Water-Data Report 2012

02037618 JAMES RIVER AT BOULEVARD BRIDGE AT RICHMOND, VA

James Basin
Middle James-Willis Subbasin

LOCATION.--Lat 37°31′53″, long 77°29′01″ referenced to North American Datum of 1927, Richmond City, VA, Hydrologic Unit 02080205, at the Boulevard (Nickel) Bridge in Richmond.

DRAINAGE AREA.--6,776 mi^2.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 2006 to current year.

COOPERATION.--Water samples were collected by the U.S. Geological Survey and analyzed by either the U.S. Geological Survey (Agency Code 1028) or by the Virginia Division of Consolidated Laboratory Services (VDCLS, Agency Code 85116), using analytical methods approved by the U.S. Geological Survey. Analyses performed by VDCLS are reported to U.S. Geological Survey rounding specifications. Results of chemical analyses provided by VDCLS were quality-assured and approved by the U.S. Geological Survey.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 02037618, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/02037618.2012.pdf

02037618 JAMES RIVER AT BOULEVARD BRIDGE AT RICHMOND, VA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 1 of 5

[%, percent; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Tempera-ture, air, °C (00020)	Discharge, instanta-neous, ft^3/s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)
10-04-2011	**1145**	Surface water	Regular	764	20.0	2,670	10.2	107
10-14-2011	**0945**	Surface water	Regular	747	24.0	30,700	10.7	116
11-01-2011	**1345**	Surface water	Regular	766	17.0	4,280	12.6	117
11-18-2011	**1200**	Surface water	Regular	770	9.0	8,380	10.0	90
11-29-2011	**1345**	Surface water	Regular	751	13.0	5,070	11.0	101
12-02-2011	**0945**	Surface water	Replicate	767	13.0	21,500	11.2	97
12-02-2011	***0950***	*QC sample - Surface water*	*Replicate*	--	--	--	--	--
12-02-2011	***1000***	*QC sample - Surface water*	*Replicate*	--	--	--	--	--
12-09-2011	**1100**	Surface water	Regular	765	10.0	68,200	11.4	99
12-09-2011	***1115***	*QC sample - Surface water*	*Replicate*	--	--	--	--	--
01-04-2012	**1315**	Surface water	Regular	761	3.5	7,550	13.9	107
02-09-2012	**1200**	Surface water	Regular	764	6.5	6,410	13.3	109
03-05-2012	**1400**	Surface water	Regular	760	11.0	33,700	11.2	98
03-13-2012	***1240***	*QC sample - Artificial*	*Blank*	--	--	--	--	--
03-13-2012	**1245**	Surface water	Regular	763	26.0	8,680	11.3	107
04-03-2012	**1215**	Surface water	Regular	757	25.0	9,160	10.5	110
05-01-2012	**1315**	Surface water	Regular	759	29.0	9,680	9.9	104
06-05-2012	**1145**	Surface water	Regular	757	18.5	4,510	9.9	117
06-15-2012	**1100**	Surface water	Regular	765	27.0	4,790	8.6	104
07-10-2012	**1245**	Surface water	Regular	759	30.5	1,370	7.1	96
08-07-2012	**1230**	Surface water	Replicate	760	30.5	1,650	7.0	92
08-07-2012	***1245***	*QC sample - Surface water*	*Replicate*	--	--	--	--	--
08-27-2012	**1145**	Surface water	Regular	763	30.0	8,490	8.8	108
09-05-2012	**1300**	Surface water	Regular	754	37.0	2,110	8.9	117

02037618 JAMES RIVER AT BOULEVARD BRIDGE AT RICHMOND, VA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Part 2 of 5

[%, percent; FNU, Formazin nephelometric units; LED, light-emitting diode; N, nitrogen; P, phosphorus; SiO_2, silicon dioxide; ft, feet; ft^3/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; mm, millimeters; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; --, no data; <, less than]

Date	Sample start time	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, water, °C (00010)	Turbidity, water, unfiltered, monochrome near infrared LED light, 780-900 nm, detection angle 90 +/- 2.5 degrees, FNU (63680)	Gage height, ft (00065)	Loss on ignition of suspended solids, water, unfiltered, mg/L (00535)	Suspended solids remaining after ignition, water, unfiltered, mg/L (00540)	Suspended solids, water, unfiltered, mg/L (00530)
10-04-2011	**1145**	8.4	192	17.9	2.7	4.22	1	1	2
10-14-2011	**0945**	7.4	132	18.5	120	10.35	27	144	171
11-01-2011	**1345**	8.3	146	12.0	3.1	4.97	1	< 1	< 1
11-18-2011	**1200**	7.5	162	11.0	21	6.28	5	28	33
11-29-2011	**1345**	7.8	210	11.0	5.9	5.35	2	5	7
12-02-2011	**0945**	7.6	225	9.2	150	9.27	35	176	211
12-02-2011	***0950***	--	--	--	--	--	--	--	--
12-02-2011	***1000***	--	--	--	--	--	*34*	*167*	*201*
12-09-2011	**1100**	7.0	84	9.4	200	15.48	33	197	230
12-09-2011	***1115***	--	--	--	--	--	--	--	--
01-04-2012	**1315**	7.8	133	4.6	8.8	6.32	1	7	9
02-09-2012	**1200**	8.3	143	7.2	1.4	6.06	1	3	4
03-05-2012	**1400**	7.0	97	9.1	66	12.10	16	92	108
03-13-2012	***1240***	--	--	--	--	--	*< 1*	*< 1*	*< 1*
03-13-2012	**1245**	7.9	145	13.2	8.0	6.86	2	8	10
04-03-2012	**1215**	8.2	139	17.5	9.8	7.01	1	6	7
05-01-2012	**1315**	7.8	193	18.0	20	7.17	5	24	29
06-05-2012	**1145**	8.1	173	23.6	4.2	5.31	1	7	9
06-15-2012	**1100**	8.5	204	25.5	3.5	5.43	2	4	6
07-10-2012	**1245**	8.0	243	31.2	3.5	3.68	< 1	4	4
08-07-2012	**1230**	8.2	279	29.9	3.1	3.87	1	3	4
08-07-2012	***1245***	--	--	--	--	--	*2*	*3*	*4*
08-27-2012	**1145**	8.3	284	26.4	15	6.79	3	16	19
09-05-2012	**1300**	8.4	248	28.8	1.9	4.15	1	2	3

02037618 JAMES RIVER AT BOULEVARD BRIDGE AT RICHMOND, VA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
Part 3 of 5

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Date	Sample start time	Carbon (inorganic plus organic), suspended sediment, total, mg/L (00694)	Inorganic carbon, suspended sediment, total, mg/L (00688)	Silica, water, filtered, mg/L as SiO_2 (00955)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrate, water, filtered, mg/L as N (00618)	Nitrite, water, filtered, mg/L as N (00613)	Orthophos-phate, water, filtered, mg/L as P (00671)	Phosphorus, suspended sediment, total, milligrams per liter as phosphorus (00667)
10-04-2011	**1145**	0.2	< .1	8.40	< .004	0.025	0.02	< .002	0.006	0.005
10-14-2011	**0945**	6.5	< .1	7.00	.006	.227	.22	.005	.009	.213
11-01-2011	**1345**	.4	< .1	9.10	< .004	.067	.07	.002	.006	.006
11-18-2011	**1200**	1.8	< .1	7.60	< .004	.074	.07	.002	.008	.044
11-29-2011	**1345**	.4	< .1	8.40	.009	.130	.13	.002	.004	.012
12-02-2011	**0945**	11.6	< .1	7.20	.013	.172	.17	.002	.007	.283
12-02-2011	***0950***	--	--	--	--	--	--	--	--	--
12-02-2011	***1000***	*11.7*	*< .1*	*7.30*	*.011*	*.166*	*.17*	*< .002*	*.006*	*.263*
12-09-2011	**1100**	9.5	< .1	7.80	.026	.304	.30	.003	.009	.352
12-09-2011	***1115***	--	--	--	--	--	--	--	--	--
01-04-2012	**1315**	.7	< .1	9.20	.055	.320	.32	.002	--	.016
02-09-2012	**1200**	.3	< .1	7.00	< .004	.192	.19	.002	.003	.008
03-05-2012	**1400**	4.6	< .1	7.50	.014	.262	.26	.002	.006	.127
03-13-2012	***1240***	*< .1*	*< .1*	*< .020*	*.010*	*< .004*	*< 0.004*	*< .002*	*< .002*	*< .001*
03-13-2012	**1245**	.6	< .1	7.80	.010	.248	.25	.002	.005	.016
04-03-2012	**1215**	.8	< .1	7.80	.009	.238	.24	.002	.012	.019
05-01-2012	**1315**	1.6	< .1	6.60	.018	.168	.17	.002	.007	.034
06-05-2012	**1145**	.5	< .1	7.20	.004	.124	.12	.002	.008	.011
06-15-2012	**1100**	.5	< .1	4.60	< .004	.006	.01	< .002	.006	.010
07-10-2012	**1245**	.5	< .1	6.90	.020	.042	.04	.002	.007	.012
08-07-2012	**1230**	.6	< .1	6.50	.010	.010	.01	< .002	.006	.008
08-07-2012	***1245***	*.4*	*< .1*	*6.50*	*.008*	*.010*	*.01*	*< .002*	*.006*	*.008*
08-27-2012	**1145**	1.0	< .1	4.60	< .003	.010	.01	< .002	.004	.025
09-05-2012	**1300**	.4	< .1	5.70	< .003	< .004	< 0.004	< .002	.005	.008

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
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Date	Sample start time	Phosphorus, water, filtered, mg/L as P (00666)	Phosphorus, water, unfiltered, mg/L as P (00665)	Total nitrogen, suspended sediment, total, milligrams per liter (00601)	Total nitrogen, water, filtered, mg/L (00602)	Total nitrogen, water, unfiltered, mg/L (00600)	Chlorophyll a, phytoplankton, chromatographic-fluorometric method, µg/L (70953)	Pheophytin a, phytoplankton, µg/L (62360)	Organic carbon, water, filtered, mg/L (00681)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)
10-04-2011	**1145**	0.014	0.020	< .03	0.23	0.24	0.5	< .1	4.0	100
10-14-2011	**0945**	.023	.320	.66	.50	1.1	8.0	6.6	6.0	81
11-01-2011	**1345**	.014	.020	.03	.28	.30	.3	< .1	4.0	100
11-18-2011	**1200**	.020	.090	.22	.34	.51	6.7	1.1	4.4	46
11-29-2011	**1345**	.016	.030	.04	.35	.33	1.2	< .1	3.3	79
12-02-2011	**0945**	.016	.380	1.2	.37	1.5	10.4	12.3	3.6	80
12-02-2011	***0950***	--	--	--	--	--	--	--	--	*95*
12-02-2011	***1000***	*.014*	*.370*	*1.1*	*.35*	--	*11.8*	*13.8*	*3.6*	--
12-09-2011	**1100**	.023	.470	.89	.59	1.3	6.3	5.3	6.7	74
12-09-2011	***1115***	--	--	--	--	--	--	--	--	*77*
01-04-2012	**1315**	.013	.030	.07	.44	.47	.6	< .1	2.1	82
02-09-2012	**1200**	.004	.020	.04	.29	.31	.9	< .1	4.0	37
03-05-2012	**1400**	.015	.160	.56	.47	.83	7.0	4.4	3.1	76
03-13-2012	***1240***	*< .003*	*< .002*	*< .03*	*.04*	*< .02*	*< .1*	*< .1*	--	--
03-13-2012	**1245**	.009	.030	.07	.34	.39	.9	< .1	1.7	70
04-03-2012	**1215**	.016	.040	.07	.40	.40	.9	< .1	2.0	97
05-01-2012	**1315**	.014	.060	.28	.38	--	1.3	.8	3.3	84
06-05-2012	**1145**	.015	.030	.06	.26	.32	2.4	< .1	2.5	84
06-15-2012	**1100**	.012	.030	.07	.16	.22	1.4	< .1	2.5	94
07-10-2012	**1245**	.013	.030	.06	.26	.32	1.4	< .1	3.4	88
08-07-2012	**1230**	.012	.020	.06	.25	.28	1.1	< .1	3.5	90
08-07-2012	***1245***	*.010*	*.030*	*.05*	*.23*	*.27*	*1.0*	*< .1*	*3.7*	*100*
08-27-2012	**1145**	.009	.040	.10	.21	.29	.9	< .1	3.3	78
09-05-2012	**1300**	.011	.020	.06	.22	.26	1.8	< .1	4.0	69

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Date	Sample start time	Suspended sediment concentration, mg/L (80154)
10-04-2011	**1145**	2
10-14-2011	**0945**	186
11-01-2011	**1345**	.8
11-18-2011	**1200**	49
11-29-2011	**1345**	4
12-02-2011	**0945**	225
12-02-2011	***0950***	*216*
12-02-2011	***1000***	--
12-09-2011	**1100**	290
12-09-2011	***1115***	*319*
01-04-2012	**1315**	9
02-09-2012	**1200**	6
03-05-2012	**1400**	109
03-13-2012	***1240***	--
03-13-2012	**1245**	10
04-03-2012	**1215**	12
05-01-2012	**1315**	29
06-05-2012	**1145**	6
06-15-2012	**1100**	3
07-10-2012	**1245**	3
08-07-2012	**1230**	4
08-07-2012	***1245***	*3*
08-27-2012	**1145**	21
09-05-2012	**1300**	3