01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

LOCATION.--Lat 38°58'36", long 78°20'10", NAD83, Warren County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 55, 1.5 mi southeast of Strasburg, 2.2 mi upstream from Cedar Creek, and 10 mi upstream from confluence with South Fork.

DRAINAGE AREA.--768 mi^2.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1001: 1931. WSP 1171: 1929(M), 1933(M), 1936-37. WSP 1302: 1928(M), 1930(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 494.03 ft above sea level. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period with ice effect, Dec. 23 to Jan. 17, and period of doubtful gage-height record, July 28 to Aug. 8, which are fair. Large diurnal fluctuation at low and medium flow from unknown cause. Water-level elevations at the site were affected during the 1992-93 water years by construction of a new bridge about 50 ft downstream from the gage. National Weather Service gage-height telemeter at station. Maximum discharge, 114,000 ft^3/s, from rating curve extended above 46,000 ft^3/s. Minimum gage height, 1.52 ft, Feb. 9, 1934. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Sept. 7, 1996.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,000 ft^3/s and maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)	Date	Time	Discharge (ft^3/s)	Gage height (ft)
Mar 22	1330	6,070	8.91	Jun 23	1645	*13,300	*14.37

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	449	113	130	e160	1300	344	2400	341	514	434	1130	215
2	379	115	127	e156	1010	338	1980	328	456	373	735	209
3	330	113	124	e152	747	334	1840	306	416	329	541	233
4	288	114	115	e148	616	333	1560	292	372	329	832	213
5	258	115	121	e150	525	360	1350	279	369	319	575	199
6	233	111	127	e150	468	357	1200	265	429	277	471	187
7	210	111	139	e150	422	363	1150	257	500	252	442	181
8	195	104	116	e150	385	363	1070	245	583	312	e350	177
9	184	105	116	e156	350	354	951	237	494	273	e260	165
10	173	123	116	e160	323	341	896	227	448	247	245	143
11	180	118	115	e166	299	332	1390	221	400	236	224	165
12	176	141	114	e166	283	323	3810	211	355	217	223	150
13	176	160	112	e164	268	317	2680	203	322	198	1720	152
14	165	163	137	e158	256	302	1940	195	286	187	1760	159
15	165	145	139	e156	253	302	1550	189	432	171	933	150
16	165	137	135	e154	261	318	1350	183	496	156	625	146
17	165	119	233	e150	316	340	1160	185	415	156	474	134
18	154	124	358	148	350	410	994	190	365	170	389	132
19	141	124	801	214	394	464	858	270	316	166	344	127
20	136	130	581	328	386	474	756	359	272	150	389	136
21	133	114	460	568	367	1830	685	531	264	147	411	138
22	130	118	347	836	358	4520	634	550	1570	145	307	126
23	119	117	e300	573	345	3250	591	1640	8070	139	273	124
24	123	115	e270	480	329	2250	549	2180	3970	134	265	127
25	126	116	e250	428	326	1690	497	1390	1880	148	263	144
26	124	127	e230	390	335	1370	459	982	1150	172	249	149
27	120	124	e210	352	353	1140	431	1250	801	152	248	146
28	121	126	e200	326	353	948	405	1470	623	386	224	151
29	120	141	e190	303	---	846	378	1040	514	773	234	135
30	115	139	e180	430	---	1830	357	768	473	1620	242	128
31	114	---	e170	679	---	3200	---	613	---	2210	218	---
TOTAL	5667	3722	6763	8701	11978	29943	35871	17397	27555	10978	15596	4741
MEAN	183	124	218	281	428	966	1196	561	918	354	503	158
MAX	449	163	801	836	1300	4520	3810	2180	8070	2210	1760	233
MIN	114	104	112	148	253	302	357	183	264	134	218	124
CFSM	.24	.16	.28	.37	.56	1.26	1.56	.73	1.20	.46	.66	.21
IN.	.27	.18	.33	.42	.58	1.45	1.74	.84	1.33	.53	.76	.23

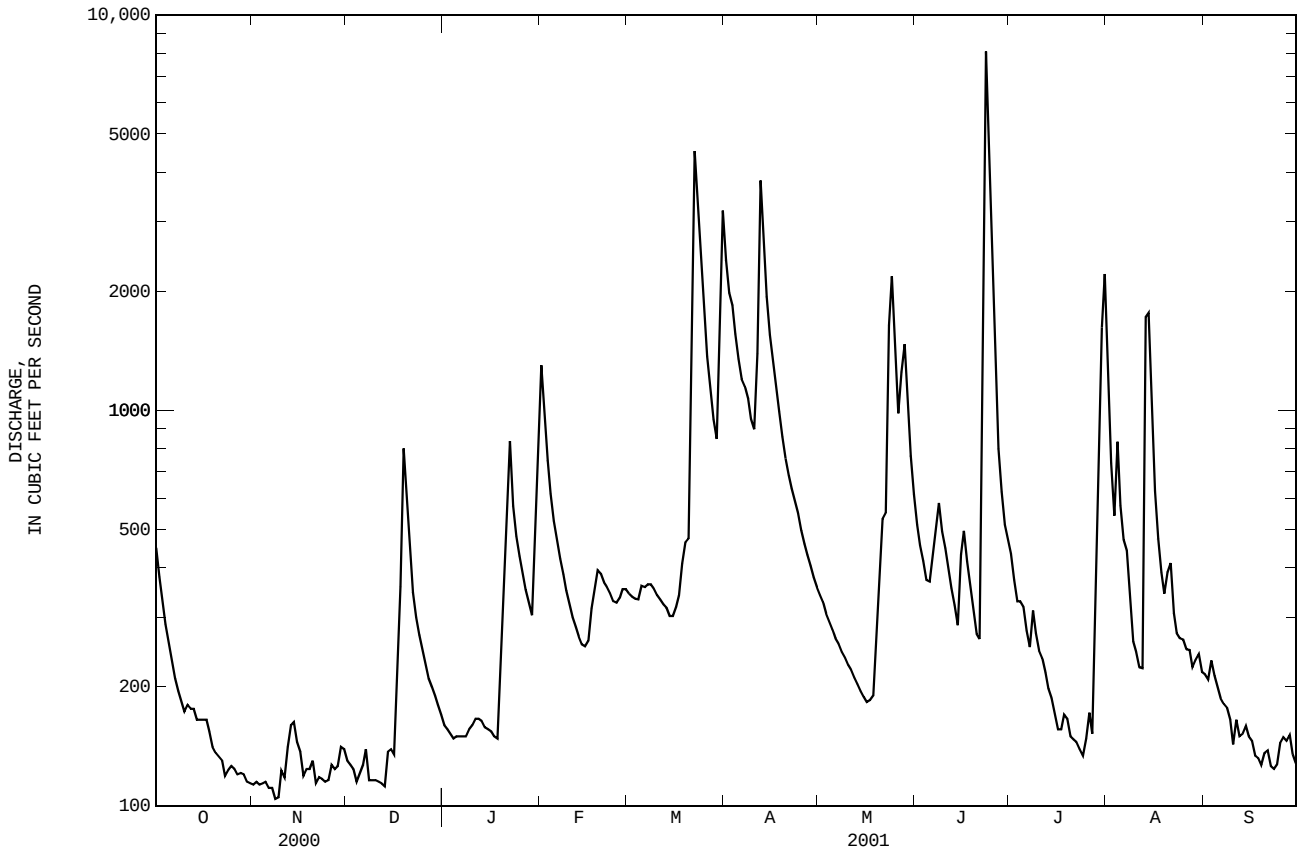
01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA--Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2001, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	401	415	531	690	868	1146	972	753	475	295	357	322
MAX	3488	2813	1955	3394	3466	5017	2876	1821	2234	1169	2510	3838
(WY)	1943	1986	1973	1996	1998	1936	1993	1988	1972	1949	1955	1996
MIN	58.9	75.8	82.0	86.4	94.0	183	182	154	84.6	56.6	66.7	67.1
(WY)	1931	1931	1932	1966	1931	1931	1981	1969	1999	1999	1930	1986

SUMMARY STATISTICS	FOR 2000 CALENDAR YEAR		FOR 2001 WATER YEAR		WATER YEARS 1925 - 2001	
ANNUAL TOTAL	123852		178912			
ANNUAL MEAN	338		490		602	
HIGHEST ANNUAL MEAN					1360	1996
LOWEST ANNUAL MEAN					226	1934
HIGHEST DAILY MEAN	2200	Feb 20	8070	Jun 23	60700	Sep 7 1996
LOWEST DAILY MEAN	104	Nov 8	104	Nov 8	35	aOct 15 1985
ANNUAL SEVEN-DAY MINIMUM	110	Nov 3	110	Nov 3	45	Sep 13 1986
MAXIMUM PEAK FLOW			13300	Jun 23	114000	Sep 7 1996
MAXIMUM PEAK STAGE			14.37	Jun 23	32.27	Sep 7 1996
INSTANTANEOUS LOW FLOW			82	Dec 4	6.0	Feb 9 1934
ANNUAL RUNOFF (CFSM)	.44		.64		.78	
ANNUAL RUNOFF (INCHES)	6.00		8.67		10.65	
10 PERCENT EXCEEDS	710		1150		1260	
50 PERCENT EXCEEDS	225		273		314	
90 PERCENT EXCEEDS	120		124		112	

a Also Sept. 14, 18, 1986.
e Estimated.



01634000 NORTH FORK SHENANDOAH RIVER AT STRASBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 1996 to current year.

COOPERATION.--Water samples, as noted, were collected by the U.S. Geological Survey and analyzed by the Virginia Division of Consolidated Laboratory Services (VDCLS), 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.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	TIME	SAMPLE TYPE	TEMPER-ATURE WATER (DEG C) (00010)	TEMPER-ATURE AIR (DEG C) (00020)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	AGENCY ANA-LYZING SAMPLE (CODE NUMBER) (00028)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	GAGE HEIGHT (FEET) (00065)	TUR-BID-ITY (NTU) (00076)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)
OCT												
16...	1430	ENVIRONMENTAL	15.7	20.0	746	USGS	164	1.99	--	400	11.2	8.7
NOV												
17...	1125	BLANK	--	--	--	USGS	--	--	--	--	--	--
17...	1130	ENVIRONMENTAL	6.8	9.0	738	USGS	115	1.84	--	452	13.9	8.2
DEC												
22...	1330	ENVIRONMENTAL	.2	-3.0	745	USGS	358	2.39	--	232	14.6	7.9
JAN												
09...	1130	ENVIRONMENTAL	.2	-1.5	745	USGS	258	2.12	--	393	13.5	8.2
22...	1145	ENVIRONMENTAL	.2	-0.5	757	USGS	883	3.25	--	341	14.2	7.4
FEB												
26...	1415	ENVIRONMENTAL	9.4	8.5	746	USGS	333	2.26	--	312	15.7	8.8
MAR												
20...	1145	ENVIRONMENTAL	7.7	8.5	753	USGS	475	2.54	--	296	13.5	8.0
22...	1200	ENVIRONMENTAL	6.9	8.2	735	USGS	5990	8.84	--	205	10.4	7.7
22...	1215	REPLICATE	6.9	8.2	735	USGS	6020	8.84	--	205	10.4	7.7
30...	1230	ENVIRONMENTAL	7.1	9.5	736	USGS	1690	4.31	--	249	12.8	7.6
APR												
12...	1315	ENVIRONMENTAL	15.6	25.0	741	USGS	3910	6.91	--	245	9.3	7.2
17...	1215	ENVIRONMENTAL	13.1	9.2	740	USGS	1160	3.54	--	260	10.6	7.7
17...	1230	REPLICATE	13.1	9.2	740	USGS	1160	3.54	--	260	10.6	7.7
MAY												
14...	1330	ENVIRONMENTAL	19.5	20.5	747	USGS	195	2.00	--	372	--	8.5
21...	1330	ENVIRONMENTAL	16.8	15.5	742	USGS	539	2.65	--	416	8.9	8.0
24...	1100	ENVIRONMENTAL	17.0	21.5	742	USGS	2260	5.07	--	228	8.4	7.5
24...	1105	REPLICATE	17.0	21.5	742	VDCLS	2260	5.07	77	228	8.4	7.5
JUN												
12...	1145	ENVIRONMENTAL	24.7	30.0	741	USGS	353	2.34	--	354	8.9	8.0
12...	1150	REPLICATE	24.7	30.0	741	VDCLS	353	2.34	3.9	354	8.9	8.0
25...	1500	ENVIRONMENTAL	20.6	27.0	751	USGS	1730	4.45	--	182	8.8	7.8
JUL												
17...	1315	ENVIRONMENTAL	26.6	31.5	746	USGS	157	1.90	--	401	10.4	8.3
30...	1215	ENVIRONMENTAL	20.7	22.0	747	USGS	475	3.09	--	436	8.1	8.0
AUG												
13...	1440	BLANK	--	--	--	USGS	--	--	--	--	--	--
13...	1445	ENVIRONMENTAL	26.6	29.0	743	USGS	2680	5.61	--	336	7.1	7.6
22...	1300	ENVIRONMENTAL	24.6	27.0	748	USGS	295	2.26	--	336	10.2	8.2
SEP												
07...	1045	ENVIRONMENTAL	23.0	23.0	747	USGS	179	1.96	--	408	9.0	8.3

01634000 NORTH FORK SHENANDOAH RIVER AT STRASBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	PH WATER WHOLE LAB (STAND-ARD UNITS) (00403)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	RESIDUE FIXED NON FILTER-ABLE (MG/L) (00540)	NITROGN TOTAL SEDIMNT SUSP TOTAL AS N (MG/L) (00601)	NITRO-GEN DIS-SOLVED (MG/L AS N) (00602)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITRO-GEN, NITRATE DIS-SOLVED (MG/L AS N) (00618)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)
OCT													
16...	8.9	--	--	--	--	1.5	<.041	E.004	--	.22	.28	1.26	.208
NOV													
17...	--	--	--	--	--	--	<.041	<.006	--	<.10	.17	<.047	<.004
17...	--	--	--	--	--	2.3	<.041	E.004	--	.18	.21	2.10	.399
DEC													
22...	--	--	--	--	--	1.7	E.022	.011	1.48	.24	.28	1.49	.135
JAN													
09...	8.2	--	--	--	--	2.5	<.040	.012	2.31	.21	.17	2.33	.251
22...	--	--	--	--	--	2.6	E.021	.017	2.35	.20	1.0	2.37	.564
FEB													
26...	--	--	--	--	--	1.2	<.041	.039	1.01	.17	.33	1.04	.131
MAR													
20...	--	--	--	--	--	1.5	<.041	.014	1.27	.23	.33	1.28	.228
22...	--	--	--	--	--	1.7	.132	.018	1.19	.44	2.9	1.21	.942
22...	--	--	--	--	--	1.6	.129	.018	1.19	.44	2.3	1.21	.894
30...	--	--	--	--	--	2.0	.047	.009	1.63	.34	.78	1.64	.170
APR													
12...	--	--	--	--	--	1.8	.054	.024	1.31	.47	1.7	1.33	.392
17...	8.2	--	--	--	--	1.8	E.032	.012	1.53	.22	.39	1.54	.142
17...	--	--	--	--	--	1.8	E.026	.013	1.55	.20	.39	1.56	.142
MAY													
14...	--	--	--	--	--	1.1	<.041	.015	.698	.34	.35	.713	.161
21...	--	--	--	--	--	2.3	E.028	.022	1.99	.26	.41	2.02	.263
24...	--	--	--	--	--	.61	.211	.026	.023	.56	1.3	.049	.336
24...	--	94	19	75	.33	1.7	.132	.028	1.21	--	--	1.24	--
JUN													
12...	--	--	--	--	--	1.9	E.036	.017	1.60	.33	.46	1.62	.239
12...	--	ENVIRONMENTAL		4	.10	2.0	.024	.014	1.55	--	--	1.56	--
25...	--	--	--	--	--	1.5	E.036	.012	1.17	.28	.60	1.18	.146
JUL													
17...	8.9	--	--	--	--	1.3	<.040	.013	.922	.35	.32	.935	.215
30...	--	--	--	--	--	2.7	E.021	.023	2.35	.28	.40	2.38	.501
AUG													
13...	--	--	--	--	--	--	<.040	<.006	--	<.10	.08	<.050	<.004
13...	--	--	--	--	--	2.0	<.040	.011	1.70	.25	.63	1.71	.595
22...	--	--	--	--	--	1.8	<.040	.006	1.60	.24	.29	1.60	.251
SEP													
07...	--	--	--	--	--	1.6	<.040	.009	1.32	.26	.30	1.32	.232

01634000 NORTH FORK SHENANDOAH RIVER AT STRASBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS TOTAL SEDIMNT SUSP TOTAL AS P (MG/L) (00667)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L AS C) (00694)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	IRON, DIS-SOLVED (UG/L AS FE) (01046)
OCT													
16...	.192	--	.168	--	52.7	15.2	8.6	2.58	13.9	18.7	E.1	.3	20
NOV													
17...	<.006	--	<.018	--	--	--	--	--	--	--	--	--	--
17...	.341	--	.319	--	--	--	--	--	--	--	--	--	--
DEC													
22...	.122	--	.102	--	--	--	--	--	--	--	--	--	--
JAN													
09...	.222	--	.209	--	46.3	14.4	8.1	2.39	14.6	18.1	E.1	1.2	M
22...	.368	--	.350	--	--	--	--	--	--	--	--	--	--
FEB													
26...	.111	--	.106	--	--	--	--	--	--	--	--	--	--
MAR													
20...	.202	--	.190	--	--	--	--	--	--	--	--	--	--
22...	.078	--	.061	--	--	--	--	--	--	--	--	--	--
22...	.080	--	.062	--	--	--	--	--	--	--	--	--	--
30...	.093	--	.084	--	--	--	--	--	--	--	--	--	--
APR													
12...	.091	--	.072	--	--	--	--	--	--	--	--	--	--
17...	.107	--	.095	--	34.2	7.81	4.7	2.08	7.8	15.0	<.2	5.6	20
17...	.108	--	.095	--	--	--	--	--	--	--	--	--	--
MAY													
14...	.155	--	.133	--	--	--	--	--	--	--	--	--	--
21...	.255	--	.258	--	--	--	--	--	--	--	--	--	--
24...	.162	--	<.020	--	--	--	--	--	--	--	--	--	--
24...	.162	.153	.145	2.6	--	--	--	--	--	--	--	6.4	--
JUN													
12...	.211	--	.206	--	--	--	--	--	--	--	--	--	--
12...	.220	.020	.183	.6	--	--	--	--	--	--	--	3.3	--
25...	.081	--	.061	--	--	--	--	--	--	--	--	--	--
JUL													
17...	.218	--	.191	--	49.8	16.5	9.3	2.56	14.8	17.4	E.1	2.0	M
30...	.446	--	.442	--	--	--	--	--	--	--	--	--	--
AUG													
13...	<.006	--	<.020	--	--	--	--	--	--	--	--	--	--
13...	.305	--	.283	--	--	--	--	--	--	--	--	--	--
22...	.233	--	.217	--	--	--	--	--	--	--	--	--	--
SEP													
07...	.254	--	.236	--	--	--	--	--	--	--	--	--	--

01634000 NORTH FORK SHENANDOAH RIVER AT STRASBURG, VA--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	DATA BASE NUMBER
OCT					
16...	4.9	170	229	3	01
NOV					
17...	--	--	--	--	02
17...	--	--	--	1	01
DEC					
22...	--	--	--	3	01
JAN					
09...	E2.2	156	221	M	01
22...	--	--	--	67	01
FEB					
26...	--	--	--	2	01
MAR					
20...	--	--	--	2	01
22...	--	--	--	652	01
22...	--	--	--	660	02
30...	--	--	--	48	01
APR					
12...	--	--	--	187	01
17...	6.2	104	156	17	01
17...	--	--	--	18	02
MAY					
14...	--	--	--	2	01
21...	--	--	--	2	01
24...	--	--	--	107	01
24...	--	--	--	--	02
JUN					
12...	--	--	--	6	01
12...	--	--	--	--	02
25...	--	--	--	48	01
JUL					
17...	5.8	161	231	1	01
30...	--	--	--	14	01
AUG					
13...	--	--	--	--	02
13...	--	--	--	287	01
22...	--	--	--	2	01
SEP					
07...	--	--	--	1	01

Remark codes used in this report:
< -- Less than
E -- Estimated value

Null value remark codes used in this report:
M -- Presence verified, not quantified