VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
1	Humphrey	Lancaster	II	1	2003-10-29	75	220	25	>2 400	45	1.0	-	5	3	2		21	98	2	-	-	70	2	-	-	35	nw	-	-	nw			-	-
	151-03-009			2	2003-11-24	-	130	-	-	-	1.0	-	4	3	1,203	0.1	-	-	2	0.1	5.6	90	2	0.1	20	170	2	0.1	7.2	75	149	564	-	-
				3	2003-12-22	-	83	8	-	-	1.0	-	3	5	1,553	-	-	-	2	-	-	-	1	-	-	50	-	-	-	-	295	1,117	4.5	-
				4	2004-01-28	-	386	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	118	447	0	-
				4 (cont.)	2004-01-29	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				4 (cont.)	2004-02-05	-	-	-	-	-	-	-	19	2	2,419	-	-	-	-	-	-	-	2	-	-	37	-	-	-	-	116	439	-	-
				5	2004-02-25	-	408	-	-	-	1	-	4	2	1,046	-	-	-	2	-	-	-	2	-	-	27	-	-	-	-	167	632	-	-
				6	2004-03-23	-	393	19	1,110	27	1	-	13	5	920	2.3	17	-	2	1.7	1.2	-	2	-	6.8	31	-	-	-	-	113	428	6.0	0
				6 (cont.)	2004-03-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	-	-	-	-	-	-	-	-
				7	2004-04-27	-	271	-	-	-	1	-	8	3	2	-	-	-	2	-	-	-	2	-	-	45	-	-	-	-	202	765	8.3	5.1
				8	2004-05-25	-	319	-	-	-	1.0	-	9	2	920	-	-	-	2	-	-	-	2	-	-	37	-	-	-	-	127	481	5.0	0
				9	2004-06-22	-	157	19	-	-	1.0	-	10	5	920	-	-	-	2	-	-	-	2	-	-	29	2	-	-	26	122	462	5.0	0
				10	2004-07-28	-	210	-	-	-	1.0	-	10	6	920	-	-	-	2	-	-	-	2	-	-	27	-	-	-	-	148	560	9.0	0
				11	2004-08-24	-	230	-	-	-	1.0	-	6	4	1,600	-	-	-	2	-	-	-	2	-	-	12	-	-	-	-	-	-	14.5	0
				12	2004-09-28	-	116	16	240,000	21	1.0	-	10	4	920	2.6	9	-	2	1.0	2.4	-	2	0.2	11	24	-	-	-	-	-	-	16.0	7.0
				13	2004-10-26	-	161	-	-	-	1	-	5	1	1,600	-	-	-	2	-	-	-	2	-	-	27	-	-	-	-	-	-	18.0	9.8
				14	2004-11-22	-	260	-	-	-	1	-	11	2	920	-	-	-	2	-	-	-	2	-	-	27	-	-	-	-	-	-	20.1	14.0
				15	2004-12-28/30	-	249	45	-	-	1	-	8	2	1,600	-	-	-	2	-	-	-	2	-	-	31	-	-	-	-	-	-	16.0	8.0
				16	2005-01-26	-	273	-	-	-	1	-	9	4	>2 400	-	-	-	2	-	-	-	2	-	-	17	-	-	-	-	-	-	23.0	15.0
				17	2005-02-22	-	301	-	-	-	1	-	12	2	>2 400	-	-	-	2	-	-	-	2	-	-	60	-	-	-	-	159	602	25.5	21.0
		FINAL TEST		18	2005-03-22	-	300	43	160,000	20	1	-	17	5	11,000	2.0	0.4	-	2	0.1	0.1	-	2	0.1	1.5	50	2	0.1	1	85	175	662	32.0	27.5
	Mean*						248	25	34,932	28	1		9	3	623	2	12	98	2	1	2	80	2	1	10	41	2	0	4	62	158	596	14	8
	Median						254	19	160,000	24	1		9	3	983	2	13	98	2	1	2	80	2	0	9	31	2	0	4	75	149	562	15	7
	Stand.Dev.						95	14		11	0		4	1		1	9			1	2	14		1	8	34			5	31	51	194	9	9
	CL90%						388	44	224,000	39	1		14	5	2,010	3	20	98	2	2	5	88	2	1	17	53	2	0	7	83	199	754	25	20
	n						18	7	3	4	18	0	18	18	16	4	4	1	18	4	4	2	18	4	4	18	3	2	2	3	12	12	15	13
2	Beatley	Lancaster	I	1	2003-10-29	4	344	35	>2 400	73	1.0	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				1 (cont.)	2003-11-25	-	239	-	-	-	-	-	11	7	816	0.3	21	100	2	0.1	20.8	140	2	0.1	20.8	130	2	0.1	14.4	-	164	621	11.0	-
				2	2003-12-23	-	357	-	-	-	1	-	10	9	2,419	-	-	-	2	-	-	-	2	-	-	62	-	-	-	52	164	621	11.5	-
				3	2004-01-29	-	413	23	-	-	1.0	-	14	1	1,413	-	-	-	2	-	-	-	2	-	-	1,754	-	-	-	-	182	689	16.0	-
				4	2004-03-01	-	324	-	-	-	1.0	-	-	3	1,732	-	-	-	2	-	-	-	2	-	-	52	-	-	-	-	135	511	21.0	-
				5	2004-03-24	-	317	-	-	-	1	-	13	3	1,600	-	-	-	2	-	-	-	2	-	-	21	-	-	-	-	-	-	26.0	24.0
				6	2004-04-28	-	346	30	92,000	234	1	-	16	10	920	53.6	16	-	2	32.5	1.6	-	2	-	2.8	-	-	-	-	-	124	469	43.0	42.0
				6 (cont.)	2004-04-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		52.5	-	21	-	-	-	-	-	-	-	-
				7	2004-05-26	-	338	-	-	-	1.0	-	10	3	920	-	-	-	2	-	-	-	2	-	-	31	-	-	-	-	175	662	26.0	22.0
				8	2004-06-23	-	261	-	-	-	1.0	-	10	5	540	-	-	-	2	-	-	-	2	-	-	34	-	-	-	-	196	742	43.0	41.0
				9	2004-07-29	-	225	36	-	-	1.0	-	8	1	540	-	-	-	2	-	-	-	2	-	-	36	2	0.4	6.0	36	103	390	55.5	47.0
				10	2004-08-25	-	344	-	-	-	1.0	-	13	7	920	-	-	-	2	-	-	-	2	-	-	15	-	-	-	-	-	-	44.0	36.0
				11	2004-09-29	-	279	-	-	-	1	-	11	3	70	-	-	-	2	-	-	-	2	-	-	22	-	-	-	-	-	-	38.5	40.0
				12	2004-10-27	-	141	20	92,000	14	1	-	9	32	920	11.7	2	-	2	11.5	7.6	-	2	9.6	2.8	24	-	-	-	-	-	-	36.5	40.0
				13	2004-11-23	-	296	-	-	-	1	-	10	6	540	-	-	-	2	-	-	-	2	-	-	37	-	-	-	-	-	-	36.0	32.0
				14	2004-12-28	-	262	-	-	-	1	-	12	20	920	-	-	-	2	-	-	-	2	-	-	47	-	-	-	-	-	-	56.0	52.6
				15	2005-01-27	-	289	39	-	-	1	-	11	7	1,600	-	-	-	2	-	-	-	2	-	-	300	-	-	-	-	-	-	29.5	31.0
				16	2005-02-22	-	306	-	-	-	1	-	18	24	920	-	-	-	2	-	-	-	2	-	-	50	-	-	-	-	-	-	66.0	76.1
				17	2005-03-24	-	271	-	-	-	1	-	8	28	3,100	-	-	-	2	-	-	-	2	-	-	55	-	-	-	-	-	-	49.5	54.0
		FINAL TEST		18	2005-04-28	-	278	30	110	31	1	-	10	4	2	24	4	-	2	0.1	2	-	2	0.1	0.1	60	2	0.1	8	55	-	-	12.5	0
	Mean*						296	30	9,765	88	1	140	11	9	656	22	11	100	2	11	8	140	2	16	7	153	2	0	10	48	155	588	35	38
	Median						296	30	92,000	52	1	140	11	6	920	18	10	100	2	6	5	140	2	5	3	42	2	0	8	52	164	621	36	40
	Stand.Dev.						59	7		100	0		3	10		23	9			15	9			25	10	405			4	10	32	120	17	18
	CL90%						348	37	92,000	186	1	140	14	25	1,938	45	19	100	2	26	17	140	2	40	15	181	2	0	13	54	186	705	56	54
	n						19	7	3	4	18	1	17	18	18	4	4	1	18	4	4	1	18	4	4	18	3	3	3	3	8	8	18	14

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
3	Pittman	Lancaster	II	1	2003-11-12	18	204	14	16,300	68	1.0	-	13	13	242	0.1	19	38	2	-	-	-	2	-	-	-	nw	-	-	nw	-		-	-
				1 (cont.)	2003-11-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	18.8	145	-	0.2	2.4	25	2	-	3.6	-	-		-	-
				2	2003-12-09	-	182	-	-	-	-	-	12	7	461	-	-	-	2	-	-	-	2	-	-	55	-	-	-	-	179	678	0	-
				3	2004-01-13	-	224	16	-	-	1	-	17	3	613	-	-	-	2	-	-	-	2	-	-	26	-	-	-	-	166	628	0	-
				4	2004-02-10	-	391	-	-	-	1.0	-	5	2	137	-	-	-	2	-	-	-	2	-	-	22	-	-	-	-	148	560	13.5	-
				5	2004-03-09	-	313	-	-	-	1.0	-	12	3	540	-	-	-	2	-	-	-	2	-	-	16	-	-	-	-	-	-	0	0
				6	2004-04-14	-	244	14	16,000	44	1.0	-	4	5	110	3.6	8	-	2	0.4	22.4	-	2	4.4	3.2	12	-	-	-	-	154	583	29.0	23.0
				7	2004-05-11	-	181	-	-	-	1.0	-	15	5	1,600	-	-	-	2	-	-	-	2	-	-	26	-	-	-	-	147	556	0	0
				8	2004-06-08	-	186	-	-	-	1.0	-	5	1	240	-	-	-	2	-	-	-	2	-	-	14	-	-	-	-	108	409	0	0
				9	2004-07-06	-	275	23	-	-	1.0	-	11	3	920	-	-	-	-	-	-	-	-	-	-	-	2	0.03	-	-	99	375	0	0
				9 (cont.)	2004-07-07	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	20	-	-	-	-	-	-	-	-
				10	2004-08-10	-	262	-	-	-	1	-	11	4	140	-	-	-	2	-	-	-	2	-	-	17	-	-	3.2	19	113	428	0	0
				11	2004-09-14	-	227	-	-	-	1	-	2	1.0	540	-	-	-	2	-	-	-	2	-	-	12	-	-	-	-	-	-	0	0
				12	2004-10-12	-	343	14	160,000	24	1	-	12	2	920	3	22	-	2	2	19	-	2	1.8	-	17	-	-	-	-	133	503	0	0
				13	2004-11-11	-	207	-	-	-	1	-	7	6	920	-	-	-	2	-	-	-	2	-	9	24	-	-	-	-	139	526	0	0
				14	2004-12-09	-	135	-	-	-	1	-	5	4	920	-	-	-	2	-	-	-	2	-	-	24	-	-	-	-	137	519	0	0
				15	2005-01-13	-	218	12	-	-	1	-	7	3	170	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	141	534	0	0
				16	2005-02-10	-	210	-	-	-	1	-	14	13	1,600	-	-	-	2	-	-	-	2	-	-	60	-	-	-	-	133	503	0	0
				17	2005-03-10	-	184	-	-	-	1	-	23	6	4,900	-	-	-	2	-	-	-	2	-	-	45	-	-	-	-	126	477	0	5.0
		FINAL TEST		18	2005-04-12	-	140	17	54,000	31	1	-	12	12	7,000	1	38	-	2	0.1	19	-	2	0.1	0.2	45	2	0.1	2.3	80	132	500	0	0
	Mean*						229	16	38,744	42	1		10	5	602	2	22	38	2	1	20	145	2	2	4	27	2	0	3	49	137	519	3	2
	Median						214	14	35,150	37	1		11	4	577	2	21	38	2	0	19	145	2	1	3	24	2	0	3	49	137	519	0	0
	Stand.Dev.						67	4		20	0		5	4		2	13			1	2			2	4	15		0	1	43	21	79	8	6
	CL90%						322	19	128,200	61	1		16	12	2,590	3	34	38	2	1	21	145	2	4	7	49	2	0	4	74	161	610	5	4
	n						18	7	4	4	17	0	18	18	18	4	4	1	18	4	4	1	18	4	4	17	3	2	3	2	15	15	17	14
4	Smith.E	Westmorela	III	1	2003-11-20	11	253	41	198,600	128	1.0	-	6	7	1,011	1.9	57	190	2	0.1	1.2	-	2	1.4	2.0	-	2	-	1.2	1,375				
				1 (cont.)	2003-11-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	210	-	-	-	617	-	0.4	-	-	196	742		
				2	2003-12-16	-	366	-	-	-	1.0	-	7	3	461	-	-	-	2	-	-	-	2	-	-	100	-	-	-	-	110	416	8.5	-
				3	2004-01-20		465	30	-	-	1.0	-	7	4	755	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	80	303	9.0	-
				4	2004-02-19	-	592	-	-	-	1.0	-	16	8	1,119	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	83	314	12.0	-
				4 (cont)	2004-02-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	-	-	-	-	-	-	-	-
				5	2004-03-18	-	455	-	-	-	1.0	-	14	1	540	-	-	-	2	-	-	-	2	-	-	77	-	-	-	-	78	295	12.5	16.5
				6	2004-04-21	-	444	65	54,000	280	1	-	12	2	540	16.5	6	-	2	8.8	0.8	-	2	-	0.4	-	-	-	-	-	88	333	12.8	18.9
				6 (cont)	2004-04-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6	-	31	-	-	-	-	-	-	-	-
				7	2004-05-20	-	432	-	-	-	1.0	-	8	4	920	-	-	-	2	-	-	-	2	-	-	30	-	-	-	-	93	352	7.7	18.0
				8	2004-06-17	-	440	-	-	-	1.0	-	10	2	540	-	-	-	2	-	-	-	2	-	-	37	-	-	-	-	103	390	10.5	18.0
				9	2004-07-27	-	351	65	-	-	1.0	-	8	5	920	-	-	-	2	-	-	-	2	-	-	32	2	0.19	3.2	99	-	-	12.5	20.8
				10	2004-08-19	-	437	-	-	-	1.0	-	9	3	1,600	-	-	-	2	-	-	-	2	-	-	44	-	-	-	-	-	-	11.0	21.0
				11	2004-09-23	-	460	-	-	-	1.0	-	11	2	920	-	-	-	2	-	-	-	2	-	-	106	-	-	-	-	-	-	11.0	16.0
				12	2004-10-21	-	421	101	160,000	75	1.0	-	11	10	1,600	10.4	14	-	2	1.2	7.2	-	2	0.6	2.8	39	-	-	-	-	-	-	9.0	17.4
				13	2004-11-17	-	309	-	-	-	1	-	10	20	920	-	-	-	2	-	-	-	2	-	-	35	-	-	-	-	-	-	11.0	19.0
				14	2004-12-23	-	324	-	-	-	1	-	15	8	540	-	-	-	2	-	-	-	2	-	-	32	-	-	-	-	-	-	8.3	17.0
				15	2005-01-26	-	437	86	-	-	1	-	14	7	>2 400	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-	11.0	19.0
				16	2005-02-17	-	520	-	-	-	1	-	12	20	>2 400	-	-	-	2	-	-	-	2	-	-	75	-	-	-	-	-	-	10.0	18.0
				17	2005-03-17	-	489	-	-	-	1	-	8	4	3,300	-	-	-	2	-	-	-	2	-	-	45	-	-	-	-	-	-	11.0	20.5
		FINAL TEST		18	2005-04-26	-	385	92	>241 900	64	1	-	9	8	28,000	8.8	53	-	2	0.1	3	-	2	0.1	0.5	50	2	0.1	0.5	195	-	-	12.5	21.0
	Mean*						421	69	119,719	137	1		10	6	1,115	9	32	190	2	3	3	210	2	1	1	88	2	0	2	556	104	393	11	19
	Median						437	65	160,000	102	1		10	5	920	10	34	190	2	1	2	210	2	1	1	44	2	0	1	195	91	343	11	18
	Stand.Dev.						80	26		99	0		3	5		6	26			4	3			2	1	143		0	1	710	39	147	2	2
	CL90%						498	96	190,880	234	1		14	13	2,450	15	56	190	2	7	6	210	2	3	3	103	2	0	3	1,139	136	514	13	21
	n						18	7	3	4	18	0	18	18	16	4	4	1	18	4	4	1	17	4	4	16	3	3	3	3	8	8	17	14

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
6	Bethel	Lancaster	I	1	2004-04-20	19	190	24	92,000	86	1.0	-	11	2	920	77	1	27	2	4.9	3.2	-	2	3.5	1.2	-	2	4.0	-	-	-		0	0
	Parsonage			1 (cont.)	2004-04-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28.7	-	-	-	27.5	-	-	2.8	-	-		-	-
				2	2004-05-19	-	207	-	-	-	1.0	-	8	4	1,600	-	-	-	2	-	-	-	2	-	-	19	-	-	-	-	203	768	0	0
				3	2004-06-16	-	208	29	-	-	1.0	-	9	9	920	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	188	712	0	0
				4	2004-07-26	-	174	-	-	-	1.0	-	7	2	920	-	-	-	2	-	-	-	2	-	-	31	-	-	-	-	137	519	0	11.5
				5	2004-08-18	-	118	-	-	-	1.0	-	10	1	920	-	-	-	2	-	-	-	2	-	-	29	-	-	-	-	137	519	0	0
				6	2004-09-22	-	169	35	54,000	27	1.0	-	7	2	2	4.1	20	-	2	1.6	10	-	2	1.3	3.2	19	-	-	-	-	127	481	0	0
				7	2004-10-20	-	97	-	-	-	1	-	5	2	920	-	-	-	2	-	-	-	2	-	-	30	-	-	-	-	137	519	0	22.1
				8	2004-11-17	-	74	-	-	-	-	-	2	1.0	920	-	-	-	2	-	-	-	2	-	-	32	-	-	-	-	116	439	0	20.0
				9	2004-12-22	-	98	24	-	-	1	-	9	2	920	-	-	-	2	-	-	-	2	-	-	30	2	2.2	2.4	30	150	568	0	20.3
				10	2005-01-18	-	125	-	-	-	1	-	2	1.0	>2 400	-	-	-	2	-	-	-	2	-	-	30	-	-	-	-	117	443	0	17.0
				11	2005-02-15	-	80	-	-	-	1	-	8	5	>2 400	-	-	-	2	-	-	-	2	-	-	60	-	-	-	-	134	507	0	7.0
				12	2005-03-16	-	111	26	92,000	14	1	-	6	5	14,000	0.2	19	-	2	0.1	15	-	2	0.1	1.3	70	-	-	-	-	263	995	0	0
				13	2005-04-18	-	117	-	-	-	1	-	9	1.0	35,000	-	-	-	2	-	-	-	2	-	-	40	-	-	-	-	120	454	0	0
				14	2005-05-18	-	>68	-	-	-	1	-	8	5	410	-	-	-	1.0	-	-	-	1.0	-	-	20	-	-	-	-	137	519	0	0
				15	2005-06-28	-	51	46	-	-	-	-	2	2	39,000	-	-	-	1.0	-	-	-	1.0	-	-	9	-	-	-	-	120	454	0	0
				16	2005-07-26	-	73	-	-	-	1	-	4	3	7,300	-	-	-	1.0	-	-	-	1.0	-	-	18	-	-	-	-	-	-	0	0
				17	2005-08-23	-	83	-	-	-	1	-	8	4	>240 000	-	-	-	1.0	-	-	-	1.0	-	-	18	-	-	-	-	-	-	0	0
		FINAL TEST		18	2005-09-27	-	67	26	>241 000	35	1	-	10	3	>241 000	4.1	16	-	1.0	0.5	5	-	1.0	0.5	1.3	11	1.0	0.8	0.1	3	-	-	0	0
				18 '	2005-10-25	-	-	-	>241 000	-	-	-	-	-	98,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mean*						120	30	77,029	40	1		7	3	1,848	21	14	27	2	2	8	29	2	1	2	29	2	2	2	17	149	564	0	5
	Median						111	26	92,000	31	1		8	2	920	4	17	27	2	1	8	29	2	1	1	29	2	2	2	17	137	519	0	0
	Stand.Dev.						51	8		31	0		3	2		37	9			2	5			2	1	16		2	1	19	42	158	0	9
	CL90%						196	39	92,000	71	1		10	5	37,400	55	19	27	2	4	14	29	2	3	3	48	2	4	3	27	199	751	0	20
	n						17	7	3	4	16	0	18	18	15	4	4	1	18	4	4	1	17	4	4	17	3	3	3	2	14	14	18	18
7	McCarthy	Lancaster	II	1	2004-05-12	42	190	26	>2 400	61	1.0	-	7	6	920	58	3	41	2	2.2	1.2	22	2	0.2	0.8	27	2	0.6	0.8	8.7	-	-	0	0
	/ Taylor			2	2004-06-09	-	2	-	-	-	-	-	14	3	2	-	-	-	2	-	-	-	2	-	-	25	-	-	-	-	-	-	0	0
				3	2004-07-07	-	2	6	-	-	1	-	4	6	220	-	-	-	2	-	-	-	2	-	-	26	-	-	-	-	-	-	0	0
				4	2004-08-11	-	36	-	280	-	1.0	-	4	3	26	-	-	-	2	-	-	-	2	-	-	20	-	-	-	-	-	-	0	0
				5	2004-09-20	-	37	-	-	-	1.0	-	4	1.0	350	-	-	-	2	-	-	-	2	-	-	41	-	-	-	-	-	-	0	8.0
				6	2004-10-18	-	42	7	54,000	36	1.0	-	5	1	920	2	29	-	2	2	5	-	2	1	1	46	-	-	-	-	113	428	0	0
				7	2004-11-15	-	32	-	-	-	1.0	-	2	1	920	-	-	-	2	-	-	-	2	-	-	34	-	-	-	-	123	466	0	14.0
				8	2004-12-16	-	30	-	-	-	1.0	-	2	4	920	-	-	-	2	-	-	-	2	-	-	36	-	-	-	-	116	439	0	6.4
				9	2005-01-17	-	39	15	-	-	1.0	-	4	2	220	-	-	-	2	-	-	-	2	-	-	27	2	0.4	2	35	129	488	0	17.0
				10	2005-02-15	-	35	-	-	-	1.0	-	2	4	12	-	-	-	2	-	-	-	2	-	-	75	-	-	-	-	118	447	0	23.0
				11	2005-03-17	-	34	-	-	-	1.0	-	3	1.0	350	-	-	-	2	-	-	-	2	-	-	60	-	-	-	-	121	458	0	11.0
				12	2005-04-11	-	36	20	9,400	27	1.0	-	5	4	100	1	51	-	2	0.1	0.2	-	2	0.1	1	80	-	-	-	-	132	500	0	8.0
				13	2005-05-17	-	>70	-	-	-	1.0	-	3	1	30	-	-	-	1.0	-	-	-	1.0	-	-	27	-	-	-	-	113	428	0	0
				14	2005-06-23	-	47	-	-	-	-	-	2	1.0	48	-	-	-	1.0	-	-	-	1.0	-	-	7	-	-	-	-	129	488	0	0
				15	2005-07-21	-	50	-	-	-	1.0	-	2	1.0	170	-	-	-	1.0	-	-	-	1.0	-	-	33	-	-	-	-	-	-	0	0
				16	2005-08-18	-	36	13	-	-	1.0	-	2	1.0	4,600	-	-	-	1.0	-	-	-	1.0	-	-	27	-	-	-	-	-	-	0	0
				17	2005-09-22	-	58	-	-	-	1	-	2	1.0	24,000	-	-	-	1.0	-	-	-	1.0	-	-	-	-	-	-	-	-	-	0	0
		FINAL TEST		18	2005-10-20	-	50	10	29,000	56	1.0	-	2	1.0	260	2	24	-	1.0	0.5	0.5	-	1.0	0.5	0.6	58	1.0	0.6	0.1	6	-	-	0	0
	Mean*						45	14	8,013	45	1		4	2	223	16	27	41	2	1	2	22	2	0	1	38	2	1	1	17	122	460	0	5
	Median						36	13	19,200	46	1		3	1	240	2	27	41	2	1	1	22	2	0	1	33	2	1	1	9	121	458	0	0
	Stand.Dev.						40	7		16	0		3	2		28	20			1	2			0	0	20		0	1	16	7	27	0	7
	CL90%						53	22	46,500	60	1		6	4	2,024	41	44	41	2	2	4	22	2	1	1	66	2	1	2	30	130	491	0	15
	n						17	7	4	4	16	0	18	18	18	4	4	1	18	4	4	1	18	4	4	17	3	3	3	3	9	9	18	18

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
8	Benefiel	Lancaster	II	1	2004-05-27	94	-	9	1,600	8	1.0	-	-	-	-	-	-	-	2	0.2	5.2	74	2	0.1	2.4	22	2	0.1	0.8	56	-	-	0	0
				1 (cont.)	2004-05-27	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				2	2004-08-26	-	253	12	6,300	36	1	-	13	1.0	540	2	19	110	2	-	-	14	2	0.5	4	24	2	0.4	1.6	45	40	151	0	0
				3	2004-09-30	-	59	-	-	-	1	-	11	2	2	-	-	-	2	-	-	-	2	-	-	26	-	-	-	-	58	220	0	0
				4	2004-10-28	-	125	12	-	-	1.0	-	5	2	9	-	-	-	2	-	-	-	2	-	-	34	-	-	-	-	124	469	0	0
				5	2004-11-24	-	309	-	-	-	1.0	-	4	11	31	-	-	-	2	-	-	-	2	-	-	24	-	-	-	-	51	193	0	0
				6	2004-12-30	-	316	-	-	-	1.0	-	6	1	1,600	-	-	-	2	-	-	-	2	-	-	25	-	-	-	-	127	481	1.0	0
				7	2005-01-27	-	86	11	540	8	1.0	-	11	11	540	1	56	-	2	0.3	3.1	-	2	0.2	0.5	25	-	-	-	-	11	42	0	0
				8	2005-02-24	-	100	-	-	-	1.0	-	2	6	100	-	-	-	2	-	-	-	2	-	-	40	-	-	-	-	107	405	0	0
				9	2005-03-24	-	108	-	-	-	1.0	-	5	6	100	-	-	-	2	-	-	-	2	-	-	65	-	-	-	-	142	537	0	0
				10	2005-04-27	-	138	6	-	-	1.0	-	13	12	100	-	-	-	2	-	-	-	2	-	-	60	2	0	0.01	95	100	379	0	0
				11	2005-05-19	-	210	-	-	-	1.0	-	13	9	3,100	-	-	-	1.0	-	-	-	1.0	-	-	25	-	-	-	-	107	405	0	0
				12	2005-06-30	-	110	-	-	-	-	-	2	4	4	-	-	-	1.0	-	-	-	1.0	-	-	24	-	-	-	-	-	-	0	0
				13	2005-07-28	-	160	11	>2 400	21	1.0	-	14	14	3,400	3	17	-	1.0	1.2	0.2	-	1.0	0.7	0.1	25	-	-	-	-	-	-	0	0
				14	2005-08-25	-	220	-	-	-	1	-	4	11	23	-	-	-	1.0	-	-	-	1.0	-	-	24	-	-	-	-	-	-	0	0
				15	2005-10-04	-	200	-	-	-	1	-	11	6	200	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0
				16	2005-10-27	-	160	10	-	-	1	-	3	1.0	590	-	-	-	1.0	-	-	-	1.0	-	-	1	-	-	-	-	-	-	0	0
				17	2005-11-29	-	230	-	-	-	1	-	10	5	4,000	-	-	-	1.0	-	-	-	1.0	-	-	130	-	-	-	-	-	-	0	0
				18	2005-12-27	-	270	-	-	-	1	-	11	4	460	-	-	-	1.0	-	-	-	1.0	-	-	39	-	-	-	-	-	-	0	0
		FINAL TEST		19	2006-01-24	-	150	25	20,000	19	1	-	4	18	740	4	33	-	2	0.2	0.3	-	2	0.2	0.1	35	2	0.3	0.1	120	-	-	0	0
	Mean*						178	12	3,230	19	1		8	7	181	2	31	110	1	0	2	44	2	0	1	36	2	0	1	79	87	328	0	0
	Median						160	11	3,950	19	1		8	6	330	2	26	110	2	0	2	44	2	0	0	25	2	0	0	76	104	392	0	0
	Stand.Dev.						77	5		11	0		4	5		1	18			0	2	42		0	2	27		0	1	35	44	165	0	0
	CL90%						282	15	15,890	30	1		13	13	3,190	4	49	110	2	1	5	68	2	1	3	61	2	0	1	112	129	486	0	0
	n						18	9	4	5	18	0	18	18	18	4	4	1	19	4	4	2	18	5	5	18	4	4	4	4	10	10	19	19
9	Stephens, Ford	Lancaster	II	1	2004-06-15	100	302	14	920	28	1.0	-	7	3	2	35	2	62	2	0.3	1.6	87	2	0.3	7.2	32	2	0.5	5.6	55	98	371	0	32.0
				2	2004-07-22	-	79	-	-	-	1	-	10	9	1,600	-	-	-	2	-	-	-	2	-	-	54	-	-	-	-	121	458	0	34.5
				3	2004-08-17	-	297	15	-	-	1	-	6	1	1,600	-	-	-	2	-	-	-	2	-	-	21	-	-	-	-	-	-	0	35.0
				4	2004-09-16	-	277	-	-	-	1	-	11	2	>2 400	-	-	-	2	-	-	-	2	-	-	26	-	-	-	-	-	-	0	30.5
				5	2004-10-13	-	317	-	-	-	1.0	-	6	2	1,600	-	-	-	2	-	-	-	2	-	-	29	-	-	-	-	-	-	0	16.9
				6	2004-11-11	-	329	23	92,000	37	1.0	-	5	1	920	1	7	-	2	-	-	-	2	1	6	125	-	-	-	-	-	-	0	35.3
				7	2004-12-15	-	123	-	-	-	1.0	-	8	2	920	-	-	-	2	-	-	-	2	-	-	41	-	-	-	-	-	-	0	27.2
				8	2005-01-17	-	298	-	-	-	1.0	-	8	6	>2 400	-	-	-	2	1	11	-	2	-	-	52	-	-	-	-	-	-	0	24.0
				9	2005-02-10	-	289	16	-	-	1.0	-	8	6	>2 400	1	-	-	2	-	-	-	2	-	-	75	2	0.3	0.3	65	91	344	0	0
				10	2005-03-10	-	247	-	-	-	1.0	-	11	4	54,000	-	-	-	2	-	-	-	2	-	-	65	-	-	-	-	121	458	0	27.8
				11	2005-04-11	-	249	-	-	-	1.0	-	5	2	28,000	-	-	-	2	-	-	-	2	-	-	65	-	-	-	-	115	435	0	35.6
				12	2005-05-17	-	>70	31	340,000	45	1.0	-	3	2	10,000	5	21	-	1.0	1.6	7	-	1.0	0.5	0.3	28	-	-	-	-	200	757	0	33.0
				13	2005-06-23	-	200	-	-	-	-	-	3	1.0	34,000	-	-	-	1.0	-	-	-	1.0	-	-	28	-	-	-	-	94	356	0	29.0
				14	2005-07-21	-	310	-	-	-	1.0	-	20	7	>2 400	-	-	-	1.0	-	-	-	1.0	-	-	4	-	-	-	-	-	-	0	36.5
				15	2005-08-18	-	200	44	-	-	1.0	-	6	2	6,100	-	-	-	1.0	-	-	-	1.0	-	-	25	-	-	-	-	-	-	0	24.4
				16	2005-09-22	-	260	-	-	-	1.0	-	7	20	55,000	-	-	-	1.0	-	-	-	1.0	-	-	14	-	-	-	-	-	-	0	25.0
				17	2005-10-24	-	240	-	-	-	1.0	-	7	6	8,200	-	-	-	1.0	-	-	-	1.0	-	-	18	-	-	-	-	-	-	0	16.5
		FINAL TEST		18	2005-11-17	-	140	18	>241 960	26	1.0	-	2	7	67	5	44	-	1.0	1.6	23	-	1.0	0.2	22	150	1.0	0.2	0.1	1	-	-	0	28.6
	Mean*						244	23	30,644	34	1		7	4	2,603	9	19	62	2	1	11	87	2	1	9	47	2	0	2	40	120	454	0	27
	Median						260	18	92,000	33	1		7	2	3,850	5	14	62	2	1	9	87	2	0	7	31	2	0	0	55	115	435	0	29
	Stand.Dev.						73	11		9	0		4	5		14	19			1	9			1	9	38		0	3	34	37	142	0	9
	CL90%						313	36	290,400	43	1		11	8	48,000	23	37	62	2	2	19	87	2	1	18	90	2	0	5	63	153	578	0	35
	n						17	7	3	4	17	0	18	18	14	5	4	1	18	4	4	1	18	4	4	18	3	3	3	3	7	7	18	18

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
10	Goodrich	Prince Geor	III	1	2004-09-15	15	2	7	92,000	22	1.0	-	6	4	92,000	3	9	22	2	0.7	6.8	20	2	1.8	2.8	36	2	1.0	2.4	17	-	-	12.2	23.0
				2	2004-10-14	-	2	5	160,000	26	1	-	4	1.0	1,600	1	26	29	2	-	-	-	2	-	-	29	-	-	-	-	50	189	0	0
				3	2004-11-10	-	25	4	-	-	1	-	4	1	920	-	-	-	2	-	-	-	2	-	-	25	-	-	-	-	54	204	0	0
				4	2004-12-14	-	11	-	-	-	1	-	2	2	920	-	-	-	2	-	-	-	2	-	-	22	-	-	-	-	-	-	0	0
				5	2005-01-19	-	34	-	-	-	1.0	-	8	1	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-	-	0.5	0
				6	2005-02-09	-	20	6	>24 0000	22	1.0	-	6	3	1,600	1	26	-	2	0.5	0.3	-	2	0.3	0.7	174	-	-	-	-	97	367	0	0
				7	2005-03-08	-	18	-	-	-	1.0	-	4	26	1,600	-	-	-	2	-	-	-	2	50	-	-	-	-	-	-	35	132	6.0	16.5
				8	2005-04-13	-	15	-	-	-	1.0	-	5	15	1,100	-	-	-	2	-	-	-	2	-	-	60	-	-	-	-	31	117	0	0
				9	2005-05-16	-	32	30	-	-	1.0	-	2	9	44,000	-	-	-	1.0	-	-	-	1.0	-	-	1	-	-	-	-	33	125	0	0
				10	2005-06-21	-	12	-	-	-	-	-	2	1	290	-	-	-	1.0	-	-	-	1	-	-	10	-	-	-	-	34	129	0	0
				11	2005-07-19	-	26	-	-	-	1.0	-	2	5	1.0	-	-	-	1.0	-	-	-	1.0	-	-	1.0	-	-	-	-	52	197	0	0
				12	2005-08-16	-	17	8	>2 400	19	1.0	-	3	3	2	4	1	-	1.0	0.5	0.1	-	1.0	0.5	0.1	1.0	-	-	-	-	51	193	0	0
				13	2005-09-20	-	10	-	-	-	1.0	-	5	8	5,800	-	-	-	1.0	-	-	-	1.0	-	-	5	-	-	-	-	47	178	0	0
				14	2005-10-19	-	16	-	-	-	1.0	-	2	4	1.0	-	-	-	1.0	-	-	-	1.0	-	-	1	-	-	-	-	45	170	0	0
				15	2005-11-15	-	14	4	-	-	1.0	-	2	3	3	-	-	-	2	-	-	-	2	-	-	14	-	-	-	-	47	178	0	0
				16	2005-12-20	-	30	-	-	-	1.0	-	3	10	17	-	-	-	1.0	-	-	-	1.0	-	-	6	-	-	-	-	41	155	0	0
				17	2006-01-17	-	30	-	-	-	1.0	-	3	7	16,000	-	-	-	2	-	-	-	2	-	-	9	-	-	-	-	47	178	0	0
		FINAL TEST		18	2006-02-14	-	41	8	160,000	21	1.0	-	2	8	1,500	6.1	17	-	2	0.2	0.5	-	2	0.3	0.6	4	2	0.5	0.9	3	39	148	0	0
	Mean*						20	9	133,048	22	1		4	6	377	3	16	26	2	0	2	20	2	11	1	24	2	1	2	10	47	177	1	2
	Median						18	7	160,000	22	1		3	4	1,100	3	17	26	2	0	0	20	2	1	1	10	2	1	2	10	47	178	0	0
	Stand.Dev.						11	9		3	0		2	6		2	11	4		0	3			22	1	42		0	1	10	16	60	3	6
	CL90%						33	15	160,000	25	1		6	12	27,200	5	26	28	2	1	5	20	2	31	2	46	2	1	2	16	53	201	2	5
	n						18	8	3	5	17	0	18	18	17	5	5	2	17	4	4	1	17	5	4	17	2	2	2	2	15	15	18	18
11	Whittaker	Nothumberland	II	1	2004-09-21	17	130	37	92,000	64	1.0	-	3	1.0	540	8	39	45	2	4.5	8.0	152	2	3.1	2.8	42	2	2.2	11.6	39	-	-	0	0
				2	2004-10-19	-	269	-	-	-	1	-	6	2	920	-	-	-	2	-	-	-	2	-	-	36	-	-	-	-	-	-	0	3.2
				3	2004-11-16	-	129	33	-	-	1	-	2	4	350	-	-	-	2	-	-	-	2	-	-	42	-	-	-	-	-	-	12.8	22.0
				4	2004-12-21	-	111	-	-	-	1	-	11	15	1,600	-	-	-	2	-	-	-	2	-	-	36	-	-	-	-	-	-	8.0	13.5
				5	2005-01-18	-	142	-	-	-	1.0	-	2	1	>2 400	-	-	-	2	-	-	-	2	-	-	109	-	-	-	-	-	-	4.5	14.0
				6	2005-02-16	-	200	35	160,000	38	1.0	-	12	6	>2 400	0.14	30	-	2	3.1	0.1	-	2	0.52	0.1	65	-	-	-	-	108	409	4.0	7.0
				7	2005-03-16	-	177	-	-	-	1.0	-	23	14	11,000	-	-	-	2	-	-	-	2	-	-	55	-	-	-	-	108	409	7.0	17.0
				8	2005-04-18	-	316	-	-	-	1.0	-	16	8	22,000	-	-	-	2	-	-	-	2	-	-	65	-	-	-	-	117	443	10.0	10.5
				9	2005-05-19	-	200	56	-	-	1.0	-	15	14	3,700	-	-	-	1.0	-	-	-	1.0	-	-	15	1.0	0.6	3	6	111	420	6.0	0
				10	2005-06-28	-	72	-	-	-	-	-	3	4	430	-	-	-	1.0	-	-	-	1.0	-	-	11	-	-	-	-	112	424	17.2	0
				11	2005-07-26	-	98	-	-	-	1.0	-	10	7	12,000	-	-	-	1.0	-	-	-	1.0	-	-	13	-	-	-	-	133	503	18.0	19.5
				12	2005-08-23	-	200	49	>240 000	60	1.0	-	20	9	200,000	18	0.1	-	1.0	7.1	0.1	-	1	4	0.1	16	-	-	-	-	144	545	15.3	-
				13	2005-09-27	-	130	-	-	-	1.0	-	20	10	18,000	-	-	-	1.0	-	-	-	1.0	-	-	14	-	-	-	-	-	-	18.3	27.0
				14	2005-10-25	-	100	-	-	-	1.0	-	8	4	24,000	-	-	-	2	-	-	-	1.0	-	-	29	-	-	-	-	-	-	33.6	53.9
				15	2005-11-21	-	170	26	-	-	1.0	-	3	8	31,000	-	-	-	170	-	-	-	1.0	-	-	10	-	-	-	-	-	-	0	0
				16	2005-12-22	-	120	-	-		1.0	-	6	2	61,000	-	-	-	28	-	-	-	3	-	-	8	-	-	-	-	-	-	0	0
				17	2006-01-19	-	110	-	-		1.0	-	3	2	2,500	-	-	-	2	-	-	-	2	-	-	12	-	-	-	-	-	-	0	0
		FINAL TEST		18	2006-02-16	-	110	19	87,000	26	1.0	-	13	9	12,000	9.4	33.0	-	2	1.8	0.1	-	2	0.2	0.1	1	2	1.7	0.7	5	-	-	0	0
	Mean*						155	36	108,595	47	1		10	7	6,309	9	25	45	2	4	2	152	2	2	1	32	2	2	5	17	119	450	9	11
	Median						130	35	92,000	49	1		9	6	11,500	9	32	45	2	4	0	152	2	2	0	23	2	2	3	6	112	424	7	7
	Stand.Dev.						63	13		18	0		7	5		7	17			2				2		28		1	6	19	14	53	9	14
	CL90%						221	52	146,400	63	1		20	14	46,000	15	37	45	10	6	6	152	2	4	2	65	2	2	10	32	137	520	18	24
	n						18	7	3	4	17	0	18	18	16	4	4	1	18	4	4	1	18	4	4	18	3	3	3	3	7	7	18	17

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
12	Pride of VA	Lancaster	III	1	2005-02-02	300	176	44	>240 000	80	1.0	-	9	21	>2 400	27	16	310	2	0.6	6.6	3	2	0.3	0.1	300	-	-	-	-	-	-	30.0	71.0
	# A			2	2005-02-23	185	184	-	-	-	1	-	5	8	540	-	-	-	2	-	-	-	2	-	-	210	2	0.1	1	360	244	924	48.6	49.0
				3	2005-03-23	-	251	43	-	-	1	-	11	20	6,300	-	-	-	2	-	-	-	2	-	-	213	-	-	-	-	-	-	29.0	68.0
				4	2005-04-27	-	168	-	-	-	1	-	14	23	54,000	-	-	-	2	-	-	-	2	-	-	225	-	-	-	-	-	-	19.0	39.0
				5	2005-05-24	-	180	-	-	-	1	-	7	17	20,000	-	-	-	1.0	-	-	-	1.0	-	-	220	-	-	-	-	-	-	44.0	44.0
				6	2005-06-29	-	92	21	>2 419	66	-	-	5	29	>2 419	19	7	-	1.0	1	0.1	-	-	-	-	-	-	-	-	-	-	-	23.6	15.1
				6 (cont.)	2005-06-30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	0.1	200	-	-	-	-	-	-	-	-
				7	2005-07-27	-	110	-	-	-	1	-	7	25	8,700	-	-	-	1.0	-	-	-	1.0	-	-	260	-	-	-	-	-	-	17.0	21.2
				8	2005-08-24	-	63	-	-	-	1	-	4	31	45	-	-	-	1.0	-	-	-	1.0	-	-	240	-	-	-	-	-	-	0	6.3
				9	2005-10-05	-	59	10	-	-	1	-	2	4	1.0	-	-	-	1.0	-	-	-	1.0	-	-	-	-	-	-	-	-	-	0	0
				10	2005-10-26	-	28	-	-	-	1	-	7	19	1,300	-	-	-	17	-	-	-	1.0	-	-	410	-	-	-	-	-	-	8.0	68.0
				11	2005-11-22	-	85	-	-	-	1	-	2	14	2,900	-	-	-	slp	-	-	-	1.0	-	-	410	-	-	-	-	-	-	14.0	-
				12	2005-12-28	-	130	30	>241 960	24	1	-	7	55	37,000	19	9	-	1.0	31	0.6	-	1.0	0.4	0.1	330	-	-	-	-	-	-	17.0	19.0
				13	2006-01-25	-	160	-	-	-	1	-	12	14	2,100	-	-	-	2	-	-	-	2	-		290	-	-	-	-	268	1,014	18.6	-
				14	2006-02-21	-	170	-	-	-	1	-	slp	17	15,000	-	-	-	2	-	-	-	2	-	-	680	-	-	-	-	540	2,044	19.5	46.4
				15	2006-03-30	-	196	49	-	-	1	-	3	9	387	-	-	-	1.0	-	-	-	1.0	-	-	190	-	-	-	-	448	1,696	0.0	22.0
				16	2006-04-26	-	148	-	-	-	1	-	3	2	4,880	-	-	-	1.0	-	-	-	1.0	-	-	190	-	-	-	-	546	2,067	25.0	34.0
				17	2006-05-31	-	96	-	-	-	1	-	8	6	>241 960 (?slp)	-	-	-	1.0	-	-	-	1.0	-	-	170	-	-	-	-	798	3,020	20.0	30.0
			FINAL TEST	18	2006-06-20	-	127	24	141,000	76	1	-	3	5	1,120	5.4	0.4	-	1.0	1	0.1	-	1.0	0.4	0.1	140	1.0	4.2	11	340	700		0	0
	Mean*						135	32	141,000	62	1		6	18	1,884	18	8	310	2	8	2	3	1	0		275	1	2	6	350	506	1,794	19	33
	Median						139	30	141,000	71	1		7	17	2,900	19	8	310	1	1	0	3	1	0		225	2	2	6	350	540	1,870	19	32
	Stand.Dev.						57	14		26	0		3	13		9	6			15	3			0		130			7	14	206	777	14	23
	CL90%						187	46	141,000	79	1		11	30	30,200	25	14	310	2	22	5	3	2	1		410	2	4	10	358	739	2,544	34	68
	n						18	7	1	4	17	0	17	18	15	4	4	1	17	4	4	1	18	4	4	17	2	2	2	2	7	6	18	16
13	Pride of VA	Lancaster	III	1	2005-02-02	460	176	65	>240 000	94	1	-	6	13	920	7	43	400	2	26	4.2	1,699	2	0.1	0.1	430	-	-	-	-	-	-	15.0	39.0
	# B			2	2005-02-23	205	172	-	-	-	1	-	6	7	100	-	-	-	2	-	-	-	2	-	-	400	2	0.1	1	155	230	871	0	16.2
				3	2005-03-23	-	246	61	-	-	1	-	11	8	7,000	-	-	-	2	-	-	-	2	-	-	385	-	-	-	-	-	-	2	42.0
				4	2005-04-27	-	177	-	-	-	1	-	13	13	28,000	-	-	-	2	-	-	-	2	-	-	255	-	-	-	-	-	-	0	0
				5	2005-05-24	-	190	-	-	-	1	-	15	8	24,000	-	-	-	1.0	-	-	-	1.0	-	-	180	-	-	-	-	-	-	18.2	27.0
				6	2005-06-29	-	86	26	200,000	61	-	-	13	7	37,000	19	6	-	1.0	15	0.1	-	1.0	2	0.1	320	-	-	-	-	-	-	0	0
				7	2005-07-27	-	110	-	-	-	1	-	49	18	>24 000	-	-	-	1.0	-	-	-	1.0	-	-	400	-	-	-	-	-	-	0	0
				8	2005-08-24	-	96	-	-	-	1.0	-	47	17	55,000	-	-	-	1	-	-	-	1	-	-	430	-	-	-	-	-	-	7.5	0
				9	2005-10-05	-	53	10	-	-	1	-	2	4	25	-	-	-	1.0	-	-	-	1.0	-	-	-	-	-	-	-	-	-	0	0
				10	2005-10-26	-	29	-	-	-	1	-	9	24	50	-	-	-	1.0	-	-	-	1.0	-	-	630	-	-	-	-	-	-	26.2	11.5
				11	2005-11-22	-	78	-	-	-	1	-	8	19	38,000	-	-	-	1.0	-	-	-	1.0	-	-	690	-	-	-	-	-	-	0.0	30.0
				12	2005-12-28	-	150	45	>241 960	25	1	-	-	25	240,000	27	0.1	-	1.0	21	2	-	1.0	0.4	1	530					-	-	9.5	0
				13	2006-01-25	-	210	-	-	-	1	-	24	9	2	-	-	-	2	-	-	-	2	-	-	440	-	-	-	-	535	2,025	20.6	-
				14	2006-02-21	-	160	-	-	-	1	-	6	10	1,600	-	-	-	2	-	-	-	2	-	-	490	-	-	-	-	677	2,562	13.0	0
				15	2006-03-30	-	197	25	-	-	1	-	4	6	670	-	-	-	1.0	-	-	-	1.0	-	-	320	-	-	-	-	449	1,699	-	-
				16	2006-04-26	-	142	-	-	-	1	-	3	3	4,110	-	-	-	1.0	-	-	-	1.0	-	-	430	-	-	-	-	547	2,070	0	9.0
				17	2006-05-31	-	87	-	-	-	1	-	7	4	>241 960 (?slp)	-	-	-	1.0	-	-	-	1.0	-	-	390	-	-	-	-	773	2,926	0	0
			FINAL TEST	18	2006-06-20	-	102	20	120,000	78	1	-	3	2	1,730	9	0.6	-	1.0	20	1.1	-	1.0	0.2	0.7	270	1.0	4	0.3	39	679		0	0
	Mean*						137	36	154,919	64	1		13	11	2,109	15	12	400	1	20	2	1,699	1	1	1	411	1	2	1	97	556	2,026	7	11
	Median						146	26	160,000	70	1		8	8	2,920	14	3	400	1	20	1	1,699	1	0	0	400	2	2	1	97	547	2,048	0	0
	Stand.Dev.						59	21		29	0		14	7		9	21			4	2			1	1	128			0	82	180	713	9	15
	CL90%						201	63	192,000	89	1		33	21	46,500	25	32	400	2	24	3	1,699	2	2	1	570	2	4	1	143	717	2,744	19	35
	n						18	7	2	4	17	0	17	18	16	4	4	1	18	4	4	1	18	4	4	17	2	2	2	2	7	6	17	16

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
14	Nicolato		III	1	2005-05-25	230	250	31	4,600	57	1	-	19	7	1,200	50	2	270	28	2	0.2	9	1	0.5	2	69	-	-	-	-	216	818	0	0
				2	2005-06-22	-	650	-	-	-	-	-	6	1	21,000	-	-	-	1.0	-	-	-	1.0	-	-	180	1.0	0.8	0.1	210	90	341	0	0
				3	2005-07-20	-	140	17	-	-	1	-	5	1	16,000	-	-	-	1.0	-	-	-	1.0	-	-	47	-	-	-	-	237	897	0	0
				4	2005-08-17	-	260	-	-	-	1.0	-	8	2	>2 400	-	-	-	1.0	-	-	-	1.0	-	-	73	-	-	-	-	116	439	0	0
				5	2005-09-21	-	140	-	-	-	1.0	-	3	5	640	-	-	-	1.0	-	-	-	1.0	-	-	149	-	-	-	-	118	447	0	0
				6	2005-10-18	-	160	16	>240 000	70	1	-	3	1	28,000	2	49	-	1.0	1	0.4	-	1.0	0.5	0.3	10	-	-	-	-	93	352	0	0
				7	2005-11-16	-	110	-	-	-	1	-	2	2	2	-	-	-	5	-	-	-	1.0	-	-	63	-	-	-	-	122	462	0	0
				8	2005-12-21	-	150	-	-	-	1	-	2	8	8,700	-	-	-	1.0	-	-	-	1.0	-	-	16	-	-	-	-	125	473	0	0
				9	2006-01-18	-	230	22	-	-	1	-	24	5	26,000	-	-	-	2	-	-	-	2	-	-	15	2	0.2	0.1	10	135	511	0	0
				10	2006-02-15	-	150	-	-	-	1	-	5	4	2,400	-	-	-	2	-	-	-	2	-	-	2	-	-	-	-	129	488	0	0
				11	2006-03-22	-	135	-	-	-	1	-	11	3	>241 960 (?slp)	-	-	-	1.0	-	-	-	1.0	-	-	300	-	-	-	-	119	450	0	0
				12	2006-04-20	-	178	20	173,000	51	1	-	2	4	3,450	4	25	-	1.0	0.2	6	-	1.0	0.2	0.8	52	-	-	-	-	115	435	0	0
				13	2006-05-17	-	201	-	-	-	1	-	4	2	2,600	-	-	-	1.0	-	-	-	1.0	-	-	18	-	-	-	-	124	469	0	0
				14	2006-06-21	-	210	-	-	-	1	-	4	4	15,500	-	-	-	5	-	-	-	1.0	-	-	260	-	-	-	-	149	564	-	-
				15	2009-08-01	-	122	11	-	-	1	-	22	16	49,000	-	-	-	56	-	-	-	2	-	-	29	-	-	-	-	133	503	-	-
				16	2006-08-23	-	121	-	-	-	1	-	4	1	6,500	-	-	-	11	-	-	-	2	-	-	40	-	-	-	-	131	496	-	-
				17	2006-09-26	-	183	-	-	-	1	-	24	5	1,370	-	-	-	7	-	-	-	1.0	-	-	420	-	-	-	-	132	500	0	0
		FINAL TEST		18	2006-10-25	-	99	14	57,900	63	1	-	14	3	6,130	3	40	-	1.0	1	2	-	1.0	0.6	0.1	340	1.0	0.9	0.1	300	117	443	0	0
	Mean*						194	19	35,850	60	1		9	4	3,904	15	29	270	2	1	2	9	1	0	1	116	1	1	0	173	133	505	0	0
	Median						155	17	57,900	60	1		5	3	6,315	4	33	270	1	1	1	9	1	1	1	58	1	1	0	210	125	471	0	0
	Stand.Dev.						123	7		8	0		8	4		24	21			1	3			0	1	130		0		148	37	139	0	0
	CL90%						253	26	149,980	68	1		23	7	27,000	36	46	270	16	2	5	9	2	1	1	312	2	1	0	282	169	640	0	0
	n						18	7	3	4	17	0	18	18	16	4	4	1	18	4	4	1	18	4	4	18	3	3	3	3	18	18	15	15
15	Stevens-Jeff		I	1	2005-06-08	63	160	61	-	24	-	-	-	-	-	-	-	-	-	0.5	0.1	1	-	0.5	0.1	1	-	-	-	-	-	-	0	0
				1 (cont.)	2005-06-08/09	-	-	-	>1 600	-	-	-	22	-	>1 600	-	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-	-		
				2	2005-07-13	-	180	47	>1 600	68	1	-	11	8	>1 600	4	23	120	8	-	-	-	2	-	-	2	-	-	-	-	176	666	0	0
				3	2005-08-10	-	160	29	-	-	1.0	-	10	5	>1 600	-	-	-	2	-	-	-	2	-	-	2	-	-	-	-	238	901	0	0
				4	2005-09-14	-	150	-	-	-	1	-	17	7	13,000	-	-	-	2	-	-	-	2	-	-	1.0	-	-	-	-	-	-	0	0
				5	2005-10-12	-	220	-	-	-	1	-	13	1.0	54,000	-	-	-	2	-	-	-	2	-	-	1	-	-	-	-	-	-	0	0
				6	2005-11-09	-	210	29	1,600,000	29	1	-	2	8	79,000	10	30	-	2	2	0.4	-	2	0.5	0.1	70	-	-	-	-	-	-	0	0
				7	2005-12-14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	200	-	-	-	-	-	-	0	0
				8	2006-01-10	-	31	-	-	-	1	-	slp	slp	slp	-	-	-	2	-	-	-	2	-	-	140	-	-	-	-	-	-	-	-
				9	2006-02-07/09		210	37	-	-	1	-	23	19	54,000	-	-	-	2	-	-	-	2	-	-	170	-	-	-	-	-	-	-	-
				10	2006-03-08	-	123	-	-	-	1	-	slp	12	2,600	-	-	-	2	-	-	-	2	-	-	74	-	-	-	-	160	606	0	0
				11	2006-04-11	-	198	-	-	-	1	-	2	1.0	130,000	-	-	-	7	-	-	-	2	-	-	77	-	-	-	-	-	-	0	0
				12	2006-05-10	-	56	59	>1 600	27	1	-	2	3	200	8	1	-	2	3	0.5	-	2	0.2	15	94	-	-	-	-	171	647	-	-
				13	2006-06-13	-	152	-	-	-	1	-	56	16	920,000	-	-	-	2	-	-	-	2	-	-	85	-	-	-	-	211	799	-	-
				14	2006-07-19	-	71	-	-	-	1	-	6	5	24,000	-	-	-	2	-	-	-	2	-	-	88	-	-	-	-	254	961	-	-
				15	2006-08-30	-	100	39	-	-	1	-	18	14	92,000	-	-	-	2	-	-	-	2	-	-	68	-	-	-	-	185	700	-	-
				16	2006-09-20	-	150	-	-	-	1	-	*2*	2	*200*	-	-	-	2	-	-	-	2	-	-	150	-	-	-	-	273	1,033	-	-
				17	2006-10-19	-	212	-	-	-	1	-	31	15	2,300	-	-	-	2	-	-	-	2	-	-	86	-	-	-	-	315	1,192	-	-
		FINAL TEST		18	2006-11-15	-	142	20	790,000	46	1	-	13	2	110,000	8	4	-	2	0.3	*0.1*	-	2	1	0.1	71	-	-	-	-	435	1,646	-	-
	Mean*						148	40	1,124,278	39	1		15	8	17,999	7	14	120	2	1	0	1	2	1	4	77					242	915	0	0
	Median						152	38	1,195,000	29	1		13	7	54,000	8	14	120	2	1	0	1	2	1	0	76					225	850	0	0
	Stand.Dev.						57	15		18	0		14	6		3	14			1	0				7	61					84	319	0	0
	CL90%						211	60	1,519,000	59	1		28	16	126,000	10	28	120	4	3	0	1	2	1	10	156					327	1,238	0	0
	n						17	8	2	5	16	0	15	15	13	4	4	1	17	4	4	1	18	4	4	18	0	0	0	0	10	10	9	9

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
16	Hale		I	1	2005-06-09	64	220	98	-	64	-	-	4	6	-	1	62	110	-	2	2	41	-	1	4	12	-	-	-	-	-	-	0	0
				2	2005-07-13	-	160	-	-	-	1	-	2	3	920	-	-	-	2	-	-	-	2	-	-	6	-	-	-	-	-	-	0	0
				3	2005-08-10	-	190	43	-	-	1.0	-	2	2	1,600	-	-	-	2	-	-	-	2	-	-	6	-	-	-	-	197	746	0	0
				4	2005-09-14	-	120	-	-	-	1	-	2	15	220	-	-	-	2	-	-	-	2	-	-	4	-	-	-	-	62	235	-	-
				5	2005-10-12	-	170	-	-	-	1	-	2	1	110	-	-	-	2	-	-	-	2	-	-	3	-	-	-	-	-	-	0	0
				6	2005-11-09	-	80	28	16,000	1	1	-	2	3	490	30	55	-	2	0.5	4	-	2	0.5	4	1	-	-	-	-	-	-	0	0
				7	2005-12-14	-	-	-	-	-	-	-	slp	2	2	-	-	-	2	-	-	-	2	-	-	9	-	-	-	-	-	-	0	0
				8	2006-01-10	-	220	-	-	-	1	-	6	2	240	-	-	-	2	-	-	-	2	-	-	28	-	-	-	-	-	-	0	0
				9	2006-02-07/08	-	160	46	-	-	1	-	3	1.0	240	-	-	-	2	-	-	-	2	-	-	11	-	-	-	-	-	-	0	0
				10	2006-03-08/09	-	134	-	-	-	1	-	2	1	1,600	-	-	-	2	-	-	-	2	-	-	13	-	-	-	-	79	299	-	-
				11	2006-04-11	-	113	-	-	-	1	-	2	1.0	2,400	-	-	-	2	-	-	-	2	-	-	4	-	-	-	-	-	-	-	-
				12	2006-05-10	-	178	85	>1 600	32	1	-	3	3	79	0.2	31	-	2	1	7	-	2	0.2	8	15	-	-	-	-	133	503	0	0
				13	2006-06-13	-	157	-	-	-	1	-	2	3	3,500	-	-	-	8	-	-	-	4	-	-	9	-	-	-	-	184	696	-	-
				14	2006-07-19	-	138	-	-	-	1	-	2	1.0	>16 000	-	-	-	>1 600(slp)	-	-	-	2	-	-	7	-	-	-	-	-	-	-	-
				15	2006-08-30	-	101	43	-	-	1	-	2	3	54	-	-	-	2	-	-	-	4	-	-	15	-	-	-	-	73	276	-	-
				16	2006-09-20	-	118	-	-	-	1	-	3	3	*20*	-	-	-	2	-	-	-	2	-	-	6	-	-	-	-	107	405	-	-
				17	2006-10-19	-	119	-	-	-	1	-	2	7	>1 600	-	-	-	2	-	-	-	2	-	-	19	-	-	-	-	74	280	-	5
		FINAL TEST		18	2006-11-15	-	229	35	33,000	58	1	-	19	1.0	350	0.4	48	-	2	1	3	-	2	2	3	23	-	-	-	-	63	238	0	5.0
	Mean*						153	54	22,978	39	1		4	3	248	8	49	110	2	1	4	41	2	1	4	11					108	409	0	1
	Median						157	43	24,500	45	1		2	2	240	1	51	110	2	1	3	41	2	1	4	9					79	299	0	0
	Stand.Dev.						44	27		29	0		4	3		15	13			0	2			1	2	7					52	197	0	2
	CL90%						220	90	31,300	62	1		5	6	2,080	21	60	110	2	2	6	41	3	2	7	20					187	706	0	5
	n						17	7	2	4	16	0	17	18	15	4	4	1	16	4	4	1	17	4	4	18	0	0	0	0	9	9	10	11
17	Reed		I	1	2005-06-14	64	200	35	-	50	-	-	-	-	-	-	-	-	-	2	0.5	18	-	13	0.1	41	-	1	5	5	-	-	0	0
				2	2005-07-14	-	99	34	>1 600	35	1	-	-	-	-	-	-	-	1.0	-	-	-	1.0	-	-	47	-	-	-	-	-	-	0	0
				3	2005-08-11	-	160	22	>1 600	35	1.0	-	14	slp	>1 600	8	20	120	2	-	-	-	2	-	-	43	-	-	-	-	-	-	0	0
				4	2005-09-15	-	130	-	-	-	1.0	-	8	26	22,000	-	-	-	2	-	-	-	2	-	-	30	-	-	-	-	-	-	0	0
				5	2005-10-13	-	110	-	-	-	1.0	-	5	3	200	-	-	-	2	-	-	-	2	-	-	18	-	-	-	-	366	1,385	0	0
				6	2005-11-10	-	140	19	11,000	25	1	-	2	5	17,000	8	40	-	2	1	21	-	2	2	17	33	-	-	-	-	138	522	-	-
				7	2005-12-15	-	170	-	-	-	1	-	6	2	2	-	-	-	2	-	-	-	2	-	-	33	-	-	-	-	134	507	0	0
				8	2006-01-12	-	150	-	-	-	1	-	8	13	9,200	-	-	-	2	-	-	-	2	-	-	88	-	-	-	-	136	515	0	0
				9	2006-02-09	-	210	44	-	-	1	-	4	3	200	-	-	-	2	-	-	-	2	-	-	73	2	1	10	8	112	424	0	0
				10	2006-03-09	-	156	-	-	-	1	-	slp	6	16,000	-	-	-	2	-	-	-	2	-	-	74	-	-	-	-	103	390	0	0
				11	2006-04-13	-	174	-	-	-	1	-	2	3	2,800	-	-	-	170(slp)	-	-	-	2	-	-	62	-	-	-	-	-	-	0	0
				12	2006-05-11	-	130	89	>1 600	34	1	-	21	56	540	17	8	-	2	0.2	27	-	2	3	0.1	43	-	-	-	-	204	772	0	0
				13	2006-06-15	-	96	-	-	-	1	-	5	13	54,000	-	-	-	2	-	-	-	2	-	-	30	-	-	-	-	175	662	-	-
				14	2006-07-20	-	176	-	-	-	1	-	3	5	24,000	-	-	-	2	-	-	-	2	-	-	50	-	-	-	-	168	636	-	-
				15	2006-08-30	-	83	40	-	-	1	-	6	1	2	-	-	-	2	-	-	-	2	-	-	86	-	-	-	-	111	420	-	-
				16	2006-09-21	-	91	-	-	-	1	-	3	2	2	-	-	-	2	-	-	-	2	-	-	44	-	-	-	-	194	734	-	-
				17	2006-10-18	-	124	-	-	-	1	-	3	6	260	-	-	-	2	-	-	-	2	-	-	61	-	-	-	-	139	526	-	-
		FINAL TEST		18	2006-11-16	-	135	32	3,500,000	51	1	-	12	2	12	6	6	-	2	1	34	-	2	5	0.1	35	2	0.2	4	4	112	424	0	0
	Mean*						141	39	196,214	38	1		7	10	544	10	18	120	2	1	21	18	2	6	4	50	2	1	7	6	161	609	0	0
	Median						138	35	1,755,500	35	1		5	5	540	8	14	120	2	1	24	18	2	4	0	44	2	1	5	5	138	522	0	0
	Stand.Dev.						37	22		10	0		5	14		5	16			1	14			5		20		0	3	2	70	264	0	0
	CL90%						183	58	3,151,100	50	1		13	21	23,200	14	34	120	2	1	32	18	2	11	12	78	2	1	9	7	202	765	0	0
	n						18	8	2	6	17	0	15	15	15	4	4	1	16	4	4	1	17	4	4	18	2	3	3	3	13	13	12	12

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
18	Palmer		I	1	2005-06-07	55	130	73	1,600	48	-	-	71	9	>1 600	12	0.1	76	2	2	0.1	27	2	2	0.1	44	2	10	0.1	47	76	288	0	24
				2	2005-07-12	-	110	-	-	-	20	-	8	2	920	-	-	-	2	-	-	-	2	-	-	36	-	-	-	-	101	382	0	0
				3	2005-08-09	-	300	49	-	-	-	-	8	1.0	>1 600	-	1	-	2	-	-	-	2	-	-	22	-	-	-	-	196	742	0	0
				4	2005-09-13	-	350	-	-	-	1.0	-	8	2	160,000	-	-	-	2	-	-	-	2	-	-	20	-	-	-	-	180	681	0	0
				5	2005-10-11	-	120	-	-	-	1.0	-	28	6	26,000	-	-	-	2	-	-	-	2	-	-	20	-	-	-	-	-	-	0	0
				6	2005-11-08	-	160	58	49,000	102	1	-	6	2	13,000	6	30	-	2	4	0.2	-	2	2.2	0.1	24	-	-	-	-	112	424	0	0
				7	2005-12-13	-	130	-	-	-	1	-	26	10	54,000	-	-	-	2	-	-	-	2	-	-	27	-	-	-	-	111	420	0	0
				8	2006-01-11	-	160	-	-	-	1	-	20	8	240,000	-	-	-	2	-	-	-	2	-	-	32	-	-	-	-	121	458	-	-
				9	2006-02-08	-	200	39	-	-	1	-	22	11	2,300	-	-	-	2	-	-	-	2	-	-	22	2	2	0.1	81	96	363	0	0
				10	2006-03-07	-	214	-	-	-	1	-	20	14	slp	-	-	-	2	-	-	-	2	-	-	19	-	-	-	-	-	-	0	0
				11	2006-04-12	-	slp	-	-	-	slp	-	slp	slp	slp	-	-	-	slp	-	-	-	slp	-	-	slp	-	-	-	-	-	-	-	-
				12	2006-05-10	-	189	83	>1 600	20	1	-	7	9	160,000	8	23	-	2	2	0.3	-	2	2	0.1	29	-	-	-	-	129	488	-	-
				13	2006-06-14	-	206	-	-	-	1	-	12	7	140,000	-	-	-	31	-	-	-	31	-	-	24	-	-	-	-	164	621	-	-
				14	2006-07-19	-	190	-	-	-	1	-	16	9	160,000	-	-	-	2	-	-	-	22	-	-	25	-	-	-	-	138	522	-	-
				15	2006-08-31	-	68	80	-	-	1	-	6	3	24,000	-	-	-	7	-	-	-	2	-	-	37	-	-	-	-	114	431	-	-
				16	2006-09-19	-	37	-	-	-	1	-	3	1.0	830	-	-	-	2	-	-	-	2	-	-	76	-	-	-	-	287	1,086	-	-
				17	2006-10-17	-	59	-	-	-	1	-	3	5	680	-	-	-	2	-	-	-	2	-	-	74	-	-	-	-	178	674	-	-
		FINAL TEST		18	2006-11-14	-	34	37	26,000	40	1	-	2	1	620	8	35	-	2	2	0.2	-	2	4	0.1	51	2	1	0.1	58	159	602	16	30
	Mean*						156	60	12,679	52	2		16	6	15,462	8	18	76	3	3	0	27	3	3		34	2	4		62	144	546	2	5
	Median						160	58	26,000	44	1		8	6	25,000	8	23	76	2	2	0	27	2	2		27	2	2		58	129	488	0	0
	Stand.Dev.						86	19		35	5		16	4		3	16			1	0			1		18		5		17	53	199	5	11
	CL90%						248	81	44,400	86	1		27	10	160,000	11	33	76	4	4	0	27	10	3		60	2	8		76	190	718	2	25
	n						17	7	3	4	15	0	17	17	14	4	5	1	17	4	4	1	17	4	4	17	3	3	3	3	15	15	10	10
19	Thompson	Glendale	III	1	2005-11-02	3	410	39	>241 960	59	1	-	2	1	860	2	27	42	1	0.5	3	86	1	1	4	28	-	-	-	-	-	-	0	0
	STB-650			2	2005-11-30	-	270	-	-	-	1	-	6	1.0	870	-	-	-	1.0	-	-	-	1	-	-	9	-	-	-	-	-	-	0	0
				3	2005-12-29	-	320	25	-	-	1	-	2	1.0	5	-	-	-	1.0	-	-	-	1.0	-	-	21	1.0	-	-	18	-	-	-	-
				4	2006-01-26	-	380	-	-	-	1	-	2	1.0	120	-	-	-	2	-	-	-	2	-	-	18	-	-	-	-	-	-	0	0
				5	2006-02-22	-	400	-	-	-	1	-	2	1.0	290	-	-	-	2	-	-	-	2	-	-	17	-	-	-	-	69	261	-	-
				6	2006-03-23	-	380	37	>241 960	62	1	-	5	1	116	0	37	-	1	0	0	-	1	0	1	5	-	-	-	-	-	-	-	-
				7	2006-04-19	-	474	-	-	-	1	-	2	2	5,480	-	-	-	1.0	-	-	-	1.0	-	-	1	-	-	-	-	-	-	0	0
				8	2006-05-18	-	327	-	-	-	1	-	2	3	2	-	-	-	1.0	-	-	-	1.0	-	-	2	-	-	-	-	111	420	-	-
				9	2006-06-22	-	388	54	-	-	1	-	2	1.0	62	-	-	-	1.0	-	-	-	1.0	-	-	1					-	-	-	-
				10	2006-07-31		211	-	-	-	1	-	4	1.0	2,200	-	-	-	2	-	-	-	2	-	-	4	-	-	-	-	101	382	-	-
				11	2006-08-22	-	175	-	-	-	1	-	2	1	260	-	-	-	2	-	-	-	2	-	-	3	-	-	-	-	163	617	-	-
				12	2006-09-27	-	251	35	>241 960	112	1	-	2	1	238	1	25	-	1.0	1	1	-	1.0	1	2	7	-	-	-	-	43	163	0	0
				13	2006-10-24	-	231	-	-	-	1	-	8	5	172	-	-	-	1.0	-	-	-	1.0	-	-	6	-	-	-	-	-	-	0	0
				14	2006-11-20	-	303	120	-	-	1	-	2	7	365	-	-	-	1.0	-	-	-	1.0	-	-	7	-	-	-	-	49	185	0	0
				15	2006-12-11	-	336	63	-	-	1	-	30	21	15,500	-	-	-	1.0	-	-	-	1.0	-	-	10	-	-	-	-	69	261	0	0
				16	2007-01-25	-	343	-	-	-	1	-	2	10	28	-	-	-	1	-	-	-	1	-	-	6	-	-	-	-	51	193	0	0
				17	2007-02-13	-	421	-	-	-	1	-	5	19	537	-	-	-	1	-	-	-	1	-	-	3	-	-	-	-	38	144	0	0
				18	2007-03-22	-	257	50	>2419600	83	1	-	2	2	60	0	23	-	1	0.6	0.25	-	1	0.4	0.1	5	1	0.4	0.1	3	44	167	-	-
	Mean*						327	53		79	1		5	4	218	1	28	42	1	1	1	86	1	1	2	9	1			10	74	279	0	0
	Median						332	45		73	1		2	1	249	1	26	42	1	1	1	86	1	1	1	6	1			10	69	261	0	0
	Stand.Dev.						81	30		24	0		7	6		1	6			0	1			0	2	8				11	42	159	0	0
	CL90%						413	80		103	1		7	13	3,184	2	34	42	2	1	3	86	2	1	4	19	1			16	132	499	0	0
	n						18	8	0	4	18	0	18	18	18	4	4	1	18	4	4	1	18	4	4	18	2	0	0	2	7	7	8	8
20	Garcia	Madison	IV	1	2006-01-31	6	170	36	12	30	1	-	2	1	5	0.2	35	36	2	0.2	13	16	2	0.2	0.2	7	2	0.2	0.6	41	-	-	-	-
	STB-650			2	2006-02-23	-	140	-	-	-	1	-	4	2	2,200	-	-	-	2	-	-	-	2	-	-	2	-	-	-	-	125	473	-	-
				3	2006-03-29	-	163	61	-	-	1	-	3	1	184	-	-	-	1.0	-	-	-	1.0	-	-	2	-	-	-	-	129	488	-	-
				4	2006-04-25	-	162	-	-	-	1	-	2	2	205	-	-	-	1.0	-	-	-	1.0	-	-	3	-	-	-	-	57	216	0	0
				5	2006-05-25	-	151	-	-	-	1	-	2	1	45	-	-	-	1.0	-	-	-	1.0	-	-	2	-	-	-	-	179	678	-	-
				6	2006-06-22	-	270	62	>241 960	70	1	-	4	1.0	387	19	25	-	-	-	-	-	-	-	-	-	-	-	-	128	484	-	-
				7	2006-08-02	-	189	-	-	-	1	-	2	1.0	370	-	-	-	2	-	-	-	2	-	-	1	-	-	-	-	125	473	-	-
				8	2006-08-24	-	156	-	-	-	1	-	2	1	2,400	-	-	-	2	-	-	-	2	-	-	3	-	-	-	-	135	511	-	-
				9	2006-09-28	-	206	43	-	-	1	-	5	1.0	9	-	-	-	1.0	1	2	-	1.0	1	2	4	-	-	-	-	138	522	-	-
				10	2006-10-26	-	155	-	-	-	1	-	2	1.0	488	-	-	-	1.0	-	-	-	1.0	-	-	3	-	-	-	-	162	613	-	-
				11	2006-11-21	-	219	-	-	-	1	-	2	1.0	53	-	-	-	1.0	-	-	-	1.0	-	-	1.0	-	-	-	-	181	685	0	0
				12	2006-12-12	-	184	56	242,000	71	1	-	2	1.0	22	6	48	-	1.0	0	2	-	1.0	0	2	4	-	-	-	-	402	1,522	0	0
				13	2007-01-24		209	-	-	-	1	-	2	1	55	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	171	647	0	0
				14	2007-02-20	-	171	-	-	-	1	-	5	1	816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	162	613	0	0
				15	2007-03-20	-	179	31	-	-	-	-	6	2	613	-	-	-	1	-	-	-	1	-	-	1	-	-	-	-	156	590	0	0
				16	2007-04-18						1																				149	564	0	0
	Mean*						182	48	1,704	57	1		3	1	157	8	36	36	1	0	6	16	1	1	1	3	2	0	1	41	160	605	0	0
	Median						171	50	121,006	70	1		2	1	205	6	35	36	1	0	2	16	1	0	2	2	2	0	1	41	149	564	0	0
	Stand.Dev.						33	13		23	0		1	0		9	12			0	6			0	1	2					74	278	0	0
	CL90%						215	62	217,801	71	1		5	2	1,646	16	45	36	2	1	11	16	2	1	2	4	2	0	1	41	180	682	0	0
	n						15	6	2	3	15	0	15	15	15	3	3	1	13	3	3	1	13	3	3	13	1	1	1	1	15	15	3	3
21	Loomis	Mt Jackson	IV	1	2006-09-14	8	124	36	>241 960	67	1	-	9	2	54,800	3	29	45	1	0.2	6	10	1	0.2	0.4	10	-	-	-	-	-	-	-	-
	STB-650			2	2006-10-12	-	95	-	-	-	1	-	8	2	1,790	-	-	-	1	-	-	-	1	-	-	16	-	-	-	-	124	469	-	-
				3	2006-11-09	-	88	120	-	-	1	-	10	2	16,200	-	-	-	1	-	-	-	3	-	-	19	-	-	-	-	43	163	-	-
				4	2006-12-05	-	195	-	-	-	1	-	10	6	4,610	-	-	-	1.0	-	-	-	1.0	-	-	7	-	-	-	-	79	299	0	0

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

					Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
Sites	**County**	**Soil type**	**Sampling**	**Date**	**Chloride**	**BOD_5**	**TSS**	**Fecal**	**TKN**	**$N\text{-}NO_x$** field test	**Chloride**	**BOD_5**	**TSS**	**Fecal**	**TKN**	**$N\text{-}NO_x$**	**Chloride**	**Fecal**	**TKN**	**$N\text{-}NO_x$**	**Chloride**	**Fecal**	**TKN**	**$N\text{-}NO_x$**	**Chloride**	**Fecal**	**TKN**	**$N\text{-}NO_x$**	**Chloride**	**gpd**	**L/d**	**Central support**	**Edge of abs. field**
			5	2007-01-09	-	169	-	-	-	<1	-	13	4	2,610	-	-	-	2	-	-	-	*1*	-	-	14	-	-	-	-	298		0	0
			6	2007-02-28	-	-	-	-	-	<1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		0	0
			7	2007-03-21	-	244	27	29,100	86	-	-	-	-	-	-	-	-	*1*	1	8	-	*1*	0	1	3	-	-	-	-	24		-	-
			8	2007-04-19						<1																				32		-	-
Mean*						126	78		67	1		9	3	9,252	3	29	45	1		6	10	1		0	13					82	310	0	0
Median						110	78		67	1		9	2	10,405	3	29	45	1		6	10	1		0	13					79	299	0	0
Stand.Dev.						49	59			0		1	2												5					41	154		
CL90%						174	112		67	1		10	5	43,220	3	29	45	1		6	10	2		0	18					115	435	0	0
n						4	2	0	1	4	0	4	4	4	1	1	1	4	1	1	1	4	1	1	4	0	0	0	0	3	3	1	1

VIRGINIA
Monitoring Protocol

Realised by:
Delmarva Septic Solutions
Premier Tech Environment

Collaboration of:
Dr. Robert Rubin
Bruce King

Notes:
- L1: 12 inches underneath the bottom of the Ecoflo absorption fiel
- L2: 12 inches underneath the Ecoflo absorption field and 10 feet apart the foot print of the absorption fie
- L3: Up gradient to measure the background contaminatio
- nw: no water.
- slp : sampling or laboratory problems.
- Mean*: geometric mean for fecal coliform

						Tap water	ECOFLO influent (septic tank effluent)						Ecoflo effluent						L1				L2				L3				Mean flow Rate		Ponding (cm)	
	Sites	County	Soil type	Sampling	Date	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$ field test	Chloride	BOD_5	TSS	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	Fecal	TKN	$N\text{-}NO_x$	Chloride	gpd	L/d	Central support	Edge of abs. field
Soil	Types of soil		I																															
	Mean*						171	42	48,963	48	1	140	10	6	1,695	13	21	92	2	3	7	43	2	4	3	59	2	2	4	35	159	602	8	9
	Median						160	37	54,000	35	1	140	8	3	920	8	20	105	2	1	2	28	2	1	1	31	2	1	4	36	138	522	0	0
	Stand.Dev.						82	20		44	2		10	8		18	18	36		7	10	50		11	6	172		3	5	27	67	255	17	17
	CL90%						298	78	1,276,000	78	1	140	20	14	92,600	28	45	120	2	5	21	91	2	8	13	86	2	4	10	58	241	913	37	39
	n						105	44	15	27	98	1	99	101	90	24	25	6	102	24	24	6	104	24	24	106	11	12	12	11	69	69	77	74
Soil	Types of soil		II																															
	Mean*						184	21	19,737	35	1		8	5	729	7	23	66	2	1	6	82	2	0.9	4	37	2	0.5	2	46	126	478	4	9
	Median						188	16	29,000	31	1		7	4	920	2	21	54	2	1	3	81	2	0.3	1	27	2	0.3	1	42	123	464	0	0
	Stand.Dev.						99	12		17	0		5	4		13	16	31		2	8	50		1.2	6	28		0.6	3	36	40	150	8	13
	CL90%						312	41	160,000	61	1		14	11	18,400	15	43	104	2	3	19	147	2	3	10	65	2	1.0	6	88	166	628	16	29
	n						106	44	21	25	103	0	108	108	100	25	24	6	109	24	24	8	108	25	25	106	19	17	18	18	60	60	105	99
Soil	Types of soil		III																															
	Mean*						205	36	96,225	69	1		8	8	1,010	10	21	180	2	6	2	338	1	3	1	153	1	1.0	2	223	186	645	7	12
	Median						175	30	150,500	63	1		6	5	1,160	5	17	190	2	1	1	53	1	1	0.5	52	2	0.4	1	127	111	416	0	0
	Stand.Dev.						153	28		53	0		8	9		12	18	153		9	2	672		10	1	180		1.4	3	356	205	709	10	17
	CL90%						437	65	196,040	105	1		15	20	28,000	24	47	346	2	21	6	955	2	2	3	418	2	3	3	354	544	1,960	19	36
							108	44	12	25	104	0	106	108	98	25	25	7	106	24	24	6	106	25	24	103	14	13	13	14	65	63	93	87
Soil	Types of soil		IV																															
	Mean*						173	52	4,388	65	1		5	2	409	7	34	41	1	0	6	13	1	0	1	5	2	0	1	41	136	556	0	0
	Median						170	43	29,100	70	1		3	1	438	4	32	41	1	0	6	13	1	0	1	3	2	0	1	41	132	517	0	0
	Stand.Dev.						44	28		21	0		3	1		8	10	6		0	5	5		0	1	5					88	282	0	0
	CL90%						219	74	199,420	80	1		10	2	5,769	15	44	44	2	1	11	15	2	1	2	14	2	0	1	41	181	680	0	0
	n						21	9	3	5	19	0	20	20	20	4	4	2	19	5	5	2	19	5	5	19	1	1	1	1	22	18	10	10
Gen	All datas																																	
	Mean*						186	34	34,262	51	1	140	8	6	1,029	10	22	109	2	3	5	135	2	3	3	78	2	1	3	99	156	575	6	10
	Median						170	30	57,900	42	1	140	6	4	920	4	21	76	2	1	2	35	2	1	1	30	2	0	1	43	127	481	0	0
	Stand.Dev.						113	23		42	1	#DIV/0!	8	7		14	17	102		7	7	354		8	5	149		2	4	215	125	433	12	15
	CL90%						343	63	240,000	83	1	140	16	15	34,300	25	48	270	2	8	19	152	2	4	7	212	2	2	8	205	249	897	20	32
	n						340	141	51	82	324	1	333	337	308	78	78	21	336	77	77	22	337	79	78	334	45	43	44	44	216	210	287	272