09/29/1982)	**11**	(0.00005-0.005)	**0.0004**	0.00035	**0.002**	0.002	**131.698**	0.003	**0.005**	0	**0**
Zinc	(10/14/1975-05/18/1976)	**2**	(0.05-0.11)	**0.08**	0.03	**0.080**	0.042	**53.033**	0.095	**0.107**	0	**0**
Chloride	(10/14/1975-09/29/1982)	**11**	(1.5-430.)	**113**	15	**135**	112	**83**	125	**329**	0	**0**
Fluoride	(10/14/1975-09/29/1982)	**11**	(0.1-0.89)	**0.3**	0.2	**0.35**	0.24	**70.59**	0.45	**0.75**	0	**0**
Nitrate	(10/14/1975-09/29/1982)	**11**	(0.5-4.56)	**1.03**	0.27	**1.23**	1.14	**92.84**	1.14	**2.93**	0	**0**
Sulfate	(10/14/1975-09/29/1982)	**11**	(2453.-9810.)	**9308**	332	**8535**	2221	**26**	9600	**9785**	11	**100**
TDS - 180°C	(10/14/1975-09/29/1982)	**11**	(5629.-16000.)	**15210**	490	**14381**	2957	**21**	15650	**15950**	11	**100**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Cottonwood Alluvial Wells GM-16	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(03/27/1975-03/27/1975)	**1**	(7.1-7.1)	**7.1**	0	**7.10**			7.10	**7.10**	0	**0**
Conductivity (umho/cm)	(03/27/1975-03/27/1975)	**1**	(4500.-4500.)	**4500**	0	**4500**			4500	**4500**	0	**0**
Arsenic	(03/27/1975-03/27/1975)	**1**	(0.4-0.4)	**0.4**	0	**0.400**			0.400	**0.400**	1	**100**
Boron	(03/27/1975-03/27/1975)	**1**	(1.2-1.2)	**1.2**	0	**1.20**			1.20	**1.20**	0	**0**
Cadmium	(03/27/1975-03/27/1975)	**1**	(0.01-0.01)	**0.01**	0	**0.0100**			0.0100	**0.0100**	0	**0**
Chromium												
Copper	(03/27/1975-03/27/1975)	**1**	(0.02-0.02)	**0.02**	0	**0.020**			0.020	**0.020**	0	**0**
Iron (total)												
Lead	(03/27/1975-03/27/1975)	**1**	(0.005-0.005)	**0.005**	0	**0.0050**			0.0050	**0.0050**	0	**0**
Manganese	(03/27/1975-03/27/1975)	**1**	(0.23-0.23)	**0.23**	0	**0.23**			0.23	**0.23**	0	**0**
Mercury	(03/27/1975-03/27/1975)	**1**	(0.0029-0.0029)	**0.0029**	0	**0.00290**			0.00290	**0.00290**	0	**0**
Selenium	(03/27/1975-03/27/1975)	**1**	(0.25-0.25)	**0.25**	0	**0.250**			0.250	**0.250**	1	**100**
Zinc	(03/27/1975-03/27/1975)	**1**	(0.062-0.062)	**0.062**	0	**0.062**			0.062	**0.062**	0	**0**
Chloride	(03/27/1975-03/27/1975)	**1**	(650.-650.)	**650**	0	**650**			650	**650**	1	**100**
Fluoride	(03/27/1975-03/27/1975)	**1**	(1.3-1.3)	**1.3**	0	**1.30**			1.30	**1.30**	0	**0**
Nitrate	(03/27/1975-03/27/1975)	**1**	(0.5-0.5)	**0.5**	0	**0.50**			0.50	**0.50**	0	**0**
Sulfate	(03/27/1975-03/27/1975)	**1**	(2300.-2300.)	**2300**	0	**2300**			2300	**2300**	1	**100**
TDS - 180°C	(03/27/1975-03/27/1975)	**1**	(4823.-4823.)	**4823**	0	**4823**			4823	**4823**	1	**100**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Cottonwood Alluvial Wells QACW-2	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(11/16/1974-03/23/1989)	**9**	(7.2-8.3)	**7.9**	0.26	**7.81**	0.35	**4.47**	7.95	**8.26**	0	**0**
Conductivity (umho/cm)	(11/16/1974-03/23/1989)	**9**	(1720.-4910.)	**2300**	400	**2692**	991	**37**	3200	**4266**	0	**0**
Arsenic	(11/16/1974-03/23/1989)	**9**	(0.0005-0.25)	**0.002**	0.0015	**0.046**	0.091	**197.166**	0.005	**0.210**	1	**11**
Boron	(11/16/1974-03/23/1989)	**13**	(0.01-1.4)	**0.11**	0.06	**0.25**	0.36	**143.10**	0.23	**0.80**	0	**0**
Cadmium	(11/16/1974-03/23/1989)	**8**	(0.0005-0.005)	**0.00275**	0.00225	**0.0030**	0.0019	**62.9941**	0.0050	**0.0050**	0	**0**
Chromium											0	**0**
Copper	(11/16/1974-03/04/1977)	**4**	(0.005-0.02)	**0.0105**	0.005	**0.012**	0.007	**62.906**	0.016	**0.019**	0	**0**
Iron (total)	(09/10/1979-09/25/1980)	**4**	(0.01-0.25)	**0.03**	0.015	**0.08**	0.114018	**142.5219**	0.0925	**0.2185**	0	**0**
Lead	(11/16/1974-03/04/1977)	**4**	(0.0005-0.065)	**0.013**	0.01225	**0.0229**	0.0303	**132.5532**	0.0350	**0.0590**	0	**0**
Manganese	(11/16/1974-03/23/1989)	**14**	(0.005-4.1)	**0.1**	0.06	**0.471786**	1.073745	**227.5918**	0.305	**2.02**	0	**0**
Mercury	(11/16/1974-03/04/1977)	**4**	(0.000043-0.0006)	**0.000225**	0.000104	**0.00027**	0.00024	**86.00488**	0.00034	**0.00055**	0	**0**
Selenium	(11/16/1974-03/23/1989)	**9**	(0.0005-0.15)	**0.003**	0.002	**0.021**	0.049	**230.439**	0.005	**0.100**	1	**11**
Zinc	(11/16/1974-03/23/1989)	**9**	(0.025-2.43)	**0.025**	0	**0.324**	0.793	**244.798**	0.065	**1.550**	0	**0**
Chloride	(11/16/1974-03/23/1989)	**14**	(0.7-800.)	**28.2**	16.7	**93**	208	**223**	48	**378**	1	**7**
Fluoride	(11/16/1974-03/23/1989)	**14**	(0.76-6.2)	**2.35**	0.71	**2.84**	1.40	**49.16**	3.78	**4.90**	10	**71**
Nitrate	(08/06/1975-09/25/1980)	**7**	(0.005-0.85)	**0.18**	0.16	**0.27**	0.33	**119.95**	0.40	**0.78**	0	**0**
Sulfate	(11/16/1974-03/23/1989)	**14**	(740.-3750.)	**1226.5**	286.5	**1552**	845	**54**	1738	**3068**	9	**64**
TDS - 180°C	(11/16/1974-03/23/1989)	**14**	(210.5-6160.)	**2305**	607.5	**2604**	1449	**56**	2898	**4971**	3	**21**
Radium (pCi/l)	(03/24/1988-03/23/1989)	**5**	(0.2-2.6)	**1.4**	0.7	**1.40**	0.98	**70**	2.1	**2.5**	0	**0**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Cottonwood Alluvial Wells QACW-2B	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(06/18/1987-03/10/1999)	**34**	(7.1-8.39)	**7.8**	0.195	**7.78**	0.27	**3.44**	7.98	**8.12**	0	**0**
Conductivity (umho/cm)	(06/18/1987-03/10/1999)	**32**	(2810.-4600.)	**3740**	240	**3782**	418	**11**	4008	**4501**	0	**0**
Arsenic	(06/18/1987-03/10/1999)	**24**	(0.0005-0.192)	**0.0005**	0	**0.009**	0.039	**429.120**	0.003	**0.005**	0	**0**
Boron	(06/18/1987-03/10/1999)	**32**	(0.005-0.68)	**0.13**	0.03	**0.14**	0.11	**83.78**	0.15	**0.24**	0	**0**
Cadmium	(06/18/1987-03/10/1999)	**33**	(0.0005-0.02)	**0.0025**	0.0015	**0.0027**	0.0037	**138.9303**	0.0025	**0.0076**	0	**0**
Chromium	(09/19/1990-03/10/1999)	**12**	(0.005-0.12)	**0.0075**	0.0025	**0.016667**	0.032637	**195.82**	0.01	**0.0595**	0	**0**
Copper	(12/11/1997-03/10/1999)	**7**	(0.0005-0.15)	**0.03**	0.025	**0.036**	0.052	**145.586**	0.030	**0.114**	0	**0**
Iron (total)	(03/28/1995-03/10/1999)	**16**	(0.17-41.4)	**1.04**	0.84	**5.0925**	11.54266	**226.6601**	2.2	**29.85**	0	**0**
Lead	(09/19/1990-03/10/1999)	**21**	(0.0025-0.1)	**0.0025**	0	**0.0099**	0.0213	**214.8081**	0.0100	**0.0250**	0	**0**
Manganese	(06/18/1987-03/10/1999)	**33**	(0.005-4.95)	**0.11**	0.09	**0.615242**	1.015789	**165.1039**	0.7	**2.446**	0	**0**
Mercury	(12/11/1997-03/10/1999)	**7**	(0.0005-0.002)	**0.0005**	0	**0.00086**	0.00056	**64.90734**	0.00100	**0.00170**	0	**0**
Selenium	(06/18/1987-03/10/1999)	**33**	(0.0005-0.005)	**0.0025**	0.0005	**0.002**	0.001	**46.202**	0.003	**0.004**	0	**0**
Zinc	(06/18/1987-03/10/1999)	**24**	(0.0125-21.9)	**0.59**	0.3355	**1.700**	4.439	**261.071**	0.996	**4.908**	0	**0**
Chloride	(06/18/1987-03/10/1999)	**33**	(77.-250.)	**138**	18	**141**	33	**23**	150	**198**	0	**0**
Fluoride	(06/18/1987-03/10/1999)	**32**	(0.92-4.75)	**1.38**	0.115	**1.67**	0.78	**46.99**	1.78	**3.25**	5	**16**
Nitrate	(03/14/1991-03/27/1997)	**7**	(0.07-2.6)	**0.09**	0	**0.44**	0.95	**213.96**	0.09	**1.85**	0	**0**
Sulfate	(06/18/1987-03/10/1999)	**32**	(1150.-2260.)	**1605**	175	**1666**	273	**16**	1835	**2155**	32	**100**
TDS - 180°C	(06/18/1987-12/08/1998)	**32**	(2590.-3800.)	**3015**	330	**3013**	361	**12**	3175	**3725**	17	**53**
Radium (pCi/l)	(06/18/1987-06/09/1992)	**12**	(0.1-6.8)	**1.2**	1	**1.94**	1.94	**100**	3	**5.04**	0	**0**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Pinnabete Alluvial Wells (GM-22, PA-1,	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard**	Q3	**95th Percentile**	**Livestock Criteria**	
											n	**%**
pH	(11/16/1974-11/21/2008)	**24**	(7.19-8.2)	**7.5**	0.115	**7.55**	0.26	**3.40**	7.63	**8.07**	0	**0**
Conductivity (umho/cm)	(11/16/1974-06/15/2004)	**6**	(1610.-4040.)	**3420**	485	**3123**	932	**30**	3763	**3973**	0	**0**
Arsenic	(11/16/1974-11/21/2008)	**22**	(0.00025-0.25)	**0.0025**	0.0015	**0.021**	0.060	**284.923**	0.003	**0.144**	1	**5**
Boron	(11/16/1974-11/21/2008)	**22**	(0.1-2.1)	**0.2**	0.015	**0.36**	0.44	**119.56**	0.30	**0.92**	0	**0**
Cadmium	(11/16/1974-11/21/2008)	**22**	(0.000025-0.005)	**0.0005**	0.000475	**0.0007**	0.0014	**203.8603**	0.0005	**0.0048**	0	**0**
Chromium	(09/12/1991-11/21/2008)	**18**	(0.0005-0.03)	**0.005**	0.001	**0.007028**	0.008612	**122.5377**	0.005	**0.03**	0	**0**
Copper	(11/16/1974-11/21/2008)	**22**	(0.003-0.0508)	**0.00865**	0.00365	**0.012**	0.011	**90.903**	0.015	**0.023**	0	**0**
Iron (total)	(03/28/1995-11/21/2008)	**18**	(0.13-63.9)	**3.535**	2.11	**12.85167**	19.45777	**151.4027**	14.163	**54.805**	0	**0**
Lead	(11/16/1974-11/21/2008)	**22**	(0.00005-0.065)	**0.0015**	0.0013	**0.0076**	0.0179	**235.1724**	0.0025	**0.0545**	0	**0**
Manganese	(11/16/1974-11/21/2008)	**22**	(0.003-1.33)	**0.114**	0.076	**0.182486**	0.286864	**157.1974**	0.159	**0.4864**	0	**0**
Mercury	(11/16/1974-11/21/2008)	**22**	(0.000022-0.0005)	**0.0002**	0.0001	**0.00028**	0.00019	**68.76062**	0.00050	**0.00050**	0	**0**
Selenium	(11/16/1974-11/21/2008)	**24**	(0.0007-0.15)	**0.006**	0.0035	**0.014**	0.030	**218.292**	0.012	**0.024**	1	**4**
Zinc	(11/16/1974-11/21/2008)	**22**	(0.002-0.41)	**0.0125**	0.0105	**0.050**	0.092	**185.035**	0.048	**0.178**	0	**0**
Chloride	(11/16/1974-11/21/2008)	**24**	(13.-800.)	**25.5**	9	**61**	158	**261**	37	**63**	1	**4**
Fluoride	(11/16/1974-11/21/2008)	**22**	(1.51-5.7)	**2.48**	0.325	**2.63**	0.82	**31.05**	2.89	**3.29**	19	**86**
Nitrate	(06/27/1975-11/21/2008)	**19**	(0.025-9.)	**0.08**	0.05	**0.85**	2.14	**251.93**	0.49	**4.23**	0	**0**
Sulfate	(11/16/1974-11/21/2008)	**24**	(805.-2400.)	**1552.1**	470	**1488**	508	**34**	1943	**2193**	18	**75**
TDS - 180°C	(11/16/1974-11/21/2008)	**24**	(1500.-4310.)	**2981**	666.5	**2684**	866	**32**	3440	**3681**	11	**46**
Radium (pCi/l)	(12/11/1991-11/21/2008)	**16**	(0.58-29.64)	**1.8**	0.97	**5.32**	7.58	**143**	5.675	**16.8975**	0	**0**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Pinnabete Alluvial Wells GM-22	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(11/16/1974-03/04/1977)	**4**	(7.2-8.2)	**7.75**	0.4	**7.73**	0.50	**6.46**	8.13	**8.19**	0	**0**
Conductivity (umho/cm)	(11/16/1974-03/04/1977)	**4**	(1610.-3770.)	**3420**	335	**3055**	1012	**33**	3748	**3766**	0	**0**
Arsenic	(11/16/1974-03/04/1977)	**4**	(0.005-0.25)	**0.09**	0.0725	**0.109**	0.113	**104.330**	0.175	**0.235**	1	**25**
Boron	(11/16/1974-03/04/1977)	**4**	(0.1-0.93)	**0.34**	0.15	**0.43**	0.36	**83.50**	0.53	**0.85**	0	**0**
Cadmium	(11/16/1974-03/04/1977)	**4**	(0.0005-0.005)	**0.00275**	0.00225	**0.0028**	0.0026	**94.4755**	0.0050	**0.0050**	0	**0**
Chromium												
Copper	(11/16/1974-03/04/1977)	**4**	(0.003-0.015)	**0.009**	0.005	**0.009**	0.006	**65.420**	0.014	**0.015**	0	**0**
Iron (total)												
Lead	(11/16/1974-03/04/1977)	**4**	(0.0005-0.065)	**0.0405**	0.02	**0.0366**	0.0296	**80.6992**	0.0583	**0.0637**	0	**0**
Manganese	(11/16/1974-03/04/1977)	**4**	(0.003-0.165)	**0.038**	0.0215	**0.061**	0.071568	**117.3248**	0.0758	**0.14715**	0	**0**
Mercury	(11/16/1974-03/04/1977)	**4**	(0.000022-0.0005)	**0.000225**	0.000114	**0.00024**	0.00020	**81.19555**	0.00031	**0.00046**	0	**0**
Selenium	(11/16/1974-03/04/1977)	**4**	(0.005-0.15)	**0.015**	0.01	**0.046**	0.070	**150.932**	0.056	**0.131**	1	**25**
Zinc	(11/16/1974-03/04/1977)	**4**	(0.031-0.41)	**0.095**	0.0545	**0.158**	0.175	**110.781**	0.208	**0.370**	0	**0**
Chloride	(11/16/1974-03/04/1977)	**4**	(13.-800.)	**21.5**	6.5	**214**	391	**183**	220	**684**	1	**25**
Fluoride	(11/16/1974-03/04/1977)	**4**	(1.51-5.7)	**1.9**	0.245	**2.75**	1.98	**71.76**	2.93	**5.15**	1	**25**
Nitrate	(06/27/1975-03/04/1977)	**3**	(0.8-9.)	**3.7**	2.9	**4.50**	4.16	**92.40**	6.35	**8.47**	0	**0**
Sulfate	(11/16/1974-03/04/1977)	**4**	(1153.-2000.)	**1667.1**	222.9	**1622**	362	**22**	1835	**1967**	4	**100**
TDS - 180°C	(11/16/1974-03/04/1977)	**4**	(1952.-3695.)	**3124**	361.5	**2974**	743	**25**	3381	**3632**	2	**50**
Radium (pCi/l)												

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Pinnabete Alluvial Wells PA-1	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(11/16/1974-11/21/2008)	**10**	(7.48-7.78)	**7.57**	0.07	**7.59**	0.10	**1.31**	7.66	**7.74**	0	**0**
Conductivity (umho/cm)	(11/16/1974-06/15/2004)	**1**	(2480.-2480.)	**2480**	0	**2480**			2480	**2480**	0	**0**
Arsenic	(11/16/1974-11/21/2008)	**9**	(0.00025-0.0025)	**0.0008**	0.00055	**0.001**	0.001	**73.284**	0.003	**0.003**	0	**0**
Boron	(11/16/1974-11/21/2008)	**9**	(0.17-0.787)	**0.2**	0	**0.26**	0.20	**74.40**	0.20	**0.56**	0	**0**
Cadmium	(11/16/1974-11/21/2008)	**9**	(0.000025-0.0005)	**0.000025**	0	**0.0002**	0.0003	**106.0293**	0.0005	**0.0005**	0	**0**
Chromium	(09/12/1991-11/21/2008)	**9**	(0.0005-0.03)	**0.005**	0.001	**0.006556**	0.008984	**137.0466**	0.005	**0.02**	0	**0**
Copper	(11/16/1974-11/21/2008)	**9**	(0.005-0.0151)	**0.0079**	0.0029	**0.008**	0.004	**43.402**	0.010	**0.013**	0	**0**
Iron (total)	(03/28/1995-11/21/2008)	**9**	(0.25-53.2)	**4.43**	4.18	**15.81333**	19.25661	**121.7745**	17.5	**48.68**	0	**0**
Lead	(11/16/1974-11/21/2008)	**9**	(0.00005-0.0025)	**0.0003**	0.00025	**0.0012**	0.0012	**102.9723**	0.0025	**0.0025**	0	**0**
Manganese	(11/16/1974-11/21/2008)	**9**	(0.005-0.488)	**0.087**	0.07	**0.125889**	0.152955	**121.4997**	0.138	**0.38**	0	**0**
Mercury	(11/16/1974-11/21/2008)	**9**	(0.0001-0.0005)	**0.0002**	0.0001	**0.00029**	0.00020	**70.18572**	0.00050	**0.00050**	0	**0**
Selenium	(11/16/1974-11/21/2008)	**10**	(0.0025-0.014)	**0.005**	0.001	**0.005**	0.003	**61.698**	0.006	**0.010**	0	**0**
Zinc	(11/16/1974-11/21/2008)	**9**	(0.002-0.053)	**0.007**	0.005	**0.018**	0.020	**109.606**	0.037	**0.049**	0	**0**
Chloride	(11/16/1974-11/21/2008)	**10**	(14.-36.)	**20**	5	**22**	7	**33**	25	**33**	0	**0**
Fluoride	(11/16/1974-11/21/2008)	**9**	(2.1-3.)	**2.36**	0.16	**2.39**	0.27	**11.43**	2.49	**2.81**	9	**100**
Nitrate	(06/27/1975-11/21/2008)	**8**	(0.025-0.72)	**0.05**	0.0225	**0.21**	0.30	**142.30**	0.24	**0.70**	0	**0**
Sulfate	(11/16/1974-11/21/2008)	**10**	(805.-1280.)	**950**	100	**983**	149	**15**	1055	**1217**	4	**40**
TDS - 180°C	(11/16/1974-11/21/2008)	**10**	(1500.-4310.)	**1705**	80	**1986**	832	**42**	1900	**3284**	1	**10**
Radium (pCi/l)	(12/11/1991-11/21/2008)	**8**	(0.58-12.65)	**2.0975**	1.2975	**4.44**	4.88	**110**	6.1875	**12.265**	0	**0**

Appendix F: Groundwater Data Summary

Alluvial Quality Data (all Values are dissolved (mg/L) unless otherwise indicated)

Pinnabete Alluvial Wells PA-2	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Livestock Criteria Exceedance**	
											n	**%**
pH	(03/30/1998-11/20/2008)	**10**	(7.19-7.9)	**7.405**	0.1	**7.43**	0.21	**2.85**	7.50	**7.77**	0	**0**
Conductivity (umho/cm)	(06/15/2004-06/15/2004)	**1**	(4040.-4040.)	**4040**	0	**4040**			4040	**4040**	0	**0**
Arsenic	(03/30/1998-11/20/2008)	**9**	(0.0007-0.0027)	**0.0025**	0.0002	**0.002**	0.001	**42.303**	0.003	**0.003**	0	**0**
Boron	(03/30/1998-11/20/2008)	**9**	(0.19-2.1)	**0.2**	0.01	**0.44**	0.63	**143.68**	0.30	**1.38**	0	**0**
Cadmium	(03/30/1998-11/20/2008)	**9**	(0.000025-0.0005)	**0.000025**	0	**0.0002**	0.0003	**106.0293**	0.0005	**0.0005**	0	**0**
Chromium	(03/30/1998-11/20/2008)	**9**	(0.0005-0.03)	**0.005**	0.001	**0.0075**	0.008739	**116.5237**	0.006	**0.0216**	0	**0**
Copper	(03/30/1998-11/20/2008)	**9**	(0.005-0.0508)	**0.0116**	0.0066	**0.017**	0.015	**91.121**	0.023	**0.040**	0	**0**
Iron (total)	(03/30/1998-11/20/2008)	**9**	(0.13-63.9)	**3.03**	1.17	**9.89**	20.34657	**205.7287**	5.61	**40.96**	0	**0**
Lead	(03/30/1998-11/20/2008)	**9**	(0.00005-0.0025)	**0.0002**	0.00015	**0.0012**	0.0013	**108.4845**	0.0025	**0.0025**	0	**0**
Manganese	(03/30/1998-11/20/2008)	**9**	(0.0277-1.33)	**0.135**	0.045	**0.293078**	0.407376	**138.9993**	0.22	**0.9804**	0	**0**
Mercury	(03/30/1998-11/20/2008)	**9**	(0.0001-0.0005)	**0.0002**	0.0001	**0.00029**	0.00020	**70.18572**	0.00050	**0.00050**	0	**0**
Selenium	(03/30/1998-11/20/2008)	**10**	(0.0007-0.018)	**0.0095**	0.004	**0.009**	0.006	**65.054**	0.012	**0.016**	0	**0**
Zinc	(03/30/1998-11/20/2008)	**9**	(0.003-0.18)	**0.009**	0.005	**0.033**	0.057	**170.686**	0.025	**0.128**	0	**0**
Chloride	(03/30/1998-11/20/2008)	**10**	(22.-65.)	**36.5**	7.5	**38**	13	**35**	44	**59**	0	**0**
Fluoride	(03/30/1998-11/20/2008)	**9**	(2.4-3.3)	**2.81**	0.29	**2.82**	0.31	**11.06**	3.06	**3.22**	9	**100**
Nitrate	(03/30/1998-11/20/2008)	**8**	(0.025-0.32)	**0.08**	0.03	**0.12**	0.11	**87.64**	0.15	**0.30**	0	**0**
Sulfate	(03/30/1998-11/20/2008)	**10**	(1550.-2400.)	**1945**	230	**1941**	273	**14**	2138	**2310**	10	**100**
TDS - 180°C	(03/30/1998-11/20/2008)	**10**	(2780.-3600.)	**3285**	255	**3266**	295	**9**	3530	**3591**	8	**80**
Radium (pCi/l)	(03/30/1998-11/20/2008)	**8**	(0.64-29.64)	**1.8**	0.835	**6.19**	9.88	**160**	4.6625	**22.591**	0	**0**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals Combined	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/08/1984-07/10/1984)	**203**	(7.03-8.06)	**7.8**	0.27	**7.9**	0.7	**9**	8.1	**8.7**	8	**4**
Conductivity (umho/cm)	(07/08/1984-07/10/1984)	**180**	(5300.-46500.)	**12150**	3950	**12342**	5805	**47**	15925	**23300**		
Boron	(07/08/1984-07/10/1984)	**193**	(1.23-1.57)	**0.53**	0.14	**0.55**	0.22	**40**	0.68	**0.84**		
Iron (total)		**143**		**0.77**	0.67	**6.05**	30.76	**508**	4.02	**15.28**		
Manganese	(07/08/1984-07/10/1984)	**194**	(0.11-2.93)	**0.1**	0.088	**0.532**	2.589	**487**	0.318	**1.587**		
Selenium	(07/08/1984-07/10/1984)	**194**	(0.0005-0.0005)	**0.0025**	0	**0.003**	0.007	**223**	0.003	**0.008**		
Chloride	(07/08/1984-07/10/1984)	**194**	(2210.-28200.)	**3670**	1310	**3482**	2372	**68**	4593	**7937**	165	**85**
Fluoride	(07/08/1984-07/10/1984)	**193**	(0.92-1.08)	**1.4**	0.48	**1.37**	0.67	**49**	1.78	**2.50**	31	**16**
Sulfate	(07/08/1984-07/10/1984)	**194**	(5.-5.)	**15.75**	13.25	**294**	677	**230**	88	**2267**	22	**11**
TDS - 180°C	(07/08/1984-07/10/1984)	**194**	(7370.-50810.)	**7260**	2055	**7161**	3212	**45**	8575	**13400**	170	**88**

Baseline Fruitland Coals KF2007-01	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(08/16/2007-11/20/2008)	**5**	(8.12-9.56)	**8.75**	0.34	**8.8**	0.5	**6**	9.1	**9.5**	2	**40**
Conductivity (umho/cm)												
Boron	(08/16/2007-11/20/2008)	**5**	(0.2-0.4)	**0.329**	0.071	**0.33**	0.08	**25**	0.40	**0.40**		
Iron (total)	(08/16/2007-11/20/2008)	**5**	(0.025-1.2)	**0.29**	0.205	**0.39**	0.47	**123**	0.33	**1.03**		**0**
Manganese	(08/16/2007-11/20/2008)	**5**	(0.0025-0.013)	**0.0075**	5E-04	**0.008**	0.004	**49**	0.008	**0.012**		
Selenium	(08/16/2007-11/20/2008)	**5**	(0.004-0.006)	**0.005**	0.001	**0.005**	0.001	**17**	0.005	**0.006**		
Chloride	(08/16/2007-11/20/2008)	**5**	(278.-364.)	**338**	24	**332**	35	**11**	362	**364**		
Fluoride	(08/16/2007-11/20/2008)	**5**	(2.6-3.3)	**2.7**	0.1	**2.86**	0.32	**11**	3.10	**3.26**	5	**100**
Sulfate	(08/16/2007-11/20/2008)	**5**	(315.-2050.)	**740**	425	**1021**	694	**68**	1380	**1916**	2	**40**
TDS - 180°C	(08/16/2007-11/20/2008)	**5**	(2750.-5160.)	**3460**	670	**3750**	931	**25**	4130	**4954**	4	**80**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals KF98-02	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/29/1998-11/20/2008)	**8**	(7.53-12.6)	**8.06**	0.4	**9.2**	2.0	**22**	10.2	**12.4**	3	**38**
Conductivity (umho/cm)												
Boron	(03/29/1998-11/20/2008)	**8**	(0.09-1.47)	**0.4**	0.1	**0.49**	0.42	**85**	0.46	**1.13**		
Iron (total)	(03/29/1998-11/20/2008)	**8**	(0.14-1.01)	**0.485**	0.075	**0.55**	0.28	**51**	0.62	**0.97**		**0**
Manganese	(03/29/1998-11/20/2008)	**8**	(0.0025-0.045)	**0.008**	0.006	**0.017**	0.018	**107**	0.030	**0.045**		**0**
Selenium	(03/29/1998-11/20/2008)	**8**	(0.005-0.0333)	**0.008**	0.001	**0.011**	0.009	**88**	0.008	**0.025**		
Chloride	(03/29/1998-11/20/2008)	**8**	(170.-1280.)	**925**	280	**814**	383	**47**	1015	**1256**	6	**75**
Fluoride	(03/29/1998-11/20/2008)	**8**	(0.2-2.31)	**1.65**	0.2	**1.51**	0.61	**41**	1.80	**2.13**	1	**13**
Sulfate	(03/29/1998-11/20/2008)	**8**	(36.-796.)	**119**	39	**202**	248	**123**	165	**605**		
TDS - 180°C	(03/29/1998-11/20/2008)	**8**	(2220.-4100.)	**3160**	355	**3321**	623	**19**	3830	**4079**	7	**88**

Baseline Fruitland Coals KF84-21A	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(07/09/1984-09/12/2001)	**32**	(6.8-8.3)	**7.9**	0.1	**7.9**	0.3	**3**	8.1	**8.2**		
Conductivity (umho/cm)	(07/09/1984-09/12/2001)	**31**	(6610.-16800.)	**14200**	1200	**13755**	2272	**17**	14750	**16600**		
Boron	(07/09/1984-09/12/2001)	**31**	(0.36-1.12)	**0.6**	0.05	**0.63**	0.14	**23**	0.65	**0.90**		
Iron (total)	(09/08/1993-09/12/2001)	**22**	(0.01-1.36)	**0.1**	0.075	**0.22**	0.30	**135**	0.24	**0.50**		**0**
Manganese	(07/09/1984-09/12/2001)	**31**	(0.0025-0.1)	**0.025**	0.015	**0.045**	0.039	**86**	0.099	**0.100**		**0**
Selenium	(07/09/1984-09/12/2001)	**31**	(0.0005-0.05)	**0.0025**	0	**0.005**	0.012	**245**	0.003	**0.027**		
Chloride	(07/09/1984-09/12/2001)	**31**	(2860.-5960.)	**4440**	130	**4394**	429	**10**	4495	**4675**	31	**100**
Fluoride	(07/09/1984-09/12/2001)	**31**	(0.94-2.38)	**1.54**	0.09	**1.62**	0.27	**17**	1.75	**2.13**	2	**6**
Sulfate	(07/09/1984-09/12/2001)	**31**	(5.-316.)	**64**	21	**74**	71	**95**	82	**223**		
TDS - 180°C	(07/09/1984-09/12/2001)	**31**	(5730.-9800.)	**8380**	140	**8291**	615	**7**	8515	**8780**	31	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals Kf84-21c	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/09/1984-07/09/1984)	**1**	(8.08-8.08)	**8.08**	0	**8.1**			8.1	**8.1**		
Conductivity (umho/cm)	(07/09/1984-07/09/1984)	**1**	(12600.-12600.)	**12600**	0	**12600**			12600	**12600**		
Boron	(07/09/1984-07/09/1984)	**1**	(0.63-0.63)	**0.63**	0	**0.63**			0.63	**0.63**		
Iron (total)		**1**										
Manganese	(07/09/1984-07/09/1984)	**1**	(0.38-0.38)	**0.38**	0	**0.380**			0.380	**0.380**		**0**
Selenium	(07/09/1984-07/09/1984)	**1**	(0.0005-0.0005)	**0.0005**	0	**0.001**			0.001	**0.001**		
Chloride	(07/09/1984-07/09/1984)	**1**	(3980.-3980.)	**3980**	0	**3980**			3980	**3980**	1	**100**
Fluoride	(07/09/1984-07/09/1984)	**1**	(1.79-1.79)	**1.79**	0	**1.79**			1.79	**1.79**		
Sulfate	(07/09/1984-07/09/1984)	**1**	(184.-184.)	**184**	0	**184**			184	**184**		
TDS - 180°C	(07/09/1984-07/09/1984)	**1**	(8505.-8505.)	**8505**	0	**8505**			8505	**8505**	1	**100**

Baseline Fruitland Coals KF84-22A	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(09/12/1991-09/18/2001)	**23**	(7.44-9.3)	**8**	0.05	**8.1**	0.3	**4**	8.1	**8.2**	1	**4**
Conductivity (umho/cm)	(09/12/1991-09/18/2001)	**21**	(4900.-14500.)	**6560**	390	**7070**	2059	**29**	14750	**16600**		
Boron	(09/12/1991-09/18/2001)	**21**	(0.15-0.58)	**0.26**	0.03	**0.29**	0.11	**37**	0.65	**0.90**		
Iron (total)	(09/08/1993-09/18/2001)	**19**	(0.06-8.02)	**0.42**	0.31	**0.98**	1.86	**190**	0.24	**0.50**		**0**
Manganese	(09/12/1991-09/18/2001)	**21**	(0.005-0.1)	**0.0125**	0.004	**0.030**	0.035	**116**	0.099	**0.100**		**0**
Selenium	(09/12/1991-09/18/2001)	**21**	(0.0005-0.05)	**0.0025**	0	**0.005**	0.011	**224**	0.003	**0.027**		
Chloride	(09/12/1991-09/18/2001)	**21**	(167.-4250.)	**290**	53	**601**	1064	**177**	4495	**4675**	2	**10**
Fluoride	(09/12/1991-09/18/2001)	**21**	(0.8-3.52)	**2.19**	0.08	**2.29**	0.56	**24**	1.75	**2.13**	19	**90**
Sulfate	(09/12/1991-09/18/2001)	**21**	(5.-2600.)	**2230**	210	**1934**	700	**36**	82	**223**	19	**90**
TDS - 180°C	(09/12/1991-09/18/2001)	**21**	(4080.-8540.)	**4680**	220	**4861**	944	**19**	8515	**8780**	21	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals KF84-22B	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/10/1984-09/18/2001)	**27**	(6.8-8.05)	**7.4**	0.1	**7.5**	0.3	**3**	7.5	**8.0**		
Conductivity (umho/cm)	(07/10/1984-09/18/2001)	**25**	(4010.-38000.)	**10900**	400	**11616**	5736	**49**	11300	**12460**		
Boron	(07/10/1984-09/18/2001)	**25**	(0.28-0.54)	**0.39**	0.02	**0.39**	0.06	**14**	0.41	**0.50**		
Iron (total)	(09/08/1993-09/18/2001)	**23**	(0.025-4.93)	**1.13**	0.97	**1.98**	1.75	**88**	3.90	**4.76**		
Manganese	(07/10/1984-09/18/2001)	**26**	(0.01-0.67)	**0.3**	0.105	**0.275**	0.167	**61**	0.378	**0.605**		
Selenium	(07/10/1984-09/18/2001)	**26**	(0.0005-0.05)	**0.0025**	0	**0.005**	0.010	**214**	0.003	**0.019**		
Chloride	(07/10/1984-09/18/2001)	**26**	(0.25-3364.)	**3210**	80	**2953**	788	**27**	3260	**3353**	25	**96**
Fluoride	(07/10/1984-09/18/2001)	**25**	(0.67-1.7)	**0.89**	0.09	**0.93**	0.21	**23**	0.99	**1.24**		
Sulfate	(07/10/1984-09/18/2001)	**26**	(0.5-115.)	**5**	2.5	**12**	24	**195**	7	**46**		
TDS - 180°C	(07/10/1984-09/18/2001)	**26**	(18.-6370.)	**6115**	145	**5671**	1366	**24**	6188	**6350**	24	**92**

Baseline Fruitland Coals Kf84-22d	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/09/1984-07/09/1984)	**1**	(7.94-7.94)	**7.94**	0	**7.9**			7.9	**7.9**		
Conductivity (umho/cm)	(07/09/1984-07/09/1984)	**1**	(13000.-13000.)	**13000**	0	**13000**			13000	**13000**		
Boron	(07/09/1984-07/09/1984)	**1**	(0.5-0.5)	**0.5**	0	**0.50**			0.50	**0.50**		
Iron (total)												
Manganese	(07/09/1984-07/09/1984)	**1**	(0.016-0.016)	**0.016**	0	**0.016**			0.016	**0.016**		**0**
Selenium	(07/09/1984-07/09/1984)	**1**	(0.0005-0.0005)	**0.0005**	0	**0.001**			0.001	**0.001**		
Chloride	(07/09/1984-07/09/1984)	**1**	(3420.-3420.)	**3420**	0	**3420**			3420	**3420**	25	**100**
Fluoride	(07/09/1984-07/09/1984)	**1**	(1.28-1.28)	**1.28**	0	**1.28**			1.28	**1.28**		
Sulfate	(07/09/1984-07/09/1984)	**1**	(5.-5.)	**5**	0	**5**			5	**5**		
TDS - 180°C	(07/09/1984-07/09/1984)	**1**	(8610.-8610.)	**8610**	0	**8610**			8610	**8610**	24	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals Kf84-22d	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/09/1984-07/09/1984)	**1**	(7.94-7.94)	**7.94**	0	**7.9**			7.9	**7.9**		
Conductivity (umho/cm)	(07/09/1984-07/09/1984)	**1**	(13000.-13000.)	**13000**	0	**13000**			13000	**13000**		
Boron	(07/09/1984-07/09/1984)	**1**	(0.5-0.5)	**0.5**	0	**0.50**			0.50	**0.50**		
Iron (total)												
Manganese	(07/09/1984-07/09/1984)	**1**	(0.016-0.016)	**0.016**	0	**0.016**			0.016	**0.016**		**0**
Selenium	(07/09/1984-07/09/1984)	**1**	(0.0005-0.0005)	**0.0005**	0	**0.001**			0.001	**0.001**		
Chloride	(07/09/1984-07/09/1984)	**1**	(3420.-3420.)	**3420**	0	**3420**			3420	**3420**	25	**100**
Fluoride	(07/09/1984-07/09/1984)	**1**	(1.28-1.28)	**1.28**	0	**1.28**			1.28	**1.28**		
Sulfate	(07/09/1984-07/09/1984)	**1**	(5.-5.)	**5**	0	**5**			5	**5**		
TDS - 180°C	(07/09/1984-07/09/1984)	**1**	(8610.-8610.)	**8610**	0	**8610**			8610	**8610**	24	**100**

Baseline Fruitland Coals Kf84-22e	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/09/1984-07/09/1984)	**2**	(7.86-8.1)	**7.98**	0.12	**8.0**	0.2	**2**	8.0	**8.1**		
Conductivity (umho/cm)	(07/09/1984-07/09/1984)	**2**	(12000.-12800.)	**12400**	400	**12400**	566	**5**	12600	**12760**		
Boron	(07/09/1984-07/09/1984)		(0.46-0.56)	**0.51**	0.05	**0.51**	0.07	**14**	0.54	**0.56**		
Iron (total)		**2**										
Manganese	(07/09/1984-07/09/1984)	**2**	(0.13-0.14)	**0.135**	0.005	**0.135**	0.007	**5**	0.138	**0.140**		**0**
Selenium	(07/09/1984-07/09/1984)	**2**	(0.0005-0.0005)	**0.0005**	0	**0.001**	0.000		0.001	**0.001**		
Chloride	(07/09/1984-07/09/1984)	**2**	(4070.-4300.)	**4185**	115	**4185**	163	**4**	4243	**4289**	2	**100**
Fluoride	(07/09/1984-07/09/1984)	**2**	(1.03-1.43)	**1.23**	0.2	**1.23**	0.28	**23**	1.33	**1.41**		
Sulfate	(07/09/1984-07/09/1984)	**2**	(5.-44.)	**24.5**	19.5	**25**	28	**113**	34	**42**		
TDS - 180°C	(07/09/1984-07/09/1984)	**2**	(8035.-8275.)	**8155**	120	**8155**	170	**2**	8215	**8263**	2	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals KF84-20A	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/10/1984-12/18/2001)	**27**	(7.6-10.05)	**7.85**	0.15	**8.2**	0.6	**8**	8.4	**9.5**	2	**7**
Conductivity (umho/cm)	(07/10/1984-12/18/2001)	**26**	(4240.-16100.)	**12525**	725	**11692**	2388	**20**	13100	**13475**		
Boron	(07/10/1984-12/18/2001)	**26**	(0.42-1.28)	**0.545**	0.05	**0.57**	0.16	**28**	0.58	**0.71**		
Iron (total)	(09/08/1993-12/18/2001)	**17**	(0.1-15.1)	**2.73**	2.3	**4.39**	4.42	**101**	6.80	**11.90**		**0**
Manganese	(07/10/1984-12/18/2001)	**26**	(0.007-0.22)	**0.1**	0.011	**0.093**	0.044	**47**	0.108	**0.148**		**0**
Selenium	(07/10/1984-12/18/2001)	**26**	(0.0005-0.0025)	**0.00175**	8E-04	**0.002**	0.001	**66**	0.003	**0.003**		
Chloride	(07/10/1984-12/18/2001)	**26**	(700.-4400.)	**3715**	253	**3532**	730	**21**	3942	**4130**	26	**100**
Fluoride	(07/10/1984-12/18/2001)	**26**	(1.13-2.3)	**1.39**	0.13	**1.47**	0.27	**18**	1.62	**1.91**	1	**4**
Sulfate	(07/10/1984-12/18/2001)	**26**	(0.5-823.)	**5**	2.5	**46**	161	**348**	18	**123**		
TDS - 180°C	(07/10/1984-12/18/2001)	**26**	(2775.-7670.)	**7260**	210	**6752**	1284	**19**	7425	**7658**	25	**96**

Baseline Fruitland Coals KF84-20C	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(09/16/1985-12/26/2001)	**24**	(7.6-8.65)	**7.865**	0.165	**8.0**	0.3	**4**	8.0	**8.5**		
Conductivity (umho/cm)	(09/16/1985-12/26/2001)	**23**	(3650.-6140.)	**4370**	180	**4355**	477	**11**	4690	**4792**		
Boron	(09/16/1985-12/26/2001)	**23**	(0.025-0.67)	**0.42**	0.05	**0.42**	0.11	**27**	0.05	**0.52**		
Iron (total)	(09/08/1993-12/26/2001)	**16**	(0.18-13.5)	**0.64**	0.295	**2.24**	4.09	**183**	3.10	**12.00**		**0**
Manganese	(09/16/1985-12/26/2001)	**23**	(0.03-0.305)	**0.082**	0.032	**0.096**	0.076	**79**		**0.290**		**0**
Selenium	(09/16/1985-12/26/2001)	**23**	(0.0005-0.008)	**0.0025**	0.002	**0.002**	0.002	**91**	0.009	**0.003**		
Chloride	(09/16/1985-12/26/2001)	**23**	(8.4-1090.)	**715**	28	**686**	197	**29**	750	**821**	21	**91**
Fluoride	(09/16/1985-12/26/2001)	**23**	(0.53-2.44)	**1.74**	0.14	**1.73**	0.37	**22**	1.80	**2.14**	3	**13**
Sulfate	(09/16/1985-12/26/2001)	**23**	(2.5-2600.)	**7**	4.5	**162**	552	**340**	5	**666**	1	**4**
TDS - 180°C	(09/16/1985-12/26/2001)	**23**	(2570.-5300.)	**2770**	140	**2974**	695	**23**	2665	**4723**	4	**17**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Baseline Fruitland Coals KF84-18B	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(07/10/1984-09/26/2000)	**26**	(6.8-8.05)	**7.1**	0.25	**7.3**	0.4	**6**	7.7	**7.9**		
Conductivity (umho/cm)	(07/10/1984-09/26/2000)	**25**	(10000.-18600.)	**15900**	1100	**14935**	2385	**16**	16500	**18200**		
Boron	(07/10/1984-09/26/2000)	**25**	(0.49-1.2)	**0.73**	0.05	**0.74**	0.13	**18**	0.77	**0.90**		
Iron (total)	(09/08/1993-09/26/2000)	**16**	(0.3-362.)	**11.55**	4.515	**35.84**	88.16	**246**	16.88	**135.50**		**0**
Manganese	(07/10/1984-09/26/2000)	**25**	(0.1-6.)	**0.38**	0.12	**0.845**	1.498	**177**	0.500	**4.620**		**0**
Selenium	(07/10/1984-09/26/2000)	**25**	(0.0005-0.0025)	**0.0025**	0	**0.002**	0.001	**61**	0.003	**0.003**		
Chloride	(07/10/1984-09/26/2000)	**25**	(3560.-6050.)	**4900**	300	**4907**	512	**10**	5210	**5488**	25	**100**
Fluoride	(07/10/1984-09/26/2000)	**25**	(0.34-1.66)	**0.44**	0.06	**0.55**	0.29	**53**	0.61	**1.02**		
Sulfate	(07/10/1984-09/26/2000)	**25**	(2.-156.)	**5**	2.5	**24**	42	**178**	17	**135**		
TDS - 180°C	(07/10/1984-09/26/2000)	**25**	(7100.-12410.)	**9300**	250	**9128**	972	**11**	9460	**9924**	25	**100**

Baseline Fruitland Coals KF84-18A	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Livestock Criteria**	
											n	**%**
pH	(09/16/1985-12/19/2001)	**6**	(7.2-8.05)	**7.45**	0.21	**7.5**	0.3	**3**	7.7	**8.0**		
Conductivity (umho/cm)	(09/16/1985-12/19/2001)	**6**	(2380.-25300.)	**22900**	1700	**21131**	4481	**21**	23300	**24600**		
Boron	(09/16/1985-12/19/2001)	**1**	(0.64-1.32)	**0.72**	0.05	**0.77**	0.15	**19**	0.79	**1.00**		
Iron (total)	(09/08/1993-12/19/2001)	**1**	(0.1-21.1)	**3.8**	1.51	**6.23**	5.94	**95**	5.70	**17.26**		**0**
Manganese	(09/16/1985-12/19/2001)	**1**	(0.2-35.)	**1.33**	0.18	**2.694**	6.746	**250**	1.600	**2.184**		**0**
Selenium	(09/16/1985-12/19/2001)	**6**	(0.0005-0.005)	**0.0025**	0	**0.002**	0.001	**66**	0.003	**0.003**		
Chloride	(09/16/1985-12/19/2001)	**6**	(6680.-8370.)	**7900**	185	**7825**	395	**5**	8060	**8340**	25	**100**
Fluoride	(09/16/1985-12/19/2001)	**1**	(0.57-1.5)	**0.67**	0.08	**0.77**	0.23	**29**	0.92	**1.05**		
Sulfate	(09/16/1985-12/19/2001)	**3**	(2.5-729.)	**5**	2.5	**52**	148	**282**	17	**161**		
TDS - 180°C	(09/16/1985-12/19/2001)	**6**	(11400.-14100.)	**13400**	100	**13270**	544	**4**	13500	**13800**	25	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Non-Baseline Fruitland Combined	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(12/12/1983-12/20/2010)	**171**	(7.06-8.68)	**7.74**	0.24	**7.8**	0.3	**4**	8.0	**8.3**			12	**7**
Conductivity (umho/cm)	(12/12/1983-12/20/2010)	**168**	(2030.-26900.)	**11000**	2000	**11815**	4056	**34**	13800	**18550**			7	**4**
Boron	(12/12/1983-12/20/2010)	**149**	(0.03-5.)	**1.07**	0.14	**1.09**	0.45	**41**	1.23	**1.50**			137	**92**
Iron (total)	(09/08/1993-12/20/2010)	**124**	-(0.3-76.2)	**0.275**	0.205	**2.24**	8.71	**388**	0.76	**8.92**			11	**9**
Manganese	(12/12/1983-12/20/2010)	**147**	-(0.2-1.5)	**0.025**		**0.068**	0.152	**224**	0.100	**0.228**			7	**5**
Selenium	(12/12/1983-12/20/2010)	**167**	-(0.005-0.093)	**0.0025**	5E-04	**0.006**	0.012	**209**	0.003	**0.034**	1	**1**	32	**19**
Chloride	(12/12/1983-12/20/2010)	**168**	(26.-8400.)	**2257.5**	1240	**2272**	1734	**76**	3340	**4905**	131	**78**	3	**2**
Fluoride	(12/12/1983-12/20/2010)	**149**	(0.005-5.3)	**1.1**	0.4	**1.38**	0.80	**58**	1.70	**2.80**	25	**17**	20	**13**
Sulfate	(12/12/1983-12/20/2010)	**159**	(0.5-5400.)	**264**	259	**939**	1450	**154**	1000	**4342**	39	**25**	102	**64**
TDS - 180°C	(12/12/1983-12/20/2010)	**164**	(1450.-14100.)	**7330**	1300	**7432**	2028	**27**	8323	**10200**	160	**98**	4	**2**

Non-Baseline Fruitland Bitsui 2	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(03/02/1995-12/20/2010)	**27**	(7.5-8.5)	**8**	0.1	**8.0**	0.2	**2**	8.1	**8.3**			2	**7**
Conductivity (umho/cm)	(03/02/1995-12/20/2010)	**26**	(2030.-12100.)	**8095**	595	**8476**	1713	**20**	9463	**10475**				
Boron	(03/02/1995-12/20/2010)	**26**	(0.27-1.1)	**0.985**	0.05	**0.94**	0.15	**16**	1.01	**1.06**			25	**96**
Iron (total)	(03/02/1995-12/20/2010)	**26**	(0.025-0.7)	**0.105**	0.045	**0.18**	0.18	**99**	0.19	**0.54**				
Manganese	(03/02/1995-12/20/2010)	**26**	(0.0025-0.025)	**0.0058**	0.003	**0.008**	0.006	**76**	0.010	**0.024**				
Selenium	(03/02/1995-12/20/2010)	**26**	(0.0005-0.041)	**0.0025**	0	**0.006**	0.009	**149**	0.004	**0.022**			7	**27**
Chloride	(03/02/1995-12/20/2010)	**26**	(130.-1270.)	**1160**	60	**1076**	243	**23**	1215	**1258**	25	**96**		
Fluoride	(03/02/1995-12/20/2010)	**26**	(0.79-2.66)	**1.7**	0.1	**1.66**	0.34	**21**	1.77	**1.97**	1	**4**	1	**4**
Sulfate	(03/02/1995-12/20/2010)	**26**	(4.5-1700.)	**165**	153	**535**	605	**113**	1150	**1450**	7	**27**	19	**73**
TDS - 180°C	(03/02/1995-12/20/2010)	**26**	(1450.-6500.)	**5145**	185	**5375**	975	**18**	6128	**6400**	25	**96**		

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Non-Baseline Fruitland Bitsui 3	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(03/02/1995-12/21/2009)	**22**	(7.3-7.83)	**7.535**	0.065	**7.5**	0.1	**2**	7.6	**7.8**				
Conductivity (umho/cm)	(03/02/1995-12/21/2009)	**21**	(11900.-15000.)	**12900**	400	**13133**	867	**7**	13800	**14600**				
Boron	(03/02/1995-12/21/2009)	**21**	(0.9-1.22)	**1.07**	0.04	**1.07**	0.09	**8**	1.10	**1.20**			21	**100**
Iron (total)	(03/02/1995-12/21/2009)	**21**	(0.12-1.18)	**0.35**	0.17	**0.44**	0.29	**67**	0.60	**0.87**				
Manganese	(03/02/1995-12/21/2009)	**21**	(0.0025-0.025)	**0.005**	0.003	**0.009**	0.007	**86**	0.010	**0.025**				
Selenium	(03/02/1995-12/21/2009)	**21**	(0.0005-0.036)	**0.0025**	0	**0.006**	0.010	**162**	0.003	**0.035**			5	**24**
Chloride	(03/02/1995-12/21/2009)	**21**	(2420.-3600.)	**2820**	220	**2892**	331	**11**	3070	**3540**	21	**100**		
Fluoride	(03/02/1995-12/21/2009)	**21**	(0.005-1.3)	**1.01**	0.09	**0.97**	0.27	**28**	1.10	**1.27**				
Sulfate	(03/02/1995-12/21/2009)	**21**	(5.-640.)	**317**	213	**288**	235	**82**	509	**604**			14	**67**
TDS - 180°C	(03/02/1995-12/21/2009)	**17**	(7360.-8240.)	**7960**	180	**7866**	276	**4**	8100	**8224**	17	**100**		

Non-Baseline Fruitland Kf83-1	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(12/12/1983-09/26/2002)	**41**	(7.245-8.68)	**7.7**	0.1	**7.8**	0.3	**4**	8.0	**8.5**			4	**10**
Conductivity (umho/cm)	(12/12/1983-09/26/2002)	**41**	(9000.-13300.)	**10800**	900	**10663**	1048	**10**	11600	**11900**				
Boron	(12/12/1983-09/26/2002)	**41**	(0.1-5.)	**1.01**	0.08	**1.09**	0.67	**62**	1.08	**1.23**			38	**93**
Iron (total)	(09/08/1993-09/26/2002)	**32**	-(0.3-1.06)	**0.155**	0.11	**0.23**	0.29	**126**	0.28	**0.85**				
Manganese	(12/12/1983-09/26/2002)	**41**	-(0.2-0.21)	**0.02**	0.01	**0.030**	0.057	**188**	0.030	**0.100**				
Selenium	(12/12/1983-09/26/2002)	**41**	-(0.005-0.05)	**0.0025**	0	**0.003**	0.009	**329**	0.003	**0.003**			2	**5**
Chloride	(12/12/1983-09/26/2002)	**41**	(46.-2760.)	**2255**	355	**2008**	687	**34**	2485	**2680**	39	**95**		
Fluoride	(12/12/1983-09/26/2002)	**41**	(0.83-1.57)	**1.07**	0.14	**1.15**	0.22	**19**	1.30	**1.57**				
Sulfate	(12/12/1983-09/26/2002)	**41**	(5.-1260.)	**340**	209	**372**	329	**88**	411	**1000**	2	**5**	36	**88**
TDS - 180°C	(12/12/1983-09/26/2002)	**41**	(5670.-7750.)	**7100**	240	**6883**	611	**9**	7330	**7460**	41	**100**		

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Non-Baseline Fruitland KF84	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(09/17/1986-09/30/2001)	**25**	(7.605-8.56)	**7.8**	0.1	**7.9**	0.3	**3**	8.2	**8.3**			2	**8**
Conductivity (umho/cm)	(09/17/1986-09/30/2001)	**24**	(6400.-22000.)	**10000**	515	**10415**	2845	**27**	10425	**21805**			1	**4**
Boron	(09/17/1986-09/30/2001)	**24**	(0.03-1.66)	**1.3**	0.075	**1.26**	0.30	**24**	1.38	**1.64**			23	**96**
Iron (total)	(09/08/1993-09/30/2001)	**18**	(0.41-76.2)	**1.675**	1.105	**11.68**	19.81	**170**	13.94	**1.56**			8	**44**
Manganese	(09/17/1986-09/30/2001)	**24**	(0.03-1.5)	**0.134**	0.044	**0.237**	0.303	**128**	0.252	**0.195**			6	**25**
Selenium	(09/17/1986-09/30/2001)	**24**	(0.0005-0.016)	**0.0025**	0	**0.002**	0.003	**131**	0.003	**0.004**			1	**4**
Chloride	(09/17/1986-09/30/2001)	**24**	(181.-503.)	**326.5**	44	**326**	72	**22**	366	**5004**				
Fluoride	(09/17/1986-09/30/2001)	**24**	(0.45-5.3)	**2.7**	0.195	**2.75**	0.86	**31**	2.89	**0.91**	23	**96**	19	**79**
Sulfate	(09/17/1986-09/30/2001)	**24**	(2500.-5400.)	**3955**	492.5	**4014**	688	**17**	4490	**115**	24	**100**	24	**100**
TDS - 180°C	(09/17/1986-09/30/2001)	**24**	(6060.-9390.)	**7760**	425	**7788**	784	**10**	8190	**10445**	24	**100**		

Non-Baseline Fruitland KF84-16	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(07/10/1984-09/24/2002)	**32**	(7.3-8.65)	**7.55**	0.18	**7.6**	0.3	**4**	7.7	**8.3**			2	**6**
Conductivity (umho/cm)	(07/10/1984-09/24/2002)	**32**	(13000.-23500.)	**16455**	1300	**16575**	2487	**15**	17125	**21805**			3	**9**
Boron	(07/10/1984-09/24/2002)	**32**	(0.3-1.88)	**1.26**	0.075	**1.25**	0.29	**23**	1.35	**1.64**			29	**91**
Iron (total)	(09/08/1993-09/24/2002)	**23**	(0.025-2.76)	**0.37**	0.24	**0.57**	0.62	**109**	0.70	**1.56**			1	**4**
Manganese	(07/10/1984-09/24/2002)	**32**	(0.008-0.42)	**0.05**	0.03	**0.076**	0.079	**105**	0.100	**0.195**			1	**3**
Selenium	(07/10/1984-09/24/2002)	**31**	(0.0005-0.01)	**0.0025**	0	**0.002**	0.002	**82**	0.003	**0.004**			2	**6**
Chloride	(07/10/1984-09/24/2002)	**32**	(3510.-5300.)	**4551**	160	**4524**	346	**8**	4705	**5004**	32	**100**		
Fluoride	(07/10/1984-09/24/2002)	**32**	(0.4-0.95)	**0.69**	0.06	**0.70**	0.12	**18**	0.75	**0.91**				
Sulfate	(07/10/1984-09/24/2002)	**32**	(0.5-599.)	**15.5**	10.5	**40**	106	**264**	22	**115**			3	**9**
TDS - 180°C	(07/10/1984-09/24/2002)	**32**	(9400.-11400.)	**9955**	145	**10033**	351	**3**	10125	**10445**	32	**100**	1	**3**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Non-Baseline Fruitland SJKF84 #5	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(07/10/1984-07/10/1984)	**1**	(8.12-8.12)	**8.12**	0	**8.1**			8.1	**8.1**				
Conductivity (umho/cm)	(07/10/1984-07/10/1984)	**1**	(5900.-5900.)	**5900**	0	**5900**			5900	**5900**				
Boron	(07/10/1984-07/10/1984)	**1**	(1.23-1.23)	**1.23**	0	**1.23**			1.23	**1.23**			1	**100**
Iron (total)														
Manganese	(07/10/1984-07/10/1984)	**1**	(0.17-0.17)	**0.17**	0	**0.170**			0.170	**0.170**				
Selenium	(07/10/1984-07/10/1984)	**1**	(0.0005-0.0005)	**0.0005**	0	**0.001**			0.001	**0.001**				
Chloride	(07/10/1984-07/10/1984)	**1**	(360.-360.)	**360**	0	**360**			360	**360**				
Fluoride	(07/10/1984-07/10/1984)	**1**	(2.07-2.07)	**2.07**	0	**2.07**			2.07	**2.07**	1	**100**		
Sulfate	(07/10/1984-07/10/1984)	**1**	(5.-5.)	**5**	0	**5**			5	**5**				
TDS - 180°C	(07/10/1984-07/10/1984)	**1**	(4470.-4470.)	**4470**	0	**4470**			4470	**4470**	1	**100**		

Non-Baseline Fruitland KF84-18A	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(09/28/2005-09/30/2008)	**3**	(7.27-7.34)	**7.29**	0.02	**7.3**	0.0	**0**	7.3	**7.3**				
Conductivity (umho/cm)	(09/28/2005-09/30/2008)	**3**	(26300.-26900.)	**26500**	200	**26567**	306	**1**	26700	**26860**			3	**100**
Boron														
Iron (total)														
Manganese														
Selenium	(09/28/2005-09/30/2008)	**3**	(0.046-0.093)	**0.047**	0.001	**0.062**	0.027	**43**	0.070	**0.088**	1	**33**	3	**100**
Chloride	(09/28/2005-09/30/2008)	**3**	(7800.-8400.)	**8300**	100	**8167**	321	**4**	8350	**8390**	3	**100**	3	**100**
Fluoride														
Sulfate	(09/28/2005-09/28/2005)	**1**	(5.-5.)	**5**	0	**5**			5	**5**				
TDS - 180°C	(09/28/2005-09/30/2008)	**3**	(13800.-14100.)	**13800**	0	**13900**	173	**1**	13950	**14070**	3	**100**	3	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Non-Baseline Fruitland KF84-18B	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(09/27/2002-09/24/2003)	**2**	(7.06-7.2)	**7.13**	0.07	**7.1**	0.1	**1**	7.2	**7.2**			2	**100**
Conductivity (umho/cm)	(09/27/2002-09/24/2003)	**2**	(17200.-17900.)	**17550**	350	**17550**	495	**3**	17725	**17865**				
Boron	(09/27/2002-09/27/2002)	**1**	(0.1-0.1)	**0.1**	0	**0.10**			0.10	**0.10**				
Iron (total)	(09/27/2002-09/27/2002)	**1**	(28.-28.)	**28**	0	**28.00**			28.00	**28.00**			1	**100**
Manganese														
Selenium	(09/27/2002-09/24/2003)	**2**	(0.0005-0.001)	**0.00075**	3E-04	**0.001**	0.000	**47**	0.001	**0.001**				
Chloride	(09/27/2002-09/24/2003)	**2**	(4950.-4960.)	**4955**	5	**4955**	7	**0**	4958	**4960**	2	**100**		
Fluoride	(09/27/2002-09/27/2002)	**1**	(0.4-0.4)	**0.4**	0	**0.40**			0.40	**0.40**				
Sulfate	(09/27/2002-09/24/2003)	**2**	(5.-5.)	**5**	0	**5**	0		5	**5**				
TDS - 180°C	(09/27/2002-09/24/2003)	**2**	(9130.-9200.)	**9165**	35	**9165**	49	**1**	9183	**9197**	2	**100**		

Non-Baseline Fruitland KF84-20C	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(09/26/2002-09/29/2008)	**3**	(7.81-7.96)	**7.94**	0.02	**7.9**	0.1	**1**	8.0	**8.0**				
Conductivity (umho/cm)	(09/26/2002-09/29/2008)	**3**	(4470.-4870.)	**4510**	40	**4617**	220	**5**	4690	**4834**				
Boron	(09/26/2002-09/26/2002)	**1**	(0.05-0.05)	**0.05**	0	**0.05**			0.05	**0.05**				
Iron (total)	(09/26/2002-09/26/2002)	**1**	(3.1-3.1)	**3.1**	0	**3.10**			3.10	**3.10**			1	**100**
Manganese														
Selenium	(09/26/2002-09/29/2008)	**3**	(0.001-0.011)	**0.007**	0.004	**0.006**	0.005	**79**	0.009	**0.011**			2	**67**
Chloride	(09/26/2002-09/29/2008)	**3**	(720.-770.)	**730**	10	**740**	26	**4**	750	**766**	3	**100**		
Fluoride	(09/26/2002-09/26/2002)	**1**	(1.8-1.8)	**1.8**	0	**1.80**			1.80	**1.80**				
Sulfate	(09/26/2002-09/28/2005)	**2**	(5.-5.)	**5**	0	**5**	0		5	**5**				
TDS - 180°C	(09/26/2002-09/29/2008)	**3**	(2620.-2690.)	**2640**	20	**2650**	36	**1**	2665	**2685**				

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Non-Baseline Fruitland KF84-22A	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(09/24/2002-09/24/2008)	**9**	(7.97-8.19)	**8.09**		**8.1**	0.1	**1**	8.2	**8.2**				
Conductivity (umho/cm)	(09/24/2002-09/24/2008)	**9**	(7120.-8030.)	**7430**		**7424**	266	**4**	7480	**7810**				
Boron	(09/23/2002-09/23/2002)	**1**	(0.05-0.05)	**0.05**		**0.05**			0.05	**0.05**				
Iron (total)	(09/23/2002-09/23/2002)	**1**	(0.8-0.8)	**0.8**		**0.80**			0.80	**0.80**				
Manganese	(09/23/2002-09/23/2002)	**1**	(0.025-0.025)	**0.025**		**0.025**			0.025	**0.025**				
Selenium	(09/23/2002-09/24/2008)	**9**	(0.0005-0.047)	**0.012**		**0.015**	0.016	**107**	0.017	**0.041**			6	**67**
Chloride	(09/24/2002-09/24/2008)	**9**	(26.-230.)	**216**		**188**	65	**34**	220	**228**				
Fluoride	(09/24/2002-09/24/2002)	**1**	(1.1-1.1)	**1.1**		**1.10**			1.10	**1.10**				
Sulfate	(09/24/2002-09/29/2006)	**6**	(2300.-3050.)	**2800**		**2725**	252	**9**	2800	**2988**	6	**100**	6	**100**
TDS - 180°C	(09/24/2002-09/24/2008)	**9**	(4870.-5540.)	**5100**		**5180**	212	**4**	5330	**5456**	9	**100**		

Non-Baseline Fruitland KF84-22B	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(09/24/2002-09/24/2008)	**6**	(7.42-7.9)	**7.52**	0.07	**7.6**	0.2	**2**	7.6	**7.8**				
Conductivity (umho/cm)	(09/24/2002-09/24/2008)	**6**	(11400.-11900.)	**11650**	200	**11633**	225	**2**	11800	**11875**				
Boron	(09/24/2002-09/24/2002)	**1**	(0.05-0.05)	**0.05**	0	**0.05**			0.05	**0.05**				
Iron (total)	(09/24/2002-09/24/2002)	**1**	(1.5-1.5)	**1.5**	0	**1.50**			1.50	**1.50**				
Manganese	(09/24/2002-09/24/2002)	**1**	(0.025-0.025)	**0.025**	0	**0.025**			0.025	**0.025**				
Selenium	(09/24/2002-09/24/2008)	**6**	(0.0005-0.038)	**0.0195**	0.013	**0.018**	0.015	**85**	0.026	**0.035**			4	**67**
Chloride	(09/24/2002-09/24/2008)	**6**	(3000.-3340.)	**3280**	60	**3220**	149	**5**	3340	**3340**	6	**100**		
Fluoride	(09/24/2002-09/24/2002)	**1**	(0.8-0.8)	**0.8**	0	**0.80**			0.80	**0.80**				
Sulfate	(09/24/2002-09/27/2005)	**3**	(5.-5.)	**5**	0	**5**	0		5	**5**				
TDS - 180°C	(09/24/2002-09/24/2008)	**6**	(5840.-6210.)	**6030**	125	**6013**	143	**2**	6090	**6185**	6	**100**		

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Spoils Wells Combined	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(01/26/1996-12/21/2010)	**64**	(6.5-8.4)	**6.975**	0.275	**7.1**	0.4	**6**	7.4	**7.7**			41	**64**
Conductivity (umho/cm)	(01/26/1996-12/21/2010)	**63**	(430.-24600.)	**17200**	1200	**16872**	3590	**21**	18400	**21290**			5	**8**
Boron	(01/26/1996-12/21/2010)	**63**	(0.11-4.7)	**1.54**	0.34	**1.67**	0.69	**42**	1.90	**2.61**			62	**98**
Iron (total)	(01/26/1996-12/21/2010)	**63**	(0.06-20.)	**1.09**	0.75	**2.50**	4.16	**166**	2.20	**11.43**		**0**	17	**27**
Manganese	(01/26/1996-12/21/2010)	**63**	(0.0025-7.05)	**2.99**	2.61	**2.717**	2.321	**85**	4.558	**6.081**		**0**	40	**63**
Selenium	(01/26/1996-12/21/2010)	**63**	(0.0005-0.2)	**0.0025**	0.002	**0.013**	0.035	**270**	0.013	**0.027**	2	**3**	21	**33**
Chloride	(01/26/1996-12/21/2010)	**63**	(45.7-1330.)	**530**	166	**658**	327	**50**	980	**1221**	28	**44**		
Fluoride	(01/26/1996-12/21/2010)	**63**	(0.2-1.34)	**0.3**	0.04	**0.56**	0.36	**65**	1.00	**1.12**				
Sulfate	(01/26/1996-12/21/2010)	**63**	(3550.-15500.)	**7920**	1920	**7779**	2502	**32**	9293	**11380**	63	**100**	63	**100**
TDS - 180°C	(01/26/1996-12/21/2010)	**61**	(1160.-18000.)	**14600**	1600	**13880**	2530	**18**	15300	**16700**	60	**98**	57	**93**

Spoils Wells Bitsui 4	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(01/26/1996-12/21/2010)	**21**	(6.62-7.7)	**6.8**	0.1	**6.9**	0.3	**4**	7.0	**7.7**			19	**90**
Conductivity (umho/cm)	(01/26/1996-12/21/2010)	**20**	(14400.-24600.)	**18100**	950	**18395**	2205	**12**	18975	**21845**			3	**15**
Boron	(01/26/1996-12/21/2010)	**20**	(1.3-2.5)	**1.685**	0.19	**1.73**	0.34	**19**	1.76	**2.31**			20	**100**
Iron (total)	(01/26/1996-12/21/2010)	**20**	(0.67-18.6)	**2.76**	1.92	**4.78**	5.23	**109**	5.98	**16.70**			13	**65**
Manganese	(01/26/1996-12/21/2010)	**20**	(2.08-7.05)	**3.65**	1.033	**3.869**	1.393	**36**	4.754	**5.920**			20	**100**
Selenium	(01/26/1996-12/21/2010)	**20**	(0.0005-0.2)	**0.0025**	0.002	**0.016**	0.044	**273**	0.013	**0.029**	1	**5**	7	**35**
Chloride	(01/26/1996-12/21/2010)	**20**	(45.7-696.)	**504**	63.5	**491**	145	**30**	563	**661**	5	**25**		
Fluoride	(01/26/1996-12/21/2010)	**20**	(0.2-0.34)	**0.3**	0	**0.30**	0.03	**10**	0.31	**0.33**				
Sulfate	(01/26/1996-12/21/2010)	**20**	(6680.-13500.)	**8900**	520	**9286**	1491	**16**	9595	**11505**	20	**100**	20	**100**
TDS - 180°C	(01/26/1996-12/21/2010)	**20**	(13100.-17500.)	**15150**	450	**15335**	995	**6**	15875	**16740**	20	**100**	20	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

Spoils Wells Bitsui 5	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(02/13/1996-12/20/2010)	**23**	(7.25-8.4)	**7.45**	0.1	**7.6**	0.3	**4**	7.6	**8.2**			2	**9**
Conductivity (umho/cm)	(02/13/1996-12/20/2010)	**23**	(13000.-19300.)	**16200**	1000	**16070**	1494	**9**	16850	**19090**				
Boron	(02/13/1996-12/20/2010)	**23**	(0.11-1.7)	**1.11**	0.09	**1.12**	0.27	**24**	1.20	**1.33**			22	**96**
Iron (total)	(02/13/1996-12/20/2010)	**23**	(0.06-2.05)	**0.31**	0.12	**0.42**	0.50	**119**	0.40	**1.70**				
Manganese	(02/13/1996-12/20/2010)	**23**	(0.0025-0.41)	**0.108**	0.025	**0.115**	0.077	**67**	0.132	**0.169**			1	**4**
Selenium	(02/13/1996-12/20/2010)	**23**	(0.0005-0.2)	**0.0025**	0.002	**0.015**	0.041	**280**	0.011	**0.027**	1	**4**	7	**30**
Chloride	(02/13/1996-12/20/2010)	**23**	(650.-1330.)	**1020**	115	**1041**	174	**17**	1205	**1314**	23	**100**		
Fluoride	(02/13/1996-12/20/2010)	**23**	(0.8-1.22)	**1**	0.04	**1.00**	0.09	**9**	1.03	**1.12**				
Sulfate	(02/13/1996-12/20/2010)	**23**	(3550.-6200.)	**5030**	570	**5173**	750	**14**	5800	**6190**	23	**100**	23	**100**
TDS - 180°C	(02/13/1996-12/20/2010)	**21**	(1160.-12700.)	**11800**	400	**11298**	2397	**21**	12200	**12500**	20	**95**	17	**81**

Spoils Wells Bitsui 6	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(02/12/1996-12/02/2010)	**20**	(6.5-7.25)	**6.8**	0.1	**6.8**	0.2	**3**	6.9	**7.1**			20	**100**
Conductivity (umho/cm)	(02/12/1996-12/02/2010)	**20**	(430.-23200.)	**17600**	1400	**16271**	5569	**34**	18525	**21395**			2	**10**
Boron	(02/12/1996-12/02/2010)	**20**	(1.38-4.7)	**2.07**	0.47	**2.24**	0.81	**36**	2.46	**3.47**			20	**100**
Iron (total)	(02/12/1996-12/02/2010)	**20**	(0.41-20.)	**1.33**	0.31	**2.63**	4.26	**162**	1.86	**5.37**			4	**20**
Manganese	(02/12/1996-12/02/2010)	**20**	(0.13-7.05)	**4.55795**	1.042	**4.558**	1.573	**35**	5.600	**6.623**			19	**95**
Selenium	(02/12/1996-12/02/2010)	**20**	(0.0005-0.042)	**0.0025**	0.002	**0.008**	0.010	**129**	0.013	**0.021**			7	**35**
Chloride	(02/12/1996-12/02/2010)	**20**	(56.9-490.)	**396**	37	**384**	91	**24**	433	**471**				
Fluoride	(02/12/1996-12/02/2010)	**20**	(0.2-1.34)	**0.285**	0.02	**0.32**	0.24	**77**	0.30	**0.38**				
Sulfate	(02/12/1996-12/02/2010)	**20**	(4700.-15500.)	**8850**	1040	**9268**	2145	**23**	10010	**11795**	20	**100**	20	**100**
TDS - 180°C	(02/12/1996-12/02/2010)	**20**	(12200.-18000.)	**14850**	900	**15135**	1385	**9**	16200	**16860**	20	**100**	20	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

CCB Wells Combined	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(03/01/1995-12/02/2010)	**43**	(4.7-10.1)	**8.7**	0.2	**8.4**	0.9	**11**	8.8	**9.9**	7	**16**	30	**70**
Conductivity (umho/cm)	(03/01/1995-12/02/2010)	**40**	(868.-25900.)	**15550**	7450	**12679**	8558	**67**	19225	**24235**			8	**20**
Boron	(03/01/1995-12/02/2010)	**38**	(0.96-23.2)	**10.25**	3.36	**10.60**	6.00	**57**	15.53	**18.81**	31	**82**	38	**100**
Iron (total)	(03/01/1995-12/02/2010)	**40**	(0.12-216.)	**1.16**	0.75	**12.41**	36.49	**294**	7.18	**48.00**			16	**40**
Manganese	(03/01/1995-12/02/2010)	**39**	(0.001-2.68)	**0.11**	0.09	**0.409**	0.725	**177**	0.265	**2.377**			10	**26**
Selenium	(03/01/1995-12/02/2010)	**39**	(0.0005-0.141)	**0.009**	0.007	**0.027**	0.037	**137**	0.029	**0.100**	8	**21**	32	**82**
Chloride	(03/01/1995-12/02/2010)	**40**	(5.-2310.)	**900**	856.6	**1056**	845	**80**	1840	**2051**	26	**65**		
Fluoride	(03/01/1995-12/02/2010)	**40**	(0.58-5.1)	**2.61**	0.96	**2.79**	1.33	**48**	3.83	**4.92**	30	**75**	25	**63**
Sulfate	(03/01/1995-12/02/2010)	**40**	(261.-14000.)	**6325**	1615	**4835**	3307	**68**	7055	**8315**	31	**78**	40	**100**
TDS - 180°C	(03/01/1995-12/02/2010)	**34**	(1500.-18700.)	**14200**	2100	**10996**	5403	**49**	15150	**16360**	30	**88**	20	**59**

CCB Wells Bitsui 1	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(03/01/1995-12/02/2010)	**28**	(7.23-8.9)	**8.7**	0.1	**8.5**	0.5	**6**	8.8	**8.9**			23	**82**
Conductivity (umho/cm)	(03/01/1995-12/02/2010)	**26**	(868.-25900.)	**18200**	2950	**17987**	5447	**30**	22200	**24725**			26	**100**
Boron	(03/01/1995-12/02/2010)	**25**	(6.98-23.2)	**10.5**	1.75	**11.86**	4.07	**34**	13.70	**18.34**	25	**100**	22	**88**
Iron (total)	(03/01/1995-12/02/2010)	**26**	(0.12-21.4)	**0.66**	0.33	**2.62**	4.83	**185**	1.61	**12.19**			26	**100**
Manganese	(03/01/1995-12/02/2010)	**26**	(0.02-2.68)	**0.2**	0.1	**0.602**	0.826	**137**	0.579	**2.415**			26	**100**
Selenium	(03/01/1995-12/02/2010)	**26**	(0.0005-0.09)	**0.006**	0.004	**0.010**	0.017	**169**	0.011	**0.027**	1	**4**	26	**100**
Chloride	(03/01/1995-12/02/2010)	**26**	(5.-2310.)	**1830**	150	**1529**	653	**43**	1965	**2065**	24	**92**	26	**100**
Fluoride	(03/01/1995-12/02/2010)	**26**	(0.58-4.39)	**2.25**	0.425	**2.11**	0.87	**41**	2.62	**3.03**	17	**65**	26	**100**
Sulfate	(03/01/1995-12/02/2010)	**26**	(261.-14000.)	**6995**	569	**6838**	2201	**32**	7556	**8525**	25	**96**	26	**100**
TDS - 180°C	(03/01/1995-12/02/2010)	**25**	(8430.-18700.)	**14600**	700	**13906**	2536	**18**	15300	**17080**	25	**100**	25	**100**

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

CCB Wells Watson-4	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(03/02/1995-10/10/1996)	**6**	(9.145-10.1)	**9.8**	0.2	**9.7**	0.3	**4**	9.9	**10.1**	6	**100**	6	**100**
Conductivity (umho/cm)	(03/02/1995-10/10/1996)	**6**	(2610.-5480.)	**4195**	665	**4042**	1021	**25**	4520	**5248**			6	**100**
Boron	(03/02/1995-10/10/1996)	**6**	(8.9-20.)	**17.4**	1.45	**16.33**	3.92	**24**	18.43	**19.65**	6	**100**	6	**100**
Iron (total)	(03/02/1995-10/10/1996)	**6**	(11.-216.)	**34.85**	21.55	**66.38**	78.30	**118**	76.00	**183.50**			6	**100**
Manganese	(03/02/1995-10/10/1996)	**6**	(0.001-0.01)	**0.01**	0	**0.008**	0.004	**50**	0.010	**0.010**			6	**100**
Selenium	(03/02/1995-10/10/1996)	**6**	(0.006-0.05)	**0.017**	0.01	**0.021**	0.016	**77**	0.027	**0.045**			6	**100**
Chloride	(03/02/1995-10/10/1996)	**6**	(123.-647.)	**248**	101.5	**341**	228	**67**	522	**638**	2	**33**	6	**100**
Fluoride	(03/02/1995-10/10/1996)	**6**	(3.17-4.46)	**3.625**	0.29	**3.75**	0.47	**12**	4.02	**4.37**	6	**100**	6	**100**
Sulfate	(03/02/1995-10/10/1996)	**6**	(1620.-2100.)	**2020**	65	**1940**	189	**10**	2068	**2093**	6	**100**	6	**100**
TDS - 180°C	(03/02/1995-10/10/1996)	**6**	(2900.-4160.)	**3620**	240	**3617**	435	**12**	3875	**4105**	5	**83**	6	**100**

CCB Wells Custer-2	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Criteria			
											Livestock		Baseline Fruitland	
											n	%	n	%
pH	(07/18/1997-07/18/1997)	**1**	(7.9-7.9)	**7.9**	0	**7.9**			7.9	**7.9**				
Conductivity (umho/cm)	(07/18/1997-07/18/1997)	**1**	(1110.-1110.)	**1110**	0	**1110**			1110	**1110**			1	**100**
Boron														
Iron (total)	(07/18/1997-07/18/1997)	**1**	(1.11-1.11)	**1.11**	0	**1.11**			1.11	**1.11**			1	**100**
Manganese														
Selenium														
Chloride	(07/18/1997-07/18/1997)	**1**	(36.-36.)	**36**	0	**36**			36	**36**			1	**100**
Fluoride	(07/18/1997-07/18/1997)	**1**	(0.98-0.98)	**0.98**	0	**0.98**			0.98	**0.98**			1	**100**
Sulfate	(07/18/1997-07/18/1997)	**1**	(440.-440.)	**440**	0	**440**			440	**440**			1	**100**
TDS - 180°C														

Appendix F - Groundwater Data Summary

Fruitland Formation, Spoil, and CCB Well Tables (all Values are dissolved (mg/L) unless otherwise indicated)

CCB Wells Doby-2	Dates	**n**	Range	**Median**	MAD	**Average**	Standard Deviation	**Percent Relative Standard Deviation**	Q3	**95th Percentile**	**Exceedance of Criteria**			
											Livestock		**Baseline Fruitland**	
											n	**%**	n	**%**
pH	(01/21/1997-06/14/1999)	**8**	(4.7-7.7)	**7.5**	0.1	**7.2**	1.0	**14**	7.6	**7.7**	1	**13**	1	**13**
Conductivity (umho/cm)	(01/21/1997-06/14/1999)	**7**	(1780.-2110.)	**2070**	40	**2020**	118	**6**	2100	**2107**			7	**100**
Boron	(01/21/1997-06/14/1999)	**7**	(0.96-1.56)	**1.14**	0.06	**1.19**	0.18	**16**	1.22	**1.46**			7	**100**
Iron (total)	(01/21/1997-06/14/1999)	**7**	(0.58-10.4)	**2.3**	1.64	**4.14**	4.32	**104**	6.85	**10.34**			7	**100**
Manganese	(01/21/1997-06/14/1999)	**7**	(0.01-0.07)	**0.027**	0.006	**0.035**	0.022	**63**	0.045	**0.067**			7	**100**
Selenium	(01/21/1997-06/14/1999)	**7**	(0.057-0.141)	**0.09**	0.016	**0.093**	0.028	**30**	0.107	**0.133**	7	**100**	7	**100**
Chloride	(01/21/1997-06/14/1999)	**7**	(41.2-78.)	**50**	8.8	**55**	15	**26**	66	**75**			7	**100**
Fluoride	(01/21/1997-06/14/1999)	**7**	(4.42-5.1)	**4.9**	0.2	**4.76**	0.26	**6**	4.92	**5.05**	7	**100**	7	**100**
Sulfate	(01/21/1997-06/14/1999)	**7**	(365.-610.)	**488**	112	**504**	103	**20**	601	**607**			7	**100**
TDS - 180°C	(01/21/1997-03/12/1997)	**3**	(1500.-1530.)	**1510**	10	**1513**	15	**1**	1520	**1528**			3	**100**

Appendix F - Groundwater Data Summary

PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline Combined	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(11/16/1974-	**52**	(11.8-7.)	**8**	0.4	**8.3**	1.0	**12**	8.6	**10.1**	10	**19**
Conductivity (umho/cm)	(11/16/1974- 03/04/1977)	**20**	(20500.-3620.)	**9590**	2740	**9893**	4297	**43**	11950	**16700**		
Boron	(11/16/1974-	**51**	(37.-0.05)	**0.7**	0.28	**1.51**	5.09	**338**	1.00	**2.02**	1	**2**
Iron (total)	(11/16/1974-	**18**	(533.-0.01)	**0.805**	0.77	**32.37**	125.13	**386**	2.32	**105.02**		
Manganese	(11/16/1974-	**45**	(0.34-0.001)	**0.06**	0.03	**0.077**	0.075	**97**	0.088	**0.242**		
Selenium	(11/16/1974-	**51**	(0.25-0.001)	**0.005**	0	**0.032**	0.073	**232**	0.007	**0.250**	6	**12**
Chloride	(11/16/1974-	**51**	(9000.-39.)	**970**	650	**1755**	2279	**130**	1450	**7080**	31	**61**
Fluoride	(11/16/1974-	**43**	(4.9-0.2)	**1.5**	0.45	**1.72**	0.92	**54**	2.00	**3.29**	10	**23**
Sulfate	(11/16/1974-	**51**	(4535.-0.5)	**2500**	800	**2359**	1198	**51**	3325	**3950**	42	**82**
TDS - 180°C	(11/16/1974-	**51**	(18746.-800.)	**6140**	790	**7214**	3262	**45**	7440	**14418**	50	**98**

PCS Baseline GM-11	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/25/1975-	**4**	(8.05-7.5)	**7.6**	0.05	**7.7**	0.2	**3**	7.7	**8.0**		
Conductivity (umho/cm)	(03/25/1975- 03/04/1977)	**4**	(16500.-11700.)	**14715**	1750	**14408**	2435	**17**	16448	**16490**		
Boron	(03/25/1975-	**4**	(1.2-0.2)	**0.99**	0.11	**0.85**	0.44	**52**	1.05	**1.17**		
Iron (total)												
Manganese	(03/25/1975-	**4**	(0.34-0.08)	**0.18**	0.075	**0.195**	0.115	**59**	0.258	**0.324**		
Selenium	(03/25/1975-	**4**	(0.25-0.005)	**0.0375**	0.0325	**0.083**	0.116	**140**	0.115	**0.223**	2	**50**
Chloride	(03/25/1975-	**4**	(9000.-6420.)	**7267.5**	677.5	**7489**	1160	**15**	8081	**8816**	4	**100**
Fluoride	(03/25/1975-	**4**	(1.6-0.8)	**1.07**	0.2	**1.14**	0.35	**31**	1.30	**1.54**		
Sulfate	(03/25/1975-	**4**	(3065.-375.)	**2450**	432.5	**2085**	1194	**57**	2791	**3010**	3	**75**
TDS - 180°C	(03/25/1975-	**4**	(18746.-13870.)	**15963**	1545	**16136**	2160	**13**	17407	**18478**	4	**100**

Appendix F - Groundwater Data Summary

PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline GM-14	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/25/1975-	**2**	(8.-7.7)	**7.85**	0.15	**7.9**	0.2	**3**	7.9	**8.0**		
Conductivity (umho/cm)	(03/25/1975-05/20/1976)	**2**	(9350.-6100.)	**7725**	1625	**7725**	2298	**30**	8538	**9188**		
Boron	(03/25/1975-	**2**	(0.97-0.61)	**0.79**	0.18	**0.79**	0.25	**32**	0.88	**0.95**		
Iron (total)												
Manganese	(03/25/1975-	**2**	(0.059-0.026)	**0.0425**	0.0165	**0.043**	0.023	**55**	0.051	**0.057**		
Selenium	(03/25/1975-	**2**	(0.25-0.005)	**0.1275**	0.1225	**0.128**	0.173	**136**	0.189	**0.238**	1	**50**
Chloride	(03/25/1975-	**2**	(3400.-2430.)	**2915**	485	**2915**	686	**24**	3158	**3352**	2	**100**
Fluoride	(03/25/1975-	**2**	(1.2-1.19)	**1.195**	0.005	**1.20**	0.01	**1**	1.20	**1.20**		
Sulfate	(03/25/1975-	**2**	(0.91-0.5)	**0.705**	0.205	**1**	0	**41**	1	**1**		
TDS - 180°C	(03/25/1975-	**2**	(6732.-5078.)	**5905**	827	**5905**	1170	**20**	6319	**6649**	2	**100**

PCS Baseline GM-15	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/27/1975-	**2**	(9.2-8.92)	**9.06**	0.14	**9.1**	0.2	**2**	9.1	**9.2**	1	**50**
Conductivity (umho/cm)	(03/27/1975-05/20/1976)	**2**	(12700.-9880.)	**11290**	1410	**11290**	1994	**18**	11995	**12559**		
Boron	(03/27/1975-	**2**	(0.83-0.81)	**0.82**	0.01	**0.82**	0.01	**2**	0.83	**0.83**		
Iron (total)												
Manganese	(03/27/1975-	**2**	(0.079-0.014)	**0.0465**	0.0325	**0.047**	0.046	**99**	0.063	**0.076**		
Selenium	(03/27/1975-	**2**	(0.25-0.005)	**0.1275**	0.1225	**0.128**	0.173	**136**	0.189	**0.238**	1	**50**
Chloride	(03/27/1975-	**2**	(7400.-3910.)	**5655**	1745	**5655**	2468	**44**	6528	**7226**	2	**100**
Fluoride	(03/27/1975-	**2**	(2.26-2.)	**2.13**	0.13	**2.13**	0.18	**9**	2.20	**2.25**	1	**50**
Sulfate	(03/27/1975-	**2**	(386.-330.)	**358**	28	**358**	40	**11**	372	**383**		
TDS - 180°C	(03/27/1975-	**2**	(10879.-8101.)	**9490**	1389	**9490**	1964	**21**	10185	**10740**	2	**100**

Appendix F - Groundwater Data Summary

PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline GM-19	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(11/16/1974-	**4**	(8.1-7.5)	**7.865**	0.135	**7.8**	0.2	**3**	8.0	**8.1**		
Conductivity (umho/cm)												
Boron	(11/16/1974-	**4**	(1.03-0.3)	**0.94**	0.075	**0.80**	0.34	**43**	1.01	**1.03**		
Iron (total)	(11/16/1974-	**1**	(0.01-0.01)	**0.01**	0	**0.01**			0.01	**0.01**		
Manganese	(11/16/1974-	**4**	(0.245-0.06)	**0.099**	0.025	**0.126**	0.082	**65**	0.144	**0.225**		
Selenium	(11/16/1974-	**4**	(0.025-0.002)	**0.005**	0.0015	**0.009**	0.011	**115**	0.010	**0.022**		
Chloride	(11/16/1974-	**4**	(1077.-534.8)	**844**	204.5	**825**	265	**32**	1034	**1068**	3	**75**
Fluoride	(11/16/1974-	**4**	(1.7-0.76)	**1.195**	0.365	**1.21**	0.45	**37**	1.54	**1.67**		
Sulfate	(11/16/1974-	**4**	(4535.-3685.)	**4025**	182.5	**4068**	351	**9**	4171	**4462**	4	**100**
TDS - 180°C	(11/16/1974-	**4**	(9270.-7810.)	**8804.5**	416.5	**8672**	685	**8**	9197	**9255**	4	**100**

PCS Baseline GM-20	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(11/16/1974-	**8**	(11.8-7.)	**8.65**	1	**9.0**	1.6	**18**	9.7	**11.5**	3	**38**
Conductivity (umho/cm)	(06/27/1975-06/27/1975)	**1**	(8755.-8755.)	**8755**	0	**8755**			8755	**8755**		
Boron	(11/16/1974-	**7**	(2.24-0.2)	**0.88**	0.32	**0.90**	0.70	**77**	1.05	**1.93**		
Iron (total)	(11/16/1974-	**1**	(0.03-0.03)	**0.03**	0	**0.03**			0.03	**0.03**		
Manganese	(11/16/1974-	**6**	(0.29-0.008)	**0.0305**	0.0225	**0.088**	0.114	**130**	0.129	**0.258**		
Selenium	(11/16/1974-	**7**	(0.025-0.001)	**0.005**	0	**0.007**	0.008	**109**	0.005	**0.019**		
Chloride	(11/16/1974-	**7**	(2118.-757.)	**1280**	250	**1243**	462	**37**	1355	**1912**	7	**100**
Fluoride	(11/16/1974-	**3**	(2.-1.8)	**1.95**	0.05	**1.92**	0.10	**5**	1.98	**2.00**		
Sulfate	(11/16/1974-	**7**	(2380.-1725.)	**1880**	155	**1992**	244	**12**	2150	**2341**	7	**100**
TDS - 180°C	(11/16/1974-	**7**	(5880.-5033.)	**5711**	169	**5511**	382	**7**	5822	**5863**	7	**100**

Appendix F - Groundwater Data Summary

PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline GM-21	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(11/16/1974-	**4**	(7.9-7.)	**7.25**	0.15	**7.4**	0.4	**5**	7.5	**7.8**		
Conductivity (umho/cm)												
Boron	(11/16/1974-	**4**	(1.1-0.7)	**0.94**	0.11	**0.92**	0.17	**19**	1.03	**1.09**		
Iron (total)	(11/16/1974-	**1**	(0.41-0.41)	**0.41**	0	**0.41**			0.41	**0.41**		
Manganese	(11/16/1974-	**3**	(0.07-0.03)	**0.05**	0.02	**0.050**	0.020	**40**	0.060	**0.068**		
Selenium	(11/16/1974-	**4**	(0.025-0.001)	**0.005**	0.002	**0.009**	0.011	**120**	0.010	**0.022**		
Chloride	(11/16/1974-	**4**	(780.-118.)	**398**	264	**424**	339	**80**	680	**760**	2	**50**
Fluoride	(11/16/1974-	**2**	(0.4-0.2)	**0.3**	0.1	**0.30**	0.14	**47**	0.35	**0.39**		
Sulfate	(11/16/1974-	**4**	(3740.-2502.)	**3112.5**	549	**3117**	643	**21**	3635	**3719**	4	**100**
TDS - 180°C	(11/16/1974-	**4**	(6923.-6140.)	**6497**	242	**6514**	337	**5**	6699	**6878**	4	**100**

PCS Baseline GM-28	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(11/16/1974-	**2**	(8.85-8.1)	**8.475**	0.375	**8.5**	0.5	**6**	8.7	**8.8**		
Conductivity (umho/cm)	(11/16/1974- 08/04/1976)	**2**	(10100.-9830.)	**9965**	135	**9965**	191	**2**	10033	**10087**		
Boron	(11/16/1974-	**2**	(0.5-0.05)	**0.275**	0.225	**0.28**	0.32	**116**	0.39	**0.48**		
Iron (total)												
Manganese	(11/16/1974-	**2**	(0.16-0.001)	**0.0805**	0.0795	**0.081**	0.112	**140**	0.120	**0.152**		
Selenium	(11/16/1974-	**2**	(0.025-0.005)	**0.015**	0.01	**0.015**	0.014	**94**	0.020	**0.024**		
Chloride	(11/16/1974-	**2**	(4560.-240.)	**2400**	2160	**2400**	3055	**127**	3480	**4344**	1	**50**
Fluoride	(11/16/1974-	**2**	(1.1-0.8)	**0.95**	0.15	**0.95**	0.21	**22**	1.03	**1.09**		
Sulfate	(11/16/1974-	**2**	(754.-630.)	**692**	62	**692**	88	**13**	723	**748**		
TDS - 180°C	(11/16/1974-	**2**	(4659.-4334.)	**4496.5**	162.5	**4497**	230	**5**	4578	**4643**	2	**100**

Appendix F - Groundwater Data Summary

PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline GM-30A	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	29108	**3**	(7.6-7.5)	**7.5**	0	**7.5**	0.1	**1**	7.6	**7.6**		
Conductivity (umho/cm)												
Boron	29108	**3**	(0.96-0.46)	**0.6**	0.14	**0.67**	0.26	**38**	0.78	**0.92**		
Iron (total)	29108	**1**	(0.02-0.02)	**0.02**	0	**0.02**			0.02	**0.02**		
Manganese	29108	**2**	(0.07-0.04)	**0.055**	0.015	**0.055**	0.021	**39**	0.063	**0.069**		
Selenium	29108	**3**	(0.005-0.002)	**0.005**	0	**0.004**	0.002	**43**	0.005	**0.005**	4	**133**
Chloride	29108	**3**	(1215.-1120.)	**1203**	12	**1179**	52	**4**	1209	**1214**	22	**733**
Fluoride	29108	**1**	(0.95-0.95)	**0.95**	0	**0.95**			0.95	**0.95**	1	**100**
Sulfate	29108	**3**	(3105.-422.)	**3100**	5	**2209**	1548	**70**	3103	**3105**	18	**600**
TDS - 180°C	29108	**3**	(7070.-6573.)	**6930**	140	**6858**	256	**4**	7000	**7056**	26	**867**

PCS Baseline GM-5	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/24/1975-	**3**	(9.1-8.)	**8.3**	0.3	**8.5**	0.6	**7**	8.7	**9.0**	1	**33**
Conductivity (umho/cm)	(03/24/1975-03/03/1977)	**3**	(10200.-3620.)	**6900**	3280	**6907**	3290	**48**	8550	**9870**		
Boron	(03/24/1975-	**3**	(2.4-0.5)	**1.3**	0.8	**1.40**	0.95	**68**	1.85	**2.29**		
Iron (total)												
Manganese	(03/24/1975-	**3**	(0.092-0.012)	**0.09**	0.002	**0.065**	0.046	**71**	0.091	**0.092**		
Selenium	(03/24/1975-	**3**	(0.25-0.005)	**0.005**	0	**0.087**	0.141	**163**	0.128	**0.226**	1	**33**
Chloride	(03/24/1975-	**3**	(5174.-1100.)	**5000**	174	**3758**	2304	**61**	5087	**5157**	3	**100**
Fluoride	(03/24/1975-	**3**	(3.7-1.05)	**2.4**	1.3	**2.38**	1.33	**56**	3.05	**3.57**	2	**67**
Sulfate	(03/24/1975-	**3**	(3541.-2452.)	**3400**	141	**3131**	592	**19**	3471	**3527**	3	**100**
TDS - 180°C	(03/24/1975-	**3**	(12982.-7894.)	**11156**	1826	**10677**	2578	**24**	12069	**12799**	3	**100**

Appendix F - Groundwater Data Summary

PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline GM-6	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(08/03/1976-	**2**	(8.2-7.8)	**8**	0.2	**8.0**	0.3	**4**	8.1	**8.2**		
Conductivity (umho/cm)	(08/03/1976- 03/04/1977)	**2**	(20500.-4100.)	**12300**	8200	**12300**	11597	**94**	16400	**19680**		
Boron	(08/03/1976-	**2**	(1.8-0.05)	**0.925**	0.875	**0.93**	1.24	**134**	1.36	**1.71**		
Iron (total)												
Manganese	(08/03/1976-	**2**	(0.069-0.021)	**0.045**	0.024	**0.045**	0.034	**75**	0.057	**0.067**		
Selenium	(08/03/1976-	**2**	(0.005-0.005)	**0.005**	0	**0.005**	0.000		0.005	**0.005**		
Chloride	(08/03/1976-	**2**	(323.6-320.)	**321.8**	1.8	**322**	3	**1**	323	**323**		
Fluoride	(08/03/1976-	**2**	(4.9-2.74)	**3.82**	1.08	**3.82**	1.53	**40**	4.36	**4.79**	2	**100**
Sulfate	(08/03/1976-	**2**	(3541.-2193.)	**2867**	674	**2867**	953	**33**	3204	**3474**	2	**100**
TDS - 180°C	(08/03/1976-	**2**	(6487.-4970.)	**5728.5**	758.5	**5729**	1073	**19**	6108	**6411**	2	**100**

PCS Baseline GM-8	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/24/1975-	**4**	(8.2-7.9)	**8.045**		**8.0**	0.1	**2**	8.1	**8.2**		
Conductivity (umho/cm)	(03/24/1975- 10/06/1976)	**4**	(7800.-6800.)	**6930**	130	**7177**	544	**8**	7148	**7670**		
Boron	(03/24/1975-	**4**	(37.-1.)	**1.1**	0.1	**13.03**	20.76	**159**	10.38	**31.68**	1	**25**
Iron (total)												
Manganese	(03/24/1975-	**3**	(0.11-0.008)	**0.059**	0.051	**0.059**	0.072	**122**	0.089	**0.106**		
Selenium	(03/24/1975-	**4**	(0.005-0.005)	**0.005**	0	**0.005**	0.000		0.066	**0.213**	1	**25**
Chloride	(03/24/1975-	**4**	(1470.-970.)	**1010**	40	**1150**	278	**24**	1193	**1415**	4	**100**
Fluoride	(03/24/1975-	**4**	(3.2-2.87)	**3.1**	0.1	**3.06**	0.17	**6**	3.23	**3.29**	4	**100**
Sulfate	(03/24/1975-	**4**	(2203.-1100.)	**1670**	533	**1658**	552	**33**	1803	**2123**	4	**100**
TDS - 180°C	(03/24/1975-	**4**	(5764.-5220.)	**5506**	258	**5497**	272	**5**	5571	**5725**	4	**100**

Appendix F - Groundwater Data Summary

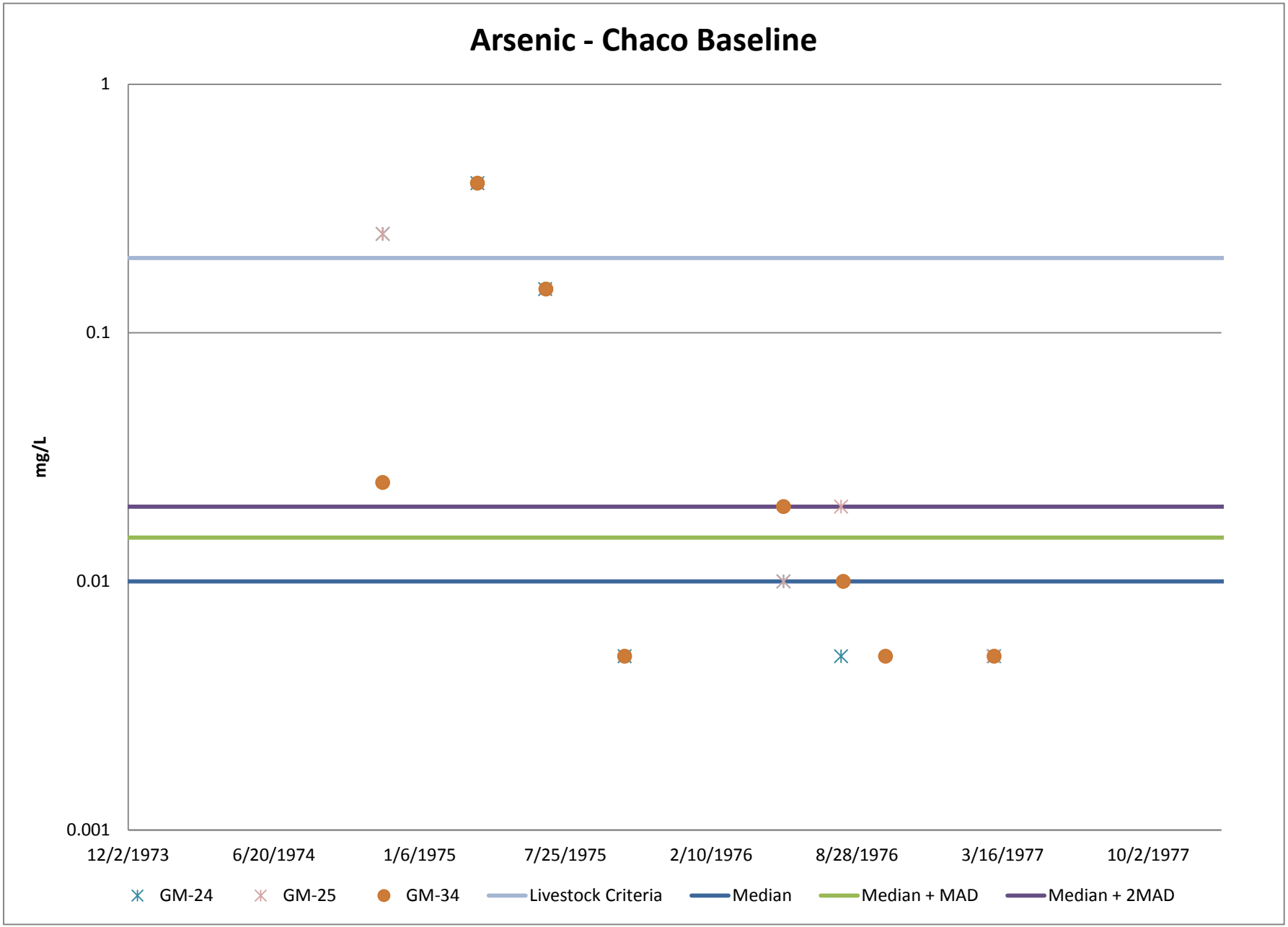
PCS Summary Tables (all Values are dissolved (mg/L) unless otherwise indicated)

PCS Baseline KPC-2007-01	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(08/16/2007-	**6**	(10.3-8.19)	**9.48**	0.595	**9.3**	0.9	**9**	9.8	**10.2**	4	**67**
Conductivity (umho/cm)												
Boron	(08/16/2007-	**6**	(0.6-0.3)	**0.4645**	0.05	**0.45**	0.10	**23**	0.50	**0.58**		
Iron (total)	(08/16/2007-	**6**	(533.-0.0892)	**1.02**	0.7	**89.48**	217.28	**243**	1.46	**400.14**		
Manganese	(08/16/2007-	**4**	(0.0785-0.022)	**0.0292**	0.006	**0.040**	0.026	**66**	0.045	**0.072**		
Selenium	(08/16/2007-	**6**	(0.008-0.003)	**0.005**	0.0015	**0.006**	0.002	**39**	0.008	**0.008**		
Chloride	(08/16/2007-	**6**	(580.-292.)	**342.5**	35	**373**	107	**29**	372	**529**		
Fluoride	(08/16/2007-	**6**	(1.8-1.5)	**1.6**	0.1	**1.62**	0.12	**7**	1.68	**1.78**		
Sulfate	(08/16/2007-	**6**	(2900.-2000.)	**2625**	225	**2550**	338	**13**	2788	**2875**	6	**100**
TDS - 180°C	(08/16/2007-	**6**	(6790.-5640.)	**5820**	175	**6000**	452	**8**	6165	**6663**	6	**100**

PCS Baseline KPC-98-01	Dates	n	Range	Median	MAD	Average	Standard Deviation	Percent Relative Standard Deviation	Q3	95th Percentile	Exceedance of Livestock Criteria	
											n	%
pH	(03/29/1998-	**8**	(9.1-7.7)	**7.785**	0.07	**8.0**	0.5	**6**	7.9	**8.7**	1	**13**
Conductivity (umho/cm)												
Boron	(03/29/1998-	**8**	(1.11-0.12)	**0.655**	0.05	**0.64**	0.27	**42**	0.70	**0.97**		
Iron (total)	(03/29/1998-	**8**	(29.5-0.16)	**2.125**	1.53	**5.68**	9.91	**175**	3.93	**21.84**		
Manganese	(03/29/1998-	**8**	(0.08-0.013)	**0.0545**	0.0142	**0.051**	0.021	**41**	0.064	**0.076**		
Selenium	(03/29/1998-	**8**	(0.011-0.0025)	**0.005**	0.0013	**0.005**	0.003	**54**	0.005	**0.009**		
Chloride	(03/29/1998-	**8**	(310.-39.)	**227**	16	**209**	78	**37**	238	**287**		
Fluoride	(03/29/1998-	**8**	(2.29-1.13)	**1.4**	0.1	**1.48**	0.35	**24**	1.50	**2.01**	1	**13**
Sulfate	(03/29/1998-	**8**	(3900.-350.)	**3325**	275	**3010**	1136	**38**	3500	**3865**	7	**88**
TDS - 180°C	(03/29/1998-	**8**	(6640.-800.)	**5975**	270	**5308**	1896	**36**	6135	**6542**	7	**88**

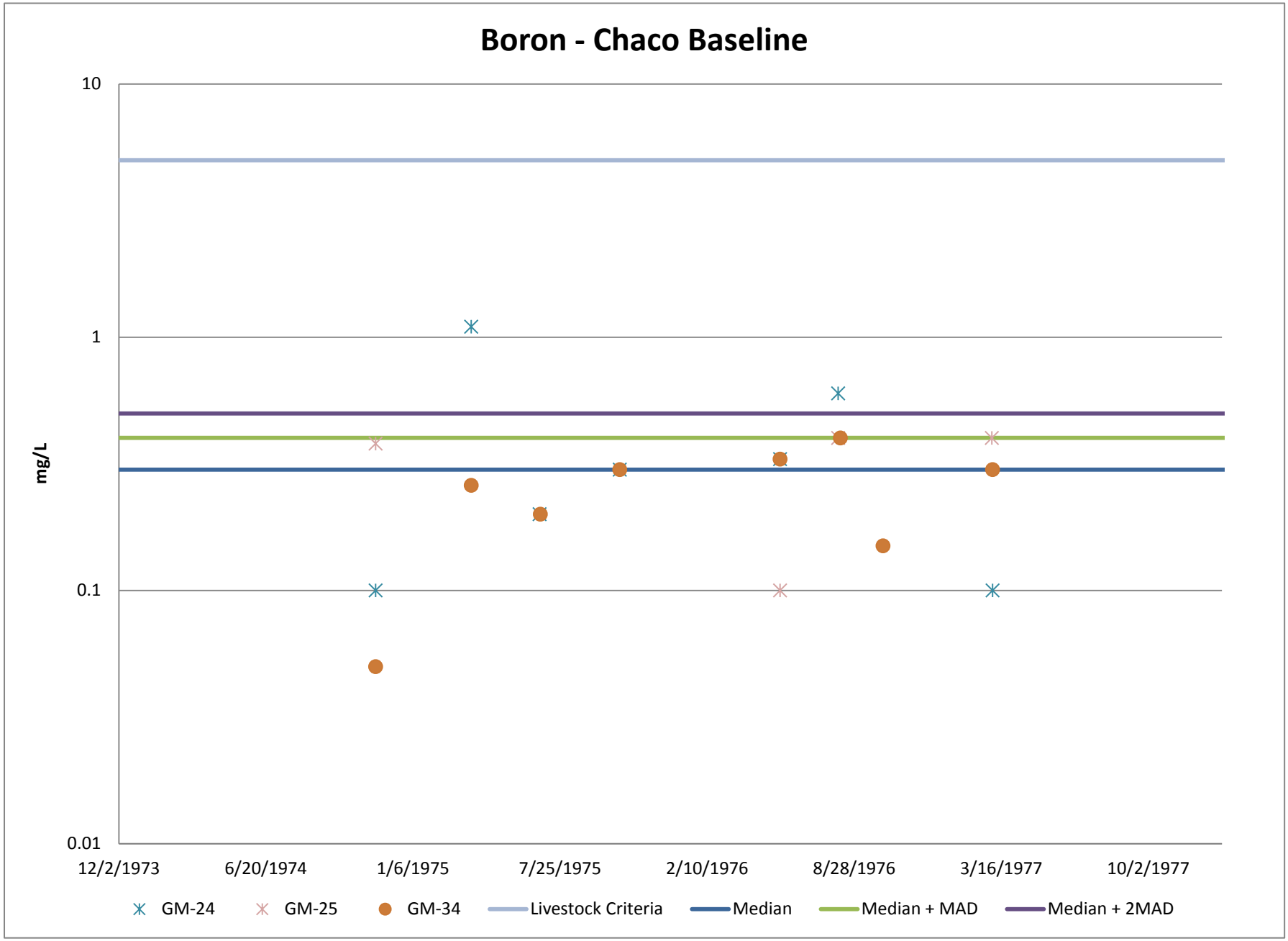
Appendix F - Groundwater Data Summary

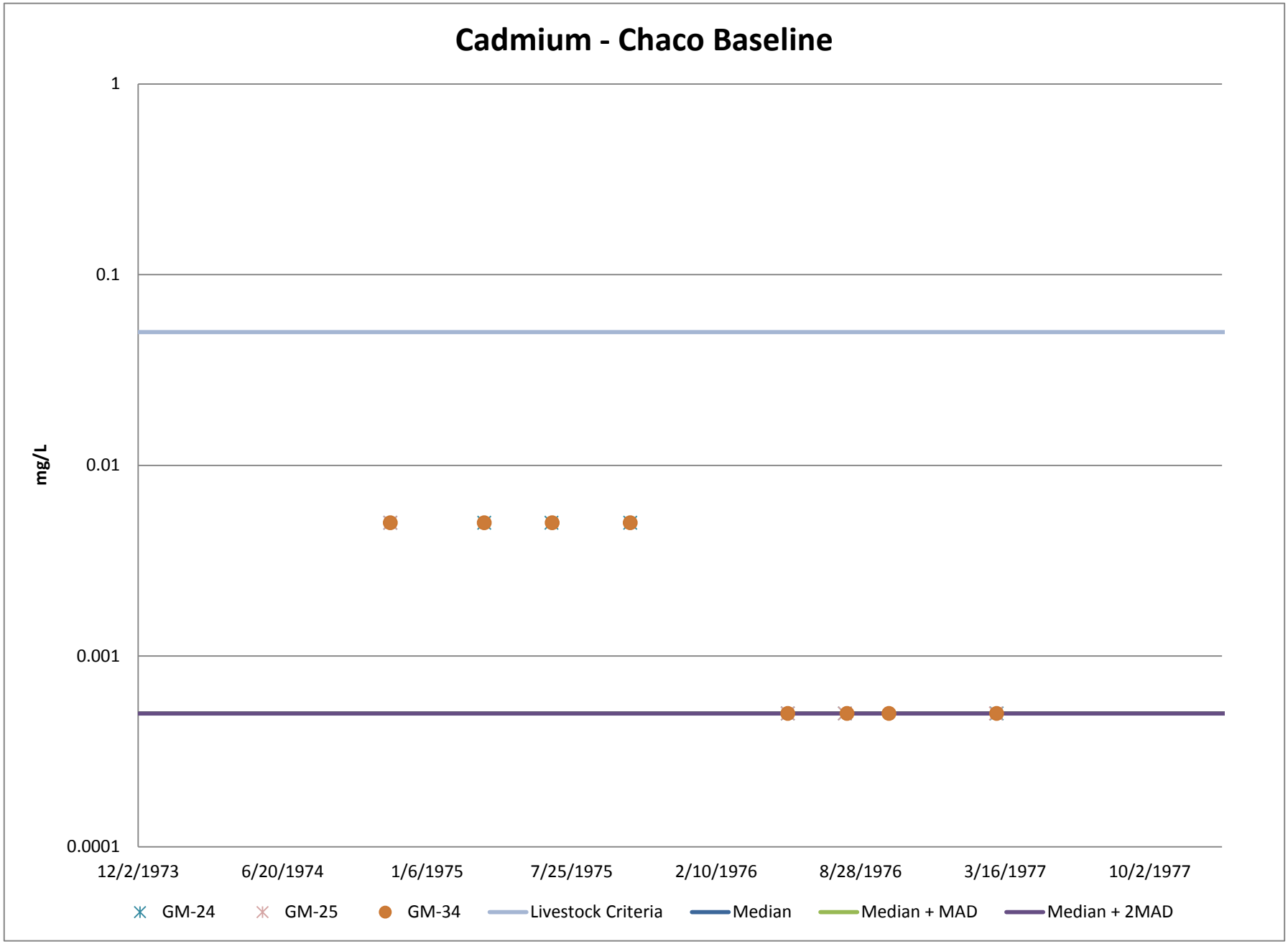
Chaco Alluvial Graphs



Appendix F - Groundwater Data Summary

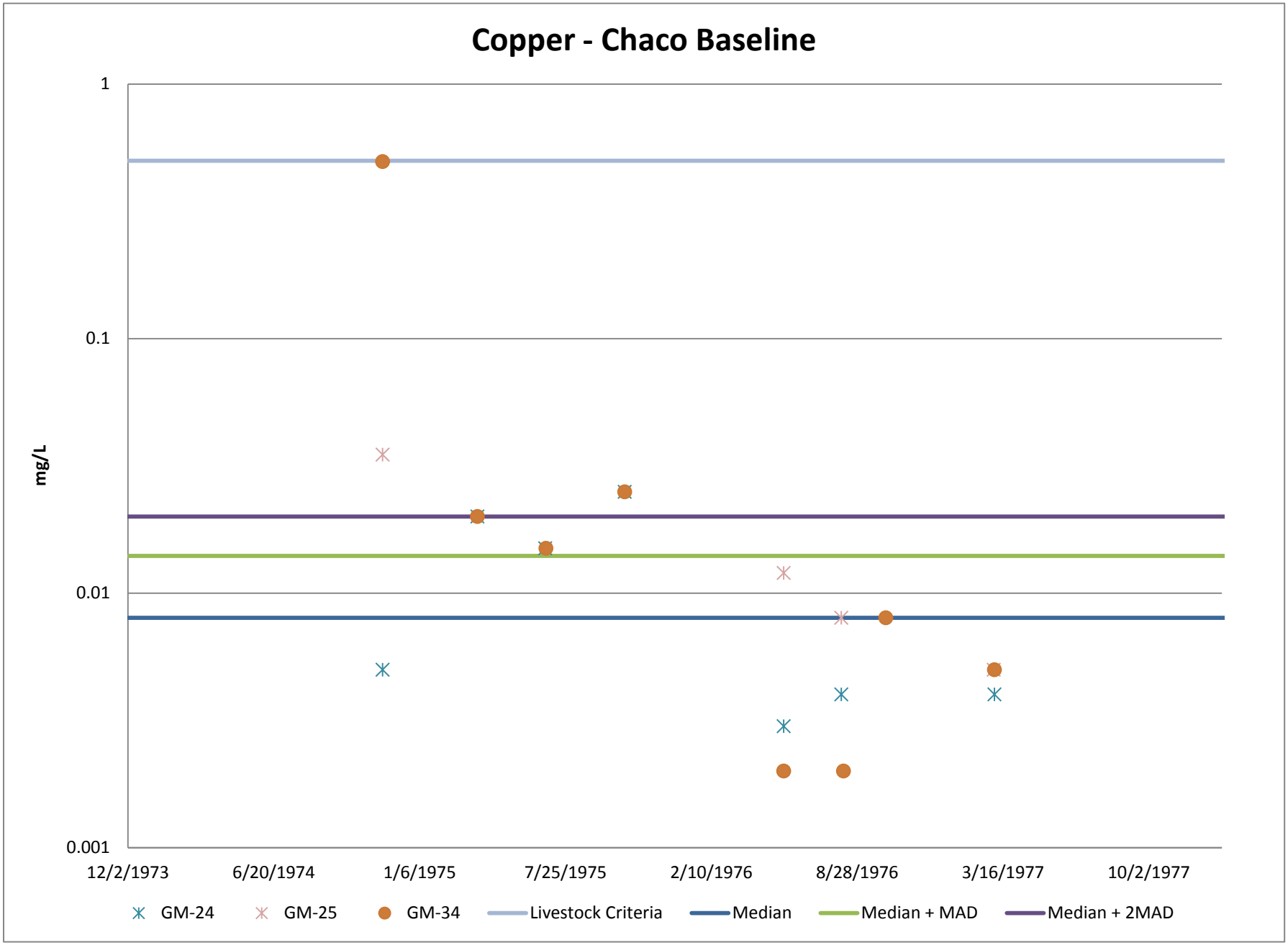
Chaco Alluvial Graphs




Cadmium - Chaco Baseline
mg/L
1
0.1
0.01
0.001
0.0001
12/2/1973
6/20/1974
1/6/1975
7/25/1975
2/10/1976
8/28/1976
3/16/1977
10/2/1977
GM-24
GM-25
GM-34
Livestock Criteria
Median
Median + MAD
Median + 2MAD

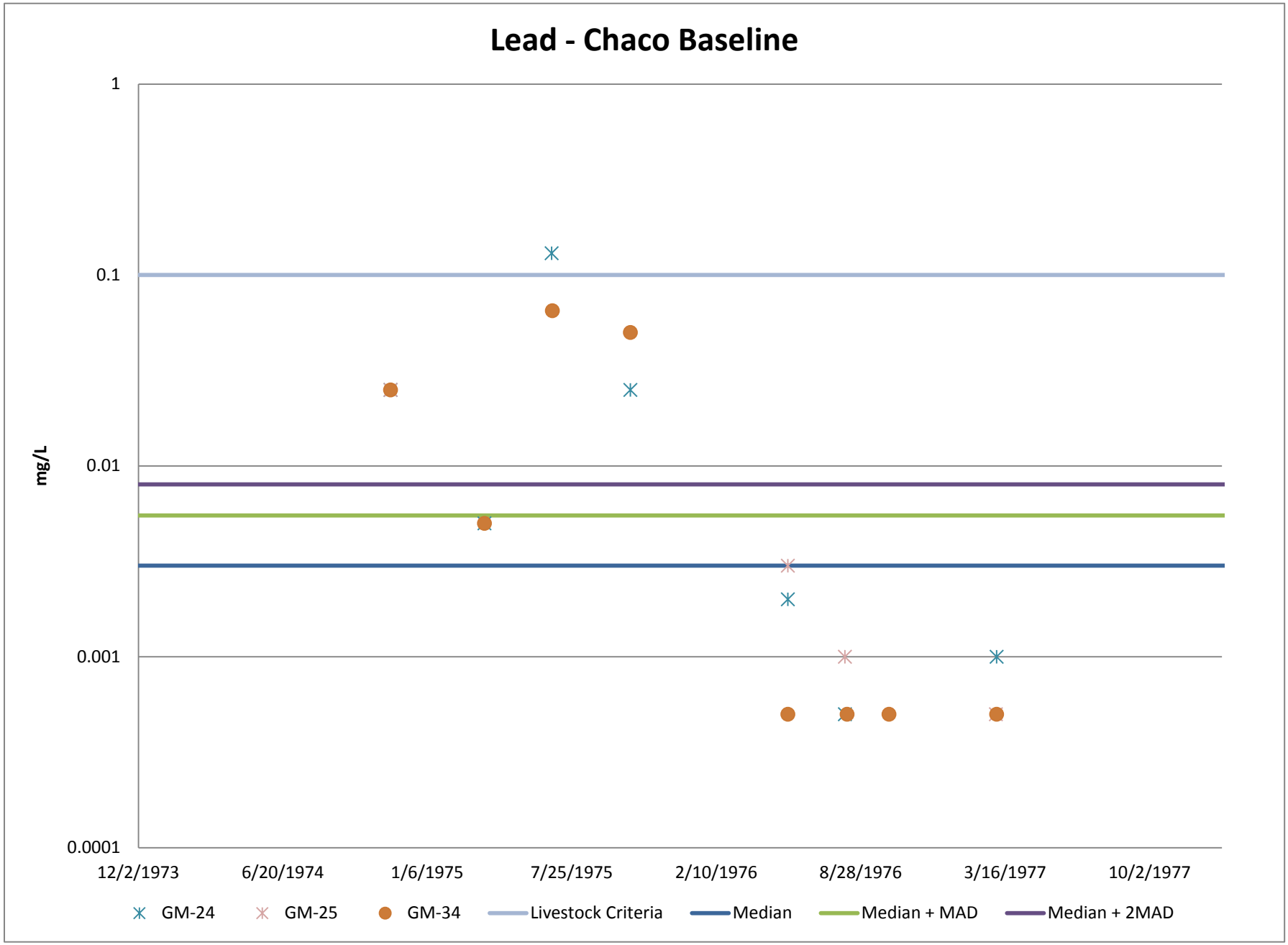
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



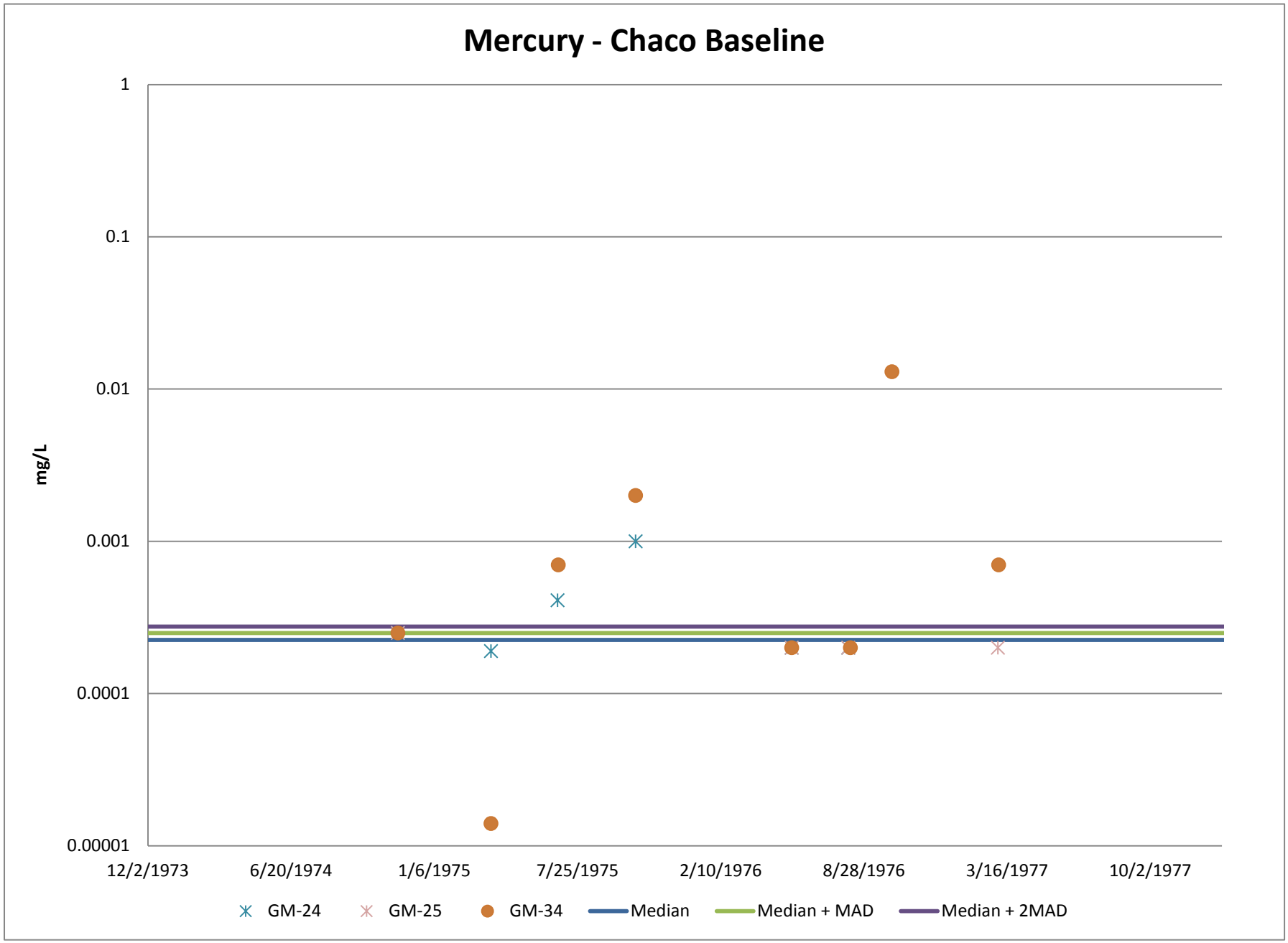
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



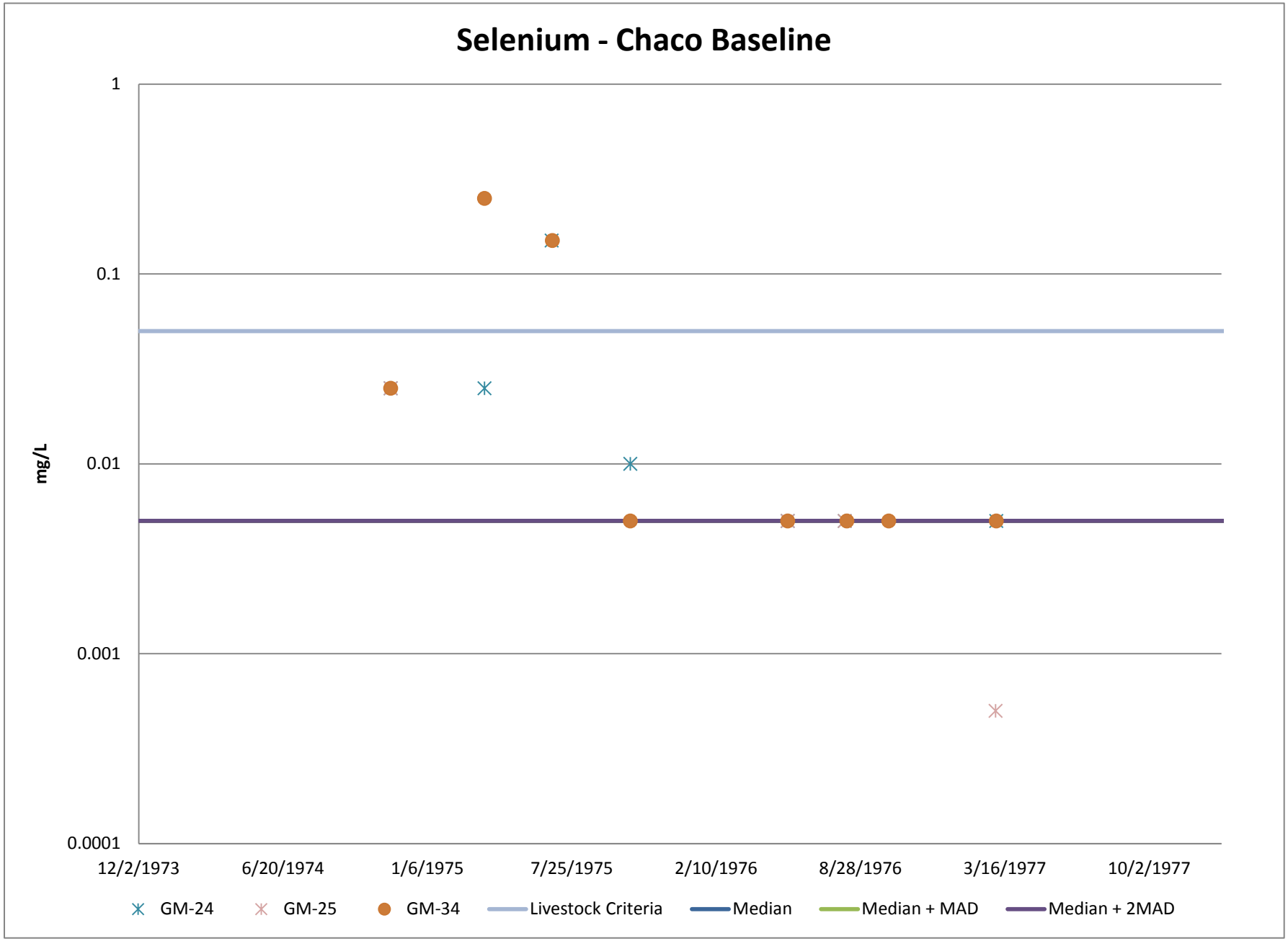
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



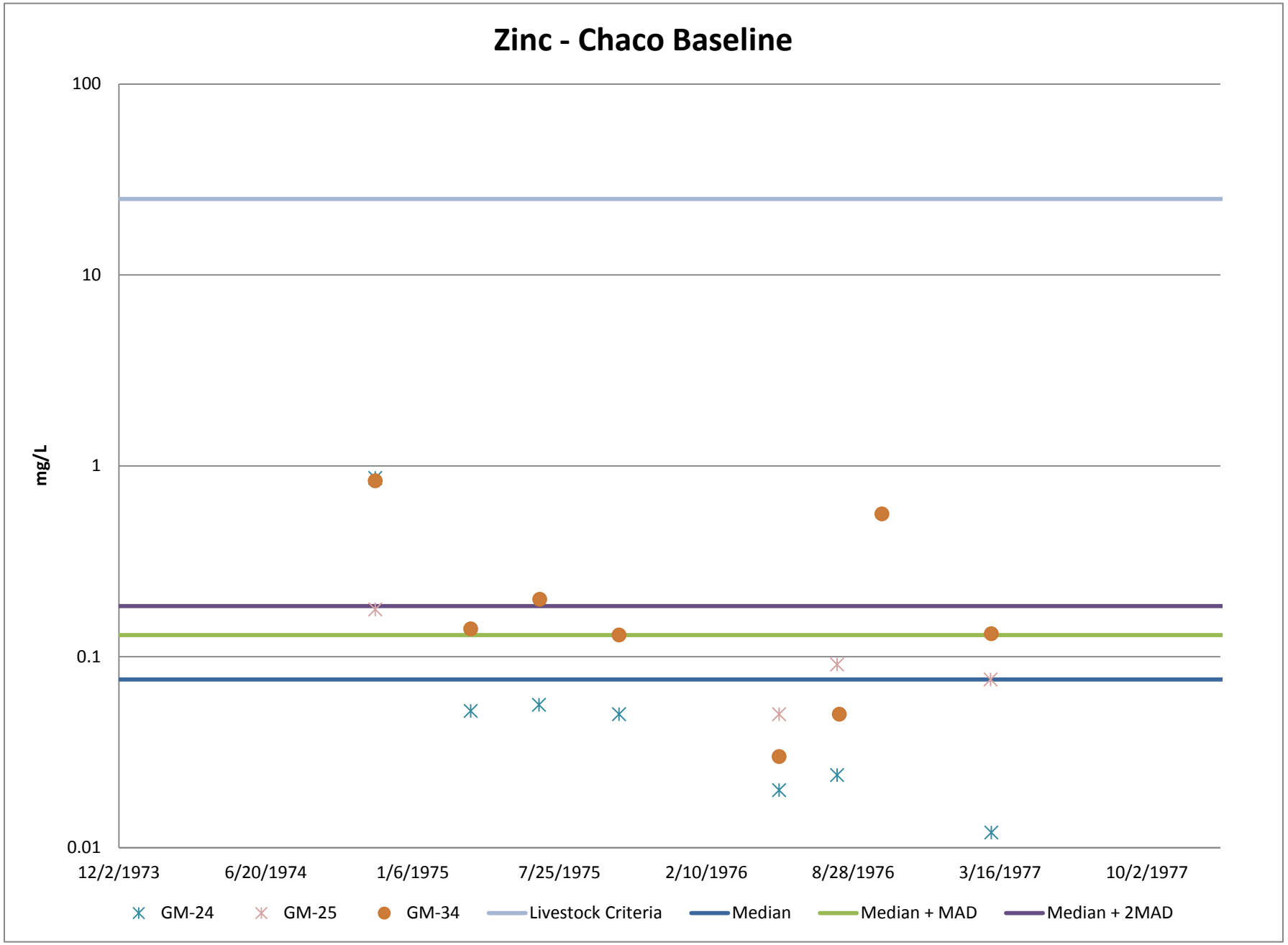
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



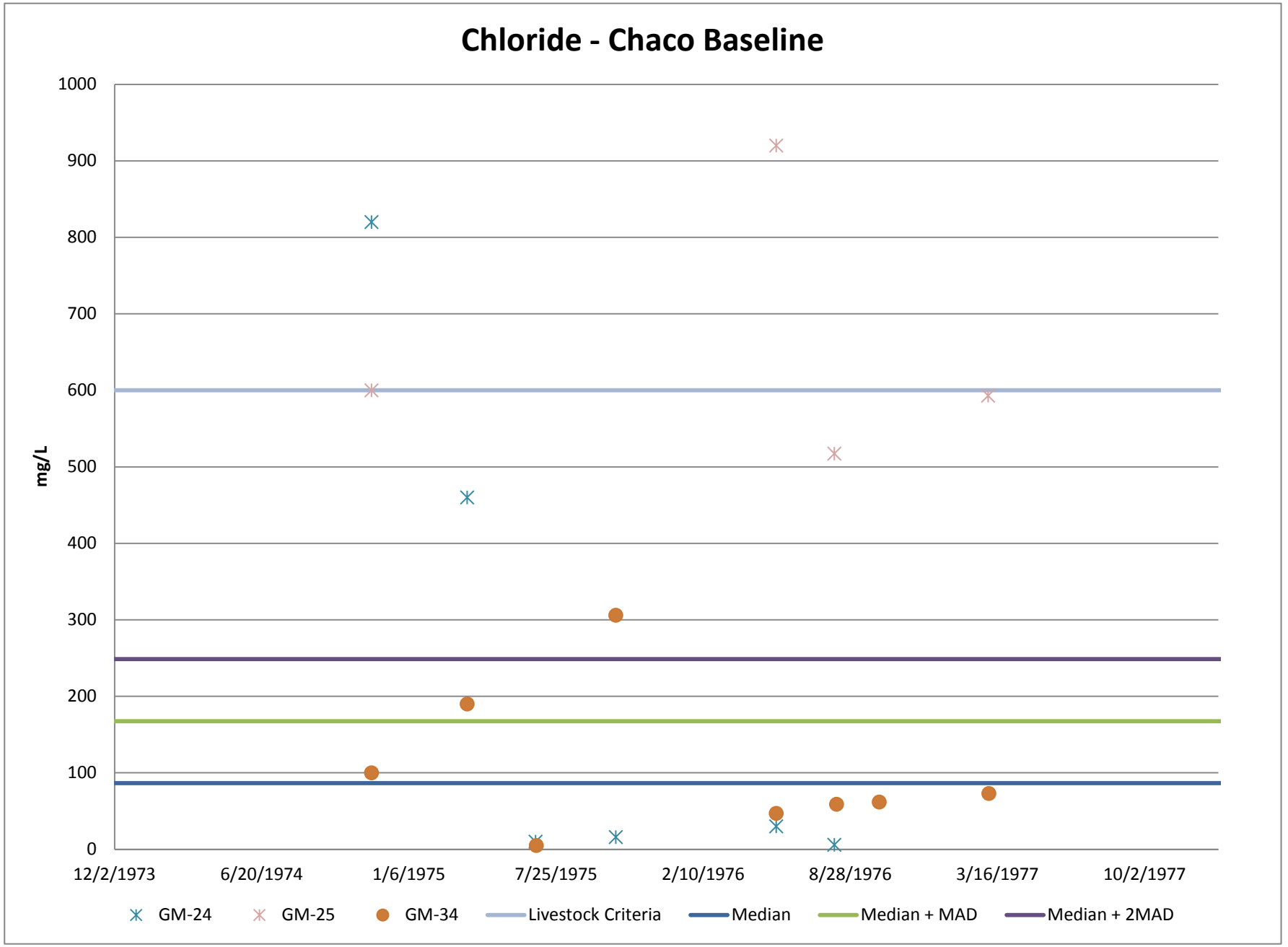
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



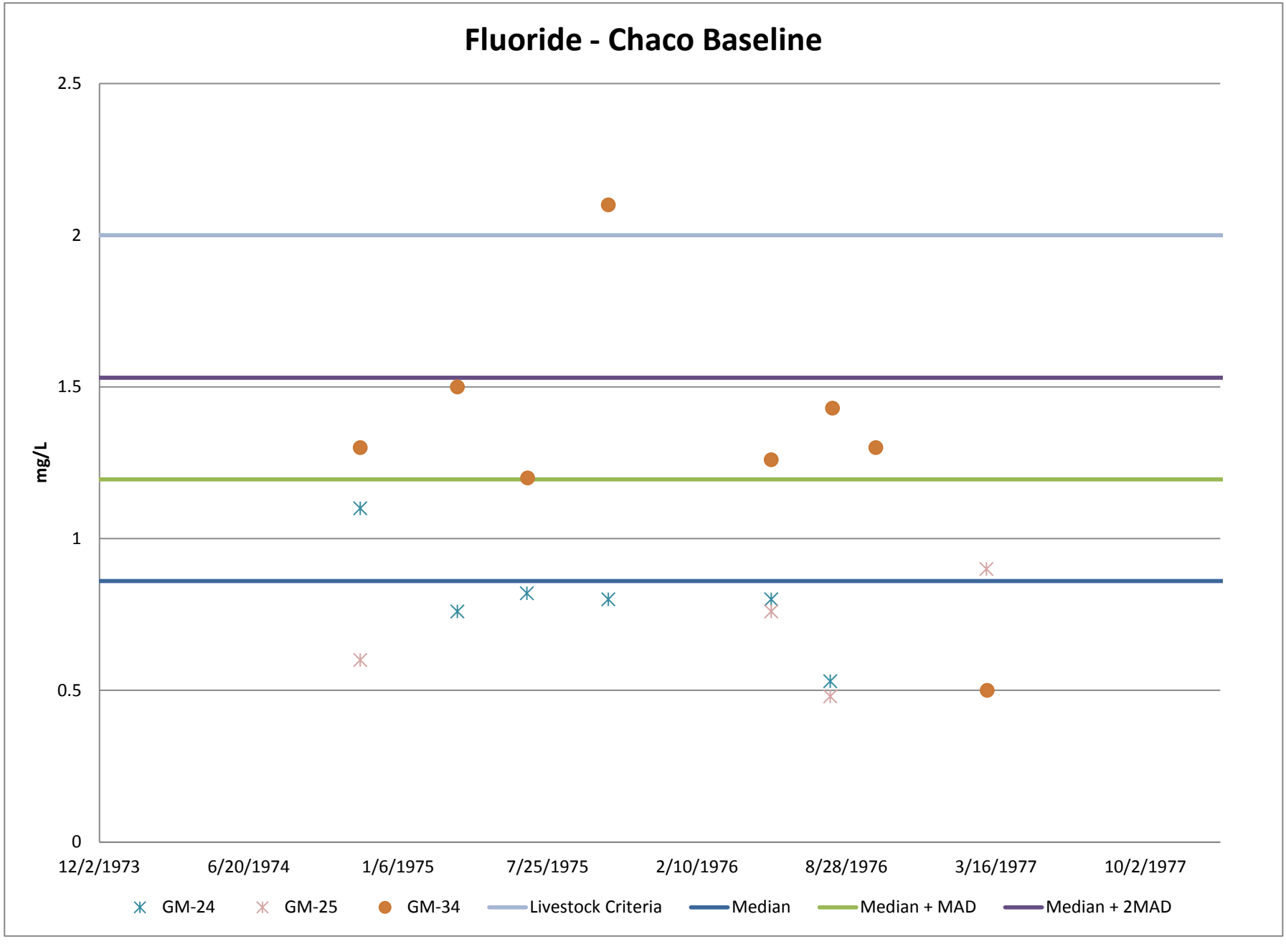
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



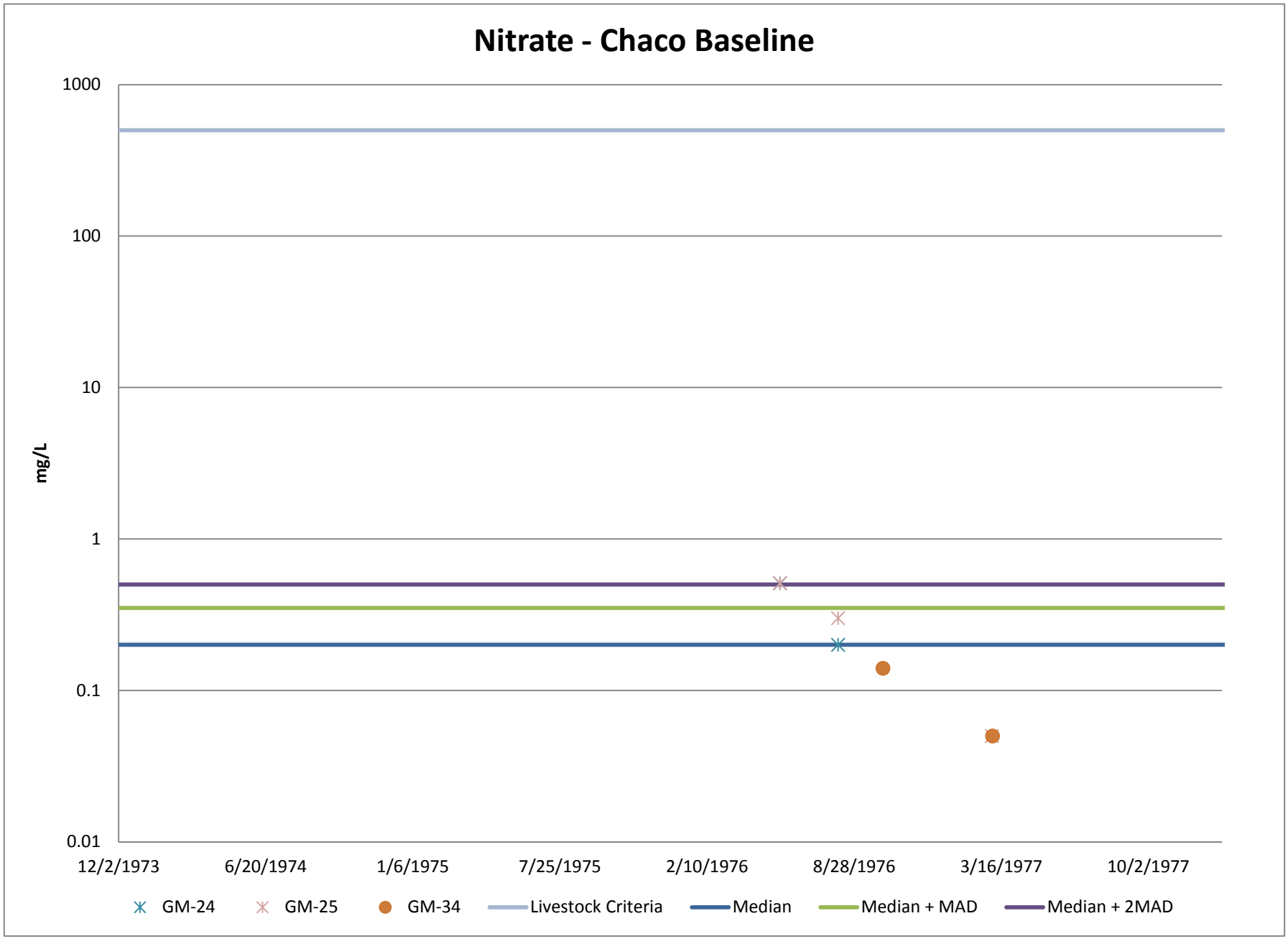
Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



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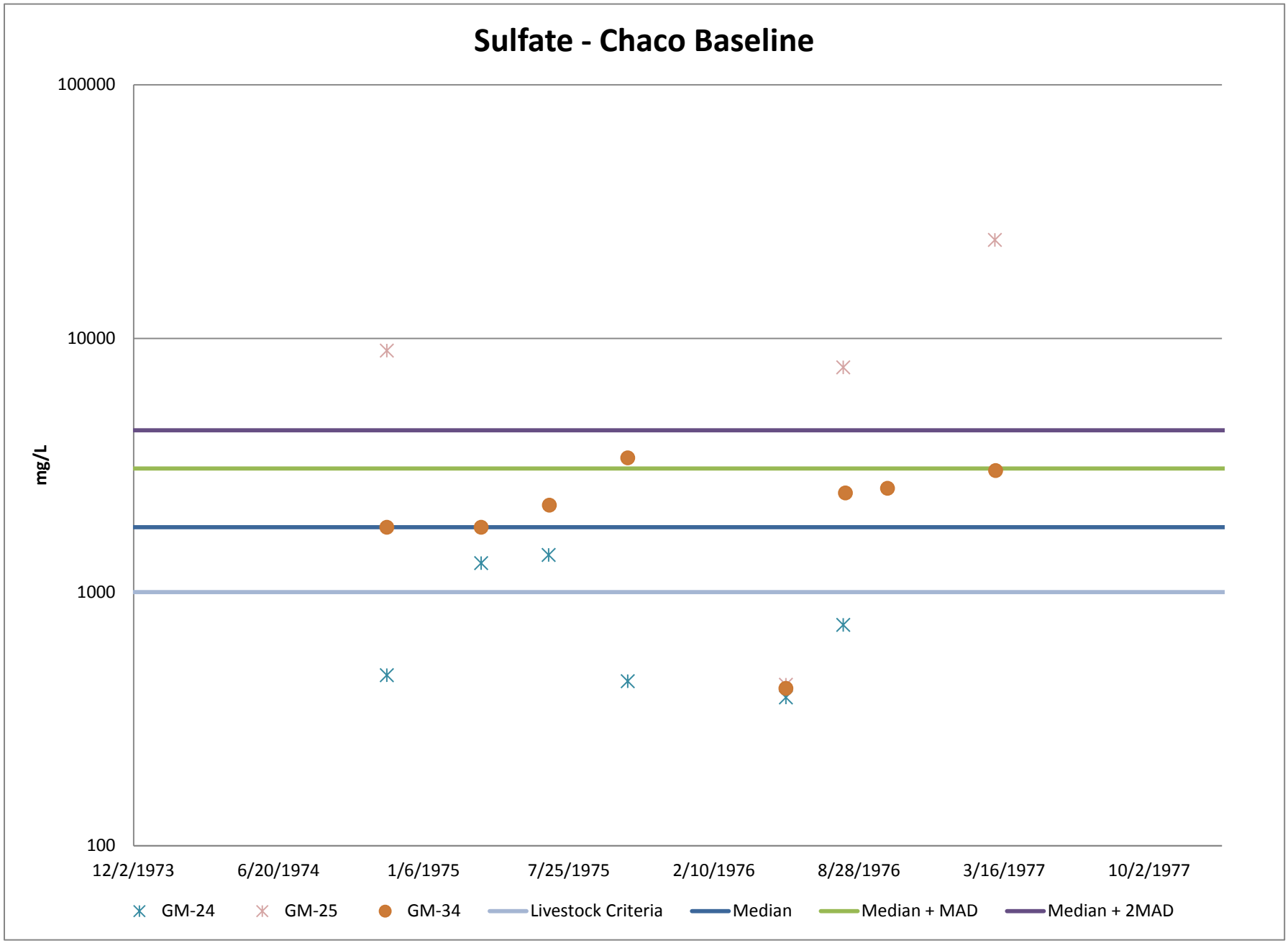
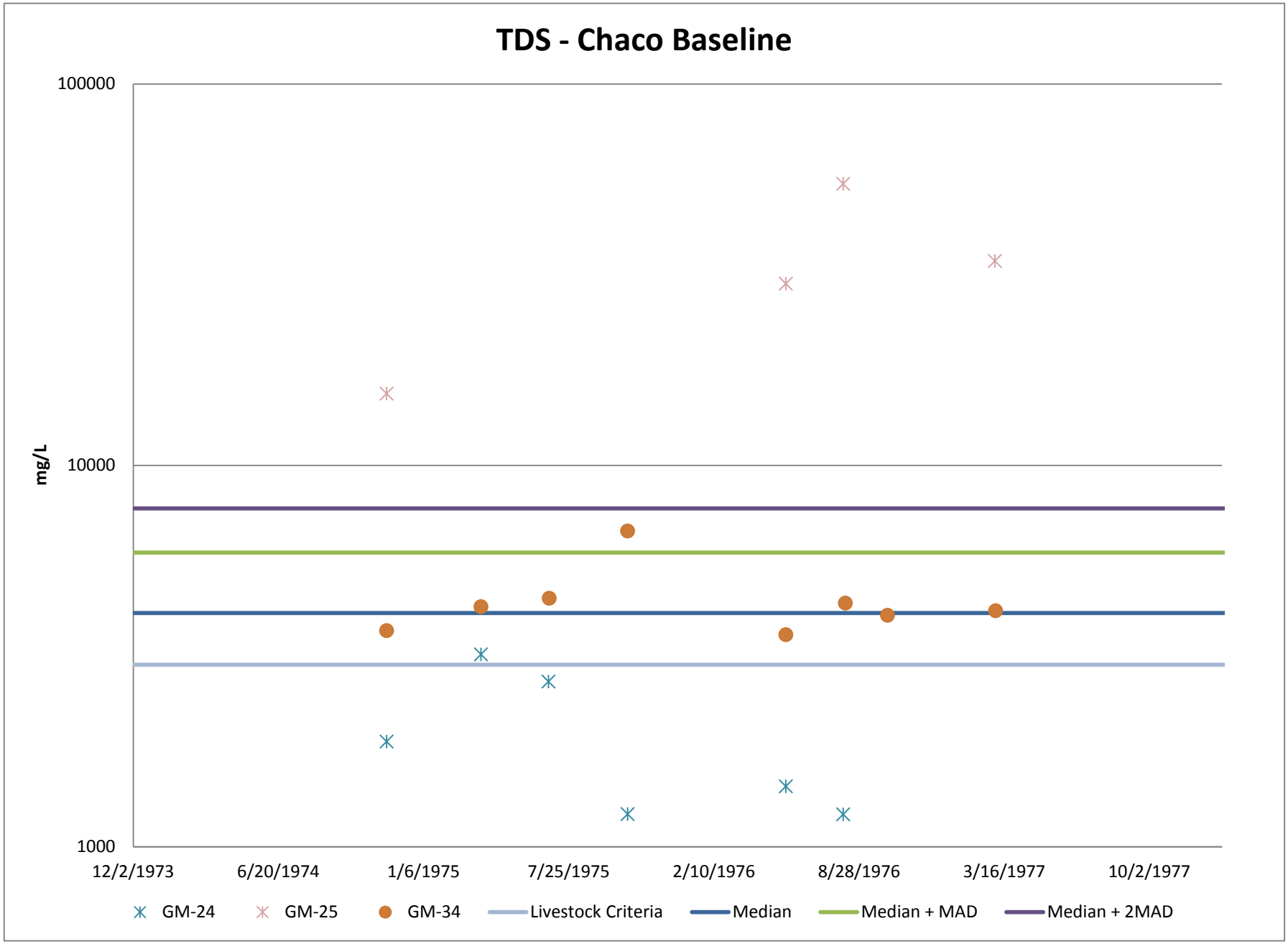


Appendix F - Groundwater Data Summary

Chaco Alluvial Graphs



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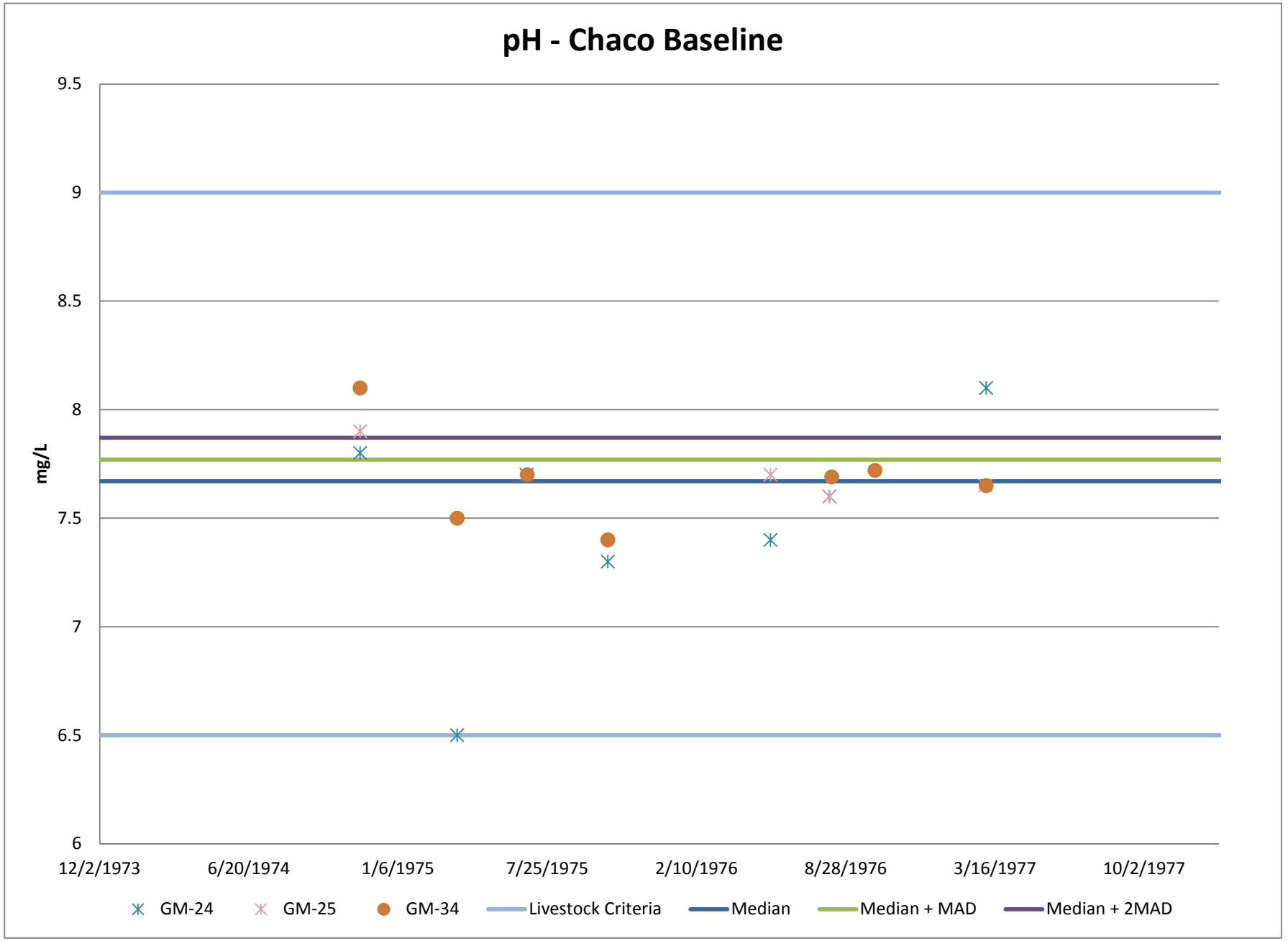

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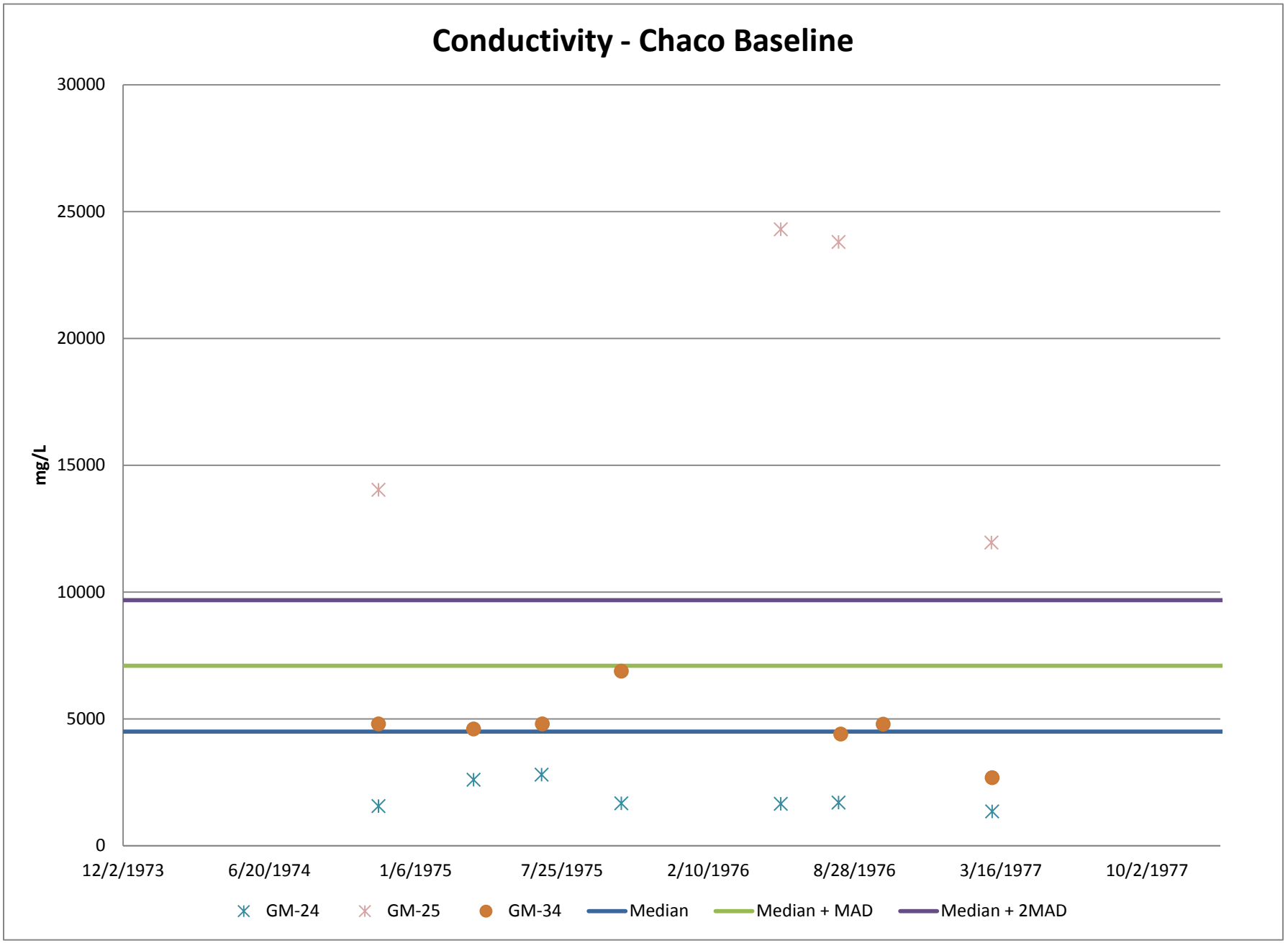

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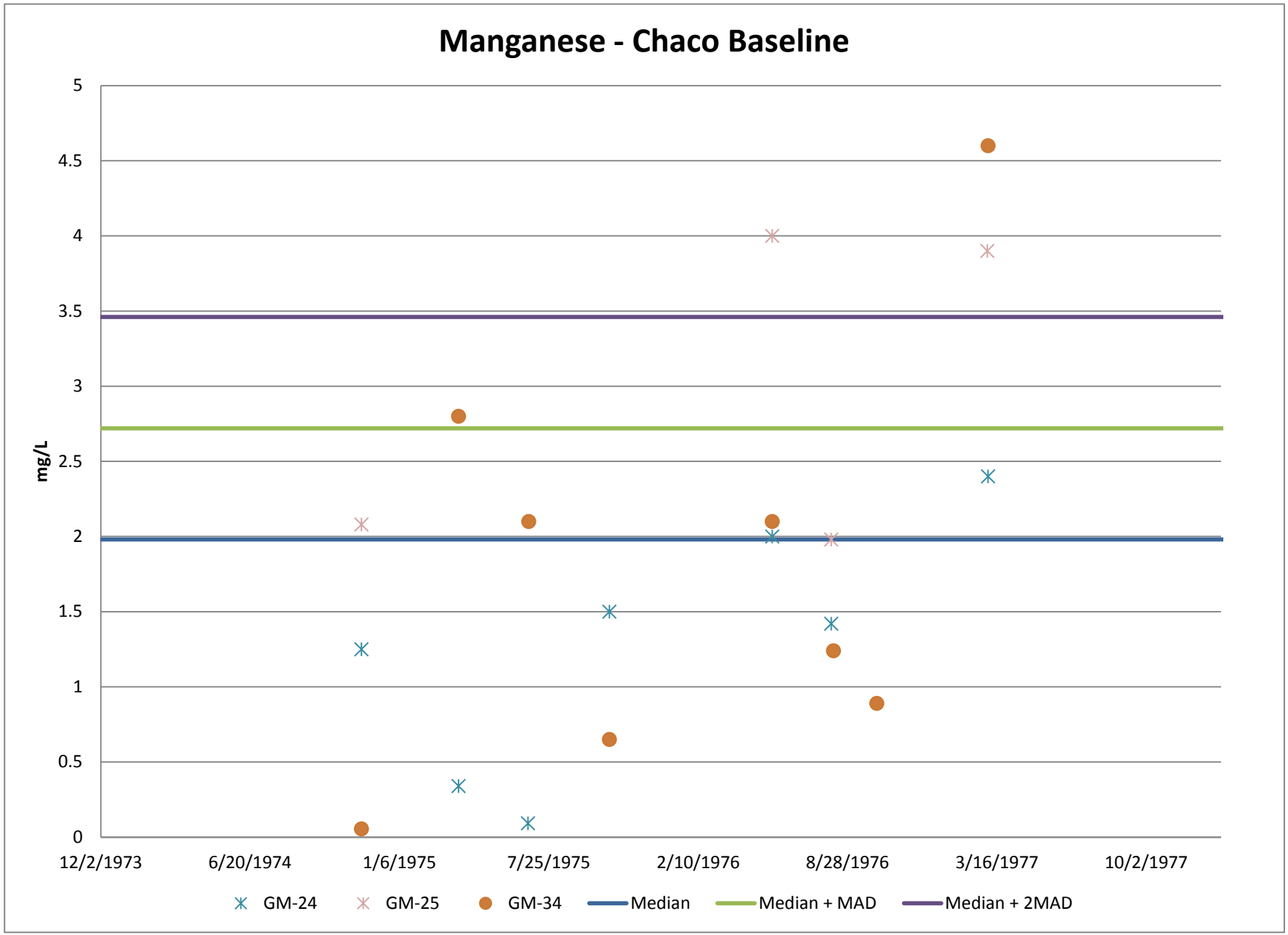
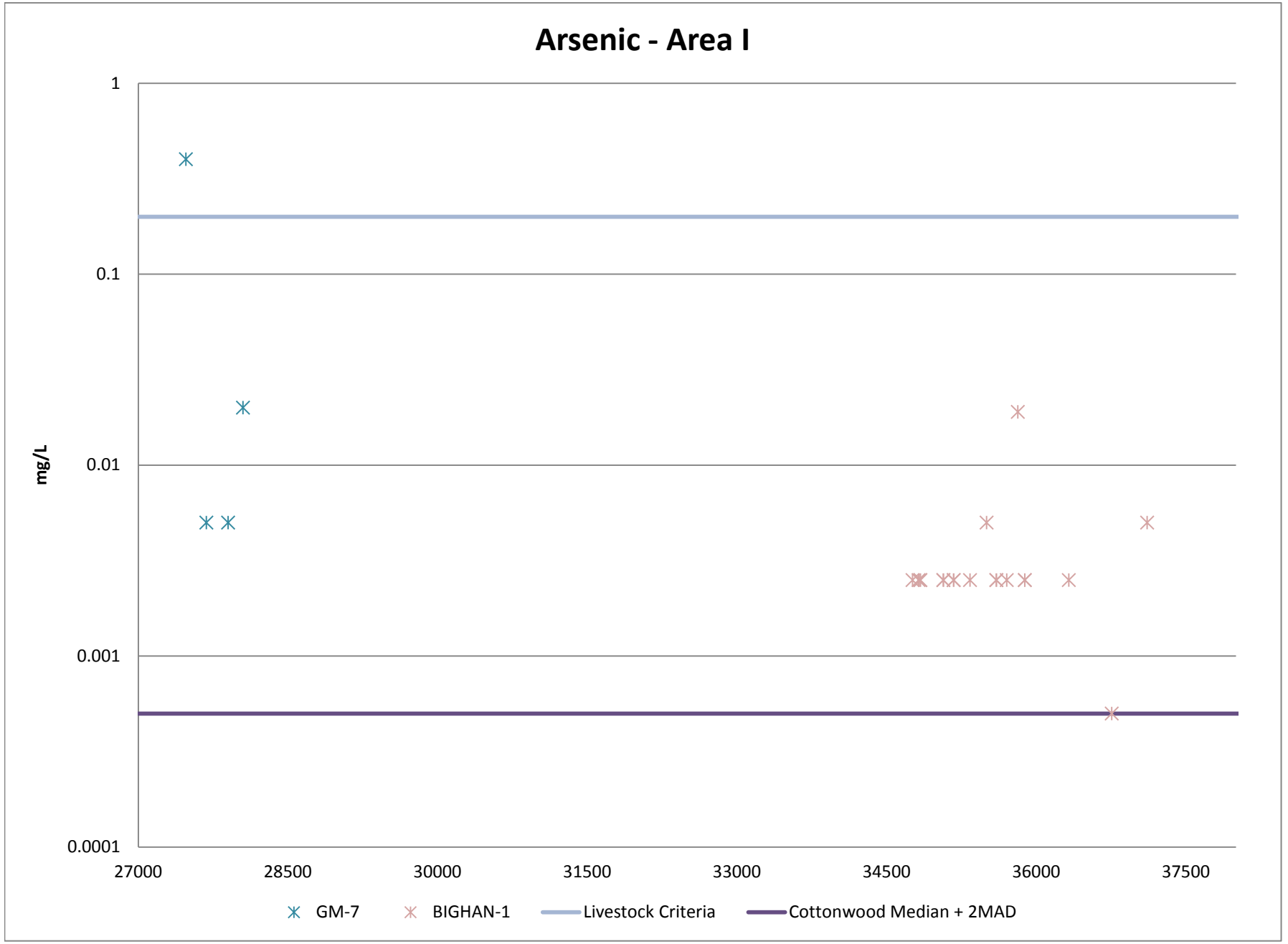


Appendix F - Groundwater Data Summary
Area I Alluvial Graphs



Appendix F - Groundwater Data Summary
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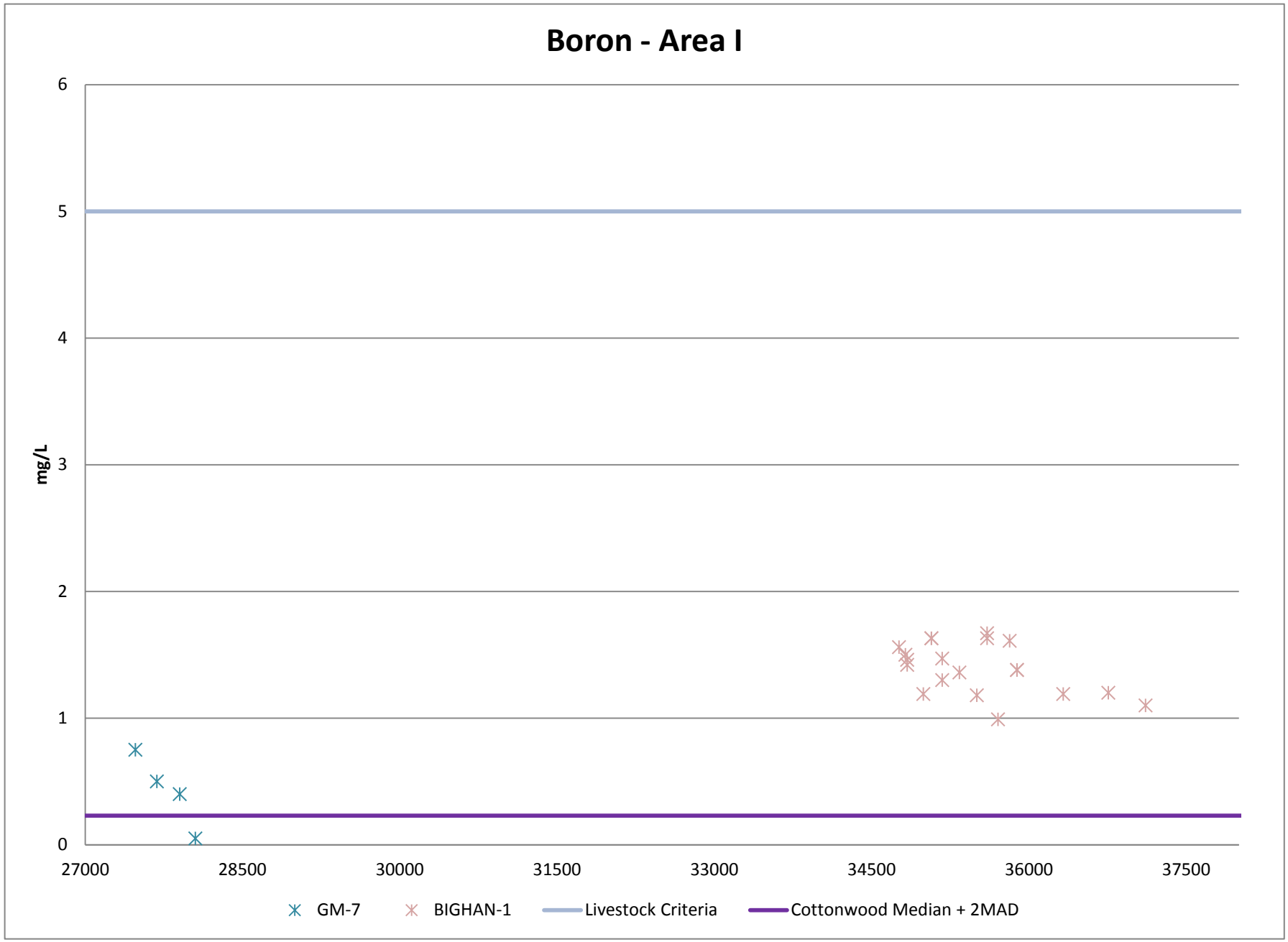
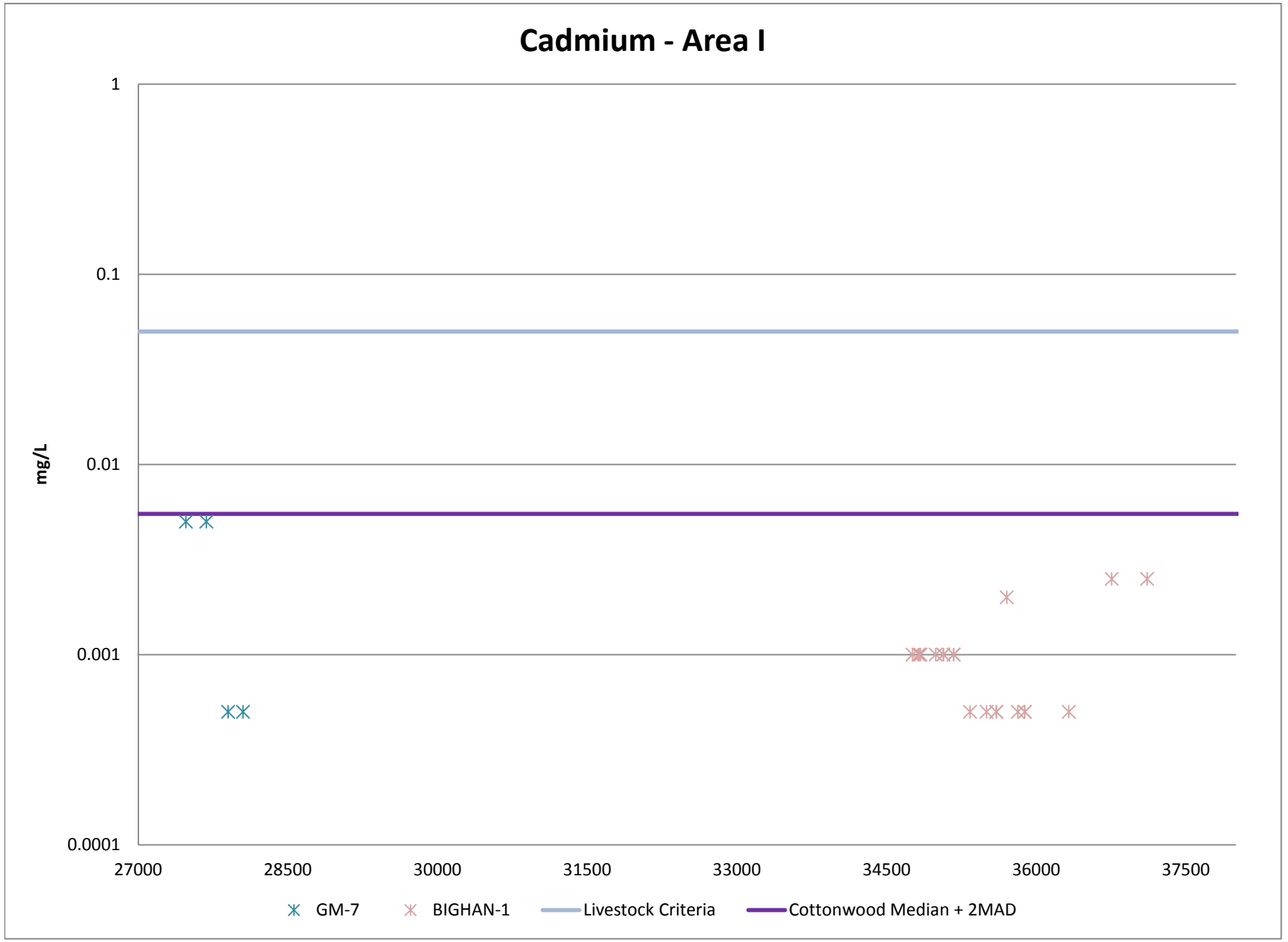


Appendix F - Groundwater Data Summary
Area I Alluvial Graphs



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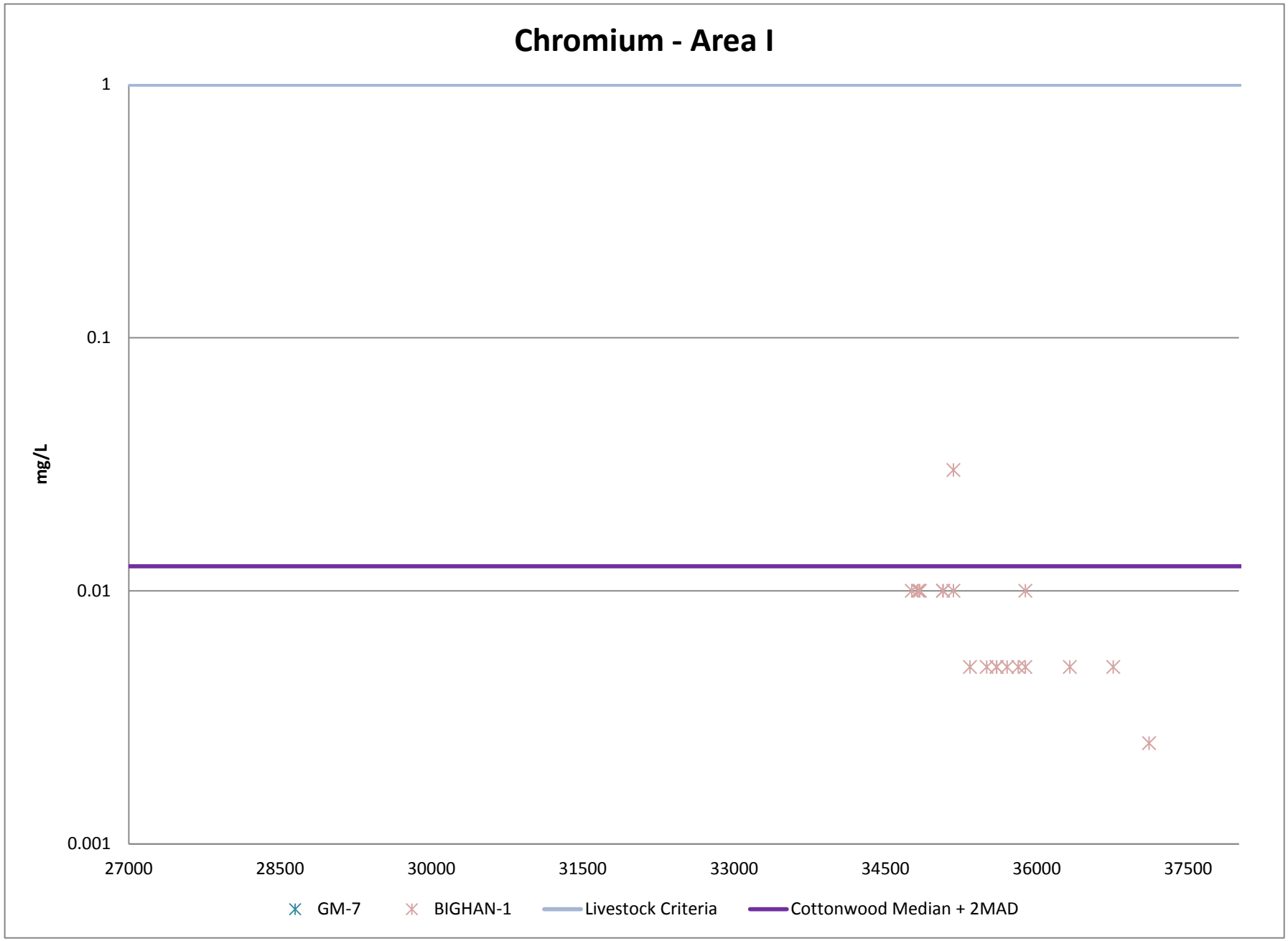

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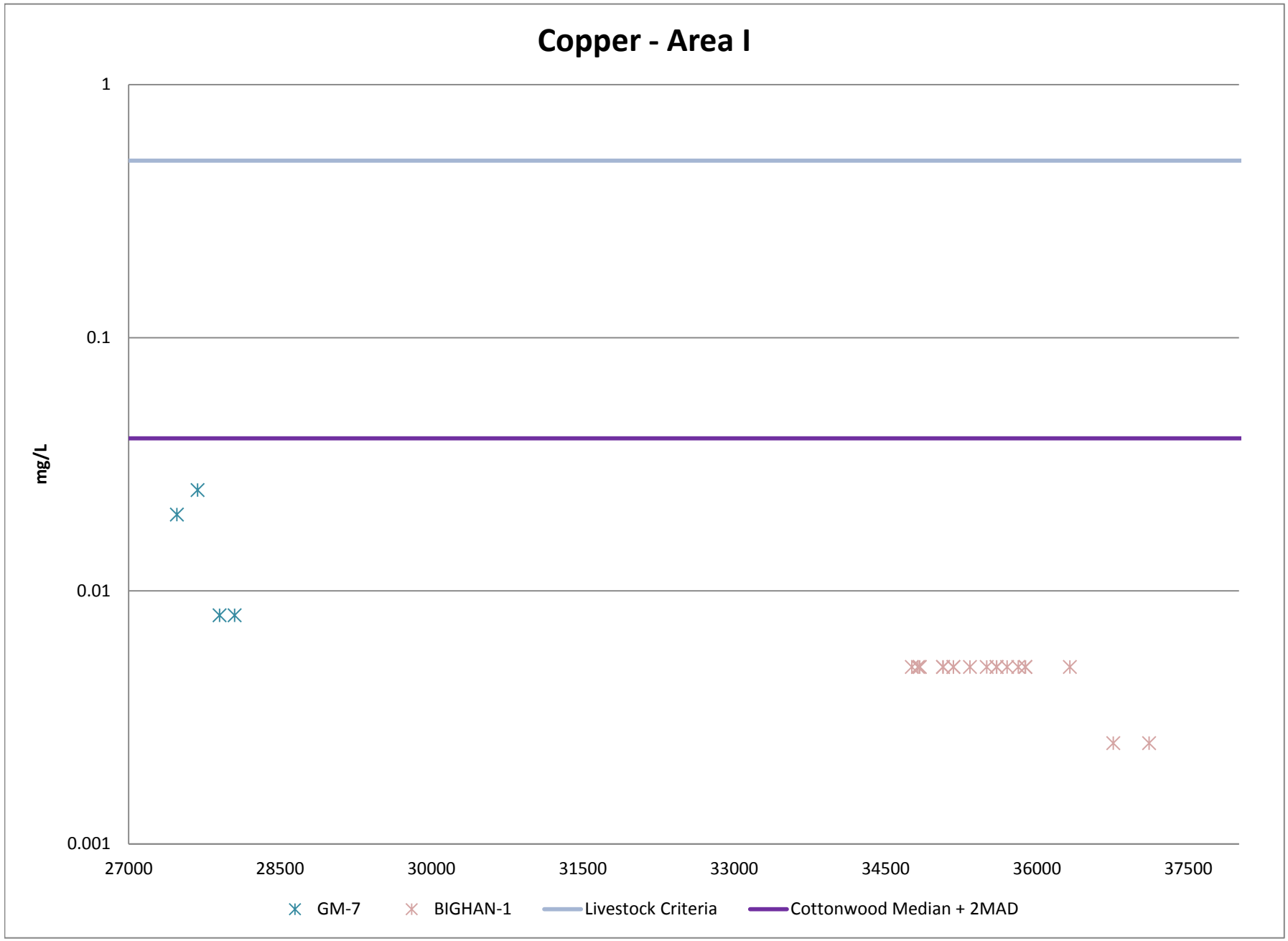

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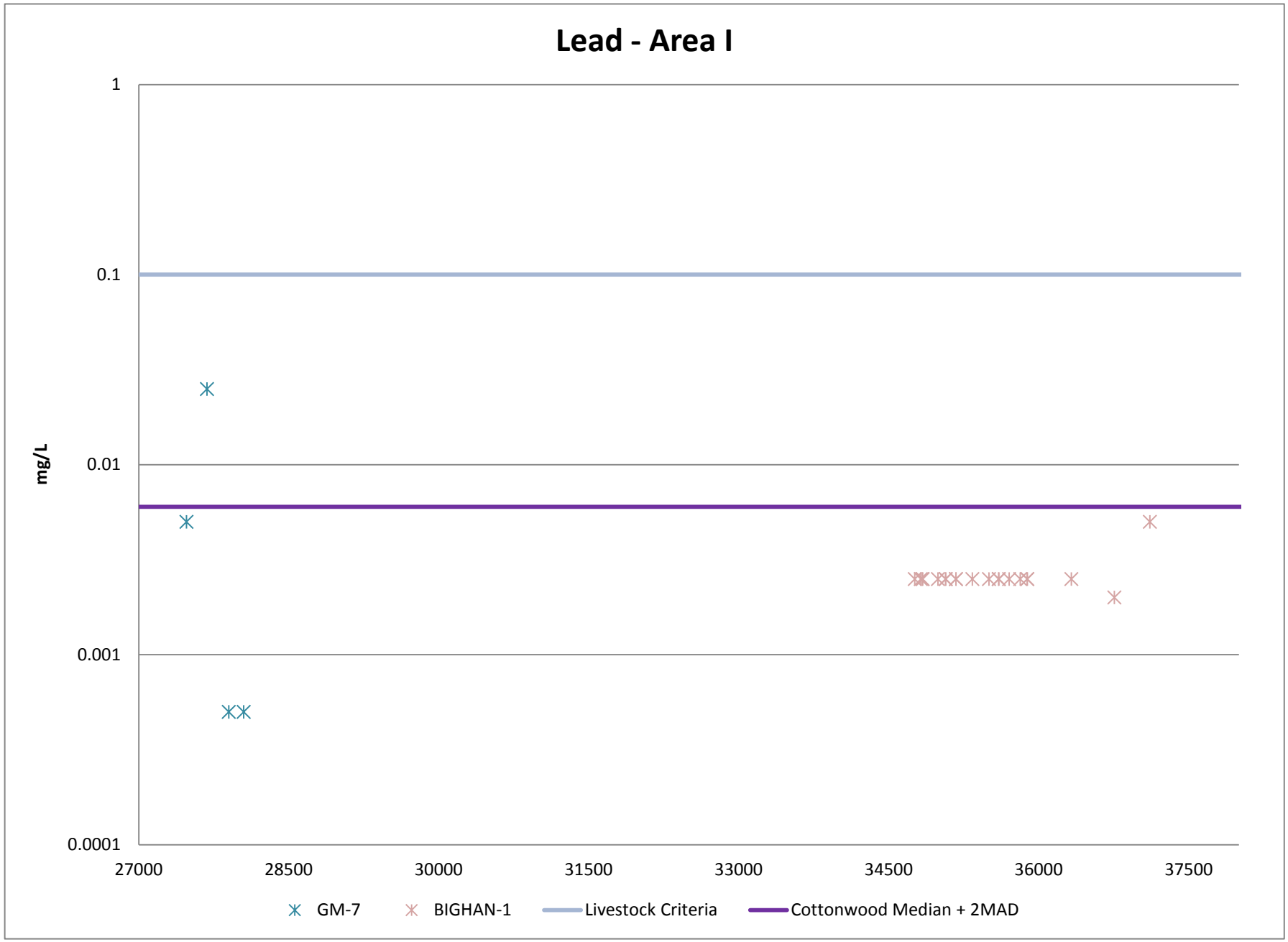

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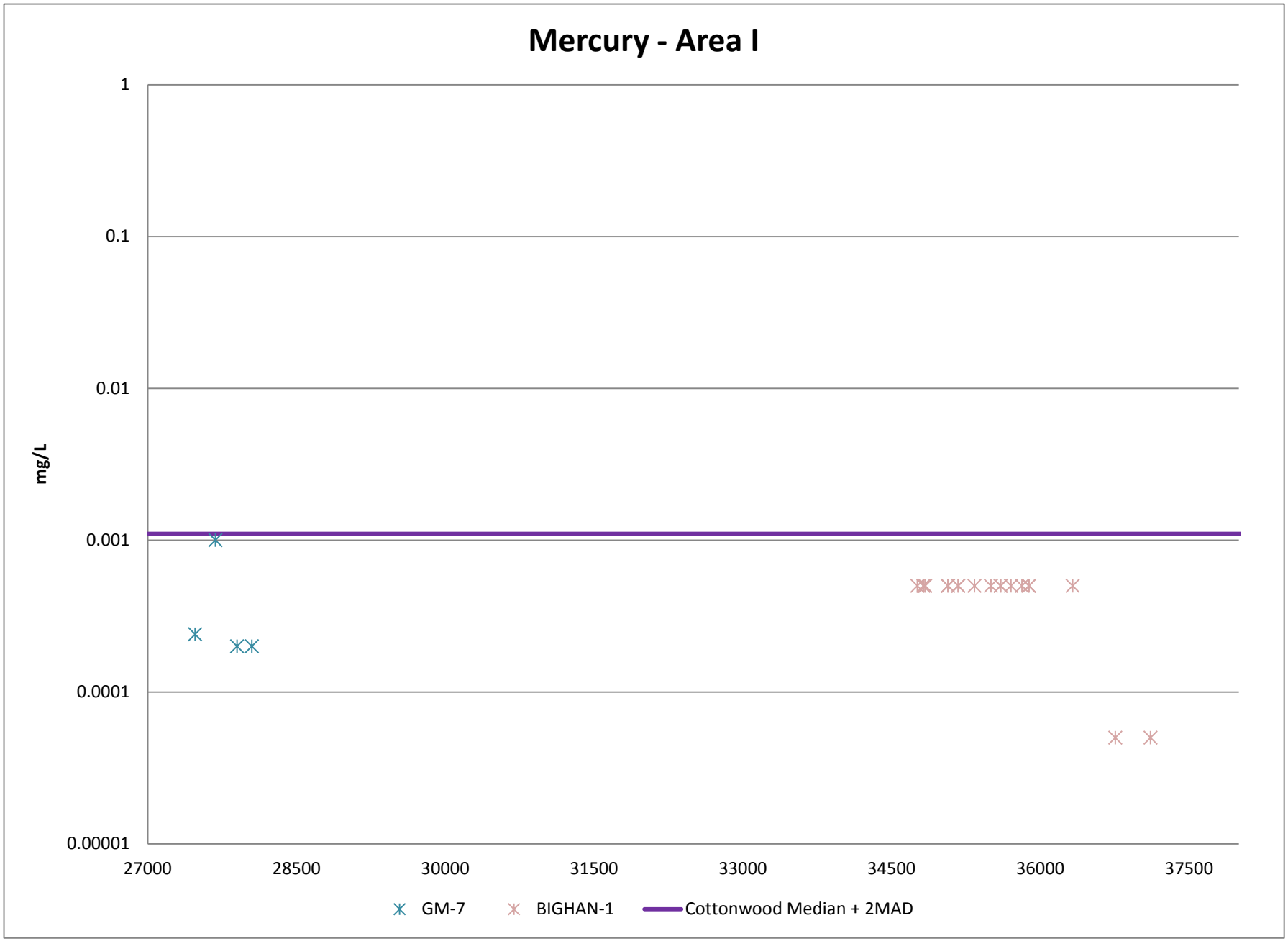

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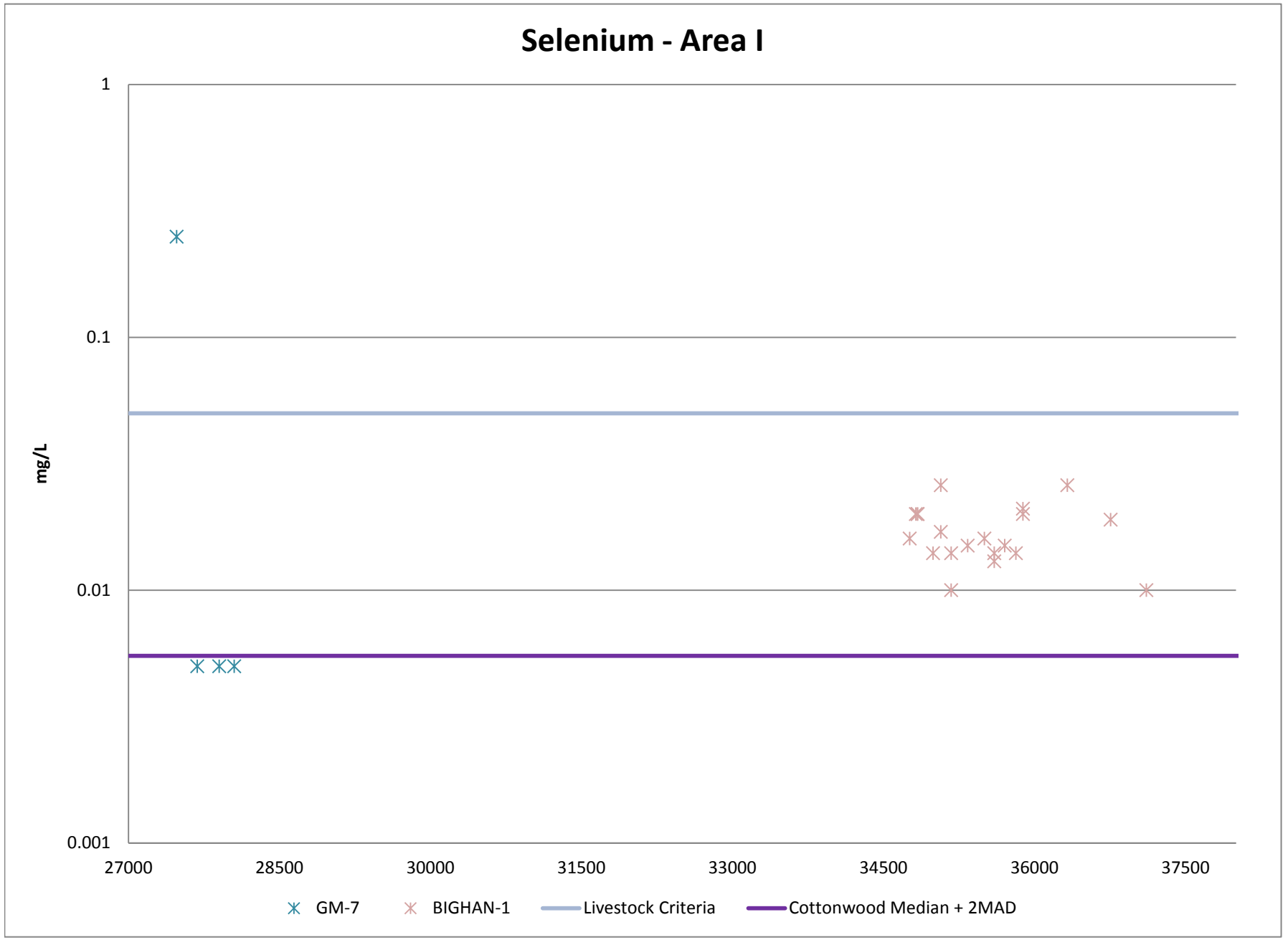

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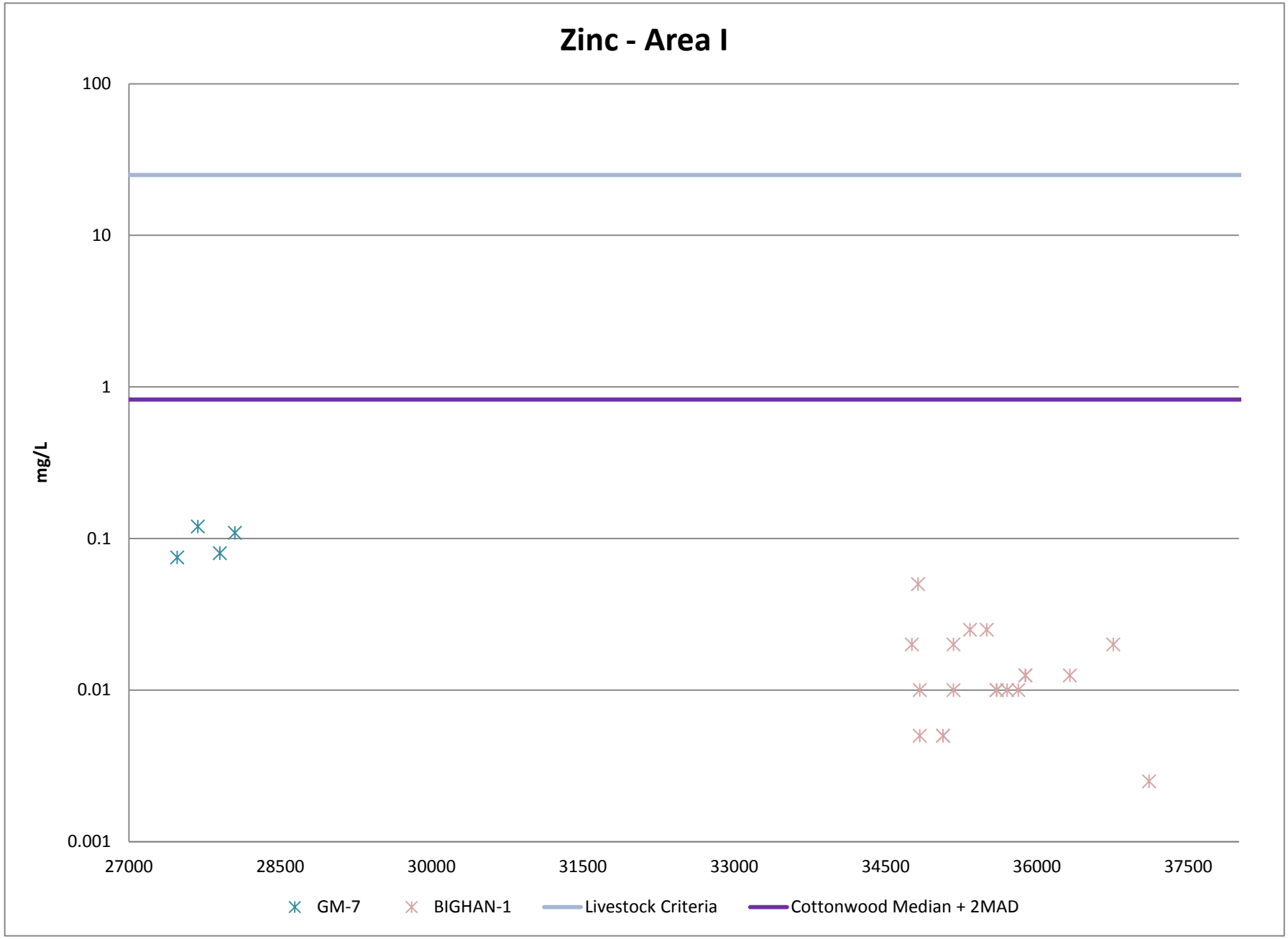

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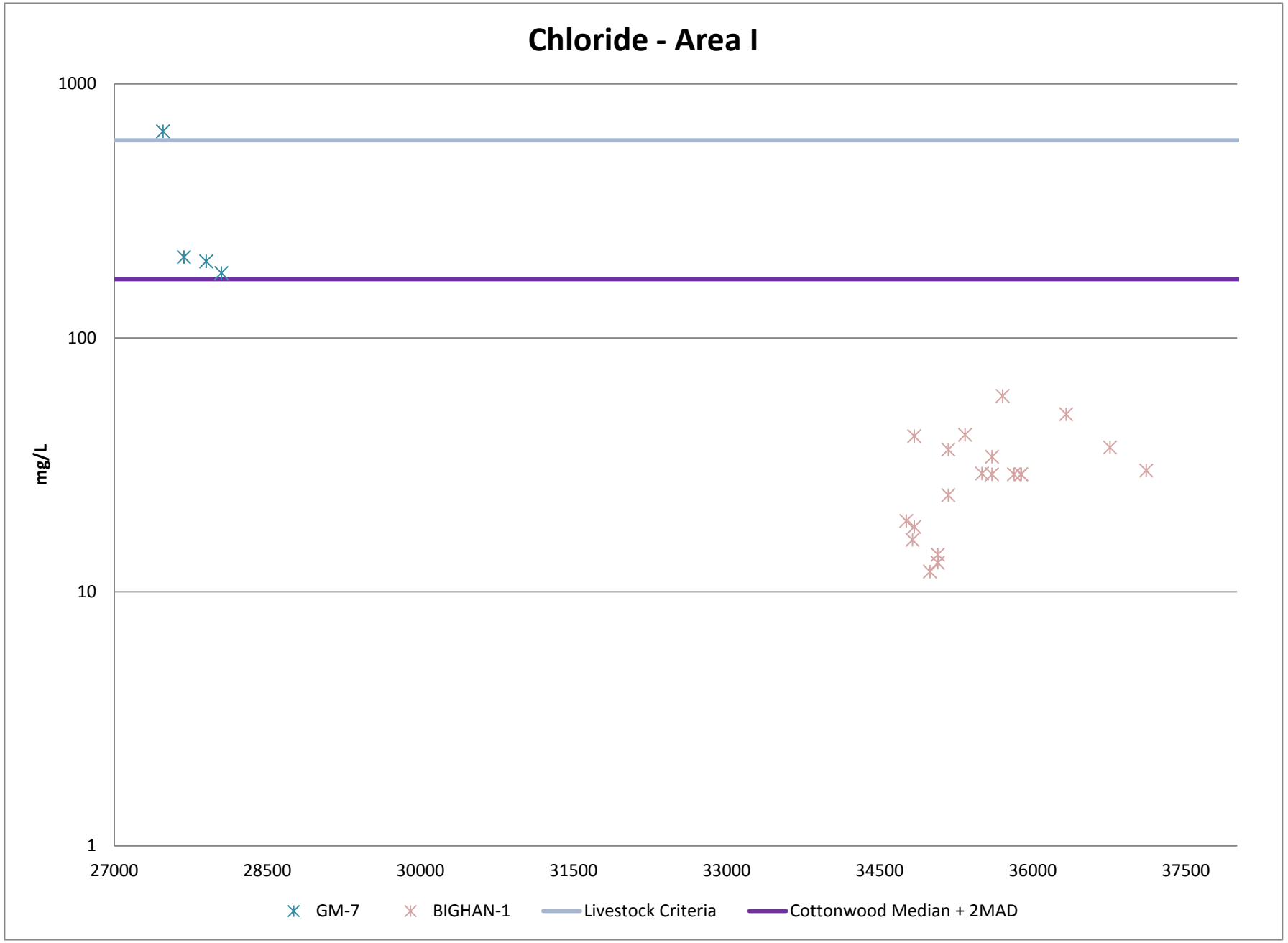

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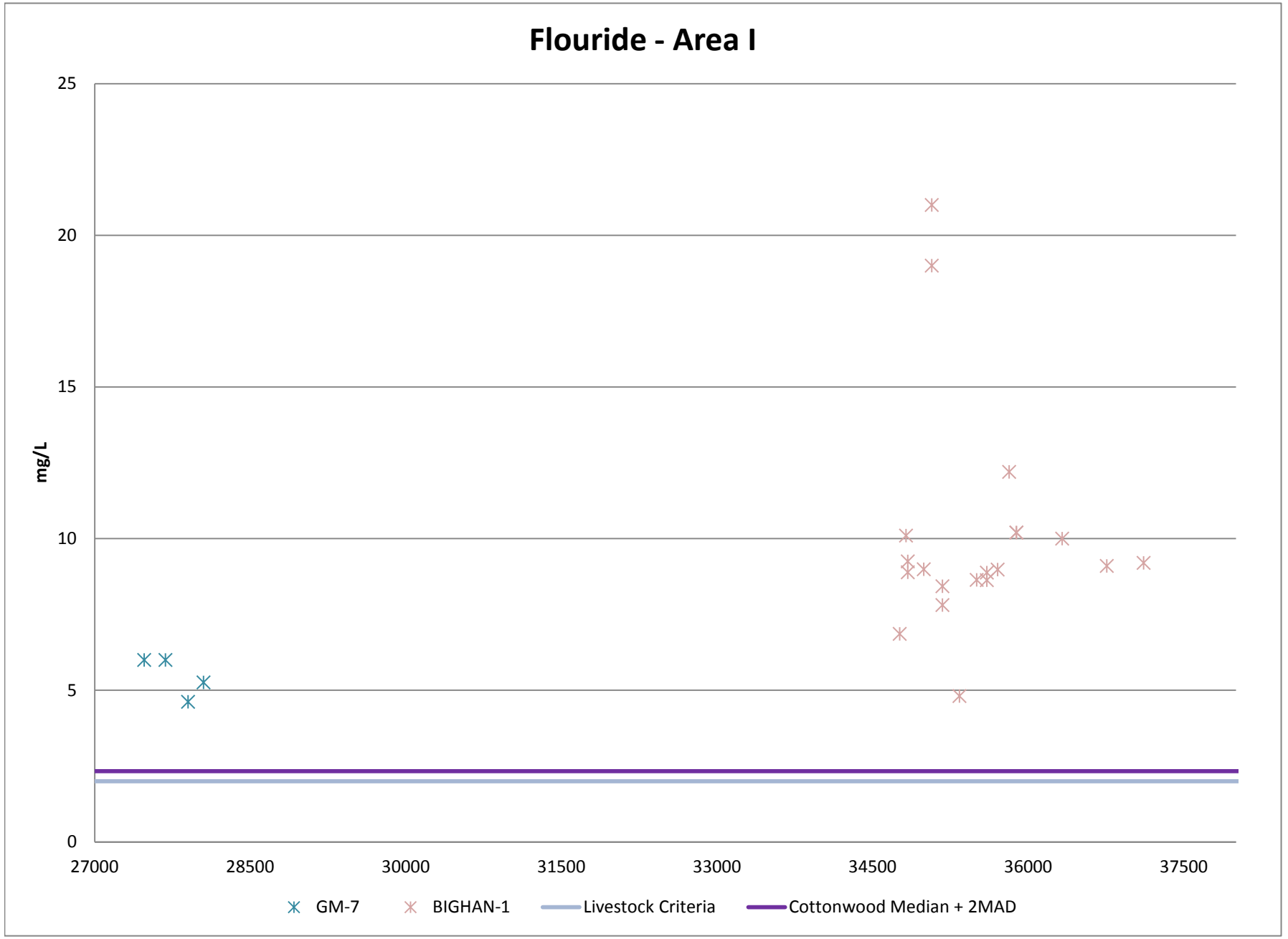

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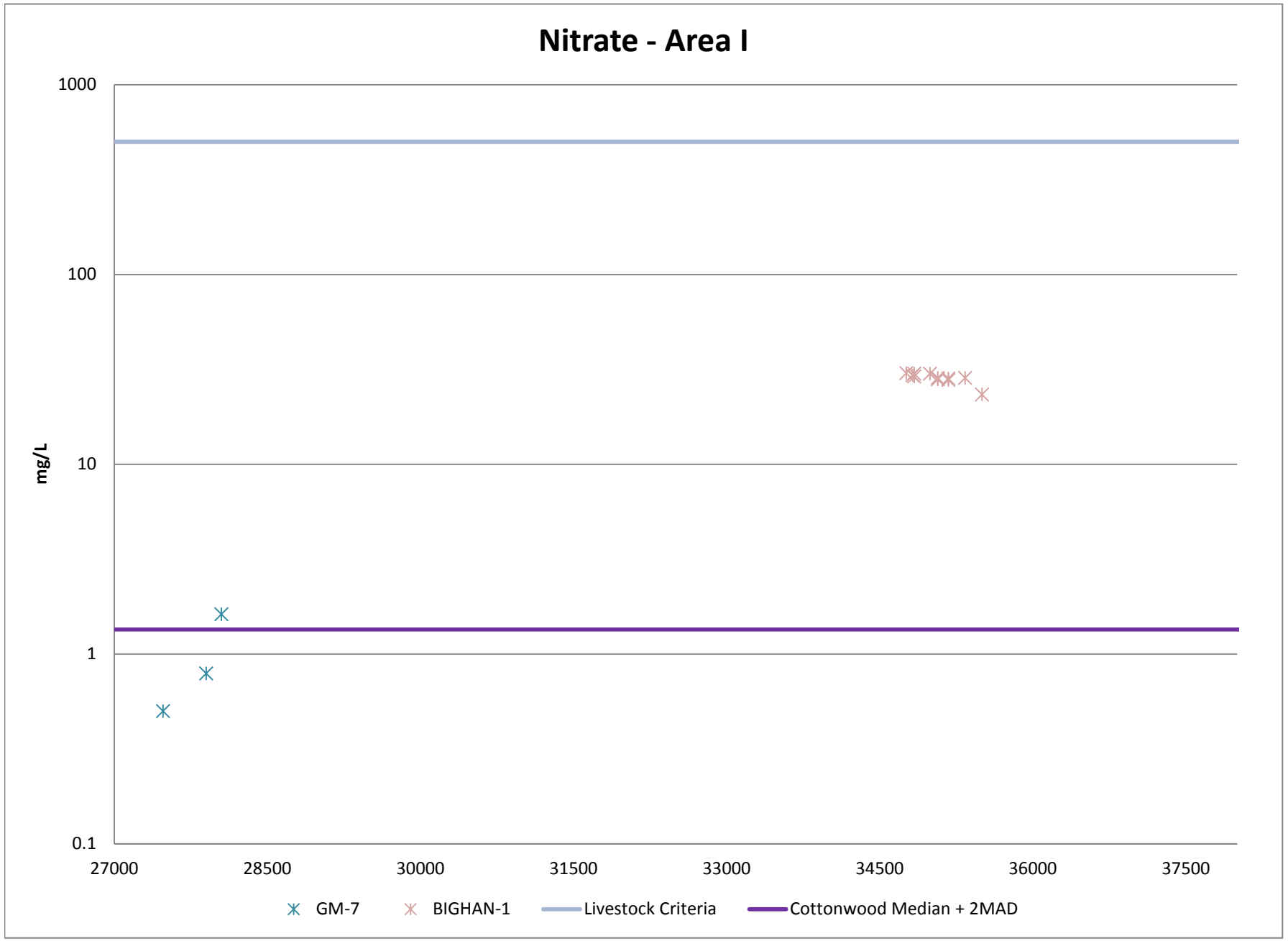

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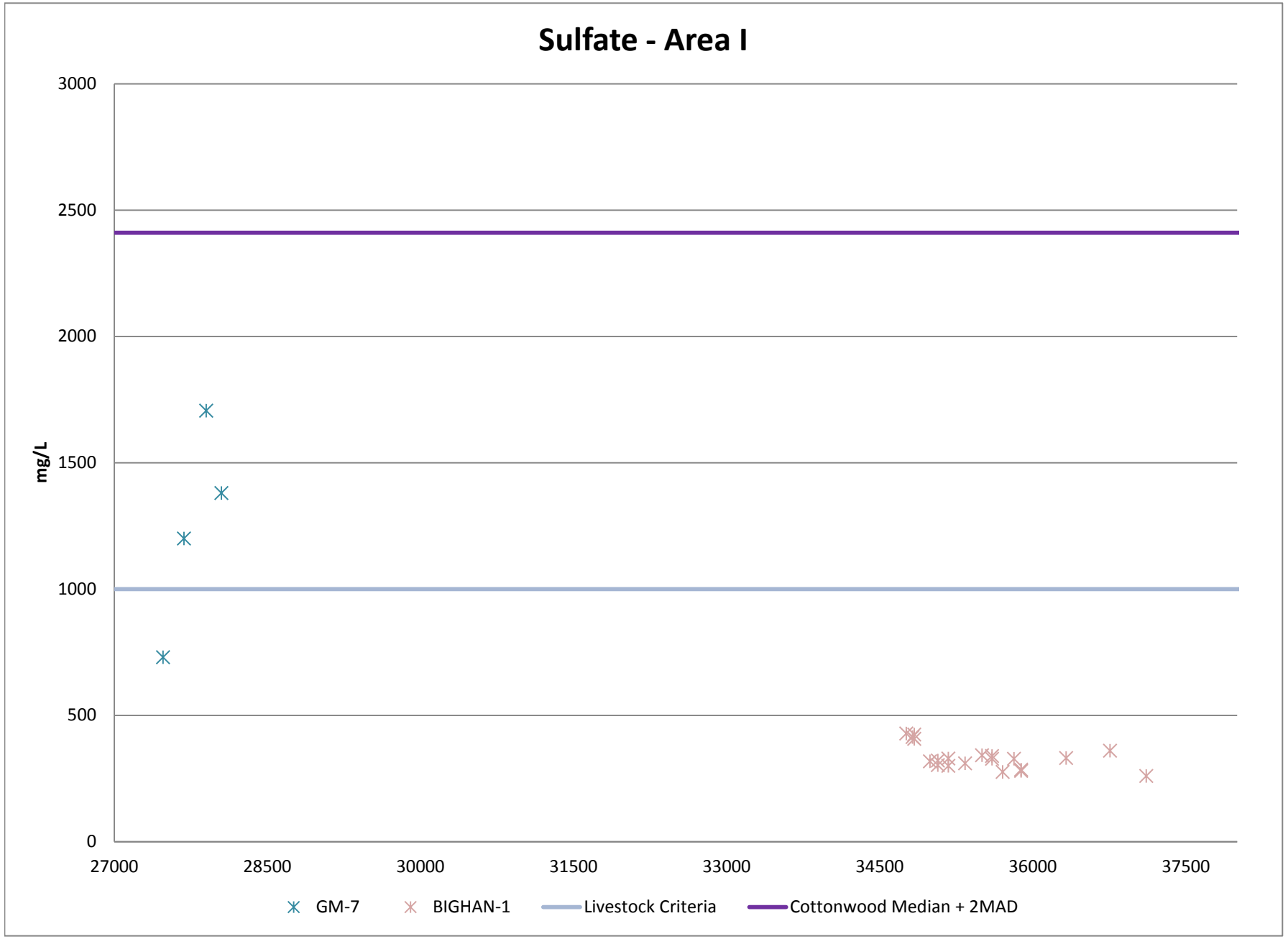
Area I Alluvial Graphs



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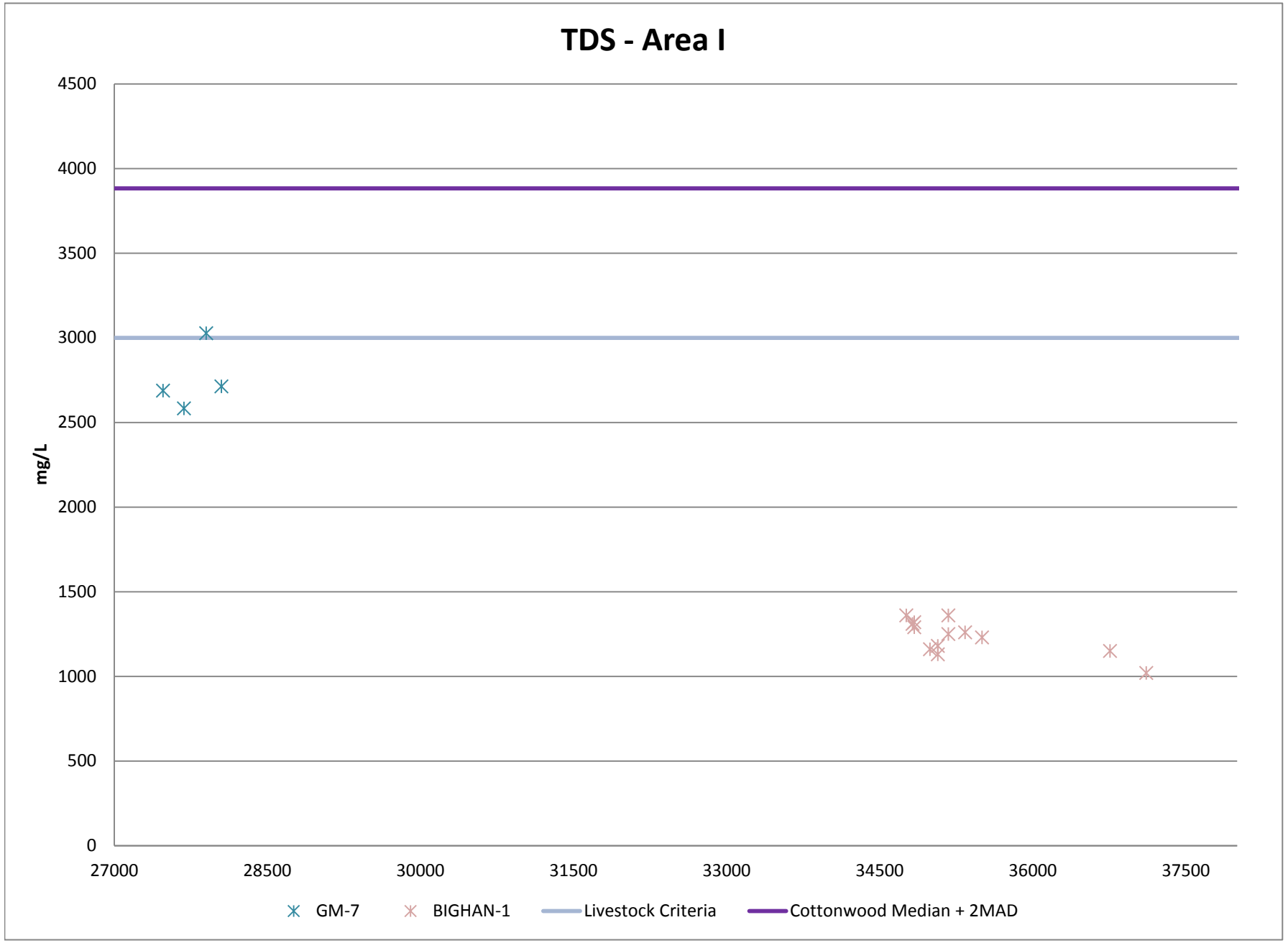

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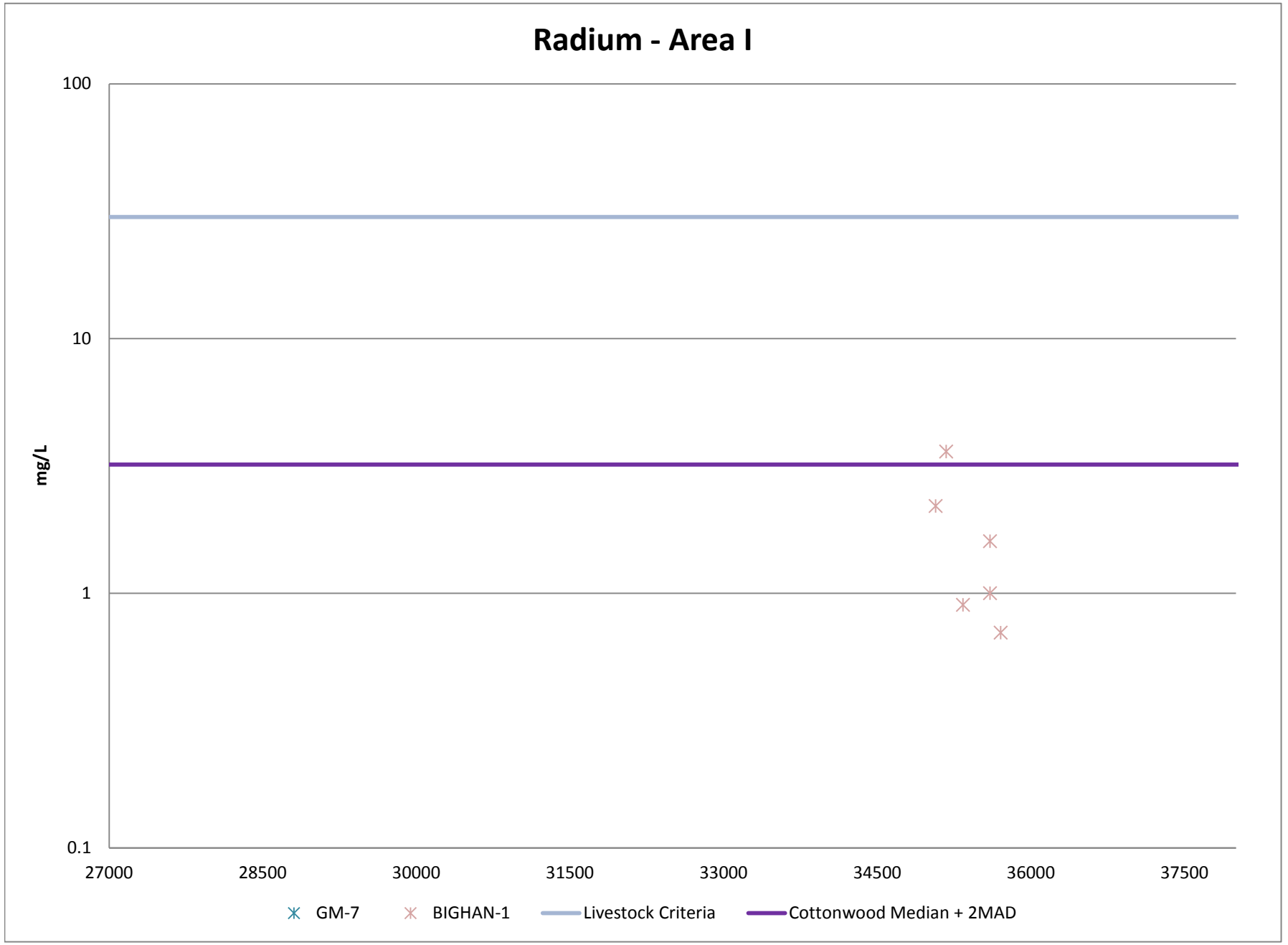

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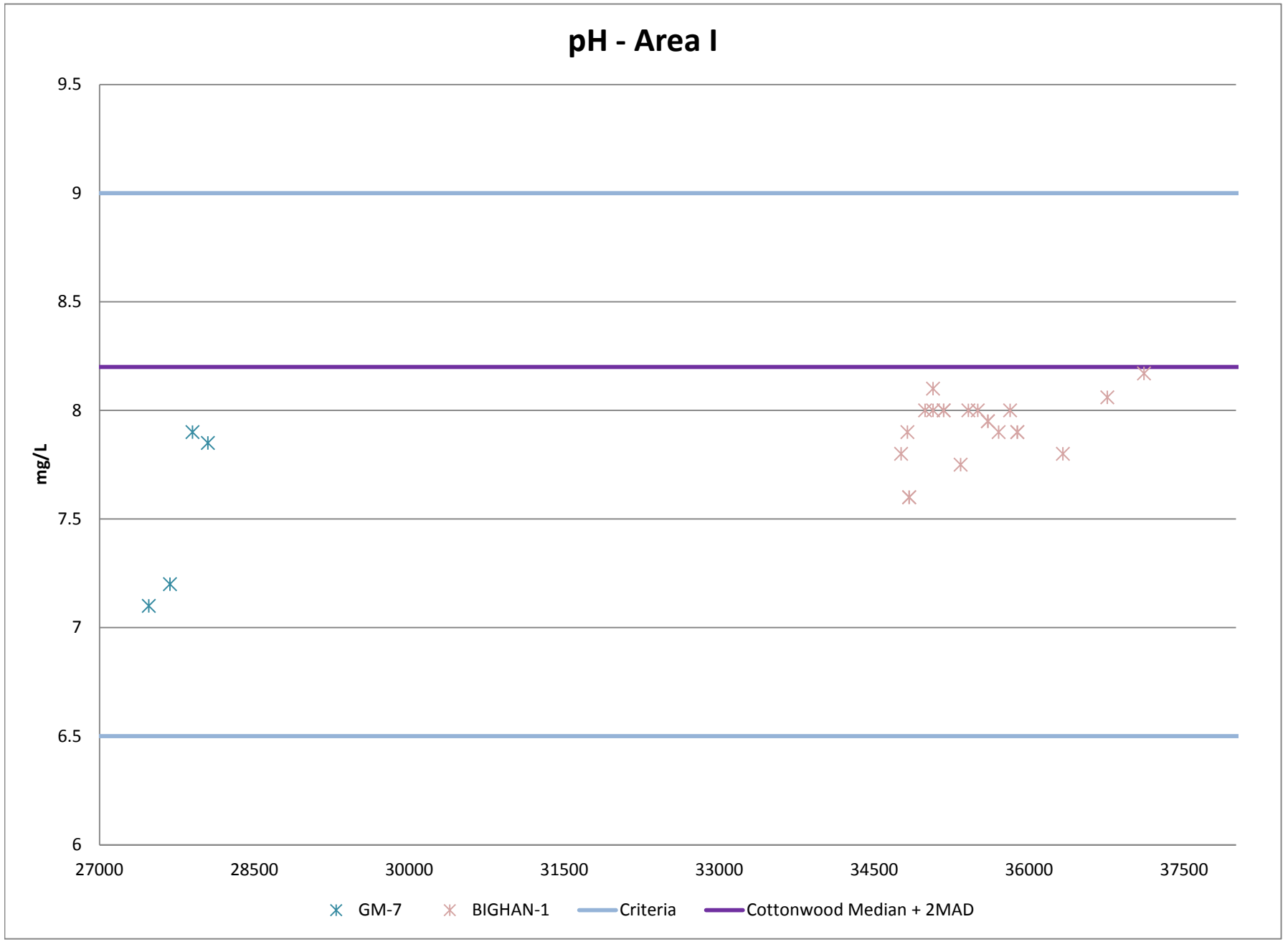

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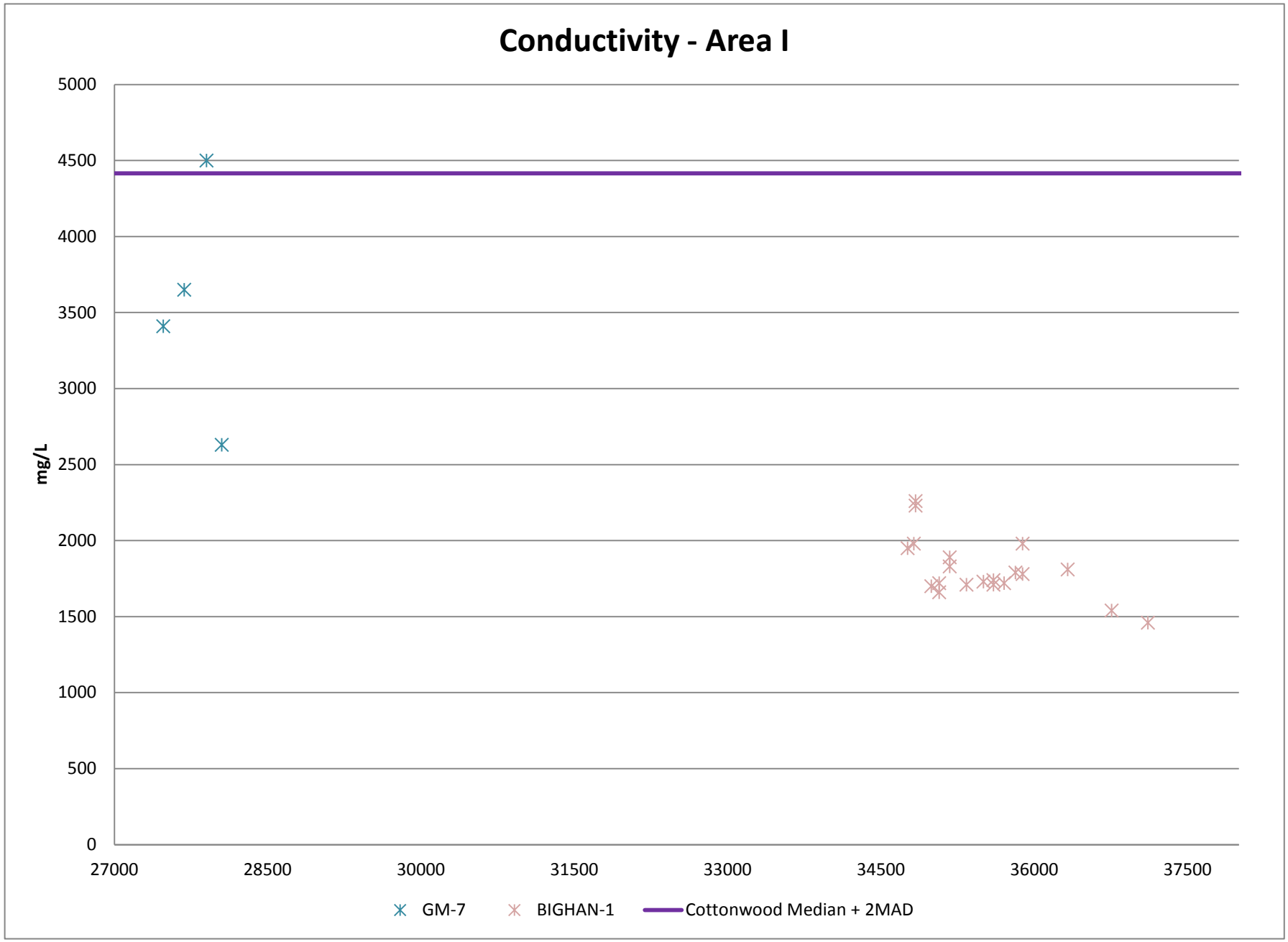

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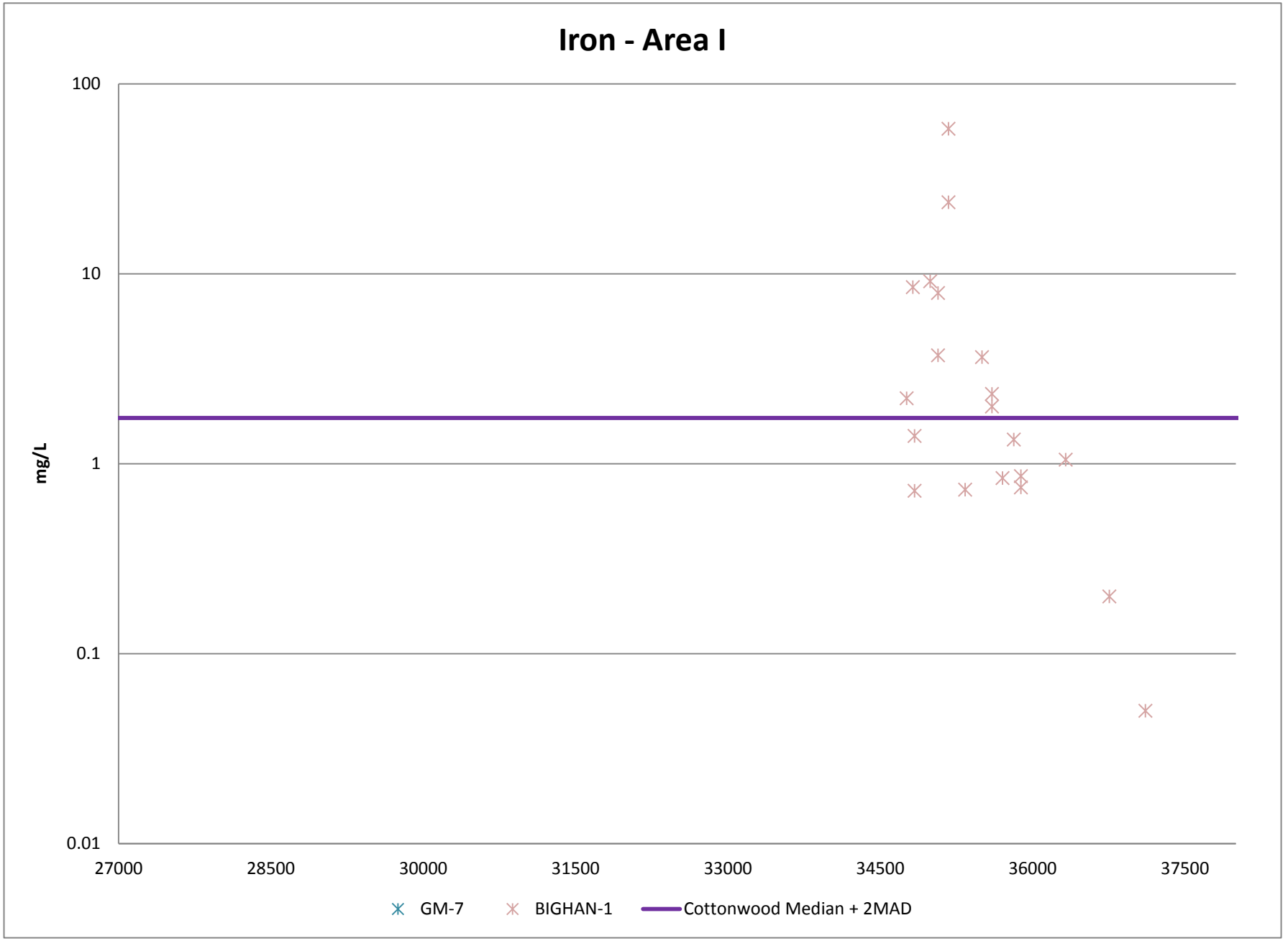
Area I Alluvial Graphs



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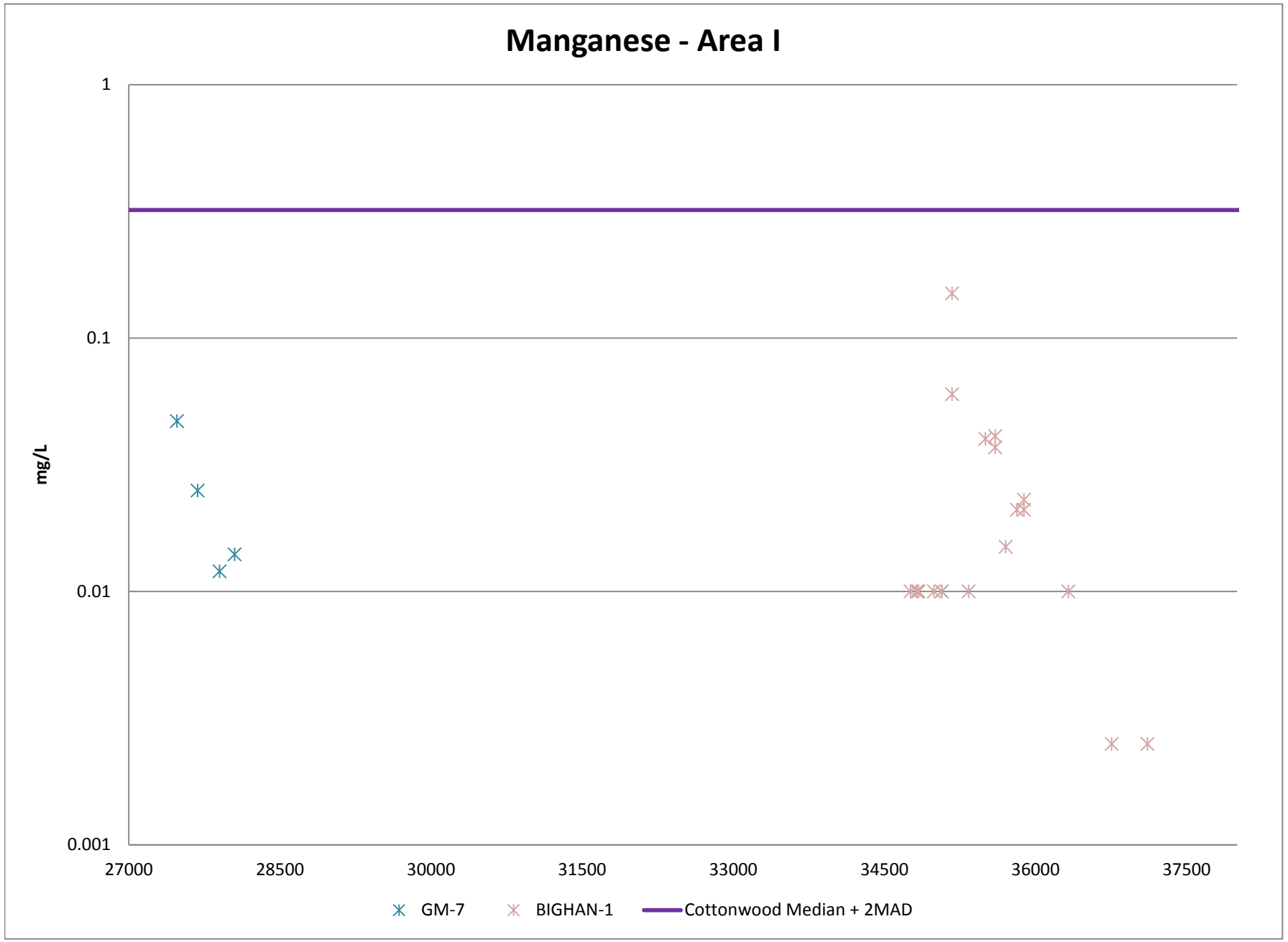
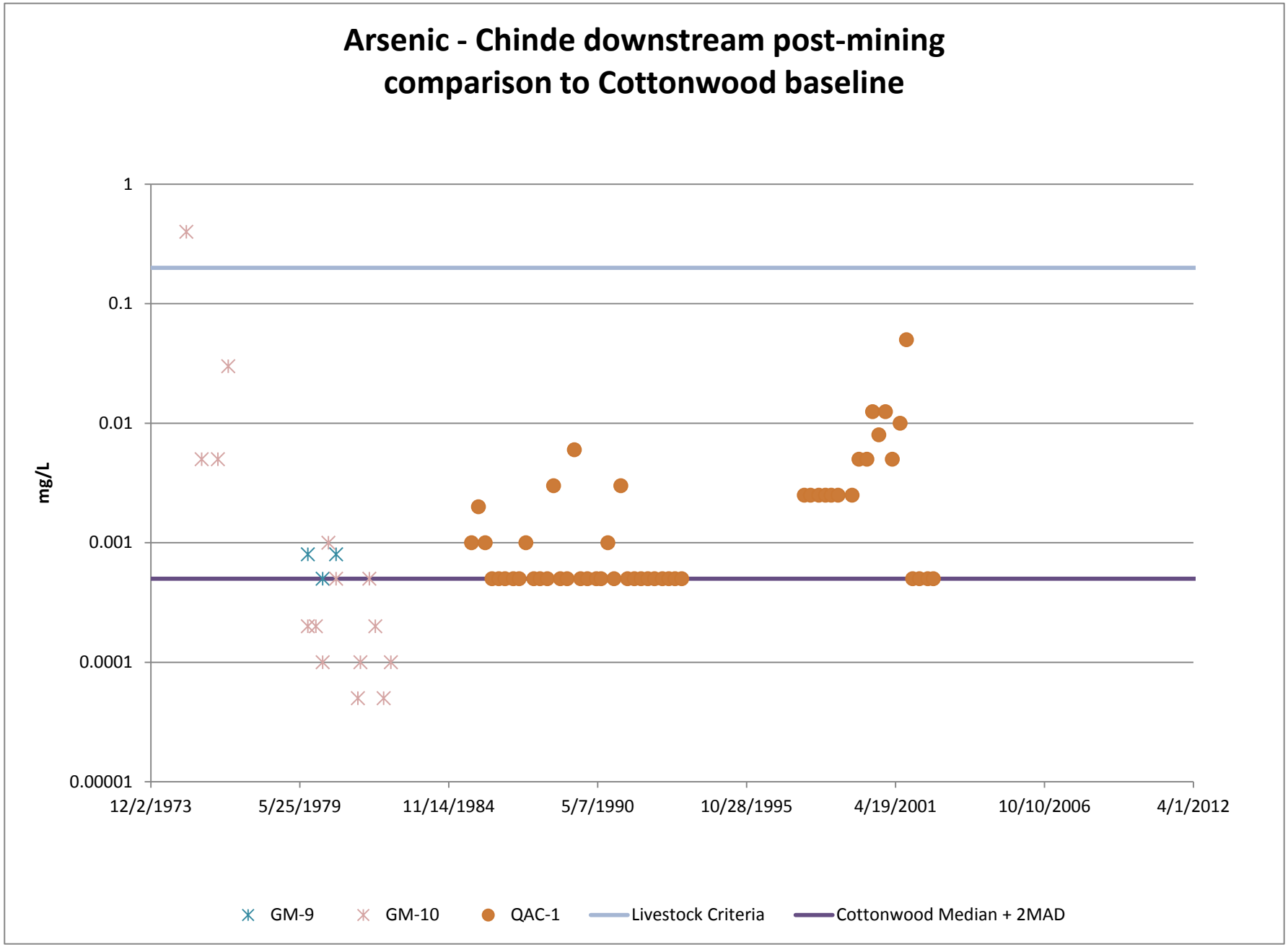
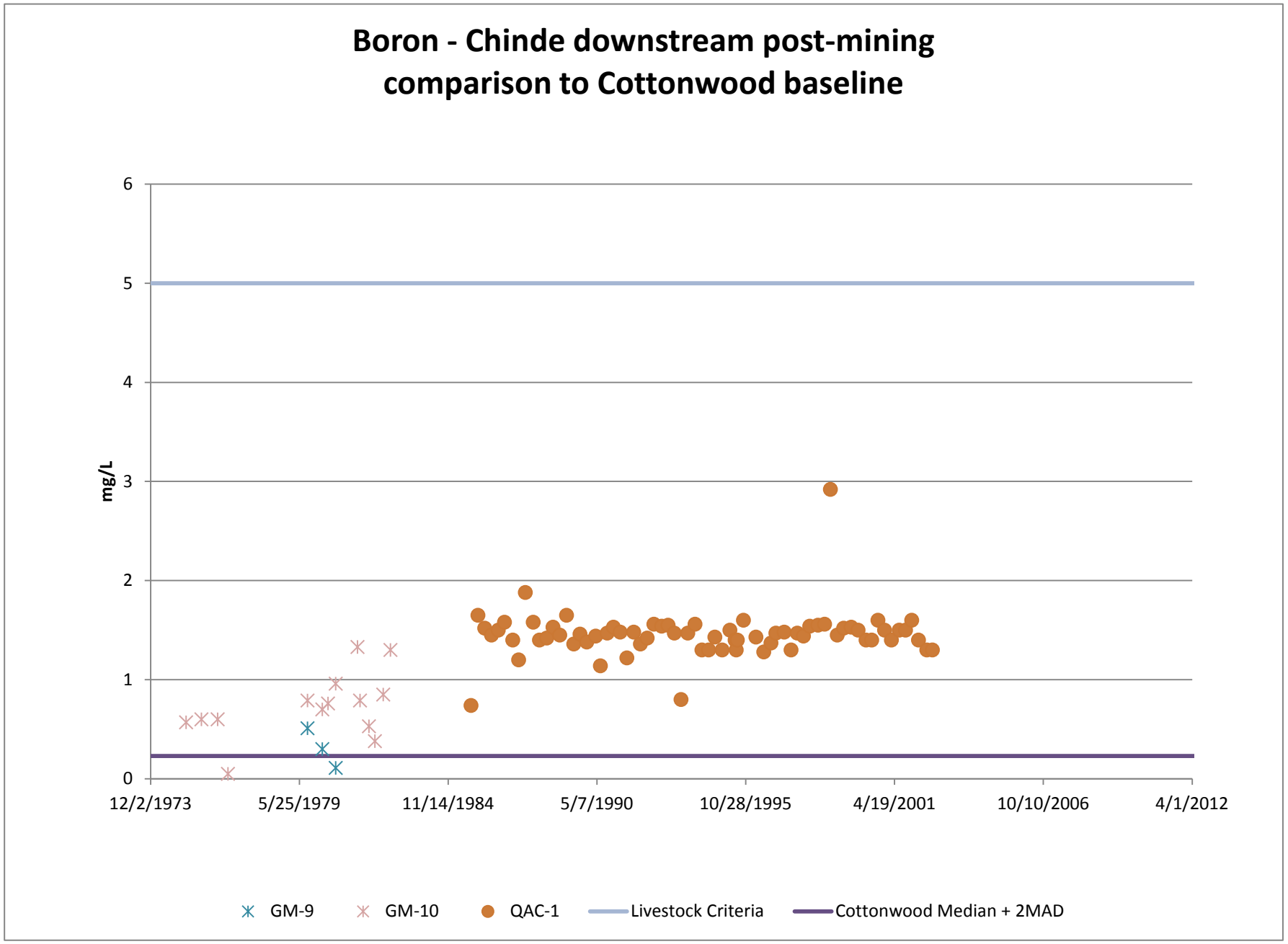
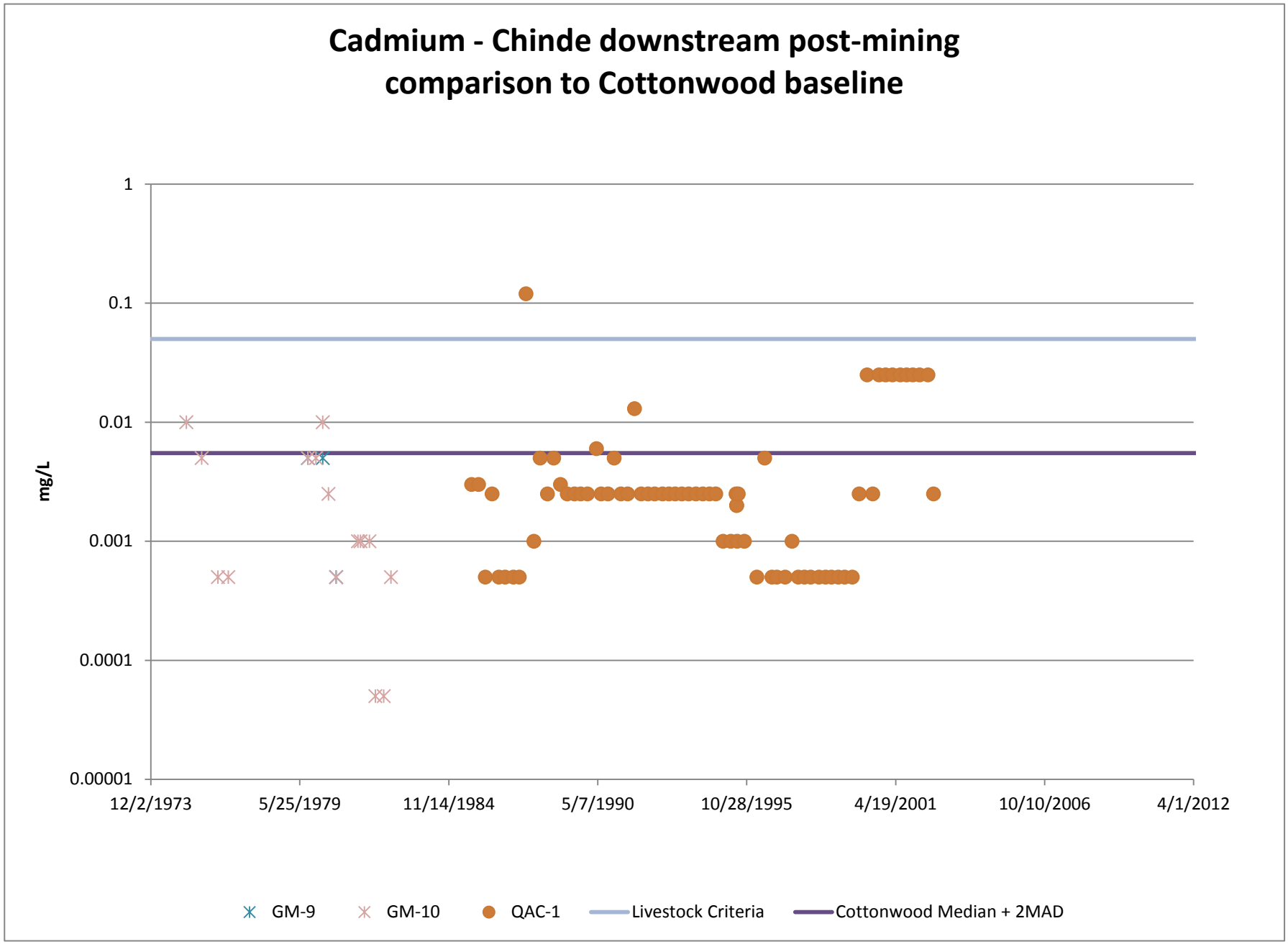
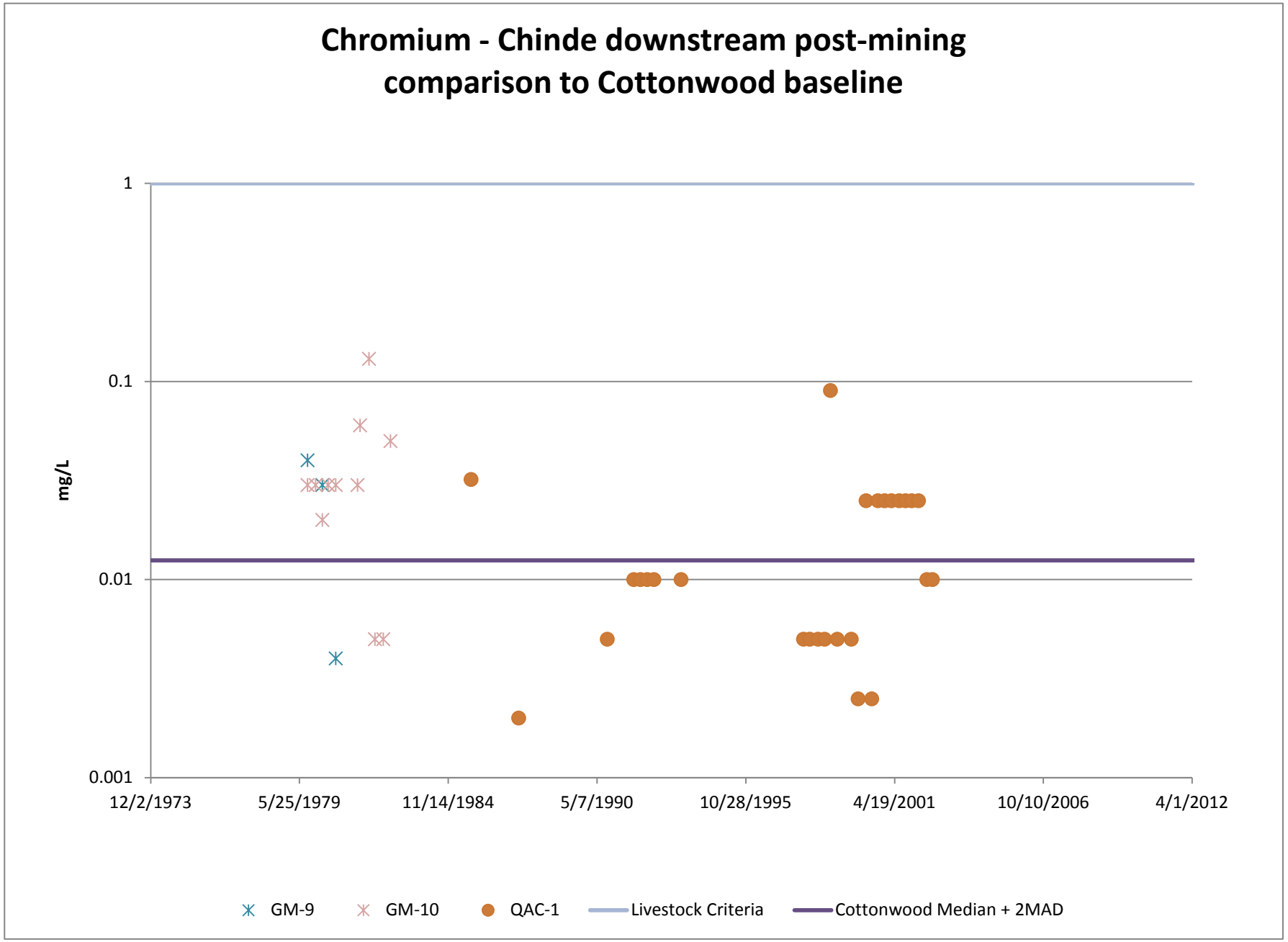
Area I Alluvial Graphs

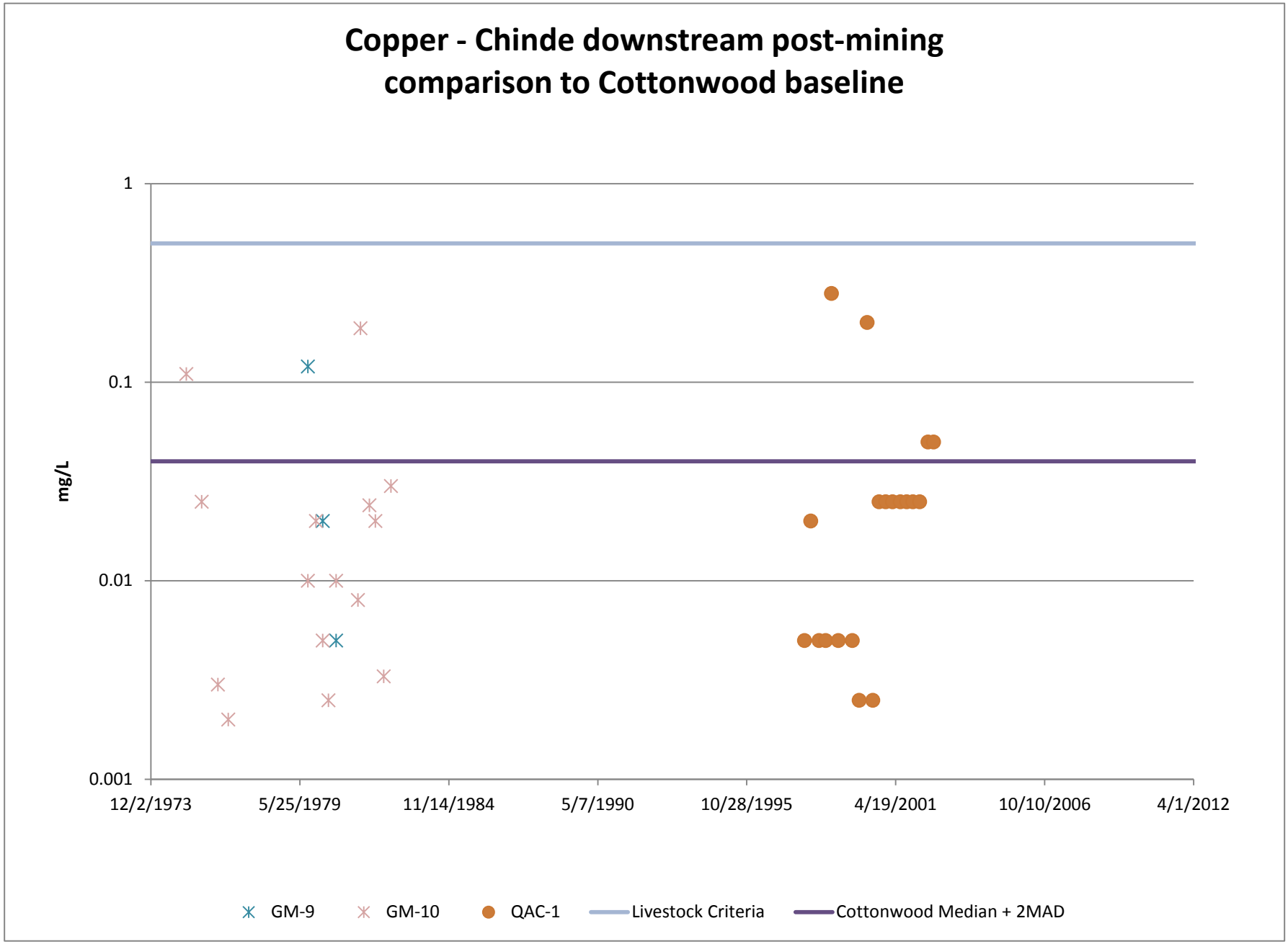


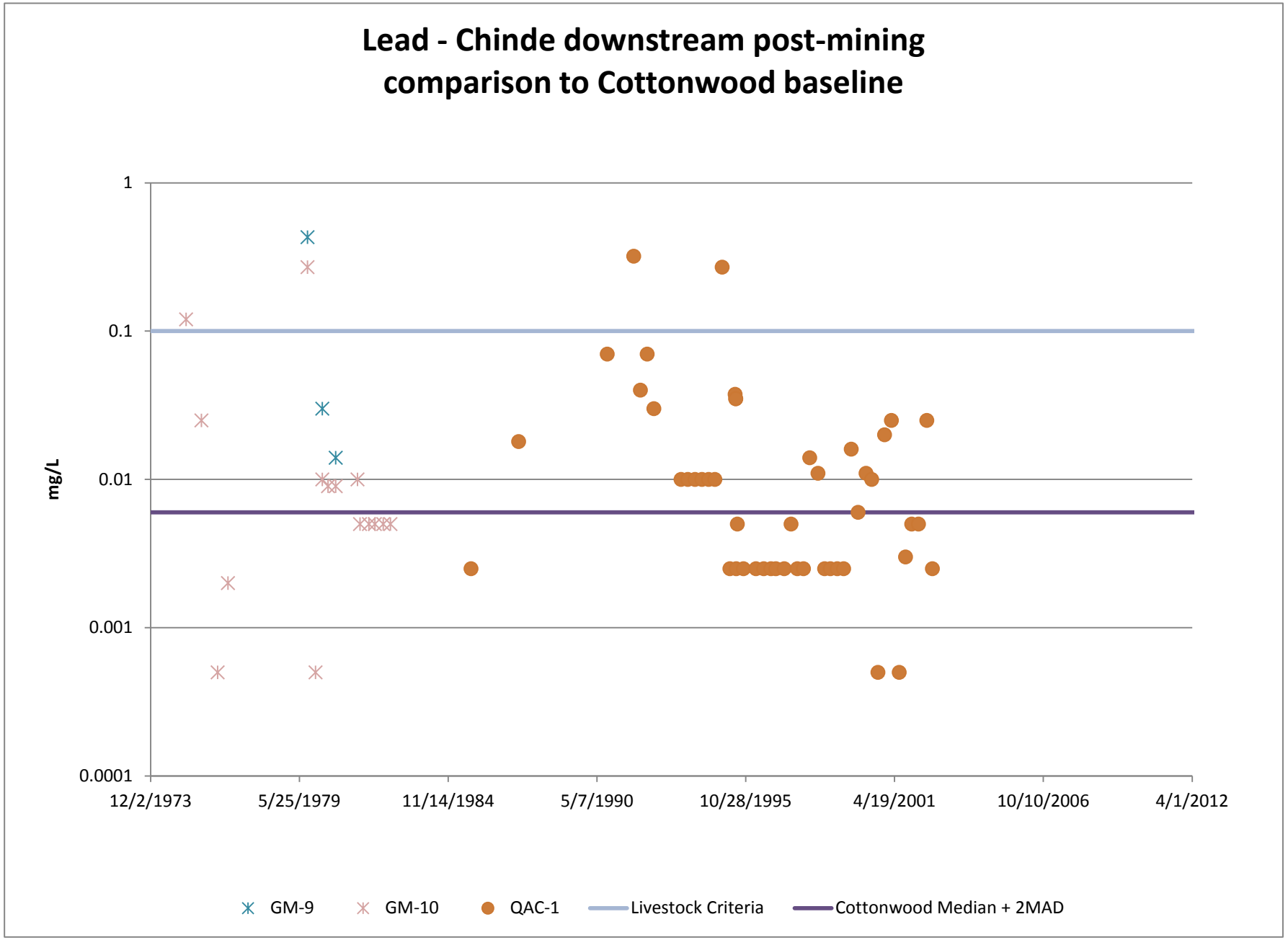

Arsenic - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

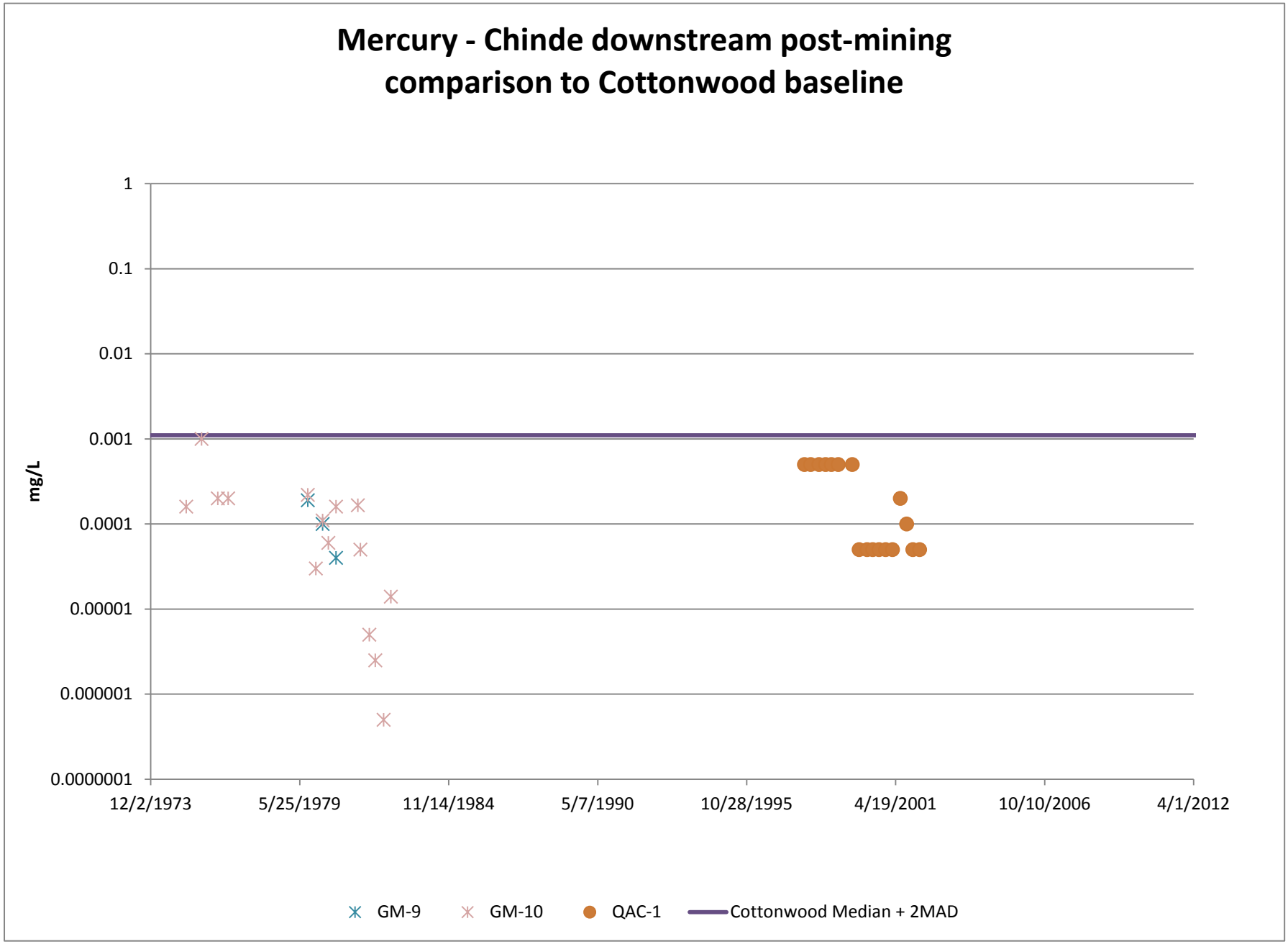

Boron - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
6
5
4
3
2
1
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

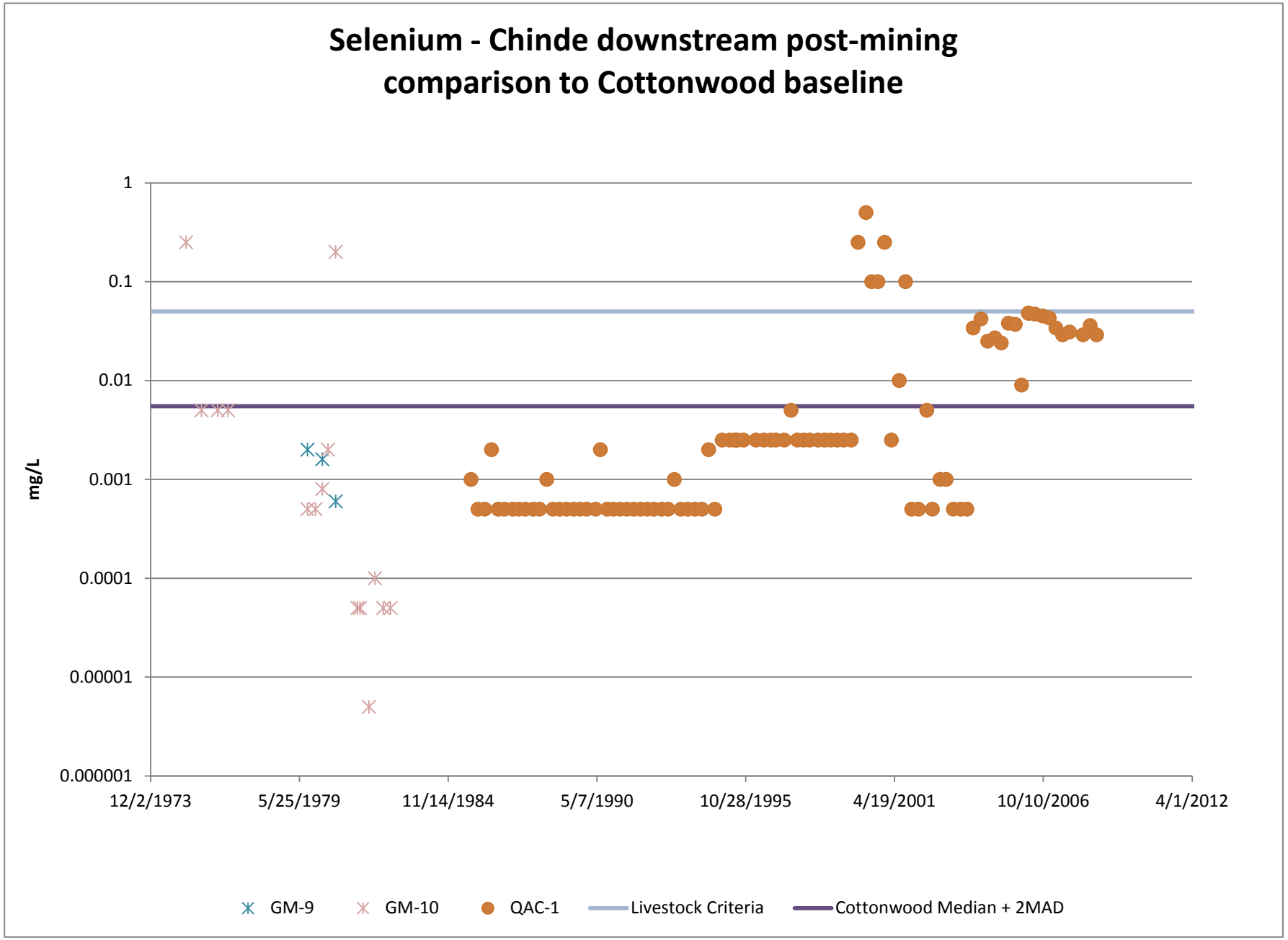

Cadmium - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

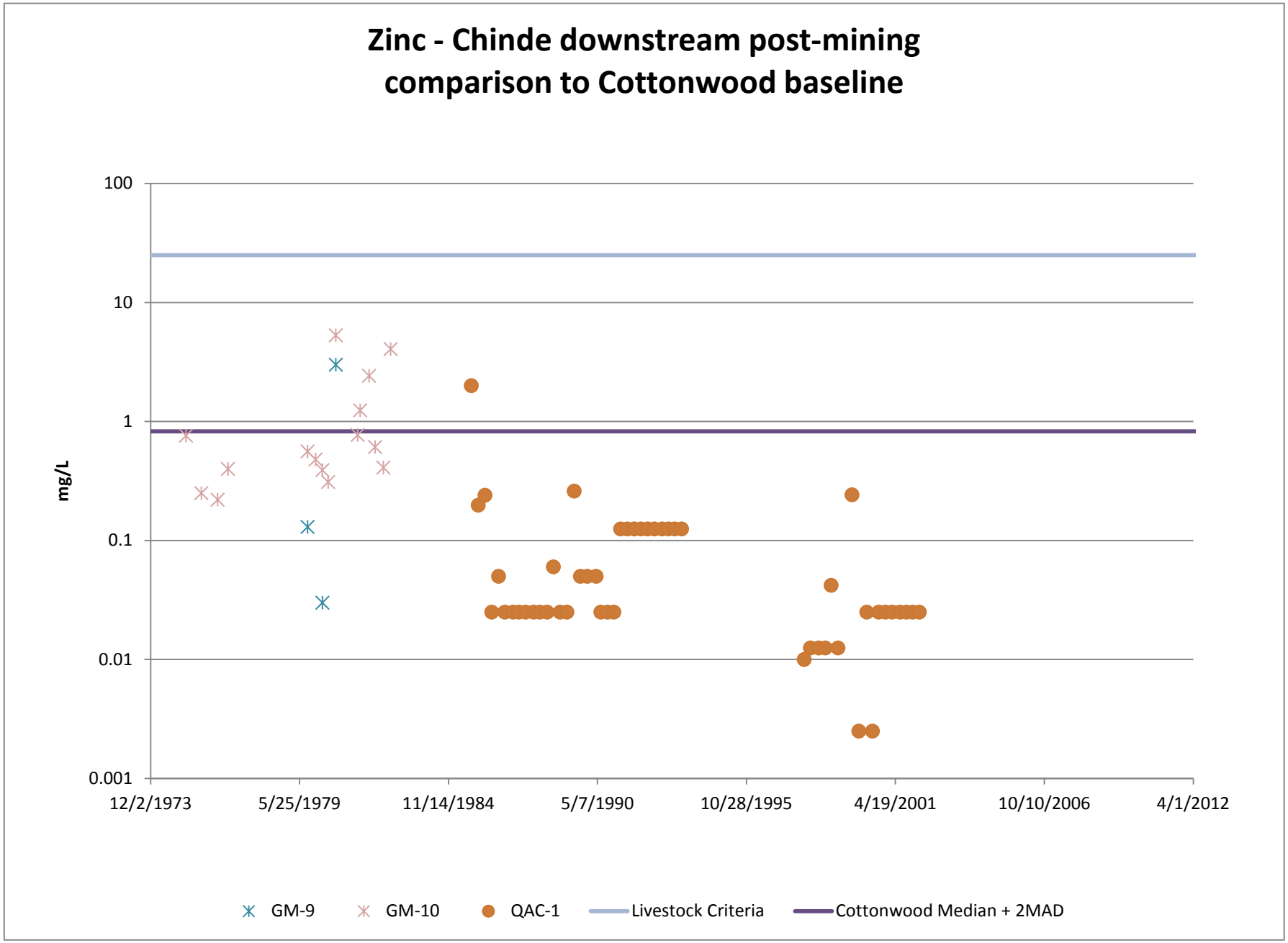

Chromium - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

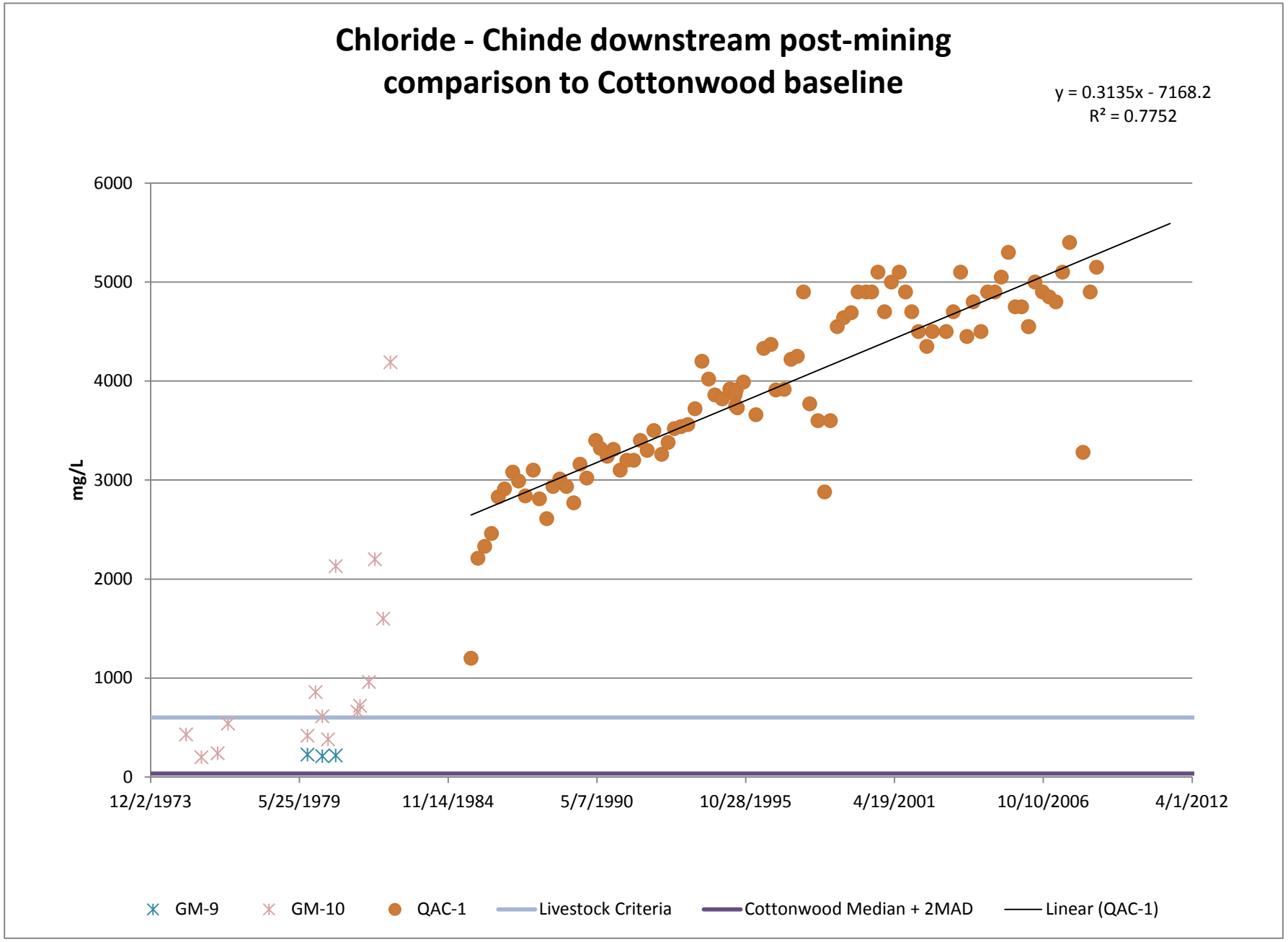

Copper - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

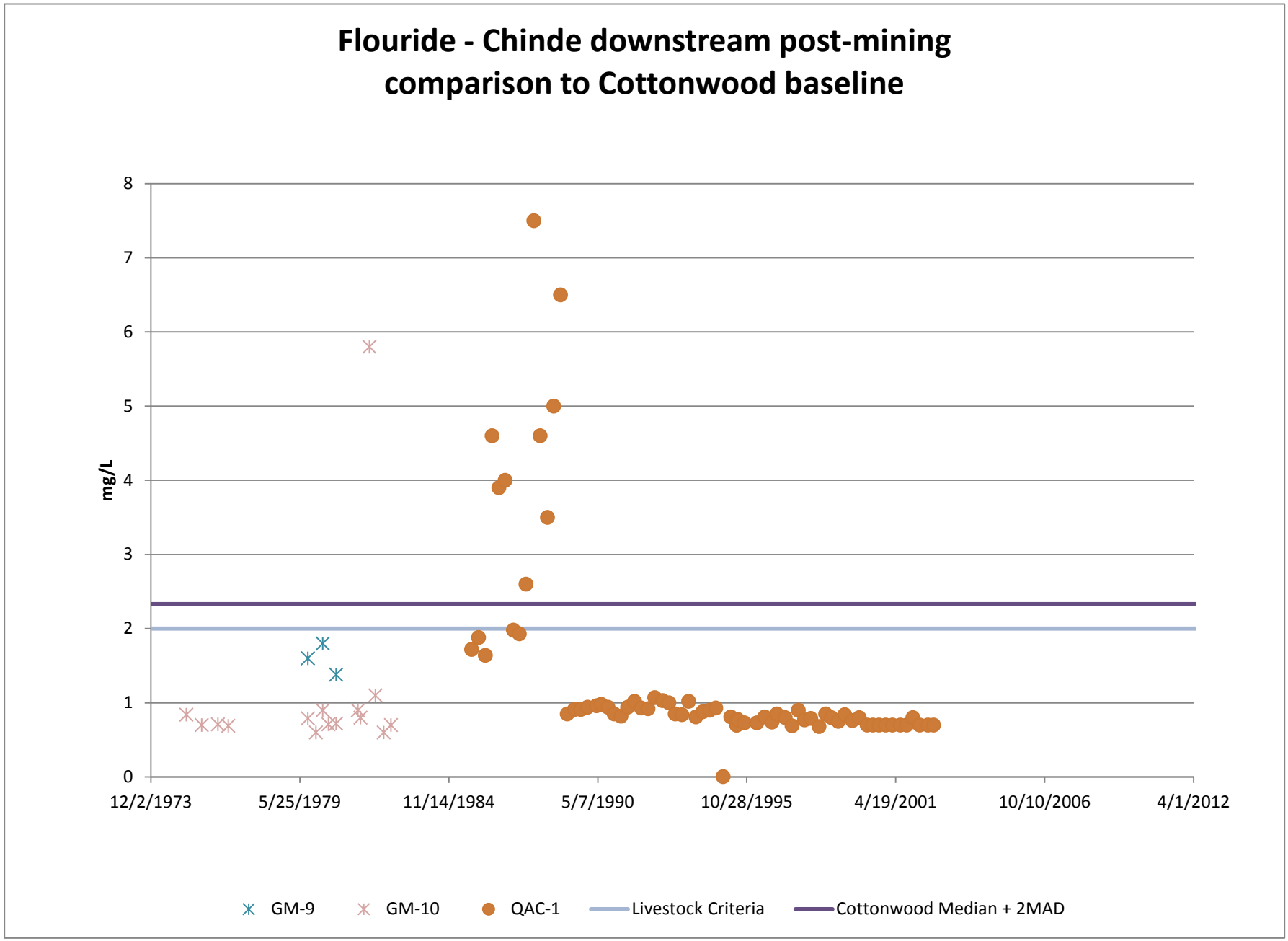

Lead - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
0.0001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

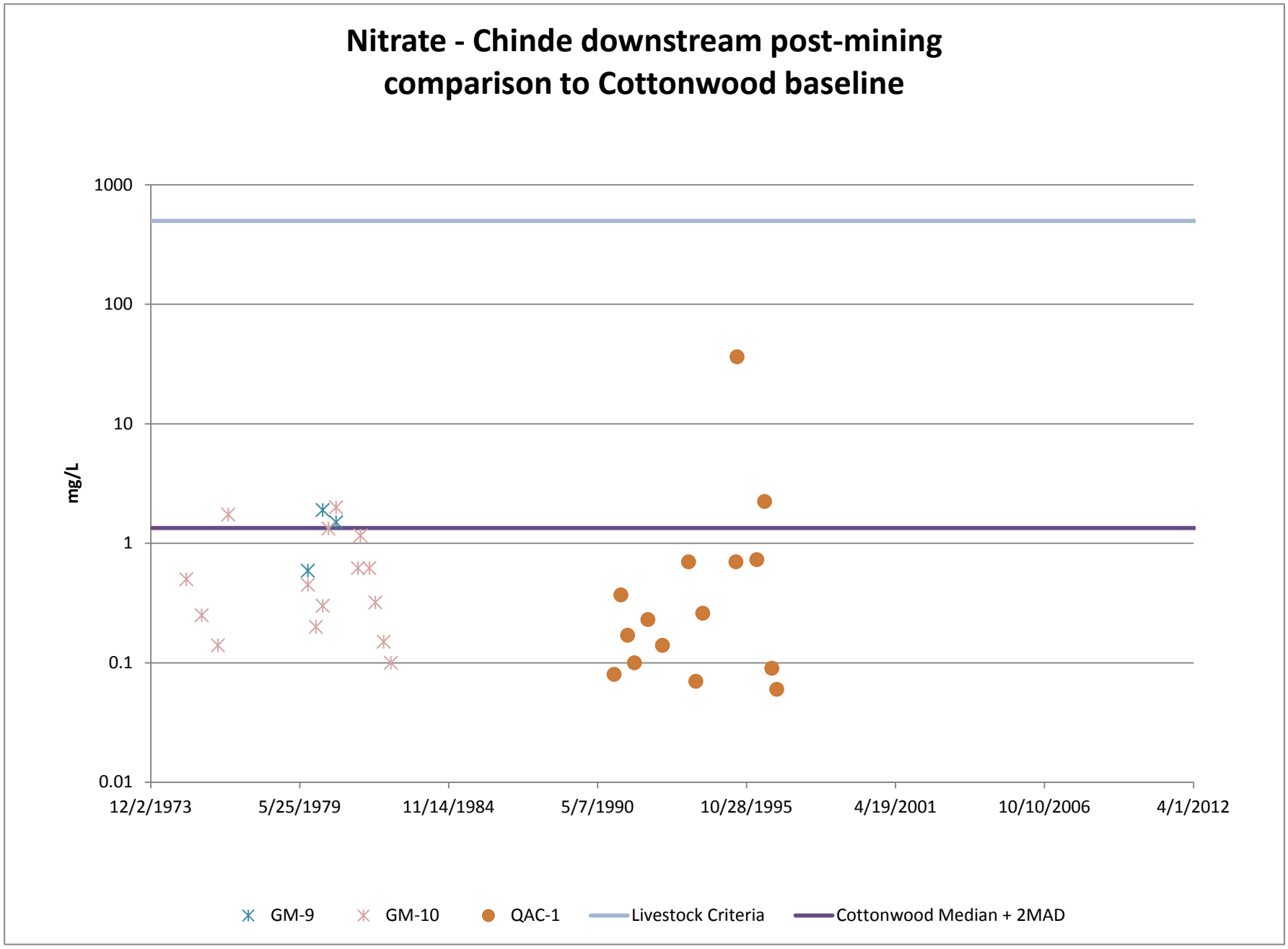

Mercury - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
0.000001
0.0000001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Cottonwood Median + 2MAD

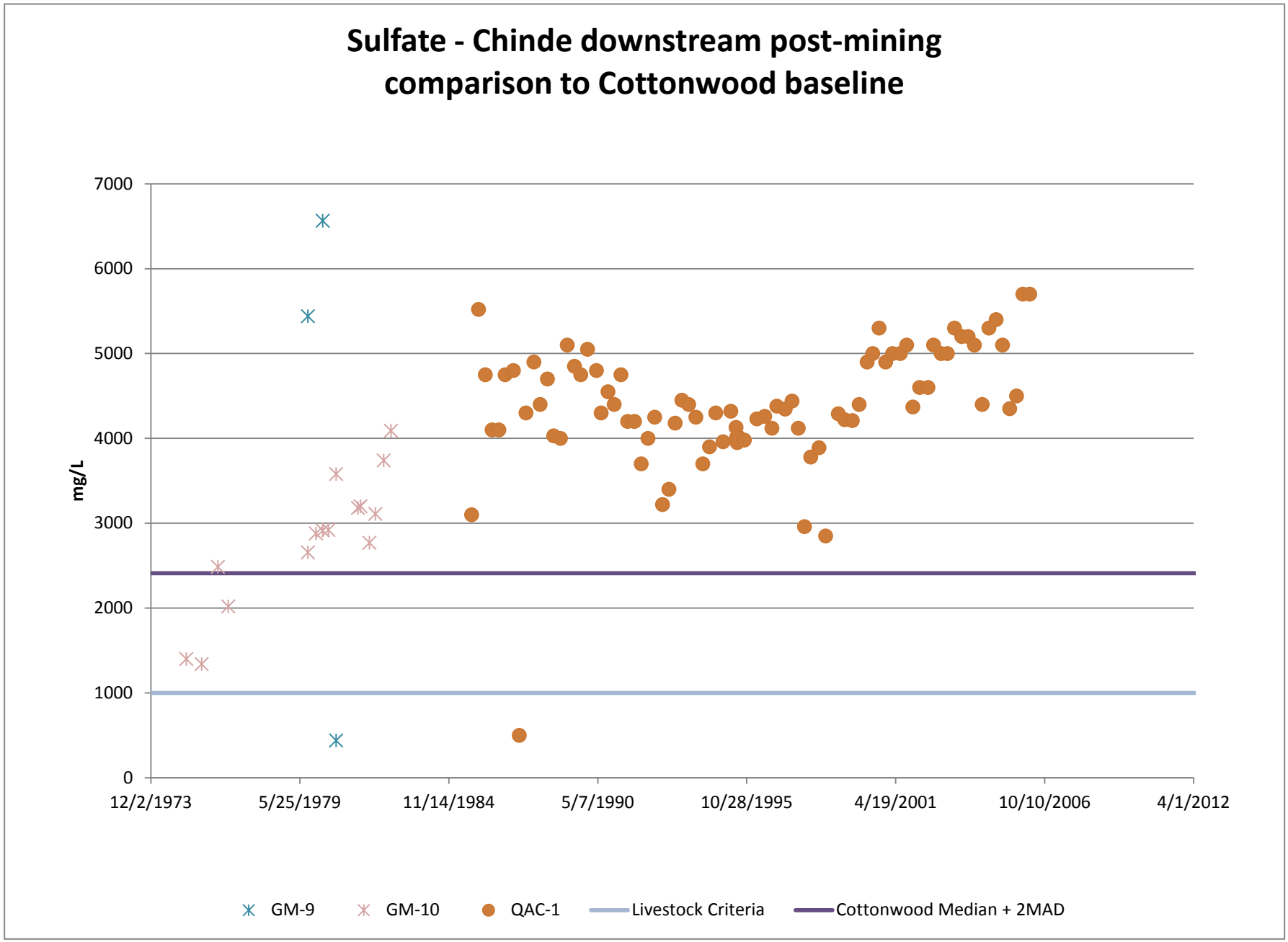

Selenium - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1
0.1
0.01
0.001
0.0001
0.00001
0.000001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

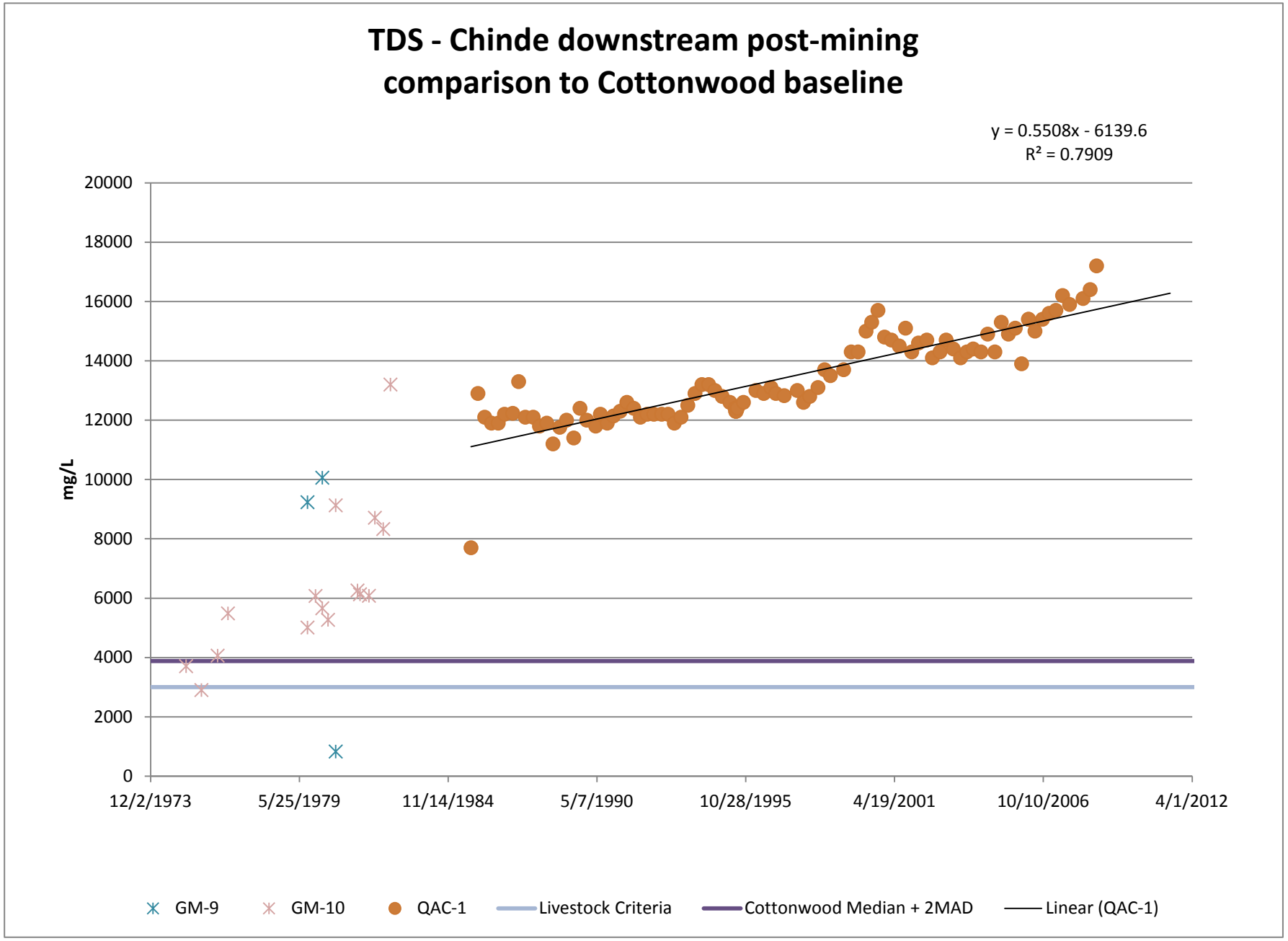

Zinc - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
100
10
1
0.1
0.01
0.001
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

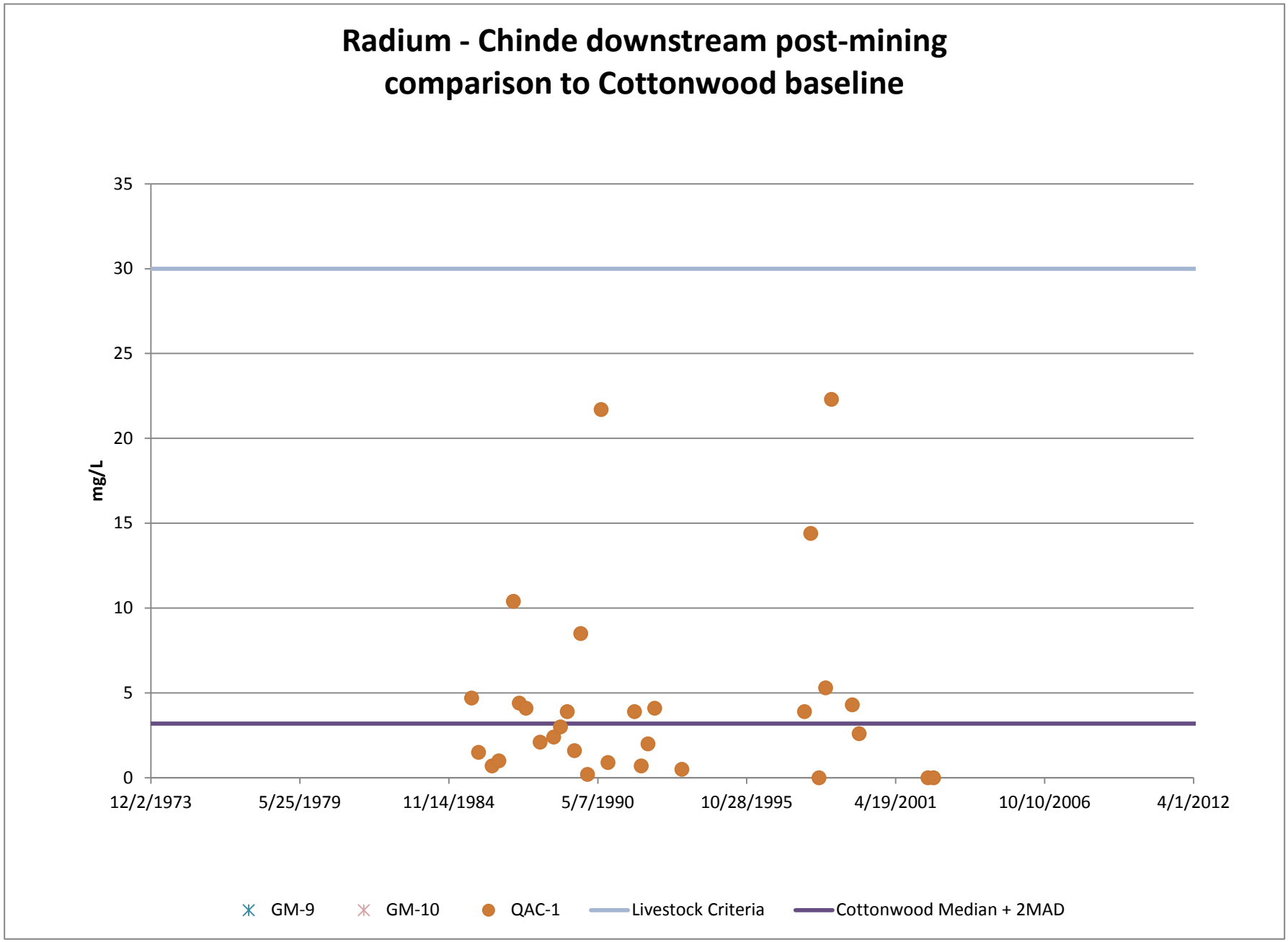

Chloride - Chinde downstream post-mining comparison to Cottonwood baseline
y = 0.3135x - 7168.2
R² = 0.7752
mg/L
6000
5000
4000
3000
2000
1000
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD
Linear (QAC-1)

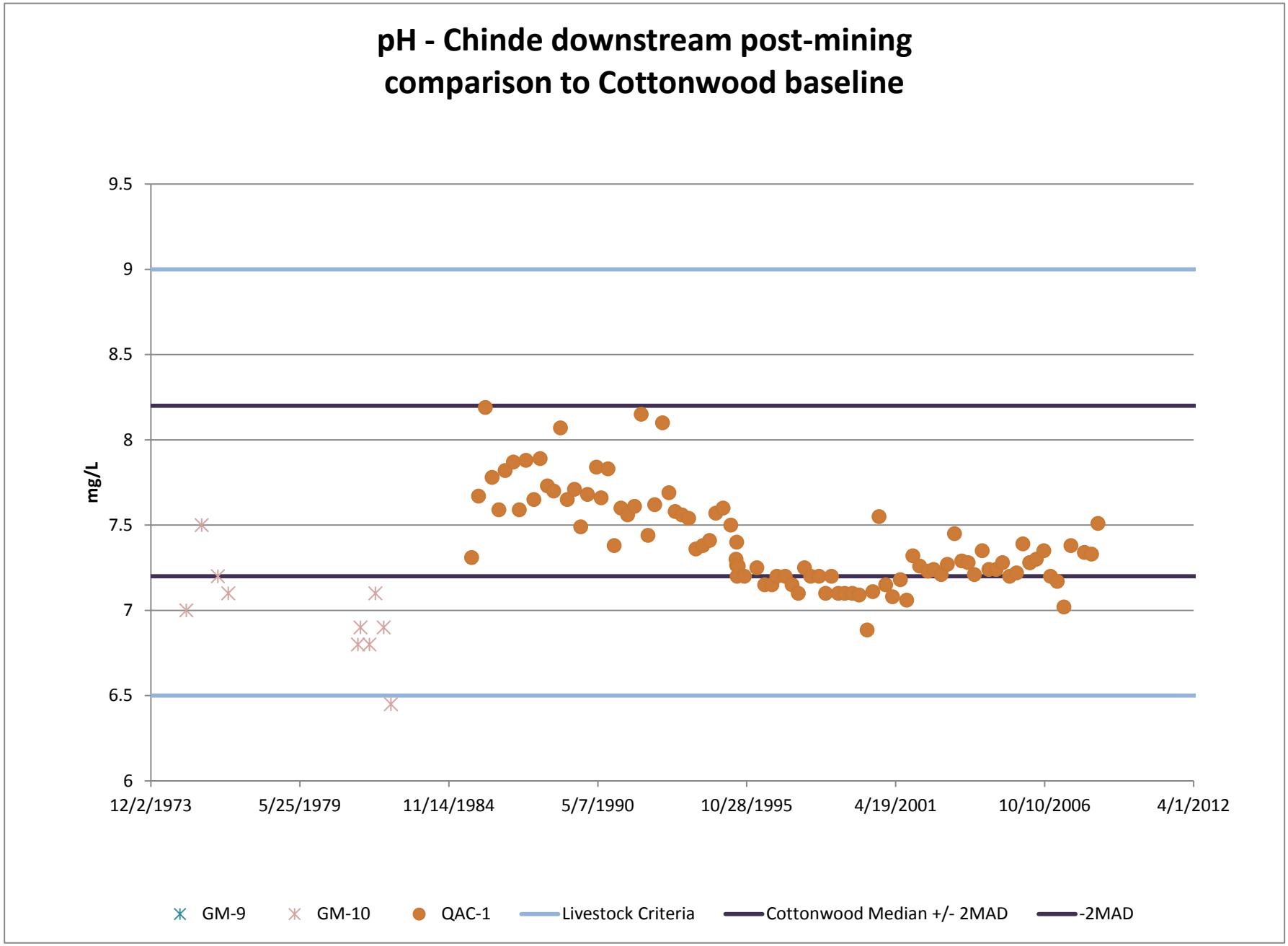

Flouride - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
8
7
6
5
4
3
2
1
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

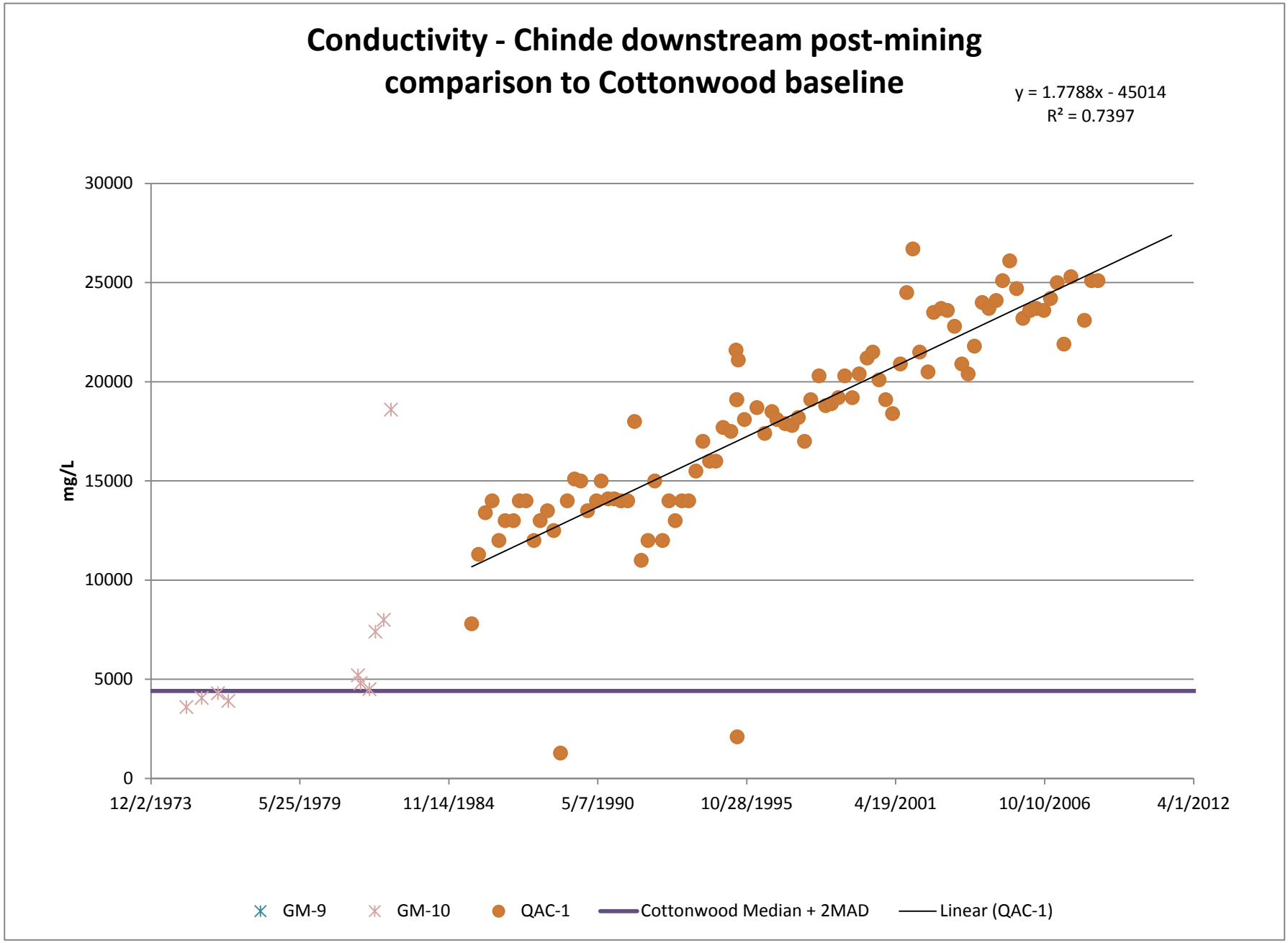

Nitrate - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
1000
100
10
1
0.1
0.01
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

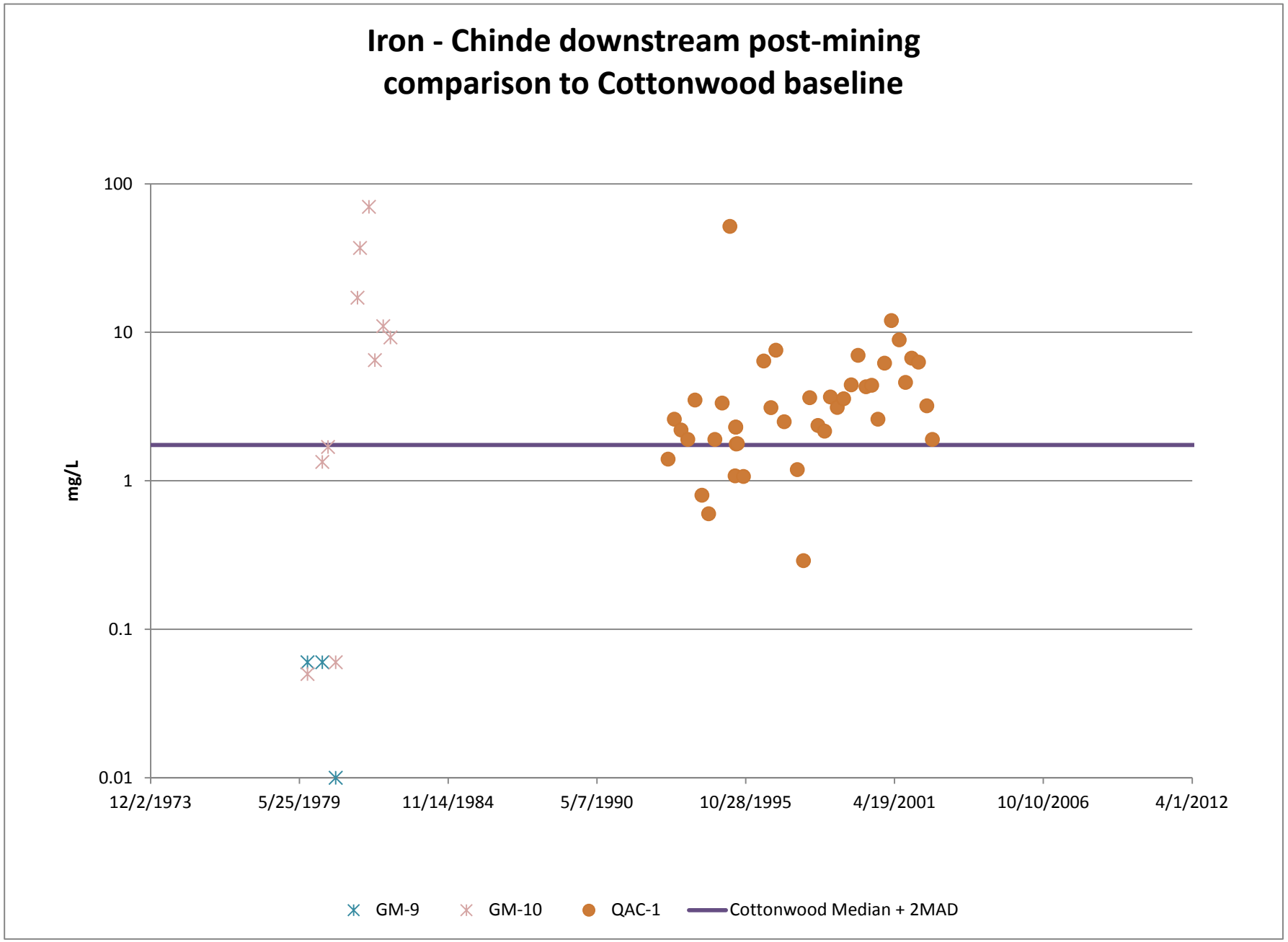

Sulfate - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
7000
6000
5000
4000
3000
2000
1000
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD

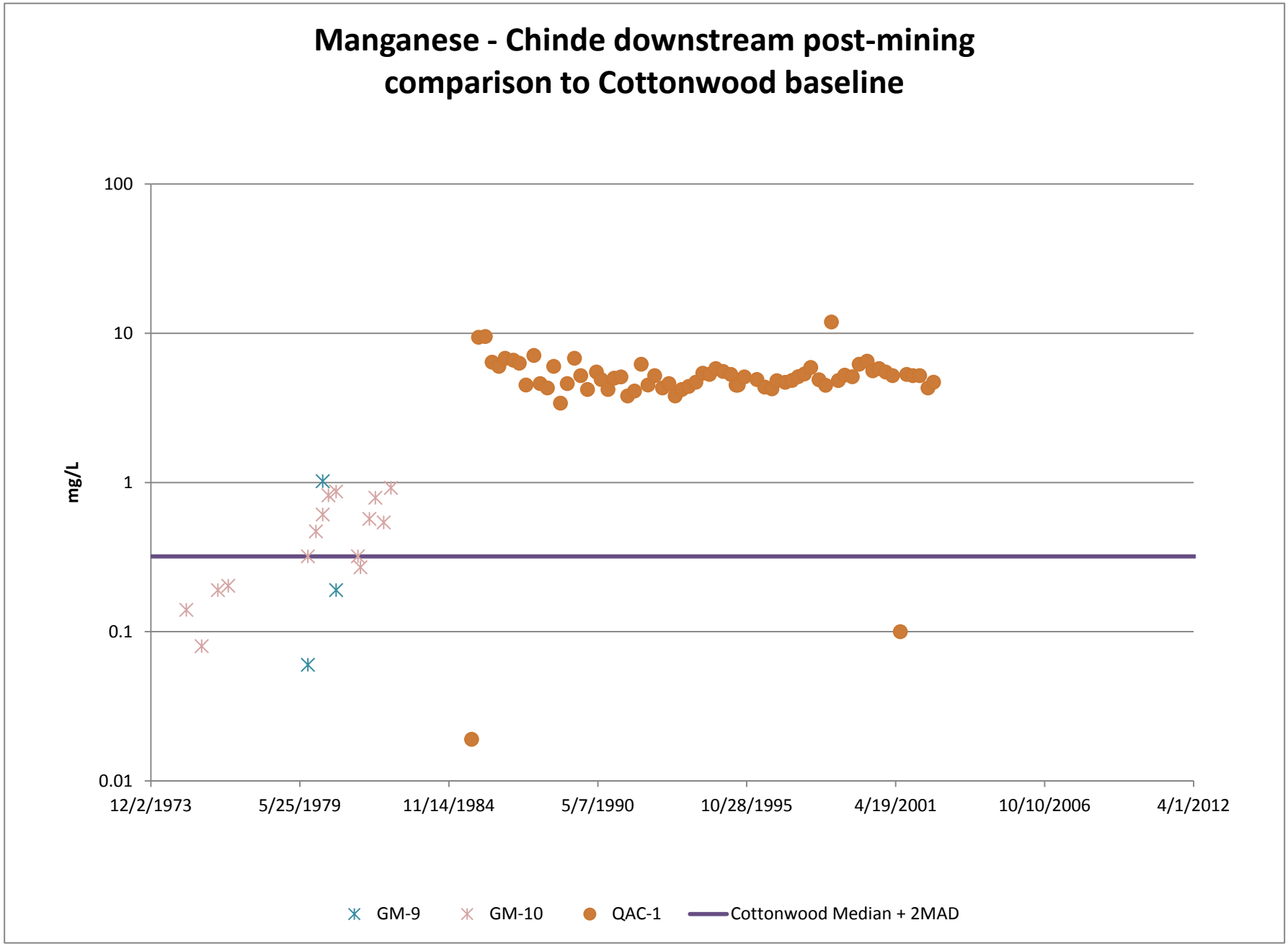

TDS - Chinde downstream post-mining comparison to Cottonwood baseline
y = 0.5508x - 6139.6
R² = 0.7909
mg/L
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD
Linear (QAC-1)


Radium - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
35
30
25
20
15
10
5
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median + 2MAD


pH - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
9.5
9
8.5
8
7.5
7
6.5
6
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Livestock Criteria
Cottonwood Median +/- 2MAD
-2MAD

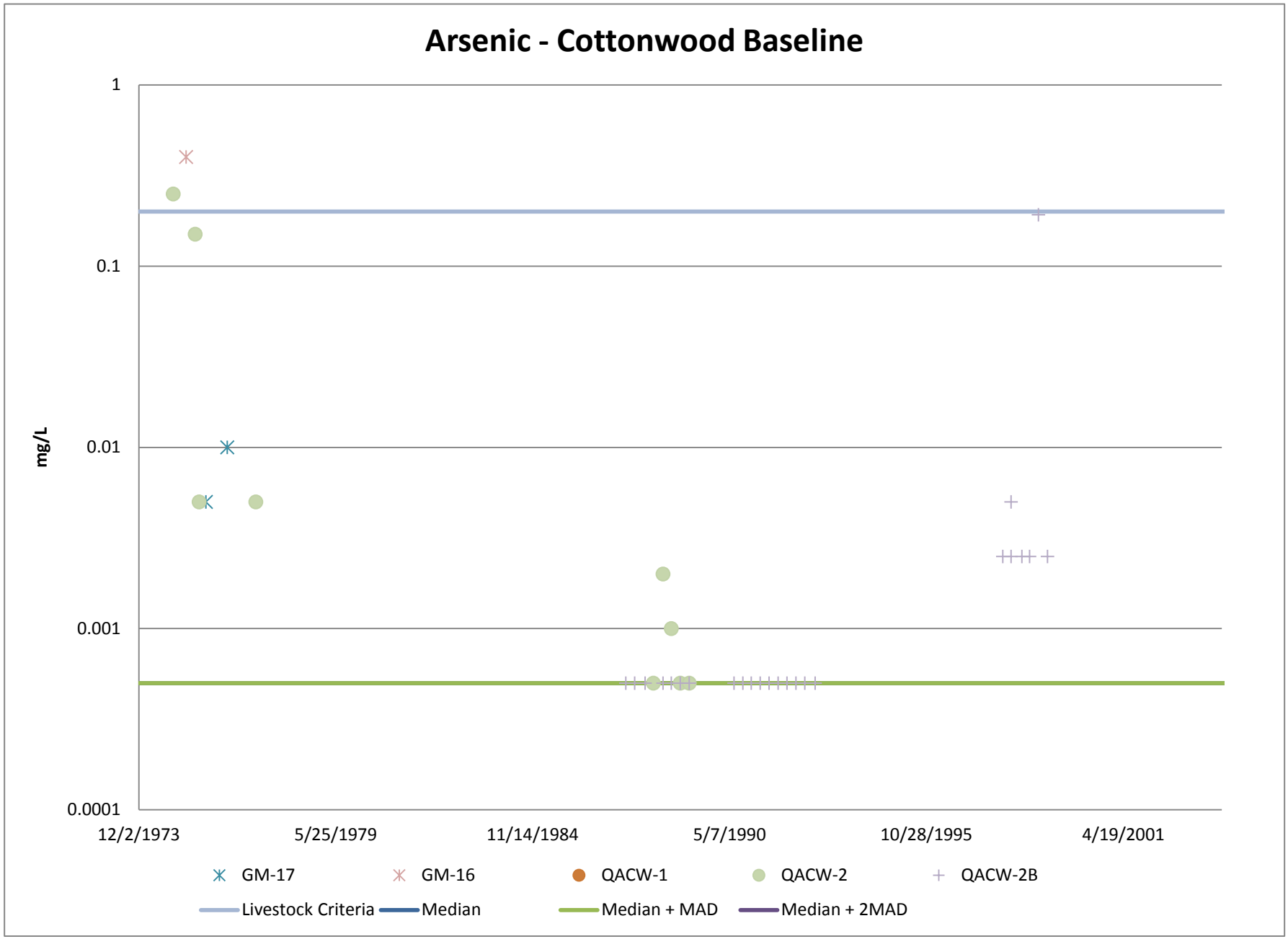

Conductivity - Chinde downstream post-mining comparison to Cottonwood baseline
y = 1.7788x - 45014
R² = 0.7397
mg/L
30000
25000
20000
15000
10000
5000
0
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Cottonwood Median + 2MAD
Linear (QAC-1)


Iron - Chinde downstream post-mining comparison to Cottonwood baseline
mg/L
100
10
1
0.1
0.01
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Cottonwood Median + 2MAD


Manganese - Chinde downstream post-mining comparison to Cottonwood baseline
100
10
1
0.1
0.01
mg/L
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-9
GM-10
QAC-1
Cottonwood Median + 2MAD

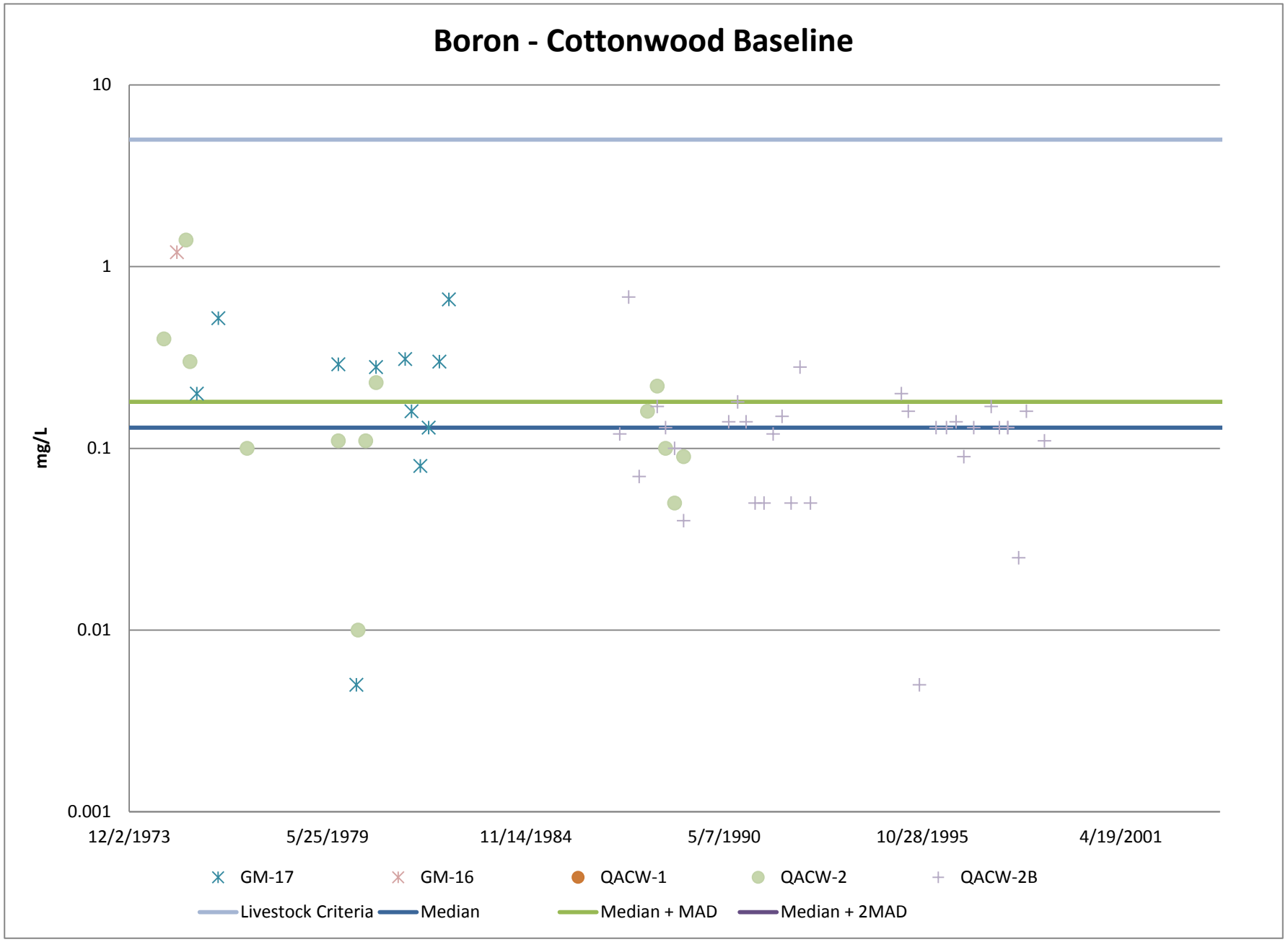
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



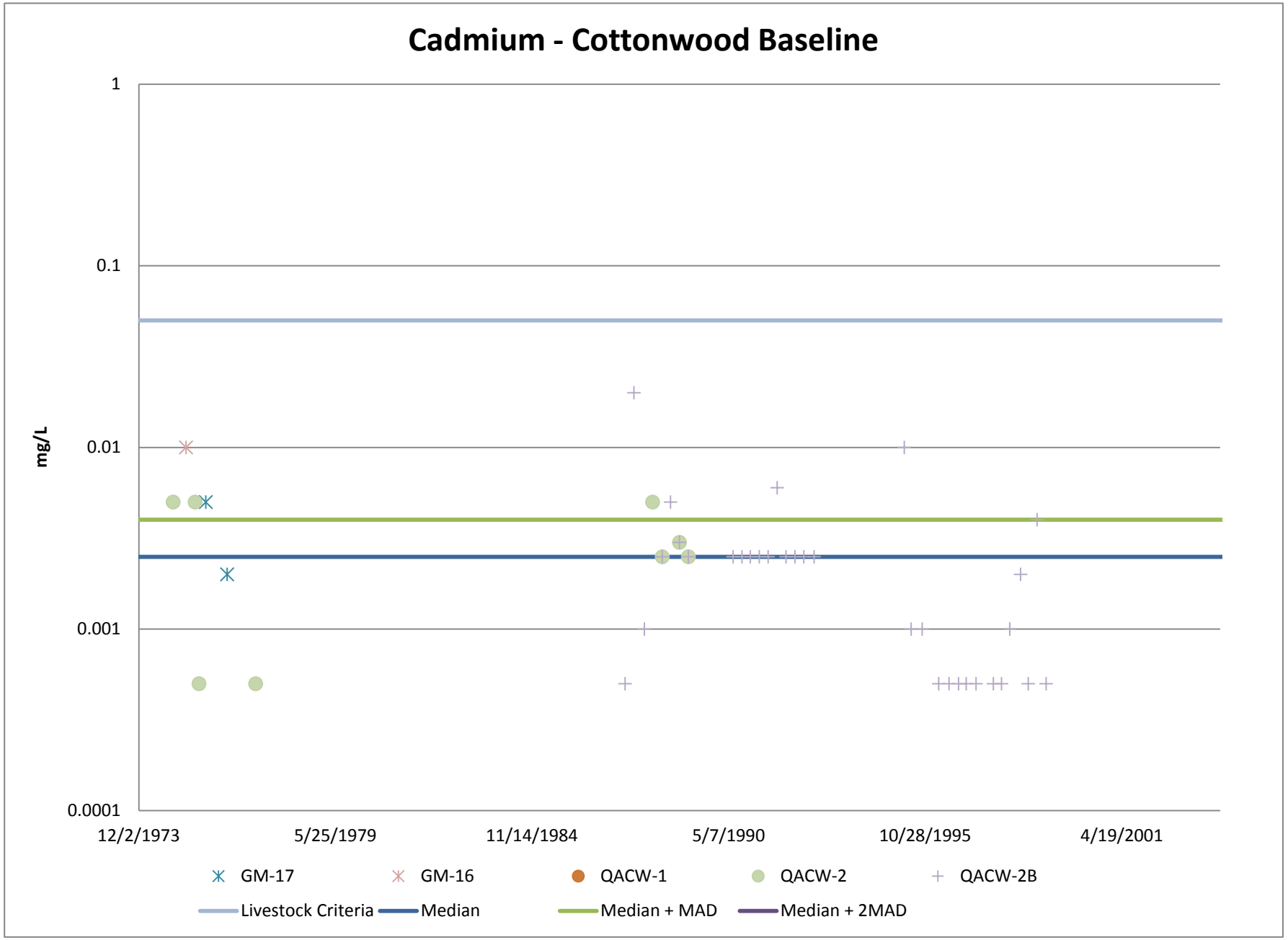
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



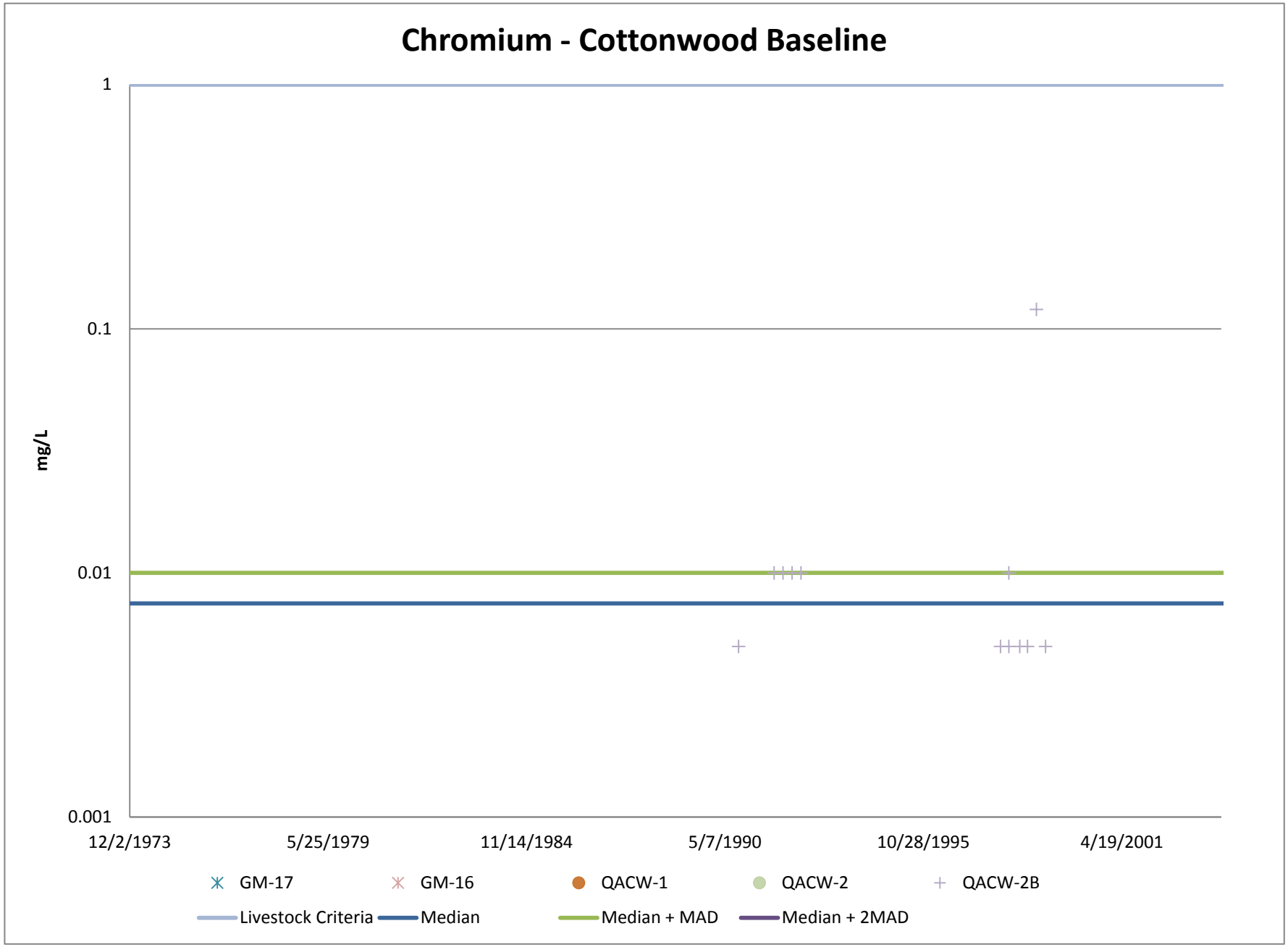
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



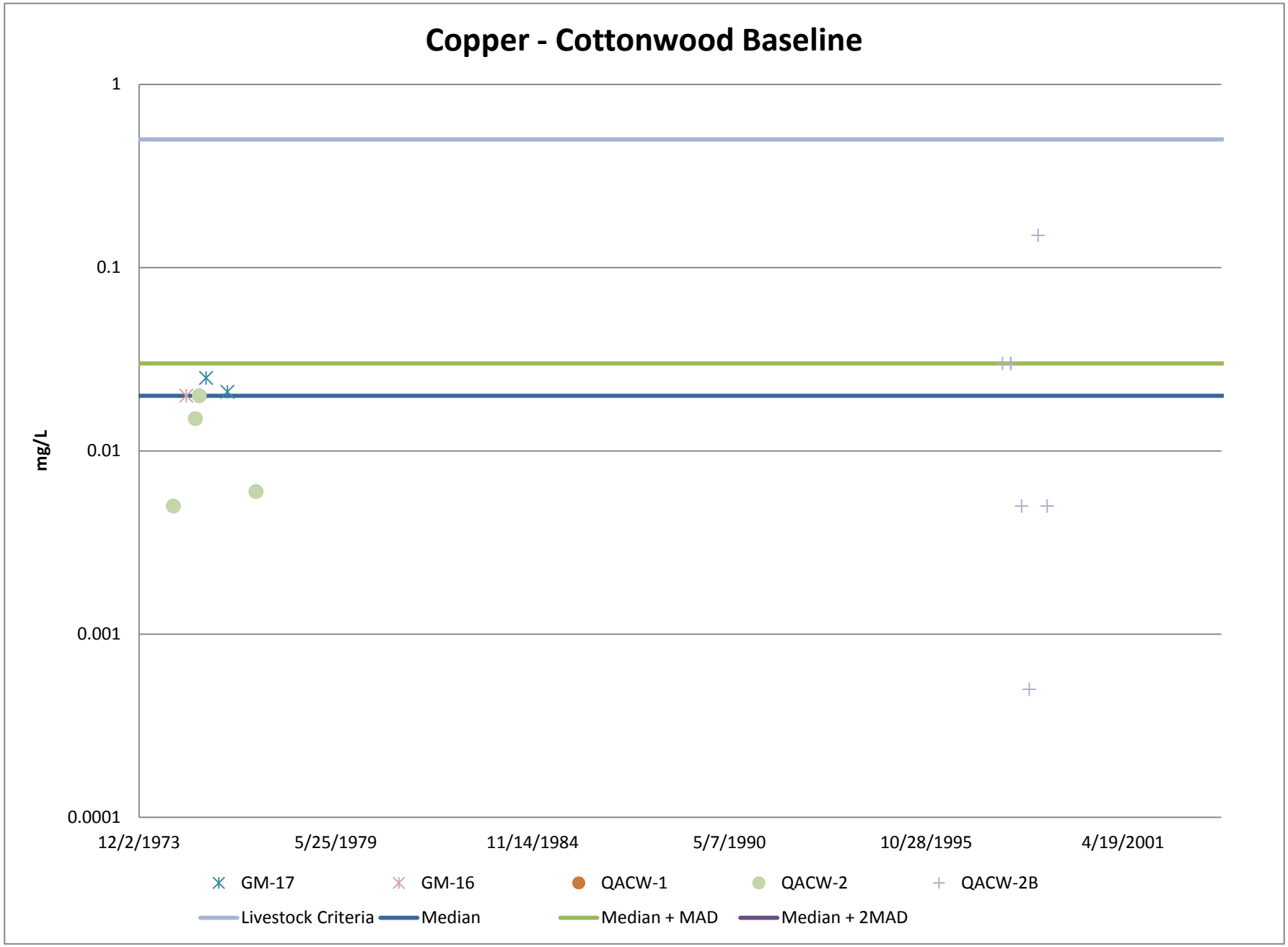
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



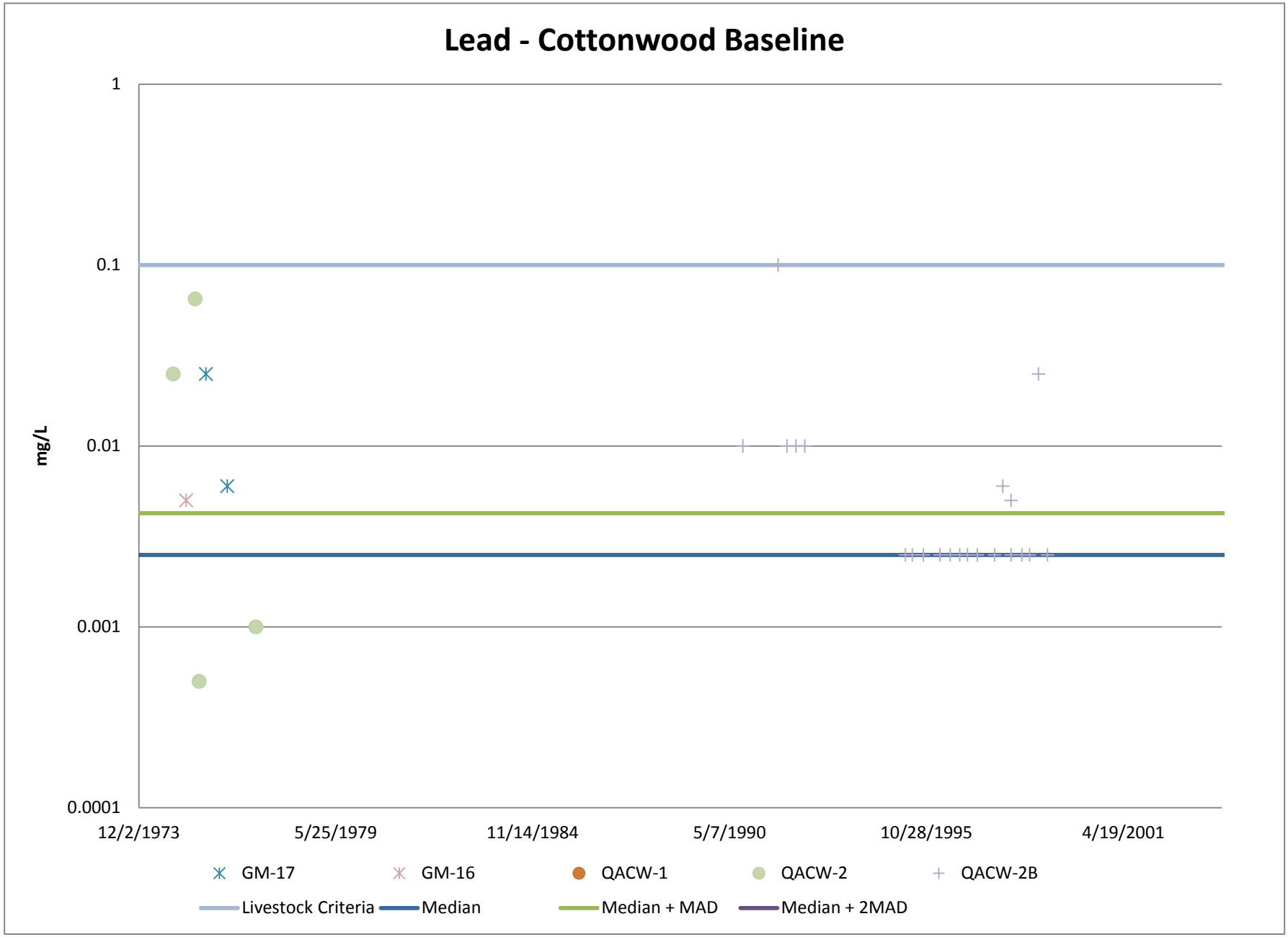
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



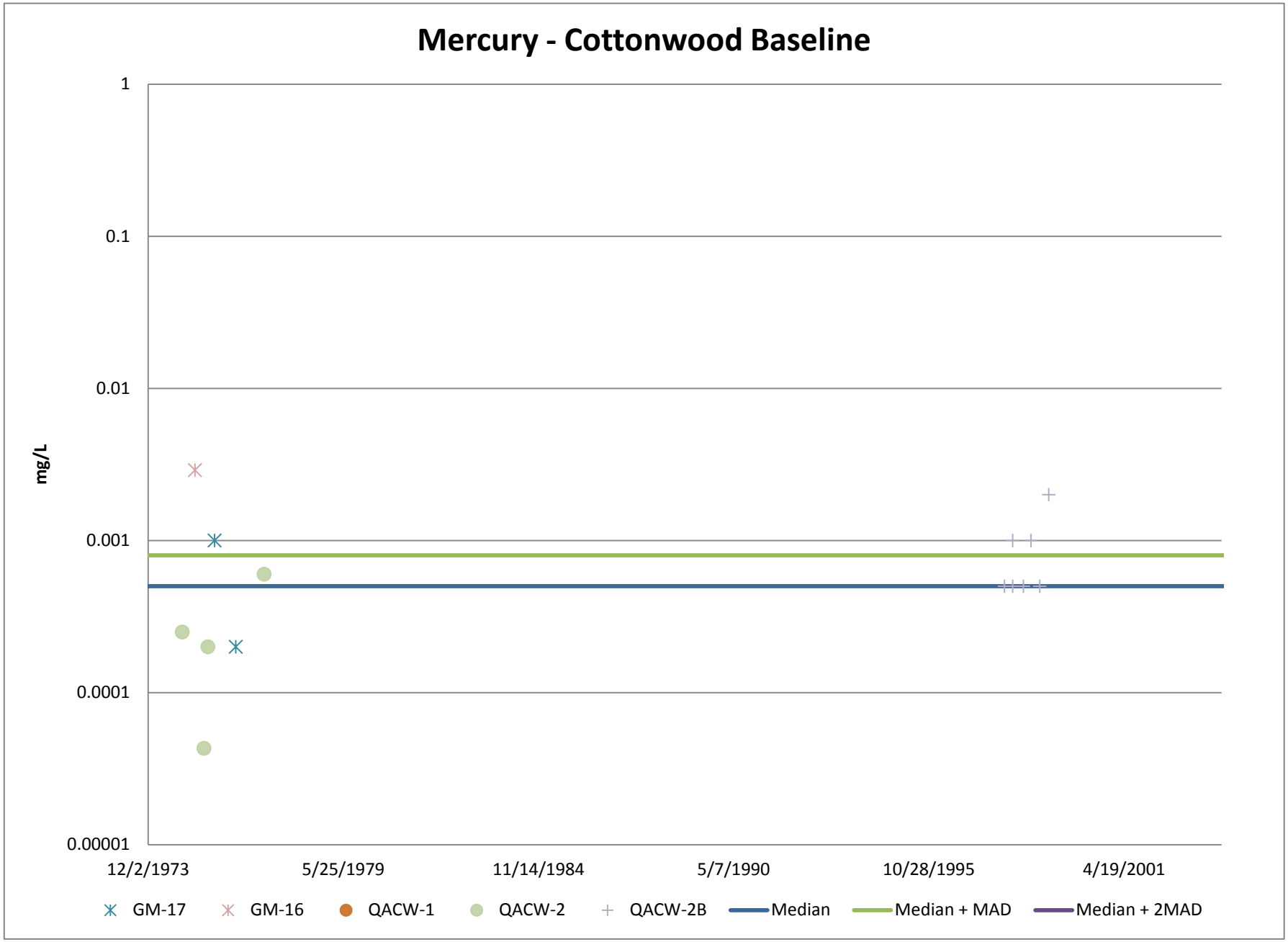
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



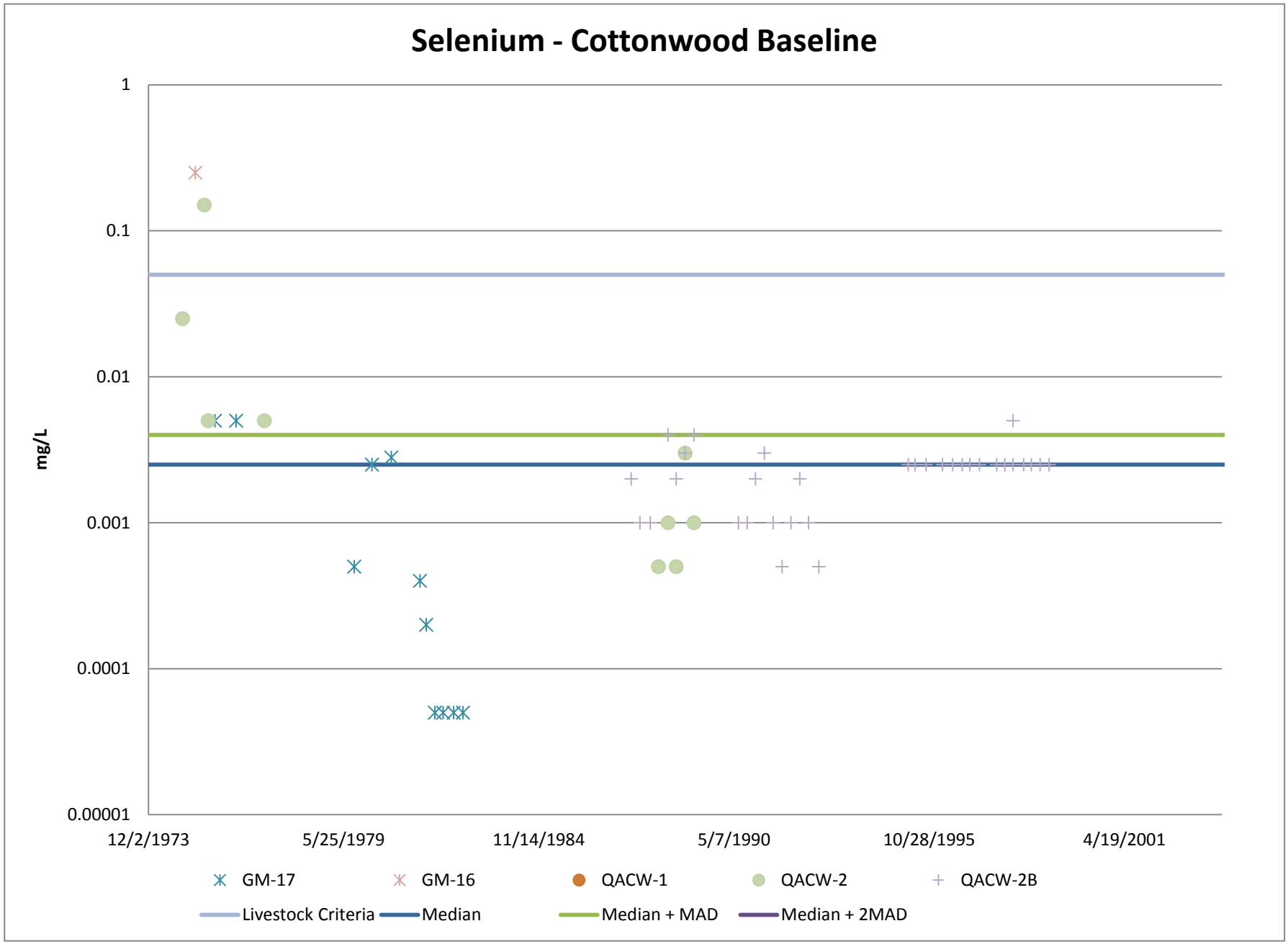
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



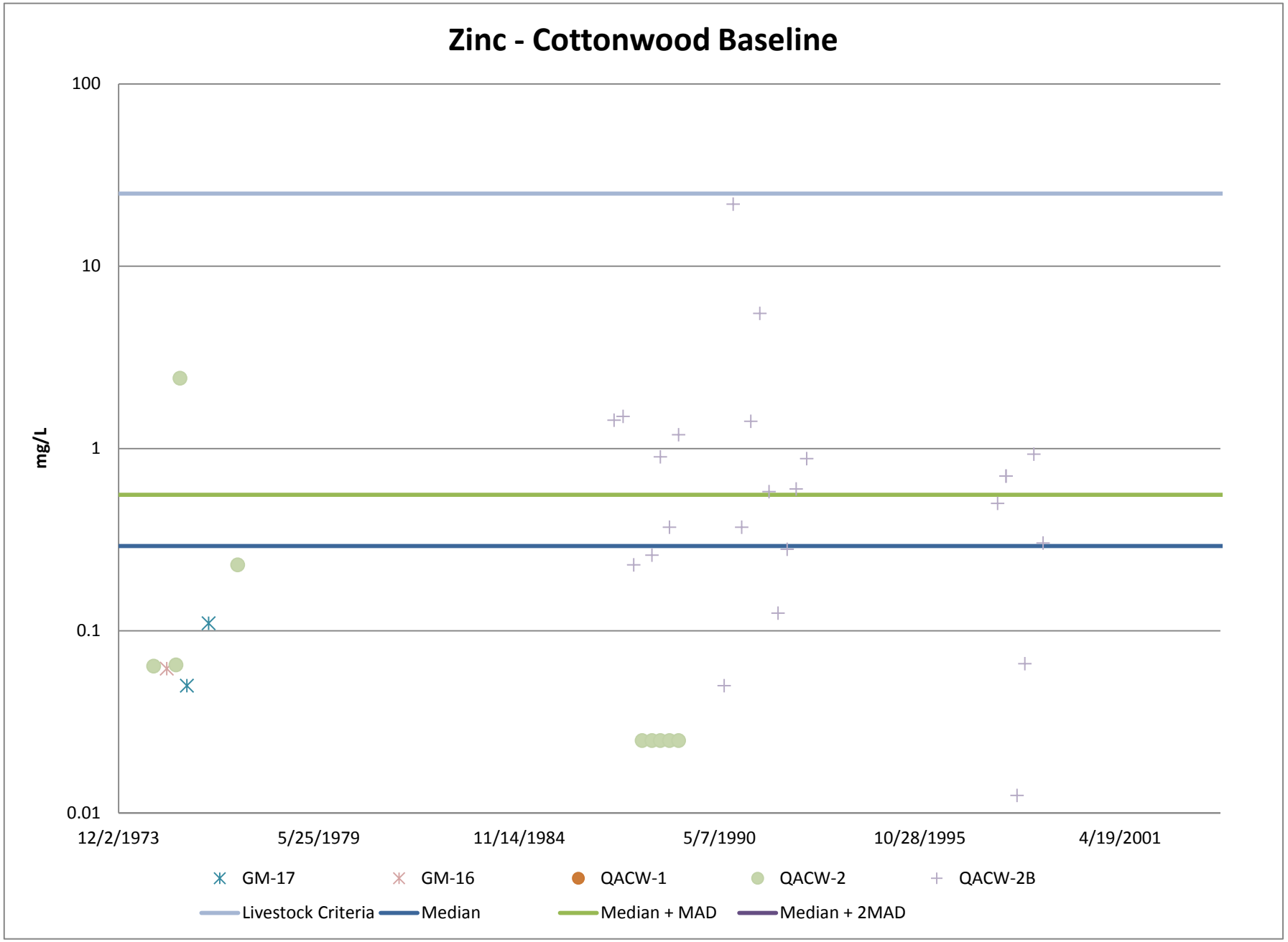
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



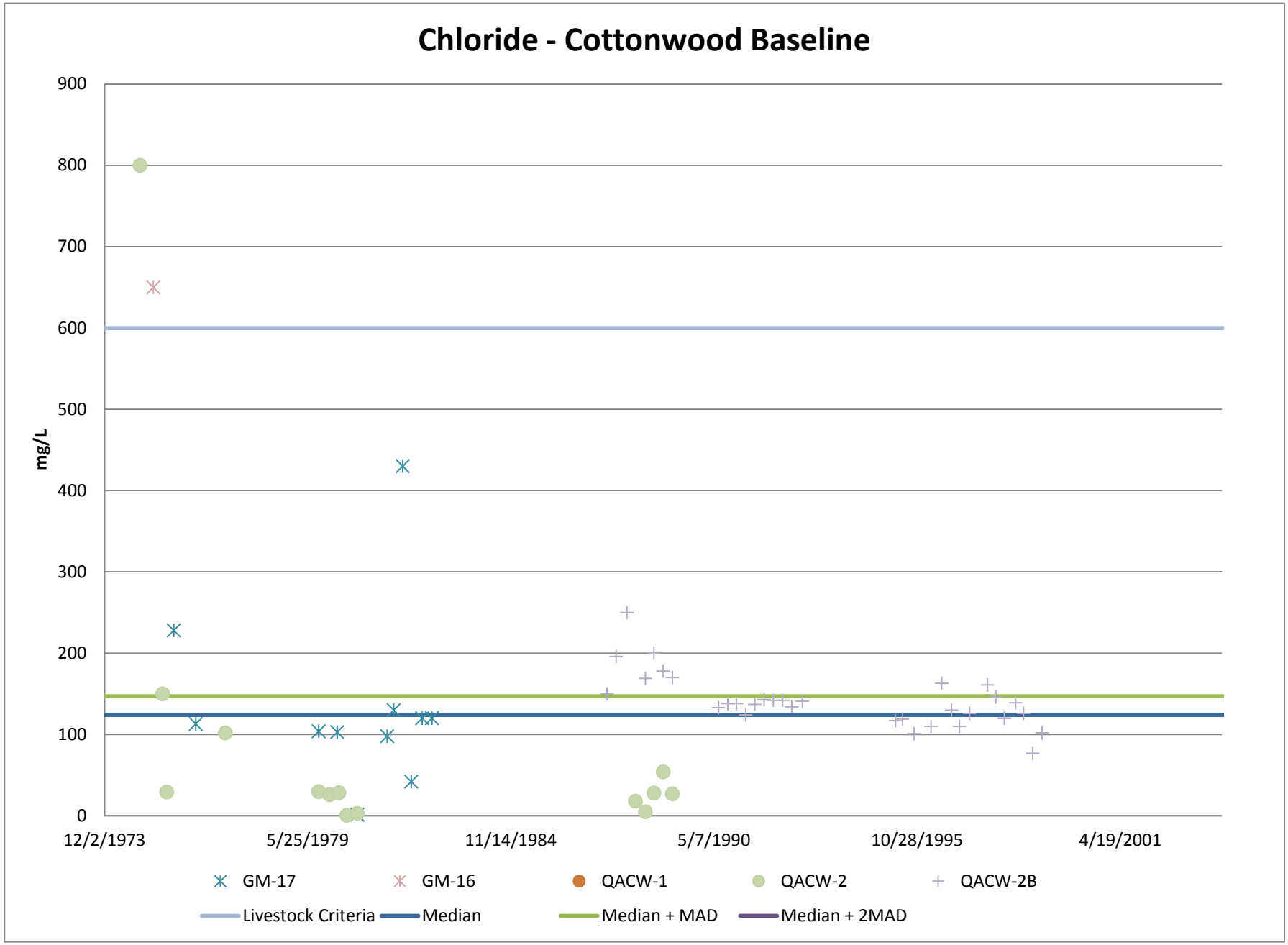
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



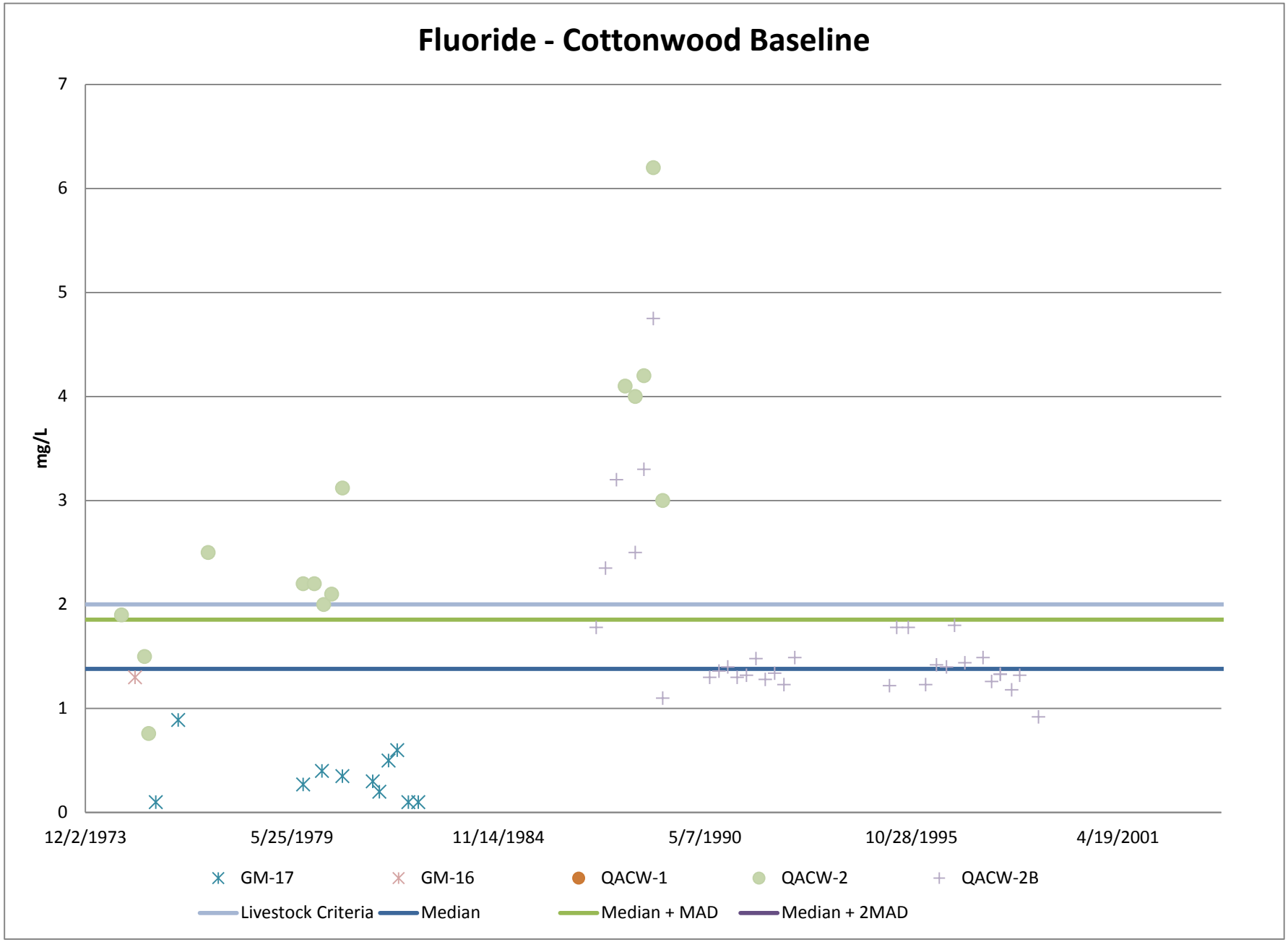
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



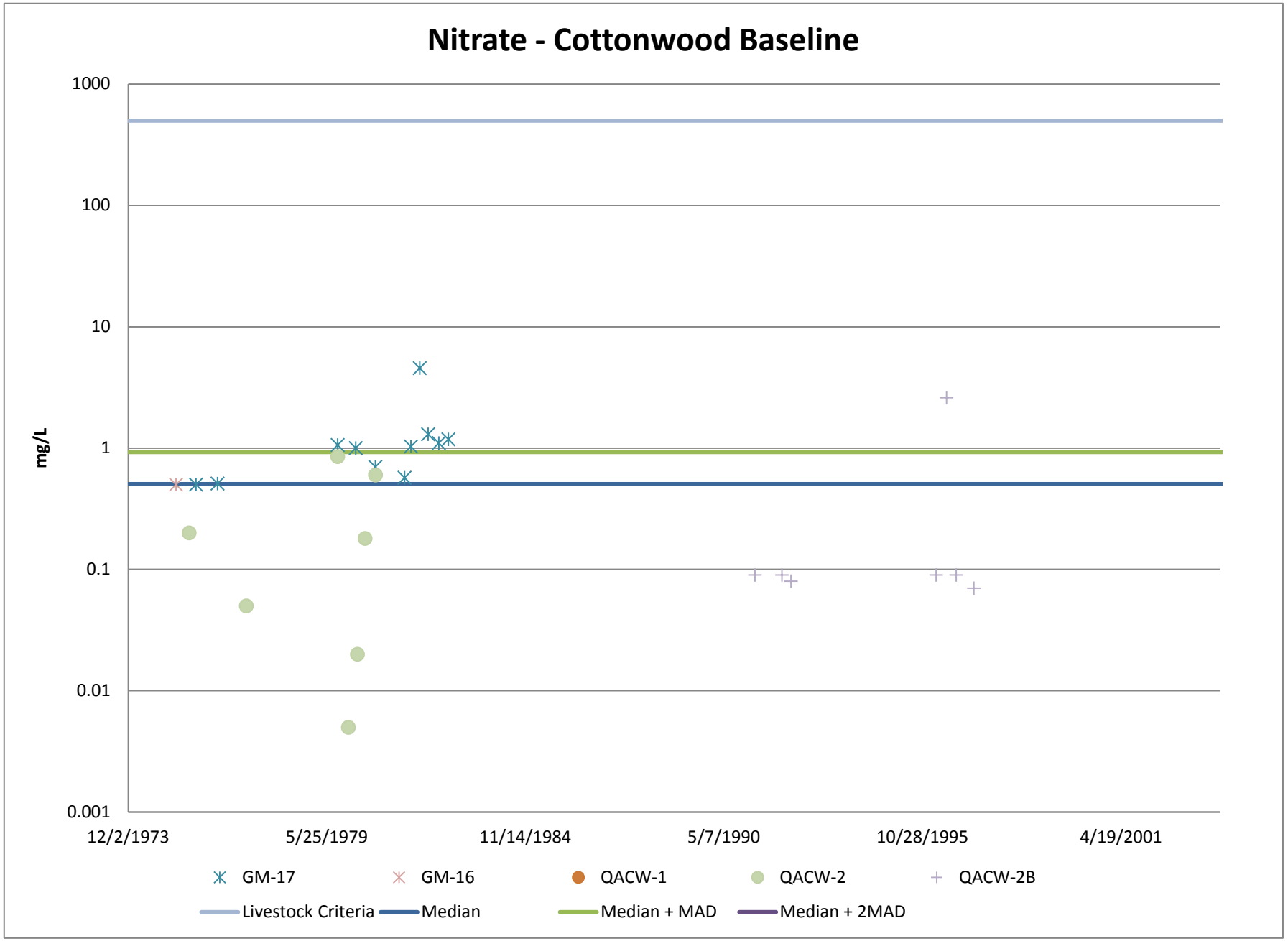
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



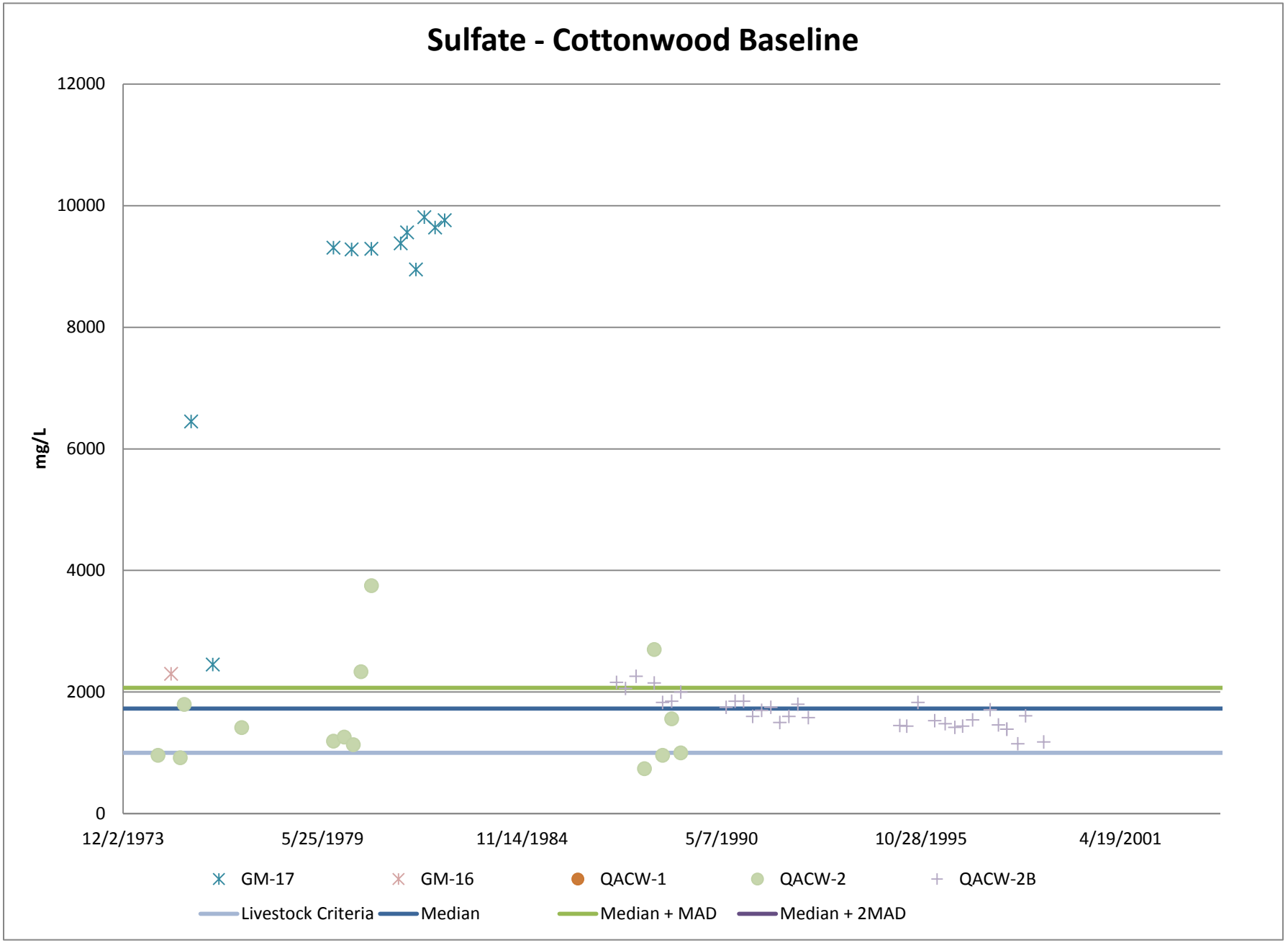
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



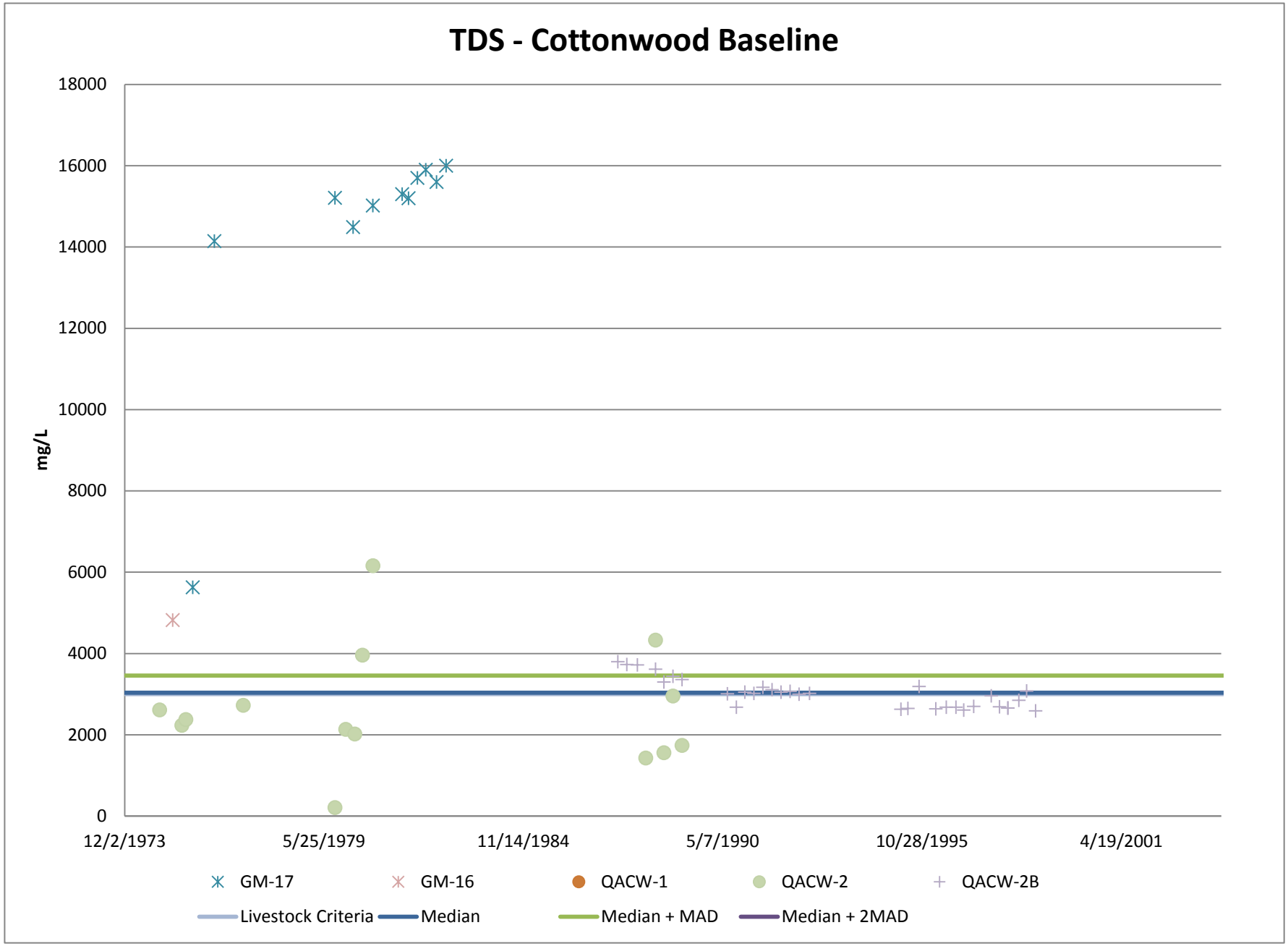
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



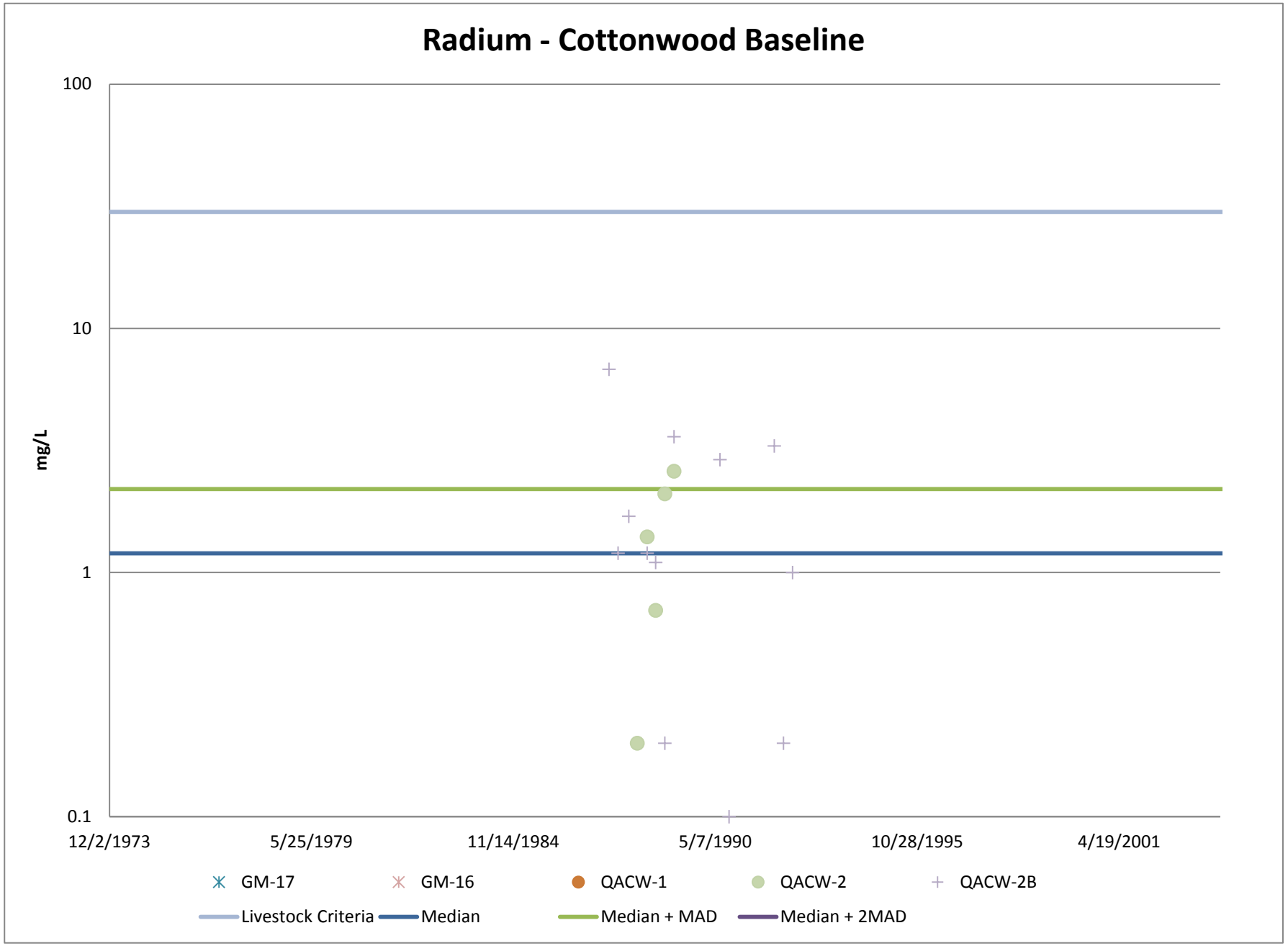
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



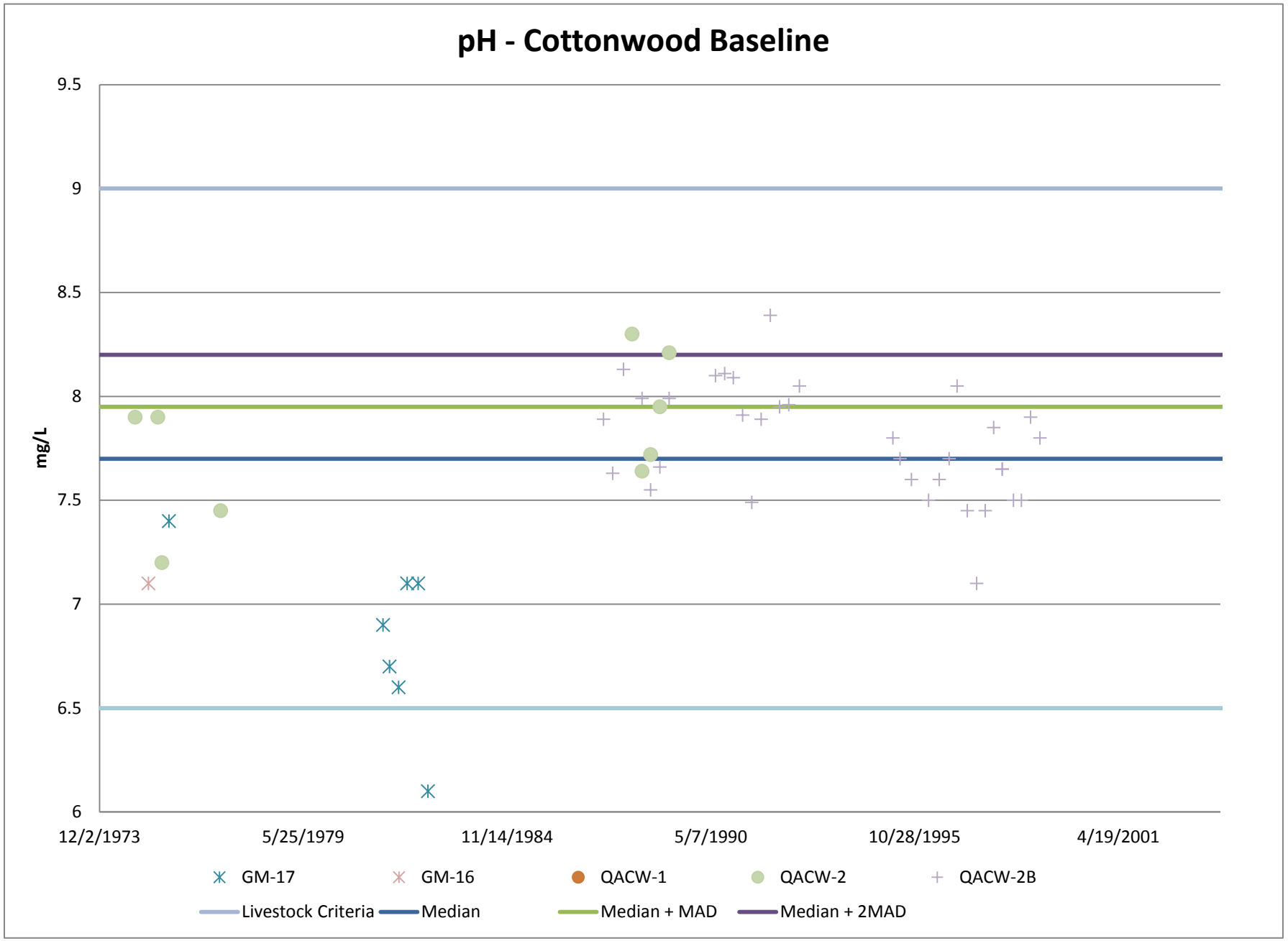
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



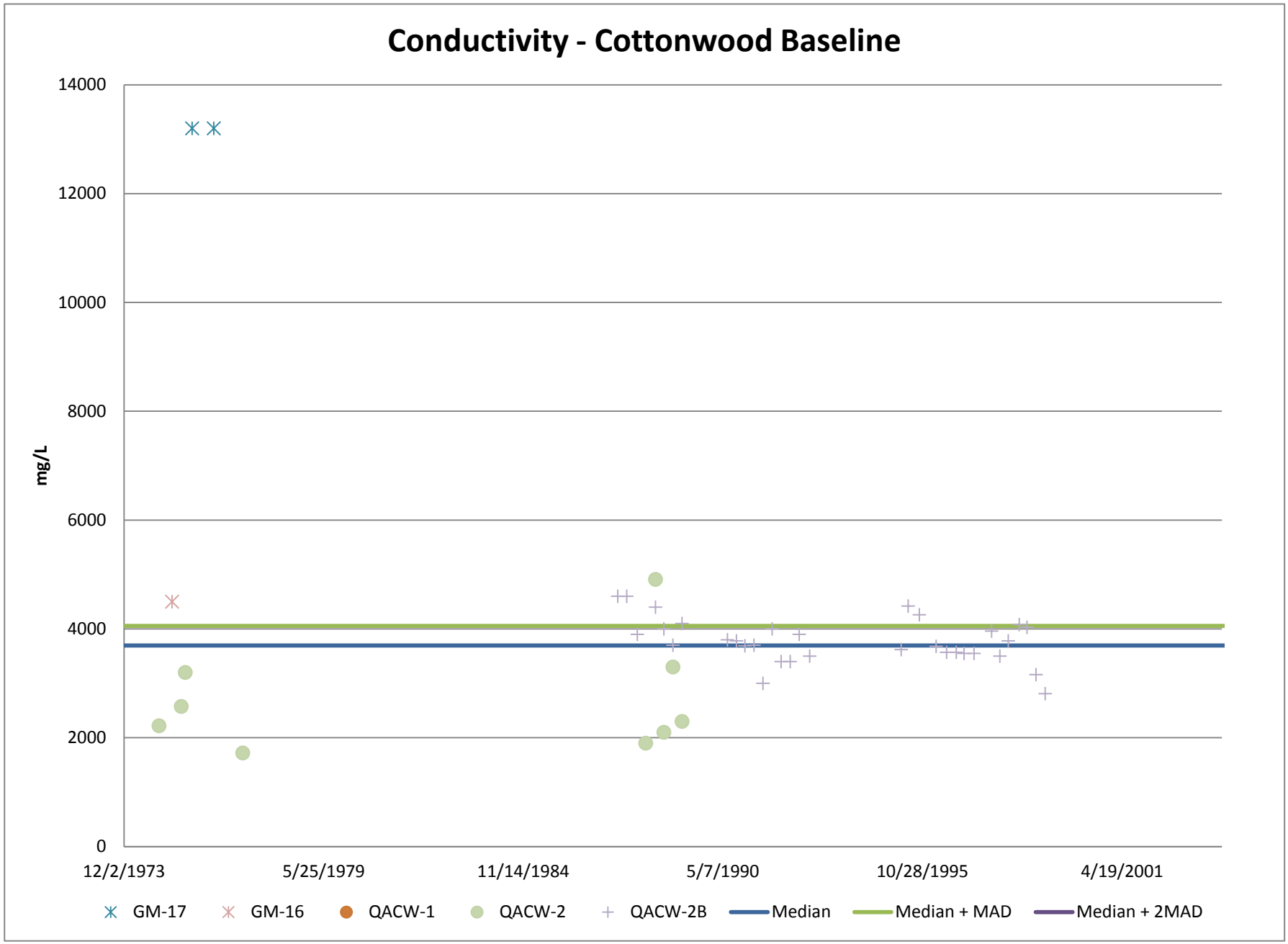
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



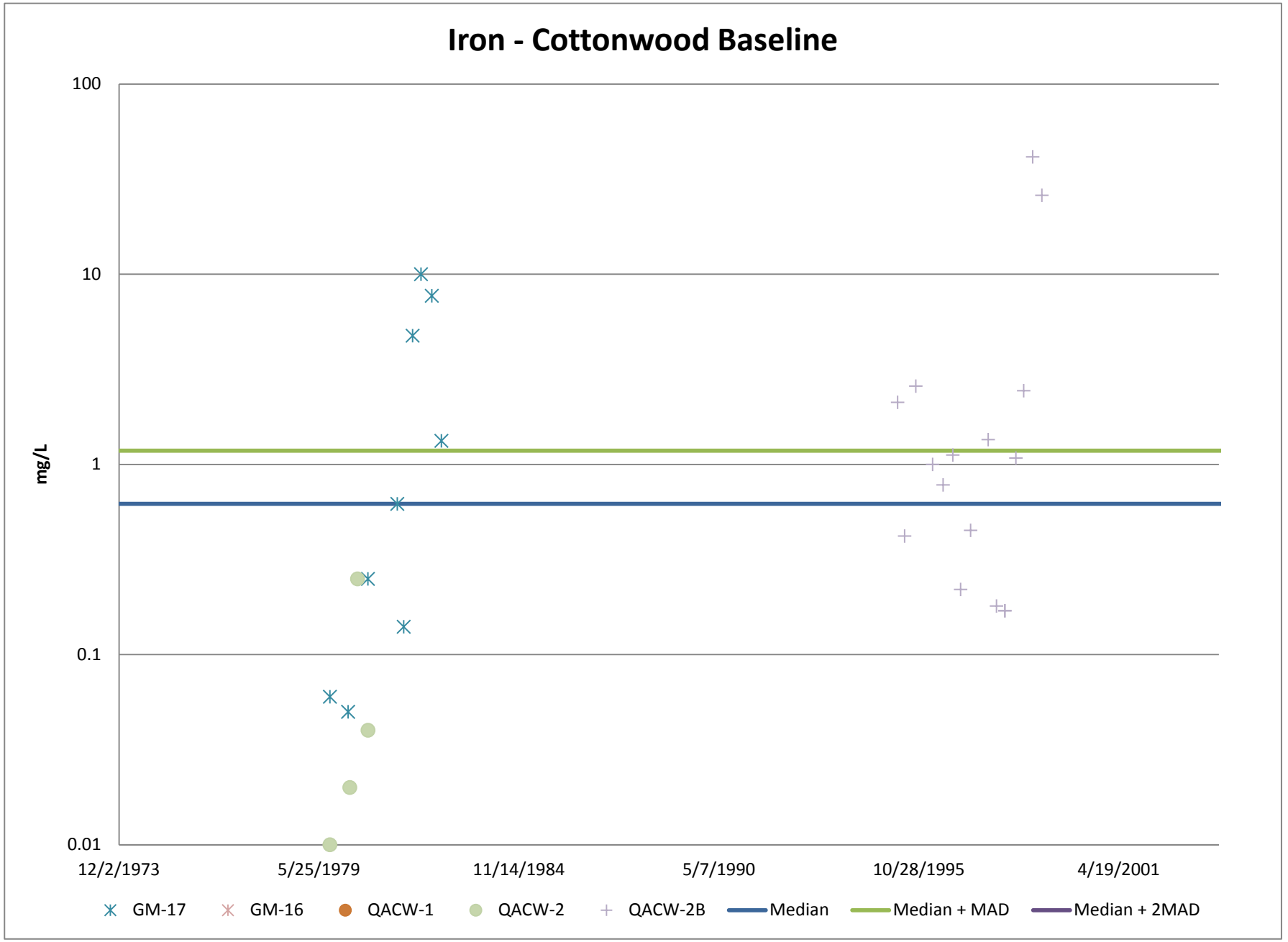
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



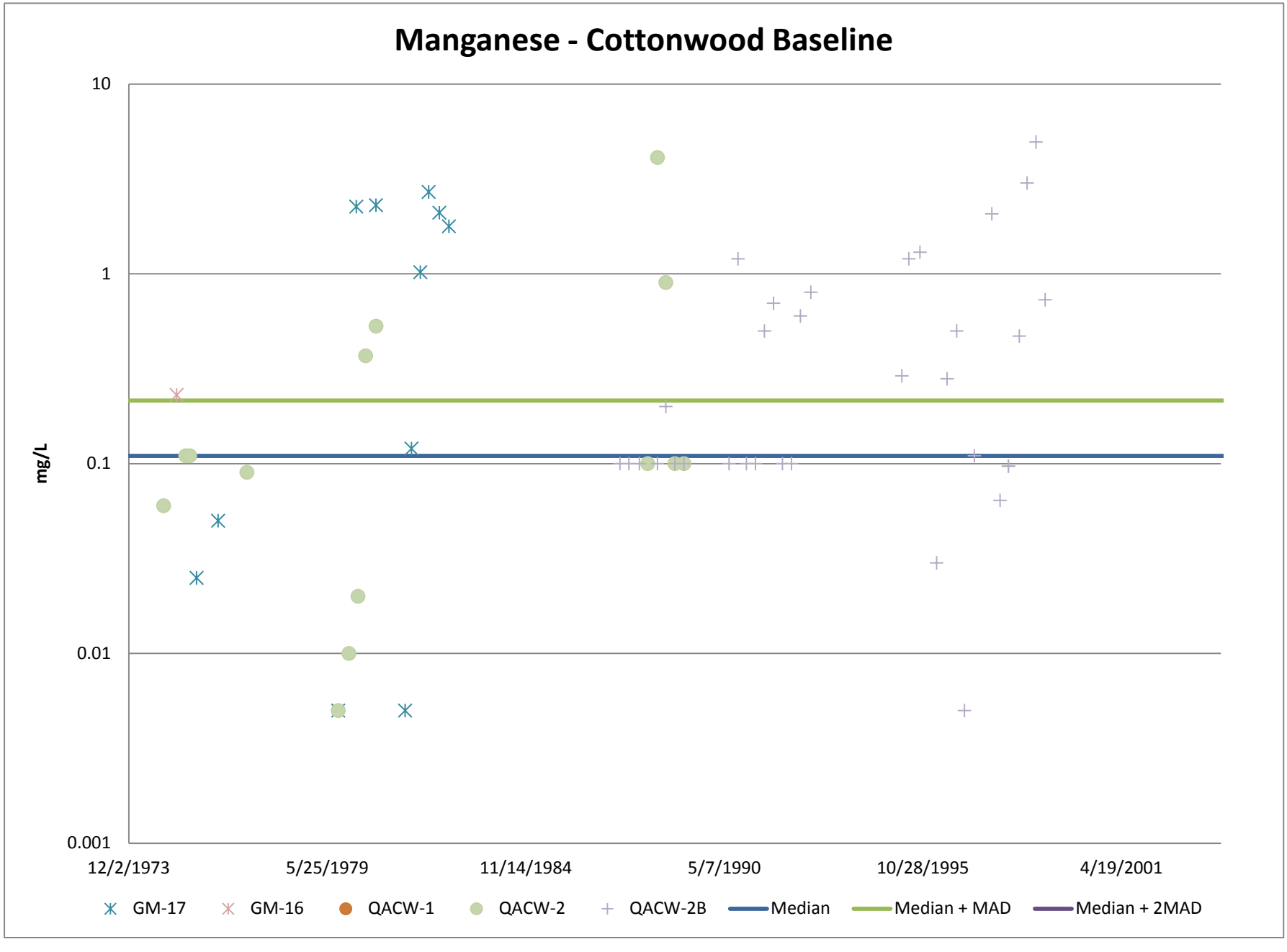
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



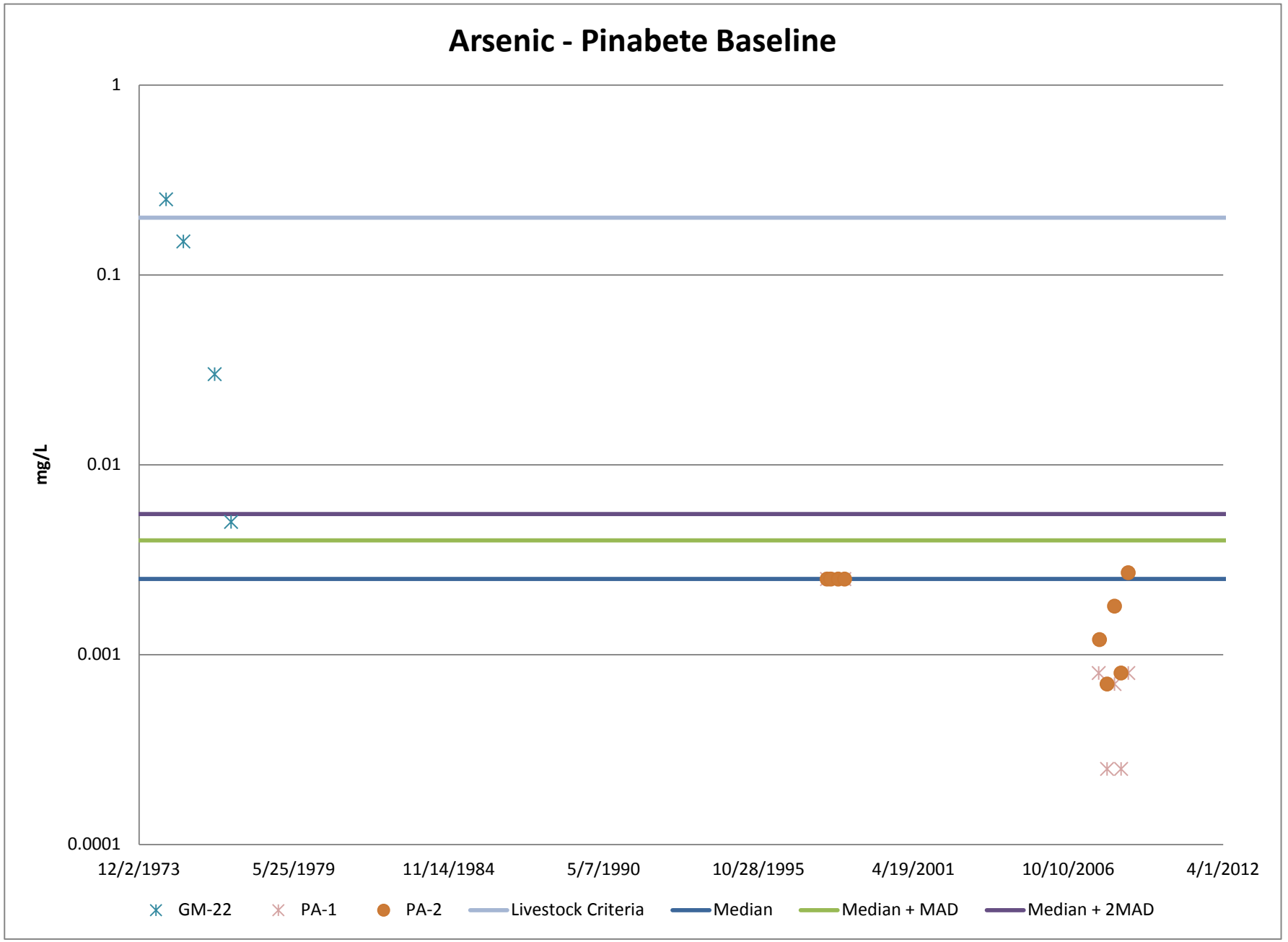
Appendix F - Groundwater Data Summary

Cottonwood Alluvial Graphs



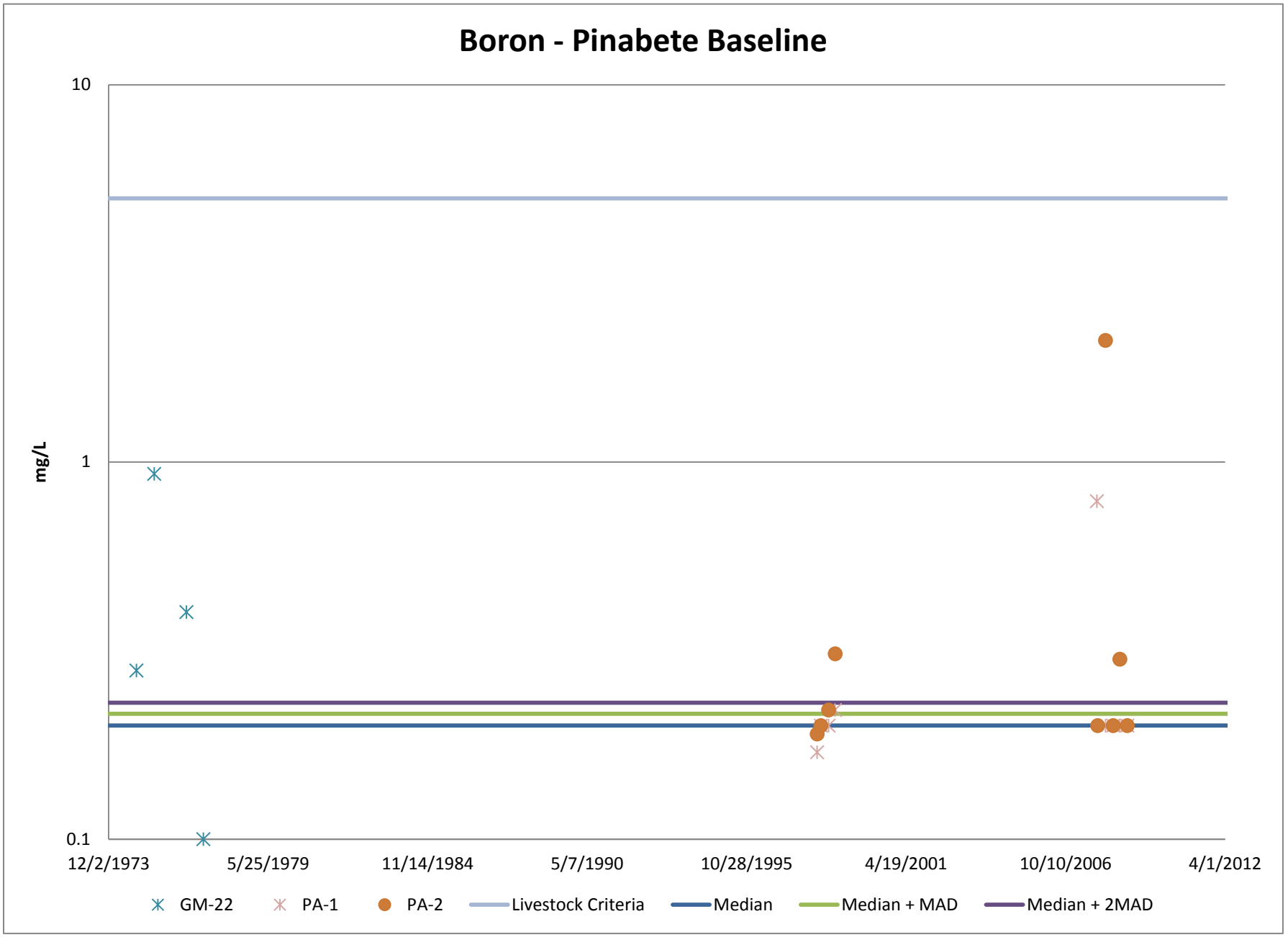
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



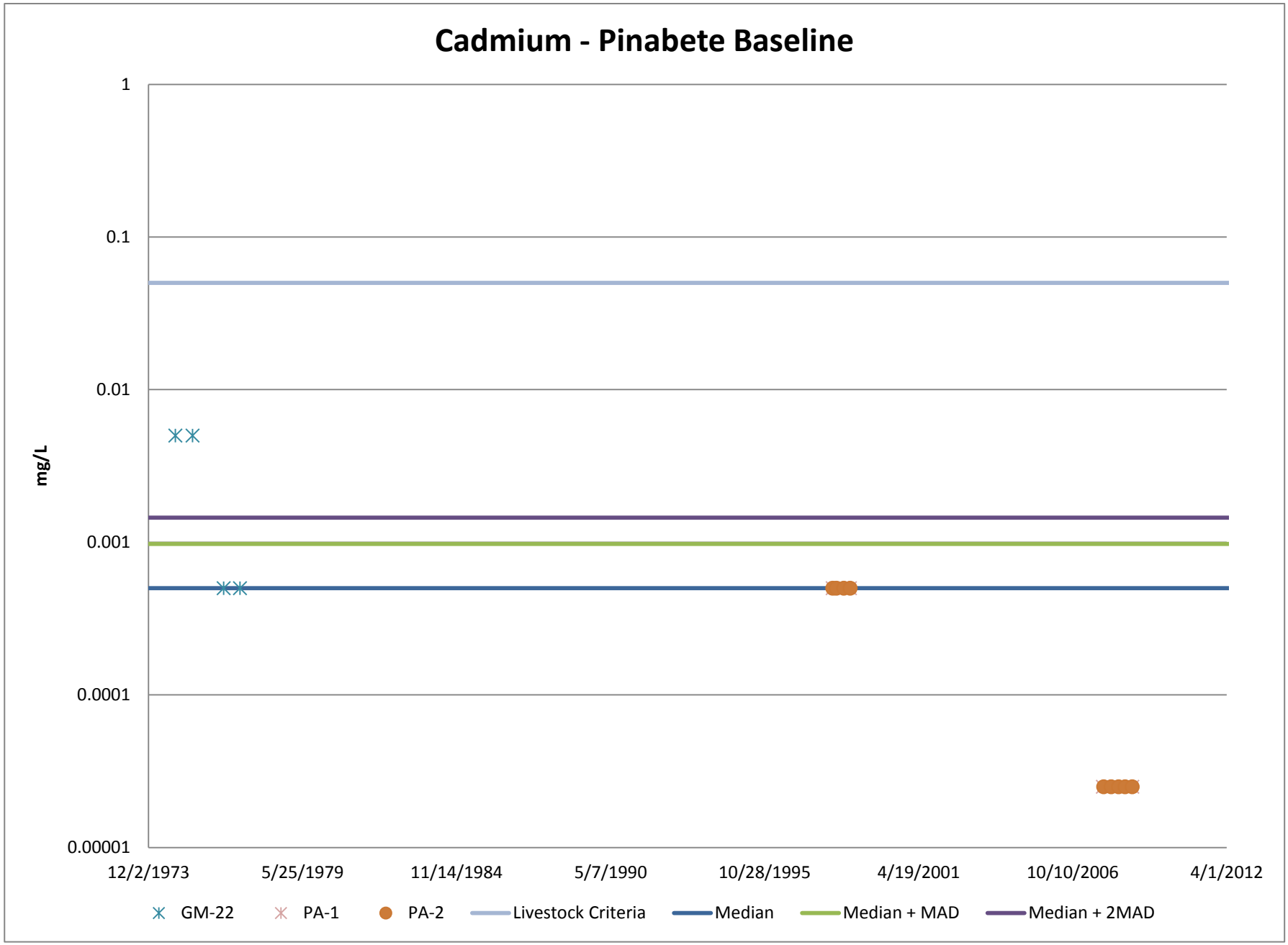
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



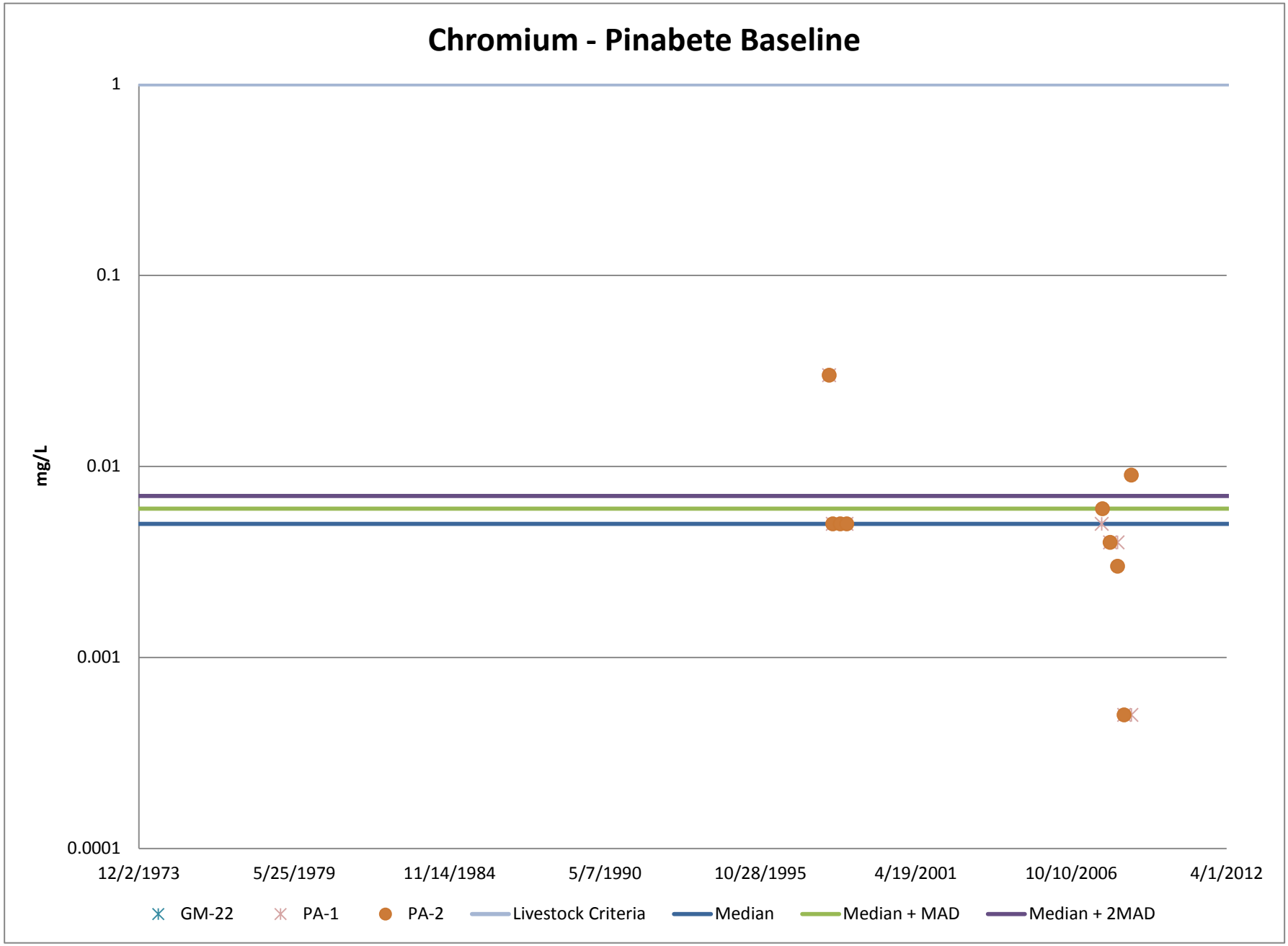
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



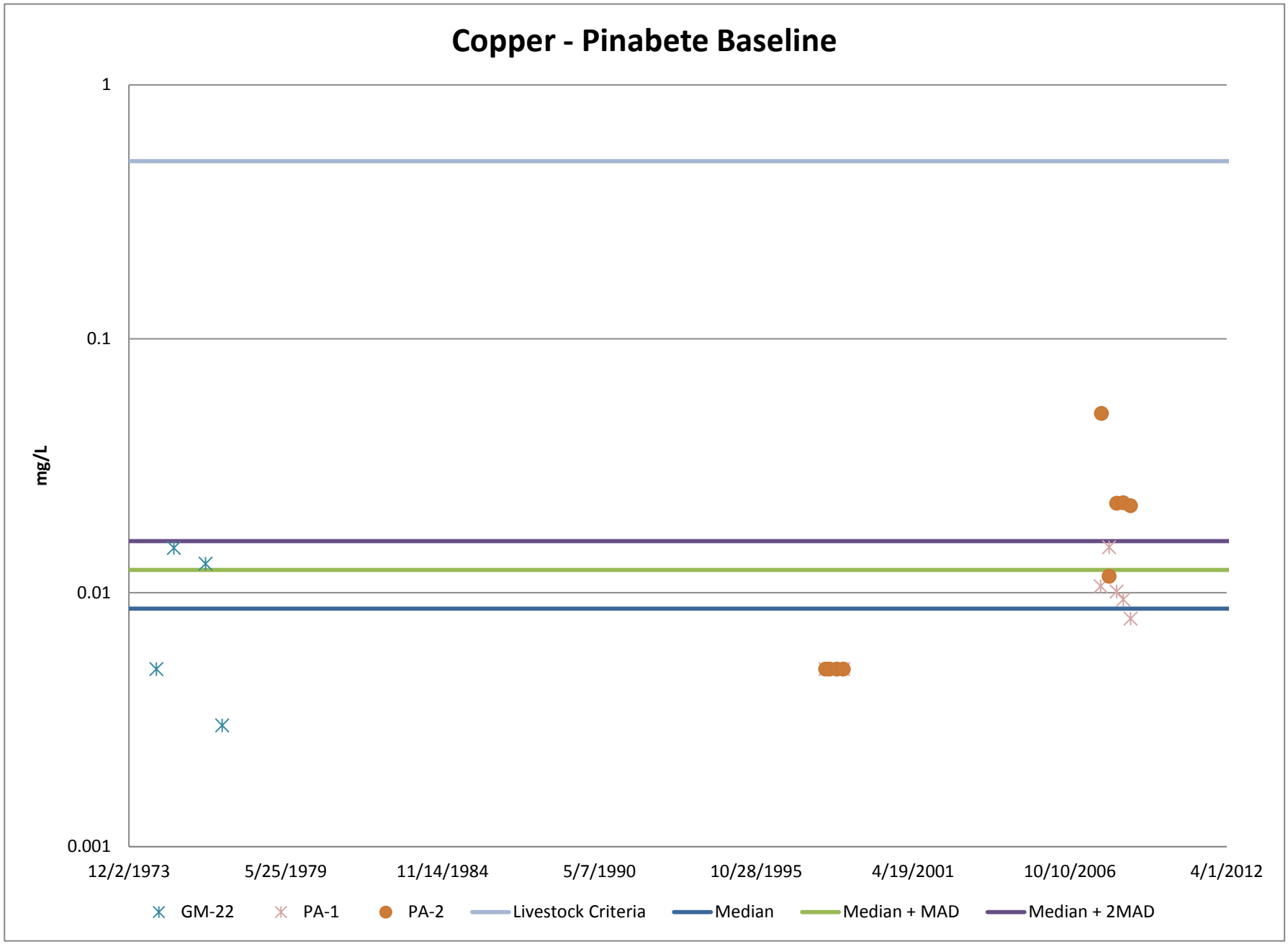
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



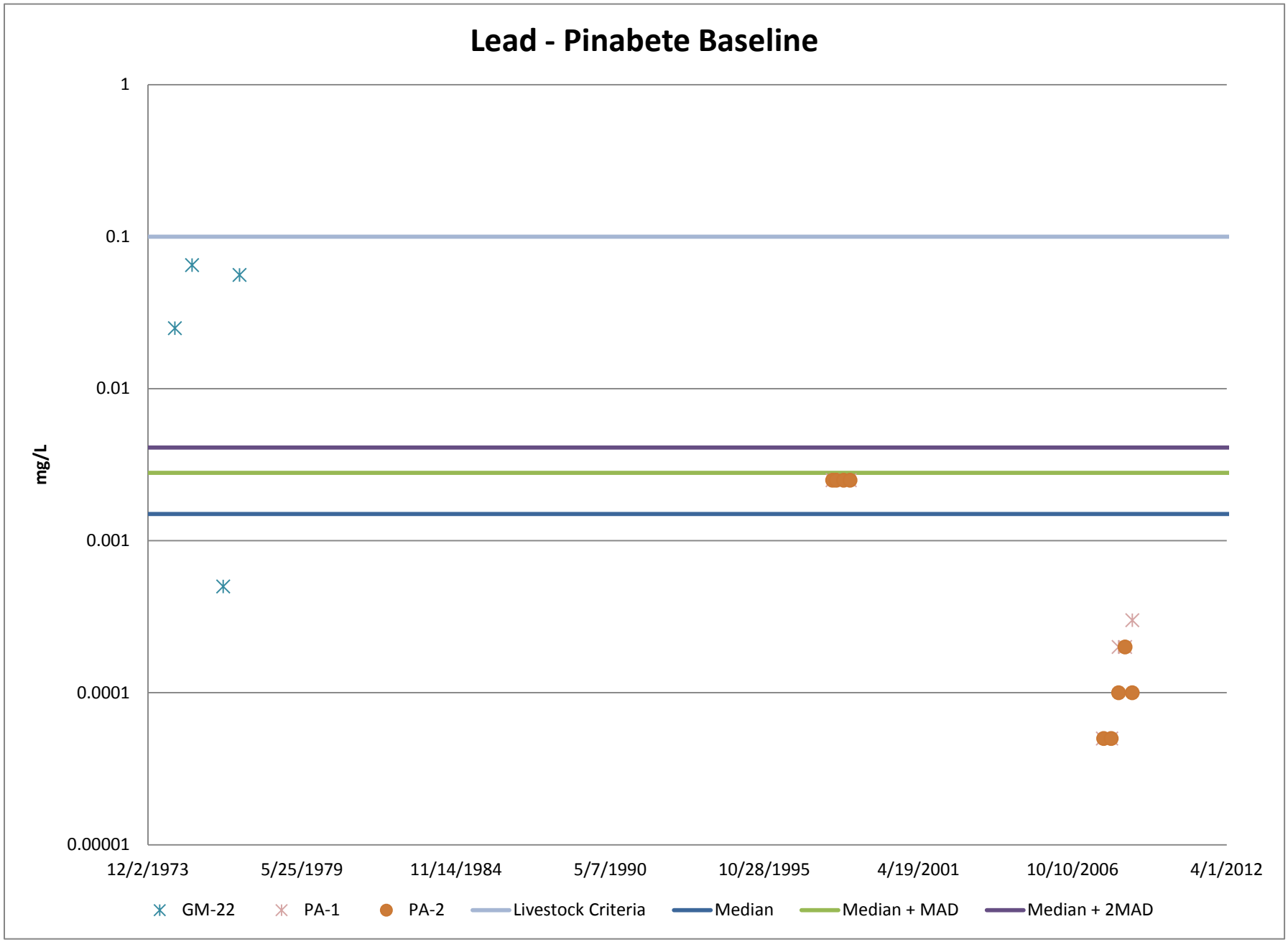
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



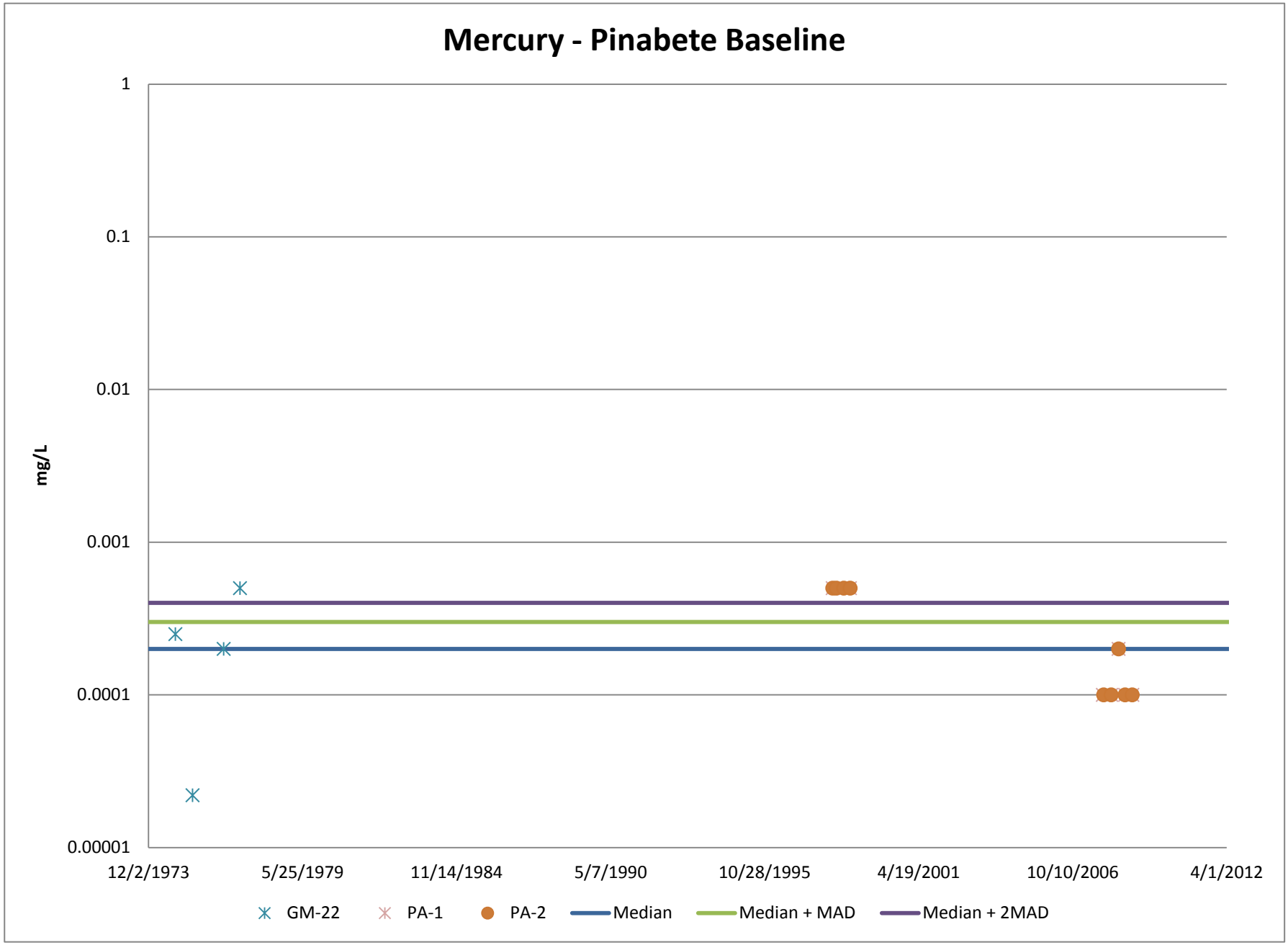
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



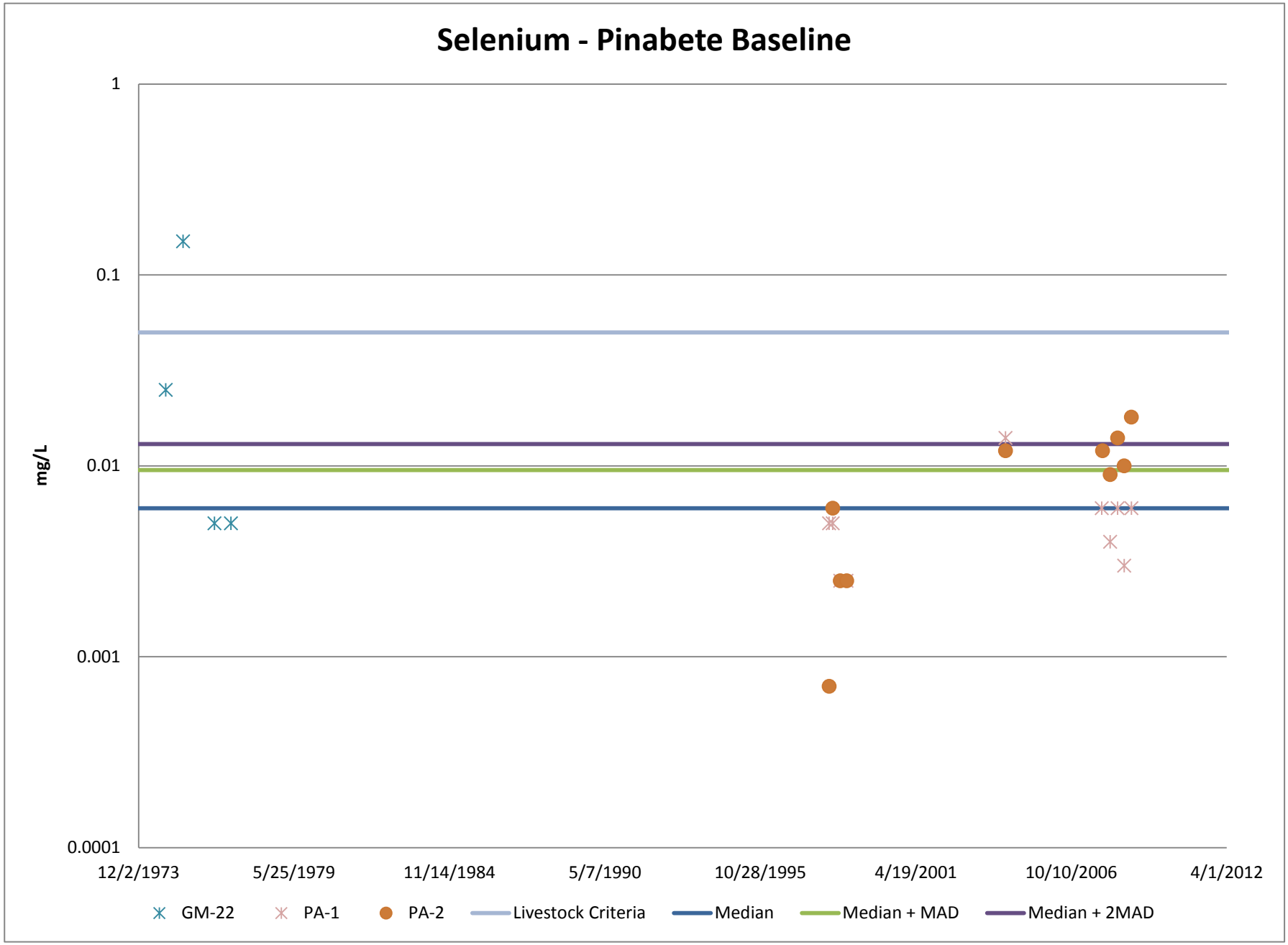
Appendix F - Groundwater Data Summary

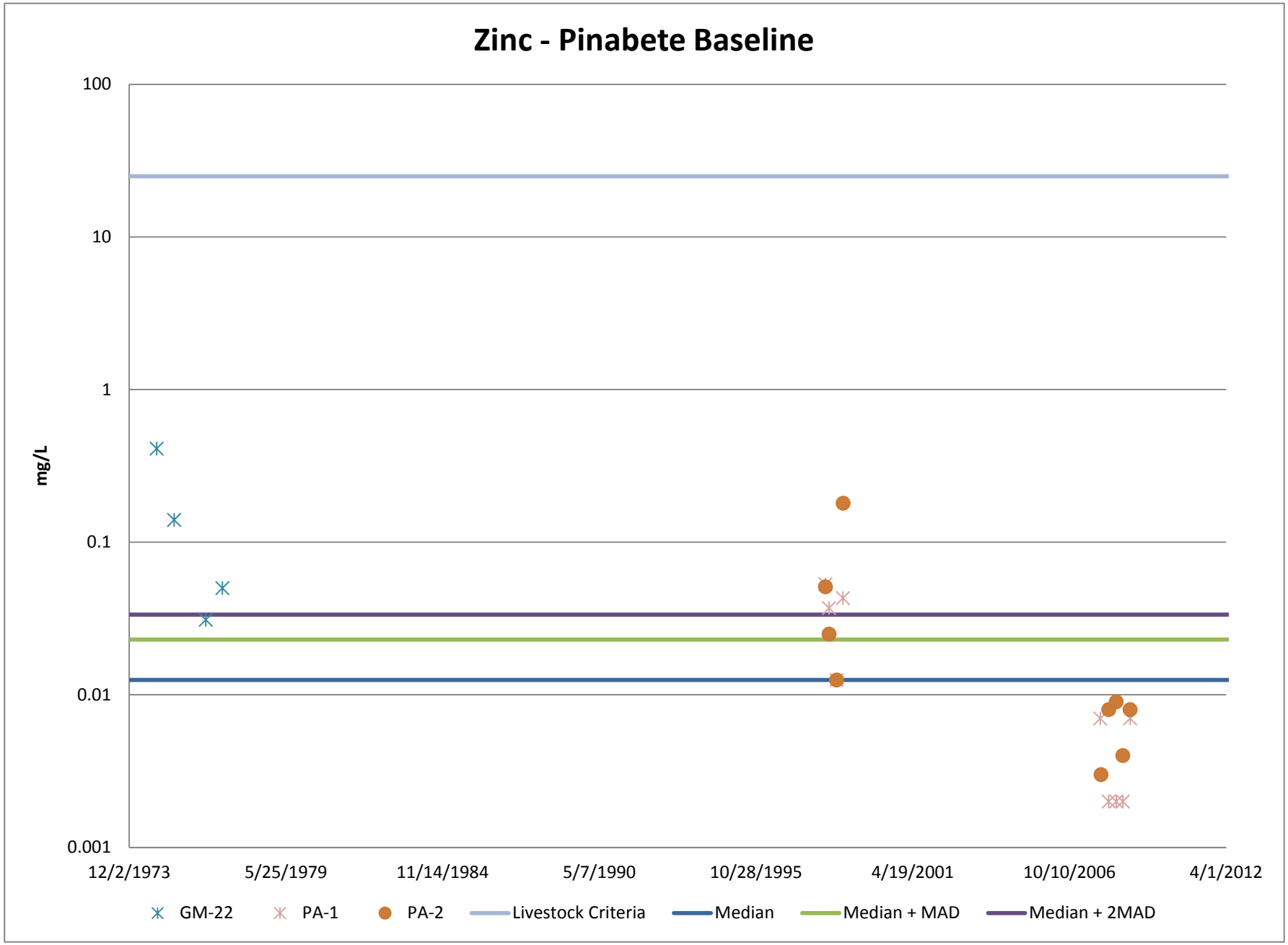
Pinabete and No Name Alluvial Graphs



Appendix F - Groundwater Data Summary

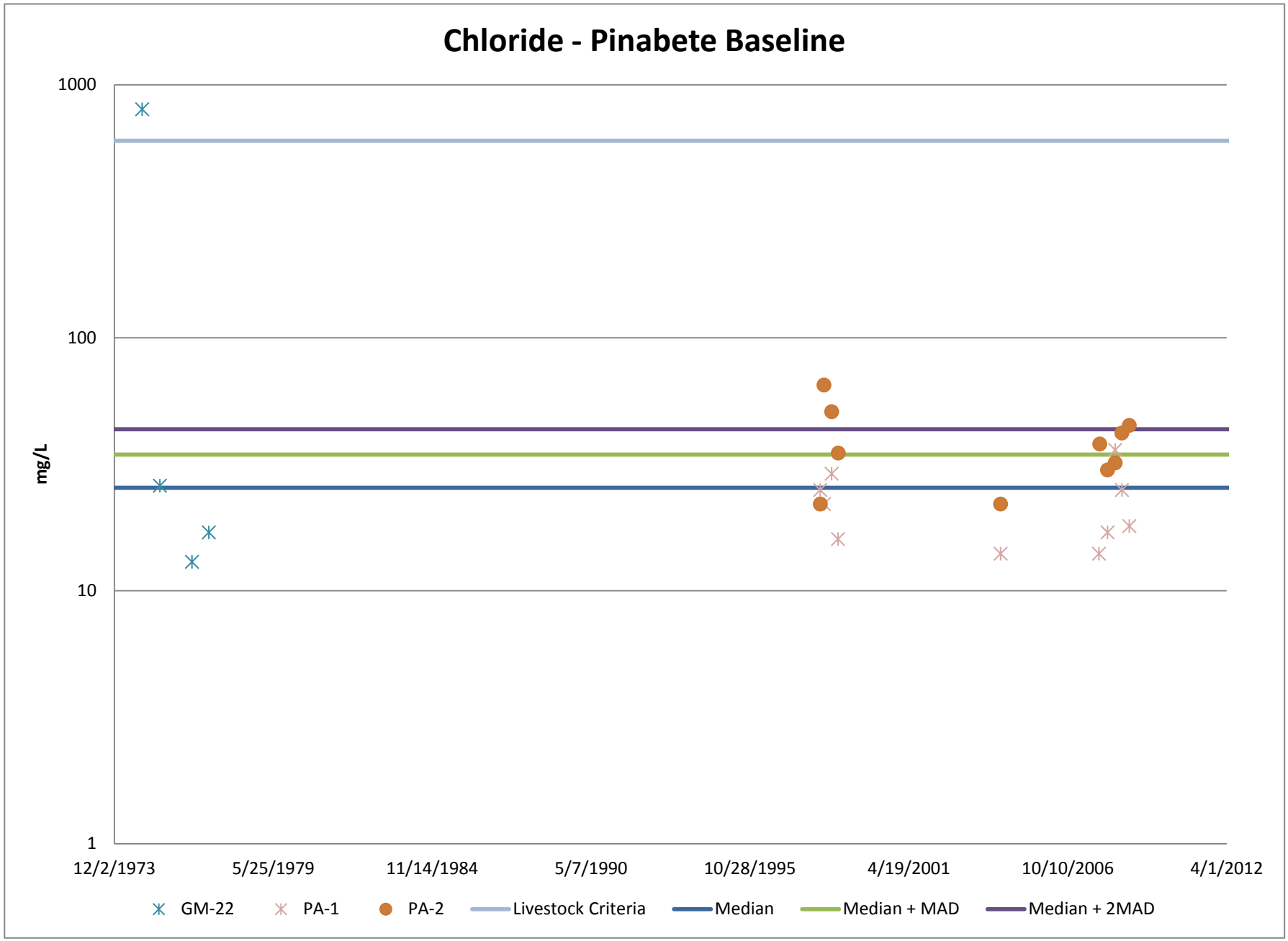
Pinabete and No Name Alluvial Graphs




Zinc - Pinabete Baseline
100
10
1
0.1
0.01
0.001
mg/L
12/2/1973
5/25/1979
11/14/1984
5/7/1990
10/28/1995
4/19/2001
10/10/2006
4/1/2012
GM-22
PA-1
PA-2
Livestock Criteria
Median
Median + MAD
Median + 2MAD

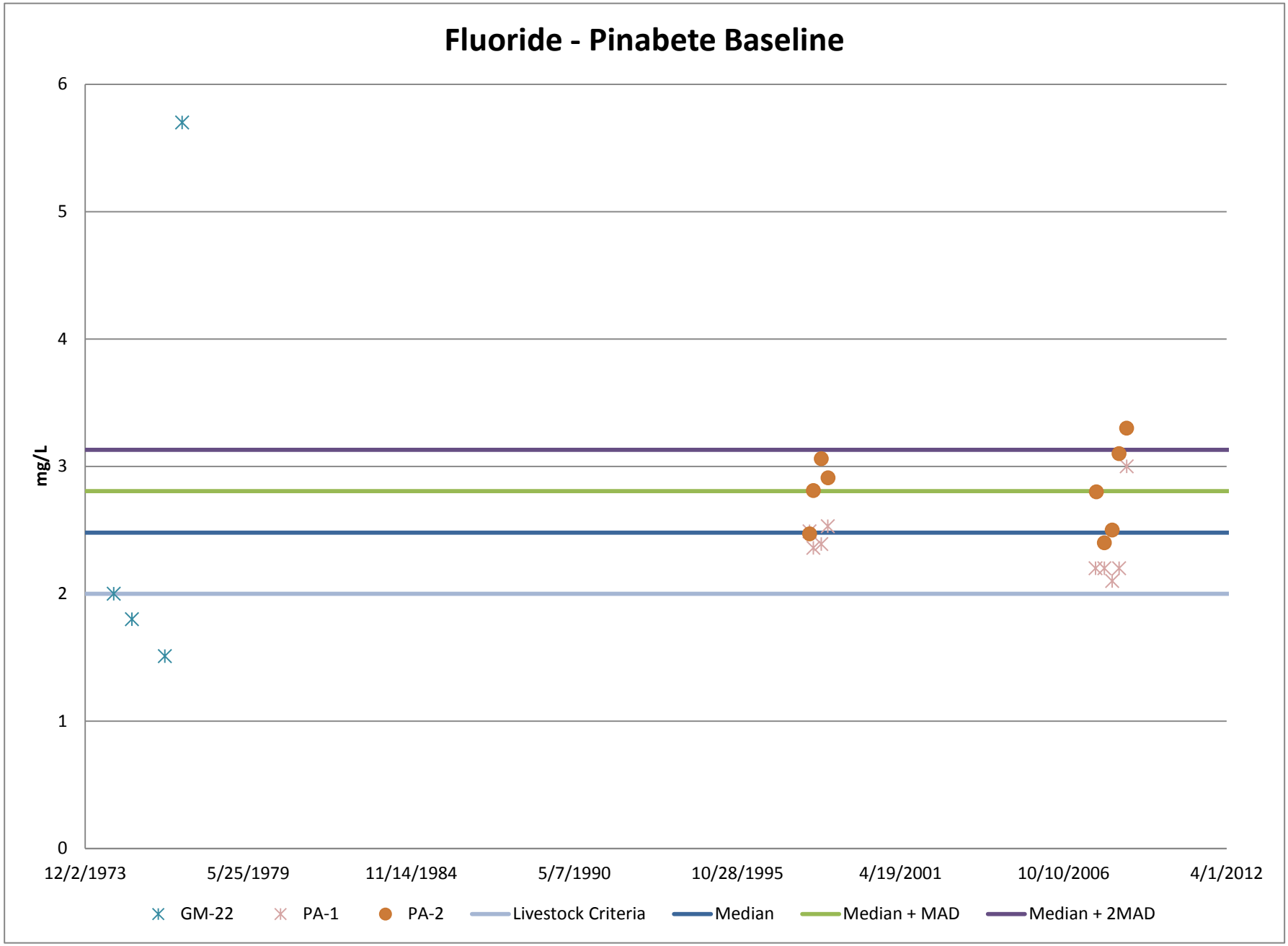
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



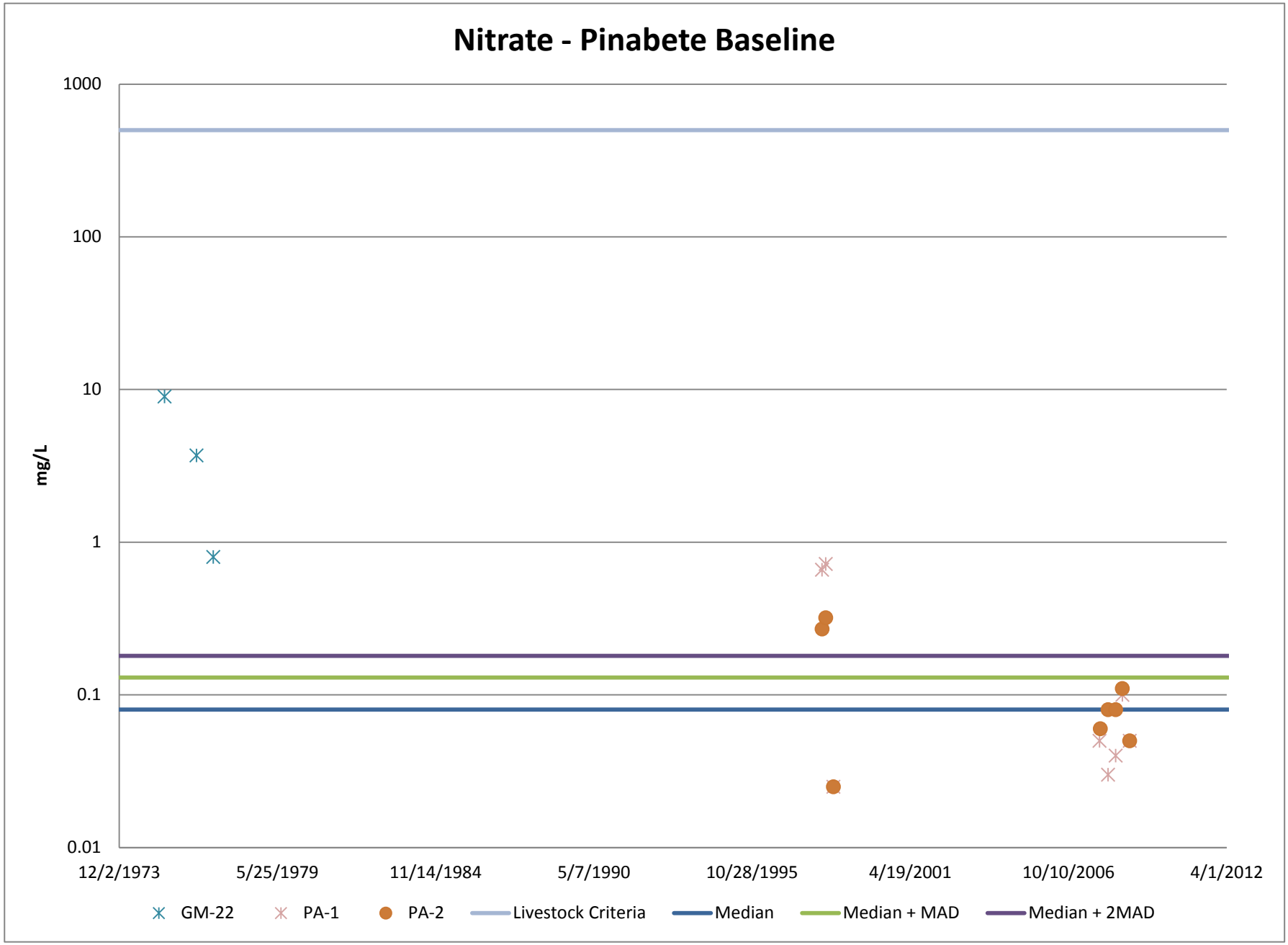
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



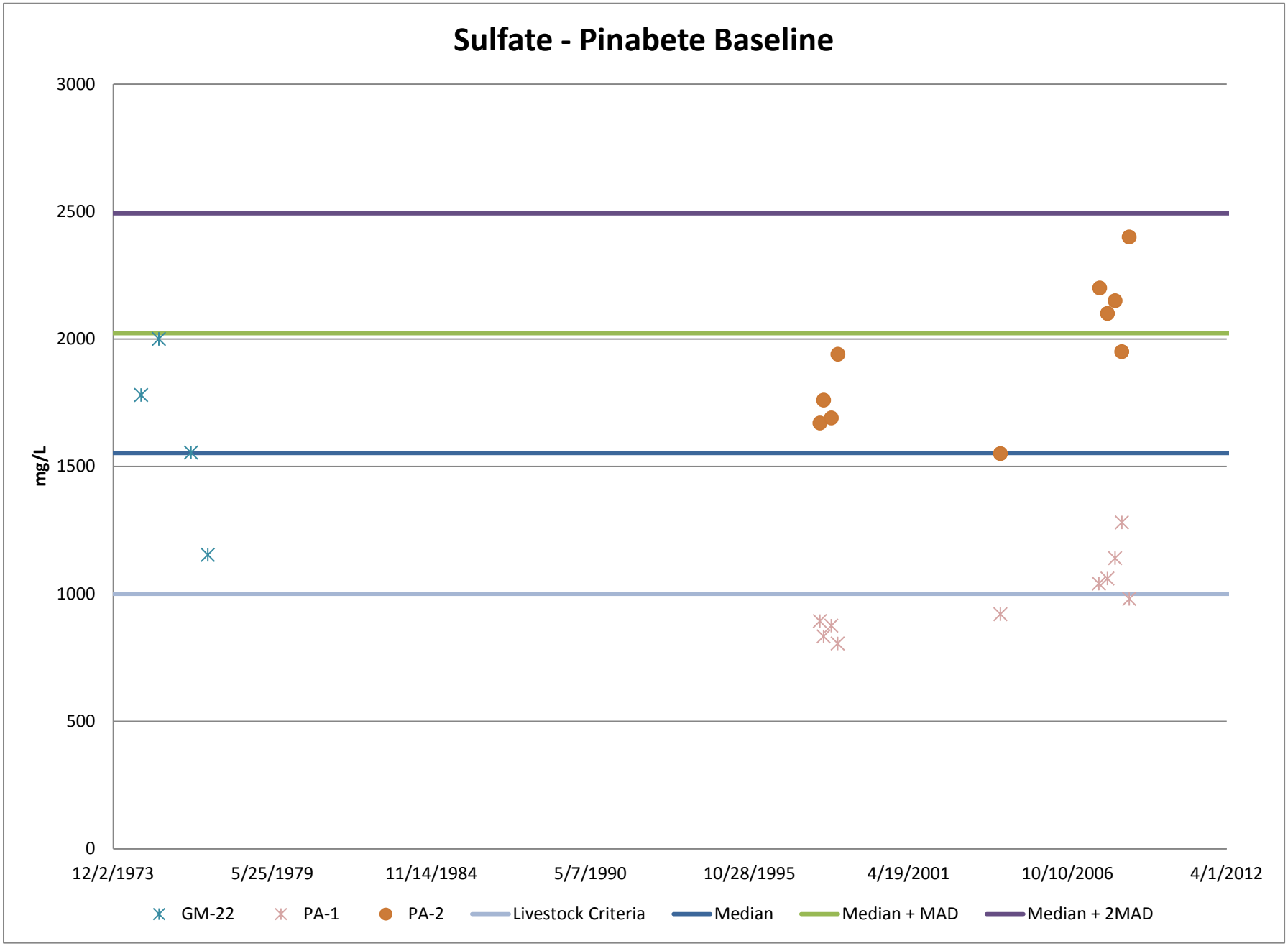
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



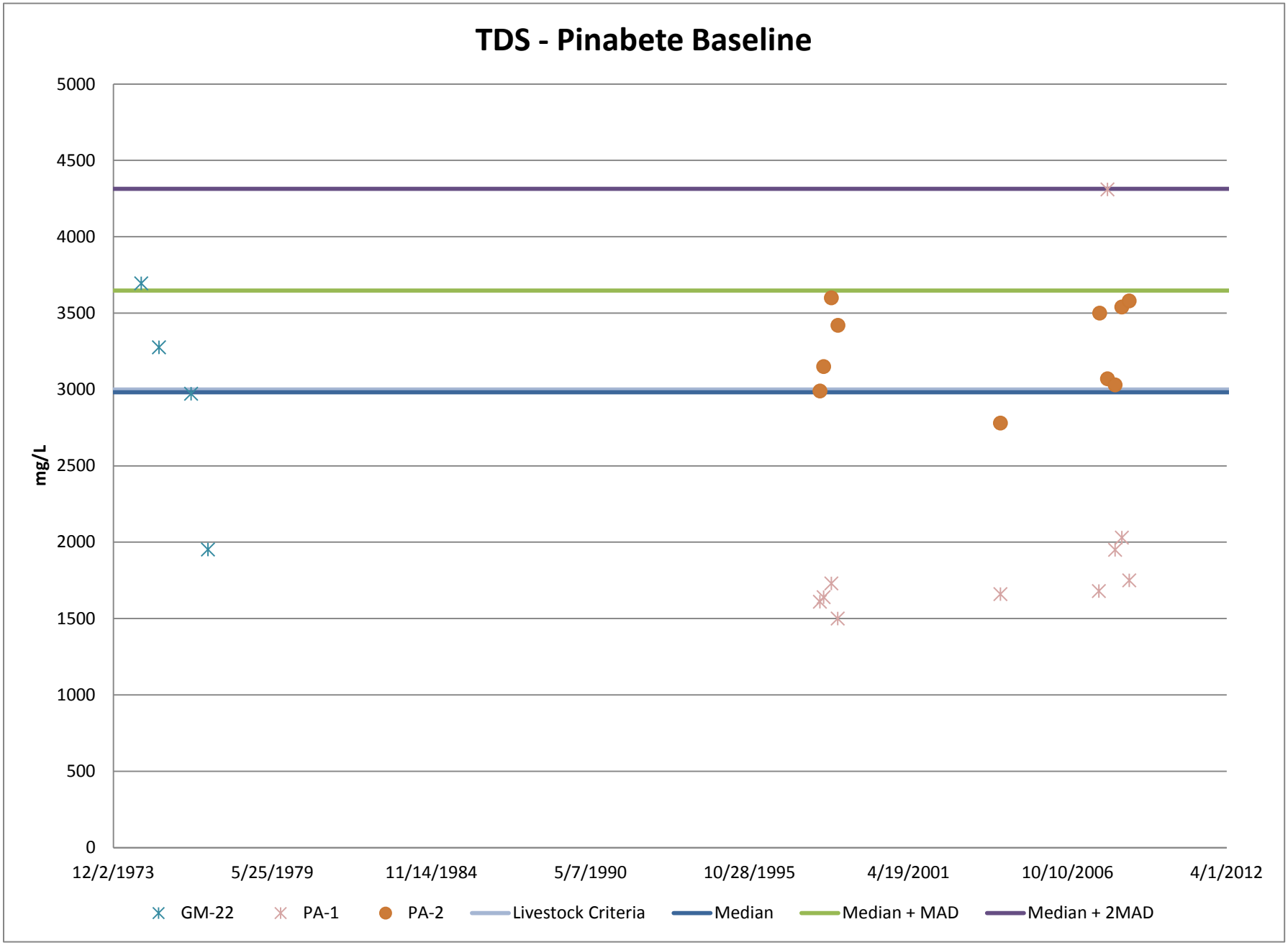
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



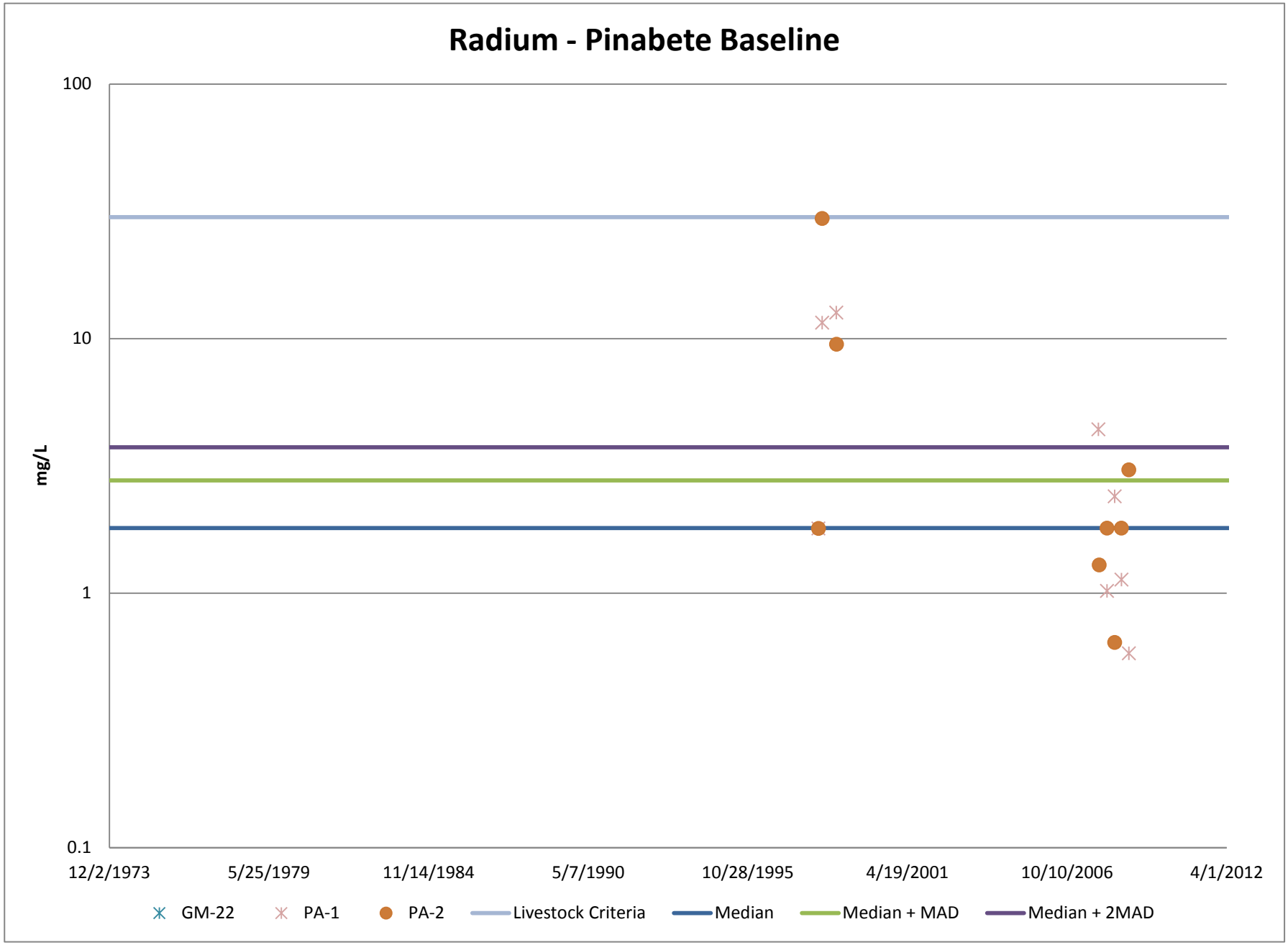
Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



Appendix F - Groundwater Data Summary

Pinabete and No Name Alluvial Graphs



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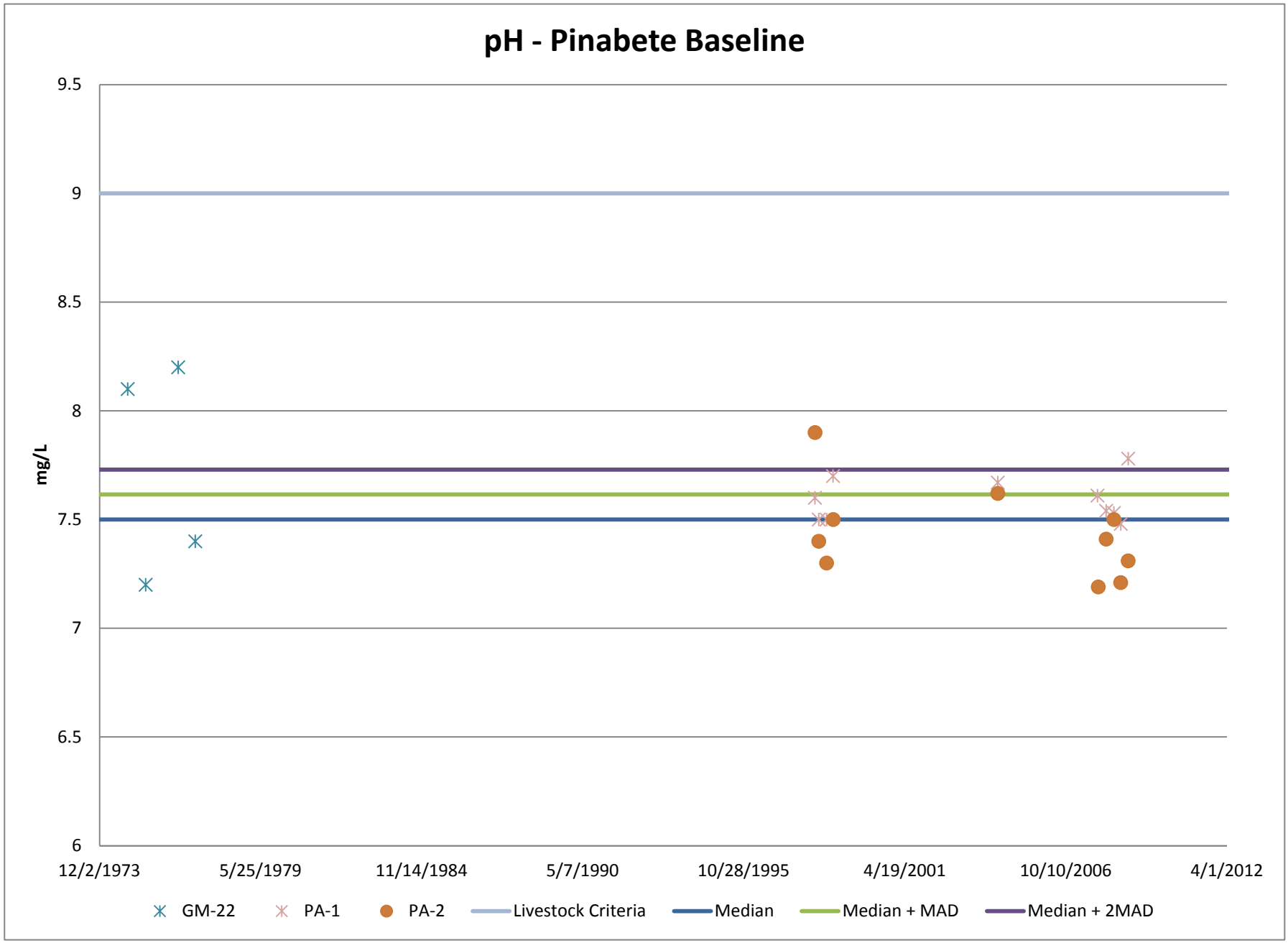

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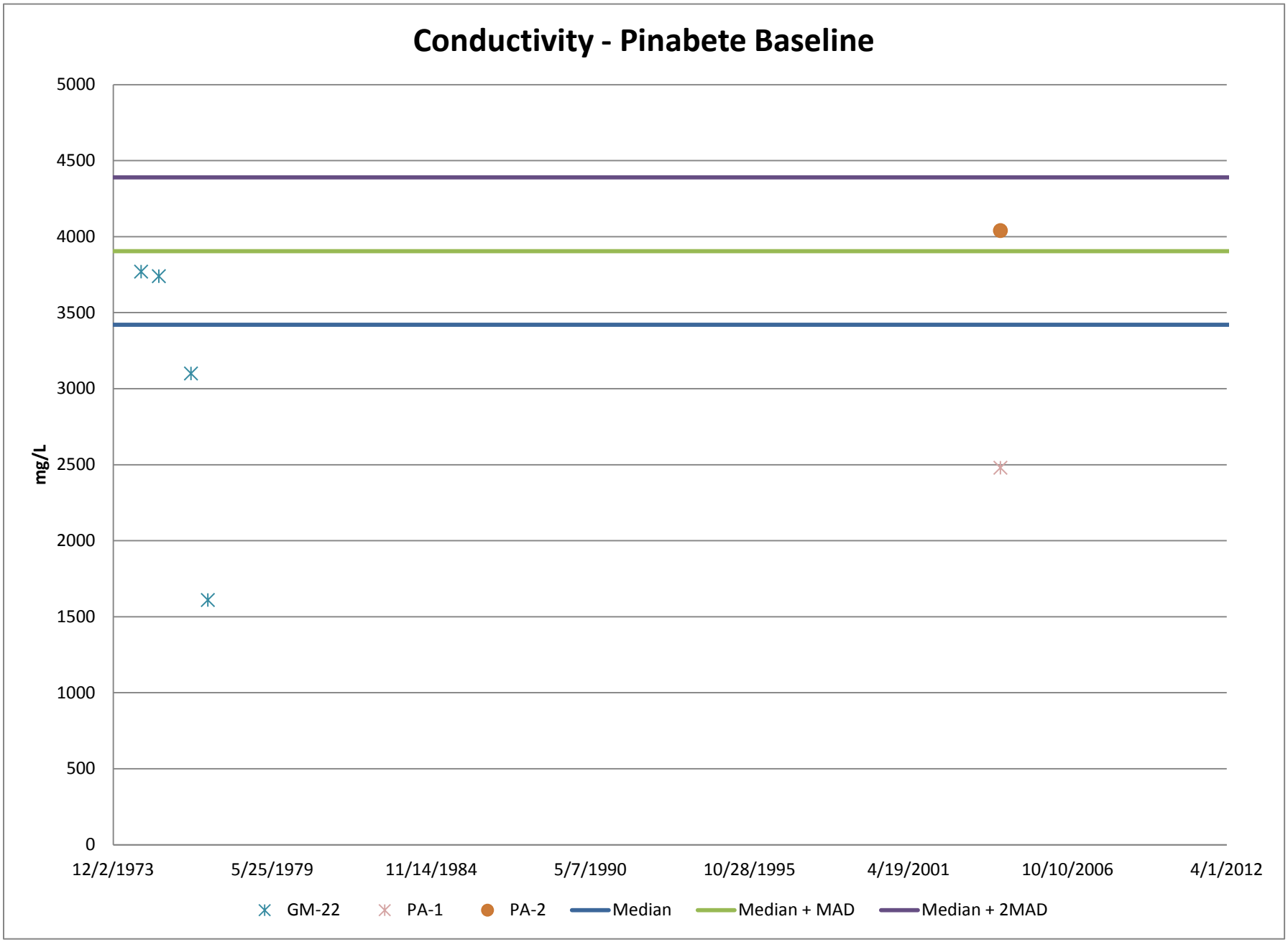

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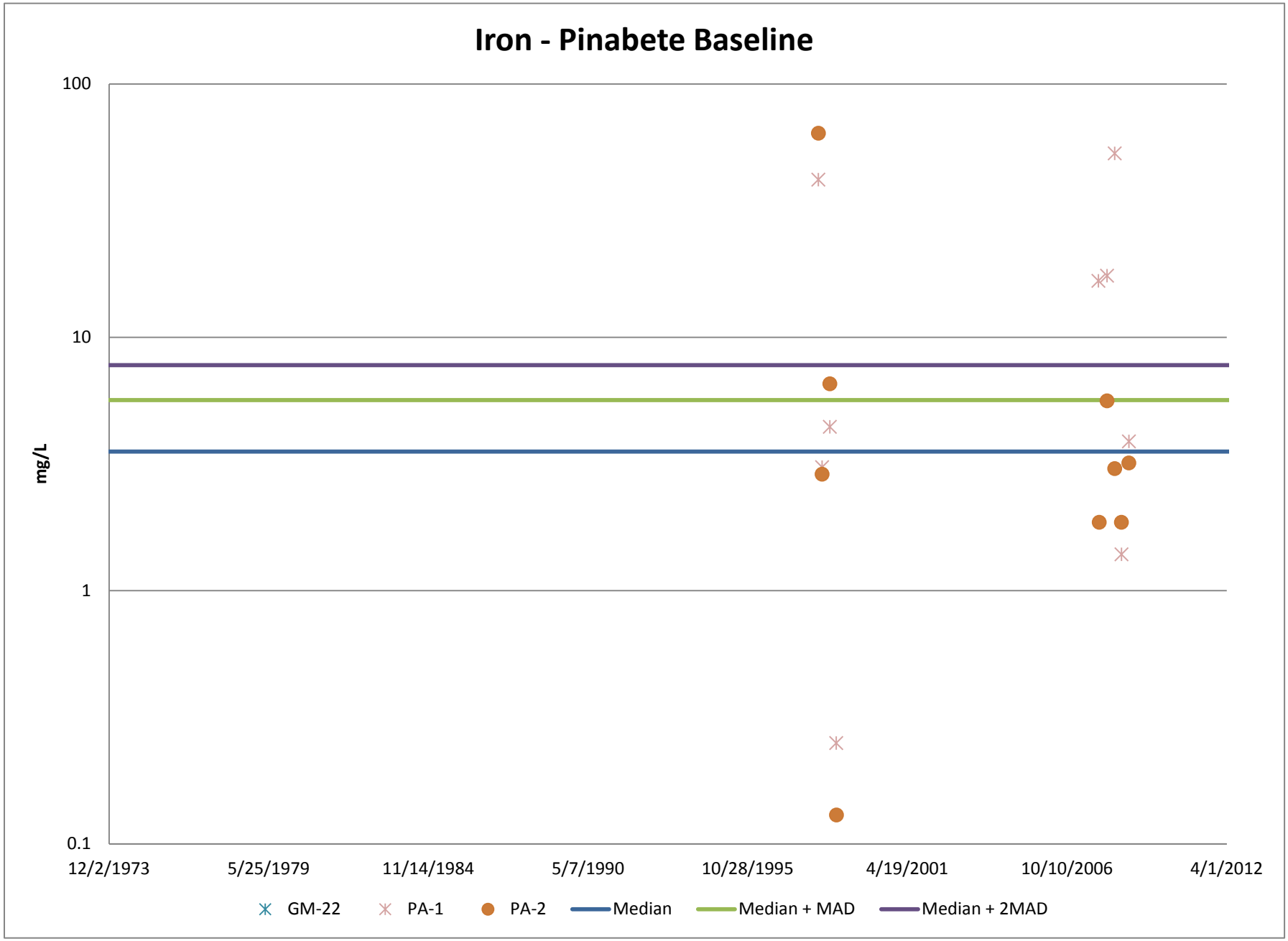

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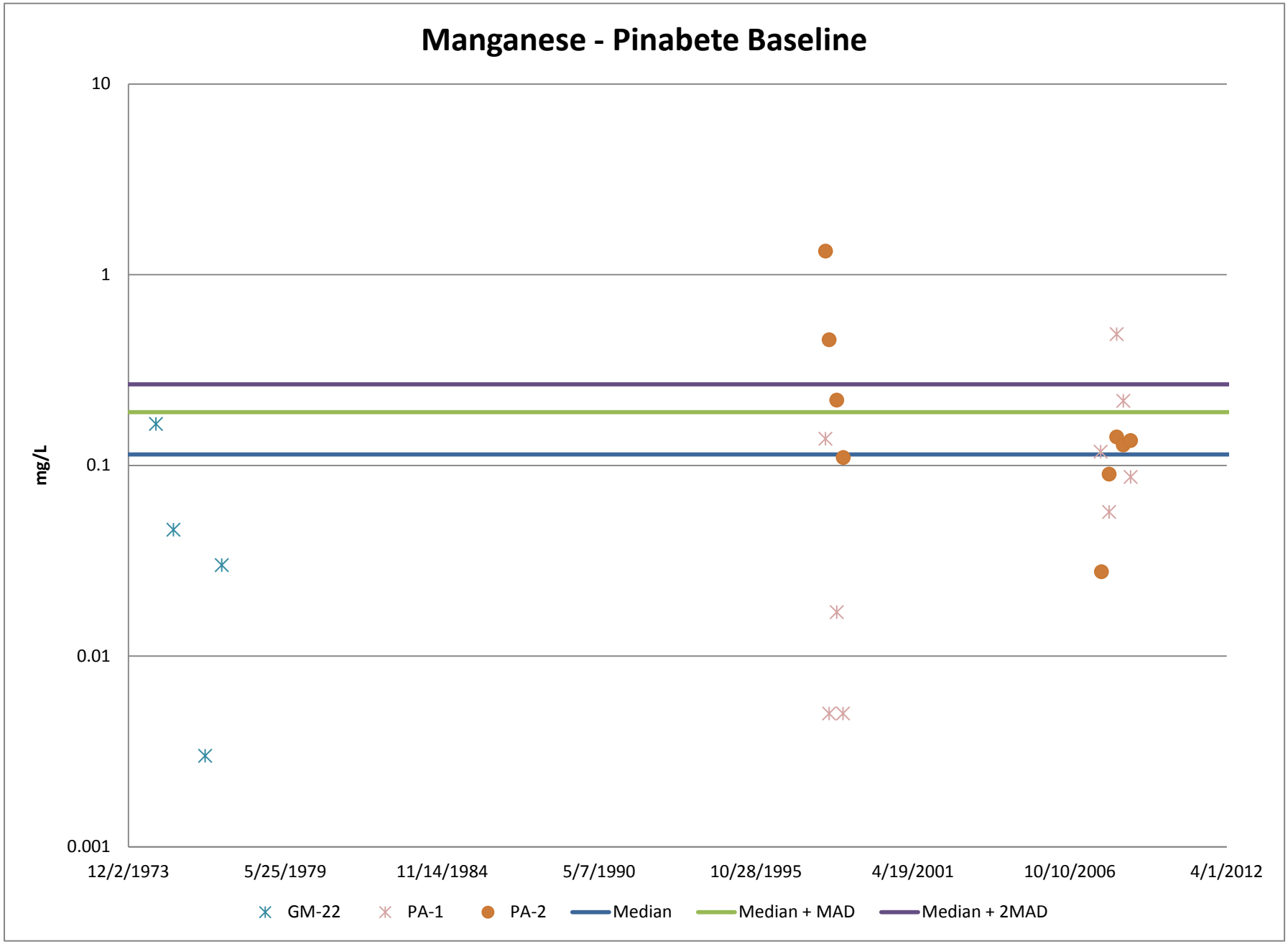

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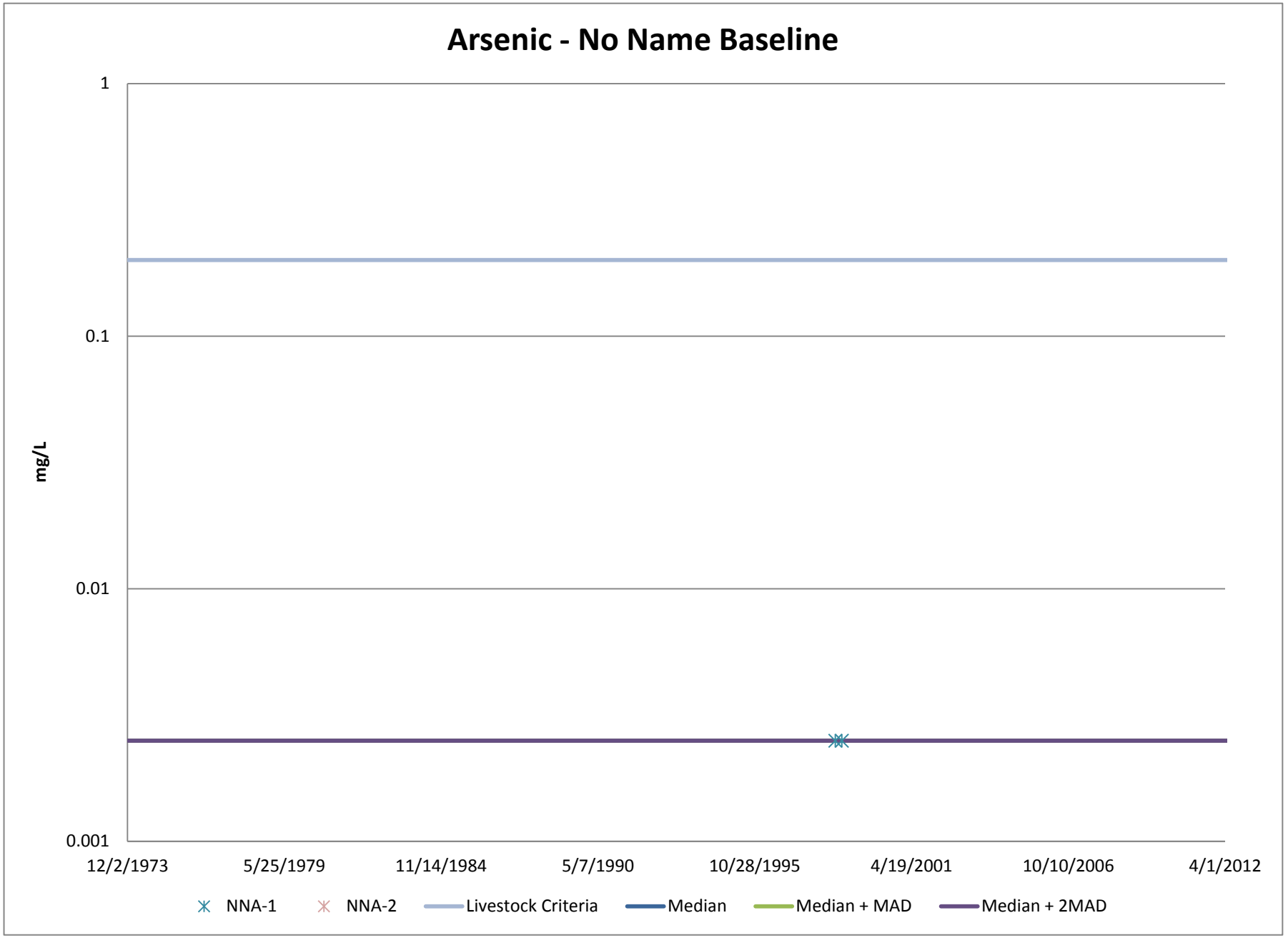

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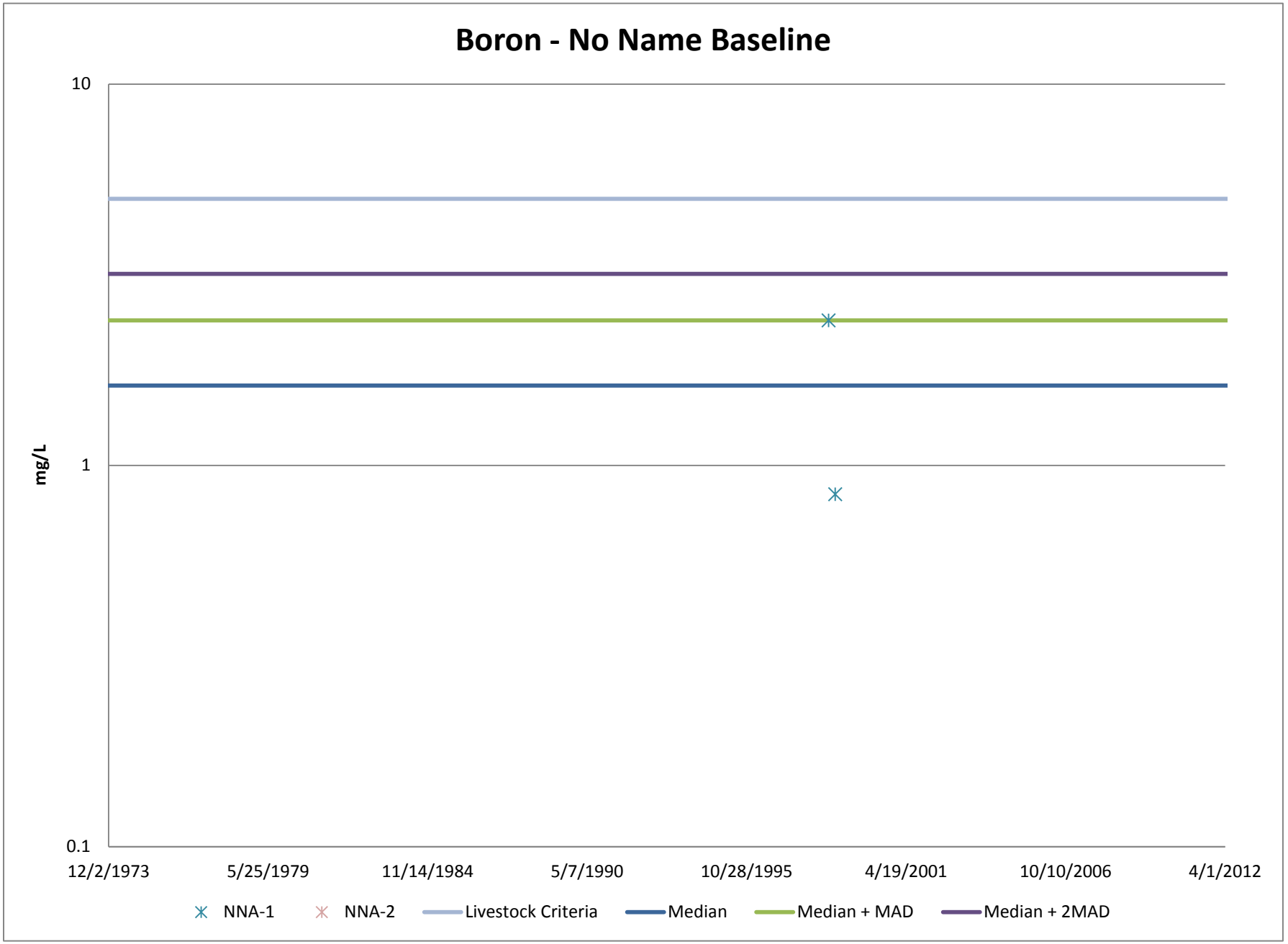

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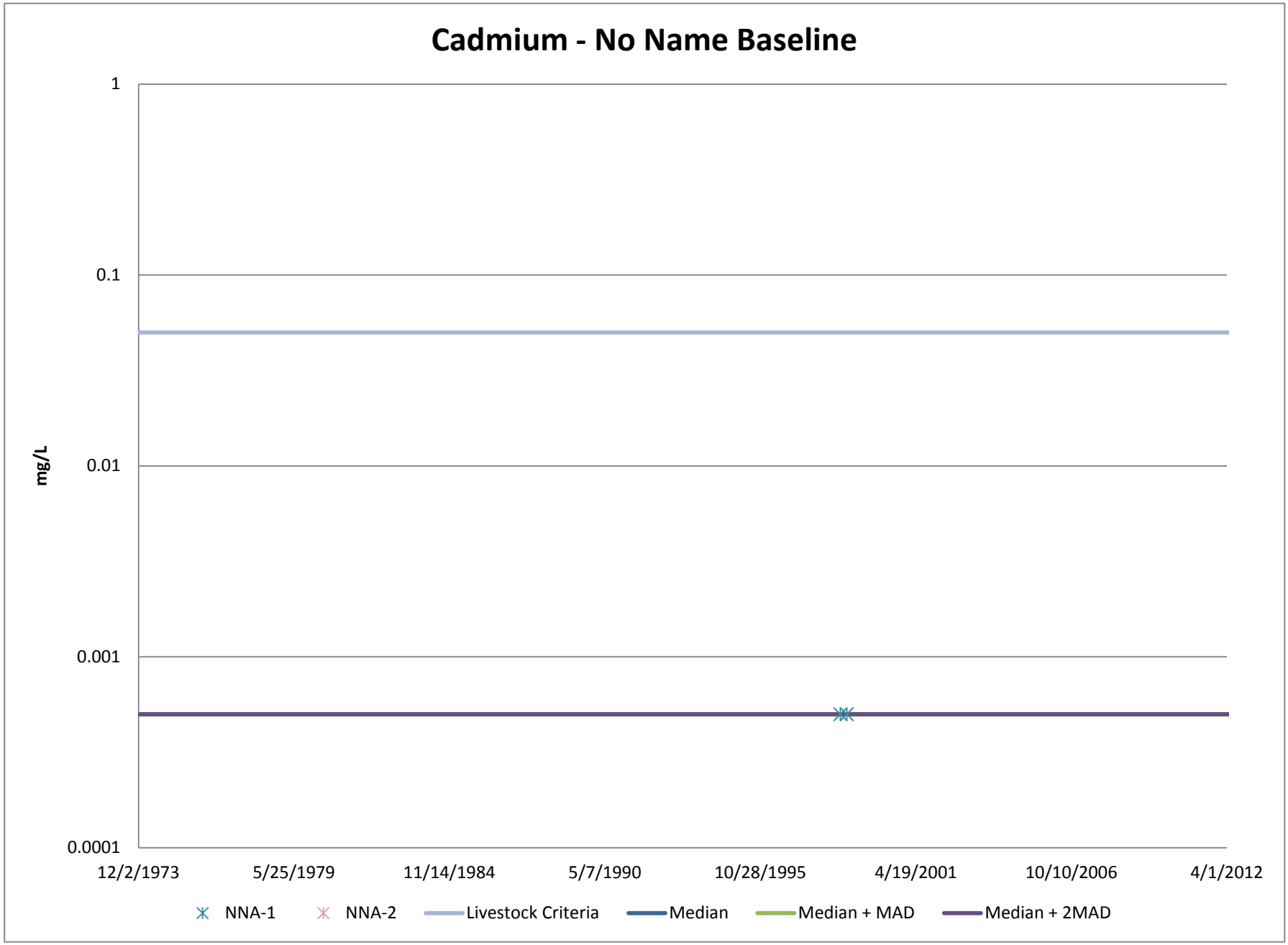

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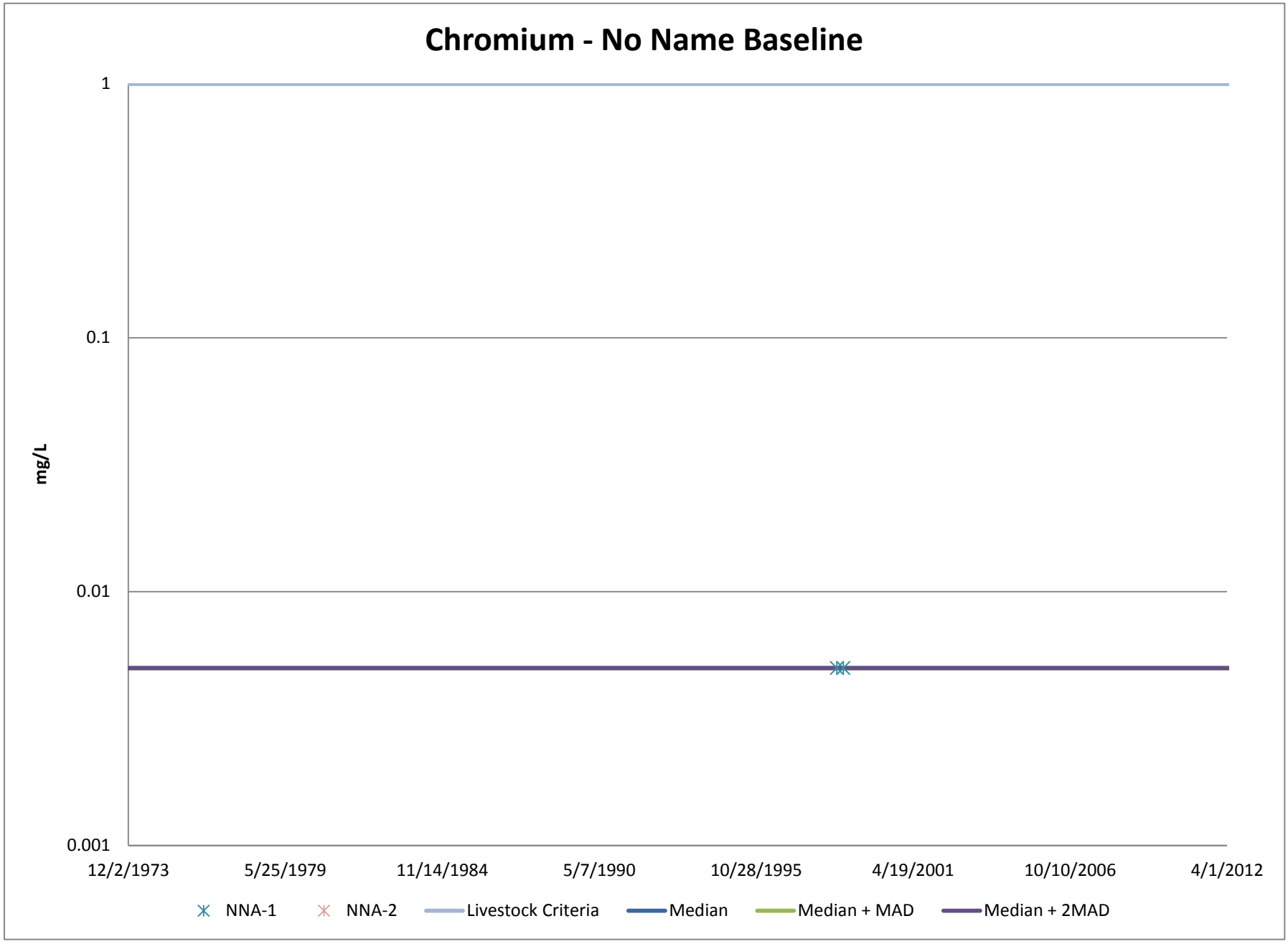

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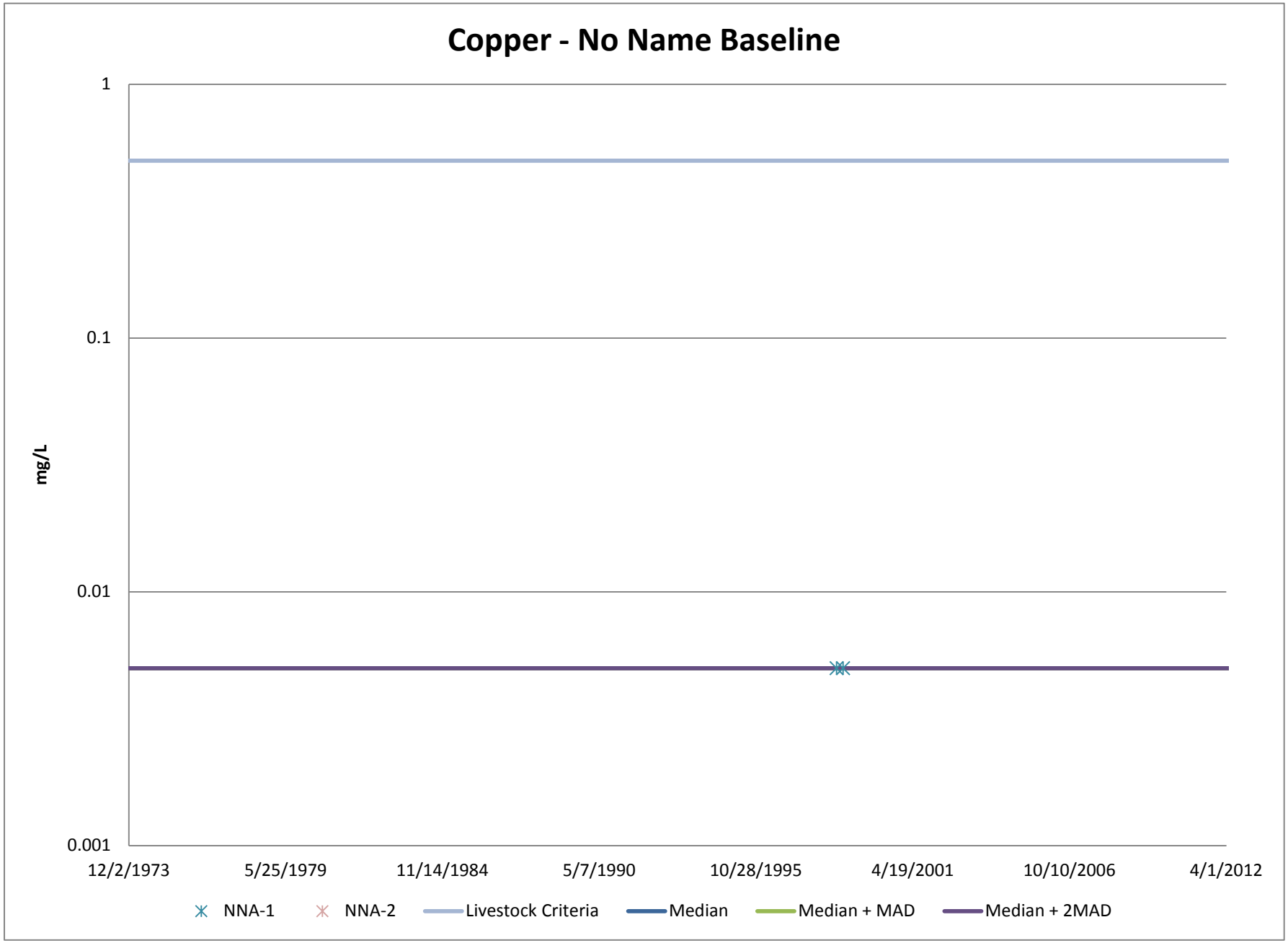

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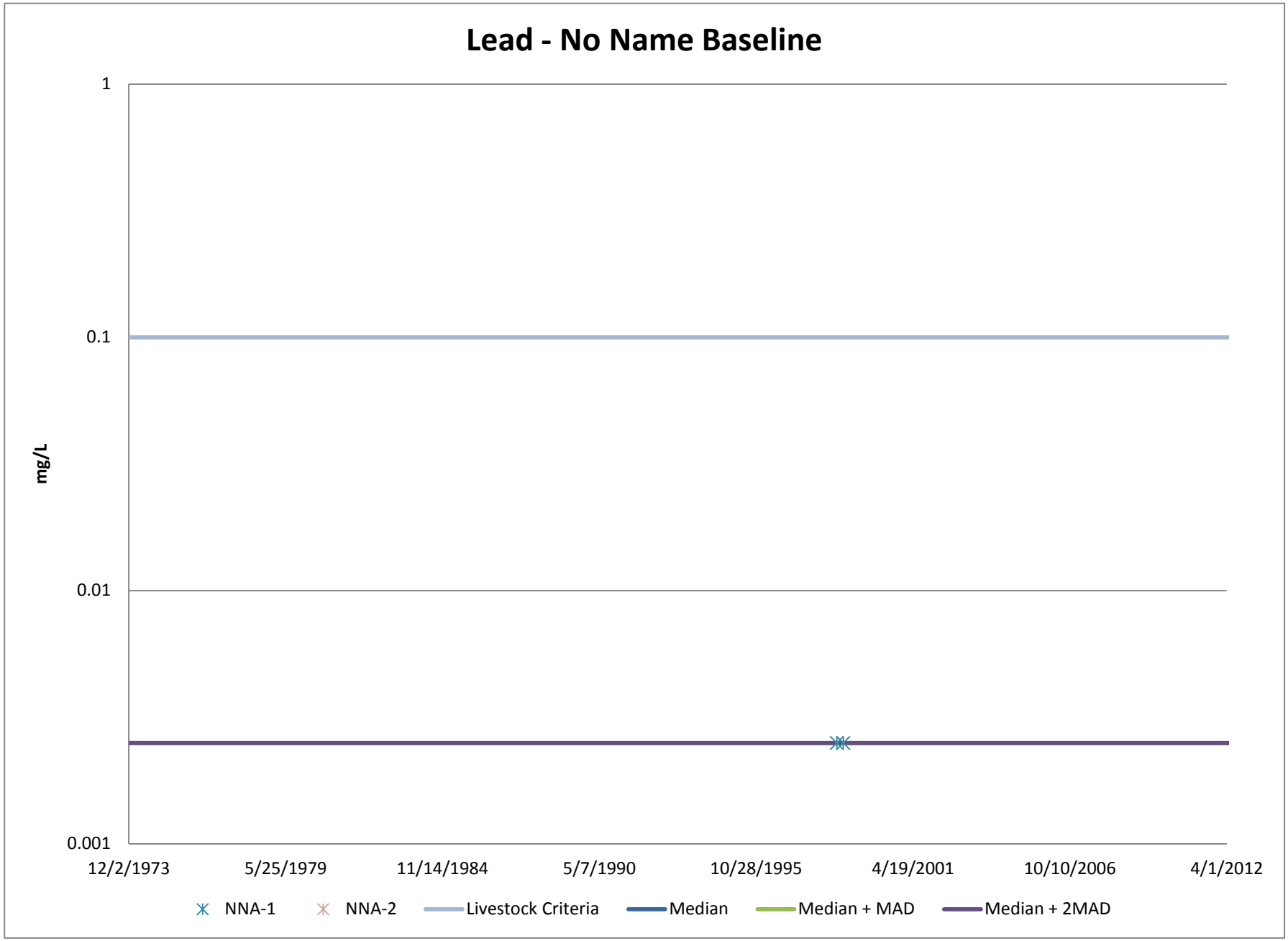

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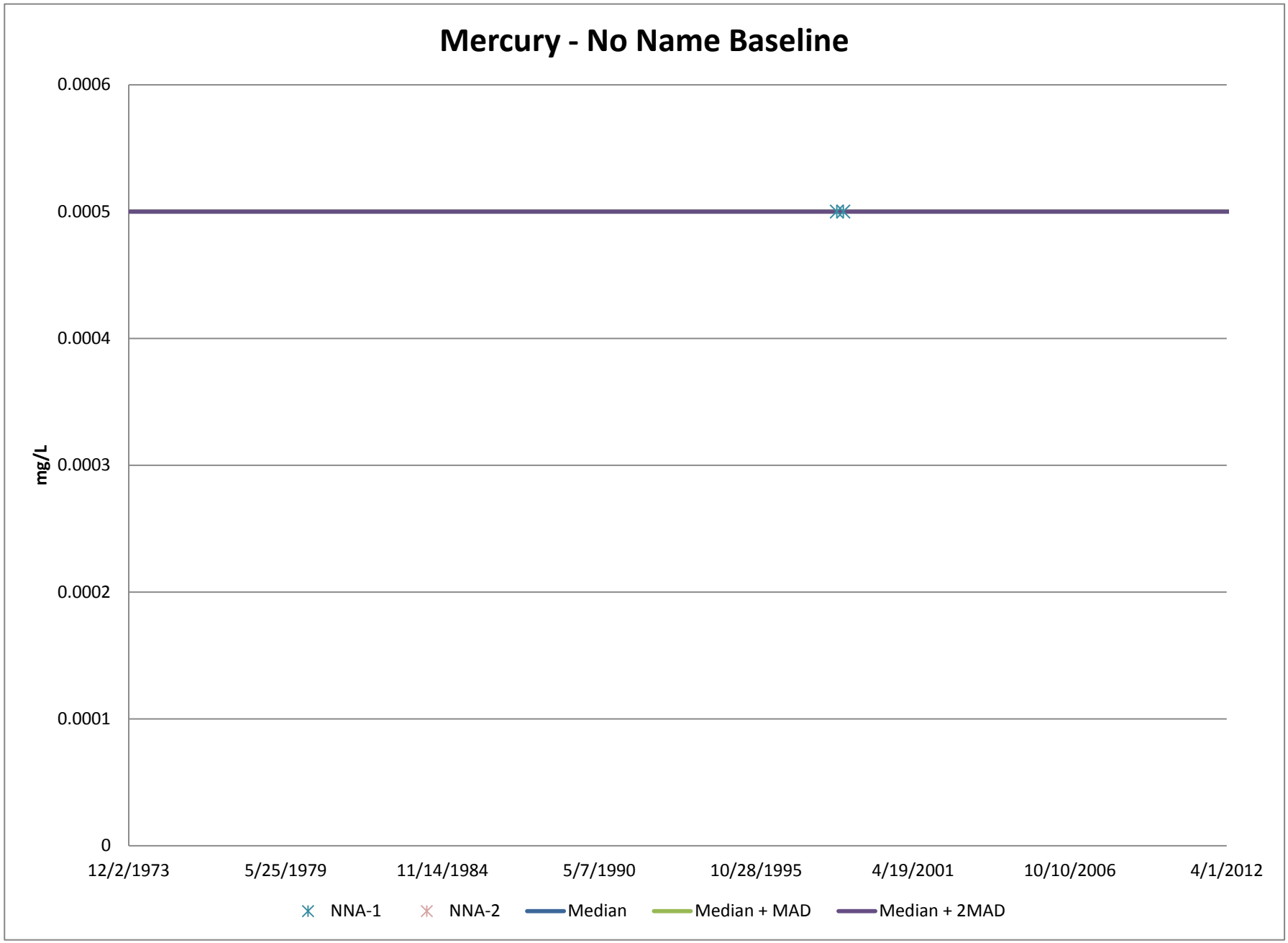

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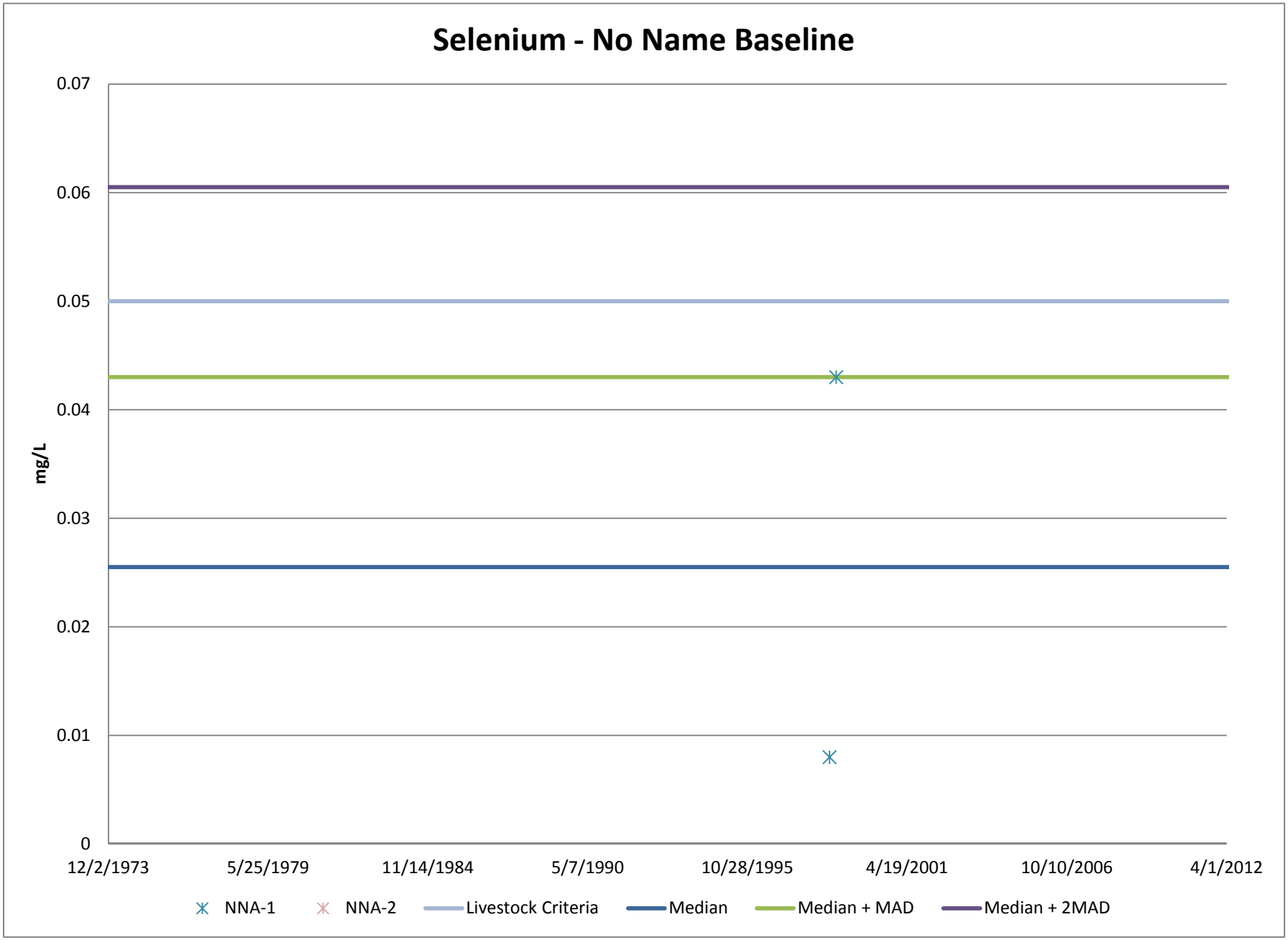

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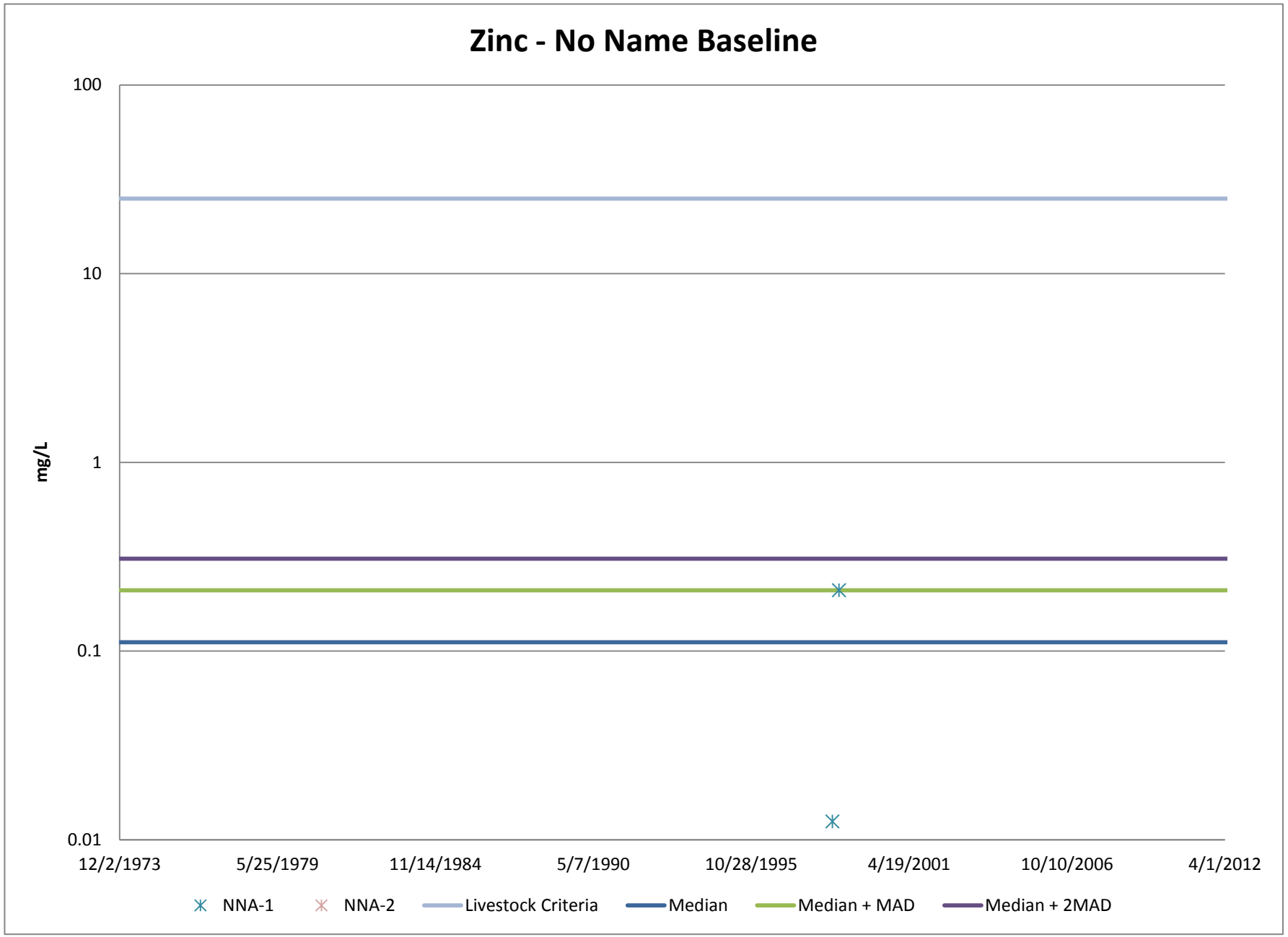

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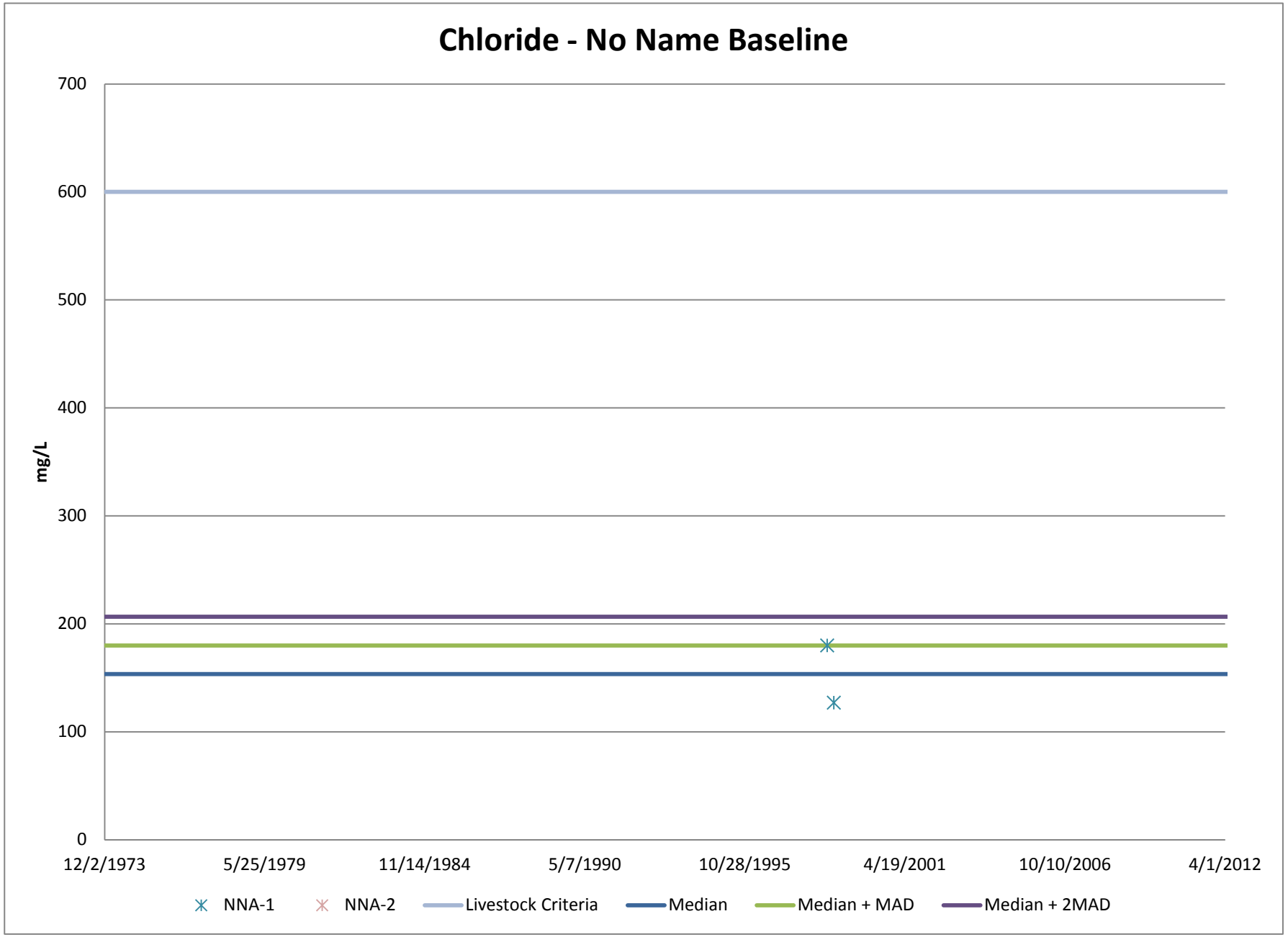

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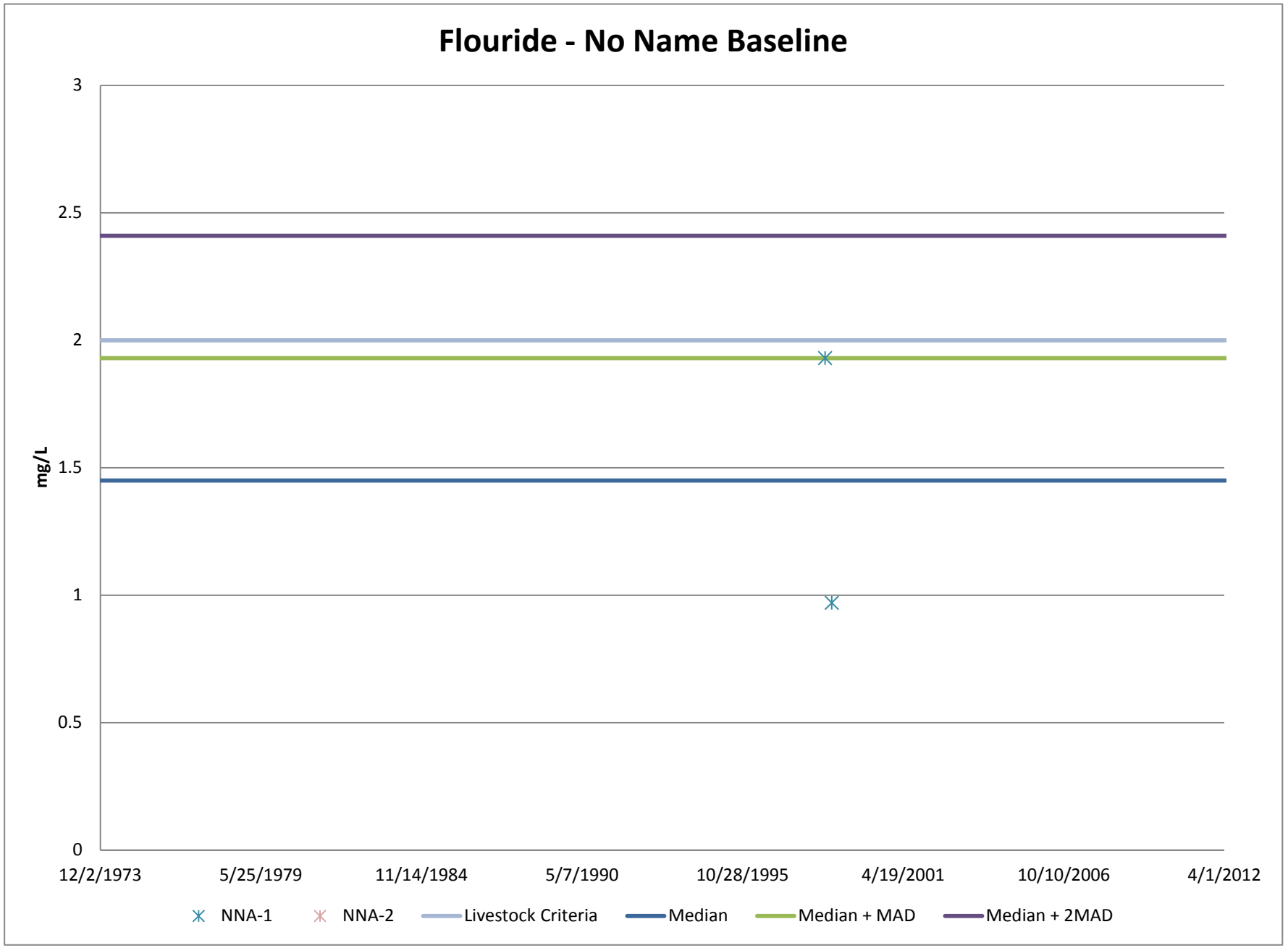

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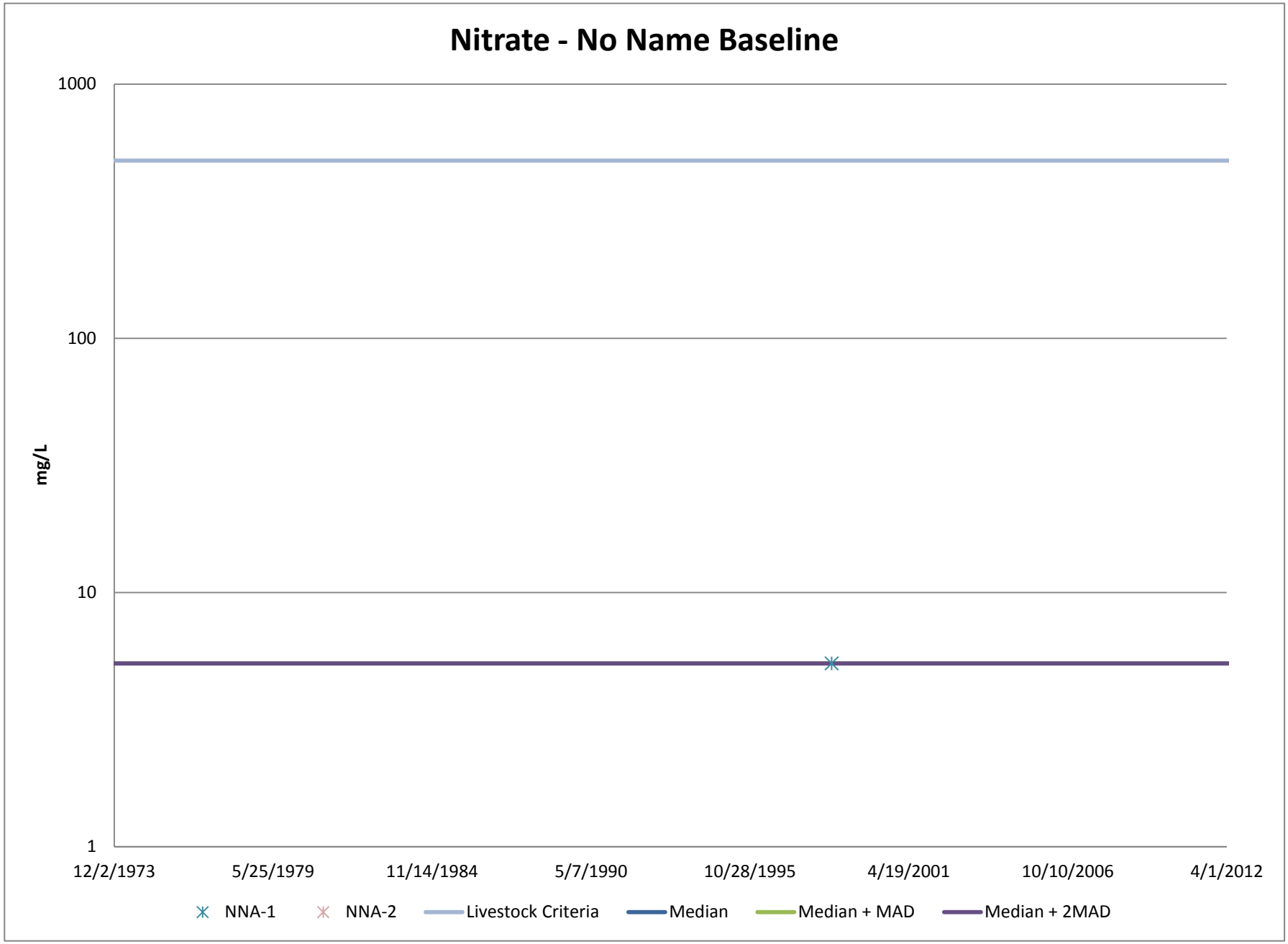

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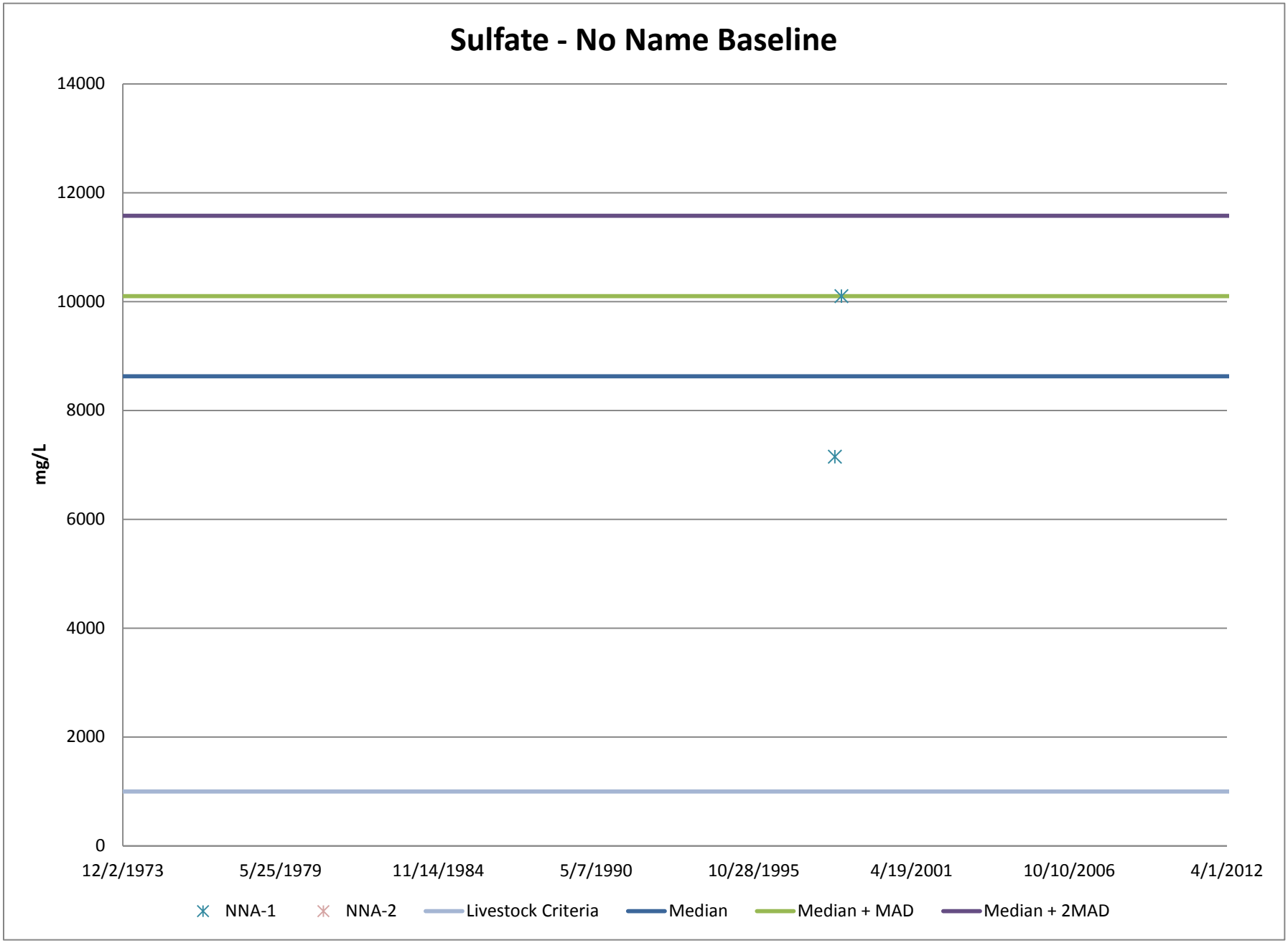

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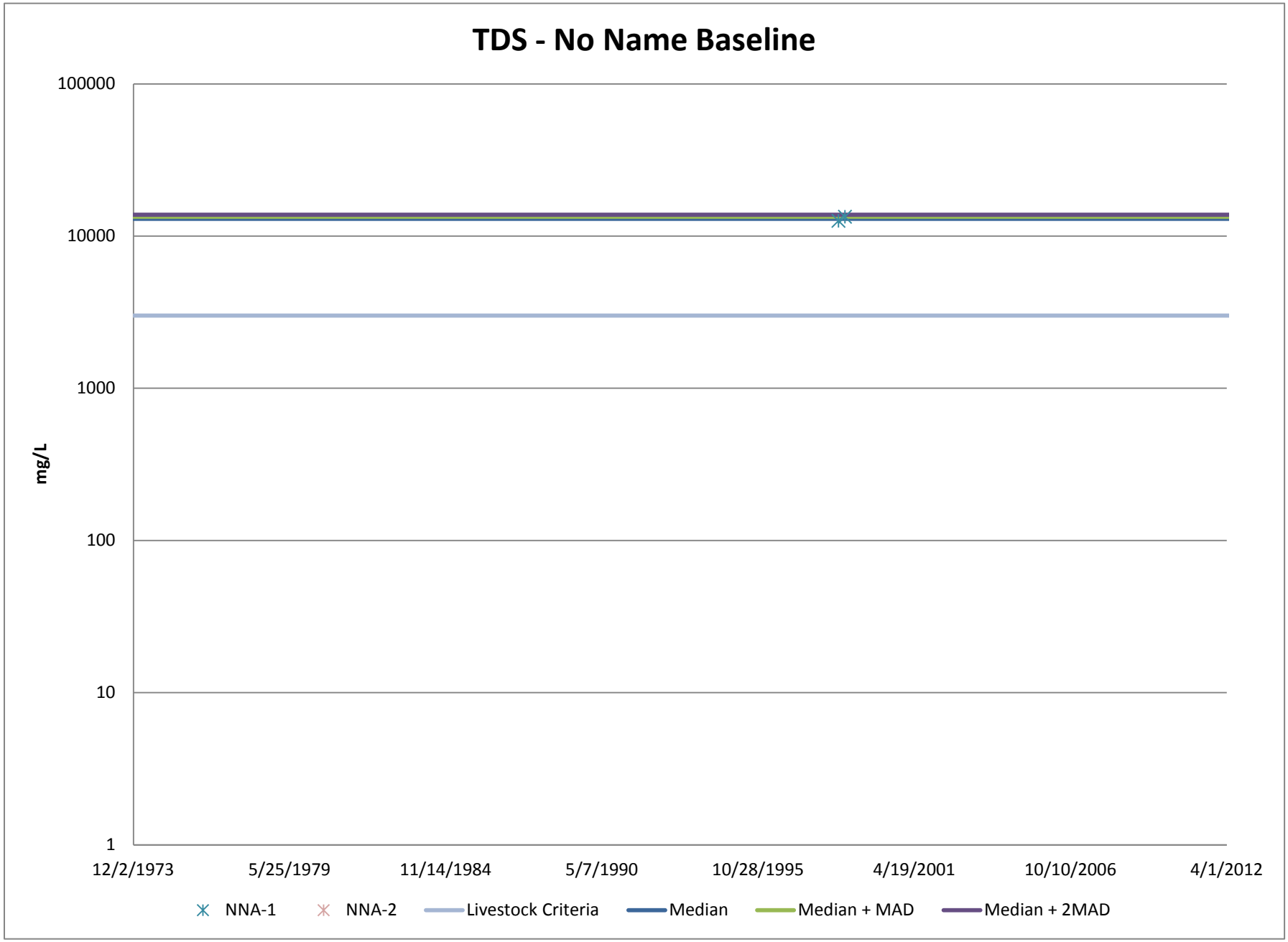

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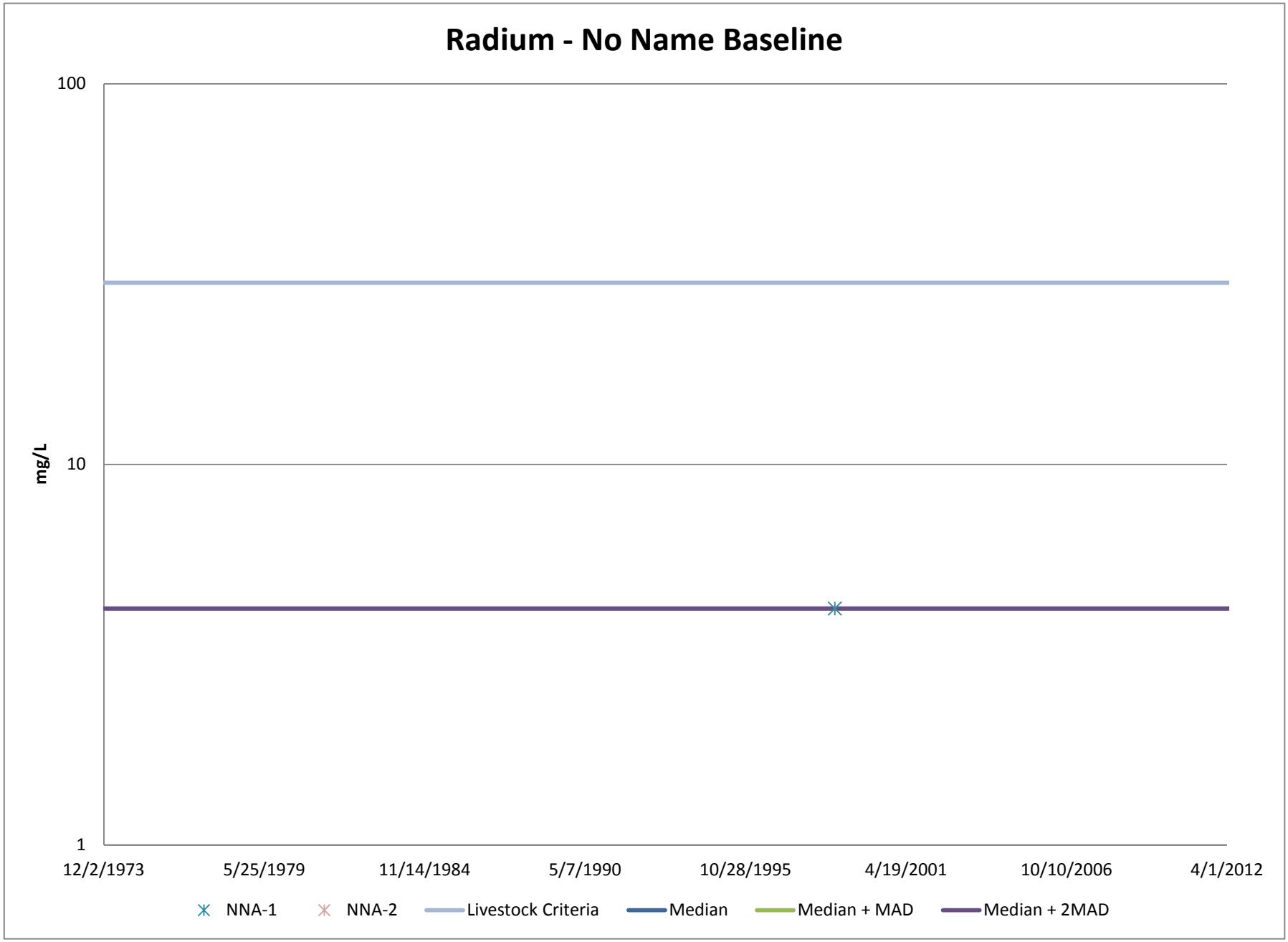

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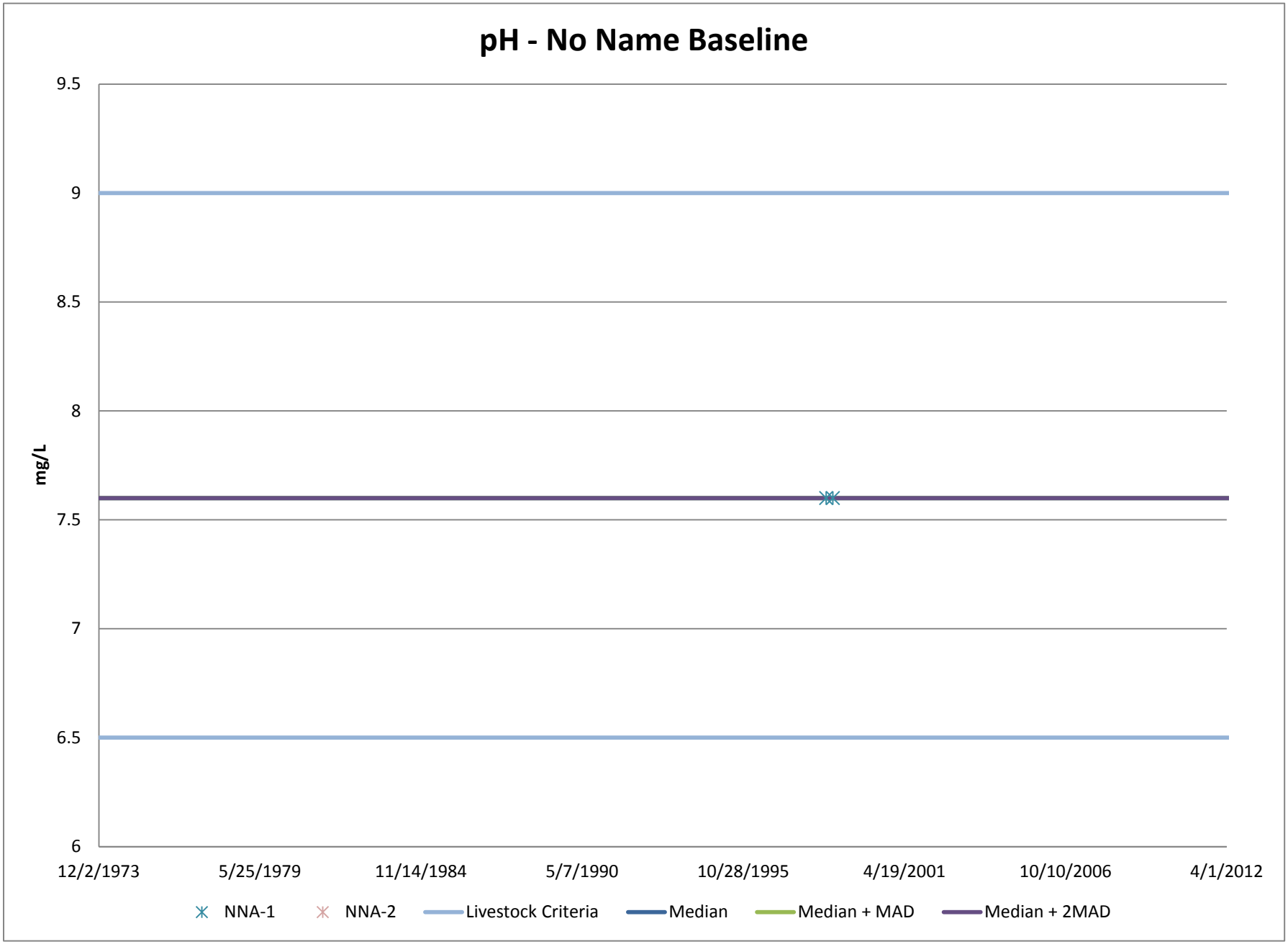

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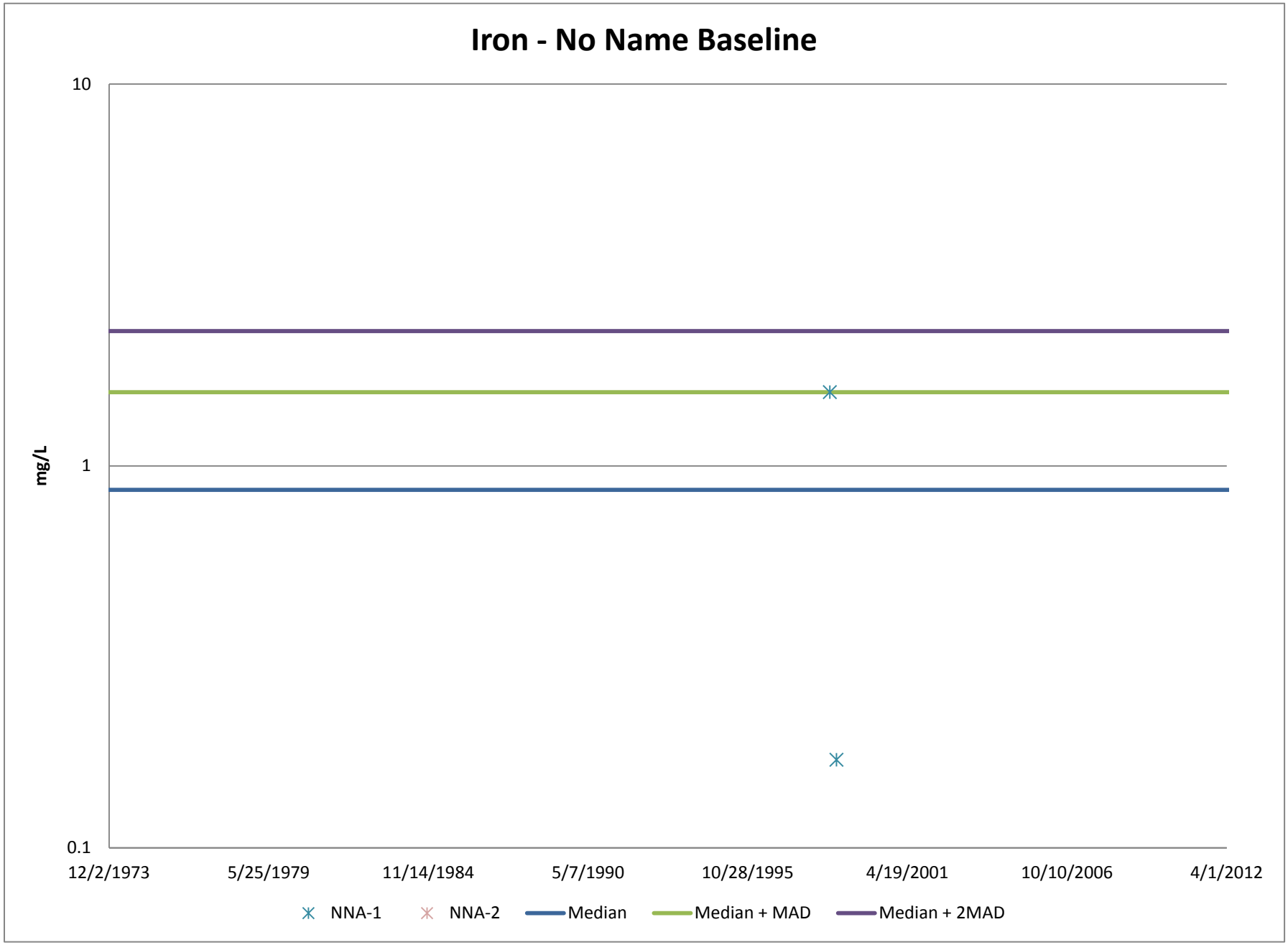

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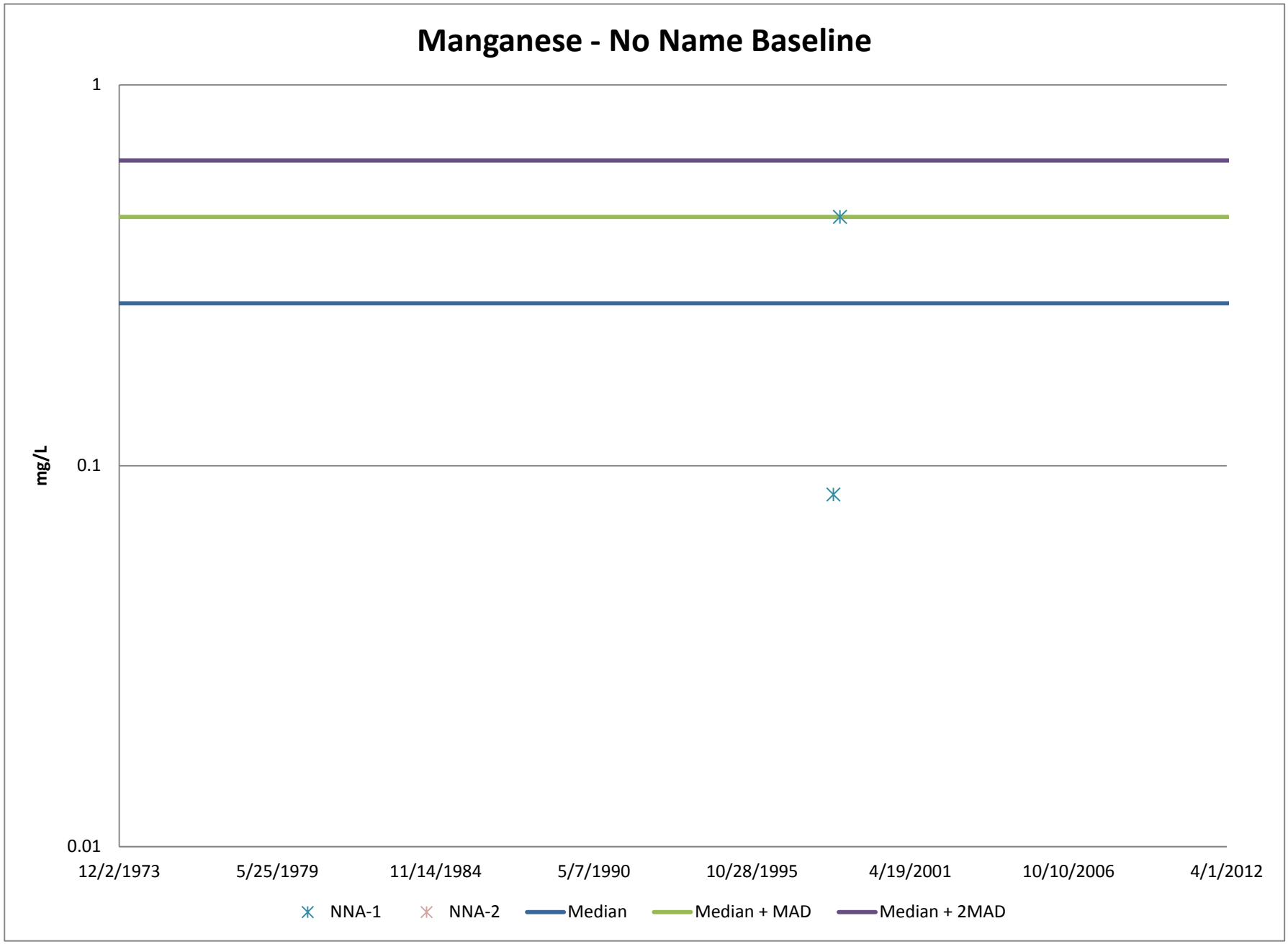
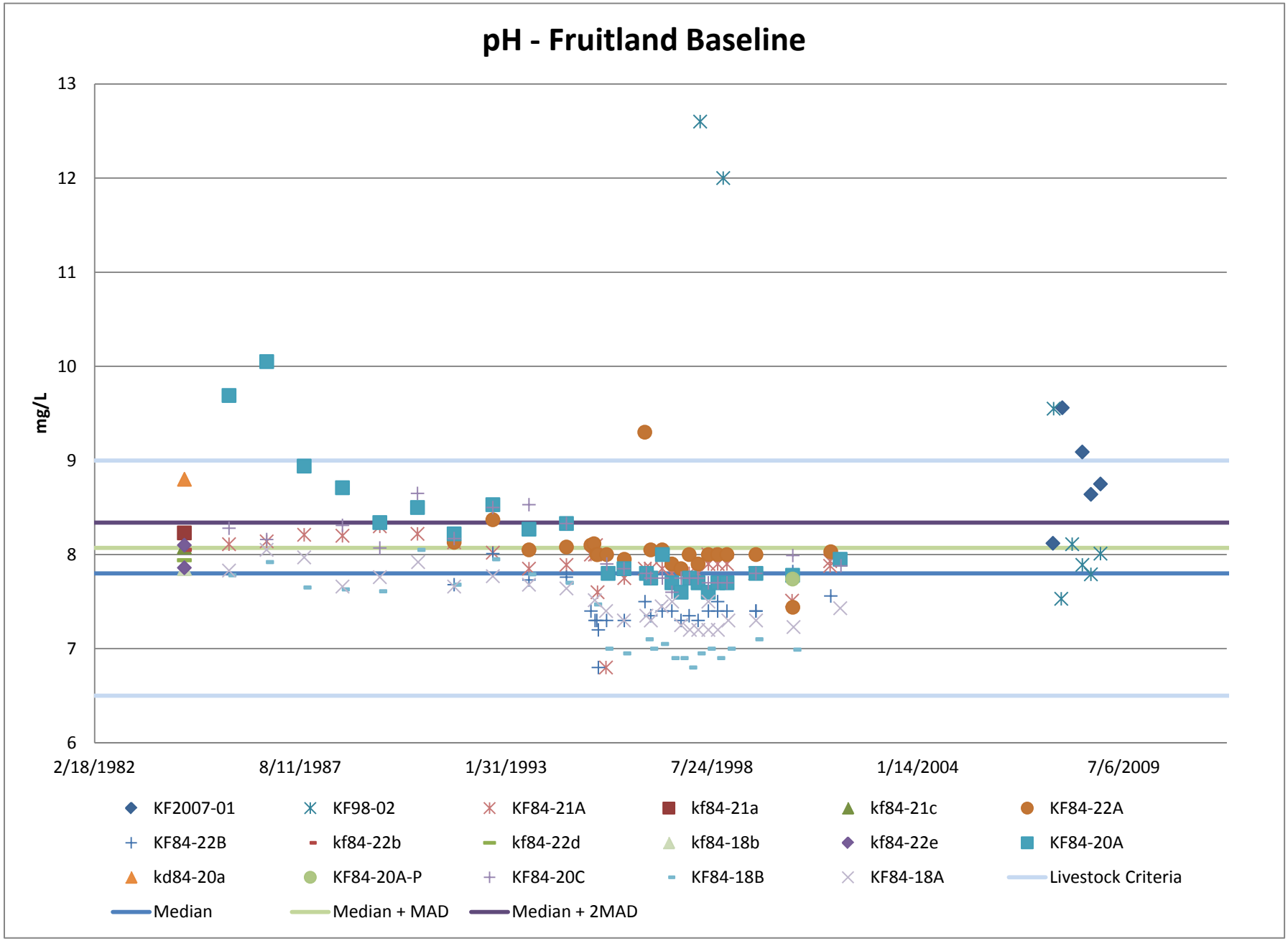
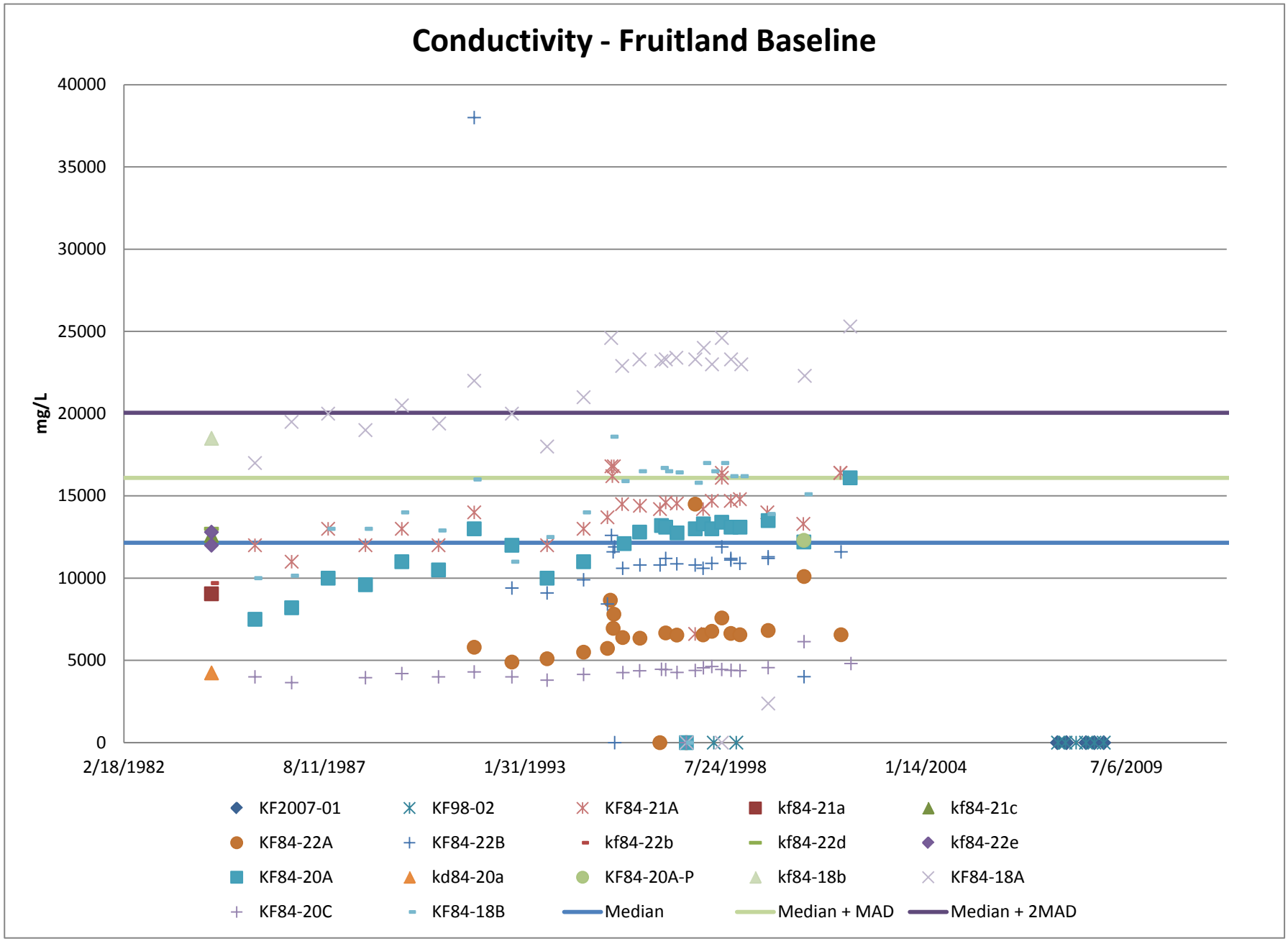


Appendix F - Groundwater Data Summary

Baseline Fruitland Graphs




Conductivity - Fruitland Baseline
mg/L
40000
35000
30000
25000
20000
15000
10000
5000
0
2/18/1982
8/11/1987
1/31/1993
7/24/1998
1/14/2004
7/6/2009
KF2007-01
KF98-02
KF84-21A
kf84-21a
kf84-21c
KF84-22A
KF84-22B
kf84-22b
kf84-22d
kf84-22e
KF84-20A
kd84-20a
KF84-20A-P
kf84-18b
KF84-18A
KF84-20C
KF84-18B
Median
Median + MAD
Median + 2MAD

Appendix F - Groundwater Data Summary

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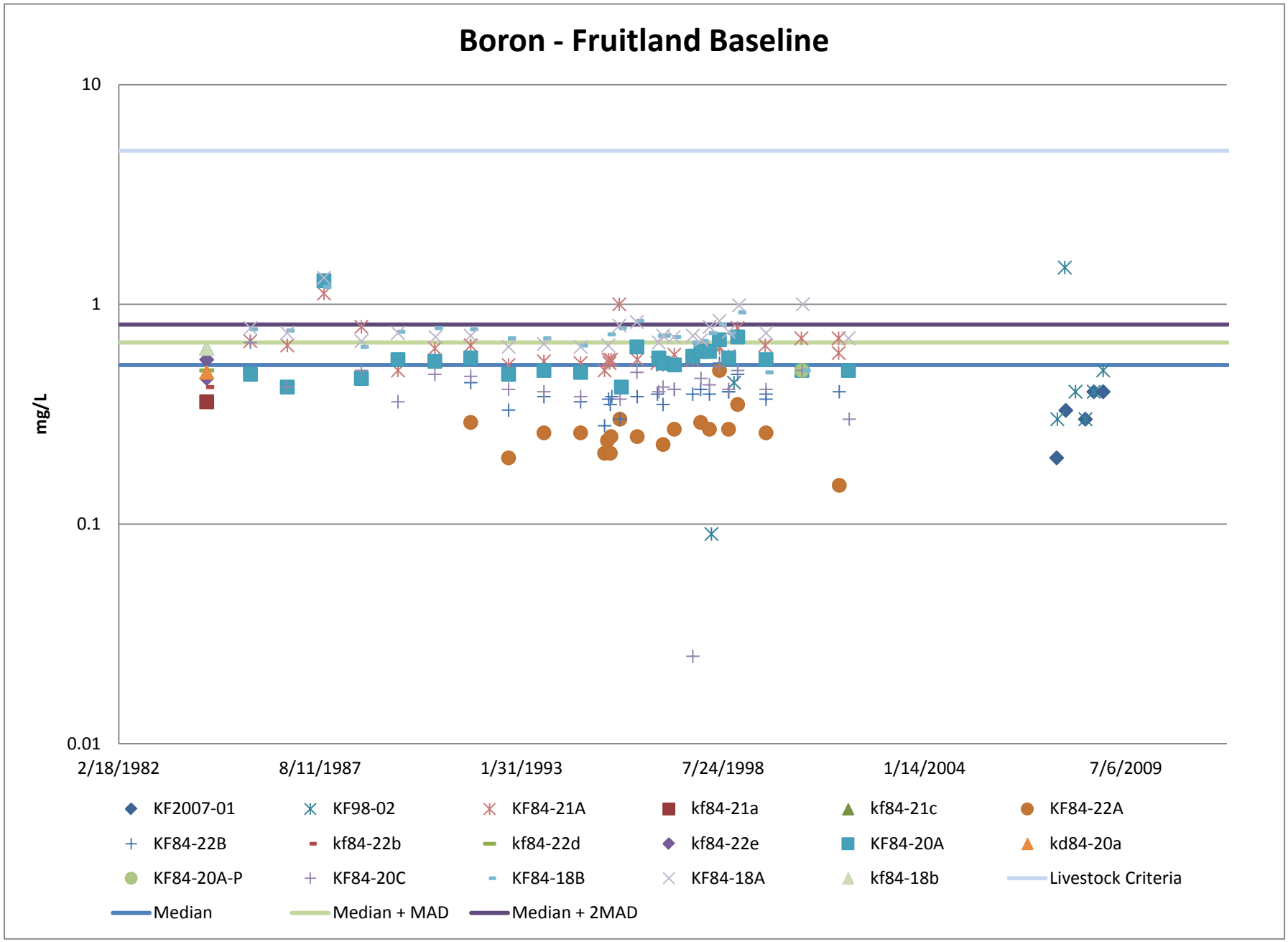

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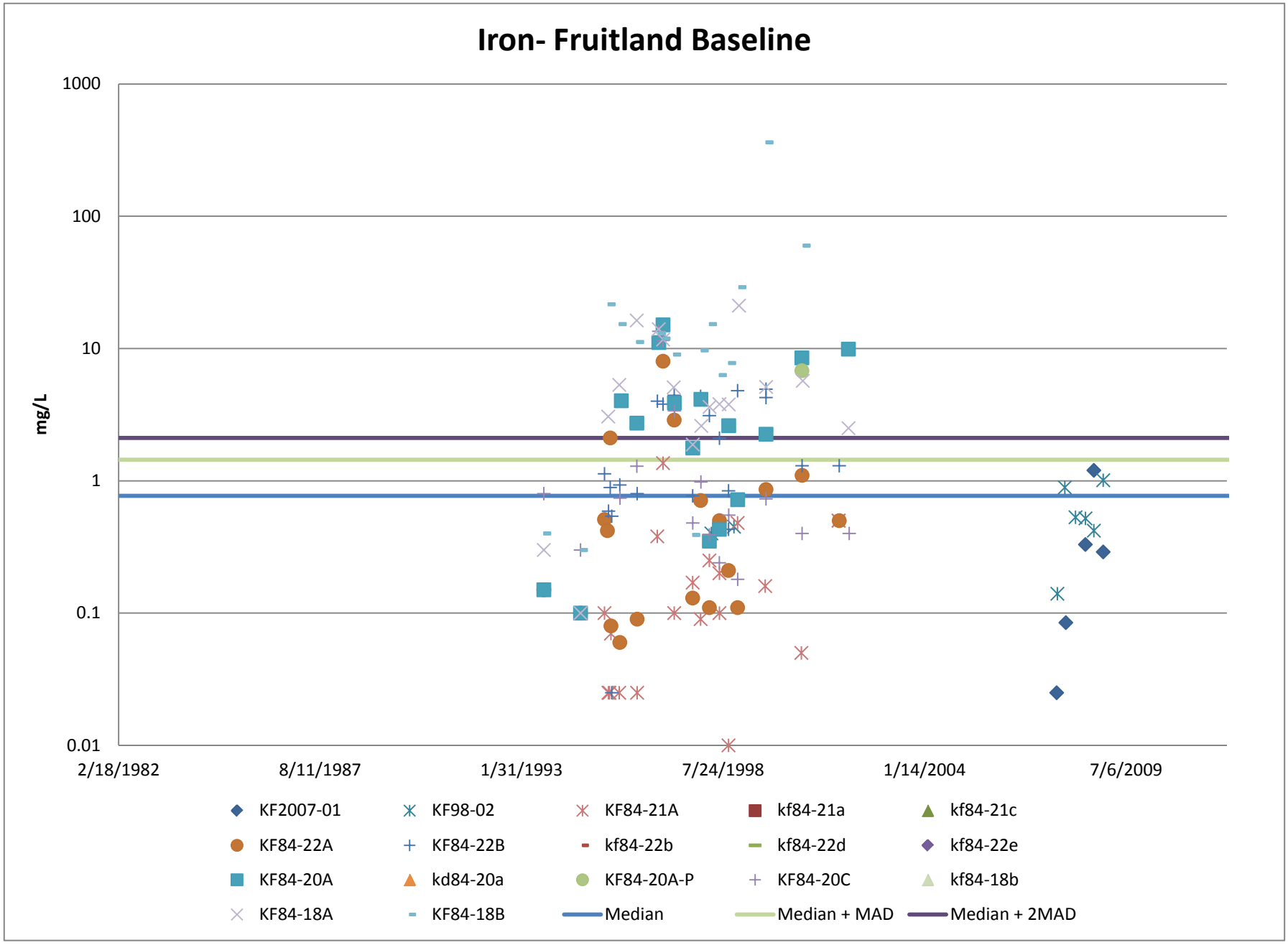

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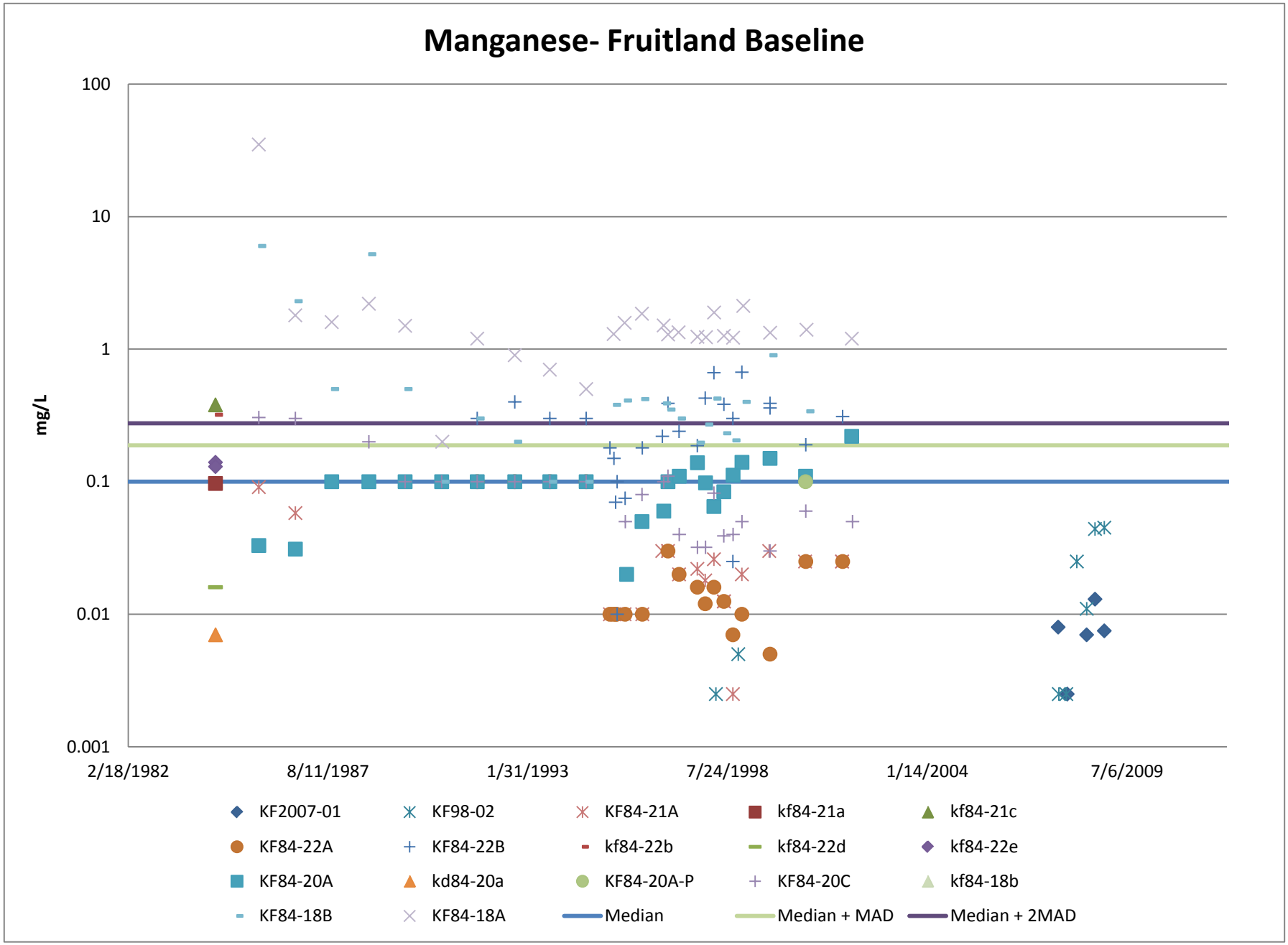

Appendix F - Groundwater Data Summary

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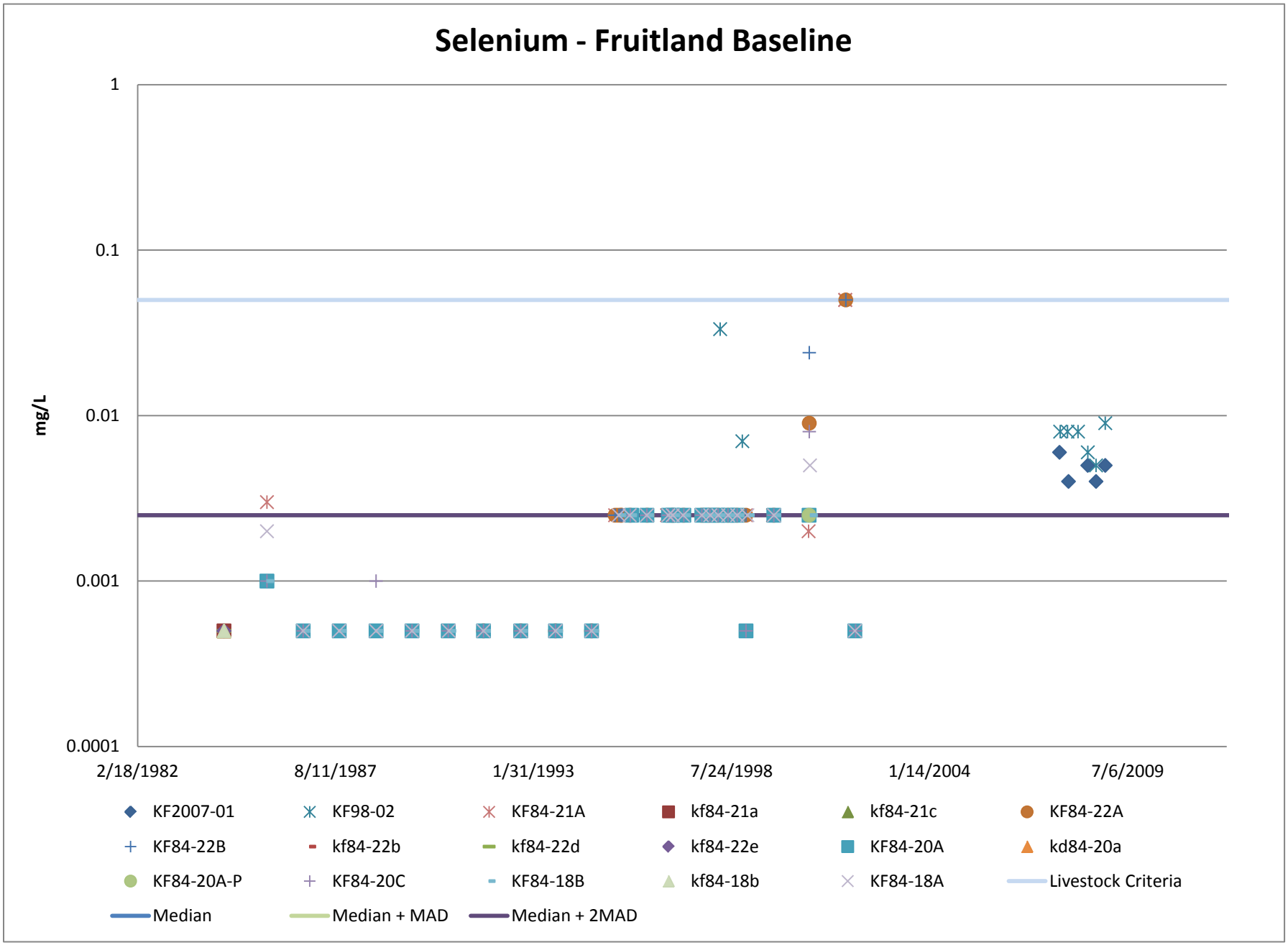

Appendix F - Groundwater Data Summary

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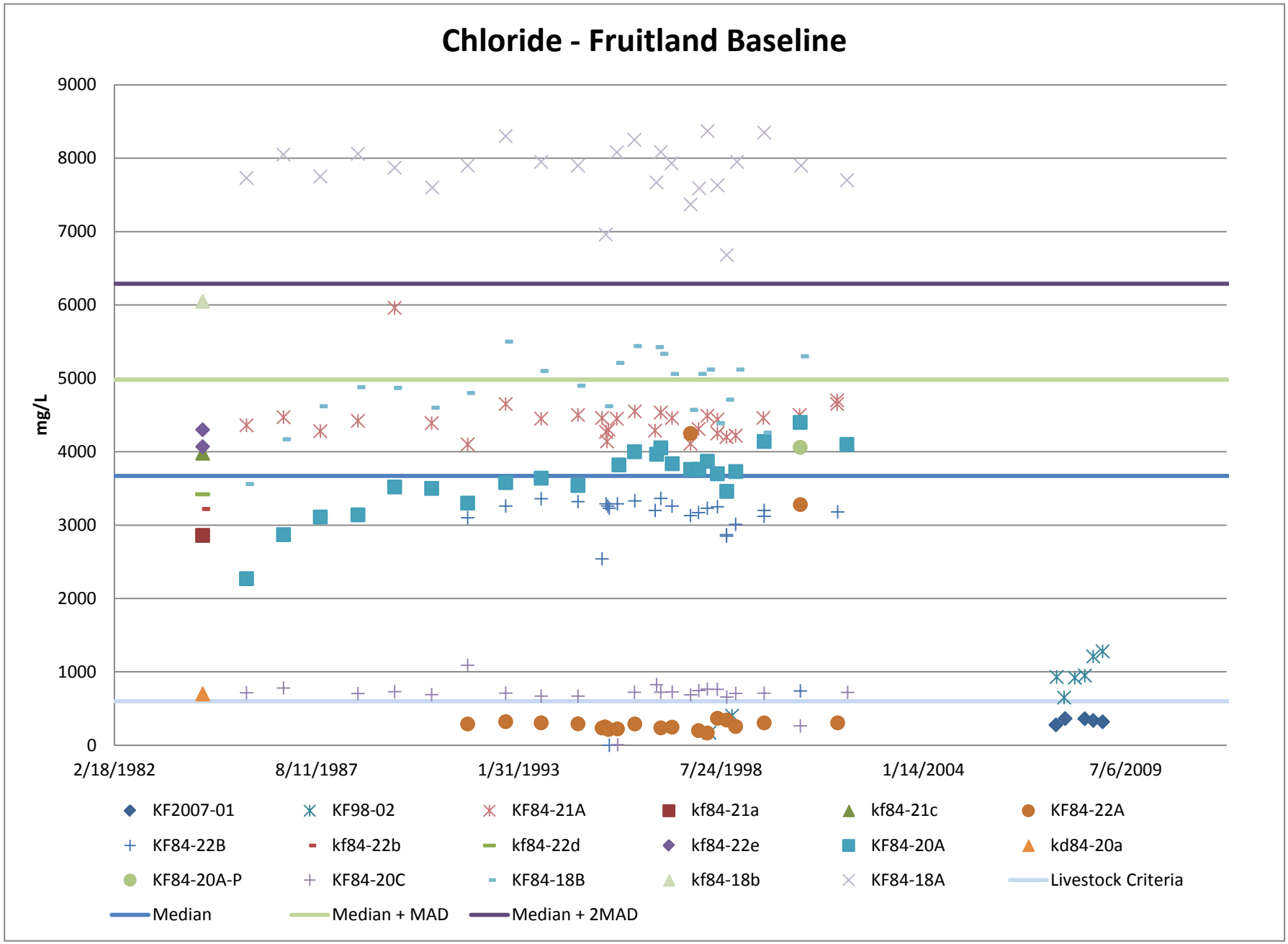

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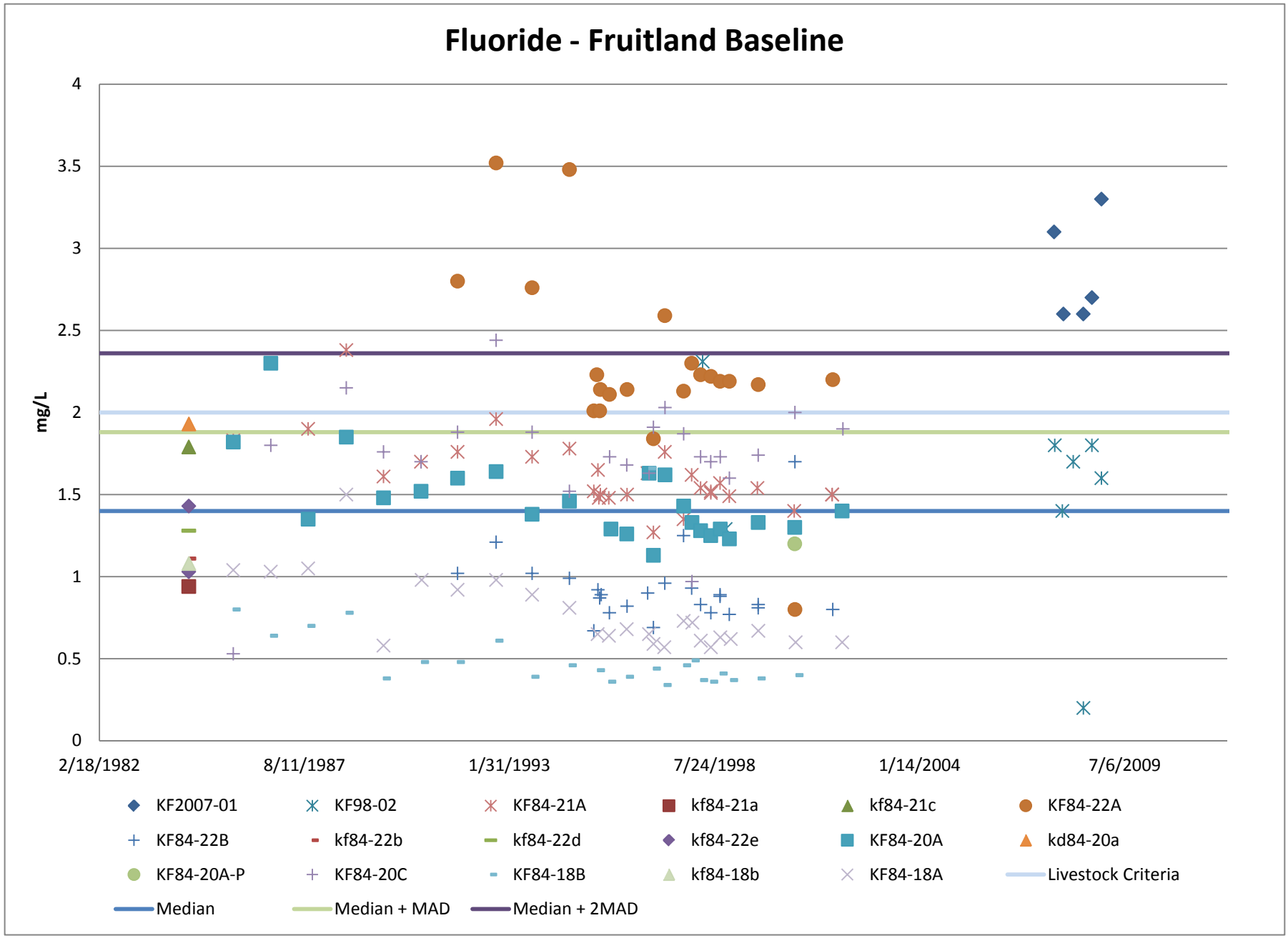

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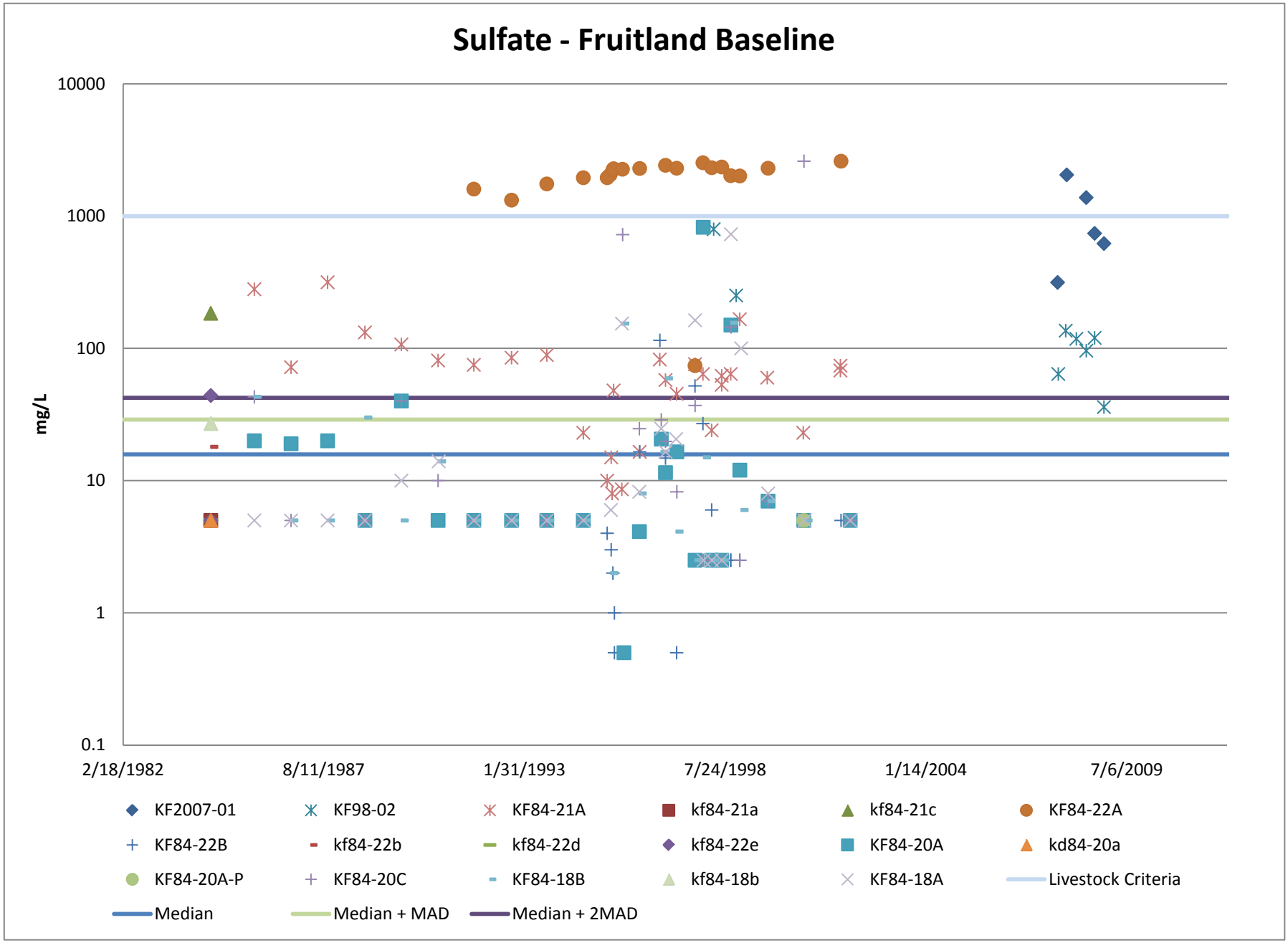

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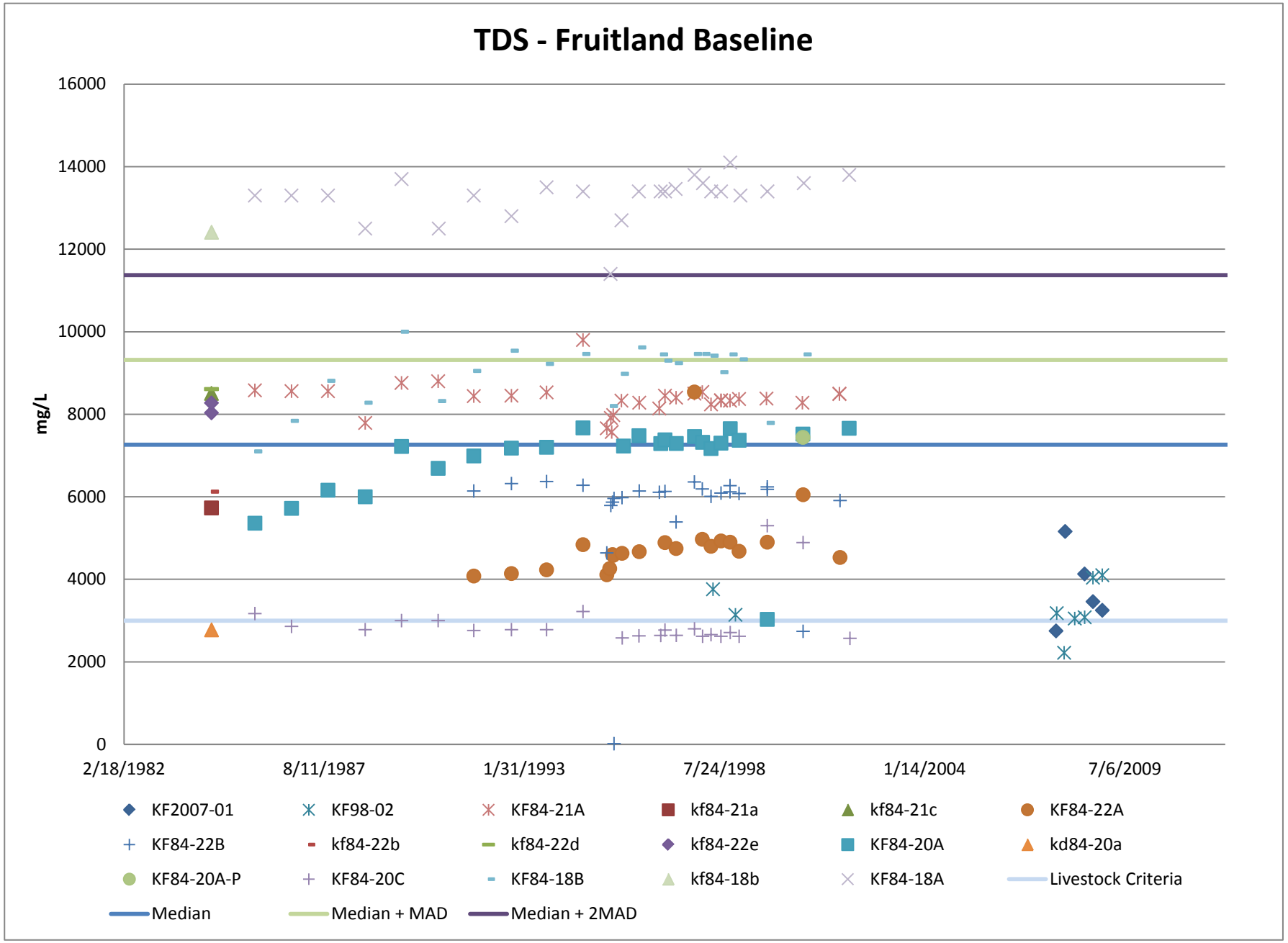
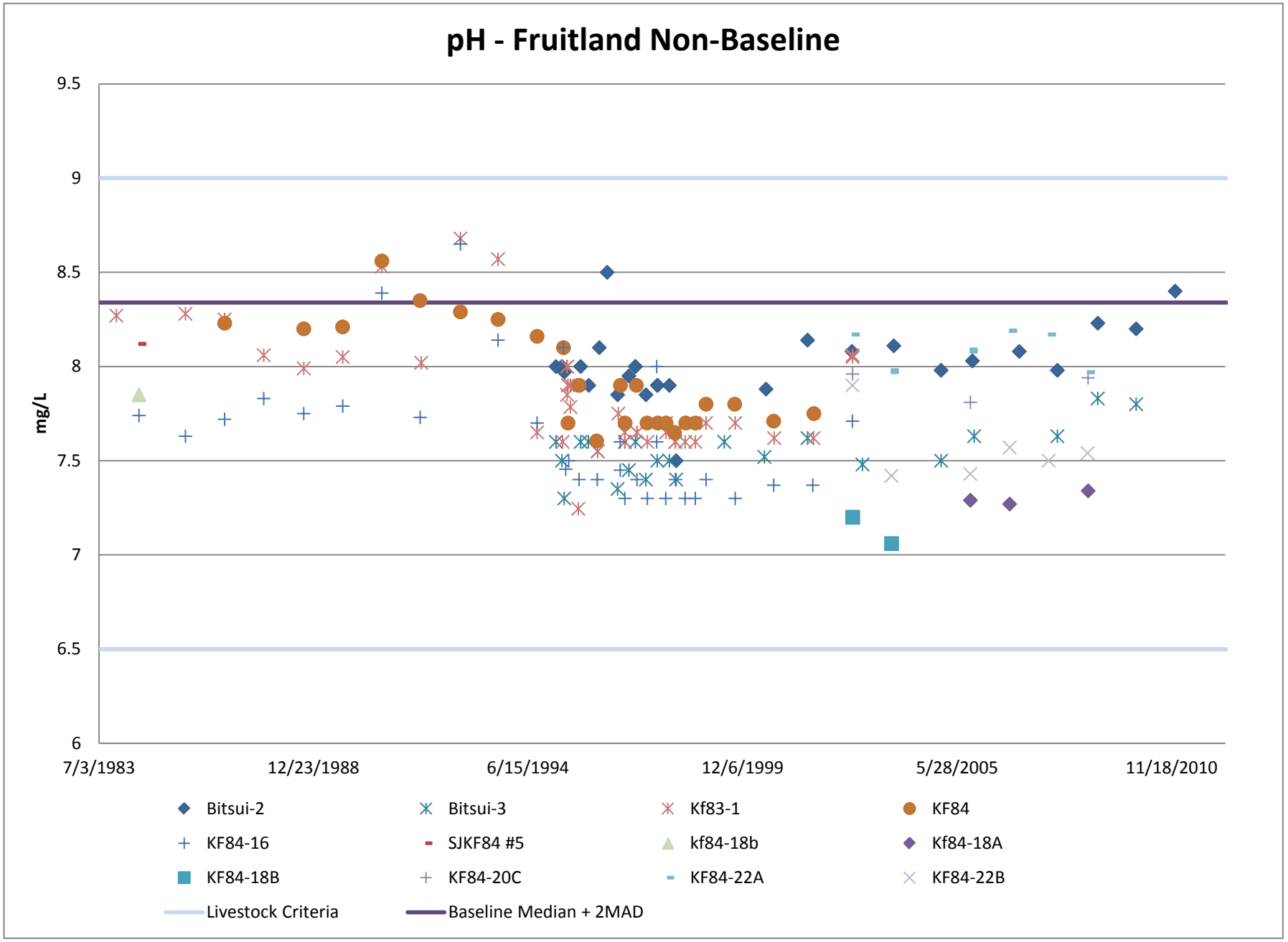


Appendix F - Groundwater Data Summary

Non Baseline Fruitland Graphs



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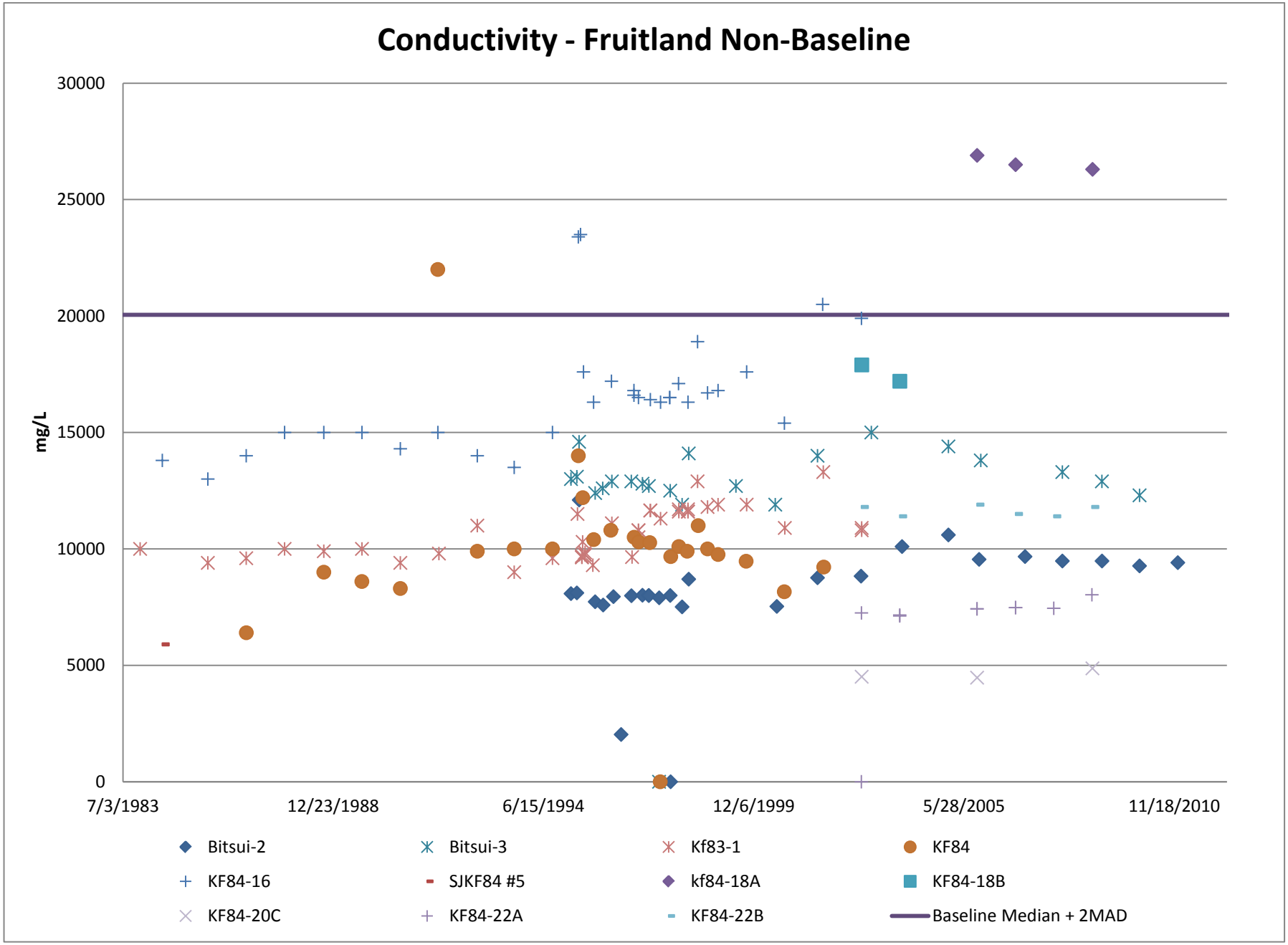

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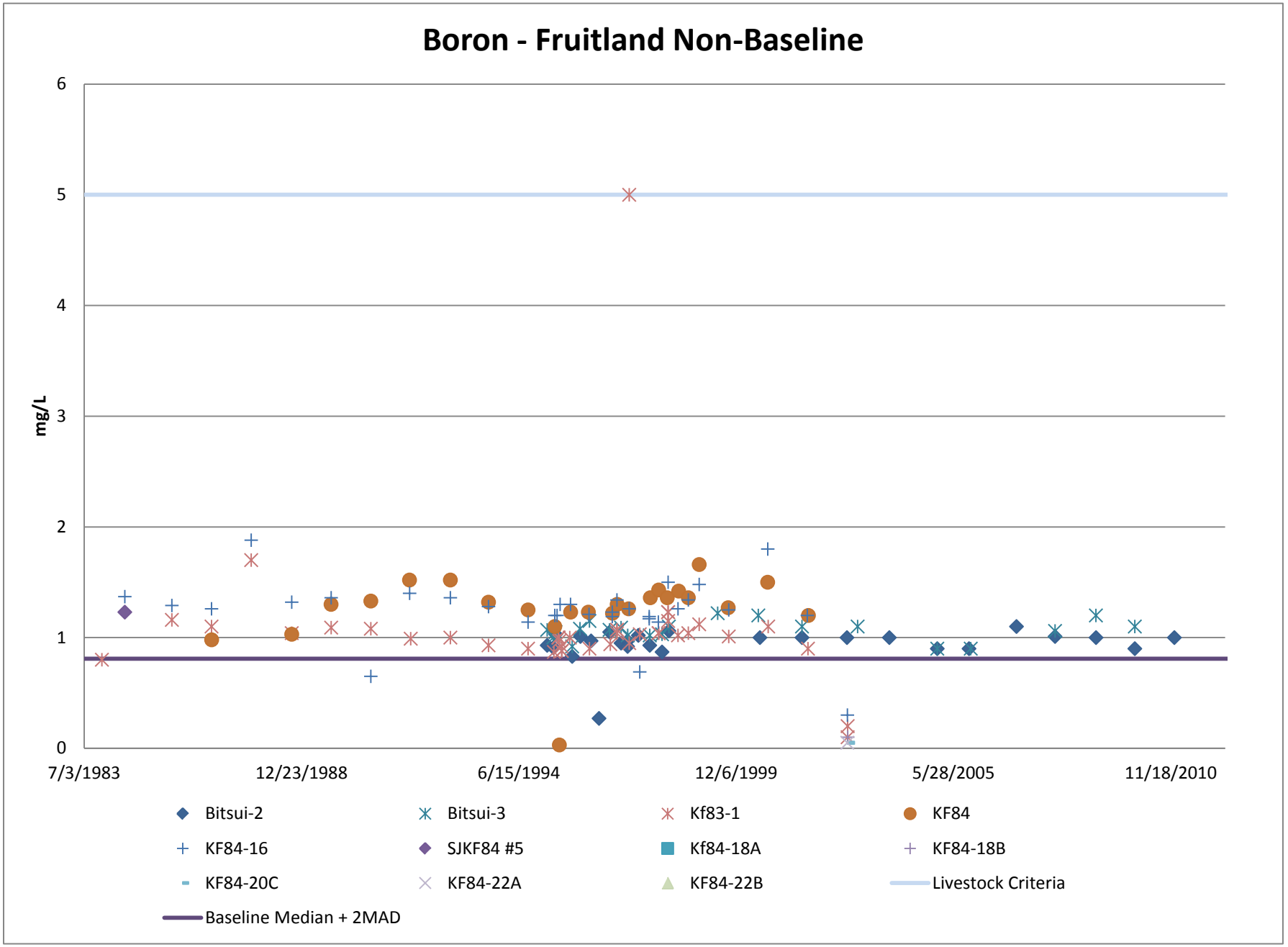

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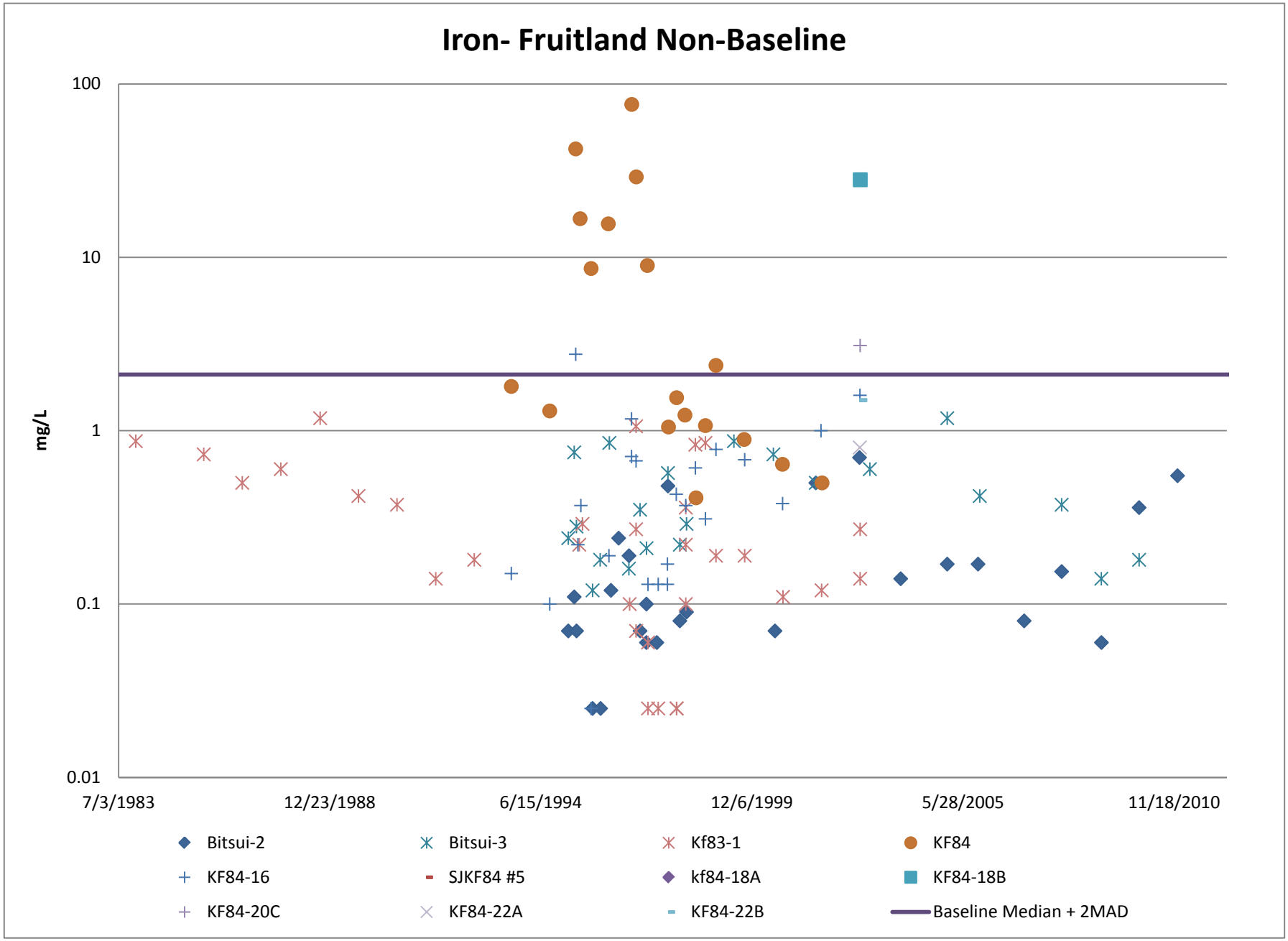

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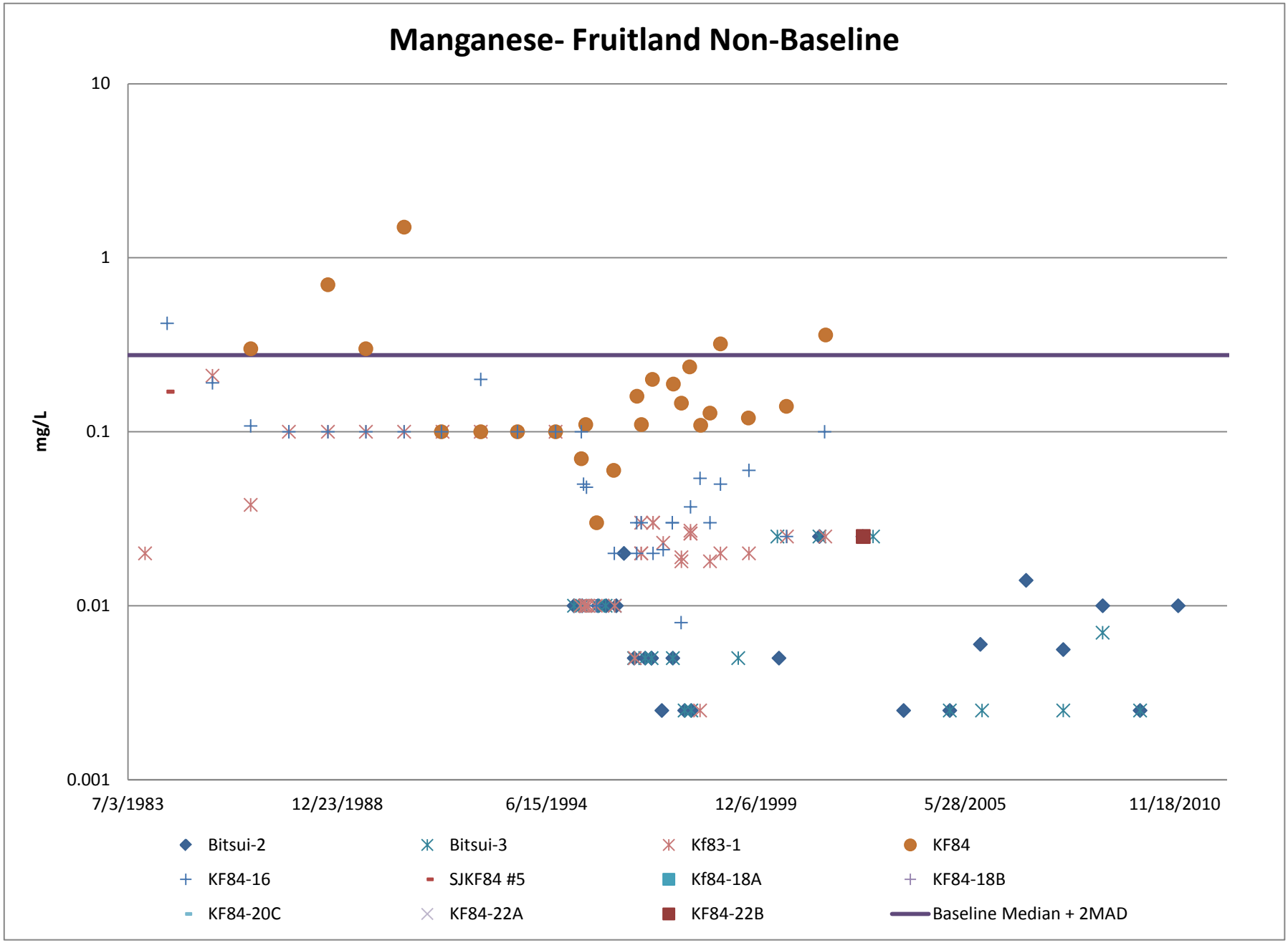

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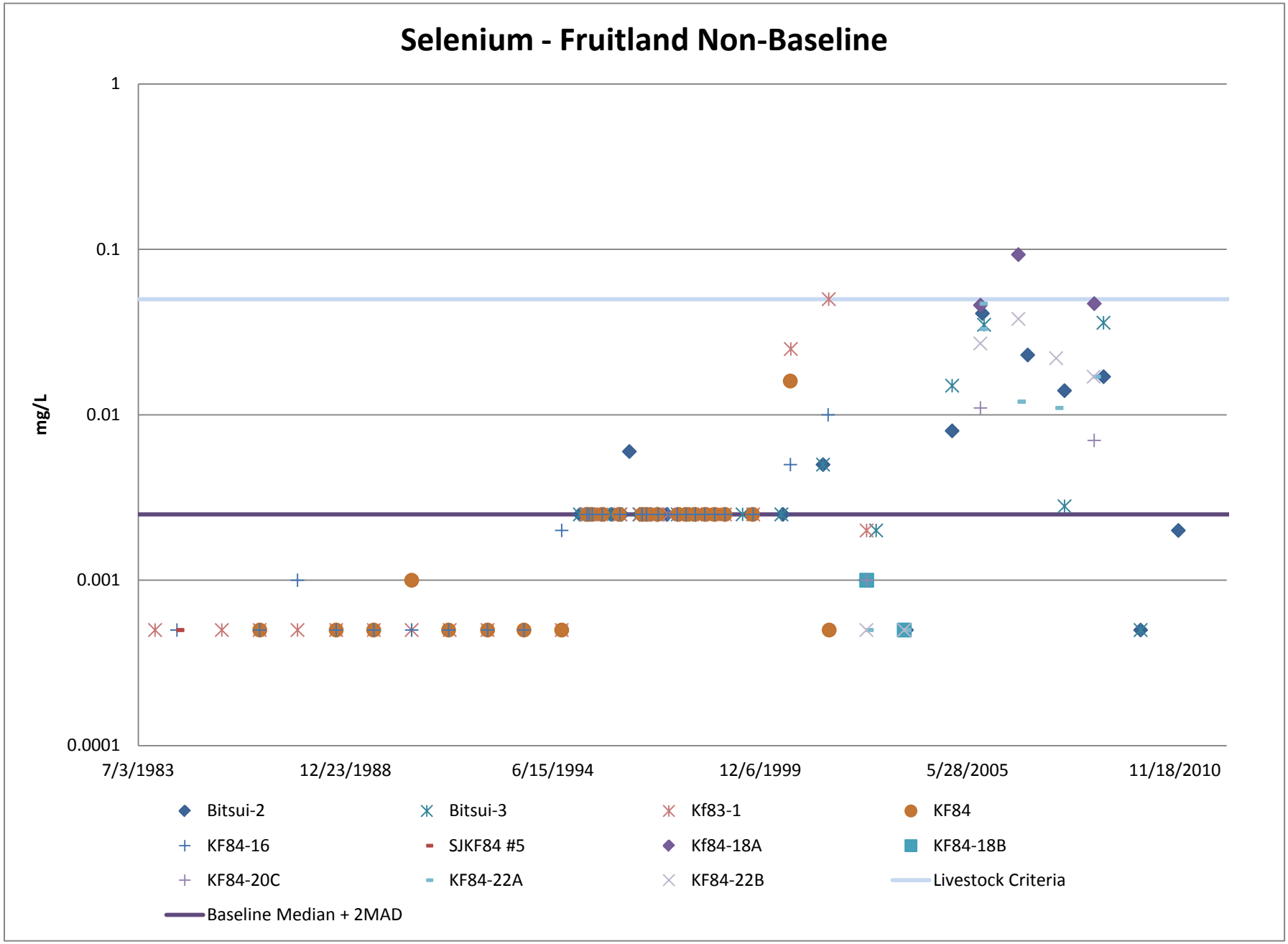

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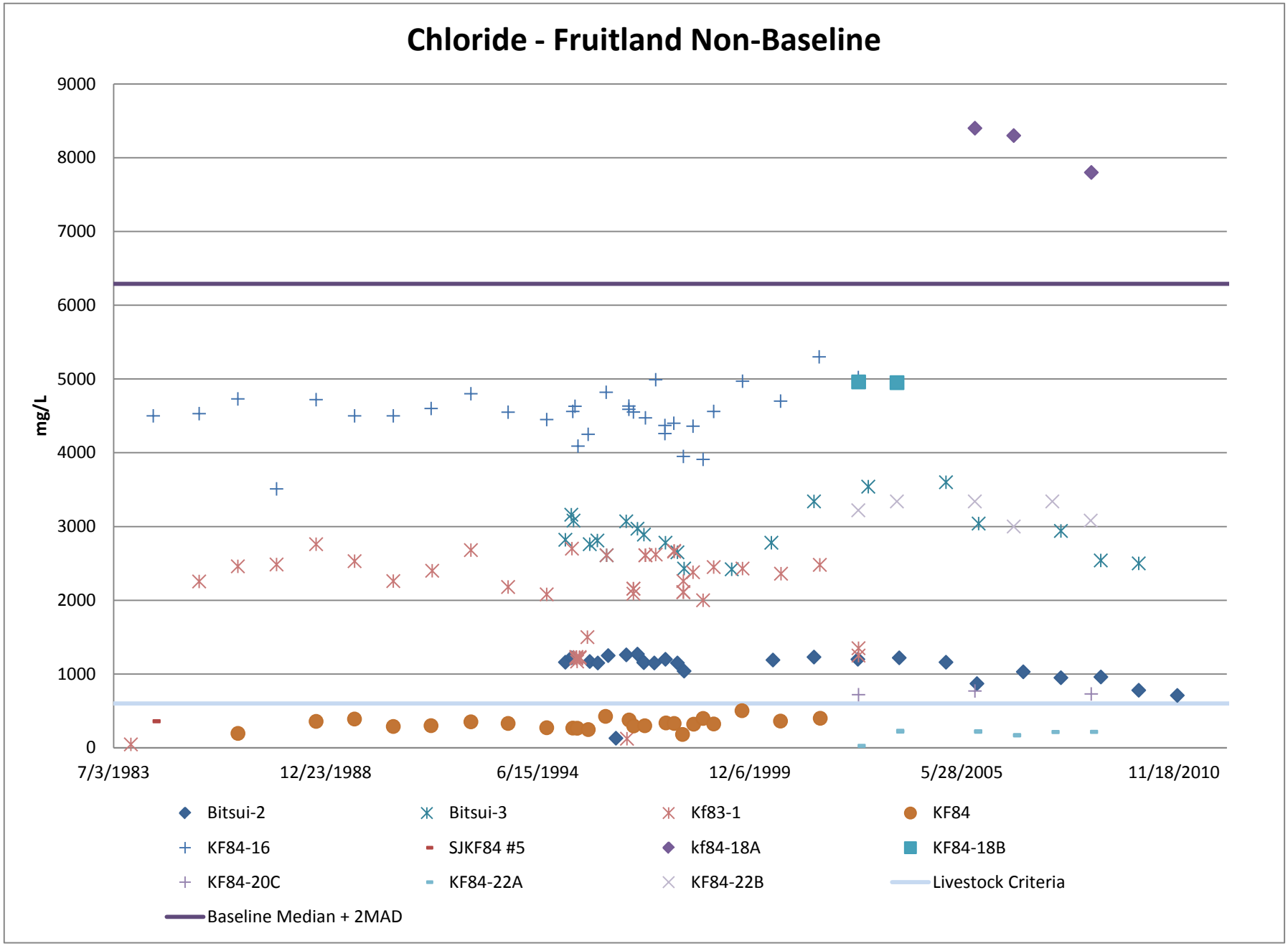

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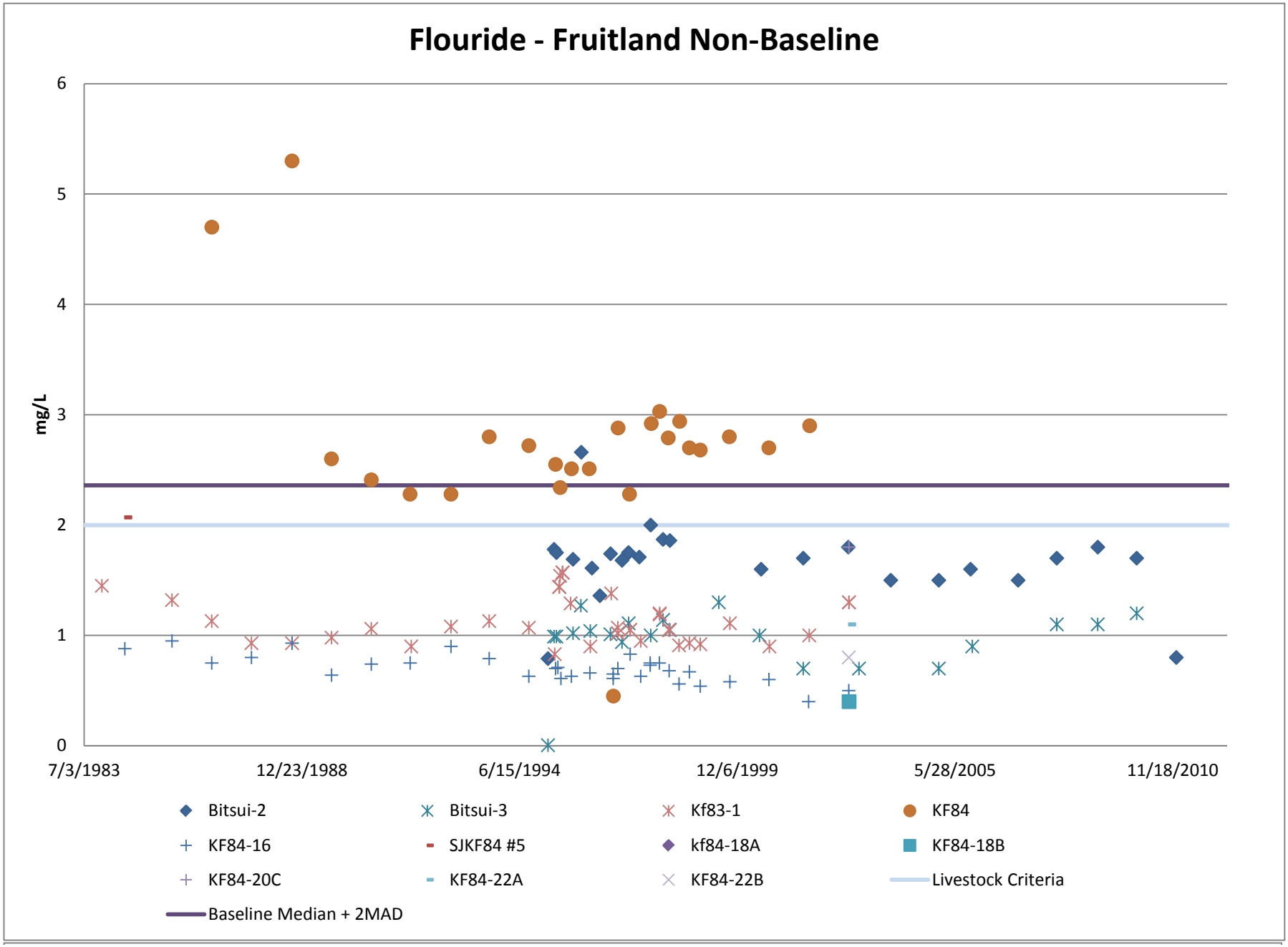

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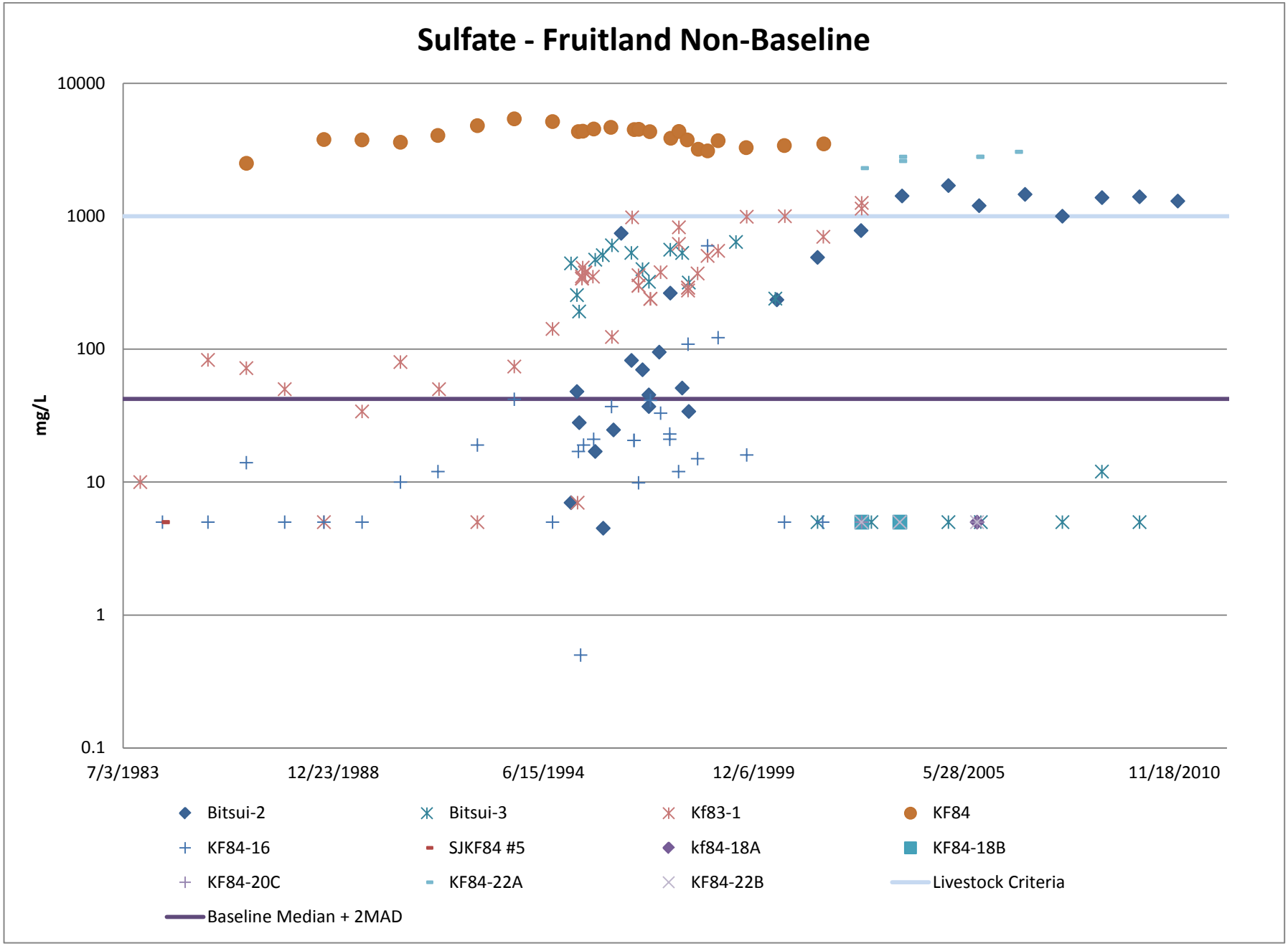

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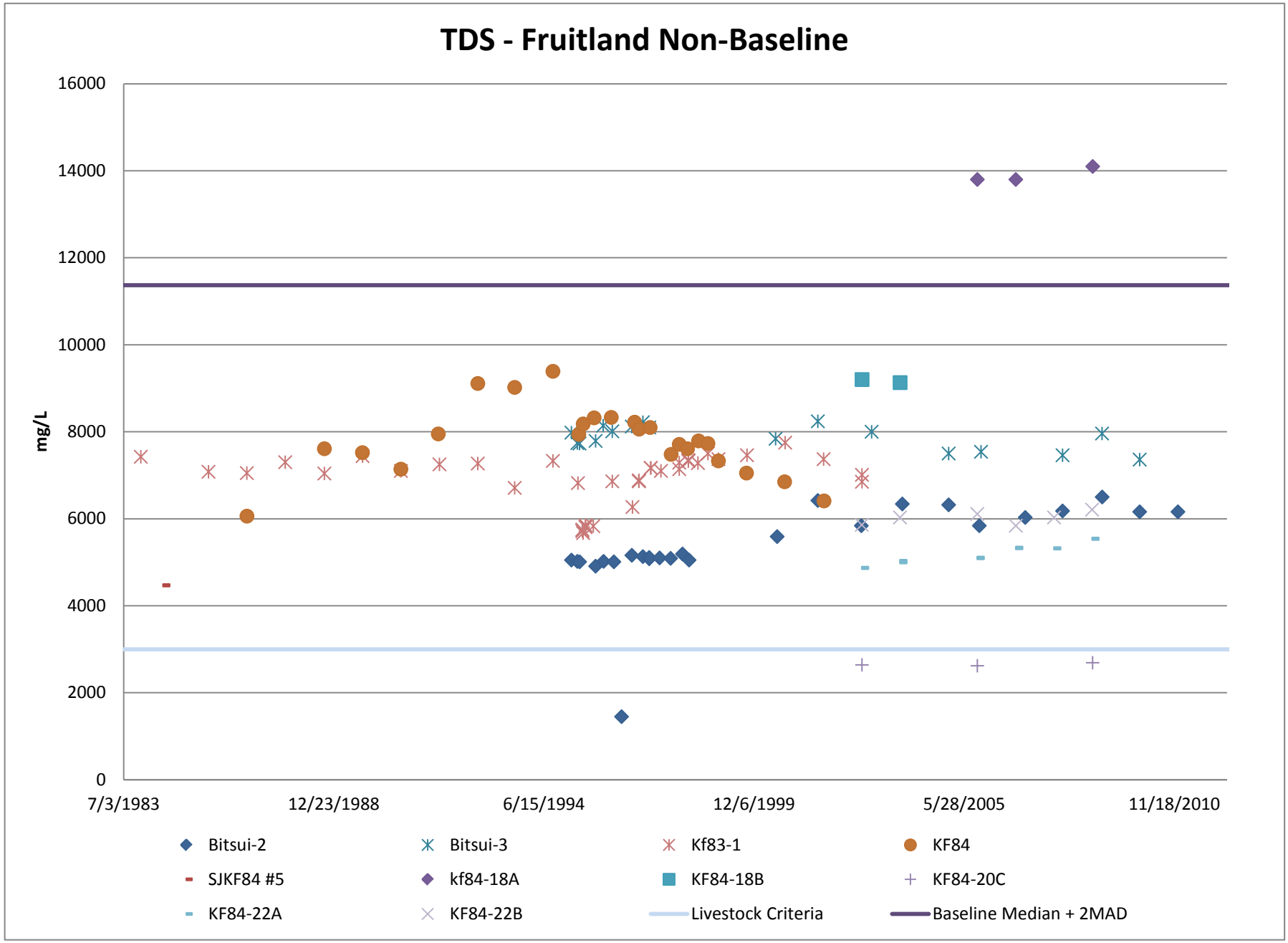
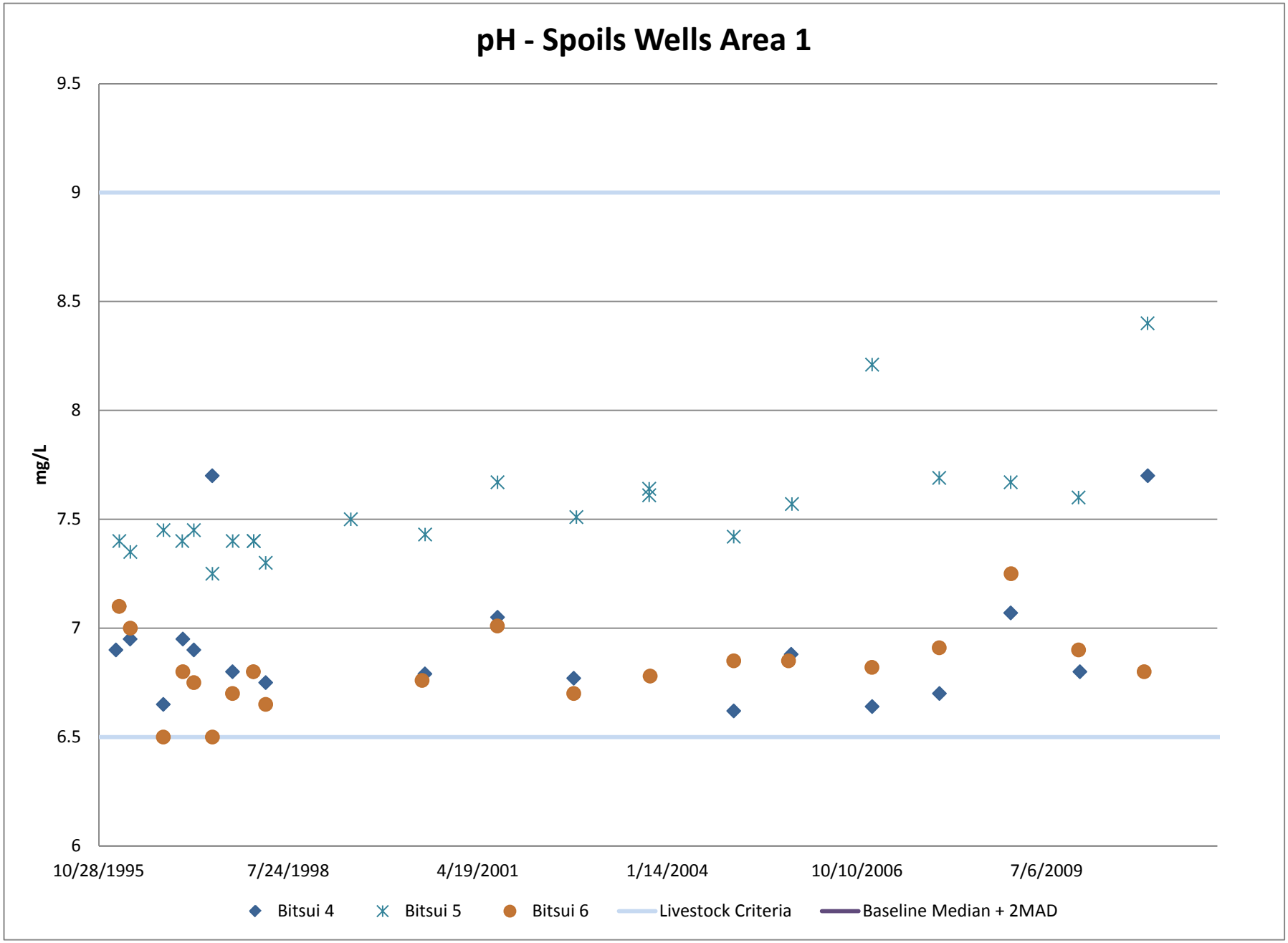


Appendix F - Groundwater Data Summary

Area I Spoil Graphs



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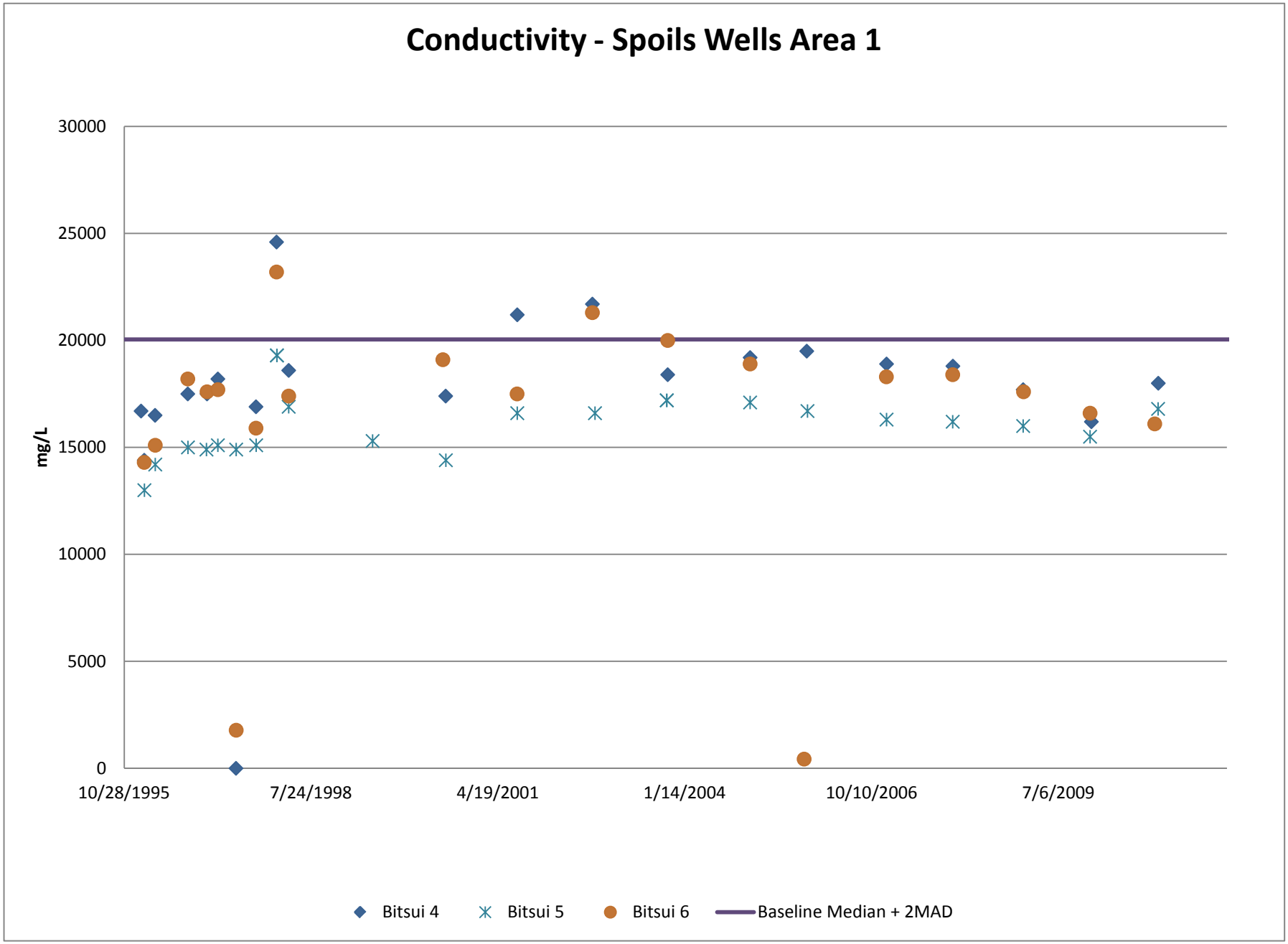

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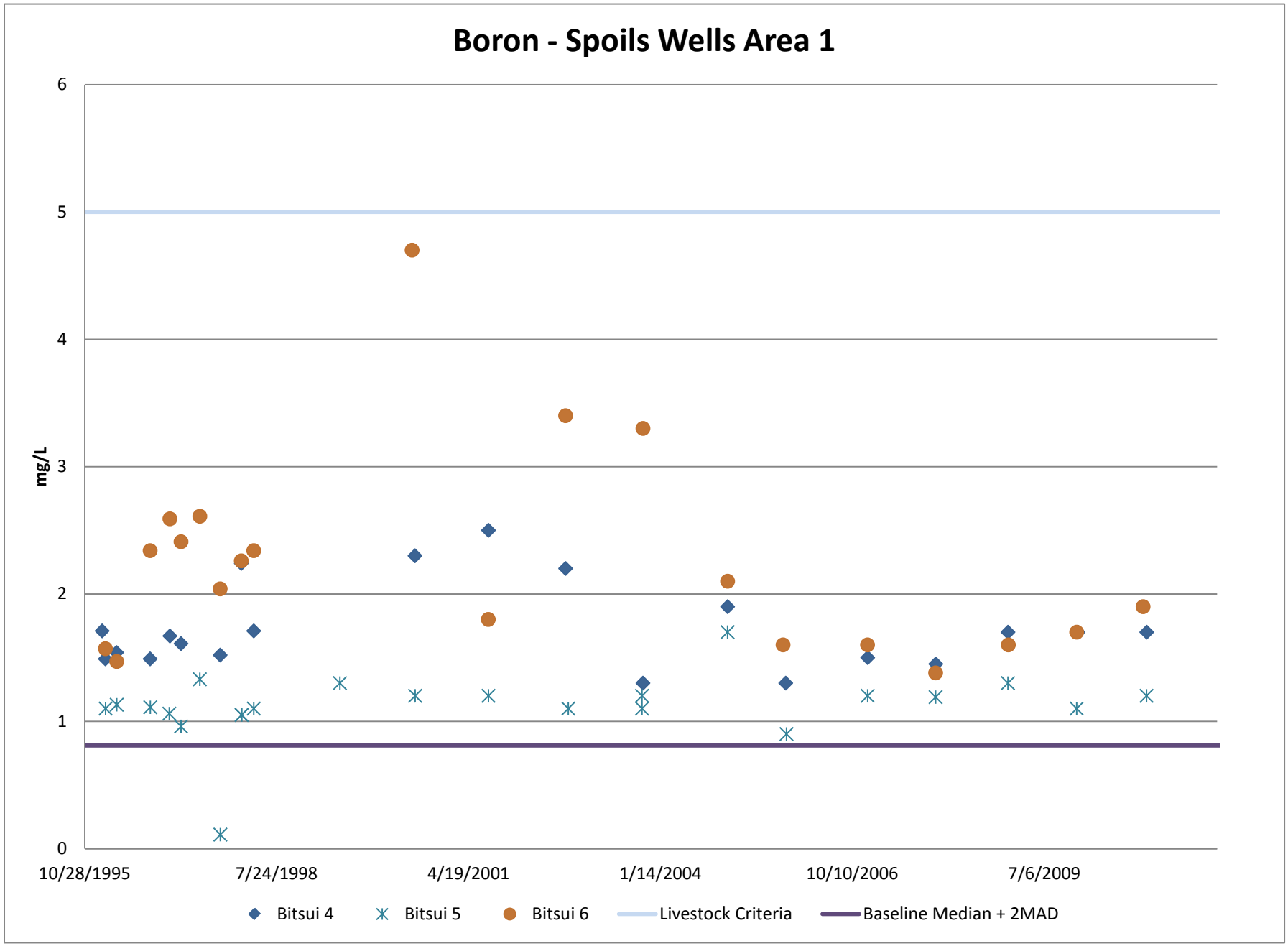

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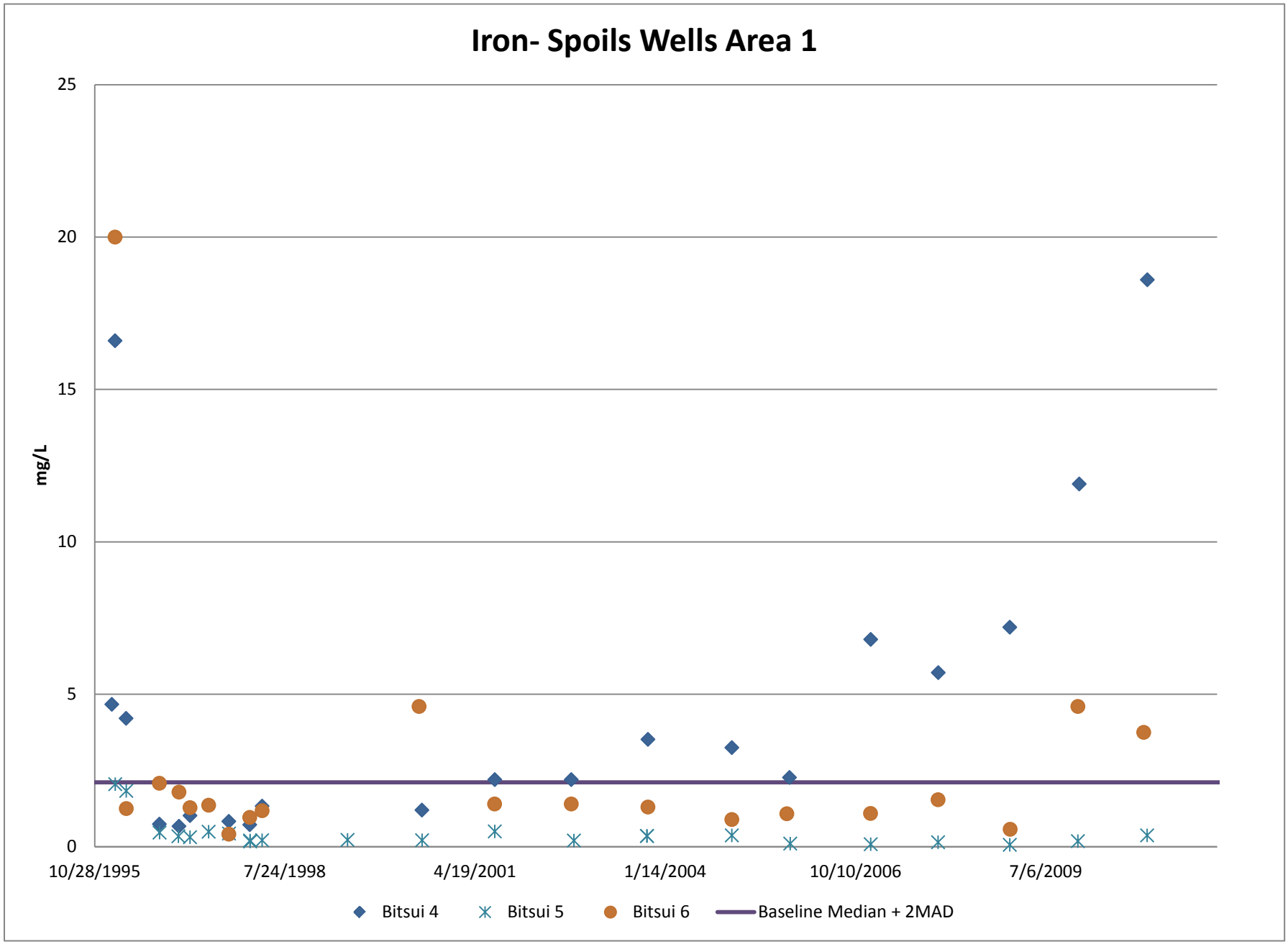

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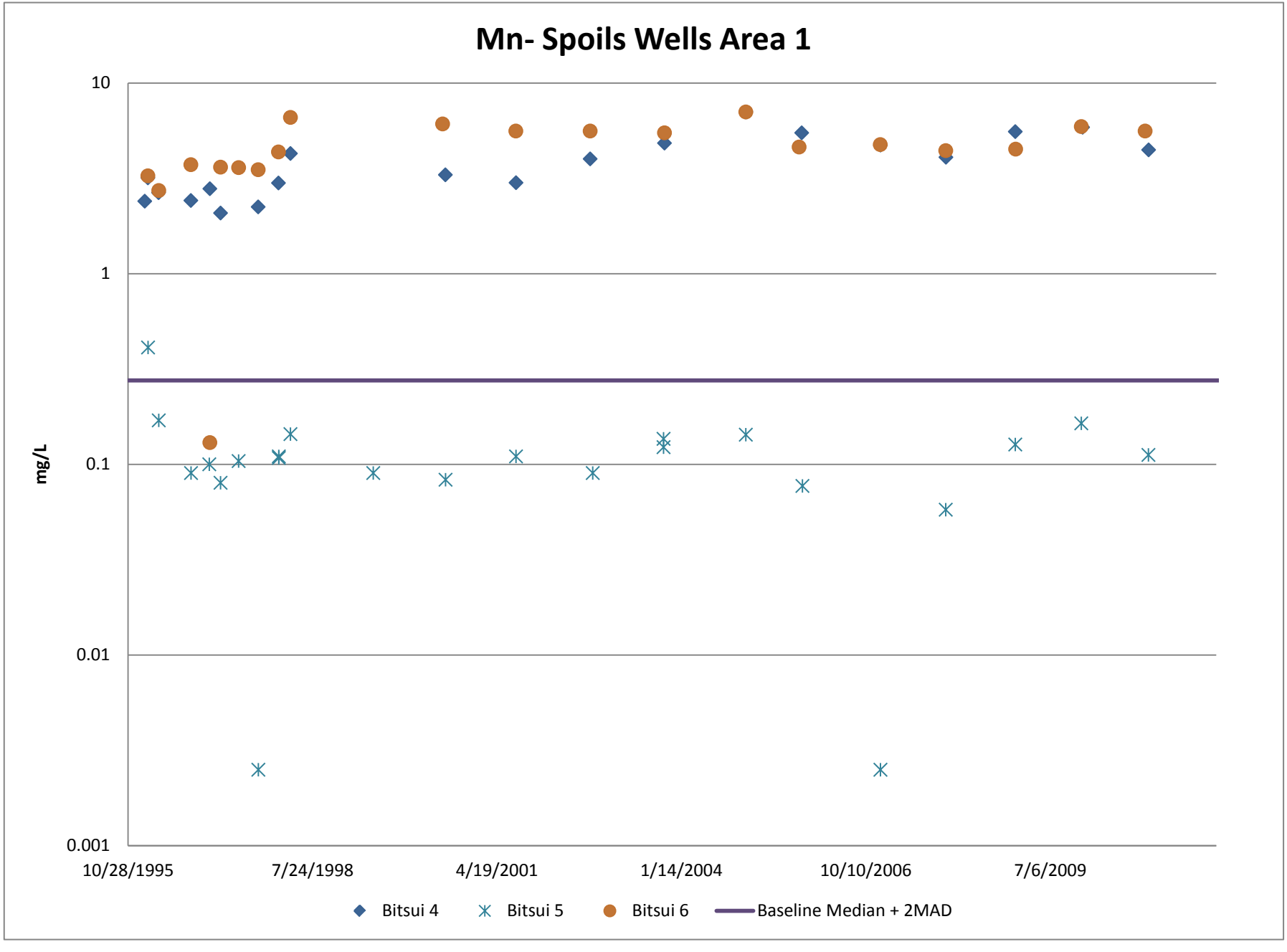

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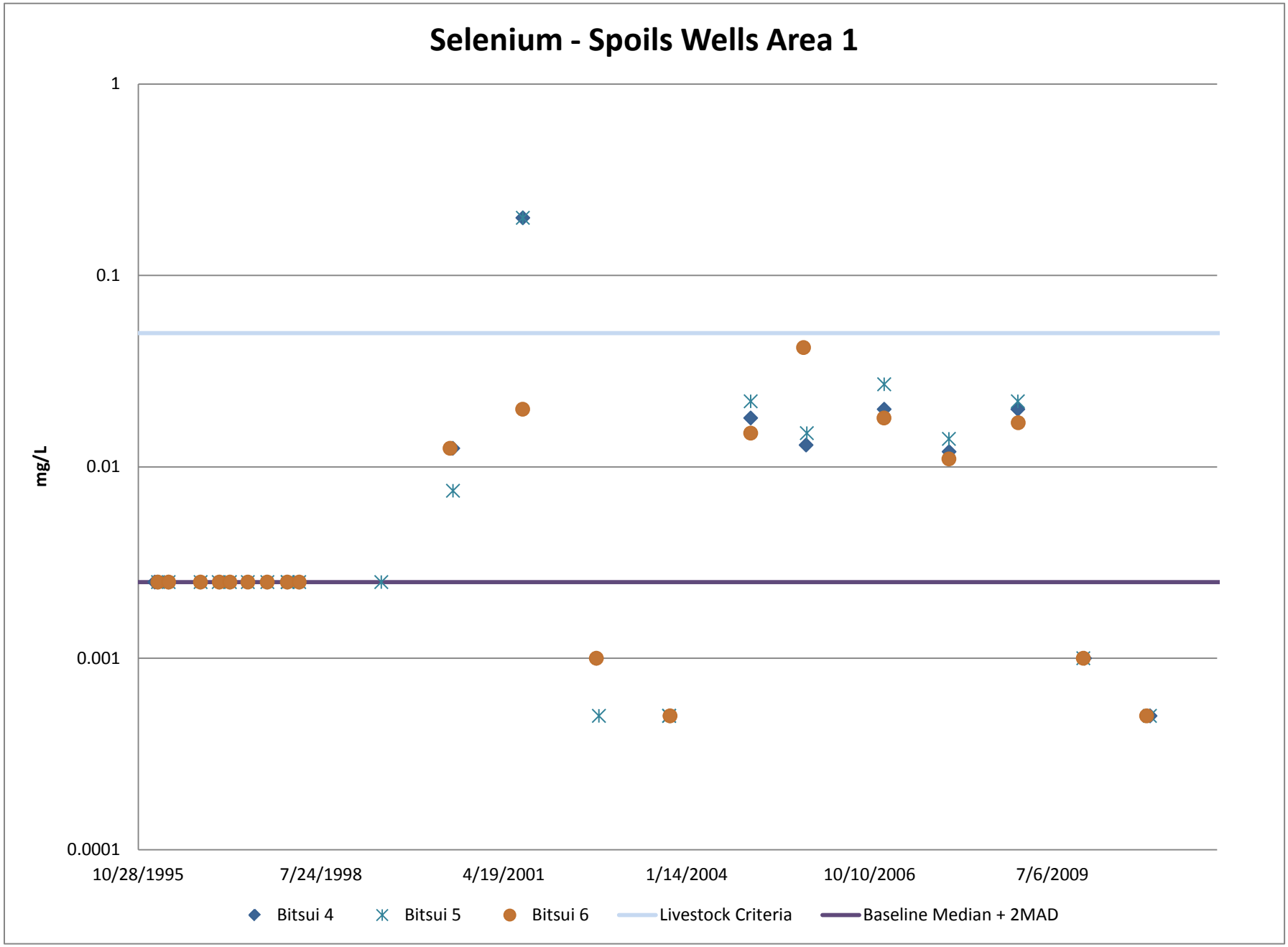

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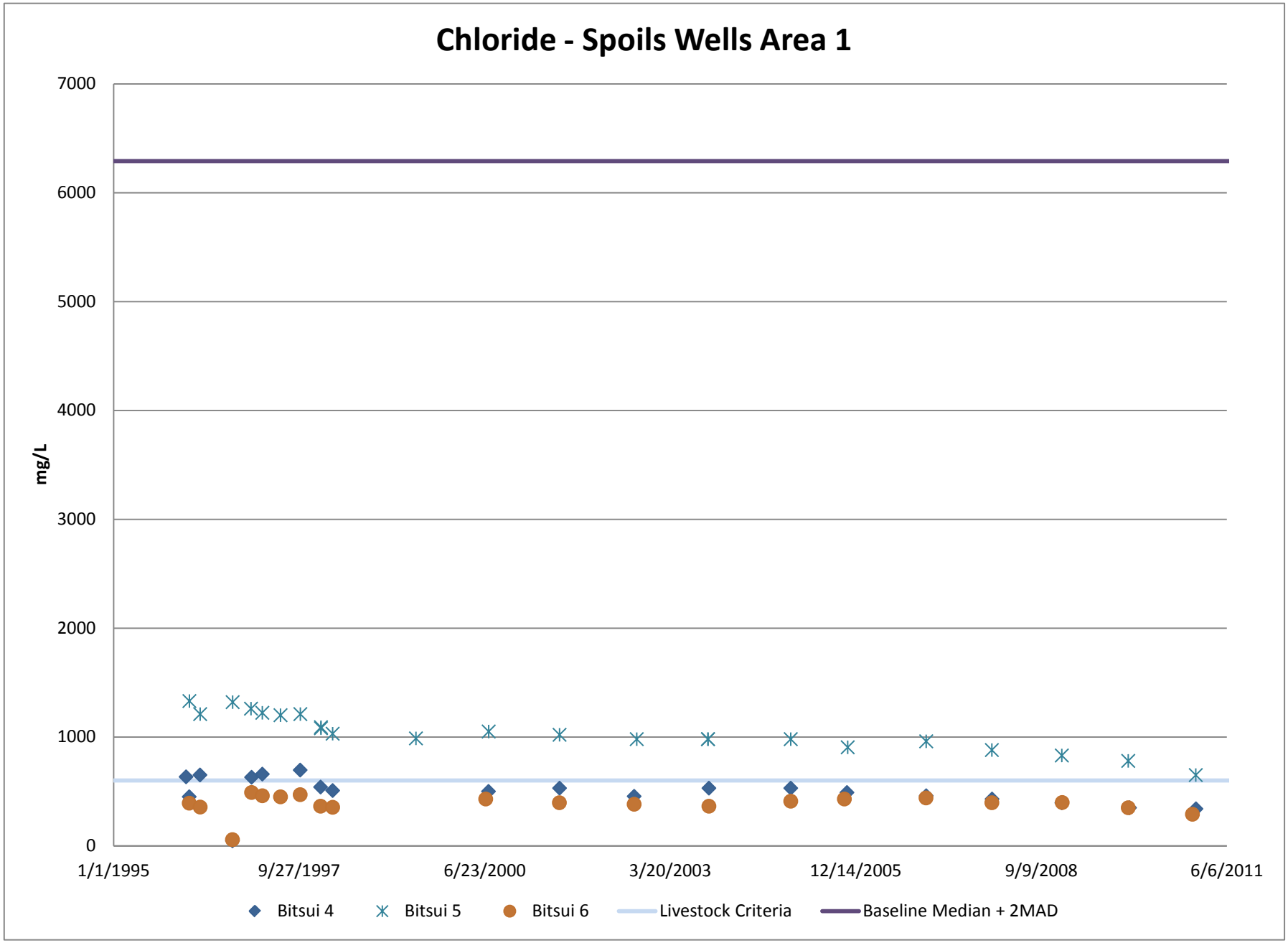

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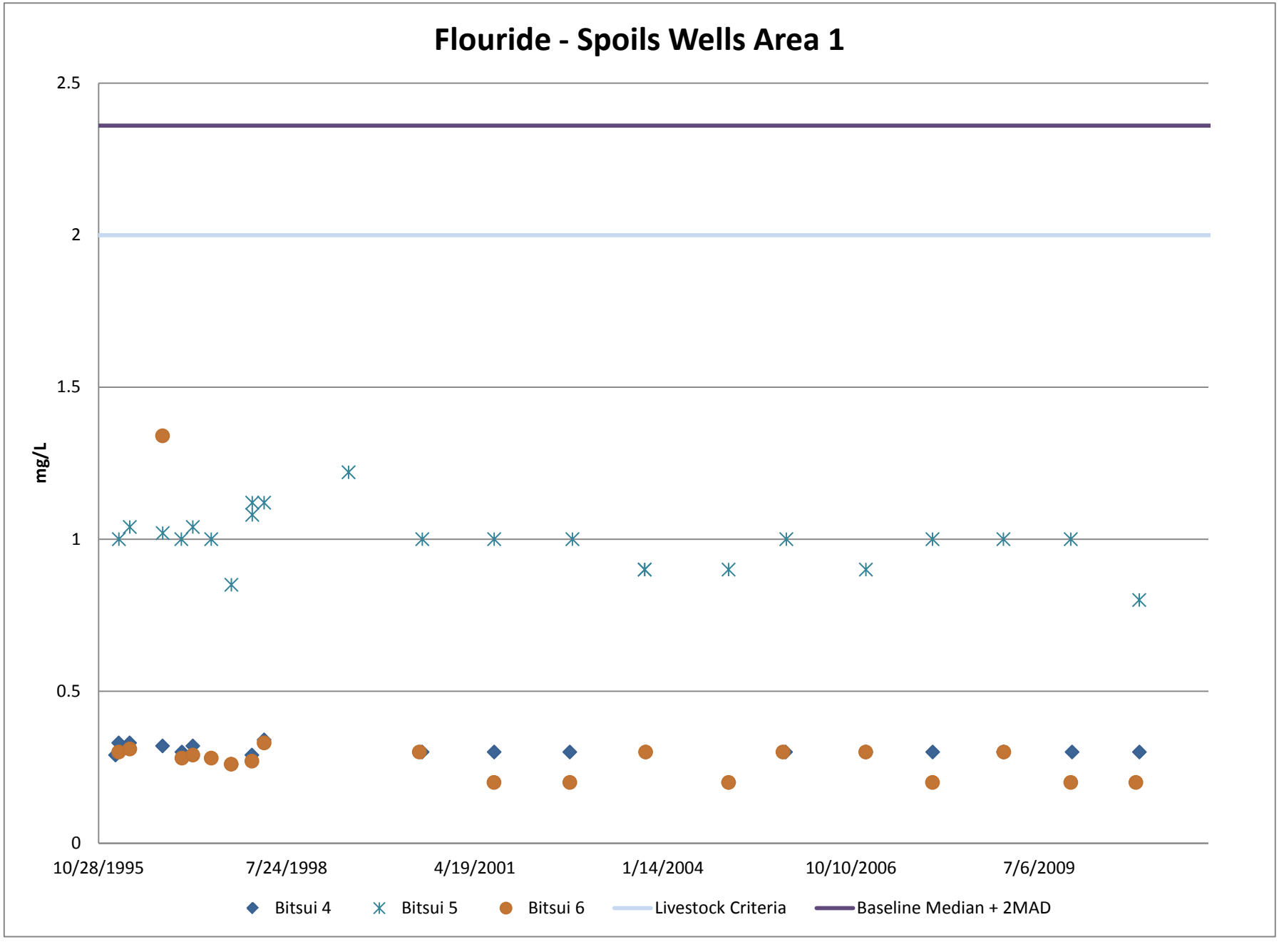

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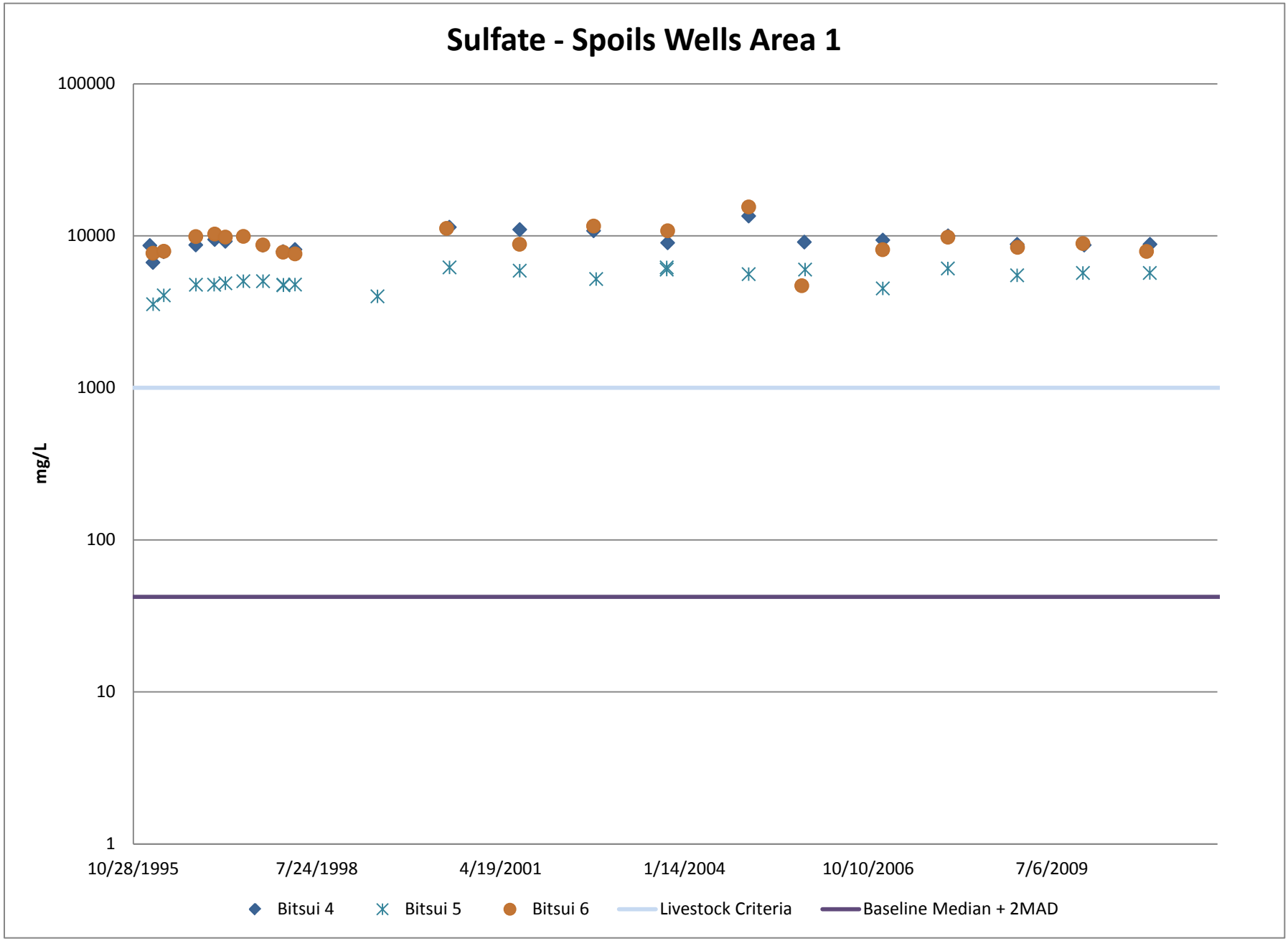

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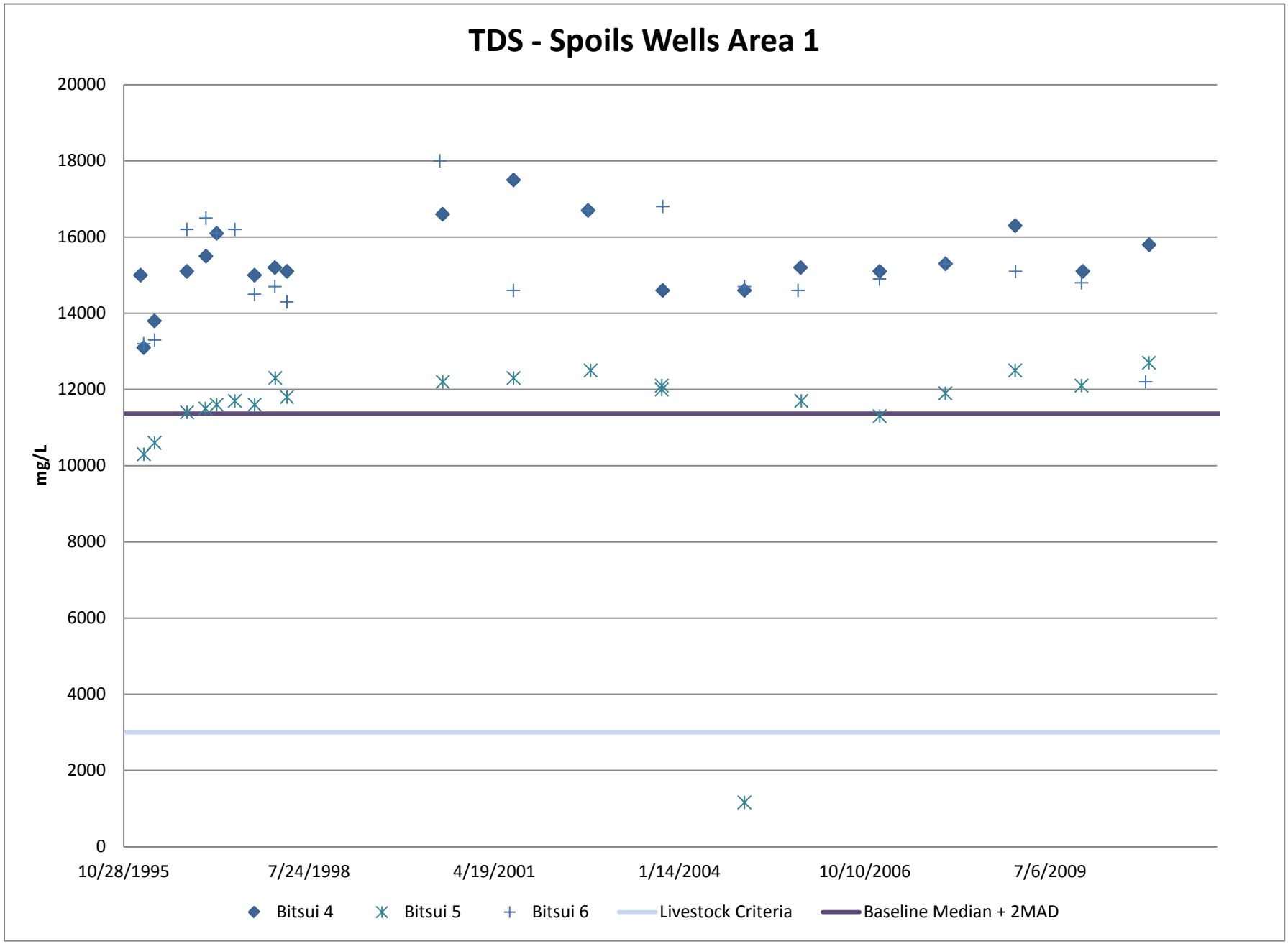
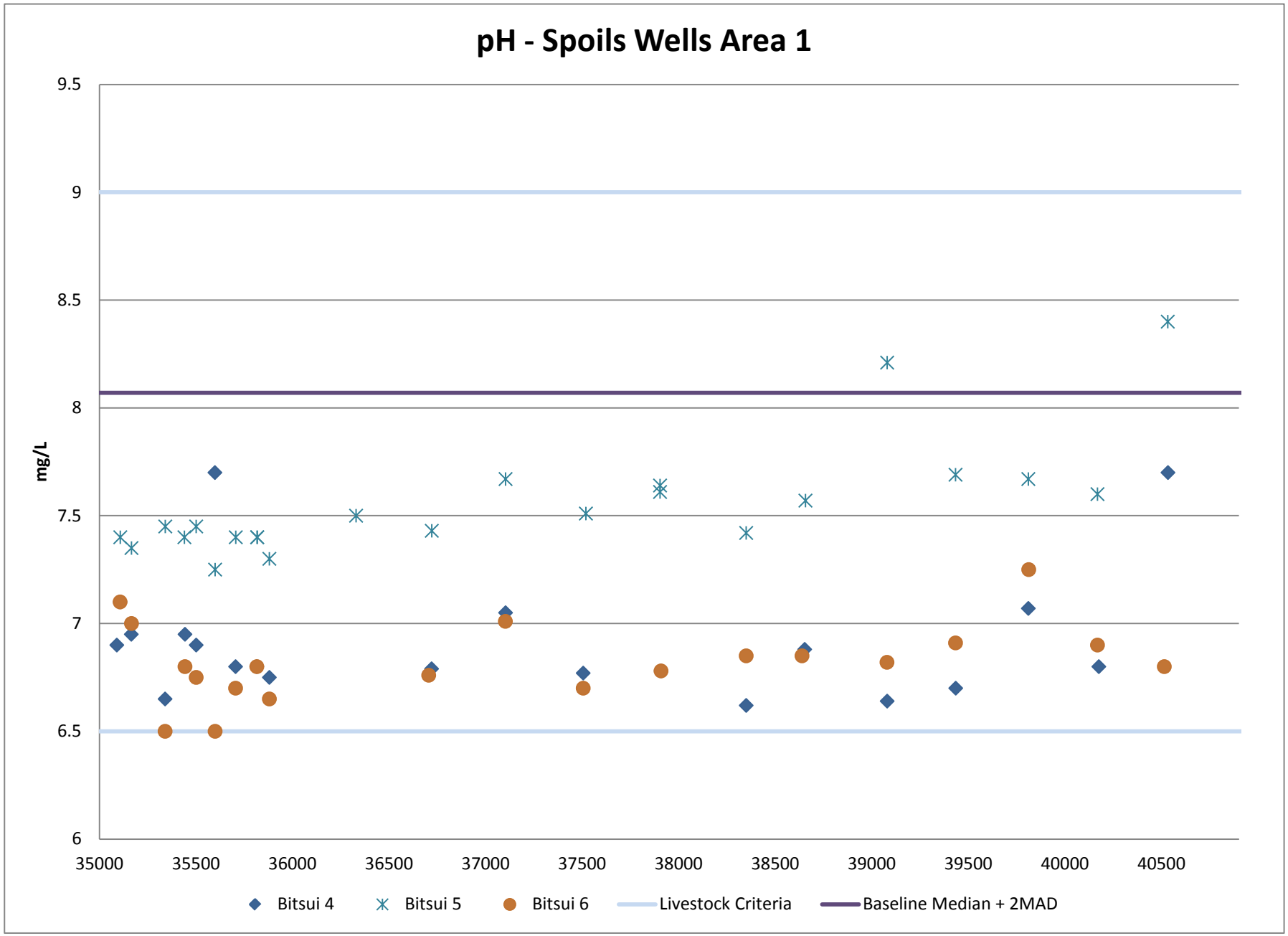


Appendix F - Groundwater Data Summary

CCB Well Graphs



Appendix F - Groundwater Data Summary

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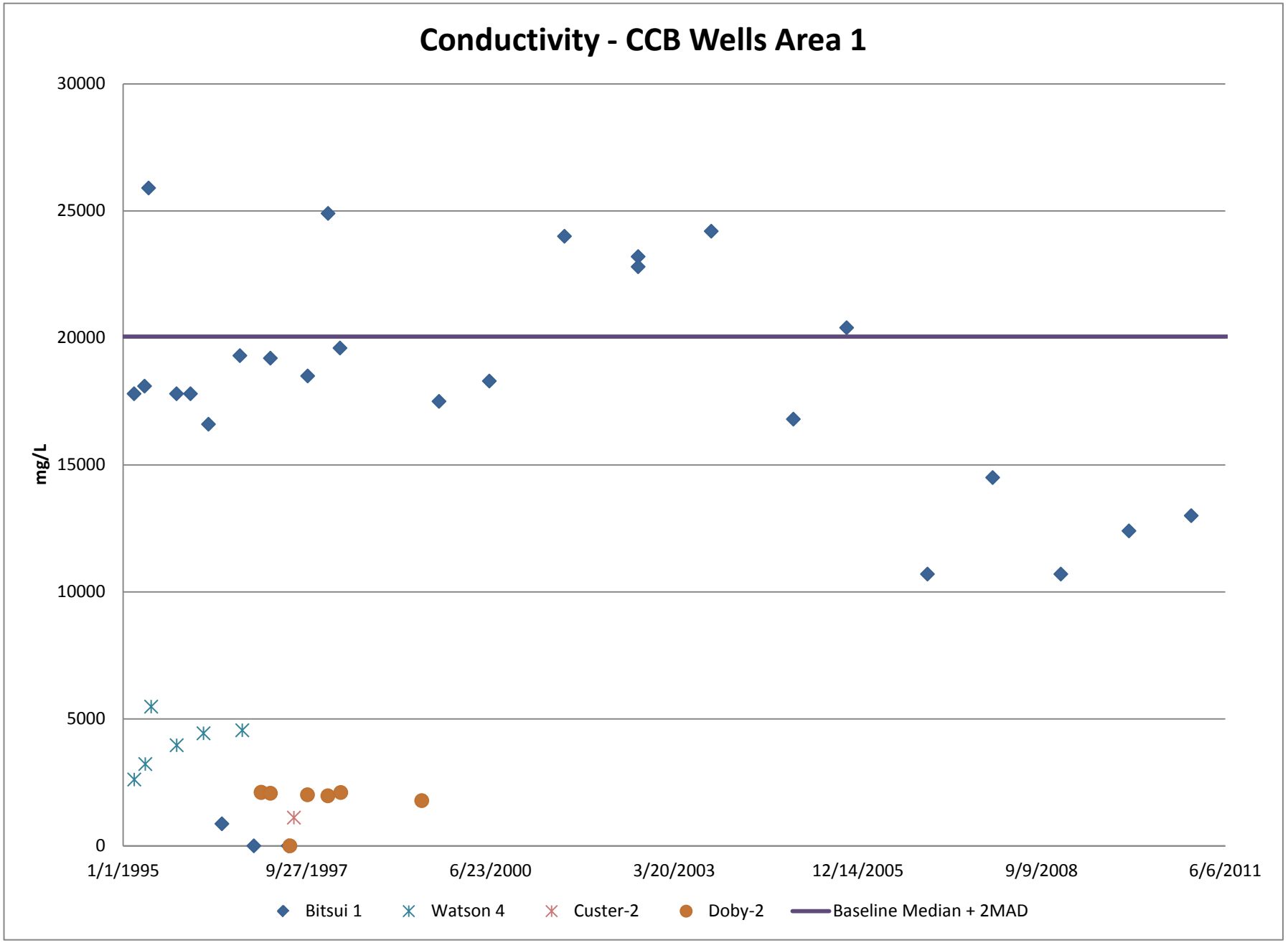

Appendix F - Groundwater Data Summary

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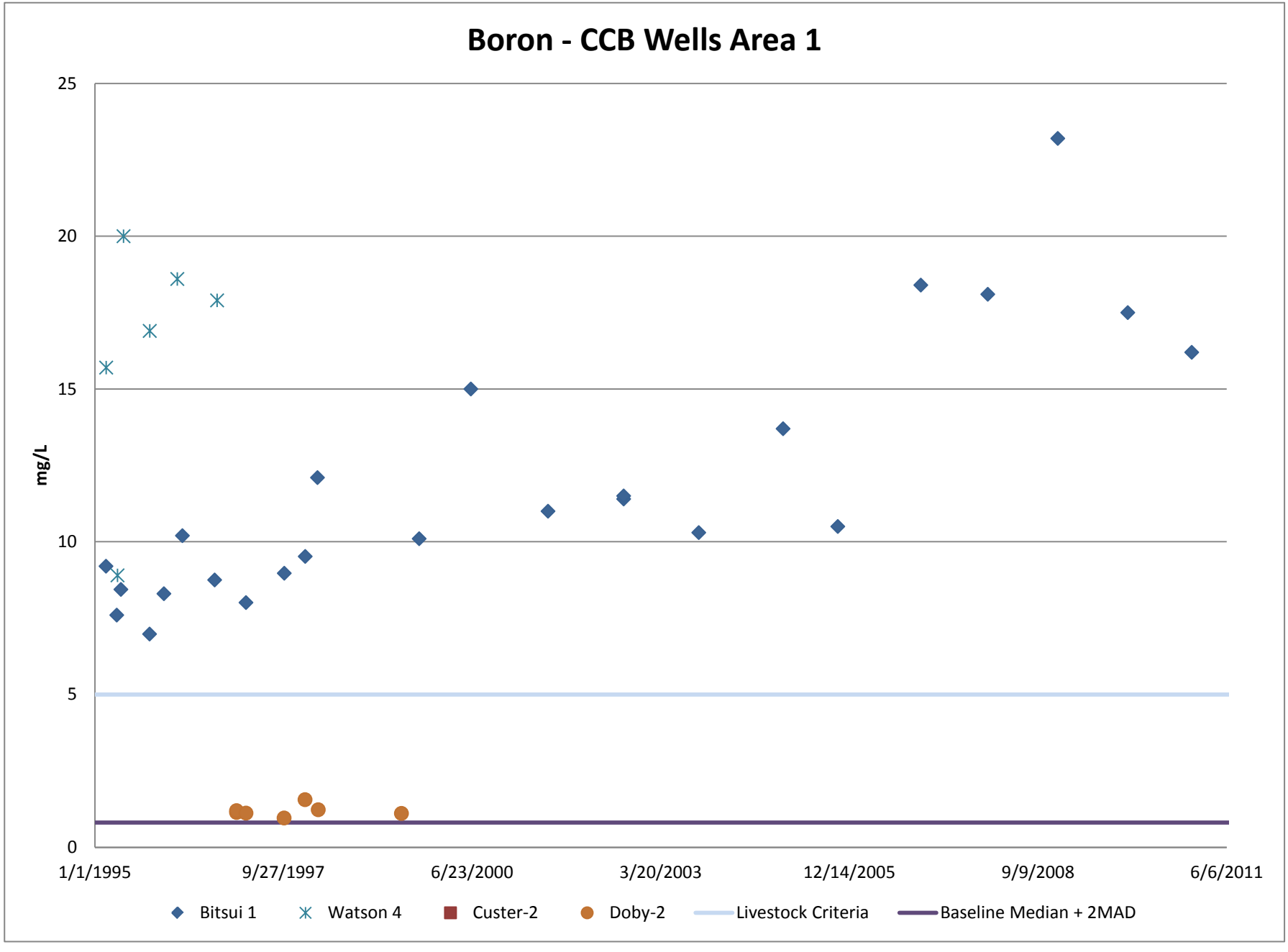

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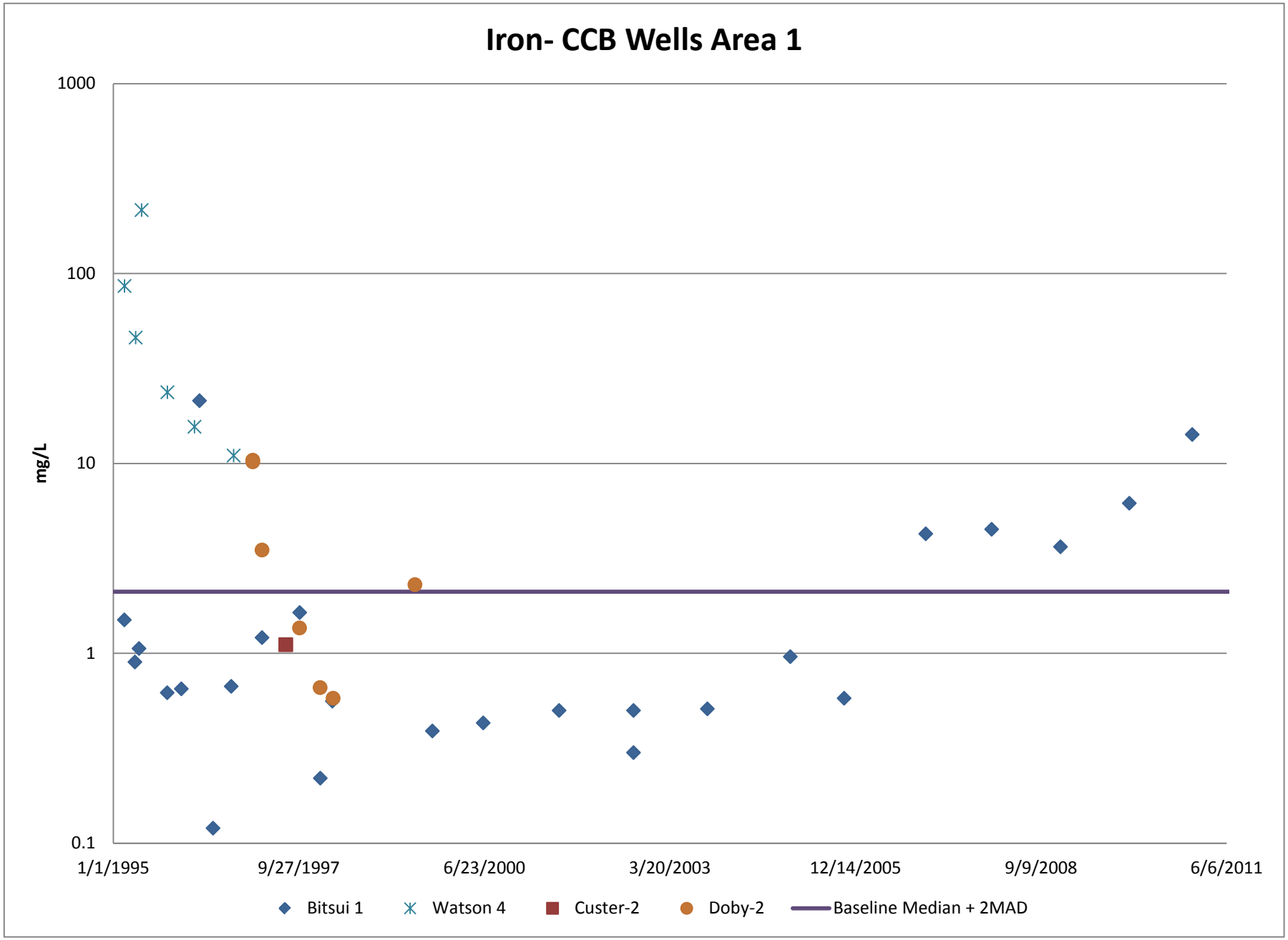

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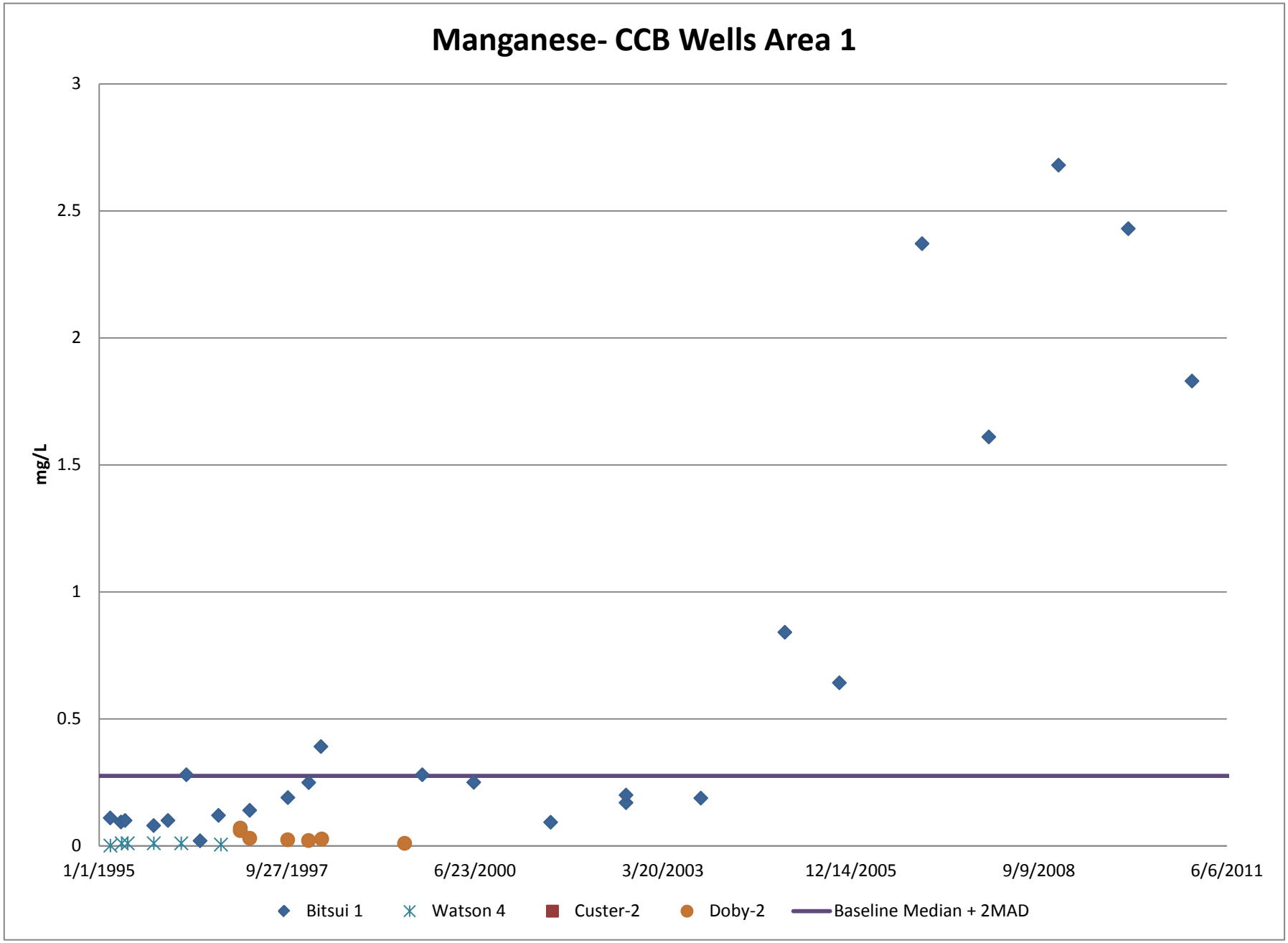

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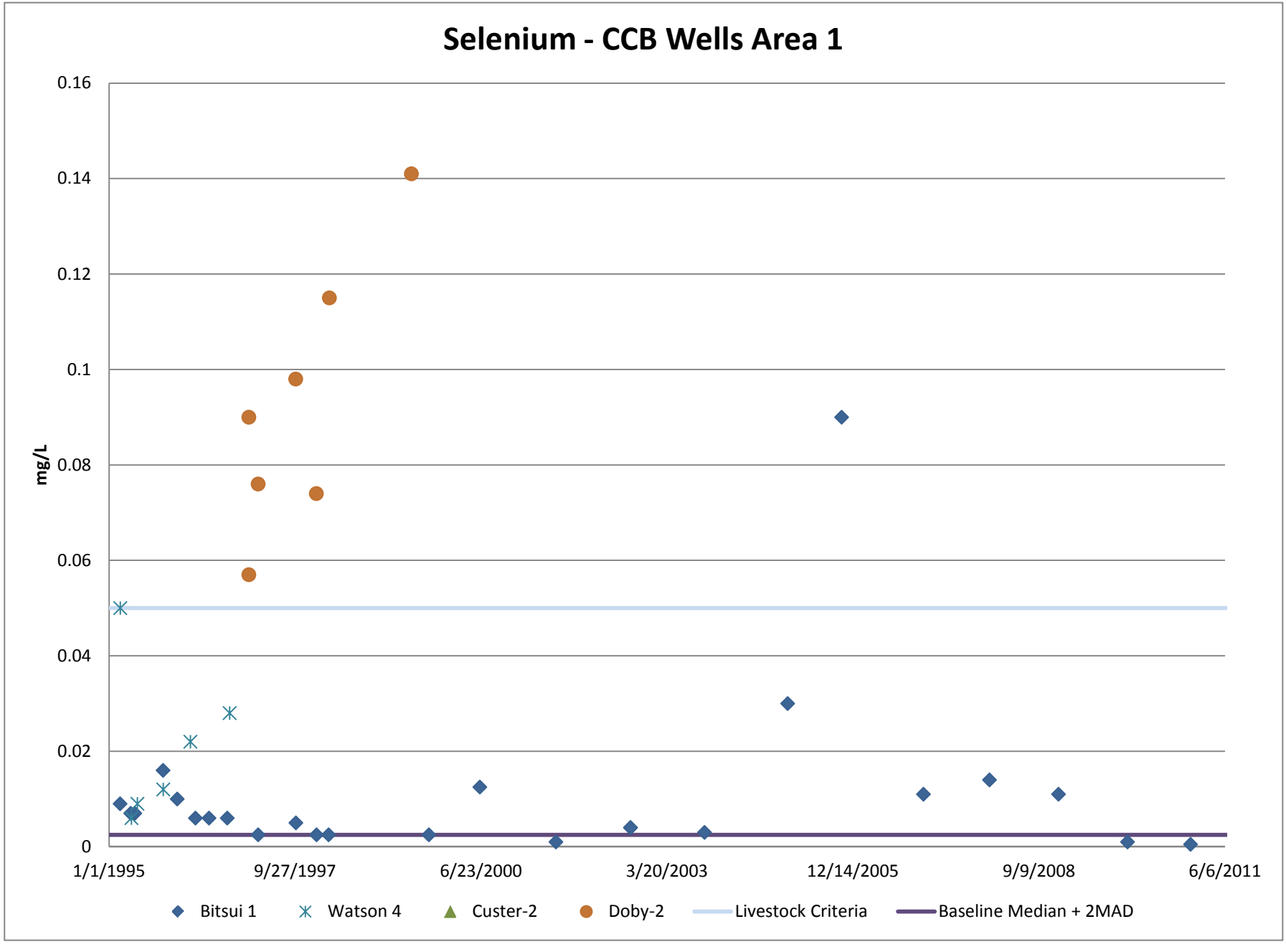

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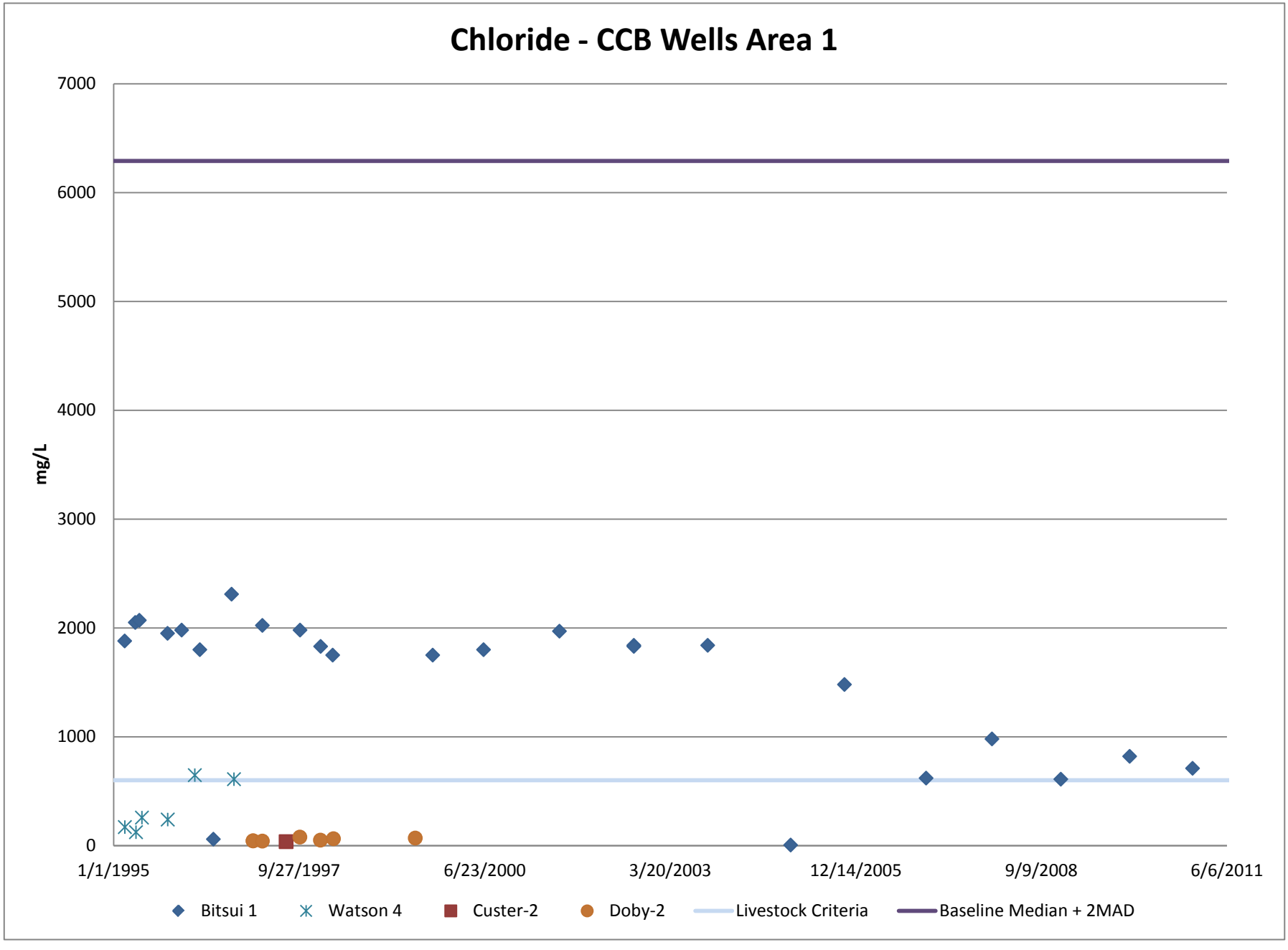

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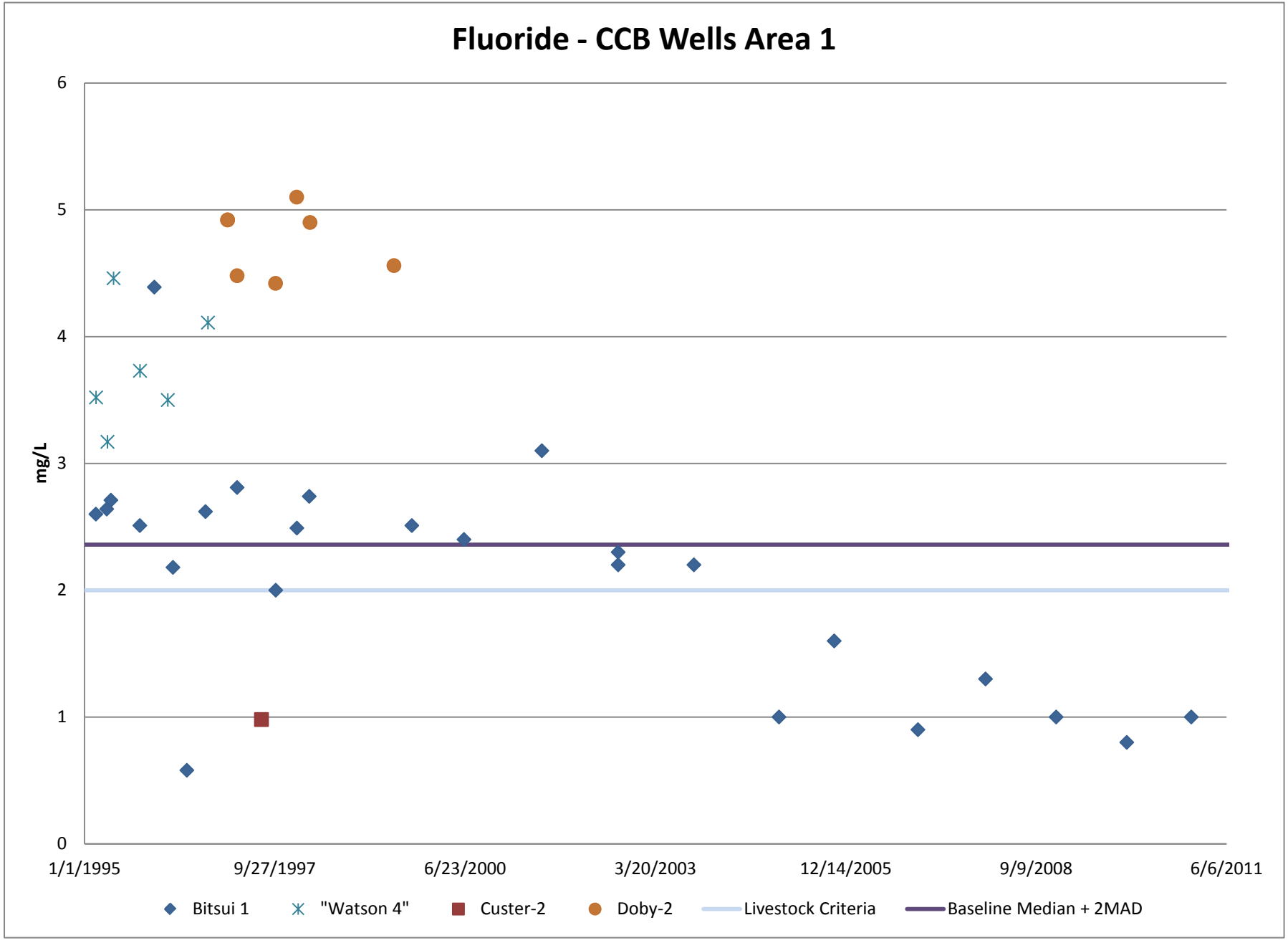

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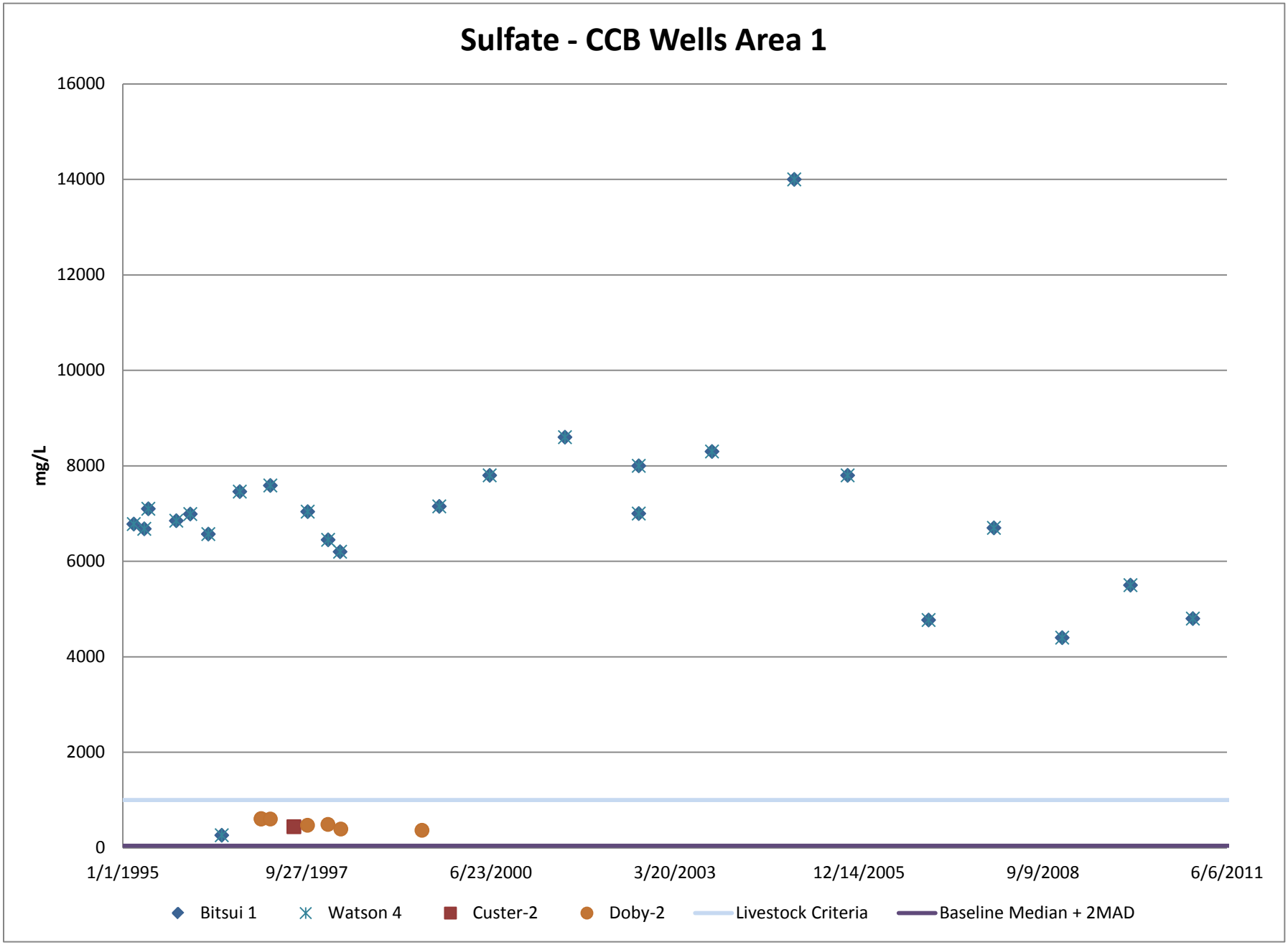

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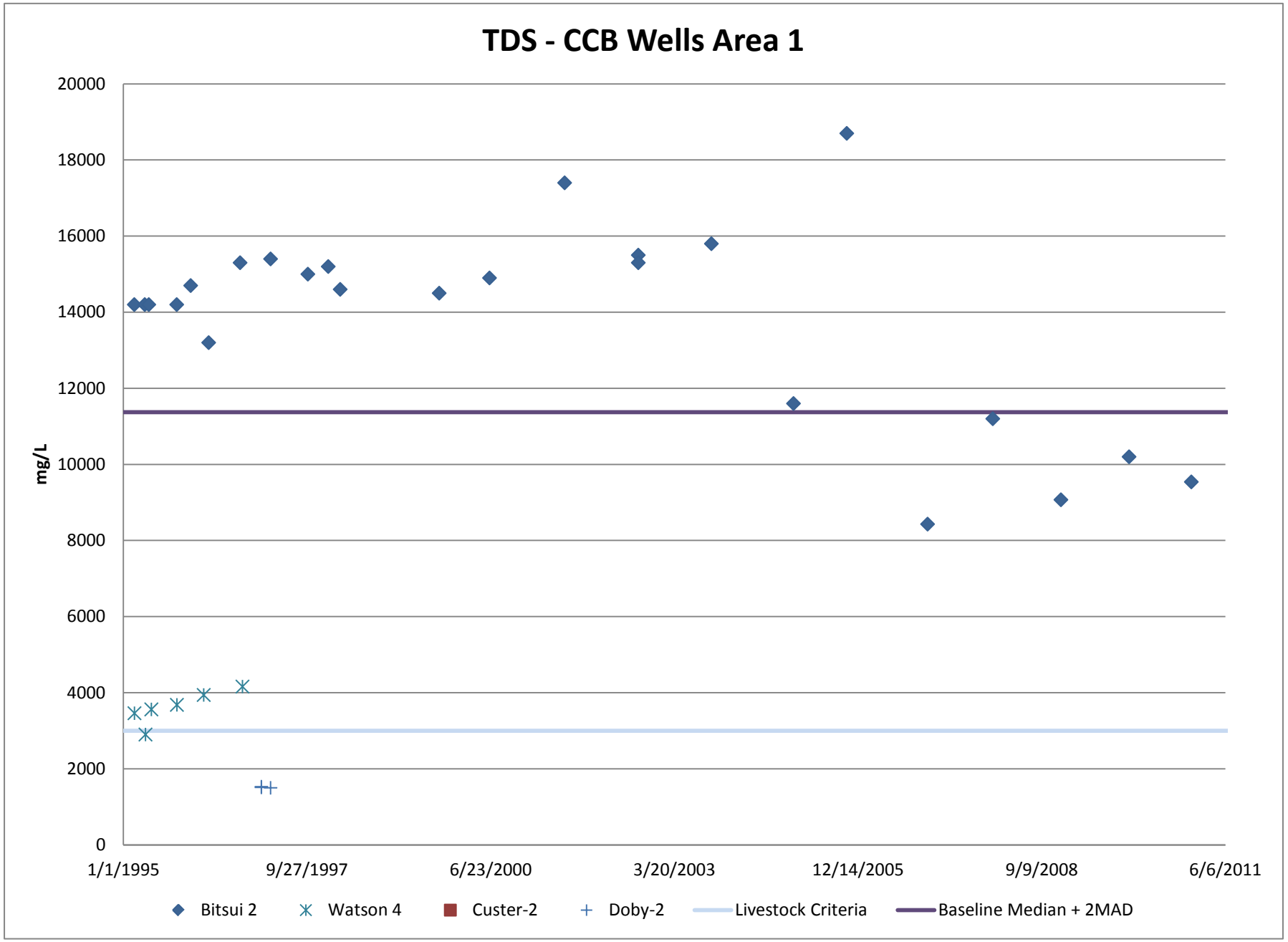
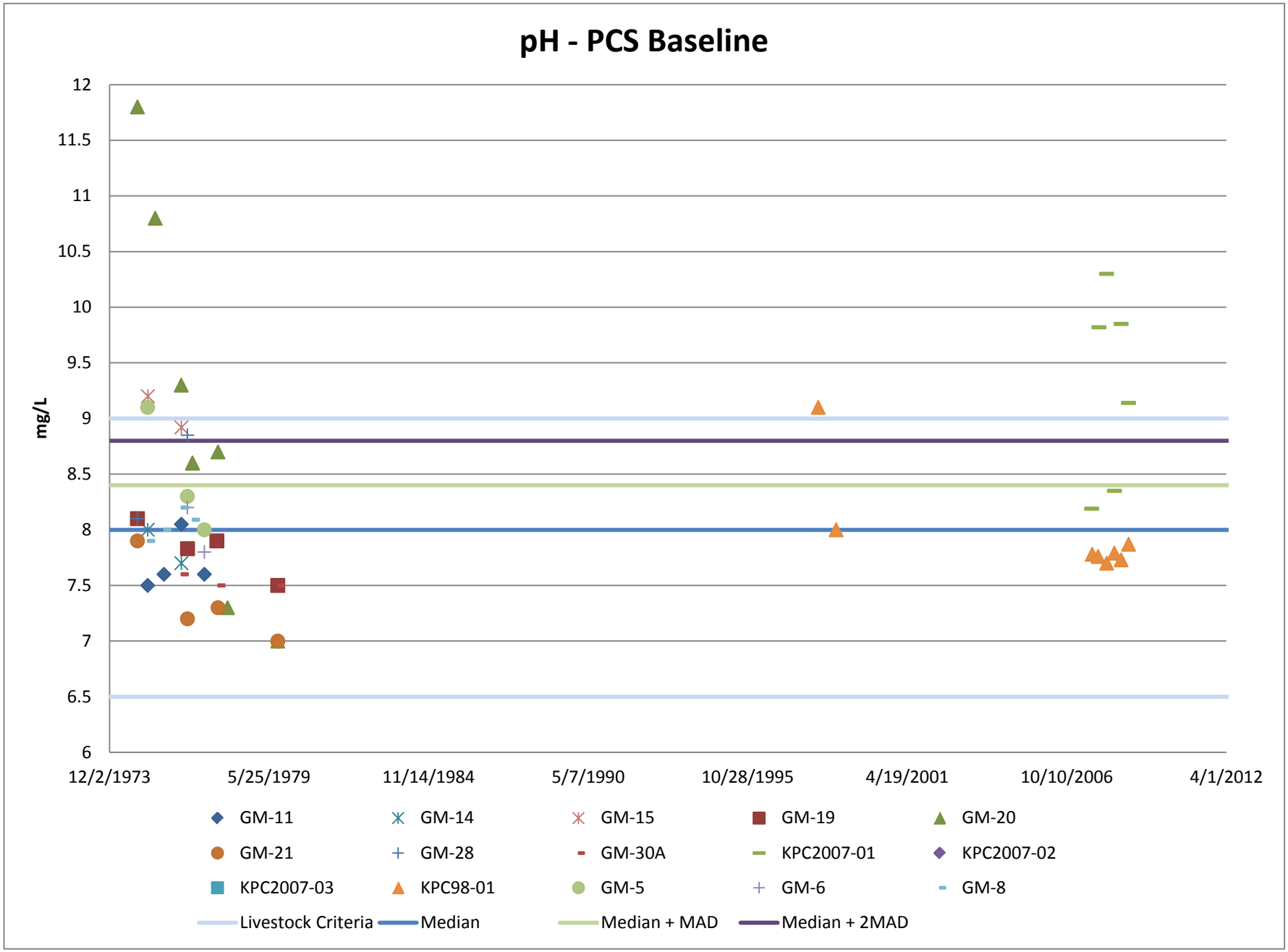


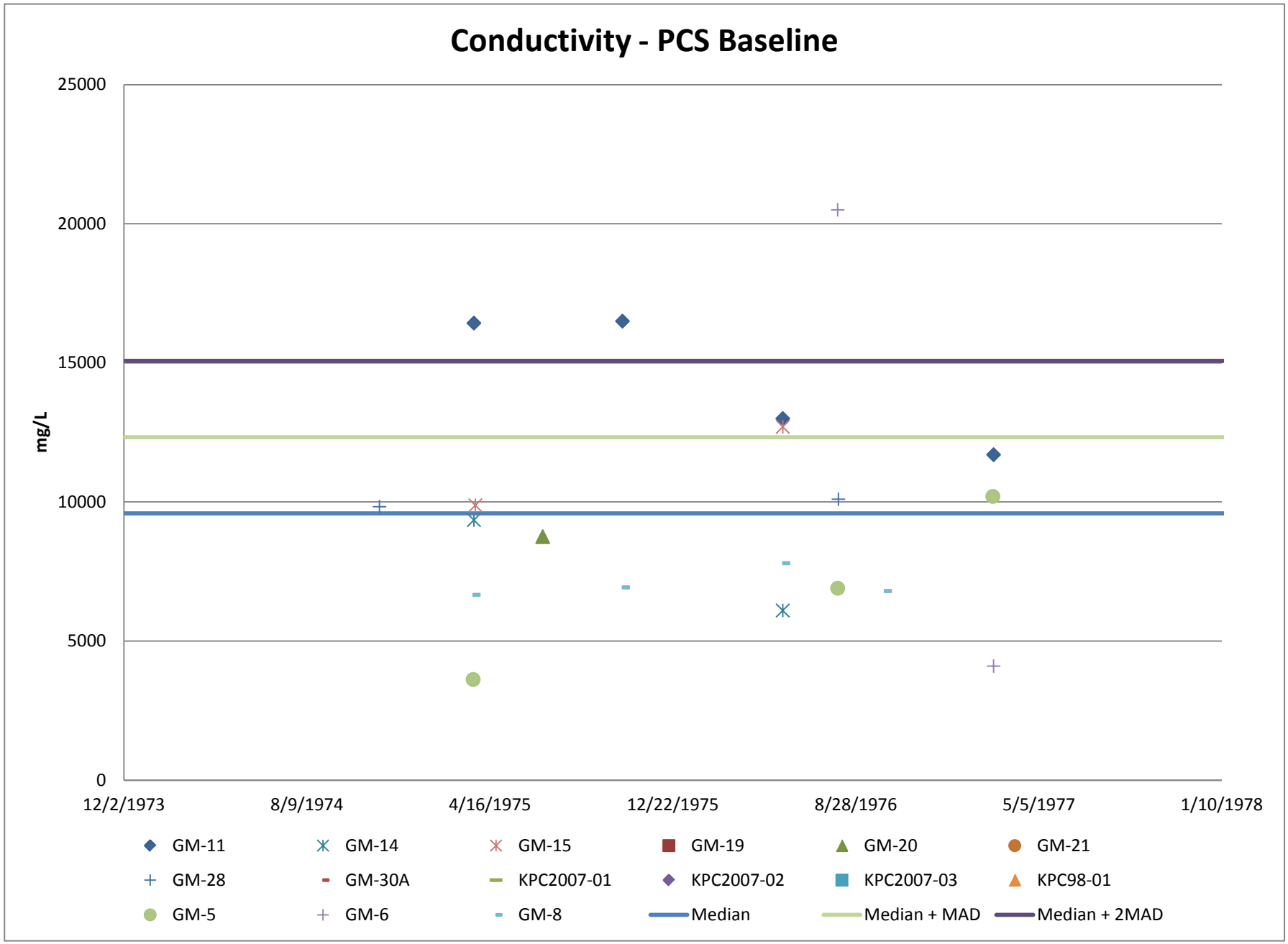
Appendix F - Groundwater Data Summary

Baseline PCS Well Graphs



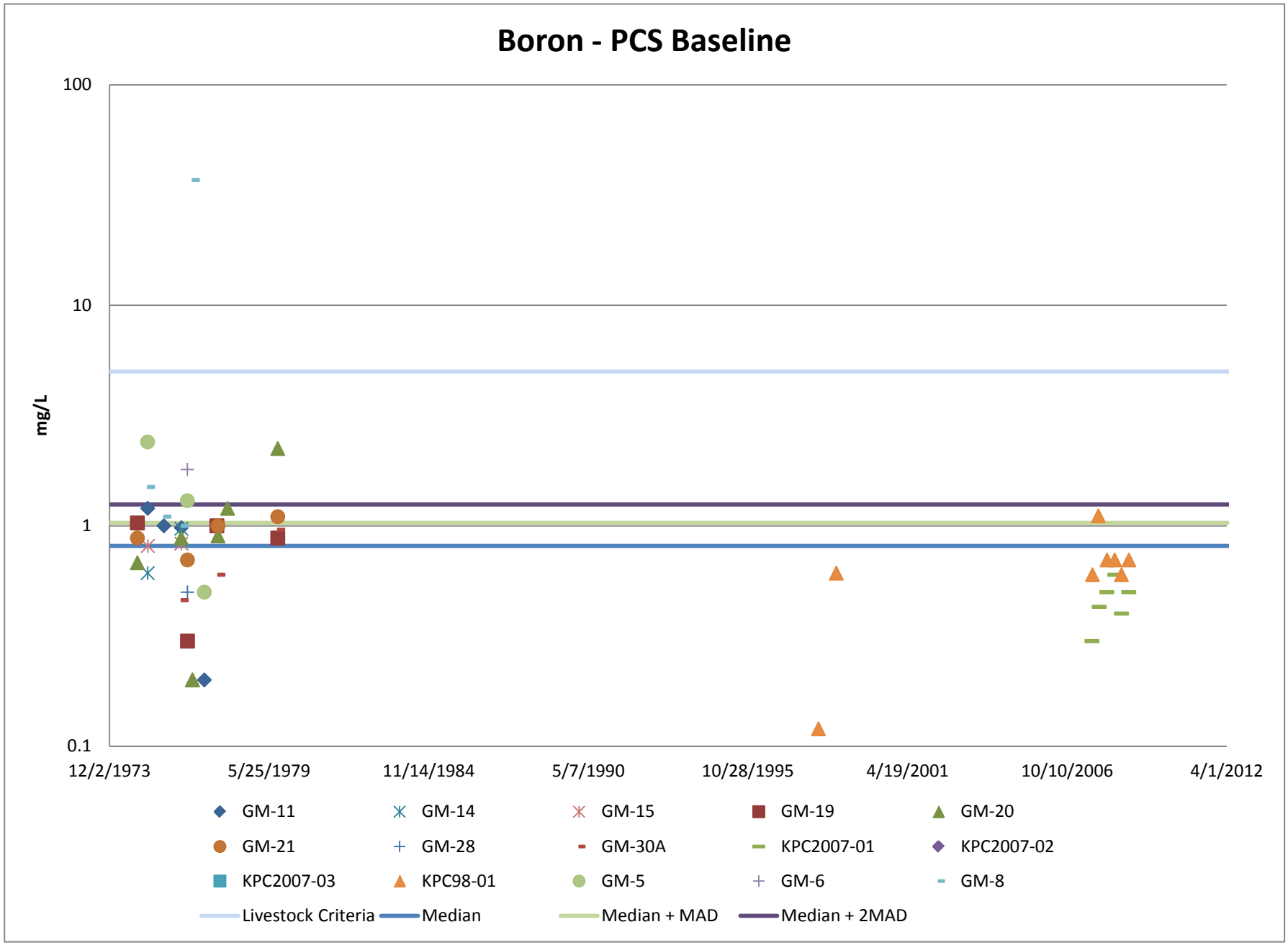
Appendix F - Groundwater Data Summary

Baseline PCS Well Graphs



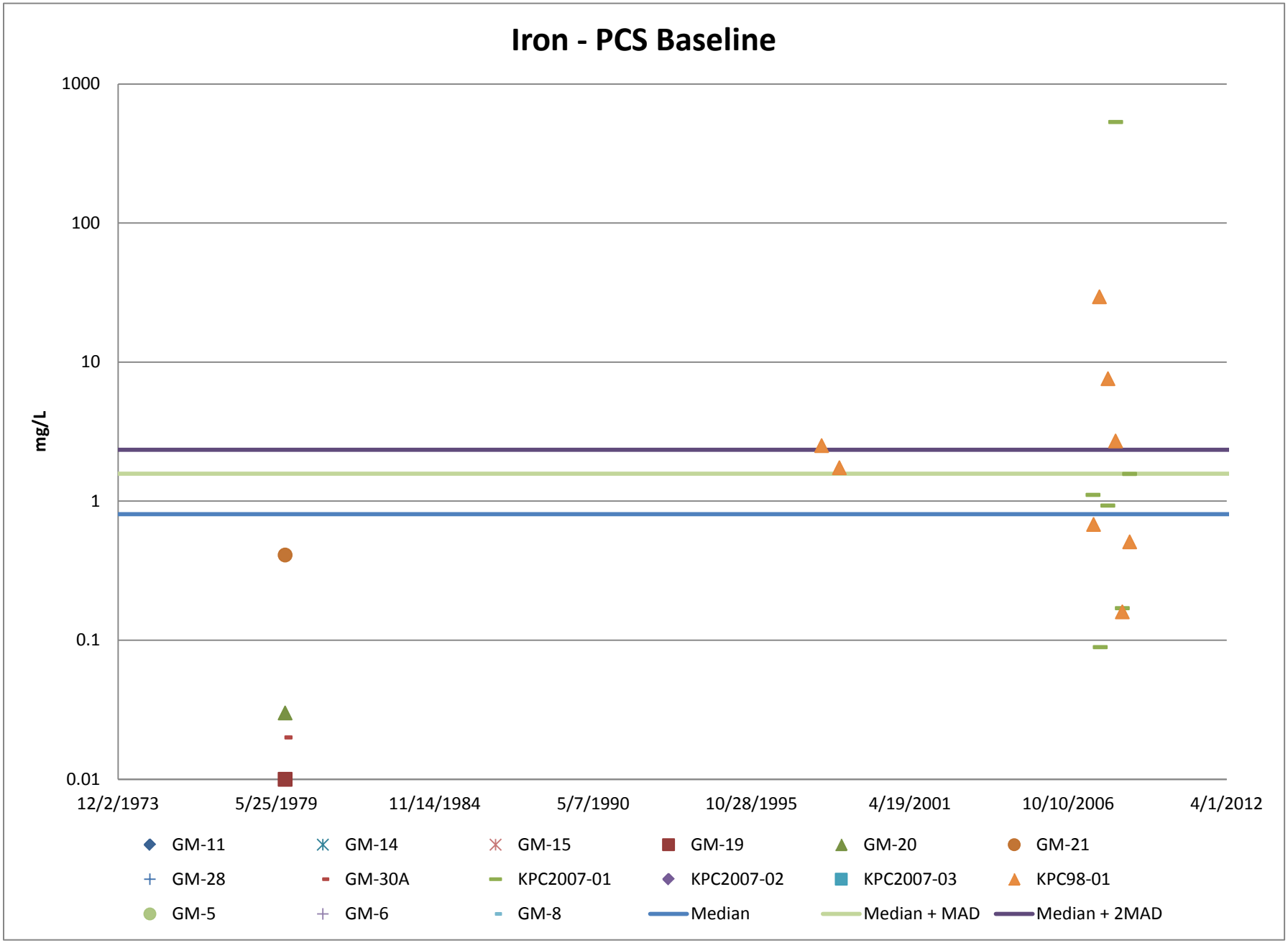
Appendix F - Groundwater Data Summary

Baseline PCS Well Graphs



Appendix F - Groundwater Data Summary

Baseline PCS Well Graphs



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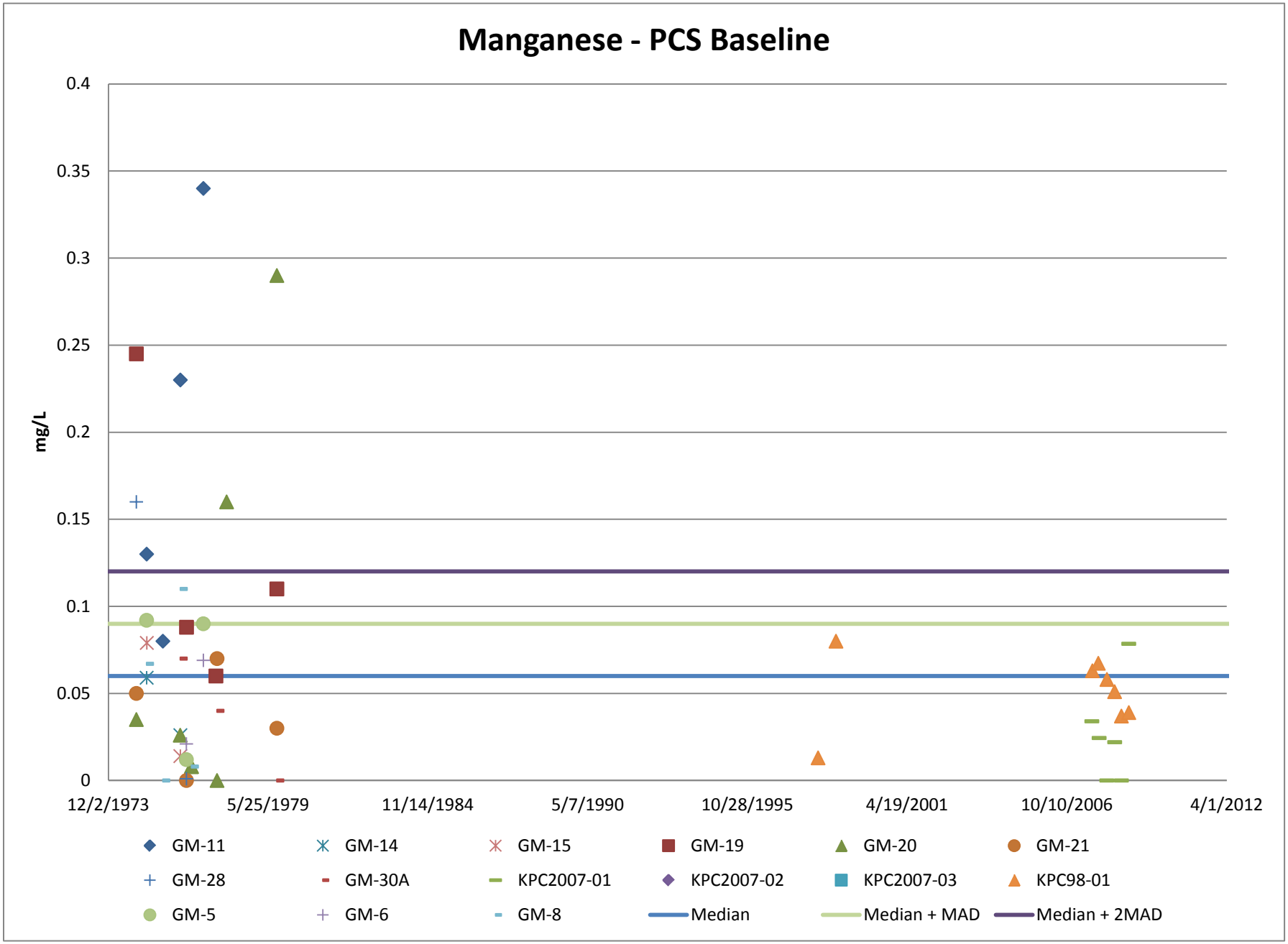

Appendix F - Groundwater Data Summary

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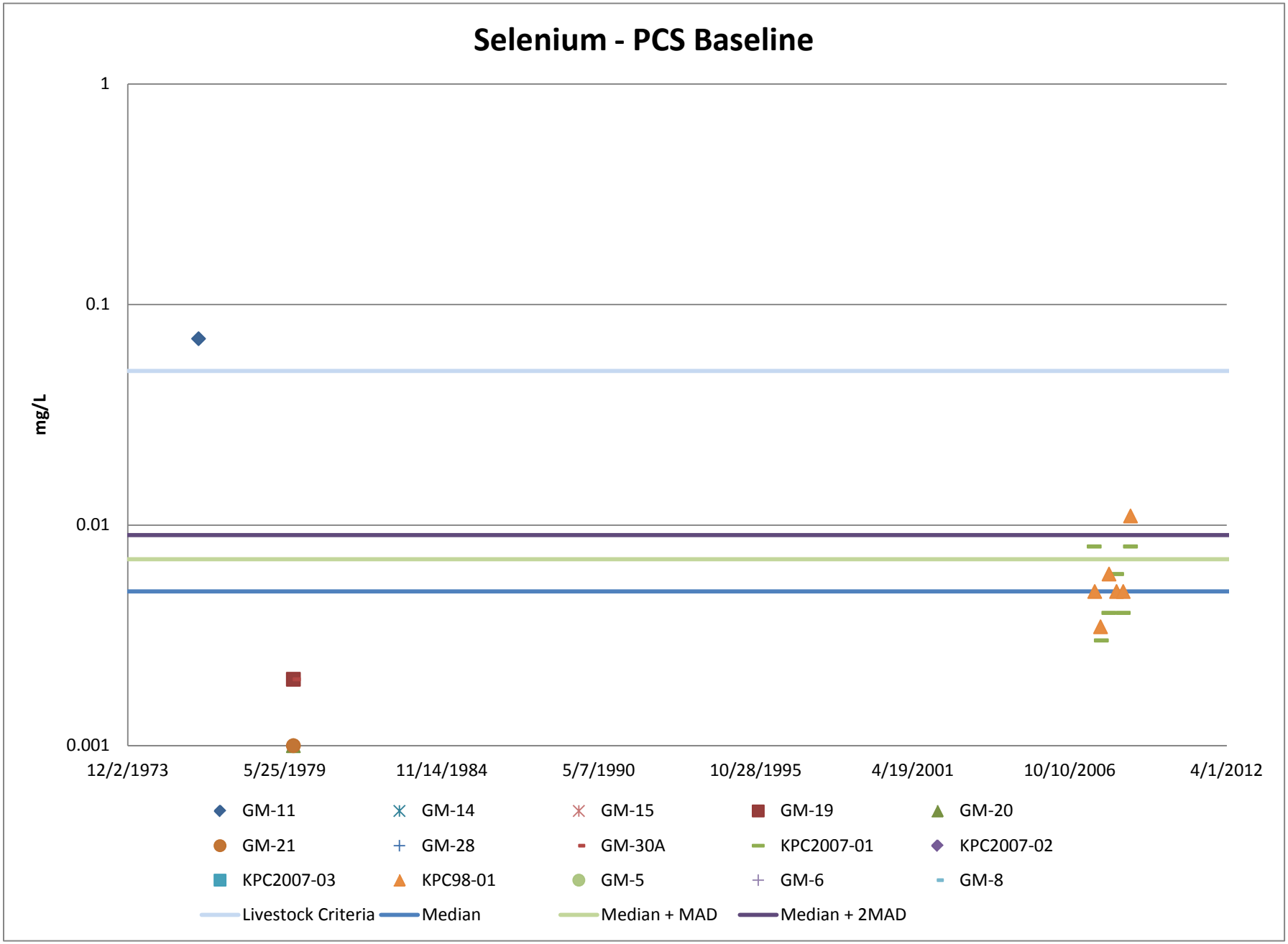

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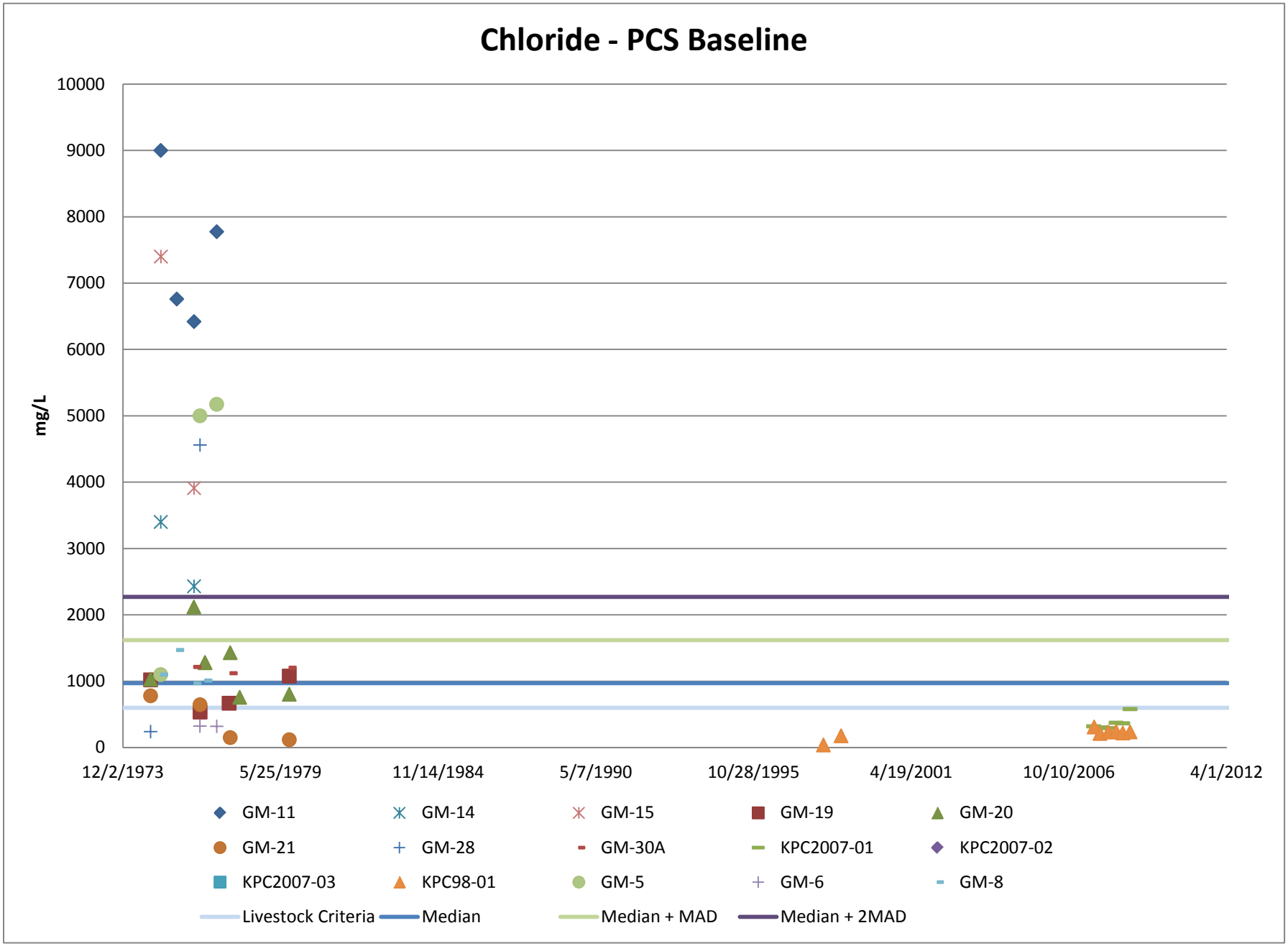

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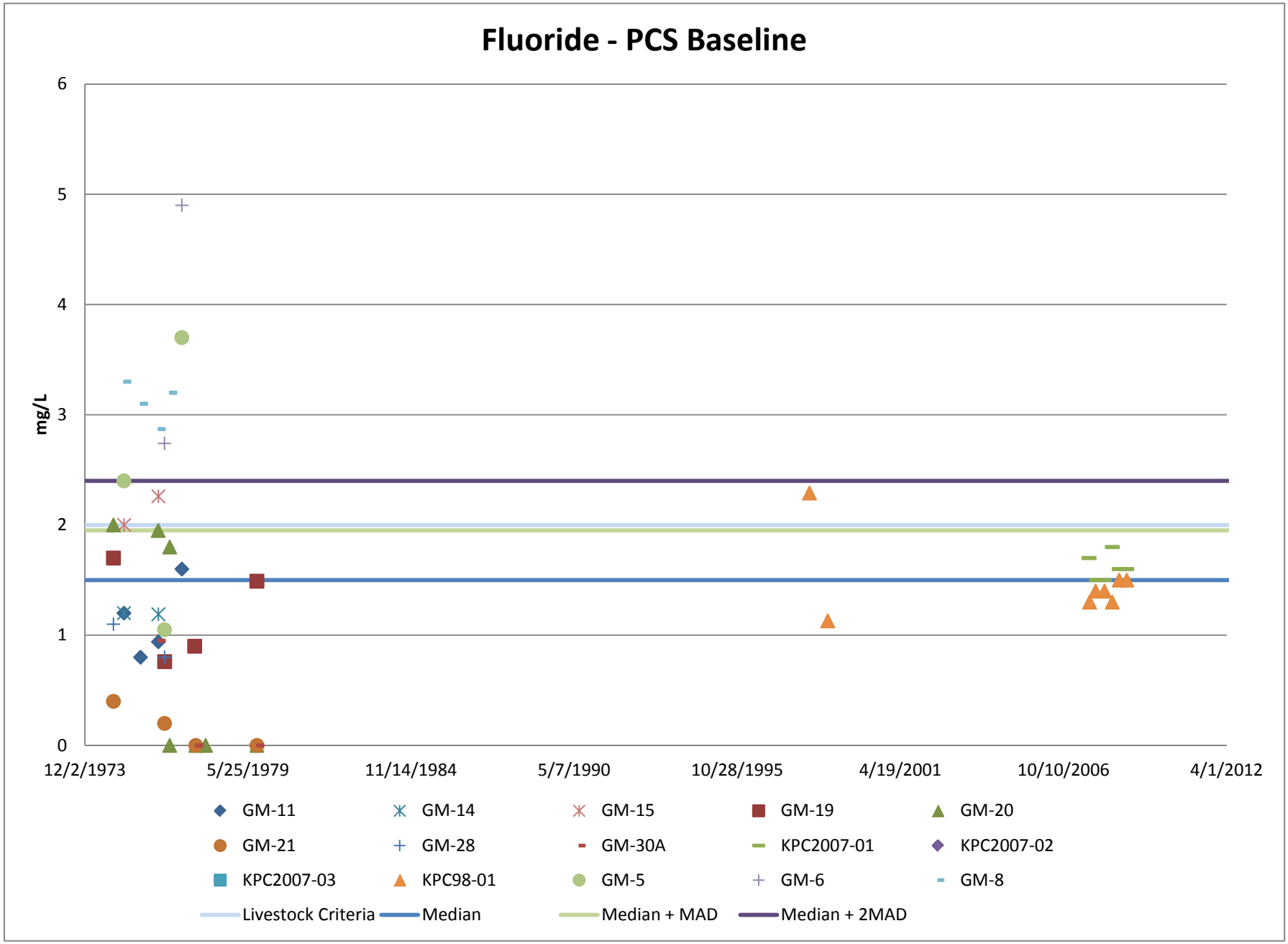

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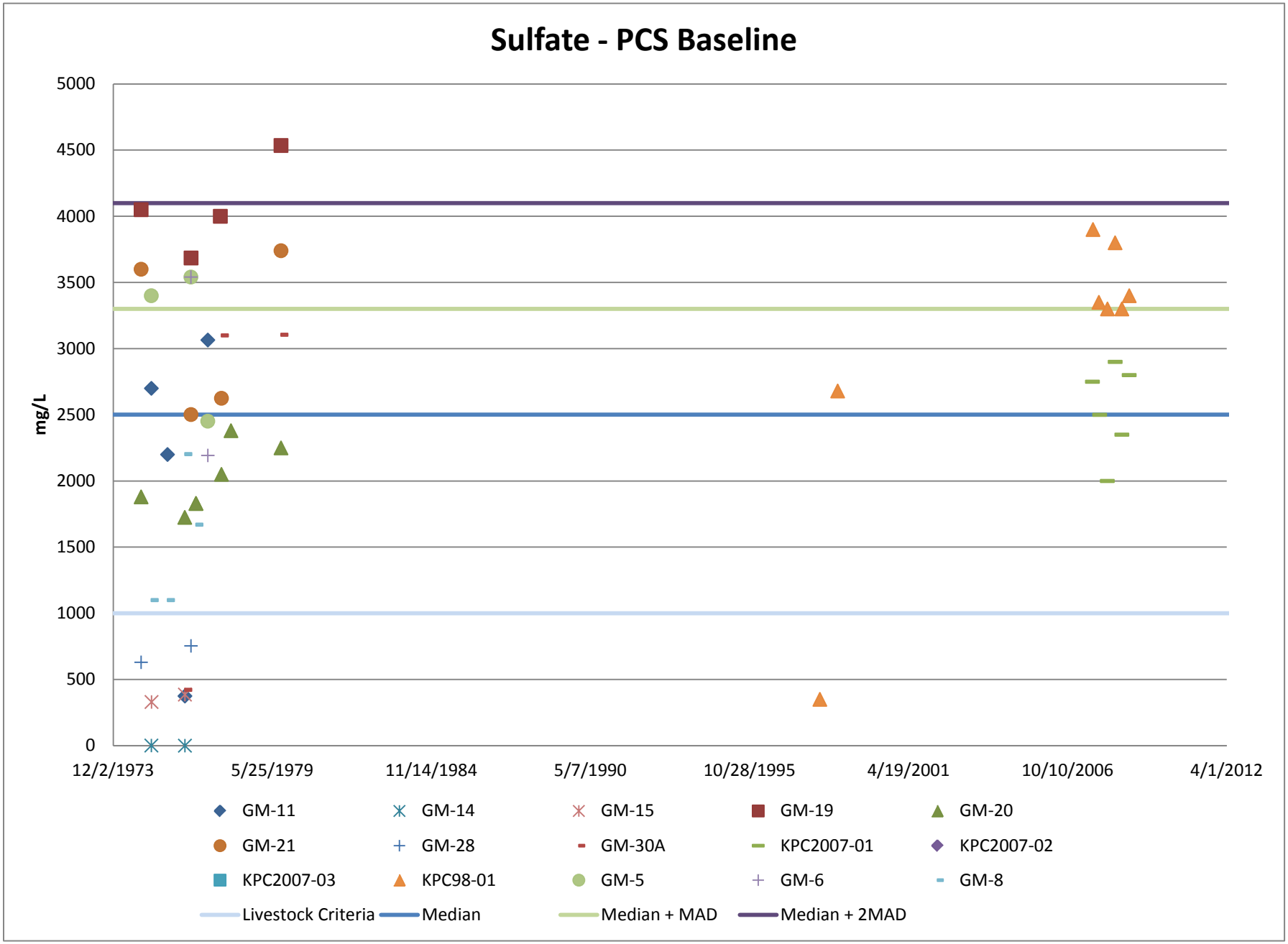

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