DELAWARE RIVER BASIN NATIONAL WATER-QUALITY ASSESSMENT PROGRAM, STREAMBED SEDIMENTS, JULY-AUGUST 1998 AND JUNE-AUGUST 1999

REMARKS.--Streambed sediment samples were collected during low-flow conditions in the Delaware River Basin during July and August 1998, and June-August 1999 to determine concentrations of trace elements and hydrophobic organic compounds in stream bed sediments. Sites were located throughout the Delaware River Basin in New Jersey, New York, and Pennsylvania. Bed sediment samples at each site were composites of the top 1 to 2 centimeters of material from at least 5 different depositional areas within the stream reach. A subsample from the composite sample collected at each site was processed for particle-size analysis. Additionally, subsamples from the composite were: (1) processed using a 2.0- millimeter stainless-steel mesh sieve for preparation of material for organic contaminant analysis, and (2) processed using a 63-micrometer nylon-cloth sieve for preparation of material for trace element analysis. Specific details describing the guidelines used in collecting and in processing the streambed sediment samples can be found in Shelton and Capel, 1994, Guidelines for collecting and processing samples of streambed sediment for analysis of trace elements and organic contaminants for the National Water-Quality Assessment program: U.S. Geological Survey Open-File Report 94-458, 20 p.

REMARKS.--For the definition of the type of quality-control data listed under SAMPLE TYPE, refer to "Quality-control data" in the "Explanation of Records" section.

List of sites and samples collection dates

STATION NUMBER	STATION NAME	DATE	TIME	SAMPLE TYPE
01423000	WEST BRANCH DELAWARE RIVER AT WALTON, NY	07-27-99	0900	ENVIRONMENTAL
01431500	LACKAWAXEN RIVER AT HAWLEY, PA	07-28-99	0900	ENVIRONMENTAL
01434000	DELAWARE RIVER AT PORT JERVIS, NY	07-13-98	1200	ENVIRONMENTAL
01435000	NEVERSINK RIVER NEAR CLARYVILLE, NY	07-27-99	1400	ENVIRONMENTAL
01437500	NEVERSINK RIVER AT GODEFFROY, NY	08-03-99	0830	ENVIRONMENTAL
01439500	BUSH KILL AT SHOEMAKERS, PA	07-28-99	1400	ENVIRONMENTAL
01440000	FLAT BROOK NEAR FLATBROOKVILLE, NJ	06-16-99	1330	ENVIRONMENTAL
01442500	BRODHEAD CREEK AT MINISINK HILLS, PA	07-29-99	0900	ENVIRONMENTAL
01449000	LEHIGH RIVER AT LEHIGHTON, PA	08-02-99	1500	ENVIRONMENTAL
01451425	LITTLE LEHIGH CREEK NEAR EAST TEXAS, PA	08-18-98	1400	ENVIRONMENTAL
01451624	CEDAR CREEK AB LAKE MUHLENBERG AT ALLENTOWN, PA	06-14-99	1530	ENVIRONMENTAL
01451800	JORDAN CREEK NEAR SCHNECKSVILLE, PA	06-17-99	0830	ENVIRONMENTAL
01452500	MONOCACY CREEK AT BETHLEHEM, PA	06-14-99	1224	ENVIRONMENTAL
01454700	LEHIGH RIVER AT GLENDON, PA	07-14-98	1300	ENVIRONMENTAL
01463500	DELAWARE RIVER AT TRENTON, NJ	07-20-98	1200	ENVIRONMENTAL
01464907	LITTLE NESHAMINY C AT VALLEY ROAD NR NESHAMINY, PA	08-18-98	0900	ENVIRONMENTAL
01467000	NORTH BRANCH RANCOCAS CREEK AT PEMBERTON, NJ	06-21-99	1300	ENVIRONMENTAL
01467040	PENNYPACK CREEK AT PAPER MILL, PA	06-24-99	1000	ENVIRONMENTAL
01467081	SOUTH BRANCH PENNSAUKEN CREEK AT CHERRY HILL, NJ	06-22-99	1300	ENVIRONMENTAL
01467150	COOPER RIVER AT HADDONFIELD, NJ	06-22-99	0830	ENVIRONMENTAL
01467150	*COOPER RIVER AT HADDONFIELD, NJ*	*06-22-99*	*0831*	*SPLIT REPLICATE*
01470500	SCHUYLKILL RIVER AT BERNE, PA	08-02-99	1000	ENVIRONMENTAL
01470779	TULPEHOCKEN CR NR BERNVILLE, PA	08-20-98	1300	ENVIRONMENTAL
01471520	WYOMISSING CR. @ WEST READING, PA	06-17-99	1330	ENVIRONMENTAL
01471668	HAY CREEK NEAR BIRDSBORO, PA	08-19-98	1500	ENVIRONMENTAL
01471980	MANATAWNY CREEK NEAR POTTSTOWN, PA	08-19-98	1000	ENVIRONMENTAL
01471980	*MANATAWNY CREEK NEAR POTTSTOWN, PA*	*08-19-98*	*1005*	*SPLIT REPLICATE*
01472157	FRENCH CREEK NEAR PHOENIXVILLE, PA	06-24-99	1430	ENVIRONMENTAL
01472157	*FRENCH CREEK NEAR PHOENIXVILLE, PA*	*06-24-99*	*1431*	*SPLIT REPLICATE*
01473990	WISSAHICKON CREEK BL WALNUT LANE NR MANAYUNK, PA	06-23-99	1400	ENVIRONMENTAL
01474500	SCHUYLKILL RIVER AT PHILADELPHIA, PA	07-21-98	1200	ENVIRONMENTAL
01475510	DARBY CREEK NEAR DARBY, PA	06-23-99	0830	ENVIRONMENTAL
01477120	RACCOON CREEK NEAR SWEDESBORO, NJ	08-17-98	1300	ENVIRONMENTAL

WATER QUALITY AT MISCELLANEOUS SITES--Continued

DELAWARE RIVER BASIN NATIONAL WATER-QUALITY ASSESSMENT PROGRAM, STREAMBED SEDIMENTS, JULY-AUGUST 1998 AND JUNE-AUGUST 1999

TRACE ELEMENTS IN STREAMBED SEDIMENTS, CALENDAR YEARS 1998 and 1999

STATION NUMBER	DATE	CALCIUM BOT MAT <63U WS FIELD PERCENT (34830)	MAGNE-SIUM BOT MAT <63U WS FIELD PERCENT (34900)	POTAS-SIUM BOT MAT <63U WS FIELD PERCENT (34940)	SODIUM BOT MAT <63U WS FIELD PERCENT (34960)	SULFUR BOT MAT <63U WS FIELD PERCENT (34970)	PHOS-PHORUS BOT MAT <63U WS FIELD PERCENT (34935)	CARBON, INORG, SED, BM WS,<63U DW, REC (PER-CENT) (49269)	CARBON, ORG + INORG, SED, BM WS,<63U DW, REC PERCENT (49267)	ALUM-INUM BOT MAT <63U WS FIELD PERCENT (34790)	ANTI-MONY BOT MAT <63U WS FIELD (UG/G) (34795)
01423000	07-27-99	.28	.55	1.5	.52	.13	.17	.04	4.01	5.3	1.4
01431500	07-28-99	.34	.51	1.6	.51	.18	.15	.01	5.18	5.4	.8
01434000	07-13-98	.25	.57	1.7	.34	.11	.13	.03	5.49	5.2	.7
01435000	07-27-99	.16	.46	1.6	.11	.09	.074	.02	4.85	4.6	.6
01437500	08-03-99	.34	.41	1.2	.29	.20	.18	.03	7.40	4.1	.8
01439500	07-28-99	.43	.41	1.1	.34	.21	.18	.03	8.74	4.5	1.6
01440000	06-16-99	--	--	--	--	--	--	--	--	--	--
01442500	07-29-99	.35	.42	1.2	.34	.18	.14	.02	4.87	4.2	1.1
01449000	08-02-99	.34	.33	1.2	.15	.44	.21	.10	12.0	6.2	5.1
01451425	08-18-98	1.2	1.1	2.8	.33	.07	.12	.36	3.71	6.9	.7
01451624	06-14-99	3.4	1.2	2.5	.22	.12	.11	1.17	5.41	5.9	1.1
01451800	06-17-99	.34	.90	1.7	.37	.07	.075	.03	2.89	6.4	.6
01452500	06-14-99	2.3	1.0	2.2	.30	.10	.11	.73	4.35	6.0	.7
01454700	07-14-98	1.8	1.3	2.5	.26	.13	.15	.75	5.69	5.8	2.0
01463500	07-20-98	.55	.76	1.8	.56	.14	.17	.08	5.54	6.0	1.4
01464907	08-18-98	.46	.60	1.9	1.4	.06	.093	.02	1.84	7.5	.9
01467000	06-21-99	.22	.19	.76	.15	.37	.14	.11	11.6	4.2	1.6
01467040	06-24-99	.60	.57	1.5	.86	.08	.22	.05	2.91	6.3	1.2
01467081	06-22-99	.67	.58	1.4	.20	.24	.59	.11	6.62	5.7	2.8
01467150	06-22-99	.51	.57	1.6	.19	.23	.59	.14	6.34	4.9	2.9
01467150	*06-22-99*	--	--	--	--	--	--	--	--	--	--
01470500	08-02-99	.39	.48	1.5	.26	.24	.20	.06	6.72	6.0	10
01470779	08-20-98	2.2	1.1	2.1	.30	.07	.14	.63	3.42	6.1	.4
01471520	06-17-99	2.8	1.4	2.2	.31	.22	.12	.95	6.69	5.5	2.0
01471668	08-19-98	.42	.53	1.5	.39	.10	.11	.03	3.59	6.0	1.0
01471980	08-19-98	.79	.80	1.7	.83	.09	.11	.06	4.06	6.8	.7
01471980	*08-19-98*	--	--	--	--	--	--	--	--	--	--
01472157	06-24-99	.69	.68	1.4	.68	.11	.13	.03	4.31	6.5	.6
01472157	*06-24-99*	*.66*	*.66*	*1.3*	*.67*	*.10*	*.12*	*.02*	*4.00*	*6.6*	*.6*
01473990	06-23-99	1.4	1.1	1.6	.64	.18	.25	.48	6.17	6.2	3.6
01474500	07-21-98	1.0	1.1	2.0	.76	.15	.22	.25	5.05	7.6	1.9
01475510	06-23-99	1.4	1.2	1.2	.51	.16	.16	.50	6.17	6.0	2.4
01477120	08-17-98	.61	.63	1.8	.13	.16	.60	.09	5.61	4.5	1.4

STATION NUMBER	DATE	ARSENIC BOT MAT <63U WS FIELD (UG/G) (34800)	BARIUM BOT MAT <63U WS FIELD (UG/G) (34805)	BERYL-LIUM BOT MAT <63U WS FIELD (UG/G) (34810)	BISMUTH BOT MAT <180UWS FIELD (UG/G) (34816)	CADMIUM BOT MAT <63U WS FIELD (UG/G) (34825)	CERIUM BOT MAT <63U WS FIELD (UG/G) (34835)	CHRO-MIUM BOT MAT <63U WS FIELD (UG/G) (34840)	COBALT BOT MAT <63U WS FIELD (UG/G) (34845)	COPPER BOT MAT <63U WS FIELD (UG/G) (34850)	EURO-PIUM BOT MAT <63U WS FIELD (UG/G) (34855)
01423000	07-27-99	15	440	2	<1	.8	81	66	14	150	1
01431500	07-28-99	9.0	480	2	<1	1.6	91	52	12	34	1
01434000	07-13-98	12	520	2	<1	1.0	84	55	16	33	2
01435000	07-27-99	9.8	400	2	<1	.7	81	44	11	19	1
01437500	08-03-99	6.6	540	2	<1	1.6	57	42	14	43	1
01439500	07-28-99	8.0	390	2	<1	1.1	57	150	10	64	1
01440000	06-16-99	--	--	--	--	--	--	--	--	--	--
01442500	07-29-99	8.4	320	2	<1	1.0	70	63	12	48	1
01449000	08-02-99	21	400	27	<1	6.3	140	78	220	180	3
01451425	08-18-98	14	510	3	<1	.7	110	74	32	38	3
01451624	06-14-99	12	400	2	<1	1.0	89	70	23	62	2
01451800	06-17-99	8.2	440	2	<1	.5	86	70	20	38	2
01452500	06-14-99	8.8	460	2	<1	.8	87	63	17	50	2
01454700	07-14-98	13	550	5	<1	12	99	97	47	98	2
01463500	07-20-98	13	500	4	<1	4.4	88	84	25	61	2
01464907	08-18-98	7.1	570	3	<1	.5	120	72	14	59	2
01467000	06-21-99	13	280	1	<1	.7	87	57	6	60	2
01467040	06-24-99	5.8	570	2	<1	1.0	110	66	15	55	2
01467081	06-22-99	33	430	4	<1	2.2	120	140	20	76	2
01467150	06-22-99	57	500	4	<1	3.0	110	150	20	69	2
01467150	*06-22-99*	--	--	--	--	--	--	--	--	--	--
01470500	08-02-99	16	460	5	<1	2.2	81	66	200	85	2
01470779	08-20-98	27	460	2	<1	.3	80	69	16	32	2
01471520	06-17-99	8.5	440	2	<1	1.2	75	88	18	110	2
01471668	08-19-98	10	550	3	<1	.5	97	63	18	48	2
01471980	08-19-98	5.5	500	3	<1	.5	110	73	14	40	2
01471980	*08-19-98*	--	--	--	--	--	--	--	--	--	--
01472157	06-24-99	5.6	540	2	<1	.6	100	72	22	51	2
01472157	*06-24-99*	*5.3*	*540*	*2*	*<1*	*.6*	*100*	*72*	*20*	*49*	*2*
01473990	06-23-99	6.9	520	2	<1	1.1	98	85	19	130	2
01474500	07-21-98	13	570	3	<1	1.7	110	130	56	110	2
01475510	06-23-99	10	520	2	<1	1.9	110	100	22	95	2
01477120	08-17-98	42	520	3	<1	2.7	110	190	17	36	2

DELAWARE RIVER BASIN NATIONAL WATER-QUALITY ASSESSMENT PROGRAM, STREAMBED SEDIMENTS, JULY-AUGUST 1998 AND JUNE-AUGUST 1999

STATION NUMBER	DATE	GALLIUM BOT MAT <63U WS FIELD (UG/G) (34860)	GOLD BOT MAT <63U WS FIELD (UG/G) (34870)	HOLMIUM BOT MAT <63U WS FIELD (UG/G) (34875)	IRON BOT MAT <63U WS FIELD PERCENT (34880)	LANTHANUM BOT MAT <63U WS FIELD (UG/G) (34885)	LEAD BOT MAT <63U WS FIELD (UG/G) (34890)	LITHIUM BOT MAT <63U WS FIELD (UG/G) (34895)	MANGANESE BOT MAT <63U WS FIELD (UG/G) (34905)	MERCURY BOT MAT <63U WS FIELD (UG/G) (34910)
01423000	07-27-99	14	<1	<1	3.9	45	92	46	670	.16
01431500	07-28-99	15	<1	<1	3.5	44	80	49	1400	.12
01434000	07-13-98	17	<1	1	4.2	43	56	48	2700	.08
01435000	07-27-99	12	<1	<1	3.1	42	42	38	570	.60
01437500	08-03-99	11	<1	<1	2.9	30	77	36	2300	.10
01439500	07-28-99	12	<1	<1	3.2	32	67	52	1100	.13
01440000	06-16-99	--	--	--	--	--	--	--	--	--
01442500	07-29-99	12	<1	<1	2.8	39	66	39	790	.13
01449000	08-02-99	13	<1	2	5.1	78	170	41	3200	.30
01451425	08-18-98	17	<1	3	4.9	67	50	84	1400	.09
01451624	06-14-99	15	<1	2	3.6	50	96	100	940	.28
01451800	06-17-99	17	<1	1	3.6	46	40	58	1100	.07
01452500	06-14-99	15	<1	2	3.3	50	62	55	790	.15
01454700	07-14-98	17	<1	2	5.3	54	150	56	2800	.23
01463500	07-20-98	19	<1	2	5.3	48	110	52	1800	.23
01464907	08-18-98	18	<1	2	3.7	61	47	35	770	.07
01467000	06-21-99	11	<1	2	5.4	52	160	19	320	.23
01467040	06-24-99	15	<1	2	3.3	60	71	30	1400	.12
01467081	06-22-99	14	<1	2	8.7	59	120	53	500	.26
01467150	06-22-99	13	<1	2	11	52	180	39	380	.34
01467150	*06-22-99*	--	--	--	--	--	--	--	--	--
01470500	08-02-99	16	<1	1	5.2	46	380	59	6700	.25
01470779	08-20-98	19	<1	2	4.0	46	38	100	1300	.07
01471520	06-17-99	14	<1	2	3.5	43	160	81	630	.69
01471668	08-19-98	15	<1	2	3.8	50	47	34	1300	.13
01471980	08-19-98	17	<1	3	3.9	61	45	45	870	.09
01471980	*08-19-98*	--	--	--	--	--	--	--	--	--
01472157	06-24-99	17	<1	3	4.3	61	44	32	870	.12
01472157	*06-24-99*	*17*	*<1*	*3*	*4.2*	*61*	*43*	*31*	*850*	*.10*
01473990	06-23-99	16	<1	2	3.8	57	170	41	1000	.56
01474500	07-21-98	23	<1	2	5.8	58	150	57	1900	.20
01475510	06-23-99	15	<1	2	4.4	61	160	30	1500	.46
01477120	08-17-98	14	<1	2	13	53	55	32	610	.17

STATION NUMBER	DATE	MOLYBDENUM BOT MAT <63U WS FIELD (UG/G) (34915)	NEODYMIUM BOT MAT <63U WS FIELD (UG/G) (34920)	NICKEL BOT MAT <63U WS FIELD (UG/G) (34925)	NIOBIUM BOT MAT <63U WS FIELD (UG/G) (34930)	SCANDIUM BOT MAT <63U WS FIELD (UG/G) (34945)	SELENIUM BOT MAT <63U WS FIELD (UG/G) (34950)	SILVER BOT MAT <63U WS FIELD (UG/G) (34955)	STRONTIUM BOT MAT <63U WS FIELD (UG/G) (34965)	TANTALUM BOT MAT <63U WS FIELD (UG/G) (34975)
01423000	07-27-99	1	37	32	9	10	.6	.3	86	<1
01431500	07-28-99	<1	44	22	19	9	1.0	.8	63	9
01434000	07-13-98	<1	42	32	6	9	.8	.7	54	<1
01435000	07-27-99	<1	36	20	9	8	.7	.2	42	<1
01437500	08-03-99	<1	29	25	7	7	.7	4.2	56	<1
01439500	07-28-99	2	28	34	8	8	1.1	.7	64	<1
01440000	06-16-99	--	--	--	--	--	--	--	--	--
01442500	07-29-99	1	33	27	9	8	.9	2.2	53	<1
01449000	08-02-99	3	70	180	8	10	4.0	.9	65	<1
01451425	08-18-98	1	69	47	11	11	1.4	.6	66	1
01451624	06-14-99	1	52	36	8	10	1.5	.6	110	<1
01451800	06-17-99	1	44	33	8	10	.7	.9	48	<1
01452500	06-14-99	1	50	33	8	10	1.8	.5	110	<1
01454700	07-14-98	3	54	63	8	10	1.8	1.0	70	<1
01463500	07-20-98	2	45	47	14	11	1.4	1.2	70	1
01464907	08-18-98	1	55	29	14	12	.5	.8	100	2
01467000	06-21-99	5	50	12	25	8	1.9	2.2	54	2
01467040	06-24-99	2	58	24	13	11	.9	.7	97	1
01467081	06-22-99	3	56	36	11	10	1.3	1.2	110	<1
01467150	06-22-99	3	49	43	13	8	1.4	1.0	83	<1
01467150	*06-22-99*	--	--	--	--	--	--	--	--	--
01470500	08-02-99	2	41	190	11	11	2.2	.7	90	<1
01470779	08-20-98	1	43	35	10	10	1.0	.7	91	1
01471520	06-17-99	2	42	43	9	10	1.6	.7	89	<1
01471668	08-19-98	1	46	39	11	10	1.1	.6	72	1
01471980	08-19-98	1	56	29	13	12	1.3	.7	98	2
01471980	*08-19-98*	--	--	--	--	--	--	--	--	--
01472157	06-24-99	1	61	30	12	13	1.4	.6	100	1
01472157	*06-24-99*	*1*	*61*	*30*	*13*	*13*	*1.3*	*.6*	*100*	*1*
01473990	06-23-99	2	54	39	13	11	1.4	1.6	97	<1
01474500	07-21-98	3	53	92	14	14	1.5	.9	110	2
01475510	06-23-99	2	58	48	15	12	1.6	1.2	100	1
01477120	08-17-98	3	48	42	10	8	1.7	1.0	89	1

WATER QUALITY AT MISCELLANEOUS SITES--Continued

DELAWARE RIVER BASIN NATIONAL WATER-QUALITY ASSESSMENT PROGRAM, STREAMBED SEDIMENTS, JULY-AUGUST 1998 AND JUNE-AUGUST 1999

STATION NUMBER	DATE	TIN BOT MAT <63U WS FIELD (UG/G) (34985)	TITA-NIUM, SED, BM WS,<63U DRY WGT REC PERCENT (49274)	VANA-DIUM BOT MAT <63U WS FIELD (UG/G) (35005)	YTTER-BIUM BOT MAT <63U WS FIELD (UG/G) (35015)	YTTRIUM BOT MAT <63U WS FIELD (UG/G) (35010)	ZINC BOT MAT <63U WS FIELD (UG/G) (35020)	CARBON, ORGANIC SED, BM WS,<63U DW, REC (PER-CENT) (49266)	THORIUM BOT MAT <63U WS FIELD (UG/G) (34980)	URANIUM BOT MAT <63U WS FIELD (UG/G) (35000)
01423000	07-27-99	16	.210	83	2	22	340	3.97	12	3.5
01431500	07-28-99	7	.240	70	2	23	190	5.17	13	4.2
01434000	07-13-98	5	.301	80	3	20	240	5.46	11	3.7
01435000	07-27-99	3	.210	62	2	18	160	4.83	11	3.4
01437500	08-03-99	5	.150	55	2	17	320	7.37	9	3.7
01439500	07-28-99	10	.170	70	2	16	430	8.71	9	2.7
01440000	06-16-99	--	--	--	--	--	--	--	--	--
01442500	07-29-99	6	.260	70	2	18	280	4.85	10	3.8
01449000	08-02-99	12	.180	85	5	62	1600	11.9	8	4.7
01451425	08-18-98	4	.447	78	5	60	200	3.35	13	3.5
01451624	06-14-99	6	.250	82	4	43	300	4.24	11	3.3
01451800	06-17-99	4	.280	94	3	24	190	2.86	13	3.8
01452500	06-14-99	5	.260	77	3	35	240	3.62	12	3.4
01454700	07-14-98	10	.420	94	4	38	2100	4.94	11	3.7
01463500	07-20-98	9	.429	100	3	28	910	5.46	12	4.7
01464907	08-18-98	5	.540	86	3	26	160	1.82	17	6.9
01467000	06-21-99	7	.930	71	3	35	100	11.5	14	6.6
01467040	06-24-99	6	.440	75	3	31	270	2.86	16	5.3
01467081	06-22-99	9	.350	130	3	31	480	6.51	14	4.9
01467150	06-22-99	10	.400	120	3	32	480	6.20	11	5.5
01467150	*06-22-99*	--	--	--	--	--	--	--	--	--
01470500	08-02-99	10	.280	89	3	35	810	6.66	10	4.0
01470779	08-20-98	3	.433	86	3	33	150	2.79	10	2.7
01471520	06-17-99	9	.310	88	3	33	380	5.74	10	3.2
01471668	08-19-98	5	.446	78	3	26	170	3.56	13	4.5
01471980	08-19-98	5	.496	84	4	42	170	4.00	14	4.4
01471980	*08-19-98*	--	--	--	--	--	--	--	--	--
01472157	06-24-99	5	.480	100	5	53	200	4.28	13	3.8
01472157	*06-24-99*	*5*	*.490*	*97*	*5*	*52*	*200*	*3.98*	*13*	*3.9*
01473990	06-23-99	13	.430	81	4	37	340	5.69	15	4.8
01474500	07-21-98	10	.650	120	3	35	610	4.80	14	4.5
01475510	06-23-99	11	.540	110	4	37	420	5.67	16	4.0
01477120	08-17-98	5	.531	120	3	30	300	5.52	10	7.5