Appendix A

Sampling Summary and Descriptive Statistics for Floodplain Monitoring Wells

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Table A–1. Summary of Floodplain Locations Sampled, September 2009–March 2010

Well ID	ZOC	Area	Sampling		Water Levels		Comments/Notes
			Sep-09	Mar-10	Sep-09	Mar-10	
0608	KM	S-SE FP	X	X	X	X	Base of escarpment
0610	AL	S-SE FP	X	X	X	X	Base of escarpment
0611	AL	S-SE FP	X	X	X	X	Base of escarpment
0612	AL	S-SE FP	X	X	X	X	
0614	AL	S-SE FP	X	X	X	X	Base of escarpment
0615	AL	Trench 1	X	X	X	X	River side of trench
0618	AL	Central FP	X	X	X	X	
0619	AL	Central FP	X	X	X	X	
0622	AL	Central FP	X	X	X	X	
0623	AL	Central FP	X	X	X	X	
0625	AL	Central FP	X	X	X	X	
0626	AL	Central FP	X	X	X	X	
0628	AL	Central FP	X	X	X	X	
0630	AL	Central FP	X	X	X	X	Near mouth of BLW
0734	AL	N-NW FP	X	X	X	X	
0735	AL	S-SE FP	X	X	X	X	Farthest south of the S-SE wells
0736	AL	N-NW FP	*	X	X	X	Data logger; well dry in Sep-09
0766	AL	1089 Area	*	X	X	X	Well dry in Sep-09
0768	AL	Central FP	*	X	X	X	Well dry in Sep-09
0773	AL	S-SE FP	*	X	X	X	Well dry in Sep-09
0775	AL	Central FP	*	X	X	X	Well dry in Sep-09
0779	AL	Central FP	*	X	X	X	Well dry in Sep-09
0782R	AL	N-NW FP	X	X	X	X	Island area NW of bridge
0783R	AL	N-NW FP	X	X	X	X	Island area NW of bridge
0792	AL	Central FP	X	X	X	X	
0793	AL	Central FP	X	X	X	X	
0797	AL	Background	X	X	X	X	
0798	AL	Central FP	X	X	X	X	
0850	AL	Background	X	X	X	X	
0853	AL	Central FP	X	X	X	X	
0854	AL	1089 Area	X	X	X	X	Data logger
0855	AL	N-NW FP	X	X	X	X	
0856	AL	N-NW FP	X	X	X	X	
0857	AL	Central FP	X	X	X	X	Data logger
1008	AL	1089 Area	X	X	X	X	Data logger
1009	AL	Central FP	X	X		X	
1089	AL	1089 Area	X	X			Extraction well; water levels not measured
1104	AL	1089 Area	X	X			Extraction well; water levels not measured
1105	AL	Trench 1	X	X	X		River side of trench
1109	AL	Trench 2	X	X			Treatment system sump
1110	AL	Trench 1	X	X	X		Treatment system sump
1111	AL	Trench 1	X	X	X	X	
1112	AL	Trench 1	X	X	X	X	
1113	AL	S-SE FP	X	X		X	Base of escarpment
1114	AL	S-SE FP	X	X	X	X	Base of escarpment

Table A–1 (continued). Summary of Floodplain Locations Sampled, September 2009–March 2010

Well ID	ZOC	Area	Sampling		Water Levels		Comments/Notes
			Sep-09	Mar-10	Sep-09	Mar-10	
1115	AL	Trench 2	X	X	X	X	
1116	AL	Trench 2	X		X	X	
1117	AL	Trench 2	X	X	X	X	
1126	AL	Trench 2	X		X	X	
1127	AL	Trench 2	X		X	X	
1128	AL	Trench 2		X			
1131	AL	Trench 2	X		X	X	
1132	AL	Trench 2	X	X	X	X	
1133	AL	Trench 2	X				
1134	AL	Trench 2	X	X	X	X	
1135	AL	N-NW FP		X		X	New well installed in Jan-10 ~500 ft NW of well 1089 area, between 1089 and 0736, near river.
1136	AL	Central FP		X		X	New well installed in Jan-10 ~600 ft SE of well 1089 area, between 1089 and 0857, near river.
1137	AL	1089 Area		X		X	New well installed in Jan-10; one of a line of 3 new wells (1137, 1138, 1139) installed closer to river near well 1089 area.
1138	AL	1089 Area		X		X	See description above for well 1137.
1139	AL	1089 Area		X		X	See description above for well 1137.
1140	AL	Trench 1	X	X	X	X	New well installed in May-09, river side
1141	AL	Trench 1	X	X	X	X	New well installed in May-09, river side
1142	AL	Central FP		X		X	New well installed in Jan-10 near river, ~400 ft east of well 0853 and ~700 ft south of gauging station.
1143	AL	N-NW FP		X		X	New well installed in Jan-10 about equidistant (~300-350 ft) between 0736 and 0856.
617	AL						Data logger only
862	KM	S-SE FP				X	Colocated with 0608; water levels only
863	KM	S-SE FP				X	Colocated with 0608; water levels only
1000	KM	S-SE FP				X	Colocated with 0614; water levels only
1001	KM	S-SE FP				X	Colocated with 0614; water levels only
1062	KM	S-SE FP				X	Colocated with 0608; water levels only

AL Alluvial well
KM Mancos Shale (well screened in)
ZOC Zone of completion
* Well sampled but dry.

Area Designations

Given the large number of wells installed on the floodplain, subsequent graphical plots are divided into the following 7 area groupings (locations shown in Figure A–1):

- Background
- Northwest Floodplain (N-NW FP)
- Central Floodplain (Central FP)
- Well 1089 Area
- Trench 1 Area
- Trench 2 Area
- South-Southeast Floodplain (S-SE FP)

The statistical summaries and plots that follow Figure A–1 are based on the entire historical data set. For older wells, the bulk of these data are from the 2000-to-present time period.

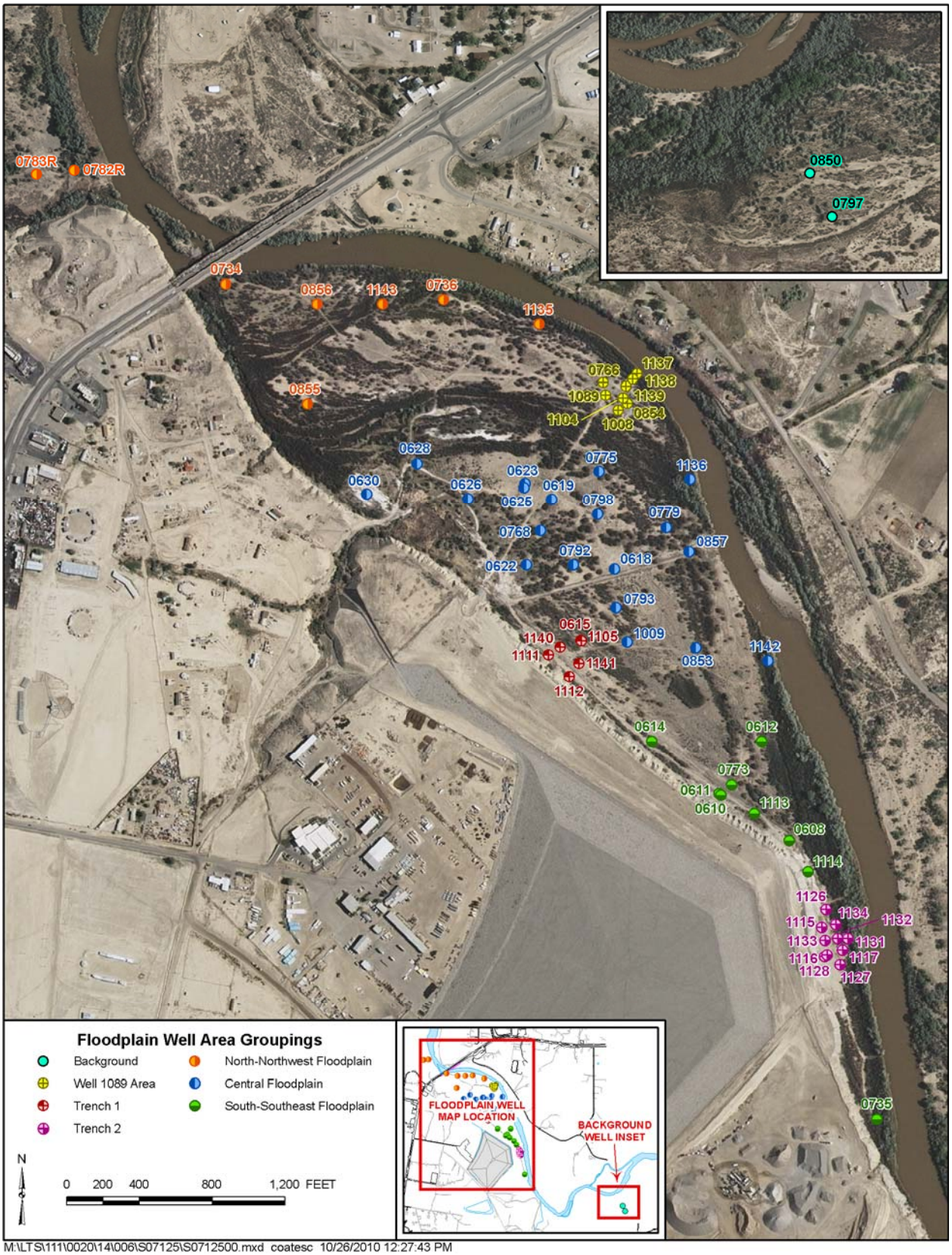

Figure A–1. Shiprock Site Floodplain Well Area Groupings†

† Well groups used to categorize data for statistical graphics (box plots) provided in the following pages.

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Ammonia

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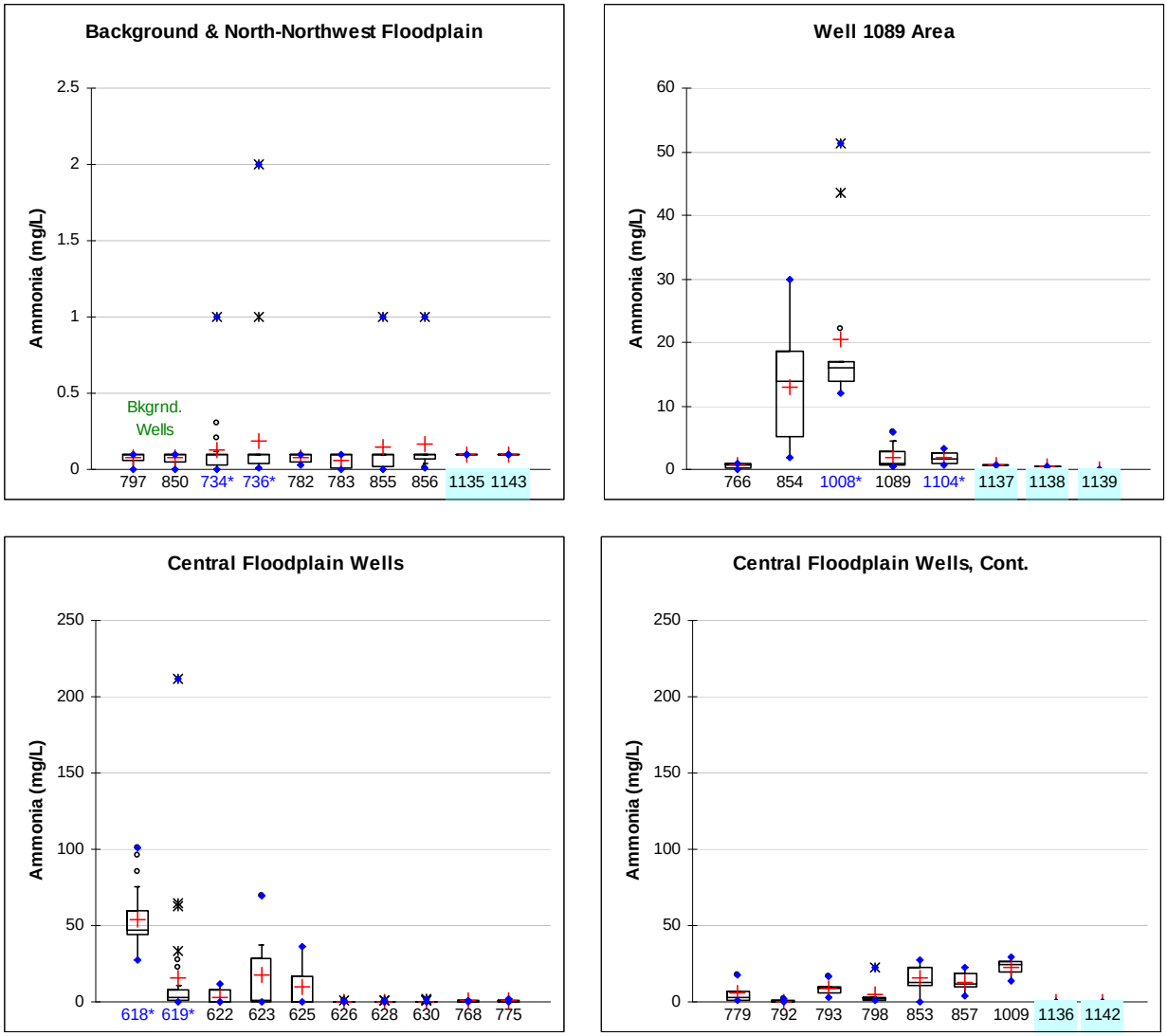

Figure A–2. Historical Distributions of Ammonia in Floodplain Monitoring Wells, page 1 of 2[†]

[†] The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of ammonia for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	19	24	23	24	6	7	11	10	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	4	11	13	14	8	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	25	33	9	6	7	21	20	20	5	5	5	7	6	6	11	10	7	1	1

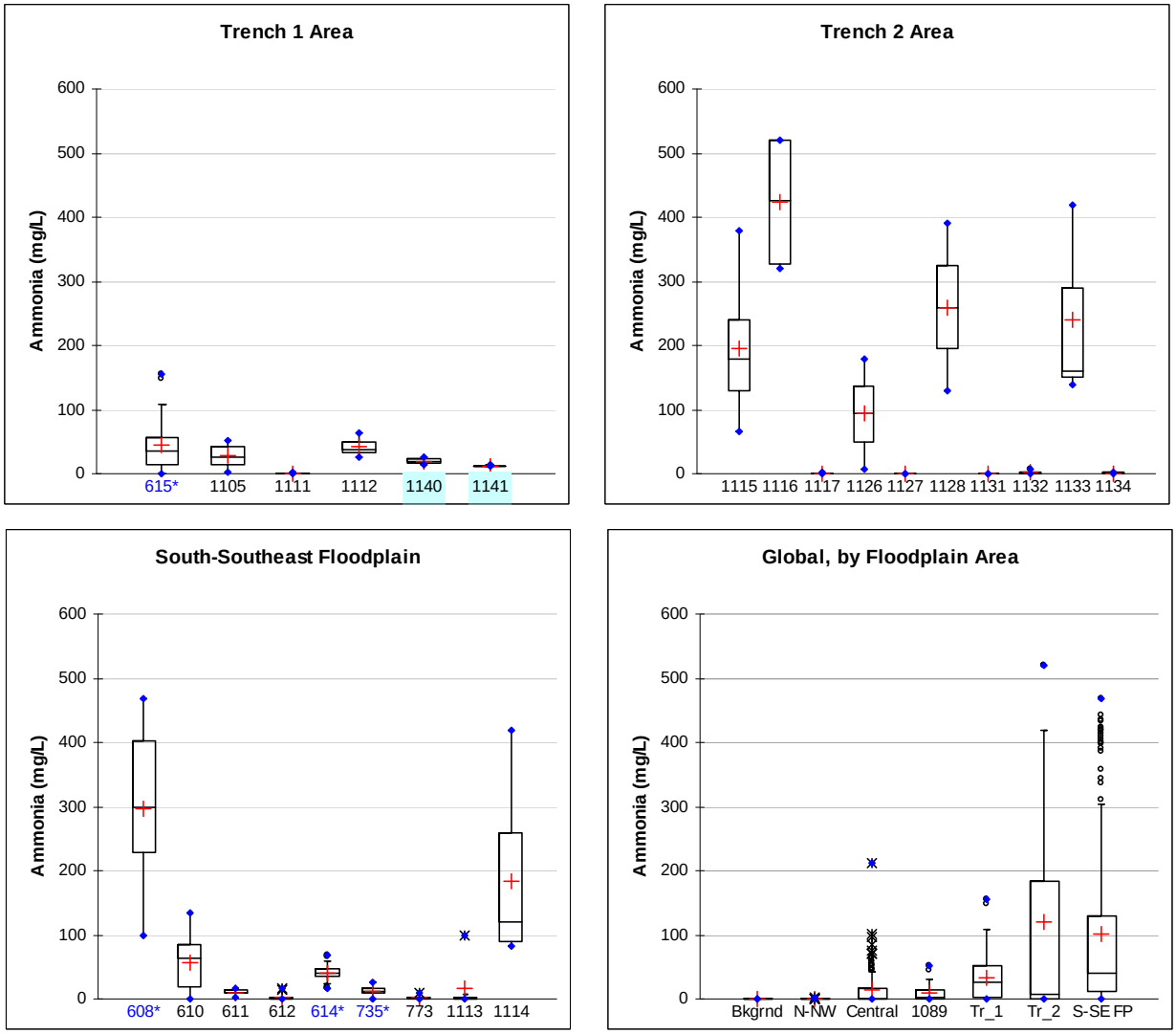

Figure A–2. Historical Distributions of Ammonia in Floodplain Monitoring Wells, page 2 of 2[†]

[†] See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	34	7	9	7	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	11	4	10	2	2	2	2	4	3	4

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	40	20	5	15	38	28	5	7	11

Note:

In this appendix, in most cases (e.g., for COC-specific figures), individual plots are scaled to yield a common scale across subgroups. However, in the case of ammonia, this was not done because of the great differences in magnitude across the different floodplain area groupings. Therefore, in reviewing this figure, it is important to recognize the relative scales (e.g., as reflected in the final "Global" plot above).

Table A–2a. Summary Statistics for Ammonia in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	658	41.9	0.001	520	520	0.10	2.9	36.3	92.0
608	40	297	99.0	467	368	228	299	402	108
610	20	55.8	0.76	134	133	18.8	62.5	85.4	40.0
611	5	10.5	1.6	17.0	15.4	9.0	10.0	15.0	6.0
612	15	2.7	0.02	16.3	16.3	0.09	0.52	2.4	5.0
614	38	40.1	17.0	68.0	51.0	35.3	40.1	46.3	12.1
615	34	44.6	0.35	155	155	13.5	36.5	57.0	41.3
618	25	53.9	27.0	101	74.0	44.0	47.4	59.3	18.9
619	33	15.2	0.01	212	212	0.67	3.0	8.1	38.9
622	9	3.3	0.08	11.6	11.5	0.10	0.10	8.0	4.7
623	6	18.1	0.10	70.0	69.9	0.10	0.55	28.0	29.4
625	7	10.1	0.10	36.0	35.9	0.10	0.26	17.1	16.7
626	21	0.16	0.01	1.0	0.99	0.05	0.08	0.19	0.22
628	20	0.18	0.02	1.2	1.2	0.05	0.08	0.10	0.32
630	20	0.24	0.001	1.9	1.9	0.06	0.09	0.13	0.45
734	23	0.12	0.001	1.0	1.0	0.03	0.10	0.10	0.20
735	28	12.8	0.30	25.0	24.7	9.6	12.6	16.0	5.8
736	24	0.19	0.01	2.0	2.0	0.04	0.10	0.10	0.43
766	4	0.59	0.10	1.0	0.90	0.35	0.64	0.88	0.41
768	5	0.51	0.02	1.3	1.3	0.10	0.10	1.0	0.60
773	5	3.0	0.19	10.0	9.8	0.79	1.9	2.0	4.0
775	5	0.69	0.02	2.2	2.2	0.10	0.10	1.0	0.94
779	5	6.1	0.96	18.0	17.1	1.3	3.0	7.2	7.1
782	6	0.08	0.03	0.10	0.07	0.05	0.10	0.10	0.03
783	7	0.06	0.004	0.10	0.10	0.01	0.10	0.10	0.05
792	7	0.46	0.10	1.7	1.6	0.10	0.10	0.55	0.65
793	6	8.7	2.8	17.0	14.2	5.6	9.0	9.8	5.0
797 (Bkgrnd)	19	0.08	0.003	0.10	0.10	0.06	0.10	0.10	0.04
798	6	5.1	0.60	22.3	21.7	1.2	1.7	2.7	8.5
850 (Bkgrnd)	24	0.07	0.004	0.10	0.10	0.05	0.10	0.10	0.03
853	11	15.6	0.30	27.0	26.7	11.0	13.0	22.6	8.6
854	11	12.9	2.0	29.8	27.8	5.2	14.0	18.5	9.0
855	11	0.14	0.004	1.0	1.0	0.02	0.10	0.10	0.29
856	10	0.17	0.01	1.0	0.99	0.07	0.10	0.10	0.29
857	10	13.1	3.8	22.5	18.7	9.8	11.8	18.6	6.3
1008	13	20.4	12.0	51.4	39.4	14.0	16.0	17.0	12.4
1009	7	22.8	14.0	29.5	15.5	19.5	25.0	26.2	5.7
1089	14	1.8	0.44	6.0	5.6	0.65	1.0	2.7	1.7
1104	8	1.9	0.74	3.4	2.7	0.95	1.8	2.7	1.1
1105	7	27.2	3.1	51.0	47.9	13.0	25.0	42.5	18.6
1111	9	0.51	0.10	2.0	1.9	0.10	0.10	1.0	0.68
1112	7	41.6	26.0	64.0	38.0	33.0	38.0	48.5	13.2
1113	7	15.3	0.15	98.0	97.9	0.52	1.0	3.5	36.5
1114	11	184	82.0	420	338	90.5	120	260	127
1115	11	195	65.0	380	315	130	180	240	107
1116	4	423	320	520	200	328	425	520	113
1117	10	0.62	0.10	2.0	1.9	0.10	0.41	1.0	0.63
1126	2	93.2	6.4	180	174	49.8	93.2	137	123
1127	2	0.57	0.14	1.0	0.86	0.36	0.57	0.79	0.61
1128	2	260	130	390	260	195	260	325	184
1131	2	0.64	0.28	1.0	0.72	0.46	0.64	0.82	0.51
1132	4	2.2	0.90	6.0	5.1	0.92	1.0	2.3	2.5
1133	3	240	140	420	280	150	160	290	156
1134	4	1.1	0.56	2.0	1.4	0.58	0.85	1.3	0.67
1135	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1136	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1137	1	0.78	0.78	0.78	-	0.78	0.78	0.78	-
1138	1	0.42	0.42	0.42	-	0.42	0.42	0.42	-
1139	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1140	2	20.0	15.0	25.0	10.0	17.5	20.0	22.5	7.1
1141	2	12.5	12.0	13.0	1.0	12.3	12.5	12.8	0.71
1142	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1143	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-

Table A–2b. Summary Statistics for Ammonia in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	658	41.9	0.001	520	520	0.10	2.9	36.3	92.0
1116	4	423	320	520	200	328	425	520	113
608	40	297	99.0	467	368	228	299	402	108
1128	2	260	130	390	260	195	260	325	184
1133	3	240	140	420	280	150	160	290	156
1115	11	195	65.0	380	315	130	180	240	107
1114	11	184	82.0	420	338	90.5	120	260	127
1126	2	93.2	6.4	180	174	49.8	93.2	137	123
610	20	55.8	0.76	134	133	18.8	62.5	85.4	40.0
618	25	53.9	27.0	101	74.0	44.0	47.4	59.3	18.9
615	34	44.6	0.35	155	155	13.5	36.5	57.0	41.3
1112	7	41.6	26.0	64.0	38.0	33.0	38.0	48.5	13.2
614	38	40.1	17.0	68.0	51.0	35.3	40.1	46.3	12.1
1105	7	27.2	3.1	51.0	47.9	13.0	25.0	42.5	18.6
1009	7	22.8	14.0	29.5	15.5	19.5	25.0	26.2	5.7
1008	13	20.4	12.0	51.4	39.4	14.0	16.0	17.0	12.4
1140	2	20.0	15.0	25.0	10.0	17.5	20.0	22.5	7.1
623	6	18.1	0.10	70.0	69.9	0.10	0.55	28.0	29.4
853	11	15.6	0.30	27.0	26.7	11.0	13.0	22.6	8.6
1113	7	15.3	0.15	98.0	97.9	0.52	1.0	3.5	36.5
619	33	15.2	0.01	212	212	0.67	3.0	8.1	38.9
857	10	13.1	3.8	22.5	18.7	9.8	11.8	18.6	6.3
854	11	12.9	2.0	29.8	27.8	5.2	14.0	18.5	9.0
735	28	12.8	0.30	25.0	24.7	9.6	12.6	16.0	5.8
1141	2	12.5	12.0	13.0	1.0	12.3	12.5	12.8	0.71
611	5	10.5	1.6	17.0	15.4	9.0	10.0	15.0	6.0
625	7	10.1	0.10	36.0	35.9	0.10	0.26	17.1	16.7
793	6	8.7	2.8	17.0	14.2	5.6	9.0	9.8	5.0
779	5	6.1	0.96	18.0	17.1	1.3	3.0	7.2	7.1
798	6	5.1	0.60	22.3	21.7	1.2	1.7	2.7	8.5
622	9	3.3	0.08	11.6	11.5	0.10	0.10	8.0	4.7
773	5	3.0	0.19	10.0	9.8	0.79	1.9	2.0	4.0
612	15	2.7	0.02	16.3	16.3	0.09	0.52	2.4	5.0
1132	4	2.2	0.90	6.0	5.1	0.92	1.0	2.3	2.5
1104	8	1.9	0.74	3.4	2.7	0.95	1.8	2.7	1.1
1089	14	1.8	0.44	6.0	5.6	0.65	1.0	2.7	1.7
1134	4	1.1	0.56	2.0	1.4	0.58	0.85	1.3	0.67
1137	1	0.78	0.78	0.78	-	0.78	0.78	0.78	-
775	5	0.69	0.02	2.2	2.2	0.10	0.10	1.0	0.94
1131	2	0.64	0.28	1.0	0.72	0.46	0.64	0.82	0.51
1117	10	0.62	0.10	2.0	1.9	0.10	0.41	1.0	0.63
766	4	0.59	0.10	1.0	0.90	0.35	0.64	0.88	0.41
1127	2	0.57	0.14	1.0	0.86	0.36	0.57	0.79	0.61
1111	9	0.51	0.10	2.0	1.9	0.10	0.10	1.0	0.68
768	5	0.51	0.02	1.3	1.3	0.10	0.10	1.0	0.60
792	7	0.46	0.10	1.7	1.6	0.10	0.10	0.55	0.65
1138	1	0.42	0.42	0.42	-	0.42	0.42	0.42	-
630	20	0.24	0.001	1.9	1.9	0.06	0.09	0.13	0.45
736	24	0.19	0.01	2.0	2.0	0.04	0.10	0.10	0.43
628	20	0.18	0.02	1.2	1.2	0.05	0.08	0.10	0.32
856	10	0.17	0.01	1.0	0.99	0.07	0.10	0.10	0.29
626	21	0.16	0.01	1.0	0.99	0.05	0.08	0.19	0.22
855	11	0.14	0.004	1.0	1.0	0.02	0.10	0.10	0.29
734	23	0.12	0.001	1.0	1.0	0.03	0.10	0.10	0.20
1135	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1136	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1139	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1142	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
1143	1	0.10	0.10	0.10	-	0.10	0.10	0.10	-
797 (Bkgrnd)	19	0.08	0.003	0.10	0.10	0.06	0.10	0.10	0.04
782	6	0.08	0.03	0.10	0.07	0.05	0.10	0.10	0.03
850 (Bkgrnd)	24	0.07	0.004	0.10	0.10	0.05	0.10	0.10	0.03
783	7	0.06	0.004	0.10	0.10	0.01	0.10	0.10	0.05

Manganese

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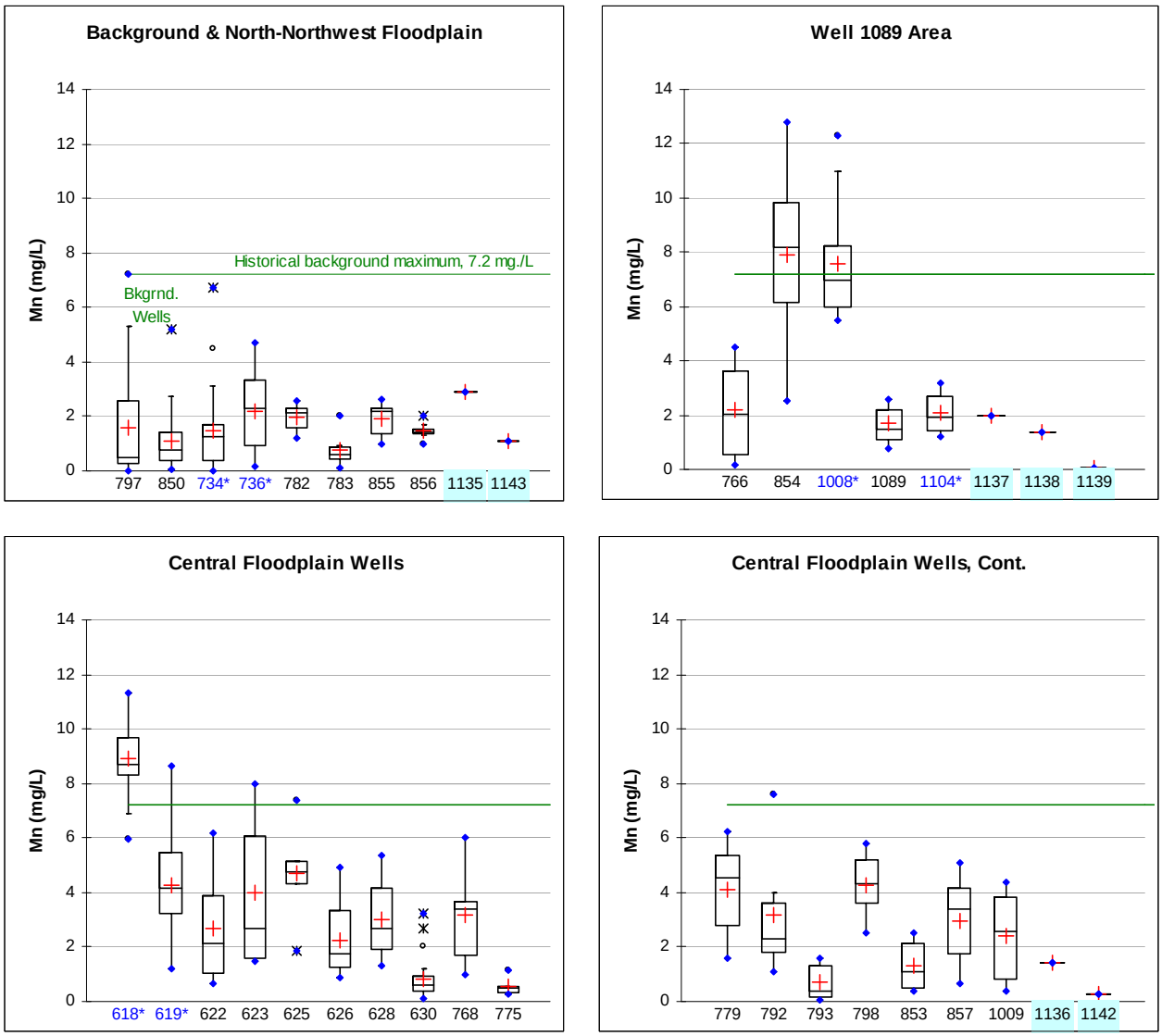

Figure A–3. Historical Distributions of Manganese in Floodplain Monitoring Wells, page 1 of 2†

† The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of manganese for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	19	24	26	26	6	7	11	9	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	4	11	12	9	7	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	21	35	8	5	6	24	23	23	5	5	5	6	5	5	10	10	6	1	1

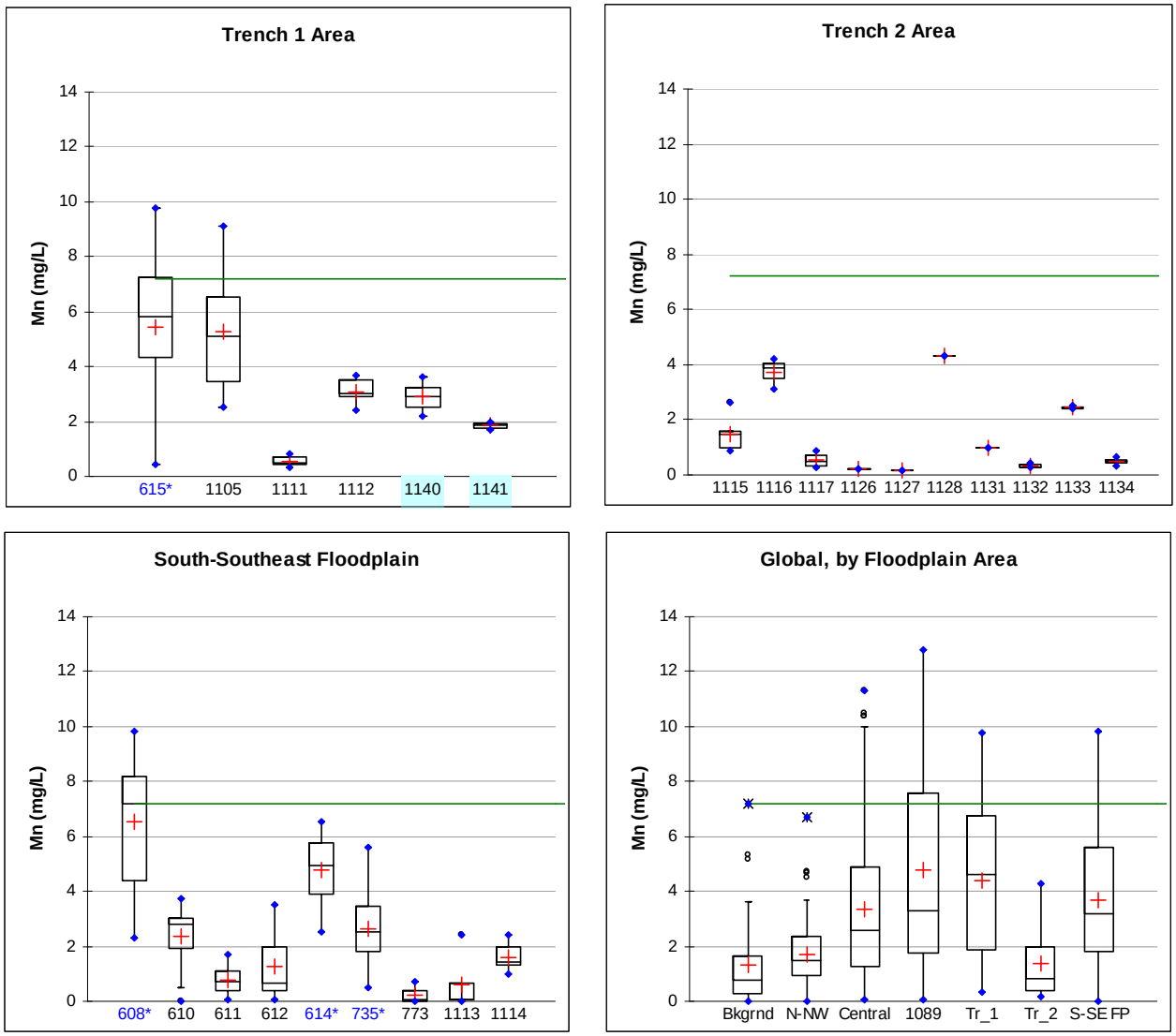

Figure A–3. Historical Distributions of Manganese in Floodplain Monitoring Wells, page 2 of 2[†]

[†] See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	31	6	6	5	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	6	3	6	1	1	1	1	3	2	3

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	40	23	4	15	36	29	5	4	6

Table A–3a. Summary Statistics for Manganese in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	621	3.2	0.001	12.8	12.8	1.1	2.5	4.7	2.7
608	40	6.5	2.3	9.9	7.6	4.4	7.2	8.2	2.3
610	23	2.4	0.01	3.7	3.7	1.9	2.8	3.0	1.0
611	4	0.8	0.07	1.7	1.7	0.40	0.69	1.1	0.70
612	15	1.3	0.04	3.5	3.5	0.41	0.66	2.0	1.2
614	36	4.8	2.5	6.6	4.1	3.9	4.9	5.8	1.2
615	31	5.4	0.46	9.8	9.3	4.3	5.8	7.2	2.9
618	21	8.9	6.0	11.3	5.3	8.3	8.7	9.7	1.3
619	35	4.3	1.2	8.7	7.5	3.2	4.2	5.5	1.9
622	8	2.7	0.67	6.2	5.5	1.1	2.1	3.9	1.9
623	5	4.0	1.5	8.0	6.5	1.6	2.7	6.1	2.9
625	6	4.7	1.9	7.4	5.5	4.3	4.8	5.1	1.8
626	24	2.2	0.87	4.9	4.0	1.3	1.8	3.4	1.3
628	23	3.0	1.3	5.4	4.1	1.9	2.7	4.1	1.4
630	23	0.8	0.11	3.2	3.1	0.38	0.62	0.91	0.78
734	26	1.5	0.006	6.7	6.7	0.36	1.3	1.7	1.6
735	29	2.6	0.50	5.6	5.1	1.8	2.5	3.5	1.3
736	26	2.2	0.15	4.7	4.6	0.90	2.3	3.3	1.4
766	4	2.2	0.17	4.5	4.4	0.55	2.0	3.7	2.1
768	5	3.1	0.96	6.0	5.0	1.7	3.4	3.7	2.0
773	5	0.2	0.001	0.71	0.71	0.01	0.06	0.39	0.31
775	5	0.6	0.29	1.1	0.84	0.34	0.47	0.55	0.34
779	5	4.1	1.6	6.2	4.6	2.8	4.5	5.3	1.9
782	6	2.0	1.2	2.6	1.4	1.6	2.2	2.3	0.54
783	7	0.8	0.10	2.0	1.9	0.43	0.58	0.87	0.61
792	6	3.2	1.1	7.6	6.5	1.8	2.3	3.6	2.4
793	5	0.7	0.04	1.6	1.6	0.14	0.39	1.3	0.71
797 (Bkgrnd)	19	1.6	0.001	7.2	7.2	0.27	0.50	2.6	2.0
798	5	4.3	2.5	5.8	3.3	3.6	4.3	5.2	1.3
850 (Bkgrnd)	24	1.1	0.07	5.2	5.1	0.40	0.78	1.4	1.1
853	10	1.3	0.41	2.5	2.1	0.48	1.1	2.2	0.91
854	11	7.9	2.5	12.8	10.3	6.1	8.2	9.8	3.5
855	11	1.9	1.0	2.6	1.6	1.4	2.2	2.3	0.57
856	9	1.5	0.99	2.0	1.0	1.4	1.4	1.5	0.28
857	10	3.0	0.67	5.1	4.4	1.7	3.4	4.1	1.6
1008	12	7.6	5.5	12.3	6.8	6.0	7.0	8.2	2.1
1009	6	2.4	0.37	4.4	4.0	0.84	2.6	3.8	1.7
1089	9	1.7	0.77	2.6	1.8	1.1	1.5	2.2	0.66
1104	7	2.1	1.2	3.2	2.0	1.5	1.9	2.7	0.80
1105	6	5.3	2.5	9.1	6.6	3.5	5.1	6.5	2.5
1111	6	0.6	0.34	0.82	0.48	0.44	0.50	0.74	0.20
1112	5	3.1	2.4	3.7	1.3	2.9	3.0	3.5	0.51
1113	4	0.6	0.02	2.4	2.4	0.03	0.04	0.63	1.2
1114	6	1.6	1.0	2.4	1.4	1.3	1.5	2.0	0.53
1115	6	1.5	0.85	2.6	1.8	1.0	1.5	1.6	0.64
1116	3	3.7	3.1	4.2	1.1	3.5	3.9	4.1	0.57
1117	6	0.5	0.30	0.87	0.57	0.35	0.47	0.74	0.25
1126	1	0.2	0.23	0.23	-	0.23	0.23	0.23	-
1127	1	0.1	0.14	0.14	-	0.14	0.14	0.14	-
1128	1	4.3	4.3	4.3	-	4.3	4.3	4.3	-
1131	1	1.0	1.0	1.0	-	1.0	1.0	1.0	-
1132	3	0.3	0.29	0.45	0.16	0.30	0.30	0.38	0.09
1133	2	2.5	2.4	2.5	0.10	2.4	2.5	2.5	0.07
1134	3	0.5	0.34	0.63	0.29	0.42	0.49	0.56	0.15
1135	1	2.9	2.9	2.9	-	2.9	2.9	2.9	-
1136	1	1.4	1.4	1.4	-	1.4	1.4	1.4	-
1137	1	2.0	2.0	2.0	-	2.0	2.0	2.0	-
1138	1	1.4	1.4	1.4	-	1.4	1.4	1.4	-
1139	1	0.1	0.08	0.08	-	0.08	0.08	0.08	-
1140	2	2.9	2.2	3.6	1.4	2.6	2.9	3.3	0.99
1141	2	1.9	1.7	2.0	0.30	1.8	1.9	1.9	0.21
1142	1	0.3	0.29	0.29	-	0.29	0.29	0.29	-
1143	1	1.1	1.1	1.1	-	1.1	1.1	1.1	-

Table A–3b. Summary Statistics for Manganese in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	621	3.2	0.001	12.8	12.8	1.1	2.5	4.7	2.7
618	21	8.9	6.0	11.3	5.3	8.3	8.7	9.7	1.3
854	11	7.9	2.5	12.8	10.3	6.1	8.2	9.8	3.5
1008	12	7.6	5.5	12.3	6.8	6.0	7.0	8.2	2.1
608	40	6.5	2.3	9.9	7.6	4.4	7.2	8.2	2.3
615	31	5.4	0.46	9.8	9.3	4.3	5.8	7.2	2.9
1105	6	5.3	2.5	9.1	6.6	3.5	5.1	6.5	2.5
614	36	4.8	2.5	6.6	4.1	3.9	4.9	5.8	1.2
625	6	4.7	1.9	7.4	5.5	4.3	4.8	5.1	1.8
1128	1	4.3	4.3	4.3	-	4.3	4.3	4.3	-
798	5	4.3	2.5	5.8	3.3	3.6	4.3	5.2	1.3
619	35	4.3	1.2	8.7	7.5	3.2	4.2	5.5	1.9
779	5	4.1	1.6	6.2	4.6	2.8	4.5	5.3	1.9
623	5	4.0	1.5	8.0	6.5	1.6	2.7	6.1	2.9
1116	3	3.7	3.1	4.2	1.1	3.5	3.9	4.1	0.57
792	6	3.2	1.1	7.6	6.5	1.8	2.3	3.6	2.4
768	5	3.1	0.96	6.0	5.0	1.7	3.4	3.7	2.0
1112	5	3.1	2.4	3.7	1.3	2.9	3.0	3.5	0.51
628	23	3.0	1.3	5.4	4.1	1.9	2.7	4.1	1.4
857	10	3.0	0.67	5.1	4.4	1.7	3.4	4.1	1.6
1135	1	2.9	2.9	2.9	-	2.9	2.9	2.9	-
1140	2	2.9	2.2	3.6	1.4	2.6	2.9	3.3	0.99
622	8	2.7	0.67	6.2	5.5	1.1	2.1	3.9	1.9
735	29	2.6	0.50	5.6	5.1	1.8	2.5	3.5	1.3
1133	2	2.5	2.4	2.5	0.10	2.4	2.5	2.5	0.07
1009	6	2.4	0.37	4.4	4.0	0.84	2.6	3.8	1.7
610	23	2.4	0.01	3.7	3.7	1.9	2.8	3.0	1.0
626	24	2.2	0.87	4.9	4.0	1.3	1.8	3.4	1.3
736	26	2.2	0.15	4.7	4.6	0.90	2.3	3.3	1.4
766	4	2.2	0.17	4.5	4.4	0.55	2.0	3.7	2.1
1104	7	2.1	1.2	3.2	2.0	1.5	1.9	2.7	0.80
1137	1	2.0	2.0	2.0	-	2.0	2.0	2.0	-
782	6	2.0	1.2	2.6	1.4	1.6	2.2	2.3	0.54
855	11	1.9	1.0	2.6	1.6	1.4	2.2	2.3	0.57
1141	2	1.9	1.7	2.0	0.30	1.8	1.9	1.9	0.21
1089	9	1.7	0.77	2.6	1.8	1.1	1.5	2.2	0.66
1114	6	1.6	1.0	2.4	1.4	1.3	1.5	2.0	0.53
797 (Bkgrnd)	19	1.6	0.001	7.2	7.2	0.27	0.50	2.6	2.0
1115	6	1.5	0.85	2.6	1.8	1.0	1.5	1.6	0.64
734	26	1.5	0.006	6.7	6.7	0.36	1.3	1.7	1.6
856	9	1.5	0.99	2.0	1.0	1.4	1.4	1.5	0.28
1136	1	1.4	1.4	1.4	-	1.4	1.4	1.4	-
1138	1	1.4	1.4	1.4	-	1.4	1.4	1.4	-
853	10	1.3	0.41	2.5	2.1	0.48	1.1	2.2	0.91
612	15	1.3	0.04	3.5	3.5	0.41	0.66	2.0	1.2
1143	1	1.1	1.1	1.1	-	1.1	1.1	1.1	-
850 (Bkgrnd)	24	1.1	0.07	5.2	5.1	0.40	0.78	1.4	1.1
1131	1	1.0	1.0	1.0	-	1.0	1.0	1.0	-
630	23	0.8	0.11	3.2	3.1	0.38	0.62	0.91	0.78
611	4	0.8	0.07	1.7	1.7	0.40	0.69	1.1	0.70
783	7	0.8	0.10	2.0	1.9	0.43	0.58	0.87	0.61
793	5	0.7	0.04	1.6	1.6	0.14	0.39	1.3	0.71
1113	4	0.6	0.02	2.4	2.4	0.03	0.04	0.63	1.2
1111	6	0.6	0.34	0.82	0.48	0.44	0.50	0.74	0.20
775	5	0.6	0.29	1.1	0.84	0.34	0.47	0.55	0.34
1117	6	0.5	0.30	0.87	0.57	0.35	0.47	0.74	0.25
1134	3	0.5	0.34	0.63	0.29	0.42	0.49	0.56	0.15
1132	3	0.3	0.29	0.45	0.16	0.30	0.30	0.38	0.09
1142	1	0.3	0.29	0.29	-	0.29	0.29	0.29	-
773	5	0.2	0.001	0.71	0.71	0.01	0.06	0.39	0.31
1126	1	0.2	0.23	0.23	-	0.23	0.23	0.23	-
1127	1	0.1	0.14	0.14	-	0.14	0.14	0.14	-
1139	1	0.1	0.08	0.08	-	0.08	0.08	0.08	-

Cutoff for historical background maximum, 7.2 mg/L, denoted by blue dashed line above.

Nitrate

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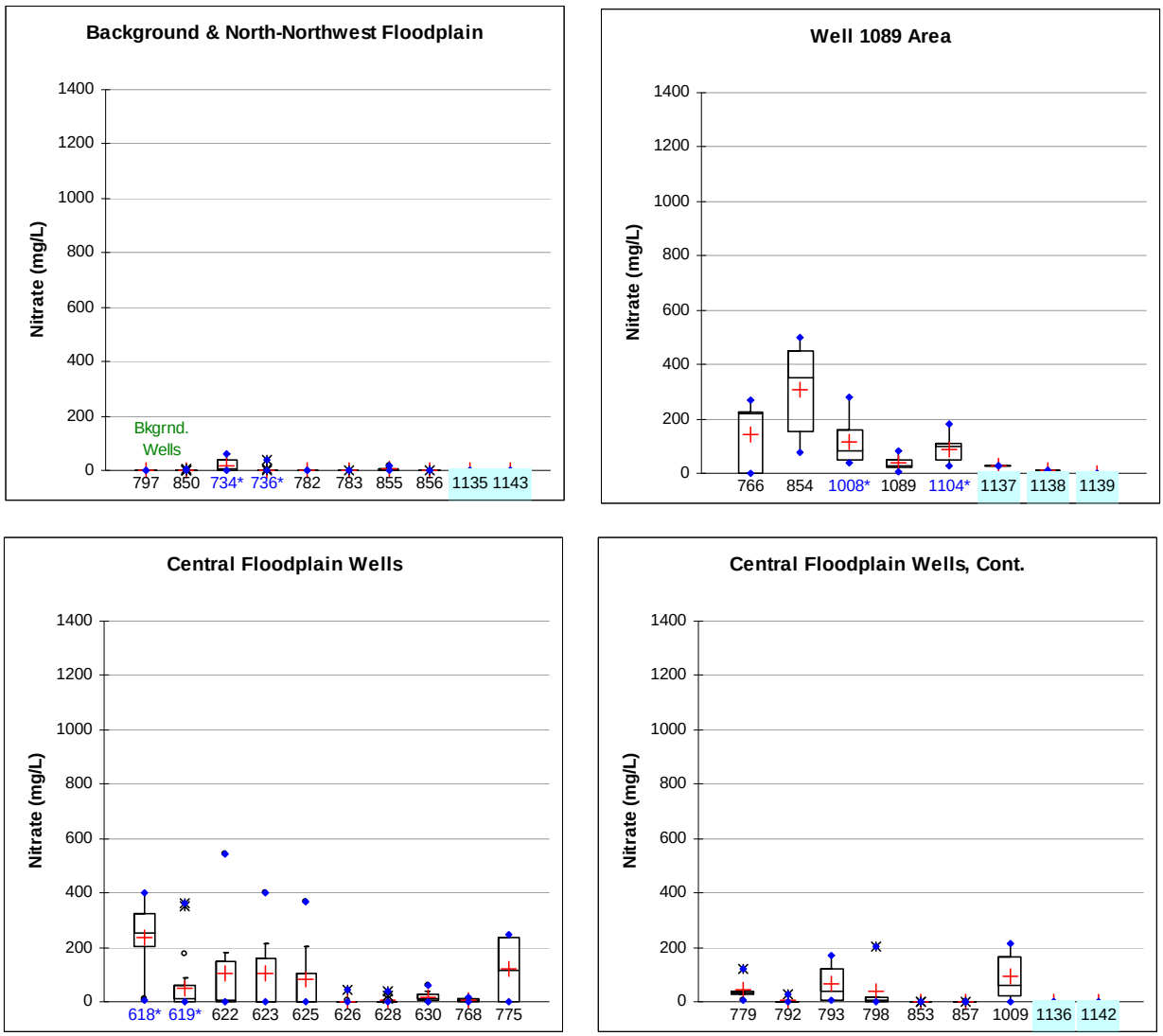

Figure A–4. Historical Distributions of Nitrate in Floodplain Monitoring Wells, page 1 of 2[†]

[†] The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of nitrate for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	19	24	25	25	6	7	12	10	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	5	12	13	22	10	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	27	35	9	6	7	24	23	22	6	6	6	7	6	6	11	11	7	1	1

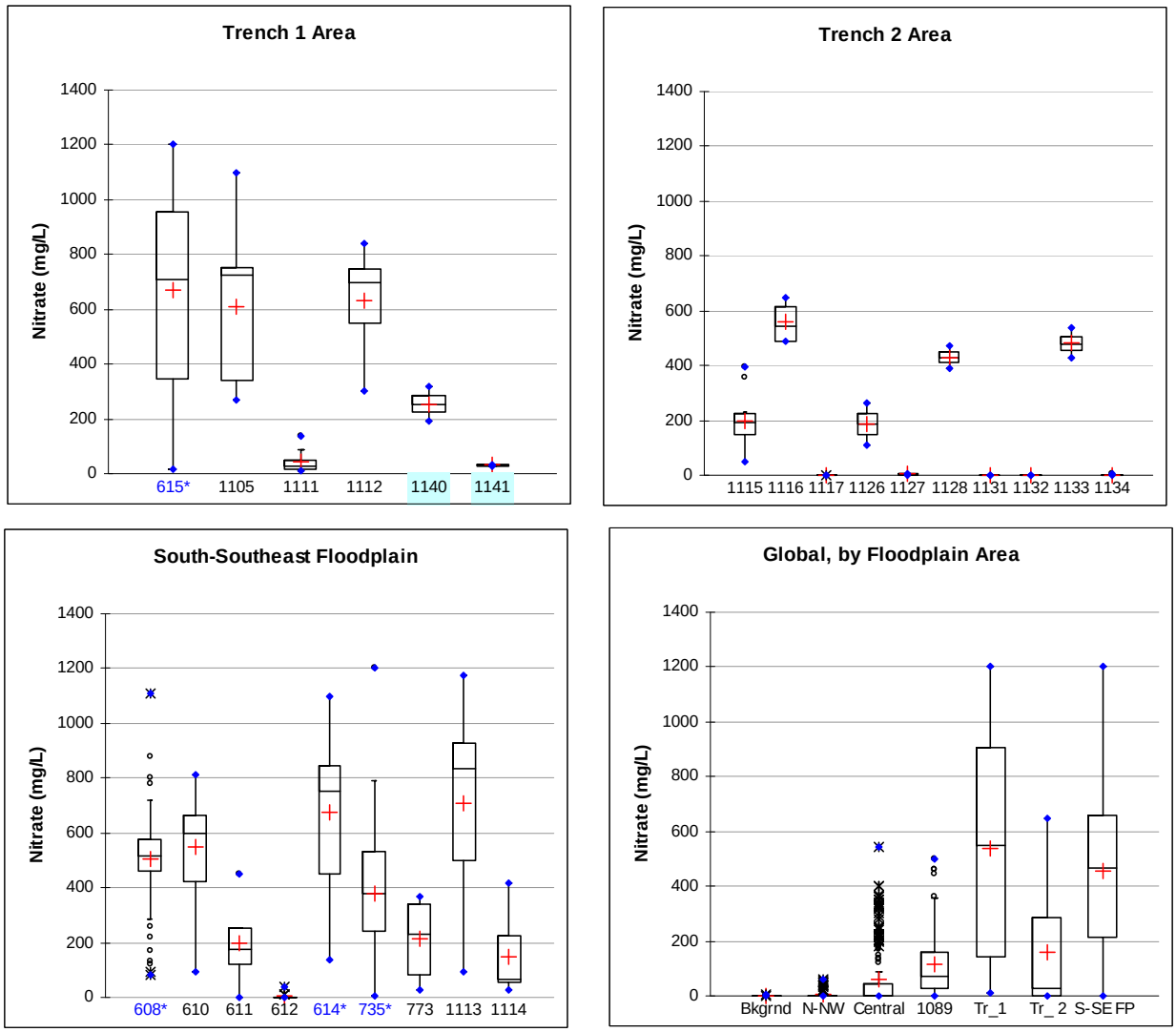

Figure A–4. Historical Distributions of Nitrate in Floodplain Monitoring Wells, page 2 of 2[†]

[†] See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	36	7	9	7	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	11	4	10	2	2	2	2	4	3	4

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	43	23	5	15	41	29	6	7	11

Table A–4a. Summary Statistics for Nitrate in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	703	205	0.002	1,200	1,200	0.14	36.1	355	290
608	43	503	82.4	1,107	1,025	459	519	575	207
610	23	549	92.6	813	721	424	601	663	183
611	5	200	0.66	452	451	120	178	251	168
612	15	3.9	0.003	36.1	36.1	0.01	0.03	0.73	9.6
614	41	673	138	1,100	962	450	752	847	258
615	36	669	14.0	1,200	1,186	346	707	955	376
618	27	235	6.1	402	396	201	250	327	113
619	35	47.5	0.01	361	361	0.06	10.7	61.9	86.7
622	9	102	0.01	542	542	0.02	3.4	149	179
623	6	102	0.01	400	400	0.02	1.2	160	168
625	7	81.9	0.02	366	366	0.04	2.3	102	146
626	24	2.6	0.01	42.9	42.9	0.13	0.32	1.4	8.7
628	23	3.3	0.002	36.1	36.1	0.05	0.21	1.0	8.8
630	22	16.8	0.02	59.9	59.9	4.3	11.7	25.7	15.4
734	25	17.8	0.01	59.0	58.9	0.40	3.2	36.4	21.0
735	29	380	7.1	1,200	1,193	244	380	530	240
736	25	2.1	0.01	39.5	39.5	0.02	0.08	0.38	7.9
766	5	142	0.09	267	266	2.3	217	224	130
768	6	6.1	0.02	13.9	13.9	0.60	4.9	11.3	6.2
773	6	212	26.0	370	344	83.4	233	340	155
775	6	119	0.05	248	248	0.71	113	237	130
779	6	43.9	4.2	122	118	28.8	34.7	39.4	40.3
782R	6	0.02	0.01	0.03	0.02	0.01	0.01	0.02	0.01
783R	7	0.14	0.01	0.82	0.81	0.01	0.01	0.04	0.30
792	7	4.7	0.01	30.0	30.0	0.03	0.04	1.2	11.2
793	6	66.7	5.1	171	166	7.9	38.0	122	73.4
797 (Bkgrnd)	19	0.04	0.004	0.11	0.11	0.01	0.03	0.06	0.03
798	6	38.6	0.90	203	202	1.5	3.7	15.6	80.9
850 (Bkgrnd)	24	0.23	0.004	3.3	3.3	0.01	0.01	0.02	0.74
853	11	0.08	0.01	0.49	0.48	0.01	0.01	0.04	0.15
854	12	306	76.3	501	425	154	349	448	155
855	12	4.2	0.01	16.9	16.9	0.26	2.2	6.8	5.2
856	10	0.12	0.003	1.0	1.0	0.01	0.02	0.04	0.31
857	11	0.27	0.01	1.9	1.9	0.02	0.05	0.16	0.56
1008	13	115	38.9	282	244	47.0	80.0	160	83.4
1009	7	93.6	0.42	217	216	22.0	60.1	167	90.1
1089	22	36.0	5.4	83.0	77.6	21.0	30.0	51.5	20.9
1104	10	87.4	28.0	180	152	48.8	97.2	108	46.2
1105	7	611	270	1,100	830	340	727	750	305
1111	9	45.7	12.0	139	127	14.0	28.0	51.0	42.7
1112	7	633	300	840	540	550	700	744	181
1113	7	708	96.0	1,175	1,079	500	836	926	370
1114	11	148	27.0	420	393	54.3	65.0	224	129
1115	11	197	48.0	394	346	148	190	227	107
1116	4	558	490	650	160	491	546	613	80.2
1117	10	0.36	0.01	2.3	2.3	0.03	0.08	0.39	0.71
1126	2	187	110	264	154	148	187	225	109
1127	2	4.1	0.01	8.1	8.1	2.0	4.1	6.1	5.7
1128	2	431	392	470	78.5	411	431	450	55.5
1131	2	0.06	0.02	0.10	0.08	0.04	0.06	0.08	0.05
1132	4	0.07	0.01	0.16	0.15	0.01	0.06	0.12	0.07
1133	3	482	430	536	106	455	480	508	52.8
1134	4	0.86	0.01	3.4	3.4	0.01	0.01	0.86	1.7
1135	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-
1136	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-
1137	1	27.0	27.0	27.0	-	27.0	27.0	27.0	-
1138	1	10.0	10.0	10.0	-	10.0	10.0	10.0	-
1139	1	1.9	1.9	1.9	-	1.9	1.9	1.9	-
1140	2	255	190	320	130	223	255	288	91.9
1141	2	31.0	29.0	33.0	4.0	30.0	31.0	32.0	2.8
1142	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-
1143	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-

Table A–4b. Summary Statistics for Nitrate in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	703	205	0.002	1,200	1,200	0.14	36.1	355	290
1113	7	708	96.0	1,175	1,079	500	836	926	370
614	41	673	138	1,100	962	450	752	847	258
615	36	669	14.0	1,200	1,186	346	707	955	376
1112	7	633	300	840	540	550	700	744	181
1105	7	611	270	1,100	830	340	727	750	305
1116	4	558	490	650	160	491	546	613	80.2
610	23	549	92.6	813	721	424	601	663	183
608	43	503	82.4	1,107	1,025	459	519	575	207
1133	3	482	430	536	106	455	480	508	52.8
1128	2	431	392	470	78.5	411	431	450	55.5
735	29	380	7.1	1,200	1,193	244	380	530	240
854	12	306	76.3	501	425	154	349	448	155
1140	2	255	190	320	130	223	255	288	91.9
618	27	235	6.1	402	396	201	250	327	113
773	6	212	26.0	370	344	83.4	233	340	155
611	5	200	0.66	452	451	120	178	251	168
1115	11	197	48.0	394	346	148	190	227	107
1126	2	187	110	264	154	148	187	225	109
1114	11	148	27.0	420	393	54.3	65.0	224	129
766	5	142	0.09	267	266	2.3	217	224	130
775	6	119	0.05	248	248	0.71	113	237	130
1008	13	115	38.9	282	244	47.0	80.0	160	83.4
623	6	102	0.01	400	400	0.02	1.2	160	168
622	9	102	0.01	542	542	0.02	3.4	149	179
1009	7	93.6	0.42	217	216	22.0	60.1	167	90.1
1104	10	87.4	28.0	180	152	48.8	97.2	108	46.2
625	7	81.9	0.02	366	366	0.04	2.3	102	146
793	6	66.7	5.1	171	166	7.9	38.0	122	73.4
619	35	47.5	0.01	361	361	0.06	10.7	61.9	86.7
1111	9	45.7	12.0	139	127	14.0	28.0	51.0	42.7
779	6	43.9	4.2	122	118	28.8	34.7	39.4	40.3
798	6	38.6	0.90	203	202	1.5	3.7	15.6	80.9
1089	22	36.0	5.4	83.0	77.6	21.0	30.0	51.5	20.9
1141	2	31.0	29.0	33.0	4.0	30.0	31.0	32.0	2.8
1137	1	27.0	27.0	27.0	-	27.0	27.0	27.0	-
734	25	17.8	0.01	59.0	58.9	0.40	3.2	36.4	21.0
630	22	16.8	0.02	59.9	59.9	4.3	11.7	25.7	15.4
1138	1	10.0	10.0	10.0	-	10.0	10.0	10.0	-
768	6	6.1	0.02	13.9	13.9	0.60	4.9	11.3	6.2
792	7	4.7	0.01	30.0	30.0	0.03	0.04	1.2	11.2
855	12	4.2	0.01	16.9	16.9	0.26	2.2	6.8	5.2
1127	2	4.1	0.01	8.1	8.1	2.0	4.1	6.1	5.7
612	15	3.9	0.003	36.1	36.1	0.01	0.03	0.73	9.6
628	23	3.3	0.002	36.1	36.1	0.05	0.21	1.0	8.8
626	24	2.6	0.01	42.9	42.9	0.13	0.32	1.4	8.7
736	25	2.1	0.01	39.5	39.5	0.02	0.08	0.38	7.9
1139	1	1.9	1.9	1.9	-	1.9	1.9	1.9	-
1134	4	0.86	0.01	3.4	3.4	0.01	0.01	0.86	1.7
1117	10	0.36	0.01	2.3	2.3	0.03	0.08	0.39	0.71
857	11	0.27	0.01	1.9	1.9	0.02	0.05	0.16	0.56
850 (Bkgrnd)	24	0.23	0.004	3.3	3.3	0.01	0.01	0.02	0.74
783R	7	0.14	0.01	0.82	0.81	0.01	0.01	0.04	0.30
856	10	0.12	0.003	1.0	1.0	0.01	0.02	0.04	0.31
853	11	0.08	0.01	0.49	0.48	0.01	0.01	0.04	0.15
1132	4	0.07	0.01	0.16	0.15	0.01	0.06	0.12	0.07
1131	2	0.06	0.02	0.10	0.08	0.04	0.06	0.08	0.05
797 (Bkgrnd)	19	0.04	0.004	0.11	0.11	0.01	0.03	0.06	0.03
782R	6	0.02	0.01	0.03	0.02	0.01	0.01	0.02	0.01
1135	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-
1136	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-
1142	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-
1143	1	0.01	0.01	0.01	-	0.01	0.01	0.01	-

Cutoff for 40 CFR 192 MCL (10 mg/L) denoted by blue dashed line above.

Selenium

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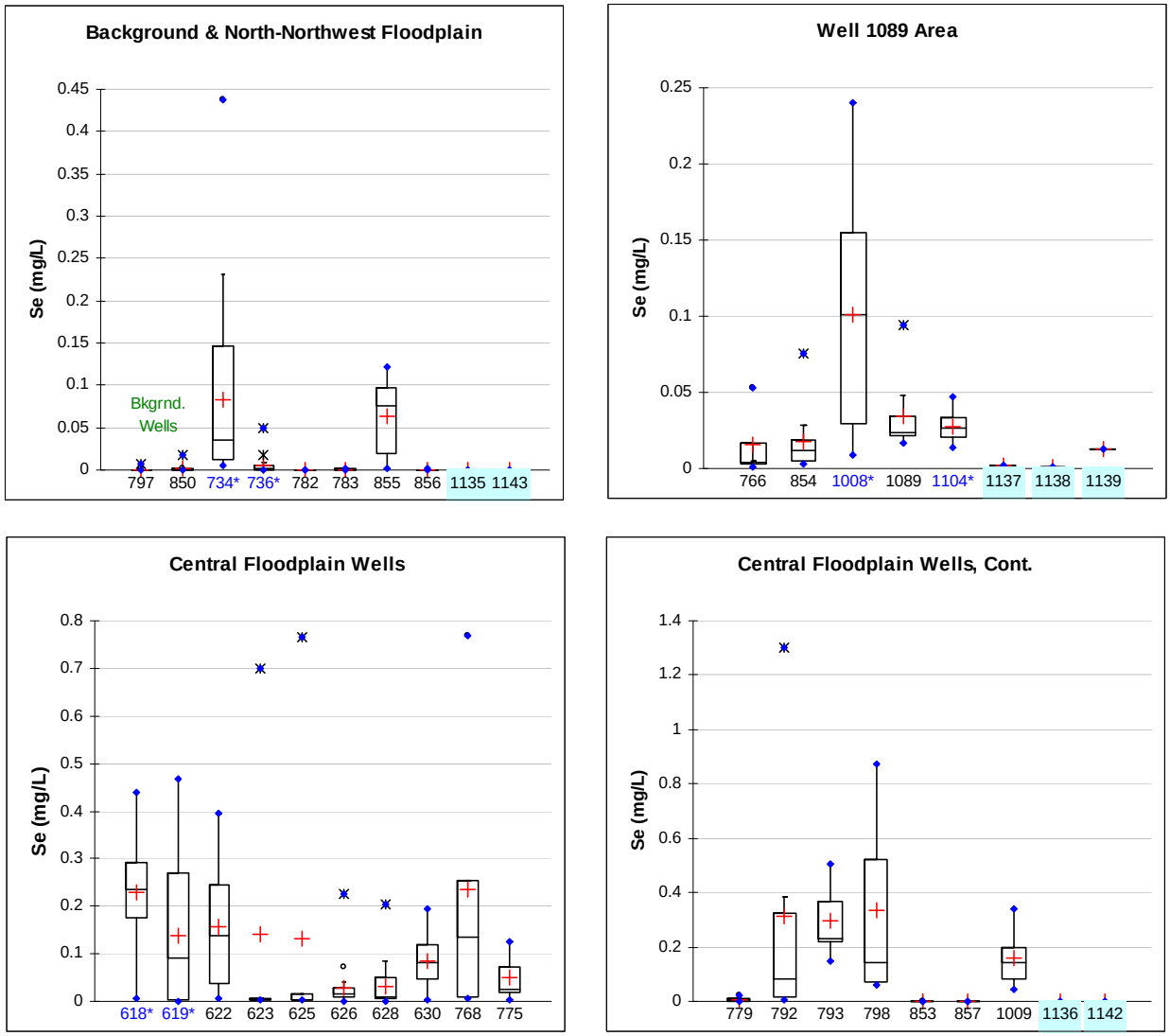

Figure A–5. Historical Distributions of Selenium in Floodplain Monitoring Wells, page 1 of 2†

† The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of selenium for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	19	24	27	27	6	7	11	9	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	4	11	12	9	7	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	22	35	8	5	6	24	23	23	5	5	5	6	5	5	10	10	6	1	1

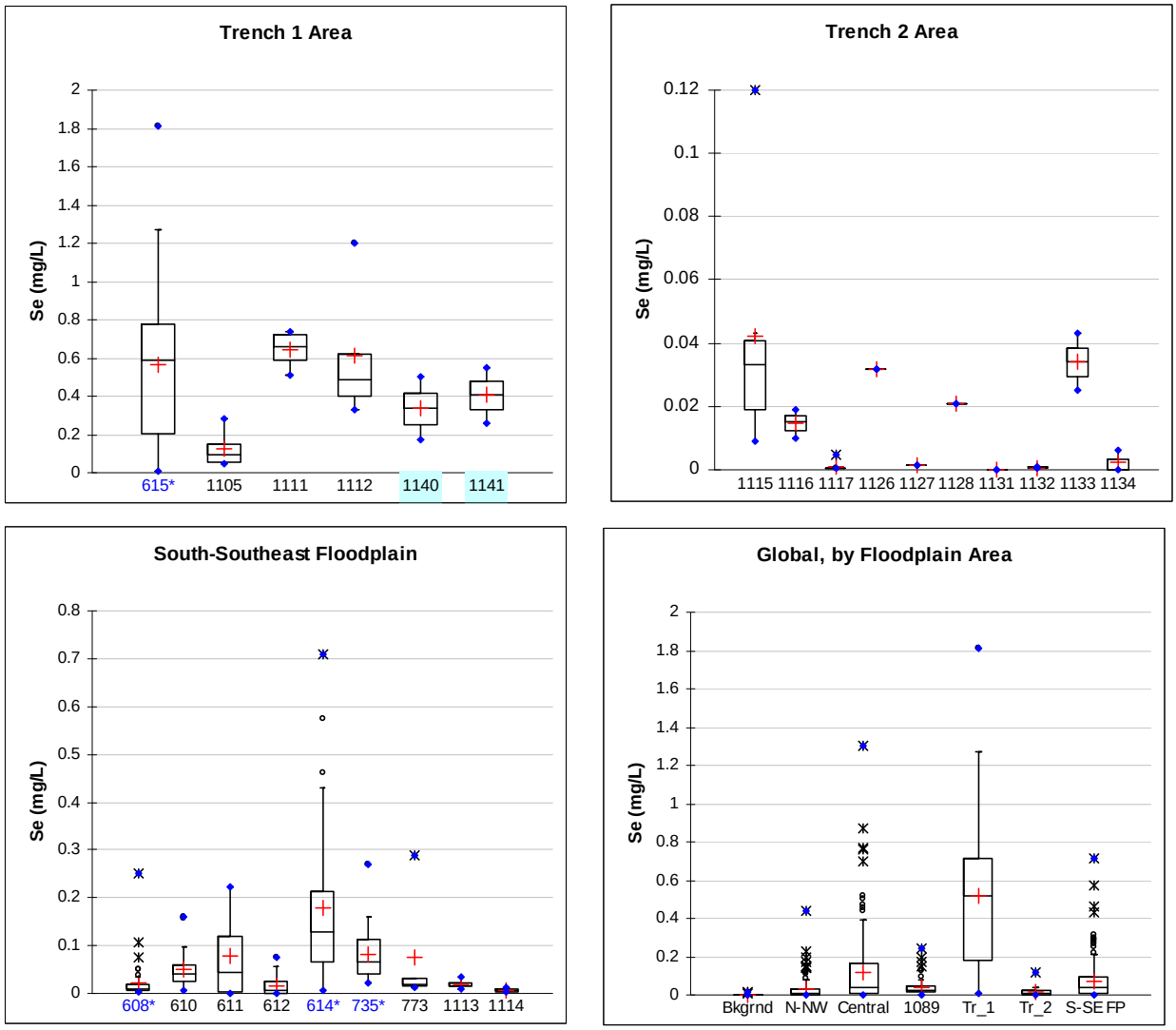

Figure A–5. Historical Distributions of Selenium in Floodplain Monitoring Wells, page 2 of 2†

† See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	31	6	6	5	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	6	3	6	1	1	1	1	3	2	3

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	40	23	4	15	37	30	5	4	6

Table A–5a. Summary Statistics for Selenium in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	626	0.11	0.0001	1.8	1.8	0.004	0.03	0.12	0.20
608	40	0.02	0.004	0.25	0.25	0.006	0.008	0.02	0.04
610	23	0.05	0.005	0.16	0.16	0.024	0.04	0.06	0.04
611	4	0.08	0.001	0.22	0.22	0.004	0.04	0.12	0.10
612	15	0.02	0.0001	0.08	0.08	0.0007	0.005	0.02	0.02
614	37	0.18	0.005	0.71	0.71	0.066	0.13	0.21	0.16
615	31	0.57	0.005	1.8	1.8	0.21	0.59	0.78	0.42
618	22	0.23	0.005	0.44	0.44	0.18	0.24	0.29	0.10
619	35	0.14	0.0003	0.47	0.47	0.003	0.09	0.27	0.15
622	8	0.16	0.006	0.40	0.39	0.037	0.14	0.25	0.14
623	5	0.14	0.002	0.70	0.70	0.002	0.003	0.006	0.31
625	6	0.13	0.002	0.76	0.76	0.002	0.004	0.01	0.31
626	24	0.03	0.0004	0.23	0.22	0.009	0.02	0.03	0.05
628	23	0.03	0.0003	0.20	0.20	0.005	0.01	0.05	0.05
630	23	0.08	0.005	0.20	0.19	0.048	0.08	0.12	0.05
734	27	0.08	0.005	0.44	0.43	0.012	0.04	0.15	0.10
735	30	0.08	0.02	0.27	0.25	0.042	0.07	0.11	0.06
736	27	0.005	0.0001	0.05	0.05	0.0007	0.002	0.005	0.010
766	4	0.02	0.001	0.05	0.05	0.003	0.004	0.02	0.02
768	5	0.23	0.006	0.77	0.76	0.009	0.13	0.25	0.32
773	5	0.07	0.01	0.29	0.28	0.017	0.02	0.03	0.12
775	5	0.05	0.004	0.12	0.12	0.019	0.02	0.07	0.05
779	5	0.008	0.001	0.02	0.02	0.002	0.004	0.009	0.009
782	6	0.0002	0.0001	0.0004	0.0003	0.0001	0.0001	0.0003	0.0001
783	7	0.001	0.0004	0.002	0.001	0.0004	0.0004	0.001	0.0005
792	6	0.31	0.006	1.3	1.3	0.015	0.08	0.33	0.51
793	5	0.30	0.15	0.51	0.36	0.22	0.23	0.37	0.14
797 (Bkgrnd)	19	0.001	0.0001	0.007	0.007	0.0001	0.0004	0.0007	0.002
798	5	0.33	0.06	0.87	0.81	0.070	0.14	0.52	0.36
850 (Bkgrnd)	24	0.001	0.0001	0.02	0.02	0.0002	0.0004	0.001	0.004
853	10	0.0003	0.0001	0.001	0.001	0.0001	0.0001	0.0004	0.0004
854	11	0.02	0.003	0.08	0.07	0.005	0.01	0.02	0.02
855	11	0.06	0.003	0.12	0.12	0.020	0.08	0.10	0.04
856	9	0.001	0.0002	0.001	0.001	0.0004	0.0006	0.0008	0.0003
857	10	0.001	0.0001	0.001	0.001	0.0002	0.0003	0.0009	0.0005
1008	12	0.10	0.009	0.24	0.23	0.030	0.10	0.15	0.08
1009	6	0.16	0.05	0.34	0.29	0.081	0.14	0.20	0.11
1089	9	0.03	0.02	0.09	0.08	0.022	0.02	0.03	0.02
1104	7	0.03	0.01	0.05	0.03	0.021	0.03	0.03	0.01
1105	6	0.12	0.05	0.28	0.23	0.058	0.09	0.15	0.09
1111	6	0.65	0.51	0.74	0.23	0.59	0.66	0.73	0.09
1112	5	0.61	0.33	1.2	0.87	0.40	0.49	0.62	0.35
1113	4	0.02	0.009	0.03	0.02	0.014	0.02	0.02	0.01
1114	6	0.007	0.004	0.01	0.007	0.005	0.006	0.009	0.003
1115	6	0.04	0.009	0.12	0.11	0.019	0.03	0.04	0.04
1116	3	0.01	0.01	0.02	0.009	0.013	0.02	0.02	0.005
1117	6	0.001	0.0003	0.005	0.004	0.0005	0.0005	0.0005	0.002
1126	1	0.03	0.03	0.03	-	0.032	0.03	0.03	-
1127	1	0.001	0.001	0.001	-	0.001	0.001	0.001	-
1128	1	0.02	0.02	0.02	-	0.021	0.02	0.02	-
1131	1	0.0002	0.0002	0.0002	-	0.0002	0.0002	0.0002	-
1132	3	0.001	0.0004	0.001	0.0005	0.0006	0.0008	0.0008	0.0002
1133	2	0.03	0.03	0.04	0.02	0.030	0.03	0.04	0.01
1134	3	0.002	0.0001	0.006	0.006	0.0001	0.0002	0.003	0.004
1135	1	0.0005	0.0005	0.0005	-	0.0005	0.0005	0.0005	-
1136	1	0.0001	0.0001	0.0001	-	0.0001	0.0001	0.0001	-
1137	1	0.002	0.002	0.002	-	0.002	0.002	0.002	-
1138	1	0.001	0.001	0.001	-	0.001	0.001	0.001	-
1139	1	0.01	0.01	0.01	-	0.013	0.01	0.01	-
1140	2	0.34	0.17	0.50	0.33	0.25	0.34	0.42	0.23
1141	2	0.41	0.26	0.55	0.29	0.33	0.41	0.48	0.21
1142	1	0.003	0.003	0.003	-	0.003	0.003	0.003	-
1143	1	0.0005	0.0005	0.0005	-	0.0005	0.0005	0.0005	-

Table A–5b. Summary Statistics for Selenium in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	626	0.11	0.0001	1.8	1.8	0.004	0.03	0.12	0.20
1111	6	0.65	0.51	0.74	0.23	0.59	0.66	0.73	0.09
1112	5	0.61	0.33	1.2	0.87	0.40	0.49	0.62	0.35
615	31	0.57	0.005	1.8	1.8	0.21	0.59	0.78	0.42
1141	2	0.41	0.26	0.55	0.29	0.33	0.41	0.48	0.21
1140	2	0.34	0.17	0.50	0.33	0.25	0.34	0.42	0.23
798	5	0.33	0.06	0.87	0.81	0.070	0.14	0.52	0.36
792	6	0.31	0.006	1.3	1.3	0.015	0.08	0.33	0.51
793	5	0.30	0.15	0.51	0.36	0.22	0.23	0.37	0.14
768	5	0.23	0.006	0.77	0.76	0.009	0.13	0.25	0.32
618	22	0.23	0.005	0.44	0.44	0.18	0.24	0.29	0.10
614	37	0.18	0.005	0.71	0.71	0.066	0.13	0.21	0.16
1009	6	0.16	0.05	0.34	0.29	0.081	0.14	0.20	0.11
622	8	0.16	0.006	0.40	0.39	0.037	0.14	0.25	0.14
623	5	0.14	0.002	0.70	0.70	0.002	0.003	0.006	0.31
619	35	0.14	0.0003	0.47	0.47	0.003	0.09	0.27	0.15
625	6	0.13	0.002	0.76	0.76	0.002	0.004	0.01	0.31
1105	6	0.12	0.05	0.28	0.23	0.058	0.09	0.15	0.09
1008	12	0.10	0.009	0.24	0.23	0.030	0.10	0.15	0.08
630	23	0.08	0.005	0.20	0.19	0.048	0.08	0.12	0.05
734	27	0.08	0.005	0.44	0.43	0.012	0.04	0.15	0.10
735	30	0.08	0.02	0.27	0.25	0.042	0.07	0.11	0.06
611	4	0.08	0.001	0.22	0.22	0.004	0.04	0.12	0.10
773	5	0.07	0.01	0.29	0.28	0.017	0.02	0.03	0.12
855	11	0.06	0.003	0.12	0.12	0.020	0.08	0.10	0.04
610	23	0.05	0.005	0.16	0.16	0.024	0.04	0.06	0.04
775	5	0.05	0.004	0.12	0.12	0.019	0.02	0.07	0.05
1115	6	0.04	0.009	0.12	0.11	0.019	0.03	0.04	0.04
1089	9	0.03	0.02	0.09	0.08	0.022	0.02	0.03	0.02
1133	2	0.03	0.03	0.04	0.02	0.030	0.03	0.04	0.01
628	23	0.03	0.0003	0.20	0.20	0.005	0.01	0.05	0.05
1126	1	0.03	0.03	0.03	-	0.032	0.03	0.03	-
1104	7	0.03	0.01	0.05	0.03	0.021	0.03	0.03	0.01
626	24	0.03	0.0004	0.23	0.22	0.009	0.02	0.03	0.05
608	40	0.02	0.004	0.25	0.25	0.006	0.008	0.02	0.04
1128	1	0.02	0.02	0.02	-	0.021	0.02	0.02	-
1113	4	0.02	0.009	0.03	0.02	0.014	0.02	0.02	0.01
854	11	0.02	0.003	0.08	0.07	0.005	0.01	0.02	0.02
612	15	0.02	0.0001	0.08	0.08	0.0007	0.005	0.02	0.02
766	4	0.02	0.001	0.05	0.05	0.003	0.004	0.02	0.02
1116	3	0.01	0.01	0.02	0.009	0.013	0.02	0.02	0.005
1139	1	0.01	0.01	0.01	-	0.013	0.01	0.01	-
779	5	0.008	0.001	0.02	0.02	0.002	0.004	0.009	0.009
1114	6	0.007	0.004	0.01	0.007	0.005	0.006	0.009	0.003
736	27	0.005	0.0001	0.05	0.05	0.0007	0.002	0.005	0.010
1142	1	0.003	0.003	0.003	-	0.003	0.003	0.003	-
1134	3	0.002	0.0001	0.006	0.006	0.0001	0.0002	0.003	0.004
1137	1	0.002	0.002	0.002	-	0.002	0.002	0.002	-
850 (Bkgrnd)	24	0.001	0.0001	0.02	0.02	0.0002	0.0004	0.001	0.004
1127	1	0.001	0.001	0.001	-	0.001	0.001	0.001	-
1138	1	0.001	0.001	0.001	-	0.001	0.001	0.001	-
1117	6	0.001	0.0003	0.005	0.004	0.0005	0.0005	0.0005	0.002
797 (Bkgrnd)	19	0.001	0.0001	0.007	0.007	0.0001	0.0004	0.0007	0.002
783	7	0.001	0.0004	0.002	0.001	0.0004	0.0004	0.001	0.0005
1132	3	0.001	0.0004	0.001	0.0005	0.0006	0.0008	0.0008	0.0002
856	9	0.001	0.0002	0.001	0.001	0.0004	0.0006	0.0008	0.0003
857	10	0.001	0.0001	0.001	0.001	0.0002	0.0003	0.0009	0.0005
1143	1	0.0005	0.0005	0.0005	-	0.0005	0.0005	0.0005	-
1135	1	0.0005	0.0005	0.0005	-	0.0005	0.0005	0.0005	-
853	10	0.0003	0.0001	0.001	0.001	0.0001	0.0001	0.0004	0.0004
1131	1	0.0002	0.0002	0.0002	-	0.0002	0.0002	0.0002	-
782	6	0.0002	0.0001	0.0004	0.0003	0.0001	0.0001	0.0003	0.0001
1136	1	0.0001	0.0001	0.0001	-	0.0001	0.0001	0.0001	-

Cutoffs for 40 CFR 192 (0.01 mg/L) and EPA Safe Drinking Water Act MCL (0.05 mg/L) denoted by blue dashed lines above.

Strontium

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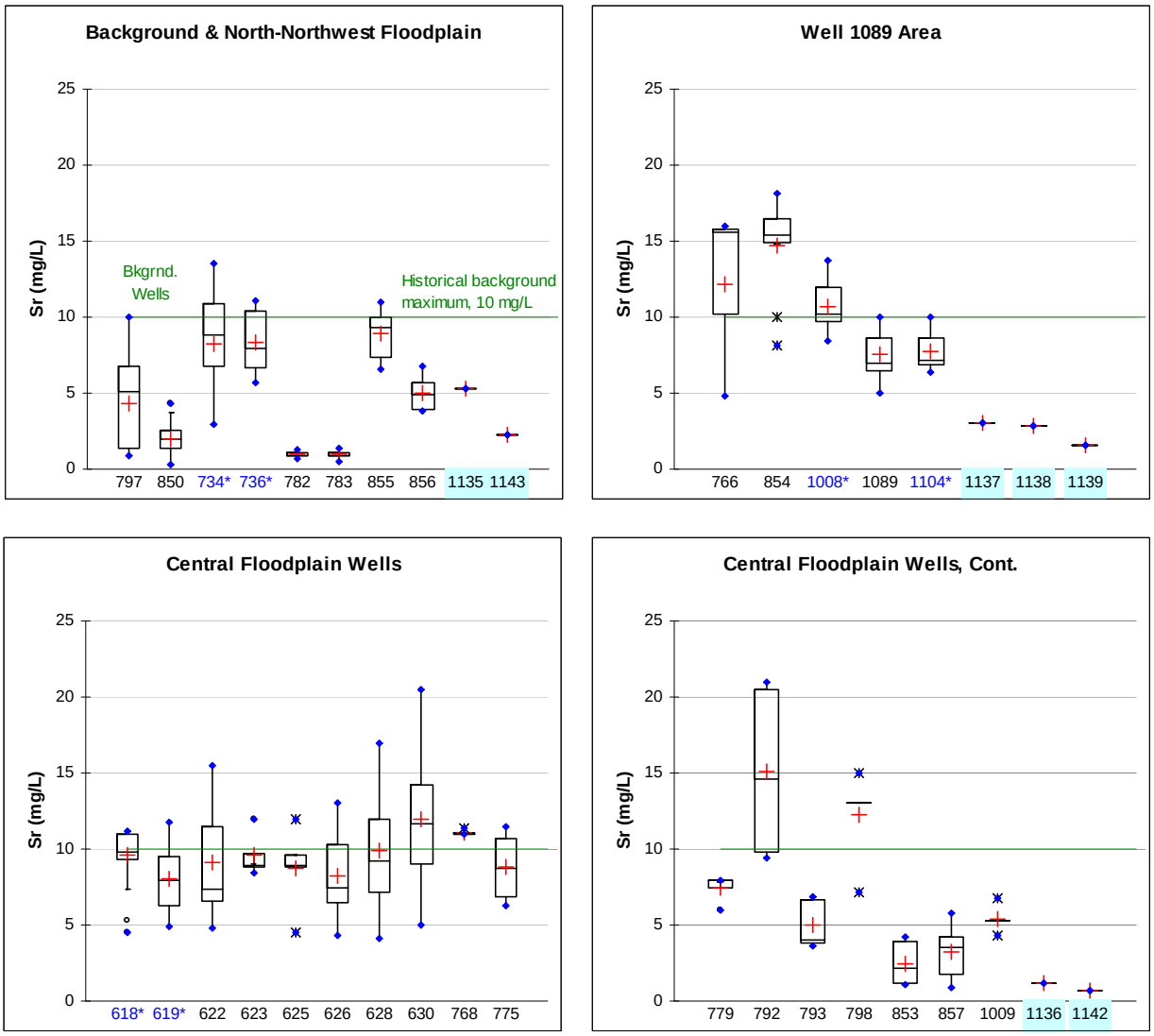

Figure A–6. Historical Distributions of Strontium in Floodplain Monitoring Wells, page 1 of 2†

† The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of strontium for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	19	24	25	25	5	6	10	9	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	3	10	11	9	7	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	21	34	7	4	5	22	21	22	4	4	4	6	5	5	10	9	5	1	1

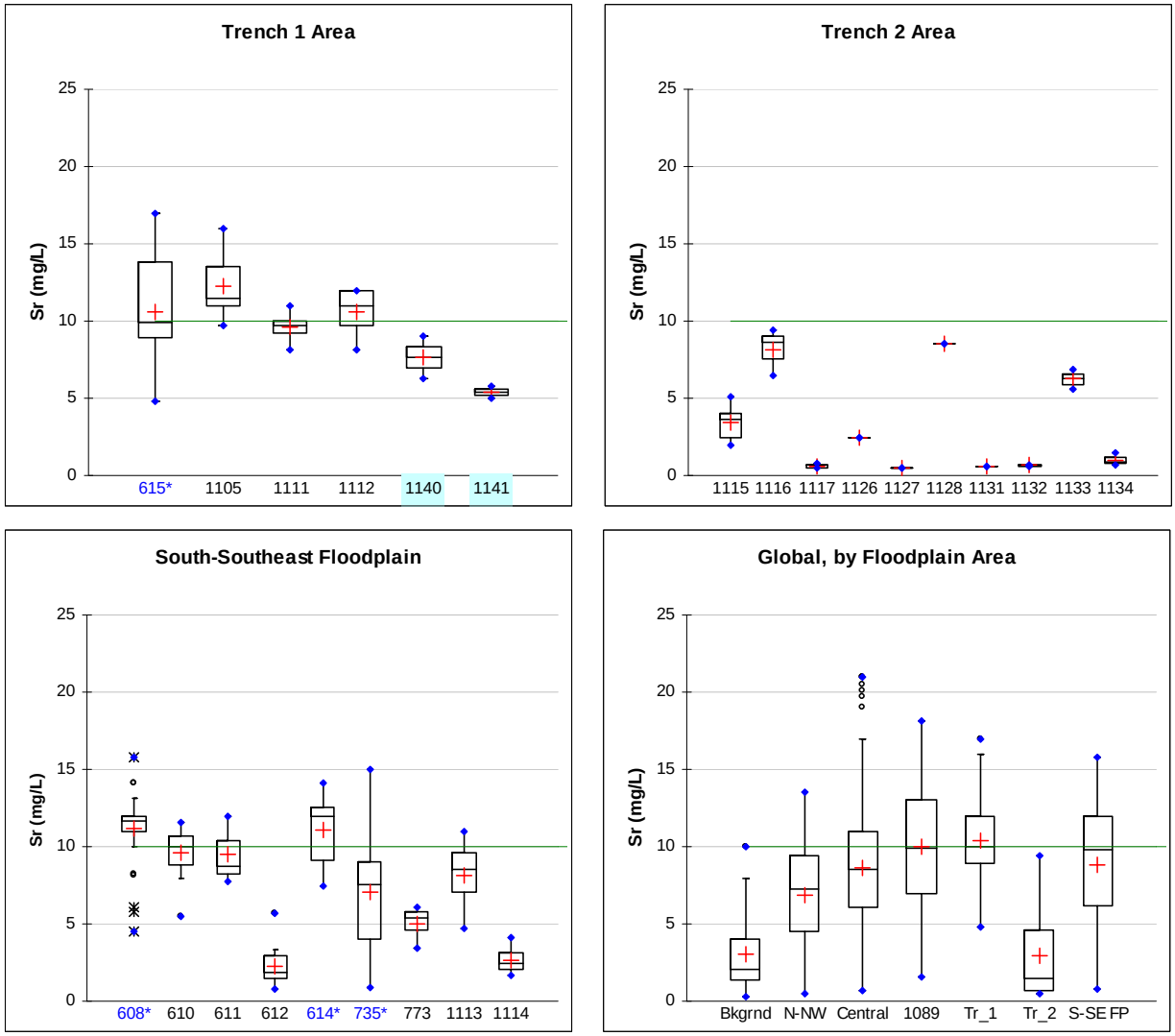

Figure A–6. Historical Distributions of Strontium in Floodplain Monitoring Wells, page 2 of 2†

† See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	30	6	6	5	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	6	3	6	1	1	1	1	3	2	3

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	38	21	3	14	36	28	4	4	6

Table A–6a. Summary Statistics for Strontium in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	590	8.0	0.3	21.0	20.8	5.2	8.4	11.0	4.1
608	38	11.2	4.5	15.8	11.3	11.0	11.7	12.0	2.2
610	21	9.6	5.5	11.6	6.1	8.8	10.0	10.7	1.4
611	3	9.5	7.7	12.0	4.3	8.2	8.7	10.4	2.3
612	14	2.2	0.8	5.6	4.9	1.5	1.9	2.9	1.3
614	36	11.1	7.5	14.1	6.6	9.1	12.0	12.5	1.9
615	30	10.6	4.8	17.0	12.2	9.0	9.9	13.8	3.1
618	21	9.6	4.5	11.2	6.7	9.3	9.8	11.0	1.9
619	34	8.0	4.9	11.8	6.9	6.3	8.0	9.5	2.0
622	7	9.1	4.8	15.5	10.7	6.6	7.3	11.5	4.4
623	4	9.6	8.4	12.0	3.6	8.8	9.0	9.8	1.6
625	5	8.8	4.5	12.0	7.5	8.8	8.9	9.6	2.7
626	22	8.2	4.3	13.0	8.7	6.5	7.4	10.3	2.5
628	21	9.9	4.1	17.0	12.9	7.2	9.2	12.0	3.4
630	22	12.0	5.0	20.5	15.5	9.0	11.7	14.3	4.5
734	25	8.3	2.9	13.5	10.6	6.8	8.8	10.9	3.0
735	28	7.1	0.9	15.0	14.1	4.0	7.5	9.0	3.6
736	25	8.3	5.7	11.1	5.4	6.7	8.0	10.4	1.8
766	3	12.1	4.8	16.0	11.2	10.2	15.6	15.8	6.4
768	4	11.1	11.0	11.4	0.4	11.0	11.0	11.1	0.2
773	4	5.0	3.4	6.0	2.6	4.6	5.4	5.8	1.2
775	4	8.8	6.3	11.5	5.2	6.9	8.8	10.7	2.5
779	4	7.4	6.0	8.0	2.0	7.4	7.9	7.9	1.0
782	5	1.0	0.7	1.3	0.6	0.9	0.9	1.1	0.2
783	6	1.0	0.5	1.4	0.9	0.8	0.9	1.1	0.3
792	6	15.1	9.4	21.0	11.6	9.9	14.7	20.5	5.8
793	5	5.0	3.6	6.8	3.2	3.8	4.0	6.7	1.6
797 (Bkgrnd)	19	4.3	0.8	10.0	9.2	1.4	5.1	6.8	3.0
798	5	12.2	7.2	15.0	7.8	13.0	13.0	13.0	2.9
850 (Bkgrnd)	24	2.0	0.3	4.3	4.1	1.4	2.0	2.5	1.0
853	10	2.5	1.1	4.2	3.1	1.2	2.2	3.9	1.4
854	10	14.7	8.1	18.1	10.0	14.9	15.4	16.4	3.2
855	10	8.9	6.6	11.0	4.4	7.4	9.3	10.0	1.6
856	9	5.0	3.8	6.8	3.0	4.0	4.9	5.7	1.0
857	9	3.3	0.9	5.8	4.8	1.8	3.6	4.2	1.7
1008	11	10.7	8.4	13.7	5.3	9.8	10.2	12.0	1.6
1009	5	5.4	4.3	6.8	2.5	5.3	5.3	5.3	0.9
1089	9	7.6	5.0	10.0	5.0	6.5	7.0	8.6	1.7
1104	7	7.8	6.4	10.0	3.6	6.9	7.2	8.6	1.5
1105	6	12.3	9.7	16.0	6.3	11.0	11.5	13.5	2.3
1111	6	9.6	8.1	11.0	2.9	9.2	9.7	10.0	1.0
1112	5	10.6	8.1	12.0	3.9	9.7	11.0	12.0	1.7
1113	4	8.2	4.7	11.0	6.3	7.0	8.5	9.7	2.7
1114	6	2.7	1.7	4.1	2.4	2.0	2.5	3.1	0.9
1115	6	3.4	2.0	5.1	3.1	2.5	3.7	4.0	1.2
1116	3	8.2	6.5	9.4	2.9	7.6	8.6	9.0	1.5
1117	6	0.6	0.5	0.7	0.3	0.5	0.7	0.7	0.1
1126	1	2.5	2.5	2.5	-	2.5	2.5	2.5	-
1127	1	0.5	0.5	0.5	-	0.5	0.5	0.5	-
1128	1	8.5	8.5	8.5	-	8.5	8.5	8.5	-
1131	1	0.5	0.5	0.5	-	0.5	0.5	0.5	-
1132	3	0.6	0.6	0.7	0.2	0.6	0.7	0.7	0.1
1133	2	6.3	5.6	6.9	1.3	5.9	6.3	6.6	0.9
1134	3	1.0	0.6	1.5	0.9	0.8	0.9	1.2	0.4
1135	1	5.3	5.3	5.3	-	5.3	5.3	5.3	-
1136	1	1.2	1.2	1.2	-	1.2	1.2	1.2	-
1137	1	3.0	3.0	3.0	-	3.0	3.0	3.0	-
1138	1	2.8	2.8	2.8	-	2.8	2.8	2.8	-
1139	1	1.6	1.6	1.6	-	1.6	1.6	1.6	-
1140	2	7.7	6.3	9.0	2.7	7.0	7.7	8.3	1.9
1141	2	5.4	5.0	5.8	0.8	5.2	5.4	5.6	0.6
1142	1	0.7	0.7	0.7	-	0.7	0.7	0.7	-
1143	1	2.3	2.3	2.3	-	2.3	2.3	2.3	-

Table A–6b. Summary Statistics for Strontium in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	590	8.0	0.3	21.0	20.8	5.2	8.4	11.0	4.1
792	6	15.1	9.4	21.0	11.6	9.9	14.7	20.5	5.8
854	10	14.7	8.1	18.1	10.0	14.9	15.4	16.4	3.2
1105	6	12.3	9.7	16.0	6.3	11.0	11.5	13.5	2.3
798	5	12.2	7.2	15.0	7.8	13.0	13.0	13.0	2.9
766	3	12.1	4.8	16.0	11.2	10.2	15.6	15.8	6.4
630	22	12.0	5.0	20.5	15.5	9.0	11.7	14.3	4.5
608	38	11.2	4.5	15.8	11.3	11.0	11.7	12.0	2.2
614	36	11.1	7.5	14.1	6.6	9.1	12.0	12.5	1.9
768	4	11.1	11.0	11.4	0.4	11.0	11.0	11.1	0.2
1008	11	10.7	8.4	13.7	5.3	9.8	10.2	12.0	1.6
615	30	10.6	4.8	17.0	12.2	9.0	9.9	13.8	3.1
1112	5	10.6	8.1	12.0	3.9	9.7	11.0	12.0	1.7
628	21	9.9	4.1	17.0	12.9	7.2	9.2	12.0	3.4
1111	6	9.6	8.1	11.0	2.9	9.2	9.7	10.0	1.0
610	21	9.6	5.5	11.6	6.1	8.8	10.0	10.7	1.4
623	4	9.6	8.4	12.0	3.6	8.8	9.0	9.8	1.6
618	21	9.6	4.5	11.2	6.7	9.3	9.8	11.0	1.9
611	3	9.5	7.7	12.0	4.3	8.2	8.7	10.4	2.3
622	7	9.1	4.8	15.5	10.7	6.6	7.3	11.5	4.4
855	10	8.9	6.6	11.0	4.4	7.4	9.3	10.0	1.6
775	4	8.8	6.3	11.5	5.2	6.9	8.8	10.7	2.5
625	5	8.8	4.5	12.0	7.5	8.8	8.9	9.6	2.7
1128	1	8.5	8.5	8.5	-	8.5	8.5	8.5	-
736	25	8.3	5.7	11.1	5.4	6.7	8.0	10.4	1.8
734	25	8.3	2.9	13.5	10.6	6.8	8.8	10.9	3.0
626	22	8.2	4.3	13.0	8.7	6.5	7.4	10.3	2.5
1113	4	8.2	4.7	11.0	6.3	7.0	8.5	9.7	2.7
1116	3	8.2	6.5	9.4	2.9	7.6	8.6	9.0	1.5
619	34	8.0	4.9	11.8	6.9	6.3	8.0	9.5	2.0
1104	7	7.8	6.4	10.0	3.6	6.9	7.2	8.6	1.5
1140	2	7.7	6.3	9.0	2.7	7.0	7.7	8.3	1.9
1089	9	7.6	5.0	10.0	5.0	6.5	7.0	8.6	1.7
779	4	7.4	6.0	8.0	2.0	7.4	7.9	7.9	1.0
735	28	7.1	0.9	15.0	14.1	4.0	7.5	9.0	3.6
1133	2	6.3	5.6	6.9	1.3	5.9	6.3	6.6	0.9
1141	2	5.4	5.0	5.8	0.8	5.2	5.4	5.6	0.6
1009	5	5.4	4.3	6.8	2.5	5.3	5.3	5.3	0.9
1135	1	5.3	5.3	5.3	-	5.3	5.3	5.3	-
773	4	5.0	3.4	6.0	2.6	4.6	5.4	5.8	1.2
793	5	5.0	3.6	6.8	3.2	3.8	4.0	6.7	1.6
856	9	5.0	3.8	6.8	3.0	4.0	4.9	5.7	1.0
797 (Bkgrnd)	19	4.3	0.8	10.0	9.2	1.4	5.1	6.8	3.0
1115	6	3.4	2.0	5.1	3.1	2.5	3.7	4.0	1.2
857	9	3.3	0.9	5.8	4.8	1.8	3.6	4.2	1.7
1137	1	3.0	3.0	3.0	-	3.0	3.0	3.0	-
1138	1	2.8	2.8	2.8	-	2.8	2.8	2.8	-
1114	6	2.7	1.7	4.1	2.4	2.0	2.5	3.1	0.9
1126	1	2.5	2.5	2.5	-	2.5	2.5	2.5	-
853	10	2.5	1.1	4.2	3.1	1.2	2.2	3.9	1.4
1143	1	2.3	2.3	2.3	-	2.3	2.3	2.3	-
612	14	2.2	0.8	5.6	4.9	1.5	1.9	2.9	1.3
850 (Bkgrnd)	24	2.0	0.3	4.3	4.1	1.4	2.0	2.5	1.0
1139	1	1.6	1.6	1.6	-	1.6	1.6	1.6	-
1136	1	1.2	1.2	1.2	-	1.2	1.2	1.2	-
1134	3	1.0	0.6	1.5	0.9	0.8	0.9	1.2	0.4
782	5	1.0	0.7	1.3	0.6	0.9	0.9	1.1	0.2
783	6	1.0	0.5	1.4	0.9	0.8	0.9	1.1	0.3
1142	1	0.7	0.7	0.7	-	0.7	0.7	0.7	-
1132	3	0.6	0.6	0.7	0.2	0.6	0.7	0.7	0.1
1117	6	0.6	0.5	0.7	0.3	0.5	0.7	0.7	0.1
1131	1	0.5	0.5	0.5	-	0.5	0.5	0.5	-
1127	1	0.5	0.5	0.5	-	0.5	0.5	0.5	-

Cutoff for historical background maximum of 10 mg/L (in well 0797) denoted by blue dashed line above.
All values are below EPA's risk-based screening level for groundwater (22 mg/L); see Section 1.2 of main report.

Sulfate

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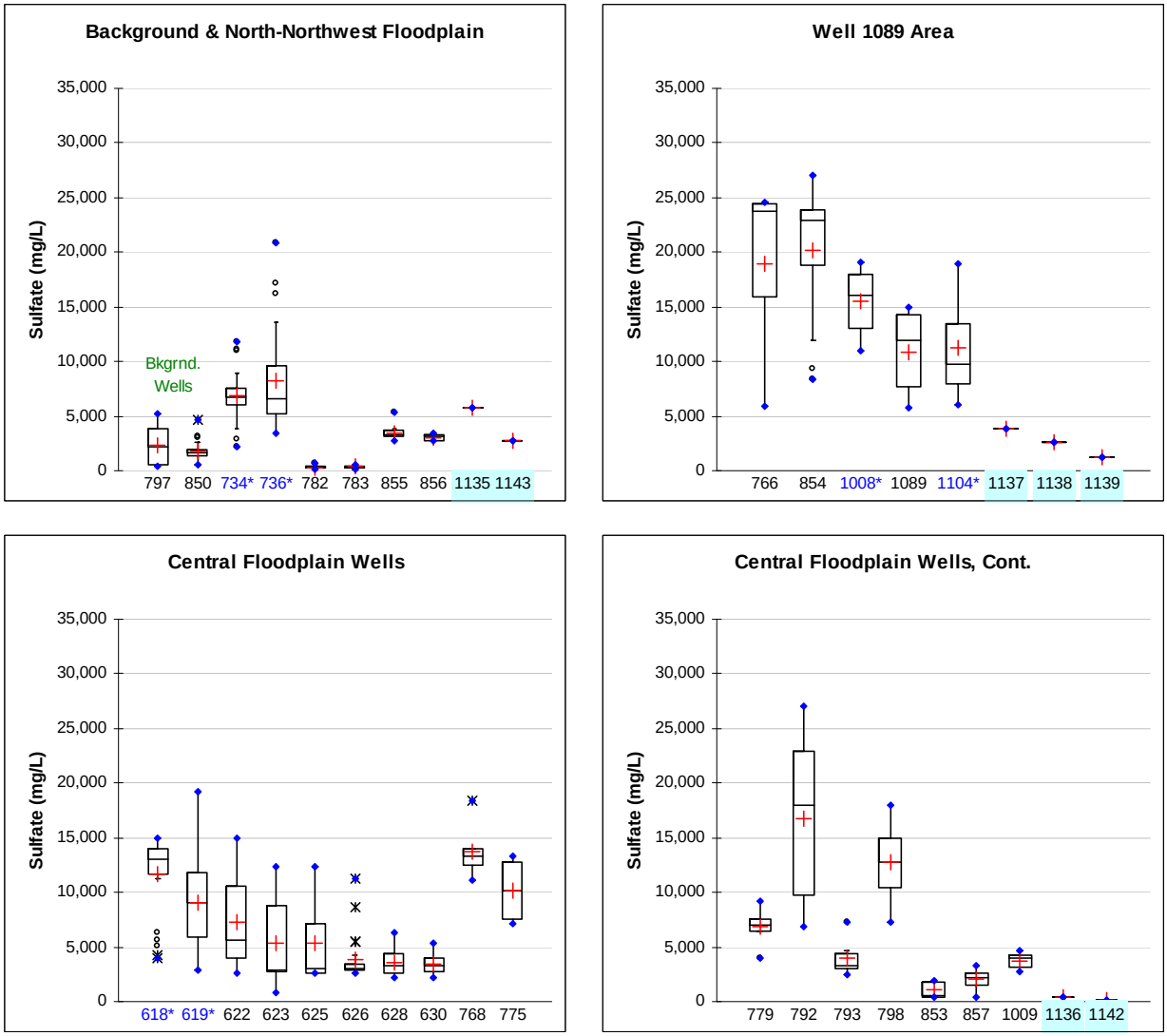

Figure A–7. Historical Distributions of Sulfate in Floodplain Monitoring Wells, page 1 of 2†

† The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of sulfate for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	18	24	25	26	6	7	12	10	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	5	12	13	21	10	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	26	36	9	6	7	25	24	24	6	6	6	7	6	6	11	11	7	1	1

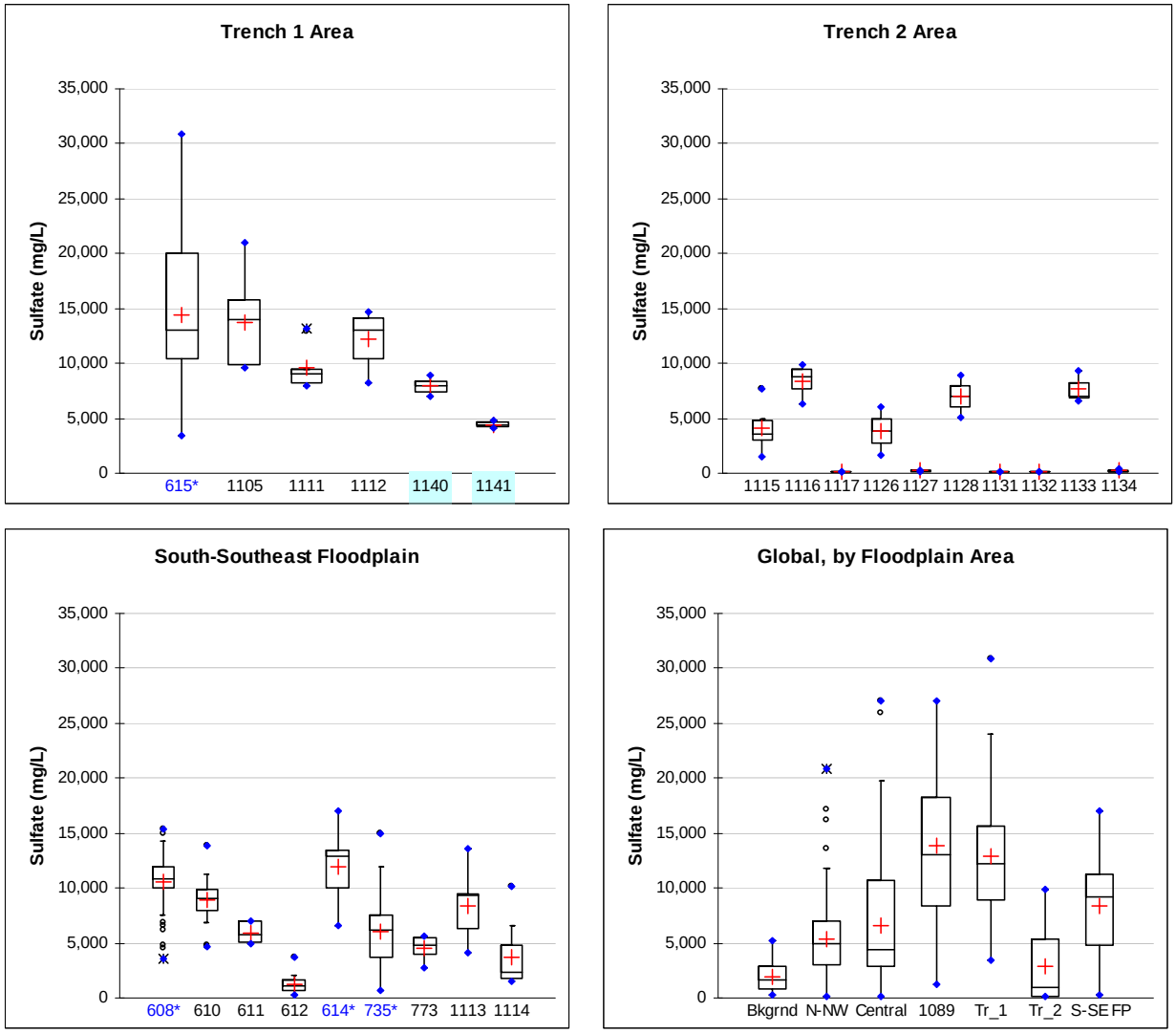

Figure A–7. Historical Distributions of Sulfate in Floodplain Monitoring Wells, page 2 of 2[†]

[†] See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	37	7	9	7	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	11	4	10	2	2	2	2	4	3	4

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	44	24	5	16	41	29	6	7	11

Table A–7a. Summary Statistics for Sulfate in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	709	7,622	75	30,868	30,793	3,020	6,600	11,300	5,655
608	44	10,623	3,600	15,400	11,800	10,075	10,870	12,000	2,618
610	24	8,931	4,660	13,800	9,140	8,002	9,010	9,870	2,007
611	5	5,929	4,900	6,964	2,064	5,130	5,700	6,950	983
612	16	1,247	310	3,750	3,440	705	1,090	1,620	874
614	41	11,999	6,630	17,000	10,370	10,000	12,900	13,400	2,660
615	37	14,378	3,500	30,868	27,368	10,400	13,100	20,000	6,437
618	26	11,726	3,960	15,000	11,040	11,608	13,000	14,000	3,466
619	36	9,003	2,900	19,200	16,300	5,850	9,105	11,750	3,933
622	9	7,254	2,600	14,900	12,300	4,022	5,600	10,600	4,175
623	6	5,379	780	12,400	11,620	2,700	2,896	8,723	4,843
625	7	5,343	2,600	12,300	9,700	2,650	2,973	7,115	4,086
626	25	3,857	2,540	11,300	8,760	2,900	3,080	3,490	2,036
628	24	3,598	2,190	6,260	4,070	2,675	3,300	4,420	1,172
630	23	3,442	2,200	5,390	3,190	2,800	3,230	3,955	869
734	25	6,828	2,200	11,800	9,600	6,000	6,700	7,500	2,274
735	29	6,043	707	15,000	14,293	3,700	6,240	7,500	3,648
736	26	8,191	3,480	20,800	17,320	5,200	6,650	9,598	4,366
766	5	18,938	5,900	24,600	18,700	15,990	23,700	24,500	8,129
768	6	13,782	11,100	18,390	7,290	12,550	13,350	14,000	2,503
773	6	4,535	2,800	5,590	2,790	3,950	4,740	5,425	1,118
775	6	10,190	7,100	13,300	6,200	7,553	10,200	12,800	3,053
779	6	6,842	3,950	9,191	5,241	6,425	6,955	7,553	1,737
782	6	330	183	630	447	237	275	363	162
783	7	353	138	610	472	273	340	420	151
792	7	16,739	6,810	27,000	20,190	9,800	18,000	22,883	8,132
793	6	4,025	2,460	7,300	4,840	3,000	3,350	4,442	1,779
797 (Bkgrnd)	18	2,272	427	5,200	4,773	561	2,250	3,900	1,682
798	6	12,699	7,300	18,000	10,700	10,421	12,750	15,000	3,949
850 (Bkgrnd)	24	1,767	610	4,600	3,990	1,335	1,635	1,905	891
853	11	1,053	360	1,980	1,620	422	520	1,765	725
854	12	20,227	8,421	27,000	18,579	18,825	22,950	23,850	6,447
855	12	3,474	2,700	5,300	2,600	3,175	3,228	3,718	669
856	10	3,044	2,691	3,440	749	2,750	3,115	3,238	278
857	11	2,059	470	3,260	2,790	1,567	2,230	2,610	934
1008	13	15,506	11,000	19,100	8,100	13,000	16,000	18,000	2,959
1009	7	3,734	2,700	4,680	1,980	3,100	3,920	4,318	772
1089	21	10,809	5,700	15,000	9,300	7,700	11,983	14,250	3,230
1104	10	11,313	6,100	19,000	12,900	7,950	9,814	13,500	4,653
1105	7	13,738	9,600	21,000	11,400	9,950	14,000	15,834	4,232
1111	9	9,597	7,900	13,185	5,285	8,300	9,000	9,442	1,998
1112	7	12,164	8,300	14,676	6,376	10,450	13,000	14,135	2,457
1113	7	8,377	4,100	13,595	9,495	6,350	9,293	9,476	3,131
1114	11	3,666	1,500	10,093	8,593	1,792	2,400	4,784	2,719
1115	11	4,093	1,500	7,742	6,242	3,044	3,600	4,832	2,088
1116	4	8,430	6,300	9,820	3,520	7,725	8,800	9,505	1,577
1117	10	143	87	200	113	115	145	158	38
1126	2	3,827	1,600	6,053	4,453	2,713	3,827	4,940	3,149
1127	2	206	93	319	226	150	206	263	160
1128	2	7,005	5,109	8,900	3,791	6,057	7,005	7,952	2,681
1131	2	121	75	167	92	98	121	144	65
1132	4	145	110	168	58	133	150	162	26
1133	3	7,665	6,600	9,395	2,795	6,800	7,000	8,198	1,512
1134	4	215	120	410	290	128	166	253	135
1135	1	5,800	5,800	5,800	-	5,800	5,800	5,800	-
1136	1	360	360	360	-	360	360	360	-
1137	1	3,800	3,800	3,800	-	3,800	3,800	3,800	-
1138	1	2,600	2,600	2,600	-	2,600	2,600	2,600	-
1139	1	1,200	1,200	1,200	-	1,200	1,200	1,200	-
1140	2	7,950	7,000	8,900	1,900	7,475	7,950	8,425	1,344
1141	2	4,450	4,100	4,800	700	4,275	4,450	4,625	495
1142	1	150	150	150	-	150	150	150	-
1143	1	2,800	2,800	2,800	-	2,800	2,800	2,800	-

Table A–7b. Summary Statistics for Sulfate in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	709	7,622	75	30,868	30,793	3,020	6,600	11,300	5,655
854	12	20,227	8,421	27,000	18,579	18,825	22,950	23,850	6,447
766	5	18,938	5,900	24,600	18,700	15,990	23,700	24,500	8,129
792	7	16,739	6,810	27,000	20,190	9,800	18,000	22,883	8,132
1008	13	15,506	11,000	19,100	8,100	13,000	16,000	18,000	2,959
615	37	14,378	3,500	30,868	27,368	10,400	13,100	20,000	6,437
768	6	13,782	11,100	18,390	7,290	12,550	13,350	14,000	2,503
1105	7	13,738	9,600	21,000	11,400	9,950	14,000	15,834	4,232
798	6	12,699	7,300	18,000	10,700	10,421	12,750	15,000	3,949
1112	7	12,164	8,300	14,676	6,376	10,450	13,000	14,135	2,457
614	41	11,999	6,630	17,000	10,370	10,000	12,900	13,400	2,660
618	26	11,726	3,960	15,000	11,040	11,608	13,000	14,000	3,466
1104	10	11,313	6,100	19,000	12,900	7,950	9,814	13,500	4,653
1089	21	10,809	5,700	15,000	9,300	7,700	11,983	14,250	3,230
608	44	10,623	3,600	15,400	11,800	10,075	10,870	12,000	2,618
775	6	10,190	7,100	13,300	6,200	7,553	10,200	12,800	3,053
1111	9	9,597	7,900	13,185	5,285	8,300	9,000	9,442	1,998
619	36	9,003	2,900	19,200	16,300	5,850	9,105	11,750	3,933
610	24	8,931	4,660	13,800	9,140	8,002	9,010	9,870	2,007
1116	4	8,430	6,300	9,820	3,520	7,725	8,800	9,505	1,577
1113	7	8,377	4,100	13,595	9,495	6,350	9,293	9,476	3,131
736	26	8,191	3,480	20,800	17,320	5,200	6,650	9,598	4,366
1140	2	7,950	7,000	8,900	1,900	7,475	7,950	8,425	1,344
1133	3	7,665	6,600	9,395	2,795	6,800	7,000	8,198	1,512
622	9	7,254	2,600	14,900	12,300	4,022	5,600	10,600	4,175
1128	2	7,005	5,109	8,900	3,791	6,057	7,005	7,952	2,681
779	6	6,842	3,950	9,191	5,241	6,425	6,955	7,553	1,737
734	25	6,828	2,200	11,800	9,600	6,000	6,700	7,500	2,274
735	29	6,043	707	15,000	14,293	3,700	6,240	7,500	3,648
611	5	5,929	4,900	6,964	2,064	5,130	5,700	6,950	983
1135	1	5,800	5,800	5,800	-	5,800	5,800	5,800	
623	6	5,379	780	12,400	11,620	2,700	2,896	8,723	4,843
625	7	5,343	2,600	12,300	9,700	2,650	2,973	7,115	4,086
773	6	4,535	2,800	5,590	2,790	3,950	4,740	5,425	1,118
1141	2	4,450	4,100	4,800	700	4,275	4,450	4,625	495
1115	11	4,093	1,500	7,742	6,242	3,044	3,600	4,832	2,088
793	6	4,025	2,460	7,300	4,840	3,000	3,350	4,442	1,779
626	25	3,857	2,540	11,300	8,760	2,900	3,080	3,490	2,036
1126	2	3,827	1,600	6,053	4,453	2,713	3,827	4,940	3,149
1137	1	3,800	3,800	3,800	-	3,800	3,800	3,800	-
1009	7	3,734	2,700	4,680	1,980	3,100	3,920	4,318	772
1114	11	3,666	1,500	10,093	8,593	1,792	2,400	4,784	2,719
628	24	3,598	2,190	6,260	4,070	2,675	3,300	4,420	1,172
855	12	3,474	2,700	5,300	2,600	3,175	3,228	3,718	669
630	23	3,442	2,200	5,390	3,190	2,800	3,230	3,955	869
856	10	3,044	2,691	3,440	749	2,750	3,115	3,238	278
1143	1	2,800	2,800	2,800	-	2,800	2,800	2,800	-
1138	1	2,600	2,600	2,600	-	2,600	2,600	2,600	-
797 (Bkgrnd)	18	2,272	427	5,200	4,773	561	2,250	3,900	1,682
857	11	2,059	470	3,260	2,790	1,567	2,230	2,610	934
850 (Bkgrnd)	24	1,767	610	4,600	3,990	1,335	1,635	1,905	891
612	16	1,247	310	3,750	3,440	705	1,090	1,620	874
1139	1	1,200	1,200	1,200	-	1,200	1,200	1,200	-
853	11	1,053	360	1,980	1,620	422	520	1,765	725
1136	1	360	360	360	-	360	360	360	-
783	7	353	138	610	472	273	340	420	151
782	6	330	183	630	447	237	275	363	162
1134	4	215	120	410	290	128	166	253	135
1127	2	206	93	319	226	150	206	263	160
1142	1	150	150	150	-	150	150	150	-
1132	4	145	110	168	58	133	150	162	26
1117	10	143	87	200	113	115	145	158	38
1131	2	121	75	167	92	98	121	144	65

Blue dashed lines denote cutoffs for historical maximum background (5,200 mg/L) and SDWA secondary MCL (250 mg/L).

Uranium

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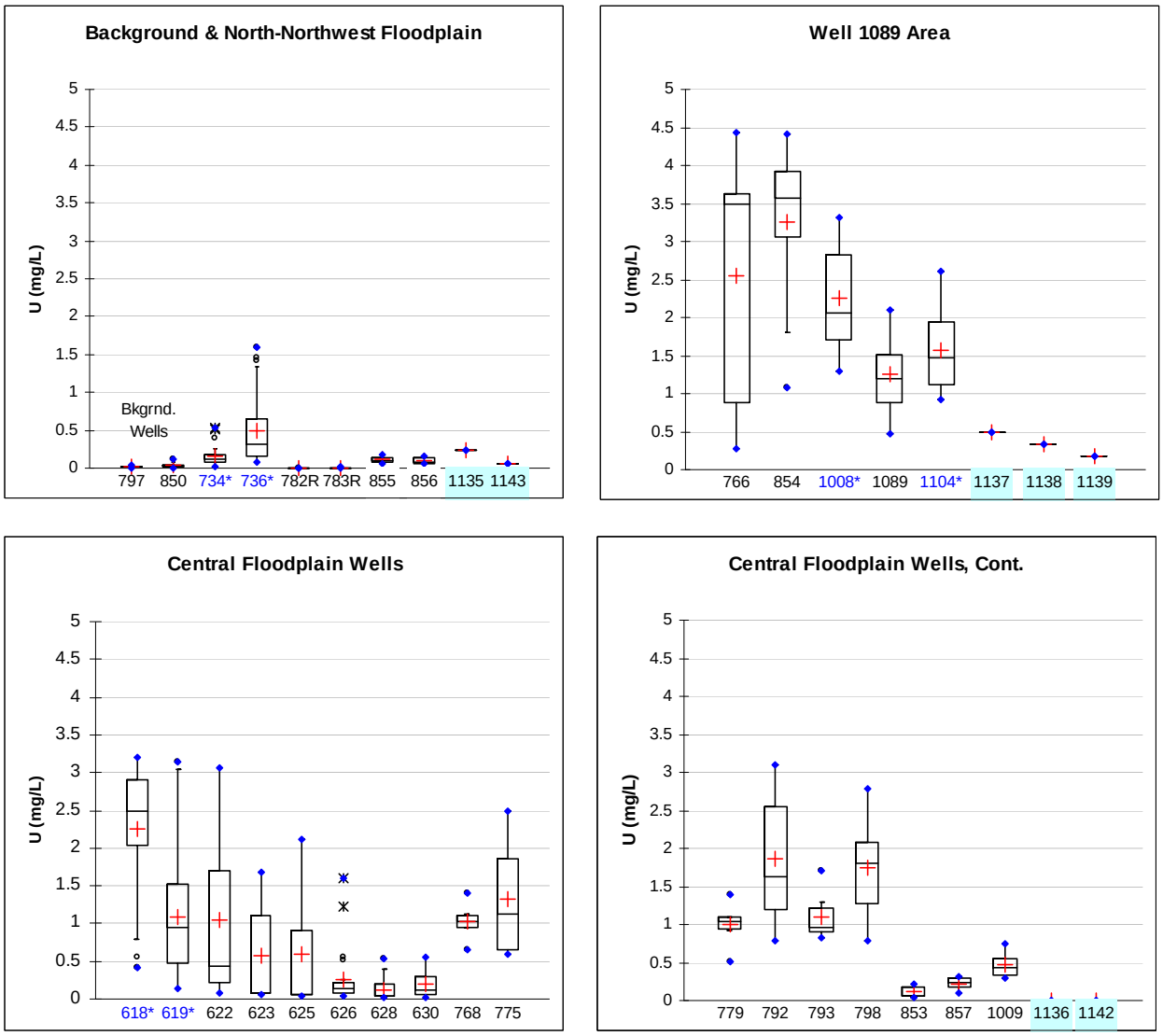

Figure A–8. Historical Distributions of Uranium in Floodplain Monitoring Wells, page 1 of 2†

† The box plots shown above depict the median, the lower and upper quartiles, and the non-outlier range of uranium for each floodplain well or well grouping; points plotted beyond these limits are outliers. The mean is denoted by +, whereas the median line bisects the box. When interpreting these plots, it is important to account for the number of data points (N), listed below and in Table A–1. The greater the number of data points, the more reliable the interpretation of the plots. Well locations are shown in Figure A–1 by subgroup.

0734*	Time trends for COCs plotted in Section 2 of report.
1104	New well added in May 2009 or January 2010.

Background & North-Northwest Floodplain:

Well:	0797	0850	0734*	0736*	0782/0782R	0783/0783R	0855	0856	1135	1143
N:	19	24	28	28	6	7	12	10	1	1

Well 1089 Area:

Well:	0766	0854	1008*	1089	1104*	1137	1138	1139
N:	5	12	13	20	10	1	1	1

Central Floodplain Wells:

Well:	0618*	0619*	0622	0623	0625	0626	0628	0630	0768	0775	0779	0792	0793	0798	0853	0857	1009	1136	1142
N:	26	36	9	6	7	25	24	24	6	6	6	7	6	6	11	11	7	1	1

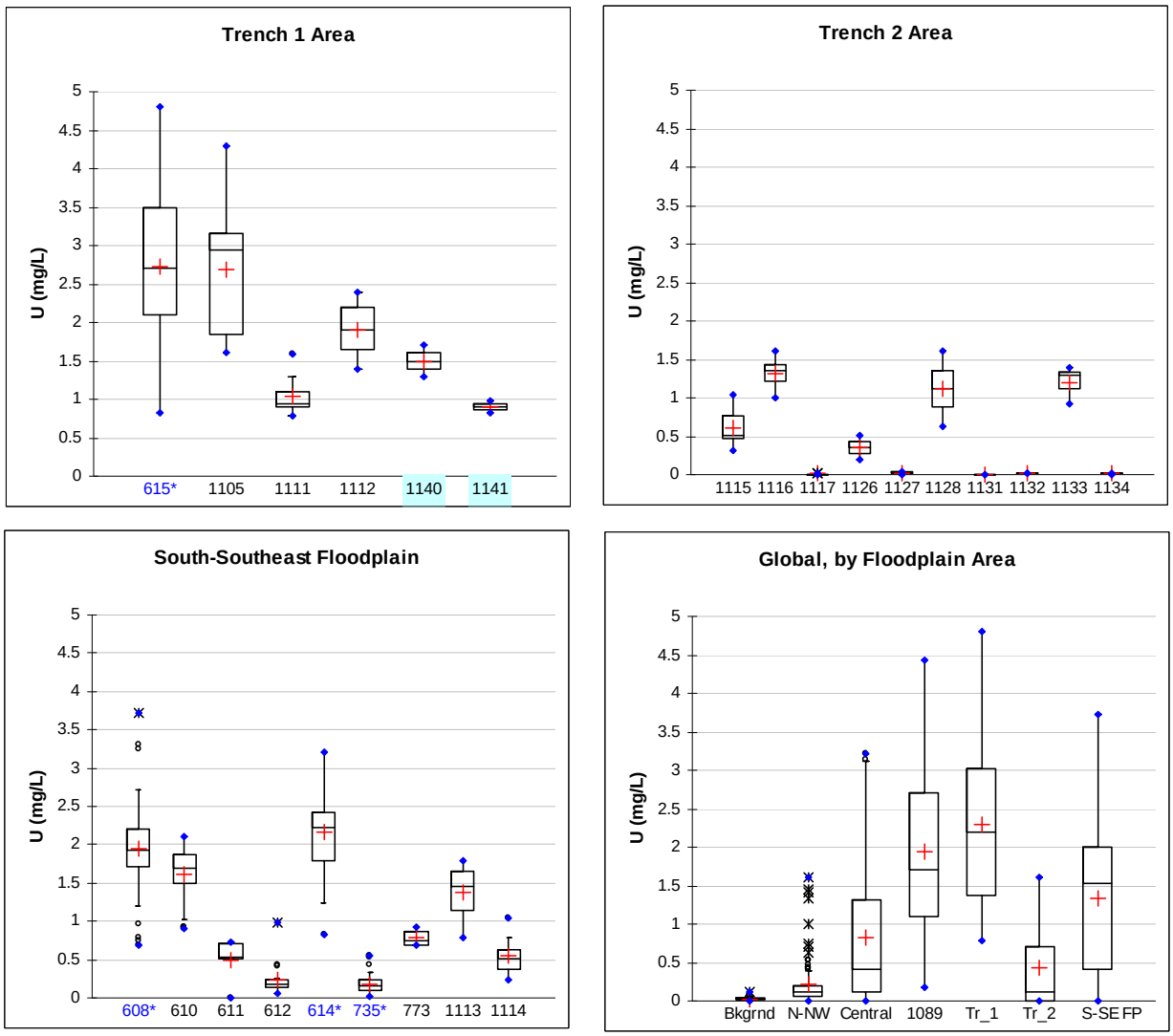

Figure A–8. Historical Distributions of Uranium in Floodplain Monitoring Wells, page 2 of 2†

† See explanation on preceding page. The number of data points (N) corresponding to each well-specific plot shown above is provided below and in Table A–1.

Trench 1 Area Wells:

Well:	0615*	1105	1111	1112	1140	1141
N:	37	7	9	7	2	2

Trench 2 Area Wells:

Well:	1115	1116	1117	1126	1127	1128	1131	1132	1133	1134
N:	11	4	10	2	2	2	2	4	3	4

South-Southeast Floodplain Wells:

Well:	0608*	0610	0611	0612	0614*	0735*	0773	1113	1114
N:	45	24	5	16	41	31	6	7	11

Table A–8a. Summary Statistics for Uranium in Floodplain Monitoring Wells, Sort on Well ID

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	718	1.04	0.002	4.8	4.8	0.11	0.65	1.8	1.1
608	45	1.95	0.69	3.73	3.04	1.72	1.92	2.21	0.62
610	24	1.62	0.90	2.10	1.20	1.50	1.70	1.87	0.36
611	5	0.50	0.01	0.72	0.71	0.52	0.53	0.70	0.29
612	16	0.24	0.05	0.99	0.94	0.13	0.17	0.23	0.23
614	41	2.17	0.83	3.20	2.37	1.80	2.22	2.42	0.52
615	37	2.72	0.83	4.80	3.97	2.10	2.71	3.50	1.05
618	26	2.25	0.42	3.21	2.80	2.03	2.50	2.90	0.89
619	36	1.10	0.13	3.14	3.01	0.48	0.95	1.53	0.79
622	9	1.05	0.07	3.07	3.00	0.22	0.44	1.70	1.12
623	6	0.57	0.06	1.67	1.61	0.07	0.09	1.10	0.77
625	7	0.59	0.04	2.11	2.07	0.06	0.06	0.92	0.84
626	25	0.26	0.04	1.61	1.58	0.08	0.15	0.23	0.38
628	24	0.12	0.02	0.53	0.51	0.03	0.04	0.19	0.14
630	24	0.19	0.03	0.56	0.53	0.06	0.13	0.30	0.17
734	28	0.16	0.02	0.53	0.51	0.08	0.12	0.19	0.13
735	31	0.18	0.02	0.56	0.54	0.10	0.15	0.23	0.13
736	28	0.49	0.07	1.60	1.53	0.15	0.32	0.64	0.46
766	5	2.54	0.27	4.44	4.17	0.88	3.50	3.62	1.84
768	6	1.03	0.66	1.40	0.74	0.95	1.03	1.11	0.24
773	6	0.78	0.68	0.92	0.24	0.68	0.75	0.87	0.11
775	6	1.32	0.59	2.50	1.91	0.64	1.12	1.87	0.82
779	6	1.00	0.52	1.39	0.87	0.94	1.04	1.10	0.29
782	6	0.005	0.003	0.010	0.007	0.003	0.004	0.005	0.003
783	7	0.009	0.007	0.011	0.004	0.008	0.008	0.010	0.001
792	7	1.86	0.79	3.10	2.31	1.21	1.63	2.55	0.89
793	6	1.11	0.83	1.70	0.87	0.90	0.97	1.21	0.33
797 (Bkgrnd)	19	0.02	0.01	0.04	0.03	0.01	0.01	0.03	0.01
798	6	1.74	0.78	2.78	2.00	1.26	1.80	2.08	0.72
850 (Bkgrnd)	24	0.03	0.00	0.12	0.12	0.02	0.02	0.04	0.03
853	11	0.11	0.04	0.22	0.18	0.05	0.06	0.17	0.07
854	12	3.25	1.08	4.42	3.34	3.05	3.58	3.92	1.04
855	12	0.11	0.06	0.18	0.12	0.08	0.10	0.15	0.04
856	10	0.10	0.05	0.16	0.11	0.06	0.08	0.14	0.04
857	11	0.23	0.09	0.31	0.22	0.18	0.23	0.29	0.07
1008	13	2.26	1.30	3.32	2.02	1.70	2.05	2.82	0.67
1009	7	0.47	0.30	0.75	0.45	0.34	0.43	0.56	0.16
1089	20	1.25	0.48	2.10	1.62	0.88	1.20	1.52	0.45
1104	10	1.56	0.93	2.60	1.67	1.13	1.47	1.95	0.55
1105	7	2.69	1.60	4.30	2.70	1.85	2.94	3.15	0.98
1111	9	1.04	0.79	1.59	0.80	0.91	0.94	1.10	0.25
1112	7	1.91	1.40	2.40	1.00	1.65	1.90	2.19	0.38
1113	7	1.38	0.78	1.80	1.02	1.15	1.46	1.66	0.37
1114	11	0.54	0.24	1.05	0.81	0.38	0.52	0.63	0.23
1115	11	0.60	0.31	1.04	0.73	0.46	0.51	0.76	0.25
1116	4	1.32	1.00	1.60	0.60	1.23	1.34	1.44	0.25
1117	10	0.010	0.005	0.020	0.016	0.008	0.009	0.010	0.005
1126	2	0.35	0.20	0.51	0.31	0.28	0.35	0.43	0.22
1127	2	0.02	0.01	0.04	0.03	0.01	0.02	0.03	0.02
1128	2	1.12	0.63	1.60	0.97	0.87	1.12	1.36	0.68
1131	2	0.003	0.002	0.005	0.002	0.003	0.003	0.004	0.002
1132	4	0.018	0.013	0.022	0.009	0.017	0.019	0.021	0.004
1133	3	1.20	0.92	1.38	0.46	1.11	1.30	1.34	0.25
1134	4	0.015	0.010	0.020	0.011	0.012	0.016	0.019	0.005
1135	1	0.24	0.24	0.24	-	0.24	0.24	0.24	-
1136	1	0.007	0.007	0.007	-	0.007	0.007	0.007	-
1137	1	0.49	0.49	0.49	-	0.49	0.49	0.49	-
1138	1	0.34	0.34	0.34	-	0.34	0.34	0.34	-
1139	1	0.18	0.18	0.18	-	0.18	0.18	0.18	-
1140	2	1.50	1.30	1.70	0.40	1.40	1.50	1.60	0.28
1141	2	0.91	0.83	0.98	0.15	0.87	0.91	0.94	0.11
1142	1	0.006	0.006	0.006	-	0.006	0.006	0.006	-
1143	1	0.07	0.07	0.07	-	0.07	0.07	0.07	-

Table A–8b. Summary Statistics for Uranium in Floodplain Wells: Descending Sort on Mean

Well ID	N	Mean	Minimum	Maximum	Range	1st Quartile	Median	3rd Quartile	Stdev (n-1)
All Data	718	1.04	0.002	4.8	4.8	0.11	0.65	1.8	1.1
854	12	3.25	1.08	4.42	3.34	3.05	3.58	3.92	1.04
615	37	2.72	0.83	4.80	3.97	2.10	2.71	3.50	1.05
1105	7	2.69	1.60	4.30	2.70	1.85	2.94	3.15	0.98
766	5	2.54	0.27	4.44	4.17	0.88	3.50	3.62	1.84
1008	13	2.26	1.30	3.32	2.02	1.70	2.05	2.82	0.67
618	26	2.25	0.42	3.21	2.80	2.03	2.50	2.90	0.89
614	41	2.17	0.83	3.20	2.37	1.80	2.22	2.42	0.52
608	45	1.95	0.69	3.73	3.04	1.72	1.92	2.21	0.62
1112	7	1.91	1.40	2.40	1.00	1.65	1.90	2.19	0.38
792	7	1.86	0.79	3.10	2.31	1.21	1.63	2.55	0.89
798	6	1.74	0.78	2.78	2.00	1.26	1.80	2.08	0.72
610	24	1.62	0.90	2.10	1.20	1.50	1.70	1.87	0.36
1104	10	1.56	0.93	2.60	1.67	1.13	1.47	1.95	0.55
1140	2	1.50	1.30	1.70	0.40	1.40	1.50	1.60	0.28
1113	7	1.38	0.78	1.80	1.02	1.15	1.46	1.66	0.37
1116	4	1.32	1.00	1.60	0.60	1.23	1.34	1.44	0.25
775	6	1.32	0.59	2.50	1.91	0.64	1.12	1.87	0.82
1089	20	1.25	0.48	2.10	1.62	0.88	1.20	1.52	0.45
1133	3	1.20	0.92	1.38	0.46	1.11	1.30	1.34	0.25
1128	2	1.12	0.63	1.60	0.97	0.87	1.12	1.36	0.68
793	6	1.11	0.83	1.70	0.87	0.90	0.97	1.21	0.33
619	36	1.10	0.13	3.14	3.01	0.48	0.95	1.53	0.79
622	9	1.05	0.07	3.07	3.00	0.22	0.44	1.70	1.12
1111	9	1.04	0.79	1.59	0.80	0.91	0.94	1.10	0.25
768	6	1.03	0.66	1.40	0.74	0.95	1.03	1.11	0.24
779	6	1.00	0.52	1.39	0.87	0.94	1.04	1.10	0.29
1141	2	0.91	0.83	0.98	0.15	0.87	0.91	0.94	0.11
773	6	0.78	0.68	0.92	0.24	0.68	0.75	0.87	0.11
1115	11	0.60	0.31	1.04	0.73	0.46	0.51	0.76	0.25
625	7	0.59	0.04	2.11	2.07	0.06	0.06	0.92	0.84
623	6	0.57	0.06	1.67	1.61	0.07	0.09	1.10	0.77
1114	11	0.54	0.24	1.05	0.81	0.38	0.52	0.63	0.23
611	5	0.50	0.01	0.72	0.71	0.52	0.53	0.70	0.29
736	28	0.49	0.07	1.60	1.53	0.15	0.32	0.64	0.46
1137	1	0.49	0.49	0.49	-	0.49	0.49	0.49	-
1009	7	0.47	0.30	0.75	0.45	0.34	0.43	0.56	0.16
1126	2	0.35	0.20	0.51	0.31	0.28	0.35	0.43	0.22
1138	1	0.34	0.34	0.34	-	0.34	0.34	0.34	-
626	25	0.26	0.04	1.61	1.58	0.08	0.15	0.23	0.38
1135	1	0.24	0.24	0.24	-	0.24	0.24	0.24	-
612	16	0.24	0.05	0.99	0.94	0.13	0.17	0.23	0.23
857	11	0.23	0.09	0.31	0.22	0.18	0.23	0.29	0.07
630	24	0.19	0.03	0.56	0.53	0.06	0.13	0.30	0.17
735	31	0.18	0.02	0.56	0.54	0.10	0.15	0.23	0.13
1139	1	0.18	0.18	0.18	-	0.18	0.18	0.18	-
734	28	0.16	0.02	0.53	0.51	0.08	0.12	0.19	0.13
628	24	0.12	0.02	0.53	0.51	0.03	0.04	0.19	0.14
855	12	0.11	0.06	0.18	0.12	0.08	0.10	0.15	0.04
853	11	0.11	0.04	0.22	0.18	0.05	0.06	0.17	0.07
856	10	0.10	0.05	0.16	0.11	0.06	0.08	0.14	0.04
1143	1	0.07	0.07	0.07	-	0.07	0.07	0.07	-
850 (Bkgrnd)	24	0.03	0.00	0.12	0.12	0.02	0.02	0.04	0.03
1127	2	0.02	0.01	0.04	0.03	0.01	0.02	0.03	0.02
797 (Bkgrnd)	19	0.02	0.01	0.04	0.03	0.01	0.01	0.03	0.01
1132	4	0.018	0.013	0.022	0.009	0.017	0.019	0.021	0.004
1134	4	0.015	0.010	0.020	0.011	0.012	0.016	0.019	0.005
1117	10	0.010	0.005	0.020	0.016	0.008	0.009	0.010	0.005
783	7	0.009	0.007	0.011	0.004	0.008	0.008	0.010	0.001
1136	1	0.007	0.007	0.007	-	0.007	0.007	0.007	-
1142	1	0.006	0.006	0.006	-	0.006	0.006	0.006	-
782	6	0.005	0.003	0.010	0.007	0.003	0.004	0.005	0.003
1131	2	0.003	0.002	0.005	0.002	0.003	0.003	0.004	0.002

Cutoff for 40 CFR 192 MCL (0.044 mg/L) denoted by blue dashed line above.