

RIO GRANDE CANALIZATION PROJECT
WATER BUDGET STUDY
Final Report

Appendix E - HEC-RAS Channel Seepage Analysis

**Table E-1: HEC-RAS Estimated Channel Seepage
(Baseline Calibration 2012 Release)**

Seepage results from HEC-RAS Modeling, 2012

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
3/31/2012	6.94	5.25	5.49	4.74
4/1/2012	9.73	30.08	14.32	7.6
4/2/2012	14.73	34.13	24.11	13.03
4/3/2012	35.33	34.09	26.66	21.46
4/4/2012	47.49	93.74	27.1	23.01
4/5/2012	49.04	104.82	79.66	59.24
4/6/2012	52.68	110.6	82.11	77.42
4/7/2012	54.16	119.83	88.75	82.75
4/8/2012	53.27	119.67	91.72	89
4/9/2012	52.79	117.25	90.19	88.09
4/10/2012	52.65	116.99	89.27	86.42
4/11/2012	52.43	116.49	89.03	86.3
4/12/2012	52.31	115.96	84.51	83.74
4/13/2012	52.31	115.91	82.49	80.06
4/14/2012	49.54	115.43	83.02	79.82
4/15/2012	44.54	105.67	78.41	78.8
4/16/2012	42	94.08	70.31	70.86
4/17/2012	41.86	91.27	64.4	62.98
4/18/2012	41.86	91.14	63.06	61.04
4/19/2012	41.86	91.14	62.31	59.87
4/20/2012	41.33	91.1	62.68	59.68
4/21/2012	39.66	89.17	62.2	60.06
4/22/2012	38.09	84.35	59.56	58.45
4/23/2012	37.67	81.43	55.92	54.61
4/24/2012	37.73	80.87	54.56	52.19
4/25/2012	37.91	81.09	53.44	51.28
4/26/2012	38.95	81.66	52.62	50
4/27/2012	39.76	85.11	53.65	49.65
4/28/2012	40.37	86.07	56.37	52.53
4/29/2012	39.57	88.04	59.91	54.66
4/30/2012	36.76	84	60.81	59.04
5/1/2012	35.11	76.95	60.36	57.39
5/2/2012	34.72	74.44	57.05	56.06
5/3/2012	34.33	73.18	56.63	54.06
5/4/2012	34.41	72.51	55.51	53.18
5/5/2012	29.04	72.75	55.46	52.57
5/6/2012	17.76	58.22	53.49	52.74

**Table E-1: HEC-RAS Estimated Channel Seepage
(Baseline Calibration 2012 Release)**

Seepage results from HEC-RAS Modeling, 2012

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
5/7/2012	10.88	42.63	40.64	45.13
5/8/2012	9.86	55.2	33.77	33.93
5/9/2012	10.97	53.3	42.31	32.73
5/10/2012	10.58	34.66	38.86	37.45
5/11/2012	9.57	34.33	26.99	30.94
5/12/2012	9.53	34.13	26.79	23.16
5/13/2012	9.54	34.07	26.6	23.16
5/14/2012	9.54	34.08	26.58	22.98
5/15/2012	9.54	34.08	26.58	22.97
5/16/2012	9.54	34.08	26.58	22.97
5/17/2012	10.48	34.08	26.58	22.97
5/18/2012	12.16	56.74	29.61	23.05
5/19/2012	11.88	53.05	42.54	31.37
5/20/2012	9.89	35.8	38.71	37.5
5/21/2012	9.3	34.55	27.88	30.9
5/22/2012	9.35	34.08	26.94	23.95
5/23/2012	9.8	34.08	26.58	23.18
5/24/2012	9.98	46.65	27.43	23
5/25/2012	9.44	34.55	35.38	25.59
5/26/2012	9.52	33.94	26.93	29.09
5/27/2012	9.48	34.07	26.47	23.13
5/28/2012	9.37	34.08	26.58	22.91
5/29/2012	9.26	34.08	26.59	22.97
5/30/2012	19.77	34.08	26.59	22.97
5/31/2012	41.7	56.26	24.53	22.89
6/1/2012	42.67	94.78	32.59	21.88
6/2/2012	43.85	85.29	40.3	33.66
6/3/2012	48.94	89.76	25.06	31.95
6/4/2012	51.04	102.52	38.34	21.78
6/5/2012	51.28	104.32	44.13	39.91
6/6/2012	55.19	105.85	38.48	37.94
6/7/2012	59.37	119.13	45.46	33.65
6/8/2012	59.56	121.9	57.5	50.4
6/9/2012	60.96	117.15	55.21	54.87
6/10/2012	63.73	126.06	58.76	50.92
6/11/2012	64.42	134.57	70.07	62.83
6/12/2012	63.36	134.7	79.96	74.05

**Table E-1: HEC-RAS Estimated Channel Seepage
(Baseline Calibration 2012 Release)**

Seepage results from HEC-RAS Modeling, 2012

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
6/13/2012	62.1	130.55	76.82	76.54
6/14/2012	60.07	128.16	73.18	71.26
6/15/2012	56.51	121.52	68.96	68.8
6/16/2012	54.82	112.4	57.86	61.01
6/17/2012	56.72	110.41	51.32	50.2
6/18/2012	57.77	117.1	55.41	48.13
6/19/2012	56.82	117.73	62.86	57.8
6/20/2012	56.17	115.03	61.78	60.55
6/21/2012	56.41	115.18	60.87	57.81
6/22/2012	56.3	115.77	60.96	58.41
6/23/2012	55.86	115.14	58.97	57.46
6/24/2012	55.5	112.83	56.05	54.99
6/25/2012	55.29	110.38	52.67	51.34
6/26/2012	55.85	111.11	51.13	48.38
6/27/2012	56.83	114.32	52.3	48.44
6/28/2012	56	116.65	55.94	50.76
6/29/2012	53.87	112.56	54.31	53.75
6/30/2012	53.4	107.54	48.7	48.76
7/1/2012	54.08	108.44	47.01	43.36
7/2/2012	54.48	109.99	50.86	45.22
7/3/2012	54.8	110.85	53.61	49.33
7/4/2012	53.49	112.29	57.19	52.06
7/5/2012	52.26	107.69	59.01	56.49
7/6/2012	51.29	105.14	58.29	55.36
7/7/2012	49.65	100.71	57.98	55.68
7/8/2012	47.38	95.51	56.24	54.39
7/9/2012	44.64	90.05	54.74	52.57
7/10/2012	45.04	83.84	50.46	50.42
7/11/2012	44.24	89.75	48.82	44.88
7/12/2012	40.67	83.95	52.17	49.72
7/13/2012	39.54	75.04	43.9	45.69
7/14/2012	41.05	73.46	36.57	37.31
7/15/2012	42.73	77.77	34.44	31.73
7/16/2012	41.04	81.82	38.18	30.41
7/17/2012	44.41	74.23	34.63	34.69
7/18/2012	53.34	93	18.29	27.66
7/19/2012	58.66	114.27	43.43	17.02

**Table E-1: HEC-RAS Estimated Channel Seepage
(Baseline Calibration 2012 Release)**

Seepage results from HEC-RAS Modeling, 2012

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
7/20/2012	60.95	122.11	54.67	48.56
7/21/2012	61.44	123.65	56.53	52.9
7/22/2012	61.2	123.04	54.84	53.26
7/23/2012	60.9	122.53	54.5	51.46
7/24/2012	61.11	121.74	57.48	52.65
7/25/2012	61.45	122.86	60.6	56.15
7/26/2012	60.1	123.37	62.42	59.19
7/27/2012	58.26	118.37	60.65	59.74
7/28/2012	57.62	114.89	55.91	55.28
7/29/2012	57.58	114.38	53.54	51.31
7/30/2012	56.77	114.08	53.4	50.41
7/31/2012	56.67	111.16	51.81	50.24
8/1/2012	58.48	112.84	50.31	47.25
8/2/2012	59.54	117.97	54.29	48.32
8/3/2012	58.04	118.27	56.58	53.59
8/4/2012	55.92	113.63	53.32	53.03
8/5/2012	54.79	110.12	47.55	47.55
8/6/2012	54.37	108.69	45.07	42.55
8/7/2012	54.94	108.05	45.96	41.57
8/8/2012	56.58	110.44	48.05	43.03
8/9/2012	58.32	113.42	50.39	45.99
8/10/2012	59.31	115.27	50	47.45
8/11/2012	60.51	117.18	51.26	46.93
8/12/2012	63.06	120.94	55.13	49.8
8/13/2012	63.77	127.46	60.16	54.36
8/14/2012	65.44	127.08	61.59	59.69
8/15/2012	58.03	137.44	75.36	62.72
8/16/2012	46.99	115.91	83.53	81.84
8/17/2012	42.36	97.05	70.76	73.62
8/18/2012	41.84	91.28	59.85	60.22
8/19/2012	41.83	90.76	58.03	55.81
8/20/2012	41.84	90.76	57.81	55.11
8/21/2012	41.79	90.76	59.34	55.56
8/22/2012	41.73	90.5	60.83	57.49
8/23/2012	41.66	90.44	60.08	57.95
8/24/2012	40.37	90.13	59.73	57.07
8/25/2012	37.63	85.6	58.09	56.76

**Table E-1: HEC-RAS Estimated Channel Seepage
(Baseline Calibration 2012 Release)**

Seepage results from HEC-RAS Modeling, 2012

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
8/26/2012	36.14	78.74	53.92	53.27
8/27/2012	36.19	76.72	49.29	48.47
8/28/2012	36.19	76.82	47.58	45.54
8/29/2012	35.78	76.8	46.48	43.55
8/30/2012	35.02	75.3	45.24	42.78
8/31/2012	34.85	73.65	42.99	40.8
9/1/2012	35.03	73.56	41.95	38.67
9/2/2012	35.15	73.95	42.54	38.15
9/3/2012	35.27	74.25	42.96	38.85
9/4/2012	34.03	74.49	44.9	39.58
9/5/2012	31.69	70.47	50.94	43.34
9/6/2012	30.53	64.93	50.95	48.51
9/7/2012	30.42	62.54	47.83	46.83
9/8/2012	30.3	62.36	41.11	42.65
9/9/2012	30.13	62.03	33.31	34.66
9/10/2012	29.9	61.55	23.11	27.71
9/11/2012	29.65	60.96	16.05	18.73
9/12/2012	29.41	60.32	25.72	14.01
9/13/2012	29.13	59.68	42.48	25.52
9/14/2012	25.38	58.95	45.63	41.27

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
1/1/2010	0.88	0.00	0.00	0.00
1/2/2010	0.93	1.52	0.00	0.00
1/3/2010	1.08	2.61	5.61	0.00
1/4/2010	1.12	3.26	14.23	10.55
1/5/2010	1.09	3.30	14.56	11.88
1/6/2010	1.13	3.28	14.49	12.14
1/7/2010	1.08	3.30	14.54	12.08
1/8/2010	1.01	3.29	14.52	12.08
1/9/2010	0.95	3.28	14.36	12.05
1/10/2010	0.98	3.32	14.44	11.94
1/11/2010	1.07	3.27	14.44	11.96
1/12/2010	1.13	3.30	14.51	12.00
1/13/2010	1.11	3.26	14.70	12.11
1/14/2010	1.06	3.27	14.83	12.25
1/15/2010	0.97	3.25	14.87	12.36
1/16/2010	1.00	3.29	14.79	12.40
1/17/2010	0.97	3.30	14.80	12.31
1/18/2010	0.97	3.27	14.80	12.35
1/19/2010	0.95	3.23	14.74	12.33
1/20/2010	0.95	3.26	14.73	12.34
1/21/2010	1.07	3.23	14.69	12.35
1/22/2010	1.05	3.27	14.69	12.35
1/23/2010	1.07	3.30	14.88	12.35
1/24/2010	1.08	3.21	14.80	12.48
1/25/2010	1.05	3.19	14.41	12.36
1/26/2010	0.93	3.21	13.86	11.93
1/27/2010	8.03	3.26	13.64	11.54
1/28/2010	8.82	3.27	13.85	11.38
1/29/2010	9.53	3.10	14.21	11.67
1/30/2010	9.91	5.10	13.76	11.80
1/31/2010	10.01	6.54	14.83	11.39
2/1/2010	10.03	6.59	16.52	13.06
2/2/2010	10.03	6.65	16.69	14.00
2/3/2010	9.47	6.69	16.77	14.06
2/4/2010	0.76	6.53	16.97	14.27
2/5/2010	0.84	1.90	16.87	14.40
2/6/2010	0.89	3.14	12.89	13.80
2/7/2010	0.94	3.23	13.77	11.00
2/8/2010	0.85	3.26	13.91	11.54
2/9/2010	0.85	3.24	13.93	11.56
2/10/2010	1.17	3.26	13.40	11.56

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
2/11/2010	1.49	3.27	12.13	10.68
2/12/2010	1.81	3.26	12.30	9.97
2/13/2010	2.13	3.23	12.66	10.11
2/14/2010	2.46	3.21	13.56	10.59
2/15/2010	2.78	3.27	12.51	24.82
2/16/2010	3.10	3.20	10.53	9.35
2/17/2010	3.42	3.24	13.84	9.53
2/18/2010	3.74	3.20	13.49	15.11
2/19/2010	4.07	3.25	13.89	17.91
2/20/2010	4.39	3.23	15.16	18.60
2/21/2010	4.71	3.29	15.60	19.43
2/22/2010	5.03	3.23	15.52	19.60
2/23/2010	5.35	3.24	15.56	19.58
2/24/2010	8.04	3.23	15.49	19.48
2/25/2010	8.04	3.29	15.33	19.40
2/26/2010	9.21	3.22	15.44	19.19
2/27/2010	10.37	3.30	15.46	19.22
2/28/2010	10.67	9.84	15.54	19.36
3/1/2010	10.38	35.00	21.11	29.24
3/2/2010	10.46	34.71	21.44	29.49
3/3/2010	10.47	34.66	21.24	29.68
3/4/2010	13.08	34.69	21.23	29.48
3/5/2010	19.04	34.78	21.31	29.48
3/6/2010	23.16	41.02	21.48	29.49
3/7/2010	25.59	48.14	26.92	29.85
3/8/2010	27.14	54.08	32.19	36.05
3/9/2010	30.99	58.33	34.84	42.11
3/10/2010	33.92	69.37	35.64	43.59
3/11/2010	34.63	75.54	40.41	45.67
3/12/2010	35.15	76.56	42.15	49.88
3/13/2010	37.46	78.29	42.54	51.13
3/14/2010	39.15	85.71	45.81	52.67
3/15/2010	38.77	87.56	50.69	59.33
3/16/2010	41.79	86.33	50.07	60.59
3/17/2010	45.74	98.16	53.36	59.95
3/18/2010	45.31	104.16	61.96	70.62
3/19/2010	43.04	100.18	61.98	74.50
3/20/2010	42.95	95.14	58.00	70.36
3/21/2010	45.35	97.51	56.88	66.42
3/22/2010	46.53	104.19	58.56	67.93
3/23/2010	49.36	105.12	59.26	70.33

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
3/24/2010	56.40	111.35	60.01	68.86
3/25/2010	58.27	125.22	62.98	71.02
3/26/2010	56.34	121.69	62.08	75.56
3/27/2010	56.16	117.36	57.95	69.76
3/28/2010	58.18	118.63	56.04	63.09
3/29/2010	60.61	124.86	61.08	67.64
3/30/2010	61.89	128.48	65.84	75.48
3/31/2010	61.93	128.87	65.40	77.12
4/1/2010	61.31	127.30	61.87	74.31
4/2/2010	59.62	124.63	56.37	69.34
4/3/2010	58.21	120.53	53.60	64.52
4/4/2010	58.20	119.10	53.31	63.17
4/5/2010	59.75	120.54	54.31	63.79
4/6/2010	61.83	124.84	56.45	65.30
4/7/2010	63.47	128.95	58.52	67.21
4/8/2010	63.92	131.25	59.85	68.97
4/9/2010	61.63	129.80	56.86	68.10
4/10/2010	59.28	123.14	50.71	62.88
4/11/2010	58.87	119.66	48.53	56.89
4/12/2010	58.14	120.19	48.44	57.16
4/13/2010	56.68	116.41	49.04	58.67
4/14/2010	55.35	112.85	49.92	58.72
4/15/2010	53.74	109.18	49.96	60.08
4/16/2010	50.03	103.78	46.24	57.93
4/17/2010	45.66	92.07	35.63	51.67
4/18/2010	44.44	83.50	28.49	39.92
4/19/2010	43.09	84.86	24.41	34.85
4/20/2010	41.17	79.40	26.82	29.64
4/21/2010	41.20	76.40	22.41	29.94
4/22/2010	40.74	77.97	20.90	26.01
4/23/2010	39.34	75.18	23.92	24.85
4/24/2010	38.55	74.56	23.63	27.65
4/25/2010	38.33	75.26	28.34	27.49
4/26/2010	38.07	76.33	30.71	33.14
4/27/2010	38.38	75.62	31.55	35.06
4/28/2010	40.09	76.50	30.21	34.62
4/29/2010	42.83	79.77	32.06	33.49
4/30/2010	43.69	85.97	32.59	35.85
5/1/2010	42.16	85.38	37.06	37.08
5/2/2010	41.31	80.82	35.16	40.93
5/3/2010	41.97	79.76	32.08	37.84

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
5/4/2010	43.51	82.12	32.45	35.98
5/5/2010	45.49	86.52	36.60	37.86
5/6/2010	46.15	91.38	39.89	42.80
5/7/2010	45.74	91.50	39.57	46.18
5/8/2010	45.98	89.73	37.02	43.69
5/9/2010	46.39	90.48	35.26	40.92
5/10/2010	46.58	91.09	36.10	39.92
5/11/2010	47.62	91.44	36.16	40.57
5/12/2010	50.75	94.63	36.37	40.31
5/13/2010	53.38	102.65	41.21	41.94
5/14/2010	53.12	106.49	43.11	49.29
5/15/2010	52.40	103.12	44.32	49.83
5/16/2010	51.86	103.16	46.64	50.80
5/17/2010	51.38	102.54	48.46	55.11
5/18/2010	49.76	100.63	46.88	54.95
5/19/2010	49.05	94.06	42.45	52.32
5/20/2010	50.10	94.17	35.19	45.33
5/21/2010	50.74	96.80	32.19	39.34
5/22/2010	50.46	98.60	35.05	37.18
5/23/2010	50.24	98.17	41.09	43.11
5/24/2010	51.02	98.44	40.64	48.26
5/25/2010	52.65	101.62	41.96	46.78
5/26/2010	53.58	105.51	44.00	49.83
5/27/2010	52.49	106.70	46.43	52.67
5/28/2010	50.25	102.59	45.39	54.55
5/29/2010	49.01	97.40	41.82	50.85
5/30/2010	48.78	95.60	39.13	47.27
5/31/2010	48.36	95.42	37.87	45.42
6/1/2010	48.63	93.99	36.42	44.30
6/2/2010	52.06	96.53	34.06	42.06
6/3/2010	55.93	105.46	40.75	41.34
6/4/2010	58.48	111.65	44.90	51.80
6/5/2010	60.56	117.57	48.60	54.64
6/6/2010	61.22	121.87	54.67	61.45
6/7/2010	62.75	122.31	57.72	67.41
6/8/2010	64.69	129.14	60.23	68.58
6/9/2010	64.89	132.97	64.14	74.10
6/10/2010	63.54	131.13	64.47	76.20
6/11/2010	62.55	126.29	62.26	74.75
6/12/2010	62.91	124.69	58.70	70.85
6/13/2010	63.25	128.10	62.10	70.18

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
6/14/2010	64.08	129.83	64.79	75.43
6/15/2010	65.67	131.28	66.32	77.11
6/16/2010	65.44	133.71	67.88	78.30
6/17/2010	66.41	131.04	66.48	79.44
6/18/2010	66.03	135.52	65.48	76.12
6/19/2010	64.77	132.83	63.79	76.57
6/20/2010	64.48	131.92	60.99	72.99
6/21/2010	64.84	132.21	60.28	71.33
6/22/2010	65.82	133.03	59.57	70.82
6/23/2010	66.63	135.25	60.67	70.75
6/24/2010	67.03	135.38	60.73	72.17
6/25/2010	68.37	135.42	60.10	71.25
6/26/2010	70.00	139.27	63.69	72.71
6/27/2010	70.37	142.05	67.74	78.31
6/28/2010	70.72	142.28	68.79	81.03
6/29/2010	67.46	142.81	70.35	82.31
6/30/2010	60.62	131.60	62.20	79.49
7/1/2010	56.04	117.50	53.76	68.42
7/2/2010	51.69	111.59	50.65	61.19
7/3/2010	46.88	99.37	48.74	61.31
7/4/2010	46.96	90.27	45.99	56.84
7/5/2010	51.57	97.45	46.20	54.38
7/6/2010	55.99	109.09	55.00	60.86
7/7/2010	60.32	117.79	60.07	69.47
7/8/2010	63.66	126.52	65.37	74.53
7/9/2010	64.50	130.86	62.91	76.85
7/10/2010	64.90	129.99	60.19	73.24
7/11/2010	62.80	131.73	62.14	71.96
7/12/2010	58.91	124.79	62.47	77.32
7/13/2010	58.00	116.59	56.94	71.96
7/14/2010	59.75	117.36	57.31	66.86
7/15/2010	62.42	120.20	56.90	68.81
7/16/2010	62.68	125.41	55.30	66.70
7/17/2010	61.59	124.30	54.05	66.17
7/18/2010	61.30	123.11	54.94	65.02
7/19/2010	60.95	123.29	54.82	65.66
7/20/2010	61.53	122.69	54.99	65.91
7/21/2010	62.67	125.78	57.53	67.06
7/22/2010	63.15	128.08	56.49	69.09
7/23/2010	62.47	127.77	54.34	66.93
7/24/2010	56.74	126.29	56.45	67.48

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
7/25/2010	57.48	110.61	51.87	68.96
7/26/2010	53.15	124.98	58.21	62.74
7/27/2010	46.70	104.59	59.95	79.66
7/28/2010	48.40	96.99	48.88	64.81
7/29/2010	50.12	105.08	48.99	58.23
7/30/2010	48.69	105.43	52.23	64.22
7/31/2010	49.33	101.54	48.34	62.34
8/1/2010	50.41	106.52	48.10	57.37
8/2/2010	51.20	107.65	51.58	61.96
8/3/2010	53.16	109.43	51.24	62.53
8/4/2010	55.62	113.20	50.62	61.18
8/5/2010	57.65	116.28	52.02	62.37
8/6/2010	59.02	117.61	50.10	61.96
8/7/2010	60.42	119.85	50.75	60.22
8/8/2010	60.99	123.04	54.39	63.35
8/9/2010	61.86	123.62	55.80	67.07
8/10/2010	62.61	128.01	57.10	67.40
8/11/2010	62.06	129.66	59.23	70.72
8/12/2010	61.50	127.19	56.89	70.24
8/13/2010	60.50	126.39	54.66	66.56
8/14/2010	60.69	124.05	53.14	65.47
8/15/2010	61.12	126.37	56.19	64.78
8/16/2010	61.59	126.65	58.78	69.90
8/17/2010	62.36	128.07	58.54	70.28
8/18/2010	62.49	129.54	57.81	69.89
8/19/2010	61.92	129.18	57.65	69.63
8/20/2010	61.71	127.94	58.05	69.78
8/21/2010	62.91	127.92	58.28	69.86
8/22/2010	63.34	131.33	61.01	71.15
8/23/2010	61.43	131.23	62.75	75.20
8/24/2010	57.83	128.92	61.64	74.75
8/25/2010	53.57	122.81	61.92	76.85
8/26/2010	50.83	111.92	55.92	72.89
8/27/2010	51.07	106.54	49.81	62.90
8/28/2010	52.37	108.62	48.31	59.04
8/29/2010	52.04	111.97	47.72	58.71
8/30/2010	49.73	110.37	47.56	58.67
8/31/2010	46.00	103.30	42.28	56.35
9/1/2010	43.61	93.09	29.98	47.88
9/2/2010	43.62	87.04	16.64	35.44
9/3/2010	44.78	86.63	10.57	25.56

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
9/4/2010	48.15	90.05	14.91	21.39
9/5/2010	50.19	100.78	29.24	25.64
9/6/2010	50.02	102.00	38.89	43.94
9/7/2010	50.62	101.24	36.57	47.46
9/8/2010	50.65	103.75	34.05	44.10
9/9/2010	46.00	103.18	34.42	43.07
9/10/2010	38.21	94.87	34.08	43.64
9/11/2010	33.64	82.20	37.15	43.23
9/12/2010	31.27	76.14	36.34	45.43
9/13/2010	28.44	69.76	38.91	46.47
9/14/2010	26.65	63.30	34.23	46.50
9/15/2010	25.60	59.70	30.24	41.17
9/16/2010	24.23	57.78	27.02	37.06
9/17/2010	22.70	54.66	24.12	33.44
9/18/2010	22.49	51.45	20.22	30.58
9/19/2010	22.99	51.30	19.96	27.29
9/20/2010	24.27	51.35	22.98	27.47
9/21/2010	27.24	54.18	21.49	29.89
9/22/2010	29.07	61.18	21.43	28.37
9/23/2010	26.88	64.42	27.56	29.08
9/24/2010	22.39	58.25	30.88	35.20
9/25/2010	19.55	49.40	25.95	36.89
9/26/2010	19.14	43.64	20.69	31.13
9/27/2010	19.04	42.94	16.04	27.09
9/28/2010	20.04	43.09	15.49	23.23
9/29/2010	23.54	43.78	15.06	22.88
9/30/2010	25.68	49.83	15.24	22.80
10/1/2010	24.61	55.17	30.51	23.34
10/2/2010	25.33	52.59	35.50	41.80
10/3/2010	26.83	54.08	34.24	42.31
10/4/2010	26.70	57.84	37.15	41.70
10/5/2010	25.32	57.53	38.08	45.44
10/6/2010	22.35	54.36	37.70	45.07
10/7/2010	18.60	49.27	34.48	43.60
10/8/2010	13.97	43.94	31.42	39.96
10/9/2010	10.80	23.04	28.22	36.28
10/10/2010	9.84	6.71	25.98	32.94
10/11/2010	9.91	4.36	24.15	30.61
10/12/2010	9.82	4.30	23.53	29.02
10/13/2010	9.98	4.30	23.30	28.46
10/14/2010	9.94	4.39	23.26	28.25

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
10/15/2010	9.95	4.31	23.71	28.66
10/16/2010	9.91	4.34	24.36	30.02
10/17/2010	9.91	4.38	24.60	31.27
10/18/2010	9.91	4.35	24.84	32.07
10/19/2010	9.89	4.37	24.92	33.10
10/20/2010	9.91	4.43	23.44	33.79
10/21/2010	9.86	4.46	22.99	34.25
10/22/2010	9.92	4.44	22.76	34.61
10/23/2010	9.87	4.61	22.65	34.83
10/24/2010	9.93	4.65	22.23	35.11
10/25/2010	9.94	4.63	21.26	35.51
10/26/2010	9.85	4.72	21.00	35.74
10/27/2010	9.84	4.67	20.49	35.98
10/28/2010	9.80	4.27	20.13	36.34
10/29/2010	9.83	4.17	19.68	36.73
10/30/2010	9.78	4.19	19.59	37.27
10/31/2010	9.80	4.24	19.36	37.78
11/1/2010	9.79	4.27	19.20	38.47
11/2/2010	9.84	4.21	18.93	39.50
11/3/2010	9.88	4.22	18.43	39.81
11/4/2010	9.90	4.22	18.52	40.14
11/5/2010	9.86	4.26	19.42	40.76
11/6/2010	9.88	4.25	20.43	41.05
11/7/2010	9.83	4.29	21.00	41.18
11/8/2010	9.84	4.30	20.20	41.50
11/9/2010	9.78	4.27	20.07	42.11
11/10/2010	9.81	4.33	21.34	42.68
11/11/2010	9.75	4.31	24.32	43.15
11/12/2010	9.81	4.35	24.76	43.65
11/13/2010	9.74	4.34	26.95	43.91
11/14/2010	9.75	4.38	29.24	44.34
11/15/2010	9.70	4.38	29.79	44.93
11/16/2010	9.75	4.39	30.51	45.31
11/17/2010	9.71	4.51	31.03	45.81
11/18/2010	9.77	4.54	31.03	45.76
11/19/2010	9.72	4.53	31.17	45.67
11/20/2010	9.72	4.54	31.64	45.97
11/21/2010	9.74	4.60	32.13	46.40
11/22/2010	9.70	4.57	32.53	46.70
11/23/2010	9.74	4.62	32.65	46.93
11/24/2010	9.66	4.69	32.90	47.12

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
11/25/2010	9.73	4.67	32.93	47.20
11/26/2010	9.75	4.68	33.00	47.10
11/27/2010	9.69	4.68	33.11	47.14
11/28/2010	9.70	4.64	33.17	47.24
11/29/2010	9.67	4.66	33.00	47.18
11/30/2010	9.75	4.62	32.95	46.88
12/1/2010	9.72	4.64	32.85	46.69
12/2/2010	9.71	4.68	32.01	46.01
12/3/2010	9.73	4.71	31.79	44.89
12/4/2010	9.66	4.78	32.23	44.95
12/5/2010	9.72	4.74	32.73	45.58
12/6/2010	9.73	4.79	32.62	45.85
12/7/2010	9.68	4.79	27.73	41.25
12/8/2010	9.73	4.80	23.86	30.96
12/9/2010	9.67	4.79	13.21	15.52
12/10/2010	9.65	4.80	13.53	15.43
12/11/2010	9.71	4.81	13.98	15.87
12/12/2010	9.65	4.82	13.34	15.91
12/13/2010	9.73	4.80	13.78	15.49
12/14/2010	9.91	4.83	14.78	16.32
12/15/2010	9.90	4.83	15.43	17.83
12/16/2010	9.96	4.78	17.97	20.52
12/17/2010	9.97	4.82	18.37	22.25
12/18/2010	9.90	4.84	17.60	21.67
12/19/2010	9.73	4.84	19.49	22.41
12/20/2010	9.55	4.78	24.75	25.61
12/21/2010	9.64	2.47	25.61	26.56
12/22/2010	9.88	4.36	26.05	27.20
12/23/2010	9.90	4.86	26.42	27.55
12/24/2010	9.82	4.84	26.70	27.90
12/25/2010	9.86	4.91	26.83	28.07
12/26/2010	9.86	4.90	27.18	28.18
12/27/2010	9.78	4.93	27.48	28.53
12/28/2010	9.82	4.93	27.78	28.83
12/29/2010	9.83	4.96	27.92	29.07
12/30/2010	9.77	4.95	28.05	29.16
12/31/2010	9.80	4.93	28.21	29.31
1/1/2011	9.81	4.93	28.41	29.48

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
1/2/2011	9.75	4.93	28.61	29.65
1/3/2011	9.75	4.94	28.81	29.83
1/4/2011	9.80	4.97	29.05	30.05
1/5/2011	9.75	5.02	29.11	30.21
1/6/2011	9.84	5.02	29.11	30.20
1/7/2011	10.28	5.08	29.09	30.19
1/8/2011	10.83	6.40	29.17	30.26
1/9/2011	11.19	9.46	29.28	30.31
1/10/2011	11.23	9.97	29.52	30.40
1/11/2011	11.26	10.02	29.69	30.57
1/12/2011	11.25	10.08	29.83	30.68
1/13/2011	11.22	10.21	29.94	30.85
1/14/2011	11.17	10.17	30.04	31.02
1/15/2011	11.16	9.95	30.10	31.10
1/16/2011	11.15	9.91	30.08	31.10
1/17/2011	11.14	9.95	29.06	30.32
1/18/2011	11.15	9.92	21.88	28.52
1/19/2011	10.50	9.94	27.56	26.58
1/20/2011	8.79	9.60	22.67	28.02
1/21/2011	0.00	2.70	18.87	26.74
1/22/2011	0.00	2.95	12.86	26.34
1/23/2011	0.00	3.12	15.38	25.68
1/24/2011	0.00	3.18	18.51	26.19
1/25/2011	0.00	3.23	22.23	26.61
1/26/2011	8.49	3.18	21.57	27.10
1/27/2011	9.92	3.15	16.13	27.21
1/28/2011	11.23	3.15	10.56	26.49
1/29/2011	11.27	11.79	10.56	25.55
1/30/2011	10.79	8.33	19.40	25.95
1/31/2011	10.78	7.04	19.91	26.70
2/1/2011	10.75	7.06	20.94	27.25
2/2/2011	10.72	7.09	21.72	27.09
2/3/2011	10.71	7.07	21.59	26.63
2/4/2011	10.73	7.11	21.22	26.68
2/5/2011	10.69	7.11	21.82	26.78
2/6/2011	10.64	7.05	22.28	27.19
2/7/2011	10.65	7.07	22.75	27.54
2/8/2011	11.13	7.05	23.88	27.41
2/9/2011	11.55	7.44	25.68	27.38
2/10/2011	11.54	12.87	24.88	27.44
2/11/2011	11.39	8.20	24.07	27.33

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
2/12/2011	10.79	12.48	16.60	27.16
2/13/2011	10.21	7.03	19.36	26.58
2/14/2011	10.20	5.65	16.14	26.66
2/15/2011	10.20	5.70	14.60	26.70
2/16/2011	0.00	5.63	15.06	26.47
2/17/2011	0.00	4.57	15.49	26.49
2/18/2011	0.00	3.02	14.21	26.53
2/19/2011	0.00	3.14	11.79	26.48
2/20/2011	0.00	3.20	11.89	26.24
2/21/2011	0.00	3.12	12.05	26.25
2/22/2011	0.00	3.12	11.25	26.58
2/23/2011	0.00	3.11	10.01	27.02
2/24/2011	0.00	3.10	9.75	27.81
2/25/2011	0.00	3.13	10.22	27.93
2/26/2011	0.00	3.11	10.36	27.81
2/27/2011	0.00	3.13	10.33	27.71
2/28/2011	0.00	3.13	10.66	27.72
3/1/2011	0.00	3.14	11.03	27.57
3/2/2011	0.00	3.15	11.02	27.53
3/3/2011	0.00	3.06	11.20	27.43
3/4/2011	0.00	3.16	11.72	27.26
3/5/2011	0.00	3.10	12.16	27.09
3/6/2011	0.00	3.11	11.64	26.98
3/7/2011	8.91	3.11	10.73	27.07
3/8/2011	8.92	3.09	10.34	27.70
3/9/2011	8.95	3.14	9.76	27.73
3/10/2011	9.08	3.10	9.03	27.36
3/11/2011	12.53	33.87	25.57	27.06
3/12/2011	20.40	33.88	25.34	26.60
3/13/2011	25.39	41.06	25.11	26.08
3/14/2011	25.61	51.31	31.89	25.63
3/15/2011	28.25	51.61	36.43	34.53
3/16/2011	35.20	59.01	36.55	37.07
3/17/2011	39.85	79.94	47.52	39.40
3/18/2011	44.37	88.42	60.10	60.13
3/19/2011	48.99	102.98	66.93	67.41
3/20/2011	50.07	110.84	76.02	80.28
3/21/2011	51.12	111.44	78.12	85.43
3/22/2011	53.44	115.54	79.70	85.92
3/23/2011	54.85	121.17	83.58	89.58
3/24/2011	55.10	122.82	85.88	93.51

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
3/25/2011	55.33	123.05	86.35	94.49
3/26/2011	34.72	120.20	86.74	94.82
3/27/2011	13.38	67.17	64.70	87.03
3/28/2011	9.18	39.42	39.81	56.97
3/29/2011	9.16	33.95	29.55	41.34
3/30/2011	31.14	33.87	27.20	32.91
3/31/2011	54.61	95.51	27.30	31.01
4/1/2011	48.47	117.54	77.84	72.39
4/2/2011	43.53	102.22	65.52	77.43
4/3/2011	42.20	93.71	56.52	64.98
4/4/2011	43.49	92.78	55.03	59.66
4/5/2011	46.08	97.46	58.29	61.35
4/6/2011	48.01	103.85	63.25	66.68
4/7/2011	46.68	106.83	65.24	71.20
4/8/2011	44.01	100.69	63.54	71.52
4/9/2011	41.50	95.07	58.70	66.35
4/10/2011	39.39	88.79	59.68	64.20
4/11/2011	38.71	84.61	59.95	65.40
4/12/2011	37.79	83.84	58.97	65.06
4/13/2011	36.15	80.57	58.22	64.63
4/14/2011	35.50	76.83	55.43	62.13
4/15/2011	35.56	75.93	53.61	59.48
4/16/2011	37.24	76.14	53.73	58.75
4/17/2011	41.14	82.23	54.99	58.89
4/18/2011	43.73	92.82	56.91	61.54
4/19/2011	44.84	96.91	60.14	64.88
4/20/2011	44.68	99.22	61.65	66.57
4/21/2011	42.55	97.32	61.81	68.25
4/22/2011	39.18	90.88	58.51	66.22
4/23/2011	37.45	82.64	52.92	60.82
4/24/2011	38.68	80.63	48.45	54.53
4/25/2011	39.75	84.91	49.35	52.69
4/26/2011	41.77	86.39	52.46	55.95
4/27/2011	40.88	93.42	55.21	57.51
4/28/2011	37.85	86.08	54.86	62.84
4/29/2011	34.82	80.67	47.79	55.13
4/30/2011	30.82	72.11	44.69	50.46
5/1/2011	28.30	63.14	45.39	46.91
5/2/2011	27.23	57.27	42.71	48.58
5/3/2011	26.16	54.66	39.89	44.01
5/4/2011	24.84	52.13	38.55	41.53

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
5/5/2011	24.62	49.47	36.72	40.00
5/6/2011	25.09	48.64	35.23	37.67
5/7/2011	26.69	49.81	35.01	35.92
5/8/2011	31.66	53.35	35.54	35.89
5/9/2011	35.21	68.56	40.29	36.50
5/10/2011	36.51	74.89	52.03	47.80
5/11/2011	38.54	79.43	53.08	55.48
5/12/2011	38.03	83.89	57.15	59.06
5/13/2011	36.05	80.58	57.93	62.62
5/14/2011	35.16	76.05	54.51	59.97
5/15/2011	35.14	74.70	52.22	56.57
5/16/2011	36.03	74.67	52.12	55.40
5/17/2011	38.51	77.86	52.68	55.31
5/18/2011	40.76	84.87	56.35	57.67
5/19/2011	40.31	89.44	61.06	63.38
5/20/2011	38.41	85.99	61.51	66.81
5/21/2011	35.84	81.79	58.21	63.76
5/22/2011	33.05	74.76	54.96	60.69
5/23/2011	31.91	68.73	50.06	55.88
5/24/2011	31.52	66.68	46.98	51.55
5/25/2011	30.58	65.39	46.58	49.45
5/26/2011	30.00	63.03	45.22	48.62
5/27/2011	30.78	61.76	43.63	46.85
5/28/2011	33.34	64.26	43.49	45.39
5/29/2011	36.65	71.73	46.84	46.64
5/30/2011	39.20	80.02	53.16	52.87
5/31/2011	47.31	86.47	58.10	59.82
6/1/2011	54.61	110.24	62.74	62.46
6/2/2011	55.01	115.72	62.86	71.90
6/3/2011	54.16	112.29	58.61	65.59
6/4/2011	54.66	111.52	56.30	61.32
6/5/2011	55.06	113.49	54.76	59.71
6/6/2011	54.23	113.52	55.55	59.58
6/7/2011	54.20	110.97	54.71	59.99
6/8/2011	56.01	112.80	55.12	58.61
6/9/2011	56.37	116.88	58.12	61.28
6/10/2011	55.66	114.19	58.04	64.21
6/11/2011	56.21	112.78	55.72	61.09
6/12/2011	56.78	115.35	56.37	59.76
6/13/2011	57.51	116.20	57.72	62.08
6/14/2011	58.03	118.35	59.55	63.08

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
6/15/2011	57.90	118.44	59.27	64.91
6/16/2011	57.07	118.20	58.14	63.52
6/17/2011	54.93	115.33	58.02	63.15
6/18/2011	53.39	109.04	54.27	61.33
6/19/2011	53.32	107.01	52.40	56.40
6/20/2011	55.56	107.96	53.07	56.65
6/21/2011	58.00	115.81	56.86	58.20
6/22/2011	59.72	120.15	59.74	64.52
6/23/2011	60.54	122.48	59.74	65.20
6/24/2011	60.34	121.46	59.04	64.75
6/25/2011	60.22	120.13	57.00	62.81
6/26/2011	60.50	121.30	58.86	62.17
6/27/2011	60.27	122.89	61.66	65.78
6/28/2011	60.27	122.18	63.41	68.51
6/29/2011	62.05	123.38	62.46	68.34
6/30/2011	63.53	127.69	63.65	68.10
7/1/2011	63.80	128.97	63.71	69.84
7/2/2011	63.70	128.85	62.84	68.89
7/3/2011	63.53	128.17	61.91	67.81
7/4/2011	62.13	127.34	61.32	67.12
7/5/2011	60.32	124.19	58.62	65.77
7/6/2011	55.14	120.78	56.57	62.25
7/7/2011	47.66	111.18	58.01	62.21
7/8/2011	43.42	99.13	60.03	64.82
7/9/2011	41.81	94.06	54.61	61.98
7/10/2011	41.05	90.07	51.58	57.37
7/11/2011	41.14	89.44	50.45	54.25
7/12/2011	41.23	89.66	52.33	55.22
7/13/2011	41.33	89.82	53.11	57.12
7/14/2011	40.20	89.99	53.57	57.65
7/15/2011	39.21	85.94	52.37	58.00
7/16/2011	40.22	84.94	49.53	54.33
7/17/2011	41.06	88.43	51.21	53.35
7/18/2011	42.21	89.43	55.17	57.70
7/19/2011	44.78	93.84	58.47	60.95
7/20/2011	46.04	100.47	62.90	66.42
7/21/2011	45.03	101.39	64.47	70.53
7/22/2011	43.50	98.00	62.82	69.75
7/23/2011	43.27	94.74	59.94	66.59
7/24/2011	43.56	95.49	57.27	63.10
7/25/2011	43.51	95.68	57.05	62.05

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
7/26/2011	43.98	95.56	56.75	61.64
7/27/2011	44.80	97.37	57.51	61.64
7/28/2011	41.79	98.84	58.78	63.24
7/29/2011	39.80	87.65	55.93	64.03
7/30/2011	40.94	87.69	47.52	54.49
7/31/2011	41.11	89.68	46.65	50.56
8/1/2011	41.85	89.68	59.66	54.16
8/2/2011	42.14	92.52	63.48	67.31
8/3/2011	40.69	91.72	64.74	69.98
8/4/2011	39.54	87.31	62.68	69.10
8/5/2011	39.73	85.79	60.19	65.68
8/6/2011	40.51	86.74	60.27	64.84
8/7/2011	40.80	88.81	61.44	65.72
8/8/2011	40.52	88.74	62.30	67.25
8/9/2011	40.23	88.05	61.81	66.98
8/10/2011	40.37	87.39	61.32	66.39
8/11/2011	40.99	88.18	61.25	65.82
8/12/2011	41.56	89.89	62.25	66.50
8/13/2011	41.99	91.06	63.34	67.87
8/14/2011	42.05	92.03	64.06	68.85
8/15/2011	41.80	91.77	64.41	69.70
8/16/2011	41.81	91.21	63.99	69.51
8/17/2011	42.14	91.52	63.80	68.90
8/18/2011	42.26	92.38	64.32	69.22
8/19/2011	42.18	92.37	64.62	69.82
8/20/2011	42.10	92.16	64.53	69.81
8/21/2011	42.00	91.95	64.29	69.56
8/22/2011	41.91	91.72	64.21	69.38
8/23/2011	41.94	91.49	64.03	69.29
8/24/2011	42.96	91.83	64.00	69.09
8/25/2011	44.19	95.36	65.32	69.58
8/26/2011	43.79	97.52	67.73	72.54
8/27/2011	42.54	95.17	67.56	73.94
8/28/2011	41.93	92.30	65.38	71.71
8/29/2011	41.81	91.53	64.07	69.57
8/30/2011	39.65	91.08	63.86	69.09
8/31/2011	36.38	83.77	61.44	68.56
9/1/2011	37.45	76.61	55.78	62.69
9/2/2011	41.15	83.24	54.01	57.82
9/3/2011	42.44	91.19	61.76	63.66
9/4/2011	42.55	92.67	64.77	69.88

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
9/5/2011	42.70	92.89	64.93	70.64
9/6/2011	42.90	93.34	65.31	71.12
9/7/2011	43.08	93.83	65.48	71.31
9/8/2011	43.25	94.27	65.79	71.41
9/9/2011	43.12	94.56	66.07	71.72
9/10/2011	34.58	93.37	65.99	71.98
9/11/2011	20.14	68.45	58.22	70.32
9/12/2011	11.57	45.65	40.82	53.47
9/13/2011	0.00	5.24	30.80	38.09
9/14/2011	0.00	3.08	25.43	28.68
9/15/2011	0.00	3.07	5.59	4.56
9/16/2011	0.00	3.04	5.55	3.30
9/17/2011	0.00	3.09	5.52	3.20
9/18/2011	0.00	3.05	5.55	3.15
9/19/2011	0.00	3.08	5.90	3.18
9/20/2011	0.00	3.08	7.46	3.71
9/21/2011	0.00	3.06	8.31	5.20
9/22/2011	0.00	3.03	7.37	5.52
9/23/2011	0.00	3.07	6.42	4.66
9/24/2011	0.00	3.06	5.58	3.73
9/25/2011	0.00	3.09	5.46	3.16
9/26/2011	0.00	3.08	5.41	3.08
9/27/2011	0.00	3.07	5.45	3.10
9/28/2011	0.00	3.06	5.42	3.11
9/29/2011	0.00	3.02	5.45	3.12
9/30/2011	0.00	3.03	5.41	3.08
10/1/2011	0.00	3.06	5.44	3.13
10/2/2011	0.00	3.04	5.42	3.08
10/3/2011	0.00	3.05	5.44	3.08
10/4/2011	0.00	3.06	5.38	3.14
10/5/2011	0.00	3.04	5.39	3.08
10/6/2011	0.00	3.03	5.37	3.07
10/7/2011	0.00	3.09	5.42	3.09
10/8/2011	0.00	3.06	5.40	3.09
10/9/2011	0.00	3.03	5.38	3.10
10/10/2011	0.00	3.06	5.40	3.06
10/11/2011	0.00	3.04	5.41	3.05
10/12/2011	0.00	3.09	5.41	3.08
10/13/2011	0.00	3.04	5.40	3.11
10/14/2011	0.00	3.04	5.41	3.07
10/15/2011	0.00	3.10	5.40	3.10

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
10/16/2011	0.00	3.07	5.41	3.07
10/17/2011	0.00	3.09	5.43	3.10
10/18/2011	0.00	3.05	5.40	3.09
10/19/2011	0.00	3.07	5.42	3.10
10/20/2011	0.00	3.05	5.40	3.08
10/21/2011	0.00	3.10	5.43	3.05
10/22/2011	0.00	3.05	5.41	3.09
10/23/2011	0.00	3.08	5.36	3.10
10/24/2011	0.00	3.06	5.43	3.12
10/25/2011	0.00	3.04	5.37	3.07
10/26/2011	0.00	3.04	5.41	3.08
10/27/2011	0.00	3.10	5.41	3.09
10/28/2011	0.00	3.07	5.44	3.08
10/29/2011	0.00	3.05	5.43	3.20
10/30/2011	0.00	3.05	5.36	3.13
10/31/2011	0.00	3.06	5.42	3.13
11/1/2011	0.00	3.06	5.44	3.17
11/2/2011	0.00	3.02	5.45	3.18
11/3/2011	0.00	3.06	5.44	3.20
11/4/2011	0.00	3.07	5.48	3.27
11/5/2011	0.00	3.05	5.53	3.32
11/6/2011	0.00	3.08	5.58	3.38
11/7/2011	0.00	3.07	5.62	3.42
11/8/2011	0.00	3.06	5.67	3.44
11/9/2011	0.00	3.01	5.70	3.53
11/10/2011	0.00	3.07	5.71	3.59
11/11/2011	0.00	3.11	5.77	3.58
11/12/2011	0.00	3.06	5.88	3.63
11/13/2011	0.00	3.06	5.90	3.72
11/14/2011	0.00	3.05	5.96	3.77
11/15/2011	0.00	3.03	5.98	3.80
11/16/2011	0.00	3.10	5.93	3.86
11/17/2011	0.00	3.09	5.92	3.89
11/18/2011	0.00	3.04	5.98	3.81
11/19/2011	0.00	3.06	5.91	3.80
11/20/2011	0.00	3.03	5.96	3.80
11/21/2011	0.00	3.08	5.95	3.83
11/22/2011	0.00	3.08	5.98	3.85
11/23/2011	0.00	3.10	5.99	3.84
11/24/2011	0.00	3.09	6.00	3.87
11/25/2011	0.00	3.02	5.98	3.86

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
11/26/2011	0.00	3.06	5.99	3.91
11/27/2011	0.00	3.08	6.02	3.88
11/28/2011	0.00	3.06	6.02	3.94
11/29/2011	0.00	3.09	6.01	3.92
11/30/2011	0.00	3.09	6.01	3.94
12/1/2011	0.00	3.05	5.99	3.93
12/2/2011	0.00	3.07	5.98	3.94
12/3/2011	0.00	3.08	6.02	3.90
12/4/2011	0.00	3.05	6.02	3.91
12/5/2011	0.00	3.09	5.97	3.97
12/6/2011	0.00	3.08	5.98	3.66
12/7/2011	0.00	3.04	6.01	3.83
12/8/2011	0.00	3.09	6.02	4.03
12/9/2011	0.00	3.09	6.05	4.05
12/10/2011	0.00	3.05	6.03	3.95
12/11/2011	0.00	3.03	5.98	3.96
12/12/2011	0.00	3.07	6.03	3.98
12/13/2011	0.00	3.08	6.00	3.93
12/14/2011	0.00	3.08	6.03	3.98
12/15/2011	0.00	3.05	6.02	4.00
12/16/2011	0.00	3.08	6.04	3.98
12/17/2011	0.00	3.08	6.02	3.96
12/18/2011	0.00	3.07	6.00	3.96
12/19/2011	0.00	3.08	6.03	3.95
12/20/2011	0.00	3.10	6.02	3.95
12/21/2011	0.00	3.11	6.03	3.91
12/22/2011	0.00	3.08	6.05	3.91
12/23/2011	0.00	3.08	5.98	3.95
12/24/2011	0.00	3.03	6.04	3.95
12/25/2011	0.00	3.09	6.00	3.94
12/26/2011	0.00	3.10	6.03	4.00
12/27/2011	0.00	3.03	6.01	4.04
12/28/2011	0.00	3.11	6.14	4.04
12/29/2011	0.00	3.11	6.34	4.14
12/30/2011	0.00	3.08	6.31	4.25
12/31/2011	0.00	3.09	6.06	4.21
1/1/2012	0.00	3.11	6.07	4.01
1/2/2012	0.00	3.14	5.95	3.99
1/3/2012	0.00	3.10	6.00	3.93
1/4/2012	0.00	3.10	6.05	4.02
1/5/2012	0.00	3.12	5.96	4.01

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
1/6/2012	0.00	3.10	5.94	3.92
1/7/2012	0.00	3.11	5.92	3.88
1/8/2012	0.00	3.08	5.95	3.89
1/9/2012	0.00	3.08	5.96	3.89
1/10/2012	0.00	3.07	5.93	3.90
1/11/2012	0.00	3.09	5.96	3.89
1/12/2012	0.00	3.07	5.93	3.89
1/13/2012	0.00	3.12	5.94	3.88
1/14/2012	0.00	3.13	6.07	3.92
1/15/2012	0.00	3.08	6.24	4.04
1/16/2012	0.00	3.10	5.93	4.06
1/17/2012	0.00	3.11	5.90	3.85
1/18/2012	0.00	3.09	5.93	3.86
1/19/2012	0.00	3.13	5.89	3.80
1/20/2012	0.00	3.06	5.88	3.81
1/21/2012	0.00	3.10	5.91	3.78
1/22/2012	0.00	3.07	5.88	3.80
1/23/2012	0.00	3.12	5.83	3.78
1/24/2012	0.00	3.12	5.88	3.79
1/25/2012	0.00	3.05	5.86	3.76
1/26/2012	0.00	3.09	5.85	3.76
1/27/2012	0.00	3.05	5.89	3.80
1/28/2012	0.00	3.09	5.86	3.73
1/29/2012	0.00	3.06	5.85	3.77
1/30/2012	0.00	3.08	5.85	3.72
1/31/2012	0.00	3.12	5.84	3.78
2/1/2012	0.00	3.10	5.83	3.75
2/2/2012	0.00	3.12	5.84	3.70
2/3/2012	0.00	3.07	5.81	3.76
2/4/2012	0.00	3.16	5.81	3.71
2/5/2012	0.00	3.09	5.82	3.69
2/6/2012	0.00	3.08	5.79	3.69
2/7/2012	0.00	3.00	5.78	3.66
2/8/2012	0.00	3.06	5.78	3.68
2/9/2012	0.00	3.03	5.77	3.67
2/10/2012	0.00	3.03	5.75	3.66
2/11/2012	0.00	3.04	5.75	3.64
2/12/2012	0.00	3.08	5.74	3.64
2/13/2012	0.00	3.09	5.73	3.64
2/14/2012	0.00	3.10	5.71	3.59
2/15/2012	0.00	3.06	5.69	3.65

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
2/16/2012	0.00	3.07	5.67	3.66
2/17/2012	0.00	3.10	5.69	3.58
2/18/2012	0.00	3.13	5.68	3.56
2/19/2012	0.00	3.05	5.64	3.52
2/20/2012	0.00	3.08	5.64	3.51
2/21/2012	0.00	3.09	5.62	3.45
2/22/2012	0.00	3.08	5.53	3.46
2/23/2012	0.00	3.07	5.55	3.37
2/24/2012	0.00	3.10	5.53	3.43
2/25/2012	0.00	3.07	5.54	3.43
2/26/2012	0.00	3.05	5.56	3.42
2/27/2012	0.00	3.06	5.49	3.37
2/28/2012	0.00	3.07	5.47	3.27
2/29/2012	0.00	3.08	5.45	3.28
3/1/2012	0.00	3.07	5.42	3.28
3/2/2012	0.00	3.09	5.44	3.26
3/3/2012	0.00	3.07	5.46	3.24
3/4/2012	0.00	3.08	5.43	3.20
3/5/2012	0.00	3.03	5.46	3.25
3/6/2012	0.00	3.07	5.45	3.22
3/7/2012	0.00	3.03	5.40	3.21
3/8/2012	0.00	3.02	5.46	3.20
3/9/2012	0.00	3.07	5.47	3.19
3/10/2012	0.00	3.07	5.46	3.23
3/11/2012	0.00	3.07	5.44	3.17
3/12/2012	0.00	3.10	5.47	3.21
3/13/2012	0.00	3.05	5.45	3.18
3/14/2012	0.00	3.03	5.45	3.20
3/15/2012	0.00	3.03	5.44	3.20
3/16/2012	0.00	3.07	5.40	3.15
3/17/2012	0.00	3.03	5.47	3.17
3/18/2012	0.00	3.07	5.45	3.17
3/19/2012	0.00	3.04	5.46	3.14
3/20/2012	0.00	3.08	5.45	3.20
3/21/2012	0.00	3.09	5.42	3.20
3/22/2012	0.00	3.05	5.46	3.18
3/23/2012	0.00	3.06	5.44	3.20
3/24/2012	0.00	3.04	5.48	3.17
3/25/2012	0.00	3.06	5.47	3.18
3/26/2012	0.00	3.02	5.47	3.12
3/27/2012	0.00	3.05	5.46	3.11

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
3/28/2012	0.00	3.07	5.41	3.11
3/29/2012	0.00	3.07	5.44	3.12
3/30/2012	0.00	3.04	5.44	3.13
3/31/2012	0.00	3.04	5.43	3.18
4/1/2012	14.74	34.08	24.22	23.62
4/2/2012	35.33	34.10	24.22	23.63
4/3/2012	47.49	93.75	24.75	23.63
4/4/2012	49.04	104.82	72.44	60.16
4/5/2012	52.68	110.62	74.79	78.08
4/6/2012	54.16	119.83	81.26	84.35
4/7/2012	53.27	119.67	84.01	91.39
4/8/2012	52.79	117.25	82.62	90.78
4/9/2012	52.65	116.99	81.88	89.29
4/10/2012	52.43	116.49	81.73	89.40
4/11/2012	52.31	115.97	81.36	89.06
4/12/2012	52.31	115.91	77.37	86.56
4/13/2012	49.54	115.43	75.73	83.08
4/14/2012	44.54	105.68	72.07	81.41
4/15/2012	42.00	94.08	63.63	73.03
4/16/2012	41.86	91.27	58.54	64.07
4/17/2012	41.86	91.15	58.70	63.18
4/18/2012	41.86	91.15	57.78	62.98
4/19/2012	41.33	91.10	57.09	61.88
4/20/2012	39.66	89.17	56.80	61.59
4/21/2012	38.09	84.35	54.47	60.28
4/22/2012	37.67	81.43	51.15	56.37
4/23/2012	37.73	80.88	49.89	53.87
4/24/2012	37.91	81.08	49.94	53.25
4/25/2012	38.95	81.66	49.13	53.01
4/26/2012	40.48	85.14	49.34	51.97
4/27/2012	41.70	88.72	52.42	54.33
4/28/2012	40.16	91.30	54.78	57.68
4/29/2012	36.77	84.65	56.28	60.68
4/30/2012	35.12	76.99	51.21	57.80
5/1/2012	35.18	74.45	51.02	53.57
5/2/2012	35.05	74.70	52.03	55.60
5/3/2012	34.69	74.11	52.10	55.75
5/4/2012	29.04	73.22	51.48	55.34
5/5/2012	17.85	58.22	48.76	54.65
5/6/2012	10.92	42.65	36.80	46.29
5/7/2012	9.40	35.49	29.14	34.80

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
5/8/2012	9.61	56.75	27.87	27.67
5/9/2012	9.59	53.30	38.62	32.64
5/10/2012	9.52	34.67	35.23	38.24
5/11/2012	9.54	34.06	24.46	31.63
5/12/2012	9.54	34.08	24.22	23.83
5/13/2012	9.54	34.08	24.22	23.62
5/14/2012	9.54	34.08	24.22	23.62
5/15/2012	9.54	34.08	24.22	23.61
5/16/2012	10.48	34.08	24.22	23.61
5/17/2012	13.08	34.08	24.22	23.60
5/18/2012	14.45	56.44	27.00	23.62
5/19/2012	11.03	49.62	37.92	31.89
5/20/2012	9.35	35.73	33.51	36.59
5/21/2012	9.38	34.11	25.16	30.77
5/22/2012	9.78	34.08	24.24	24.38
5/23/2012	10.59	34.08	24.22	23.60
5/24/2012	9.94	46.69	25.07	23.62
5/25/2012	9.46	34.53	32.18	26.24
5/26/2012	9.49	34.01	24.41	29.75
5/27/2012	9.38	34.07	24.16	23.77
5/28/2012	9.28	34.08	24.22	23.58
5/29/2012	19.78	34.08	24.22	23.60
5/30/2012	41.79	41.02	24.22	23.60
5/31/2012	42.71	95.07	46.69	23.50
6/1/2012	43.42	91.12	45.49	60.02
6/2/2012	48.61	92.21	33.73	39.43
6/3/2012	51.04	102.40	36.49	33.35
6/4/2012	51.28	103.99	44.86	41.06
6/5/2012	53.98	105.69	40.39	46.00
6/6/2012	58.73	115.21	40.85	39.70
6/7/2012	60.69	125.97	51.96	46.56
6/8/2012	61.68	123.33	55.70	60.23
6/9/2012	63.62	124.26	54.46	57.70
6/10/2012	64.47	131.04	60.18	60.28
6/11/2012	63.31	134.42	66.00	69.38
6/12/2012	62.02	131.10	71.20	75.43
6/13/2012	60.31	127.86	67.82	75.73
6/14/2012	57.12	123.01	63.67	71.10
6/15/2012	55.00	114.14	57.20	65.90
6/16/2012	55.34	111.24	48.95	56.30
6/17/2012	57.19	112.57	47.93	50.70

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
6/18/2012	56.59	117.20	52.23	52.45
6/19/2012	55.88	113.65	55.31	59.21
6/20/2012	56.37	114.23	54.21	58.19
6/21/2012	56.92	116.17	55.99	58.73
6/22/2012	56.60	117.05	56.79	60.91
6/23/2012	55.76	115.45	54.56	60.12
6/24/2012	55.41	112.36	50.98	56.77
6/25/2012	55.89	110.50	47.91	52.39
6/26/2012	56.68	113.27	48.01	50.12
6/27/2012	56.01	115.89	50.00	52.45
6/28/2012	53.98	112.69	49.82	54.09
6/29/2012	53.42	107.81	44.88	51.00
6/30/2012	54.08	108.59	42.17	44.71
7/1/2012	54.43	109.99	44.82	44.80
7/2/2012	54.59	110.50	47.56	48.58
7/3/2012	53.48	110.79	49.31	51.36
7/4/2012	51.74	107.51	50.05	53.50
7/5/2012	50.37	104.01	50.10	53.39
7/6/2012	49.28	99.93	49.65	53.64
7/7/2012	47.38	95.98	48.79	52.56
7/8/2012	44.64	89.45	47.42	52.30
7/9/2012	43.44	83.22	45.06	49.81
7/10/2012	42.98	82.73	42.32	46.72
7/11/2012	40.77	81.78	42.77	44.99
7/12/2012	39.65	75.71	40.22	44.47
7/13/2012	40.95	75.11	34.87	39.31
7/14/2012	42.63	78.02	36.21	34.94
7/15/2012	44.00	82.18	36.31	36.87
7/16/2012	46.67	85.60	39.10	37.03
7/17/2012	53.32	95.21	40.30	40.40
7/18/2012	58.64	114.63	47.42	43.59
7/19/2012	60.70	123.09	56.65	57.79
7/20/2012	61.38	125.23	55.21	61.58
7/21/2012	61.18	123.86	53.14	58.17
7/22/2012	60.92	122.48	49.97	55.26
7/23/2012	61.06	122.24	49.60	52.81
7/24/2012	61.52	122.77	53.33	54.57
7/25/2012	61.10	124.01	57.06	59.75
7/26/2012	58.86	121.73	57.13	62.69
7/27/2012	57.27	115.31	53.37	60.38
7/28/2012	56.74	113.36	49.26	54.65

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
7/29/2012	56.66	112.19	47.57	51.97
7/30/2012	57.12	112.55	47.17	50.31
7/31/2012	58.43	113.85	48.18	50.62
8/1/2012	59.46	117.79	50.59	52.18
8/2/2012	58.15	118.72	52.99	56.26
8/3/2012	55.85	113.25	49.46	56.28
8/4/2012	54.70	109.07	43.68	49.54
8/5/2012	54.37	108.50	40.18	43.90
8/6/2012	54.86	108.42	40.42	41.42
8/7/2012	56.57	110.53	43.35	42.44
8/8/2012	58.31	115.46	48.44	47.58
8/9/2012	59.26	117.34	50.94	53.97
8/10/2012	60.44	118.50	50.14	54.01
8/11/2012	62.20	121.91	52.19	53.89
8/12/2012	63.51	127.67	58.32	58.68
8/13/2012	63.49	129.65	61.30	65.70
8/14/2012	56.69	127.20	60.12	65.79
8/15/2012	46.97	111.47	57.20	64.13
8/16/2012	42.34	95.96	59.65	62.68
8/17/2012	41.84	91.64	55.47	61.68
8/18/2012	41.84	91.12	54.10	59.22
8/19/2012	41.83	91.12	53.78	58.42
8/20/2012	41.77	91.11	53.60	58.16
8/21/2012	41.73	90.85	54.96	58.68
8/22/2012	41.66	90.78	56.23	60.36
8/23/2012	40.37	90.47	55.53	60.80
8/24/2012	37.63	85.91	53.76	59.73
8/25/2012	36.14	79.09	49.27	55.85
8/26/2012	36.19	77.09	45.39	50.27
8/27/2012	36.19	77.19	45.73	48.41
8/28/2012	35.78	77.17	44.07	48.10
8/29/2012	35.02	75.67	42.82	45.94
8/30/2012	34.85	74.01	40.27	44.06
8/31/2012	35.03	73.91	38.87	41.17
9/1/2012	35.15	74.30	39.32	40.23
9/2/2012	35.27	74.59	39.75	40.94
9/3/2012	34.03	74.85	40.10	41.40
9/4/2012	31.69	70.82	41.04	42.12
9/5/2012	30.53	65.31	42.78	42.93
9/6/2012	30.42	62.94	43.79	45.87
9/7/2012	30.30	62.73	43.65	46.43

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
9/8/2012	30.13	62.40	37.85	44.79
9/9/2012	29.90	61.93	30.98	37.35
9/10/2012	29.65	61.33	21.37	30.23
9/11/2012	29.42	60.66	15.02	21.01
9/12/2012	29.13	59.98	24.50	15.84
9/13/2012	25.38	59.19	39.12	27.21
9/14/2012	16.85	51.47	41.06	42.67
9/15/2012	0.00	3.07	5.59	4.56
9/16/2012	0.00	3.04	5.55	3.30
9/17/2012	0.00	3.09	5.52	3.20
9/18/2012	0.00	3.05	5.55	3.15
9/19/2012	0.00	3.08	5.90	3.18
9/20/2012	0.00	3.08	7.46	3.71
9/21/2012	0.00	3.06	8.31	5.20
9/22/2012	0.00	3.03	7.37	5.52
9/23/2012	0.00	3.07	6.42	4.66
9/24/2012	0.00	3.06	5.58	3.73
9/25/2012	0.00	3.09	5.46	3.16
9/26/2012	0.00	3.08	5.41	3.08
9/27/2012	0.00	3.07	5.45	3.10
9/28/2012	0.00	3.06	5.42	3.11
9/29/2012	0.00	3.02	5.45	3.12
9/30/2012	0.00	3.03	5.41	3.08
10/1/2012	0.00	3.06	5.44	3.13
10/2/2012	0.00	3.04	5.42	3.08
10/3/2012	0.00	3.05	5.44	3.08
10/4/2012	0.00	3.06	5.38	3.14
10/5/2012	0.00	3.04	5.39	3.08
10/6/2012	0.00	3.03	5.37	3.07
10/7/2012	0.00	3.09	5.42	3.09
10/8/2012	0.00	3.06	5.40	3.09
10/9/2012	0.00	3.03	5.38	3.10
10/10/2012	0.00	3.06	5.40	3.06
10/11/2012	0.00	3.04	5.41	3.05
10/12/2012	0.00	3.09	5.41	3.08
10/13/2012	0.00	3.04	5.40	3.11
10/14/2012	0.00	3.04	5.41	3.07
10/15/2012	0.00	3.10	5.40	3.10
10/16/2012	0.00	3.07	5.41	3.07
10/17/2012	0.00	3.09	5.43	3.10
10/18/2012	0.00	3.05	5.40	3.09

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
10/19/2012	0.00	3.07	5.42	3.10
10/20/2012	0.00	3.05	5.40	3.08
10/21/2012	0.00	3.10	5.43	3.05
10/22/2012	0.00	3.05	5.41	3.09
10/23/2012	0.00	3.08	5.36	3.10
10/24/2012	0.00	3.06	5.43	3.12
10/25/2012	0.00	3.04	5.37	3.07
10/26/2012	0.00	3.04	5.41	3.08
10/27/2012	0.00	3.10	5.41	3.09
10/28/2012	0.00	3.07	5.44	3.08
10/29/2012	0.00	3.05	5.43	3.20
10/30/2012	0.00	3.05	5.36	3.13
10/31/2012	0.00	3.06	5.42	3.13
11/1/2012	0.00	3.06	5.44	3.17
11/2/2012	0.00	3.02	5.45	3.18
11/3/2012	0.00	3.06	5.44	3.20
11/4/2012	0.00	3.07	5.48	3.27
11/5/2012	0.00	3.05	5.53	3.32
11/6/2012	0.00	3.08	5.58	3.38
11/7/2012	0.00	3.07	5.62	3.42
11/8/2012	0.00	3.06	5.67	3.44
11/9/2012	0.00	3.01	5.70	3.53
11/10/2012	0.00	3.07	5.71	3.59
11/11/2012	0.00	3.11	5.77	3.58
11/12/2012	0.00	3.06	5.88	3.63
11/13/2012	0.00	3.06	5.90	3.72
11/14/2012	0.00	3.05	5.96	3.77
11/15/2012	0.00	3.03	5.98	3.80
11/16/2012	0.00	3.10	5.93	3.86
11/17/2012	0.00	3.09	5.92	3.89
11/18/2012	0.00	3.04	5.98	3.81
11/19/2012	0.00	3.06	5.91	3.80
11/20/2012	0.00	3.03	5.96	3.80
11/21/2012	0.00	3.08	5.95	3.83
11/22/2012	0.00	3.08	5.98	3.85
11/23/2012	0.00	3.10	5.99	3.84
11/24/2012	0.00	3.09	6.00	3.87
11/25/2012	0.00	3.02	5.98	3.86
11/26/2012	0.00	3.06	5.99	3.91
11/27/2012	0.00	3.08	6.02	3.88
11/28/2012	0.00	3.06	6.02	3.94

Table E-2: HEC-RAS Estimated Channel Seepage (2010-2012)

Seepage results from HEC-RAS Modeling, 2010-2012

The HECRAS modeling ends on 9/14/12. To complete the table, values for the period 9/15/12 through 12/31/12 were copied from the same date in 2011. Copied values are highlighted in grey.

Seepage values predicted by HEC-RAS during periods of erroneous baseflow were adjusted to insure seepage rate does not exceed upstream inflow. Adjusted values highlighted in red.

Input to the channel seepage (Qs) parameter

Date	Segment 1 Estimated Channel Seepage (cfs)	Segment 2 Estimated Channel Seepage (cfs)	Segment 3 Estimated Channel Seepage (cfs)	Segment 4 Estimated Channel Seepage (cfs)
11/29/2012	0.00	3.09	6.01	3.92
11/30/2012	0.00	3.09	6.01	3.94