

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT**

The Allegheny County Health Department, Allegheny County Sanitary Authority, Three Rivers Wet Weather Demonstration Project, and the U.S. Geological Survey continued a water-quality monitoring program in the summer of 2002 to assess the impact of fecal-indicator bacteria on the water resources of the Allegheny, Monongahela, and Ohio Rivers (Three Rivers) in Allegheny County, Pittsburgh, Pennsylvania. Water-quality sampling and river discharge measurements were conducted during dry and wet weather conditions at seven sampling sites (fig. 6) on the Three Rivers in Allegheny County. Samples to evaluate dry hydrologic conditions were collected after a period of at least 72 hours that lacked precipitation. Samples to evaluate wet hydrologic conditions were collected for several successive days after four wet weather events. Dry weather samples were collected on the following dates: July 17, August 29, and September 7, 10, and 26. The samples after wet weather events were collected on the following dates: August 6, 8, and 10, August 13 and 15, September 16 and 18, and September 28, 30, and October 2 (not included in water year 2002 data).

Three fecal-indicator bacteria types were collected by the U.S. Geological Survey and analyzed by the Allegheny County Health Department Laboratory including fecal coliform, *E. coli*, and enterococci bacteria. In addition, field measurements were made of pH, specific conductance, dissolved oxygen, and water temperature. Fecal indicator bacteria may occur in higher concentrations along river banks where tributary streams and combined sewer overflows discharge than in the middle sections of the large rivers. Because the Three Rivers are wide and stream velocities low in the summer, high bacteria concentrations may occur for long distances along the banks downstream of discharge points due to incomplete mixing with the more dilute sections of the river. Thus, two methods of field collection of fecal-indicator bacteria samples were used to quantify the occurrence and distribution of bacteria concentrations in the river cross sections at 5 of the 7 river sampling sites (03049652, 03049832, 03085000, 03085150, and 03086000).

The first method relied on grab samples collected from 20 to 60 feet from the banks at a depth of 18 inches to assist in the determination of bacteria contamination along the banks. Bank samples assess the safety of the water-based recreation including bank fishing, dock and marina use, and water skiing or jetskiing near the river banks.

The second method relied on the collection of one representative sample from the river cross section weighted with respect to the river discharge. This sampling method utilizes the division of the river cross section into four equal discharge increments and sampling the entire vertical depth of each of the four increments at the centroid of each increment. The composite sample of the four vertical samples results in a single sample representative of the water across the entire width of the river.

Two new sampling sites (03085120, 03085150) were added during the summer of 2002. The sites were added to provide fecal-indicator bacteria data between nearby existing sites. At these two sites, a depth integrated sample was collected and analyzed for fecal-indicator bacteria and field parameters.

The bacteria sampling sites located on the Ohio River at Sewickley and the Monongahela River at Braddock were located at active USGS stream gages. Daily mean discharge data, hydrographs, and information concerning these gages are listed in this report. Discharge measurements at the time of bacteria sampling at the data collection sites at the Allegheny River at Ninth Street and Monongahela River at Pittsburgh (Smithfield Street Bridge) were made using acoustic Doppler current profiling (ADCP) techniques. Discharge data were obtained at the time of sampling for the site at the Allegheny River at Oakmont by estimates determined from a USGS stream gage 11 miles upstream on the Allegheny River at Natrona, Pa.

For additional information, contact Ted Buckwalter at the U.S. Geological Survey, 1000 Church Hill Road, Pittsburgh, Pennsylvania 15205; phone - (412) 490-3811 (email - [tfbuckwa@usgs.gov](mailto:tfbuckwa@usgs.gov)).

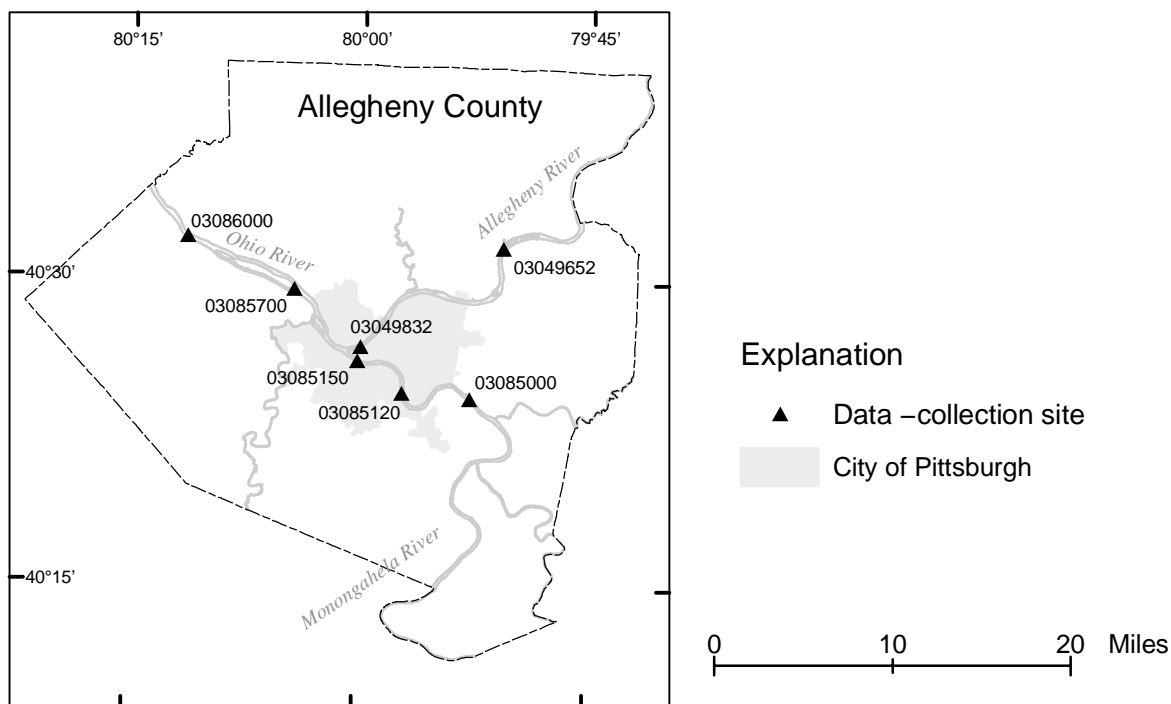


Figure 6.--Location of sites sampled for the fecal-indicator bacteria project.

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03049652 ALLEGHENY RIVER AT HULTON BRIDGE AT OAKMONT, PA**

**LOCATION.**--Lat 40°31'39", long 79°50'51", Allegheny County, Hydrologic Unit 05010009, at Hulton bridge at Oakmont, 0.7 mi downstream from Deer Creek, at river mile 12.7.

**DRAINAGE AREA.**--11,577 mi<sup>2</sup>.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAMPLE LOCATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	1310	9	3800	60.0	7.6	--	--	30.5	--
17...	1320	9	3800	--	--	7.2	390	--	--
17...	1340	9	3800	--	--	--	--	--	75.0
AUG									
06...	1210	9	3190	60.0	6.3	7.3	363	29.0	--
06...	1237	9	3190	--	--	7.4	417	--	30.0
06...	1240	9	3190	--	--	7.2	371	--	--
08...	1230	9	3750	20.0	8.8	7.0	400	28.0	--
08...	1250	9	3750	--	--	7.3	390	--	--
08...	1300	9	3750	--	--	7.1	351	--	35.0
10...	1020	9	4990	--	--	--	314	--	35.0
10...	1040	9	4990	--	--	--	350	--	--
10...	1055	9	4990	60.0	7.0	6.8	401	28.0	--
13...	1057	9	5540	--	--	7.0	356	--	35.0
13...	1110	9	5540	--	--	7.3	384	--	--
13...	1125	9	5540	40.0	7.2	6.8	363	28.0	--
15...	1135	9	4270	40.0	7.8	6.9	408	29.0	--
15...	1145	9	4270	--	--	7.2	431	--	--
15...	1200	9	4270	--	--	7.0	376	--	35.0
29...	1210	9	3410	40.0	8.6	6.6	381	29.0	--
29...	1230	9	3410	--	--	7.0	374	--	--
29...	1240	9	3410	--	--	6.8	350	--	35.0
SEP									
07...	0950	9	3410	40.0	8.0	6.7	432	27.0	--
07...	1000	9	3410	--	--	7.1	382	--	--
07...	1015	9	3410	--	--	6.9	352	--	35.0
10...	1155	9	4100	60.0	8.6	6.8	394	28.0	--
10...	1215	9	4100	--	--	7.1	200	--	--
10...	1230	9	4100	--	--	6.9	349	--	25.0
16...	1250	9	4930	40.0	7.8	6.7	384	25.5	--
16...	1310	9	4930	--	--	6.9	366	--	--
16...	1320	9	4930	--	--	6.8	324	--	35.0
18...	1115	9	4340	40.0	8.1	6.6	362	24.0	--
18...	1140	9	4280	--	--	6.9	360	--	--
18...	1145	9	4280	--	--	6.8	341	--	35.0
26...	1030	9	3080	20.0	7.2	6.3	342	24.0	--
26...	1050	9	3080	--	--	6.8	334	--	--
26...	1100	9	3350	--	--	6.7	309	--	35.0
28...	1025	9	7100	40.0	8.6	6.7	344	23.5	--
28...	1040	9	7100	--	--	6.9	349	--	--
28...	1050	9	7100	--	--	6.8	328	--	35.0
30...	1230	9	6300	40.0	9.0	7.2	443	23.0	--
30...	1245	9	6300	--	--	7.0	451	--	--
30...	1255	9	6300	--	--	7.2	443	--	30.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03049652 ALLEGHENY RIVER AT HULTON BRIDGE AT OAKMONT, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	1310	9	60.0	1.1	<5	<5	10	--
17...	1320	9	--	5.9	40	<5	60	--
17...	1340	9	--	8.5	15	<5	25	75.0
AUG								
06...	1210	9	60.0	6.6	140	40	185	--
06...	1237	9	--	4.8	30	25	75	30.0
06...	1240	9	--	2.3	15	10	50	--
08...	1230	9	20.0	1.4	80	5	115	--
08...	1250	9	--	2.5	15	<5	75	--
08...	1300	9	--	1.9	5	10	30	35.0
10...	1020	9	--	4.1	30	25	165	35.0
10...	1040	9	--	4.3	20	<5	30	--
10...	1055	9	60.0	3.4	50	10	30	--
13...	1057	9	--	8.5	290	255	610	35.0
13...	1110	9	--	14	210	205	375	--
13...	1125	9	40.0	5.0	250	325	400	--
15...	1135	9	40.0	3.7	35	<5	100	--
15...	1145	9	--	3.7	20	<5	50	--
15...	1200	9	--	3.3	60	20	60	35.0
29...	1210	9	40.0	1.0	15	15	50	--
29...	1230	9	--	3.5	35	<5	80	--
29...	1240	9	--	2.4	40	<5	25	35.0
SEP								
07...	0950	9	40.0	3.6	120	10	115	--
07...	1000	9	--	3.5	90	<5	95	--
07...	1015	9	--	3.2	35	<5	50	35.0
10...	1155	9	60.0	2.0	5	<5	<5	--
10...	1215	9	--	3.7	15	<5	25	--
10...	1230	9	--	4.3	5	<5	15	25.0
16...	1250	9	40.0	6.4	100	70	170	--
16...	1310	9	--	5.5	35	15	1500	--
16...	1320	9	--	3.6	30	40	65	35.0
18...	1115	9	40.0	6.2	85	30	90	--
18...	1140	9	--	7.8	110	10	165	--
18...	1145	9	--	5.5	120	5	105	35.0
26...	1030	9	20.0	4.1	40	15	30	--
26...	1050	9	--	3.8	30	5	40	--
26...	1100	9	--	4.3	20	5	40	35.0
28...	1025	9	40.0	3.5	8	330	4800	--
28...	1040	9	--	3.5	5	190	5750	--
28...	1050	9	--	2.4	3	80	400	35.0
30...	1230	9	40.0	4.0	190	15	245	--
30...	1245	9	--	5.8	230	30	200	--
30...	1255	9	--	2.6	140	10	250	30.0

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03049832 ALLEGHENY RIVER AT 9TH STREET BRIDGE AT PITTSBURGH, PA**

**LOCATION**--Lat 40°26'47", long 79°59'58", Allegheny County, Hydrologic Unit 05010009, at 9th Street bridge in Pittsburgh, at river mile 0.7.

**DRAINAGE AREA**--11,710 mi<sup>2</sup>.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	1310	9	4000	--	9.9	7.8	314	28.4	30.0
17...	1330	9	4000	--	--	7.9	318	--	--
17...	1335	9	4000	30.0	9.9	8.0	319	28.8	--
AUG									
06...	1550	9	3570	--	7.9	7.5	345	29.0	20.0
06...	1600	9	3570	20.0	7.3	7.5	349	29.0	--
06...	1610	9	3570	--	7.7	7.6	323	29.0	--
08...	0936	9	4790	--	7.8	8.1	325	27.5	60.0
08...	0955	9	4790	147.0	7.8	8.3	326	27.5	--
08...	1000	9	4790	--	8.2	8.6	317	26.8	--
10...	0708	9	3220	--	8.6	8.0	322	26.9	39.0
10...	0728	9	3220	200.0	8.1	8.0	330	26.8	--
10...	0742	9	3220	--	8.4	8.1	312	25.6	--
13...	1325	9	5500	--	8.0	8.2	322	28.0	51.0
13...	1340	9	5500	60.0	7.7	7.7	333	28.6	--
13...	1400	9	5500	--	--	7.6	320	28.7	--
15...	1142	9	3600	--	8.1	8.1	347	27.9	48.0
15...	1203	9	3600	--	--	8.1	345	28.0	--
15...	1209	9	3600	170.0	7.9	8.1	347	27.9	--
29...	1315	9	3440	--	8.7	8.1	380	26.7	40.0
29...	1320	9	3440	--	8.5	8.1	383	26.6	--
29...	1335	9	3440	20.0	9.2	8.3	395	27.0	--
SEP									
07...	1250	9	3360	--	8.4	7.8	499	26.9	36.0
07...	1305	9	3360	21.0	8.7	8.0	505	27.1	--
07...	1315	9	3360	--	--	7.8	497	28.0	--
10...	1210	9	3180	--	8.8	7.6	425	26.8	40.0
10...	1220	9	3180	35.0	8.9	8.0	433	27.4	--
10...	1240	9	3180	--	8.5	7.7	427	27.0	--
16...	1340	9	4430	--	11.4	7.5	379	25.3	20.0
16...	1350	9	4430	20.0	8.7	7.5	384	25.1	--
16...	1415	9	4430	--	--	7.6	381	25.2	--
18...	1250	9	5730	--	9.4	7.6	354	24.6	51.0
18...	1300	9	5730	72.0	9.5	7.6	359	24.7	--
18...	1307	9	5730	--	9.7	7.7	356	24.7	--
26...	1320	9	2950	--	8.6	7.6	308	23.5	20.0
26...	1340	9	2950	20.0	8.5	7.6	321	23.5	--
26...	1345	9	2950	--	9.1	7.6	314	23.0	--
28...	1230	9	7030	--	8.4	7.6	347	22.5	30.0
28...	1245	9	7030	75.0	8.3	7.6	352	22.6	--
28...	1300	9	7030	--	--	7.8	353	22.6	--
30...	1345	9	6760	--	9.9	7.6	377	22.2	30.0
30...	1400	9	6760	75.0	9.6	7.6	383	22.2	--
30...	1415	9	6760	--	9.6	7.8	385	22.9	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03049832 ALLEGHENY RIVER AT 9TH STREET BRIDGE AT PITTSBURGH, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	1310	9	--	2.6	85	<5	235	30.0
17...	1330	9	--	3.4	30	<5	110	--
17...	1335	9	30.0	2.3	55	5	110	--
AUG								
06...	1550	9	--	3.3	1000	60	1600	20.0
06...	1600	9	20.0	3.2	1100	55	2300	--
06...	1610	9	--	3.4	970	60	2500	--
08...	0936	9	--	4.3	100	15	80	60.0
08...	0955	9	147.0	4.4	100	5	90	--
08...	1000	9	--	4.1	100	20	115	--
10...	0708	9	--	3.5	15	10	20	39.0
10...	0728	9	200.0	3.4	25	10	35	--
10...	0742	9	--	5.1	35	15	40	--
13...	1325	9	--	2.1	1200	25	3000	51.0
13...	1340	9	60.0	3.2	1300	995	2400	--
13...	1400	9	--	6.0	3200	230	3800	--
15...	1142	9	--	3.2	35	5	125	48.0
15...	1203	9	--	4.0	120	10	105	--
15...	1209	9	170.0	4.5	65	5	80	--
29...	1315	9	--	2.0	50	20	80	40.0
29...	1320	9	--	6.7	100	5	135	--
29...	1335	9	20.0	4.7	100	10	70	--
SEP								
07...	1250	9	--	2.5	40	<5	70	36.0
07...	1305	9	21.0	2.9	65	15	245	--
07...	1315	9	--	5.4	40	<5	170	--
10...	1210	9	--	4.3	5	<5	45	40.0
10...	1220	9	35.0	4.0	20	10	85	--
10...	1240	9	--	3.9	15	5	30	--
16...	1340	9	--	2.4	4700	270	8500	20.0
16...	1350	9	20.0	1.7	3100	140	4300	--
16...	1415	9	--	5.9	600	80	1900	--
18...	1250	9	--	6.3	70	15	145	51.0
18...	1300	9	72.0	5.0	120	15	150	--
18...	1307	9	--	7.5	55	10	85	--
26...	1320	9	--	6.3	30	<5	75	20.0
26...	1340	9	20.0	7.6	70	5	110	--
26...	1345	9	--	7.6	65	<5	70	--
28...	1230	9	--	6.6	6400	395	710	30.0
28...	1245	9	75.0	9.3	2600	405	7400	--
28...	1300	9	--	9.7	2400	370	400	--
30...	1345	9	--	2.2	150	20	335	30.0
30...	1400	9	75.0	2.2	140	30	255	--
30...	1415	9	--	4.1	220	45	175	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03085000 MONONGAHELA RIVER AT BRADDOCK, PA**

**LOCATION.**--Lat 40°23'28", long 79°51'30", Allegheny County, Hydrologic Unit 05020005, 300 ft upstream from dam at lock 2 at Braddock, 1,700 ft downstream from Turtle Creek, and 11.2 mi upstream of confluence with Allegheny River.

**DRAINAGE AREA.**--7,337 mi<sup>2</sup>.

**REMARKS.**--Other data for this station can be found on pages 134-135.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAMPLE LOCATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	1510	9	5860	--	8.7	7.2	434	28.5	12.0
17...	1525	9	5860	--	--	7.4	432	--	--
17...	1535	9	5860	60.0	8.3	7.4	441	28.9	--
AUG									
06...	1010	9	5000	--	6.4	6.9	340	29.0	60.0
06...	1030	9	5000	60.0	6.4	7.1	351	29.0	--
06...	1110	9	5000	--	6.4	7.1	322	28.5	--
08...	1134	9	1530	--	7.3	7.7	290	28.5	60.0
08...	1150	9	1530	110.0	7.3	8.4	290	28.4	--
08...	1202	9	1530	--	7.3	8.6	235	27.5	--
10...	1146	9	2200	--	8.2	8.0	283	27.2	75.0
10...	1202	9	2200	130.0	8.5	7.9	283	27.3	--
10...	1217	9	2200	--	8.0	8.0	264	27.3	--
13...	0955	9	4200	--	7.5	7.4	361	25.9	39.0
13...	1005	9	4200	39.0	7.1	7.4	364	26.1	--
13...	1020	9	4200	--	7.1	7.2	366	26.2	--
15...	0825	9	1300	--	6.6	7.6	352	28.1	42.0
15...	0855	9	1300	146.0	7.2	7.7	355	28.1	--
15...	0922	9	1300	--	--	7.7	342	28.1	--
29...	0841	9	3030	--	7.0	7.5	443	27.3	65.0
29...	0900	9	3030	66.0	7.0	7.5	441	27.2	--
29...	0910	9	3030	--	7.6	7.5	454	26.7	--
SEP									
07...	0815	9	1580	--	7.2	7.6	547	26.9	39.0
07...	0830	9	1580	66.0	7.2	7.7	552	26.8	--
07...	0900	9	1580	--	--	7.7	544	25.5	--
10...	0835	9	1420	--	7.3	7.6	595	26.8	72.0
10...	0845	9	1420	80.0	7.4	7.6	602	26.9	--
10...	0905	9	1420	--	7.8	7.7	600	26.7	--
16...	1005	9	1570	--	7.9	7.5	567	25.4	30.0
16...	1020	9	1680	60.0	7.6	7.4	569	25.4	--
16...	1034	9	1680	--	--	7.6	570	25.0	--
18...	0920	9	1680	--	8.3	7.5	520	24.5	54.0
18...	0938	9	1740	60.0	8.3	7.5	525	24.5	--
18...	0945	9	1740	--	9.2	7.6	522	23.9	--
26...	0900	9	532	--	7.7	7.6	523	24.5	60.0
26...	0920	9	532	60.0	7.6	7.7	522	24.5	--
26...	0930	9	532	--	8.5	7.7	521	23.5	--
28...	0800	9	5830	--	7.7	7.6	544	23.1	30.0
28...	0815	9	5830	90.0	7.3	7.5	552	23.3	--
28...	0830	9	5830	--	--	7.7	538	22.6	--
30...	0950	9	4380	--	8.4	7.6	518	21.9	60.0
30...	1010	9	4380	60.0	8.2	7.6	533	22.2	--
30...	1030	9	4380	--	8.8	7.7	525	22.0	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03085000 MONONGAHELA RIVER AT BRADDOCK, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	1510	9	--	6.6	40	<5	55	12.0
17...	1525	9	--	13	65	<5	75	--
17...	1535	9	60.0	9.5	25	<5	25	--
AUG								
06...	1010	9	--	8.7	350	60	305	60.0
06...	1030	9	60.0	5.2	980	90	935	--
06...	1110	9	--	7.2	740	95	835	--
08...	1134	9	--	4.8	65	<5	120	60.0
08...	1150	9	110.0	6.2	160	5	120	--
08...	1202	9	--	4.2	70	10	145	--
10...	1146	9	--	5.2	60	5	215	75.0
10...	1202	9	130.0	5.0	140	5	225	--
10...	1217	9	--	5.3	140	5	310	--
13...	0955	9	--	45	2300	1300	2400	39.0
13...	1005	9	39.0	60	2000	1230	4500	--
13...	1020	9	--	50	1600	920	1900	--
15...	0825	9	--	10	300	25	310	42.0
15...	0855	9	146.0	8.7	280	30	440	--
15...	0922	9	--	20	320	45	450	--
29...	0841	9	--	5.1	500	5	360	65.0
29...	0900	9	66.0	12	700	20	515	--
29...	0910	9	--	11	500	<5	470	--
SEP								
07...	0815	9	--	5.0	100	15	155	39.0
07...	0830	9	66.0	5.5	240	20	225	--
07...	0900	9	--	5.7	160	20	160	--
10...	0835	9	--	7.6	90	<5	110	72.0
10...	0845	9	80.0	5.3	120	10	115	--
10...	0905	9	--	7.8	130	<5	125	--
16...	1005	9	--	2.5	3000	120	2600	30.0
16...	1020	9	60.0	3.5	6400	170	9200	--
16...	1034	9	--	8.0	2000	105	3200	--
18...	0920	9	--	8.1	240	10	190	54.0
18...	0938	9	60.0	6.5	220	25	285	--
18...	0945	9	--	8.8	220	25	225	--
26...	0900	9	--	9.3	140	<5	155	60.0
26...	0920	9	60.0	8.5	120	<5	120	--
26...	0930	9	--	8.0	120	<5	165	--
28...	0800	9	--	13	4000	675	4600	30.0
28...	0815	9	90.0	6.7	8600	700	9400	--
28...	0830	9	--	19	4800	780	5000	--
30...	0950	9	--	8.1	500	35	380	60.0
30...	1010	9	60.0	8.6	480	65	365	--
30...	1030	9	--	2.1	340	50	420	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03085120 MONONGAHELA RIVER AT SOUTH PITTSBURGH, PA**

**LOCATION**--Lat 40°24'34", long 79°57'14", Allegheny County, Hydrologic Unit 05020005, 500 ft upstream of Becks Run, at river mile 4.5.

**DRAINAGE AREA**--7,360 mi<sup>2</sup>.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	1420	9	--	--	8.6	7.3	444	28.4	--
AUG									
06...	1150	9	--	--	6.8	7.1	349	29.5	--
08...	1236	9	--	--	9.0	8.3	294	28.3	--
10...	1042	9	--	--	8.9	8.3	297	27.9	--
13...	0905	9	--	--	8.2	6.7	328	27.3	--
15...	0955	9	--	--	7.4	7.8	330	27.3	--
29...	1000	9	--	--	7.8	7.8	418	26.5	--
SEP									
07...	0930	9	--	--	7.9	7.7	568	26.4	--
10...	0935	9	--	--	8.6	8.0	547	26.8	--
16...	1100	9	--	--	8.8	7.7	522	25.1	--
18...	1018	9	--	--	8.4	7.5	566	24.8	--
26...	1000	9	--	--	8.8	7.9	495	23.0	--
28...	0915	9	--	--	7.2	7.5	552	22.8	--
30...	1045	9	--	--	8.0	7.5	551	22.5	--

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	1420	9	--	7.1	40	<5	60	--
AUG								
06...	1150	9	--	6.5	500	55	515	--
08...	1236	9	--	4.0	100	5	175	--
10...	1042	9	--	5.8	110	15	275	--
13...	0905	9	--	24	2900	635	3100	--
15...	0955	9	--	6.1	180	15	260	--
29...	1000	9	--	5.7	140	5	140	--
SEP								
07...	0930	9	--	8.0	35	35	55	--
10...	0935	9	--	5.6	20	20	15	--
16...	1100	9	--	6.5	400	40	710	--
18...	1018	9	--	9.6	220	10	165	--
26...	1000	9	--	4.5	15	5	25	--
28...	0915	9	--	13	8900	685	1700	--
30...	1045	9	--	8.5	250	70	250	--



**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03085150 MONONGAHELA RIVER AT PITTSBURGH, PA**

**LOCATION**--Lat 40°26'06", long 80°00'08", Allegheny County, Hydrologic Unit 05020005, at Smithfield Street bridge in Pittsburgh, at river mile 0.8.

**DRAINAGE AREA**--7,367 mi<sup>2</sup>.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	1105	9	6240	--	8.5	7.2	475	27.9	30.0
17...	1140	9	6240	--	--	7.3	477	28.6	--
17...	1142	9	6240	27.0	8.3	7.1	475	28.1	--
AUG									
06...	1320	9	5000	60.0	7.4	7.4	353	29.5	--
06...	1340	9	5000	--	7.2	7.4	332	28.5	--
06...	1350	9	5000	--	7.8	7.3	358	29.5	60.0
08...	1308	9	1390	--	9.0	8.3	330	28.0	51.0
08...	1325	9	1390	185.0	8.4	8.1	324	28.0	--
08...	1333	9	1390	--	7.8	8.7	325	27.3	--
10...	0924	9	1930	--	9.2	8.3	295	27.7	57.0
10...	0945	9	1930	175.0	8.7	8.4	296	27.8	--
10...	0953	9	1930	--	8.5	8.5	296	27.5	--
13...	1055	9	3220	--	9.4	8.0	316	27.4	51.0
13...	1105	9	3220	51.0	9.4	8.0	315	27.3	--
13...	1125	9	3220	--	--	8.2	316	27.5	--
15...	1020	9	1630	--	7.3	7.9	374	27.6	72.0
15...	1035	9	1630	145.0	7.2	8.0	373	27.6	--
15...	1042	9	1630	--	--	8.0	348	27.5	--
29...	1035	9	1680	--	7.9	7.5	391	25.9	45.0
29...	1050	9	1680	--	7.2	7.5	391	25.9	--
29...	1105	9	1680	--	7.8	7.6	392	25.7	--
SEP									
07...	1005	9	2370	--	8.4	8.0	557	26.1	60.0
07...	1025	9	2370	45.0	7.9	7.8	557	26.1	--
07...	1045	9	2370	--	8.1	7.9	556	26.3	--
10...	0955	9	1530	--	9.2	8.4	565	26.6	45.0
10...	1020	9	1530	60.0	9.0	8.2	565	26.6	--
10...	1030	9	1530	--	8.6	8.2	562	26.8	--
16...	1200	9	1500	--	8.7	7.7	565	24.8	60.0
16...	1225	9	1500	60.0	8.6	7.6	564	24.8	--
16...	1230	9	1500	--	--	7.7	568	--	--
18...	1040	9	1980	--	9.2	7.8	529	24.7	60.0
18...	1050	9	1980	30.0	9.3	7.8	529	24.7	--
18...	1058	9	1980	--	9.5	7.8	529	24.4	--
26...	1045	9	2420	--	8.5	7.8	563	24.0	60.0
26...	1100	9	2420	60.0	8.6	7.8	559	24.0	--
26...	1115	9	2420	--	8.9	7.8	562	23.0	--
28...	0945	9	5880	--	7.3	7.5	486	21.5	75.0
28...	0955	9	5880	54.0	7.3	7.5	484	21.6	--
28...	1005	9	5880	--	--	7.7	481	22.2	--
30...	1110	9	3950	--	7.9	7.9	566	23.1	60.0
30...	1125	9	3950	48.0	7.7	7.5	563	23.1	--
30...	1145	9	3950	--	--	7.6	565	23.9	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03085150 MONONGAHELA RIVER AT PITTSBURGH, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	1105	9	--	7.8	40	<5	55	30.0
17...	1140	9	--	8.1	25	<5	40	--
17...	1142	9	27.0	3.9	20	<5	40	--
AUG								
06...	1320	9	60.0	5.3	45	15	470	--
06...	1340	9	--	5.5	230	20	595	--
06...	1350	9	--	1.6	110	10	410	60.0
08...	1308	9	--	4.7	40	15	55	51.0
08...	1325	9	185.0	4.3	220	10	245	--
08...	1333	9	--	3.9	290	15	360	--
10...	0924	9	--	3.2	280	50	340	57.0
10...	0945	9	175.0	3.6	200	30	325	--
10...	0953	9	--	5.3	170	25	255	--
13...	1055	9	--	2.7	680	30	1460	51.0
13...	1105	9	51.0	3.7	740	20	1000	--
13...	1125	9	--	5.1	700	50	690	--
15...	1020	9	--	3.8	95	<5	150	72.0
15...	1035	9	145.0	2.6	100	<5	60	--
15...	1042	9	--	6.0	90	<5	200	--
29...	1035	9	--	6.7	180	5	210	45.0
29...	1050	9	--	5.5	140	10	230	--
29...	1105	9	--	7.5	400	<5	220	--
SEP								
07...	1005	9	--	2.5	80	5	70	60.0
07...	1025	9	45.0	4.8	120	5	130	--
07...	1045	9	--	6.1	100	5	85	--
10...	0955	9	--	7.0	20	<5	25	45.0
10...	1020	9	60.0	8.2	35	<5	45	--
10...	1030	9	--	13	30	5	90	--
16...	1200	9	--	2.5	5000	755	9700	60.0
16...	1225	9	60.0	4.2	400	75	1400	--
16...	1230	9	--	4.0	700	130	1800	--
18...	1040	9	--	5.4	210	10	210	60.0
18...	1050	9	30.0	4.5	240	5	230	--
18...	1058	9	--	12	280	15	375	--
26...	1045	9	--	5.5	210	30	240	60.0
26...	1100	9	60.0	3.0	230	20	230	--
26...	1115	9	--	6.2	95	<5	240	--
28...	0945	9	--	13	6800	760	7700	75.0
28...	0955	9	54.0	20	7000	775	7800	--
28...	1005	9	--	21	6400	710	7600	--
30...	1110	9	--	--	300	75	255	60.0
30...	1125	9	48.0	23	500	65	450	--
30...	1145	9	--	10	490	60	390	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03085700 OHIO RIVER ABOVE NEVILLE ISLAND AT AVALON, PA**

**LOCATION.--**Lat 40°29'30", long 80°04'19", Allegheny County, Hydrologic Unit 05030101, 225 ft upstream from Neville Island, at river mile 4.85.

**DRAINAGE AREA.--**19,365 mi<sup>2</sup>.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS- SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (µS/CM) (00095)	TEMPER- ATURE WATER (DEG C) (00010)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	1015	9	--	--	9.1	7.3	419	27.5	--
AUG									
06...	1515	9	--	--	7.6	7.4	364	29.0	--
08...	0845	9	--	--	7.7	8.1	356	27.5	--
10...	0857	9	--	--	8.5	8.0	356	27.2	--
13...	1300	9	--	--	--	8.2	384	--	--
15...	1245	9	--	--	6.2	8.2	334	27.8	--
29...	1245	9	--	--	8.0	7.7	430	26.2	--
SEP									
07...	1215	9	--	--	8.5	7.7	528	26.8	--
10...	1140	9	--	--	8.1	7.6	559	26.8	--
16...	1310	9	--	--	--	7.7	471	24.9	--
18...	1230	9	--	--	9.3	7.7	434	24.3	--
26...	1240	9	--	--	8.9	7.7	425	22.5	--
28...	1200	9	--	--	7.8	7.6	429	22.3	--
30...	1315	9	--	--	9.4	7.7	448	23.5	--

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	1015	9	--	7.5	40	5	90	--
AUG								
06...	1515	9	--	9.2	240	205	3300	--
08...	0845	9	--	5.5	75	5	160	--
10...	0857	9	--	3.4	30	20	45	--
13...	1300	9	--	6.3	120	10	205	--
15...	1245	9	--	2.5	80	<5	55	--
29...	1245	9	--	5.7	80	5	95	--
SEP								
07...	1215	9	--	7.5	30	<5	45	--
10...	1140	9	--	6.0	15	<5	20	--
16...	1310	9	--	9.1	1000	95	2600	--
18...	1230	9	--	7.7	75	<5	140	--
26...	1240	9	--	6.7	20	<5	20	--
28...	1200	9	--	14	6800	540	6700	--
30...	1315	9	--	10	180	10	155	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03086000 OHIO RIVER AT SEWICKLEY, PA**

**LOCATION.**--Lat 40°32'57", long 80°12'21", Allegheny County, Hydrologic Unit 05030101, 50 ft upstream from Dashields Dam, 1.0 mi downstream from Narrows Run, 1.0 mi northwest of Sewickley, and 13.3 mi downstream from confluence of Allegheny and Monongahela Rivers.

**DRAINAGE AREA.**--19,500 mi<sup>2</sup>, approximately.

**REMARKS.**--Other data for this station can be found on pages 142-153.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SAMPLE LOCATION, CROSS SECTION (FT FM R BK) (72103)	OXYGEN, DIS-SOLVED (MG/L) (00300)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (µS/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	SAMPLE LOC-ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002									
17...	0950	9	12600	--	--	--	--	--	50.0
17...	1030	9	12600	--	--	7.1	450	--	--
17...	1040	9	12600	20.0	7.9	--	--	27.0	--
AUG									
06...	0920	9	9060	--	--	6.9	383	--	60.0
06...	0946	9	9060	--	--	7.1	379	--	--
06...	0955	9	9060	20.0	7.8	7.2	365	28.5	--
08...	0850	9	5280	--	--	7.3	378	--	50.0
08...	0910	9	5620	--	--	7.1	388	--	--
08...	0920	9	5190	20.0	7.0	7.3	383	27.0	--
10...	0725	9	5360	--	--	7.2	403	--	50.0
10...	0745	9	5190	--	--	7.5	405	--	--
10...	0800	9	5280	20.0	7.5	7.4	404	26.0	--
13...	0840	9	8620	--	--	7.1	391	--	55.0
13...	0857	9	8520	--	--	7.2	400	--	--
13...	0905	9	8620	20.0	6.8	7.1	395	27.0	--
15...	0845	9	5100	--	--	7.0	392	--	50.0
15...	0900	9	4930	--	--	7.2	391	--	--
15...	0910	9	4680	20.0	7.3	7.1	393	27.5	--
29...	0925	9	6440	--	--	6.8	411	--	60.0
29...	0940	9	7500	--	--	6.8	411	--	--
29...	0950	9	6630	20.0	6.6	6.9	401	26.0	--
SEP									
07...	0745	9	4370	--	--	6.9	460	--	50.0
07...	0800	9	4370	--	--	7.0	464	--	--
07...	0810	9	4450	20.0	7.3	7.1	466	25.5	--
10...	0830	9	4070	--	--	6.6	469	11.3	40.0
10...	0840	9	4220	--	--	6.8	478	24.9	--
10...	0855	9	4450	20.0	6.8	6.7	453	16.3	--
16...	1000	9	6160	--	--	6.6	455	--	60.0
16...	1020	9	6350	--	--	6.8	461	--	--
16...	1030	9	6440	20.0	6.8	6.8	458	24.5	--
18...	0850	9	8410	--	--	6.7	459	--	60.0
18...	0910	9	8200	--	--	6.9	468	--	--
18...	0920	9	8100	20.0	7.1	6.8	461	24.0	--
26...	0815	9	4930	--	--	6.7	429	15.0	50.0
26...	0830	9	4520	--	--	6.8	447	19.5	--
26...	0845	9	4680	20.0	7.5	6.7	448	18.5	--
28...	0805	9	12700	--	--	6.7	442	--	60.0
28...	0820	9	12100	--	--	7.0	443	--	--
28...	0830	9	12100	20.0	7.5	6.9	428	22.0	--
30...	0920	9	11800	--	--	7.0	501	--	50.0
30...	0945	9	11700	--	--	7.1	468	--	--
30...	0950	9	11600	20.0	7.8	7.1	466	22.0	--

**ANALYSIS OF SAMPLES COLLECTED AT SPECIAL-STUDY SITES  
FECAL-INDICATOR BACTERIA PROJECT--Continued**

**03086000 OHIO RIVER AT SEWICKLEY, PA--Continued**

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	Medium code	SAMPLE LOC- ATION, CROSS SECTION (FT FM R BK) (72103)	TUR- BID- ITY (NTU) (00076)	E COLI, MTEC MF WATER (COL/ 100 ML) (31633)	ENTERO- COCCI, ME MF, WATER (COL/ 100 ML) (31649)	FECAL COLI- FORM, MFC MF, WATER (COL/ 100 ML) (31616)	SAMPLE LOC- ATION, CROSS SECTION (FT FM L BANK) (00009)
JUL 2002								
17...	0950	9	--	--	300	95	335	50.0
17...	1030	9	--	10	35	5	40	--
17...	1040	9	20.0	7.0	5	<5	10	--
AUG								
06...	0920	9	--	3.9	140	40	105	60.0
06...	0946	9	--	4.6	65	10	110	--
06...	0955	9	20.0	3.2	20	<5	15	--
08...	0850	9	--	5.2	65	15	100	50.0
08...	0910	9	--	2.9	70	10	55	--
08...	0920	9	20.0	3.2	65	<5	20	--
10...	0725	9	--	7.1	100	35	130	50.0
10...	0745	9	--	7.0	10	<5	10	--
10...	0800	9	20.0	4.9	<5	<5	5	--
13...	0840	9	--	4.5	30	5	20	55.0
13...	0857	9	--	5.9	10	<5	5	--
13...	0905	9	20.0	2.0	20	10	100	--
15...	0845	9	--	3.6	30	5	60	50.0
15...	0900	9	--	4.6	35	<5	50	--
15...	0910	9	20.0	5.2	90	40	156	--
29...	0925	9	--	3.2	50	10	45	60.0
29...	0940	9	--	5.9	50	10	45	--
29...	0950	9	20.0	5.7	10	<5	65	--
SEP								
07...	0745	9	--	4.6	40	15	25	50.0
07...	0800	9	--	5.4	20	5	25	--
07...	0810	9	20.0	4.4	10	<5	40	--
10...	0830	9	--	8.7	60	<5	35	40.0
10...	0840	9	--	9.7	20	<5	20	--
10...	0855	9	20.0	5.6	5	<5	<5	--
16...	1000	9	--	4.6	30	5	35	60.0
16...	1020	9	--	9.1	10	<5	30	--
16...	1030	9	20.0	4.3	10	10	20	--
18...	0850	9	--	7.5	130	40	165	60.0
18...	0910	9	--	6.1	95	15	100	--
18...	0920	9	20.0	5.5	110	15	85	--
26...	0815	9	--	6.5	5	<5	<5	50.0
26...	0830	9	--	6.3	5	<5	15	--
26...	0845	9	20.0	5.6	<5	<5	<5	--
28...	0805	9	--	12	3800	400	3700	60.0
28...	0820	9	--	13	5100	330	5600	--
28...	0830	9	20.0	9.3	4300	435	4800	--
30...	0920	9	--	9.0	460	60	330	50.0
30...	0945	9	--	5.2	580	45	375	--
30...	0950	9	20.0	5.5	360	40	295	--