Appendix C: Ambient Air Quality Results of EPD Mobile Laboratory

(Please see the following pages.)

Table C.1: Air Quality Result at Yateem Khana Chowk in Lahore (05-04-2000)

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	Ozone	SO_2	CO	NO	NO_X	PM_{10}	Meth	N Meth	W.Speed	W.Dir.	Hum.	Temp.	Baro	Solar
Unit	ppb	ppb	ppm	ppb	ppb	ug/m³	ppm	ppm	m s-1	Deg	%	°C	mBar	W.m-2
Min. Limit	500	500	10	500	500	250	80	80	100	360	100	100	1100	1100
Max. Limit	700	700	10	800	800	500	90	90	100	360	100	100	1100	2000
0800	6.3	52.3	0.5	107.4	226.8	578.4	--	--	2.4	25 0	51.8	23.2	982.8	1330.6
0900	3.3	44.9	1.0	83.1	191.6	1003.3	--	--	4.3	25.0	52.1	25.3	982.9	1773.1
1000	4 7	42.0	1.2	58.0	146.5	969.0	--	--	5.4	25 0	52.3	27.5	983.4	1784.4
1100	8.1	33.8	0.7	38.0	114.2	996.3	--	--	4.7	25.0	52.4	29.1	983.9	1784.7
1200	12.9	33.5	1.0	38.7	116.5	978.5	--	--	4.9	25.0	52.6	30.6	983.8	1783.4
1300	9.3	25.6	0.5	41.2	116.4	978 7	--	--	4.7	25.0	52.7	31.6	983.7	1785.6
1400	11.4	18.9	0 9	31.9	99.2	970 6	--	--	5.4	25.0	52 7	31.9	982.9	1783 4
1500	10.1	19 5	1.0	38.4	117.6	910.1	--	--	4.7	25 0	52.8	32 4	981.9	1769.4
1600	9.6	19 8	1.1	35.5	111.8	957.3	--	--	3 9	13.0	52.8	32.5	981 4	1490.9
1700	6.9	28.3	1.6	50 8	142.3	998 1	--	--	3.3	10.3	52.8	32.2	981 2	720.6
1800	6.2	40.7	1.9	51.4	148 0	1175.2	--	--	3.7	9.2	52.5	30.7	980.9	38.1
1900	3.2	55.8	3.5	97.2	222.7	1258.7	--	--	2 3	7.7	52.4	29.5	981.0	--
2000	2.9	70.2	5.5	122.1	261.3	1165.8	--	--	1.4	8 0	52.3	28 5	981.3	--
2100	3 2	87.6	7.0	172.5	345.4	1282.0	--	--	1.2	9.0	52.3	28.1	981.8	--
2200	2.8	78.4	5.5	156.6	308.7	1362.0	--	--	1.2	10.8	52.2	26.4	982.0	--
2300	2.8	72.3	3.7	149.5	287.3	1163.2	--	--	1.2	10.8	52.0	25.1	981.9	--
2400	3.8	82.1	2.4	194.0	356 9	1071.7	--	--	1.2	10.0	51.8	24.4	981.7	--
Minimum	2.8	18.9	0.5	31.9	99.2	578.4	--	--	1.2	7.7	51.8	23.2	980.9	--
Maximum	12.9	87.6	7.0	194.0	356.0	1362.4	--	--	5 4	25.0	52.8	32.5	983.9	1785.6
Average	6.3	47.4	2.3	86.2	194.9	1048 2	--	--	3.3	17.0	52.4	28.7	982.3	943.8

Table C.2: Air Quality Result at Azadi Chowk in Lahore (06-04-2000)

No.	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
Parameters	*Ozone*	*SO_2*	*CO*	*NO*	*NO_X*	*PM_{10}*	*Meth*	*N. Meth*	*W.Speed*	*W.Dir.*	*Hum.*	*Temp.*	*Baro.*	*Solar*
Unit	*pb*	*ppb*	*ppm*	*ppb*	*ppb*	*ug/m³*	*ppm*	*ppm*	*m.s-1*	*Deg*	*%*	*°C*	*mBar*	*W m-2*
Min. Limit	*500*	*500*	*10*	*500*	*500*	*250*	*80*	*80*	*100*	*360*	*100*	*100*	*1100*	*1100*
Max. Limit	*700*	*700*	*10*	*800*	*800*	*500*	*90*	*90*	*100*	*360*	*100*	*100*	*1100*	*2000*
0600	2.5	64.2	--	--	--	109 5	--	--	1.3	15.0	51.2	18 9	982.3	--
0700	41.2	52.7	--	66.6	148.9	326.0	--	--	2.7	11.5	51.1	18.6	982.8	14.7
0800	1.7	50.6	1.6	77.0	170.7	529.8	--	--	4 3	9.5	51.2	20.7	982.9	103.4
0900	4.6	30.4	1.4	27.0	88.2	630.5	--	--	3.8	10.5	51.5	23.7	982.9	1105.3
1000	7.9	30.5	1 6	20.3	78 4	504.7	--	--	3 9	10 3	52.2	28.2	983.3	1781.9
1100	12.5	25.9	0.6	13.7	63.1	496.4	--	--	4.8	9.7	52.5	30.5	983.4	1759.7
1200	15.4	21.0	0.1	9.7	51.5	544.1	--	--	5.1	9.7	52.9	32.4	983.4	1746.7
1300-1400	No data measurement because of generation problems													
1500	16.8	10.2	0 7	7.4	46.8	--	--	--	3 5	15.2	53.1	34.9	981.1	1746.9
1600	16.9	8.9	0.3	8.2	50.2	405.6	--	--	3.3	15.0	53.1	35.1	980.1	1748.8
1700	14.1	14.1	0.6	10.5	59.3	707.9	--	--	3.0	14.3	53.1	34.4	979.5	1433.1
1800	9.7	26 0	0.8	9.6	62.9	872.8	--	--	2.0	14.2	52.9	32.3	979.4	315.9
1900	4.3	32.9	2.6	38 4	127.0	1019.7	--	--	1.3	15 8	52.5	29.7	979.6	0 3
2000	6.2	34.2	4.1	57.1	160.1	1161.2	--	--	1.2	17.0	52.4	28.8	980.0	--
2100	4.1	31.7	4.9	65.3	172.4	1016.2	--	--	1.2	17.5	52.3	26.8	980.4	--
2200	9.7	51.7	7.7	141 0	287.6	1053 9	--	--	1.2	17.0	52.2	25.6	980.8	--
2300	11.4	72 4	9.4	217.3	400.8	1348.7	--	--	1 1	17 2	52.0	25.0	981.2	--
2400	7.2	47.2	4.1	134.7	264 7	1190.9	--	--	1.1	18.5	51.9	25.0	981.2	--
Minimum	1.7	8.9	0.1	7.4	46.8	109.5	--	--	1.1	9.5	51.1	18.6	979.4	--
Maximum	41.2	72.4	9.4	217.3	400.8	1348 7	--	--	5.1	18 5	53.1	35.1	983 4	1781.9
Average	10.9	35.6	2.7	56.5	140.0	744.9	--	--	2.6	14.0	52.2	27.7	981.4	691.6

Table C.3: Air Quality Results at Lohari Gate in Lahore (07-04-2000)

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	*Ozone*	SO_2	*CO*	*NO*	NO_x	PM_{10}	*Meth*	*N. Meth*	*W Speed*	*W.Dir.*	*Hum.*	*Temp.*	*Baro*	*Solar*
Unit	*ppb*	*ppb*	*ppm*	*ppb*	*ppb*	*ug/m³*	*ppm*	*ppm*	*m.s-1*	*Deg*	*%*	*°C*	*mBar*	*W.m-2*
Min. Limit	*500*	*500*	*10*	*500*	*500*	*250*	*80*	*80*	*100*	*360*	*100*	*100*	*1100*	*1100*
Max. Limit	*700*	*700*	*10*	*800*	*800*	*500*	*90*	*90*	*100*	*360*	*100*	*100*	*1100*	*2000*
0700	2.3	22.2	–	8.6	53.7	373 0	–	–	1.3	17.5	51.6	23.3	982.0	162.8
0800	3.0	22.3	1.0	16.4	74.9	545.6	–	–	1.4	17.5	51.8	25.3	982.1	1145 3
0900	43.9	42.7	1 8	19.0	83.5	750.1	–	–	1.3	17.0	52 2	26.7	982.8	1743.1
1000	5 5	33.3	2.7	24.8	95.5	830.2	–	–	1.7	18.0	52.5	29.0	982.9	1796 3
1100	8.0	20.6	2.6	21.8	83.1	852.4	–	–	3.2	19 0	52.9	32.4	983.6	1799.7
1200	7.9	31.4	2.8	22.6	83.0	806.8	–	–	2.5	18.8	53.2	34.0	985.0	1799 7
1300	8.3	51.6	2.6	16.7	69.4	847.8	–	–	2 5	17.5	53.2	35.3	984.3	1783.1
1400	9.1	48.3	1.7	17.0	66.6	844.6	–	–	3.5	18.0	53.3	36.8	983.3	1768.1
1500	9.7	38.3	0.8	18.4	66.2	839.7	–	–	3.2	17.7	53.5	37.7	982.3	1756.3
1600	12 0	23.7	1.4	13.7	54.4	843.1	–	–	2.9	17.2	53.5	37.3	980.9	1726 9
1700	10.2	96.9	2.1	16.1	61.2	988.6	–	–	2.0	16.2	53.3	35.5	980.5	1180.6
1800	8.7	210.9	3.0	12.6	62.1	1280 6	–	–	1.7	16.0	53.1	32.7	980.6	195.6
1900	4.8	75.3	3.8	19.3	77.4	1323.8	–	–	1.2	16.0	52.8	31.2	981.3	–
2000	4.2	0 4	4.0	17.7	73.3	1097.5	–	–	1.3	16.0	52.7	30.3	981.8	–
2100	1.8	0.3	4.2	22.2	78.4	1137.7	–	–	1.2	15 5	52.7	28.6	982.3	–
2200	1.6	0.7	2.8	25.0	73.4	1080.8	–	–	1.2	15.8	52.5	26.7	982.9	–
2300	2.2	–	2.0	17.6	57.6	870.9	–	–	1.2	15.2	52.1	25.7	983.0	–
2400	5.9	–	0.6	13.7	51.9	671.6	–	–	1.2	15.0	52.0	25.3	983.0	–
Minimum	1.6	–	0.6	8.6	51.9	373.0	–	–	1.1	15.0	51.6	23.3	980.5	–
Maximum	43.9	210.9	4.2	25.0	95.5	1323.8	–	–	3.5	19.0	53.5	37.3	985.0	1799.7
Average	8.3	39.9	2.3	18.0	70.3	888 0	–	–	1.9	16.9	52.7	30.7	982.5	936.5

Table C.4: Air Quality Results at Bank Square in Lahore (08-04-2000)

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	Ozone	SO_2	CO	NO	NO_x	PM_{10}	Meth	N Meth	W.Speed	W.Dir.	Hum.	Temp.	Baro.	Solar
Unit	Ppb	ppb	ppm	ppb	ppb	ug/m^3	ppm	ppm	m.s-1	Deg	%	°C	mBar	W.m-2
Min. Limit	500	500	10	500	500	250	80	80	100	360	100	100	1100	1100
Max. Limit	700	700	10	800	800	500	90	90	100	360	100	100	1100	2000
0600	5.0	2.8	–	–	–	68.4	–	–	1.8	22.7	51.7	21.4	984.8	–
0700	5.6	6.4	–	4.0	24.0	109.2	–	–	2.7	21.5	51.7	22.3	985.3	47.4
0800	5.4	14.6	0.7	8.6	34.3	275.7	–	–	2.3	22.2	51.7	23.0	985.1	345.0
0900	43.8	15.8	2.1	19.2	54.9	381.6	–	–	3.1	20 7	52.0	24.8	985.3	1150.6
1000	7.6	20.2	3.7	26.8	76.5	440.7	–	–	3.1	21.0	52.5	28.6	985 1	1796.9
1100	3.6	55.9	6.8	109.1	232.0	656.2	–	–	3.3	24.7	53.1	33.2	984 6	1785.9
1200	2.5	71.5	4.8	130.0	267.8	796.0	–	–	4.1	26.0	53.5	36.9	983.5	1773.1
1300	1.5	69 4	4.5	128.4	256 8	1033.4	–	–	4.8	26.0	53.7	37.7	982.8	1765.0
1400	1.4	61.0	3.9	115.3	233.9	974.2	–	–	4.1	26 0	53.7	37.7	982.8	1765 0
1500	2.5	59.9	2.3	104.3	216 6	942.9	–	–	6.1	27.5	53.7	38.1	981.6	1740.6
1600	1 8	70.8	2.6	108 6	228.8	836 4	–	–	5.3	26 8	53.6	37.7	981.1	1710.9
1700	2.3	66.3	2.2	94 6	202.1	1028.8	–	–	5.2	27.0	53.4	35.5	980.9	1331.3
1800	4.0	95.1	2.9	122.4	249.2	1292.3	–	–	4.9	27.2	53.3	33.7	981.0	384.7
1900	4.1	85.5	4.8	172.9	326.9	1399.8	–	–	3 3	26.2	4108	31.7	981.0	0.9
2000	3.5	74.9	5.2	183.8	341.6	1339.9	–	–	2.2	25.8	52.7	30.2	981.3	–
2100	–	91.1	5.6	217.2	390.1	1295.5	–	–	1.8	25.2	52.7	29.2	982.5	–
2200	2 6	84.5	5 4	217.3	387.9	1226 8	–	–	1.8	25 5	52.6	28.3	982.4	–
2300	1.3	92.6	4.8	242.9	423.1	1205 8	–	–	1.3	25 2	52.5	27.3	982.3	–
2400	0.4	71 5	3.2	183.2	328 4	1043.3	–	–	1.5	25.5	52.4	26.8	982.1	–
Minimum	0.4	2.8	0.7	4.0	24.0	67.4	–	–	1.3	20.7	51.7	21.4	980.9	–
Maximum	43.8	95 1	6.8	242.9	423 1	1399.8	–	–	6.1	24.9	52.8	30.7	982.9	1796.9
Average	5 5	58.4	3.9	121.9	237.5	860 4	–	–	3.3	24.9	52.8	30.7	982.9	821.0

Table C.5: Air Quality Result at Qurtaba Chowk in Lahore (10–04-2000)

No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	Ozone	SO_2	CO	NO	NO_x	PM_{10}	Meth	N Meth	W.Speed	W.Dir.	Hum.	Temp.	Baro.	Solar
Unit	Ppb	ppb	ppm	ppb	ppb	ug/m³	ppm	ppm	m s-1	Deg	%	°C	mBar	W.m-2
Min Limit	500	500	10	500	500	250	80	80	100	360	100	100	1100	1100
Max. Limit	700	700	10	800	800	500	90	90	100	360	100	100	1100	2000
0800	0.1	45 4	–	153.9	251.9	90.6	–	–	1.5	20 8	52.1	25.8	979.1	1314.7
0900	0.8	43.0	–	77.1	186.0	308.0	–	–	2.8	22.8	52.5	29.2	979.6	1759.4
1000	2.5	30.4	1.3	68.3	154.8	609.1	–	–	3.8	23 0	52.8	32 1	979.0	1781.3
1100	9 0	13.5	0.2	42.6	115 9	294.7	–	–	4 5	23.2	53.2	34.4	977.1	1747.8
1200	7.9	20.4	1.0	39.7	104.0	1533.6	–	–	4.4	22.5	54.2	36.2	976.6	1712.8
1300	9.8	26.0	0.4	32.6	101.0	542.9	–	–	4.1	21.0	53.4	36.8	976.4	1237.2
1400	7.9	34.6	0.8	41.5	127 6	1034.9	–	–	4.2	22.5	53.4	36.6	975 9	824.4
1500	7.0	32.2	0.4	43.6	122.1	995.2	–	–	4.8	22.2	53.5	37.8	975.1	1697.5
1600	15.5	29.1	1.9	141.3	217 3	1053.3	–	–	4.1	21.5	53 4	37.5	975.0	1705.0
1700	48.5	22.8	1.1	83.3	135.8	1232.7	–	–	4.0	21.3	4202	2405	975.3	561.6
1800	8.8	21.5	1.4	52.6	99.4	1070.3	–	–	2.6	21.0	53.1	34.0	975.4	32.5
1900	12.1	9.6	0.1	2.7	32.8	816.3	–	–	1.1	21.2	52.6	29.9	975.9	1.3
2000	No data measurement because of generation trouble.													
2100	3.6	95.2	6.9	461.7	534.2	1207.2	–	–	1.2	20.7	52.6	28.8	976.6	–
2200	2.3	85.9	8.1	493.9	555 6	1535.0	–	–	1.2	22.0	52.2	26.0	977.3	–
2300	1.7	91.3	9.4	499 4	555.9	1370.0	–	–	1.3	20.7	52.1	25.6	977.3	–
2400	5.1	60.7	7.7	380.7	434.4	1214.9	–	–	1.2	21 5	51.9	23.3	977.1	–
Minimum	0.1	9.6	0.1	2.7	32 8	90.6	–	–	1.1	20.7	51.9	23.3	975.0	–
Maximum	48.5	95.2	9.4	499.4	555.9	1535.0	–	–	4.8	23.2	54.2	37.8	977.1	1781.3
Average	8.9	41.4	2.9	163.4	233.0	931.8	–	–	2.9	21.7	52.9	31.9	976.8	898.5

Table C.6: Air Quality Results at Raja Bazar in Rawalpindi (07-05-2000)

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	Ozone	SO_2	CO	NO	NO_x	PM_{10}	Meth	N. Meth	W.Speed	W.Dir.	Hum.	Temp.	Baro.	Solar
Unit	ppb	ppb	ppm	ppb	ppb	ug/m^3	ppm	ppm	m.s-1	Deg	%	°C	mBar	W.m-2
Min. Limit	500	500	10	500	500	250	80	80	100	360	100	100	1100	1100
Max. Limit	700	700	10	800	800	500	90	90	100	360	100	100	1100	2000
0800	8.4	7.8	2.4	17.4	52.6	--	--	--	3.0	17.0	52.6	28.1	951.4	673.8
0900	13.2	4.9	2.0	38.1	60 4	--	--	--	3.1	19.3	52.9	30.2	954.0	1750.4
1000	16 4	5.2	1.4	33.5	52.4	--	--	--	4.1	24.0	53.0	31.1	952.9	1778.8
1100	21.0	5.9	--	7.6	30.9	--	--	--	3.8	22.5	53.2	32.5	952.7	1756.9
1200	28 3	6.7	1.6	6.3	33.1	825.1	0.8	0.2	5.1	25.7	53.2	32.5	952.2	1759.7
1300	27.7	3.2	1.8	28.1	51.8	1166.5	0.5	--	5.3	28.7	53.2	33.1	950.8	1782.1
1400	33.4	5.3	0.4	5.1	26.1	--	0.4	3.8	4.7	27.5	53.2	33 8	948.9	1766.3
1500	59.3	6 2	1.1	8.1	33.4	372.1	0.5	10.3	3.8	27.5	53.3	34.5	947.9	1766.3
1600	36.9	1.3	0.8	5 1	27.9	823.3	0.8	10.3	4.1	27.3	53.3	34.8	947.2	994.4
1700	35.0	0.3	0.7	4.9	27.4	893.4	1 0	10.3	4.4	25.5	53.3	34.5	946.9	179.4
1800	36.4	--	0.3	3.5	19.2	961.5	0.8	9.1	6.7	27.0	53.3	33.4	946.8	56.3
1900	30.3	--	0.9	5.3	30 0	942.9	--	--	6.0	28.0	53.2	32.4	947.6	13.1
2000	18.0	0.9	1.9	14.2	53.9	792.2	0.7	5.8	2.4	25.5	53.0	31.6	947.8	--
2100	11.4	4.5	2.8	56.9	109.9	825.9	1.5	10.3	2.3	17.5	52.9	31.0	948.1	--
2200	7.1	1.9	2.5	26.1	73.8	792.8	1.6	10.3	1.9	25.3	52.6	29.6	948.7	--
2300	13.1	--	1.8	12.5	44.5	644.2	0.8	7 0	2.0	24.8	52.4	28.0	948.8	--
2400	12.2	1.1	0.8	32.0	65 0	413.3	0.5	3.7	2.8	15.2	52.5	27.9	948.8	--
Minimum	7.1	--	0.3	3.5	19.2	372.1	--	--	1.9	15.2	52.4	27.9	946.8	--
Maximum	59.3	7.8	2.8	56.9	109.9	1166.5	1.6	10.3	6.7	28.7	53.3	34.8	954.0	1782.1
Average	24.0	3.3	1.4	17.9	46.6	786.9	0.6	4.8	3.9	24.0	53.0	31.7	949.5	839.8

Table C.7: Air Quality Results at Committee Chowk, Murree Road in Rawalpindi (08-05-2000)

No.	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
Parameters	*Ozone*	SO_2	*CO*	*NO*	NO_X	PM_{10}	*Meth*	*N. Meth*	*W.Speed*	*W.Dir.*	*Hum.*	*Temp.*	*Baro.*	*Solar*
Unit	*ppb*	*ppb*	*ppm*	*ppb*	*ppb*	$\mu g/m^3$	*ppm*	*ppm*	*m.s-1*	*Deg*	*%*	*°C*	*mBar*	*W.m-2*
Min. Limit	*500*	*500*	*10*	*500*	*500*	*250*	*80*	*80*	*100*	*360*	*100*	*100*	*1100*	*1100*
Max. Limit	*700*	*700*	*10*	*800*	*800*	*500*	*90*	*90*	*100*	*360*	*100*	*100*	*1100*	*2000*
0700	6 3	10.7	–	126.6	158.8	–	–	–	1.7	19.0	53.0	26.0	950.9	91.6
0800	4.7	13.0	–	76.8	118.3	39.6	–	–	1.8	20.3	53 0	27.1	952.6	607.8
0900	8.1	13.7	1.6	67.1	107.1	579.9	–	–	2.4	30.8	53.1	28.5	952.8	1480.9
1000	9.9	10.8	1.7	61.4	101.9	571.8	0.3	2.7	3.1	33.8	53 2	30.0	952.9	1725 0
1100	13.0	10.1	2.0	68 0	107.6	632.4	–	–	3.7	31.7	53.2	30.9	952.8	1755.4
1200	14.5	21.1	2.1	71.7	123.9	562.1	–	–	3.6	32.8	53.2	31.9	951.9	1775.3
1300	14.9	17.9	1.8	73.4	126.2	491.0	–	–	4.0	25 3	53.3	33.2	950.5	1775.6
1400	16.6	24.1	1.6	76.5	133.5	632.7	0 1	–	3.9	35.0	53.3	33.9	949.4	1766.6
1500	52.6	22.4	0.3	54.8	101.9	624.9	1.2	10.3	3.3	35.0	53.4	34.5	948.8	1639.7
1600	13.6	34.9	1.0	103.5	172.8	1066.7	0.7	10.3	3.7	35.0	53.5	34.7	948.1	1452.5
1700	10.9	41.0	1.6	120.8	198.3	1136 9	1.0	10.3	2.3	35.0	53.5	34.8	947.6	244.4
1800	13.1	34.6	1.8	98.0	164.4	1208.0	0.6	10.3	1.9	12.4	53 5	34.7	947.2	75.9
1900	6.9	39 6	4.6	153.6	237.4	1094.2	1.7	10.5	1.7	0.2	53.4	34.3	947.4	5.0
2000	2.2	45.5	5 8	207.3	152.9	1169.0	2.2	10 3	1.3	27.9	53 4	33.7	948 1	–
2100	0.7	46.7	6.7	205.7	79 3	1203.1	1.8	10.3	1.4	34.5	53.3	33.2	948.6	–
2200	1.1	34.5	3.5	137.4	64.6	1214.4	1.9	10 3	1.4	7.8	53.3	32.0	948 9	–
2300	1.2	21.3	1.4	66.6	46.6	1003.6	1 9	10.3	1.7	–	53.2	31.0	948.8	–
2400	1.7	10.3	0.6	46.1	38.9	834.8	0.2	1.2	1.6	4.0	53.2	30.2	948.8	–
Minimum	0.7	10.1	0.3	46.1	38.9	39.6	–	–	1.3	–	53.0	26.0	947.2	–
Maximum	52.6	46.7	6.7	207.3	237.4	1214.4	2.2	10.5	4.0	35.0	53.5	34.8	952.8	1775.6
Average	10.7	25.1	2.4	100.8	124.1	827.4	0.8	5.4	2.5	23.4	53.3	31.9	949.8	799.8

Table C.8: Air Quality Results at Pirwadhai Chowk in Rawalpindi (09-05-2000)

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	Ozone	SO_2	CO	NO	NO_x	PM_{10}	Meth	N. Meth	W.Speed	W.Dir.	Hum	Temp	Baro.	Solar
Unit	ppb	ppb	ppm	ppb	ppb	$\mu g/m^3$	ppm	ppm	m.s-1	Deg	%	°C	mBar	W.m-2
Min. Limit	500	500	10	500	500	250	80	80	100	360	100	100	1100	1100
Max. Limit	700	700	10	800	800	500	90	90	100	360	100	100	1100	2000
0800	0.5	22.3	--	117.4	59 8	513.7	--	--	2.0	0.5	53.2	3-	951.3	1117.5
0900	4.4	34 7	--	124.3	66.7	816.2	--	--	4.2	1.0	53.2	31.1	951.6	1591.9
1000	8.3	38.4	--	101.2	62 1	1062.5	0.4	--	4 9	1.0	53.2	32 3	951.4	1762.2
1100	16.1	28.9	--	69.2	50.3	964.6	--	--	4.0	1.0	53 3	33.6	951.3	1766.3
1200	22.3	21.9	--	48.5	40.7	719.3	0.3	3.9	3.0	1 0	53.6	34.9	950.3	1765.3
1300	24 3	15.4	--	45.0	39.6	573.6	--	--	3 0	1.0	53.7	35.7	949 5	1765 3
1400	25.2	17.6	--	52.1	42.7	749.7	--	--	4.1	1.0	53.8	36.6	949 4	1759.7
1500	54.9	12.2	--	31.7	35.5	810.8	--	--	3.6	1.0	54.0	38.6	947.9	1749.7
1600	26.0	21.3	--	33.7	39.7	735 9	--	--	3.6	1.0	54.0	39.0	947.1	1557 8
1700	21.0	25.1	--	41.6	52.3	860.1	--	--	2.6	1.0	54 0	38.4	946.5	850.9
1800	31.1	14 6	--	11.0	24.3	903 2	--	--	2 5	1 0	53.9	37.3	946 3	195 3
1900	23.9	16.7	--	18.1	38 6	833.6	0.3	0.4	1.6	1 0	53.8	36.3	946 4	5 0
2000	11.3	38.1	0.7	96.7	73 3	977.1	0.7	4.7	1.3	1.0	53.7	35 5	947.1	--
2100	3 8	55.5	3 6	262.9	95 0	1092.7	--	--	1.2	1 0	53 5	34.0	948 1	--
2200	0.7	61.0	2.8	249.8	92.9	1406.3	--	--	1.4	1.0	53 4	33.0	948 9	16.9
2300	0 6	37.5	1.0	77.3	64.1	1390.4	--	--	1.8	1.0	53.3	31.7	949.1	705.9
2400	2.5	31.9	0.5	120.0	71.9	1067 3	--	--	1.4	1.0	53 2	31 2	948 8	764.7
Minimum	0 5	12.2	0.5	11 0	24.3	513.7	--	--	1.2	0.5	53 2	30 0	946.3	--
Maximum	54 9	61.0	3 6	262 9	95.0	1406.3	0.7	4.7	4 9	1 0	54.0	39.0	951 6	1766 3
Average	16 3	29.0	1.7	88.3	55.8	910.4	0.1	0 5	2.7	1.0	53 6	34 7	948.9	1022.0

Table C.9: Air Quality Results at Abpara Chowk in Islamabad (10-05-2000)

No.	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
Parameters	*Ozone*	SO_2	*CO*	*NO*	NO_x	PM_{10}	*Meth*	*N. Meth*	*W.Speed*	*W.Dir.*	*Hum.*	*Temp.*	*Baro.*	*Solar*
Unit	*ppb*	*ppb*	*ppm*	*ppb*	*ppb*	$\mu g/m^3$	*ppm*	*ppm*	*m.s-1*	*Deg*	*%*	*°C*	*mBar*	*W m-2*
Min. Limit	*500*	*500*	*10*	*500*	*500*	*250*	*80*	*80*	*100*	*360*	*100*	*100*	*1100*	*1100*
Max. Limit	*700*	*700*	*10*	*800*	*800*	*500*	*90*	*90*	*100*	*360*	*100*	*100*	*1100*	*2000*
0700	–	25.1	2.1	–	–	122.1	–	–	1.2	16.5	52.2	26.4	946.3	195.0
0800	–	18 5	0.7	233 5	144 3	107.9	–	–	1.3	20 0	52.9	28 3	946 5	691 6
0900	0.7	35.9	1.5	123 6	191 9	152 1	–	–	1.4	19.8	53.4	31.5	946.3	1560.9
1000	8.5	39.4	0 2	64.3	124.7	132.5	–	–	2.2	19.0	53.5	33.5	946 6	1758.4
1100	13.7	33 9	–	55 2	106 7	266.2	–	–	2.9	19.0	53.7	34.5	946 3	1751.9
1200	16.6	26.8	0 1	55 9	112 0	430.9	–	–	3.0	19.0	53.8	35.9	945.1	1755.3
1300	14.0	32.5	0 8	69 8	147 6	439 3	–	–	2.2	19.0	54.0	37 5	943.8	1746.9
1400	14.3	37.7	0 8	66 3	144.6	–	–	–	2.5	19.0	54.0	38 5	942 8	1725.9
1500	48.4	25.6	0.5	71.0	140.2	837.9	–	–	2.9	19.0	54.1	39.2	941.9	1701.9
1600	13.4	36.6	–	65.2	132.3	937.8	–	–	2 4	19 0	54.1	39.3	941.3	1230.0
1700	10 6	36.3	–	70 1	139 3	816 2	–	–	1.6	19.0	54.9	39.1	941.6	228.4
1800	2 6	52.1	1.2	145.0	234.9	79–	–	–	1.5	19.0	53.9	37.9	941.5	65 3
1900	–	60.2	3.0	262.5	349.5	611.8	–	–	1.2	19 0	53.8	35 6	941 2	3.1
2000	1.1	48.4	2 2	124.4	198.3	416 5	–	–	1.4	19.0	53.6	34.0	941.8	668.1
2100	2.3	46.6	1.6	100 1	186.3	425.4	–	–	1.2	19.0	53 6	33 9	942.3	772.2
2200	0.6	48.7	1.7	121.0	204.1	573.0	–	–	1.2	19.0	53.4	32.7	942.9	775 3
2300	0.1	32.1	1.2	123.9	193.7	810.6	–	–	1.2	19 0	53 3	30 4	943 3	835.9
2400	2 2	17.1	0.4	53.0	103 3	643.6	–	–	1.2	19.0	53.2	28.6	943.5	717 5
Minimum	–	17 1	0 1	53.0	103 3	107.9	–	–	1.2	16.5	52.2	26.4	941.2	3.1
Maximum	48 4	60 2	3.0	262.5	349.5	937.8	–	–	3 0	20.0	54.9	39.3	946.6	1758 4
Average	8.3	36.3	1 2	106 1	167.8	500.8	–	–	1.8	19.0	53 6	34 3	943.6	1010.2

Table C.10: Air Quality Results at I-9 Chowk in Islamabad (11-05-2000)

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Parameters	Ozone	SO_2	CO	NO	NO_x	PM_{10}	Meth	N. Meth	W.Speed	W.Dir.	Hum.	Temp	Baro.	Solar
Unit	ppb	ppb	ppm	ppb	ppb	$\mu g/m^3$	ppm	ppm	m.s-1	Deg	%	°C	mBar	W.m-2
Min. Limit	500	500	10	500	500	250	80	80	100	360	100	100	1100	1100
Max. Limit	700	700	10	800	800	500	90	90	100	360	100	100	1100	2000
0700	0.6	19.7	1.8	–	–	80.7	–	–	1.2	21.3	53 2	28.5	946 9	393.8
0800	0 3	18.0	–	79.5	134.6	136.5	–	–	1 0	23 0	53 4	30.0	949.9	767.5
0900	5.2	28.2	–	63.4	114.9	364.3	0.5	–	1.5	20 0	53.5	32.3	948 3	1318.4
1000	14.8	19.7	–	32.0	65 3	394.8	–	–	2.3	19 2	53 6	33.8	948 1	1729.4
1100	20.7	14 0	–	39.7	72 1	520 3	–	–	2.8	19.0	53.7	35 5	947.8	1757.5
1200	22.3	9.3	–	10 0	30 0	511 5	–	–	1.5	19.8	53 8	36.7	946.9	1710.9
1300	23.8	7.0	0.8	18 6	43.1	458.9	–	–	2.0	20 0	53.9	37.7	945.3	1770.3
1400	24 5	4.3	0.8	18.0	44 1	528.1	–	–	1.8	20.0	54 0	38.8	944.1	1767.2
1500	52.5	6.5	1 0	38.3	80.0	564.2	–	–	1.9	19 8	54.0	38.7	943 2	1482.5
1600	20.2	12 4	0.9	26.0	65.3	594.8	–	–	1 4	20 0	54.0	38 5	942.4	727 8
1700	9.9	13.9	1.6	38.3	103.0	620.6	–	–	1 3	20.0	54 0	38.1	942 2	285 9
1800	1.0	19.3	3.1	111.4	206 4	750.4	–	–	1.2	20 0	53.8	36 7	942 1	32.2
1900	0.6	31.1	3 6	125.9	221.6	777.2	–	–	1.2	20.0	53.7	35 7	942.3	0.3
2000	0 1	33.0	2.4	119 4	205 0	853 6	–	–	1.4	20 0	53 6	34.9	943.3	–
2100	0.1	38 6	2 5	135 0	226 8	797.8	–	–	1.3	20.0	53 6	33.6	943.9	–
2200	7 8	47 3	–	92.1	155.2	619.9	–	–	4 0	19 2	53.4	33 6	944.9	–
2300	8 3	29.9	–	48 9	98.4	668.1	–	–	2 3	19 8	53 2	32.7	944.4	–
2400	3.1	30 9	–	67.7	125.9	562.1	–	–	1.4	20 0	53.2	31 7	944.0	–
Minimum	0.1	4.3	0.8	10 0	30.0	80.7	–	–	1.0	19 0	53.2	28 5	942.1	–
Maximum	52.5	47 3	3 6	135 0	226 8	853.6	0.5	–	4 0	23.0	54 0	38.8	949 9	1770.3
Average	12 0	21.3	1.9	62.6	117.8	539.1	–	–	1.7	20 1	53.7	34.9	945.0	763.5

Appendix D: Traffic Count Data at Ambient Air Monitoring Sites

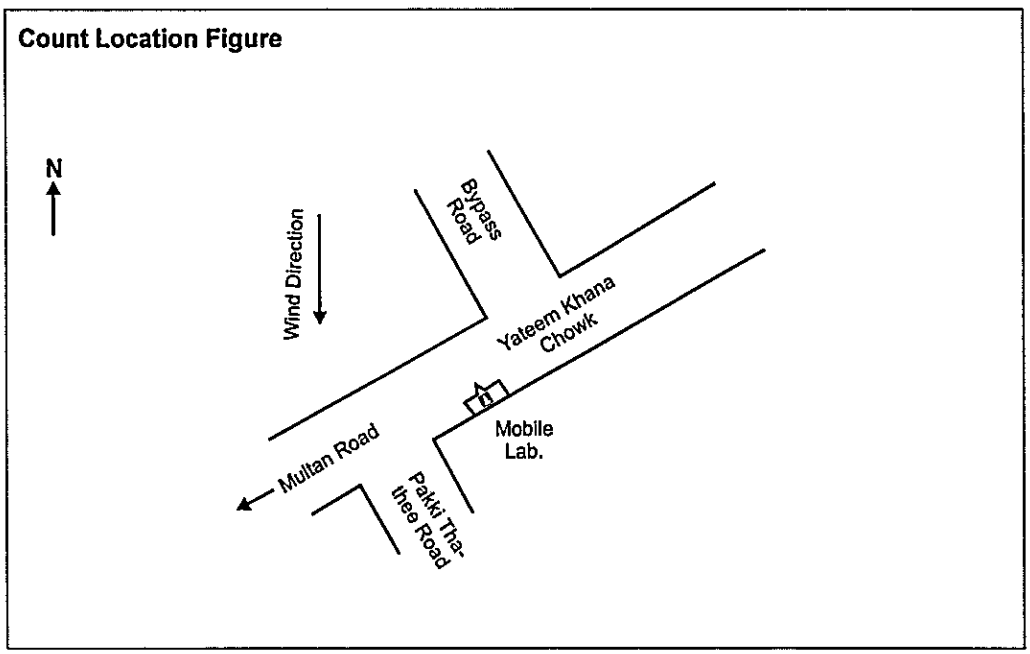
D.1 Lahore

(Please see the following pages.)

D.1.1 Chowk Yateem Khana, Lahore (05-04-2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0700-0800	1232	3214	
2	0800-0900	1256	4410	
3	0900-1000	1065	5065	
4	1000-1100	1104	6325	
5	1100-1200	1083	6408	
6	1200-1300	1179	6231	
7	1300-1400	1257	6113	
8	1400-1500	1077	4611	
9	1500-1600	1282	4892	
10	1600-1700	1086	4577	
11	1700-1800	1337	6482	
12	1800-1900	1578	7389	
13	1900-2000	1352	7246	
14	2000-2100	921	5672	
15	2100-2200	848	4042	
16	2200-2300	779	3502	
17	2300-2415	1125	3710	
Total Number		19561	89889	
Average		1150.6	5287.6	

Count Location Figure

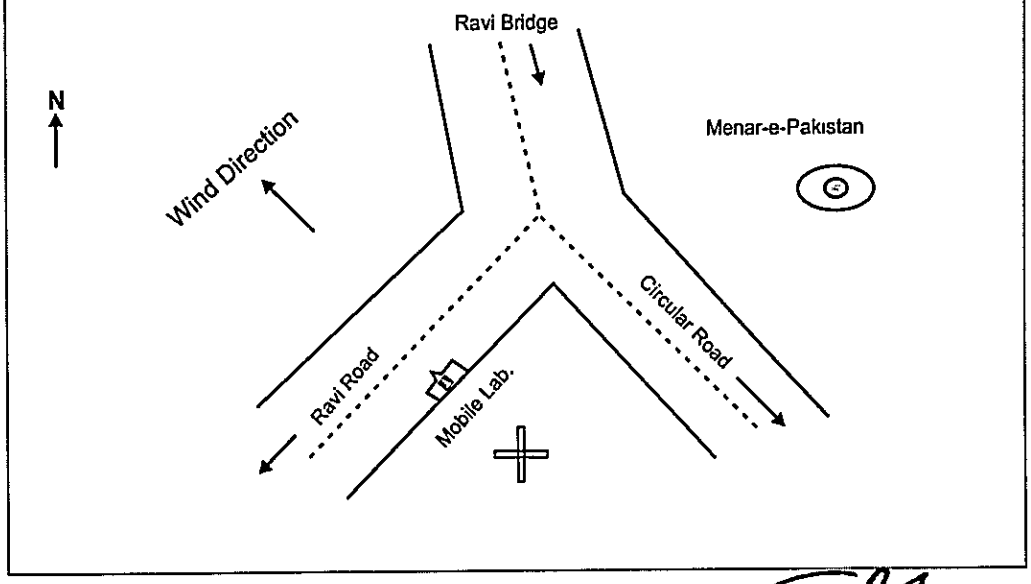


Count Assistant ----------

D.1.2 Azadi Chowk, Lahore (06-04-2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0700-0800	1112	5191	
2	0800-0900	1272	6925	
3	0900-1000	1386	7416	
4	1000-1100	1134	9528	
5	1100-1200	1027	8321	
6	1200-1300	898	6080	
7	1300-1400	931	5770	
8	1400-1500	797	5400	
9	1500-1600	821	5610	
10	1600-1700	939	5233	
11	1700-1800	907	5272	
12	1800-1900	1079	5893	
13	1900-2000	987	5606	
14	2000-2100	737	5903	
15	2100-2200	844	4425	
16	2200-2300	932	4375	
17	2300-2415	1350	4292	
Total Number		17153	101240	
Average		1009	5955.3	

Count Location Figure

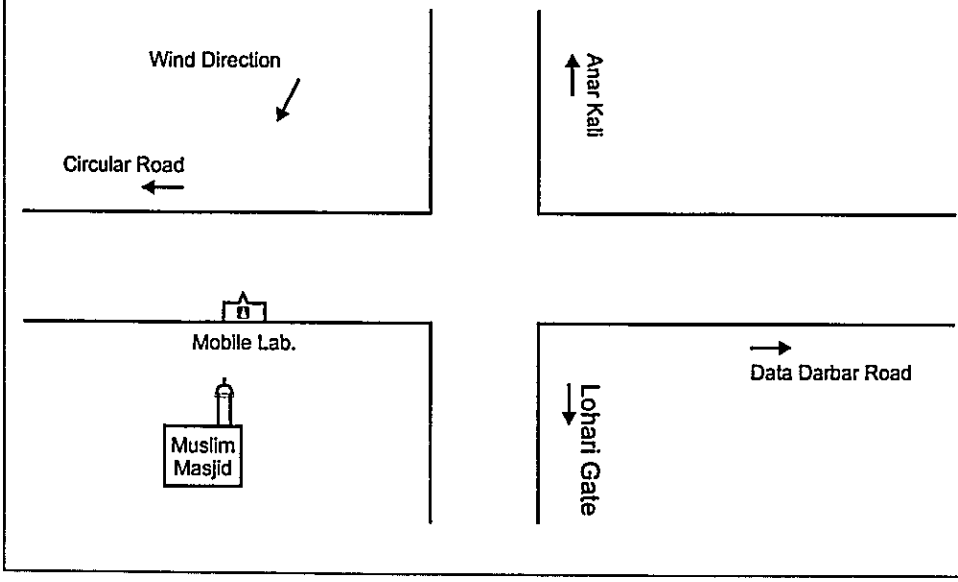


Count Assistant .....

D.1.3 Chowk Lohari Gate, Lahore (07-04-2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0700-0800	404	1873	
2	0800-0900	409	3626	
3	0900-1000	525	5332	
4	1000-1100	446	6665	
5	1100-1200	452	6000	
6	1200-1300	412	6350	
7	1300-1400	336	5030	
8	1400-1500	391	5802	
9	1500-1600	419	4975	
10	1600-1700	461	5252	
11	1700-1800	439	5968	
12	1800-1900	492	6189	
13	1900-2000	470	5950	
14	2000-2100	437	4890	
15	2100-2200	329	3020	
16	2200-2300	280	2382	
17	2300-2415	390	2531	
Total Number		7092	81835	
Average		417.2	4813.8	

Count Location Figure

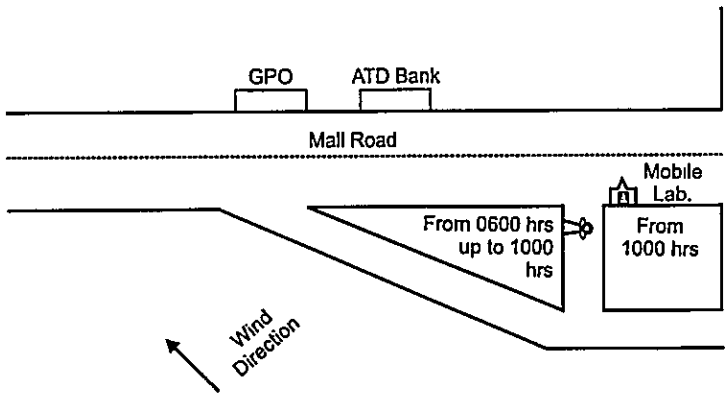


Count Assistant ----------

D.1.4 Bank Square, Lahore (08-04-2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0600-0700	198	1098	
2	0700-0800	337	2902	
3	0800-0900	368	6510	
4	0900-1000	470	6860	
5	1000-1100	559	8868	
6	1100-1200	584	9396	
7	1200-1300	528	10882	
8	1300-1400	448	8560	
9	1400-1500	434	8806	
10	1500-1600	521	6782	
11	1600-1700	425	5611	
12	1700-1800	384	6103	
13	1800-1900	406	5880	
14	1900-2000	318	6008	
15	2000-2100	280	5420	
16	2100-2200	239	5090	
17	2200-2300	203	4188	
18	2300-2415	110	2779	
Total Number		6812	111743	
Average		378.4	6208	

Count Location Figure

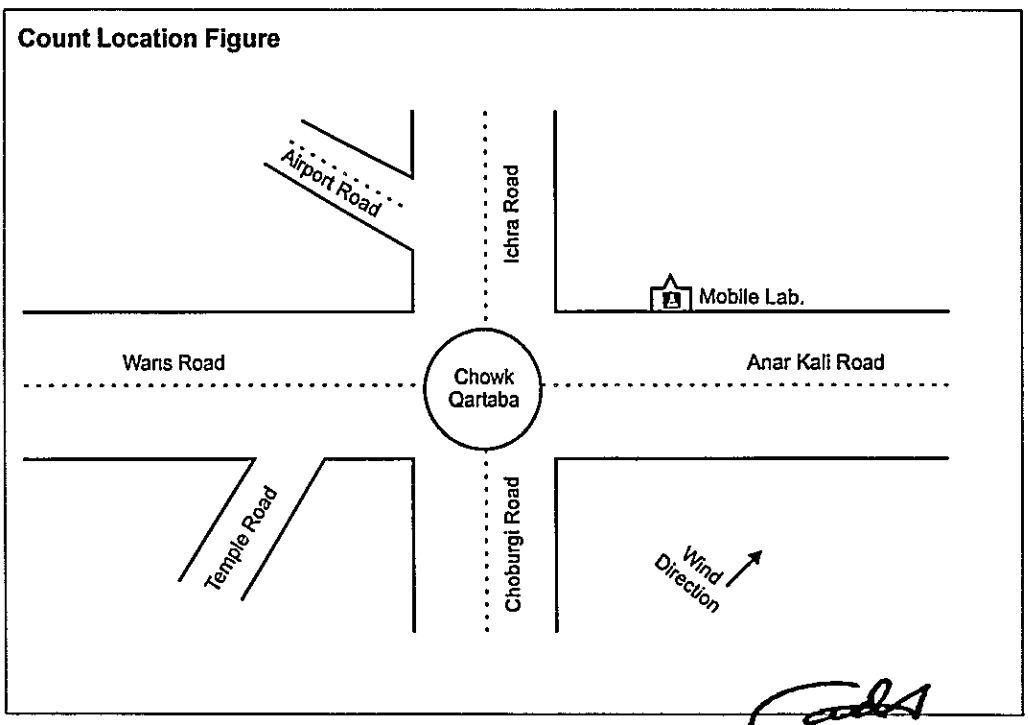


Count Assistant ----------

D.1.5 Qurtaba Chowk Mozang Chonghi, Lahore (10-04-2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0700-0800	1078	8400	
2	0800-0900	2097	15070	
3	0900-1000	1954	16210	
4	1000-1100	1807	15938	
5	1100-1200	1434	13800	
6	1200-1300	1054	17680	
7	1300-1400	1075	15350	
8	1400-1500	1006	15775	
9	1500-1600	839	11637	
10	1600-1700	872	8486	
11	1700-1800	739	8074	
12	1800-1900	736	8507	
13	1900-2000	860	9401	
14	2000-2100	883	9941	
15	2100-2200	587	8398	
16	2200-2300	423	5820	
17	2300-2400	328	3997	
Total Number		17772	192484	
Average		1045.4	11322.6	

Count Location Figure



Count Assistant ----------

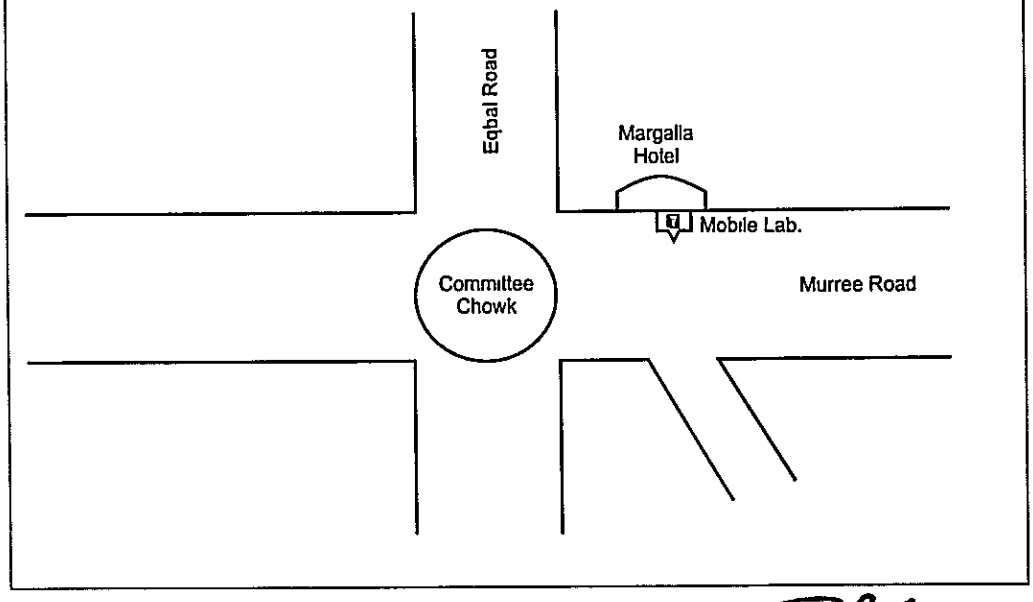
D.2 Rawalpindi and Islamabad

(Please see the following pages.)

D.2.1 Committee Chowk Murree Road Rwp. (08 May, 2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0600-0700	502	1547	
2	0700-0800	665	5723	
3	0800-0900	631	6890	
4	0900-1000	696	7086	
5	1000-1100	757	8264	
6	1100-1200	685	7740	
7	1200-1300	619	7872	
8	1300-1400	554	6863	
9	1400-1500	532	7978	
10	1500-1600	614	5610	
11	1600-1700	569	5832	
12	1700-1800	541	5978	
13	1800-1900	705	7856	
14	1900-2000	648	7480	
15	2000-2100	585	6512	
16	2100-2200	572	5471	
17	2200-2300	393	3125	
18	2300-2400	208	2812	
Total Number		10476	110639	
Average		582	6146.6	

Count Location Figure

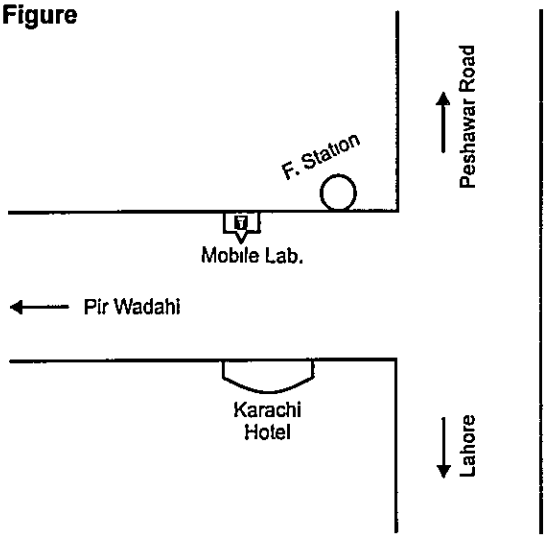


Count Assistant ----------

D.2.2 Pir Wadhai Chowk Rwp (09 May, 2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0700-0800	407	1082	
2	0800-0900	448	1145	
3	0900-1000	482	1205	
4	1000-1100	484	1243	
5	1100-1200	472	1256	
6	1200-1300	463	1323	
7	1300-1400	438	1185	
8	1400-1500	425	1236	
9	1500-1600	403	1412	
10	1600-1700	358	1291	
11	1700-1800	390	1332	
12	1800-1900	379	1303	
13	1900-2000	367	1281	
14	2000-2100	298	1107	
15	2100-2200	300	945	
16	2200-2300	257	792	
17	2300-2400	213	508	
Total Number		6584	19646	
Average		387.3	1155.6	

Count Location Figure

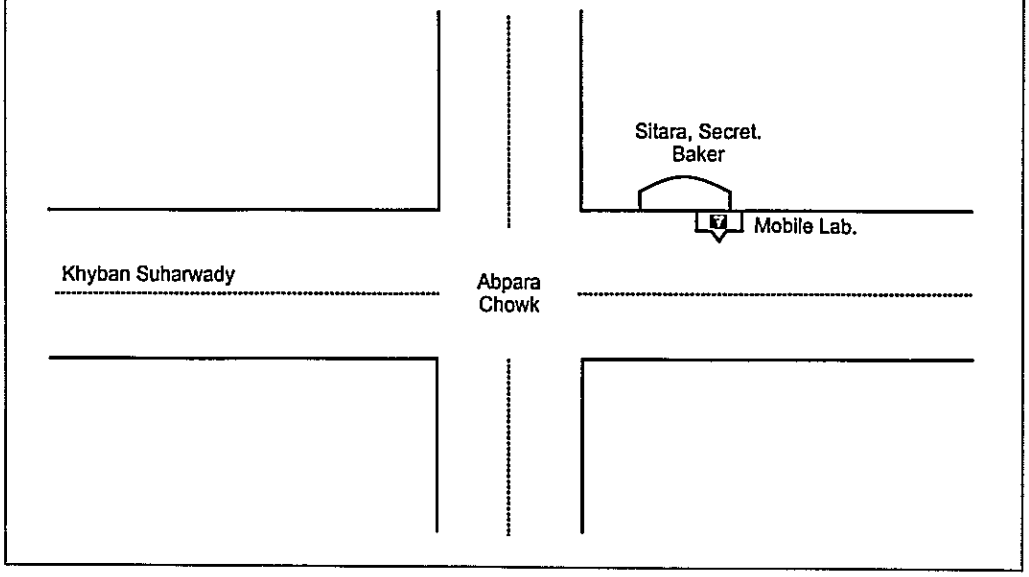


Count Assistant ----------

D.2.3 Abpara Chowk Islamabad (10 May, 2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0600-0700	457	628	
2	0700-0800	634	1834	
3	0800-0900	958	3326	
4	0900-1000	871	3485	
5	1000-1100	925	3688	
6	1100-1200	973	3863	
7	1200-1300	902	3249	
8	1300-1400	934	3200	
9	1400-1500	722	2850	
10	1500-1600	879	2431	
11	1600-1700	812	2508	
12	1700-1800	837	2596	
13	1800-1900	782	2407	
14	1900-2000	808	2630	
15	2000-2100	663	2315	
16	2100-2200	470	1837	
17	2200-2300	248	1213	
18	2300-2400	170	695	
Total Number		13045	44755	
Average		724.7	2486.4	

Count Location Figure

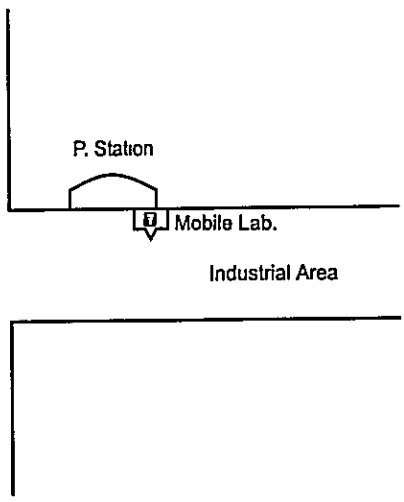


Count Assistant ----------

D.2.4 I-9 Islamabad (Near Police Station) (11-05-2000)

S. No	Time (hours)	Traffic Type		Remarks
		Diesel Vehicle	Total Vehicles	
1	0600-0700	97	146	
2	0700-0800	141	363	
3	0800-0900	204	686	
4	0900-1000	187	642	
5	1000-1100	198	730	
6	1100-1200	226	860	
7	1200-1300	172	643	
8	1300-1400	181	556	
9	1400-1500	166	434	
10	1500-1600	174	491	
11	1600-1700	166	538	
12	1700-1800	159	583	
13	1800-1900	173	601	
14	1900-2000	161	472	
15	2000-2100	139	431	
16	2100-2200	107	305	
17	2200-2300	59	170	
18	2300-2400	31	85	
Total Number		2741	8736	
Average		152.3	485.3	

Count Location Figure



Count Assistant ----------

Appendix E: Spot Test Results of Wastewater Quality Sites

E.1 Lahore

(Please see the following pages.)

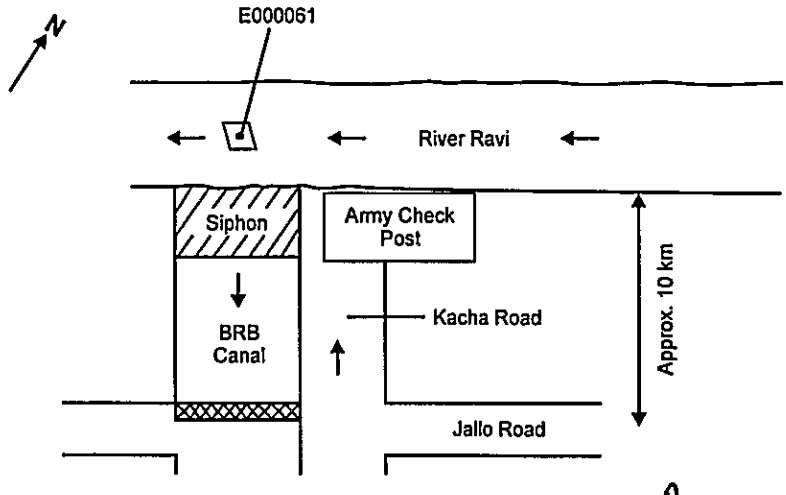
Wastewater Spot Testing Data Form

1	Sample Identification number	E000061
2	Sampling location	River Ravi BRB Siphon (along bank)
3	Date sample taken	04-04-2000
4	Time sample taken	1150 am
5	Sample depth	0.3 m
6	Sample location	Centre of the river
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	04-04-2000
9	Miscellaneous comments	Composite sample is also collected.

Measurement	*Units*	*Value*			
Flow*	m^3/sec	335.5			
Temperature*	°C	26.1			
pH*		8.3			
Dissolved Oxygen*	mg/l	6.4			
Conductivity	Micromohs/cm	227			
Odor	TON	1.1			
Turbidity	NTU	55			
Color	TCU	Transparent			

* *In situ* measurement

Sampling Location Diagram



Field Chemists

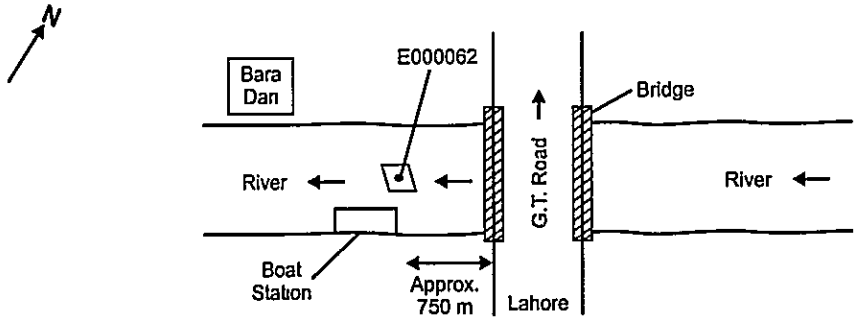
Wastewater Spot Testing Data Form

1	Sample Identification number	E000062
2	Sampling location	River Bara Dari near Boat Station
3	Date sample taken	04-04-2000
4	Time sample taken	0445 pm
5	Sample depth	
6	Sample location	Centre
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	04-04-2000
9	Miscellaneous comments	Sludge samples are taken from the River bed.

Measurement	*Units*	*Value*			
Flow*	m^3/sec	88			
Temperature*	°C	29			
pH*		8.5			
Dissolved Oxygen*	mg/l	4.9			
Conductivity	Micromohs/cm	180			
Odor	TON	10			
Turbidity	NTU	62			
Color	TCU	Transparent			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

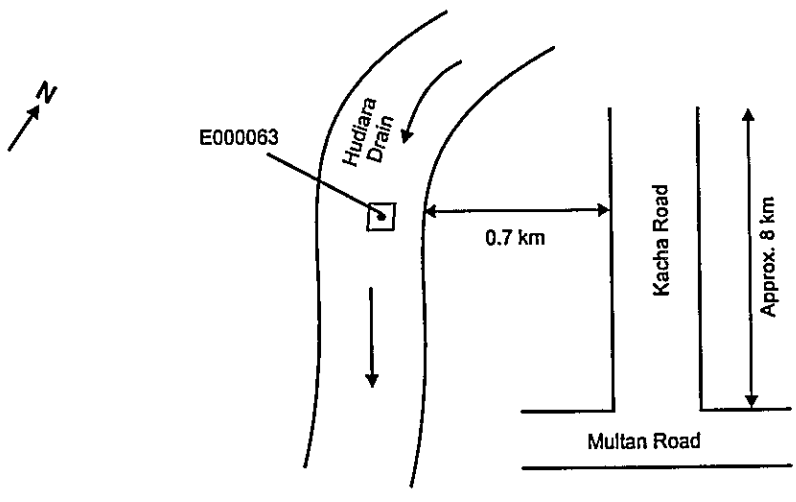
Wastewater Spot Testing Data Form

1	Sample Identification number	E000063
2	Sampling location	Babu Sabu drain outfall Mixing into River Ravi
3	Date sample taken	05-04-2000
4	Time sample taken	1055 am
5	Sample depth	
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	05-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	7.286			
Temperature*	°C	28.7			
pH*		7.3			
Dissolved Oxygen*	mg/l	0.6			
Conductivity	Micromohs/cm	953			
Odor	TON	1.05			
Turbidity	NTU	37			
Color	TCU	ND			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

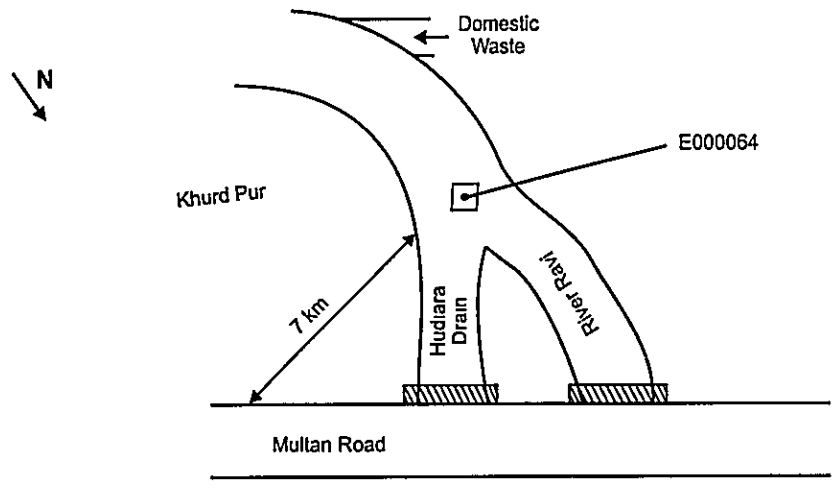
Wastewater Spot Testing Data Form

1	Sample Identification number	E000064
2	Sampling location	Junction of River Ravi and Hudiara drain
3	Date sample taken	05-04-2000
4	Time sample taken	0230 pm
5	Sample depth	0.5 m
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	05-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	78.9			
Temperature*	°C	29.2			
pH*		7.4			
Dissolved Oxygen*	mg/l	0.3			
Conductivity	Micromohs/cm	645			
Odor	TON	10			
Turbidity	NTU	21			
Color	TCU	10			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

Environmental Monitoring & Analysis
Hagler Bailly Pakistan

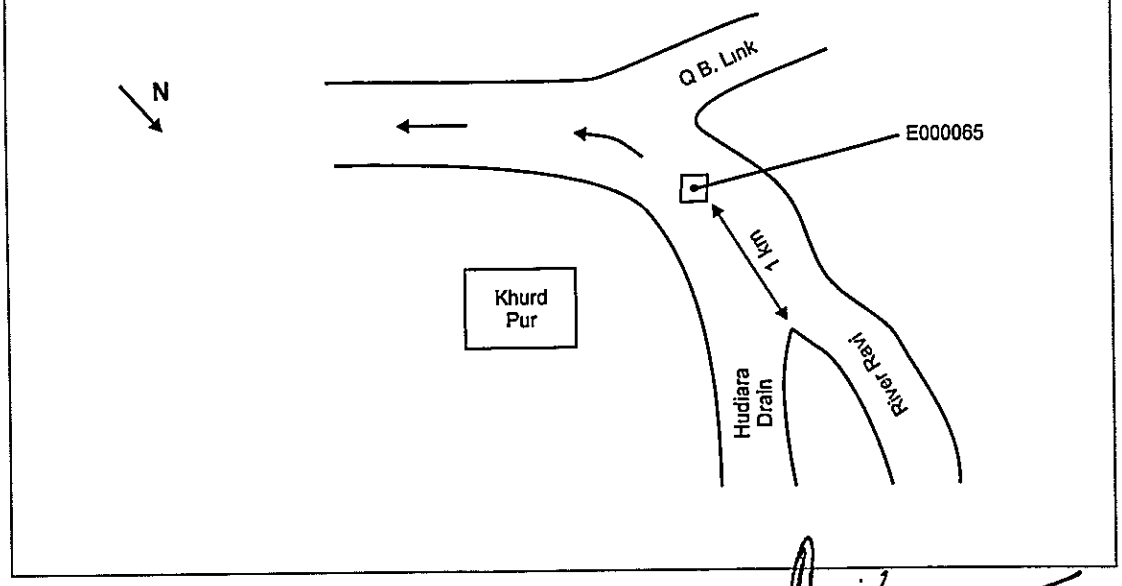
Wastewater Spot Testing Data Form

1	Sample Identification number	E000065
2	Sampling location	River 1 km D/S Hudiara Drain
3	Date sample taken	05-04-2000
4	Time sample taken	0520 pm
5	Sample depth	0.5 m
6	Sample location	Centre
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	05-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	480			
Temperature*	°C	27.7			
pH*		7.7			
Dissolved Oxygen*	mg/l	1.2			
Conductivity	Micromohs/cm	516			
Odor	TON	10			
Turbidity	NTU	46			
Color	TCU	10			

* *In situ* measurement

Sampling Location Diagram



Field Chemists

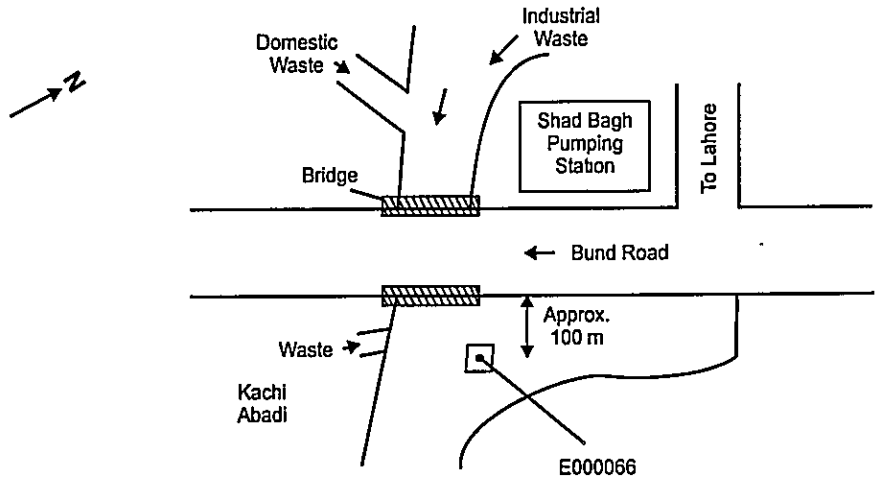
Wastewater Spot Testing Data Form

1	Sample Identification number	E000066
2	Sampling location	New Shadbagh, Bund Road
3	Date sample taken	07-04-2000
4	Time sample taken	1125 am
5	Sample depth	0.2 m
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	07-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	6.8			
Temperature*	°C	27.5			
pH*		7.6			
Dissolved Oxygen*	mg/l	2.0			
Conductivity	Micromohs/cm	998			
Odor	TON	20			
Turbidity	NTU	126			
Color	TCU	20			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

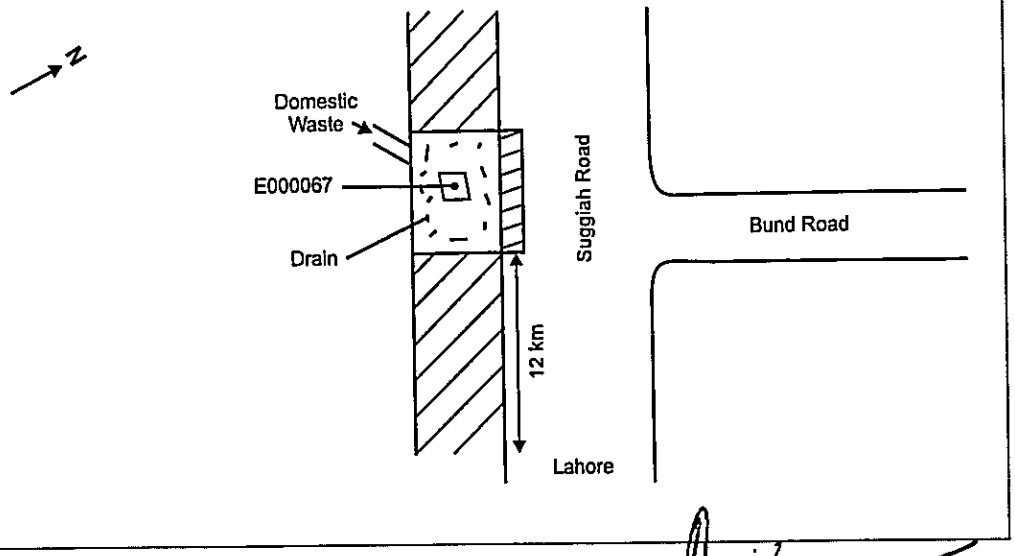
Wastewater Spot Testing Data Form

1	Sample Identification number	E000067
2	Sampling location	Main outfall drain, Bund Road
3	Date sample taken	07-04-2000
4	Time sample taken	0100 pm
5	Sample depth	
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	07-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	2.205			
Temperature*	°C	27			
pH*		7.5			
Dissolved Oxygen*	mg/l	1.8			
Conductivity	Micromohs/cm	1081			
Odor	TON	20			
Turbidity	NTU	105			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists

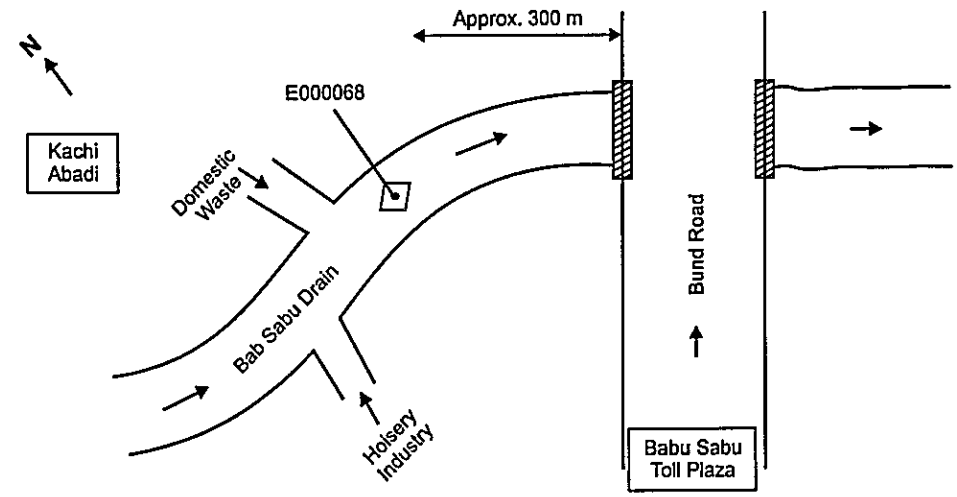
Wastewater Spot Testing Data Form

1	Sample Identification number	E000068
2	Sampling location	Babu Sabu drain, Bund Road
3	Date sample taken	07-04-2000
4	Time sample taken	0330 pm
5	Sample depth	0.4 m
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	07-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	9.042			
Temperature*	°C	28.9			
pH*		7.4			
Dissolved Oxygen*	mg/l	1.1			
Conductivity	Micromohs/cm	1191			
Odor	TON	3.33			
Turbidity	NTU	75			
Color	TCU	50			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

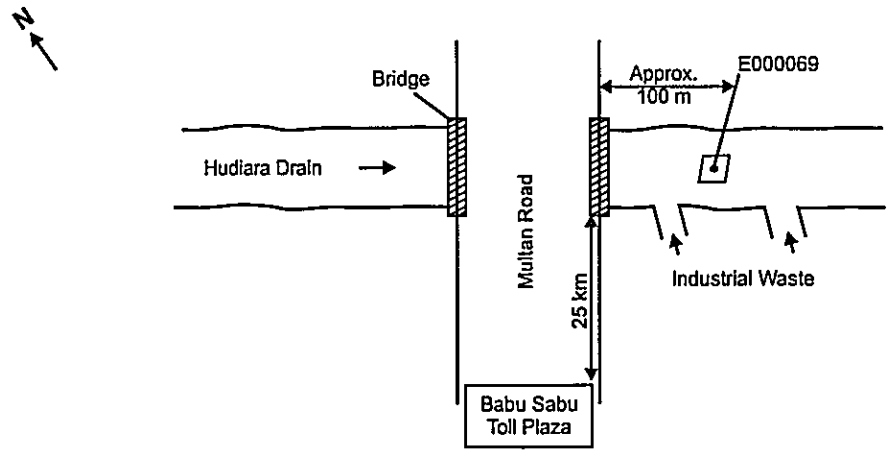
Wastewater Spot Testing Data Form

1	Sample Identification number	E000069
2	Sampling location	Hudiara drain, Multan Road
3	Date sample taken	07-04-2000
4	Time sample taken	0455 pm
5	Sample depth	0.5 m
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	07-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	9.108			
Temperature*	°C	29.4			
pH*		7.7			
Dissolved Oxygen*	mg/l	1.0			
Conductivity	Micromohs/cm	1765			
Odor	TON	20			
Turbidity	NTU	37			
Color	TCU	15			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

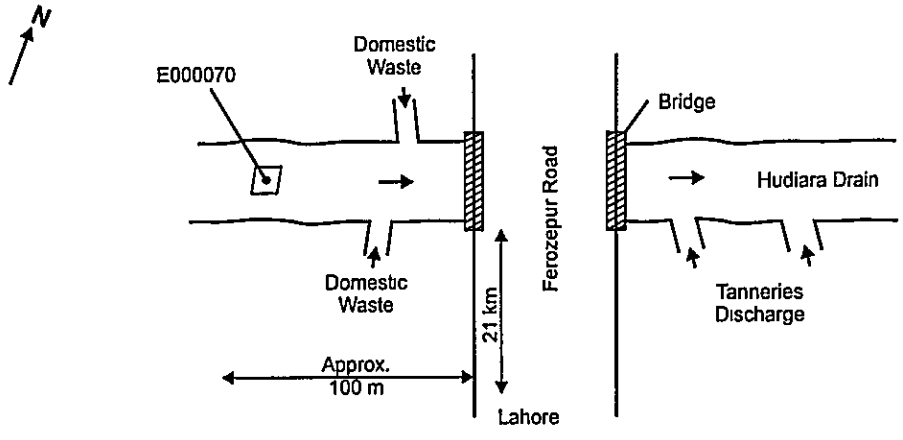
Wastewater Spot Testing Data Form

1	Sample Identification number	E000070
2	Sampling location	Hudiara drain, Ferozpur Road
3	Date sample taken	08-04-2000
4	Time sample taken	1100 am
5	Sample depth	
6	Sample location	2.75 m away from bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	08-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	8.25			
Temperature*	°C	28.3			
pH*		8.0			
Dissolved Oxygen*	mg/l	0.7			
Conductivity	Micromohs/cm	1579			
Odor	TON	50			
Turbidity	NTU	42			
Color	TCU	200			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

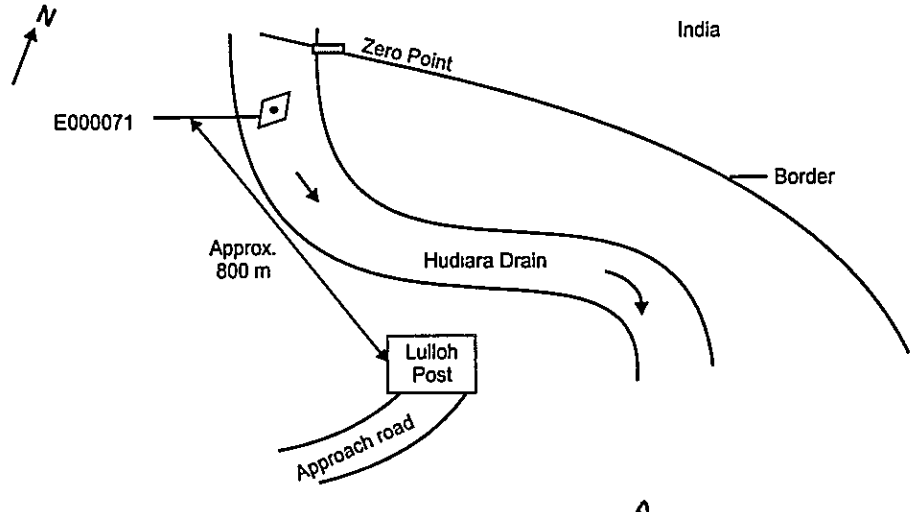
Wastewater Spot Testing Data Form

1	Sample Identification number	E000071
2	Sampling location	Hudiara drain after entering into Pakistan
3	Date sample taken	08-04-2000
4	Time sample taken	0200 pm
5	Sample depth	
6	Sample location	3 m away from bank
7	Name of analyst	Amir Khurshid
8	Date of report	08-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	3.56			
Temperature*	°C	28.6			
pH*		7.8			
Dissolved Oxygen*	mg/l	0.6			
Conductivity	Micromohs/cm	2300			
Odor	TON	10			
Turbidity	NTU	85			
Color	TCU	1000			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

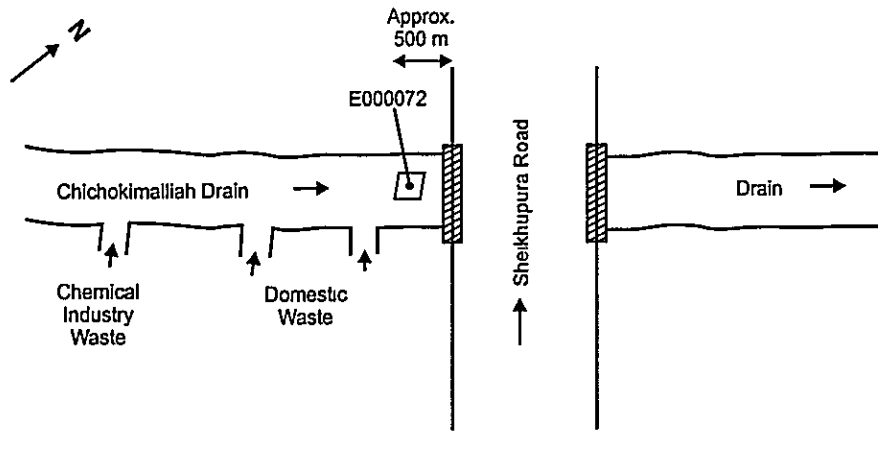
Wastewater Spot Testing Data Form

1	Sample Identification number	E000072
2	Sampling location	Chickokimalliah drain, Sheikhupura Road
3	Date sample taken	09-04-2000
4	Time sample taken	1140 am
5	Sample depth	0.4 m
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	09-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.394			
Temperature*	°C	27.5			
pH*		9.0			
Dissolved Oxygen*	mg/l	0.8			
Conductivity	Micromohs/cm	4660			
Odor	TON	14.28			
Turbidity	NTU	56			
Color	TCU	50			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

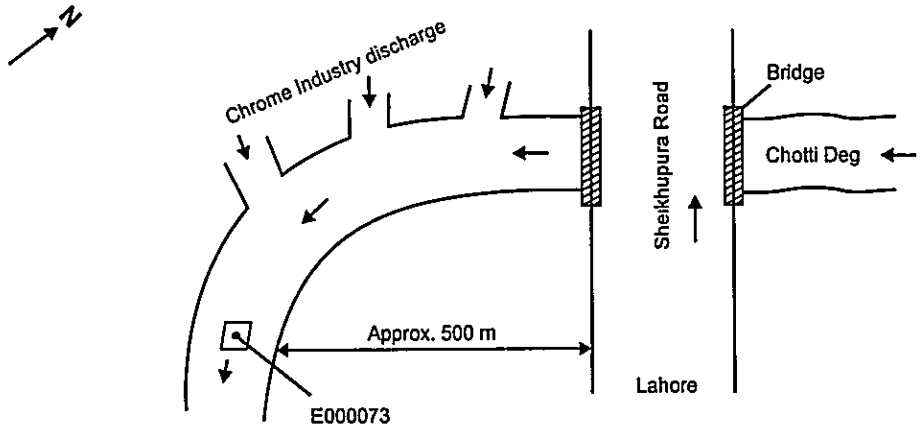
Wastewater Spot Testing Data Form

1	Sample Identification number	E000073
2	Sampling location	Chotti Deg (Nullah), Sheikhupura Road
3	Date sample taken	09-04-2000
4	Time sample taken	1255 pm
5	Sample depth	
6	Sample location	1.5 m away from bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	09-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.890			
Temperature*	°C	27.8			
pH*		8.7			
Dissolved Oxygen*	mg/l	0.6			
Conductivity	Micromohs/cm	3600			
Odor	TON	20			
Turbidity	NTU	126			
Color	TCU	35			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

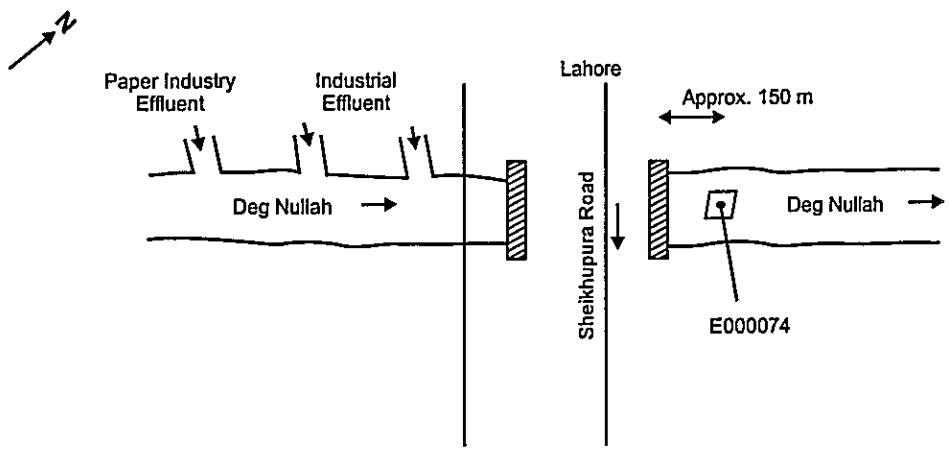
Wastewater Spot Testing Data Form

1	Sample Identification number	E000074
2	Sampling location	Deg Nullah, Sheikhupura Road
3	Date sample taken	09-04-2000
4	Time sample taken	0250 pm
5	Sample depth	
6	Sample location	2 m away from bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	09-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.908			
Temperature*	°C	29.8			
pH*		7.3			
Dissolved Oxygen*	mg/l	0.7			
Conductivity	Micromohs/cm	3070			
Odor	TON	10			
Turbidity	NTU	128			
Color	TCU	1000			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

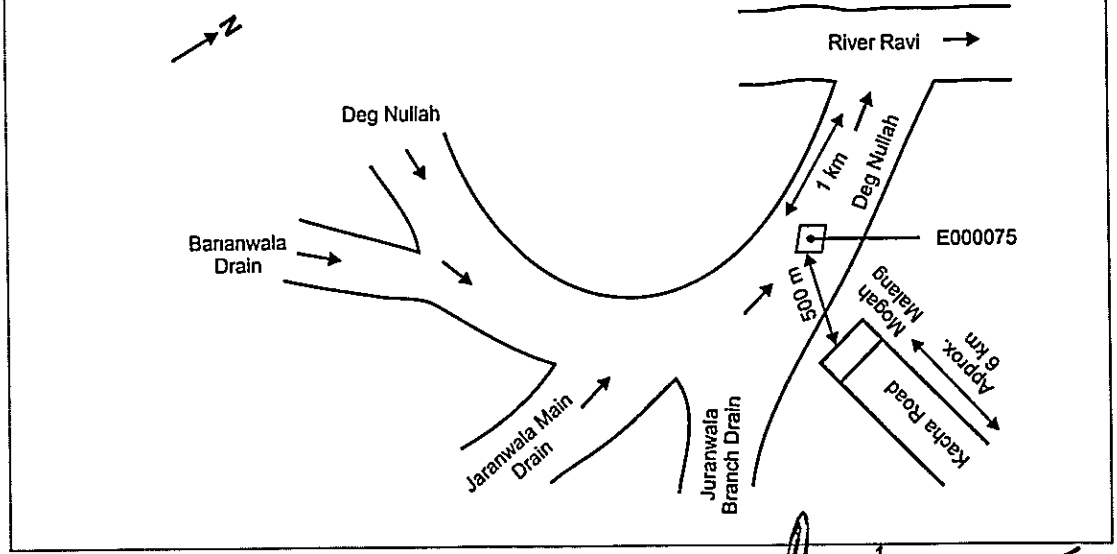
Wastewater Spot Testing Data Form

1	Sample Identification number	E000075
2	Sampling location	Deg. Nullah 1 km U/S off River Ravi
3	Date sample taken	10-04-2000
4	Time sample taken	1250 am
5	Sample depth	
6	Sample location	1.5 m away from bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	10-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.046			
Temperature*	°C	27.9			
pH*		8.0			
Dissolved Oxygen*	mg/l	1.0			
Conductivity	Micromohs/cm	5310			
Odor	TON	1.05			
Turbidity	NTU	98			
Color	TCU	1000			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

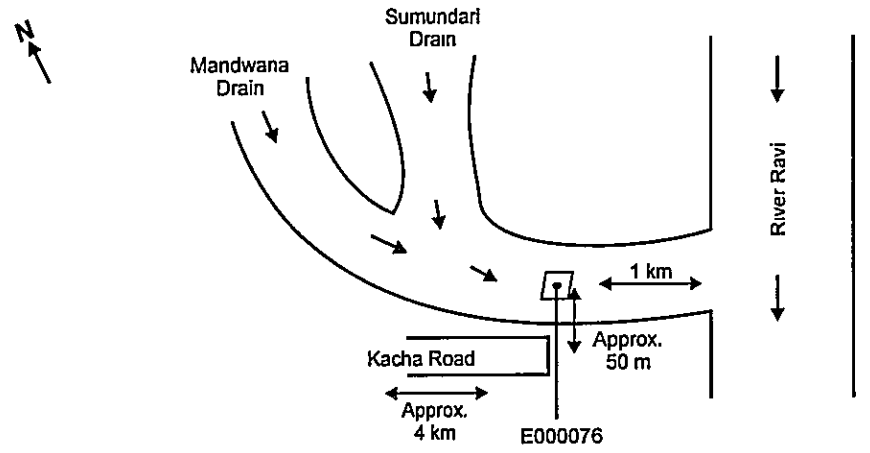
Wastewater Spot Testing Data Form

1	Sample Identification number	E000076
2	Sampling location	Mandwana and Sumandari drain 1 km U/S before mixing into River Ravi
3	Date sample taken	10-04-2000
4	Time sample taken	0505 pm
5	Sample depth	
6	Sample location	1.5 m away from bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	10-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.27			
Temperature*	°C	30.7			
pH*		8.4			
Dissolved Oxygen*	mg/l	0.4			
Conductivity	Micromohs/cm	4220			
Odor	TON	100			
Turbidity	NTU	48			
Color	TCU	ND			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

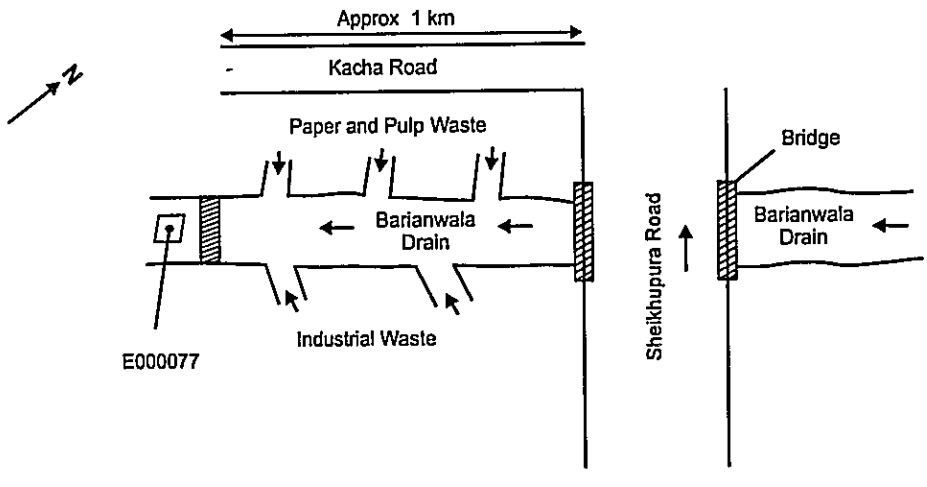
Wastewater Spot Testing Data Form

1	Sample Identification number	E000077
2	Sampling location	Barianwala drain, 1km off Sheikhupura road
3	Date sample taken	11-04-2000
4	Time sample taken	1215 pm
5	Sample depth	0 4 m
6	Sample location	Centre of the drain
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	11-04-2000
9	Miscellaneous comments	Duplicate sample sent to PCSIR. Sludge sample is also taken.

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.78			
Temperature*	°C	32.3			
pH*		7.0			
Dissolved Oxygen*	mg/l	0.7			
Conductivity	Micromohs/cm	2270			
Odor	TON	6.66			
Turbidity	NTU	237			
Color	TCU	50			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

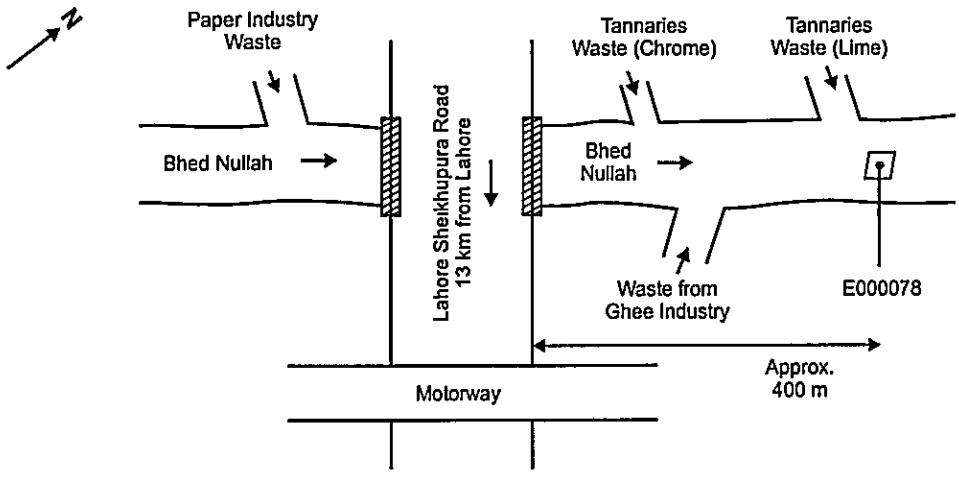
Wastewater Spot Testing Data Form

1	Sample Identification number	E000078
2	Sampling location	Bhed Nullah, Sheikhupura road
3	Date sample taken	11-04-2000
4	Time sample taken	0200 pm
5	Sample depth	0.2 m
6	Sample location	1.5 m away from bank
7	Name of analyst	Amir Khurshid
8	Date of report	11-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.444			
Temperature*	°C	35.5			
pH*		9.3			
Dissolved Oxygen*	mg/l	0.2			
Conductivity	Micromohs/cm	1815			
Odor	TON	50			
Turbidity	NTU	47			
Color	TCU	ND			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

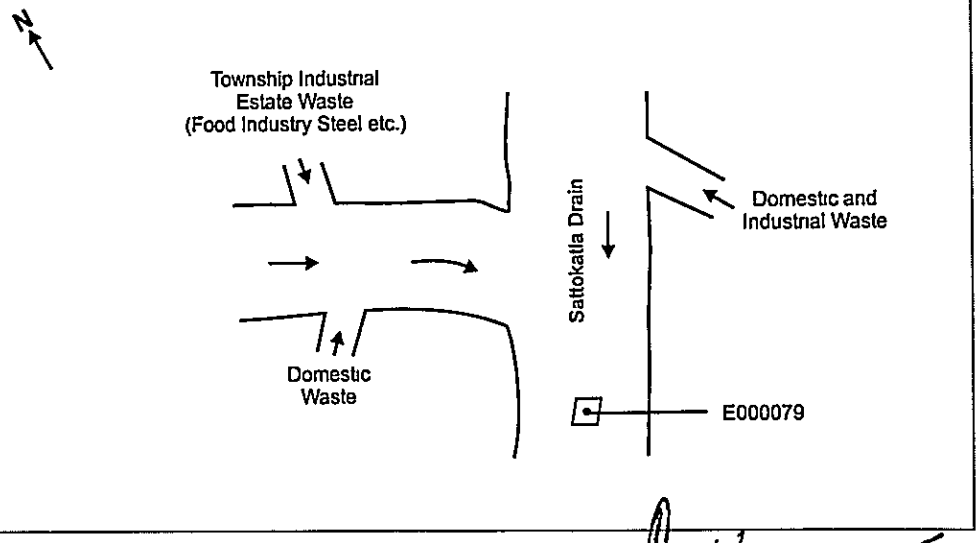
Wastewater Spot Testing Data Form

1	Sample Identification number	E000079
2	Sampling location	Sattokatla drain, Defence road
3	Date sample taken	12-04-2000
4	Time sample taken	0130 pm
5	Sample depth	0.5 m
6	Sample location	3 m away from Bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	12-04-2000
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	6.45			
Temperature*	°C	32.1			
pH*		7.6			
Dissolved Oxygen*	mg/l	0.35			
Conductivity	Micromohs/cm	1369			
Odor	TON	33.33			
Turbidity	NTU	64			
Color	TCU	50			

* *In situ* measurement

Sampling Location Diagram



Field Chemists Amir

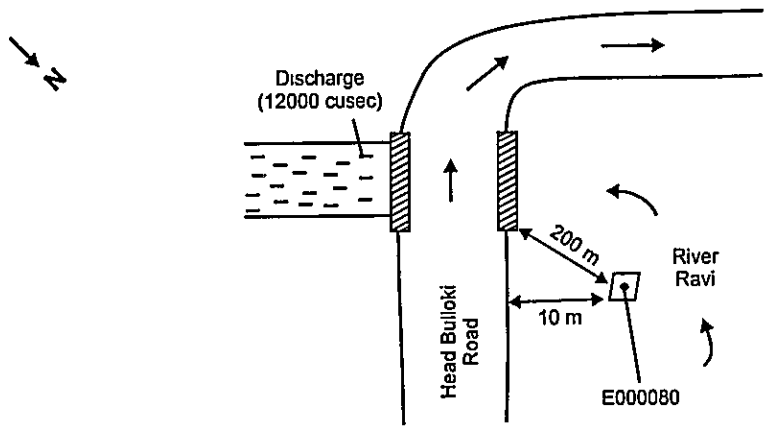
Wastewater Spot Testing Data Form

1	Sample Identification number	E000080
2	Sampling location	Bulloki headworks 200 m/ U/S River Ravi
3	Date sample taken	13-04-2000
4	Time sample taken	0900 pm
5	Sample depth	
6	Sample location	10 m away from bank
7	Name of analyst	Amir Khurshid, Ahmed Zia
8	Date of report	13-04-2000
9	Miscellaneous comments	Duplicate sample sent to PCSIR, composite sample is also collected.

Measurement	*Units*	*Value*			
Flow*	m^3/sec	12,000			
Temperature*	°C	25.1			
pH*		7.5			
Dissolved Oxygen*	mg/l	5.25			
Conductivity	Micromohs/cm	333			
Odor	TON	1.05			
Turbidity	NTU	34			
Color	TCU	25			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

E.2 Rawalpindi/Islamabad

(Please see the following pages.)

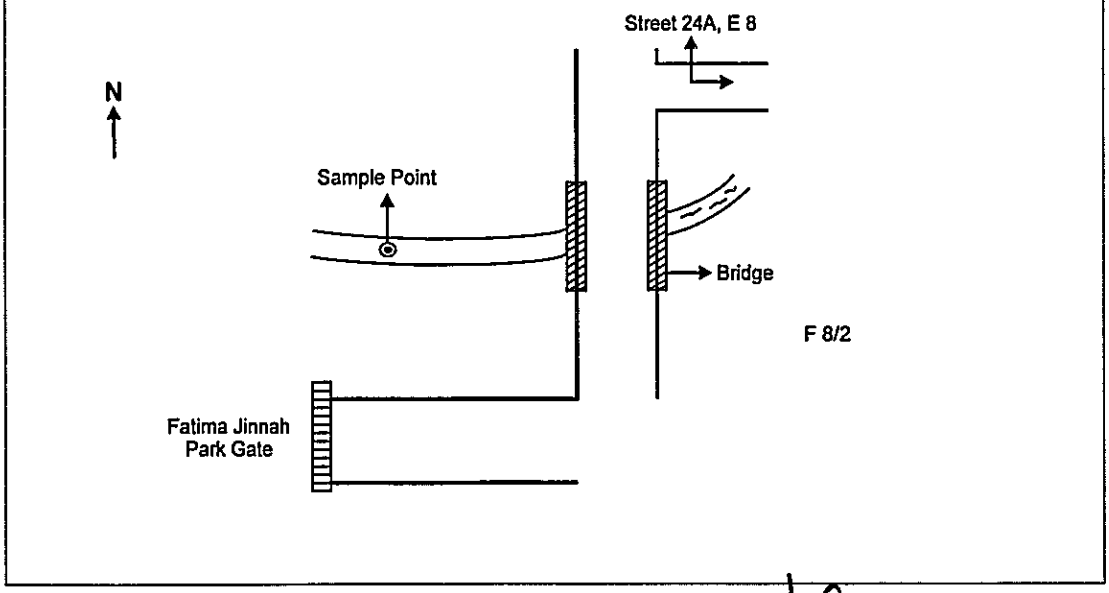
Wastewater Spot Testing Data Form

1	Sample Identification number	E00091
2	Sampling location	F 8/2 before Fatima Jinnah Park Near Street 24A
3	Date sample taken	04-04-2000
4	Time sample taken	1230 pm
5	Sample depth	(9") 1.22 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.113			
Temperature*	°C	25.4			
pH*		7.33			
Dissolved Oxygen*	mg/l	3.81			
Conductivity	Micromohs/cm	560			
Odor	TON	64			
Turbidity	NTU	49			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

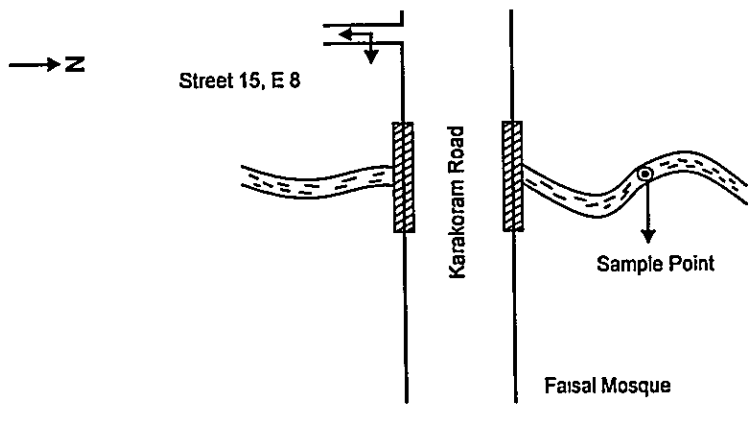
Wastewater Spot Testing Data Form

1	Sample Identification number	E00092
2	Sampling location	E 8 Near Navy House Karakoram Road
3	Date sample taken	04-04-2000
4	Time sample taken	0200 pm
5	Sample depth	(5") 0.125 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.06			
Temperature*	°C	18.2			
pH*		7.42			
Dissolved Oxygen*	mg/l	5.65			
Conductivity	Micromohs/cm	210			
Odor	TON	4			
Turbidity	NTU	13.7			
Color	TCU	0			

* *In situ* measurement

Sampling Location Diagram



Field Chemists _____

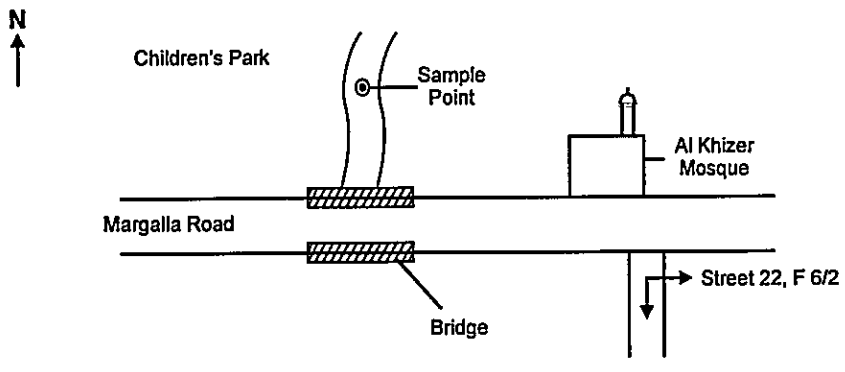
Wastewater Spot Testing Data Form

1	Sample Identification number	E00093
2	Sampling location	F 6/2 Near Al-Khizar Mosque Margalla Road
3	Date sample taken	05-04-2000
4	Time sample taken	1000 am
5	Sample depth	(4.5") 0.112 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.0482			
Temperature*	°C	16			
pH*		7.42			
Dissolved Oxygen*	mg/l	5.8			
Conductivity	Micromohs/cm	200			
Odor	TON	1			
Turbidity	NTU	9.31			
Color	TCU	0			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

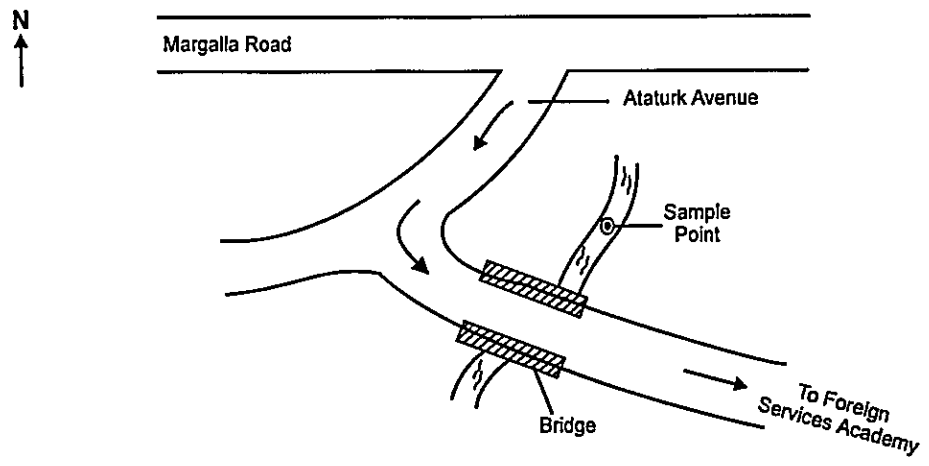
Wastewater Spot Testing Data Form

1	Sample Identification number	E00094
2	Sampling location	F 5/2 Near Azad Jammu Kashmir Secretariat
3	Date sample taken	05-04-2000
4	Time sample taken	1100 am
5	Sample depth	(8") 0.20 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.0736			
Temperature*	°C	18.8°C			
pH*		7.62			
Dissolved Oxygen*	mg/l	4.60			
Conductivity	Micromohs/cm	230			
Odor	TON	4			
Turbidity	NTU	11.4			
Color	TCU	1			

* *In situ* measurement

Sampling Location Diagram



Field Chemists _____

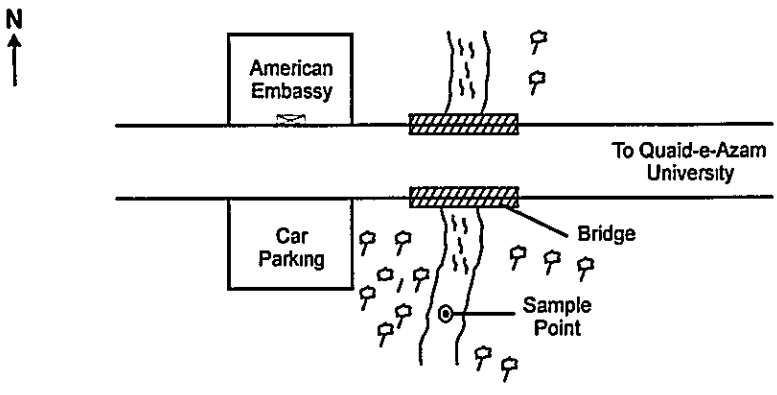
Wastewater Spot Testing Data Form

1	Sample Identification number	E00095
2	Sampling location	Near American Embassy
3	Date sample taken	06-04-2000
4	Time sample taken	1000 am
5	Sample depth	(11") 0.28 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.5366			
Temperature*	°C	17.5			
pH*		7.82			
Dissolved Oxygen*	mg/l	6.52			
Conductivity	Micromohs/cm	590			
Odor	TON	1			
Turbidity	NTU	4.0			
Color	TCU	10			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

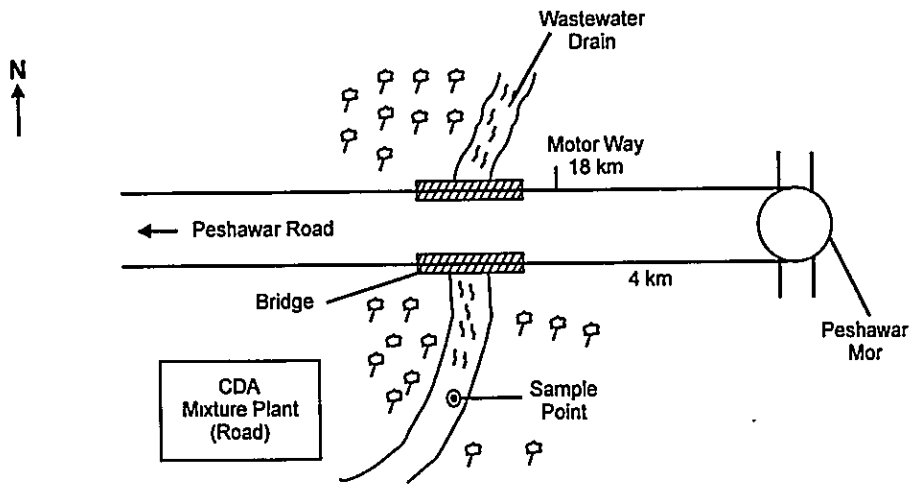
Wastewater Spot Testing Data Form

1	Sample Identification number	E00096
2	Sampling location	Peshawar Road (motorway 18 km)
3	Date sample taken	06-04-2000
4	Time sample taken	1145 am
5	Sample depth	(14") 0 35 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.054			
Temperature*	°C	22.3			
pH*		7.64			
Dissolved Oxygen*	mg/l	2.16			
Conductivity	Micromohs/cm	850			
Odor	TON	16			
Turbidity	NTU	6.4			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

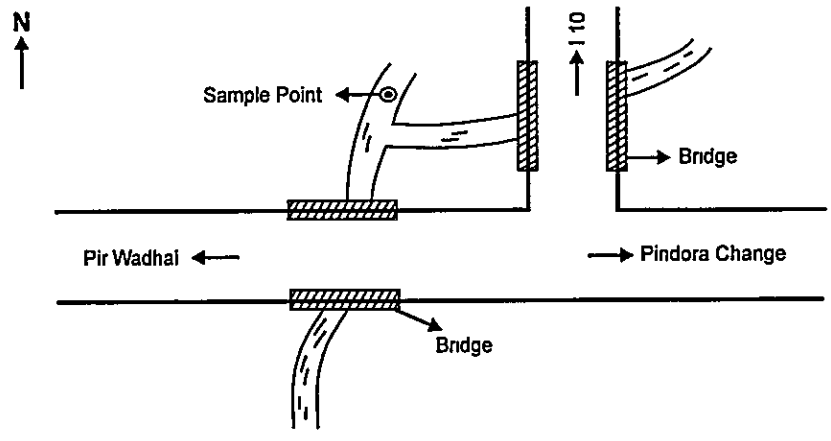
Wastewater Spot Testing Data Form

1	Sample Identification number	E00097
2	Sampling location	I 10 Pir Wadhai Crossing Nullah I
3	Date sample taken	07-04-2000
4	Time sample taken	1100 am
5	Sample depth	(156 cm) 1.56 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	2.08			
Temperature*	°C	20.8			
pH*		7.86			
Dissolved Oxygen*	mg/l	0.5			
Conductivity	Micromohs/cm	930			
Odor	TON	16			
Turbidity	NTU	6.40			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

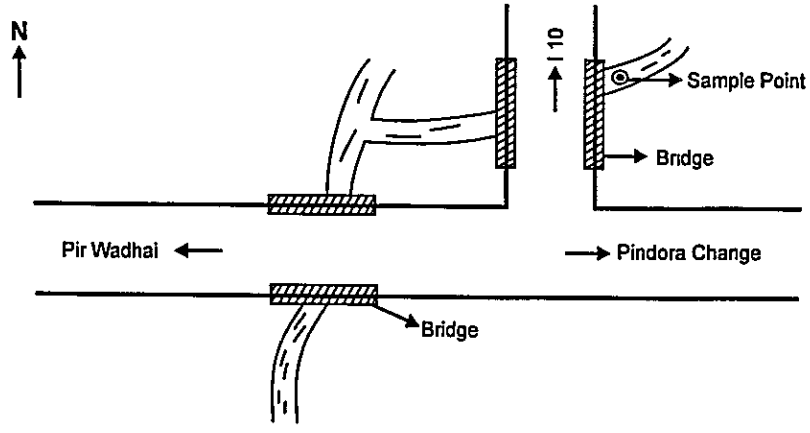
Wastewater Spot Testing Data Form

1	Sample Identification number	E00098
2	Sampling location	I 10 Pir Wadhai crossing Nullah II
3	Date sample taken	07-04-2000
4	Time sample taken	1200 am
5	Sample depth	(186 cm) 1.86 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	7.06			
Temperature*	°C	20.4			
pH*		7.36			
Dissolved Oxygen*	mg/l	0.09			
Conductivity	Micromohs/cm	910			
Odor	TON	16			
Turbidity	NTU	18.50			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

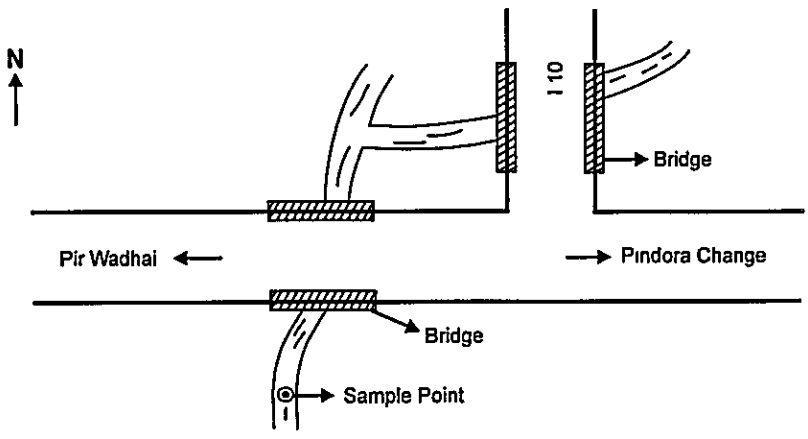
Wastewater Spot Testing Data Form

1	Sample Identification number	E00099
2	Sampling location	I 10 Pir Wadhai crossing 200 m after joining I and II
3	Date sample taken	07-04-2000
4	Time sample taken	0100 pm
5	Sample depth	(97 cm) 0.97 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	2.716			
Temperature*	°C	20.3			
pH*		7.55			
Dissolved Oxygen*	mg/l	0.05			
Conductivity	Micromohs/cm	960			
Odor	TON	16			
Turbidity	NTU	17			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

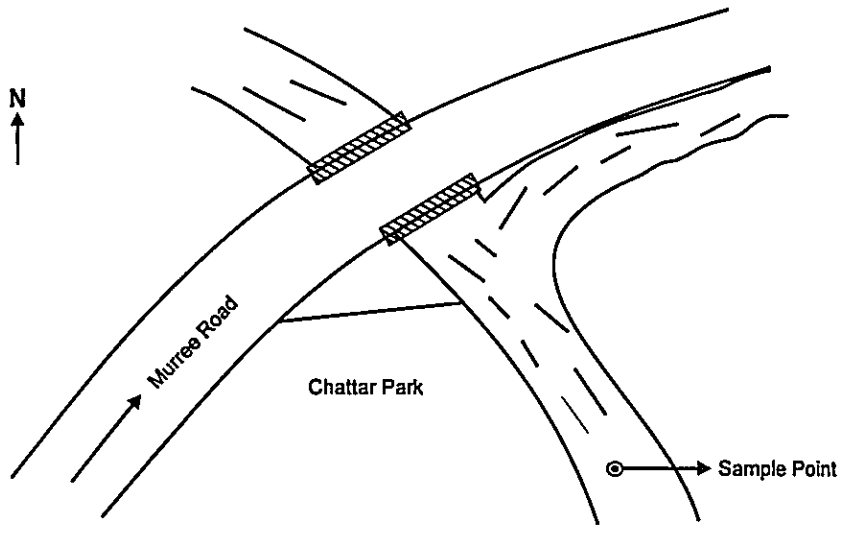
Wastewater Spot Testing Data Form

1	Sample Identification number	E00100
2	Sampling location	Chattar Park
3	Date sample taken	07-04-2000
4	Time sample taken	0300 pm
5	Sample depth	(31 cm) 0.31 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.749			
Temperature*	°C	20.8			
pH*		8.04			
Dissolved Oxygen*	mg/l	6.05			
Conductivity	Micromohs/cm	600			
Odor	TON	1			
Turbidity	NTU	0.5			
Color	TCU	0			

* *In situ* measurement

Sampling Location Diagram



Field Chemists _____

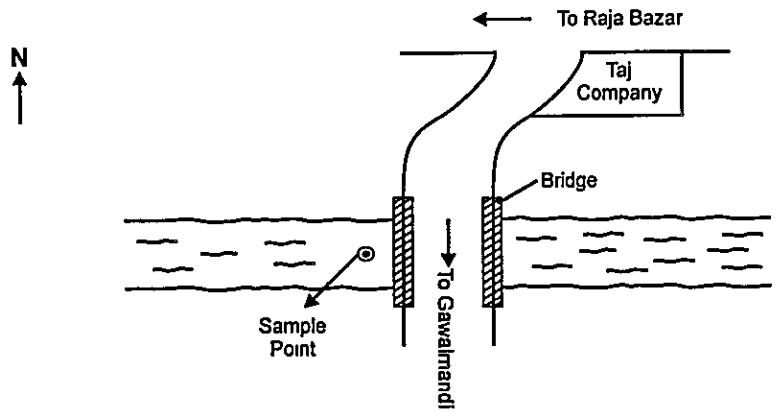
Wastewater Spot Testing Data Form

1	Sample Identification number	E00101
2	Sampling location	Gawalmondi Bridge Near Taj Company
3	Date sample taken	10-04-2000
4	Time sample taken	0130 pm
5	Sample depth	0.86 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	10.79			
Temperature*	°C	23.8			
pH*		7.05			
Dissolved Oxygen*	mg/l	0.28			
Conductivity	Micromohs/cm	1320			
Odor	TON	64			
Turbidity	NTU	41.5			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

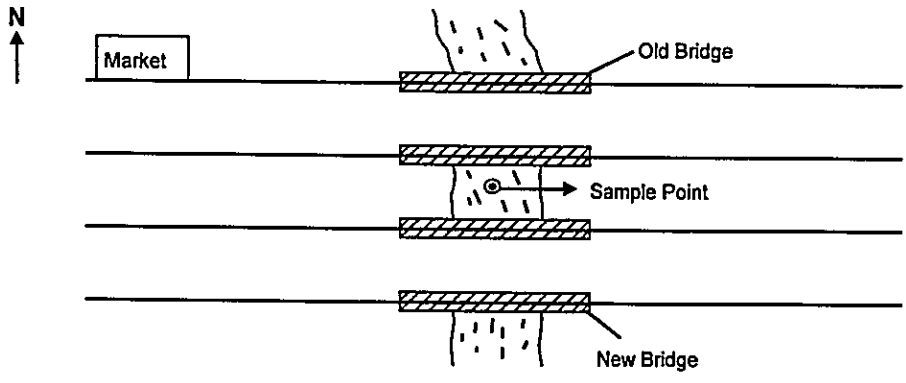
Wastewater Spot Testing Data Form

1	Sample Identification number	E00102
2	Sampling location	Airport Road
3	Date sample taken	10-04-2000
4	Time sample taken	0245 pm
5	Sample depth	0.90 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	7.84			
Temperature*	°C	24.4			
pH*		7.13			
Dissolved Oxygen*	mg/l	0.05			
Conductivity	Micromohs/cm	1340			
Odor	TON	64			
Turbidity	NTU	65.1			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

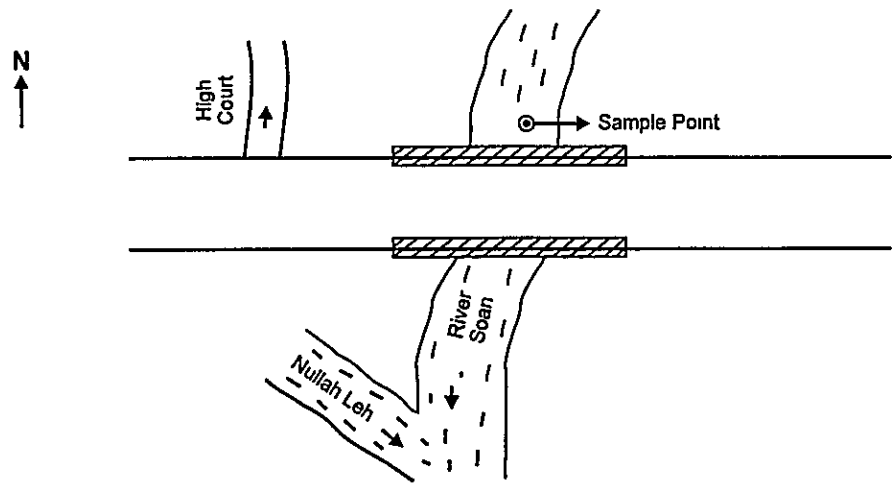
Wastewater Spot Testing Data Form

1	Sample Identification number	E00103
2	Sampling location	River Soan Bridge near High Court Building Rawalpindi
3	Date sample taken	11-04-2000
4	Time sample taken	1245 pm
5	Sample depth	0.54 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	10.08			
Temperature*	°C	26.3			
pH*		8.18			
Dissolved Oxygen*	mg/l	7.58			
Conductivity	Micromohs/cm	770			
Odor	TON	4			
Turbidity	NTU	6.1			
Color	TCU	20			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

Environmental Monitoring & Analysis
Hagler Bailly Pakistan

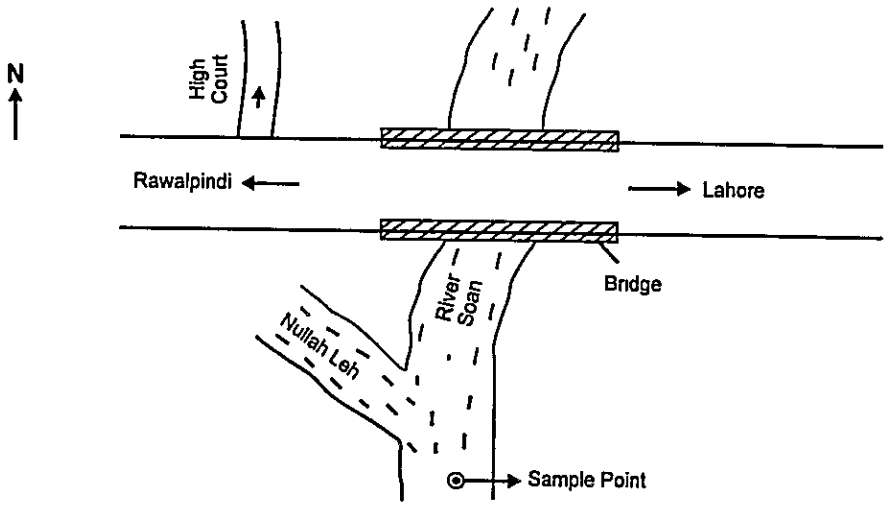
Wastewater Spot Testing Data Form

1	Sample Identification number	E00104
2	Sampling location	300 m from Soan Bridge, Mix of Soan and Nullah Leh Rwp.
3	Date sample taken	11-04-2000
4	Time sample taken	1130 am
5	Sample depth	0.69 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	10.54			
Temperature*	°C	25.4			
pH*		7.64			
Dissolved Oxygen*	mg/l	5.39			
Conductivity	Micromohs/cm	1140			
Odor	TON	16			
Turbidity	NTU	43.5			
Color	TCU	20			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

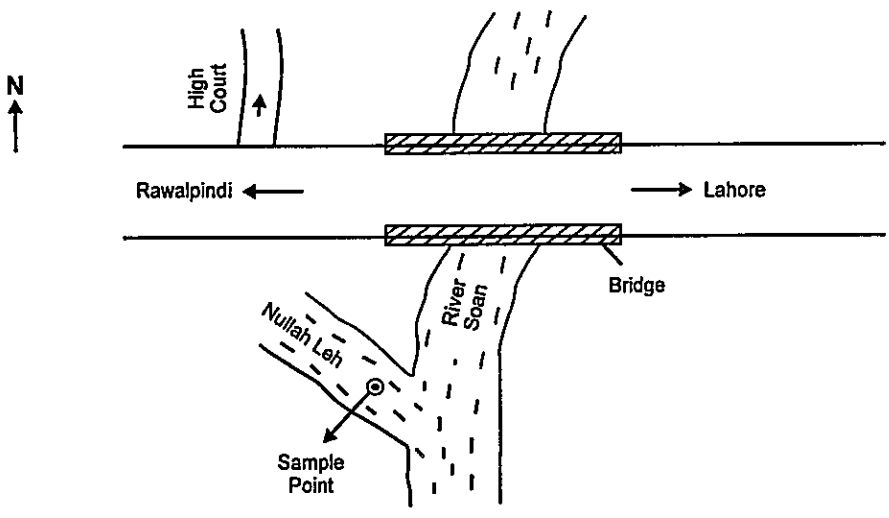
Wastewater Spot Testing Data Form

1	Sample Identification number	E00105
2	Sampling location	300 m from Soan Bridge, Mix of Soan and Nullah Leh Rwp.
3	Date sample taken	11-04-2000
4	Time sample taken	1025 am
5	Sample depth	1.8 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	9.60			
Temperature*	°C	24.2			
pH*		7.64			
Dissolved Oxygen*	mg/l	2.14			
Conductivity	Micromohs/cm	1590			
Odor	TON	64			
Turbidity	NTU	59.3			
Color	TCU	50			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

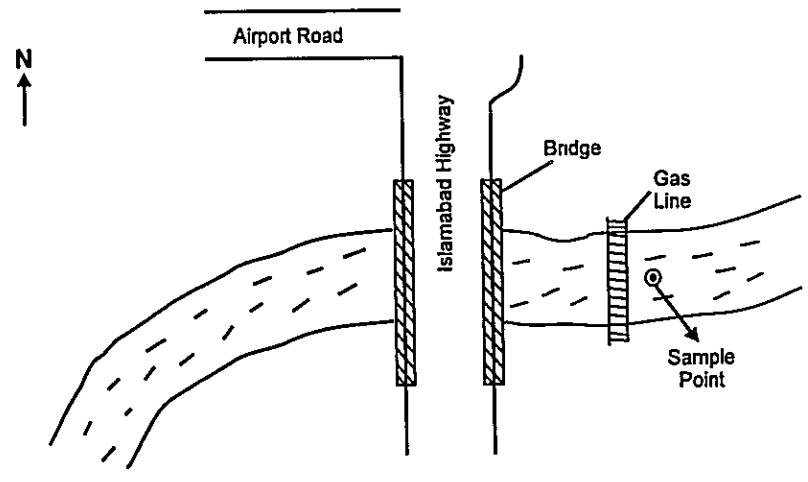
HBP Wastewater Spot Testing Data Form

1	Sample Identification number	E00106
2	Sampling location	Stream water Islamabad High Way near Railway crossing (Nullah Kura)
3	Date sample taken	12-04-2000
4	Time sample taken	1015 am
5	Sample depth	0.65 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.15			
Temperature*	°C	27.6			
pH*		8.06			
Dissolved Oxygen*	mg/l	4.78			
Conductivity	Micromohs/cm	680			
Odor	TON	2.0			
Turbidity	NTU	7.7			
Color	TCU	0			

* *In situ* measurement

Sampling Location Diagram



Field Chemists _____

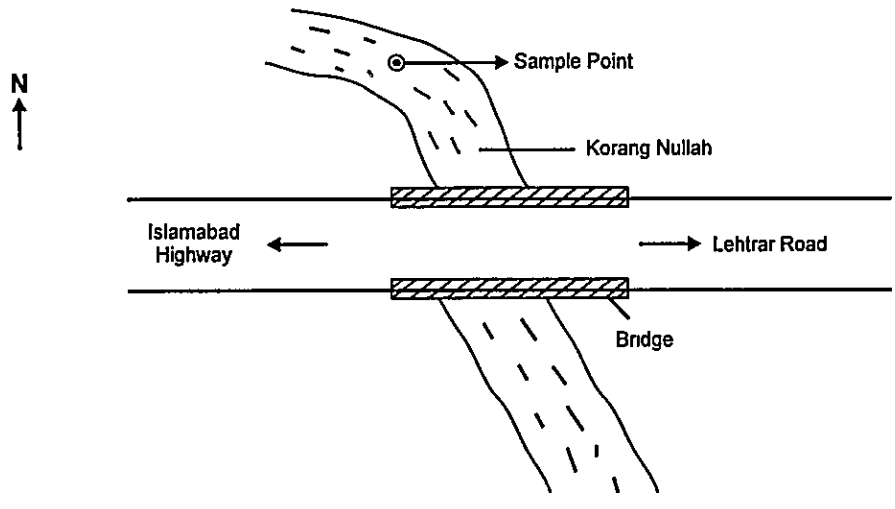
HBP Wastewater Spot Testing Data Form

1	Sample Identification number	E00107
2	Sampling location	Stream water Korang Nullah Lehtrar Road
3	Date sample taken	12-04-2000
4	Time sample taken	0100 pm
5	Sample depth	0.34 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.94			
Temperature*	°C	26.9			
pH*		7.56			
Dissolved Oxygen*	mg/l	2.44			
Conductivity	Micromohs/cm	58			
Odor	TON	4			
Turbidity	NTU	22.6			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

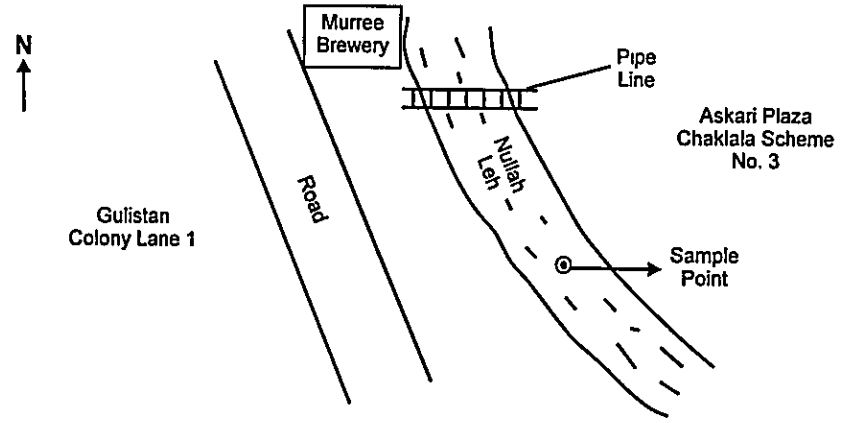
Wastewater Spot Testing Data Form

1	Sample Identification number	E00108
2	Sampling location	Nullah Leh at Gulistan Colony Line 1 after entering of Murree Brewery waste
3	Date sample taken	13-04-2000
4	Time sample taken	1045 am
5	Sample depth	0.69 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	8.625			
Temperature*	°C	30.0			
pH*		7.26			
Dissolved Oxygen*	mg/l	1.87			
Conductivity	Micromohs/cm	1260			
Odor	TON	64			
Turbidity	NTU	64.5			
Color	TCU	70			

* *In situ* measurement

Sampling Location Diagram



Field Chemists _____

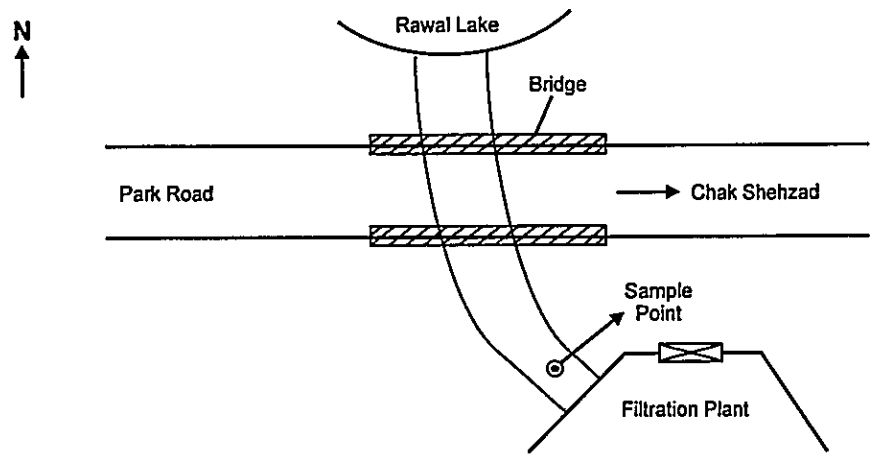
Wastewater Spot Testing Data Form

1	Sample Identification number	E00109
2	Sampling location	Rawal Dam Outlet before entering Filteration Plant
3	Date sample taken	13-04-2000
4	Time sample taken	1200 pm
5	Sample depth	0.90 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	1.215			
Temperature*	°C	19.8			
pH*		7.83			
Dissolved Oxygen*	mg/l	6.01			
Conductivity	Micromohs/cm	410			
Odor	TON	1			
Turbidity	NTU	2.60			
Color	TCU	10			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

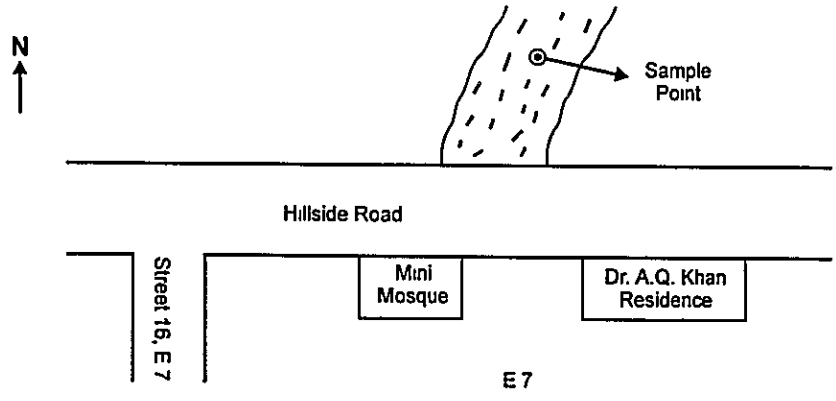
Wastewater Spot Testing Data Form

1	Sample Identification number	E00110
2	Sampling location	Rawal Dam Outlet before entering Filteration Plant
3	Date sample taken	13-04-2000
4	Time sample taken	1400 pm
5	Sample depth	0.12 m
6	Sample location	
7	Name of analyst	Ghulam Sarwar and Amir Jamal
8	Date of report	
9	Miscellaneous comments	

Measurement	*Units*	*Value*			
Flow*	m^3/sec	0.036			
Temperature*	°C	20.5			
pH*		7.72			
Dissolved Oxygen*	mg/l	0.66			
Conductivity	Micromohs/cm	760			
Odor	TON	16			
Turbidity	NTU	9.9			
Color	TCU	10			

* *In situ* measurement

Sampling Location Diagram



Field Chemists ----------

Appendix F: Laboratory Test Results of Wastewater Monitoring Sites

(Please see the following pages.)

F.1 Laboratory Test Results of Wastewater Quality in Lahore

TOR NO	Logical No.	Date of Sampling	Time Hrs	Sample ID No	Sampling Location	Flow Rate (m^3/sec)	Temp (°C)	pH	DO (mg/l)	Cond (µS/cm)	Odor (TON)	Turb. (NTU)	Color (TCU)	BOD_5 (mg/l)	COD (mg/l)	TSS (mg/l)	O&G (mg/l)	T-N (mg/l)	E-Coli (MPN/100ml)	As (ppb)	Cu (ppm)	Cr (ppm)	Cd (ppm)	Pb (ppm)	Zn (ppm)
					National Environmental Quality Standards		40 0	6.0 to 9.0						80.0	150.0	200.0	10.0			1,000 0	1.0	1.0	0 1	0.5	5.0
SS1	1	04 04.00	1150	E061	River Ravi BRB Siphon (Composite)	336.0	26 1	8.3	6.4	227.0	1.1	55.0	1.0	9 2	16.9	124.0	ND	1.1	<1 0						
SS6	2	07.04.00	1125	E066	New Shadbagh Sewage Drain, Bund Road	6.8	27.5	7.6	2.0	998.0	20.0	126.0	20.0	110.0	162 3	855 0	ND	38 1	>180.0						
SS2	3	04.04.00	1645	E062	River Ravi Bara Dari Near Boat Station	88 0	29.0	8.5	4.9	180.0	10.0	62.0	1.0	12.1	26.6	162 0	ND	2 8	>180.0						
SS8	4	07 04.00	1530	E068	Babu Sabu Drain, Bund Road	9.0	28.9	7.4	1 1	1,191.0	3.3	75 0	50.0	110.0	179.8	249.0	ND	38.6	>180.0						
SS3	5	05.04.00	1055	E063	Babu Sabu Outfall (Before Joining River Ravi)	7.3	28.7	7.3	0.6	953.0	1.1	37.0	ND	102.0	111.8	110.0	ND	4.5	>180.0						
SS7	6	07.04 00	1300	E067	Main Outfall Drain, Bund Road	2 2	27.0	7.5	1.8	1,081.0	20.0	105.0	70 0	109.0	214 4	342.0	ND	29 7	>180.0						
SS11	7	09.04 00	1450	E074	Deg Nullah, Sheikhupura Road	1.9	29.8	7.3	0.7	3,070.0	10.0	128.0	1,000.0	159.0	831.1	348.0	ND	ND	>180 0	13.0	< 0 5	< 0.5	< 0.1	< 0.2	< 0.2
SS12	8	09.04.00	1255	E073	Choti Deg Nullah, Sheikhupura Road	0.9	27.8	8.7	0.6	3,600 0	20.0	126.0	35.0	109 0	196.8	278.0	ND	2 8	>180.0	11 0	< 0.5	25 0	< 0 1	< 0 2	< 0.2
SS10	9	11.04.00	1400	E078	Bhed Nallah Shiekhupura Road	0.5	35.5	9 3	0.2	1,815.0	50.0	47.0	ND	140.0	582.4	405.0	ND	2.8	>180.0	25.0	0.8	< 0 5	< 0.1	< 0 2	0.9
SS20	10	08 04 00	1400	E071	Hudiara Drain, From India	3 6	28.6	7.8	0.6	2,300.0	10 0	85.0	1,000.0	449 0	862.0	537.0	ND	3.6	>180.0						
SS16	11	08 04 00	1100	E070	Hudiara Drain, Ferozpur Road	8.3	28 3	8.0	0.7	1,579.0	50 0	42.0	200.0	163.0	215 0	5,982.0	ND	4.0	>180 0	10.0	< 0 5	< 0.5	< 0 1	< 0.2	< 0.2
SS15	12	12 04 00	1330	E079	Satokatla Drain -Defence Road	6.5	32.1	7.6	0.4	1,359.0	33.3	64 0	50.0	103.0	252 7	170.0	ND	18 5	>180.0						
SS9	13	07.04.00	1655	E069	Hudiara Drain, Multan Road	9.1	29.4	7.7	1.0	1,765.0	20.0	37.0	15.0	117.0	387.8	126 0	ND	8 4	>180 0	25.0	< 0.5	< 0 5	< 0 1	< 0.2	< 0 2
SS17	14	05 04 00	1430	E064	River Ravi at Junction of Hudiara Drain	78.9	29.2	7.4	0.3	645.0	10.0	21.0	10.0	63 0	165 6	133.0	ND	8.4	>180.0						
SS4	15	05 04.00	1720	E065	River 1 KM D/S of Hudiara Drain	480.0	27.7	7.7	1.2	516.0	10.0	46 0	10.0	7.1	36.4	134 0	ND	12 3	>180.0	< 10.0	< 0.5	< 0.5	< 0.1	< 0 2	< 0 2
SS5	16	13 04.00	900	E080	Baloki Headworks (Composite)	340 0	25.1	7.5	5.3	333.0	1.0	34.0	25.0	7.1	33.4	80.0	ND	ND	>180 0						
SS13	17	09.04.00	1140	E072	Chichokimalian Drain, Sheikhupura Road	0.4	27.5	9.0	0.8	4,650.0	14.5	56.0	50.0	73.0	77.6	1,562.0	ND	65.0	>180.0	28.0	< 0.5	< 0 5	< 0.1	< 0 2	< 0 2
SS14	18	11.04.00	1215	E077	Barian Drain 1km off Sheikhupura road	1.8	32.3	7.0	0.7	2,270.0	6 7	237 0	50.0	142 0	2,383.0	736.0	53.3	3.9	>180 0	14 0	2.0	< 0.5	< 0 1	0 2	0 3
SS18	19	10.04 00	1250	E075	Deg Nullah II, before river after Baloki HW	1.0	27.9	8 0	1.0	5,310.0	1.1	98.0	1,000.0	105 0	1,046.0	495.0	ND	5 0	161.0						
SS19	20	10.04.00	1705	E076	Mundwana, Samundri Drain before Ravi	1.3	30.7	8.4	0.4	4,220.0	100 0	48.0	ND	161.0	180.1	152.0	ND	6.7	>180 0						
	Duplicate Analysis By															PCSIR							NUST		
SS5	16	13.04.00		E080	River Ravi 200M U/S, Baloki Headworks									6.2	15.1	20	0 6	0.1	1 0						
SS14	18	11.04 00		E077	Barian Drain 1km off Sheikhupura road									965.0	2,826.0	1,092.0	2 7	0.3	1.0	<0.5 ppm	< 0 5	< 0.5	< 0 5	< 0.5	< 1.0

F.2 Laboratory Test Results of Wastewater Quality Sites in Rawalpindi and Islamabad

TOR NO	Logical No	Date of Sampling	Time Hrs	Sample ID No.	Sampling Location	Flow Rate (m^3/sec)	Temp (°C)	pH	DO (mg/l)	Cond (µS/cm)	Odor (TON)	Turb (NTU)	Color (TCU)	BOD_5 (mg/l)	COD (mg/l)	TSS (mg/l)	O&G (mg/l)	T-N (mg/l)	E-Coli (MPN/100ml)	As (ppb)	Cu (ppm)	Cr (ppm)	Cd (ppm)	Pb (ppm	Zn (ppm)
					National Environmental Quality Standards		40 0	6 0 to 9.0						80.0	150.0	200.0	10.0			1,000.0	1.0	1.0	0.1	0 5	5 0
SS2	1	04.04.00	1400	E092	E-8 Near Navy House Karakuram Road	0.5	18 2	7.4	5.7	210 0	4 0	13.7	0 0	6.8	25 6	4,041.0	BDL	BDL	18+						
SS18	2	13.04.00	400	E110	E-7 Hill Side Road opp St :16	0.0	20 5	7.7	0.7	760.0	16.0	9.9	10.0	58 0	89.3	50.0	BDL	18 5	18+						
SS1	3	04 04.00	1230	E091	F-8/2 Before Fatima Jinnah Park,	0.1	25 4	7.3	3.8	560 0	64.0	49.0	70.0	60 1	101.3	16,154.0	BDL	12.3	18+						
SS3	4	05.04.00	1000	E093	F-6/2 Near Alkhizar Mosque Margalla Road	0.1	16 0	7.4	5.8	200.0	1 0	9.3	0 0	17.0	18.4	107.0	BDL	BDL	0.0						
SS4	5	05 04.00	1100	E094	F-5/2 Near Azad Jamun Kashmir Secretariat	0.1	18 8	7.6	4.6	230 0	4.0	11.4	1.0	12 2	20.9	42.0	BDL	BDL	18+						
SS5	6	06.04.00	1000	E095	Near American Embassy	0.5	17.5	7 8	6 5	590 0	1.0	4.0	10.0	16.3	19 3	47.0	BDL	BDL	18+						
SS6	7	06 04.00	1145	E096	Peshawar Road	0.1	22.3	7.6	2.2	850.0	16 0	6.4	70 0	31.3	58.2	146.0	BDL	1.7	18+						
SS7	8	07.04.00	1100	E097	I-10 Pirwadhai crossing, Nullah 1	2.1	20 8	7.9	0.5	930 0	16 0	6.4	70.0	57.6	83 7	358.0	BDL	10.1	18+	< 10.0	< 0.5	< 0.5	< 0 1	< 0.2	< 0.2
SS8	9	07 04.00	1200	E098	I-10 Pirwadhai crossing, Nullah 2	7.1	20 4	7 4	0.8	910 0	16 0	18 5	70 0	59 5	114.3	89.0	BDL	3.4	18+	< 10.0	< 0.5	< 0.5	< 0.1	< 0.2	< 0 2
SS9	10	07.04 00	1300	E099	I-10 Pirwadhai crossing, 200M after Joining	2.7	20.3	7.6	0 1	960 0	16.0	17.0	70.0	34.2	81.0	210.0	BDL	5.1	18+	< 10.0	< 0.5	< 0.5	< 0 1	< 0.2	< 0.2
SS11	11	10.04.00	1330	E101	Nallah Leh Near Guwalmondi Bridge	10.8	23 8	7.1	0.3	1,320.0	64.0	41.5	70 0	139 1	357.5	284.0	BDL	6.7	18+	< 10.0	< 0.5	< 0.5	< 0.1	< 0 2	0.3
SS12	12	10 04.00	1445	E102	Jahanda Chichi, Air Port Road	7.8	24.4	7.1	0 1	1,340 0	64.0	65 1	70.0	139.3	215 4	272.0	BDL	5 6	18+						
SS20	13	13.04.00	1045	E108	Nallah Leh at Gulistan Colony line-1	8.6	30.0	7 3	1.9	1,260 0	64.0	64.5	70 0	118 8	209.6	127.0	BDL	37.5	18+						
SS13	14	11.04.00	1025	E105	Nallah Leh before joining River Swan	9.6	24.2	7.6	2 1	1,590 0	64.0	59.3	50.0	81.7	147.1	255.0	BDL	51 0	18+	11.0	3.0	< 0 5	< 0.1	0.3	0.3
SS10	15	07.04 00	1500	E100	Chattar Park	0.8	20.8	8.1	6 1	600 0	1.0	0 5	0.0	14.2	34 8	43.0	BDL	BDL	18+						
SS16	16	13.04.00	1220	E109	Rawal Dam	1.2	19.8	7.8	6 0	410 0	1.0	2.6	10 0	BDL	7.0	106.0	BDL	BDL	18+						
SS17	17	12 04 00	1300	E107	Stream water Korang Nallah Lehtrar road	1.9	26.9	7.6	2.4	58 0	4.0	22 6	70.0	10.9	15.8	77.0	BDL	BDL	18+						
SS19	18	12.04.00	1015	E106	Nallah Kura, Shahrahe-Islamabad	1.2	27.6	8 1	4 8	680.0	2.0	7.7	0 0	16 0	18 4	36.0	BDL	BDL	18+	< 10.0	< 0.5	< 0 5	< 0 1	< 0 2	< 0 2
SS14	19	11.04.00	1245	E103	River Swan before Swan Bridge	10.1	26.3	8.2	7.6	770 0	4.0	6.1	20.0	26 9	45 6	94.0	BDL	BDL	18+						
SS15	20	11.04.00	1130	E104	Mix of Swan and Nallah Lai	10.5	25.4	7.6	5 4	1,140 0	16.0	43 5	20 0	42 6	68 7	22.0	BDL	5 0	18+	< 10.0	0 5	< 0 5	< 0.1	0 2	0 2
		Duplicate Analysis By														PCSIR						NUST			
SS13	14	11 04 00		E105	Nallah Lai before joining River Swan									256.0	1,676 0	253.0	0.4	0 2	<0.5 ppm	< 1 0	< 0.5	< 0.5	< 0.5	< 1.0	
SS19	18	12.04.00		E106	Nallah Kura, Shahrahe-Islamabad									12 5	31.6	15 0	0 4	0.1	<0.5 ppm	< 1 0	< 0.5	< 0 5	< 0 5	< 0 5	

Appendix G: Photographs of Wastewater Sampling Sites

G.1 Sampling in Lahore

Figure G.1: Sampling Site 6 – New Shadbagh Drain, Bund Road

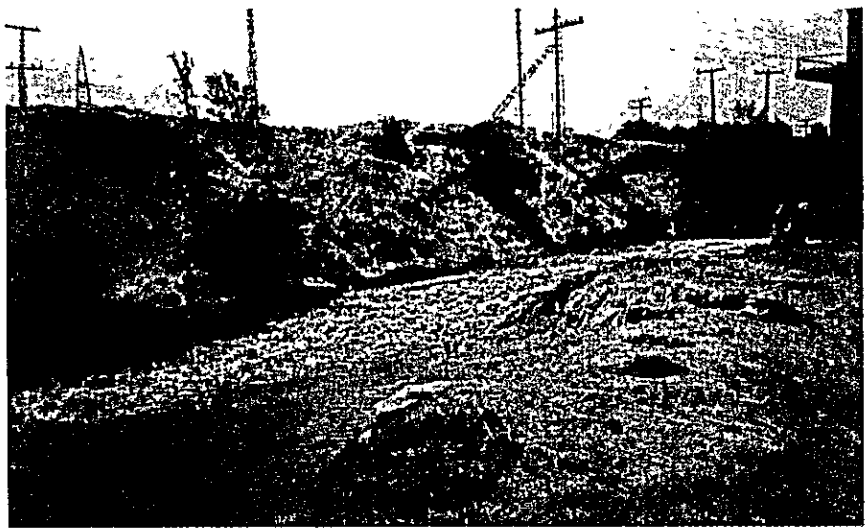


Figure G.2: Sampling Site 7 – Main Outfall Drain, Bund Road

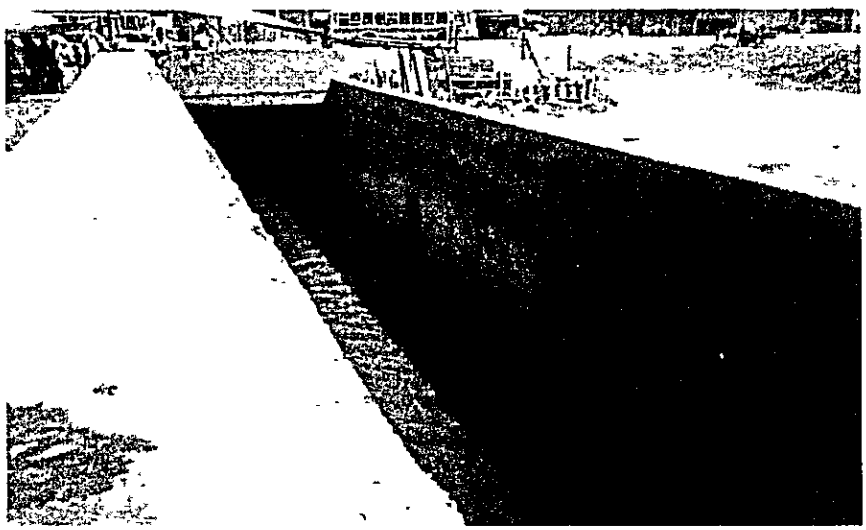


Figure G.3: Sampling Site 8 – Babu Sabu Drain, Bund Road

Figure G.4: Sampling Site 9 – Hudiara Drain, Multan Road

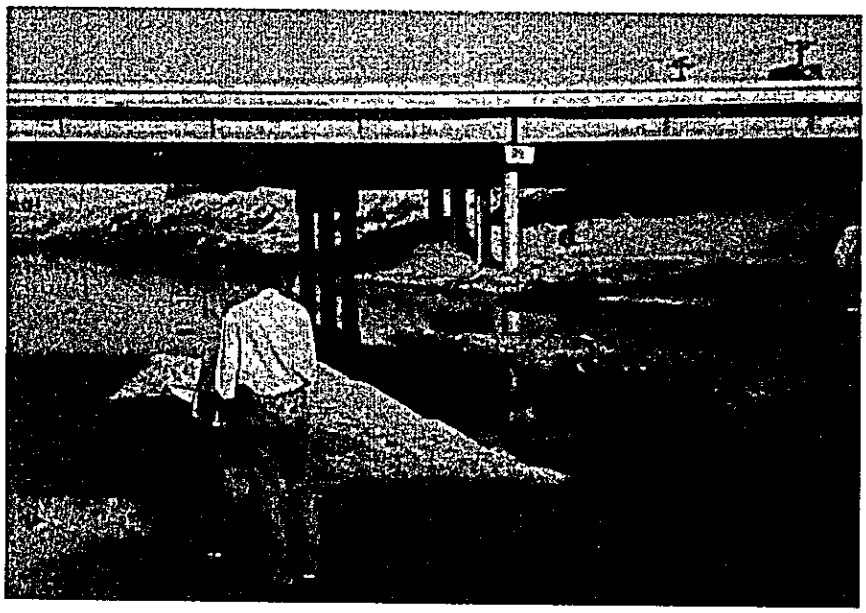


Figure G.5: Sampling Site 10 – Bhed Nullah, Sheikhupura Road

Figure G.6: Sample from Site 14 – Barian Drain, Sheikhupura Road

Figure G.7: Sampling Site 14 – Barian Drain, Sheikhupura Road

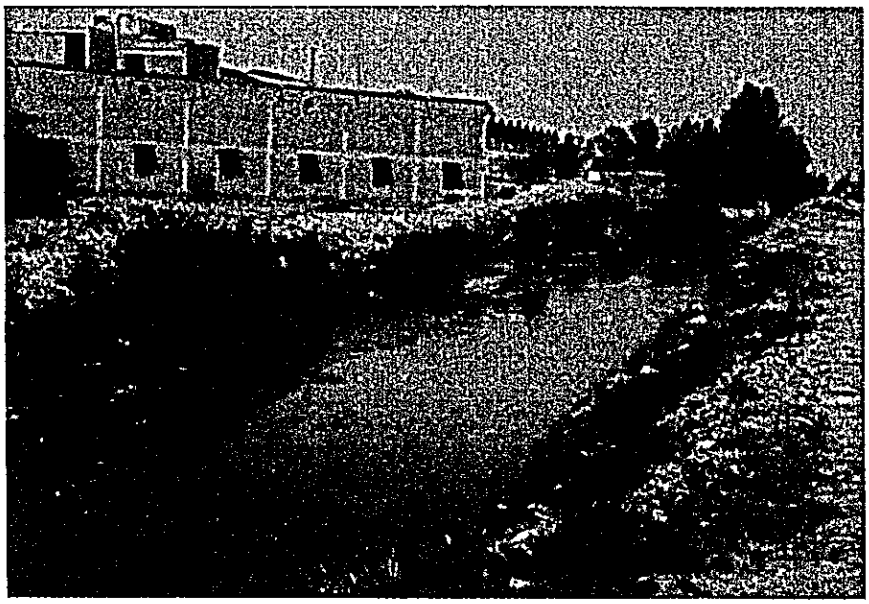


Figure G.8: Sampling Site 17 – Junction of Ravi River with Hudiara Drain

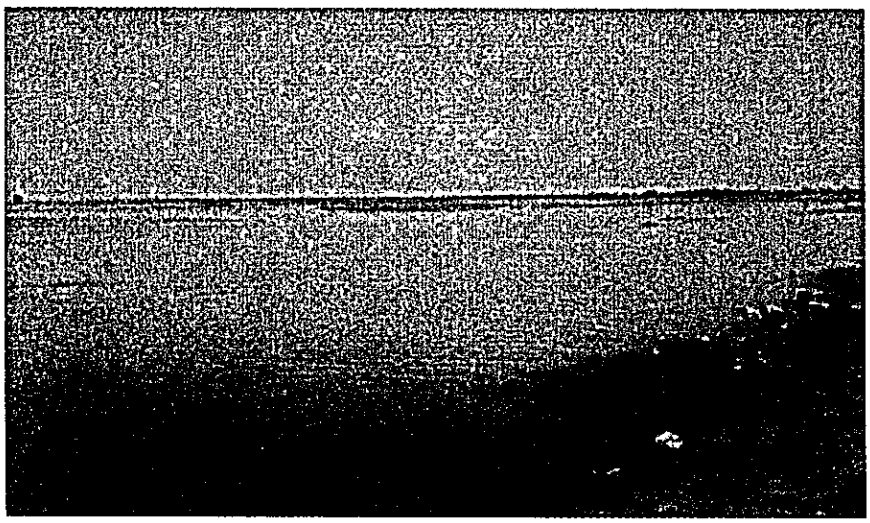
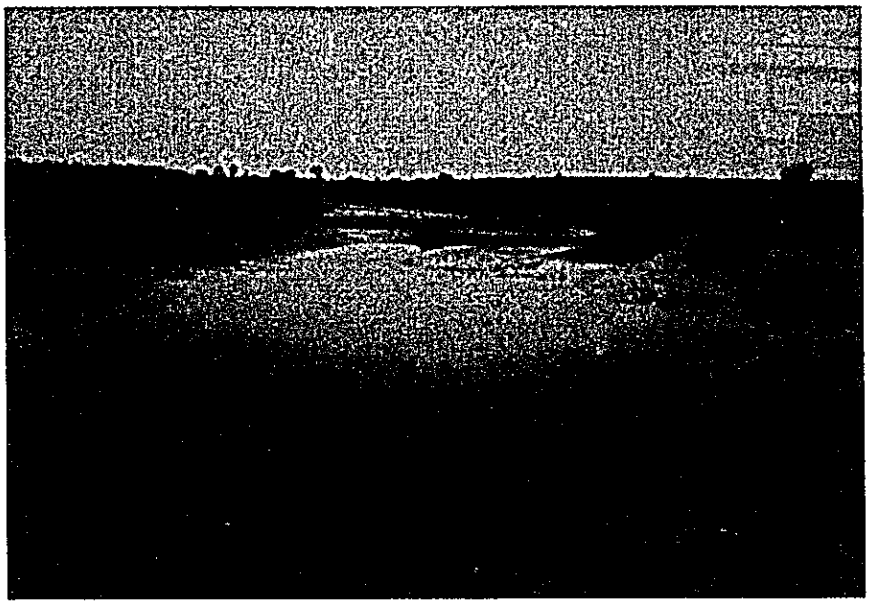


Figure G.9: Sampling Site 19 – Samundari Drain before entering Ravi River



G.2 Sampling in Rawalpindi/Islamabad

Figure G.10: Sampling Site No. – F8/2 (near Fatima Jinnah Park)

Figure -G.11: Sampling Site 5 – Near American Embassy

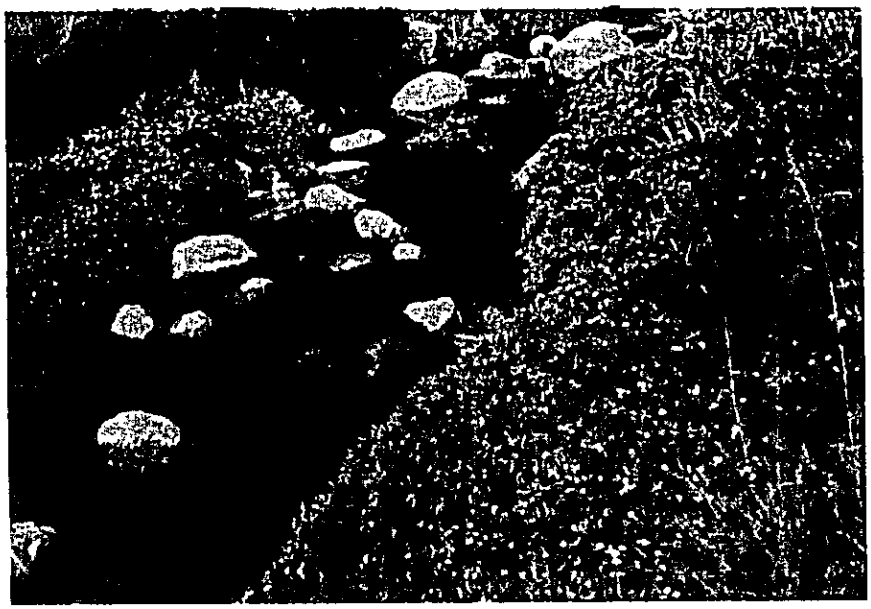


Figure G.12: Sampling Site 6 – Peshawar Road

Figure G.13: Sampling Site 7 – Nullah 1, I-10 Pir Wadhai Crossing

Figure G.14: Sampling Site 9 – Combined Nullah 1 & 2 at Pir Wadhai Crossing

Figure G.15: Sample from Site 13 – Nullah Leh at Gulistan Colony

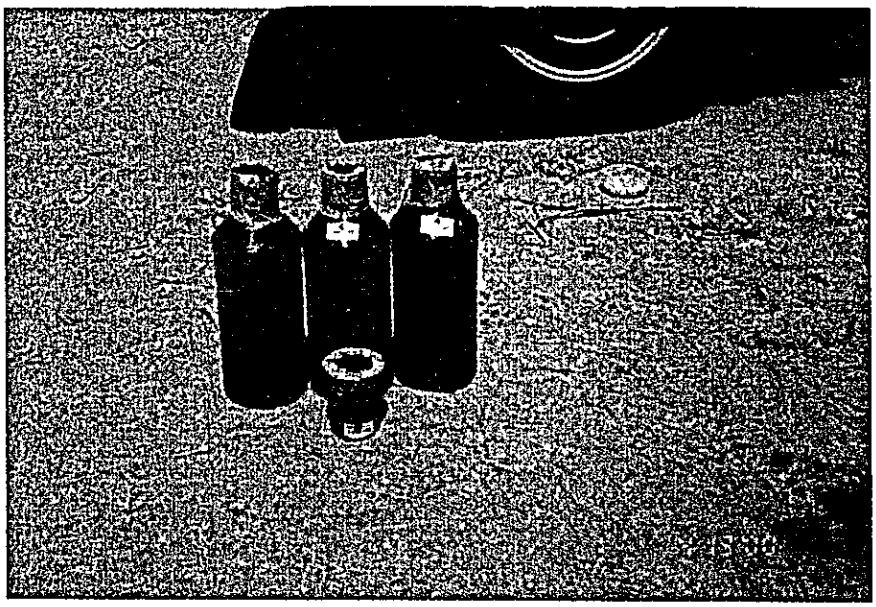


Figure G.16: Sampling Site 14 – View of Nullah Leh near High Court Building

Figure G.17: Sampling Site 17 – Stream Water, Korang Nullah, Lehtrar Road

Figure G.18: Sample from Site 19 – View of Nullah Kura, Shahrah-e-Islamabad

Figure G.19: Sampling Site 19 – View of Nullah Kura, Shahrah-e-Islamabad

G.3 The Team at Work

Figure G.20: Spot Testing

Figure G.21: Laboratory Testing

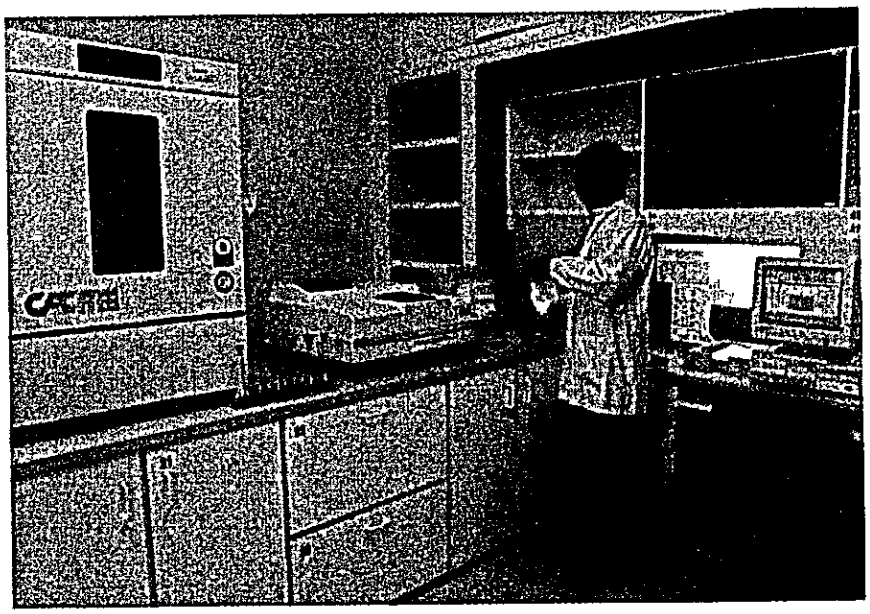


Figure G.22: Interior View of Air Monitoring Mobile Station

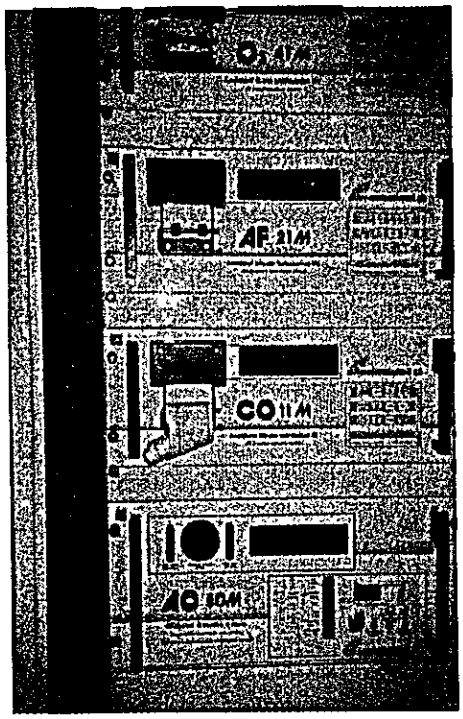


Figure G.23: The Air Monitoring Mobile Station

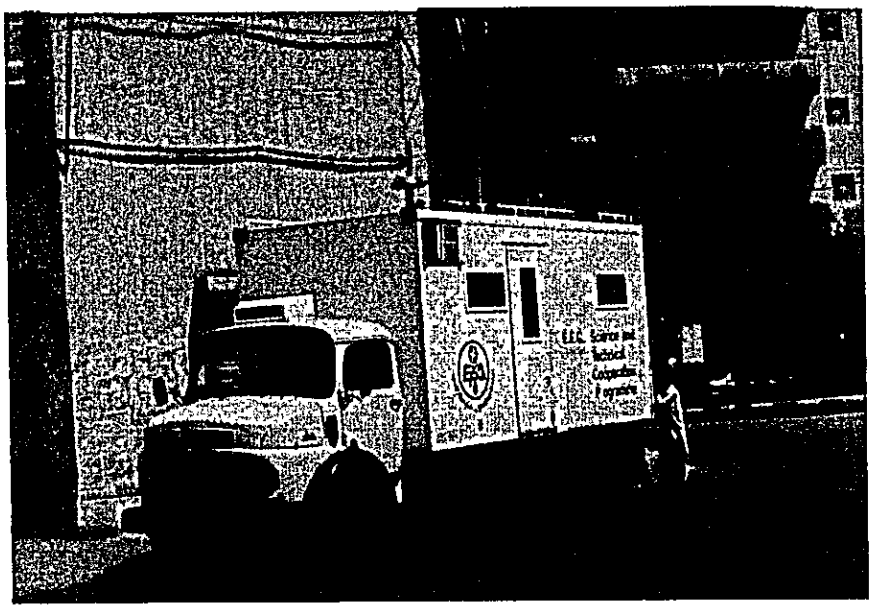


Figure G.24: Ambient Air Monitoring by Detector Tubes

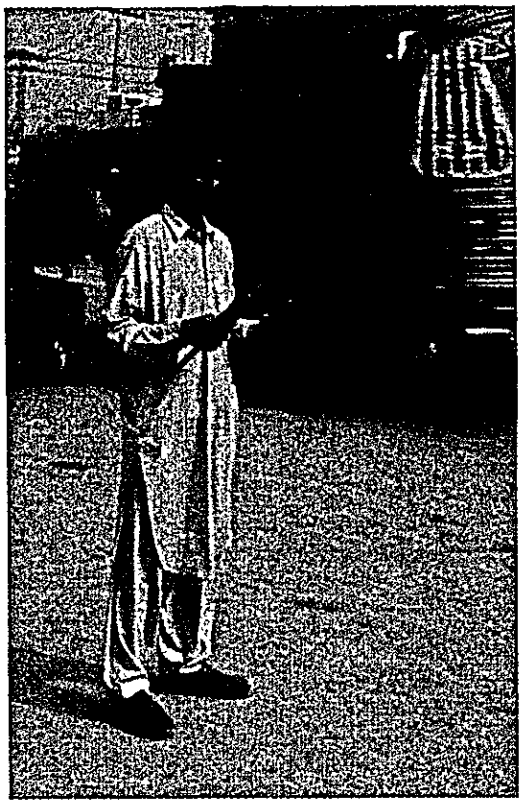


Figure G.25: Ambient Air Monitoring by EPD Mobile Station

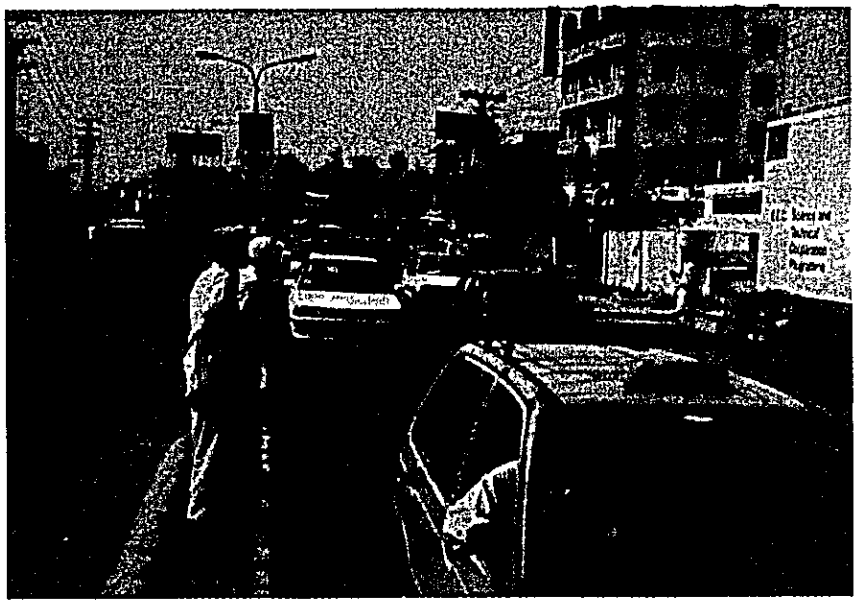


Figure G.26: Traffic Count

Figure G.27: Project Team in Discussion for Ambient Air Site Selection

Japan International Cooperation Agency
1, St. 61, F6/3, PO Box 1772
Islamabad 44000, Pakistan
Tel (92 51) 829473-6, Fax (92 51) 829471