ATTACHMENT D.1.
VPA MONITORING REPORT
VPA01423

Coles Point Wastewater TP

Month: May 2011
Report Date: 6-7-11

I hereby certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The following attachments are included with this submittal:

(X) Attachment D.1- D.3 - Wastewater Monitoring (1/Month)
(A daily operational log and any contractual lab certification sheets are required as an addendum to this report).

( ) Attachment D.4 - Wastewater Monitoring (1/5 Years)

(X) Attachments D.5 Land Application Monitoring (1/Month)

( ) Attachments D.6 Soil Monitoring (1/Year and 1/5 Year)

( ) Attachment D.7 Groundwater Monitoring (1/Quarter)

( ) Attachment D.8 Groundwater Monitoring (1/Year)

( ) Attachment D.9 Surfacewater Monitoring (1/Quarter)

(X) Attachment D.10. Daily Freeboard Monitoring Log (1/Month)

(X) Other Lab reports - bench sheets - irrigation data
continuous sensor - operation verification

Coles Point Wastewater Treatment Plant
Westmoreland County
P.O. Box 1000
Montross, Va. 22520

Gary W Fearce
Printed Name

Gary W Fearce
Signature

Plant Operations
Title

6-7-11
Date

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ATTACHMENT D.2
VPA MONITORING REPORT
Location: Flow Meter
Wastewater Monitoring
This monitoring is required by VPA01423, Part I.A. Wastewater Influent to Storage Pond

Coles Point Wastewater TP

VPA01423

Year: May 2011

Parameter	Influent Flow (Avg.)	Influent Flow (Total)	Volume from Storage to each site	Volume in Storage	Remaining Storage Capacity	pH	TSS	BOD_5
Limits	NL	NL	NL	NL	NL	NL	60 mg/l	60 mg/l
Units	MGD	MG	MG	MG	MG	S.U.	mg/l	mg/l
Frequency	Continuous	Continuous	*********	1/Day	1/Day	1/Month	1/Month	1/Month
Sample Type	Measure	Recorded	From D.3	Calculated	Calculated	Grab	8 HC	8HC
Required Reporting	1/Month	1/Month	1/Month	1/Month	1/Month	1/Month	1/Month	1/Month
Month	**********	**********	Identify site(s):	**********	**********	**********	**********	**********
January								
February								
March								
April								
May	10.259.611	319,290 3B	220,640 ST1	880,760	2,099,080	8.32	44	<3.0
June		3A	234,521 ST2	2,483,200	496640			
July		2B	ST3	2,956,560	23280			
August		2A						
September		1B						
October		1A	149,084					
November								
December								

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ATTACHMENT D.3
VPA MONITORING REPORT

Coles Point Wastewater TP Location: Storage Pond

Monitoring Required by VPA01423 Part I.A. Wastewater from Storage Pond to Spray Fields
*Requirement of the NMP which expires July 9, 2006
Effluent Monitoring: Monthly Parameters

VPA01423
Year: MAY 2011

Parameter	Total Kjeldahl Nitrogen (TKN)	Ammonia Nitrogen (NH_3-N)	Nitrate Nitrogen (NO_3-N)	Alkalinity	Storage Tank Freeboard	Total Potassium	pH	Total Sodium	Total Chloride	Total Boron	Total Phosphorus	Total Residual Chlorine (TRC)
Limits	NL	NL	NL	NL	2ft. min.	NL	NL	NL	NL	NL	NL	1.5 (min.)
Units	mg/l	mg/l	mg/l	mg/l	ft.	mg/l	S.U.	mg/l	mg/l	mg/l	mg/l	mg/l
Frequency	1/Month	1/Month	1/Month	1/Month	1/Day	1/Month	1/Day	1/Month	1/Month	2/Year	1/Month	1/Day
Sample Type	Grab	Grab	Grab	Grab	Measure	Grab	Grab	Grab	Grab	Grab	Grab	Grab
Required Reporting	Monthly	Monthly	Monthly	Monthly	Monthly	Monthy	Monthly	Monthly	Monthly	2/Year	Monthly	Monthly
Month	*******	**********	*********	**********	*********	********	********	********	********	*******	********	********
January										XXXXX		
February										XXXXX		
March										XXXXX		
April												
May	1.66	1.28	8.15	228.5 SI	24.54'	30.5	8.44/8.22	178.0	120.7	XXXXX	4.46	1.53/2.36
June				SI2	2.33'					XXXXX		
July				SI3	2.25'					XXXXX		
August										XXXXX		
September										XXXXX		
October												
November										XXXXX		
December										XXXXX		

Parameter	Calcium*	Mag-nesium*	% Moisture*
Units	mg/l	mg/l	%
Spring Month:			
Late Summer Month:			

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ATTACHMENT D.5
VPA MONITORING REPORT
Location: Land Application Site
Land Application
This monitoring is required by VPA01423 Part I.A. Land Application Monitoring
*Requirement of the NMP which expires July 9, 2006

Coles Point Wastewater TP

VPA01423

Month/Year: MAY 2011

	Total Gallons Applied	in/hr	in/period	in/wk	Cumulative in/year	Nov through Feb. Cumulative Inches
Limit:	**********	0.25	1.0	2.0	20	5.9
Units:	gal.	in/hr	in/day	in/wk	in/yr	in/winter
Zone: 1A	149,084	.25	.65		.65	
1B						
2A						
2B						
3A	234,521	.25	.49 .54		1.03	
3B	220,64	.25	.38 .59		.97	

	Effluent Plant Available Nitrogen (PAN) Applied	Other N Applied (Fertilizer, etc.)	Total PAN applied year to date	Effluent Phosphorus Applied	Other Phosphorus Applied (Fertilizer, etc.)	Effluent Phosphorus Applied Year to Date	Effluent Potassium Applied	Other Potassium Applied (Fertilizer, etc.)	Effluent Potassium Applied Year to Date
Limit	*********	**********	60 lb/a first year; 160 lb/a year 2-5; 30 lb/a Nov-Feb*	*******	********	*********	*********	*******	*******
Units	lb/acre	lb/acre	lb/acre	lb/acre	lb/acre	lb/acre	lb/acre	lb/acre	lb/acre
Zone: 1A	1.55	NONE	1.55	1.45	NONE	1.45	5.29	NONE	5.29
1B									
2A									
2B									
3A	2.43	NONE	2.43	2.32	NONE	2.32	8.33	NONE	8.33
3B	2.29	NONE	2.29	2.19	NONE	2.19	7.84	NONE	7.84

Daily Freeboard Measurement Operational Log

VPA01423

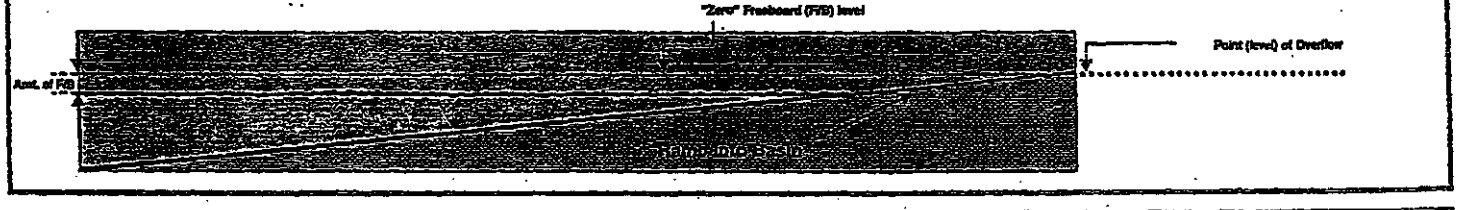
Facility Name: Coles Point Wastewater Treatment
Permit #: VPA 01423
Month: May
Year: 2011

pH Method: Standard Methods 18th Edition 4500-H B and Manufacturer's Instructions
Freeboard Method: Ruler Measurement from calibrated "Zero" freeboard point

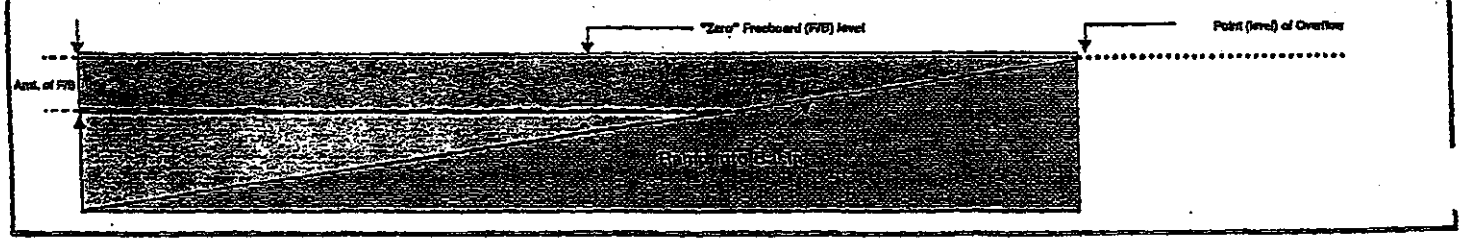
Date	Time	pH Meter Calibration Record actual buffer values Buffer 1	Buffer 2	Temp.	pH Sample Time	pH Analysis Time	Effluent pH S.U.	Initials	Freeboard (Inches) Basin 1	Basin 2	Basin 3	STORAGE 1	STORAGE 2	STORAGE 3	
									400"	24"	87"	8"	384"	321"	
1	1245	4.00	7.01	22.8	1140	1145	7.68	S.C	400"	24"	85"	8"	384"	323"	2"
2	1215	4.01	7.01	22.2	1240	1245	7.53	DLA	400	24"	83"	8"	384"	325"	2"
3	0800	4.01	7.00	23.6	0830	0840	7.57	DRS	400"	24"	82"	8"	384"	326"	2
4	0805	4.01	7.01	22.4	0800	0811	7.38	DRS	400"	24"	81"	8"	384"	327"	1
5	0720	4.01	7.01	20.7	0740	0753	7.36	DRS	400"	24"	80"	8"	384"	328"	1
6	0805	4.01	7.01	21.1	0840	0854	7.66	DRS	400"	24"	79"	8"	384"	329"	1
7	0740	4.00	7.01	21.6	0830	0837	7.44	DRS	400"	24"	78"	8"	384"	330"	1
8	0730	4.01	7.01	22.9	0810	0820	7.22	DLA	398.5	24"	77"	9.5	384"	381"	
9	0750	4.01	7.01	21.1	0810	0818	7.34	DLA	397"	24"	77"	11	384"	381"	1.5
10	0734	4.01	7.01	21.0	0800	0810	7.43	DLA	396"	24"	77"	12	384"	381	
11	0745	4.00	7.01	21.7	0805	0814	7.47	DRS	363"	24"	77"	45"	384"	381"	
12	0750	4.01	7.01	21.0	0830	0842	7.40	DLA	361"	24"	77"	47"	384"	381"	0
13	0755	4.01	7.01	22.8	0815	0822	7.52	DRS	358	24"	77"	50"	384"	381"	
14	0800	4.01	7.01	22.7	0830	0837	7.46	DRS	355.5	24"	77"	52.5"	384"	381"	
15	0730	4.01	7.00	23.0	0820	0828	7.27	DLA	352.5	24"	77"	55.5	384"	381"	3
16	0735	4.01	7.01	23.2	0812	0819	7.31	DLA	349.5	24"	77"	58.5	384"	381"	3
17	0734	4.01	7.00	23.6	0840	0846	7.33	DLA	347.5	24"	77"	60.5	384"	381"	2
18	0732	4.01	7.00	23.4	0845	0852	7.43	DLA	345.5	24"	77"	62.5	384"	381"	2
19	0742	4.01	7.01	22.4	0900	0910	7.49	DLA	342.5	24"	77"	64.5	384"	381"	2
20	0810	4.01	7.01	22.0	0840	0850	7.68	DRS	337"	24"	77"	71.0	384"	381"	
21	0800	4.01	7.01	22.3	0830	0837	7.85	DRS	334"	24"	77"	74"	384"	381"	
22	0715	4.01	7.00	24.2	0750	0800	7.46	DLA	330"	24"	77"	78"	384"	381"	4
23	0735	4.01	7.00	23.8	0815	0823	7.54	DLA	327"	24"	77"	81"	384"	381"	3
24	0735	4.01	7.00	24.2	0750	0800	7.80	DLA	325"	24"	77"	83"	384"	381"	2
25	0732	4.01	7.00	24.2	0750	0800	7.77	DLA	323"	24"	77"	85"	384"	381"	2
26	0735	4.01	7.00	24.2	0750	0805	7.81	DLA	321"	24"	77"	87"	384"	381"	2
27	0900	4.01	7.00	25.1	0910	0917	7.88	DRS	319	40"	77"	91"	368"	381"	
28	0830	4.01	7.00	24.2	0900	0907	7.97	DRS	312	57"	77"	96"	357"	381"	
29	0735	4.01	7.00	24.5	0800	0810	7.57	DLA	306	70"	77"	102"	338"	381"	6
30	0736	4.01	7.00	24.2	0805	0815	7.42	DLA	299.5	70"	77"	108.5	338	381"	6.5
31	0735	4.01	7.00	24.6	0845	0900	7.52	DLA	294.5	88"	77"	113.5	320	381"	5/18
Minimum pH							7.22					PUMPED	880,760	2483,200	2956560
Maximum pH							7.97					REV.	2,099080	496640	23280
Minimum F/B									24.54'	7.33'	2.25'				

Note: "Freeboard" measurement is the vertical distance (inches) from the water level to the level at which wastewater will leave the settling basin.
Note: If the "Freeboard" is less than 24 inches, DEQ must immediately be notified, and a written statement of explanation and corrective measures is due within 5 days.

Cross-sectional view of Settling Basin - Example 1 (Basin side wall is higher than level of overflow)



Cross-sectional view of Settling Basin - Example 2 (Basin side wall is the point/level of overflow)



Primary Laboratories, Inc.

7423 Lee Davis Road • Mechanicsville, VA 23111 • Telephone (804) 559-9004 • Fax (804) 559-9306

ANALYTICAL LABORATORY REPORT

Westmoreland County
Attn: Gary France
P.O. Box 1000
Montross, Va. 22520

20-May-11

Project: Coles Point
Date Received: 11-May-11
Date Sampled: 11-May-11
Work Order No: 1105106-01
Client ID: **Plant Composite**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
TSS	4.4	1.0	mg/L	2540 D	12-May-11 at 12:30	MS
BOD	<3.0	3.0	mg/L	5210 B	11-May-11 at 9:00	NA

Date Sampled: 11-May-11
Work Order No: 1105106-02
Client ID: **Storage Grab**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
Alkalinity	228.5	0.5	mg/L as $CaCO_3$	2320 B	20-May-11 at 11:30	NA
Nitrate	8.75	0.20	mg/L	4500 NO_3^- E	16-May-11 at 16:00	NA
Total Phosphorus	4.46	0.05	mg/L	4500P E	11-May-11 at 7:30	PB
Ammonia	1.28	0.01	mg/L	4500NH_3 F	16-May-11 at 9:00	NA
Chloride	120.7	0.2	mg/L	4500CL G	20-May-11 at 13:00	NA
TKN	1.66	0.20	mg/L	4500 N/NH_3	16-May-11 at 9:00	NA

Primary Laboratories, Inc.
Results

20-May-11

Project: Coles Point
Date Received: 11-May-11
Date Sampled: 11-May-11
Work Order No: 1105106-02
Client ID: **Storage**

Test Description	Final Result	Reporting Limit	Units of Measure	Method Numbers*	Date Analyzed	Tech. Initials
METALS						
Boron	0.690	0.1	mg/L	3120B	18-May-11 at 15:27	HV
Potassium	30.5	1.0	mg/L	3120B	18-May-11 at 15:27	HV
Sodium	178.0	1.0	mg/L	3120B	18-May-11 at 15:27	HV

* All methods are Standard Methods 18th Edition unless otherwise noted.

Signature: for Date: 5/20/11
Parry E. Bragg
Laboratory Manager

These analytical results are based upon materials provided by the client and are intended for the exclusive use of the client. These analytical results represent the best judgement of Primary Laboratories, Inc. Primary Laboratories, Inc. assumes no responsibility, express or implied, as to the interpretation of the analytical results contained in this report. This report is not to be reproduced except with the written approval of Primary Laboratories, Inc.

Coles Point Was eatment Facility

Irrigation Data [redacted] 2011

					Effluent Sample			Totalizer Reading			Sight Gage Reading			Rain Gage Data	
Pump OSI	Date	Pump #	Zone	Time Taken	Time Analy	CL2 Res.	PH	Start	End	Total	Start	End	Total	Apply Inches	Total Flow
	5-26-11	1	3A	0930	0935	1.53	8.72	1616737	1727471	110734	384"	368"/16	124,160	0.23	52,440
	5-27-11	2	3B	1030	1035	2.07	8.49	103431650	103518510	86,860	368"	357"/11	85,360	0	0
	5-28-11	1	1A	0935	0940	1.95	8.47	1727471	1876555	149,084	357"	338/19	147,140	.61	139,080
70	5-31-11	1	3A	0830	0833	2.36	8.44	1876555	2000342	123,787	338	304/16	124,160	.21	49,399
72	5-31-11	2	3B	"	"	"	"	103518510	103652290	133,780	338	304/18	139,680	.48	110,199
				~~0810~~	~~0815~~	3.16	~~8.71~~								
						AVG	8.44/8.72								
					AVG	1.53/2.36									
Monthly Totals															

Coles Point Waste Treatment Facility

Daily Bench Sheet

														MONTH	YEAR	
			PH SM18 4500-H B		DO SM18 4500-O 1		CL2 SM20 4500-CL G							May	2011	
			SBR BASIN # 2				Chlorine Residual Sample			EFFLUENT SAMPLE				SETTLEABILITY %		
DAY	EFFLUENT TOTAL	DAILY +	TIME	Ph	DO	TEMP	Cl2 RES.	Time Taken	Time Analyzed	Effluent PH	Effluent Temp	Time Taken	Time Analy	30 MIN SSV	60 MIN SSV	OPR
Pevious Day	43614790															
1	43628410	13,620	11:35	7.31	2.36	18.1	2.49	11:35	11:40	7.68	12.4	11:40	11:45	40%	36%	S.C
2	43641770	13360	1250	7.28	2.96	19.7	1.87	1251	1259	7.53	16.2	1256	1304	40%	35%	DJA
3	43645080	3310	0830	7.24	2.00	20.4	1.82	0830	0835	7.57	18.8	0830	0840	40%	32%	DRB
4	43651440	6,360	0900	7.04	2.99	19.1	1.90	0900	0905	7.38	17.3	0900	0911	36%	30%	DRB
5	43659470	8,030	0745	7.15	4.57	17.5	1.79	0745	0749	7.36	16.9	0745	0753	36%	25%	DRB
6	43668180	8,710	0840	7.28	3.84	18.0	1.55	0840	0843	7.66	11.1	0840	0844	37%	29%	DRB
7	43676050	7870	0830	7.09	2.81	18.3	2.48	0830	0835	7.44	13.1	0830	0837	35%	29%	DRB
8	43688360	12,310	0810	7.01	4.18	18.2	1.82	0810	0813	7.22	14.1	0810	0820	35%	30%	DWA
9	43698380	10,020	0810	7.03	3.41	18.1	1.94	0810	0813	7.34	13.1	0810	0818	35%	30%	DWA
10	43705020	6,640	0900	7.12	3.21	18.7	1.88	0900	0903	7.43	14.0	0900	0910	35%	29%	DWA
11	43711370	6,350	0805	7.28	4.24	18.9	1.64	0805	0811	7.47	14.6	0805	0814	38%	30%	DRB
12	43718340	6,970	0830	7.04	3.19	18.8	1.58	0830	0830	7.40	13.1	0830	0842	42%	32%	DWA
13	43725790	7,450	0815	7.31	4.15	19.4	1.76	0815	0820	7.52	16.1	0815	0822	38%	30%	DRB
14	43734870	9,080	0830	7.16	3.63	19.5	3.28	0830	0835	7.46	17.6	0830	0837	37%	30%	DRB
15	43746690	11,820	0820	7.00	4.04	18.5	1.71	0820	0823	7.27	19.2	0820	0828	34%	29%	DWA
16	43758910	12,220	0812	7.01	3.43	18.3	1.91	0812	0815	7.31	19.2	0812	0818	38%	30%	DWA
17	43767100	8,190	0840	6.96	3.57	20.2	1.86	0840	0843	7.33	18.9	0840	0846	39%	31%	DWA
18	43773550	6,450	0845	7.05	4.41	20.6	1.70	0845	0848	7.43	18.5	0845	0852	35%	29%	DWA
19	43780660	7,110	0800	7.01	2.24	20.5	2.42	0800	0803	7.49	19.4	0800	0810	35%	29%	DWA
20	43791370	10,710	0840	7.39	3.07	20.7	1.55	0840	0845	7.63	19.9	0840	0850	33%	28%	DRB
21	43799930	8,560	0830	7.32	3.15	20.6	1.89	0830	0835	7.85	17.3	0830	0839	37%	30%	DRB
22	43815460	15,530	0750	7.14	3.93	20.8	1.74	0750	0753	7.46	19.8	0750	0800	35%	30%	DWA
23	43827870	12,410	0815	7.11	2.58	21.2	1.56	0815	0818	7.54	20.7	0815	0823	42%	33%	DWA
24	43834290	6,420	0750	7.17	3.15	22.1	2.10	0750	0753	7.80	21.9	0750	0800	40%	32%	DWA
25	43840780	6,490	0750	7.15	3.23	22.4	2.52	0750	0758	7.77	20.4	0750	0800	37%	31%	DWA
26	43847220	6,440	0752	7.24	3.74	22.9	3.22	0752	0755	7.91	22.4	0752	0805	35%	30%	DWA
27	43854990	7,770	0910	7.27	2.75	23.6	2.80	0910	0915	7.88	22.8	0910	0917	36%	29%	DRB
28	43867680	12,690	0900	7.17	0.62	23.2	1.99	0900	0905	7.97	20.9	0900	0907	37%	30%	DRB
29	43889150	21,470	0800	7.10	0.49	22.0	2.00	0800	0803	7.57	21.6	0800	0810	40%	32%	DWA
30	43914230	25,080	0805	7.16	0.65	22.1	1.90	0805	0808	7.42	22.6	0805	0815	47%	36%	DWA
31	43934080	19,850	0845	7.63	0.56	23.0	1.60	0846	0848	7.12	24.7	0845	0800	60%	45%	DWA
TOTAL		319,290														
									5/11/11	8.32	13.6	1310	1314			

NOTE: PH TAKEN OF EFFLUENT SAMPLE FROM STORAGE TANK DURING MONTHLY TESTING

AVG 10,299.677

NORTHERN NECK SOIL & WATER CONSERVATION DISTRICT

May 16, 2011

Mr. Andrew Hammond

Virginia DEQ

Dear Mr. Hammond:

I visited the Coles Point Wastewater Treatment Plant and irrigation fields in Westmoreland County on May 13, 2011, monitored irrigation sensor readings with Don Bryant and reviewed sensor data for January 1, 2011 to present. Sensors seem to be working properly showing response to rainfall events during this time period. Don related procedures used to calibrate irrigation sensors before they are installed in the fields. Equipment appears to be in good working condition for the irrigation season for 2011. Don and I also discussed management practices that could be applied for improving the grass stand and quality on the fields. New soil samples have been taken and results are on the way from the Virginia Tech Soil Lab. Everything appears to be in order to proceed with management and irrigation for 2011. If there are questions regarding this review, please contact me at the Northern Neck Soil and Water Conservation District at 804-333-3525 or by email at sam.johnson@nnswcd.org.

Sam Johnson

NPS Specialist

Northern Neck SWCD

Cc: Gary France, Operator

Norm Risavi, County Administrator