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MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

NATIONAL ASSEMBLY: QUESTION 3547 FOR WRITTEN REPLY

A draft reply to the above-mentioned question asked by Mrs A T Lovemore (DA); is attached for your consideration.

ACTING DIRECTOR-GENERAL

DATE: 8/12/2010

DRAFT REPLY APPROVED/AMENDED

MRS B E EMOLEWA, MP
MINISTER OF WATER AND ENVIRONMENTAL AFFAIRS

DATE: 2010/112/14

NATIONAL ASSEMBLY

FOR WRITTEN REPLY

QUESTION NO 3547

DATE OF PUBLICATION IN INTERNAL QUESTION PAPER: 26 NOVEMBER 2010 (INTERNAL QUESTION PAPER NO. 39)

3547. Mrs A T Lovemore (DA) to ask the Minister of Water and Environmental Affairs:

- (1) With reference to the reply to question 1904 on 18 Augustus 2010, (a) what are the results of analysed water samples that were taken from the Swartkops River in the Eastern Cape since 1 June 2010 and (b) who is responsible for the monitoring;
- whether she has received an action plan from the Nelson Mandela Bay Municipality (NMBM), as requested, to deal with the pollution of the Swartkops River; if not, why not; if so, (a) what action (i) has been taken or (ii) will be taken against the municipality, (b) what are the details of the action plan and (c) to what extent will the plan (i) deal with and (ii) affect the pollution problem;
- (3) whether the municipality submits the results of analyses of water samples from the Swartkops River to her department; if not, why not; if so, what are the details of the samples that were taken since (a) 4 May 2010 from Zwartkops Estuary at (i) Girdlestone Redhouse, (ii) Lafarge Quarry and (iii) Motherwell canal and (b) 6 May 2010 from the Swartkops River at (i) Frans Claasen Bridge and (ii) Van Schalkwyk Bridge;
- whether she has been informed that the municipality has refused to make the results of its monitoring of the river available to the public; if not, what is the position in this regard; if so, what action will she take to ensure that the results are made freely available to interested parties?

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REPLY:

- (1)(a) Refer to **Annexure A** for the results of analysed water samples taken from the Swartkops River for the period 1 June 2010 to November 2010.
- (1)(b) The Department's Regional Office: Eastern Cape is responsible for the monitoring of the Swartkops River.
- (2)(a) No, the Department has not yet received a final action plan from the Nelson Mandela Bay Municipality (NMBM). However, during a meeting held on 2 December 2010 between the Department, the NMBM and their specialist consultants (dealing with the action plan on behalf of the NMBM), the NMBM reported on the progress made since the appointment of consultants to draw up the action plan.

(2)(a)(i) And

(2)(a)(ii) At this stage, the Department has and will not take action against the NMBM as there is evidence of a commitment to address the problems at the Swartkops River.

- (2)(b) The plan has identified the following key focus areas amongst others; artificial wetland monitoring at lower reaches of Motherwell Canal including an option of upgrading this artificial wetland; sewage spillages; storm water ingresses and water leaks; litter and waste; litter traps in the canal; investigation of Markman Canal including pollution sources. As this is a working document, progress on some of the above issues will be reported at the next meeting scheduled for the beginning of 2011.
- (2)(c)(i) The plan will deal with key focus areas as mentioned in 2(b).
- (2)(c)(ii) The action plan has identified short and long term activities. If the NMBM implements the plan, then the water quality will improve in the Swartkops River.
- (3) No, the NMBM has not submitted the results to the Department. However, because the Department is now part of the Action Plan Committee for Swartkops River, it is expected that all sampled results will be discussed by the committee members.
- (3)(a)(i) Falls away
- (3)(a)(ii) Falls away
- (3)(a)(iii) Falls away
- (3)(b)(i) Falls away
- (3)(b)(ii) Falls away
- (4) The Department has not been informed that the NMBM has refused to share its findings with the general public or interested parties. However, the Department will write to the NMBM to advise them of steps that are required to sensitise the community regarding measures that needs to be taken by the public to avert any potential danger or harm, if any.

ANNEXURE A

RESULTS OF WATER ANALYSIS OF THE SWARTKOPS RIVER

			3300							
SWARTKOP	S RI	VER AT	FRAN	IS C	LAAS	EN BR	IDGE			
Name										
DATE	рН	EC	TSS	OA	COD	NH3	PO4	NO3	F.COL	E.coli
2010/07/28	7.3	444	39	5	57	2.33	1.98	5.05	70	56
2010/09/06	7.7	404	30		72	1.25	1.89	4.90	1360	760
2010/10/21	8.3	460	28		<20	0.24	1.03	1.84	70	54
2010/11/17	7.6	313	20		49	1.52	0.92	1.79	1550	930
SWARTKOP	'S RI	VER AT	VAN	SCH	ALKV	/YK BF	RIDGE1			
										10000000
DATE	рН	EC	TSS	OA	COD	0.0000000000000000000000000000000000000	PO4	NO3	F.COL	E.coli
2010/07/28	7.2	338	16		30	11.5	7.23	0.91	258	162
2010/09/06	7.2	346	42		65	12.3	10.8	0.59	222	160
2010/10/21	7.0	344	81		37	8.76	7.13	0.57	1700	1600
2010/11/17	7.3	267	54		37	1.99	3.56	1.19	800	800
SWARTKOP	SRI	VER AT	VAN	SCH	ALKV	YK BF	RIDGE 2	2		
DATE	рН	EC	TSS	OA		NH3	PO4	NO3	F.COL	E.coli
2010/07/28	7.2	330	<10		53	12.7	7.96	0.36	112	76
2010/09/06	7.2	362	<10		49	10.7	12.2	0.24	102	74
2010/10/21	7.1	350	28		<20	6.71	6.33	0.18	790	540
2010/11/17	7.1	255	20		81	2.72	4.19	0.15	58	42
					01	2.12				
				EVE			DGE (C			BRIDGI
SWARTKOP	S RIV	/ER AT	PERS		RANG	CE BRI		LD BI	ROKENI	
SWARTKOP DATE	S RIV	/ER AT	PERS		RANG	DE BRI	PO4	LD BI	ROKEN I	E.coli
SWARTKOP DATE 2010/07/28	PH 7.6	EC 401	PERS TSS 14		COD 30	NH3 0.87	PO4 8.56	NO3 2.65	F.COL 1260	E.coli 800
DATE 2010/07/28 2010/09/06	pH 7.6 8.2	VER AT EC 401 431	TSS 14 30		COD 30 46	NH3 0.87 0.20	PO4 8.56 9.12	NO3 2.65 0.85	F.COL 1260 362	E.coli 800 136
DATE 2010/07/28 2010/09/06 2010/10/21	pH 7.6 8.2 7.9	EC 401 431 457	TSS 14 30 15		COD 30 46 <20	NH3 0.87 0.20 0.30	PO4 8.56 9.12 4.70	NO3 2.65 0.85 1.17	F.COL 1260 362 92	E.coli 800 136 71
DATE 2010/07/28 2010/09/06	pH 7.6 8.2	VER AT EC 401 431	TSS 14 30		COD 30 46	NH3 0.87 0.20	PO4 8.56 9.12	NO3 2.65 0.85	F.COL 1260 362	E.coli 800 136
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17	pH 7.6 8.2 7.9 7.7	EC 401 431 457 300	TSS 14 30 15 12	OA	COD 30 46 <20 49	NH3 0.87 0.20 0.30 <0.08	PO4 8.56 9.12 4.70 3.49	NO3 2.65 0.85 1.17	F.COL 1260 362 92	E.coli 800 136 71
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17	pH 7.6 8.2 7.9 7.7	EC 401 431 457 300	TSS 14 30 15 12	OA	COD 30 46 <20 49	NH3 0.87 0.20 0.30 <0.08	PO4 8.56 9.12 4.70 3.49	NO3 2.65 0.85 1.17	F.COL 1260 362 92	E.coli 800 136 71
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP	pH 7.6 8.2 7.9 7.7	EC 401 431 457 300	PERS 14 30 15 12	OA	COD 30 46 <20 49	NH3 0.87 0.20 0.30 <0.08	PO4 8.56 9.12 4.70 3.49	NO3 2.65 0.85 1.17 3.24	F.COL 1260 362 92 40	E.coli 800 136 71 36
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE	pH 7.6 8.2 7.9 7.7 S ES	EC 401 431 457 300 TAURY	PERS 14 30 15 12 @ LA	OA	COD 30 46 <20 49 GE Q	NH3 0.87 0.20 0.30 <0.08	PO4 8.56 9.12 4.70 3.49	NO3 2.65 0.85 1.17 3.24	F.COL 1260 362 92 40 F.COL	E.coli 800 136 71 36
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29	pH 7.6 8.2 7.9 7.7 S ES pH 7.9	EC 401 431 457 300 TAURY COND 420	PERS 14 30 15 12 @ LA TSS 29	OA	COD 30 46 <20 49 GE Q COD 67	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16	NO3 2.65 0.85 1.17 3.24 NO3 1,93	F.COL 1260 362 92 40 F.COL 210	E.coli 800 136 71 36 E.coli 200
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7	EC 401 431 457 300 TAURY COND 420 452	PERS 14 30 15 12 @ LA TSS 29 37	OA	COD 30 46 <20 49 GE Q COD 67	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90	PO4 8.56 9.12 4.70 3.49 PO4 8.16 4.33	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03	F.COL 1260 362 92 40 F.COL 210 75	E.coli 800 136 71 36 E.coli 200 49
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29	pH 7.6 8.2 7.9 7.7 S ES pH 7.9	EC 401 431 457 300 TAURY COND 420	PERS 14 30 15 12 @ LA TSS 29	OA	COD 30 46 <20 49 GE Q COD 67	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16	NO3 2.65 0.85 1.17 3.24 NO3 1,93	F.COL 1260 362 92 40 F.COL 210	E.coli 800 136 71 36 E.coli 200
DATE 2010/07/28 2010/09/06 2010/11/17 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5	VER AT EC 401 431 457 300 TAURY COND 420 452 321	PERS 14 30 15 12 @ LA TSS 29 37 23	OA FAR	COD 30 46 <20 49 GE Q COD 67 46 34	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65	NO3 2.65 0.85 1.17 3.24 NO3 1.93 1.03 0.25	F.COL 1260 362 92 40 F.COL 210 75	E.coli 800 136 71 36 E.coli 200 49
DATE 2010/07/28 2010/09/06 2010/11/17 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5	VER AT EC 401 431 457 300 TAURY COND 420 452 321	PERS 14 30 15 12 @ LA TSS 29 37 23	OA FAR	COD 30 46 <20 49 GE Q COD 67 46 34	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65	NO3 2.65 0.85 1.17 3.24 NO3 1.93 1.03 0.25	F.COL 1260 362 92 40 F.COL 210 75	E.coli 800 136 71 36 E.coli 200 49
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP	PS RIV 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5	EC 401 431 457 300 TAURY COND 420 452 321 TUARY	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20 NE REL	PO4 8.56 9.12 4.70 3.49 PO4 8.16 4.33 2.65	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25	F.COL 1260 362 92 40 F.COL 210 75 92	E.coli 800 136 71 36 E.coli 200 49 46
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP DATE	PS RIV 7.6 8.2 7.9 7.7 S ES PH 7.9 7.7 8.5 S ES	EC 401 431 457 300 TAURY COND 420 452 321 TUARY	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20 NE REC	PO4 8.56 9.12 4.70 3.49 PO4 8.16 4.33 2.65 PO4	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25	F.COL 210 75 92 F.COL	E.coli 800 136 71 36 E.coli 200 49 46
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP DATE 2010/07/29	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES	EC 401 431 457 300 TAURY COND 420 452 321 TUARY COND 3900	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34 STON COD 844	NH3 0.87 0.20 0.30 <0.08 NH3 <0.08 0.90 0.20 NE REI NH3 0.12	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 DHOUS	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25 E	F.COL 210 75 92 F.COL 210 75 92 F.COL	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES	EC 401 431 457 300 TAURY COND 420 452 321 TUARY COND 3900 3280	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34 STON 844 577	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20 NE REL NH3 0.12 0.50	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 DHOUS PO4 1.83 2.31	NO3 2.65 0.85 1.17 3.24 NO3 1.93 1.03 0.25 E NO3 0.59 0.65	F.COL 210 75 92 F.COL 210 75 92	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP DATE 2010/07/29	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES	EC 401 431 457 300 TAURY COND 420 452 321 TUARY COND 3900	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34 STON COD 844	NH3 0.87 0.20 0.30 <0.08 NH3 <0.08 0.90 0.20 NE REI NH3 0.12	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 DHOUS	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25 E	F.COL 210 75 92 F.COL 210 75 92 F.COL	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15	PS RIV 7.6 8.2 7.9 7.7 S ES PH 7.9 7.7 8.5 S ES PH 8.1 8.8 8.3	EC 401 431 457 300 TAURY COND 420 452 321 TUARY COND 3280 2610	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118 78	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34 STON COD 844 577 391	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20 NE REI NH3 0.12 0.50 0.33	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 DHOUS PO4 1.83 2.31 1.44	NO3 2.65 0.85 1.17 3.24 NO3 1.93 1.03 0.25 E NO3 0.59 0.65	F.COL 210 75 92 F.COL 210 75 92	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70
DATE 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15	PS RIV 7.6 8.2 7.9 7.7 S ES PH 7.9 7.7 8.5 S ES PH 8.1 8.8 8.3	EC 401 431 457 300 TAURY COND 420 452 321 TUARY COND 3280 2610	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118 78	OA FAR OA	COD 30 46 <20 49 GE Q COD 67 46 34 STON COD 844 577 391	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20 NE REI NH3 0.12 0.50 0.33	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 DHOUS PO4 1.83 2.31 1.44	NO3 2.65 0.85 1.17 3.24 NO3 1.93 1.03 0.25 E NO3 0.59 0.65	F.COL 210 75 92 F.COL 210 75 92	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES pH 8.1 8.8 8.3	## COND ##	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118 78	FAR	COD 30 46 <20 49 GE Q COD 67 46 34 STON COD 844 577 391	NH3 0.87 0.20 0.30 <0.08 UARR NH3 <0.08 0.90 0.20 NE REI NH3 0.12 0.50 0.33	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 PO4 1.83 2.31 1.44	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25 E NO3 0.59 0.65 0.11	F.COL 210 75 92 F.COL 210 75 92 F.COL 76 1	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70 1 4
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES pH 8.1 8.8 8.3	## COND COND 3900 3280 2610 COND COND	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118 78 MOTH TSS	FAR	COD 30 46 <20 49	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.20 0.20 NE REI NH3 0.12 0.50 0.33 CANAL NH3	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 PO4 1.83 2.31 1.44	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25 E NO3 0.59 0.65 0.11	F.COL 210 75 92 F.COL 76 1 4	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70 1 4
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/10/19 2010/11/15	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES pH 8.1 8.8 8.3 S RIV pH 8.0	EC 401 431 457 300 TAURY COND 420 452 321 TUARY COND 3280 2610 COND 2360	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118 78 MOTH TSS 68	FAR	COD 30 46 <20 49	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.90 0.20 NE REI NH3 0.12 0.50 0.33 CANAL NH3 0.12	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 DHOUS PO4 1.83 2.31 1.44 PO4 0.558	NO3 2.65 0.85 1.17 3.24 NO3 1.93 1.03 0.25 E NO3 0.65 0.11 NO3 1.95	F.COL 210 75 92 F.COL 76 1 4 4 900	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70 1 4 E.coli 3800
DATE 2010/07/28 2010/09/06 2010/10/21 2010/11/17 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP DATE 2010/07/29 2010/11/15 ZWARTKOP	pH 7.6 8.2 7.9 7.7 S ES pH 7.9 7.7 8.5 S ES pH 8.1 8.8 8.3	## COND COND 3900 3280 2610 COND COND	PERS 14 30 15 12 @ LA TSS 29 37 23 @GIF TSS 211 118 78 MOTH TSS	FAR	COD 30 46 <20 49	NH3 0.87 0.20 0.30 <0.08 UARRY NH3 <0.08 0.20 0.20 NE REI NH3 0.12 0.50 0.33 CANAL NH3	PO4 8.56 9.12 4.70 3.49 Y PO4 8.16 4.33 2.65 PO4 1.83 2.31 1.44	NO3 2.65 0.85 1.17 3.24 NO3 1,93 1.03 0.25 E NO3 0.59 0.65 0.11	F.COL 210 75 92 F.COL 76 1 4	E.coli 800 136 71 36 E.coli 200 49 46 E.coli 70 1 4 E.coli