P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

Puraflo Peat Fiber Biofilter
Virginia TL-3 Package



P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

1. Certification From a Licensed VA PE That the Treatment Unit is Expected to Comply With the TL-3 Treatment Standards and the O&M Manual Reflects the Service and Maintenance Requirements of the Product

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

Please see separate attached engineer stamped documents provided by Obsidian Onsite Services and signed by Joel S. Pinnix, PE.

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

2. Puraflo Chain of Custody Forms 1997-2000

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

Puraflo Chain of Custody
1997

CHAIN OF CUSTODY RECORD

CLIENT: SAWMILL - NORTHAMPTON CO.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan J. Remon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
BG	10/7/97			X		0										
PW	↓			X		0										
DG	↓			X		0										
SC	↓			✓		3	1/2	1/4	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) Dan J. Remon — Date/Time: 10/7/97

Received by: (Signature) Mike Cuten-Unal

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature) — Date/Time:

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Remarks:

CHAIN OF CUSTODY RECORD

...ONGARTHUR - Henrico Co...
...RESS

ATTENTION

P.O. #

PHONE #

FAX#

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	11/14/97			✓		3	1	1	1						
SC	↓			✓		3	1	1	1						
DG	↓			✓		3	1	1	1						
PW	↓			✓		3	1	1	1						
Pump	↓			X		0									

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dan F. Lemon	11/15/97	SP 11/15/			

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks

CHAIN OF CUSTODY RECORD

Tanley - Page Co

ESS

ATTENTION

P.O. #

PHONE #

FAX#

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
DG	11/15/97			X		0									
DF1	↓			✓		3	1	1	1						
DF2	↓			x		0	/								
SC	↓			✓		3	1	1	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan F. Lemon — Date/Time 11/15/97

Received by: (Signature) SP 11/15

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature) — Date/Time

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

Anderson - Frederick Co.

NESS

ATTENTION

P.O. #

PHONE #

FAX#

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan Thomas

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	500mL Unpres.	100mL T.P.	REMARKS
DF 2	11/15/97			X		6	✓			
SC	↓			✓		3	1	✓	1	
Pump	↓			X		6	✓			

Relinquished by: (Signature) Dan Thomas

Date/Time 11/15/97

Received by: (Signature) SP 11/15

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

DAMSON Fairfax Co.

ADDRESS

ATTENTION

P.O. #

PHONE #

FAX #

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan T. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ Acid	500ml Nonacid	100ml T.P.	REMARKS
PW	11/15/97			X		C				
~~PW~~				~~X~~		~~2~~				
BG				X		0	/			
DG				X		0				
SC				✓		3	1/2	1/2	1	
PUMP				✓		3	1	1	1	

Relinquished by: (Signature) Dan T. Lemon

Date/Time 11/15/97

Received by: (Signature) SP 11/15

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Date/Time

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

ADDRESS: Jacobsen - Fairfax Co.

P.O. #

PHONE #

FAX #

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

ATTENTION

PROJ. NO. 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Clemens

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL non-acid	100mL T.P.	REMARKS
PW 1	11/15/97			X		6				
PW 2				✓		3	1	1	1	
BG				✓		3	1	1	1	
DG				✓		3	1	1	1	
SC				✓		3	1/2	1/2	1	
PUMP				✓		3	1	1	1	

Relinquished by: (Signature) Dan J. Clemens
Relinquished by: (Signature)

Date/Time 11/15/97
Date/Time

Received by: (Signature) SA 11/15
Received for Laboratory by: (Signature)

Relinquished by: (Signature)
Date/Time

Date/Time
Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Kemp

ADDRESS:

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	50ml w/Acid	250mL unpres'd	100mL T.P.	REMARKS
BG	11/22			✓		3	1	1	1	
DG				✓		3	1	X	1	
MW				✓		3	X	1	1	
SC				✓		3	1	1	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature)

Date/Time: 11/22/97

Received by: (Signature)

Date/Time: 11/23/97

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Nesbitt - Gloucester

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Herron

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	500mL Nonacid	100mL T.P.	REMARKS
BG	11/22/97			X		0				
DG	"			✓		3	½	½	1	
PW	"			✓		3	1	1	1	
SC	"			✓		3	1	1	1	
Pump	"			✓		3	1	1	1	

Relinquished by: (Signature) Dan Herron

Date/Time: 11/22/97

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Agency on Aging - Gloucester
ADDRESS:
ATTENTION:
P.O. #:
PHONE #:
FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS: (Signature) Dan Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL w/Nitric Acid	100mL T.P.	REMARKS
BG	11/22/97			✓		3	1	1	1	
PW	↓			✓		3	1	1	1	
DG				✓		3	1	1		
SC				✓		3	1	1	1	
Rinse				✓		3	1	1	1	

Relinquished by: (Signature) Dan Lemon
Date/Time: 11/22/97
Received by: (Signature) DP
Relinquished by: (Signature)
Date/Time
Received for Laboratory by: (Signature)
Relinquished by: (Signature)
Date/Time
Received by: (Signature)
Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Farrell - Gwynn's Island (Mathews)
ADDRESS:
ATTENTION:
PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS: (Signature) Dan Rena
P.O. #:
PHONE #:
FAX #:
TURN AROUND TIME (Check One): [ ] Standard [ ] RUSH [ ] PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	250ml Nonacid	100ml T.P.	REMARKS
BG	4/22/97			✓		3	1	1	1	
DG				✓		3	1	1	1	
FW				✓		3	1	1	1	
SC				✓		3	1	1	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature) Dan Rena
Relinquished by: (Signature)
Date/Time 4/22/97
Received by: (Signature)
Date/Time
Received for Laboratory by: (Signature)
Relinquished by: (Signature)
Date/Time
Received by: (Signature)
Date/Time
Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Sawmill - Nassawadox

ADDRESS:

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	500ml Nonacid	100ml T.P.	REMARKS
BG	11/26/97					0				
PW						0	✓			
DG						0	✓			
SC				✓		3	1	1	1	
Pump				✓		3	1	1	1	

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

11/26/97

Date/Time

Received by: (Signature) 11/26

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Easter - Isle of Wight

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Thomson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	250ml Unpres	100ml T.P.						REMARKS
MW	11/25/97			✓		3	1	1	1						
BG				✓		3	1	1	1						
DG				✓		3	1	1	1						
SC				✓		3	1	1	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan Thomson

Date/Time: 11/26/97

Received by: (Signature) M 11/26

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Mumford - Suffolk

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ( ) Standard
- ( ) RUSH
- ( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Ace	500ml Unpres.	100ml T.P.	REMARKS
BG	11/25/97			✓		3	1	1	1	
PW				X		0				
DG				X		0				
SC				✓		3	½	½	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature) — Date/Time: 11/26/97 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature) 11/26

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Long Arthur - Henrico Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan T. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
DG	10/10/97			X		0										
PW	↓			X		0										
BG	↓			X		0										
SC	↓			X		3	1/2	1/3	1							
Pump	↓			X		0										

Relinquished by: (Signature) Dan T. Lemon — Date/Time 10/10/97

Received by: (Signature) Wilfrido Cuten-Uid

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature) — Date/Time

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Easter - Isle of Wight.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) David T. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ ACID	100ml Unpres'd	100ml T.P.	REMARKS
BG	10/6/97			X		0				
DG	"			X		0				
PW	"			X		0				
SC	"			✓		3	1	1	1	
Pump	"			✓		3	1	1	1	

Relinquished by: (Signature) David T. Lemon — Date/Time: 10/6/97 12pm — Received by: (Signature) Deirdre Carter-Hurst

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Munford - Suffolk

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	10/11/97			X		0									
DG	↓			X		0									
PW	↓			X		0									
SC	↓			✓		3	1/2	1/3	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) [signature] Date/Time 10/11/97 12pm

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature) Date/Time

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: A.O.A. - Gloucester

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
BG	10/21/97			X		0										
DG	↓			X		0										
PW	↓			✓		3	1	1	1							
SC	↓			✓		3	1	1	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dan F. Lemon	10/22/97	Hyde Cuten-Chal			

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Farrell - Gwynn's Island.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
BG	10/21/97			X		0										
PW	↓			X		0										
DG	↓			✓		3	½	½	1							
SC	↓			✓		3	1	1	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dan F. Lemon	10/22/97	Mujde Cuten-Ural			
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	

CHAIN OF CUSTODY RECORD

CLIENT: Kemp - Mathews Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMPO	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
BG	10/21/97			X		0										
DG	↓			X		0										
PW	↓			X		0										
SC	↓			✓		3	½	½	1							
Pump	↓			X		0										

Relinquished by: (Signature) Dan F. Lemon — Date/Time: 10/22/97

Received by: (Signature) [signature] 3pm 10/22

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Nesbitt - Gloucester

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
☐ Standard
☐ RUSH
☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan T. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	500mL Non-acid	100mL T.P.						REMARKS
BG	10/21/97			X		0									
DG				X		0									
PW				✓		3	½	½	1						
SC				✓		3	½	½	1						
Pump	↓			X		0									

Relinquished by: (Signature) Dan T. Lemon
Relinquished by: (Signature)

Date/Time 10/22/97
Date/Time

Received by: (Signature) S. Savage
Received for Laboratory by: (Signature)

Relinquished by: (Signature)
Date/Time

Received by: (Signature)
Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Stanley - Page, Co

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
DF2	10/25/97			X		0										
DF1				✓		3	1	1	1							
DG				X		0										
SC				✓		3	1	1	1							
Pump				✓		3	1	1	1							

Relinquished by: (Signature) [signature] Date/Time 10/25/97

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Anderson-Frederick Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
DF 2	10/25/97			X		0										
SC	↓			✓		3	1	1	1							
Pump	↓			X		0										

Relinquished by: (Signature) Dan F. Lemon — Date/Time: 10/25/97

Received by: (Signature) Mujde Cuten-Unal

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Jacobsen - Fairfax

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
PW-1	10/25/97			X		0										
PW-2	↓			X		0										
BG	↓			X		0										
DG	↓			X		0										
SC	↓			✓		3	1/2	1/2	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) Dan F. Lemon — Date/Time: 10/25/97

Received by: (Signature) Wyde Cuten-Ciel

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature) — Date/Time:

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Samson - Fairfax

ADDRESS:

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan T. Remo

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL unpreserved	100mL T.P.	REMARKS
DG	10/25/97			X		0				
BG				X		0				
PW				X		0				
SC				✓		3	1/2	1/2	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature) Dan T. Remo
Relinquished by: (Signature)

Date/Time: 10/25/97
Date/Time

Received by: (Signature) Wade Culver-Chief
Received for Laboratory by: (Signature)

Relinquished by: (Signature)
Date/Time

Received by: (Signature)
Date/Time

Remarks

CHAIN OF CUSTODY RECORD

...ONGARTHUR - Henrico Co...
...RESS

ATTENTION

P.O. #

PHONE #

FAX#

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	11/14/97			✓		3	1	1	1						
SC	↓			✓		3	1	1	1						
DG	↓			✓		3	1	1	1						
PW	↓			✓		3	1	1	1						
Pump	↓			X		0									

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Dan F. Lemon	11/15/97	SP 11/15/			

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks

CHAIN OF CUSTODY RECORD

Tanley - Page Co

ESS

ATTENTION

P.O. #

PHONE #

FAX#

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
DG	11/15/97			X		0									
DF1	↓			✓		3	1	1	1						
DF2	↓			x		0	/								
SC	↓			✓		3	1	1	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan F. Lemon — Date/Time 11/15/97

Received by: (Signature) SP 11/15

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature) — Date/Time

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

Anderson - Frederick Co.

NESS

ATTENTION

P.O. #

PHONE #

FAX#

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan Thomas

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	500mL Unpres.	100mL T.P.	REMARKS
DF 2	11/15/97			X		6	✓			
SC	↓			✓		3	1	✓	1	
Pump	↓			X		6	✓			

Relinquished by: (Signature) Dan Thomas

Date/Time 11/15/97

Received by: (Signature) SP 11/15

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

DAMSON Fairfax Co.

ADDRESS

ATTENTION

P.O. #

PHONE #

FAX #

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO. 773611

PROJECT NAME Monitoring Well Sampling

SAMPLERS: (Signature) Dan T. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ Acid	500ml Nonacid	100ml T.P.	REMARKS
PW	11/15/97			X		C				
~~PW~~				~~X~~		~~2~~				
BG				X		0	/			
DG				X		0				
SC				✓		3	1/2	1/2	1	
PUMP				✓		3	1	1	1	

Relinquished by: (Signature) Dan T. Lemon

Date/Time 11/15/97

Received by: (Signature) SP 11/15

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Date/Time

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

ADDRESS: Jacobsen - Fairfax Co.

P.O. #

PHONE #

FAX #

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

ATTENTION

PROJ. NO. 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Clemens

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL non-acid	100mL T.P.	REMARKS
PW 1	11/15/97			X		6				
PW 2				✓		3	1	1	1	
BG				✓		3	1	1	1	
DG				✓		3	1	1	1	
SC				✓		3	1/2	1/2	1	
PUMP				✓		3	1	1	1	

Relinquished by: (Signature) Dan J. Clemens
Relinquished by: (Signature)

Date/Time 11/15/97
Date/Time

Received by: (Signature) SA 11/15
Received for Laboratory by: (Signature)

Relinquished by: (Signature)
Date/Time

Date/Time
Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Kemp

ADDRESS:

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	50ml w/Acid	250mL unpres'd	100mL T.P.	REMARKS
BG	11/22			✓		3	1	1	1	
DG				✓		3	1	X	1	
MW				✓		3	X	1	1	
SC				✓		3	1	1	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature)

Date/Time: 11/22/97

Received by: (Signature)

Date/Time: 11/23/97

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Nesbitt - Gloucester

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Herron

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	500mL Nonacid	100mL T.P.	REMARKS
BG	11/22/97			X		0				
DG	"			✓		3	½	½	1	
PW	"			✓		3	1	1	1	
SC	"			✓		3	1	1	1	
Pump	"			✓		3	1	1	1	

Relinquished by: (Signature) Dan Herron

Date/Time: 11/22/97

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Agency on Aging - Gloucester
ADDRESS:
ATTENTION:
P.O. #:
PHONE #:
FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS: (Signature) Dan Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL w/Nitric Acid	100mL T.P.	REMARKS
BG	11/22/97			✓		3	1	1	1	
PW	↓			✓		3	1	1	1	
DG				✓		3	1	1		
SC				✓		3	1	1	1	
Rinse				✓		3	1	1	1	

Relinquished by: (Signature) Dan Lemon
Date/Time: 11/22/97
Received by: (Signature) DP
Relinquished by: (Signature)
Date/Time
Received for Laboratory by: (Signature)
Relinquished by: (Signature)
Date/Time
Received by: (Signature)
Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Farrell - Gwynn's Island (Mathews)
ADDRESS:
ATTENTION:
PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS: (Signature) Dan Rena
P.O. #:
PHONE #:
FAX #:
TURN AROUND TIME (Check One): [ ] Standard [ ] RUSH [ ] PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	250ml Nonacid	100ml T.P.	REMARKS
BG	4/22/97			✓		3	1	1	1	
DG				✓		3	1	1	1	
FW				✓		3	1	1	1	
SC				✓		3	1	1	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature) Dan Rena
Relinquished by: (Signature)
Date/Time 4/22/97
Received by: (Signature)
Date/Time
Received for Laboratory by: (Signature)
Relinquished by: (Signature)
Date/Time
Received by: (Signature)
Date/Time
Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Sawmill - Nassawadox

ADDRESS:

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	500ml Nonacid	100ml T.P.	REMARKS
BG	11/26/97					0				
PW						0	✓			
DG						0	✓			
SC				✓		3	1	1	1	
Pump				✓		3	1	1	1	

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

11/26/97

Date/Time

Received by: (Signature) 11/26

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Easter - Isle of Wight

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Thomson

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	250ml Unpres	100ml T.P.						REMARKS
MW	11/25/97			✓		3	1	1	1						
BG				✓		3	1	1	1						
DG				✓		3	1	1	1						
SC				✓		3	1	1	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan Thomson

Date/Time: 11/26/97

Received by: (Signature) M 11/26

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Mumford - Suffolk

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ( ) Standard
- ( ) RUSH
- ( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Ace	500ml Unpres.	100ml T.P.	REMARKS
BG	11/25/97			✓		3	1	1	1	
PW				X		0				
DG				X		0				
SC				✓		3	½	½	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature) — Date/Time: 11/26/97 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature) 11/26

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time

Remarks

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

Puraflo Chain of Custody
1998

CHAIN OF CUSTODY RECORD

CLIENT: Stanley - Page, Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan [illegible]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
PG	1/9/98			✓		3	1	1	1							
DF2	↓			✓		3	1	1	1							
DF1	↓			✓		3	1	1	1							
SC	↓			✓		3	1	1	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) Dan [illegible] — Date/Time: 1/10/98

Received by: (Signature) [illegible] 1/10/98

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Anderson - Frederick Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan A. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
DF2	1/9/98			X		0									
SC				✓		3	1	X	1						
Pump				X		0									

Relinquished by: (Signature) Dan A. Lemon — Date/Time: 1/10/98

Received by: (Signature) [signature] 1/10/98

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Jacobsen - Fairfax

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
☐ Standard
☐ RUSH
☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	50ml w/ACID	40mL w/ACID	100mL T.P.	REMARKS
BG	1/7/98			✓		3	1	2	1	
PW1	↓			X		0				
PW2				X		0				
DG				X		0				
SC				✓		3	½	½	1	
Pump				✓		3	1	1	1	

Relinquished by: (Signature)

Date/Time: 1/10/98

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature) 1/10/98

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Samson - Fairfax

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Freeman

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	1/10/98			X		0									
PW	↓			X		0									
DG	↓			X		0									
SC	↓			✓		3	½	½	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan Freeman — Date/Time 1/10/98

Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Smith - Fairfax (new site)

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	1/10/98			X		0									
SC				X		0									
PW				X		0									
DG				X		0									
Pump				X		0									

Relinquished by: (Signature) [signature] Date/Time 1/10/98

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Long-Arthur-Henrico Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	1/10/98			✓		3	1	1	1						
PW	↓			✓		3	1	1	1						
DG	↓			✓		3	1	1	1						
SC	↓			✓		3	1/2	1/2	1						
Pump	↓			X		0									

Relinquished by: (Signature) [signature] Date/Time 1/10/98

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Sawmill - Eastern Shore

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Remor

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
BG	1/14/98			✓		3	1	1	1							
PW	↓			X		0	0	0	0							
DG	↓			✓		3	1	1	1							
SC	↓			✓		3	1/2	1/2	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) Dan F. Remor — Date/Time: 1/14/98

Received by: (Signature) Maide Unal

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: LINK - VA Beach

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan A Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	1/21/98			✓		3	1	1	1						
DG	↓			✓		3	1	1	1						
PW	↓			✓		3	1	1	1						
SC	↓			X		0	0	0	0						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan A Lemon — Date/Time 1/22/98

Received by: (Signature) [signature] 1/22

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Munford - Suffolk

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan J. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
BG	1/21/98			✓		3	1	1	1							
DG				✓		3	1	1	1							
PW				✓		3	1	1	1							
SC				✓		3	1	1	1							
Pump				✓		3	1	1	1							

Relinquished by: (Signature) Dan J. Lemon — Date/Time 1/22/98

Received by: (Signature) [signature] 1/22

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature) — Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Easter – Isle of Wight

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY
ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ H2SO4	500mL unpreserved	100mL T.P.	REMARKS
BG	1/21/98			✓		3	1	1	1	
PW				✓		3	1	1	1	
DG				✓		3	1	1	1	
SC				✓		3	1	1	1	
Pump	↓			✓		3	1	1	1	

Relinquished by: (Signature) Dan Lemon — Date/Time: 1/22/98 — Received by: (Signature) SS — Date/Time: 1/22

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Kemp - Mathews Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dana Kemp

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	500mL Unpreserved	100mL T.P.	REMARKS
BG	7/22/98			✓		3	1	1	1	
DG				✓		3	1	1	1	
PW				✓		3	1	1	1	
SC				✓		3	1	1	1	
Pump				X		0	0	0	0	

Relinquished by: (Signature) Dana Kemp — Date/Time: 7/22/98 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Farrell-Mathews Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
BG	1/22/98			✓		3	1	1	1							
DG	↓			✓		3	1	1	1							
PW	↓			✓		3	1	1	1							
SC	↓			✓		3	1	1	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) [signature] Date/Time 1/23/98

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Agency on Aging - Gloucester

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	1/22/98					3	1	1	1						
PW	↓					3	1	1	1						
DG	↓					3	1	1	1						
SC	↓					3	1	1	1						
Pump	↓					3	1	1	1						

Relinquished by: (Signature) Dan F. Lemon — Date/Time 1/23/98 — Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Nesbitt - Gloucester

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	1/22/98			X		0	0	0	0						
PW	↓			✓		3	1	1	1						
DG	↓			✓		3	1/2	1/2	1						
SC	↓			✓		3	1	1	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan F. Lemon — Date/Time 1/23/98

Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: SAWMILL

ADDRESS: NORTH HAMPTON CO

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	3/30/98	3:58P		✓	BACKGROUND	3	1	1	1						
PW1		4:15		✓	PADWELL 1	3	1	1	1						
PW2		4:03		✓	PADWELL 2	3	1	1	1						
DG		4:07		✓	DOWN GRADE	3	1	1	1						
SC		4:10		✓	SAMPLE CHAMBER	1	—	1	—						NOT ENOUGH WATER
PUMP		N/A		N/A	PUMP SAMPLE	0	—	—	—						PUMP NOT AVAILABLE

Relinquished by: (Signature) — Date/Time: 3/31/98 10:15P — Received by: (Signature) — Date/Time: 8:00P

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: LONG-ARTHUR

ADDRESS: RICHMOND, VA

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	3-15-98	5:05		✓	BACKGROUND	3	1	1	1						
PW	"	5:15		✓	PADWELL	3	1	1	1						
DG	"	5:18		✓	DOWNGRADE	3	1	1	1						NOT ENOUGH WATER 500ml NO ACID 1/3 FULL
SC	"	5:10		✓	SAMPLER CHAMBER	2	—	1	1						
PUMP	N/A	N/A		N/A	PUMP SAMPLE	0									SITE NOT ACESSIBLE

Relinquished by: (Signature) [signature] Date/Time 3/16/98 4P

Received by: (Signature) S. Paranjape 8:00P

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: NORMAN KEMP
ADDRESS: MATHEWS, VA
ATTENTION:
PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS: (Signature)

P.O. #:
PHONE #:
FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	100ml Unpres.	100ml T.P.	REMARKS
BG	3-11-98	2:39P		✓	BACK GROUND	3	1	1	1	
PW	"	3:00P		✓	PAD WELL	3	1	1	1	
DG	"	3:04P		✓	DOWN GRADE	3	1	1	1	
SC	"	2:58P		✓	SAMPLE CHAMBER	3	1	1	1	
PUMP	"	3:05P		✓	PUMP SAMPLE	3	1	1	1	

Relinquished by: (Signature)
Relinquished by: (Signature)
Date/Time: 3-11-98 / 11:30AM
Received by: (Signature)
Received for Laboratory by: (Signature)
Date/Time
Relinquished by: (Signature)
Date/Time
Received by: (Signature)
Date/Time
Remarks

CHAIN OF CUSTODY RECORD

CLIENT: NESBITT PROP
ADDRESS: GLOUCESTER, VA
ATTENTION:
P.O. #:
PHONE #:
FAX #:
TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS (Signature): Tara

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL UNPRESERVED	100mL T.P.	REMARKS
BG	3-16-98	1:20		✓	BACK GROUND	2	—	1	1	500mL NO ACID - 1/5 FULL
PW	3-16-98	1:16		✓	PADWELL	3	1	1	1	500mL W/ACID - 1/2 FULL
DG	3-16-98	1:13		✓	DOWNGRADE	(2)	✓	1		500mL NO ACID - 1/2 FULL
SC	3-16-98	1:03		✓	SAMPLER CHAMBER	(1)	—	—	1	→ No sample
PUMP	3-16-98	12:58		✓	PUMP SAMPLE	3	1	1	1	

Relinquished by: (Signature) — Date/Time — Received by: (Signature)
Relinquished by: (Signature) — Date/Time: 3/16/98 4P — Received by: (Signature)
Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Agency-On-Aging
ADDRESS: Gloucester, VA
ATTENTION:

P.O. #:
PHONE #:
FAX #:

TURN AROUND TIME (Check One)
☐ Standard
☐ RUSH
☐ PRIORITY ONE

PROJ. NO.: 773611
PROJECT NAME: Monitoring Well Sampling
SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ Acid	250mL Nonacid	100mL T.P.	REMARKS
BG	3-11-98	1:40P		✓	BACK GROUND	3	1	1	1	
PW	"	1:34		✓	PAD WELL	3	1	1	1	
DG	"	1:38		✓	DOWN GRADE	3	1	1	1	DUC PIPE MOVED, UNABLE TO PUT CAP ON
SC	"	1:31		✓	SAMPLE CHAMBER	3	1	1	1	
PUMP	"	1:29		✓	PUMP SAMPLE	3	1	1	1	SIDE YARD UNDERWATER

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
[signature]	3/11/98/11:30P	[signature]
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Easter Ed - Isle of Wight

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Christina Crawford

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	3/27/98	4:45		✓	Background		1	1	1						
PW	3/27/98	4:55		✓	Pad well		1	1	1						
DG	3/27/98	5:00		✓	Down-grade		1	1	1						
SC	3/27/98	4:50		✓	Sample Chamber		1	1	1						
Pump	3/27/98	4:55		✓	Pump		1	1	1						

Relinquished by: (Signature) Christina Crawford — Date/Time: 3/27/98 6:08

Received by: (Signature) Mujde Ural

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature) — Date/Time:

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Munford, Michael - Suffolk.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Christina Munford

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	3/27/98	3:25		✓	Background		1	1	1						
PW	3/27/98	3:27		✓	Pad-well		1	1	1						
DG	3/27/98	3:29		✓	Down-grade		1	1	1						
SC	3/27/98	3:17		✓	Sample Chamber		1	0	1						
Pump	3/27/98	3:22		✓	Pump		1	1	1						

Relinquished by: (Signature) Christina Munford — Date/Time: 3/27/98 6:08

Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Samson - Fairfax

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- ( ) Standard
- ( ) RUSH
- ( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
BG	3/21/98			X		0										
PW				X		0										
DG				X		0										
SC				✓		3	1	1	1							
PUMP				✓		3	1	1	1							

Relinquished by: (Signature) Dan F. Lemon — Date/Time: 3/21/98

Received by: (Signature) S. Paranjape

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature) — Date/Time:

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Jacobsen - Fairfax

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
PW1	3/21/98			X		0										
PW2	↓			✓		3	1	X	1							
BG	↓			✓		3	X	1	1							
DG	↓			✓		3	1	1	1							
SC	↓			✓		3	X	X	X							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) Dan F. Lemon — Date/Time 3/21/98

Received by: (Signature) J. Paranjape

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Stanley-Page Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan J. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
DF1	3/21/98			✓		3	1	1	1							
DF2	↓			✓		3	1	1	1							
DG	↓			✓		3	1	1	1							
SC	↓			✓		3	1	1	1							
Pump	↓			✓		3	1	1	1							

Relinquished by: (Signature) Dan J. Lemon — Date/Time: 3/21/98

Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Anderson - Frederick Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan F. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.							REMARKS
DF2	3/21/98			✓		3	1/2	1/2	1							
SC	↓			✓		3	1	1	1							
PUMP	↓			X		0										

Relinquished by: (Signature) Dan F. Lemon — Date/Time 3/21/98 — Received by: (Signature) S. Pa

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: FARRELL

ADDRESS: GWYNN'S ISLAND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/Acid	500ml Unpreserved	100ml T.P.	REMARKS
BG	3-11-98	4:01		✓	BACK GROUND	3	1	1	1	SURROUNDED BY STANDING WATER
PW	"	4:10		✓	PAD WELL	3	1	X	1	OILY SHEEN ON SURFACE BEFORE PURGE
DG	"	4:12		✓	DOWN GRADE	3	1	1	1	
SC	"	4:08		✓	SAMPLE CHAMBER	3	1	1	1	
PUMP	"	4:03		✓	PUMP SAMPLE	3	1	1	1	

Relinquished by: (Signature)

Date/Time: 3-11-98/1130

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Date/Time

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Link - Muddy Creek

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.							REMARKS
BG	3/25/98			✓	Back Ground	3	1	1	1							
PW	3/25/98			✓	Padwell	3	1	1	1							
DG	3/25/98			✓	Down-Grade	3	1	1	1							
SC	3/25/98			✓	Sample Chamber	3	1	1	1							
Pump	3/25/98			✓	Pump	3	1	1	1							

Relinquished by: (Signature) [signature] Date/Time 3/25/98 1.15

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: T. Smith - Fairfax

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan Thomas

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ ACID	250mL unpreserved	100mL T.P.	REMARKS
BG	3/21/98			✓		3	1	1	1	
PW	↓			X		2		✓		
DG				X		2	✓			
SC				✓		3	1	1	1	
Pump	✓			✓		3	1	1	1	

Relinquished by: (Signature) Dan Thomas
Relinquished by: (Signature)

Date/Time 3/21/98
Date/Time

Received by: (Signature) Nicole Unal
Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Harmon

ADDRESS: Eastern Shores

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	3/30/98	5:20P		✓	BACKGROUND	3	1	1	1						
PW	↓	N/A		✓	PADWELL	0	—	—	—						NO WATER
DG	↓	5:30P		✓	DOWNGRADE	3	1	1	1						
SC	↓	5:15P		✓	SAMPLE CHAMBER	1	—	1	—						ONLY WATER IN BUCKET
PUMP	↓	5:25		✓	PUMP SAMPLE	3	1	1	1						

Relinquished by: (Signature) [signature] Date/Time 3/31/98 10:15P Received by: (Signature) Myde Unal

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: MERRITT

ADDRESS: EASTERN SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml & non-acid	100ml T.P.						REMARKS
BG	3-30-98	6:50P		✓	BACK GROUND	3	1	1	1						500 ml w/ACID 1/3 FULL
PW	↓	6:57		✓	PAD WELL	3	1	1	1						500 ml w/ACID 1/2 FULL
DG	↓	N/A		—	DOWN GRADE	0	—	—	—						NOT ENOUGH WATER
SC	↓	6:43		✓	SAMPLE CHAMBER	2	—	1	1						
PUMP	↓	N/A		—	PUMP SAMPLE	0	—	—	—						N/A

Relinquished by: (Signature) [signature] Date/Time 3/30/98 10:50P Received by: (Signature) Nuyde Ural

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Sharf - Sandbridge

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Christian Crawford

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml @ non-acid	100ml T.P.						REMARKS
BG	3/25/98			✓	Back Ground	3	1	1	1						
PW	3/25/98			✓	Padwell	3	1	1	1						
DG	3/25/98			✓	Down-Grade	3	1	1	1						
SC	3/25/98			✓	Sample-Chamber	3	1/2	1/2	1/2						
Pump	3/25/98			✓	Pump	3	1	1	1						

Relinquished by: (Signature) Christian Crawford — Date/Time: 3/25/98 1:15

Received by: (Signature) Meyde Ural

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: BROWN PROP

ADDRESS: RICHMOND VA

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	3/15/98	4:18		✓	BACKGROUND	3	1	1	1						
PW	"	4:24		✓	PADWELL	3	1	1	1						
DG	"	4:26		✓	DOWNGRADE	3	1	1	1						
SC	"	N/A		X	SAMPLER CHAMBER	0									NO WATER AVAILABLE
PUMP	"	4:20		✓	PUMP SAMPLE	3	1	1	1						

Relinquished by: (Signature) [signature] Date/Time 3/16/98 4P

Received by: (Signature) Nicole Unal

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: D. Smith - Page Co.

ADDRESS:

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Dan A. Lemon

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL I.P.						REMARKS
DG	3/21/98			✓		3	1	1	1						
DF	↓			✓		3	1	1	1						
BG	↓			✓		3	1	1	1						
SC	↓			✓		3	1	1	1						
Pump	↓			✓		3	1	1	1						

Relinquished by: (Signature) Dan A. Lemon — Date/Time: 3/21/98

Received by: (Signature) Nuyde Unal

Relinquished by: (Signature) — Date/Time:

Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time:

Received by: (Signature)

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: BROWN

ADDRESS: GLOUCESTER CO

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	3/18/98	5:20		✓	BACK GROUND	3	1	1	1						
PW	3/18/98	5:18		✓	PADWELL	3	1	1	1						
DG	3/18/98	5:15		✓	DOWN GRADE	3	1	1	1						
SC	3/18/98	5:11		✓	SAMPLE CHAMBER	3	1	1	1						
PUMP	3/18/98	4:52		✓	PUMP SAMPLE	3	1	1	1						

missing Tot-PHOS Bottles

Relinquished by: (Signature) — Date/Time: 3/19/98 1230 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: HENDERSON

ADDRESS: WESTMORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	4/1/98	6:53		✓	BACK GROUND	3	1	1	1						
PW		6:56		✓	PAD WELL	3	1	X	1						
DG		6:59		✓	DOWN GRADIENT	3	1	1	1						
SC		N/A		N/A	SAMPLE CHAMBER	0	-	-	-						* NO WATER IN CHAMBER
PUMP		N/A		N/A	PUMP SAMPLE	0	-	-	-						* NOT AVAILABLE

Relinquished by: (Signature) [signature] Date/Time 4/2/98 10:45 Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: L. Smith

ADDRESS: Westmoreland Co

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	4/1/98	5:18P		✓	Back Ground	3	1	1	1						* 500ml w/acid only to the full
PW	↓	5:15		✓	Pad Well	1	—	1	—						* not enough sample
DG	↓	5:12		✓	Down Gradient	3	1	1	1						
SC	↓	N/A		N/A	Sample Chamber	0	—	—	—						* no water in chamber
PUMP	↓	5:06		✓	Pump Sample	3	1	1	1						

Relinquished by: (Signature) — Date/Time: 4/2/98 1045A — Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: EASTER - #11

ADDRESS: SUFFOLK

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL unpres.	100mL T.P.	REMARKS
BG	1/17/95	1045A		✓	BACKGROUND	3			✓	
PW				✓	PAD WELL	3		✓		
DG				✓	DOWN GRADIENT	3	✓			
SC				—	SAMPLE CHAMBER	0				NO SAMPLES TAKEN PER BNM
PT	↓			—	PUMP TANK	0				HRS. NO METER AVAILABLE

Relinquished by: (Signature) — Date/Time — Received by: (Signature) — Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature) — Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: MUNFORD - #12

ADDRESS: SUFFOLK

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	40mL *NOTED	100mL T.P.	REMARKS
BG	1/17/95	1216P		✓	BACKGROUND	3	1	1	1	
PW				✓	PAD WELL	3	1	X	1	
DG				✓	DOWN GRADIENT	3	1	1	1	
SC					SAMPLE CHAMBER	Ø				NO SAMPLES TAKEN PER BMK
PT					PUMP TANK	Ø				
										HRS: 73.02

Relinquished by: (Signature) — Date/Time: 1/18/95 7A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: STANLEY - #17

ADDRESS: PAGE CO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml @ non-acid	100ml T.P.						REMARKS
DF1	1/18/99	650P			DRAINFIELD 1	Ø									
DF2	↓				DRAINFIELD 2	Ø		✓							
Db	↓				DOWNGRADIENT	Ø	✓								
DBx	↓				DIST BOX	Ø									
PT	↓				PUMP TANK	Ø	✓	✓							

~~WELLS ARE BURIED OWNER WILL FLAG~~

Relinquished by: (Signature) [signature] Date/Time 1/19/97 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature) Date/Time

Relinquished by: (Signature) Date/Time Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: D SMITH - #18

ADDRESS: PAGE CO

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml & non-acid	100ml T.P.	REMARKS
BG	1/18/95	7:11			BACKGROUND	Ø				DRY WELLS
DF	↓				DRAIN FIELD	Ø				
DG	↓				DOWN GRADIENT	Ø				
SC	↓				SAMPLE CHAMBER	3	1	1	1	POSSIBLE LEAK
PT	↓				PUMP TANK	Ø				HRS: 26.21

Relinquished by: (Signature) — Date/Time: 1/19/95 7A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: ANDERSON - #19

ADDRESS: FREDERICK CO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.	100ml NON-ACID						REMARKS
DF1	1/18/99	420		✓	DRAINFIELD 1	3	1	1	1							
DF2	↓			✓	DRAINFIELD 2	3	1	1	1							
DIST BOX	↓			✓	DIST. BOX	3	1	1	1							
PT	↓				PUMP TANK	Ø										HRS: 802.88
DIST BOX						7				7						TIMED SAMPLES
TIMED																MIN: 1, 2, 3, 4, 5, 10, 15

Relinquished by: (Signature) [signature] Date/Time 1/19/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: JACOBSEN - #20

ADDRESS: FAIRFAX

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	1/18/99	1P		3	BACKGROUND	3	1	1	1						
PW1	↓	↓		3	PADWELL 1	3	1	1	1						
PW2	↓	↓		3	PADWELL 2	3	1	1	1						
DG	↓	↓		3	DOWN GRADIENT	3	1	1	1						
SC	↓	↓		Ø	SAMPLE CHAMBER	Ø									NO SAMPLE TAKEN PER BNM
PT	↓	↓		Ø	PUMP TANK	Ø									HRS:

Relinquished by: (Signature) — Date/Time: 1/19/99 7A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: T-SMITH - #21

ADDRESS: SHENODOAH AREA

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
☐ Standard
☐ RUSH
☐ PRIORITY ONE

PROJ. NO.: 7736i

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	250mL NON-ACID	100mL T.P.	REMARKS
BG	7/18/95	1027			BACKGROUND	ϕ				DRY WELL
PW	|	|		✓	PADWELL	3	½	1		~~DRY~~ 50mL w/ACID ½ FULL
DG	|	|		✓	DOWNGRADIENT	1	½			ONLY 50 mL NO ACID ½ FULL
SC	|	↓		✓	SAMPLE CHAMBER	3				
PUMP	↓				PUMP TANK	ϕ				COST DID NOT WANT ME TO REMOVE LID ITS OWNER MUST READ IN HOUSE

Relinquished by: (Signature) — Date/Time: 7/19/95 2A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Remarks

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

Puraflo Chain of Custody
1999

CHAIN OF CUSTODY RECORD

CLIENT: Samson - #22

ADDRESS: FAIRFAX

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL @ non-acid	100mL T.P.						REMARKS
BG	1/18/99	1140A			BACK GROUND	Ø	—	—	—						NO SAMPLE AVAILABLE
PW	↓	↓			PAD WELL	Ø	—	—	—						
DG	↓	↓			DOWN GRADIENT	Ø	—	—	—						
SC	↓	↓			SAMPLE CHAMBER	Ø	—	—	—						HRS: 127.72
PT	↓	↓			PUMP TANK	Ø	—	—	—						111.99

Relinquished by: (Signature) [signature] Date/Time 1/19/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: SAWMILL - #1

ADDRESS: EASTERN SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773616

PROJECT NAME: Monitoring Well Sampling

SAMPLERS (Signature): [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL NON-ACID	100mL T.P.						REMARKS
BG	12/6/99	245		✓	BACKGROUND	3	1	1	1						
PW1	↓	↓		✓	PADWELL 1	3	1	1	1						
PW2	↓	↓		✓	PADWELL 2	3	1	1	1						
DG	↓	↓		✓	DOWNGRADIENT	3	1	1	1						
SC	↓	↓			SAMPLE CHAMBER	Ø	-	-	-						NO SAMPLES TAKEN PER BNM
PT	↓	↓			PUMP TANK	Ø	-	-	-						HRS 186.65

Relinquished by: (Signature): [signature]

Date/Time: 1/21/99 7A

Received by: (Signature): [signature]

Relinquished by: (Signature):

Date/Time:

Received for Laboratory by: (Signature):

Relinquished by: (Signature):

Date/Time:

Received by: (Signature):

Date/Time:

Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: HARMON - #2

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml NON-ACID	100ml T.P.						REMARKS
BG	1/20/99	4P		✓	BACKGROUND	3	1	1	1						
PW	↓				PADWELL	~~0~~	1	1	1						NO SAMPLE
DG	↓			✓	DOWN GRADIENT	3	1	1	1						
SC	↓			✓	SAMPLE CHAMBER	3	1	1	1						
PT	↓			✓	PUMP TANK	3	1	1	1						
															HRS: 20.26

Relinquished by: (Signature) [signature] Date/Time 1/21/99 7A

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: MERRITT - #3

ADDRESS: EASTERN SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml @ non-acid	100ml T.P.						REMARKS
BG	1/20/99	545			BACK GROUND	Ø									DRY WELL
PW	↓	↓			PADWELL	Ø		✓							DRY WELL
DG	↓	↓			DOWN GRADIENT	Ø	✓								DRY WELL
SC	↓	↓		✓	SAMPLE CHAMBER	2	—	1	1						HEAVY SEDIMENT, USED BUCKET
PT	↓	↓			PUMP TANK	Ø	✓								SEALED - NO SAMPLE
															HRS: 44.76

Relinquished by: (Signature) [signature] Date/Time 1/21/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature) Date/Time Remarks

Relinquished by: (Signature) Date/Time Received by: (Signature)

CHAIN OF CUSTODY RECORD

CLIENT: Link - #13

ADDRESS: VA Beach

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml & non-acid	100ml T.P.						REMARKS
BG	1/28/99	210		✓	BACKGROUND	3	1	1	1						
PW	↓	↓		✓	PADWELL	2	1	1	–						HEAVY SEDIMENT
DG	↓	↓		✓	DOWN GRADIENT	3	1	1	1						
SC	↓	↓		✓	SAMPLE CHAMBER	3	1	1	1						HEAVY SEDIMENT
PT	↓	↓			PUMP TANK	Ø	–	–	–						
															HRS: 28:10

Relinquished by: (Signature) [signature] Date/Time 1/28/99 4P

Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time

Received by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: SHARF - #14

ADDRESS: VA. BEACH

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BG	1/28/99	1P		✓	BACKGROUND	3	1	1	1						
PW	↓	↓		✓	PADWELL	3	1	1	1						
DG	↓	↓		✓	DOWNGRADIENT	3	1	1	1						
SC	↓	↓		✓	SAMPLE CHAMBER	3	1	1	1						SYSTEM RUNNING
PT	↓	↓		✓	PUMP TANK	3	1	1	1						
															HRS: NO METER

Relinquished by: (Signature) — Date/Time: 1/28/99 4P — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Kemp - #4

ADDRESS: MATHEWS

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Cyprian Tassat

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/Acid	250mL Unpreserved	100mL T.P.	REMARKS
BG	1/28/99	945A		✓	BACKGROUND	3	1	1	1	
PW				✓	PADWELL	3	1	X	1	
DG				✓	DOWN GRADIENT	3	1	1	1	
SC				✓	SAMPLE CHAMBER	3	1	1	1	
PT	↓				PUMP TANK	0				NO SAMPLE TAKEN. HRS: 150.61

Relinquished by: (Signature) — Date/Time: 1/28/99 7A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: FARRELL - #5

ADDRESS: MATHEWS

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) Cynara Taggart

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml @ non-acid	100ml T.P.						REMARKS
BG	1/28/99	1130		✓	BACK GROUND										
PW	↓	↓		✓	PAD WELL			✓							
DG	↓	↓		✓	DOWN GRADIENT		✓								
DC	↓	↓		✓	DIST CENTER										
PT	↓	↓			PUMP TANK		✓								HRS: 39.22

Relinquished by: (Signature) Cynara Taggart — Date/Time 1/28/99 4P — Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD FOR JAN

CLIENT: SMITH - #15

ADDRESS: WESTMORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml w/ACID	100ml T.P.						REMARKS
BG	2/9/99	645		✓	BACKGROUND	3	1	1	1						
PW	↓	↓		✓	PARWELL	1	—	✓	—						only ½ SAMPLE OBTAINED
DG	↓	↓		✓	DOWN GRADIENT	3	1	1	1						
SC	↓	↓		✓	SAMPLE CHAMBER	3	1	1	1						
PT	↓	↓		✓	PUMP TANK	3	1	1	1						HRS 21.28

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

FOR JAN

CHAIN OF CUSTODY RECORD

CLIENT: MOORE - #24

ADDRESS: MECKLENBURG

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check Date)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
PW	2/11/99	220			PADWELL	0	—	—	—						DRY WELL
SC	↓	↓		✓	SAMPLE CHAMBER	3	1	1	1						FORCE-FED
RT				✓	PUMP TANK	3	1	1	1						HRS: 1.56

Relinquished by: (Signature) [signature] Date/Time 2/11/99 5:30P Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

FOR JAN

CHAIN OF CUSTODY RECORD

CLIENT: BROWN - #8

ADDRESS: GLO Co

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL w/ 000-acid	100mL T.P.						REMARKS
BG	2/11/99	7A			BACKGROUND	0									DRY WELLS
PW	↓				PADWELL	0									
DG					DOWNGRADIENT	0									DRY
SC					SAMPLE CHAMBER	0									
PT					PUMP TANK	0									HRS

Relinquished by: (Signature) [signature] 930A — Date/Time 2/11/99 930A — Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD

FOR JAN

CLIENT: LONG - ARTHUR - #9

ADDRESS: RICHMOND, VA

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml & non-acid	100ml T.P.						REMARKS
BG	2/15/99	3P		✓	BACK GROUND	1		1							
PW				✓	PAD WELL	1		X							
DG				✓	DOWN GRADIENT	1		1							
SC					SAMPLE CHAMBER	Ø									~~Not SAMPLED PER BNM~~
PT					PUMP TANK	Ø									HRS 135.54

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

CLIENT: CARTER - #23

ADDRESS: SALEM, VA

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One)
- ( ) Standard
- ( ) RUSH
- ( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 1:1	500ml w/ 1:1	100ml T.P.						REMARKS
BG	JAN 99														HOUSE STILL UNDER CONSTRUCTION UNOCCUPIED
PW															
DG															
SC															
PT															

Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature)

Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Date/Time | Remarks

CHAIN OF CUSTODY RECORD

CLIENT: HENDERSON - #16

ADDRESS: WESTMORELAND CO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 80.0	500ml w/ non-acid	100ml T.P.						REMARKS
BG	JAN 99														HOUSE STILL UNDER CONSTRUCTION ON MARKET
PW															
DG															
SC															
PT															

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

CLIENT: Carter - #23

ADDRESS: Salem, VA

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One)
- ( ) Standard
- ( ) RUSH
- ( ) PRIORITY ONE

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	50ml w/Acid	500ml Non-acid	100ml T.P.	REMARKS
BG	2/14/92	60		✓	BACKGROUND	13	5	1	5	only needed to FC
PW				✓	PADWELL	13	5	1	5	
DG				✓	DOWN GRADIENT	13	5	1	5	
SC				✓	SAMPLE CHAMBER	13	5	1	5	SEVERAL "SINK" HOLES,
PT	↓	↓		✓	PUMP TANK	13	5	1	5	HRS: 4.50 LEAK IN PT

Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature)

Relinquished by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

CLIENT: D. SMITH - #18

ADDRESS: PAGE CO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml UNPRESERVED	100ml T.P.	REMARKS
BG	2/24/98	1152			BACKGROUND	1	1			DRY WELL
DF				✓	DOWNFIELD	1	1			CLEAR SEDIMENT
DG				✓	DOWNGRADIENT	1	1			HEAVY SEDIMENT
SC				✓	SAMPLE CHAMBER	1	1			DEBRIS
PT	↓	↓		✓	PUMP TANK	1	1			STRONG ODOR
										PID: 29.56

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Date/Time

Remarks

CHAIN OF CUSTODY RECORD

CLIENT: I. Smith - #21

ADDRESS: FAIRFAX

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	2/19/99	515		✓	BACKGROUND	1	—	1	—						
PW	↓	↓		✓	PADWELL	1	—	1	—						
DG	↓	↓			DOWN GRADIENT	—	—	—	—						DRY WELL
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						
PT	↓	↓			PUMP TANK	—	—	—	—						COST DOES NOT WANT LID OPENED
															HRS.

Relinquished by: (Signature) [signature] | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

FEB 99

CHAIN OF CUSTODY RECORD

CLIENT: L. SMITH - #15

ADDRESS: WESTMORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	3/2/99	8		✓	BACK GROUND	1	—	1	—						FC ONLY PER BNM
PW	↓	↓		✓	PADWELL	1	—	1	—						
DG	↓	↓		✓	DOWNGRADIENT	1	—	1	—						
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						
PT	↓	↓		✓	PUMP TANK	1	—	1	—						HRS: 22.20

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

CLIENT: HENDERSON - #16

ADDRESS: WEST MORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS

NO SAMPLES

HOUSE NOT OCCUPIED

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)

Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks

FEB 99

CHAIN OF CUSTODY RECORD

CLIENT: FARRELL - #5

ADDRESS: GWYNNS ISLAND

ATTENTION:

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
( ) Standard
( ) RUSH
( ) PRIORITY ONE

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml UNPRESERVED	100ml T.P.	REMARKS
BG	3/2/99	430		✓	BACKGROUND	1	1			FC only per BNM
PW				✓	PADWELL	1	1			
DG				✓	DOWN GRADIENT	1	1			
DC				✓	DIST CENTER	1	1			
SEPTIC	↓	↓		✓	SEPTIC TANK	1	1			HRS 39.22 FC ONLY

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Received for Laboratory by: (Signature)

Relinquished by: (Signature)

Date/Time

Received by: (Signature)

Relinquished by: (Signature)

Date/Time

Remarks

FEB 99

CHAIN OF CUSTODY RECORD

CLIENT: MOORE - #24

ADDRESS: MECKLENBURG

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
PW	3/1/99	230		—	PADWELL	—									Fecals only per BNM
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	✓	—						
PT	↓	↓		✓	PUMP TANK	1	←	1	—						Hrs 1 62

Relinquished by: (Signature) — Date/Time: 3/1/99 LP — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

FEB 99

CHAIN OF CUSTODY RECORD

CLIENT: Brown - #10

ADDRESS: Richmond

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
[ ] Standard
[ ] RUSH
[ ] PRIORITY ONE

PROJ. NO.: 273611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500mL w/ACID	500mL non-acid	100mL T.P.						REMARKS
BG	2/21/99			✓	BACKGROUND	1	—	1	—						FC ONLY
PW	↓			—	PADWELL	-0-		/							-DRY
DG	↓			✓	DOWN GRADIENT	1	/	1	—						FC ONLY
SC	↓			—	SAMPLE CHAMBER	-0-									-DRY
PT	↓			✓	PUMP TANK	1	—	1	—						FC ONLY
															HRS: 42.53

Relinquished by: (Signature) — Date/Time: 22 FEB 99 9A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: MERRITT - #3

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml w/ 000-acid	100ml T.P.						REMARKS
BG	3/4/99	1558P		✓	BACKGROUND	1	—	1	—						VERY SMALL PURGE
PW	↓	↓		✓	PADWELL	1	—	1	—						
DG	↓	↓		✓	DOWNGRADIENT	1	—	1	—						LIGHT SEDIMENT, FROM BOWL
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						HRS 4739 SEALED
PT	↓	↓			PUMP TANK	0	—	—	—						

Relinquished by: (Signature) — Date/Time: 3/5/99 7A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD FOR FEBRUARY

CLIENT: HARMON - #2

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 1:1	500ml w/ 1:1	100ml T.P.						REMARKS
BG	3/4/99	338P		✓	BACKGROUND	1	–	1	–						FULL PURGE
PW				✓	PADWELL	~~0~~	–	+	–						DRY WELL
DG				✓	DOWN GRADIENT	1	–	1	–						FULL PURGE
SC				✓	SAMPLE CHAMBER	1	–	1	–						SAMPLE FROM BUCKET
PT				✓	PUMP TANK	1	–	1	–						FROTHY
															HRS. 22.53

Relinquished by: (Signature) — Date/Time: 3/5/99 7A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

FOR FEBRUARY

CLIENT: BROWN - #8

ADDRESS: GLOUCESTER CO

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURNAROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 80.0	500ml w/ 100-acid	100ml T.P.						REMARKS
BG	3/5/99	SA		✓	BACKGROUND	1	—	1	—						VERY LITTLE WATER IN PURGE
PW	↓	↓		✓	PADWELL	1	—	1	—						
DG	↓	↓		✓	DOWNGRADIENT	1	—	1	—						FORCE-FED
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						HRS 33.20
PT	↓	↓		✓	PUMP TANK	1	—	1	—						

Relinquished by: (Signature) — Date/Time: 3/6/99 9A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: SHARF - #14

ADDRESS: SANDBRIDGE

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml non-acid	100ml T.P.						REMARKS
BL	2/23/99	1225		✓	BACKGROUND	1	—	1	—						FULL PURGE
PW				✓	PADWELL	1	—	1	—						FULL PURGE, HEAVY SEDIMENT
DG				✓	DOWNGRADIENT	1	—	1	—						FULL PURGE, HEAVY SEDIMENT
SC				✓	SAMPLE CHAMBER	1	—	1	—						SYSTEM RUNNING
PT				✓	PUMP TANK	1	—	1	—						NO METER

Relinquished by: (Signature) — Date/Time: 2/24/99 9A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: LINK - #13

ADDRESS: PUNGO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 1800	500ml w/ 1800-acid	100ml T.P.						REMARKS
BG	2/23/99	110		✓	BACKGROUND	1	—	1	—						FULL PURGE, SLIGHT SEDIMENT
PW	↓	↓		✓	PADWELL	1	—	1	—						FULL PURGE, MED SEDIMENT
DG	↓	↓		✓	DOWN GRADIENT	1	—	1	—						FULL PURGE, SLIGHT SEDIMENT
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						1/5 FULL, HEAVY SEDIMENT
PT	↓	↓		✓	PUMP TANK	1	—	1	—						FAINT ODOR
															HRS: 3193

Relinquished by: (Signature) — Date/Time: 2/24/99 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Moore - #24

ADDRESS: Mecklenburg

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml w/ 800-acid	100ml T.P.						REMARKS
PW	3/15/95	5:20			PADWELL	0	-	-	-						DRY WELL
SC	↓	↓			SAMPLE CHAMBER	0	-	-	-						DRY
PT	↓	↓			PUMP TANK	0	-	-	-						HRS: 1.71 NOT TAKEN

Relinquished by: (Signature) — Date/Time: 3/16/95 8AM — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: CARTER - #23

ADDRESS: SALEM

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 73611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml w/ NON-ACID	100ml T.P.	REMARKS
BG	3/15/99	1230		✓	BACK GROUND	1	—	1	—	FULL PURGE
PW	↓	↓		✓	PADWELL	1	—	1	—	FULL PURGE
DG	↓	↓		✓	DOWN GRADIENT	1	—	1	—	FULL PURGE
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—	FROM CHAMBER, 1/5 FULL
PT	↓	↓			PUMP TANK	0	—	—	—	HRS: 9.21
										SINK HOLES, SAFETY HAZARD

Relinquished by: (Signature) [signature] — Date/Time: 3/16/99 8A — Received by: (Signature) [signature]

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: D. Smith - #18

ADDRESS: Page Co

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 80.0	500ml w/ 100.0 acid	100ml T.P.						REMARKS
BG	3/21/99	2140		✓	BACKGROUND										FULL
DF	↓	↓		✓	DRAIN FIELD										FULL
DG	↓	↓		✓	DOWN GRADIENT										CRACKED LID, HEAVY DEBRIS
DC	↓	↓		✓	DIST. CENTER										STILL RUNNING CONTINUOUSLY
PT	↓	↓		✓	PUMP TANK										

Relinquished by: (Signature) [signature] Date/Time 3/22/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Relinquished by: (Signature) Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: T. Smith - #21

ADDRESS: FAIRFAX

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 80.0	500ml w/ 000-acid	100ml T.P.						REMARKS
BG	3/21/99	1035A		✓	BACKGROUND	1	—	1	—						FULL PURGE
PW	↓	↓		✓	PADWELL	1	—	1	—						SLIGHT PURGE, HEAVY SEDIMENT
DG	↓	↓			DOWN GRADIENT	0	—	—	—						DRY WELL
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						SAMPLE FROM BUCKET, DRIPPING
PT	↓	↓			PUMP TANK	0	—	—	—						HRS 15.7 & 16.6 OWNER ISSUE

Relinquished by: (Signature) [signature] Date/Time: 3/22/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time: Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time: Received by: (Signature)

Date/Time: Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: L. SMITH - #15

ADDRESS: WESTMORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 60.0	500ml w/ 60.0	100ml T.P.						REMARKS
BG	3/29/99	3:30P		✓	BACK GROUND	1	—	1	—						
PW	↓	↓		✓	PAD WELL	1	—	1	—						DRY WELL
DG					DOWN GRADIENT	~~0~~	—	—	—						RUNNING, CHAMBER HAS WATER
SC				✓	SAMPLE CHAMBER	1	—	1	—						HRS. 24 89
PT	↓	↓		✓	PUMP TANK	1	—	1	—						

Relinquished by: (Signature) — Date/Time: 3/30/99 9A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: HENDERSON - #16

ADDRESS: WESTMORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ BOD	500ml w/ non-acid	100ml T.P.						REMARKS
BG	March 99														HOUSE ON MARKET UNOCCUPIED
PW															
DG															
SC															
PT															

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

CLIENT: ~~Link~~ ~~#~~ 13 SHARE - #14

ADDRESS: VA BEACH

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ BOD	500ml w/ NO-acid	100ml T.P.						REMARKS
BG	3/30/99	1253		✓	BACK GROUND										SLIGHT SEDIMENT
PW	↓	↓		✓	PADWELL										
DG	↓	↓		✓	DOWNGRADIENT										SYSTEM RUNNING
SC	↓	↓		✓	SAMPLE CHAMBER										HRS NO METER
PT	↓	↓		✓	PUMP TANK										

Relinquished by: (Signature) [signature] Date/Time 3/31/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: ~~SHARE~~ ~~#~~14 LINK - #13

ADDRESS: VA BEACH

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500 ml w/ 800	500 ml w/ 800-acid	100 ml T.P.						REMARKS
BG	3/30/95	150P		✓	BACKGROUND	1	–	1	–						HEAVY SEDIMENT
PW	↓	↓		✓	PADWELL	1	–	1	–						NO OUTSIDE CAP
DG	↓	↓		✓	DOWN GRADIENT	1	–	1	–						TILTED, NO INSIDE CAP
SC	↓	↓		✓	SAMPLE CHAMBER	1	–	1	–						SYSTEM RUNNING, HEAVY SEDIMEN
PT	↓	↓		✓	PUMP TANK	1	–	1	–						HRS. 39.85

Relinquished by: (Signature) [signature] Date/Time 3/31/95 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD FOR MARCH

CLIENT: MERRITT - #3

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 600	500ml w/ 600-acid	100ml T.P.						REMARKS
BG	4/1/99	211		✓	BACKGROUND	1	—	1	—						HEAVY SEDIMENT
PW	↓	↓		✓	PADWELL	1	—	1	—						VERY SMALL PURGE
DG	↓	↓		✓	DOWN GRADIENT	1	—	1	—						FROM BUCKET
SC	↓	↓		✓	SAMPLE CHAMBER	1	—	1	—						HRS 49.43 SEALED
PT	↓	↓			PUMP TANK	0	—								

Relinquished by: (Signature) — Date/Time: 4/2/99 8A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

FOR MARCH

CLIENT: HARMON - #2

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 600	500ml w/ 600-acid	100ml T.P.						REMARKS
BG	4/1/99	351P		✓	BACKGROUND	1	-	1	-						FULL PURGE
PW	↓	↓			PADWELL	~~0~~	-	-	-						DRY WELL
DG	↓	↓		✓	DOWNGRADIENT	1	-	1	-						FULL PURGE
SC	↓	↓		✓	SAMPLE CHAMBER	1	-	1	-						SAMPLE FROM BUCKET
PT	↓	↓		✓	PUMP TANK	1	-	1	-						HRS: 24.21 STRONG ODOR

Relinquished by: (Signature) [signature] Date/Time: 4/2/99 8A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

FORMARCH

CLIENT: E. BROWN - #10

ADDRESS: RICHMOND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS (Signature): [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml @ 000-0.0	100ml T.P.						REMARKS
BG	4/11/99	12N			BACKGROUND	0									
PW					PADWELL	0									
DG					DOWN GRADIENT	0									
SC					SAMPLE CHAMBER	0									
PT					PUMP TANK	0									

NO SAMPLES DOG!!!

Relinquished by: (Signature) [signature] Date/Time: Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time: Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time: Received by: (Signature)

Date/Time: Remarks:

CHAIN OF CUSTODY RECORD FOR MARCH

CLIENT: C. BROWN #8

ADDRESS: GLOUCESTER CO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ACID	500ml w/ NO-acid	100ml T.P.						REMARKS
BG	4/12/99	730			BACK GROUND										
PW	↓				PAD WELL										DRY
DG					DOWN GRADIENT										
SC					SAMPLE CHAMBER										
PT	↓				PUMP TANK										HRS: 36.40

Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature)

Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Date/Time | Remarks

CHAIN OF CUSTODY RECORD FOR APRIL

CLIENT: SHARF - #14

ADDRESS: VA BEACH

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 8.0	500ml w/ 0.0	100ml T.P.						REMARKS
BG	5/3/99	330		✓	BACK GROUND	2	—	1	1						SLIGHT SEDIMENT
PW				✓	PADWELL	3	½	1	1						
DG				✓	DOWN GRADIENT	1	—	1	—						FROM BUCKET
SC				✓	SAMPLE CHAMBER										NO METER
PT				✓	PUMP TANK	3	1	1	1						

Relinquished by: (Signature) [signature] Date/Time 5/4/99 9A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD FOR APRIL

CLIENT: LINK - #13

ADDRESS: VA BEACH

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ( ) Standard ( ) RUSH ( ) PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml @ 0.5-0.8	100ml T.P.						REMARKS
BG	5/3/95	220		✓	BACK GROUND	3	1	1	1						SLIGHT SEDIMENT
PW				✓	PADWELL	3	1	1	1						
DG				✓	DOWN GRADIENT	3	1	1	1						VERY HEAVY SEDIMENT
SC				✓	SAMPLE CHAMBER	3	1	1	1						HRS 45.21
PT				✓	PUMP TANK	3	1	1	1						

Relinquished by: (Signature) — Date/Time: 5/4/95 9A — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: MOORE - #24

ADDRESS: MECKLENBURG

ATTENTION:

P.O. #:

PHONE #:

FAX#:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 1:1	500ml w/ 1:1	100ml T.P.						REMARKS
PW	4/19/99	5P			PADWELL	~~0~~									DRY WELL
SC	✓			✓	SAMPLE CHAMBER	3	1	1	1						FORCE FED
PT	✓				PUMP TANK	~~0~~									NOT TAKEN
															HRS: 1.86

Relinquished by: (Signature) [signature] Date/Time 4/20/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: CARTER - #23

ADDRESS: SALEM, VA

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 8.0	500ml @ 0.00-2.0	100ml T.P.							REMARKS
BG	4/19/99			✓	BACKGROUND	3	1	1	1							
PW	↓			✓	PADWELL	3	1	1	1							
DG	↓			✓	DOWNGRADIENT	3	1	1	1							
SC	↓			✓	SAMPLE CHAMBER	3	1	1	1							FORCE FEP
PT	↓				PUMP TANK	~~0~~										HRS: 16:00 SAFETY HAZARD NO SAMPLE

Relinquished by: (Signature) [signature] Date/Time 4/20/99 7A Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

CHAIN OF CUSTODY RECORD

CLIENT: T. Smith - #21

ADDRESS: FAIRFAX

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One)
☐ Standard
☐ RUSH
☐ PRIORITY
ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | Equal w/ Base | Equal w/ Acid | 1 Liter Amber | | |

CHAIN OF CUSTODY RECORD

CLIENT: D. SMITH - #18

ADDRESS: PAGE CO

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml @ 000-acid	100ml T.P.						REMARKS
BG	4/26/95	4:30P			BACKGROUND	0	—	—	—						DRY WELL
DF	↓	↓			DRAINFIELD	0	—	—	—						NOT ENOUGH WATER FOR PURGE
DG	↓	↓			DOWN GRADIENT	0	—	—	—						
DC	↓	↓		✓	DIST. CENTER	3	1	1	1						CRACKED LID, HEAVY DEBRIS
PT	↓	↓		✓	PUMP TANK	3	1	1	1						HRS: 38.85

Relinquished by: (Signature) — Date/Time: 4/27/95 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

FOR APRIL

CLIENT: L. SMITH - #15

ADDRESS: W. MORELAND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 60.0	500ml @ 0.00-0.01	100ml T.P.	REMARKS
BG	5/2/95	1205			BACK GROUND	~~0~~				DRY WELL
PW	↓	↓			PAD WELL	~~0~~				WELL MOVING OUT OF GROUND
DG	↓	↓			DOWN GRADIENT	~~0~~				SYSTEM RUNNING
SC	↓	↓		✓	SAMPLE CHAMBER	3	1	1	1	HTS: 26.25 SLIGHT ODOR
PT	↓	↓		✓	PUMP TANK	3	1	1	1	

Relinquished by: (Signature) — Date/Time: 5/3/95 24 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

CHAIN OF CUSTODY RECORD

CLIENT: Henderson - #16

ADDRESS: Westmoreland Co

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- ☐ Standard
- ☐ RUSH
- ☐ PRIORITY ONE

PROJ. NO.: T-3611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 1:1	500ml w/ 1:1	100ml T.P.							REMARKS
BG	April 94															House On Market
PW																Unoccupied
DG																
SC																
PT																

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

FOR APRIL

CLIENT: HARMON - #2

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature) [signature]

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml w/ 800-acid	100ml T.P.						REMARKS
BG	5/11/99	455		✓	BACKGROUND	3	1	1	1						
AN	↓	↓			PADWELL	~~0~~	–	–	–						DRY WELL
DG	↓	↓		✓	DOWN GRADIENT	3	1	1	1						
SC	↓	↓		✓	SAMPLE CHAMBER	3	1	1	1						FORCE-FED
PT	↓	↓		✓	PUMP TANK	3	1	1	1						FROTHY!!
															HRS: 26.49

Relinquished by: (Signature) [signature] Date/Time 5/11/99 SA Received by: (Signature) [signature]

Relinquished by: (Signature) Date/Time Received for Laboratory by: (Signature)

Relinquished by: (Signature) Date/Time Received by: (Signature)

Date/Time Remarks

FOR APRIL

CHAIN OF CUSTODY RECORD

CLIENT: MERRITT - #3

ADDRESS: E. SHORES

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURNAROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml w/ 800-acid	100ml T.P.						REMARKS
BG	5/10/95	636			BACK GROUND	0									DRY WELLS
PW	↓	↓			PADWELL	0									
DG					DOWN GRADIENT	0									
SC				✓	SAMPLE CHAMBER	1	—	1	—						HEAVY SEDIMENT, FROM BUCKET
PT	↓	↓			PUMP TANK	0									SEALED
															HRS: 50SC

Relinquished by: (Signature) — Date/Time: 5/11/95 SA — Received by: (Signature)

Relinquished by: (Signature) — Date/Time — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time — Received by: (Signature)

Date/Time — Remarks

CHAIN OF CUSTODY RECORD

CLIENT: E. BROWN - #10

ADDRESS: RICHMOND

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One)
- [ ] Standard
- [ ] RUSH
- [ ] PRIORITY ONE

PROJ. NO.: 773611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 800	500ml w/ 800-acid	100ml T.P.						REMARKS
BL	APRIL 99				BACKGROUND	0									
PW					PADWELL	0									
DG					DOWN GRADIENT	0									
SC					SAMPLE CHAMBER	0									
PT					PUMP TANK	0									

OWNER WILL NOT COOPERATE DOG!!

Relinquished by: (Signature) | Date/Time | Received by: (Signature) | Relinquished by: (Signature) | Date/Time | Received by: (Signature)

Relinquished by: (Signature) | Date/Time | Received for Laboratory by: (Signature) | Date/Time | Remarks

CHAIN OF CUSTODY RECORD

FOR APRIL

CLIENT: C Brown - #8

ADDRESS: Gloucester Co

ATTENTION:

P.O. #:

PHONE #:

FAX #:

TURN AROUND TIME (Check One): ☐ Standard ☐ RUSH ☐ PRIORITY ONE

PROJ. NO.: 73611

PROJECT NAME: Monitoring Well Sampling

SAMPLERS: (Signature)

STA. NO.	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	500ml w/ 1:1	500ml w/ 1:1	100ml T.P.						REMARKS
BG	5/18/99	NSSA			BACK GROUND	0									DRY WELLS
PW	↓	↓			FAT WELL	0									
DG					DOWN GRADIENT	0									
SC				✓	SAMPLE CHAMBER	3	1	1	1						SYSTEM RUNNING
PT	↓	↓		✓	PUMP TANK	3	1	1	1						MPS 38.71 STRONG ODOR

Relinquished by: (Signature) — Date/Time: 5/19/99 9:4 — Received by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received for Laboratory by: (Signature)

Relinquished by: (Signature) — Date/Time: — Received by: (Signature)

Date/Time: — Remarks:

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

3. A Description of the Sampling and Analytical Methods to be Used Other Than Just the General Reference to Standard Methods with Lab Reports Including the O&M Discussions

P.O. Box 77457
Greensboro, NC 27417

T 336-547-9338
F 336-547-8559
w anuainternational.com

Puraflo Sampling Protocol

BORD NA MÓNA
ENVIRONMENTAL PRODUCTS U.S. INC.

SAMPLING PROTOCOL FOR THE PURAFLO® PEAT BIOFILTER

1.0 Treatment Process

The **Puraflo®** treatment media is comprised mainly of eriophorum or peat fibre. Peat has the capacity to bind or absorb water at up to 10 times its weight/volume??, hence its use in horticultural applications. The binding capability of the **Puraflo®** treatment media allows sufficient residence time in the process for the wastewater contaminants to be degraded by the organisms that inhabit the media.

The quality of the effluent treatment is directly related to the residence time in the treatment media. In order to assist in ensuring that consistent and representative samples are taken from each test system, it is important not to "force" a sample (i.e. activate pump unduly) from the treatment modules. A forced sample results from a short circuiting of the design residence time in a treatment media. This has the effect of reducing the contact time for the microbes that inhabit the media to degrade the pollutants in the wastewater. This reduced residence time will result in a poorer quality and non representative effluent sample being received than would normally exit the treatment system.

A **Puraflo®** sampling chamber is normally fitted to each installation. Effluent from a portion of one or more of the treatment modules is diverted through 1" sampling pipes from the base of the modules under gravity into the lower section of the sampling chamber. The sampling pipes are approx. 30" below the top of the chamber. See diagram .

2.0 Sampling Procedures

To minimize the risk of analysing a non-representative sample, the following routine should be strictly followed:

(i) **If possible, the sample containers should be placed in the sampling chamber long enough to allow the treated effluent to flow into the container without activating the pump. The length of time required will vary from site to site.**

(ii) If this does not produce a sample the question of whether the house is occupied should be raised. The occupants may have been away for a few days or longer. If this is the case it may not be possible to obtain a representative sample on this occasion.

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(iii) If activation of the pump is required the pump run duration should minimised. The pumping of effluent onto the bed should be initiated for a maximum 30 second period before sampling. The sampling personnel should wait for a period of 15 minutes to obtain a sample. If no sample is available at that point then the sampling event should be abandoned.

(iv) The initial trickle of effluent from the sampling pipes in the chamber should be disregarded. ?? Clean and pre-sterilised (preferably disposable) sampling containers should then be placed directly beneath the flowing pipe taking care not to touch the sampling container or the pipe itself.

The sample container should, if possible, be brim filled.

(v) The sampler should sterilise his/her hands before and after sampling with alcohol rinse. This will avoid the possibility of cross contamination and must be applied to all sampling i.e. modules, groundwater, pump tank, septic tank and any receiving waters.

(vi) Sampling bottles should be pre-labelled to avoid confusion in the field.

(vii) Samples should be transferred to a "cool box" containing ice immediately after sampling. Ideally analysis should occur within 12 hours of sampling. However, results are valid within 24 hours of sampling. Any longer duration between sampling and analysis may result in the numeration of erroneously large numbers of faecal organisms due to microbial growth and multiplication.

3.0 Sampling locations

In order to fully appraise the performance of the systems it is desirable to sample at a number of locations:

(i) Background levels should be obtained by sampling from groundwater piezometers located up-gradient from the percolation area.
(ii) Septic tank wastewater samples will indicate system influent levels being treated.
(iii) Sample chamber effluent will indicate system effluent levels after treatment.
(iv) A piezometer designed to allow sampling at the interface between the unsaturated soil and the groundwater table would accurately indicate the pollutant input to the groundwater. Such a sample would also demonstrate the efficiency of the overburden material in "polishing" the treated effluent from the **Puraflo®** system. This procedure may be particularly relevant where pollutant limits are set on the quality of wastewater's entering groundwater and not on the quality entering the unsaturated zone.
(v) Piezometers located at the property boundaries (or other determined location) down-gradient may indicate additional pollutant removal in the horizontal movement through the soil. Care should be taken to ensure that sampling is in effluent plume.

4.0 Groundwater Sampling

(i) Groundwater piezometers should be installed adjacent to the treatment units in the direction of groundwater flow.

(ii) High density polyethylene (HDPE) or PVC piping is a suitable material for the piezometers. An appropriately sized hole should be excavated for the bore and the installed pipe should be surrounded by a gravel or sand envelope to protect the bore slits and avoid clogging. A bentonite seal should be used around the top of the monitoring well at the ground surface to prevent seepage at that point.

(iii) Horizontal slits approximately 10cm x 0.25cm should be cut in the piezometers at the depths equating to the zone of water table fluctuations. The slits should be cut on both sides of the PVC piping in order to permit the lateral movement of groundwater through the bore (Figure 1).

(iv) After installation the bore should be developed by plunging a solid device (roughly the same internal diameter of the bore) up and down opposite the piezometer slits. This results in a movement of groundwater across the slit openings and frees the piezometer of any smearing or clogging which may have sealed the slits during installations. The bore should be bailed after developing to ensure that any grit or sediment is removed from the casing.

(v) Sampling of groundwater is a complicated and much researched science. Firstly, in order to guarantee a representative sample of the groundwater and not the stagnant water in the bore casing it is recommended that a minimum of five (5) well bore volumes are removed and wasted before sampling. (If this degree of purging is not possible then the sample is not representative and should not be analysed.)

Therefore, the S.W.L. (static water level) must be measured and recorded on each sampling date.

The volume of water to be removed before sampling is calculated as follows (Figure 1):

(a). $H - SWL = h$

where H = The total depth of the bore
SWL = Static Water Level
h = The total depth of water in the bore

(b) Well volume $= (\Pi R^2.h).(5)$

where R = The diameter of the bore
h = The total depth of water in the bore

A manually operated bailer is frequently used for this purpose although care must be taken not to cross contaminate piezometers. Two options are to carefully sterilise the bailer between sampling bores or to use separate bailers at each location.

Samples should be removed from each piezometer, observing the sterility and storage recommendations outlines in 2.(v).

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Puraflo Sampling Results
1997-2000

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Puraflo Sampling Results
1997

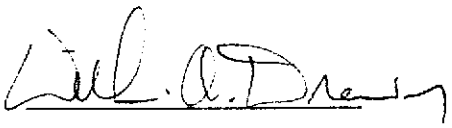
PURAFLO™ PEAT TREATMENT SYSTEM

JULY 1997 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

Bill A. Drewry, Ph.D., P.E



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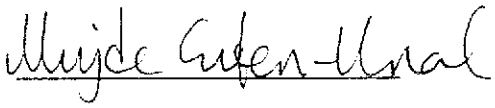


Date Sampled	BOD	Sus.Sol.	Free NH3	TKN-N	NO3,2-N	Total N	Total P	CL	DO	Temp	pH	Fecal Col	Comment
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l				
Background BG													
July 25,1997													NO SAMPLE
Average BG	---	---	---	---	---	---	---	---	---	---	---	---	
Pump Tank PT													
July 25,1997													NO SAMPLE
Average PT	---	---	---	---	---	---	---	---	---	---	---	---	
S Chamber SC													
July 25,1997	3.15	0	0.13	1.61	17.99	19.73	3.55	466.73	6.4		6	2,130	
	1.98												
Average SC	2.6	0.0	0.1	1.6	18.0	19.7	3.6	466.7	6.4		6.0	2,130	
Pad Well PW-2													
July 25,1997													NO SAMPLE
Average PW-2	---	---	---	---	---	---	---	---	---	---	---	---	---
Downgradient DG													
July 25,1997													NO SAMPLE
Average DG	---	---	---	---	---	---	---	---	---	---	---	---	---
DF-2													
July 25,1997	7.3	1240	0.11		5.09		0.28	139.79	5.5		5	1730	
Average DF-2	7.3	1240.0	0.1		5.1		0.3	139.8	5.5		5.0	1730.0	

Installation:Stanley Property
Design Flow:450
Serial # :1

Puraflo Peat Biofilter
Installed:Nov. 1, 1996

Page County, Virginia

Date Sampled	BOD	Sus.Sol.	Free NH3	TKN-N	NO3,2-N	Total N	Total P	CL	DO	Temp	pH	Fecal Col	Comment
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l			per 100 ml sample	
S.Chamber SC													
July 25,1997	3.1	20	0.16	1.07	15.53	16.76	2.59	683.86	6.34		6	430	
	2.48											267	
Average SC	3	20	0	1	16	17	3	684	6		6	349	
Pump Tank PT													NO SAMPLE
Average PT													
Drn. Field-1 (DF-1)													
July 25,1997	13.65	9040	2.67	7.65	11.58	21.9	11.8	566.21	4.6		5.5	Too numerous to	
	12.62											count	
Average DF-1	13.1	9040.0	2.7	7.7	11.6	21.9	11.8	566.2	4.6		5.5		
Drn. Field-2 (DF-2)													
July 25, 1997	11.38	1620	0.7	2.43	14.51	17.64	0.65	33.52	3.87		6	40000	
	11.82												
Average DF-2	11.6	1620.0	0.7	2.4	14.5	17.6	0.7	33.5	3.9		6.0	40000.0	
Downgradient DG													
July 25, 1997	3.58	6090	0.42	1.74	1.82	3.98	0.23	9.84	5.91		5.5	21300	
	2.98												
Average DG	3.3	6090.0	0.4	1.7	1.8	4.0	0.2	9.8	5.9		5.5	21300.0	

Water Quality Results

Installation:Nesbitt Property
Design Flow:450
Serial # :166

Puraflo Peat Biofilter
Installed:June 6, 1996

Gloucester County, Virginia

Date Sampled	BOD	Sus.Sol.	Free NH3	TKN-N	NO3,2-N	Total N	Total P	CL	DO	Temp	pH	Fecal Col	Comment
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l				
Background BG													NO SAMPLE
July 21,1997													
Average BG	---	---	---	---	---	---	---	---	---	---	---	---	
Pump Tank PT													
July 21,1997	331	113.4	92.37	42.9	0.99	136.26	11	38.6	0.67		7.34	*	* for Fecal Coliforms
	333												Dilution factor chosen
	333												was too high for good
													results (1:1000)
Average PT	332	113	92	43	1	136	11	39	1		7		
S Chamber SC													
July 21,1997	1	0	1.16	0.6	54.61	56.37	7.6	38.2	5.11		5.33	*	* for Fecal Coliforms
	1												Dilution factor chosen
	1												was too high for good
													results (1:1000)
Average SC	1.0	0.0	1.2	0.6	54.6	56.4	7.6	38.2	5.1		5.3		
Pad Well PW													
July 21,1997	1	48,327	3.54	3.1	39.58	46.22	0.48	37.4	4.3		4.88	*	* for Fecal Coliforms
	1												Dilution factor chosen
	1												was too high for good
													results (1:1000)
Average PW	1.0	48327.0	3.5	3.1	39.6	46.2	0.5	37.4	4.3		4.9		
Downgradient DG													
July 21,1997													NO SAMPLE
Average DG	---	---	---	---	---	---	---	---	---	---	---	---	

Installation:L. Arthur Property
Design Flow:450
Serial # :149

Puraflo Peat Biofilter
Installed:Jan. 8, 1996

Henrico County, Virginia

Date Sampled	BOD	Sus.Sol.	Free NH3	TKN-N	NO3,2-N	Total N	Total P	CL	DO	Temp	pH	Fecal Col	Comment
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l			per 100ml sample	
Background BG													
July 28, 1997	6.2	0	0.08	0.21	1.17	1.46	0.03	8.15	2.36		6	20	
	6.76												
Average BG	6	0	0	0	1	1	0	8	2		6	20	
Pump Tank PT													
July 28, 1997													NO SAMPLE
Average PT	---	---	---	---	---	---	---	---	---		---	---	
Pad Well (PW)													
July 28,1997	2.95	440	0.18	0.41	4.24	4.83	0.37	6.39	2.29		6	8,000	
	12												
Average PW	7.5	440.0	0.2	0.4	4.2	4.8	0.4	6.4	2.3		6.0	8,000	
D. Gradient (DG)													
July 28 1997	2.52	0	0.08	0.27	3.71	4.06	0.06	12.5	2.62		6	3730	
	7.08												
Average DG	4.8	0.0	0.1	0.3	3.7	4.1	0.1	12.5	2.6		6.0	3730.0	
S. Chamber (SC)													
July 28 1997													NO SAMPLE
Average SC	---	---	---	---	---	---	---	---	---		---	---	

Installation:Easter Property
Design Flow:300
Serial # :127

Puraflo Peat Biofilter
Installed:August 30, 1996

Isle of Wight County, Virginia

Date Sampled	BOD	Sus.Sol.	Free NH3	TKN-N	NO3,2-N	Total N	Total P	CL	DO	Temp	pH	Fecal Col	Comment
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l				
Background BG													* for fecal coliforms
July 23,1997	1	813.4	17.74	0.83	1.36	19.93	0.45	8.82	6.33			*	dilution factor chosen
	3.7												was too high for
													good results(1:1000)
Average BG	2	813	18	1	1	20	0	9	6				
Pump Tank PT													* for fecal coliforms
July 23,1997	315.5	0	0.85	30.9	0.96	32.71	7.9	61	1.55			*	dilution factor chosen
	340.5												was too high for
													good results(1:1000)
Average PT	328	0	1	31	1	33	8	61	2				
S Chamber SC													* for fecal coliforms
July 23,1997	19.8	0	0.68	2.23	16.37	19.28	6.5	57.9	3.55			*	dilution factor chosen
	14.8												was too high for
													good results(1:1000)
Average SC	17.3	0.0	0.7	2.2	16.4	19.3	6.5	57.9	3.6				
Pad Well PW													* for fecal coliforms
July 23,1997	15.75	7934	70.61	1.31	11.42	83.34	1.68	48.9	5.05			*	dilution factor chosen
	16.75												was too high for
													good results(1:1000)
Average PW	16.3	7934.0	70.6	1.3	11.4	83.3	1.7	48.9	5.1				
Downgradient DG													* for fecal coliforms
July 23,1997	1.8	0	0.6	0.39	1.75	2.74	0.08	20.1	6.23			*	dilution factor chosen
	3.7												was too high for
													good results(1:1000)
Average DG	2.8	0.0	0.6	0.4	1.8	2.7	0.1	20.1	6.2				

Summary of BOD

Site	Location	BOD
		mg/l
Nesbitt	Pump	331.3
		332.8
		332.8
	SC	< 1
		< 1
		< 1
	PW	< 1
		< 1
		< 1
Easter	PW	15.8
		16.8
	SC	19.9
		14.9
	BG	< 1
		3.7
	DG	1.8
		3.7
	Pump	315.5
		340.5
Stanley	SC	3.1
		2.5
	DG	3.6
		3
	DF-1	13.6
		12.6
	DF-2	11.3
		11.8
Anderson	SC	3.1
		2
	DF-2	7.3
		7.8
Long Arthur	PW	3
		12
	DG	2.5
		7
	BG	6.2
		6.7

Summary of fecal coliform results

		Fecal Coliform			
				No. of	Colonies
No.	Site	Location	Dilution	Colonies	per 100ml
				Observed	Calculated
1	Nesbitt	Pump	1:100	0	0
			1:1000	0	0
		SC	1:100	0	0
			1:1000	0	0
		PW	1:100	0	0
			1:1000	0	0
2	Easter	DG	1:100	0	0
			1:1000	0	0
		SC	1:100	0	0
			1:1000	0	0
		BG	1:100	0	0
			1:1000	0	0
		PW	1:100	0	0
			1:1000	0	0
		Pump	1:100	0	0
			1:1000	0	0
3	Stanley	DF-1	1:10	0	0
			1:100	TNTC	~
		DF-2	1:10	TNTC	~
			1:100	120	40000
		DG	1:10	TNTC	~
			1:100	64	21300
		SC	1:1	80	267
			1:10	13	430
4	Anderson	DF-2	1:1	21	70
			1:10	52	1730
		SC	1:1	TNTC	~
			1:10	64	2130
5	Longarthur	PW	1:1	TNTC	~
			1:10	240	8000
		DG	1:1	TNTC	~
			1:10	112	3730
		BG	1:1	6	20
			1:10	0	0

~ -- Data can not be calculated.

Summary of Solids, pH DO

No	Site	Location	Solids	pH	DO
			mg/l		mg/l
1	Nesbitt	Pump	113.4	7.34	0.67
		SC	0	5.33	5.11
		PW	48327	4.88	4.3
2	Easter	DG	0		6.23
		SC	0		3.55
		BG	813.4		6.33
		PW	7934		5.05
		Pump	0		1.55
3	Stanley	DF-1	9040	5.5	4.6
		DF-2	1620	6	3.87
		DG	6090	5.5	5.91
		SC	20	6	6.34
4	Anderson	DF-2	1240	6	5.5
		SC	0	6	6.4
5	Longarthur	PW	440	6	2.29
		DG	0	6	2.62
		BG	0	6	2.36

Summary of Chloride,Nitrites Nitrates

NO	Site	Sample	Chloride	Nitrite	Nitrate
			mg/l	mg/l	mg/l
1	Nesbitt	Pump	38.61	0	0.99
		SC	38.22	0	54.61
		PW	37.4	0	39.58
2	Easter	PW	48.87	0	11.42
		SC	57.93	0	16.37
		BG	8.82	0	1.36
		DG	20.05	0	1.75
		Pump	60.98	0	0.96
3	Stanley	SC	683.86	0	15.53
		DG	9.84	0	1.82
		DF-1	566.21	0	11.58
		DF-2	33.52	0	14.51
4	Anderson	SC	466.73	0	17.99
		DF-2	139.79	0	5.09
5	Longarthur	PW	6.39	0	4.24
		DG	12.53	0	3.71
		BG	8.15	0	1.17

		Chloride		Nitrite		Nitrate
	conc. mg/l	area	conc. mg/l	area	conc. mg/l	area
Standard1	0	233264	0	0	0	7316
Standard2	100	2572800036	10	429692073	10	501301913
Standard3	200	5183558307	20	872008568	20	1083416295
Standard4	300	7832011234	40	1676146427	40	2350575667
Easter PW	48.87	1256976967	0	0	11.42	622430138
Easter SC	57.93	1493372982	0	5949639	16.37	916588604
Easter BG	8.82	211278270	0	0	1.36	25423998
Easter DG	20.05	504427166	0	0	1.75	48383378
Easter Pump	60.98	1573021666	0	7231396	0.96	1403530
Site Blank	0.73	217512	0	0	0.94	126520
Nesbitt Pump	38.61	989145009	0	1875402	0.99	3230130
Nesbitt SC	38.22	978961724	0	0	54.61	3187622208
Nesbitt PW	37.40	957572925	0	2748533	39.58	2294965084

SUMMARY OUTPUT

Chloride

Regression Statistics	
Multiple R	0.999979
R Square	***0.999958***
Adjusted R Sq	0.999937
Standard Erro	1.027705
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	49997.88765	49997.89	47338.545	2.11E-05
Residual	2	2.11235422	1.056177		
Total	3	50000			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower95.0%*
Intercept	0.725032	0.857181656	0.845833	0.486707473	-2.963125	4.413189865	-2.963125
X Variable 1	3.83E-08	1.76049E-10	217.5742	2.11238E-05	3.75E-08	3.90611E-08	3.75E-08

SUMMARY OUTPUT

Nitrite

Regression Statistics	
Multiple R	0.99975
R Square	***0.999501***
Adjusted R	0.999251
Standard E	0.467473
Observatio	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	874.5629	874.5629	4002.008	0.00025
Residual	2	0.437062	0.218531		
Total	3	875			

	Coefficients	*tandard Er*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	-0.25477	0.365241	-0.69755	0.557641	-1.82628	1.316733	-1.82628	1.316733
X Variable	2.38E-08	3.77E-10	63.26143	0.00025	2.22E-08	2.55E-08	2.22E-08	2.55E-08

SUMMARY OUTPUT

Nitrate

Regression Statistics	
Multiple R	0.998739
R Square	***0.997481***
Adjusted R	0.996221
Standard E	1.049885
Observatio	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	872.7955	872.7955	791.8246	0.001261
Residual	2	2.204517	1.102259		
Total	3	875			

	Coefficients	*tandard Er*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	0.934904	0.788739	1.185315	0.357642	-2.45877	4.328576	-2.45877	4.328576
X Variable	1.68E-08	5.98E-10	28.13938	0.001261	1.43E-08	1.94E-08	1.43E-08	1.94E-08

		Chloride		Nitrite		Nitrate
	conc. mg/l	area	conc. mg/l	area	conc. mg/l	area
Standard1	0	316374	0	0	0	0
Standard2	100	2533043211	10	428041053	10	498373382
Standard3	200	5116135354	20	858830492	20	1074939145
Standard4	300	7746834021	40	1669090469	40	2336338022
Stanley SC	683.86	17635844502	0	0	15.53	861403032
Stanley DG	9.84	229398766	0	361555	1.82	51611965
Stanley DF-1	566.21	14597590879	0	0	11.58	628248304
Stanley DF-2	33.52	841117369	0	1955409	14.51	801061942
Anderson SC	466.73	12028404065	0	0	17.99	1006098232
Anderson DF-2	139.79	3585465289	0	0	5.09	245125484

SUMMARY OUTPUT

Chloride

Regression Statistics	
Multiple R	0.999964
R Square	**0.999928**
Adjusted R Squ	0.999892
Standard Error	1.341449
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	49996.40103	49996.4	27783.70352	3.6E-05
Residual	2	3.598973116	1.799487		
Total	3	50000			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*
Intercept	0.952326	1.117787366	0.851974	0.483970318	-3.85713	5.761780256	-3.85713
X Variable 1	3.87E-08	2.32313E-10	166.6844	3.59904E-05	3.77E-08	3.97225E-08	3.77E-08

SUMMARY OUTPUT

Nitrite

Regression Statistics	
Multiple R	0.999869
R Square	**0.999738**
Adjusted R	0.999608
Standard E	0.338247
Observatic	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	874.7712	874.7712	7645.87	0.000131
Residual	2	0.228822	0.114411		
Total	3	875			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	-0.21511	0.263909	-0.81511	0.500639	-1.35062	0.920395	-1.35062	0.920395
X Variable	2.4E-08	2.74E-10	87.44067	0.000131	2.28E-08	2.52E-08	2.28E-08	2.52E-08

Nitrate

Regression Statistics	
Multiple R	0.99871
R Square	**0.997421**
Adjusted R	0.996132
Standard E	1.062126
Observatio	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	872.7438	872.7438	773.633	0.00129
Residual	2	2.256222	1.128111		
Total	3	875			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	0.94181	0.797763	1.180564	0.359158	-2.49069	4.374308	-2.49069	4.374308
X Variable	1.69E-08	6.09E-10	27.81426	0.00129	1.43E-08	1.96E-08	1.43E-08	1.96E-08

Bord na Mona Project
Ammonia Nitrogen Results from July 1997 Sampling

Summary	
Sample ID	Results (mg/L) NH3-N
Field Blank #1	0.48
Nesbitt SC	1.16
Nesbitt PW	3.54
Nesbitt Pump	92.37
Field Blank #2	1.92
Easter SC	0.68
Easter PW	70.61
Easter Pump	0.85
Easter DG	0.60
Easter BG	17.74
Easter BG MS	0.60
Stanley DF1	2.67
Stanley DF2	0.70
Stanley DG	0.42
Stanley SC	0.16
Anderson SC	0.13
Anderson DF2	0.11
Long Arthur BG	0.08
Long Arthur PW	0.18
Long Arthur DG	0.08
Long Arthur BG MS	10.43
Long Arthur BG Duplica	0.08

Quality Control Run #1	
% Recovery Spike	170.00%
% RPD	
Correlation Coefficient	1.000

Quality Control Run #2	
% Rec Matrix Spike	104%
% RPD	0.00%
% Rec LCS	
Correlation Coefficient	0.9987

MS =Matrix Spike
LCS = Laboratory Control Sample

		Chloride		Nitrite		Nitrate
	conc. mg/l	area	conc. mg/l	area	conc. mg/l	area
Standard1	0	295322	0	0	0	0
Standard2	100	2497205921	10	417597121	10	494539080
Standard3	200	5027564397	20	855456673	20	1066404185
Standard4	300	7600861823	40	1626733831	40	2302326389
Long Arthur PW	6.39	143489569	0	868351	4.24	194963722
Long Arthur DG	12.53	299038548	0	0	3.71	164119088
Long Arthur BG	8.15	187972154	0	394366	1.17	16520444

SUMMARY OUTPUT

Chloride

Regression Statistics	
Multiple R	0.999977
R Square	**0.999954**
Adjusted R Squar	0.999932
Standard Error	1.067733
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	49997.71989	49997.72	43855.60709	2.28E-05
Residual	2	2.280106158	1.140053		
Total	3	50000			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*
Intercept	0.730271	0.890548817	0.820024	0.49838261	-3.10145	4.561996258	-3.10145
X Variable 1	3.95E-08	1.88494E-10	209.4173	2.28013E-05	3.87E-08	4.02849E-08	3.87E-08

SUMMARY OUTPUT

Nitrite

Regression Statistics	
Multiple R	0.99959
R Square	**0.999181**
Adjusted R	0.998772
Standard E	0.598573
Observatio	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	874.2834	874.2834	2440.158	0.00041
Residual	2	0.716579	0.35829		
Total	3	875			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	-0.29954	0.468412	-0.63948	0.587986	-2.31495	1.715877	-2.31495	1.715877
X Variable	2.46E-08	4.97E-10	49.39796	0.00041	2.24E-08	2.67E-08	2.24E-08	2.67E-08

SUMMARY OUTPUT

Nitrate

Regression Statistics	
Multiple R	0.998864
R Square	**0.99773**
Adjusted R	0.996595
Standard E	0.996623
Observatio	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	873.0135	873.0135	878.9404	0.001136
Residual	2	1.986514	0.993257		
Total	3	875			

	Coefficients	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	0.888828	0.749833	1.185368	0.357625	-2.33745	4.115104	-2.33745	4.115104
X Variable	1.72E-08	5.8E-10	29.64693	0.001136	1.47E-08	1.97E-08	1.47E-08	1.97E-08

Bord na Mona Project
Total Phosphorus Results from July 1997 Sampling

Summary	
Sample ID	**Results (mg/L)**
Field Blank #1	0.00
Nesbitt SC	7.60
Nesbitt PW	0.48
Nesbitt Pump	11.00
Field Blank #2	0.00
Easter SC	6.50
Easter PW	1.68
Easter Pump	7.90
Easter DG	0.08
Easter BG	0.45
Easter BG MS	0.79
Stanley DF1	11.80
Stanley DF2	0.65
Stanley DG	0.23
Stanley SC	2.59
Anderson SC	3.55
Anderson DF2	0.28
Long Arthur BG	0.03
Long Arthur DW	0.37
Long Arthur DG	0.06
Long Arthur BG MS	0.29
Long Arthur BG Duplica	0.03
Check Standard 0.75 m	0.66

Quality Control Run #1	
% Recovery Spike	70%
% RPD	
Correlation Coefficient	0.9998

Quality Control Run #2	
% Rec Matrix Spike	104%
% RPD	0.00%
% Rec LCS	88%
Correlation Coefficient	0.999

MS =Matrix Spike
LCS = Laboratory Control Sample

Bord Na Mona Project
Total Kjeldahl Nitrogen Run July 1997

Summary	
Sample ID	Results (mg/L) TKN
Check Standard Blank	0.08
LCS 10.0 mg/l	7.65
Site Blank 1	0.13
Nesbitt PW	3.10
Nesbitt SC	0.60
Nesbitt Pump	42.90
Site Blank 2	0.47
Easter Pump	30.90
Easter PW	1.31
Easter DG	0.39
Easter BG	0.83
Easter SC	2.23
Anderson SC	1.61
Stanley DF1	7.65
Stanley DF2	2.43
Stanley DG	1.74
Stanley SC	1.07
Long Arthur PW	0.41
Long Arthur BG	0.21
Long Arthur DG	0.27
Long Arthur BG MS	4.49
Long Arthur BG Duplicate	0.23

Quality Control	
% Rec Matrix Spike	43%
% RPD	
% Rec LCS	77%
Correlation Coefficient	0.9997

MS =Matrix Spike
LCS = Laboratory Control Sample

Total Phosphorus Run #1 July 1997

Date of Analysis 7/23/97

Analyst Jennifer Reasor

Date of Samples 07/21/97,0723/97

Sample ID	ID#	Date Sampled	Volume (ml)	Absorbance	Concentration (mg/L)	Dil. Factor	Results (mg/L)
STD 0	1		25	0.000	0.00	1	0.00
STD 1			25		0.05	1	0.05
STD 2	2		25	0.113	0.10	1	0.10
STD 3	3		25	0.347	0.25	1	0.25
STD 4	4		25	0.724	0.50	1	0.50
STD 5	12		25	1.112	0.75	1	0.75
STD 6	13		25	1.475	1.00	1	1.00
Field Blank #1	14	7/21/97	25	-0.026	0.00	1	0.00
Nesbitt SC	15	7/21/97	25	2.256	1.52	5	7.60
Nesbitt PW	16	7/21/97	25	0.700	0.48	1	0.48
Nesbitt Pump	17	7/21/97	25	0.633	0.44	25	11.00
Field Blank #2	18	7/23/97	25	-0.022	0.00	1	0.00
Easter SC	19	7/23/97	25	0.372	0.26	25	6.50
Easter PW	20	7/23/97	25	0.986	0.67	2.5	1.68
Easter Pump	21	7/23/97	25	2.350	1.58	5	7.90
Easter DG	22	7/23/97	25	0.102	0.08	1	0.08
Easter BG	23	7/23/97	25	0.658	0.45	1	0.45
Easter BG MS	24	7/23/97	25	1.165	0.79	1	0.79

Quality Control	
% Recovery Spike	70%
% RPD	
Correlation Coefficient	0.9998

Summary	
Sample ID	Results (mg/L)
Field Blank #1	0.00
Nesbitt SC	7.60
Nesbitt PW	0.48
Nesbitt Pump	11.00
Field Blank #2	0.00
Easter SC	6.50
Easter PW	1.68
Easter Pump	7.90
Easter DG	0.08
Easter BG	0.45
Easter BG MS	0.79

Total Phosphorus Run #2 July 1997

Date of Analysis 7/28/97

Date of Samples 07/25/97,07/28/97

Analyst Jennifer Reasor

Sample ID	ID#	Date Sampled	Volume (ml)	Absorbance	Concentration (mg/L)	Dil. Factor	Results (mg/L)
STD 0	2		25	0.000	0.00	1	0.00
STD 1	3		25	0.014	0.05	1	0.05
STD 2	4		25	0.030	0.10	1	0.10
STD 3	5		25	0.082	0.25	1	0.25
STD 4	6		25	0.158	0.50	1	0.50
STD 5	7		25	0.236	0.75	1	0.75
STD 6	8		25	0.297	1.00	1	1.00
Stanley DF1	16	7/25/97	25	0.145	0.47	25	11.80
Stanley DF2	17	7/25/97	25	0.041	0.13	5	0.65
Stanley DG	18	7/25/97	25	0.016	0.05	5	0.23
Stanley SC	19	7/25/97	25	0.159	0.52	5	2.59
Anderson SC	20	7/25/97	25	0.045	0.14	25	3.55
Anderson DF2	9	7/25/97	25	0.086	0.28	1	0.28
Long Arthur BG	10	7/28/97	25	0.012	0.03	1	0.03
Long Arthur DW	11	7/28/97	25	0.113	0.37	1	0.37
Long Arthur DG	12	7/28/97	25	0.021	0.06	1	0.06
Long Arthur BG MS	13	7/28/97	25	0.090	0.29	1	0.29
Long Arthur BG Duplicate	14	7/28/97	25	0.010	0.03	1	0.03
LCS 0.75 mg/L	15	7/28/97	25	0.203	0.66	1	0.66

Summary	
Sample ID	Results (mg/L)
Stanley DF1	11.80
Stanley DF2	0.65
Stanley DG	0.23
Stanley SC	2.59
Anderson SC	3.55
Anderson DF2	0.28
Long Arthur BG	0.03
Long Arthur DW	0.37
Long Arthur DG	0.06
Long Arthur BG MS	0.29
Long Arthur BG Duplicate	0.03
Check Standard 0.75 mg/L	0.66

Quality Control	
% Rec Matrix Spike	104%
% RPD	0.00%
% Rec LCS	88%
Correlation Coefficien	0.999

MS =Matrix Spike

LCS = Laboratory Control Sample

Total Kjeldahl Nitrogen Run July 1997

Date of Analysis 7/28/97

Date of Samples 07/25/97,07/28/97

Analyst Jennifer Reasor

Sample ID	Date Sampled	Sample Vol (ml)	Potential (Millivolts)	Concentration (mg/L)	Dil. Factor	Results (mg/L) TKN
STD 1		25	069	0.10	1	0.10
STD 2		25	007	1.00	1	1.00
STD 3		25	-045	10.00	1	10.00
STD 4		25	-100	100.00	1	100.00
STD 5		25	-158	1000.00	1	1000.00
Check Standard Blank		25	073	0.08	1.037	0.08
LCS 10.0 mg/l		25	-038	7.38	1.037	7.65
Site Blank 1	7/21/97	25	060	0.13	1.037	0.13
Nesbitt PW	7/21/97	25	-016	2.99	1.037	3.10
Nesbitt SC	7/21/97	25	024	0.58	1.037	0.60
Nesbitt Pump	7/21/97	25	-080	41.37	1.037	42.90
Site Blank 2	7/23/97	25	030	0.45	1.037	0.47
Easter Pump	7/23/97	25	-072	29.80	1.037	30.90
Easter PW	7/23/97	25	005	1.26	1.037	1.31
Easter DG	7/23/97	25	034	0.38	1.037	0.39
Easter BG	7/23/97	25	016	0.80	1.037	0.83
Easter SC	7/23/97	25	-008	2.15	1.037	2.23
Anderson SC	7/25/97	25	000	1.55	1.037	1.61
Stanley DF1	7/25/97	25	-038	7.38	1.037	7.65
Stanley DF2	7/25/97	25	-010	2.34	1.037	2.43
Stanley DG	7/25/97	25	-002	1.68	1.037	1.74
Stanley SC	7/25/97	25	010	1.03	1.037	1.07
Long Arthur PW	7/28/97	25	033	0.40	1.037	0.41
Long Arthur BG	7/28/97	25	050	0.20	1.037	0.21
Long Arthur DG	7/28/97	25	043	0.26	1.037	0.27
Long Arthur BG MS	7/28/97	25	-025	4.33	1.037	4.49
Long Arthur BG Duplicate	7/28/97	25	048	0.22	1.037	0.23

Summary	
Sample ID	Results (mg/L) NH3-N
Check Standard Blank	0.08
LCS 10.0 mg/l	7.65
Site Blank 1	0.13
Nesbitt PW	3.10
Nesbitt SC	0.60
Nesbitt Pump	42.90
Site Blank 2	0.47
Easter Pump	30.90
Easter PW	1.31
Easter DG	0.39
Easter BG	0.83
Easter SC	2.23
Anderson SC	1.61
Stanley DF1	7.65
Stanley DF2	2.43
Stanley DG	1.74
Stanley SC	1.07
Long Arthur PW	0.41
Long Arthur BG	0.21
Long Arthur DG	0.27
Long Arthur BG MS	4.49
Long Arthur BG Duplicate	0.23

Quality Control	
% Rec Matrix Spike	43%
% RPD	
% Rec LCS	77%
Correlation Coefficient	0.9997

MS =Matrix Spike

LCS = Laboratory Control Sample

Ammonia Nitrogen Run #1 July 1997

Date of Analysis 7/23/97 **Analyst** Jennifer Reasor

Date of Samples 07/21/97,0723/97

Sample ID	Date Sampled	Sample Vol (ml)	MilliVolts	Concentration (mg/L)	Dil. Factor	Results (mg/L)
STD 1		50	027	1.00	1	1.00
STD 2		50	-033	10.00	1	10.00
STD 3		50	-093	100.00	1	100.00
STD 4		50	-153	1000.00	1	1000.00
Field Blank #1	7/21/97	50	048	0.45	1.077	0.48
Nesbitt SC	7/21/97	50	025	1.08	1.077	1.16
Nesbitt PW	7/21/97	50	-004	3.29	1.077	3.54
Nesbitt Pump	7/21/97	50	-089	85.77	1.077	92.37
Field Blank #2	7/23/97	50	012	1.78	1.077	1.92
Easter SC	7/23/97	50	039	0.63	1.077	0.68
Easter PW	7/23/97	50	-082	65.56	1.077	70.61
Easter Pump	7/23/97	50	033	0.79	1.077	0.85
Easter DG	7/23/97	50	042	0.56	1.077	0.60
Easter BG	7/23/97	50	-046	16.47	1.077	17.74
Easter BG MS	7/23/97	50	042	0.56	1.077	0.60

Quality Control	
% Recovery Spike	170.00%
% RPD	
Correlation Coefficient	1.000

Summary	
Sample ID	Results (mg/L) NH3-N
Field Blank #1	0.48
Nesbitt SC	1.16
Nesbitt PW	3.54
Nesbitt Pump	92.37
Field Blank #2	1.92
Easter SC	0.68
Easter PW	70.61
Easter Pump	0.85
Easter DG	0.60
Easter BG	17.74
Easter BG MS	0.60

Ammonia Nitrogen Run #2 July 1997

Date of Analysis 7/28/97

Date of Samples 07/25/97,07/28/97

Analyst Jennifer Reasor

Sample ID	Date Sampled	Sample Vol (ml)	Potential (Millivolts)	Concentration (mg/L)	Dil. Factor	Results (mg/L) NH3-N
STD 1		50	040	0.10	1	0.10
STD 2		50	-003	1.00	1	1.00
STD 3		50	-060	10.00	1	10.00
STD 4		50	-118	100.00	1	100.00
STD 5		50	-174	1000.00	1	1000.00
Stanley DF1	7/25/97	50	-031	2.57	1.04	2.67
Stanley DF2	7/25/97	50	000	0.69	1.02	0.70
Stanley DG	7/25/97	50	013	0.40	1.06	0.42
Stanley SC	7/25/97	50	035	0.16	1	0.16
Anderson SC	7/25/97	50	040	0.13	1.02	0.13
Anderson DF2	7/25/97	50	044	0.11	1	0.11
Long Arthur BG	7/28/97	50	052	0.08	1	0.08
Long Arthur PW	7/28/97	50	032	0.18	1	0.18
Long Arthur DG	7/28/97	50	052	0.08	1	0.08
Long Arthur BG MS	7/28/97	50	-064	10.43	1	10.43
Long Arthut BG Duplicate	7/28/97	50	052	0.08	1	0.08

Summary	
Sample ID	Results (mg/L) NH3-N
Stanley DF1	2.67
Stanley DF2	0.70
Stanley DG	0.42
Stanley SC	0.16
Anderson SC	0.13
Anderson DF2	0.11
Long Arthur BG	0.08
Long Arthur DW	0.18
Long Arthur DG	0.08
Long Arthur BG MS	10.43
Long Arthur BG Duplicate	0.08

Quality Control	
% Rec Matrix Spike	104%
% RPD	0.00%
% Rec LCS	
Correlation Coefficient	0.9987

MS =Matrix Spike
LCS = Laboratory Control Sample

PURAFLO™ PEAT TREATMENT SYSTEM

AUGUST 1997 SAMPLING AND MONITORING RESULTS

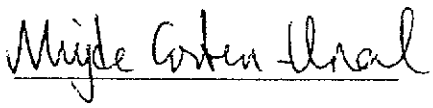
Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Summary of Chloride,Nitrites Nitrates for Aug. 97

NO	Site	Sample	Chloride	Nitrite	Nitrate
			mg/l	mg/l	mg/l
1	Sawmill	SC	40.30	3.20	12.80
		Pump	16.10	0.00	1.20
2	Longarthur	SC	50.50	0.00	27.40
3	Kemp	SC	164.20	2.40	31.20
4	Nesbitt	SC	44.50	<1	48.00
		Pump	38.50	0.00	1.10
5	AOA	Pump	45.80	<1	1.10
		SC	49.60	<1	38.90
6	Easter	Pump	71.70	0.10	1.00
		SC	75.30	0.00	11.40
7	Munford	Pump	58.60	0.00	1.00
		SC	55.10	<1	32.00
8	Samson	SC	786.50	<1	22.80
9	Jacobson	Pump	30.00	0.00	1.10
		SC	18.60	<1	18.40
10	Stanley	SC	1056.30	<1	25.60
11	Anderson	SC	744.50	0.00	16.20

IC Data for Month of August ' 97

	NO_2^--N		NO_3^--N		CL	
Sample	Conc, mg/L	Area	Conc, mg/L	Area	Conc, mg/L	Area
STD1	*0*	*0*	*0*	*0*	*0*	*1797398*
STD2	*10*	*424973177*	*10*	*490158488*	*100*	*2512375022*
STD3	*20*	*859647764*	*20*	*1087172073*	*200*	*5111334929*
STD4	*40*	*1675763287*	*40*	*2364830050*	*300*	*7683087160*
sawmill pump	0.0	0	1.2	7300836	16.1	392655004
sawmill SC	3.2	141518942	12.8	706752863	40.3	1014957698
long arthur SC	0.0	0	27.4	1577773290	50.5	1275477032
aoa SC	< 1	1658825	38.9	2268882907	49.6	1252527725
aoa pump	< 1	1128586	1.1	1353468	45.8	1156058442
std 1	***10.1***	***429105659***	***9.2***	***490747164***	***98.7***	***2512791566***
kemp SC	2.4	105944032	31.2	1806524185	164.2	4191477856
nesbitt SC	< 1	2725341	48.0	2812292523	44.5	1121533957
nesbitt pump	0.0	0	1.1	703594	38.5	967432118
munford pump	0.0	7494200	1.0	0	58.6	1482032746
munford SC	< 1	362952	32.0	1852954749	55.1	1394225298
std 2	***20.3***	***855936303***	***19.2***	***1088336665***	***200.4***	***5119195568***
easter SC	0.0	0	11.4	621414445	75.3	1910387292
easter pump	0.1	12792805	1.0	0	71.7	1819295390
jacobson SC	< 1	2377899	18.4	1040867536	18.6	456249465
jacobson pump	0.0	0	1.1	3588692	30.0	750982243
anderson SC	0.0	0	16.2	908010093	744.5	19071866564
stanley SC	< 1	0	25.6	1472229612	1056.3	27068881713
samson SC	< 1	0	22.8	1300514670	786.5	20149920604
std 3	***39.7***	***1668992340***	***40.6***	***2369821475***	***301.6***	***7713988042***

SUMMARY OUTPUT

N02-N

Regression Statistics	
Multiple R	0.999896902
R Square	0.999793814
Adjusted R Squ	0.999690721
Standard Error	0.300343551
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	874.8195875	874.819588	9697.993213	0.000103098
Residual	2	0.180412497	0.09020625		
Total	3	875			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*
Intercept	-0.157824546	0.233885477	-0.67479412	0.569359527	-1.164153234	0.848504143	-1.16415
X Variable 1	2.38588E-08	2.42275E-10	98.4783896	0.000103098	2.28164E-08	2.49013E-08	2.28E-08

SUMMARY OUTPUT

N03-N

Regression Statistics	
Multiple R	0.998506496
R Square	0.997015223
Adjusted R Squ	0.995522834
Standard Error	1.142733546
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	872.3883201	872.38832	668.0667986	0.001493504
Residual	2	2.611679916	1.30583996		
Total	3	875			

	Coefficients	*Standard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*
Intercept	1.045132136	0.855425513	1.22176872	0.34625679	-2.635469347	4.725733618	-2.63547
X Variable 1	1.66963E-08	6.45967E-10	25.8469882	0.001493504	1.39169E-08	1.94757E-08	1.39E-08

SUMMARY OUTPUT

CL

Regression Statistics	
Multiple R	0.999976
R Square	0.999951
Adjusted R Square	0.999927
Standard Error	1.104234
Observations	4

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	1	49997.56	49997.56	41004.01	2.44E-05
Residual	2	2.438667	1.219333		
Total	3	50000			

	Coefficients	*tandard Er*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*
Intercept	0.758981	0.920881	0.82419	0.496479	-3.20325	4.721213	-3.20325
X Variable 1	3.9E-08	1.93E-10	202.4945	2.44E-05	3.82E-08	3.98E-08	3.82E-08

Summary of Solids, pH DO
for August 97

No	Site	Location	Solids	pH	DO
			mg/l		mg/l
1	Sawmill	Pump	0.00	6.00	1.50
		SC	0.00	6.00	2.60
2	Longarthur	SC	0.00	5.90	3.30
3	Kemp	Sc	0.00	7.20	1.85
4	Nesbit	SC	13.00	5.10	2.22
		Pump	87.00	6.90	0.95
5	AOA	Pump	313.00	7.20	0.90
		SC	0.00	3.10	3.15
6	Easter	Pump	167.00	6.70	0.43
		SC	0.00	6.40	3.40
7	Munford	Pump	47.00	*	**
		SC	0.00	*	**
8	Samson	SC	0.00	6.20	4.40
9	Jacobson	Pump	0.00	7.20	2.14
		SC	107.00	5.60	5.10
10	Stanley	SC	0.00	6.80	12.90
11	Anderson	SC	147.00	6.50	4.95

* pH meter out of order.
** DO meter out of order.

Summary of fecal coliform results for Aug. 97

		Fecal Coliform			
				Colonies	Colonies
No.	Site	Location	Dilution	Observed	per 100ml
				per 100 ml	of SAMPLE
				Dilution	
1	Sawmill	SC	1:1	150	150
			1:10	18	180
		Pump	1:1	TNTC	~
			1:10	TNTC	~
2	Longarthur	SC	1:1	TNTC	~
			1:10	60	600
3	Kemp	SC	1:1	TNTC	~
			1:10	TNTC	~
4	Nesbitt	SC	1:1	TNTC	~
			1:10	600	6000
		Pump	1:1	TNTC	~
			1:10	TNTC	~
5	AOA	Pump	1:1	TNTC	~
			1:10	TNTC	~
		SC	1:1	97	97
			1:10	0	0
6	Easter	Pump	1:1	TNTC	~
			1:10	TNTC	~
		SC	1:1	TNTC	~
			1:10	353	3530
7	Munford	Pump	1:1	TNTC	~
			1:10	TNTC	~
		SC	1:1	TNTC	~
			1:10	TNTC	~
8	Samson	SC	1:1	TNTC	~
			1:10	280	2800
9	Jacobson	Pump	1:1	TNTC	~
			1:10	TNTC	~
		SC	1:1	0	0
			1:10	0	0
10	Stanley	SC	1:1	0	0
			1:10	0	0
11	Anderson	SC	1:1	21	21
			1:10	0	0

~ -- Data can not be calculated.
TNTC - too numerous to count; colonies are not discrete "confluent growth with coliforms". New dilutio ns should be used in the next sampling event.

Summary of BOD for Aug. 97

Site	Location	BOD
		mg/l
Sawmill	SC	2.05
		3.30
	Pump	*
		*
Longarthur	SC	5.08
		16.42
Kemp	SC	7.63
		11.83
Nesbit	SC	17.40
		18.87
	Pump	373.00
		318.00
AOA	Pump	272.00
		259.00
	SC	<1
		<1
Easter	Pump	436.50
		440.50
	SC	6.04
		7.14
Munford	Pump	570.50
	SC	7.38
		7.32
Samson	SC	5.46
		7.54
Jacobson	Pump	150.50
		183.50
	SC	5.12
		7.18
Stanley	SC	4.44
		4.71
Anderson	SC	5.39
		5.16

* Invalid number
Final DO too low.

Aug-97
Bord Na Mona Results August 1997
Ammonia Nitrogen

Summary	
Sample ID	Results (mg/L) NH3-N
Sawmill SC	0.48
Sawmill Pump	9.40
Long Arthur SC	0.43
AA SC	0.16
AA Pump	66.30
KM SC	0.68
NG SC	3.53
NG Pump	59.00
Field Blank #1	0.14
NG SC Matrix Spike	13.89
NG SC Matrix Spike Dup	13.89
Field Blank #2	0.10
Munford Pump	71.23
Munford SC	15.64
Easter SC	0.38
Easter Pump	15.64
Jacobsen Pump	2.21
Jacobsen SC	34.70
Samson SC	0.25
Anderson SC	0.16
Stanley SC	0.25
Anderson SC Matrix Spike	10.92
NG SC Matrix Spike Dup	10.92

Quality Control Run #1	
% Rec Matrix Spike	104%
%Rec MSD	104%
% RPD	0%
Correlation Coefficient	0.9999

Quality Control Run #2	
% Rec Matrix Spike	107%
%Rec MSD	107%
% RPD	0%
Correlation Coefficient	0.9999

Bord na Mona Project
Total Phosphorus Results from August 1997 Sampling

Summary	
Sample ID	**Results (mg/L)**
Long Arthur SC	6.25
AA SC	6.98
AA Pump	8.03
KM SC	8.88
Nesbitt SC	7.20
Nesbitt Pump	6.78
Field Blank #1	0.02
Field Blank #2	0.01
Process Blank	0.02
Laboratory Control	0.49
Munford Pump	14.90
Munford SC	15.13
Easter SC	6.45
Easter Pump	6.38
Anderson SC	3.90
Stanley SC	3.78
Jacobsen SC	2.30
Jacobsen Pump	3.73
Samson SC	6.63
Samson SC Dup	6.58
Samson SC MSD	14.10
Sawmill SC	2.08
Sawmill Pump	8.43
Process Blank	0.02
Laboratory Control Sample	0.50

Quality Control Run #1	
% Rec Matrix Spike	100%
% Rec MSD	100.00%
% RPD	3.50%
Correlation Coefficient	0.9999

Quality Control Run #2	
%Rec Matrix Spike	119%
% RPD	0.45%
% Rec LCS	100%
Correlation Coefficient	0.9997

MS =Matrix Spike
LCS = Laboratory Control Sample

Aug-97
Bord Na Mona Results
Total Kjeldahl Nitrogen

Summary	
Sample ID	Results (mg/L) NH3-N
Sawmill SC	10.90
Sawmill Pump	32.15
Long Arthur SC	10.90
AA SC	6.99
AA Pump	72.43
KM SC	2.34
NG SC	8.20
NG Pump	61.50
KM SC Matrix Spike	11.86
KM SC Matrix Spike Dup	11.86
Laboratory Control Sample	10.93
Field Blank #1	0.22
Field Blank #2	0.21
Process Blank	0.16
Munford Pump	29.00
Munford SC	10.68
Easter SC	5.29
Easter Pump	43.80
Jacobsen SC	9.84
Jacobsen Pump	56.25
Samson SC	3.51
Anderson SC	1.60
Stanley SC	1.88
Anderson SC Matrix Spike	11.04
Anderson SC Matrix Spike Dup	10.16
Laboratory Control Sample	10.16

Quality Control Run #1	
% Rec Matrix Spike	96%
%Rec MSD	96%
% RPD	0%
Correlation Coefficient	0.9999
%Rec LCS	109%

Quality Control Run #2	
% Rec Matrix Spike	94%
%Rec MSD	86%
% RPD	8%
Correlation Coefficient	0.9999
%Rec LCS	101.60%

Ammonia Nitrogen Run #1 August 1997

Date of Analysis 8/21/97 **Analyst** Jennifer Reasor

Date of Samples 08/07/97, 08/11/97, 08/18/97

Sample ID	Date Sampled	Sample Vol (ml)	Potential (Millivolts)	Concentration (mg/L)	Dil. Factor	Results (mg/L) NH3-N
STD 1		50	023	0.10	1	0.10
STD 2		50	-039	1.00	1	1.00
STD 3		50	-098	10.00	1	10.00
STD 4		50	-156	100.00	1	100.00
STD 5		50	-213	1000.00	1	1000.00
Sawmill SC	8/7/97	50	-019	0.48	1	0.48
Sawmill Pump	8/7/97	50	-095	9.40	1	9.40
Long Arthur SC	8/11/97	50	-016	0.43	1	0.43
AA SC	8/18/97	50	009	0.16	1	0.16
AA Pump	8/18/97	50	-145	66.30	1	66.30
KM SC	8/18/97	50	-028	0.68	1	0.68
NG SC	8/18/97	50	-070	3.53	1	3.53
NG Pump	8/18/97	50	-142	59	1	59.00
Field Blank #1	8/7/97	50	013	0.14	1	0.14
NG SC Matrix Spike	8/18/97	50	-105	13.89	1	13.89
NG SC Matrix Spike Dup	8/18/97	50	-105	13.89	1	13.89
Field Blank #2	8/11/97	50	020	0.1	1	0.10

Summary	
Sample ID	Results (mg/L) NH3-N
Sawmill SC	0.48
Sawmill Pump	9.40
Long Arthur SC	0.43
AA SC	0.16
AA Pump	66.30
KM SC	0.68
NG SC	3.53
NG Pump	59.00
Field Blank #1	0.14
NG SC Matrix Spike	13.89
NG SC Matrix Spike Dup	13.89
Field Blank #2	0.10

Quality Control Run #1	
% Rec Matrix Spike	104%
%Rec MSD	104%
% RPD	0%
Correlation Coefficient	0.9999

MS =Matrix Spike
LCS = Laboratory Control Sample
MSD = Matrix Spike Duplicate

Ammonia Nitrogen Run #2 August 1997

Date of Analysis 8/30/97

Date of Samples 08/21/97, 08/22/97, 08/23/97

Analyst Jennifer Reasor

Sample ID	Date Sampled	Sample Vol (ml)	Potential (Millivolts)	Concentration (mg/L)	Dil. Factor	Results (mg/L) NH3-N
STD 1		50	021	0.10	1	0.10
STD 2		50	-039	1.00	1	1.00
STD 3		50	-097	10.00	1	10.00
STD 4		50	-154	100.00	1	100.00
STD 5		50	-210	1000.00	1	1000.00
Munford Pump	8/21/97	50	-145	71.23	1	71.23
Munford SC	8/21/97	50	-107	15.64	1	15.64
Easter SC	8/21/97	50	-014	0.38	1	0.38
Easter Pump	8/21/97	50	-107	15.64	1	15.64
Jacobsen Pump	8/23/97	50	-058	2.21	1	2.21
Jacobsen SC	8/23/97	50	-127	34.70	1	34.70
Samson SC	8/23/97	50	-003	0.25	1	0.25
Anderson SC	8/22/97	50	008	0.16	1	0.16
Stanley SC	8/22/97	50	-003	0.25	1	0.25
Anderson SC Matrix Spike	8/22/97	50	-098	10.92	1	10.92
NG SC Matrix Spike Dup	8/22/97	50	-098	10.92	1	10.92

Summary	
Sample ID	Results (mg/L) NH3-N
Munford Pump	71.23
Munford SC	15.64
Easter SC	0.38
Easter Pump	15.64
Jacobsen Pump	2.21
Jacobsen SC	34.70
Samson SC	0.25
Anderson SC	0.16
Stanley SC	0.25
Anderson SC Matrix Spike	10.92
NG SC Matrix Spike Dup	10.92

Quality Control Run #2	
% Rec Matrix Spike	107%
%Rec MSD	107%
% RPD	0%
Correlation Coefficient	0.9999

MS =Matrix Spike
LCS = Laboratory Control Sample
MSD = Matrix Spike Duplicate

Total Phosphorus Run #1 August 1997

Date of Analysis 8/21/97 **Analyst** Jennifer Reasor

Date of Samples 08/11/97, 08/18/97

Sample ID	ID#	Date Sampled	Volume (ml)	Absorbance	Concentration (mg/L)	Dil. Factor	Results (mg/L)
STD 0	23		25	0.000	0.00	1	0.00
STD 1	24		25	0.074	0.05	1	0.05
STD 2	25		25	0.150	0.10	1	0.10
STD 3	26		25	0.385	0.25	1	0.25
STD 4	27		25	0.770	0.50	1	0.50
STD 5	28		25	1.143	0.75	1	0.75
STD 6	29		25	1.558	1.00	1	1.00
Long Arthur SC	40	8/11/97	1	0.383	0.25	25	6.25
AA SC	41	8/18/97	1	0.429	0.28	25	6.98
AA Pump	42	8/18/97	1	0.494	0.32	25	8.03
KM SC	43	8/18/97	1	0.547	0.36	25	8.88
Nesbitt SC	44	8/18/97	1	0.443	0.29	25	7.20
Nesbitt Pump	45	8/18/97	1	0.416	0.27	25	6.78
Field Blank #1	34	8/7/97	25	0.021	0.016	1	0.02
Field Blank #2	35	8/11/97	25	0.007	0.007	1	0.01
Process Blank	36	8/21/97	25	0.019	0.015	1	0.02
Laboratory Control	37	8/21/97	25	0.762	0.494	1	0.49

Quality Control Run #1	
% Rec Matrix Spike	100%
% Rec MSD	100.00%
% RPD	3.50%
Correlation Coefficient	0.9999

The true value of the Laboratory Control Sample is equal to 0.50 mg/L

Summary	
Sample ID	Results (mg/L)
Long Arthur SC	6.25
AA SC	6.98
AA Pump	8.03
KM SC	8.88
Nesbitt SC	7.20
Nesbitt Pump	6.78
Field Blank #1	0.02
Field Blank #2	0.01
Process Blank	0.02
Laboratory Control	0.49

Total Phosphorus Run #2 August 1997

Date of Analysis 8/30/97 **Analyst** Jennifer Reasor

Date of Samples 08/21/97, 08/22/97, 08/23/97, 08/07/97

Sample ID	ID#	Date Sampled	Volume (ml)	Absorbance	Concentration (mg/L)	Dil. Factor	Results (mg/L)
STD 0	1		25	0.000	0.00	1	0.00
STD 1	2		25	0.075	0.05	1	0.05
STD 2	3		25	0.154	0.10	1	0.10
STD 3	4		25	0.399	0.25	1	0.25
STD 4	5		25	0.816	0.50	1	0.50
STD 5	6		25	1.223	0.75	1	0.75
STD 6	7		25	1.689	1.00	1	1.00
Munford Pump	8	8/21/97	1	0.987	0.60	25	14.90
Munford SC	9	8/21/97	1	1.002	0.61	25	15.13
Easter SC	11	8/21/97	1	0.420	0.26	25	6.45
Easter Pump	12	8/21/97	1	0.415	0.26	25	6.38
Anderson SC	13	8/22/97	1	0.248	0.16	25	3.90
Stanley SC	16	8/22/97	1	0.241	0.15	25	3.78
Jacobsen SC	17	8/23/97	1	0.142	0.09	25	2.30
Jacobsen Pump	28	8/23/97	1	0.238	0.149	25	3.73
Samson SC	19	8/23/97	1	0.432	0.265	25	6.63
Samson SC Dup	20	8/23/97	1	0.430	0.263	25	6.58
Samson SC MSD	21	8/23/97	1	0.933	0.564	25	14.10
Sawmill SC	22	8/7/97	1	0.126	0.083	25	2.08
Sawmill Pump	23	8/7/97	1	0.552	0.337	25	8.43
Process Blank	24	8/30/97	25	0.027	0.024	1	0.02
Laboratory Control Sample	26	8/30/97	25	0.821	0.496	1	0.50

Summary	
Sample ID	Results (mg/L)
Munford Pump	14.90
Munford SC	15.13
Easter SC	6.45
Easter Pump	6.38
Anderson SC	3.90
Stanley SC	3.78
Jacobsen SC	2.30
Jacobsen Pump	3.73
Samson SC	6.625
Samson SC Dup	6.575
Samson SC MSD	14.1
Sawmill SC	2.075
Sawmill Pump	8.425
Process Blank	0.024
Laboratory Control Sample	0.496

Quality Control Run #2	
%Rec Matrix Spike	119%
% RPD	0.45%
% Rec LCS	100%
Correlation Coefficient	0.9997

MS =Matrix Spike
LCS = Laboratory Control Sample

Total Kjeldahl Nitrogen Run #1 August 1997

Date of Analysis 8/21/97 **Analyst** Jennifer Reasor

Date of Samples 08/07/97, 08/11/97, 08/18/97

Sample ID	Date Sampled	NaOH (ml)	Potential (Millivolts)	Concentration (mg/L)	Dil. Factor	Results (mg/L) NH3-N
STD 1		2	017	0.10	1	0.10
STD 2		2	-038	1.00	1	1.00
STD 3		2	-096	10.00	1	10.00
STD 4		2	-153	100.00	1	100.00
STD 5		2	-209	1000.00	1	1000.00
Sawmill SC	8/7/97	2	-098	10.90	1	10.90
Sawmill Pump	8/7/97	2	-102	12.86	2.5	32.15
Long Arthur SC	8/11/97	2	-098	10.90	1	10.90
AA SC	8/18/97	2	-087	6.99	1	6.99
AA Pump	8/18/97	2	-122	28.97	2.5	72.43
KM SC	8/18/97	2	-060	2.34	1	2.34
NG SC	8/18/97	2	-091	8.2	1	8.20
NG Pump	8/18/97	2	-118	24.6	2.5	61.50
KM SC Matrix Spike	8/7/97	2	-100	11.86	1	11.86
KM SC Matrix Spike Dup	8/18/97	2	-100	11.86	1	11.86
Laboratory Control Sample	8/18/97	2	-098	10.93	1	10.93
Field Blank #1	8/7/98	2	-002	0.22	1	0.22
Field Blank #2	8/11/97	2	-001	0.21	1	0.21
Process Blank	8/21/97	2	006	0.16	1	0.16

Summary	
Sample ID	Results (mg/L) NH3-N
Sawmill SC	10.90
Sawmill Pump	32.15
Long Arthur SC	10.90
AA SC	6.99
AA Pump	72.43
KM SC	2.34
NG SC	8.20
NG Pump	61.50
KM SC Matrix Spike	11.86
KM SC Matrix Spike Dup	11.86
Laboratory Control Sample	10.93
Field Blank #1	0.22
Field Blank #2	0.21
Process Blank	0.16

Quality Control Run #1	
% Rec Matrix Spike	96%
%Rec MSD	96%
% RPD	0%
Correlation Coefficient	0.9999
%Rec LCS	109%

MS =Matrix Spike

LCS = Laboratory Control Sample

MSD = Matrix Spike Duplicate

Total Kjeldahl Nitrogen Run #2 August 1997

Date of Analysis 8/31/97 **Analyst** Jennifer Reasor

Date of Samples 08/21/97, 08/22/97, 08/23/97

Sample ID	Date Sampled	Sample Vol (ml)	Potential (Millivolts)	Concentration (mg/L)	Dil. Factor	Results (mg/L) NH3-N
STD 1		50	000	0.10	1	0.10
STD 2		50	-053	1.00	1	1.00
STD 3		50	-110	10.00	1	10.00
STD 4		50	-167	100.00	1	100.00
STD 5		50	-222	1000.00	1	1000.00
Munford Pump	8/21/97	10	-114	11.60	2.5	29.00
Munford SC	8/21/97	50	-112	10.68	1	10.68
Easter SC	8/21/97	50	-095	5.29	1	5.29
Easter Pump	8/21/97	10	-124	17.52	2.5	43.80
Jacobsen SC	8/23/97	50	-110	9.84	1	9.84
Jacobsen Pump	8/23/97	10	-130	22.50	2.5	56.25
Samson SC	8/23/97	50	-085	3.51	1	3.51
Anderson SC	8/22/97	50	-066	1.60	1	1.60
Stanley SC	8/22/97	50	-070	1.88	1	1.88
Anderson SC Matrix Spike	8/22/97	50	-096	5.52	2	11.04
Anderson Matrix Spike Dup	8/22/97	50	-094	5.08	2	10.16
Laboratory Control Sample	8/31/97	50	-094	5.08	2	10.16

Summary	
Sample ID	Results (mg/L) NH3-N
Munford Pump	29.00
Munford SC	10.68
Easter SC	5.29
Easter Pump	43.80
Jacobsen SC	9.84
Jacobsen Pump	56.25
Samson SC	3.51
Anderson SC	1.60
Stanley SC	1.88
Anderson SC Matrix Spike	11.04
Anderson Matrix Spike Dup	10.16
Laboratory Control Sample	10.16

Quality Control Run #2	
% Rec Matrix Spike	94%
%Rec MSD	86%
% RPD	8%
Correlation Coefficient	0.9999
%Rec LCS	101.60%

MS =Matrix Spike

LCS = Laboratory Control Sample

MSD = Matrix Spike Duplicate

Puraflo Peat Biofilter

Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Aug-7-97	**	0.00	9.40	32.15	1.20	33.35	8.43	16.10	1.50		6.00	*TNTC	~ Data can not be calculated
Average PT	n/a	0.00	9.40	32.15	1.20	33.35	8.43	16.10	1.50		6.00	~	
Sample Chamber (SC) Aug-7-97	2.10 3.30	0.00	0.48	10.90	16.00	26.90	2.08	40.30	2.60		6.00	150 180	
Average SC	2.70	0.00	0.48	10.90	16.00	26.90	2.08	40.30	2.60		6.00	165	
Pad Well (PW#) Aug-7-97													No sample
Average PW#													
Down-gradient (DG) Aug-7-97													No sample
Average DG													
Background (BG) Aug-7-97													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.
** Invalid number (Final DO too low)

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Aug-11-97													**No sample
Average PT													
Sample Chamber (SC) Aug-11-97	5.08 16.42	0.00	0.43	10.90	27.40	38.30	6.25	50.50	3.30		5.90	*TNTC 600	~ Data can not be calculated
Average SC	10.75	0.00	0.43	10.90	27.40	38.30	6.25	50.50	3.30		5.90	~	
Pad Well (PW#) Aug-11-97													No sample
Average PW#													
Down-gradient (DG) Aug-11-97													No sample
Average DG													
Background (BG) Aug-11-97													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.
** Pump cover too heavy to lift and handle broken

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Aug-18-97													**No sample
Average PT													
Sample Chamber (SC) Aug-18-97	7.60 11.80	0.00	0.68	2.34	33.60	35.94	8.88	164.20	1.85		7.20	*TNTC	~ Data can not be calculated
Average SC	9.70	0.00	0.68	2.34	33.60	35.94	8.88	164.20	1.85		7.20	~	
Pad Well (PW#) Aug-18-97													No sample
Average PW#													
Down-gradient (DG) Aug-18-97													No sample
Average DG													
Background (BG) Aug-18-97													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.
** Location of pump tank not found

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) August 18, 1997	373.00 318.00	87.00	59.00	61.50	1.10	62.60	6.78	38.50	0.95		6.90	*TNTC	~ Data can not be calculated
Average PT	345.50	87.00	59.00	61.50	1.10	62.60	6.78	38.50	0.95		6.90	~	
Sample Chamber (SC) August 18, 1997	17.40 18.87	13.00	3.53	8.20	48.00	56.20	7.20	44.50	2.22		5.10	*TNTC 6,000	~ Data can not be calculated
Average SC	18.14	13.00	3.53	8.20	48.00	56.20	7.20	44.50	2.22		5.10	~	
Pad Well (PW #1) August 18, 1997													No Sample
Average PW #1													
Down-gradient (DG) August 18, 1997													No Sample
Average DG													
Background (BG) August 18, 1997													No Sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. Far.	pH	FC per 100 ml	Comments
Pump Tank (PT) August 18, 1997	272.00 259.00	313.00	66.30	72.43	1.10	73.53	8.03	45.80	0.90		7.20	*TNTC	~ Data can not be calculated
Average PT	265.50	313.00	66.30	72.43	1.10	73.53	8.03	45.80	0.90		7.20	~	
Sample Chamber (SC) August 18, 1997	<1 <1	0.00	0.16	6.99	38.90	45.89	6.98	49.60	3.15		3.10	97 0	
Average SC	<1	0.00	0.16	6.99	38.90	45.89	6.98	49.60	3.15		3.10	49	
Pad Well (PW#) August 18, 1997													No Sample
Average PW#													
Down-gradient (DG) August 18, 1997													No Sample
Average DG													
Background (BG) August 18, 1997													No Sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. Far.	pH	FC per 100 ml	Comments
Pump Tank (PT) August 21,1997	436.50 440.50	167.00	15.64	43.80	1.10	44.90	6.38	71.70	0.43		6.70	*TNTC *TNTC	~ Data can not be calculated
Average PT	438.50	167.00	15.64	43.80	1.10	44.90	6.38	71.70	0.43		6.70	~	
Sample Chamber (SC) August 21,1997	6.04 7.14	0.00	0.38	5.29	11.40	16.69	6.45	75.30	3.40		6.40	*TNTC 3,530	
Average SC	6.59	0.00	0.38	5.29	11.40	16.69	6.45	75.30	3.40		6.40	~	
Pad Well (PW#) August 21,1997													No Sample
Average PW#													
Down-gradient (DG) August 21,1997													No Sample
Average DG													
Background (BG) August 21,1997													No Sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.

Puraflo Peat Biofilter

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date: Nov-19-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) August 21,1997	570.50	47.00	71.23	29.00	1.00	30.00	14.90	58.60	**		**	*TNTC *TNTC	~ Data can not be calculated ~ Data can not be calculated
Average PT	570.50	47.00	71.23	29.00	1.00	30.00	14.90	58.60				~	
Sample Chamber (SC) August 21,1997	7.38 7.32	0.00	15.64	10.68	32.02	42.70	15.13	55.10	**		**	*TNTC *TNTC	~ Data can not be calculated ~ Data can not be calculated
Average SC	7.35	0.00	15.64	10.68	32.02	42.70	15.13	55.10				~	
Pad Well (PW#) August 21,1997													No sample
Average PW#													
Down-gradient (DG) August 21,1997													No sample
Average DG													
Background (BG) August 21,1997													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.
** pH meter out of order. DO meter batteries down.

Puraflo Peat Biofilter

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) August 23,1997													No sample
Average PT													
Sample Chamber (SC) August 23,1997	5.46 7.54	0.00	0.25	3.51	22.80	26.31	6.63	786.50	4.40		6.20	*TNTC 2,800	~ Data can not be calculated
Average SC	6.50	0.00	0.25	3.51	22.80	26.31	6.63	786.50	4.40		6.20	~	
Pad Well (PW#) August 23,1997													No sample
Average PW#													
Down-gradient (DG) August 23,1997													No sample
Average DG													
Background (BG) August 23,1997													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.
Boat over pump tank. So unable to move without consent of houseowner.

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date:			Aug. 6, 1996				Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) August 23,1997	150.50 183.50	0.00	2.21	56.25	1.10	57.35	3.73	30.00	2.14		7.20	*TNTC *TNTC	~ Data can not be calculated ~ Data can not be calculated
Average PT	167.00	0.00	2.21	56.25	1.10	57.35	3.73	30.00	2.14		7.20	~	
Sample Chamber (SC) August 23,1997	5.12 7.18	107.00	34.70	9.84	18.40	28.24	2.30	18.60	5.10		5.60	0 0	
Average SC	6.15	107.00	34.70	9.84	18.40	28.24	2.30	18.60	5.10		5.60	0	
Pad Well (PW#) August 23,1997													No sample
Average PW#													
Down-gradient (DG) August 23,1997													No sample
Average DG													
Background (BG) August 23,1997													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) August 23,1997													No sample
Average PT													
Sample Chamber (SC) August 23,1997	4.44 4.71	0.00	0.25	1.88	25.60	27.48	3.78	1056.30	12.90		6.80	0 0	
Average SC	4.58	0.00	0.25	1.88	25.60	27.48	3.78	1056.30	12.90		6.80	0	
Pad Well (PW#) August 23,1997													No sample
Average PW#													
Down-gradient (DG) August 23,1997													No sample
Average DG													
Background (BG) August 23,1997													No sample
Average BG													

* TNTC - too numerous to count; colonies are not discrete; 'confluent growth' with coliforms - new dilutions should be tested with the next sampling event.
Cast iron flower pot on pump tank

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) August 23,1997													No sample
Average PT													
Sample Chamber (SC) August 23,1997	5.39 5.16	147.00	0.16	1.60	16.20	17.80	3.90	744.50	4.95		6.50	21 0	
Average SC	5.28	147.00	0.16	1.60	16.20	17.80	3.90	744.50	4.95		6.50	11	
Pad Well (PW#) August 23,1997													No sample
Average PW#													
Down-gradient (DG) August 23,1997													No sample
Average DG													
Background (BG) August 23,1997													No sample
Average BG													
Flower bed over top of pump tank													

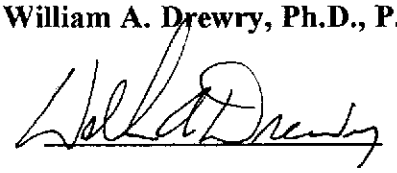
PURAFLO™ PEAT TREATMENT SYSTEM

OCTOBER 1997 SAMPLING AND MONITORING RESULTS

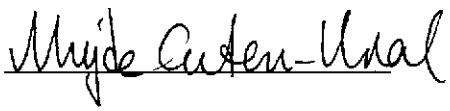
Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Puraflo Peat Biofilter

Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow:	1,000	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-7-97	439.50 441.50	7.00	66.80	71.70	0.97	72.67	3.03	133.54	3.68	20.70	6.80	TNTC TNTC 1,770,000	~Data can not be calculated.
Average PT	440.50	7.00	66.80	71.70	0.97	72.67	3.03	133.54	3.68	20.70	6.80	~	
Sample Chamber (SC) Oct-7-97	14.87 8.67	0.00	0.37	2.35	37.74	40.09	10.70	80.47	4.85	23.00	6.60	<1	
Average SC	11.77	0.00	0.37	2.35	37.74	40.09	10.70	80.47	4.85	23.00	6.60	<1	
Pad Well (PW#) Oct-7-97													No sample
Average PW#													
Down-gradient (DG) Oct-7-97													No sample
Average DG													
Background (BG) Oct-7-97													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-10-97													* No sample
Average PT													
Sample Chamber (SC) Oct-10-97	4.43 4.53	0.00	0.23	0.90	17.65	18.55	6.19	1,036.55	3.42	21.00	7.40	< 1	
Average SC	4.48	0.00	0.23	0.90	17.65	18.55	6.19	1036.55	3.42	21.00	7.40	< 1	
Pad Well (PW#) Oct-10-97													No sample
Average PW#													
Down-gradient (DG) Oct-10-97													No sample
Average DG													
Background (BG) Oct-10-97													No sample
Average BG													

* Cover too heavy & handle still broken.

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-21-97													*No sample
Average PT													
Sample Chamber (SC) Oct-21-97	4.07 4.60	0.00	0.11	0.65	29.60	30.25	5.18	173.14	3.76	18.50	7.30	< 1	
Average SC	4.34	0.00	0.11	0.65	29.60	30.25	5.18	173.14	3.76	18.50	7.30	< 1	
Pad Well (PW#) Oct-21-97													No sample
Average PW#													
Down-gradient (DG) Oct-21-97													No sample
Average DG													
Background (BG) Oct-21-97													No sample
Average BG													

* Underground Pump tank.

Puraflo Peat Biofilter

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-21-97													*No Sample
Average PT													
Sample Chamber (SC) Oct-21-97	<1 <1	0.00	0.48	0.36	41.43	41.79	4.45	40.69	4.10	18.20	6.70	< 1	
Average SC	<1	0.00	0.48	0.36	41.43	41.79	4.45	40.69	4.10	18.20	6.70	< 1	
Pad Well (PW #1) Oct-21-97	<1 <1	3,540.0	1.22	0.12	43.60	43.72	0.00	39.18	4.01	17.50	5.50		
Average PW #1	<1	3540.00	1.22	0.12	43.60	43.72	0.00	39.18	4.01	17.50	5.50	< 1	
Down-gradient (DG) Oct-21-97													No Sample
Average DG													
Background (BG) Oct-21-97													No Sample
Average BG													

* Covered with decorative vines.

Water Quality Results

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-21-97	165.50 167.00	33.00	44.90	45.40	0.93	46.33	4.71	46.45	1.43	19.00	7.90	TNTC 290,000 300,000	
Average PT	166.25	33.00	44.90	45.40	0.93	46.33	4.71	46.45	1.43	19.00	7.90	295000	
Sample Chamber (SC) Oct-21-97	2.13 2.08	0.00	0.23	1.49	29.96	31.45	3.22	41.58	3.25	19.50	7.20	<1	
Average SC	2.11	0.00	0.23	1.49	29.96	31.45	3.22	41.58	3.25	19.50	7.20	<1	
Pad Well (PW#) Oct-21-97	3.40 3.55	147.00	0.42	1.63	9.53	11.16	0.37	17.83	3.88	17.00	7.30	< 1	
Average PW#	3.48	147.00	0.42	1.63	9.53	11.16	0.37	17.83	3.88	17.00	7.30	< 1	
Down-gradient (DG) Oct-21-97													No Sample
Average DG													
Background (BG) Oct-21-97													No Sample
Average BG													

Puraflo Peat Biofilter

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-11-97	443.75 442.75	80.00	42.20	47.60	1.58	49.18	4.10	68.50	1.65	23.00	7.40	TNTC TNTC 2,900,000	~Data can not be calculated.
Average PT	443.25	80.00	42.20	47.60	1.58	49.18	4.10	68.50	1.65	23.00	7.40	~	
Sample Chamber (SC) Oct-11-97	6.71 6.96	0.00	0.23	3.22	42.80	46.02	4.60	71.79	3.11	24.30	7.10	5,100 6,300 10,000	
Average SC	6.84	0.00	0.23	3.22	42.80	46.02	4.60	71.79	3.11	24.30	7.10	7133	
Pad Well (PW#) Oct-11-97													No Sample
Average PW													
Down-gradient (DG) Oct-11-97													No Sample
Average DG													
Background (BG) Oct-11-97													No Sample
Average BG													

Puraflo Peat Biofilter

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date: Nov-19-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-11-97	452.25 451.75	20.00	61.40	68.40	1.99	70.39	6.62	54.08	1.43	25.00	7.00	TNTC TNTC 2,470,000	~Data can not be calculated.
Average PT	452.00	20.00	61.40	68.40	1.99	70.39	6.62	54.08	1.43	25.00	7.00	~	
Sample Chamber (SC) Oct-11-97	16.25 15.95	0.00	1.86	3.54	49.36	52.90	8.42	54.01	3.15	24.40	5.20	< 1	
Average SC	16.10	0.00	1.86	3.54	49.36	52.90	8.42	54.01	3.15	24.40	5.20	< 1	
Pad Well (PW#) Oct-11-97													No sample
Average PW#													
Down-gradient (DG) Oct-11-97													No sample
Average DG													
Background (BG) Oct-11-97													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-25-97	718.00 719.00	21,400.0	33.30	34.60	0.92	35.52	8.16	836.49	4.21	15.80	8.10	TNTC TNTC 1,000,000	~Data can not be calculated.
Average PT	718.50	21400.00	33.30	34.60	0.92	35.52	8.16	836.49	4.21	15.80	8.10	~	
Sample Chamber (SC) Oct-25-97	7.13 8.60	0.00	0.57	0.82	35.71	36.53	4.97	1,002.23	3.45	15.10	5.50	<1	
Average SC	7.87	0.00	0.57	0.82	35.71	36.53	4.97	1002.23	3.45	15.10	5.50	<1	
Pad Well (PW#) Oct-25-97													No sample
Average PW#													
Down-gradient (DG) Oct-25-97													No sample
Average DG													
Background (BG) Oct-25-97													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-25-97	145.50 154.00	0.00	46.80	52.10	0.89	52.99	4.54	40.69	4.21	15.80	8.10	TNTC TNTC 2,200,000	~ Data can not be calculated.
Average PT	149.75	0.00	46.80	52.10	0.89	52.99	4.54	40.69	4.21	15.80	8.10	~	
Sample Chamber (SC) Oct-25-97	6.90 6.80	0.00	3.38	3.23	36.92	40.15	4.09	59.71	3.45	15.10	5.50	<1	
Average SC	6.85	0.00	3.38	3.23	36.92	40.15	4.09	59.71	3.45	15.10	5.50	<1	
Pad Well (PW#) Oct-25-97													No sample
Average PW#													
Down-gradient (DG) Oct-25-97													No sample
Average DG													
Background (BG) Oct-25-97													No sample
Average BG													

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-25-97	114.50 111.50	33.00	29.40	30.10	1.62	31.72	3.57	1,085.87	2.32	17.00	8.70	TNTC 500,000 440,000	
Average PT	113.00	33.00	29.40	30.10	1.62	31.72	3.57	1085.87	2.32	17.00	8.70	470000	
Sample Chamber (SC) Oct-25-97	3.43 4.08	0.00	0.17	0.50	26.49	26.99	2.32	1,057.32	5.23	16.30	7.70	<1	
Average SC	3.76	0.00	0.17	0.50	26.49	26.99	2.32	1057.32	5.23	16.30	7.70	<1	
Pad Well (PW#) Oct-25-97													No sample
Average PW#													
Down-gradient (DG) Oct-25-97													No sample
Average DG													
Downfall (DF-1) Oct-25-97	2.03 1.53	633.00	0.48	0.94	13.67	14.61	0.35	1,133.14	4.42	16.20	6.90	<1	
Average DF-1	1.78	633.00	0.48	0.94	13.67	14.61	0.35	1133.14	4.42	16.20	6.90	<1	

Puraflo Peat Biofilter

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-25-97													* No sample
Average PT													
Sample Chamber (SC) Oct-25-97	2.98 1.85	0.00	0.09	0.30	17.44	17.74	2.66	1,041.07	4.66	14.90	7.60	<1	
Average SC	2.42	0.00	0.09	0.30	17.44	17.74	2.66	1041.07	4.66	14.90	7.60	<1	
Pad Well (PW#) Oct-25-97													No sample
Average PW#													
Down-gradient (DG) Oct-25-97													No sample
Average DG													
Background (BG) Oct-25-97													No sample
Average BG													

* Covered with flowers.

Puraflo Peat Biofilter

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Oct-21-97	69.50 67.00	793.00	65.70	62.50	1.03	63.53	1.93	77.02	2.28	17.60	8.50	TNTC TNTC 1,000,000	~Data can not be calculated.
Average PT	68.25	793.00	65.70	62.50	1.03	63.53	1.93	77.02	2.28	17.60	8.50	~	
Sample Chamber (SC) Oct-21-97	4.23 3.38	47.00	0.16	0.90	2.04	2.94	1.18	22.62	2.28	17.60	8.50	<1	
Average SC	3.81	47.00	0.16	0.90	2.04	2.94	1.18	22.62	2.28	17.60	8.50	<1	
Pad Well (PW#) Oct-21-97													No sample
Average PW#													
Down-gradient (DG) Oct-21-97	0.20 0.40	2,427.00	0.48	1.95	1.20	3.15	0.16	18.73	2.38	18.30	6.50	<1	
Average DG	0.30	2427.00	0.48	1.95	1.20	3.15	0.16	18.73	2.38	18.30	6.50	<1	
Background (BG) Oct-21-97													No sample
Average BG													

Summary of Solids, pH & DO for Oct. 97
Analyst: Sanika Paranjape

No	Site	Location	Solids	pH	DO
			mg/l		mg/l
1	Sawmill	Pump	7.00	6.80	3.68
		SC	0	6.6	4.85
2	Longarthur	SC	0.00	7.40	3.42
3	Kemp	SC	0.00	7.30	3.76
4	Nesbit	SC	0.00	6.70	4.10
		PW	3540.00	5.50	4.01
5	AOA	Pump	33.00	7.90	1.43
		SC	0.00	7.20	3.25
		PW	147.00	7.30	3.88
6	Easter	Pump	80.00	7.40	1.65
		SC	0.00	7.10	3.11
7	Munford	Pump	20.00	7.00	1.43
		SC	0.00	5.20	3.15
8	Samson	Pump	21400.00	8.10	4.21
		SC	0.00	5.50	3.45
9	Jacobson	Pump	0.00	8.10	4.21
		SC	0.00	5.50	3.45
10	Stanley	Pump	33.00	8.70	2.32
		SC	0.00	7.70	5.23
		DF-1	633.00	6.90	4.42
11	Anderson	SC	0.00	7.60	4.66
12	Farrell	Pump	793	8.50	2.28
		SC	47	8.5	2.28
		DG	2427	6.5	2.38

Summary of BOD for Octo. 97

Analyst: **Sanika Paranjape**

Site	Location	BOD
		mg/l
Sawmill	Pump	439.50
		441.50
	SC	14.87
		8.67
Longarthur	SC	4.43
		4.53
Kemp	SC	4.07
		4.60
Nesbit	SC	< 1
		< 1
	PW	< 1
		< 1
AOA	Pump	165.50
		167.00
	SC	2.13
		2.08
	PW	3.40
		3.55
Easter	Pump	443.75
		442.75
	SC	6.71
		6.96
Munford	Pump	452.25
		451.75
	SC	16.25
		15.95
Samson	Pump	718.00
		719.00
	SC	7.13
		8.60
Jacobson	Pump	145.50
		154.00
	SC	6.90
		6.80
Stanley	Pump	114.50
		111.50
	SC	3.43
		4.08
	DF-1	2.03
		1.53
Anderson	SC	2.98
		1.85

Summary of BOD for Octo. 97
(contd...)
Analyst: **Sanika Paranjape**

Site	Location	BOD
		mg/l
Farrell	Pump	69.50
		67.00
	SC	4.23
		3.38
	DG	4.43
		4.53

Summary of Chloride,Nitrites Nitrates

Month: **Oct-97**
Analyst: **Sanika Paranjape**

NO	Site	Sample	Chloride	Nitrite	Nitrate
			mg/l	mg/l	mg/l
1	Sawmill	Pump	133.54	<1	0.97
		SC	80.47	<1	37.74
2	Longarthur	SC	1036.55	<1	17.65
3	Kemp	SC	173.14	<1	29.60
4	Nesbitt	SC	40.69	<1	41.43
		PW	39.18	<1	43.60
5	AOA	Pump	46.45	<1	0.93
		SC	41.58	<1	29.96
		PW	17.83	<1	9.53
6	Easter	Pump	68.50	<1	1.58
		SC	71.79	<1	42.80
7	Munford	Pump	54.08	<1	1.99
		SC	54.01	<1	49.36
8	Samson	Pump	836.49	<1	0.92
		SC	1002.23	<1	35.71
9	Jacobson	Pump	40.69	<1	0.89
		SC	59.71	<1	36.92
10	Stanley	Pump	1085.87	<1	1.62
		SC	1057.32	<1	26.49
		DF-1	1133.14	<1	13.67
11	Anderson	SC	1041.07	<1	17.44
12	Farrell	Pump	77.02	<1	1.03
		SC	22.62	<1	2.04
		DG	18.73	<1	1.2

Summary of fecal coliform results

	Fecal Coliform - October 97				
				Colonies	Colonies
No.	Site	Location	Dilution	Observed	per 100ml
				per 100 ml	of SAMPLE
				Dilution	
1	Sawmill	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	177	1770000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
2	Longarthur	SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
3	Kemp	SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
4	Nesbitt	SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
		PW	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
5	Agency	Pump	1:100	TNTC	TNTC
	on Aging		1:1000	290	290000
			1:10000	30	300000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
		PW	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
6	Easter	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	290	2900000
		SC	1:10	510	5100
			1:100	63	6300
			1:1000	10	10000
7	Munford	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	247	2470000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
8	Samson	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	100	1000000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1

Summary of fecal coliform results

	Fecal Coliform - October 97				
				Colonies	Colonies
No.	Site	Location	Dilution	Observed	per 100ml
				per 100 ml	of SAMPLE
				Dilution	
9	Jacobsen	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	220	2200000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
10	Stanley	Pump	1:100	TNTC	TNTC
			1:1000	500	500000
			1:10000	44	440000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
		DF-1	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
11	Anderson	SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
12	Farrell	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	100	1000000
		SC	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1
		DG	1:10	< 1	< 1
			1:100	< 1	< 1
			1:1000	< 1	< 1

11/02/97

Total Phosphorus

Date of Analysis ~~10/22/97~~ 9AR
Date of Samples 10/07/97, 10/10/97, 10/11/97

Analyst Jen Reasor
Run # 1

Month October

Sample ID	ID#	Date Sampled	Digestion Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
STD 0.0	1/1		0.000	0.000			
STD 0.05	2/2		0.025	0.080			
STD 0.10	3/3		0.050	0.157			
STD 0.25	4/4		0.125	0.404			
STD 0.50	5/5		0.250	0.752			
STD 0.75	6/6		0.375	1.141			
STD 1.00	7/7		0.500	1.519			
Site Blank	8/8	10/07/97	25 ml	0.013	0.004	x1	0.00
Site Blank	9/9	10/10/97	25 ml	0.010	0.002	x1	0.00
* Site Blank	10/10	10/11/97	25 ml	0.021	0.009	x1	0.01
Sawmill SC	11/11	10/07/97	2.5 ml	1.625	1.070	x10	~~1.07~~ 10.70
Sawmill Pump	12/12	10/07/97	2.5 ml	0.465	0.303	x10	3.03
La SC	13/13	10/10/97	2.5 ml	0.942	0.619	x10	6.19
Easter SC	14/14	10/11/97	2.5 ml	0.702	0.460	x10	4.60
Easter Pump	15/15	10/11/97	2.5 ml	0.626	0.409	x10	4.10
Munford SC	16/16	10/11/97	2.5 ml	1.280	0.842	x10	8.42
Munford Pump	17/17	10/11/97	2.5 ml	1.007	0.662	x10	6.62
125 ul Sawmill SC MS	18/18	10/07/97	2.5 ml	1.736	1.144	x10	11.43
125 ul ~~Sawmill MSD~~	~~19~~	~~10/07/97~~	2.5 ml				
250 ul LCS (0.50 mg/L	~~20~~ 19	—	0.250 ul	0.845	0.55	x1	0.55
Sawmill SC	~~21~~ 20	10/07/97	1 ml	0.672	0.440	x25	11.00

R = 0.9999
%Rec LCS = 110%

Because value of sample so high & MS value low, the matrix spikes are not good.

OCT RUN

* SELF TEST *
COMPLETED

* SELF TEST *
COMPLETED

TST39 -.000 A

ID# 1
880.0NM TST39 .080 A

ID# 2
880.0NM TST39 .157 A

ID# 3
880.0NM TST39 .404 A

ID# 4
880.0NM TST39 .752 A

ID# 5
880.0NM TST39 1.141 A

ID# 6
880.0NM TST39 1.519 A

ID# 7
880.0NM TST39 .013 A

ID# 8
880.0NM TST39 .010 A

ID# 9
880.0NM TST39 .021 A

ID# 10
880.0NM TST39 1.625 A

ID# 11
880.0NM TST39 .465 A

ID# 12
880.0NM TST39 .942 A

ID# 13
880.0NM TST39 .702 A

ID# 14
880.0NM TST39 .686 A

ID# 15
880.0NM TST39 1.280 A

ID# 16
880.0NM TST39 1.007 A

ID# 17
880.0NM TST39 1.736 A

ID# 18
880.0NM TST39 .845 A

ID# 19
880.0NM TST39 .672 A

ID# 20
880.0NM

Total Phosphorus

Date of Analysis 11/04/97
Date of Samples 10/21/97 10/25/97

Analyst Jen Reasor
Run # 2

Month October

	Sample ID	ID#	Date Sampled	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0	1			0.000			
	STD 0.05	2			0.071			
	STD 0.10	3			0.148			
	STD 0.25	4			0.396			
	STD 0.50	5			0.775			
	STD 0.75	6			1.164			
	STD 1.00	7			1.586			
1	Site Blank #1	8	10/21/97	25ml	0.005	0.01	x1	0.01
2	Site Blank #2	9	10/25/97	25	0.000	0.004	x1	0.00
3	AOA PW	10	10/21/97	25	0.581	0.37	x1	0.37
4	AOA SC	11	↓	2.5	0.401	0.258	x12.5	3.22
5	AOA Pump	12		2.5	0.589	0.377	x12.5	4.71
6	Farrell DG	13		25	0.245	0.159	~~x12.5~~x1	0.16
7	Farrell SC	14		2.5	0.143	0.090	x12.5	~~0.10~~ 1.18
8	Farrell Pump	15		2.5	0.237	0.154	x12.5	1.93
9	Kemp SC	16		2.5	0.648	0.414	x12.5	5.18
10	Nesbitt PW	17		25	0.031	0.002	x1	0.00
11	Nesbitt SC	18	↓	2.5	0.556	0.356	x12.5	4.45
12	Stanley DF1	19	10/25/97	25	0.541	0.347	x1	0.35
13	Stanley Pump	20		2.5	0.445	0.286	x12.5	3.57
14	Anderson SC	21		2.5	0.330	0.213	x12.5	2.66
15	Jacobsen SC	22		2.5	0.510	0.327	x12.5	4.09
16	Jacobsen Pump	23		2.5	0.567	0.363	x12.5	4.54
17	Samsen SC	24		2.5	0.621	0.397	x12.5	4.97
18	Samsen Pump	25	↓	2.5	1.025	0.653	x12.5	8.16
125ul 19	Farrell DG MS	26	10/21/97	25	0.655	0.42	x1	0.42
125ul 20	Farrell DG MSD	27	10/21/97	25	0.695	0.44	x1	0.44
21	LCS (0.50ppm)	28		25ml → 25ml	0.791	0.50	x1	0.50
22	Stanley SC	29		2.5ml	0.287	0.186	x12.5	2.32

r = 0.9999

% Rec Ms, = 104.0%

% Rec MsD 112.0%

% Rec LCS = 100%

% RPD = 4.7%

October Run #2

* SELF TEST *
COMPLETED

ID# 1	TST39	
880.0NM	.000	A
ID# 2	TST39	
880.0NM	.071	A
ID# 3	TST39	
880.0NM	.148	A
ID# 4	TST39	
880.0NM	.396	A
ID# 5	TST39	
880.0NM	.775	A
ID# 6	TST39	
880.0NM	1.164	A
ID# 7	TST39	
880.0NM	1.586	A
ID# 8	TST39	
880.0NM	.005	A
ID# 9	TST39	
880.0NM	-.001	*A
ID# 10	TST39	
880.0NM	.581	A
ID# 11	TST39	
880.0NM	.401	A
ID# 12	TST39	
880.0NM	.589	A
ID# 13	TST39	
880.0NM	.245	A
ID# 14	TST39	
880.0NM	.143	A
ID# 15	TST39	
880.0NM	.237	A
ID# 16	TST39	
880.0NM	.648	A
ID# 17	TST39	
880.0NM	.031	A
ID# 18	TST39	
880.0NM	.556	A
ID# 19	TST39	
880.0NM	.541	A
ID# 20	TST39	
880.0NM	.445	A
ID# 21	TST39	
880.0NM	.330	A
ID# 22	TST39	
880.0NM	.510	A
ID# 23	TST39	
880.0NM	.567	A
ID# 24	TST39	
880.0NM	.621	A
ID# 25	TST39	
880.0NM	1.025	A
ID# 26	TST39	
880.0NM	.655	A
ID# 27	TST39	
880.0NM	.695	A
ID# 28	TST39	
880.0NM	.791	A
ID# 29	TST39	
880.0NM	.287	A

October Run #2

Total Kjeldahl Nitrogen

Date of Analysis 11-2-97
Date of Samples 10/07/97 10/10/97 10/11/97 10/21/97 10/25/97
Analyst Jen Reasor
Run # 1
Month October

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1 0.10	1		6 ml	1	+~~60~~040	
STD 2 1.00	2				+004	
STD 3 10.00	3				-042	
STD 4 100.00	4				-101	
STD 5 1000.00	5				-160	
Site Blank 1	6	10/07/97			+036	0.18
Site Blank 2	7	10/10/97			+050	0.10
Site Blank 3	8	10/11/97			+053	0.08
Site Blank 4	9	10/21/97			+055	0.08
Site Blank 5	10	10/25/97			+056	0.07
Sawmill SC	11	10/07/97			-020	2.35
Sawmill Pump	12	10/07/97			-095	71.7
LA SC	13	10/10/97			+001	0.90
Easter SC	14	10/11/97			-027	3.22
Easter Pump	15	10/11/97			-086	47.6
LCS (10.00ppm)	16	11/02/97			-050	9.21
Munford SC	17	10/11/97			-029	3.54
Munford Pump	18	10/11/97			~~-90~~-94	68.4
AOA PW	19	10/21/97			-012	1.63
AOA SC	20				-010	1.49
AOA Pump	21				-085	45.4
Farrell DG	22				+016	1.95
Farrell SC	23				+001	0.90
Farrell Pump	24				-092	62.5
Kemp SC	25				+008	0.65
Nesbitt PW	26	↓			#+045	~~0.12~~ 0.12
LCS (10.00ppm)	27	11/02/97			-051	9.64
Nesbitt SC	28	10/21/97			+021	~~2.46~~ 0.36
Stanley DF1	29	10/25/97			+000	0.94
Stanley SC	30				+014	0.50
Stanley Pump	31				-076	30.1
Andersen SC	32				+025	0.30
Jacobsen SC	33				-027	3.23
Jacobsen Pump	34				-088	52.1
Samsen SC	35				~~-088~~ +008	0.82
Samsen Pump	36				-079	34.6
Samsen Pump	37	↓	↓	↓	-085	45.4

r = 0.995

%Rec LCS, = 92.1 %Rec LCS$_2$ = 96.4
%Rec LCS$_2$ = 96.4 %Rec ~~LCS~~

%Rec MS = 108% %RPD = 0.0%
%Rec MSD 108%

Total Kjeldahl Nitrogen

Date of Analysis 11-2-97
Date of Samples

Analyst Jen Reasor
Run # #1 CONT

Month October

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1		10		1	-	
STD 2						
STD 3						
STD 4						
STD 5						
Samsen Pump	38	10/25/97	6 ml		-085	45.4
*3 LCS (10,000ppm)	39	11/02/97	6 ml	↓	-051	9.64

Ammonia Nitrogen

Date of Analysis 10/19/97
Date of Samples 10/07/97 10/11/97 10/10/97

Analyst Jen Reasor
Run # 1

Month October

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1 0.1	1		1ml		~~000~~ +038	
STD 2 1.0	2				-059/-014	
STD 3 10.0	3				-117/-068	
STD 4 100.0	4				-175/-125	
STD 5 1000.0	5				-233/-183	
Site Blank	6	10/07/97			+032	0.14
Sawmill SC	7	10/07/97			+009	0.37
Sawmill Pump	8	10/07/97			-116	66.8
LA SC	9	10/10/97			+020	0.23
Easter SC	10	10/11/97			+020	0.23
Easter Pump	11	10/11/97			-105	42.2
Munford SC	12	10/11/97			-030	1.86
Munford Pump	13	10/11/97			-114	61.4
Easter SC MS	14	10/11/97			-070	~~98.3~~ 9.83
Easter SC MSD	15	10/11/97			-070	~~98.3~~ 9.83
Site Blank	16	10/10/97			+030	0.15
Site Blank	17	10/11/97	↓		+030	0.15

R = 0.9997
% Rec MS = 96 %
% Rec MSD = 96 %
% RPD = 0.0 %

Ammonia Nitrogen

Date of Analysis 10/29/97
Date of Samples 10/21/97
10/25/97

Analyst Jen Reasor
Run # 2

Month October

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1 0.10	1		1ml	+	+027	
STD 2 1.00	2				-016	
STD 3 10.00	3				-072	
STD 4 100.00	4				-129	
STD 5 1000.00	5				-188	
AOA PW	6	10/21/97			-001	0.42
AOA SC	7				+013	0.23
AOA Pump	8				~~-111~~	~~0.45~~ 44.9
Farrell DG	9				~~-110~~ -004	0.48
Farrell SC	10				+022	0.16
Farrell Pump	11				~~-004~~ -120	65.7
KempM SC	12				+031	0.11
Nesbitt PW	13				-026	1.22
Nesbitt SC	14	↓			-004	0.48
Stanley DF1	15	10/25/97			-004	0.48
Stanley SC	16				+020	0.17
Stanley Pump	17				-101	29.4
Anderson SC	18				+036	0.09
Jacobsen SC	19				-050	3.38
Jacobsen Pump	20				-112	46.8
Samsen SC	21				-008	0.57
Samsen Pump	22	↓			-104	33.3
Samsen Pump MS	23				-110	~~43.0~~ 43.0
Samsen Pump MSD	24				-110	43.0
Site Blank 10/21	25	10/21/97			+043	0.07
Site Blank 10/25	26	10/25/97	✓		+048	0.05

r = 0.9984

% Rec MS = 97.0%

% Rec MSD = 97.0 %

% RPD = 0.0 %

mailed 1/5/98

BORD NA MÓNA

ENVIRONMENTAL PRODUCTS U.S. INC.

January 5, 1998

Ms. Patricia Miller, Ph.D.
Commonwealth of Virginia, Dept. of Health
Onsite Sewage and Water Services
P.O. Box 2448, Suite 117
Richmond, VA 23218-2448

RE: ***Puraflo***® **Peat Biofilter Water Quality Results for Virginia Test Sites - November 1997**

Dear Patricia:

Bord na Móna is pleased to present the November 1997 water quality results for sampling of the Virginia test sites. The onsite sampling and laboratory analysis was performed by Old Dominion University (ODU). This submittal includes original copies of the summary tables, back-up data, and chain-of-custody records for both November and October 1997. November was a wet month, therefore, groundwater samples were able to be collected at 9 of the 12 sites.

In December, we installed wells at 5 additional sites, which will be sampled in January. I will keep you advised of our estimated schedule for sampling and additional well installation.

If you have any questions or need additional information, please give me a call at 1-800-PURAFLO (787-2356).

Sincerely,

Christopher K. Keiger, P.G.

Enclosure

cc: Halcyon Associates, Inc.

P.O. BOX 77457, GREENSBORO, N.C. 27417, U.S.A TELEPHONE: (910) 547-9338 FAX: (910) 547-8559
email address: bordmona@nr.infi.net

PURAFLO™ PEAT TREATMENT SYSTEM

NOVEMBER 1997 SAMPLING AND MONITORING RESULTS

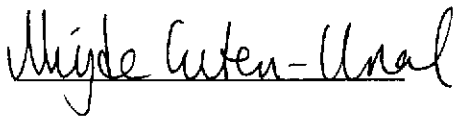
Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Puraflo Peat Biofilter

Saw Mill Project							Northampton Co. VA						
Installation Date: Aug-8-95							Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-26-97	177.00 180.50	33.00	91.91	90.84	0.65	91.49	11.73	197.94	1.55	13.10	8.20	TNTC TNTC 4,530,000	~Data can not be calculated.
Average PT	178.75	33.00	91.91	90.84	0.65	91.49	11.73	197.94	1.55	13.10	8.20	~	
Sample Chamber (SC) Nov-26-97	<1 <1	<1	8.66	10.40	103.28	113.68	10.37	188.94	2.09	11.50	7.20	<1 <1 <1	
Average SC	<1	<1	8.66	10.40	103.28	113.68	10.37	188.94	2.09	11.50	7.20	<1	
Pad Well (PW#) Nov-26-97													No sample
Average PW#													
Down-gradient (DG) Nov-26-97													No sample
Average DG													
Background (BG) Nov-26-97													No sample
Average BG													

Puraflo Peat Biofilter

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-14-97													* No sample
Average PT													
Sample Chamber (SC) Nov-14-97	5.48 5.83	<1	3.11	3.86	37.90	41.76	3.55	57.91	4.23	11.30	7.50	<1 <1 <1	
Average SC	5.66	<1	3.11	3.86	37.90	41.76	3.55	57.91	4.23	11.30	7.50	< 1	
Pad Well (PW) Nov-14-97	<1 <1	193.00	0.16	0.20	17.03	17.23	0.27	35.23	5.39	10.00	7.50	TNTC 18,300 27,000	
Average PW#	<1	193.00	0.16	0.20	17.03	17.23	0.27	35.23	5.39	10.00	7.50	22650	
Down-gradient (DG) Nov-14-97	2.62 2.22	<1	0.08	0.10	0.90	1.00	0.02	9.37	6.03	12.30	7.30	<1 <1 <1	
Average DG	2.42	<1	0.08	0.10	0.90	1.00	0.02	9.37	6.03	12.30	7.30	< 1	
Background (BG) Nov-14-97	1.78 1.78	<1	0.11	0.23	0.87	1.10	0.04	10.42	3.84	12.80	7.70	1,070 1,300 <1	~Data can not be calculated.
Average BG	1.78	<1	0.11	0.23	0.87	1.10	0.04	10.42	3.84	12.80	7.70	~	

* Cover too heavy & handle still broken.

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-22-97	285.75 295.25	12,240.00	11.99	15.43	1.26	16.69	121.00	75.86	1.68	15.30	7.70	TNTC TNTC 970,000	~Data can not be calculated.
Average PT	290.50	12240.00	11.99	15.43	1.26	16.69	121.00	75.86	1.68	15.30	7.70	~	
Sample Chamber (SC) Nov-22-97	2.29 2.29	13.00	0.08	0.22	13.12	13.34	1.95	109.90	2.47	13.30	7.50	<1 <1 <1	
Average SC	2.29	13.00	0.08	0.22	13.12	13.34	1.95	109.90	2.47	13.30	7.50	< 1	
Pad Well (PW#) Nov-22-97	1.48 1.48	993.00	0.05	0.11	3.73	3.84	0.17	92.52	2.64	15.20	7.20	<1 <1 <1	
Average PW#	1.48	993.00	0.05	0.11	3.73	3.84	0.17	92.52	2.64	15.20	7.20	< 1	
Down-gradient (DG) Nov-22-97	<1 <1	160.00	0.05	0.11	1.58	1.69	0.13	35.71	2.53	13.50	7.40	<1 <1 <1	
Average DG	<1	160.00	0.05	0.11	1.58	1.69	0.13	35.71	2.53	13.50	7.40	< 1	
Background (BG) Nov-22-97	1.28 1.08	560.00	0.07	0.24	0.66	0.90	0.13	7.85	2.83	13.30	7.20	<1 <1 <1	
Average BG	1.18	560.00	0.07	0.24	0.66	0.90	0.13	7.85	2.83	13.30	7.20	< 1	

Puraflo Peat Biofilter

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-22-97	175.75 198.75	20.00	27.24	30.10	0.84	30.94	2.99	19.99	2.40	15.40	8.20	TNTC TNTC 5,600,000	~Data can not be calculated.
Average PT	187.25	20.00	27.24	30.10	0.84	30.94	2.99	19.99	2.40	15.40	8.20	~	
Sample Chamber (SC) Nov-22-97	6.26 5.41	<1	0.30	1.03	23.96	24.99	3.68	25.87	2.72	14.00	7.30	TNTC 12,300 <1	~Data can not be calculated.
Average SC	5.84	<1	0.30	1.03	23.96	24.99	3.68	25.87	2.72	14.00	7.30	~	
Pad Well (PW #1) Nov-22-97	1.78 1.75	1,373.0	0.38	1.20	35.13	36.33	0.05	40.55	2.90	13.00	7.00	<1 <1 <1	
Average PW #1	1.77	1373.00	0.38	1.20	35.13	36.33	0.05	40.55	2.90	13.00	7.00	< 1	
Down-gradient (DG) Nov-22-97	<1 <1	2,093.00	0.06	0.14	7.34	7.48	0.40	21.71	2.97	13.20	7.90	<1 <1 <1	
Average DG	<1	2093.00	0.06	0.14	7.34	7.48	0.40	21.71	2.97	13.20	7.90	< 1	
Background (BG) Nov-22-97													No Sample
Average BG													

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-22-97	109.75 173.25	67.00	32.38	34.60	0.87	35.47	5.61	34.47	2.03	12.20	8.30	TNTC TNTC 4,870,000	~Data can not be calculated.
Average PT	141.50	67.00	32.38	34.60	0.87	35.47	5.61	34.47	2.03	12.20	8.30	~	
Sample Chamber (SC) Nov-22-97	3.54 3.14	<1	0.76	1.43	18.24	19.67	3.28	31.79	2.54	12.20	7.20	<1 <1 <1	
Average SC	3.34	<1	0.76	1.43	18.24	19.67	3.28	31.79	2.54	12.20	7.20	<1	
Pad Well (PW#) Nov-22-97	5.42 5.42	253.00	0.12	0.18	16.71	16.89	0.65	18.16	3.09	11.50	7.60	<1 <1 <1	
Average PW#	5.42	253.00	0.12	0.18	16.71	16.89	0.65	18.16	3.09	11.50	7.60	< 1	
Down-gradient (DG) Nov-22-97	1.32 1.42	27.00	0.05	0.12	7.94	8.06	0.11	20.36	2.57	12.00	7.00	<1 <1 <1	
Average DG	1.37	27.00	0.05	0.12	7.94	8.06	0.11	20.36	2.57	12.00	7.00	< 1	
Background (BG) Nov-22-97	<1 <1	<1	0.07	0.11	0.69	0.80	0.10	19.91	3.12	12.90	7.20	<1 <1 <1	
Average BG	<1	<1	0.07	0.11	0.69	0.80	0.10	19.91	3.12	12.90	7.20	< 1	

Puraflo Peat Biofilter

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-25-97	322.00 320.00	2,200.00	53.12	56.00	0.82	56.82	8.32	84.46	2.68	12.50	8.10	TNTC TNTC 5,200,000	~Data can not be calculated.
Average PT	321.00	2200.00	53.12	56.00	0.82	56.82	8.32	84.46	2.68	12.50	8.10	~	
Sample Chamber (SC) Nov-25-97	<1 <1	<1	0.08	0.14	29.94	30.08	6.31	80.72	3.56	11.10	7.70	830 700 <1	
Average SC	<1	<1	0.08	0.14	29.94	30.08	6.31	80.72	3.56	11.10	7.70	765	
Pad Well (PW#) Nov-25-97	<1 <1	60.00	0.11	0.46	6.08	6.54	0.58	68.46	2.74	12.70	7.30	<1 <1 <1	
Average PW	<1	60.00	0.11	0.46	6.08	6.54	0.58	68.46	2.74	12.70	7.30	< 1	
Down-gradient (DG) Nov-25-97	<1 <1	<1	0.06	0.14	0.62	0.76	0.02	29.84	3.45	11.50	5.10	<1 <1 <1	
Average DG	<1	<1	0.06	0.14	0.62	0.76	0.02	29.84	3.45	11.50	5.10	< 1	
Background (BG) Nov-25-97	<1 <1	<1	0.23	0.46	2.14	2.60	0.12	11.97	3.33	11.50	7.10	<1 <1 <1	
Average BG	<1	<1	0.23	0.46	2.14	2.60	0.12	11.97	3.33	11.50	7.10	< 1	

Water Quality Results

Puraflo Peat Biofilter

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date: Nov-19-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-25-97	267.00 281.50	73.00	37.91	40.24	0.62	40.86	9.27	50.46	3.29	13.40	8.30	TNTC TNTC 3,870,000	~Data can not be calculated.
Average PT	274.25	73.00	37.91	40.24	0.62	40.86	9.27	50.46	3.29	13.40	8.30	~	
Sample Chamber (SC) Nov-25-97	<1 <1	<1	2.66	3.10	32.39	35.49	8.52	49.82	3.66	10.00	5.70	<1 <1 <1	
Average SC	<1	<1	2.66	3.10	32.39	35.49	8.52	49.82	3.66	10.00	5.70	< 1	
Pad Well (PW#) Nov-25-97													No sample
Average PW#													
Down-gradient (DG) Nov-25-97													No sample
Average DG													
Background (BG) Nov-25-97	1.33 1.00	<1	0.04	0.11	1.86	1.97	0.02	25.99	3.97	11.40	6.70	<1 <1 <1	
Average BG	1.17	<1	0.04	0.11	1.86	1.97	0.02	25.99	3.97	11.40	6.70	< 1	

Puraflo Peat Biofilter

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-15-97	275.50 265.50	1,440.0	32.94	34.80	0.63	35.43	8.10	1,006.04	3.31	14.20	8.30	58,700 100,000 130,000	
Average PT	270.50	1440.00	32.94	34.80	0.63	35.43	8.10	1006.04	3.31	14.20	8.30	96233	
Sample Chamber (SC) Nov-15-97	1.50 2.45	<1	0.10	0.11	9.78	9.89	5.15	853.94	2.57	11.80	7.70	<1 <1 <1	
Average SC	1.98	<1	0.10	0.11	9.78	9.89	5.15	853.94	2.57	11.80	7.70	<1	
Pad Well (PW) Nov-15-97													No sample
Average PW#													
Down-gradient (DG) Nov-15-97													No sample
Average DG													
Background (BG) Nov-15-97													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-15-97	129.00 148.00	<1	12.29	15.64	0.68	16.32	1.34	27.89	2.10	11.20	8.00	14,700 23,000 <1	
Average PT	138.50	<1	12.29	15.64	0.68	16.32	1.34	27.89	2.10	11.20	8.00	18850	
Sample Chamber (SC) Nov-15-97	<1 <1	<1	0.32	1.18	13.65	14.83	1.34	33.45	2.64	10.20	6.00	<1 <1 <1	
Average SC	<1	<1	0.32	1.18	13.65	14.83	1.34	33.45	2.64	10.20	6.00	<1	
Pad Well (PW#1) Nov-15-97													No sample
Average PW#1													
Down-gradient (DG) Nov-15-97	1.14 <1	7.00	0.05	0.10	10.58	10.68	1.93	9.50	2.33	10.40	7.20	<1 <1 <1	
Average DG	1.14	7.00	0.05	0.10	10.58	10.68	1.93	9.50	2.33	10.40	7.20	< 1	
Background (BG) Nov-15-97	2.80 2.88	<1	0.08	0.14	3.09	3.23	0.03	25.92	2.31	11.40	7.30	<1 <1 <1	
Average BG	2.84	<1	0.08	0.14	3.09	3.23	0.03	25.92	2.31	11.40	7.30	< 1	
Pad Well (PW#2) Nov-15-97	<1 <1	<1	0.07	0.11	3.18	3.29	0.10	7.17	2.73	10.80	7.40	<1 <1 <1	
Average PW#2	<1	<1	0.07	0.11	3.18	3.29	0.10	7.17	2.73	10.80	7.40	<1	

Water Quality Results

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-15-97	86.50 91.00	<1	21.45	26.23	0.62	26.85	2.67	765.86	2.55	12.50	8.50	TNTC 607,000 230,000	
Average PT	88.75	<1	21.45	26.23	0.62	26.85	2.67	765.86	2.55	12.50	8.50	418500	
Sample Chamber (SC) Nov-15-97	<1 <1	<1	0.09	0.13	11.44	11.57	1.75	620.01	2.75	8.50	8.30	<1 <1 <1	
Average SC	<1	<1	0.09	0.13	11.44	11.57	1.75	620.01	2.75	8.50	8.30	<1	
Pad Well (PW#) Nov-15-97													No sample
Average PW#													
Down-gradient (DG) Nov-15-97													No sample
Average DG													
Downfall (DF-1) Nov-15-97	<1 <1	533.00	0.24	0.46	12.60	13.06	0.12	965.73	3.47	11.80	6.90	<1 <1 <1	
Average DF-1	<1	533.00	0.24	0.46	12.60	13.06	0.12	965.73	3.47	11.80	6.90	<1	

Water Quality Results

Puraflo Peat Biofilter

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-15-97													* No sample
Average PT													
Sample Chamber (SC) Nov-15-97	2.60 1.98	<1	0.23	0.31	2.97	3.28	2.39	91.18	3.23	9.00	7.80	<1 <1 <1	
Average SC	2.29	<1	0.23	0.31	2.97	3.28	2.39	91.18	3.23	9.00	7.80	<1	
Pad Well (PW#) Nov-15-97													No sample
Average PW#													
Down-gradient (DG) Nov-15-97													No sample
Average DG													
Background (BG) Nov-15-97													No sample
Average BG													

* Covered by mulch & rocks.

Puraflo Peat Biofilter

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow:	300	gpd			Soil Texture Group	
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Nov-22-97	11.25 18.25	<1	14.88	16.11	0.83	16.94	1.54	75.72	2.64	14.20	7.50	<1 <1 <1	
Average PT	14.75	<1	14.88	16.11	0.83	16.94	1.54	75.72	2.64	14.20	7.50	<1	
Sample Chamber (SC) Nov-22-97	1.71 1.26	<1	0.28	0.54	6.69	7.23	0.40	48.98	3.29	13.00	7.20	<1 <1 <1	
Average SC	1.49	<1	0.28	0.54	6.69	7.23	0.40	48.98	3.29	13.00	7.20	<1	
Pad Well (PW#) Nov-22-97	<1 <1	187.00	0.13	0.26	1.62	1.88	0.05	30.40	2.73	13.20	6.60	<1 <1 <1	
Average PW#	<1	187.00	0.13	0.26	1.62	1.88	0.05	30.40	2.73	13.20	6.60	< 1	
Down-gradient (DG) Nov-22-97	<1 <1	600.00	0.07	0.18	1.23	1.41	0.06	15.01	2.89	12.40	7.00	<1 <1 <1	
Average DG	<1	600.00	0.07	0.18	1.23	1.41	0.06	15.01	2.89	12.40	7.00	<1	
Background (BG) Nov-22-97	1.95 1.65	120.00	0.05	0.10	0.62	0.72	0.06	26.47	2.69	13.60	7.00	<1 <1 <1	
Average BG	1.80	120.00	0.05	0.10	0.62	0.72	0.06	26.47	2.69	13.60	7.00	< 1	

Summary of Solids, pH & DO for Nov. 97
Analyst: Sanika Paranjape

No	Site	Location	Solids	pH	DO
			mg/l		mg/l
1	Sawmill	Pump	33	8.2	1.55
		SC	<1	7.2	2.09
2	Longarthur	SC	<1	7.5	4.23
		DG	<1	7.3	6.03
		PW	193	7.5	5.39
		BG	<1	7.7	3.84
3	Kemp	Pump	12240	7.7	1.68
		SC	13	7.5	2.47
		DG	160	7.4	2.53
		PW	993	7.2	2.64
		BG	560	7.2	2.83
4	Nesbit	Pump	20	8.2	2.40
		SC	<1	7.3	2.72
		DG	2093	7.9	2.97
		PW	1373	7.0	2.90
5	AOA	Pump	67	8.3	2.03
		SC	<1	7.2	2.54
		DG	27	7.0	2.57
		PW	253	7.6	3.09
		BG	<1	7.2	3.12
6	Easter	Pump	2200	8.1	2.68
		SC	<1	7.7	3.56
		DG	<1	5.1	3.45
		PW	60	7.3	2.74
		BG	<1	7.1	3.33
7	Munford	Pump	73	8.3	3.29
		SC	<1	5.7	3.66
		BG	<1	6.7	3.97
8	Samson	Pump	1440	8.3	3.3
		SC	<1	7.7	2.57
9	Jacobson	Pump	<1	8	2.1
		SC	<1	6	2.64
		DG	7	7.2	2.33
		PW-2	<1	7.4	2.73
		BG	<1	7.3	2.31
10	Stanley	Pump	<1	8.5	2.55
		SC	<1	8.3	2.75
		DF-1	533	6.9	3.47
11	Anderson	SC	<1	7.8	3.23
12	Farrell	Pump	<1	7.5	2.64
		SC	<1	7.2	3.29
		DG	600	7	2.89
		PW	187	6.6	2.73
		BG	120	7	2.69

Summary of BOD for Nov. 97

Analyst: **Sanika Paranjape**

Site	Location	BOD
		mg/l
Sawmill	Pump	177.00
		180.50
	SC	<1
		<1
Longarthur	SC	5.48
		5.83
	DG	2.62
		2.22
	PW	<1
		<1
	BG	1.78
		1.78
Kemp	Pump	285.75
		295.25
	SC	2.29
		2.29
	DG	<1
		<1
	PW	1.48
		1.48
	BG	1.28
		1.08
Nesbit	Pump	175.75
		198.75
	SC	6.26
		5.41
	DG	<1
		<1
	PW	1.78
		1.75
AOA	Pump	109.75
		173.25
	SC	3.54
		3.14
	DG	1.32
		1.42
	PW	5.42
		5.42
	BG	<1
		<1
Easter	Pump	322.00
		320.00
	SC	<1
		<1

Site	Location	BOD
		mg/l
Easter	DG	<1
		<1
	PW	<1
		<1
	BG	<1
		<1
Munford	Pump	267
		281.5
	SC	<1
		<1
	BG	1.33
		1
Samson	Pump	275.5
		265.5
	SC	1.5
		2.45
Jacobson	Pump	129
		148
	SC	<1
		<1
	DG	1.14
		<1
	PW-2	<1
		<1
	BG	2.8
		2.88
Stanley	Pump	86.5
		91
	SC	<1
		<1
	DF-1	<1
		<1
Anderson	SC	2.6
		1.98
Farrell	Pump	11.25
		18.25
	SC	1.71
		1.26
	DG	<1
		<1
	PW	<1
		<1
	BG	1.95
		1.65

Fecal Coliform - November 97

Analyst: Sanika Paranjape

No.	Site	Location	Dilution	Colonies	Colonies /
				Observed /	100ml of
				100ml Dilution	SAMPLE
1	Sawmill	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	453	4530000
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
2	Longarthur	SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW	1:10	TNTC	TNTC
			1:100	183	18300
			1:1000	27	27000
		BG	1:10	107	1070
			1:100	13	1300
			1:1000	<1	<1
3	Kemp	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	97	970000
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		BG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
4	Nesbitt	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	560	5600000
		SC	1:10	TNTC	TNTC
			1:100	123	12300
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1

Fecal Coliform - November 97

Analyst: Sanika Paranjape

No.	Site	Location	Dilution	Colonies Observed / 100ml Dilution	Colonies / 100ml of SAMPLE
5	Agency on Aging	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	487	4870000
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		BG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
6	Easter	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	520	5200000
		SC	1:10	83	830
			1:100	7	700
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		BG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
7	Munford	Pump	1:100	TNTC	TNTC
			1:1000	TNTC	TNTC
			1:10000	387	3870000
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		BG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
8	Samson	Pump	1:100	587	58700
			1:1000	100	100000
			1:10000	13	130000
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1

Fecal Coliform - November 97
Analyst: Sanika Paranjape

No.	Site	Location	Dilution	Colonies Observed / 100ml Dilution	Colonies / 100ml of SAMPLE
9	Jacobson	Pump	1:100	147	14700
			1:1000	23	23000
			1:10000	<1	<1
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW-2	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		BG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
10	Stanley	Pump	1:100	TNTC	TNTC
			1:1000	607	607000
			1:10000	23	230000
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		DF-1	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
11	Anderson	SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
12	Farrell	Pump	1:100	<1	<1
			1:1000	<1	<1
			1:10000	<1	<1
		SC	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		DG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		PW-2	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1
		BG	1:10	<1	<1
			1:100	<1	<1
			1:1000	<1	<1

IC Data for Month of NOVEMBER '97			
	NO2--N	NO3--N	CL
Sample	Conc, mg/L	Conc, mg/L	Conc, mg/L
STD1	0.0	0	0
STD2	10.0	10	100
STD3	20.0	20	200
STD4	40.0	40	300
Stanley SC	0.0	11.44	620.01
Stanley pump	0.0	0.62	765.86
Stanley DF1	0.0	12.60	965.73
Jacobson SC	0.0	13.65	33.45
Jacobson pump	0.0	0.68	27.89
Jacobson DG	0.1	10.48	9.50
Jacobson BG	0.0	3.09	25.92
Jacobson PW2	0.0	3.18	7.17
Anderson SC	0.0	2.97	91.18
std 2	10.0	9.16	97.73
AOA SC	0.1	18.14	31.79
AOA DG	0.0	7.94	20.36
AOA BG	0.0	0.69	19.91
AOA Pump	0.2	0.67	34.47
AOA PW	0.0	16.71	18.16
Sawmill SC	0.0	103.28	188.94
Sawmill pump	0.0	0.65	197.94
LongArthur DG	0.0	0.90	9.37
LongArthur PW	0.4	16.63	35.23
LongArthur BG	0.0	0.87	10.42
LongArthur SC	1.4	36.50	57.91
Samson SC	0.0	9.78	853.94
Samson pump	0.0	0.63	1006.04
Kemp SC	0.0	13.12	109.90
Kemp DG	0.0	1.58	35.71
Kemp pump	0.5	0.76	75.86
Kemp PW	0.1	3.63	92.52
Kemp BG	0.0	0.66	7.85
std 3	20.5	19.03	200.20
Nesbitt SC	0.4	23.56	25.87
Nesbitt PW	0.1	35.03	40.55
Nesbitt DG	0.0	7.34	21.71
Nesbitt PUMP	0.2	0.64	19.99
Farell SC	0.1	6.59	48.98
Farrell PW	0.1	1.52	30.40
Farrell BG	0.0	0.62	26.47
Farell pump	0.2	0.63	75.72
Farell DG	0.0	1.23	15.01
Munford SC	0.0	32.39	49.82
Munford pump	0.0	0.62	50.46
Munford BG	0.1	1.76	25.99
Easter SC	0.1	29.84	80.72
Easter pump	0.2	0.62	84.46

IC Data for Month of NOVEMBER '97			
	NO2--N	NO3--N	CL
Sample	Conc, mg/L	Conc, mg/L	Conc, mg/L
Easter DG	0.0	0.62	29.84
Easter PW	0.1	5.98	68.46
Easter BG	0.5	1.64	11.97
std 4	39.5	41.12	306.42
Blank 1	0.0	0.61	1.44

Total Phosphorus

Date of Analysis 11/16/97 **Analyst** Jen Reasor **Month** November
Date of Samples 11/14/97 11/15/97 **Run #** 1

	Sample ID	ID#	Date Sampled	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0	1		25ml	0.000			
	STD 0.05	2		↓	0.074			
	STD 0.10	3			0.152			
	STD 0.25	4			0.378			
	STD 0.50	5			.801			
	STD 0.75	6			1.164			
	STD 1.00	7		↓	1.605			
1	SB #1	8	11/14/97	25ml	0.004	0.007	—	0.01
~~2~~	~~SB #2~~	~~9~~						
2	LA BG	9		25ml	0.053	0.04	x1	0.04
3	LA SC	10		~~25~~ 20	0.445	0.28	12.5	3.55
4	LA DG	11		~~25~~ 25	0.031	0.02	x1	0.02
5	LA PW	12	↓	25	0.421	0.27	x1	0.27
6	Stanley DF1	13	11/15/97	25	0.179	0.12	x1	0.12
7	Stanley SC	14		~~25~~ 2.0	0.216	0.14	x12.5	1.75
8	Stanley Pump	15		~~25~~ 20	0.333	0.21	x12.5	2.67
9	Andersen SC	16		~~25~~ 20	0.297	0.19	x12.5	2.39
10	Samson SC	17		~~25~~ 2.0	0.650	0.41	x12.5	5.15
11	Samson Pump	18		~~25~~ 2.0	1.026	0.65	x12.5	8.10
12	Jacobsen PW2	19		25	0.153	0.10	x1	0.10
13	Jac BG	20		25	~~0.040~~ 0.039	0.03	x1	0.03
14	Jac DG	21		25	0.300	1.93	x1	1.93
15	Jac SC	22		~~25~~ 20	0.163	~~1.07~~ 1.11	x12.5	1.34
16	Jac Pump	23		~~25~~ 20	0.163	0.11	x12.5	1.34
250 ml 17	Jac ~~BG~~ MS	24		25	0.780	0.49	x1	0.49
250 ml 18	Jac ~~BG~~ MSD	25		25	0.815	0.52	x1	0.52
250 ml 19	LCS (0.50mg/L)	26	↓	25	0.789	0.50	x1	0.50

$r = 0.9997$

% Rec MS = 92%

% Rec MSD = 98%

% Rec LCS = 100%

% RPD = 5.9 %

Total Phosphorus

Date of Analysis 11/25/97 **Analyst** Jen Reasor **Month** November

Date of Samples 11/22 **Run #** 2

ID FROM SPEC

	Sample ID	ID#	Date Sampled	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
1	STD 0.0	S1			0.000			
2	STD 0.05	S2			0.076			
3	STD 0.10	S3			0.157			
4	STD 0.25	S4			0.393			
5	STD 0.50	S5			0.813			
6	STD 0.75	S6			1.204			
7	STD 1.00	S7			1.568			
8	SB *1	1	11/22/97	25	0.025	0.01	1	0.01
9 1	Kemp BG	2	↓	25	0.203	0.13	1	0.13
10 2	Kemp DG	3		25	0.204	0.13	1	0.13
11 3	Kemp PW	4		25	0.264	0.17	1	0.17
12 4	Kemp SC	5		~~2.0~~ 2.5	0.310	0.195	~~12.5~~ 12	1.95
13 5	Kemp Pump	6		~~2.5~~ ~~2.0~~ 1.0	0.770	0.485	~~250~~ ~~313~~ 300	121.2
14	Nesbitt DG	7		25	0.637	0.400	1	0.40
15	Nesbitt PW	8		25	0.088	0.05	1	0.05
16	Nesbitt SC	9		~~2.0~~ 2.5	0.585	0.368	~~12.5~~ 12	3.68
17	Nesbitt Pump	10		~~2.0~~ 2.5	0.475	0.299	~~12.5~~ 12	2.99
18	AA BG	11		25	0.167	~~0.0~~ 0.10	1	~~0.0~~ 0.10
19	AA PW	12		25	1.032	0.650	1	0.65
20	AA DG	13		25	0.180	0.11	1	0.11
21	AA SC	14		~~2.0~~ 2.5	0.522	0.33	10	3.28
22	AA Pump	15	↓	~~2.0~~ 2.5	0.890	0.561	10	5.61
23	Farrell BG	16		25	0.100	~~0.20~~ 0.06	1	0.06
24	Farrell DG	17		25	0.097	0.06	1	0.06
25	Farrell PW	18		25	0.084	0.05	1	0.05
26	Farrell SC	19		~~2.0~~ 2.5	0.065	~~3~~ 0.04	10	0.40
27	Farrell Pump	20		~~2.0~~ 2.5	0.245	0.154	10	1.54
28 SC	Kemp ~~BG~~ MS	21		~~2.0~~ 2.5	1.152	0.73	10	7.26
29 SC	Kemp ~~BG~~ MSD	22		~~2.0~~ 2.5	1.129	0.711	10	7.11
30	LCS (0.50 mg/L)	23	↓	25	0.799	0.50	1	0.50

r = 0.9998

%Rec MS = 106%

%Rec MSD 103%

%Rec LCS = 100%

%RPD = 2.09%

Total Phosphorus

Date of Analysis 12/06/97 **Analyst** JAR **Month** November

Date of Samples 11/26/97 **Run #** 3

	Sample ID	ID#	Date Sampled	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
33	STD 0.0	S1			0.000			
34	STD 0.05	S2			0.067			
35	STD 0.10	S3			0.146			
36	STD 0.25	S4			0.383			
37	STD 0.50	S5			0.799			
38	STD 0.75	S6			1.159			
39	STD 1.00	S7			1.397			
40	Sawmill SC	1	11/25/97	20 2.5	1.523	1.04	10	10.39
41	Sawmill Pump	2		20 2.5	1.717	1.17	10	11.73
42	Easter PW	3		25	0.803	0.58	1	0.58
43	Easter BG	4		25	0.194	0.12	1	0.12
44	Easter DG	5		25	0.047	0.02	1	0.02
45	Easter SC	6		20 2.5	0.931	0.631	10	6.31
46	Easter Pump	7		20 2.5	1.222	0.832	10	8.32
47	Munford BG	8		25	0.044	0.02	1	0.02
48	Munford SC	9		20 2.5	1.252	0.852	10	8.52
49	Munford Pump	10		20 2.5	1.360	0.927	10	9.27
50	Easter PW MS	11		25	1.575	1.07	1	1.07
51	Easter PW MSD	12		25	1.607	1.10	1	1.10
	LCS (0.5 mg/L)	~~13~~						

$r = 0.997$

%RecMS = 98.0%

%RecMSD = 104.0%

%RPD = 2.76%

Ammonia Nitrogen

Date of Analysis 11/19/97
Date of Samples 11/14/97 11/15/97

Analyst JAR
Run # 1

Month November

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1 10	1		2 ml	—	1048	
STD 2 1.00	2			—	+002	
STD 3 10.00	3			—	-052	
STD 4 100	4			—	-109	
STD 5 1000	5			—	-165	
SB 1	6	11-14-97		—	+037	0.19
LA BG	7	↓		—	+050	0.11
SC	8			—	+050 -028	3.11
DG	9			—	+056	0.08
PW	10	↓		—	1041	0.116
Stan DF1	11	11-15-97		—	+032	0.24
SC	12			—	+055	0.09
Pump	13			—	-073	21.45
And SC	14			—	+033	0.23
Sam SC	15			—	+050	~~1.10~~ 0.10
Pump	16			—	-083	32.94
Jac PW2	17			—	+061	0.07
BG	18			—	+058	0.08
DG	19			—	+070	0.05
SC	20			—	+025	0.32
Pump	21			—	-060	12.29
Sam Pump MS	22			—	-090	44.47
Sam Pump MSD	23	↓	↓	—	-089	42.60

r = 0.9992

%Rec MS = 115%

%Rec MSD = 97%

% RPD = 2.2%

Ammonia Nitrogen

Date of Analysis 11/30/97
Date of Samples 11/22/97

Analyst JAR
Run # 2

Month November

	Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
	STD 1 .1			2ml	x1	+049	
	STD 2 1.0					+001	
	STD 3 10					-053	
	STD 4 100					-108	
	STD 5 1000					-163	
25	SB		11/22/97			+059	0.07
26	Kemp BG					1060	0.07
27	DG					+067	0.05
28	PW					+067	0.05
x 29	SC					+056	~~0.83~~ 0.08
30	Pump					-059	11.99
31	Nesbitt DG					+063	0.06
32	PW					+021	0.38
x 33	SC					+026	0.30
34	Pump					-078	27.24
35	AA BG					+060	0.07
36	PW					+048	0.12
37	DG					+070	0.05
x 38	SC					+005	0.76
39	Pump					-082	32.38
40	Farrell BG					+070	0.05
41	DG					+060	0.07
42	PW					+046	0.13
x 43	SC					+028	0.28
44	Pump					-064	14.88
1 45	Farrell Pump MS					-077	26.09
46	Farrell Pump MSD		✓	✓	✓	-076	24.99

r = 0.9996

%Rec MS = 112.1 %

%Rec MSD = 101 %

% RPD = 4.31 %

Ammonia Nitrogen

12/05/97

Date of Analysis 11/~~25/97 11/26~~

Date of Samples 11/25/97 11/26/97

Analyst JAR

Run # 3

Month November

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1			2ml	–	+050	
STD 2				–	+000	
STD 3				–	-054	
STD 4				–	-110	
STD 5					-168	
Sawmill SC		11/26/97			-053	8.66
↓ Pump		↓			-109	91.91
Easter PW		11/25/97			+050	0.11
BG					+033	0.23
DG					+066	0.06
SC					+059	0.08
↓ Pump		↓			-096	53.12
Mumford BG		11/25/97			+077	0.04
SC					-025	2.66
Pump					-088	37.91
Pump MS					-093/-094	~~46.8~~ 47.81
↓ Pump MSD		↓	↓	↓	-093/094	47.81

r = 0.~~9970~~ 0.9996

%Rec MS = 99.0%

%Rec MSD = 99.0%

%RPD = 0.0%

Total Kjeldahl Nitrogen

Date of Analysis 11/19/97
Date of Samples 11/14/97 11/15/97

Analyst JAR
Run # 1

Month November

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1			2 ml	1	+038	
STD 2					-009	
STD 3					-060	
STD 4					-120	
STD 5					-179	
SB #1		11/14/97			+023	0.24
LA BG					+022	0.23
SC					-043	3.86
DG					+043	0.10
PW					+027	0.20
Stan DF1					+007	0.46
SC					+037	0.13
PUMP					-089	26.23
And SC					+016	0.31
Sam SC					+041	0.11
Sam Pump					-095	34.80
Jac PW2					+041	0.11
Jac BG					+035	0.14
DG					+043	0.10
SC					-015	~~15.64~~ 1.18
PUMP					-077	15.64
LCS		↓	↓	↓	-063	8.94

r = 0.9986 % Rec LCS = 89.4 %

Total Kjeldahl Nitrogen

Date of Analysis 11/30/97
Date of Samples 11/22/97

Analyst JAR
Run # 2

Month November

Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
STD 1 0.1			2ml	x 1	+020	
STD 2 1.0					-028	
STD 3 10					-075	
STD 4 100					-137	
STD 5 1000					-199	
SB		11/22/97			+009	0.20
Kemp BG					+005	0.24
DG					+023	0.11
PW					+023	0.11
SC					+007	0.22
Pump					-094	15.43
Nesbitt DG					+002	0.14
PW					-033	1.20
SC					-030	1.03
Pump					-110	30.10
AA BG					+023	0.11
PW					+012	0.18
DG					+021	0.12
SC					-038	1.43
PUMP					-113	34.60
Farrell BG					+026	0.10
DG					+012	0.18
PW					+003	0.26
SC					-014	0.54
Pump					-095	16.11
Farrell Pump MS					-105/106	24.93
Farrell Pump MSD		✓	✓	✓	-106	25.16

r = 0.9975 %RecMS = %RPD=

Total Kjeldahl Nitrogen

Date of Analysis 12/08/97
Date of Samples 11/26/97

Analyst JAK
Run # 3

Month November

	Sample ID	ID#	Date Sampled	NaOH (ml)	Dil. Factor	Potential (mV)	mg/L NH3-N
	STD 1			2ml	1	+035	
	STD 2			↓	↓	-010	
47	STD 3					-068	
	STD 4					-125	
	STD 5					-181	
48	Sawmill SC					-071	10.4
49	↓ Pump					-122	90.84
50	Easter PW					+003	0.46
51	BG 1st					+003	0.46
52	2nd DG					+032	0.14
53	SC					+032	0.14
54	Pump					-111	56.00
55	Munford BG					+037	0.11
56	SC					-042	3.10
57	Pump					-103	40.24
58	MS					-108/-107	49.84
59	MSD					-108	50.1
60	LCS			↓	↓	-068	9.1

-0.9991 %Rec = 91.0% %RecMSD = 99.% or RecMS = 96.5% or RPD = 1.5%

T-PHOS Run #1 November 1997

ID# 13	9	
880.0NM	.179	A
ID# 14	9	
880.0NM	.217	A
ID# 15	9	
880.0NM	.333	A
ID# 16	9	
880.0NM	.297	A
ID# 17	9	
880.0NM	.650	A
ID# 18	9	
880.0NM	1.026	A
ID# 19	9	
880.0NM	.153	A
ID# 20	9	
880.0NM	.039	A
ID# 21	9	
880.0NM	.300	A
ID# 22	9	
880.0NM	.163	A
ID# 23	9	
880.0NM	.163	A
ID# 24	9	
880.0NM	.780	A
ID# 25	9	
880.0NM	.815	A
ID# 26	9	
880.0NM	.789	A

NOVEMBER Run #1 11/10/97

* SELF TEST *
COMPLETED

ID# 1	9	
880.0NM	.000	A
ID# 2	9	
880.0NM	.074	A
ID# 3	9	
880.0NM	.152	A
ID# 4	9	
880.0NM	.378	A
ID# 5	9	
880.0NM	.801	A
ID# 6	9	
880.0NM	1.164	A
ID# 7	9	
880.0NM	1.605	A
ID# 8	9	
880.0NM	.004	A
ID# 9	9	
880.0NM	.053	A
ID# 10	9	
880.0NM	.445	A
ID# 11	9	
880.0NM	.031	A
ID# 12	9	
880.0NM	.421	A

T-PHOS NOVEMBER RUN #2

ID# 14 880.0NM	9 .637 A	
ID# 15 880.0NM	9 .088 A	* SELF TEST * COMPLETED
ID# 16 880.0NM	9 .585 A	* SELF TEST *
ID# 17 880.0NM	9 .475 A	* SELF TEST * COMPLETED
ID# 18 880.0NM	9 .167 A	ID# 1 880.0NM 9 .000 A
ID# 19 880.0NM	9 1.032 A	ID# 2 880.0NM 9 .076 A
ID# 20 880.0NM	9 .180 A	ID# 3 880.0NM 9 .157 A
ID# 21 880.0NM	9 .522 A	ID# 4 880.0NM 9 .393 A
ID# 22 880.0NM	9 .890 A	ID# 5 880.0NM 9 .813 A
ID# 23 880.0NM	9 .100 A	ID# 6 880.0NM 9 1.204 A
ID# 24 880.0NM	9 .097 A	ID# 7 880.0NM 9 1.568 A
ID# 25 880.0NM	9 .084 A	ID# 8 880.0NM 9 .025 A
ID# 26 880.0NM	9 .065 A	ID# 9 880.0NM 9 .203 A
ID# 27 880.0NM	9 .245 A	ID# 10 880.0NM 9 .204 A
ID# 28 880.0NM	9 1.152 A	ID# 11 880.0NM 9 .264 A
ID# 29 880.0NM	9 1.129 A	ID# 12 880.0NM 9 .310 A
ID# 30 880.0NM	9 .799 A	ID# 13 880.0NM 9 .770 A
ID# 31	9	

T-PHOS November 1997 Run #2

ID# 32 9

RUN #3 NOVEMBER 12-06-97

ID# 33 9
880.0NM -.000*A

ID# 34 9
880.0NM .067 A

ID# 35 9
880.0NM .146 A

ID# 36 9
880.0NM .383 A

ID# 37 9
880.0NM .799 A

ID# 38 9
880.0NM 1.159 A

ID# 39 9
880.0NM 1.397 A

ID# 40 9
880.0NM 1.523 A

ID# 41 9
880.0NM 1.717 A

ID# 42 9
880.0NM .863 A

ID# 43 9
880.0NM .194 A

ID# 44 9
880.0NM .047 A

ID# 45 9
880.0NM .931 A

ID# 46 9
880.0NM 1.222 A

ID# 47 9
880.0NM .044 A

ID# 48 9
880.0NM 1.252 A

ID# 49 9
880.0NM 1.360 A

ID# 50 9
880.0NM 1.575 A

ID# 51 9
880.0NM 1.607 A

ID# 52 9

PURAFLO™ PEAT TREATMENT SYSTEM

DECEMBER 1997 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E

Mujde Erten-Unal, Ph.D.

Puraflo Peat Biofilter

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-13-97													* No sample
Average PT													
Sample Chamber (SC) Dec-13-97	6.00	<1	0.59	0.69	41.42	42.11	7.36	79.74	2.15	7.50	8.20	TNTC 20,000 10,000	
Average SC	6.00	<1	0.59	0.69	41.42	42.11	7.36	79.74	2.15	7.50	8.20	15000	
Pad Well (PW) Dec-13-97	3.00	213.00	0.08	0.14	12.30	12.44	0.16	32.77	2.24	8.30	8.00	<1 <1 <1	
Average PW#	3.00	213.00	0.08	0.14	12.30	12.44	0.16	32.77	2.24	8.30	8.00	< 1	
Down-gradient (DG) Dec-13-97	3.00	27.00	0.03	0.08	2.06	2.14	0.02	14.17	2.01	8.80	8.10	<1 <1 <1	
Average DG	3.00	27.00	0.03	0.08	2.06	2.14	0.02	14.17	2.01	8.80	8.10	< 1	
Background (BG) Dec-13-97	4.00	40.00	0.07	0.14	0.91	1.05	0.03	4.34	2.93	9.90	8.40	<1 <1 <1	
Average BG	4.00	40.00	0.07	0.14	0.91	1.05	0.03	4.34	2.93	9.90	8.40	< 1	

* Cover too heavy & handle still broken.

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-16-97	678.00	1,740.00	21.10	34.00	0.57	34.57	8.74	157.64	0.95	13.10	8.30	TNTC TNTC 3,200,000	~Data can not be calculated.
Average PT	678.00	1740.00	21.10	34.00	0.57	34.57	8.74	157.64	0.95	13.10	8.30	~	
Sample Chamber (SC) Dec-16-97	7.00	20.00	0.08	0.11	17.04	17.15	0.47	148.41	1.23	10.60	8.40	<1 <1 <1	
Average SC	7.00	20.00	0.08	0.11	17.04	17.15	0.47	148.41	1.23	10.60	8.40	< 1	
Pad Well (PW) Dec-16-97	2.50	680.00	0.05	0.06	6.52	6.58	2.52	100.48	1.20	11.50	7.90	TNTC 25,300 17,000	
Average PW#	2.50	680.00	0.05	0.06	6.52	6.58	2.52	100.48	1.20	11.50	7.90	21150	
Down-gradient (DG) Dec-16-97	2.00	3,360.00	0.05	0.07	2.27	2.34	1.00	70.10	1.20	10.50	7.60	<1 <1 <1	
Average DG	2.00	3360.00	0.05	0.07	2.27	2.34	1.00	70.10	1.20	10.50	7.60	< 1	
Background (BG) Dec-16-97	<1	580.00	0.06	0.07	0.59	0.66	0.03	4.17	1.43	10.40	7.20	<1 <1 <1	
Average BG	<1	580.00	0.06	0.07	0.59	0.66	0.03	4.17	1.43	10.40	7.20	< 1	

Water Quality Results

Puraflo Peat Biofilter

Nesbitt Property (Serial No. 166) ✓							Gloucester Co. VA						
Installation Date: Jun-6-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-16-97	297.50	93.00	43.60	6.42	0.50	6.92	6.62	40.79	1.11	12.50	9.10	TNTC TNTC 1,730,000	~Data can not be calculated.
Average PT	297.50	93.00	43.60	6.42	0.50	6.92	6.62	40.79	1.11	12.50	9.10	~	
Sample Chamber (SC) Dec-16-97	4.60	80.00	0.39	0.52	34.70	35.22	5.41	34.07	1.29	10.10	7.50	4,530 7,000 7,000	
Average SC	4.60	80.00	0.39	0.52	34.70	35.22	5.41	34.07	1.29	10.10	7.50	6177	
Pad Well (PW) Dec-16-97	2.50	5,013.0	0.51	0.70	20.46	21.16	0.06	39.85	1.35	9.10	7.30	<1 <1 <1	
Average PW	2.50	5013.00	0.51	0.70	20.46	21.16	0.06	39.85	1.35	9.10	7.30	< 1	
Down-gradient (DG) Dec-16-97													No Sample
Average DG													
Background (BG) Dec-16-97													No Sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143) ✓							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-16-97	342.00	100.00	51.70	61.50	1.03	62.53	7.96	58.14	1.30	9.50	9.20	TNTC 40,000 70,000	~Data can not be calculated.
Average PT	342.00	100.00	51.70	61.50	1.03	62.53	7.96	58.14	1.30	9.50	9.20	~	
Sample Chamber (SC) Dec-16-97	10.00	53.00	0.55	0.76	43.87	44.63	5.55	50.00	1.21	8.80	8.20	TNTC 13,300 10,000	~Data can not be calculated.
Average SC	10.00	53.00	0.55	0.76	43.87	44.63	5.55	50.00	1.21	8.80	8.20	~	
Pad Well (PW) Dec-16-97	4.50	1,880.00	0.17	0.24	40.74	40.98	3.62	45.65	1.34	8.00	8.50	TNTC TNTC 90,000	~Data can not be calculated.
Average PW#	4.50	1880.00	0.17	0.24	40.74	40.98	3.62	45.65	1.34	8.00	8.50	~	
Down-gradient (DG) Dec-16-97	3.50	20.00	0.12	0.15	9.41	9.56	0.42	18.32	1.25	8.70	7.60	<1 <1 <1	
Average DG	3.50	20.00	0.12	0.15	9.41	9.56	0.42	18.32	1.25	8.70	7.60	< 1	
Background (BG) Dec-16-97													No Sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Easter Property (Serial No. 127) ✓							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-15-97	341.00	160.00	63.42	63.10	0.56	63.66	12.31	75.73	1.49	12.00	8.60	TNTC TNTC 2,930,000	~Data can not be calculated.
Average PT	341.00	160.00	63.42	63.10	0.56	63.66	12.31	75.73	1.49	12.00	8.60	~	
Sample Chamber (SC) Dec-15-97	4.00	27.00	0.09	0.14	40.88	41.02	6.88	69.74	1.48	11.50	8.10	3,730 5,000 7,000	
Average SC	4.00	27.00	0.09	0.14	40.88	41.02	6.88	69.74	1.48	11.50	8.10	5243	
Pad Well (PW) Dec-15-97	7.00	360.00	0.25	0.16	8.74	8.90	0.73	70.50	1.65	11.30	7.80	<1 <1 <1	
Average PW	7.00	360.00	0.25	0.16	8.74	8.90	0.73	70.50	1.65	11.30	7.80	< 1	
Down-gradient (DG) Dec-15-97	4.50	287.00	0.05	0.09	0.51	0.60	0.06	36.20	1.69	10.90	6.90	<1 <1 <1	
Average DG	4.50	287.00	0.05	0.09	0.51	0.60	0.06	36.20	1.69	10.90	6.90	< 1	
Background (BG) Dec-15-97	<1	60.00	0.08	0.11	1.01	1.12	0.19	7.85	1.70	10.80	5.30	<1 <1 <1	
Average BG	<1	60.00	0.08	0.11	1.01	1.12	0.19	7.85	1.70	10.80	5.30	< 1	

Water Quality Results

Puraflo Peat Biofilter

✓Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-15-97	570.00	593.00	96.68	103.80	0.57	104.37	11.19	189.16	1.54	10.90	8.30	TNTC TNTC 4,070,000	~Data can not be calculated.
Average PT	570.00	593.00	96.68	103.80	0.57	104.37	11.19	189.16	1.54	10.90	8.30	~	
Sample Chamber (SC) Dec-15-97	<1	33.00	0.93	1.45	116.75	118.20	10.10	194.17	1.63	8.70	7.00	<1 <1 <1	
Average SC	<1	33.00	0.93	1.45	116.75	118.20	10.10	194.17	1.63	8.70	7.00	<1	
Pad Well (PW#) Dec-15-97													No sample
Average PW#													
Down-gradient (DG) Dec-15-97													No sample
Average DG													
Background (BG) Dec-15-97													No sample
Average BG													

Puraflo Peat Biofilter

Munford Property (Serial No. 146) ✓							Suffolk VA						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-15-97	336.00	160.00	45.26	47.20	0.51	47.71	10.56	49.92	1.15	14.70	8.80	TNTC TNTC 5,870,000	~Data can not be calculated.
Average PT	336.00	160.00	45.26	47.20	0.51	47.71	10.56	49.92	1.15	14.70	8.80	~	
Sample Chamber (SC) Dec-15-97	3.00	13.00	5.27	5.30	30.44	35.74	9.80	54.70	1.80	11.60	6.80	<1 <1 <1	
Average SC	3.00	13.00	5.27	5.30	30.44	35.74	9.80	54.70	1.80	11.60	6.80	< 1	
Pad Well (PW#) Dec-15-97													No sample
Average PW#													
Down-gradient (DG) Dec-15-97													No sample
Average DG													
Background (BG) Dec-15-97													No Sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Farrell Property (SERIAL NO.000223) ✓							Mathews Co. VA						
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-16-97	58.00	33.00	3.07	3.78	0.51	4.29	0.31	65.64	1.13	11.40	8.40	<1 <1 <1	
Average PT	58.00	33.00	3.07	3.78	0.51	4.29	0.31	65.64	1.13	11.40	8.40	<1	
Sample Chamber (SC) Dec-16-97	7.50	20.00	0.10	0.12	3.66	3.78	0.08	62.16	1.20	9.80	8.40	<1 <1 <1	
Average SC	7.50	20.00	0.10	0.12	3.66	3.78	0.08	62.16	1.20	9.80	8.40	<1	
Pad Well (PW) Dec-16-97	6.20	340.00	0.11	0.11	0.49	0.60	0.06	21.73	1.22	10.00	7.70	<1 <1 <1	
Average PW#	6.20	340.00	0.11	0.11	0.49	0.60	0.06	21.73	1.22	10.00	7.70	< 1	
Down-gradient (DG) Dec-16-97	<1	1,093.00	0.08	0.12	1.21	1.33	0.10	14.28	1.20	9.30	8.10	<1 <1	
Average DG	<1	1093.00	0.08	0.12	1.21	1.33	0.10	14.28	1.20	9.30	8.10	<1	
Background (BG) Dec-16-97	3.00	313.00	0.07	0.08	0.50	0.58	0.08	20.73	1.11	11.00	7.80	<1 <1 <1	
Average BG	3.00	313.00	0.07	0.08	0.50	0.58	0.08	20.73	1.11	11.00	7.80	< 1	

Puraflo Peat Biofilter

Samson Property (Serial No. 137) ✓							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) No sample													No Sample
Average PT													
Sample Chamber (SC) No sample													No Sample
Average SC													
Pad Well (PW) No sample													No sample
Average PW#													
Down-gradient (DG) No sample													No sample
Average DG													
Background (BG) No sample													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Jacobsen Property (Serial No. 125) ✓							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-13-97	118.50	27.00	38.23	40.00	2.02	42.02	4.47	80.22	2.41	8.50	8.90	TNTC 120,000 130,000	
Average PT	118.50	27.00	38.23	40.00	2.02	42.02	4.47	80.22	2.41	8.50	8.90	125000	
Sample Chamber (SC) Dec-13-97	4.00	40.00	2.47	3.32	42.23	45.55	3.97	54.54	4.92	5.60	5.60	<1 <1 <1	
Average SC	4.00	40.00	2.47	3.32	42.23	45.55	3.97	54.54	4.92	5.60	5.60	<1	
Pad Well (PW#1) Dec-13-97													No sample
Average PW#1													
Down-gradient (DG) Dec-13-97													No Sample
Average DG													
Background (BG) Dec-13-97													No Sample
Average BG													
Pad Well (PW#2) Dec-13-97													No Sample
Average PW#2													

Water Quality Results

Puraflo Peat Biofilter

Stanley Property ✓							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-12-97	215.00	73.00	38.23	41.70	0.50	42.20	4.31	894.38	3.15	10.90	8.40	TNTC 167,000 200,000	
Average PT	215.00	73.00	38.23	41.70	0.50	42.20	4.31	894.38	3.15	10.90	8.40	183500	
Sample Chamber (SC) Dec-12-97	2.00	<1	0.03	0.25	2.20	2.45	2.31	872.68	3.84	7.20	8.30	<1 <1 <1	
Average SC	2.00	<1	0.03	0.25	2.20	2.45	2.31	872.68	3.84	7.20	8.30	<1	
Pad Well (PW) Dec-12-97													No sample
Average PW													
Down-gradient (DG) Dec-12-97													No sample
Average DG													
Downfall (DF-1) Dec-12-97													No sample
Average DF-1													

Water Quality Results

Puraflo Peat Biofilter

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Dec-12-97													* No sample
Average PT													
Sample Chamber (SC) Dec-12-97	<1	<1	0.52	0.71	6.11	6.82	2.71	652.05	4.32	7.40	8.30	<1 <1 <1	
Average SC	<1	<1	0.52	0.71	6.11	6.82	2.71	652.05	4.32	7.40	8.30	<1	
Pad Well (PW#) Dec-12-97													No sample
Average PW#													
Down-gradient (DG) Dec-12-97													No sample
Average DG													
Background (BG) Dec-12-97													No sample
Average BG													
* Covered by mulch & rocks.													

Water Quality Results

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Puraflo Sampling Results
1998

PURAFLO™ PEAT TREATMENT SYSTEM

JANUARY 1998 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Saw Mill Project							**Northampton Co. VA**						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July	n/a												No Sample
Aug-7-97	n/a	0.00	9.40	32.15	1.20	33.35	8.43	16.10	1.50		6.00	*TNTC	~ Data can not be calculated
Sept 9- 97	n/a												No Sample
Oct 7-97	440.50	7.00	66.80	71.70	0.97	72.67	3.03	133.54	3.68	20.70	6.80	1,770,000	No Sample
Nov 26-97	178.75	33.00	91.91	90.84	0.65	91.49	11.73	197.94	1.55	13.10	8.20	4,530,000	
Dec-15-97	570.00	593.00	96.68	103.60	0.57	104.37	11.19	189.16	1.54	10.90	8.30	4,070,000	
Jan-14-98	257.00	346.67	94.91	98.80	0.06	98.86	11.98	183.28	3.14	9.70	8.00	56,667	
Average PT	361.56	195.93	71.94	79.46	0.69	80.15	9.27	144	2.28		7.46	2,606,667	
Sample Chamber (SC)													
July													No Sample
Aug-7-97	2.70	0.00	0.48	10.80	16.00	26.90	2.08	40.30	2.60		6.00	165	
Sept 9- 97	8.18	33.33	0.31	4.26	24.19	28.45	8.88	34.75	n/a		n/a	n/a	
Oct 7-97	11.77	0.00	0.37	2.35	37.74	40.09	10.70	80.47	4.85	23.00	6.60	1	
Nov 26-97	1.00	1.00	8.66	10.40	103.28	113.68	10.37	188.94	2.09	11.50	7.20	1	
Dec-15-97	1.00	33.00	0.93	1.45	116.75	118.20	10.10	194.17	1.63	8.70	7.00	1	
Jan-14-98	1.00	20.00	0.33	0.15	49.72	49.87	10.16	89.90	3.90	8.80	6.90	1	
Average SC	4.28	14.56	1.85	4.92	57.95	62.87	8.72	105	3.01		6.74	34	
Pad Well (PW#)													
Jan-14-98													No Sample
Average PW#													
Down-gradient (DG)													
Jan-14-98	1.07	793.33	0.11	0.08	0.05	0.13	0.23	95.13	3.31	9.60	6.60	1	
Average DG	1.07	793.33	0.11	0.08	0.05	0.13	0.23	95.13	3.31	9.60	6.60	1.00	
Background (BG)													
Jan-14-98	4.30	300.00	0.14	0.09	0.00	0.09	0.20	12.19	4.00	9.50	5.80	1	
Average BG	4.30	300.00	0.14	0.09	0.00	0.09	0.20	12.19	4.00	9.50	5.80	1.00	

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date:			Jan-8-97				Design Flow:	450	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No sample
Aug-11-97													No Sample
Sept 12-97													No Sample
Oct 7-97													No Sample
Nov 14-97													
Dec-13-97													No Sample
Jan-10-98													No Sample
Average PT													
Sample Chamber (SC)													
July													No sample
Aug-11-97	10.75	0.00	0.43	10.90	27.40	38.30	6.25	51	3.30		5.90	600	
Sept 12-97	2.06	0.00	0.17	1.72	30.06	31.80	8.00	60	5.00	21.50	7.40	10,850	
Oct 7-97	4.48	0.00	0.23	0.90	17.65	18.55	6.19	1,037	3.42	21.00	7.40	1	
Nov 14-97	5.66	1.00	3.11	3.86	37.90	41.76	3.55	58	4.23	11.30	7.50	1	
Dec-13-97	6.00	1.00	0.59	0.69	41.42	42.11	7.36	80	2.15	7.50	8.20	15,000	
Jan-10-98	2.10	6.67	5.07	5.93	33.81	39.74	5.58	97	2.59	9.90	8.30	333	
Average SC	5.18	1.45	1.60	4.00	31.37	35.38	6.16	230	3.45		7.45	4,464	
Pad Well (PW#)													
Nov 14-97	1.00	193.00	0.16	0.20	17.03	17.23	0.27	35.23	5.39	10.00	7.50	22,650	No sample
Dec-13-97	3.00	213.00	0.08	0.14	12.30	12.44	0.16	32.77	2.24	8.30	8.00	1	
Jan-10-98	2.80	106.67	1.19	1.45	17.68	19.13	3.05	43.49	2.18	10.20	7.90	2,683	
Average PW#	2.27	170.89	0.48	0.60	15.67	16.27	1.16	37.16	3.27		7.80	8,445	
Down-gradient (DG)													
Nov 14-97	2.42	1.00	0.08	0.10	0.90	1.00	0.02	9.37	6.03	12.30	7.30	1	No sample
Dec-13-97	3.00	27.00	0.03	0.08	2.06	2.14	0.02	14.17	2.01	8.80	8.10	1	
Jan-10-98	1.73	6.67	0.09	0.07	1.20	1.27	0.04	11.33	2.48	9.80	8.10	1	
Average DG	2.38	11.56	0.07	0.08	1.39	1.47	0.03	11.62	3.51		7.83	1	
Background (BG)													
Nov 14-97	1.78	1.00	0.11	0.23	0.87	1.10	0.04	10.42	3.84	12.80	7.70	790	No sample
Dec-13-97	4.00	40.00	0.07	0.14	0.91	1.05	0.03	4.34	2.93	9.90	8.40	1	
Jan-10-98	5.07	0.00	0.07	0.07	0.36	0.43	0.04	6.51	2.55	10.90	8.00	1	
Average BG	3.62	13.67	0.08	0.15	0.71	0.86	0.04	7.09	3.11		8.03	264	

Kemp Property							Mathews Co. VA						
Installation Date:			Sept. 6,1995				Design Flow:	450	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No Sample
Aug-18-97													**No sample
Sept 26-97													No Sample
Oct 21-97													No Sample
Nov 22-97	290.50	12,240	11.99	15.43	1.26	16.69	121.00	75.86	1.68	15.30	7.70	970,000	
Dec-16-97	678.00	1,740	21.10	34.00	0.57	34.57	8.74	157.64	0.95	13.10	8.30	3,200,000	
Jan-22-98													No Sample
Average PT	484.25	6,990	16.55	24.72	0.92	25.63	64.87	117	1.32		8.00	2,085,000	
Sample Chamber (SC)													
July													No sample
Aug-18-97	9.70	0.00	0.68	2.34	33.60	35.94	8.88	164	1.85		7.20	*TNTC	~ Data can not be calculated
Sept 26-97	6.17	0.00	0.08	0.08	28.51	28.59	5.48	161	4.30	24.60	5.80	20	
Oct 21-97	4.34	0.00	0.11	0.65	29.60	30.25	5.18	173	3.76	18.50	7.30	1	
Nov 22-97	2.29	13.00	0.08	0.22	13.12	13.34	1.95	110	2.47	13.30	7.50	1	
Dec-16-97	7.00	20.00	0.08	0.11	17.04	17.15	0.47	148	1.23	10.60	8.40	1	
Jan-22-98	6.80	133.33	0.05	0.05	7.13	7.18	4.04	32	4.47	8.30	8.90	1,440	
Average SC	6.05	27.72	0.18	0.58	21.50	22.08	4.33	132	3.01		7.52	293	
Pad Well (PW#)													
Nov 22-97	1.48	993.00	0.05	0.11	3.73	3.84	0.17	92.52	2.64	15.20	7.20	1	
Dec-16-97	2.50	680.00	0.05	0.06	6.52	6.58	2.52	100.48	1.20	11.50	7.90	21,150	
Jan-22-98	3.73	120.00	0.05	0.06	1.60	1.66	0.22	78.33	4.35	8.70	7.90	1	
Average PW#	2.57	597.67	0.05	0.08	3.95	4.03	0.97	90.44	2.73	11.80	7.67	7,051	
Down-gradient (DG)													
Nov 22-97	1.00	160.00	0.05	0.11	1.58	1.69	0.13	35.71	2.53	13.50	7.40	1	
Dec-16-97	2.00	3,360.00	0.05	0.07	2.27	2.34	1.00	70.10	1.20	10.50	7.60	1	
Jan-22-98	2.83	120.00	0.04	0.05	0.76	0.81	0.87	39.16	5.10	7.80	7.80	1	
Average DG	1.94	1,213.33	0.05	0.08	1.54	1.61	0.67	48.32	2.94	10.60	7.60	1	
Background (BG)													
Nov 22-97	1.18	560.00	0.07	0.24	0.66	0.90	0.13	7.85	2.83	13.30	7.20	1	
Dec-16-97	1.00	580.00	0.06	0.07	0.59	0.66	0.03	4.17	1.43	10.40	7.20	1	
Jan-22-98	1.00	26.67	0.05	0.05	0.11	0.16	0.10	4.55	5.35	7.70	5.50	1	
Average BG	1.06	388.89	0.06	0.12	0.45	0.57	0.09	5.52	3.20	10.47	6.63	1.00	

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Jul-21-97	332.00	113.00	92.00	43.00	1.00	136.00	11.00	39	1.00		7.00		
August 18, 1997	345.50	87.00	59.00	61.50	1.10	62.60	6.78	39	0.95		6.90	*TNTC	~ Data can not be calculated
Sept 26-97													No sample
Oct 21-97													No sample
Nov 22-97	187.25	20.00	27.24	30.10	0.84	30.94	2.99	20	2.40	15.40	8.20	5,600,000	
Dec-16-97	297.50	93.00	43.60	6.42	0.50	6.92	6.82	41	1.11	12.50	9.10	1,730,000	
Jan-22-98	138.50	53.33	32.20	37.67	0.32	37.99	3.57	27	3.31	9.50	8.10	666,667	
Average PT	260.15	73.27	50.81	35.74	0.75	54.89	6.19	33	1.75		7.86	2,665,556	
Sample Chamber (SC)													
Jul-21-97	1.00	0.00	1.20	0.60	54.80	56.40	7.60	38	5.10		5.30		No Sample
August 18, 1997	18.14	13.00	3.53	8.20	48.00	56.20	7.20	45	2.22		5.10	6,000	
Sept 26-97	11.50	0.00	0.19	0.53			5.35		5.51	22.10	6.00	20	
Oct 21-97	1.00	0.00	0.48	0.36	41.43	41.79	4.45	41	4.10	18.20	6.70	1	
Nov 22-97	5.84	1.00	0.30	1.03	23.96	24.99	3.68	26	2.72	14.00	7.30	6,151	
Dec-16-97	4.60	80.00	0.39	0.52	34.70	35.22	5.41	34	1.29	10.10	7.50	6,177	
Jan-22-98	1.00	6.67	0.45	0.59	34.53	35.12	4.94	24	4.16	8.70	7.90	1	
Average SC	6.15	14.38	0.93	1.69	39.54	41.62	5.52	35	3.59		6.54	3,058	
Pad Well (PW)													
Oct 21-97	1.00	n/a	1.22	0.12	43.60	43.72	0.00	39	4.01	17.50	5.50	1	
Nov 22-97	1.77	1373.00	0.38	1.20	35.13	36.33	0.05	41	2.90	13.00	7.00	1	
Dec-16-97	2.50	5013.00	0.51	0.70	20.46	21.16	0.06	40	1.35	9.10	7.30	1	
Jan-22-98	1.23	66.67	0.63	0.59	26.93	27.52	0.18	29	4.56	8.30	7.50	1	
Average PW	1.63	2150.89	0.69	0.65	31.53	32.18	0.07	37	3.21		6.83	1	
Down-gradient (DG)													
Nov 22-97	1.00	2093.00	0.06	0.14	7.34	7.48	0.40	21.71	2.97	13.20	7.90	1	
Dec-16-97													No Sample
Jan-22-98	1.53	3260.00	0.11	0.16	4.79	4.95	0.67	21.82	4.78	8.00	7.30	533	
Average DG	1.27	2,676.50	0.09	0.15	6.07	6.22	0.54	21.77	3.88	10.60	7.60	267.00	
Background (BG)													
Nov 22-97													No Sample
Dec-16-97													No Sample
Jan-22-98													No Sample
Average BG													

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
	Installation Date:			Nov. 1, 1996				Design Flow:	450	gpd			Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No sample
August 18, 1997	265.50	313.00	66.30	72.43	1.10	73.53	8.03	46	0.90		7.20	*TNTC	~ Data can not be calculated
Sept 26-97	341.00	0.00	47.80	108.00	1.04	109.04	6.50	45	1.83	21.80	7.50	516,500	
Oct 21-97	168.25	33.00	44.90	45.40	0.93	46.33	4.71	46	1.43	19.00	7.90	295,000	
Nov 22-97	141.50	67.00	32.38	34.60	0.87	35.47	5.61	34	2.03	12.20	8.30	4,870,000	
Dec-16-97	342.00	100.00	51.70	61.50	1.03	62.53	7.96	58	1.30	9.50	9.20	55,000	
Jan-22-98	443.50	473.33	46.94	52.38	0.01	52.39	9.30	42	4.29	8.50	8.10	866,667	
Average PT	283.29	164.39	48.34	62.39	0.83	63.22	7.02	45	1.96	14.20	8.03	1,320,633	
Sample Chamber (SC)													
July													No sample
August 18, 1997	1.00	0.00	0.16	6.99	38.90	45.89	6.98	50	3.15		3.10	49	
Sept 26-97	3.35	0.00	0.10	3.43	30.19	33.62	7.75	97	5.11	23.20	6.40	20	
Oct 21-97	2.11	0.00	0.23	1.49	29.96	31.45	3.22	42	3.25	19.50	7.20	1	
Nov 22-97	3.34	1.00	0.76	1.43	18.24	19.67	3.28	32	2.54	12.20	7.20	1	
Dec-16-97	10.00	53.00	0.55	0.76	43.87	44.63	5.55	50	1.21	8.80	8.20	11,650	
Jan-22-98	6.23	20.00	2.32	2.70	27.47	30.17	3.94	25	4.25	8.30	8.30	2,600	
Average SC	4.34	12.33	0.69	2.80	31.44	34.24	5.12	49	3.25	14.40	6.73	2387	
Pad Well (PW#)													
Oct 21-97	3.48		0.42	1.63	9.53	11.16	0.37	18	3.88	17.00	7.30	1	
Nov 22-97	5.42	253.00	0.12	0.18	16.71	16.89	0.65	18	3.09	11.50	7.60	1	
Dec-16-97	4.50	1,880.00	0.17	0.24	40.74	40.98	3.62	46	1.34	8.00	8.50	90,000	
Jan-22-98	3.30	1,680.00	0.34	0.42	2.85	3.27	1.12	8	4.78	8.10	7.80	1	
Average PW#	4.18	1271.00	0.26	0.62	17.46	18.08	1.44	23	3.27	11.15	7.80	22501	
Down-gradient (DG)													No Sample
Nov 22-97	1.37	27.00	0.05	0.12	7.94	8.06	0.11	20.36	2.57	12.00	7.00	1	
Dec-16-97	3.50	20.00	0.12	0.15	9.41	9.56	0.42	18.32	1.25	8.70	7.60	1	
Jan-22-98	1.37	20.00	0.06	0.07	8.92	8.99	0.29	23.39	4.64	8.00	7.40	567	
Average DG	2.08	22.33	0.08	0.11	8.76	8.87	0.27	21	2.82	9.57	7.33	190	
Background (BG)													
Nov 22-97	1.00	1.00	0.07	0.11	0.69	0.80	0.10	19.91	3.12	12.90	7.20	1	
Dec-16-97													No Sample
Jan-22-98	3.30	26.67	0.03	0.05	0.06	0.11	0.13	12.44	5.37	8.30	7.90	1	
Average BG	2.15	13.84	0.05	0.08	0.38	0.46	0.12	16	4.25	10.60	7.55	1	

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:		300	gpd			Soil Texture Group II
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl. mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
July 30,1997	328.00	0.00	0.85	30.90	0.96	32.71	7.90	61	1.55			*TNTC	~ Data can not be calculated
August 21,1997	438.50	167.00	15.64	43.80	1.10	44.90	6.38	72	0.43		6.70	*TNTC	~ Data can not be calculated
Sept 30-97	387.75	93.33	38.80	87.10	1.30	88.40	7.75	76	0.50	24.50	8.20	4,670,000	
Oct 11-97	443.25	80.00	42.20	47.60	1.58	49.18	4.1	69	1.65	23.00	7.40	2,900,000	
Nov 25-97	321.00	2200.00	53.12	56.00	0.82	56..62	8.32	84	2.68	12.50	8.10	5,200,000	
Dec-15-97	341.00	160.00	63.42	63.10	0.56	63.66	12.31	76	1.49	12.00	8.60	2,930,000	
Jan-21-98	257.00	473.33	33.57	41.49	0.01	41.50	10.16	49	3.89	11.20	8.70	3,560,000	
Average PT	359.50	453.38	35.37	52.86	0.90	53.39	8.13	69	1.74	16.64	7.95	3,852,000	
Sample Chamber (SC)													
July 30,1997	17.30	0.00	0.68	2.23	16.40	19.28	6.50	58	3.55			*TNTC	~ Data can not be calculated
August 21,1997	6.59	0.00	0.38	5.29	11.40	16.69	6.45	75	3.40		6.40	3,530	
Sept 30-97	4.59	0.00	0.17	6.28	28.46	34.74	6.00	74	4.19	24.50	7.90	20	
Oct 11-97	6.84	0.00	0.23	3.22	42.80	46.02	4.60	72	3.11	24.30	7.10	7,133	
Nov 25-97	1.00	1.00	0.08	0.14	29.94	30.08	6.31	81	3.56	11.10	7.70	765	
Dec-15-97	4.00	27.00	0.09	0.14	40.88	41.02	6.88	70	1.48	11.50	8.10	5,243	
Jan-21-98	5.20	6.67	0.37	0.48	20.03	20.51	7.40	62	4.02	10.10	8.40	3,333	
Average SC	6.50	4.95	0.29	2.54	27.13	29.76	6.31	70	3.33	16.30	7.60	3,337	
Pad Well (PW#)													
Nov 25-97	1.00	60.00	0.11	0.46	6.08	6.54	0.58	66.46	2.74	12.70	7.30	1	
Dec-15-97	7.00	360.00	0.25	0.16	8.74	8.90	0.73	70.50	1.65	11.30	7.80	1	
Jan-21-98	3.30	906.67	0.16	0.14	0.00	0.14	0.65	54.70	3.89	10.70	7.00	1	
Average PW#	3.77	442.22	0.17	0.25	4.94	5.19	0.65	65	2.76	11.57	7.37	1	
Down-gradient (DG)													
Nov 25-97	1.00	1.00	0.06	0.14	0.62	0.76	0.02	29.84	3.45	11.50	5.10	1	
Dec-15-97	4.50	287.00	0.05	0.09	0.51	0.60	0.06	38.20	1.69	10.90	6.90	1	
Jan-21-98	2.83	20.00	0.05	0.05	0.00	0.05	0.18	47.40	3.43	9.80	7.30	2,750	
Average DG	2.78	102.67	0.05	0.09	0.38	0.47	0.09	38	2.86	10.73	6.43	917	
Background (BG)													
Nov 25-97	1.00	1.00	0.23	0.46	2.14	2.60	0.12	11.97	3.33	11.50	7.10	1	
Dec-15-97	1.00	60.00	0.08	0.11	1.01	1.12	0.19	7.85	1.70	10.80	5.30	1	
Jan-21-98	3.30	733.33	0.07	0.09	0.30	0.39	0.18	8.90	4.51	9.40	8.50	1	
Average BG	1.77	264.78	0.13	0.22	1.15	1.37	0.16	10	3.18	10.57	6.97	1	

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date:			Nov-19-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No sample
August 21,1997	570.50	47.00	71.23	29.00	1.00	30.00	14.90	58.60	**		**	*TNTC	~ Data can not be calculated
Sept 30-97	387.00	73.33	50.60	83.40	1.09	84.49	14.00	49.41	1.93	24.30	6.80	435,000	
Oct 11-97	452.00	20.00	61.40	68.40	1.99	70.39	6.62	54.08	1.43	25.00	7.00	2,470,000	
Nov 25-97	274.25	73.00	37.91	40.24	0.62	40.86	9.27	50.46	3.29	13.40	8.30	3,870,000	
Dec-15-97	336.00	160.00	45.28	47.20	0.51	47.71	10.56	49.92	1.15	14.70	8.80	5,870,000	
Jan-21-98	272.00	73.33	30.82	35.06	0.08	35.14	6.31	25.35	2.17	12.30	8.70	666,667	
Average PT	381.96	74.44	49.54	50.55	0.88	51.43	10.28	48	1.99		7.92	2,662,333	
Sample Chamber (SC)													
July													No sample
August 21,1997	7.35	0.00	15.64	10.68	32.02	42.70	15.13	55.10	**		**	*TNTC	~ Data can not be calculated
Sept 30-97	1.00	0.00	2.18	5.52	29.22	34.74	12.00	68.26	5.29	24.70	3.10	20	
Oct 11-97	16.10	0.00	1.86	3.54	49.36	52.90	8.42	54.01	3.15	24.40	5.20	1	
Nov 25-97	1.00	1.00	2.66	3.10	32.39	35.49	8.52	49.62	3.66	10.00	5.70	1	
Dec-15-97	3.00	13.00	5.27	5.30	30.44	35.74	9.80	54.70	1.80	11.60	6.80	1	
Jan-21-98	7.20	26.67	4.52	4.85	22.54	27.39	6.60	34.30	4.10	10.60	7.30	1	
Average SC	5.94	6.78	5.36	5.50	32.66	38.16	10.08	53	3.60		5.62	5	
Pad Well (PW#)													
Nov 25-97													
Dec-15-97													No sample
Jan-21-98	6.67	93.33	2.39	2.93	11.67	14.60	5.61	16.25	4.38	10.10	7.90	968	No sample
Average PW#	6.67	93.33	2.39	2.93	11.67	14.60	5.61	16	4.38	10.10	7.90	968	
Down-gradient (DG)													
Nov 25-97													No sample
Dec-15-97													No sample
Jan-21-98	1.00	93.33	0.04	0.06	3.65	3.71	0.32	11.18	3.92	10.70	3.60	217	
Average DG	1.00	93.33	0.04	0.06	3.65	3.71	0.32	11.18	3.92	10.70	3.60	217.00	
Background (BG)													
Nov 25-97	1.17	1.00	0.04	0.11	1.86	1.97	0.02	25.99	3.97	11.40	6.70	1	No sample
Dec-15-97													No sample
Jan-21-98	3.60	80.00	0.03	0.04	0.01	0.05	0.06	5.77	4.08	10.30	5.50	1	
Average BG	2.39	40.50	0.04	0.08	0.94	1.01	0.04	16	4.03	10.85	6.10	1	

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date:			Oct. 22, 1996				Design Flow:	750	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No sample
August 23,1997													No sample
Sept 19-97													No sample
Oct 25-97	718.50	21,400	33.30	34.60	0.92	35.52	8.16	836	4.21	15.80	8.10	1,000,000	
Nov 15-97	270.50	1,440	32.94	34.80	0.63	35.43	8.10	1,006	3.31	14.20	8.30	96,233	
Dec-15-97													Not Samped at all In Dec. 97
Jan-10-98	271.50	5,607	39.21	42.49	0.00	42.49	24.75	1,011	0.56	14.40	10.90		TNTC/GREY
Average PT	420.17	9,482	35.15	37.30	0.52	37.81	13.67	951	2.69		9.10	548,117	
Sample Chamber (SC)													
July													No sample
August 23,1997	6.50	0.00	0.25	3.51	22.80	26.31	6.63	787	4.40		6.20	2,800	
Sept 19-97	7.50	0.00	0.18	0.17	17.74	17.91	3.13	617	5.04	25.30	6.40	20	
Oct 25-97	7.87	0.00	0.57	0.82	35.71	36.53	4.97	1,002	3.45	15.10	5.50	1	
Nov 15-97	1.98	1.00	0.10	0.11	9.78	9.89	5.15	854	2.57	11.80	7.70	1	
Dec-15-97													No Sample
Jan-10-98	8.10	73.22	0.08	0.09	10.90	10.99	7.60	727	2.49	11.90	8.90	550	
Average SC	6.39	14.84	0.24	0.94	19.39	20.33	5.50	797	3.59	16.03	6.94	674	
Pad Well (PW#)													
Nov 15-97													No sample
Average PW#													
Down-gradient (DG)													
Nov 15-97													No sample
Average DG													
Background (BG)													
Nov 15-97													No sample
Average BG													

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date:							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No sample
August 23,1997	167.00	0.00	2.21	56.25	1.10	57.35	3.73	30	2.14		7.20	*TNTC	~ Data can not be calculated
Sept 20-97	86.50	0.00	50.60	23.80	1.04	24.84	6.25	41	0.88	21.40	7.60	353,500	
Oct 25-97	149.75	0.00	46.80	52.10	0.89	52.99	4.54	41	4.21	15.80	8.10	2,200,000	
Nov 15-97	138.50	1.00	12.29	15.64	0.68	16.32	1.34	28	2.10	11.20	8.00	18,850	
Dec-13-97	118.50	27.00	38.23	40.00	2.02	42.02	4.47	80	2.41	8.50	8.90	125,000	
Jan-9-98	110.00	6.67	30.81	33.39	0.02	33.41	3.89	28	1.83	9.80	8.90	63,667	
Average PT	128.38	5.78	30.16	36.86	0.96	37.82	4.00	41	2.26		8.12	552,203	
Sample Chamber (SC)													
July													No sample
August 23,1997	6.15	107.00	34.70	9.84	18.40	28.24	2.30	19	5.10		5.60	20	
Sept 20-97	8.40	0.00	2.09	0.13	39.94	40.07	4.35	48	5.25	22.60	4.80	20	
Oct 25-97	6.85	0.00	3.38	3.23	36.92	40.15	4.09	60	3.45	15.10	5.50	1	
Nov 15-97	1.00	1.00	0.32	1.18	13.65	14.83	1.34	33	2.64	10.20	6.00	1	
Dec-13-97	4.00	40.00	2.47	3.32	42.23	45.55	3.97	55	4.92	5.60	5.60	1	
Jan-9-98	2.77	20.00	2.00	2.35	30.86	33.21	3.48	34	2.39	9.10	5.90	1	
Average SC	4.86	28.00	7.49	3.34	30.33	33.68	3.26	41	3.96		5.57	7	
Pad Well (PW#2)													
Nov 15-97	1.00	1.00	0.07	0.11	3.18	3.29	0.10	7	2.73	10.80	7.40	1	
Dec-13-97													No Sample
Jan-9-98													No Sample
Average PW#	1.00	1.00	0.07	0.11	3.18	3.29	0.10	7	2.73	10.80	7.40	1	
Down-gradient (DG)													
Nov 15-97	1.14	7.00	0.05	0.10	10.58	10.68	1.93	9.50	2.33	10.40	7.20	1	
Dec-13-97													No Sample
Jan-9-98													No Sample
Average DG	1.14	7.00	0.05	0.10	10.58	10.68	1.93	10	2.33	10.40	7.20	1	
Background (BG)													
Nov 15-97	2.84	1.00	0.08	0.14	3.09	3.23	0.03	25.92	2.31	11.40	7.30	1	
Dec-13-97													No Sample
Jan-9-98	1.33	140.00	0.13	0.11	0.95	1.06	0.05	7.76	2.25	9.10	7.70	1	
Average BG	2.09	70.50	0.11	0.13	2.02	2.15	0.04	17	2.28	10.25	7.50	1	

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date:			Nov. 1, 1996				Design Flow:	450	gpd			Soil Texture Group IV	
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July 25, 1997													No sample
August 23,1997													No sample
Sept 20-97	88.50	66.67	23.80	50.60	1.08	51.68	4.00	1069	0.50	23.50	7.60	6,670,000	
Oct 25-97	113.00	33.00	29.40	30.10	1.62	31.72	3.57	1,086	2.32	17.00	8.70	470,000	
Nov 15-97	88.75	1.00	21.45	26.23	0.62	26.85	2.67	766	2.55	12.50	8.50	418,500	
Dec-12-97	215.00	73.00	38.23	41.70	0.50	42.20	4.31	894	3.15	10.90	8.40	183,500	
Jan-9-98	107.50	200.00	20.61	24.21	0.06	24.27	3.45	567	1.42	13.00	8.50	433,333	
Average PT	122.55	74.73	26.70	34.57	0.78	35.34	3.60	876	1.99		8.34	1,635,067	
Sample Chamber (SC)													
July 25, 1997	2.79	20.00	0.16	1.07	15.53	16.76	2.59	684	6.34		6.00	349	
August 23,1997	4.58	0.00	0.25	1.88	25.60	27.48	3.78	1,056	12.90		6.80	20	
Sept 20-97	1.60	0.00	0.13	2.18	21.43	23.61	2.95	1,007	4.58	21.70	6.30	20	
Oct 25-97	3.76	0.00	0.17	0.50	26.49	26.99	2.32	1,057	5.23	16.30	7.70	1	
Nov 15-97	1.00	1.00	0.09	0.13	11.44	11.57	1.75	620	2.75	8.50	8.30	1	
Dec-12-97	2.00	1.00	0.03	0.25	2.20	2.45	2.31	873	3.84	7.20	8.30	1	
Jan-9-98	3.30	1.00	3.66	3.66	7.73	11.39	2.33	673	1.74	13.10	8.00	356	
Average SC	2.72	3.29	0.64	1.38	15.77	17.16	2.58	853	5.34		7.34	107	
Drainfield (DF#1)													
Oct 25-97	1.78		0.48	0.94	13.67	14.61	0.35	1,133	4.42	16.20	6.80	1	
Nov 15-97	1.00	533.00	0.24	0.46	12.60	13.06	0.12	966	3.47	11.80	6.90	1	
Dec-12-97													No Sample
Jan-9-98	3.87	106.67	0.19	0.26	7.83	8.09	0.64	442	1.77	13.20	7.60	1	
Average DF#1	2.22	319.84	0.30	0.55	11.37	11.92	0.37	847	3.22		7.13	1	
Drainfield (DF#2)													
Jan-9-98	1.65	1013.33	0.15	0.18	12.34	12.52	0.76	97	1.89	12.70	8.20	1	
Average DF#2	1.65	1013.33	0.15	0.18	12.34	12.52	0.76	96.93	1.89	12.70	8.20	1.00	
Down-gradient (DG)													
Dec-12-97													No Sample
Jan-9-98	2.60	8,780.00	0.53	0.76	0.47	1.23	2.75	45.47	1.04	12.90	8.30	1	
Average DG	2.60	8780.00	0.53	0.76	0.47	1.23	2.75	45.47	1.04	12.90	8.30	1.00	
Background (BG)													
Dec-12-97													No Sample
Jan-9-98													No Sample
Average BG													

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow:	300	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
July													No sample
August 23,1997													No sample
Sept 20-97	141.50	0.00	22.80	38.80	1.05	39.85	4.10	819	1.42	21.80	7.40	235,000	
Oct 25-97													No sample
Nov 15-97													No sample
Dec-12-97													No sample
Jan-9-98													No Sample
Average PT	141.50	0.00	22.80	38.80	1.05	39.85	4.10	819	1.42		7.40	235,000	
Sample Chamber (SC)													
Jul-25-97	2.60	0.00	0.10	1.60	18.00	19.70	3.60	467	6.40		6.00	2,130	
August 23,1997	5.28	147.00	0.16	1.60	16.20	17.80	3.90	745	4.95		6.50	21	
Sept 20-97	3.54	0.00	0.17	0.17	19.04	19.21	3.75	790	4.74	22.90	6.60	20	
Oct 25-97	2.42	0.00	0.09	0.30	17.44	17.74	2.66	1,041	4.66	14.90	7.60	1	
Nov 15-97	2.29	1.00	0.23	0.31	2.97	3.28	2.39	91	3.23	9.00	7.80	1	
Dec-12-97	1.00	1.00	0.52	0.71	6.11	6.82	2.71	652	4.32	7.40	8.30	1	
Jan-9-98	2.43	33.33	1.45	1.19	13.54	14.73	3.29	638	1.73	12.60	8.00	1	
Average SC	2.79	26.05	0.39	0.84	13.33	14.18	3.19	632	4.29		7.26	311	
Pad Well (PW#)													
Nov 15-97													
Dec-12-97													No Sample
Average PW#													
Down-gradient (DG)													
Nov 15-97													
Dec-12-97													No Sample
Average DG													
Background (BG)													
Nov 15-97													
Dec-12-97													No Sample
Average BG													

Farrell Property (Serial No. 223)			RECIRCULATING 1:1				Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Sept 26-97	346.50	0.00	61.00	61.00	1.05	62.05	8.25	81	2.40	20.70	7.70	2,330,000	
Oct 21-97	68.25	793.00	65.70	32.50	1.03	63.53	1.93	77	2.28	17.60	8.50	1,000,000	
Nov 22-97	14.75	1.00	14.88	16.11	0.83	16.94	1.54	76	2.64	14.20	7.50	1	
Dec-16-97	58.00	33.00	3.07	3.78	0.51	4.29	0.31	66	1.13	11.40	8.40	1	
Jan-23-98	87.00	13.33	1.59	1.79	0.00	1.79	1.19	24	3.60	9.30	8.00	1	
Averge PT	114.90	168.07	29.25	23.04	0.68	29.72	2.64	65	2.41		8.02	666,001	
Sample Chamber (SC)													
Sept 26-97	10.98	0.00	0.09	0.09	6.10	6.19	3.65	80	4.80	21.10	6.90	20	
Oct-21-97	3.81	47.00	0.16	0.90	2.04	2.94	1.18	23	2.28	17.60	8.50	1	
Nov 22-97	1.49	1.00	0.28	0.54	6.69	7.23	0.40	49	3.29	13.00	7.20	1	
Dec-16-97	7.50	20.00	0.10	0.12	3.66	3.78	0.08	62	1.20	9.80	8.40	1	
Jan-23-98	2.17	6.67	0.05	0.07	0.43	0.50	1.06	31	3.59	8.40	8.10	1	
Averge SC	5.19	14.93	0.14	0.34	3.78	4.13	1.27	49	3.03		7.82	5	
Pad Well (PW#)													
Nov 22-97	1.00	187.00	0.13	0.26	1.62	1.88	0.05	30	2.73	13.20	6.60	1	
Dec-16-97	6.20	340.00	0.11	0.11	0.49	0.60	0.06	22	1.22	10.00	7.70	1	
Jan-23-98	1.00	86.67	0.08	0.09	0.58	0.67	0.17	22	3.12	8.90	7.50	1	
Averge PW#	2.73	204.56	0.11	0.15	0.90	1.05	0.09	25	2.36	10.70	7.27	1	
Down-gradient (DG)													
Nov 22-97	1.00	600.00	0.07	0.18	1.23	1.41	0.06	15	2.89	12.40	7.00	1	
Dec-16-97	1.00	1,093.00	0.08	0.12	1.21	1.33	0.10	14	1.20	9.30	8.10	1	
Jan-23-98	1.00	1,900.00	0.08	0.07	0.06	0.13	0.27	18	3.19	8.40	7.10	550	
Averge DG	1.00	1197.67	0.08	0.12	0.83	0.96	0.14	16	2.43	10.03	7.40	184	
Background (BG)													
Nov 22-97	1.80	120.00	0.05	0.10	0.62	0.72	0.06	26	2.69	13.60	7.00	1	
Dec-16-97	3.00	313.00	0.07	0.08	0.50	0.58	0.08	21	1.11	11.00	7.80	1	
Jan-23-98	1.00	400.00	0.10	0.12	0.01	0.13	0.21	16	4.37	9.40	7.60	333	
Averge BG	1.93	277.67	0.07	0.10	0.38	0.48	0.12	21	2.72	11.33	7.47	112	

Average 11 Single Pass Systems							Virginia Monitoring Program						
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Jul-1-97	330	57	46	37	1	84	9	50	1		7		
Aug-1-97	357	102	37	49	1	50	8	43	1		7		
Sep-1-97	239	39	39	65	1	66	7	350	1	23	8	2,146,667	
Oct-1-97	355	3,082	46	50	1	51	5	324	3	19	8	1,586,429	
Nov-1-97	210	1,786	36	38	1	37	19	251	2	13	8	2,841,509	
Dec-1-97	362	368	50	50	1	50	8	193	2	12	9	2,270,438	
Jan-1-98	232	904	41	46	0	46	9	242	3	11	9	901,953	
Averge PT	**298**	**905**	**42**	**48**	**1**	**55**	**9**	**208**	**2**		**8**	**1,949,399**	
Sample Chamber (SC)													
Jul-1-97	6	5	1	1	28	28	5	312	5		6	1,240	
Aug-1-97	7	24	5	7	26	33	6	280	4		6	1,467	
Sep-1-97	5	3	1	2	27	29	6	296	5	23	6	1,103	
Oct-1-97	6	0	1	2	33	35	5	423	4	19	7	649	
Nov-1-97	2	2	1	2	27	29	4	195	3	11	7	630	
Dec-1-97	4	27	1	1	38	39	5	221	2	9	8	3,808	
Jan-1-98	4	32	2	2	23	25	5	222	3	10	8	783	
Averge SC	**5.0**	**13.3**	**1.6**	**2.4**	**28.7**	**31.2**	**5**	**278**	**4**		**7**	**1,383**	
% Removal	**98.3%**	**98.5%**	**96.2%**	**94.9%**		**43.3%**	**42.5%**					**99.93%**	

1 Recirculating System							Virginia Monitoring Program						
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. Far.	**pH**	**FC** per 100 ml	**Comments**
Septic Tank (ST)													
Sept 26-97	346.50	0.00	61.00	61.00	1.05	62.05	8.25	81	2.40	20.70	7.70	2,330,000	
Oct 21-97	68.25	793.00	65.70	32.50	1.03	63.53	1.93	77	2.28	17.60	8.50	1,000,000	
Nov 22-97	14.75	1.00	14.88	16.11	0.83	16.94	1.54	76	2.64	14.20	7.50	1	
Dec-16-97	58.00	33.00	3.07	3.78	0.51	4.29	0.31	66	1.13	11.40	8.40	1	
Jan-23-98	87.00	13.33	1.59	1.79	0.00	1.79	1.19	24	3.60	9.30	8.00	1	
Averge ST	114.90	168.07	29.25	23.04	0.68	29.72	2.64	65	2.41		8.02	666,001	
Sample Chamber (SC)													
Sept 26-97	10.98	0.00	0.09	0.09	6.10	6.19	3.65	80	4.80	21.10	6.90	20	
Oct-21-97	3.81	47.00	0.16	0.90	2.04	2.94	1.18	23	2.28	17.60	8.50	1	
Nov 22-97	1.49	1.00	0.28	0.54	6.69	7.23	0.40	49	3.29	13.00	7.20	1	
Dec-16-97	7.50	20.00	0.10	0.12	3.66	3.78	0.08	62	1.20	9.80	8.40	1	
Jan-23-98	2.17	6.67	0.05	0.07	0.43	0.50	1.06	31	3.59	8.40	8.10	1	
Averge SC	5.19	14.93	0.14	0.34	3.78	4.13	1.27	49	3.03		7.82	5	
% Removal	**95.5%**	**91.1%**	**99.5%**	**98.5%**		**85.1%**	**51.8%**					**100.00%**	

PURAFLO™ PEAT TREATMENT SYSTEM

JANUARY 1998 SAMPLING AND MONITORING RESULTS

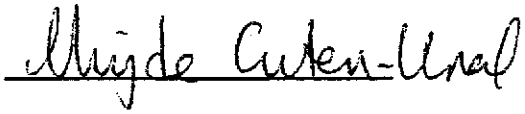
Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Puraflo Peat Biofilter

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow:	300	gpd			Soil Texture Group	
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Jan-23-98	87.00	13.33	1.59	1.79	0.00	1.79	1.19	24.23	3.60	9.30	8.00	<1 <1 <1	
Average PT	87.00	13.33	1.59	1.79	0.00	1.79	1.19	24.23	3.60	9.30	8.00	<1	
Sample Chamber (SC) Jan-23-98	2.17	6.67	0.05	0.07	0.43	0.50	1.06	31.31	3.59	8.40	8.10	<1 <1 <1	
Average SC	2.17	6.67	0.05	0.07	0.43	0.50	1.06	31.31	3.59	8.40	8.10	<1	
Pad Well (PW) Jan-23-98	1.00	86.67	0.08	0.09	0.58	0.67	0.17	21.77	3.12	8.90	7.50	<1 <1	
Average PW#	1.00	86.67	0.08	0.09	0.58	0.67	0.17	21.77	3.12	8.90	7.50	<1	
Down-gradient (DG) Jan-23-98	<1	1,900.00	0.08	0.07	0.06	0.13	0.27	17.65	3.19	8.40	7.10	433 667	
Average DG	<1	1900.00	0.08	0.07	0.06	0.13	0.27	17.65	3.19	8.40	7.10	550.00	
Background (BG) Jan-23-98	<1	400.00	0.10	0.12	0.01	0.13	0.21	15.68	4.37	9.40	7.60	333	
Average BG	<1	400.00	0.10	0.12	0.01	0.13	0.21	15.68	4.37	9.40	7.60	333.00	

Water Quality Results

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Jan-22-98	443.50	473.33	46.94	52.38	0.01	52.39	9.30	41.86	4.29	8.50	8.10	TNTC TNTC 866,667	~Data can not be calculated.
Average PT	443.50	473.33	46.94	52.38	0.01	52.39	9.30	41.86	4.29	8.50	8.10	~	
Sample Chamber (SC) Jan-22-98	6.23	20.00	2.32	2.70	27.47	30.17	3.94	24.50	4.25	8.30	8.30	2,133 2,333 3,333	
Average SC	6.23	20.00	2.32	2.70	27.47	30.17	3.94	24.50	4.25	8.30	8.30	2600	
Pad Well (PW) Jan-22-98	3.30	1,680.00	0.34	0.42	2.85	3.27	1.12	8.46	4.78	8.10	7.80	<1 <1	
Average PW#	3.30	1680.00	0.34	0.42	2.85	3.27	1.12	8.46	4.78	8.10	7.80	<1	
Down-gradient (DG) Jan-22-98	1.37	20.00	0.06	0.07	8.92	8.99	0.29	23.39	4.64	8.00	7.40	567	
Average DG	1.37	20.00	0.06	0.07	8.92	8.99	0.29	23.39	4.64	8.00	7.40	567.00	
Background (BG) Jan-22-98	3.30	26.67	0.03	0.05	0.06	0.11	0.13	12.44	5.37	8.30	7.90	<1 <1	
Average BG	3.30	26.67	0.03	0.05	0.06	0.11	0.13	12.44	5.37	8.30	7.90	<1	

Water Quality Results

Puraflo Peat Biofilter

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow:	450	gpd				Soil Texture Group II
Sample Point **Date Sampled**	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-22-98	138.50	53.33	32.20	37.67	0.32	37.99	3.57	26.73	3.31	9.50	8.10	TNTC TNTC 666,667	~Data can not be calculated.
Average PT	138.50	53.33	32.20	37.67	0.32	37.99	3.57	26.73	3.31	9.50	8.10	~	
Sample Chamber (SC) Jan-22-98	<1	6.67	0.45	0.59	34.53	35.12	4.94	24.47	4.16	8.70	7.90	<1 <1 <1	
Average SC	<1	6.67	0.45	0.59	34.53	35.12	4.94	24.47	4.16	8.70	7.90	<1	
Pad Well (PW) Jan-22-98	1.23	66.7	0.63	0.59	26.93	27.52	0.18	28.65	4.56	8.30	7.50	<1 <1	
Average PW	1.23	66.67	0.63	0.59	26.93	27.52	0.18	28.65	4.56	8.30	7.50	<1	
Down-gradient (DG) Jan-22-98	1.53	3,260.00	0.11	0.16	4.79	4.95	0.67	21.82	4.78	8.00	7.30	533	
Average DG	1.53	3260.00	0.11	0.16	4.79	4.95	0.67	21.82	4.78	8.00	7.30	533.00	
Background (BG) Jan-22-98													No Sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date:		Sept. 6,1995					Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-22-98													**NO SAMPLE**
Average PT													
Sample Chamber (SC) Jan-22-98	6.80	133.33	0.05	0.05	7.13	7.18	4.04	32.26	4.47	8.30	8.90	1,440	
Average SC	6.80	133.33	0.05	0.05	7.13	7.18	4.04	32.26	4.47	8.30	8.90	1440.00	
Pad Well (PW) Jan-22-98	3.73	120.00	0.05	0.06	1.60	1.66	0.22	78.33	4.35	8.70	7.90	<1 <1	
Average PW#	3.73	120.00	0.05	0.06	1.60	1.66	0.22	78.33	4.35	8.70	7.90	<1	
Down-gradient (DG) Jan-22-98	2.83	120.00	0.04	0.05	0.76	0.81	0.87	39.16	5.10	7.80	7.80	<1 <1	
Average DG	2.83	120.00	0.04	0.05	0.76	0.81	0.87	39.16	5.10	7.80	7.80	<1	
Background (BG) Jan-22-98	<1	26.67	0.05	0.05	0.11	0.16	0.10	4.55	5.35	7.70	5.50	<1 <1	
Average BG	<1	26.67	0.05	0.05	0.11	0.16	0.10	4.55	5.35	7.70	5.50	<1	

Water Quality Results

Puraflo Peat Biofilter

Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-14-98	257.00	346.67	94.91	98.80	0.06	98.86	11.98	183.28	3.14	9.70	8.00	TNTC TNTC 56,667	~Data can not be calculated.
Average PT	257.00	346.67	94.91	98.80	0.06	98.86	11.98	183.28	3.14	9.70	8.00	56667	
Sample Chamber (SC) Jan-14-98	3.70	20.00	0.33	0.15	49.72	49.87	10.16	89.90	3.90	8.80	6.90	<1 <1 <1	
Average SC	<1	20.00	0.33	0.15	49.72	49.87	10.16	89.90	3.90	8.80	6.90	<1	
Pad Well (PW#) Jan-14-98													No sample
Average PW#													
Down-gradient (DG) Jan-14-98	1.07	793.33	0.11	0.08	0.05	0.13	0.23	95.13	3.31	9.60	6.60	<1 <1	
Average DG	1.07	793.33	0.11	0.08	0.05	0.13	0.23	95.13	3.31	9.60	6.60	<1	
Background (BG) Jan-14-98	4.30	300.00	0.14	0.09	0.00	0.09	0.20	12.19	4.00	9.50	5.80	<1 <1	
Average BG	4.30	300.00	0.14	0.09	0.00	0.09	0.20	12.19	4.00	9.50	5.80	<1	

Water Quality Results

Puraflo Peat Biofilter

Long-Arthur Property (Serial # 149) ✓							Henrico Co. VA						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Jan-10-98													* No sample
Average PT													
Sample Chamber (SC) Jan-10-98	2.10	6.67	5.07	5.93	33.81	39.74	5.58	97.36	2.59	9.90	8.30	333 333	
Average SC	2.10	6.67	5.07	5.93	33.81	39.74	5.58	97.36	2.59	9.90	8.30	333	
Pad Well (PW) Jan-10-98	2.80	106.67	1.19	1.45	17.68	19.13	3.05	43.49	2.18	10.20	7.90	1,033 4,333	
Average PW#	2.80	106.67	1.19	1.45	17.68	19.13	3.05	43.49	2.18	10.20	7.90	2683.00	
Down-gradient (DG) Jan-10-98	1.73	6.67	0.09	0.07	1.20	1.27	0.04	11.33	2.48	9.80	8.10	<1 <1 <1	
Average DG	1.73	6.67	0.09	0.07	1.20	1.27	0.04	11.33	2.48	9.80	8.10	< 1	
Background (BG) Jan-10-98	5.07	0.00	0.07	0.07	0.36	0.43	0.04	6.51	2.55	10.90	8.00	<1 <1 <1	
Average BG	5.07	0.00	0.07	0.07	0.36	0.43	0.04	6.51	2.55	10.90	8.00	< 1	

* Cover too heavy & handle still broken.

Water Quality Results

Puraflo Peat Biofilter

Jacobsen Property (Serial No. 125) ✓							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-9-98	110.00	6.67	30.81	33.39	0.02	33.41	3.69	28.28	1.83	9.80	8.90	50,667 76,667	
Average PT	110.00	6.67	30.81	33.39	0.02	33.41	3.69	28.28	1.83	9.80	8.90	63667	
Sample Chamber (SC) Jan-9-98	2.77	20.00	2.00	2.35	30.86	33.21	3.48	34.00	2.39	9.10	5.90	<1 <1 <1	
Average SC	2.77	20.00	2.00	2.35	30.86	33.21	3.48	34.00	2.39	9.10	5.90	<1	
Pad Well (PW#1) Jan-9-98													No sample
Average PW#1													
Down-gradient (DG) Jan-9-98													No Sample
Average DG													
Background (BG) Jan-9-98	1.33	140.00	0.13	0.11	0.95	1.06	0.05	7.76	2.25	9.10	7.70	<1 <1	
Average BG	1.33	140.00	0.13	0.11	0.95	1.06	0.05	7.76	2.25	9.10	7.70	<1	
Pad Well (PW#2) Jan-9-98													No Sample
Average PW#2													

Puraflo Peat Biofilter

Samson Property (Serial No. 137) ✓							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-10-98	271.50	5,606.7	39.21	42.49	0.00	42.49	24.75	1,011.30	0.56	14.40	10.90	TNTC TNTC GREY	~Data can not be calculated.
Average PT	271.50	5606.70	39.21	42.49	0.00	42.49	24.75	1011.30	0.56	14.40	10.90		
Sample Chamber (SC) Jan-10-98	8.10	73.22	0.08	0.09	10.90	10.99	7.60	727.30	2.49	11.90	8.90	433 667	
Average SC	8.10	73.22	0.08	0.09	10.90	10.99	7.60	727.30	2.49	11.90	8.90	550.00	
Pad Well (PW) Jan-10-98													No sample
Average PW#													
Down-gradient (DG) Jan-10-98													No sample
Average DG													
Background (BG) Jan-10-98													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date:			Nov-19-96				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-21-98	272.00	73.33	30.82	35.06	0.08	35.14	6.31	25.35	2.17	12.30	8.70	TNTC TNTC 666,667	~Data can not be calculated.
Average PT	272.00	73.33	30.82	35.06	0.08	35.14	6.31	25.35	2.17	12.30	8.70	~	
Sample Chamber (SC) Jan-21-98	7.20	26.67	4.52	4.85	22.54	27.39	6.60	34.30	4.10	10.60	7.30	<1 <1 <1	
Average SC	7.20	26.67	4.52	4.85	22.54	27.39	6.60	34.30	4.10	10.60	7.30	<1	
Pad Well (PW#) Jan-21-98	6.67	93.33	2.39	2.93	11.67	14.60	5.61	16.25	4.38	10.10	7.90	900 1,036	
Average PW#	6.67	93.33	2.39	2.93	11.67	14.60	5.61	16.25	4.38	10.10	7.90	968.00	
Down-gradient (DG) Jan-21-98	1.00	93.33	0.04	0.06	3.65	3.71	0.32	11.18	3.92	10.70	3.60	100 333	
Average DG	1.00	93.33	0.04	0.06	3.65	3.71	0.32	11.18	3.92	10.70	3.60	217	
Background (BG) Jan-21-98	3.60	80.00	0.03	0.04	0.01	0.05	0.06	5.77	4.08	10.30	5.50	<1 <1	
Average BG	3.60	80.00	0.03	0.04	0.01	0.05	0.06	5.77	4.08	10.30	5.50	<1	

Puraflo Peat Biofilter

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-21-98	257.00	473.33	33.57	41.49	0.01	41.50	10.16	48.77	3.89	11.20	8.70	TNTC TNTC 3,560,000	~Data can not be calculated.
Average PT	257.00	473.33	33.57	41.49	0.01	41.50	10.16	48.77	3.89	11.20	8.70	~	
Sample Chamber (SC) Jan-21-98	5.20	6.67	0.37	0.48	20.03	20.51	7.40	61.81	4.02	10.10	8.40	4,000 2,667 3,333	
Average SC	5.20	6.67	0.37	0.48	20.03	20.51	7.40	61.81	4.02	10.10	8.40	3333	
Pad Well (PW) Jan-21-98	3.30	906.67	0.16	0.14	0.00	0.14	0.65	54.70	3.89	10.70	8.00	<1 <1 <1	
Average PW	3.30	906.67	0.16	0.14	0.00	0.14	0.65	54.70	3.89	10.70	8.00	<1	
Down-gradient (DG) Jan-21-98	2.83	20.00	0.05	0.05	0.00	0.05	0.18	47.40	3.43	9.80	7.30	1,167 4,333	
Average DG	2.83	20.00	0.05	0.05	0.00	0.05	0.18	47.40	3.43	9.80	7.30	2750.00	
Background (BG) Jan-21-98	3.30	733.33	0.07	0.09	0.30	0.39	0.18	8.90	4.51	9.40	8.50	<1 <1	
Average BG	3.30	733.33	0.07	0.09	0.30	0.39	0.18	8.90	4.51	9.40	8.50	<1	

Water Quality Results

Puraflo Peat Biofilter

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow:	300	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-9-98													No sample
Average PT													
Sample Chamber (SC) Jan-9-98	2.43	33.33	1.45	1.19	13.54	14.73	3.29	638.20	1.73	12.60	8.00	<1 <1 <1	
Average SC	2.43	33.33	1.45	1.19	13.54	14.73	3.29	638.20	1.73	12.60	8.00	<1	
Pad Well (PW#) Jan-9-98													No sample
Average PW#													
Down-gradient (DG) Jan-9-98													No sample
Average DG													
Background (BG) Jan-9-98													No sample
Average BG													

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Jan-9-98	107.50	200.00	20.61	24.21	0.06	24.27	3.45	566.78	1.42	13.00	8.50	TNTC TNTC 433,333	~Data can not be calculated.
Average PT	107.50	200.00	20.61	24.21	0.06	24.27	3.45	566.78	1.42	13.00	8.50	~	
Sample Chamber (SC) Jan-9-98	3.30	6.67	3.66	3.66	7.73	11.39	2.33	672.91	1.74	13.10	8.00	400 667	
Average SC	3.30	<1	3.66	3.66	7.73	11.39	2.33	672.91	1.74	13.10	8.00	356	
Pad Well (PW) Jan-9-98													No sample
Average PW													
Down-gradient (DG) Jan-9-98	2.60	8,780.00	0.53	0.76	0.47	1.23	2.75	45.47	1.04	12.90	8.30	<1 <1	
Average DG	2.60	8,780.00	0.53	0.76	0.47	1.23	2.75	45.47	1.04	12.90	8.30	<1	
Downfall (DF-1) Jan-9-98	3.87	106.67	0.19	0.26	7.83	8.09	0.64	441.57	1.77	13.20	7.60	<1 <1	
Average DF-1	3.87	106.67	0.19	0.26	7.83	8.09	0.64	441.57	1.77	13.20	7.60	<1	
Downfall (DF-2) Jan-9-98	1.65	1,013.33	0.15	0.18	12.34	12.52	0.76	96.93	1.89	12.70	8.20	<1 <1	
Average DF-2	1.65	1013.33	0.15	0.18	12.34	12.52	0.76	96.93	1.89	12.70	8.20	<1	

Water Quality Results

Puraflo Peat Biofilter

Smith							Fairfax Co.						Group I
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-21-98													No sample
Average PT													
Sample Chamber (SC) Jan-21-98													No sample
Average SC													
Pad Well (PW#) Jan-21-98													No sample
Average PW#													
Down-gradient (DG) Jan-21-98													No sample
Average DG													
Background (BG) Jan-21-98													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Link Project							Virginia Beach, VA						
Installation Date:			Aug-8-95				Design Flow:	1,000	gpd			Soil Texture Group II	
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-21-98	217.00	1,310.00	28.30	33.61	0.00	33.61	7.19	230.80	3.06	11.40	9.10	TNTC TNTC 46,667	~Data can not be calculated.
Average PT	217.00	1310.00	28.30	33.61	0.00	33.61	7.19	230.80	3.06	11.40	9.10	~	
Sample Chamber (SC) Jan-21-98													No sample
Average SC													
Pad Well (PW#) Jan-21-98	2.40	11,680.00	0.05	0.08	3.10		2.44	134.40	3.85	9.90	7.50	TNTC 4,067	~Data can not be calculated.
Average PW#	2.40	11,680.00	0.05	0.08	3.10	0.00	2.44	134.40	3.85	9.90	7.50	~	
Down-gradient (DG) Jan-21-98	1.07	26,340.00	0.05	0.05	0.00	0.05	1.17	5.80	4.00	9.40	7.20	TNTC TNTC	Fecal Coliform data cannot be calculated
Average DG	1.07	26,340.00	0.05	0.05	0.00	0.05	1.17	5.80	4.00	9.40	7.20	~	
Background (BG) Jan-21-98	3.30	16,420.00	0.09	0.09	0.00	0.09	0.81	24.90	4.27	9.50	7.00	TNTC TNTC	Fecal Coliform data cannot be calculated
Average BG	3.30	16,420.00	0.09	0.09	0.00	0.09	0.81	24.90	4.27	9.50	7.00	~	

Water Quality Results

Puraflo Peat Biofilter

150
500

Sharf							Virginia Beach						
Installation Date:			Oct-9-97 ✓				Design Flow: 150 gpd						Soil Texture Group I
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Jan-21-98													No sample
Average PT													
Sample Chamber (SC) Jan-21-98													No sample
Average SC													
Pad Well (PW#) Jan-21-98													No sample
Average PW#													
Down-gradient (DG) Jan-21-98													No sample
Average DG													
Background (BG) Jan-21-98													No sample
Average BG													

Puraflo Peat Biofilter

Accumulator

Merrit							Eastern Shore						
Installation Date: May 29-96							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Jan-21-98													No sample
Average PT													
Sample Chamber (SC) Jan-21-98													No sample
Average SC													
Pad Well (PW#) Jan-21-98													No sample
Average PW#													
Down-gradient (DG) Jan-21-98													No sample
Average DG													
Background (BG) Jan-21-98													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Jan-21-98													No sample
Average PT													
Sample Chamber (SC) Jan-21-98													No sample
Average SC													
Pad Well (PW#) Jan-21-98													No sample
Average PW#													
Down-gradient (DG) Jan-21-98													No sample
Average DG													
Background (BG) Jan-21-98													No sample
Average BG													

Water Quality Results

Summary of BOD for Jan. 98

Analyst: **Sudhanva Paranjape**

SITE	BOD
	mg/l
Stanley SC	3.3
Stanley pump	107.5
Stanley DG	2.6
Stanley DF-1	4.0
Stanley DF-2	1.6
Jacobson BG	1.3
Jacobson SC	2.8
Jacobson pum	110.0
Anderson SC	2.4
AOA SC	6.2
AOA DG	1.4
AOA Pump	443.5
AOA PW	3.3
AOA BG	3.3
Sawmill SC	3.7
Sawmill pump	257.0
Sawmill DG	1.1
Sawmill BG	4.3
LongArthur DG	1.7
LongArthur P	2.8
LongArthur BG	5.1
LongArthur SC	2.1
Kemp SC	6.8
Kemp DG	2.8
Kemp PW	3.7
Kemp BG	<1
Nesbitt SC	<1
Nesbitt PW	1.2
Nesbitt PUMP	138.5
Nesbitt DG	1.5
Farell SC	2.2
Farrell PW	1.0
Farrell BG	<1
Farell pump	87.0
Farell DG	<1
Munford SC	7.2
Munford pump	272.0
Munford PW	6.7
Munford DG	1.0
Munford BG	3.6

SITE	BOD
	mg/l
Easter SC	5.2
Easter pu	257.0
Easter DG	2.8
Easter P	3.3
Easter BG	<1
Link pump	217.0
Link PW	2.4
Link DG	1.0
Link BG	3.3
Samson S	8.1
Samson p	271.5

Fecal Coliform - Janaury 98

Analyst: Sudhanva Paranjape

Site	sample Aliquot =30ml				Colonies/100ml of sample			
	Dilution							
	1/10.00	1/100.00	1/1000.00	1/10000.0	1/10.00	1/100.00	1/1000.00	1/10000.0
Stanley SC	12	2	<1		400	667	<1	
Stanley pump		TNTC	TNTC	13		TNTC	TNTC	433333
Stanley DG	<1	<1	<1		<1	<1	<1	
Stanley DF-1	<1	<1	<1		<1	<1	<1	
Stanley DF-2	<1	<1	<1		<1	<1	<1	
Jacobson BG	<1	<1			<1	<1		
Jacobson SC	<1	<1	<1		<1	<1	<1	
Jacobson pump		152	23	<1		50667	76667	<1
Anderson SC	<1	<1	<1		<1	<1	<1	
AOA SC	64	7	1		2133	2333	3333	
AOA DG	17	<1	<1		567			
AOA Pump		TNTC	TNTC	26		TNTC	TNTC	866667
AOA PW	<1	<1			<1	<1		
AOA BG	<1	<1	<1		<1	<1	<1	
Sawmill SC	<1	<1	<1		<1	<1	<1	
Sawmill pump		TNTC	TNTC	17		TNTC	TNTC	56667
Sawmill DG	<1	<1	<1		<1	<1	<1	
Sawmill BG	<1	<1	<1		<1	<1	<1	
LongArthur DG	<1	<1	<1		<1	<1	<1	
LongArthur PW	31	13			1033	4333		
LongArthur BG	<1	<1	<1		<1	<1	<1	
LongArthur SC	10	1	<1		333	333	<1	
Kemp SC	42	<1	<1		1400			
Kemp DG	<1	<1	<1		<1	<1	<1	
Kemp PW	<1	<1	<1		<1	<1	<1	
Kemp BG	<1	<1	<1		<1	<1	<1	
Nesbitt SC	<1	<1	<1		<1	<1	<1	
Nesbitt PW	<1	<1	<1		<1	<1	<1	
Nesbitt PUMP		TNTC	TNTC	20		TNTC	TNTC	666667
Nesbitt DG	16	<1	<1		533			
Farell SC	<1	<1	<1		<1	<1	<1	
Farrell PW	<1	<1	<1		<1	<1	<1	
Farrell BG	333	<1	<1		333			
Farell pump		<1	<1	<1		<1	<1	<1
Farell DG	13	2	<1		433	667		
Munford SC	<1	<1	<1		<1	<1	<1	
Munford pump		TNTC	TNTC	20		TNTC	TNTC	666667
Munford PW	27	3			900	1036		
Munford DG	3	1			100	333		
Munford BG	<1	<1			<1	<1		
Easter SC	120	8	1		4000	2667	3333	
Easter pump		TNTC	TNTC	107		TNTC	TNTC	3560000
Easter DG	35	13			1167	4333		
Easter PW	<1	<1	<1		<1	<1	<1	

Summary of fecal coliform results

Easter BG	<1	<1			<1	<1		
Link pump		TNTC	TNTC	1		TNTC	TNTC	46667
Link PW	TNTC	12			TNTC	4067		
Link DG	TNTC	TNTC			TNTC	TNTC		
Link BG	TNTC	TNTC			TNTC	TNTC		
Samson SC	13	2	<1		433	667	<1	
Samson pump		TNTC	TNTC	GREY		TNTC	TNTC	GREY

Summary of Solids, pH & DO for Jan 98
Analyst: Sudhanva Paranjape

Site	Solids	pH	D.O.
	mg/l		mg/l
Stanley SC	6.67	8	1.74
Stanley pump	20.00	8.5	1.42
Stanley DG	8780.00	8.3	1.04
Stanley DF-1	106.67	7.6	1.77
Stanley DF-2	1013.33	8.2	1.89
Jacobson BG	140.00	7.7	2.25
Jacobson SC	20.00	5.9	2.39
Jacobson pump	6.67	8.9	1.83
Anderson SC	33.33	8	1.73
AOA SC	20.00	8.3	4.25
AOA DG	20.00	7.4	4.64
AOA Pump	473.33	8.1	4.29
AOA PW	1680.00	7.8	4.78
AOA BG	26.67	7.9	5.37
Sawmill SC	20.00	6.9	3.9
Sawmill pump	346.67	8	3.14
Sawmill DG	793.33	6.6	3.31
Sawmill BG	300.00	5.8	4
LongArthur DG	6.67	8.3	2.59
LongArthur PW	106.67	7.9	2.18
LongArthur BG	0.00	8	2.55
LongArthur SC	6.67	8.1	2.48
Kemp SC	133.33	8.9	4.47
Kemp DG	120.00	7.8	5.1
Kemp PW	120.00	7.9	4.35
Kemp BG	26.67	5.5	5.35
Nesbitt SC	6.67	7.9	4.16
Nesbitt PW	66.67	7.5	4.56
Nesbitt PUMP	53.33	8.1	3.31
Nesbitt DG	3260.00	7.3	4.78
Farell SC	6.67	8.1	3.59
Farrell PW	86.67	7.5	3.12
Farrell BG	400.00	7.6	4.37
Farell pump	13.33	8	3.6
Farell DG	1900.00	7.1	3.19

Site	Solids	pH	D.O.
	mg/l		mg/l
unford S	26.67	7.3	4.1
unford pu	73.33	8.7	2.17
unford P	93.33	7.9	4.38
unford D	93.33	3.6	3.92
unford B	80.00	5.5	4.08
Easter SC	6.67	8.4	4.02
aster pum	473.33	8.7	3.89
Easter DG	20.00	7.3	3.43
Easter PW	906.67	8	3.89
Easter BG	733.33	8.5	4.51
Link pump	1310.00	9.1	3.06
Link PW	11680.00	7.5	3.85
Link DG	26340.00	7.2	4
Link BG	16420.00	7	4.27
amson S	73.33	8.9	2.49
mson pu	5606.67	10.9	0.56

	IC Data for Month of January '98		
	NO2--N	NO3--N	CL
Sample	Conc, mg/L	Conc, mg/L	Conc, mg/L
Stanley SC	0.00	7.73	672.91
Stanley pump	0.00	0.06	566.78
Stanley DG	0.00	0.47	45.47
Stanley DF-1	0.00	7.83	441.57
Stanley DF-2	0.00	12.34	96.93
Jacobson BG	0.0	0.95	7.76
Jacobson SC	0.00	30.86	34.00
Jacobson pump	0.00	0.02	28.28
Anderson SC	0.00	13.54	638.20
AOA SC	0.10	27.37	24.50
AOA DG	0.00	8.92	23.39
AOA Pump	0.00	0.01	41.86
AOA PW	0.03	2.82	8.46
AOA BG	0.00	0.06	12.44
Sawmill SC	0.00	49.72	89.90
Sawmill pump	0.00	0.06	183.28
Sawmill DG	0.00	0.05	95.13
Sawmill BG	0.00	0.00	12.19
LongArthur DG	0.00	1.20	11.33
LongArthur PW	0.15	17.68	43.49
LongArthur BG	0.0	0.36	6.51
LongArthur SC	1.77	33.81	97.36
Kemp SC	0.00	7.13	32.26
Kemp DG	0.00	0.76	39.16
Kemp PW	0.00	1.60	78.33
Kemp BG	0.00	0.11	4.55
Nesbitt SC	0.00	34.53	24.47
Nesbitt PW	0.00	26.93	28.65
Nesbitt PUMP	0.13	0.19	26.72
Nesbitt DG	0.00	4.79	21.82
Farell SC	0.00	0.43	31.31
Farrell PW	0.00	0.58	21.77
Farrell BG	0.00	0.01	15.68
Farell pump	0.00	0.00	24.23
Farell DG	0.00	0.06	17.65
Munford SC	0.0	22.54	34.30
Munford pump	0.06	0.02	25.35
Munford PW	0.00	11.67	16.25
Munford DG	3.06	0.59	11.18
Munford BG	0.0	0.01	5.77
Easter SC	0.0	20.08	61.18
Easter pump	0.0	0.01	48.77
Easter DG	0.0	0.0	47.4
Easter PW	0.0	0.0	54.7
Easter BG	0.0	0.3	8.9

	NO2--N	NO3--N	CL
Sample	Conc, mg/L	Conc, mg/L	Conc, mg/L
Link pump	0.0	0.0	230.8
Link PW	0.0	3.1	134.4
Link DG	0.0	0.0	5.8
Link BG	0.0	0.0	24.9
Samson SC	0.0	10.9	727.3
Samson pump	0.0	0.0	1011.0
Blank 1	0	0.06	1.89

1998

Ammonia Nitrogen

Date of Analysis 02/08/98
Date of Samples 01/21/98

Analyst JAR
Run # 2

Month January

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2 ml	+058	x 1	
STD 2 1.00 ppm	2			+016		
STD 3 10.0 ppm	3			-039		
STD 4 100 ppm	4			-098		
STD 5 1000 ppm	5			-0155		
Link BG	6	01/21/98		+068		0.09
DG	7			+080		0.05
PW	8			+080		0.05
Pump	9			-068		28.30
Munford BG	10			+092		0.03
DG	11			+085		0.04
PW	12			-010		2.39
SC	13			-025		4.52
Pump	14			-070		30.82
Eastel Munford BG	15			+072		0.07
PW	16			+053		0.16
DG	17			-080		0.05
SC	18			+034		0.37
Pump	19			-072		33.57
Kemp BG	20			+080		0.05
DG	21			+086		0.04
PW	22			+080		0.05
SC	23			+083		0.05
~~Pump~~	24					
Kemp SC MS	25			-040		8.58
Kemp SC MSD	26			-040		8.58
Lab control	27			-097		97.47

r = 0.998

Quality Control	
% Recovery MS	86%
% Recovery MSD	86%
% Recovery LCS	98%
% RPD	0%

1998

Ammonia Nitrogen

Date of Analysis 01/20/98
Date of Samples 01/09/98, 01/10/98, 01/14/98

Analyst Jennifer Reasor
Run # 1

Month January

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2ml	+074	x1	
STD 2 1.00 ppm	2			+018		
STD 3 10.0 ppm	3			-040		
STD 4 100 ppm	4			-097		
STD 5 1000 ppm	5			-055		
Stanley DG	6	01/09/98		+033		0.53
DF2	7			+064		0.15
DF1	8			+059		0.19
SC	9			-015		3.66
Pump	10			-058		20.61
Anderson SC	11			+008		1.45
Jorgensen BG	12			+068		0.13
SC	13			000		2.00
Pump	14			-068		30.81
Samson SC	15	01/10/98		+079		0.08
Pump	16			-074		39.21
Simmons BG	17			+084		0.07
FW	18			+013		1.19
DG	19			+078		0.09
SC	20			-026		5.70
Sawmill BG	21	01/14/98		+066		0.14
DG	22			+072		0.11
SC	23			+045		0.33
Pump	24			-096		94.91
Site Blank #1	25	01/09/98		+092		0.05
Site Blank #2	26	01/14/98		+083		0.07
Sawmill SC MS	27			-043		11.28
Sawmill SC MSD	28			-041		10.41
Lab Control Sample 29				-099		107.10

r = 0.9999

Quality Control	
% Recovery MS	109.5%
% Recovery MSD	101%
% Recovery LCS	107%
% RPD	8.0%

1998

Ammonia Nitrogen

Date of Analysis 02/11/98 **Analyst** JAR **Month** January

Date of Samples 01/22/98 01/23/98 **Run #** 3

	Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
14	STD 1 0.10 ppm	1		2ml	+066	x1	
15	STD 2 1.00 ppm	2			+017		
16	STD 3 10.0 ppm	3			-039		
17	STD 4 100 ppm	4			-096		
18	STD 5 1000 ppm	5			-153		
19	Farrell BG	6	01/23/98		+069		0.10
20	DG	7			+075		0.08
21	PW	8			+076		0.08
22	SC	9			+088		0.05
23	Pump	10			+003		~~0.46~~ 1.59
24	AA BG	11	01/22/98		+095		0.03
26	PW	12			+040		0.34
7	DG	13			+080		0.06
8	SC	14			-006		2.32
9	Pump	15			-078		46.94
0	Nesbitt PW	16			+025		0.63
	DG	17			+067		0.11
2	SC	18			+033		0.45
3	Pump	19			-069		32.22
	Nesbitt Pump MS	20			-076.5		44.08
5	Nesbitt Pump MSD	21			-077		45.02
	LabControlSample	22			-095		95.51

r = 0.9996

Quality Control	
% Recovery MS	119%
% Recovery MSD	128%
% Recovery LCS	96%
% RPD	2.11%

1998

Total Kjeldahl Nitrogen

Date of Analysis 01/21/98
Date of Samples 01/09/98 01/10/98 01/14/98

Analyst JAR
Run # 1

Month January

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2ml	+046	x1	
STD 2 1.00 ppm	2			-010		
STD 3 10.0 ppm	3			-068		
STD 4 100 ppm	4			-125		
STD 5 1000 ppm	5			-183		
Stanley DG	6	01/09/98		-004		0.76
DF2	7			+032		0.18
DF1	8			+023		0.26
SC	9			-043		3.66
Pump	10			-090		~~2.42~~ 24.21
Anderson SC	11	↓		-015		1.19
Jacobsen BG	12			+044		0.11
SC	13			-032		2.35
Pump	14	↓		-098		33.39
Samsen SC	15	01/10/98		+050		0.09
Pump	16			-104		42.49
Long A BG	17			+054		0.07
PW	18			-020		1.45
DG	19			+054		0.07
SC	20	↓		-055		5.93
Sawmill BG	21	01/14/98		+049		0.09
DG	22			+052		0.08
SC	23			+036		0.15
Pump	24	↓		-125		98.80
Site Blank #1	25	01/09/98		+056		0.07
Site Blank #2	26	01/14/98		+058		0.06
Sawmill SC MS	27			-073	↓	12.23
Sawmill SC MSD	28		↓	-072		11.74
Lab Control	29			-123		91.2

r = 0.9999

Quality Control	
% Recovery MS	121%
% Recovery MSD	116%
% Recovery LCS	91%
% RPD	4.1%

1998

Total Kjeldahl Nitrogen

Date of Analysis 01/28/98
Date of Samples 01/21/98

Analyst JAR
Run # 2

Month January

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2ml	+064	X1	
STD 2 1.00 ppm	2			+015		
STD 3 10.0 ppm	3			-040		
STD 4 100 ppm	4			-096		
STD 5 1000 ppm	5			-154		
Link BG	6	01/21/98		+069		0.09
DG	7			+082		0.05
PW	8			+072		0.08
Pump	9			-071		33.61
Munford BG	10			+090		0.04
DE	11			+080		0.06
PW	12			-013		2.93
SC	13			-025		4.85
Pump	14			-072		35.06
Easter BG	15			+070		~~32.23~~ 0.09
PW	16			+060		0.14
DG	17			+082		0.05
SC	18			+030		0.48
Pump	19			-076		41.49
Kemp BG	20			+083		0.05
DG	21			+086		0.05
PW	22			+080		0.06
SC	23			+086		0.05
~~Pump~~	~~24~~					
Kemp SC MS	25			-042		9.92
Kemp SC MSD	26	↓	↓	-043	↓	10.34
Lab Control	27			-099		109.2

r=0.9995

Quality Control	
% Recovery MS	99%
% Recovery MSD	103%
% Recovery LCS	109%
% RPD	4.2%

1998

Total Kjeldahl Nitrogen

Date of Analysis 02/10/98
Date of Samples 01/22/98
01/23/98

Analyst JAR
Run # 3

Month January

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2ml	+070	x1	
STD 2 1.00 ppm	2			+017		
STD 3 10.0 ppm	3			-042		
STD 4 100 ppm	4			-096		
STD 5 1000 ppm	5			-153		
Farell BG	6	01/23/98		+066		0.12
DG	7			+078		0.07
PW	8			+073		0.09
SC	9			+080		0.07
Pump	10	↓		+001		1.79
AA BG	11	01/22/98		+088		0.05
PW	12			+036		0.42
DG	13			+080		0.07
SC	14			-009		2.70
Pump	15			-081		52.38
Nesbitt PW	16			+028		.59
DG	17			+060		0.16
SC	18			+028		0.59
Pump	19			-073		37.67
Nesbitt SC MS	20			-079		48.24
Nesbitt SC MSD	21	↓	↓	-078.5	↓	47.25
LabControl	22	↓	↓	-100		114.6

r=0.9999

Quality Control	
% Recovery MS	106%
% Recovery MSD	96%
% Recovery LCS	115%
% RPD	2.07%

Total Phosphorus

Date of Analysis 01/27/98 **Analyst** JAR **Month** January

Date of Samples 01/09/98 01/10/98 01/14/98 **Run #** 1

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)	
	STD 0.0	1			0.001				
	STD 0.05	2			0.074				
	STD 0.10	3			0.148				
	STD 0.25	4			0.402				
	STD 0.50	5			0.801				
	STD 0.75	6			1.209				
	STD 1.00	7			1.500				
1	Stanley DG	8	01/09/98	25	0.432	0.275	x10	2.75	
2	DF2	9	↓	25	1.177	0.76	x1	0.76	
3	DF1	10	↓	25	0.998	0.64	x1	0.64	
4	SC	11	↓	2.5	0.366	0.233	x10	2.33	
5	Pump	12	↓	2.5	0.539	0.345	x10	3.45	
6	Anderson SC	13	↓	2.5	0.514	0.329	x10	3.29	
7	Jacobsen BG	14	↓	25	0.092	0.05	x1	0.05	
8	SC	15	↓	2.5	0.543	0.348	x10	3.48	
9	Pump	16	↓	2.5	0.576	0.369	x10	3.69	
10	Samsen SC	17	01/10/98	2.5	1.178	0.760	x10	7.60	
11	Pump	18	↓	2.5	0.389	0.2475	x100	24.75	
12	Long Ar BG	19	↓	25	0.065	~~0.~~ 0.04	x1	0.04	
13	PW	20	↓	25	0.478	0.305	x10	3.05	
14	DG	21	↓	25	0.063	0.04	x1	0.04	
15	SC	22	↓	2.5	0.867	0.558	x10	5.58	
16	Sawmill BG	23	01/14/98	25	0.310	0.196	x1	0.20	
17	DG	24	↓	25	0.361	0.229	x1	0.23	
18	SC	25	↓	2.5	1.571	1.016	x10	10.16	
19	Pump	26	↓	2.5	1.852	1.198	x10	11.98	
20	~~And SC MS~~	~~27~~		~~2.5~~	~~1.375~~	~~0.888~~	~~x10~~	~~8.88~~	OK
21	~~And SC MSD~~	~~28~~		~~2.5~~	~~1.343~~	~~0.867~~	~~x10~~	~~8.67~~	OK
	Site Blank	29	01/09/98	25	0.001	0.00	x1	0.00	
	Site Blank	30	01/14/98	25	0.009	0.001	x1	0.00	

Quality Control		
% Recovery MS		→ 112%
% Recovery MSD		→ 108%
% Recovery LCS		
% RPD	2.4%	

r = 0.9987

~~Quality Control not acceptable due to matrix interference~~ QAR

Total Phosphorus
Bord na Mona
January 1998 RUN #1

ID# 1	TST39	
880.0NM		.001 A
ID# 2	TST39	
880.0NM		.074 A
ID# 3	TST39	
880.0NM		.148 A
ID# 4	TST39	
880.0NM		.402 A
ID# 5	TST39	
880.0NM		.801 A
ID# 6	TST39	
880.0NM		1.209 A
ID# 7	TST39	
880.0NM		1.500 A
ID# 8	TST39	
880.0NM		.432 A
ID# 9	TST39	
880.0NM		1.177 A
ID# 10	TST39	
880.0NM		.998 A
ID# 11	TST39	
880.0NM		.366 A
ID# 12	TST39	
880.0NM		.539 A
ID# 13	TST39	
880.0NM		.514 A
ID# 14	TST39	
880.0NM		.092 A
ID# 15	TST39	
880.0NM		.543 A
ID# 16	TST39	
880.0NM		.576 A
ID# 17	TST39	
880.0NM		1.178 A
ID# 18	TST39	
880.0NM		.389 A
ID# 19	TST39	
880.0NM		.065 A
ID# 20	TST39	
880.0NM		.478 A
ID# 21	TST39	
880.0NM		.063 A
ID# 22	TST39	
880.0NM		.867 A
ID# 23	TST39	
880.0NM		.310 A
ID# 24	TST39	
880.0NM		.361 A
ID# 25	TST39	
880.0NM		1.571 A
ID# 26	TST39	
880.0NM		1.852 A
ID# 27	TST39	
880.0NM		1.375 A
ID# 28	TST39	
880.0NM		1.343 A
ID# 29	TST39	
880.0NM		-.001*A
ID# 30	TST39	
880.0NM		.009 A
ID# 31	TST39	
SCAN		
RUN TIME		1.0 MIN

Total Phosphorus

Date of Analysis 02/03/98
Date of Samples ~~01/22/98~~ 01/21/98

Analyst JAR
Run # 2

Month January

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0	1			0.000			
	STD 0.05	2			0.078			
	STD 0.10	3			0.155			
	STD 0.25	4			0.399			
	STD 0.50	5			0.808			
	STD 0.75	6			1.210			
	STD 1.00	7			1.579			
1	Link BG	8	01/21/98	25	1.297	0.81	~~x10~~ x1	0.81
2	DG	9	↓	25	1.861	1.17	~~x10~~ x1	1.17
3	PW	11	↓	25	0.389	0.244	x10	2.44
4	Pump	12	↓	2.5	1.146	0.719	x10	7.19
5	Munford BG	13	01/21/98	25	0.092	0.06	x1	0.06
6	DG	14	↓	25	0.510	0.32	x1	0.32
7	PW	15	↓	25	0.895	0.561	x10	5.61
8	SC	16	↓	2.5	1.053	0.660	x10	6.60
9	Pump	17	↓	2.5	1.007	0.631	x10	6.31
10	Munford Pump MS	18	↓	2.5	1.877	1.178	x10	11.78
11	Mun Pump MSD	19	↓	2.5	1.828	1.147	x10	11.47
	Link DG	10	01/21/98	2.5	0.223	0.139	x10	1.39

r = 0.9999

Quality Control	
% Recovery MS	109 %
% Recovery MSD	103 %
% Recovery LCS	
% RPD	2.7 %

Bord na Mona

January 1998 RUN #2

```
* SELF TEST *
   COMPLETED

ID# 1      TST39
 880.0NM      -.000*A

ID# 2      TST39
 880.0NM       .078 A

ID# 3      TST39
 880.0NM       .155 A

ID# 4      TST39
 880.0NM       .399 A

ID# 5      TST39
 880.0NM       .808 A

ID# 6      TST39
 880.0NM      1.210 A

ID# 7      TST39
 880.0NM      1.579 A

ID# 8      TST39
 880.0NM      1.297 A

ID# 9      TST39
 880.0NM      1.861 A

ID# 10     TST39
 880.0NM       .223 A

ID# 11     TST39
 880.0NM       .389 A

ID# 12     TST39
 880.0NM      1.146 A

ID# 13     TST39
 880.0NM       .092 A

ID# 14     TST39
 880.0NM       .510 A

ID# 15     TST39
 880.0NM       .895 A

ID# 16     TST39
 880.0NM      1.053 A

ID# 17     TST39
 880.0NM      1.007 A

ID# 18     TST39
 880.0NM      1.877 A

ID# 19     TST39
 880.0NM      1.828 A
```

T-PHOS January 1998 RUN #2

Total Phosphorus

Date of Analysis 02/11/98
Date of Samples 1/21/98

Analyst JAR
Run # 3

Month January

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0	1			0.000			
	STD 0.05	2			0.071			
	STD 0.10	3			0.145			
	STD 0.25	4			0.382			
	STD 0.50	5			0.793			
	STD 0.75	6			0.948			
	STD 1.00	7			1.077			
1	Easter BG	8	01/21/98	25	0.262	0.18	x1	0.18
2	PW	9	↓	25	0.795	0.65	x1	0.65
3	DG	10	↓	25	0.264	0.18	x1	0.18
4	SC	11	↓	2.5	0.899	0.740	x10	7.40
5	Pump	12	↓	2.5	1.212	1.016	x10	10.16
6	Kemp BG	13	01/22/98	25	0.174	0.102	x1	0.10
7	DG	14	↓	25	1.042	0.8666	x1	0.87
8	PW	15	↓	25	0.302	0.215	x1	0.22
9	SC	16	↓	2.5	0.517	0.404	x10	4.04
10	Farrell BG	17	01/23/98	25	0.300	0.213	x1	0.21
11	DG	18	↓	25	0.369	0.274	x1	0.27
12	PW	19	↓	25	0.247	0.1666	x1	0.17
13	SC	20	↓	2.5	0.178	0.10658	x10	1.06
14	Pump	21	↓	2.5	0.193	0.119	x10	1.19
15	AA BG	22	01/22/98	25	0.206	0.130	x1	0.13
16	PW	23	↓	25	1.330	1.12	x1	1.12
17	DG	24	↓	25	0.391	0.29	x1	0.29
18	SC	25	↓	25	0.505	0.394	x10	3.94
19	Pump	26	↓	2.5	1.115	0.930	x10	9.30
20	Nesbitt PW	27	↓	25	0.267	0.184	x1	0.18
21	DG	28	↓	25	0.816	0.6667	x1	0.667
22	SC	29	↓	2.5	0.619	0.494	x10	4.94
23	Pump	30	↓	2.5	0.464	0.357	x10	3.57
24	Nesbitt SC MS	31	↓	2.5 x10	1.377			11.61
25	Nesbitt SC MSD	32	↓	2.5 x10	1.401			11.82
	Site Blank #3	33			0.137			0.07

Quality Control	
% Recovery MS	133%
% Recovery MSD	138%
% Recovery LCS	
% RPD	1.8%

r = 0.979

Matrix Spikes may be high due to less than great standard curve at high range!

Total Phosphorus 1998

Bord na Mona

January RUN #3

SCAN
RUN TIME 1.0 MIN

* SELF TEST *
COMPLETED

ID# 1	TST39	
880.0NM		.000 A
ID# 2	TST39	
880.0NM		.071 A
ID# 3	TST39	
880.0NM		.145 A
ID# 4	TST39	
880.0NM		.382 A
ID# 5	TST39	
880.0NM		.793 A
ID# 6	TST39	
880.0NM		.948 A
ID# 7	TST39	
880.0NM		1.077 A
ID# 8	TST39	
880.0NM		.262 A
ID# 9	TST39	
880.0NM		.795 A
ID# 10	TST39	
880.0NM		.264 A
ID# 11	TST39	
880.0NM		.899 A
ID# 12	TST39	
880.0NM		1.212 A
ID# 13	TST39	
880.0NM		.174 A
ID# 14	TST39	
880.0NM		1.042 A
ID# 15	TST39	
880.0NM		.302 A
ID# 16	TST39	
880.0NM		.517 A
ID# 17	TST39	
880.0NM		.300 A
ID# 18	TST39	
880.0NM		.369 A
ID# 19	TST39	
880.0NM		.247 A
ID# 20	TST39	
880.0NM		.178 A
ID# 21	TST39	
880.0NM		.193 A
ID# 22	TST39	
880.0NM		.206 A
ID# 23	TST39	
880.0NM		1.330 A
ID# 24	TST39	
880.0NM		.391 A
ID# 25	TST39	
880.0NM		.505 A
ID# 26	TST39	
880.0NM		1.115 A
ID# 27	TST39	
880.0NM		.267 A
ID# 28	TST39	
880.0NM		.816 A
ID# 29	TST39	
880.0NM		.619 A
ID# 30	TST39	
880.0NM		.464 A
ID# 31	TST39	
880.0NM		1.377 A
ID# 32	TST39	
880.0NM		1.401 A
ID# 33	TST39	
880.0NM		.137 A
ID# 34	TST39	
SCAN		
RUN TIME		1.0 MIN

January 1998 Run #3

January 1998 Run #3

Puraflo Peat Biofilter

Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-27-98													No Sample
Average PT													
Sample Chamber (SC) Feb-27-98	8.40	<1	0.48	0.87	5.63	6.50	1.14	16.96	0.52	10.00	5.80	TNTC TNTC TNTC	~--Data cannot be calculated
Average SC	8.40	<1	0.48	0.87	5.63	6.50	1.14	16.96	0.52	10.00	5.80	~	
Pad Well (PW#1) Feb-27-98	2.80	40.00	0.55	0.74	7.32	8.06	0.33	18.27	0.54	9.60	5.30	TNTC TNTC	~--Data cannot be calculated
Average PW#1	2.80	40.00	0.55	0.74	7.32	8.06	0.33	18.27	0.54	9.60	5.30	~	
Pad Well (PW#2) Feb-27-98	3.80	6.70	0.57	0.74	0.16	0.90	0.10	11.65	0.52	9.80	5.50	TNTC TNTC	~--Data cannot be calculated
Average PW#1	3.80	6.70	0.57	0.74	0.16	0.90	0.10	11.65	0.52	9.80	5.50	~	
Background (BG) Feb-27-98	9.20	46.70	0.29	0.39	0.07	0.46	0.10	27.73	0.49	9.90	4.40	TNTC TNTC	~--Data cannot be calculated
Average BG	9.20	46.70	0.29	0.39	0.07	0.46	0.10	27.73	0.49	9.90	4.40	~	
Downgradient (DG) Feb-27-98	2.50	120.00	0.18	0.14	3.70	3.84	0.07	18.58	0.51	9.80	5.40	TNTC TNTC	~--Data cannot be calculated
Average BG	2.50	120.00	0.18	0.14	3.70	3.84	0.07	18.58	0.51	9.80	5.40	~	

Water Quality Results

Puraflo Peat Biofilter

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point **Date Sampled**	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-25-98													* No sample
Average PT													
Sample Chamber (SC) Feb-25-98	6.50	6.70	0.04	0.04	32.50	32.54	2.87	45.31	0.58	14.50	6.50	TNTC TNTC TNTC	~--Data cannot be calculated
Average SC	6.50	6.70	0.04	0.04	32.50	32.54	2.87	45.31	0.58	14.50	6.50	~	
Pad Well (PW) Feb-25-98	6.20	233.30	0.05	0.07	26.02	26.09	1.08	37.18	0.61	11.70	5.70	TNTC TNTC	~--Data cannot be calculated
Average PW#	6.20	233.30	0.05	0.07	26.02	26.09	1.08	37.18	0.61	11.70	5.70	~	
Down-gradient (DG) Feb-25-98	1.50	<1	0.03	0.04	0.98	1.02	0.01	17.43	0.55	11.00	5.10	TNTC TNTC TNTC	~--Data cannot be calculated
Average DG	1.50	<1	0.03	0.04	0.98	1.02	0.01	17.43	0.55	11.00	5.10	~	
Background (BG) Feb-25-98	3.20	6.70	0.06	0.09	0.49	0.58	0.01	11.47	0.65	12.10	6.30	TNTC TNTC TNTC	~--Data cannot be calculated
Average BG	3.20	6.70	0.06	0.09	0.49	0.58	0.01	11.47	0.65	12.10	6.30	~	

* Cover too heavy & handle still broken.

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date:		Sept. 6,1995					Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-18-98	4.00	40.00	2.14	2.95	0.00	2.95	1.67	84.80	0.76	14.00	7.10	TNTC TNTC TNTC	~--Data cannot be calculated
Average PT	4.00	40.00	2.14	2.95	0.00	2.95	1.67	84.80	0.76	14.00	7.10	~	
Sample Chamber (SC) Feb-18-98	<1	66.70	0.07	0.14	3.76	3.90	0.02	81.62	0.92	14.30	6.20	<1 <1 <1	
Average SC	<1	66.70	0.07	0.14	3.76	3.90	0.02	81.62	0.92	14.30	6.20	<1	
Pad Well (PW) Feb-18-98	<1	53.30	0.06	0.08	5.78	5.86	1.22	13.37	1.11	13.20	6.40	TNTC TNTC	~--Data cannot be calculated
Average PW#	<1	53.30	0.06	0.08	5.78	5.86	1.22	13.37	1.11	13.20	6.40	~	
Down-gradient (DG) Feb-18-98	<1	966.70	0.03	0.04	0.44	0.51	0.20	10.47	0.83	15.90	6.00	TNTC TNTC	~--Data cannot be calculated
Average DG	<1	966.70	0.03	0.04	0.44	0.51	0.20	10.47	0.83	15.90	6.00	~	
Background (BG) Feb-18-98	2.00	133.30	0.16	0.21	0.01	0.22	0.10	8.18	0.79	12.10	5.50	TNTC TNTC	~--Data cannot be calculated
Average BG	2.00	133.30	0.16	0.21	0.01	0.22	0.10	8.18	0.79	12.10	5.50	~	

Water Quality Results

Puraflo Peat Biofilter

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-18-98	25.50	73.30	17.41	16.98	0.00	16.98	2.53	15.27	0.62	12.00	7.10	TNTC TNTC TNTC	~Data can not be calculated.
Average PT	25.50	73.30	17.41	16.98	0.00	16.98	2.53	15.27	0.62	12.00	7.10	~	
Sample Chamber (SC) Feb-18-98	6.90	6.70	1.91	2.71	11.21	13.92	1.96	8.60	0.68	12.00	5.50	TNTC TNTC TNTC	~Data can not be calculated.
Average SC	6.90	6.70	1.91	2.71	11.21	13.92	1.96	8.60	0.68	12.00	5.50	~	
Pad Well (PW) Feb-18-98	<1	266.7	0.89	0.66	15.73	16.39	0.02	18.66	0.70	10.40	5.20	TNTC TNTC	~Data can not be calculated.
Average PW	<1	266.70	0.89	0.66	15.73	16.39	0.02	18.66	0.70	10.40	5.20	~	
Down-gradient (DG) Feb-18-98	<1	4,146.70	0.41	0.34	1.71	2.05	0.31	67.46	0.77	10.60	6.20	TNTC TNTC	~Data can not be calculated.
Average DG	<1	4146.70	0.41	0.34	1.71	2.05	0.31	67.46	0.77	10.60	6.20	~	
Background (BG) Feb-18-98	3.80	560.00	0.01	0.02	0.11	0.13	0.16	15.93	0.74	12.10	6.60	TNTC TNTC	~Data can not be calculated.
Average BG	3.80	560.00	0.01	0.02	0.11	0.13	0.16	15.93	0.74	12.10	6.60	~	

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date:			Nov. 1, 1996				Design Flow:	450	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-18-98	63.50	33.30	20.45	30.26	0.07	30.33	3.03	28.46	0.80	11.60	7.10	TNTC TNTC TNTC	~Data can not be calculated.
Average PT	63.50	33.30	20.45	30.26	0.07	30.33	3.03	28.46	0.80	11.60	7.10	~	
Sample Chamber (SC) Feb-18-98	6.20	46.70	1.91	2.26	12.81	15.07	2.00	35.74	0.84	11.40	6.10	TNTC TNTC TNTC	~Data can not be calculated.
Average SC	6.20	46.70	1.91	2.26	12.81	15.07	2.00	35.74	0.84	11.40	6.10	~	
Pad Well (PW) Feb-18-98	1.60	306.70	0.57	0.61	4.51	5.12	0.51	16.25	0.96	10.20	6.50	TNTC TNTC	~Data can not be calculated.
Average PW#	1.60	306.70	0.57	0.61	4.51	5.12	0.51	16.25	0.96	10.20	6.50	~	
Down-gradient (DG) Feb-18-98	<1	2,553.30	0.15	0.12	0.97	1.09	0.35	12.19	0.83	11.40	6.40	TNTC TNTC	~Data can not be calculated.
Average DG	<1	2553.30	0.15	0.12	0.97	1.09	0.35	12.19	0.83	11.40	6.40	~	
Background (BG) Feb-18-98	1.20	66.70	0.13	0.14	0.39	0.53	0.01	7.76	1.06	11.10	5.80	TNTC TNTC	~Data can not be calculated.
Average BG	1.20	66.70	0.13	0.14	0.39	0.53	0.01	7.76	1.06	11.10	5.80	~	

Puraflo Peat Biofilter

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-9-98	377.00	753.30	31.37	43.43	0.10	43.53	7.48	59.20	1.65	10.80	~~	TNTC TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average PT	377.00	753.30	31.37	43.43	0.10	43.53	7.48	59.20	1.65	10.80	~~	~	
Sample Chamber (SC) Feb-9-98	6.70	20.00	0.21	0.32	10.50	10.82	4.02	37.00	2.25	11.20	~~	TNTC TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average SC	6.70	20.00	0.21	0.32	10.50	10.82	4.02	37.00	2.25	11.20	~~	~	
Pad Well (PW) Feb-9-98	3.60	240.00	0.13	0.14	0.20	0.34	0.40	35.90	2.41	10.00	~~	TNTC TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average PW	3.60	240.00	0.13	0.14	0.20	0.34	0.40	35.90	2.41	10.00	~~	~	
Down-gradient (DG) Feb-9-98	2.30	26.70	0.04	0.11	2.20	2.31	0.02	46.30	2.73	10.00	~~	TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average DG	2.30	26.70	0.04	0.11	2.20	2.31	0.02	48.30	2.73	10.00	~~	~	
Background (BG) Feb-9-98	4.50	86.70	0.07	0.10	0.80	0.90	0.19	6.90	2.95	9.50	~~	TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average BG	3.30	86.70	0.07	0.10	0.80	0.90	0.19	6.90	2.95	9.50	~~	~	

Puraflo Peat Biofilter

Munford Property (Serial No. 146) ✓							Suffolk VA						
Installation Date:			Nov-19-96				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-9-98	373.50	160.00	31.37	41.67	0.00	41.67	6.67	38.02	1.48	12.00	~~	TNTC TNTC 1,733,333	~Data can not be calculated. ~~~Instrument not working
Average PT	373.50	160.00	31.37	41.67	0.00	41.67	6.67	38.02	1.48	12.00	~~	~	
Sample Chamber (SC) Feb-9-98	4.30	6.70	1.99	2.38	10.88	13.26	6.29	19.32	3.55	10.30	~~	TNTC TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average SC	4.30	6.70	1.99	2.38	10.88	13.26	6.29	19.32	3.55	10.30	~~	~	
Pad Well (PW#) Feb-9-98	3.20	106.70	0.85	0.78	19.01	19.79	0.18	23.94	2.62	8.90	~~	TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average PW#	3.20	106.70	0.85	0.78	19.01	19.79	0.18	23.94	2.62	8.90	~~	~	
Down-gradient (DG) Feb-9-98	4.00	200.00	0.05	0.11	0.57	0.68	<0.01	3.49	2.99	8.90	~~	TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average DG	4.00	200.00	0.05	0.11	0.57	0.68	<0.01	3.49	2.99	8.90	~~	~	
Background (BG) Feb-9-98	2.90	100.00	0.52	0.40	22.60	23.00	1.08	27.30	3.74	8.90	~~	TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average BG	2.90	100.00	0.52	0.40	22.60	23.00	1.08	27.30	3.74	8.90	~~	~	

Puraflo Peat Biofilter

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date:			Oct. 22, 1996				Design Flow:	750	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-21-98	674.00	2,600.0	32.77	27.17	0.00	27.17	8.13	384.40	0.47	11.30	7.20	TNTC TNTC 1,733,333	~Data can not be calculated.
Average PT	674.00	2600.00	32.77	27.17	0.00	27.17	8.13	384.40	0.47	11.30	7.20	~	
Sample Chamber (SC) Feb-21-98	<1	13.30	0.11	0.10	22.10	22.20	7.34	424.30	0.64	9.40	6.70	TNTC TNTC	~Data can not be calculated.
Average SC	<1	13.30	0.11	0.10	22.10	22.20	7.34	424.30	0.64	9.40	6.70	~	
Pad Well (PW) Feb-21-98													No sample
Average PW#													
Down-gradient (DG) Feb-21-98													No sample
Average DG													
Background (BG) Feb-21-98													No sample
Average BG													

Puraflo Peat Biofilter

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date:			Aug. 6, 1996				Design Flow:	600	gpd				Soil Texture Group III
Sample Point **Date Sampled**	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-21-98	25.00	<1	11.69	12.57	0.22	12.79	1.49	9.90	0.52	9.40	6.90	TNTC TNTC TNTC	~Data can not be calculated.
Average PT	25.00	<1	11.69	12.57	0.22	12.79	1.49	9.90	0.52	9.40	6.90	~	
Sample Chamber (SC) Feb-21-98	<1	6.70	0.18	0.23	8.62	8.85	1.53	6.10	0.51	9.60	3.90	TNTC TNTC TNTC	~Data can not be calculated.
Average SC	<1	6.70	0.18	0.23	8.62	8.85	1.53	6.10	0.51	9.60	3.90	~	
Pad Well (PW#1) Feb-21-98													No sample
Average PW#1													
Down-gradient (DG) Feb-21-98	1.60	66.70	0.03	0.04	6.91	6.95	0.34	6.89	0.55	8.30	6.00	TNTC TNTC	~Data can not be calculated.
Average DG	1.60	66.70	0.03	0.04	6.91	6.95	0.34	6.89	0.55	8.30	6.00	~	
Background (BG) Feb-21-98	<1	126.70	0.02	0.07	1.32	1.39	0.02	11.95	0.54	8.90	6.20	TNTC TNTC	~Data can not be calculated.
Average BG	<1	126.70	0.02	0.07	1.32	1.39	0.02	11.95	0.54	8.90	6.20	~	
Pad Well (PW#2) Feb-21-98	1.90	680.00	0.03	0.03	3.25	3.28	0.11	3.62	0.52	8.90	5.80	TNTC TNTC	~Data can not be calculated.
Average PW#2	1.90	680.00	0.03	0.03	3.25	3.28	0.11		0.52	8.90	5.80	~	

Water Quality Results

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-21-98	187.00	266.70	19.65	29.60	0.00	29.60	2.67	706.30	0.52	9.20	7.80	TNTC TNTC TNTC	~Data can not be calculated.
Average PT	187.00	266.70	19.65	29.60	0.00	29.60	2.67	706.30	0.52	9.20	7.80	~	
Sample Chamber (SC) Feb-21-98	<1	26.70	0.24	0.36	13.90	14.26	1.50	108.30	0.55	8.80	6.70	<1 <1 <1	
Average SC	<1	26.70	0.24	0.36	13.90	14.26	1.50	108.30	0.55	8.80	6.70	<1	
Pad Well (PW) Feb-21-98													No sample
Average PW													
Down-gradient (DG) Feb-21-98	1.80	5,430.00	1.53	2.19	0.37	2.56	4.45	61.99	0.56	8.70	6.70	TNTC TNTC	~Data can not be calculated.
Average DG	1.80	5,430.00	1.53	2.19	0.37	2.56	4.45	61.99	0.56	8.70	6.70	~	
Downfall (DF-1) Feb-21-98	<1	780.00	0.26	0.36	1.65	2.01	0.31	226.21	0.53	8.70	5.70	867 3,333	
Average DF-1	<1	780.00	0.26	0.36	1.65	2.01	0.31	226.21	0.53	8.70	5.70	2100.00	
Downfall (DF-2) Feb-21-98	<1	2,366.70	0.04	0.10	3.32	3.42	0.68	34.81	0.53	8.60	6.80	TNTC TNTC	~Data can not be calculated.
Average DF-2	<1	2366.70	0.04	0.10	3.32	3.42	0.68	34.81	0.53	8.60	6.80	~	

Puraflo Peat Biofilter

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow:	300	gpd				Soil Texture Group III
Sample Point **Date Sampled**	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-21-98													No sample
Average PT													
Sample Chamber (SC) Feb-21-98	<1	6.70	0.99	1.37	17.08	18.45	2.40	315.44	0.54	8.60	6.60	TNTC TNTC TNTC	~Data can not be calculated.
Average SC	<1	6.70	0.99	1.37	17.08	18.45	2.40	315.44	0.54	8.60	6.60	~	
Pad Well (PW#) Feb-21-98													No sample
Average PW#													
Down-gradient (DG) Feb-21-98													No sample
Average DG													
Background (BG) Feb-21-98													No sample
Average BG													

Puraflo Peat Biofilter

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Feb-18-98	<1	20.00	0.30	0.33	0.00	0.33	0.16	20.49	1.04	11.80	6.60	<1 <1 <1	
Average PT	<1	20.00	0.30	0.33	0.00	0.33	0.16	20.49	1.04	11.80	6.60	<1	
Sample Chamber (SC) Feb-18-98	<1	20.00	0.05	0.07	0.56	0.63	0.06	18.27	1.19	11.40	6.30	<1 <1 <1	
Average SC	<1	20.00	0.05	0.07	0.56	0.63	0.06	18.27	1.19	11.40	6.30	<1	
Pad Well (PW) Feb-18-98	<1	666.70	0.09	0.12	1.03	1.15	0.06	16.41	1.04	12.20	5.30	<1 <1	
Average PW#	<1	666.70	0.09	0.12	1.03	1.15	0.06	16.41	1.04	12.20	5.30	<1	
Down-gradient (DG) Feb-18-98	<1	873.70	0.06	0.07	0.46	0.53	0.06	14.81	0.93	12.00	5.00	<1 <1	
Average DG	<1	873.70	0.06	0.07	0.46	0.53	0.06	14.81	0.93	12.00	5.00	<1	
Background (BG) Feb-18-98	<1	1,126.70	0.15	0.17	0.08	0.25	0.15	13.03	0.91	12.20	5.60	8,000 23,334	
Average BG	<1	1126.70	0.15	0.17	0.08	0.25	0.15	13.03	0.91	12.20	5.60	15667.00	

Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-13-98													No sample
Average PT													
Sample Chamber (SC) Feb-13-98													No sample
Average SC													
Pad Well (PW#) Feb-13-98													No sample
Average PW#													
Down-gradient (DG) Feb-13-98													No sample
Average DG													
Background (BG) Feb-13-98													No sample
Average BG													

Puraflo Peat Biofilter

Link Project							Virginia Beach. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point **Date Sampled**	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-13-98	378.00	800.00	41.86	49.19	0.00	49.19	7.42	234.80	0.81	13.90	~~	TNTC TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average PT	378.00	800.00	41.86	49.19	0.00	49.19	7.42	234.80	0.81	13.90	~~	~	
Sample Chamber (SC) Feb-13-98	10.70	106.70	0.21	0.26	3.90	4.16	7.26	89.70	1.05	12.20	~~	TNTC TNTC TNTC	Fecal Coliform data cannot be calculated ~~~Instrument not working
Average SC	10.70	106.70	0.21	0.26	3.90	4.16	7.26	89.70	1.05	12.20	~~	~	
Pad Well (PW#) Feb-13-98	3.10	6,640.00	0.25	0.29	5.50	5.79	1.25	230.80	1.06	10.50	~~	TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average PW#	3.10	6,640.00	0.25	0.29	5.50	5.79	1.25	230.80	1.06	10.50	~~	~	
Down-gradient (DG) Feb-13-98	3.40	1,246.70	0.45	0.78	0.67	1.45	0.79	6.36	0.98	10.00	~~	TNTC TNTC	Fecal Coliform data cannot be calculated ~~~Instrument not working
Average DG	3.40	1,246.70	0.45	0.78	0.67	1.45	0.79	6.36	0.98	10.00	~~	~	
Background (BG) Feb-13-98	37.50	9,710.00	0.57	0.69	0.40	1.09	0.97	29.25	1.05	11.10	~~	<1 <1	~~~Instrument not working
Average BG	37.50	9,710.00	0.57	0.69	0.40	1.09	0.97	29.25	1.05	11.10	~~	<1	

Puraflo Peat Biofilter

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Feb-27-98	232.50	113.30	40.38	60.17	0.00	60.17	3.50	22.20	0.35	11.40	9.20	TNTC TNTC	~Data can not be calculated.
Average PT	232.50	113.30	40.38	60.17	0.00	60.17	3.50	22.20	0.35	11.40	9.20	~	
Sample Chamber (SC) Feb-27-98	29.30	26.70	0.01	0.03	0.60	0.63	0.13	68.30	0.34	11.00	6.30	TNTC TNTC	~Data can not be calculated.
Average SC	29.30	26.70	0.01	0.03	0.60	0.63	0.13	68.30	0.34	11.00	6.30	~	
Pad Well (PW#) Feb-27-98													No sample
Average PW#													
Down-gradient (DG) Feb-27-98	2.80	213.30	0.09	0.15	0.10	0.25	0.46	16.40	0.34	10.70	5.40	TNTC TNTC	~Data can not be calculated.
Average DG	2.80	213.30	0.09	0.15	0.10	0.25	0.46	16.40	0.34	10.70	5.40	~	
Background (BG) Feb-27-98	3.80	213.30	0.13	0.23	18.30	18.53	0.39	17.80	0.34	11.20	6.00	TNTC TNTC	~Data can not be calculated.
Average BG	3.80	213.30	0.13	0.23	18.30	18.53	0.39	17.80	0.34	11.20	6.00	~	

Puraflo Peat Biofilter

Merrit							Eastern Shore						
Installation Date: May 29-96							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Feb-27-98													No Sample
Average PT													
Sample Chamber (SC) Feb-27-98	17.00	<1	0.02	0.15	18.00	18.15	4.93	218.80	0.81	12.70	7.10	TNTC TNTC TNTC	~Data can not be calculated.
Average SC	17.00	<1	0.02	0.15	18.00	18.15	4.93	218.80	0.81	12.70	7.10	~	
Pad Well (PW#) Feb-27-98	7.70	6.70	4.41	3.68	0.40	4.08	0.53	298.60	0.61	11.30	5.50	TNTC TNTC	~Data can not be calculated.
Average PW#	7.70	6.70	4.41	3.68	0.40	4.08	0.53	298.60	0.61	11.30	5.50	~	
Down-gradient (DG) Feb-27-98	10.00	673.30	1.83	2.62	0.30	2.92	4.80	269.30	0.79	12.80	6.90	TNTC TNTC	~Data can not be calculated.
Average DG	10.00	673.30	1.83	2.62	0.30	2.92	4.80	269.30	0.79	12.80	6.90	~	
Background (BG) Feb-27-98	11.50	60.00	0.32	0.60	0.10	0.70	0.18	294.60	0.90	11.30	5.70	TNTC TNTC	~Data can not be calculated.
Average BG	11.50	60.00	0.32	0.60	0.10	0.70	0.18	294.60	0.90	11.30	5.70	~	

Puraflo Peat Biofilter

Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow: 150 gpd						Soil Texture Group I
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Feb-13-98	134.00	20.00	15.49	21.46	0.00	21.46	4.43	55.80	0.95	8.50	~~	TNTC TNTC TNTC	~Data can not be calculated. ~~~Instrument not working
Average PT	134.00	20.00	15.49	21.46	0.00	21.46	4.43	55.80	0.95	8.50	~~	~	
Sample Chamber (SC) Feb-13-98	9.40	33.30	<0.01	0.09	18.10	18.19	4.43	56.50	0.95	8.50	~~	TNTC TNTC	~Data can not be calculated.
Average SC	9.40	33.30	<0.01	0.09	18.10	18.19	4.43	56.50	0.95	8.50	~~	~	
Pad Well (PW#) Feb-13-98	10.00	33.30	8.53	10.17	2.40	12.57	0.04	8.70	0.89	8.90	~~	TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average PW#	10.00	33.30	8.53	10.17	2.40	12.57	0.04	8.70	0.89	8.90	~~	~	
Down Gradient (DG) Feb-13-98	3.80	240.00	6.46	7.30	20.80	28.10	0.04	40.60	0.86	8.50	~~	TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average DG	3.80	240.00	6.46	7.30	20.80	28.10	0.04	40.60	0.86	8.50	~~	~	
Background (BG) Feb-13-98	19.80	840.00	0.67	0.78	1.70	2.48	0.07	26.30	0.90	8.50	~~	TNTC TNTC	~~~Instrument not working ~Data can not be calculated.
Average BG	19.80	840.00	0.67	0.78	1.70	2.48	0.07	26.30	0.90	8.50	~~	~	

Puraflo Peat Biofilter

Brown							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow:	150	gpd			Soil Texture Group I	
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Feb-25-98	157.50	0.00	25.50	29.30	0.50	29.80	3.38	25.70	0.63	11.40	7.40	TNTC TNTC TNTC	~Data can not be calculated.
Average PT	157.50	0.00	25.50	29.30	0.50	29.80	3.38	25.70	0.63	11.40	7.40	~	
Sample Chamber (SC) Feb-25-98	10.50	186.70	0.06	0.12	23.60	23.72	3.05	28.10	0.60	11.20	6.20	TNTC TNTC	~Data can not be calculated.
Average SC	10.50	186.70	0.06	0.12	23.60	23.72	3.05	28.10	0.60	11.20	6.20	~	
Pad Well (PW#) Feb-25-98	7.50	30,160.00	0.08	0.10	20.30	20.40	0.05	21.60	0.66	10.30	5.10	TNTC TNTC	~Data can not be calculated.
Average PW#	7.50	30,160.00	0.08	0.10	20.30	20.40	0.05	21.60	0.66	10.30	5.10	~	
Down-gradient (DG) Feb-25-98	3.70	793.30	0.07	0.09	12.00	12.09	0.13	13.80	0.63	10.50	5.70	TNTC TNTC	~Data can not be calculated.
Average DG	3.70	793.30	0.07	0.09	12.00	12.09	0.13	13.80	0.63	10.50	5.70	~	
Background (BG) Feb-25-98	14.20	1,026.70	0.03	0.04	0.20	0.24	0.01	7.40	0.53	10.90	5.50	TNTC TNTC	~Data can not be calculated.
Average BG	14.20	1,026.70	0.03	0.04	0.20	0.24	0.01	7.40	0.53	10.90	5.50	~	

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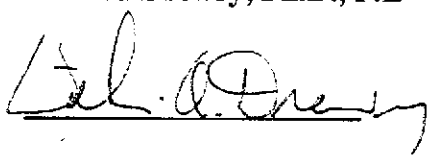
PURAFLO™ PEAT TREATMENT SYSTEM

MARCH 1998 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Puraflo Peat Biofilter

Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-27-98													No Sample
Average PT													
Sample Chamber (SC) Mar-27-98	8.97	26.70	*	*	33.10	*	*	50.90	0.95	16.10	6.40	<1 <1 <1	Phos, TKN, NH3 not performed. due to lack of sample volume
Average SC	8.97	26.70	*	*	33.10	*	*	50.90	0.95	16.10	6.40	<1	
Pad Well (PW#1) Mar-27-98	7.70		0.30	0.15	2.60	2.75	0.12	67.00	0.61	15.40	5.50	35	
Average PW#1	7.70		0.30	0.15	2.60	2.75	0.12	67.00	0.61	15.40	5.50	35	
Pad Well (PW#2) Mar-27-98	7.53		0.13	0.15	1.90	2.05	0.11	22.00	0.64	15.50	5.70	<1	
Average PW#1	7.53		0.13	0.15	1.90	2.05	0.11	22.00	0.64	15.50	5.70	<1	
Background (BG) Mar-27-98	5.20		0.40	0.38	0.90	1.28	0.01	40.40	0.61	17.80	4.20	33	
Average BG	5.20		0.40	0.38	0.90	1.28	0.01	40.40	0.61	17.80	4.20	33	
Downgradient (DG) Mar-27-98	15.47		0.13	0.16	2.80	2.96	0.03	28.80	1.31	16.50	5.70	33	
Average DG	15.47		0.13	0.16	2.80	2.96	0.03	28.80	1.31	16.50	5.70	33	

Water Quality Results

Puraflo Peat Biofilter

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date:			Jan-8-95				Design Flow:	450	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-19-98													* No sample
Average PT													
Sample Chamber (SC) Mar-19-98	2.37	73.30	*	0.21	32.40	32.61	5.31	65.50	0.72	9.20	4.60	8,000	NH3 not performed due to lack of sample volume
Average SC	2.37	73.30	*	0.21	32.40	32.61	5.31	65.50	0.72	9.20	4.60	8000	
Pad Well (PW) Mar-19-98	1.23		0.09	0.12	11.30	11.42	0.61	23.60	0.69	8.50	5.70	56,667	
Average PW#	1.23		0.09	0.12	11.30	11.42	0.61	23.60	0.69	8.50	5.70	56,667	
Down-gradient (DG) Mar-19-98	2.80		0.05	0.11	0.90	1.01	0.02	16.70	0.68	9.20	5.00	96,667	
Average DG	2.80		0.05	0.11	0.90	1.01	0.02	16.70	0.68	9.20	5.00	96,667	
Background (BG) Mar-19-98	3.27		0.11	0.17	0.10	0.27	0.02	5.70	0.71	10.00	5.20	<1 <1	
Average BG	3.27		0.11	0.17	0.10	0.27	0.02	5.70	0.71	10.00	5.20	<1	

* Cover too heavy & handle still broken.

Puraflo Peat Biofilter

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-11-98	54.00	6.70	2.69	3.72	0.00	3.72	2.12	88.40	0.55	9.90	7.40	23	Dry Site. House vacant since February
Average PT	54.00	6.70	2.69	3.72	0.00	3.72	2.12	88.40	0.55	9.90	7.40	23	
Sample Chamber (SC) Mar-11-98	3.97	100.00	0.03	0.10	9.70	9.80	0.59	32.80	0.61	8.40	7.00	<1 <1 <1	
Average SC	3.97	100.00	0.03	0.10	9.70	9.80	0.59	32.80	0.61	8.40	7.00	<1	
Pad Well (PW) Mar-11-98	4.53		0.05	0.09	4.80	4.89	0.02	125.60	0.56	10.20	6.40	<1 <1	
Average PW#	4.53		0.05	0.09	4.80	4.89	0.02	125.60	0.56	10.20	6.40	<1	
Down-gradient (DG) Mar-11-98	4.83		0.04	0.10	0.00	0.14	0.02	8.20	0.54	10.30	6.30	<1 <!	
Average DG	4.83		0.04	0.10	0.00	0.14	0.02	8.20	0.54	10.30	6.30	<1	
Background (BG) Mar-11-98	8.97		0.05	0.10	0.00	0.10	0.02	10.70	0.62	9.60	5.50	<1 <1	
Average BG	8.97		0.05	0.10	0.00	0.10	0.02	10.70	0.62	9.60	5.50	<1	

Puraflo Peat Biofilter

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-16-98	277.00	173.30	40.78	46.80	0.00	46.80	3.82	39.20	0.67	12.50	7.10	4,000,000	Bailer not full after 2nd purge.
Average PT	277.00	173.30	40.78	46.80	0.00	46.80	3.82	39.20	0.67	12.50	7.10	4,000,000	
Sample Chamber (SC) Mar-16-98													Sample not available
Average SC													
Pad Well (PW) Mar-16-98	2.93		0.24	0.33	15.30	15.63	0.02	17.60	0.85	8.10	5.20	<1 <1	Bailer not full after 2nd purge.
Average PW	2.93		0.24	0.33	15.30	15.63	0.02	17.60	0.85	8.10	5.20	<1	
Down-gradient (DG) Mar-16-98	5.33		*	0.25	0.10	0.35	0.01	17.80	0.86	8.10	6.20	7,000	* NH3 analysis not performed. due to lack of sample volume Bailer not full after 2nd purge.
Average DG	5.33		*	0.25	0.10	0.35	0.01	17.80	0.86	8.10	6.20	7,000	
Background (BG) Mar-16-98	3.97		*	0.16	0.20	0.36	0.07	15.00	*	*	5.60	50	* Not enough water to take DO and Temp. reading Bailer not full after 2nd purge.
Average BG	3.97		*	0.16	0.20	0.36	0.07	15.00	*	*	5.60	50	

Puraflo Peat Biofilter

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date:			Nov. 1, 1996				Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-11-98	143.50	13.30	20.46	24.35	0.00	24.35	2.89	18.60	0.42	11.00	7.40	>2,000,000	
Average PT	143.50	13.30	20.46	24.35	0.00	24.35	2.89	18.60	0.42	11.00	7.40	>2,000,000	
Sample Chamber (SC) Mar-11-98	7.57	13.30	1.68	2.19	12.40	14.59	1.24	0.90	0.48	9.40	6.50	733	
Average SC	7.57	13.30	1.68	2.19	12.40	14.59	1.24	0.90	0.48	9.40	6.50	733	
Pad Well (PW) Mar-11-98	5.13		0.50	0.79	1.60	2.39	0.41	6.10	0.77	8.70	6.90	152	Damp, side yard underwater
Average PW#	5.13		0.50	0.79	1.60	2.39	0.41	6.10	0.77	8.70	6.90	152	
Down-gradient (DG) Mar-11-98	8.43		0.15	0.23	0.90	1.13	0.18	3.80	0.52	8.70	6.90	152	PVC pipe has moved so that outer cap cannot be put on.
Average DG	8.43		0.15	0.23	0.90	1.13	0.18	3.80	0.52	8.70	6.90	152	
Background (BG) Mar-11-98	3.27		0.12	0.19	0.10	0.29	0.02	6.00	0.87	9.90	6.20	<1 <1	Damp, side yard underwater
Average BG	3.27		0.12	0.19	0.10	0.29	0.02	6.00	0.87	9.90	6.20	<1	

Water Quality Results

Puraflo Peat Biofilter

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-27-98	479.50	433.30	30.53	56.35	0.00	56.35	5.99	55.20	0.78	17.20	6.70	2,000,000	
Average PT	479.50	433.30	30.53	56.35	0.00	56.35	5.99	55.20	0.78	17.20	6.70	2,000,000	
Sample Chamber (SC) Mar-27-98	4.90	33.30	0.37	0.48	22.30	22.78	4.72	36.20	1.31	17.20	6.40	23	
Average SC	4.90	33.30	0.37	0.48	22.30	22.78	4.72	36.20	1.31	17.20	6.40	23	
Pad Well (PW) Mar-27-98	5.43		0.45	0.36	1.20	1.56	0.77	57.70	1.74	15.30	6.10	33	
Average PW	5.43		0.45	0.36	1.20	1.56	0.77	57.70	1.74	15.30	6.10	33	
Down-gradient (DG) Mar-27-98	4.90		0.15	0.17	2.80	2.97	0.04	53.60	2.15	14.80	4.80	30	
Average DG	4.90		0.15	0.17	2.80	2.97	0.04	53.60	2.15	14.80	4.80	30	
Background (BG) Mar-27-98	4.93		0.21	0.22	0.60	0.82	0.14	1.40	1.15	18.10	5.50	23	
Average BG	4.93		0.21	0.22	0.60	0.82	0.14	1.40	1.15	18.10	5.50	23	

Water Quality Results

Puraflo Peat Biofilter

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date:			Nov-19-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-27-98	491.00	146.70	40.78	36.93	0.00	36.93	9.73	211.80	0.85	20.90	6.70	2,000,000	
Average PT	491.00	146.70	40.78	36.93	0.00	36.93	9.73	211.80	0.85	20.90	6.70	2,000,000	
Sample Chamber (SC) Mar-27-98	4.40	40.00	2.45	2.85	39.30	42.15	9.82	45.00	2.24	19.90	3.90	13	
Average SC	4.40	40.00	2.45	2.85	39.30	42.15	9.82	45.00	2.24	19.90	3.90	13	
Pad Well (PW#) Mar-27-98	4.47		0.47	0.39	23.50	23.89	3.22	34.50	1.86	16.30	5.30	3	
Average PW#	4.47		0.47	0.39	23.50	23.89	3.22	34.50	1.86	16.30	5.30	3	
Down-gradient (DG) Mar-27-98	6.83		0.18	0.16	18.50	18.66	2.30	28.30	1.12	16.80	5.50	3	
Average DG	6.83		0.18	0.16	18.50	18.66	2.30	28.30	1.12	16.80	5.50	3	
Background (BG) Mar-27-98	6.73		0.37	0.39	0.50	0.89	0.02	3.10	2.48	15.50	4.70	<1 <1	
Average BG	6.73		0.37	0.39	0.50	0.89	0.02	3.10	2.48	15.50	4.70	<1	

Water Quality Results

Puraflo Peat Biofilter

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-21-98	575.00	3,520.0	36.79	35.16	0.20	35.36	8.64	814.70	1.49	9.70	7.40	>20,000,000	
Average PT	575.00	3520.00	36.79	35.16	0.20	35.36	8.64	814.70	1.49	9.70	7.40	>20,000,000	
Sample Chamber (SC) Mar-21-98	<1	227.00	0.45	0.50	36.20	36.70	7.42	659.40	1.44	7.90	6.60	>200,000	
Average SC	<1	227.00	0.45	0.50	36.20	36.70	7.42	659.40	1.44	7.90	6.60	>200,000	
Pad Well (PW) Mar-21-98													No sample
Average PW#													
Down-gradient (DG) Mar-21-98													No sample
Average DG													
Background (BG) Mar-21-98													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date:			Aug. 6, 1996				Design Flow:	600	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-21-98	75.00	66.70	6.71	7.44	0.00	7.44	1.74	20.80	1.43	7.70	6.50	466,667	
Average PT	75.00	66.70	6.71	7.44	0.00	7.44	1.74	20.80	1.43	7.70	6.50	466,667	
Sample Chamber (SC) Mar-21-98	1.90	6.70	0.18	0.19	1.70	1.89	1.03	0.30	1.62	7.40	4.50	232	
Average SC	1.90	6.70	0.18	0.19	1.70	1.89	1.03	0.30	1.62	7.40	4.50	232	
Pad Well (PW#1) Mar-21-98													No sample
Average PW#1													
Down-gradient (DG) Mar-21-98	5.73		0.07	0.09	2.90	6.95	0.31	3.00	1.46	7.00	5.90	226	
Average DG	5.73		0.07	0.09	2.90	6.95	0.31	3.00	1.46	7.00	5.90	226	
Background (BG) Mar-21-98	2.07		0.09	0.09	1.20	1.29	0.09	21.30	1.67	7.50	5.90	<1	
Average BG	2.07		0.09	0.09	1.20	1.29	0.09	21.30	1.67	7.50	5.90	<1	
Pad Well (PW#2) Mar-21-98	6.27		0.16	0.76	1.70	3.28	0.16	18.20	1.50	7.20	6.00	30	
Average PW#2	6.27		0.16	0.76	1.70	3.28	0.16	18.20	1.50	7.20	6.00	30	

Water Quality Results

Puraflo Peat Biofilter

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-21-98	315.00	993.30	0.24	24.24	0.20	24.44	4.71	1,178.00	1.33	8.10	7.90	>2,000,000	
Average PT	315.00	993.30	0.24	24.24	0.20	24.44	4.71	1178.00	1.33	8.10	7.90	>2,000,000	
Sample Chamber (SC) Mar-21-98	2.30	73.30	1.45	1.44	29.80	31.24	3.73	1,022.70	1.30	8.10	7.00	>200,000	
Average SC	2.30	73.30	1.45	1.44	29.80	31.24	3.73	1022.70	1.30	8.10	7.00	>200,000	
Pad Well (PW) Mar-21-98													No sample
Average PW													
Down-gradient (DG) Mar-21-98	3.33		0.58	0.50	0.00	0.50	3.40	92.30	1.12	7.90	6.70	600	
Average DG	3.33		0.58	0.50	0.00	0.50	3.40	92.30	1.12	7.90	6.70	600	
Downfall (DF-1) Mar-21-98	2.27		0.24	0.22	3.10	3.32	0.50	424.10	1.17	8.10	6.10	467	
Average DF-1	2.27		0.24	0.22	3.10	3.32	0.50	424.10	1.17	8.10	6.10	467	
Downfall (DF-2) Mar-21-98	3.00		0.12	0.15	2.70	2.85	0.64	54.40	1.19	7.80	6.60	>200,000	
Average DF-2	3.00		0.12	0.15	2.70	2.85	0.64	54.40	1.19	7.80	6.60	>200,000	

Water Quality Results

Puraflo Peat Biofilter

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-21-98													Pump still Covered by the mulch garden.
Average PT													
Sample Chamber (SC) Mar-21-98	9.23	140.00	0.51	0.36	19.40	19.76	3.71	768.50	1.70	7.70	7.00	120,000	
Average SC	9.23	140.00	0.51	0.36	19.40	19.76	3.71	768.50	1.70	7.70	7.00	120,000	
Downfall (DF#2) Mar-21-98	9.53		0.29	0.27	1.60	1.87	0.65	61.60	1.63	7.70	7.80	76,666	
Average PW#	9.53		0.29	0.27	1.60	1.87	0.65	61.60	1.63	7.70	7.80	76,666	
Down-gradient (DG) Mar-21-98													No sample
Average DG													
Background (BG) Mar-21-98													No sample
Average BG													

Water Quality Results

Puraflo Peat Biofilter

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-21-98													No sample
Average PT													
Sample Chamber (SC) Mar-21-98	4.30	353.00	5.93	6.29	25.60	31.89	3.62	27.00	1.34	7.50	5.00	>200,000	Heavy solids accumulated in the container
Average SC	4.30	353.00	5.93	6.29	25.60	31.89	3.62	27.00	1.34	7.50	5.00	>200,000	
Pad Well (PW#) Mar-21-98													No sample
Average PW#													
Down-gradient (DG) Mar-21-98													No sample
Average DG													
Background (BG) Mar-21-98	3.80		0.25	0.18	0.20	0.38	0.09	10.30	1.43	8.00	5.10	<1	
Average BG	3.80		0.25	0.18	0.20	0.38	0.09	10.30	1.43	8.00	5.10	<1	

Puraflo Peat Biofilter

Link Project							Virginia Beach. VA						
Installation Date:		Aug-8-95					Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-25-98	350.50	506.70	27.52	36.96	0.60	37.56	5.66	2,336.70	1.06	17.70	7.10	>20,000,000	
Average PT	350.50	506.70	27.52	36.96	0.60	37.56	5.66	2336.70	1.06	17.70	7.10	>20,000,000	
Sample Chamber (SC) Mar-25-98	8.53	93.30	0.14	0.14	31.80	31.94	11.77	1,620.00	1.43	14.60	6.70	287	Sand accumulated at the bottom of container
Average SC	8.53	93.30	0.14	0.14	31.80	31.94	11.77	1620.00	1.43	14.60	6.70	287	
Pad Well (PW#) Mar-25-98	4.90		0.22	0.16	3.80	3.96	3.16	1,468.20	1.09	14.60	6.30	90,000	
Average PW#	4.90		0.22	0.16	3.80	3.96	3.16	1,468.20	1.09	14.60	6.30	90,000	
Down-gradient (DG) Mar-25-98	2.90		0.17	0.18	0.20	0.38	2.08	51.30	1.43	13.20	5.30	73,333	
Average DG	2.90		0.17	0.18	0.20	0.38	2.08	51.30	1.43	13.20	5.30	73,333	
Background (BG) Mar-25-98	2.30		0.18	0.16	0.50	0.66	0.60	20.30	1.10	14.00	2.80	60,000	
Average BG	2.30		0.18	0.16	0.50	0.66	0.60	20.30	1.10	14.00	2.80	60,000	

Puraflo Peat Biofilter

Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-25-98	465.50	310.00	22.36	18.05	0.00	18.05	7.60	110.40	0.84	13.40	8.60	20,000,000	
Average PT	465.50	310.00	22.36	18.05	0.00	18.05	7.60	110.40	0.84	13.40	8.60	20,000,000	
Sample Chamber (SC) Mar-25-98	3.53	13.30	0.18	0.23	33.80	34.03	5.58	76.20	1.09	13.50	6.70	183,333	SC container was half full
Average SC	3.53	13.30	0.18	0.23	33.80	34.03	5.58	76.20	1.09	13.50	6.70	183,333	
Pad Well (PW#) Mar-25-98	7.97		2.38	2.49	7.40	9.89	0.32	48.90	1.11	13.00	6.30	22	
Average PW#	7.97		2.38	2.49	7.40	9.89	0.32	48.90	1.11	13.00	6.30	22	
Down Gradient (DG) Mar-25-98	8.37		2.02	2.19	13.60	15.79	0.18	59.50	1.09	13.40	5.90	35	
Average DG	8.37		2.02	2.19	13.60	15.79	0.18	59.50	1.09	13.40	5.90	35	
Background (BG) Mar-25-98	9.37		0.69	0.70	1.00	1.70	0.16	21.10	1.13	14.40	6.20	27	
Average BG	9.37		0.69	0.70	1.00	1.70	0.16	21.10	1.13	14.40	6.20	27	

Puraflo Peat Biofilter

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-30-98	369.00	113.30	50.14	41.80	0.00	41.80	5.17	48.40	0.90	15.20	9.10	2,000,000	
Average PT	369.00	113.30	50.14	41.80	0.00	41.80	5.17	48.40	0.90	15.20	9.10	2,000,000	
Sample Chamber (SC) Mar-30-98	13.70	26.70	*	0.59	3.00	3.59	0.06	51.30	1.13	19.20	7.10	2,000,000	Raw manure smell in the area NH3 analysis not performed. due to lack of sample volume
Average SC	29.30	26.70	*	0.59	3.00	3.59	0.06	51.30	1.13	19.20	7.10	2,000,000	
Pad Well (PW#) Mar-30-98													No sample
Average PW#													
Down-gradient (DG) Mar-30-98	6.20		0.08	0.13	0.00	0.13	0.04	5.80	0.45	14.70	5.10	20	
Average DG	6.20		0.08	0.13	0.00	0.13	0.04	5.80	0.45	14.70	5.10	20	
Background (BG) Mar-30-98	7.60		0.17	0.12	0.00	0.12	0.02	21.00	0.61	16.60	6.10	17	
Average BG	7.60		0.17	0.12	0.00	0.12	0.02	21.00	0.61	16.60	6.10	17	

Puraflo Peat Biofilter

Brown							Richmond, VA						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-15-98	218.00	53.30	31.82	62.28	0.70	62.98	3.41	146.10	0.55	11.30	7.50	20,000,000	Damp site. House under
Average PT	218.00	53.30	31.82	62.28	0.70	62.98	3.41	146.10	0.55	11.30	7.50	20,000,000	construction.
Sample Chamber (SC) Mar-15-98													No Sample
Average SC													
Pad Well (PW#) Mar-15-98	6.87		0.21	0.21	23.00	23.21	0.03	25.60	0.63	10.10	4.80	440	
Average PW#	6.87		0.21	0.21	23.00	23.21	0.03	25.60	0.63	10.10	4.80	440	
Down-gradient (DG) Mar-15-98	2.50		0.14	0.12	15.90	16.02	0.16	20.10	0.61	10.00	5.20	63	
Average DG	2.50		0.14	0.12	15.90	16.02	0.16	20.10	0.61	10.00	5.20	63	
Background (BG) Mar-15-98	2.70		0.25	0.14	0.10	0.24	*	8.80	0.74	9.30	4.70	<1 <1	Phos. analysis could not be performed due to lack of volume.
Average BG	2.70		0.25	0.14	0.10	0.24	*	8.80	0.74	9.30	4.70	<1	

Puraflo Peat Biofilter

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-21-98	121.50	73.30	0.35	0.33	~	0.33	0.17	~	1.16	7.10	7.20	86,667	
Average PT	121.50	73.30	0.35	0.33	~	0.33	0.17	~	1.16	7.10	7.20	86,667	
Sample Chamber (SC) Mar-21-98	3.47	6.70	0.19	0.22	0.70	0.92	0.13	0.80	1.15	7.30	7.10	633	New site, first time sampling
Average SC	3.47	6.70	0.19	0.22	0.70	0.92	0.13	0.80	1.15	7.30	7.10	633	
Downfall DF Mar-21-98	13.27		0.22	0.23	0.40	0.63	0.11	38.30	1.24	7.30	7.30	40	New site, first time sampling
Average PW#	13.27		0.22	0.23	0.40	0.63	0.11	38.30	1.24	7.30	7.30	40	
Down-gradient (DG) Mar-21-98	16.93		0.37	0.28	0.70	0.98	0.10	24.20	1.02	7.10	6.50	113,333	New site, first time sampling
Average DG	16.93		0.37	0.28	0.70	0.98	0.10	24.20	1.02	7.10	6.50	113,333	
Background (BG) Mar-21-98	1.40		0.29	0.29	~	0.29	0.12	~	1.05	7.10	12.40	<1	New site, first time sampling
Average BG	1.40		0.29	0.29	~	0.29	0.12	~	1.05	7.10	12.40	<1	

Puraflo Peat Biofilter

L.Smith — **West Moreland County**

Installation Date: — Design Flow: 450 gpd — Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Apr-1-98	476.50	293.30	65.96	3.40	1.70	5.10	6.98	66.60	1.08	18.50	7.40	8,333,333	Slightly damp.
Average PT	476.50	293.30	65.96	3.40	1.70	5.10	6.98	66.60	1.08	18.50	7.40	8,333,333	
Sample Chamber (SC) Apr-1-98													No sample New site, first time sampling
Average SC													
Pad Well (PW#) Apr-1-98	11.83		*	*	2.90	*	*	2.50	0.70	16.70	6.00	22	Phos., NH3, TKN not performed due to lack of sample volume Slightly damp.
Average PW#	11.83		*	*	2.90	*	*	2.50	0.70	16.70	6.00	22	New site, first time sampling
Down-gradient (DG) Apr-1-98	5.83		0.12	0.35	0.30	0.65	0.04	4.70	0.51	16.60	5.20	120	New site, first time sampling Slightly damp.
Average DG	5.83		0.12	0.35	0.30	0.65	0.04	4.70	0.51	16.60	5.20	120	
Background (BG) Apr-1-98	31.67		0.14	0.12	0.00	0.12	0.33	4.70	0.58	16.10	5.00	32	New site, first time sampling Slightly damp.
Average BG	31.67		0.14	0.12	0.00	0.12	0.33	4.70	0.58	16.10	5.00	32	

Puraflo Peat Biofilter

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Apr-1-98													No sample
Average PT													
Sample Chamber (SC) Apr-1-98													No sample
Average SC													
Pad Well (PW#) Apr-1-98	5.10		0.23	0.21	2.60	2.81	4.49	1.00	0.51	16.40	6.00	22	No one living on premise Under construction, very damp.
Average PW#	5.10		0.23	0.21	2.60	2.81	4.49	1.00	0.51	16.40	6.00	22	
Down-gradient (DG) Apr-1-98	1.93		0.38	0.35	2.20	2.55	0.96	4.40	0.57	16.80	5.90	11,333	
Average DG	1.93		0.38	0.35	2.20	2.55	0.96	4.40	0.57	16.80	5.90	11,333	
Background (BG) Apr-1-98	4.27		0.37	0.15	0.10	0.25	1.39	2.00	0.58	14.90	6.00	<1 <1	
Average BG	4.27		0.37	0.15	0.10	0.25	1.39	2.00	0.58	14.90	6.00	<1	

Puraflo Peat Biofilter

Brown							Gloucester, Virginia						
												Soil Texture Group I	
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-18-98	143.00	46.70	31.82	*	0.60	*	*	2,075.50	0.78	10.90	8.40	>20,000,000	Nutrient analysis not performed due to lack of sufficient sample volume
Average PT	143.00	46.70	31.82	*	0.60	*	*	2075.50	0.78	10.90	8.40	>20,000,000	
Sample Chamber (SC) Mar-18-98	2.90	66.70	0.47	0.67	47.20	47.87	4.92	2,210.80	1.25	9.50	4.40	>200,000	Site was flooded Very wet. Standing water due to heavy storms
Average SC	2.90	66.70	0.47	0.67	47.20	47.87	4.92	2210.80	1.25	9.50	4.40	>200,000	
Pad Well (PW#) Mar-18-98	1.10		0.21	0.23	21.20	21.43	1.10	1,217.70	1.52	9.20	5.50	>20,000	Very wet. Standing water due to heavy storms
Average PW#	1.10		0.21	0.23	21.20	21.43	1.10	1,217.70	1.52	9.20	5.50	>20,000	
Down-gradient (DG) Mar-18-98	<1		0.14	0.14	3.70	3.84	0.62	30.80	1.33	9.30	5.50	>20,000	Very wet. Standing water due to heavy storms
Average DG	<1		0.14	0.14	3.70	3.84	0.62	30.80	1.33	9.30	5.50	>20,000	
Background (BG) Mar-18-98	<1		0.25	*	2.80	*	*	4.70	1.54	9.60	5.50	>2,000	*Phos. analysis not performed. Very wet. Standing water due to heavy storms
Average BG	<1		0.25	*	2.80	*	*	4.70	1.54	9.60	5.50	>2,000	

Puraflo Peat Biofilter

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow:	300	gpd				Soil Texture Group
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Mar-11-98	40.75	13.00	0.33	0.48	0.30	0.78	0.15	29.00	0.54	9.40	6.30	<1 <1	
Average PT	40.75	13.00	0.33	0.48	0.30	0.78	0.15	29.00	0.54	9.40	6.30	<1	
Sample Chamber (SC) Mar-11-98	4.43	13.30	0.07	0.98	0.30	1.28	0.05	27.50	0.53	9.40	6.50	<1 <1 <1	
Average SC	<1	13.30	0.07	0.98	0.30	1.28	0.05	27.50	0.53	9.40	6.50	<1	
Pad Well (PW) Mar-11-98	4.00		0.13	0.28	0.00	0.28	0.06	17.80	0.50	9.80	5.30	<1 <1	
Average PW#	4.00		0.13	0.28	0.00	0.28	0.06	17.80	0.50	9.80	5.30	<1	
Down-gradient (DG) Mar-11-98	3.70		0.14	0.21	0.00	0.21	0.04	17.70	0.53	8.90	5.40	<1 <1	Oily Sheen on water surface before purge.
Average DG	3.70		0.14	0.21	0.00	0.21	0.04	17.70	0.53	8.90	5.40	<1	
Background (BG) Mar-11-98	6.40		0.19	0.18	0.00	0.18	0.07	24.90	0.51	9.90	6.60	<1 <1	Site surrounded by water. Sample may be compromised by standing water.
Average BG	6.40		0.19	0.18	0.00	0.18	0.07	24.90	0.51	9.90	6.60	<1	

Summary of BOD for Mar. 98

Analyst: **Sudhanva Paranjape**

Site	BOD(mg/l)	Site	OD (mg/l)
Stanley SC	2.3	Easter SC	4.9
Stanley pump	315.0	Easter pump	479.5
Stanley DG	3.3	Easter DG	4.9
Stanley DF-1	2.3	Easter PW	5.4
Stanley DF-2	3.0	Easter BG	4.9
Jacobson BG	2.1	Link SC	8.5
Jacobson SC	1.9	Link pump	350.5
Jacobson pump	75.0	Link PW	4.9
Jacobson PW2	6.3	Link DG	2.9
Jacobson DG	5.7	Link BG	2.3
Anderson SC	9.2	Samson SC	0.7
Anderson DF2	9.5	Samson pump	575.0
AOA SC	7.6	Sharf SC	3.5
AOA DG	8.4	Sharf pump	465.5
AOA Pump	143.5	Sharf DG	8.4
AOA PW	5.1	Sharf PW	8.0
AOA BG	3.3	Sharf BG	9.4
Sawmill SC	9.0	Harmon SC	13.7
Sawmill PW1	7.7	Harmon pump	369.0
Sawmill PW2	7.5	Harmon DG	6.2
Sawmill DG	15.5	Harmon BG	7.6
Sawmill BG	5.2	Brown pump	218.0
LongArthur DG	2.8	Brown PW	6.9
LongArthur PW	1.2	Brown DG	2.5
LongArthur BG	3.3	Brown BG	2.7
LongArthur SC	2.4	Merrit SC	18.6
Kemp SC	4.0	Merrit PW	8.5
Kemp pump	54.0	Merrit BG	5.2
Kemp DG	4.8	Glo Brown SC	2.9
Kemp PW	4.5	Glo Brown pump	143.0
Kemp BG	9.0	Glo Brown PW	1.1
Nesbitt BG	4.0	Glo Brown DG	<1
Nesbitt SC		Glo Brown BG	<1
Nesbitt PW	2.9	Tsmith BG	3.8
Nesbitt PUMP	277.0	Tsmith SC	4.3
Nesbitt DG	5.3	Dsmith SC	3.5
Farell SC	4.4	Dsmith pump	121.5
Farrell PW	4.0	Dsmith BG	1.4
Farrell BG	6.4	Dsmith DG	16.9
Farell pump	40.8	Dsmith DF	13.3
Farell DG	3.7	Henderson PW	5.1
Munford SC	4.4	Henderson DG	1.9
Munford pump	491.0	Henderson BG	4.4
Munford PW	4.5	Smith (MW) pump	476.5
Munford DG	6.8	Smith (MW) BG	31.7
Munford BG	6.7	Smith (MW) DG	5.8
		Smith (MW) PW	11.8

Summary of fecal coliform results

Fecal Coliform - March 98

Analyst: Sudhanva Paranjape

Site	sample Aliquot =30ml					Colonies/100ml of sample				
	Dilution									
	1/10.00	1/100.00	1/1000.00	1/10000.0	1/100000	1/10.00	1/100.00	1/1000.00	1/10000.0	1/100000
Stanley SC	TNTC	TNTC	TNTC			TNTC	TNTC	TNTC		
Stanley pump		TNTC	TNTC	TNTC			TNTC	TNTC	TNTC	
Stanley DG		TNTC	180				TNTC	600000		
Stanley DF-1		TNTC	140				TNTC	466666.7		
Stanley DF-2		TNTC	TNTC				TNTC	TNTC		
Jacobson BG		0	0				<1	<1		
Jacobson SC	80	10	1			2666.7	3333.33	3333.333		
Jacobson pump		TNTC	TNTC	14			TNTC	TNTC	466666.67	
Jacobson PW2		16	2				5333.33	6666.667		
Jacobson DG		120	19				40000	63333.33		
Anderson SC	TNTC	TNTC	36			TNTC	TNTC	120000		
Anderson DF2		140	23				46666.7	76666.67		
AOA SC	22	0	0			733.33	<1	<1		
AOA DG		90	1				3000	3333.333		
AOA Pump		TNTC	TNTC	TNTC			TNTC	TNTC	TNTC	
AOA PW		86	6				28666.7	20000		
AOA BG		0	0				<1	<1		
Sawmill SC	0	0	0			<1	<1	<1		
Sawmill PW1			18	3				60000	100000	
Sawmill PW2			1	0				3333.333	<1	
Sawmill DG			9	1				30000	33333.333	
Sawmill BG			9	1				30000	33333.33	
LongArthur DG		120	29				40000	96666.67		
LongArthur PW		144	17				48000	56666.67		
LongArthur BG		0	0				<1	<1		
LongArthur SC	TNTC	24	0			TNTC	8000	<1		
Kemp pump		TNTC	13	1			TNTC	43333.33	33333.333	
Kemp SC	0	0	0			<1	<1	<1		
Kemp DG		0	0				<1	<1		
Kemp PW		0	0				<1	<1		
Kemp BG		0	0				<1	<1		
Nesbitt SC										
Nesbitt PW		0	0				<1	<1		
Nesbitt PUMP		TNTC	TNTC	132			TNTC	TNTC	4400000	
Nesbitt DG		21	3				7000	10000		
Nesbitt BG		15	1				5000	3333.333		
Farell SC	0	0	0			<1	<1	<1		
Farrell PW		0	0				<1	<1		
Farrell BG		0	0				<1	<1		
Farell pump		1	0	0			333.333	<1	<1	
Farell DG		0	0				<1	<1		
Munford SC	4	0	0			133.33	<1	<1		
Munford pump			TNTC	48	7			TNTC	1600000	2333333
Munford PW			1	0			333.333	<1		

Summary of fecal coliform results

Munford DG			1	0			333.333	<1		
Munford BG			0	0			<1	<1		
Easter SC	7	0	0			233.33	<1	<1		
Easter pump			TNTC	63	7			TNTC	2100000	2333333
Easter DG			16	2				53333.33	66666.667	
Easter PW			9	1				30000	33333.333	
Easter BG			13	1				43333.33	33333.333	
Link SC		TNTC	160	12			TNTC	533333.3	400000	
Link pump			TNTC	TNTC	TNTC			TNTC	TNTC	TNTC
Link PW			27	2				90000	66666.667	
Link DG			22	7				73333.33	233333.33	
Link BG			13	1				43333.33	33333.333	
Samson SC	TNTC	TNTC	TNTC			TNTC	TNTC	TNTC		
Samson pump		TNTC	TNTC	TNTC			TNTC	TNTC	TNTC	
Sharf SC		TNTC	55	3			TNTC	183333.3	100000	
Sharf pump			TNTC	TNTC	TNTC			TNTC	TNTC	TNTC
Sharf PW			12	1				40000	33333.333	
Sharf DG			17	4				56666.67	133333.33	
Sharf BG			15	1				50000	33333.33	
Harmon SC	TNTC	TNTC	TNTC			TNTC	TNTC	TNTC		
Harmon pump		TNTC	TNTC	TNTC			TNTC	TNTC	TNTC	
Harmon BG			9	1				30000	33333.333	
Harmon DG			10	2				33333.33	66666.667	
Brown SC										
Brown pump			TNTC	TNTC	TNTC			TNTC	TNTC	TNTC
Brown PW		TNTC	132				TNTC	440000		
Brown DG		TNTC	19				TNTC	63333.33		
Brown BG		0	0				<1	<1		
Glo Brown SC	TNTC	TNTC	TNTC			TNTC	TNTC	TNTC		
Glo Brown pump			TNTC	TNTC	TNTC			TNTC	TNTC	TNTC
Glo Brown BG		TNTC	13				TNTC	43333.33		
Glo Brown DG		TNTC	TNTC				TNTC	TNTC		
Glo Brown PW		TNTC	TNTC				TNTC	TNTC		
Dsmith SC	TNTC	TNTC	19			TNTC	TNTC	63333.33		
Dsmith pump		156	26	4			52000	86666.67	133333.33	
Dsmith DG		TNTC	34				TNTC	113333.3		
Dsmith BG		1	0				333.333	<1		
Dsmith DF		TNTC	12				TNTC	40000		
Tsmith SC	TNTC	TNTC	TNTC			TNTC	TNTC	TNTC		
Tsmith BG		0	0				<1	<1		
smith(MW) pump			TNTC	TNTC	25			TNTC	TNTC	8333333
smith(MW) BG		18	1				6000	3333.333		
smith(MW) DG		65	7				21666.7	23333.33		
smith(MW) PW		12	1				4000	3333.3		
Henderson PW		12	1				4000	3333.33		
Henderson DG		34	2				11333.3	6666.667		
Henderson BG		0	0				<1	<1		
Merrit SC	TNTC	24	1			TNTC	8000	3333.33		
Merrit PW			7	1				23333.33	33333.333	
Merrit BG			16	2				53333.33	66666.667	

Summary of Solids, pH & DO for Mar 98			
Analyst: Sudhanva Paranjape			
Site	Solids	pH	D.O.
	mg/l		mg/l
Stanley SC	73.3	7	1.3
Stanley pump	993.3	7.9	1.33
Stanley DG		6.7	1.12
Stanley DF-1		6.1	1.17
Stanley DF-2		6.6	1.19
Jacobson BG		5.9	1.67
Jacobson SC	6.7	4.5	1.62
Jacobson pump	66.7	6.5	1.43
Jacobson PW2		6	1.5
Jacobson DG		5.9	1.46
Anderson SC	140.0	7	1.7
Anderson DF2		7.8	1.63
AOA SC	13.3	6.5	0.48
AOA DG		6.9	0.52
AOA Pump	13.3	7.4	0.42
AOA PW		6.9	0.77
AOA BG		6.2	0.87
Sawmill SC	26.7	6.4	0.95
Sawmill PW1		5.5	0.61
Sawmill PW2		5.7	0.64
Sawmill DG		5.7	1.31
Sawmill BG		4.2	0.61
LongArthur DG		5	0.68
LongArthur PW		5.7	0.69
LongArthur BG		5.2	0.71
LongArthur SC	73.3	4.6	0.72
Kemp SC	100.0	7	0.61
Kemp pump	6.7	7.4	0.55
Kemp DG		6.3	0.54
Kemp PW		6.4	0.56
Kemp BG		5.5	0.62
Nesbitt BG		5.6	N/A
Nesbitt PW		5.2	0.85
Nesbitt PUMP	173.3	7.1	0.67
Nesbitt DG		6.2	0.86
Farell SC	13.3	6.5	0.53
Farrell PW		5.3	0.5
Farrell BG		6	0.51
Farell pump	13.3	6.3	0.54
Farell DG		5.4	0.53
Munford SC	40.0	3.9	2.24
Munford pump	146.7	6.7	0.85
Munford PW		5.3	1.86
Munford DG		5.5	1.12
Munford BG		4.7	2.48

Site	Solids	pH	D.O.
	mg/l		mg/l
Easter SC	33.3	6.4	1.31
Easter pump	433.3	6.7	0.78
Easter DG		4.8	2.15
Easter PW		6.1	1.74
Easter BG		5.5	1.15
Link SC	93.3	6.7	1.43
Link pump	506.7	7.1	1.06
Link PW		6.3	1.09
Link DG		5.3	1.43
Link BG		2.8	1.1
Samson SC	226.7	6.6	1.44
Samson pump	3520.0	7.4	1.49
Sharf SC	13.3	6.7	1.09
Sharf pump	310.0	8.6	0.84
Sharf DG		5.9	1.09
Sharf PW		6.3	1.11
Sharf BG		6.2	1.13
Harmon SC	26.7	7.1	1.13
Harmon pump	200.0	9.1	0.9
Harmon DG		5.1	0.45
Harmon BG		6.1	0.61
Brown pump	53.3	7.5	0.55
Brown PW		4.8	0.63
Brown DG		5.2	0.61
Brown BG		4.7	0.74
Merrit SC	6.7	6.7	0.89
Merrit PW		6.3	2.2
Merrit BG		6.2	0.81
Glo Brown SC	66.7	4.4	1.25
Glo Brown pump	46.7	8.4	0.78
Glo Brown PW		5.5	1.52
Glo Brown DG		5.5	1.33
Glo Brown BG		5.5	1.54
Tsmith BG		5.1	1.43
Tsmith SC	353.3	5	1.34
Dsmith SC	6.7	7.1	1.15
Dsmith pump	73.3	7.2	1.16
Dsmith BG		12.4	1.05
Dsmith DG		6.5	1.02
Dsmith DF		7.3	1.24
Henderson PW		6	0.51
Henderson DG		5.9	0.57
Henderson BG		6	0.58
Smith (MW) pump	293.3	7.4	1.08
Smith (MW) BG		5	0.58
Smith (MW) DG		5.2	0.51
Smith (MW) PW		6	0.2

	IC Results for March' 98						
Sample	NO2--N	NO3--N	CL	Sample	NO2--N	NO3--N	CL
	Conc, mg/L	Conc, mg/L	Conc, mg/L		Conc, mg/L	Conc, mg/L	Conc, mg/L
Stanley SC	0.0	29.8	1022.7	Easter PW	0.0	1.2	57.7
Stanley pump	0.0	0.2	1178.0	Easter BG	0.0	0.6	1.4
Stanley DG	0.0	0.0	92.3	Link SC	0.0	31.8	1620.0
Stanley DF-1	0.0	3.1	424.1	Link pump	0.0	0.6	2336.7
Stanley DF-2	0.0	2.7	54.4	Link PW	0.0	3.8	1468.2
Jacobson BG	0.0	1.2	21.3	Link DG	0.0	0.2	51.3
Jacobson SC	0.0	1.7	0.3	Link BG	0.0	0.5	20.3
Jacobson pump	0.0	0.0	20.8	Samson SC	0.0	36.2	659.4
Jacobson DG	0.0	2.9	3.0	Samson pump	0.0	0.2	814.7
Jacobson PW2	0.0	1.7	18.2	Sharf SC	0.0	33.8	76.2
Anderson DF2	0.0	1.6	61.6	Sharf pump	0.0	0.0	110.4
Anderson SC	0.0	19.4	768.5	Sharf DG	0.2	13.4	59.5
AOA SC	0.1	12.3	0.9	Sharf PW	0.0	7.4	48.9
AOA DG	0.0	0.9	3.8	Sharf BG	0.0	1.0	21.2
AOA Pump	0.0	0.0	18.6	Harmon SC	0.0	3.0	51.3
AOA PW	0.0	1.6	6.1	Harmon pump	0.0	0.0	48.4
AOA BG	0.0	0.1	6.0	Harmon DG	0.0	0.0	5.8
Sawmill SC	0.4	32.7	50.9	Harmon BG	0.0	0.0	21.0
Sawmill PW1	0.0	2.6	67.0	Glo Brown SC	0.0	47.2	2210.8
Sawmill DG	0.0	2.8	28.8	Glo Brown pump	0.0	0.6	2075.5
Sawmill BG	0.0	0.9	40.4	Glo Brown DG	0.0	3.7	30.8
Sawmill PW2	0.0	1.9	22.0	Glo Brown PW	0.0	21.2	1217.7
LongArthur DG	0.0	0.9	16.7	Glo Brown BG	0.0	2.8	4.7
LongArthur PW	0.0	11.3	23.6	Merrit SC	0.0	155.9	2377.5
LongArthur BG	0.0	0.1	5.7	Merrit PW	0.0	31.8	842.2
LongArthur SC	0.0	32.4	65.5	Merrit BG	0.0	0.4	118.0
Kemp SC	0.0	9.7	32.8	Brown pump	0.0	0.7	146.1
Kemp Pump	0.0	0.0	88.4	Brown DG	0.0	15.9	20.1
Kemp DG	0.0	0.0	8.2	Brown PW	0.0	23.0	25.6
Kemp PW	0.0	4.8	125.6	Brown BG	0.0	0.1	8.8
Kemp BG	0.0	0.0	10.7	Dsmith DF	0.0	0.4	38.3
Nesbitt PW	0.0	15.3	17.6	DSmith SC	0.0	0.7	0.8
Nesbitt PUMP	0.0	0.0	39.2	Dsmith DG	0.0	0.7	24.2
Nesbitt DG	0.0	0.1	17.8	TSmith SC	0.2	25.4	27.0
Nesbitt BG	0.0	0.2	15.0	Tsmith BG	0.0	0.2	10.3
Farell SC	0.0	0.3	27.5	Smith(MW) BG	0.0	0.0	4.7
Farrell PW	0.0	0.0	17.8	Smith(MW) DG	0.0	0.3	4.7
Farrell BG	0.0	0.0	24.9	Smith(MW) pump	0.1	1.6	66.6
Farell pump	0.0	0.3	29.0	Smith(MW) PW	0.3	2.6	2.5
Farell DG	0.0	0.0	17.7	Henderson PW	0.0	2.6	1.0
Munford SC	0.0	39.3	45.0	Henderson DG	0.0	2.2	4.4
Munford pump	0.0	0.0	211.8	Henderson BG	0.0	0.1	2.0
Munford PW	0.0	23.5	34.5				
Munford DG	0.0	18.5	28.3				
Munford BG	0.0	0.5	3.1				
Easter SC	0.0	22.3	36.2				
Easter pump	0.2	0.0	55.2				
Easter DG	0.0	2.8	53.6				

Total Phosphorus

Date of Analysis 4/09/98
Date of Samples 3-11-98/ 3-15-98
3-16-98

Analyst JAR
Run # 1

Month March

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
S1	STD 0.0	~~S1~~ 1			0.000			
S2	STD 0.05	~~S2~~ 2			0.079			
S3	STD 0.25	~~3~~ 3			.371			
S4	STD 0.50	4			.796			
S5	STD 1.00	5			1.584			
1	Farrell GT BG	6	3-11-98	25	.103	0.07	x1	0.07
2	PW	7		25	.084	0.06	x1	0.06
3	DG	8		25	.058	0.04	x1	0.04
4	SC	9		25	.076	0.05	1	0.05
5	Pump	10		25	.226	0.15	1	0.15
6	Norman Kemp BG	11	3-11-98	25	.018	0.02	1	0.02
7	PW	12		25	0.031	0.02	1	0.02
8	DG	13		25	.032	0.02	1	0.02
9	SC	14		25	.938	0.59	1	0.59
10	Pump	15		5	.669	0.42	x5	2.12
11	Richmond Brown Prop BG	~~16~~	3-15-98	~~25~~	NOT FOUND		1	—
12	PW	~~17~~16		25	.034	0.03	1	0.03
13	DG	~~18~~17		25	.252	0.16	1	0.16
* 14	Pump GE	~~19~~18		2.5	.536	0.341	x10	3.41
15	Nesbitt BG ~~Pump~~	~~20~~19	3-16-98	25	.097	0.07	1	0.07
16	PW	20		25	.032	0.02	1	0.02
17	DG	21		25	.004	0.01	1	0.01
18	SC	22		5	1.192	0.754	x5	3.77
19	Pump	23		2.5	.601	0.382	10	3.82
20	Long Arthur BG	24	3-15-98	25	.032	0.02	1	0.02
21	PW	25		25	.964	0.61	1	0.61
22	DG	26		25	.026	0.02	1	0.02
23	SC	27		5	1.683	1.06	x5	5.31
24	STANDARD 3 ~~0.25~~ 0.50	28			.833	0.53	1	0.53

r² 0.9998

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	106 %
% RPD	

Total Phosphorus

Date of Analysis 4/09/98 **Analyst** JAR **Month** March

Date of Samples **Run #** 1

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0							
	STD 0.05							
	STD 0.25							
	STD 0.50							
	STD 1.00							
25	Brown Glouc BG	29	3-18-98	25	1.003	0.64	~~0.64~~ 1	0.64
26	Count find PW		↓	~~2~~				
27	Count find DG			—				
28	Count find SC			—				
29	Pump	~~30~~31	↓	2.5	~~.9~~.741	0.47	x10	4.70
30	Samson SC ~~BG~~	32	3-21-98	5 x2.5	.937		12.5	7.42
31	Pump ~~PW~~	32	↓	2.5	1.368	~~8.64~~ 0.864	10	8.64
32	~~T.Smith BG DG~~		~~3-21-98~~		~~1.35~~ gone			
33	~~SC 34~~							
34	~~Pump Pump~~							
	~~T.Smith~~							
35	~~T.Smith BG MS~~							
36	~~BG MSD~~		↓					
37	~~LCS (0.50 mg/L)~~							
32	ACA RG	33		25	~~1.368~~	.024 0.02		0.02
33	DG	34		25	.280	0.18		0.18
34	PW	35		25	.650	0.41		0.41
35	SC	36		5	.387	0.247	x5	1.24
36	Pump	37		2.5	.453	0.289	x10	2.89
37	LCS (0.50 mg/L)	38			.796	0.504	—	0.50
38	Kemp BG MS	39		25	.861	0.546		0.55

Quality Control	
% Recovery MS	106%
% Recovery MSD	
% Recovery LCS	100%
% RPD	

Total PHOS
Run #1
~~Feb~~ March 1998

T-PHOS
March 1998
Run #1

* SELF TEST *
COMPLETED

* SELF TEST *
COMPLETED

ID# 1 111111
880.0NM .000 A

ID# 2 111111
880.0NM .079 A

ID# 3 111111
880.0NM .371 A

ID# 4 111111
880.0NM .796 A

ID# 5 111111
880.0NM 1.584 A

ID# 6 111111
880.0NM .103 A

ID# 7 111111
880.0NM .084 A

ID# 8 111111
880.0NM .058 A

ID# 9 111111
880.0NM .076 A

ID# 10 111111
880.0NM .226 A

ID# 11 111111
880.0NM .018 A

ID# 12 111111
880.0NM .031 A

ID# 13 111111
880.0NM .032 A

ID# 14 111111
880.0NM .938 A

ID# 15 111111
880.0NM .669 A

ID# 16 111111
880.0NM .034 A

ID# 17 111111
880.0NM .252 A

ID# 18 111111
880.0NM .536 A

ID# 19 111111
880.0NM .097 A

ID# 20 111111
880.0NM .032 A

ID# 21 111111
880.0NM .004 A

ID# 22 111111
880.0NM 1.192 A

ID# 23 111111
880.0NM .601 A

ID# 24 111111
880.0NM .032 A

ID# 25 111111
880.0NM .964 A

ID# 26 111111
880.0NM .026 A

ID# 27 111111
880.0NM 1.683 A

ID# 28 111111
880.0NM .833 A

ID# 29 111111
880.0NM 1.003 A

ID# 30 111111
880.0NM .937 A

ID# 31 111111
880.0NM .741 A

ID# 32 111111
880.0NM 1.368 A

ID# 33 111111
880.0NM .024 A

ID# 34 111111
880.0NM .280 A

ID# 35 111111
880.0NM .650 A

ID# 36 111111
880.0NM .387 A

ID# 37 111111
880.0NM .453 A

ID# 38 111111
880.0NM .796 A

ID# 39 111111
880.0NM .861 A

Total Phosphorus

Date of Analysis 4/15/98 **Analyst** JAR **Month** March

Date of Samples 03/24/98 : 03/25/98 **Run #** 2

Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
STD 0.0	1			0.000			
STD 0.05	2			.079			
STD 0.25	3			.376			
STD 0.50	4			.759			
STD 1.00	5			1.158			
T.Smith BG	6	03/24/98		.157	0.09		0.09
SC	7 38		~~25~~	~~.240~~ .200	0.72	x 5	3.62
Pump	8		~~25~~	NOT	FOUND		
Jacobsen PW3	9 7			.240	0.16		0.16
BG	10 8			.160	0.09		0.09
DG	11 9			.421	0.31		0.31
SC	12 10		~~25~~	1.262	1.032		1.03
Pump	13 18		2.5	.256	0.174	x 10	1.74
Anderson DF2	14 11			.815	0.65		0.65
SC	15 12		~~25~~ 5.0	.922	0.74	x 5	3.71
Stanley DF1	16 13			.641	0.50		0.50
DF2	17 14			.797	0.64		0.64
DG	18 15		x	.849	0.68	x 5.0	3.40
SC	19 16		5.0	.926	0.745	x 5	3.73
Pump	20 17		5.0	1.157	0.943	x 5	4.71
D.Smith DG	21 19			.168	0.10		0.10
DF	22 20			.179	0.11		0.11
BG	23 21			.193	0.12		0.12
SC	24 22		25	.203	0.13		0.13
Pump	25 23	✓	25	.253	0.17		0.17
LCS (0.50 mg/L)	26 24			.840	0.67		0.67
Sharf BG	27 ~~BG~~ 22	03/25/98		.236	0.16		0.16
PW	28 ~~PW~~ 23	↓		.427	0.32		0.32
DG	29 ~~24~~	✓		.265	0.18		0.18

r = 0.997

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	
% RPD	

Total Phosphorus

Date of Analysis 4/15/98 **Analyst** TAR **Month** March

Date of Samples 03/24/98 03/25/98 **Run #** 3 2 (cont.)

Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
STD 0.0							
STD 0.05							
STD 0.25							
STD 0.50							
STD 1.00							
Shurf SC	2528	03/25/98	50		1.361	x 5	5.58
Pump	2629		~~2.5~~ 50		1.834	x 5	7.60
Link BG	2730				.757		0.60
Pw	2831				.793	x 5	3.16
DG	2932				.540	x 5	2.08
SC	3033		5.0		.604	x 25	11.77
Pump	3134		2.5		.716	x10	5.66
Link Pump MS	3235		2.5		2.207	x10	18.39
Link Pump MSD	3336		2.5		2.135	x10	17.77
LCS (0.52 mg/L)	3437				.697		0.55

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	110%
% RPD	

matrix spikes were way out range → unable to calculate

T-PHOS March 98

Total Phosphorus
March 1998
RUN #2

* SELF TEST *
COMPLETED #2

ID# 1 111111
880.0NM .000 A

ID# 2 111111
880.0NM .079 A

ID# 3 111111
880.0NM .376 A

ID# 4 111111
880.0NM .759 A

ID# 5 111111
880.0NM 1.158 A

ID# 6 111111
880.0NM .157 A

ID# 7 111111
880.0NM .240 A

ID# 8 111111
880.0NM .160 A

ID# 9 111111
880.0NM .421 A

ID# 10 111111
880.0NM 1.262 A

ID# 11 111111
880.0NM .815 A

ID# 12 111111
880.0NM .922 A

ID# 13 111111
880.0NM .641 A

ID# 14 111111
880.0NM .797 A

ID# 15 111111
880.0NM .849 A

ID# 16 111111
880.0NM .926 A

ID# 17 111111
880.0NM 1.157 A

ID# 18 111111
880.0NM .256 A

ID# 19 111111
880.0NM .168 A

ID# 20 111111
880.0NM .179 A

ID# 21 111111
880.0NM .193 A

ID# 22 111111
880.0NM .203 A

ID# 23 111111
880.0NM .253 A

ID# 24 111111
880.0NM .840 A

ID# 25 111111
880.0NM .236 A

ID# 26 111111
880.0NM .427 A

ID# 27 111111
880.0NM .265 A

ID# 28 111111
880.0NM 1.361 A

ID# 29 111111
880.0NM 1.834 A

ID# 30 111111
880.0NM .757 A

ID# 31 111111
880.0NM .793 A

ID# 32 111111
880.0NM .540 A

ID# 33 111111
880.0NM .604 A

ID# 34 111111
880.0NM .716 A

ID# 35 111111
880.0NM 2.207 A

ID# 36 111111
880.0NM 2.135 A

ID# 37 111111
880.0NM .697 A

ID# 38 111111
880.0NM .900 A

Total Phosphorus

Date of Analysis / **Date of Samples** 03/27/98 03/30/98 | **Analyst** JAR | **Run #** 3 | **Month** March 1998

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0	1			0.000			
	STD 0.05	2			0.077			
	STD 0.25	3			0.472			
—	STD 0.50	4			0.862			
	STD 1.00	5			1.647		1	
2	Easter BG	6	03/27/98	25	0.252	0.14	1	0.14
3	PW	7	↓	25	1.289	0.77	1	0.77
4	DG	8		25	0.082	0.04	1	0.04
5	SC	9		5.0	1.573	0.94	5	4.72
6	Pump	10		2.5	1.005		10	5.99
7	Muulfeld BG	11			0.058			~~0.02~~ 0.02
8	PW							~~9.73~~
9	DG							~~0.37~~
10	SC			5.0			5	~~1.06~~
11	PUMP	12		2.5	1.621		10	9.73
12	Merritt BG	13	03/30/98		0.628		1	0.37
13	PW	14			1.760		1	1.06
14	SC	15		5.0	2.234		5	6.72
15	Harrison BG	16			0.045		1	0.02
16	DG	17			0.090		1	0.04
17	SC	18		5.0	0.037		5	0.06
18	Pump	19		2.5	0.870		10	5.17
19	Sawmill BG	20			0.042		1	0.01
20	PW1	21			0.223		1	0.12
21	PW2	22			0.197		1	0.11
22	DG	23	↓		0.069		1	~~0.11~~ 0.03
23	Brewing PW	24			1.829		1	~~0.03~~ 1.10
24	DG	25			1.044		1	0.62
25	SC	26		5.0	1.640		5	4.92
26	MS	27						
27	MSD	28						
28	LCS	29						
	Munford PW	30	4ml					
	DG	31	4					
	SC	32	4					
	Merritt SC	33	4					

r=0.9991

Quality Control	
% Recovery MS	110%
% Recovery MSD	118%
% Recovery LCS	126
% RPD	5.6

Total Phosphorus

Date of Analysis _____
Date of Samples _____

Analyst JAR
Run # 3

Month March 1998

Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
STD 0.0							
STD 0.05							
STD 0.25							
STD 0.50							
STD 1.00							
Easter BG MS	27			1.149			0.69
Easter BG MSD	28			1.219			0.73
LCS	29			1.063			0.63
Mumford PW	30		4	0.867		6.25	3.22
DG	31		4	0.624		6.25	2.30
SC	32		4	0.536		31.25	9.82
Merritt SC	33		4	0.373		6.25	1.34

Quality Control	
% Recovery MS	110%
% Recovery MSD	118%
% Recovery LCS	126%
% RPD	5.60%

Total Phosphorus
March 1998
Run # 3

39 111111

Run #3 March 1998

* SELF TEST #-PHOS
COMPLETED

ID# 1 111111
880.0NM .000 A

ID# 2 111111
880.0NM .077 A

ID# 3 111111
880.0NM .472 A

ID# 4 111111
880.0NM .862 A

ID# 5 111111
880.0NM 1.647 A

ID# 6 111111
880.0NM .252 A

ID# 7 111111
880.0NM 1.289 A

ID# 8 111111
880.0NM .082 A

ID# 9 111111
880.0NM 1.573 A

ID# 10 111111
880.0NM 1.005 A

ID# 11 111111
880.0NM .058 A

ID# 12 111111
880.0NM 1.621 A

ID# 13 111111
880.0NM .628 A

ID# 14 111111
880.0NM 1.760 A

ID# 15 111111
880.0NM 2.234 A

ID# 16 111111
880.0NM .045 A

ID# 17 111111
880.0NM .090 A

ID# 18 111111
880.0NM .037 A

ID# 19 111111
880.0NM .870 A

ID# 20 111111
880.0NM .042 A

ID# 21 111111
880.0NM .223 A

ID# 22 111111
880.0NM .197 A

ID# 23 111111
880.0NM .069 A

ID# 24 111111
880.0NM 1.829 A

ID# 25 111111
880.0NM 1.044 A

ID# 26 111111
880.0NM 1.640 A

ID# 27 111111
880.0NM 1.149 A

ID# 28 111111
880.0NM 1.219 A

ID# 29 111111
880.0NM 1.063 A

ID# 30 111111
880.0NM .867 A

ID# 31 111111
880.0NM .624 A

ID# 32 111111
880.0NM .536 A

ID# 33 111111
880.0NM .373 A

ID# 34 111111

Total Phosphorus

Date of Analysis
Date of Samples 4/01/98, 4/10/98 4/13/98

Analyst JAR
Run # 1

Month APRIL 98

	Sample ID		ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0		1						
	STD 0.05		2						
	STD 0.25		3						
	STD 0.50		4						
	STD 1.00		5						
1	Henderson	BG	31	4/01/98	25	0.434		x5	~~0.96~~ 1.39
2		PW	32	↓	25	1.416		x5	4.49
3		DG	6	↓	25	1.518	1.5		0.96
4	L. Smith	BG	33	↓	25	0.099		x5	0.33
5		DG	7	↓	25	0.057			0.04
6		Pump	8	↓	2.5	1.101		x10	6.98
7	Link	BG	9	4/10/98	25	0.826			0.52
8		PW	34	↓	25	1.001			0.64
9		DG	10	↓	25	1.165			0.74
10		SC	11	↓	2.5	1.438		x10	9.11
11		Pump	35	↓	2.5	0.455		x12.5	3.63
12	Sharf	BG	12	↓	25	0.251			0.16
13		PW	13	↓	25	0.269			0.17
14		DG	14	↓	25	0.124			0.08
15		SC	15	↓	2.5	0.787		x10	5.00
16		Pump	16	↓	2.5	0.939		x10	5.96
17	AOA	BG	17	4/13/98	25	0.052			0.04
18		PW	36	↓	25	~~0.356~~ 0.684		x5	2.18
19		DG	18	↓	25	0 0.356			0.23
20		SC	19	↓	2.5	0.742		x10	4.72
21	Brown 66	BG	20	↓	25	0.320			0.21
22	66	PW	21	↓	25	0.965			0.61
23	610	DG	22	↓	25	1.123			0.71
24	Nesbitt	PW	23	↓	25	0.087			0.06

Quality Control	
% Recovery MS	100%
% Recovery MSD	105%
% Recovery LCS	100%
% RPD	2.2

Total Phosphorus

Date of Analysis _____ **Analyst** _____ **Month** _____

Date of Samples _____ **Run #** _____

	Sample ID	ID#	Sample Date	Vol (ml)	ABS.	Conc. (mg/L)	Dil. Factor	Results (mg/L)
	STD 0.0							
	STD 0.05							
	STD 0.25							
	STD 0.50							
	STD 1.00							
25	Nesbitt SC	24	4/13/98	2.5	0.830		x10	5.27
26	Pump	25	↓	2.5	0.873		x10	5.55
27	Nesbitt SC MS	26		2.5	~~1.660~~ 1.624		x10	~~10.32~~ 10.29
28	Nesbitt SC MSD	27		2.5	~~0.781~~ 1.661		x10	10.52
29	LCS	28			0.781			0.50
30	Brown Pump	29		2.5	0.319		x10	2.05
31	Blank	30			0.010			0.01

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	
% RPD	

Total Phosphorus
April 1998
Run #1

T-PHOS
April 1998
Run #1

* SELF TEST *
COMPLETED

* SELF TEST *
COMPLETED

ID# 1	111111	
880.0NM		.000 A
ID# 2	111111	
880.0NM		.074 A
ID# 3	111111	
880.0NM		.379 A
ID# 4	111111	
880.0NM		.792 A
ID# 5	111111	
880.0NM		1.579 A
ID# 6	111111	
880.0NM		1.518 A
ID# 7	111111	
880.0NM		.057 A
ID# 8	111111	
880.0NM		1.101 A
ID# 9	111111	
880.0NM		.826 A
ID# 10	111111	
880.0NM		1.165 A
ID# 11	111111	
880.0NM		1.438 A
ID# 12	111111	
880.0NM		.251 A
ID# 13	111111	
880.0NM		.269 A
ID# 14	111111	
880.0NM		.124 A
ID# 15	111111	
880.0NM		.787 A
ID# 16	111111	
880.0NM		.939 A
ID# 17	111111	
880.0NM		.052 A
ID# 18	111111	
880.0NM		.356 A
ID# 19	111111	
880.0NM		.742 A
ID# 20	111111	
880.0NM		.320 A
ID# 21	111111	
880.0NM		.965 A
ID# 22	111111	
880.0NM		1.123 A
ID# 23	111111	
880.0NM		.087 A
ID# 24	111111	
880.0NM		.830 A
ID# 25	111111	
880.0NM		.873 A
ID# 26	111111	
880.0NM		1.624 A
ID# 27	111111	
880.0NM		1.661 A
ID# 28	111111	
880.0NM		.781 A
ID# 29	111111	
880.0NM		.319 A
ID# 30	111111	
880.0NM		.010 A
ID# 31	111111	
880.0NM		.434 A
ID# 32	111111	
880.0NM		1.416 A
ID# 33	111111	
880.0NM		.099 A
ID# 34	111111	
880.0NM		1.001 A
ID# 35	111111	
880.0NM		.455 A
ID# 36	111111	
880.0NM		.684 A
ID# 37	111111	

Ammonia Nitrogen

Date of Analysis 3-25-98
Date of Samples 03/11/98
03/15/98

Analyst DK
Run # ~~1~~ 1

Month MAR

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2 ml	+054		
STD 2 1.00 ppm	2			+013		
STD 3 10.0 ppm	3			-042		
STD 4 100 ppm	4			-101		
STD 5 1000 ppm	5			-156		
ADA BG	6	3-11-98		+057		0.12
PW	7			+023		0.50
DG	8			+051		0.15
SC	9			-005		1.68
Pump	10			-063		20.46
STD 3	11			-042		8.27
FARRELL BG	12	3-11-98		+046		0.19
PW	13			+055		0.13
DG	14			+053		0.14
SC	15			+070		0.07
Pump	16			+033		0.33
N. KEMP BG	17	3-11-98		+078		0.05
PW	18			+077		0.05
DG	19			+081		0.04
SC	20			+086		0.03
Pump	21			-016		2.69
BROWN BG	22	3-15-98		+053		0.14
BG	23			+066		0.08
DG	24			+069		0.07
Pump	25			-085		52.83
NESBITT PW	26	3-16-98		+040		0.24
Pump	27			-079		40.78
STD 3	28			-044		9.02

Quality Control	
% Recovery MS	130%
% Recovery MSD	130%
% Recovery LCS	90%
% RPD	0%

r = 0.9982

Ammonia Nitrogen

Date of Analysis | **Analyst** | **Month**

Date of Samples | **Run #**

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm						
STD 2 1.00 ppm						
STD 3 10.0 ppm						
STD 4 100 ppm						
STD 5 1000 ppm						
LONG A. BG	29	3-15-98	2ml	+059		0.11
PW	30	↓	↓	+063		0.09
DG	31	↓	↓	+076		0.05
ACA Pump MS	32	3-11-98	↓	-082		46.42
ACA Pump MSD	33	↓	↓	-082		46.42

MS } 300 ul
MSD } STOCK

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	
% RPD	

Ammonia Nitrogen

Date of Analysis 3-31-98 **Analyst** NK **Month** MAR
Date of Samples **Run #** 9R #2

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2 ml	+068		
STD 2 1.00 ppm	2			+019		
STD 3 10.0 ppm	3			-037		
STD 4 100 ppm	4			-096		
STD 5 1000 ppm	5			-152		
SHARF B6	6	3-25-98		+025		0.69
PW	7			-005		2.38
D6	8			-001		2.02
SC	9			+057		0.18
PumD	10			-059		22.36
LINK B6	11	3-25-98		+057		0.18
PW	12			+052		0.22
D6	13			+059		0.17
SC	14			+064		0.14
PumD	15			-064		27.52
STD 3	16			-038		9.36
SAMSON SC	17	3-21-98		+035		0.45
PumD	18			-071		36.79
T. SMITH SC	19	3-21-98		-027		5.93
B6	20			+049		0.25
JACOB. PW2	21	3-21-98		+060		0.16
B6	22			+074		0.09
D6	23			+083		0.07
SC	24			+057		0.18
PumD	25			-030		6.71
ANDERSON DF2	26	3-21-98		+046		0.29
SC	27			+032		0.51
STANLEY DF1	28			+050		0.24

Quality Control	
% Recovery MS	72%
% Recovery MSD	65%
% Recovery LCS	90%
% RPD	4.1%

r = 0.9995

Ammonia Nitrogen

Date of Analysis _____ **Analyst** _____ **Month** _____

Date of Samples _____ **Run #** _____

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm						
STD 2 1.00 ppm						
STD 3 10.0 ppm						
STD 4 100 ppm						
STD 5 1000 ppm						
STANLEY DP2	29	3-21-98	2 ml	+066		0.12
DG	30			+029		0.58
SC	31			+007		1.45
Pump	32			-057		20.58
STD 3	33			-037		8.98
D. SMITH DG	34	3-21-98		+040		0.37
DF	35			+052		0.22
BG	36			+046		0.29
SC	37			+056		0.19
Pump	38			+041		0.35
SHARF Pump MS	39	3-25-98		-071		36.79
SHARF Pump MSD	40		↓	-070		35.30

MS } 3 200µl
MSD } STOCK

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	90%
% RPD	

Ammonia Nitrogen

Date of Analysis 4-1-98 **Analyst** [signature] **Month** MAR

Date of Samples 03/18/98 **Run #** 3

03/30/98

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2 ml	+059		
STD 2 1.00 ppm	2			+010		
STD 3 10.0 ppm	3			-047		
STD 4 100 ppm	4			-105		
STD 5 1000 ppm	5			-162		
BROWN BG	6	3/18		+040		0.25
PW	7			+045		0.21
DG	8			+054		0.14
SC	9			+025		0.47
Pump	10			-077		31.82
EASTER BG	11	3/27		+045		0.21
PW	12			+026		0.45
DG	13			+052		0.15
SC	14			+031		0.37
Pump	15			-076		30.53
STD 3	16	3/27		-045		8.48
MUDFORD BG	17			+031		0.37
PW	18			+025		0.47
DG	19			+048		0.18
SC	20			-015		2.45
Pump	21			-083		40.78
MERRITT BG	22	3/30		+031		0.37
PW	23			1025		0.47
HARMON BG	24	3/30		+050		0.17
DG	25			+068		0.08
Pump	26			-088		50.14
SAUNTEL BG	27	3/30	"	+029		0.40
PW1	28			+036		0.30

Quality Control	
% Recovery MS	81%
% Recovery MSD	92%
% Recovery LCS	85%
% RPD	4.1

r=0.9995

Ammonia Nitrogen

Date of Analysis _____ **Analyst** _____ **Month** _____

Date of Samples _____ **Run #** _____

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm						
STD 2 1.00 ppm						
STD 3 10.0 ppm						
STD 4 100 ppm						
STD 5 1000 ppm						
SAWMILL PWZ	29	3/30	2 ml	+056		0.13
D6	30		↓	+056		0.13
BROWN Pmp MS	31	3/18		-087		48.11
BROWN Pmp MSD	32	↓	↓	-088		50.14

MS } 200 µl STOCK
MSD }

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	
% RPD	

Ammonia Nitrogen

Date of Analysis 4/9/98 **Analyst** LK **Month** APR

Date of Samples 4/01/98 **Run #** 1

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2ml	+075		
STD 2 1.00 ppm	2			+019		
STD 3 10.0 ppm	3			-040		
STD 4 100 ppm	4			-100		
STD 5 1000 ppm	5			-156		
Henderson BG	6	4/1		+043	-	0.37
PW	7			+055	-	0.23
DG	8			+042	-	0.38
L. Smith BG	9	4/1		+068	-	0.14
DG	10			+072	-	0.12
Pump	11			-038	-	65.96
MS Pump	12			-096	-	90.57
MSD Pump	13			-096	-	90.57

Quality Control	
% Recovery MS	98%
% Recovery MSD	98%
% Recovery LCS	
% RPD	0%

r=0.9999

Total Kjeldahl Nitrogen

Date of Analysis 4/03/98 **Analyst** Jen Reasor **Month** March

Date of Samples 03/11/98 - 03/21/98 **Run #** 1

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm			4 ml			
STD 2 1.00 ppm						
STD 3 10.0 ppm						
STD 4 100 ppm						
STD 5 1000 ppm						
Wolff Pump	29			-090		46.80
Long Arthur BG	30	03/15/98		+048		0.17
PW	31	↓		+057		0.12
DG	32	↓		+059		0.11
SC	33	↓		+043		0.21
Brownelow BG	34	03/18/98		+030		0.35
↓ Pump	35	↓		-078		28.67
Samson SC	36	03/21/98		+021		0.50
↓ Pump	37	↓		-083		35.16
Samson SC MS	38	↓		-057		12.16
↓ SC MSD	39	↓		-057		12.16
LCS	40			-053		10.33
Blank	41	0	✓	+068		0.07
Brown Glou PW	42	03/18/98		+040		0.23
DG	43	↓		+052		0.14
SC	44	↓		+014		0.07

Quality Control	
% Recovery MS	117%
% Recovery MSD	117%
% Recovery LCS	103%
% RPD	0%

Total Kjeldahl Nitrogen

Date of Analysis 4/03/98 **Analyst** Jen Reasor **Month** March

Date of Samples 03/11/98-03/21/98 **Run #** 1

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		4 ml	+057		
STD 2 1.00 ppm	2			+008		
STD 3 10.0 ppm	3			-047		
STD 4 100 ppm	4			-116		
STD 5 1000 ppm	5			-163		
AOA BG	6	03/11/98		+045		0.19
PW	7	"		+010		0.79
DG	8			+040		0.23
SC	9			-015		2.19
Pump	10			-074		24.35
Farrell BG	11			+046		0.18
PW	12			+035		0.28
DG	13			+042		0.21
SC	14			+061		0.98
Pump	15			+022		0.48
Kemp BG	16			+060		0.10
PW	17			+062		0.09
DG	18			+060		0.10
SC	19			+060		0.10
Pump	20	✓		-028		3.72
Brown, Richmond PW	21	03/15/98		+042		0.21
DG	22			+057		0.12
Pump	23			-097		62.67 28
BG	24			+053		0.14
Nesbitt BG	25			+049		0.16
PW	26			+031		0.33
DG	27		✓	+038		0.25
SC	28			+035		0.28

r=0.998

Quality Control	
% Recovery MS	117
% Recovery MSD	117
% Recovery LCS	103
% RPD	0

Total Kjeldahl Nitrogen

Date of Analysis 4/10/98
Date of Samples 03/21/98 03/25/98

Analyst JAR
Run # 2

Month March

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm			4ml	+065		
STD 2 1.00 ppm				+015		
STD 3 10.0 ppm				-037		
STD 4 100 ppm				-095		
STD 5 1000 ppm				-153		
T. Smith BG	1	03/21/98		+054		0.18
SC	2	↓		-030		6.29
Jacobsen PW2	3			+020		0.76
BG	4			+070		0.09
DG	5			+070		0.09
SC	6			+053		0.19
Pump	7			-034		7.44
Anderson DF2	8			+045		0.27
SC	9			+038		0.36
Stanley DF1	10			+049		0.22
DF2	11			+058		0.15
DG	12			+030		0.50
SC	13			+005		1.44
Pump	14			-062		24.24
D. Smith DG	15			+044		0.28
DF	16			+048		0.23
BG	17			+043		0.29
SC	18			+050		0.22
Pump	19	↓		+040		0.33
Sharf BG	20	03/25/98		+022		0.70
PW	21			-008		2.49
DG	22			-005		2.19
SC	23	↓	↓	+048		0.23

Quality Control	
% Recovery MS	119%
% Recovery MSD	114%
% Recovery LCS	109%
% RPD	4.3%

$r = 0.9994$

Total Kjeldahl Nitrogen

Date of Analysis 4/10/98 **Analyst** JAR **Month** March

Date of Samples 03/27/98 03/25/98 **Run #** 2

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm			4ml			
STD 2 1.00 ppm						
STD 3 10.0 ppm						
STD 4 100 ppm						
STD 5 1000 ppm						
Sharf Pump	24			-055		18.05
Link BG	25	03/25/98		+057		0.16
PW	26			+057		0.16
DG	27			+054		0.18
SC	28			+060		0.14
Pump	29			-072		36.96
Easter BG	30	03/27/98		+050		0.22
PW	31			+055 +038		0.36
DG	32			+055		0.17
SC	33			+031		0.48
Pump	34			-082		56.35
Faster SC MS	35			-046		12.35
SC MSD	36	↓		-045		11.83
LCS	37			-043		10.88
Blank	38			+073		0.08
			↓			

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	
% RPD	

Total Kjeldahl Nitrogen

Date of Analysis 04/19/98 **Analyst** JAR **Month** March

Date of Samples ~~03/27/98~~ 04/01/98 **Run #** 3

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm	1		2ml	+059		
STD 2 1.00 ppm	2			+011		
STD 3 10.0 ppm	3			-045		
STD 4 100 ppm	4			-106		
STD 5 1000 ppm	5			-101		
Munford BG	6	03/27/98		+030		0.39
PW	7			+030		0.39
DG	8			+052		0.16
SC	9			-018		2.85
Pump	10			-080		36.93
Merritt BG	11	03/30/98		+030		0.39
PW	12			+028		0.42
SC	13			+046		0.20
Harmon BG	14			+058		0.12
DG	15			~~+020~~ +056		0.13
SC	16			~~-083~~ +020		0.59
PUMP	17			~~+031~~ -083		41.80
Sawmill BG	18			~~+040~~ +031		0.38
PW1	19			~~+054~~ +054		0.15
PW2	20			+054		0.15
DG	21			+052		0.16
Brown 6 PW	22			+042		0.24
DG	23			+048		0.19
SC	24			+033		0.35
Brown SC ms ~~Munford PW~~	25			-047		9.44
Brown SC msd ~~DG~~	26			-047		9.44
LCS ~~SC~~	27			-051		11.13
Blank ~~Merritt SC~~	28	✓	✓	+068		0.08

Quality Control	
% Recovery MS	91%
% Recovery MSD	91%
% Recovery LCS	111%
% RPD	0%

r = 0.9993

Total Kjeldahl Nitrogen

Date of Analysis 04/19/98 **Analyst** JAR **Month** March
Date of Samples 03/27/98-04/01/98 **Run #** 3

Sample ID	ID#	Sample Date	NaOH(ml)	Potential (mV)	Dil. Factor	mg/L NH3 - N
STD 1 0.10 ppm			2ml			
STD 2 1.00 ppm						
STD 3 10.0 ppm						
STD 4 100 ppm						
STD 5 1000 ppm						
Henderson BG	29	04/01/98		+053		0.15
PW	30			+045		0.21
DG	31			+033		0.35
L Smith BG	32			+058		0.12
DG	33			+061		0.11
Pump	34	✓	✓	-078		3.40

Quality Control	
% Recovery MS	
% Recovery MSD	
% Recovery LCS	
% RPD	

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FACSIMILE TRANSMITTAL SHEET

TO: MR. JOE WALSH / CHRIS KEIGER

SUBJECT: JUNE 1998 Results

FROM: ~~MUJDE~~

DATE: 10/2/98

NUMBER OF PAGES: 24
(Including this page)

Fax Number (receiving): (336) 547 8559

MESSAGE: Hi;

I will be faxing Roxanne's field notebook copies on Monday.
I will put it in the mail on Monday as well. Thanks

The nutrient data are missing because we had problems w/ the Ion chromatography & they can be held for analysis. When we stopped the project they didn't finish the analysis.

Elapsed Time Meter Readings Jun-98	
Site	ETM, hrs
Farrel	34.98
Kemp	124
Nesbitt	No ETM
AOA	No ETM
Brown, Gloucester	17.46
Easter	11.41
Munford	56.59
L.Smith (WM Co.)	14.16

new hours

a lot of DO were very high?

Farrell Property (SERIAL NO.000223)

Installation Date: Jun-12-97

Mathews Co. VA

Design Flow: 300 gpd

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Soil Texture Group / Comments
Sample Chamber (SC) June-2-98	2.10	6.70							9.14	12.6	6.2	1,030	
Average SC	2.10	6.70							9.14	12.6	6.2	1,030	
Pad Well (PW) June-2-98	<1								9.79	11.8	5.6	10,000	
Average PW	<1								9.79	11.8	5.6	10,000	
Down-gradient (DG) June-2-98	1.43								8.18	12.4	5.5	6,667	
Average DG	1.43								8.18	12.4	5.5	6,667	
Septic Tank: June-2-98	245.00	6.70							8.48	13.2	6.1	166,667	
Average Septic Tank	245.00	6.70							8.48	13.2	6.1	166,667	
Background (BG) June-2-98	4.67								10.10	11.7	5.8	1,818	
Average BG	4.67								10.10	11.7	5.8	1,818	

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 16-02-1998 14:30 P. 3

Kemp Property

Installation Date: Sept. 6,1995

Mathews Co. VA

Design Flow: 450 gpd

Soil Texture Group I

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) June-2-1998	361.00	526.00							2.81	10.1	7.2	181,818	
Average PT	361.00	526.00							2.81	10.1	7.2	181,818	
Sample Chamber (SC) June-2-1998													NSA Sample chamber is dry
Average SC													
Pad Well (PW) June-2-1998	3.07								11.07	10.2	6.5	3,939	
Average PW	3.07								11.07	10.2	6.5	3,939	
Down-gradient (DG) June-2-1998	3.10								10.94	10.8	602.0	2,424	
Average DG	3.10								10.94	10.8	602.0	2,424	
Background (BG) June-2-1998	5.00								11.57	10.6	5.7	2,857	
Average BG	5.00								11.57	10.6	5.7	2,857	

NO such thing

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 14:31

Nesbitt Property (Serial No. 166)

Installation Date: Jun-6-96

Gloucester Co. VA

Design Flow: 450 gpd

Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) June-10-1998	137.50	33.3										1,300,000	DO meter malfunction
Average PT	137.50	33.3											
Sample Chamber (SC) June-10-1998												1,300,000	
Average SC													NSA Sampling chamber dry
Pad Well (PW) June-10-1998	<1												
Average PW	<1											9,667	DO meter malfunction
Down-gradient (DG) June-10-1998	1.17											9,667	
Average DG	1.17											<1	DO meter malfunction
Background (BG) June-10-1998												<1	
Average BG													NSA

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 16.02.1998 14:31 P. 5

Brown

Gloucester, Virginia

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Soil Texture Group I Comments
Pump Tank (PT) June-11-1998	155.00	53.3							1.55	21.6	8.1	600,601	
Average PT	155.00	53.3							1.55	21.6	8.1	600,601	
Sample Chamber (SC) June-11-1998													NSA Sampling chamber is dry
Average SC													
Pad Well (PW) June-11-1998													NSA Well is dry
Average PW													
Down-gradient (DG) June-11-1998													NSA Well is dry
Average DG													
Background (BG) June-11-1998													NSA Well is dry
Average BG													

Easter Property (Serial No. 127)

Installation Date: Aug-30-96

Isle of Wight Co. VA

Design Flow: 300 gpd

Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) June-14-1998	84.50	26.70							0.78	24.2	8.2	1,981,982	
Average PT	84.50	26.70							0.78	24.2	8.2	1,981,982	
Sample Chamber (SC) June-14-1998	5.30	13.30							2.30	24.7	6.7	2,492	
Average SC	5.30	13.30							2.30	24.7	6.7	2,492	
Pad Well (PW) June-14-1998													NSA Dry
Average PW													
Down-gradient (DG) June-14-1998													NSA Dry
Average DG													
Background (BG) June-14-1998													NSA Dry
Average BG													

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 14:32 P. 7

Munford Property (Serial No. 146)

Installation Date: Nov-19-96

Suffolk VA

Design Flow: 450 gpd

Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) June-14-1998	171.00	60.0							0.67	25.6	7.0	7,670,000	
Average PT	171.00	60.0							0.67	25.6	7.0	7,670,000	
Sample Chamber (SC) June-14-1998	<1	13.30							5.60	26.5	4.3	800	No 500 ml sample availabe
Average SC	<1	13.30							5.60	26.5	4.3	800	
Pad Well (PW) June-14-1998													NSA Dry
Average PW													
Down-gradient (DG) June-14-1998													NSA Dry
Average DG													
Background (BG) June-14-1998													NSA Dry
Average BG													

Agency on Aging (Serial No. 143)

Gloucester Co. VA

Installation Date: Nov. 1, 1996 Design Flow: 450 gpd Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) June-11-98													NSA No elapsed time meter
Average PT									5.18	21.5	6.5	721	
Sample Chamber (SC) June-11-98	13.00	26.7											
Average SC	13.00	26.7							5.18	21.5	6.5	721	
Pad Well (PW) June-11-98	6.33								2.80	20.6	6.7	163,000	
Average PW	6.33								2.80	20.6	6.7	163,000	
Down-gradient (DG) June-11-98	6.00								3.39	19.7	5.9	26,364	
Average DG	6.00								3.39	19.7	5.9	26,364	
Background (BG) June-11-98													NSA No sample available Well is dry
Average BG													

L.Smith

Installation Date:

West Moreland County

Design Flow: 450 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) June-18-1998	398.50	53.30							1.59	22.5	7.5	62,385,000	
Average PT	398.50	53.30							1.59	22.5	7.5	62,385,000	
Sample Chamber (SC) June-18-1998													NSA No Sample Available
Average SC													
Pad Well (PW) June-18-1998	15.32								3.57	21.8	6.1	2,333	
Average PW	15.32								3.57	21.8	6.1	2,333	
Down-gradient (DG) June-18-1998	4.02								5.20	22.1	5.0	120,000	
Average DG	4.02								5.20	22.1	5.0	120,000	
Background (BG) June-18-1998													NSA
Average BG													

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 14:34 P.10

Solids and BOD Data June 1998

Site	Ini.WT	Vol	Fin wt.	TSS	Ini D.O	Fin D.O	%sample	BOD
Stanley SC	NS				ns	ns		
Stanley pump	NS				ns	ns	30	
Stanley DG	ns				ns	ns	2	
Stanley DF-2	ns				ns	ns	30	
Jacobson BG					ns	ns	30	
Jacobson SC	NS				ns	ns	30	
Jacobson pump	NS				ns	ns	30	
Anderson SC	NS				ns	ns	2	
AOA SC	1.1117	15	1.1121		ns	ns	30	
AOA DG					8.8	4.3	30	
AOA PW					8.7	6.2	30	
AOA BG					8.9	6.4	30	
Sawmill SC	ns				9.81	7.16	30	
Sawmill PW1					ns	ns		
Sawmill PW2					ns	ns		
Sawmill DG					ns	ns		
Sawmill BG					ns	ns		
LongArthur DG					ns	ns		
LongArthur PW					ns	ns		
LongArthur BG					ns	ns		
LongArthur SC	ns				ns	ns		
Kemp SC	ns				ns	ns		
Kemp pump	1.0961	15	1.104		9.76	0.5	2	
Kemp DG					9.79	6.82	30	
Kemp PW					9.77	6.81	30	
Kemp BG					10.09	6.55	30	
Nesbitt SC	ns				ns			
Nesbitt PW					8.7	8.1	30	
Nesbitt PUMP	1.1082	15	1.1087		8.4	3.5	2	
Nesbitt DG					8.7	6.2	30	
Farell SC	1.1287	15	1.1288		8.97	6.3	30	
Farrell PW					9.51	7.33	30	
Farrell BG					9.83	6.39	30	
Farell septic	1.0669	15	1.067		9.93	2.99	2	
Farell DG					9.3	6.83	30	
Munford SC	1.1028	15	1.103		8.77	7.91	30	
Munford pump	1.1	15	1.1009		8.46	4.29	2	
Munford BG	ns				ns			
Easter SC	1.1012	15	1.1014		8.69	6.53	30	
Easter pump	1.1061	15	1.1065		8.47	6.2	2	
Easter DG	ns				ns	ns		
Easter PW	ns				ns			
Easter BG	ns				ns			
Link SC	ns							
Link pump	ns							
Link PW	ns							
Link DG	ns							
Link BG	ns							

Site	Inl.WT	Vol	Fin wt.	TSS	Inl D.O	Fin D.O	%sample	BOD
Samson SC	ns							
Samson pump	ns							
Sharf SC	ns							
Sharf pump	ns							
Sharf DG	ns							
Sharf PW	ns							
Sharf BG	ns							
Harmon SC	ns							
Harmon pump	ns		ns					
Harmon DG			ns					
Harmon BG								
Brown pump	ns							
Merrit SC	ns		ns					
Merrit pump	ns		ns					
Glo Brown pump	1.1081	15	1.1089					
Glo Brown SC	ns		ns		8.3	4.6	2	
Glo Brown PW								
Glo Brown DG								
Glo Brown BG								
Tsmith SC	ns		ns					
Dsmith SC	ns	15	ns					
Dsmith pump	ns	15	ns					
Dsmith DG								
Dsmith DF								
Smith (MW) pump	1.1027	15	1.1035					
Smith (MW) BG					10.04	4.74	1	
Smith (MW) DG								

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FACSIMILE TRANSMITTAL SHEET

TO: MR. JOE WALSH / CHRIS KEGLER

FROM: ~~MELISSA~~

DATE: 10/2/98

SUBJECT: JUNE 1998 Results

NUMBER OF PAGES: ~~12~~ 12 (missing pages)
(Including this page)

Fax Number (receiving): (336) 547-8559

MESSAGE: Hi,

I will be faxing Roxanne's field notebook copies on Monday. I will put it in the mail on Monday as well. Thanks

The nutrient data are missing because we had problems w/ the Dox chromatography & they can be held for analysis. When we stopped the project they didn't finish the analysis.

Routine Grouver

Site	Observed Colonie	Sample volume = 30 mL					Colonies/100ml of sample						Fecals
	Dilution												that are not
	1/10	1/100	1/1000	1/10000	1/100000	1E-06	1/10	1/100	1/1000	1/10000	1/100000	1E-6	within 20-60 range
													Colonies/100 mL
Stanley SC													
Stanley pump													
Stanley DG													
Stanley DF-2													
Jacobson BG													
Jacobson SC													
Jacobson pump													
Anderson SC													
AOA SC	14	6	4										
AOA DG		12	75										
AOA PW		0	49										721
AOA BG	ns								163000				26,364
Sawmill SC													
Sawmill PW1													
Sawmill PW2													
Sawmill DG													
Sawmill BG													
LongArthur DG													
LongArthur PW													
LongArthur BG													
LongArthur SC													
Kemp SC													
Kemp pump													
Kemp DG				2	4	0							
Kemp PW		3	5										181,818
Kemp BG		11	2										2,424
Nesbitt SC		8	0										3,939
Nesbitt PW													2,667
Nesbitt PUMP		29	68										
Nesbitt DG				39	2	1	1300000	9667					
Farell SC	15	0	0										
Farrell PW		19	0					<1	<1				1,300,000
Farrell BG		30	8										
Farell pump		2	4					10000					1,030
Farell DG				0	0	5							
Munford SC	24	0	2										1,818
Munford pump		9	2										166,667
Munford BG				>60	23	2	800						6,667
											7670000		

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 15:00 P. 2

Site	Observed Colonies Sample volume = 30 mL						Colonies/100ml of sample						Fecals that are not within 20-60 range Colonies/100 mL
	Dilution												
	1/10	1/100	1/1000	1/10000	1/100000	1/1000000	1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
Easter SC	>60	15	8										2,492
Easter pump				>60	4	2							1,981,982
Easter DG													
Easter PW													
Easter BG													
Link SC													
Link pump													
Link PW													
Link DG													
Link BG													
Samson SC													
Samson pump													
Sharf SC													
Sharf pump													
Sharf DG													
Sharf PW													
Sharf BG													
Harmon SC													
Harmon pump													
Harmon DG													
Harmon BG													
Brown pump													
Merrit SC													
Glo Brown pump													
Glo Brown PW				10	7	3							600,601
Glo Brown DG													
Glo Brown BG													
Tsmith SC													
Dsmith SC													
Dsmith pump													
Dsmith DG													
Dsmith DF													
Smith (MW) pump													
Smith (MW) BG				53	2	37							
Smith (MW) DG			36							1770000		1.2E+08	
Smith (MW) PW		7							120000				2,223

FROM CIVIL&ENVIRO ENGRG DEPT OSU 864 683 5354 10.02.1998 15:05 P. 3

TOTAL SOLIDS for the month of June 98

Analyst: **Roxanne, Christina, and Osman**

Site No	Site	County	Sample	Collection Date	Analysis Date	Initial Weight(g)	Final Weight(g)	Vol. of Sample(ml)	Total Solids mg/l
1	Sawmill	Nassawadox	SC	6/24/98	6/24/98	1.1012			
			Pump	6/24/98	6/24/98	1.1042			
2	Harmon	Eastern Shore	SC	6/24/98	6/29/98	1.1008			
			Pump	6/24/98	6/24/98	1.1040			
3	Merritt	Eastern Shore	SC	6/29/98	6/29/98	1.0999			
			Pump	NO SAMPLE AVAILABLE					
4	Kemp	Mathews	SC	NO SAMPLE					
			Pump	6/2/98	6/2/98	1.0961	1.104	15mL	527
5	Farrell	~~Mathews~~	SC	6/2/98	6/2/98	1.1287	1.1288	15mL	7
		Septic	~~Pump~~	6/2/98	6/2/98	1.0669	1.0670	15mL	7
6	Nesbitt	Gloucester	SC	NO SAMPLE					
			Pump	6/10/98	6/11/98	1.1082	1.1084	15mL	333
7	Agency	Gloucester	SC	6/11/98	6/11/98	1.1117	1.1121	15mL	<1
	of Aging		Pump	NO SAMPLE					
8	Brown	Glouster	SC	NO SAMPLE					
			Pump	6/11/98	6/11/98	1.1081	1.1089	15mL	1

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 15:08 P. 4

TOTAL SOLIDS for the month of June 98

Analyst: Roxanne, Christina, and Osman

Site No.	Site	County	Sample	Collection Date	Analysis Date	Initial Weight(g)	Final Weight(g)	Vol. of Sample(ml)	Total Solids mg/l
9	Long Arthur	Richmond	Sc						
			Pump						
10	Brown	Richmond	SC						
			Pump						
11	Easter	Isle of Wight	SC	6-14-98	6-14-98	1.1061	1.1065	15mL	
			Pump	6-14-98	6-14-98	1.1012	1.1014	15mL	13.3
12	Mumford	Suffolk	SC	6-14-98	6-14-98	1.1038	1.103	15mL	13.3
			Pump	6-14-98	6-14-98	1.1000	1.1009	15mL	60.0
13	Link	Virginia Beach	SC						
			Pump						
14	Sharf	Virginia Beach	SC						
			Pump						
15	L. Smith	West Moreland	SC	NO SAMPLE					
			Pump	6/10/98	6/16/98	1.1027	1.1035	15ml	53
16	Henderso	West Moreland	SC	NO SAMPLE					
			Pump	NO SAMPLE					

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 15:10 P. 5

TOTAL SOLIDS for the month of June 98

Analyst: Roxanne, Christina, and Osman

Site No.	Site	County	Sample	Collection Date	Analysis Date	Initial Weight(g)	Final Weight(g)	Vol. of Sample(ml)	Total Solids mg/l
17	Stanley	Page County	SC						
			Pump						
18	D. Smith	Page County	SC						
			Pump						
19	Anderson	Frederick	SC						
			Pump						
20	Jacobson	Fairfax	SC						
			Pump						
21	T. Smith	Fairfax	SC						
			Pump						
22	Samson	Fairfax	SC						
			Pump						
23									
24									

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 15:12 P. 6

BOD ANALYSIS for the month of June 98

Analyst: Roxanne, Christina, and Osman

Site	Sample	Collection Date	Analysis Date	Bottle No.	% Seed	% Sample	Initial DO	Final DO	BOD (mg/l)	Remarks
			Fri							
BLANK 1	—	6/18/98	6/19/98	40	0%	0%	9.24	8.38		
BLANK 2				55	0%	0%	9.23	8.35		
SEED 1				348	2%	0%	9.59	8.35	Δ 1.24	1.315
SEED 2				27	2%	0%	9.50	8.11	Δ = 1.39	
#15	DG			57	2%	30%	10.41	7.89		
#15	PW			29	2%	30%	10.50	4.59		
#15	PUMP	↓	↓	52	2%	1%	10.04	4.74		

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 15:14 P. 7

BOD ANALYSIS for the month of June 98
Analyst: Roxanne, Christina, and Osman

Site	Sample	Collection Date	Analysis Date	Bottle No.	% Seed	% Sample	Initial DO	Final DO	BOD (mg/l)	Remarks
	BLANK 1	6/2/98		180	0		0.01	8.36		ΔDO = 1.65
	BLANK 2	6/2/98		117	0		10.12	8.59		ΔDO = 1.53
	SEED 1			99	2%	0	9.97	7.89		ΔDO = 2.08 (2.04
	SEED 2			190	2%	0	10.07	8.07		ΔDO = 2.0)
#4	DUMP			105	2%	1%	9.76	0.50		should be < 1.0 mg/L
#5	PUMP			23		2%	9.53	2.99	245	
#5	BL			37		3%	9.83	6.39		
#4	BL			65		3%	10.09	6.55		
#5	PW			114		3%	9.51	7.33		
#4	PW			4		3%	9.77	6.81		
#5	DL			48		3%	9.30	6.83		
#4	DL			179		3%	9.79	6.82		
FIELD	BLANK			55		3%	8.87	7.18		
#5	SC			177		3%	8.97	6.30		

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 10.02.1998 15:16 P. 8

BOD ANALYSIS for the month of June 98
Analyst: Roxanne, Christina, and Osman

Site	Sample	Collection Date	Analysis Date	Bottle No.	% Seed	% Sample	Initial DO	Final DO	BOD (mg/l)	Remarks
Blank 1		6/11/98	6/11/98	181	—	—	8.3	8.2		
Blank 2				99			8.5	8.0		
Seed 1				110	2	—	8.3	7.6	Δ 0.70	0.6
Seed 2				28	2	—	8.5	8.0	Δ 0.5	
#7	DG	6/11/98	6/11/98	22	2	30	8.7	6.2		
6	PW			53	2	30	8.7	8.1		
7	PW			10	2	30	8.9	6.4		
6	DG			69	2	30	9.2	8.0		
7	SC			1468	2	30	8.8	4.3		
8	Pump			50	2	2	8.3	4.6		
6	Pump			AAA	2	2	8.4	3.5		
Blank 1		6/14/98	6/14/98	75	—	—	8.52	8.30 Fg		
Blank 2		↓	↓	69	—	—	8.60	8.51 Fg		
Seed 1				184	2	—	8.63	7.81 Fg	0.82	0.77
Seed 2				33	2	—	8.52	7.80 Fg	0.72	
11	SC	6/14/98	6/14/98	171	2	30	8.89	6.53 Fg		
11	Pump	↓	↓	777	2	2	8.47	5.20 Fg		
12	SC			47	2	30	8.77	7.91 Fg		
12	Pump			72	2	1	8.48	4.29 Fg		

Easter Minfr

Fecal Coliform for the month of ~~May 98~~ June 98
Analyst: Roxanne, Christina, and Osman

Site	Sample	Collection Date	Analysis Date	Vol. of sample(ml)	Dilution Factor	Obs. No. of colonies	Colonies per 100 ml dilution	Colonies per 100 ml Sample	Remarks
#11	SC	6/14/98	6/15/98	30 ml	1/10	>60			
#11	SC	6/14/98	6/15/98	30 ml	1/100	15		2,492	
#11	SC	6/14/98	6/15/98	30 ml	1/1000	8			
#11	Pump	6/14/98	6/15/98	30 ml	1/10,000	TNTC	>60		
#11	Pump	6/14/98	6/15/98	30 ml	1/100,000	9		1,981,982	
#11	Pump	6/14/98	6/15/98	30 ml	1/1,000,000	2			
#12	SC	6/14/98	6/15/98	30 ml	1/10	24	80	800	Pick betw 20-60
#12	SC	6/14/98	6/15/98	30 ml	1/100	9			
#12	SC	6/14/98	6/15/98	30 ml	1/1000	2			
#12	Pump	6/14/98	6/15/98	30 ml	1/10,000	TNTC	>60		
#12	Pump	6/14/98	6/15/98	30 ml	1/100,000	23	76.7	7.67×10^6	Pick betw 20-60
#12	Pump	6/14/98	6/14/98	30 ml	1/1 m	2	2		
#15	DG	6.28.98	6.20.98	30 ml	1/100	TNTC			
15	DG		6.20.98	30 ml	1/1000	36	→	120000	Pick betw 20-60
15	PW		6.20.98	30 ml	1/100	7		2333	
15	PW		6.20.98	30 ml	1/1000	TNTC			
15	Pump		6.20.98	30 ml	1/10,000	53	177	1770000	
15	Pump		6.20.98	30 ml	1/100,000	2	—		
15	Pump		6.20.98	30 ml	1/1,000,000	37	123	123×10^6	62,385,000

FROM CIVIL&ENVIRO EHBRG DEPT ODU 804 683 5354 10.02.1998 15:21 P.10

Fecal Coliform for the month of June 98
Analyst: **Roxanne, Christina, and Osman**

Site	Sample	Collection Date	Analysis Date	Vol. of sample(ml)	Dilution Factor	Obs. No. of colonies	Colonies per 100 ml dilution	Colonies per 100 ml Sample	Remarks
#4	BG	6/2/98		30	1/100	8		2667	
"	BG	6/2/98			1/1000	0	—		
#4	PW	6/2/98			1/100	11		3939	
"	PW				1/1000	2			
#4	DG				1/100	3		2,424	
"	DG				1/1000	5			
#4	PUMP	6/2/98			1/10,000	2		181,818	
"	PUMP				1/100,000	4			
"	PUMP				1/1M	0	—	-	
#5	BG	6/2/98			1/100	2		1818	
"	BG				1/1000	4			
#5	PW	6/2/98			1/100	30	100	10,000	betw 20-60 pick
"	PW				1/1000	8	—	—	
#5	DG	6/2/98			1/100	0		—	
"	DG				1/1000	2	→	6,667	
#5	SC	6/2/98			1/10	15	1,030	1,030	
"	SC				1/100	19			
"	SC				1/1000	0			
#5	SEPTIC	6/2/98			1/10,000	0			
"	SEPTIC				1/100,000	0			
"	SEPTIC				1/1M	5	→ 166667		
Field Blank	—	6/2/98			0	0			

Fecal Coliform for the month of June 98
Analyst: **Roxanne, Christina, and Osman**

Site	Sample	Collection Date	Analysis Date	Vol. of sample(ml)	Dilution Factor	Obs. No. of colonies	Colonies per 100 ml dilution	Colonies per 100 ml Sample	Remarks
7	PW	6.11.98	6.12.98	30	1/100	0	0	0	All spots are yellow - TNTC
7	PW	"	"	"	1/1000	49	163	163,332	163 332
7	SC	"	"	"	1/100	6	721	721	
7	SC	6.11.98	6.12.98		1/1000	4			
7	DG	"	"		1/100	22		26,364	
7	DG	"	"		1/1000	75			
7	SC	"	"		1/10	14			
8	Pump	"	"		1/10.000	10		600,601	
8	Pump	"	"		1/100.000	7			
8	Pump	6.11.98	6.12.98		1/1.000.000	3			
6	PW	"	"		1/100	29	9667		
6	PW	"	"		1/1000	68	NO!>60		
6	DG	"	"		1/100	0	<1		
6	DG	"	"		1/1000	0	<1		
6	Pump	"	"		1/10.000	39	1.3×10^6		
6	Pump	6.11.98	6.12.98		1/100.000	2			
					1/1.000.000	1			
15			6.20.98						
15									
15									
15									
15									
15									
15									

END

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FACSIMILE TRANSMITTAL SHEET

DATE: 1/6/99

TO: GREG O'DONNELL

FROM: MUJDE

SUBJECT: September 98 Results

NUMBER OF PAGES: 25 (INCLUDING THIS PAGE)

MESSAGE:

Hi Greg;

I'll put the raw data sheets etc. in the mail tomorrow.

Thanks.

Mujde

Entered 1/11/99

Old Dominion University is an equal opportunity, affirmative action institution.

01.06.1999 17:00

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

Bord Na Mona
September 1998 Results

#1 Saw Mill Project — **Northampton Co. VA**

Installation Date: Aug-8-95 — Design Flow: 1,000 gpd — Soil Texture Group II

ple Point e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
p Tank (PT) 8-27-98													NS
rage PT	NS	NS											NRS: NA
ple Chamber (SC) 8-27-98	1.75	<1	0.51	0.53			15.40		11.30	17.7	6.9	2,333	System was dry Only one sample obtained from chamber- 500ml no acid
rage SC	1.75	<1	0.51	0.53			15.40		11.30	17.7	6.9	2,333	
d Well (PW-1) 8-27-98	NS												NS
rage PW-1													
d Well (PW-2) 8-27-98	NS												NS
rage PW-2													
ngradient (DG) 8-27-98	NS												NS
rage DG													
kground (BG) 8-27-98	NS												NS
rage BG													

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 16:39 P. 4

#9 Long-Arthur Property (Serial # 149)

Installation Date: Jan-8-95

Henrico Co. VA

Design Flow: 450 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Sept-27-98	NS												NS Lid on pump cannot be lifted
Average PT													
Sample Chamber (SC) Sept-27-98	11.28	20.00	2.66	2.90			10.80	92.00	5.20	29.0	5.7	<33	HRS: 111.76 Force-fed system
Average SC	11.28	20.00	2.66	2.90			10.80	92.00	5.20	29.0	5.7	<33	
Bad Well (PW) Sept-27-98	NS												NS
Average PW													
Down-gradient (DG) Sept-27-98	NS												NS
Average DG													
Background (BG) Sept-27-98	NS												NS
Average BG													

01.06.1999 17:02

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

Bord Na Mona
September 1998 Results

#4 Kemp Property — **Mathews Co. VA**

Installation Date: Sept. 6,1995 — Design Flow: 450 gpd — Soil Texture Group I

Sample Point / Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
Tank (PT) t-10-98	119.50	26.67	43.21	45.26			4.78	66.50	1.78	24.3	NA	266,667	pH meter not working properly
rage PT	119.50	26.67	43.21	45.26			4.78	66.50	1.78	24.3	NA	266,667	HRS: 130.65
Chamber (SC) t-10-98	4.97	<1	2.64	2.10			6.57	99.00	5.94	25.7	NA	2,000	pH meter not working properly
rage SC	4.97	<1	2.64	2.10			6.57	99.00	5.94	25.7	NA	2,000	
Well (PW) t-10-98	NS		0.27	0.26			0.10	49.00	4.91	25.6	NA	16,333	pH meter not working properly
rage PW			0.27	0.26			0.10	49.00	4.91	25.6	NA	16,333	
-gradient (DG) t-10-98	NS		0.21	0.22			0.57	19.00	6.81	26.7	NA	<333	pH meter not working properly
rage DG			0.21	0.22			0.57	19.00	6.81	26.7	NA	<333	
kground (BG) t-10-98	NS		0.33	0.31			0.08	49.00	7.65	25.8	NA		pH meter not working properly
rage BG			0.33	0.31			0.08	49.00	7.65	25.8	NA		

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 17:03 P. 6

#6 Nesbit Property (Serial No. 166)							Gloucester Co. VA						
	Installation Date:		Jun-6-96				Design Flow:	450	gpd				Soil Texture Group II
ple Point / Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
p Tank (PT) 17-98	106.00	6.7	39.93	43.92			2.98	29.00	0.76	26.8	7.1	733,333	
rage PT	106.00	6.7	39.93	43.92			2.98	29.00	0.76	26.8	7.1	733,333	HRS: NO METER
ple Chamber (SC) 17-98	1.33	<1	0.55	0.62			4.50	37.00	4.39	25.1	4.8	<333	Fresh Sample system was running
rage SC	1.33	<1	0.55	0.62			4.50	37.00	4.39	25.1	4.8	<333	
l Well (PW) 17-98	0.47		1.57	1.65			0.05	34.00	4.24	23.8	4.4	<330	
rage PW	0.47		1.57	1.65			0.05	34.00	4.24	23.8	4.4	<330	
n-gradient (DG) 17-98	NS												NS
rage DG													
kground (BG) 17-98	NS												NS
rage BG													

END

Bord Na Mona
September 1998 Results

#7 Agency on Aging (Serial No. 143)

Installation Date: Nov. 1, 1996

Gloucester Co. VA

Design Flow: 450 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)	NS												NSA
Sept-17-98													Pump is sealed
Average PT													
Sample Chamber (SC)	2.73	<1	0.41	0.42			5.32	49.90	4.80	26.3	6.5	6,667	HRS: NO METER
Sept-17-98													Used Sample in bucket
Average SC	2.73	<1	0.41	0.42			5.32	49.90	4.80	26.3	6.5	6,667	
Mid Well (PW)	NS												NS
Sept-17-98													
Average PW													
Down-gradient (DG)	NS		0.42	0.46			0.06	45.00	4.95	25.1	5.1	7,000	
Sept-17-98													
Average DG			0.42	0.46			0.06	45.00	4.95	25.1	5.1	7,000	
Background (BG)	NS												NS
Sept-17-98													
Average BG													

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FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

11 Easter Property (Serial No. 127)

Installation Date: Aug-30-96

Isle of Wight Co. VA

Design Flow: 300 gpd

Soil Texture Group II

mple Point te Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
mp Tank (PT) 8-25-98	682.75	<1	70.21	77.36			9.85	394.00	0.73	25.7	7.7	1,666,667	
erage PT	682.75	<1	70.21	77.36			9.85	394.00	0.73	25.7	7.7	1,666,667	NRS: NA
mple Chamber (SC) 8-25-98	38.65	<1	1.21	1.26			9.91	59.00	2.60	28.4	6.6	17,333	Chamber was 3/4 full, the sampler collected the sample from the bucket.
erage SC	38.65	<1	1.21	1.26			9.91	59.00	2.60	28.4	6.6	17,333	
d Well (PW) 8-25-98	NS												NS
erage PW													
wn-gradient (DG) 8-25-98	NS												NS
erage DG													
kground (BG) 8-25-98	NS												NS
rage BG													

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 16:41 P. 7

12 Munford Property (Serial No. 146)

Installation Date: Nov-19-96

Suffolk VA

Design Flow: 450 gpd

Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
Pump Tank (PT) 9-25-98	1959.50		75.70	83.43			48.10				6.9	<33,333	Solid Sludge Could not get reading For TSS could not filter sample
Average PT	1959.50		75.70	83.43			48.10				6.9	<33,333	HRS: 5.17
Sample Chamber (SC) 9-25-98	45.58	*	12.92	13.63			8.94	37.00	6.00	28.1	3.8	<667	*Sample integrity compromised for solids analysis.
Average SC	45.58	*	12.92	13.63			8.94	37.00	6.00	28.1	3.8	<667	
Old Well (PW) 9-25-98	NS												NS
Average PW													
Down-gradient (DG) 9-25-98	NS												NS
Average DG													
Background (BG) 9-25-98	NS												NS
Average BG													

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01.06.1999 16:50
FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

# 22 Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date:			Oct. 22, 1996				Design Flow:	750	gpd				Soil Texture Group I
ple Point e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
p Tank (PT) t-21-98	80.50	<1	43.05	45.61			17.70	1,450.00	1.13	25.4	6.8	7,833,333	
rage PT	80.50	<1	43.05	45.61			17.70	1450.00	1.13	25.4	6.8	7,833,333	BRS: NO METER
ple Chamber (SC) t-21-98	6.73	<1	0.26	0.28			7.56	1,090.00	4.51	29.0	6.1	11,667	Fresh Sample System running
rage SC	6.73	<1	0.26	0.28			7.56	1090.00	4.51	29.0	6.1	11,667	
l Well (PW) t-21-98	NS												NS
rage PW													
n-gradient (DG) t-21-98	NS												NS
rage DG													
kground (BG) t-21-98	NS												NS
rage BG													

P.15
01.06.1999 16147
FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

20 Jacobsen Property (Serial No. 125)

Fairfax Co. VA

Installation Date: Aug. 6, 1996 — Design Flow: 600 gpd — Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) 9-21-98	36.50	<1	31.87	36.36			3.55	500.00	1.47	24.2	7.3	60,000,000	
Average PT	36.50	<1	31.87	36.36			3.55	500.00	1.47	24.2	7.3	60,000,000	MRS: NO METER
Sample Chamber (SC) 9-21-98	2.93	<1	4.34	4.56			3.80	20.00	8.29	26.6	3.9	1,167	Had to use sample found in bucket
Average SC	2.93	<1	4.34	4.56			3.80	20.00	8.29	26.6	3.9	1,167	
Well (PW-1) 9-21-98	NS												NS
Average PW-1													
Down-gradient (DG) 9-21-98	NS												NS
Average DG													
Background (BG) 9-21-98	NS												NS
Average BG													
Well (PW-2) 9-21-98	NS												NS
Average PW-2													

# 17 Stanley Property							Page Co. VA						
Installation Date:			Nov. 1, 1996				Design Flow:	450	gpd				Soil Texture Group IV
ple Point e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
ge Tank (PT) e-21-98	80.00	6.7	39.93	42.23			4.53	1299	0.62	23.2	7.7	5,666,667	
erage PT	80.00	6.7	39.93	42.23			4.53	1299	0.62	23.2	7.7	5,666,667	HRS: 72.92
ple Chamber (SC) e-21-98	3.50	<1	0.66	0.72			3.78	1729	6.92	22.9	6.7	800	
erage SC	3.50	<1	0.66	0.72			3.78	1729	6.92	22.9	6.7	800	
l Well (PW) e-21-98	NS												NS
erage PW													
ve-gradient (DG) e-21-98	NS												NS
erage DG													
unfall (DF-1) e-21-98	NS												NS
erage DF-1													
unfall (DF-2) e-21-98	NS												NS
erage DF-2													

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 16:44 P.12

P.14
01.06.1999 16:46
FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

# 19 Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
mple Point te Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
mp Tank (PT) x-21-98	NS												NS Lid cannot be lifted
rage PT													MRS: 36.6
mple Chamber (SC) x-21-98	1.50	<1	0.36	0.39			0.62	1050	7.31	24.4	6.8	10,333	Chamber was full Some debris
rage SC	1.50	<1	0.36	0.39			0.62	1050	7.31	24.4	6.8	10,333	
rmfall (DF-2) x-21-98	NS												NS
rage DF-2													
ss-gradient (DG) x-21-98	NS												NS
rage DG													
kground (BG) x-21-98	NS												NS
rage BG													

Bord Na Mona
September 1998 Results

 # 21 T. Smith — **Fairfax Co.**

Installation Date: — Design Flow: 450 gpd — Soil Texture Group III

ple Point e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
p Tank (PT) 6-21-98	168	<1	53.95	61.68			9.39	120.00	1.35	21.6	7.6	1,066,667	
rage PT	168	<1	53.95	61.68			9.39	120.00	1.35	21.6	7.6	1,066,667	HRS: NO METER
ple Chamber (SC) 6-21-98	4.43	<1	0.44	0.47			12.08	50.00	6.51	23.2	5.6	606	Fresh sample System running
rage SC	4.43	<1	0.44	0.47			12.08	50.00	6.51	23.2	5.6	606	
d Well (PW) 6-21-98	NS												NS
rage PW													
ve-gradient (DG) 6-21-98	NS												NS
rage DG													
kground (BG) 6-21-98	NS												NS
rage BG													

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 16141 P. 8

# 13 Link Project							Virginia Beach, VA						
Installation Date:			Aug-8-95				Design Flow:	450	gpd				Soil Texture Group II
...ple Point ...e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
...ng Tank (PT) ...-13-98	258.5	1,993	46.65	52.67			9.45	84.00	1.54	27.0	NA	283,333	pH meter not working properly
...rage PT	258.5	1,993	46.65	52.67			9.45	84.00	1.54	27.0	NA	283,333	BRS: 12.08
...ple Chamber (SC) ...-13-98	14.47	<1	0.40	0.44			10.30	124.00	5.03	26.7	NA	<43,333	pH meter not working properly
...rage SC	14.47	<1	0.40	0.44			10.30	124.00	5.03	26.7	NA	<43,333	
...d Well (PW) ...-13-98	7.10		1.94	1.94			3.73	127.00	6.29	24.5	NA	6,060	pH meter not working properly
...rage PW	7.10		1.94	1.94			3.73	127.00	6.29	24.5	NA	6,060	
...m-gradient (DG) ...-13-98	1.00		0.14	0.15			0.34	209.00	4.50	25.1	NA	20,000	pH meter not working properly
...rage DG	1.00		0.14	0.15			0.34	209.00	4.50	25.1	NA	20,000	
...kground (BG) ...-13-98	0.93		0.08	0.08			0.18	43.00	7.26	24.5	NA	6,667	pH meter not working properly
...rage BG	0.93		0.08	0.08			0.18	43.00	7.26	24.5	NA	6,667	

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 16:42 P. 9

# 14 Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow: 150 gpd						Soil Texture Group I
...ple Point / ...e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
...mp Tank (PT)	9.05	<1	76.77	83.04			9.93	56.50	1.00	25.7	NA	4,033,333	pH meter not working properly
...rage PT	9.05	<1	76.77	83.04			9.93	56.50	1.00	25.7	NA	4,033,333	HRS: NO METER
...ple Chamber (SC)	3.53	<1	0.37	0.48			7.15	89.00	6.25	26.5	NA	23,667	pH meter not working properly
...rage SC	3.53	<1	0.37	0.48			7.15	89.00	6.25	26.5	NA	23667	
...l Well (PW)	2.43		4.51	4.65			2.31	89.00	3.44	25.2	NA	<3,333	pH meter not working properly
...rage PW	2.43		4.51	4.65			2.31	89.00	3.44	25.2	NA	<3,333	
...m Gradient (DG)	2.33		0.44	0.48			1.66	109.00	3.91	25.1	NA	3,667	pH meter not working properly
...rage DG	2.33		0.44	0.48			1.66	109.00	3.91	25.1	NA	3,667	
...kground (BG)	2.33		1.66	1.73			0.07	34.00	4.02	25.8	NA	<333	pH meter not working properly
...rage BG	2.33		1.66	1.73			0.07	34.00	4.02	25.8	NA	<333	

01.06.1999 17:01

FROM CIVIL&ENVIRO ENGRG DEPT DDU 804 683 5354

Bord Na Mona
September 1998 Results

#5 Merrit							Eastern Shore						
Installation Date:			May 29-96				Design Flow: 450 gpd						Soil Texture Group I
ple Point / e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,4}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
ge Tank (PT) e-27-98	NS												NS
erage PT													BRS: 38.59
ple Chamber (SC) e-27-98	6.45	<1	1.63	1.71			17.60	159.00	9.42	29.2	6.3	11,667	
erage SC	6.45	<1	1.63	1.71			17.60	159.00	9.42	29.2	6.3	11,667	
d Well (PW) e-27-98		NS											NS
erage PW													
ım-gradient (DG) e-27-98		NS											NS
erage DG													
kground (BG) e-27-98		NS											NS
erage BG													

01.06.1999 17:01

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

Bord Na Mona
September 1998 Results

#2 Hanson							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
Pump Tank (PT) 8-27-98	258.25	<1	75.70	80.34			7.57	91.50	1.74	29.5	8.0	13,333,333	System was turned off Power outage had occurred Septic had overflowed Sampler restarted pump pH= 12.1
Average PT	258.25	<1	75.70	80.34			7.57	91.50	1.74	29.5	8.0	13,333,333	
Sample Chamber (SC) 8-27-98	7.32	<1	5.04	5.72			4.17	96.50	7.36	21.7	5.7	40,000	Fresh sample
Average SC	7.32	<1	5.04	5.72			4.17	96.50	7.36	21.7	5.7	40,000	
Well (PW) 8-27-98	NS												NS
Average PW#													
Down-gradient (DG) 8-27-98	NS												NS
Average DG													
Background (BG) 8-27-98	NS												NS
Average BG													

01.06.1999 16:48 FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

Bord Na Mona
September 1998 Results

HENRICO

10 Brown — Richmond VA

Installation Date: Oct-9-97 — Design Flow: 150 gpd — Soil Texture Group I

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
Pump Tank (PT)	NS												NS
pt-27-98													Owner will not move dog away from system. He has been contacted twice during the month of Sept and has not responded to our request.
Average PT													
Sample Chamber (SC)	NS												NS
pt-27-98													
Average SC													
Soil Well (PW)	NS												NS
pt-27-98													
Average PW													
Down-gradient (DG)	NS												NS
pt-27-98													
Average DG													
Background (BG)	NS												NS
pt-27-98													
Average BG													

P.13
01.06.1999 16:45
FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

18 D.Smith — Page County

Installation Date: — Design Flow: 450 gpd — Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Septic Tank (PT) 8-21-98	122.5	6.67	39.93	43.92			4.69	100.00	0.55	23.2	8.6	7,666,667	
Average PT	122.5	6.67	39.93	43.92			4.69	100.00	0.55	23.2	8.6	7,666,667	[illegible]-19-98
Sample Chamber (SC) 8-21-98	2.60	<1	0.26	0.29			3.64	50.00	8.31	24.6	7.3	533	
Average SC	2.60	<1	0.26	0.29			3.64	50.00	8.31	24.6	7.3	533	
Overfall DF 8-21-98	NS												NS
Average DF													
Down-gradient (DG) 8-21-98	NS												NS
Average DG													
Background (BG) 8-21-98	NS												NS
Average BG													

P.10
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FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

15 L.Smith — West Moreland County

Installation Date: — Design Flow: 450 gpd — Soil Texture Group III

ple Point / Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
p Tank (PT) 5-24-98	815.75	133.3	110.28	117.20			16.22	95.00	1.18	24.7	7.4	1,133,333	
rage PT	815.75	133.3	110.28	117.20			16.22	95.00	1.18	24.7	7.4	1,133,333	HRS: 17.26
ple Chamber (SC) 5-24-98	64.42	<1	0.35	0.39			15.43	105.00	7.07	25.3	5.5	13,333	Force-fed system
rage SC	64.42	<1	0.35	0.39			15.43	105.00	7.07	25.3	5.5	13,333	
Well (PW) 5-24-98	NS												NS
rage PW													
m-gradient (DG) 5-24-98	NS												NS
rage DG													
kground (BG) 5-24-98	NS												NS
age BG													

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FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

16 Henderson — West Moreland County

Installation Date: | Design Flow: 450 gpd | Soil Texture Group III

Sample Point / Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
=> Tank (PT)	NS												Site Under Construction
-24-98													NS
													System Installed
rage PT													
ple Chamber (SC)	NS												Site Under Construction
-24-98													NS
													System Installed
rage SC													
Well (PW)	NS												Site Under Construction
-24-98													NS
													System Installed
rage PW													
n-gradient (DG)	NS												Site Under Construction
-24-98													NS
													Sysytem Installed
rage DG													
kground (BG)	NS												Site Under Construction
-24-98													NS
													System Installed
age BG													

01.06.1999 16:39 FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

Bord Na Mona
September 1998 Results

#8 Brown — Gloucester, Virginia

Soil Texture Group I

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Sept-30-98	65.25	20.0	60.40	66.52			6.47	1749	0.98	27.4	7.2	<33,333	
Average PT	65.25	20.0	60.40	66.52			6.47	1749	0.98	27.4	7.2	<33,333	BBS: 23.98
Sample Chamber (SC) Sept-30-98	8.18	<1	0.69	0.72			4.81	1513	6.98	25.2	5.2	<5,000	Force-fed system
Average SC	8.18	<1	0.69	0.72			4.81	1513	6.98	25.2	5.2	<5,000	
Mid Well (PW) Sept-30-98	NS												NS
Average PW													
Down-gradient (DG) Sept-30-98	NS												NS
Average DG													
Background (BG) Sept-30-98	NS												NS
Average BG													

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01.06.1999 16:51
FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

# 23 Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
ple Point Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C	pH	FC per 100 ml	Comments
p Tank (PT) 7-98	NS												No sample available System installed but not in use
age PT													BOS: 0.17
ple Chamber (SC) 7-98	NS												
age SC													
Well (PW) 7-98	NS												
age PW													
n-gradient (DG) 7-98	NS												
age DG													
ground (BG) 7-98	NS												
age BG													

# 24 Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
le Point ampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Tank (PT) 0-98	NS												NS Tank is flush w/ground Lid cannot be lifted
ge PT													HRS: 0.15
le Chamber (SC) 0-98	6.78	<1	0.41	0.42			0.71	22.00	7.74	25.0	6.0	<33	Force-fed system
ge SC	6.78	<1	0.41	0.42			0.71	22.00	7.74	25.0	6.0	<33	
Well (PW) 30-98	NS												NS
ge PW													

C. Brown PT = BOD ~~1368~~
SC = ~~1368~~
1354
1370

CARTER PT = ~~1429~~
SC = ~~1413~~
1413
1429

MOORE = PT = ~~1486~~
SC = ~~1502~~
1472
1488

END

FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354 01.06.1999 16:52 P.19

P. 5
01.06.1999 17:02
FROM CIVIL&ENVIRO ENGRG DEPT ODU 804 683 5354

#5 Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow: 300 gpd						Soil Texture Group
ple Point / e Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C	pH	EC per 100 ml	Comments
ple Chamber (SC) 10-98	2.87	<1	0.14	0.15			0.74	29.00	6.40	22.7	NA	68,833	pH meter not working properly
rage SC	2.87	<1	0.14	0.15			0.74	29.00	6.40	22.7	NA	68,833	
l Well (PW) 10-98	NS												NS
rage PW													
ss-gradient (DG) 10-98	NS												NS
rage DG													
tic Tank 10-98		6.67	50.37	5.07			0.36	54.00	2.07	22.8	NA	120,120	pH meter not working properly
rage Septic Tank		6.67	50.37	5.07			0.36	54.00	2.07	22.8	NA	120,120	HRS: 39.21
kground (BG) 10-98	NS												NS
rage BG													

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Puraflo Sampling Results
1999

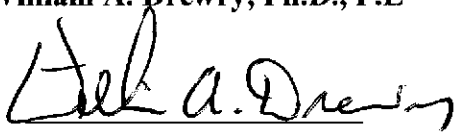
PURAFLO® PEAT TREATMENT SYSTEM

JANUARY 1999 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Saw Mill Project							Northampton Co. VA						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled 1/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													HRS: 186.69
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW-1)									11.94	11.00	5.6	<300	
Average PW-1									11.94	11.0	5.6	<300	
Pad Well (PW-2)									13.11	11.00	5.6	<300	
Average PW-2									13.11	11.1	5.6	<300	
Downgradient (DG)									9.73	11.4	5.4	40,000	
Average DG									9.73	11.4	5.4	40,000	
Background (BG)									12.14	11.4	4.8	<300	
Average BG									12.14	11.4	4.8	<300	

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled: 1/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)	364.50	233.3	48.52	72.24	1.11	73.35	13.13	65.46	3.41	10.2	7.5	733	
Average PT	364.50	233.3	48.52	72.24	1.11	73.35	13.13	65.46	3.41	10.2	7.5	733	**HRS: 20.26**
Sample Chamber (SC)	1.80	<1	1.2	1.48	23.94	25.42	5.80	147.56	4.40	10.0	4.4	<300	System running when sample was taken
Average SC	1.80	<1	1.20	1.48	23.94	25.42	5.80	147.56	4.40	10.0	4.4	<300	
Pad Well (PW)												<3000	NS
Average PW#												<3000	
Down-gradient (DG)	1.10		0.19	0.48	4.37	4.85	0.03	25.62	4.90	10.2	4.9	<300	
Average DG	1.10		0.19	0.48	4.37	4.85	0.03	25.62	4.90	10.2	4.9	<300	
Background (BG)	<1		0.29	0.44	0.93	1.37	0.06	1.98	12.14	9.8	5.5	<300	
Average BG	<1		0.29	0.44	0.93	1.37	0.06	1.98	12.14	9.8	5.5	<300	

Merrit							Eastern Shore						
Installation Date:			May 29-96				Design Flow:	450	gpd				Soil Texture Group I
Sample Point Date Sampled: 1/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													SEALED
Average PT													**HRS: 44.76**
Sample Chamber (SC)	46.70	2.3			23.93		7.37	146.97	14.23	11.0	7.0	733	Bucket full of sediment, force fed the system
Average SC	46.70	2.3			23.93		7.37	146.97	14.23	11.0	7.0	733	
Pad Well (PW)													NS
Average PW													
Down-gradient (DG)													NS
Average DG													
Background (BG)													NS
Average BG													

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled: 1/28/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													HRS: 150.61
Sample Chamber (SC)		<1							11.10	10.9	NA	>2,000	pH meter broken Timed sampling results are attached
Average SC		<1							11.10	10.9	NA	>2,000	
Pad Well (PW)												7,000	
Average PW									3.10	12.0	NA	7,000	
Down-gradient (DG)												>20,000	
Average DG									4.40	12.0	NA	>20,000	
Background (BG)												>20,000	
Average BG									4.10	13..0	NA	>20,000	

Farrell Property (Serial No.000223)							Mathews Co. VA						
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled: 1/28/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Sample Chamber (SC)	1.30	<1	0.11	1.36	0.92	2.28	0.10	5.85	4.20	12.5		200,000	pH meter broken System runningwhen sample was collected
Average SC	1.30	<1	0.11	1.36	0.92	2.28	0.10	5.85	4.20	12.5	NA	200,000	HRS: 39.22
Pad Well (PW)	<1		0.14	0.48	1.08	1.56	0.07	13.87	4.10	15.0		>20,000	
Average PW	<1		0.14	0.48	1.08	1.56	0.07	13.87	4.10	15.0	NA	>20,000	
Down-gradient (DG)	<1		0.18	0.57	2.33	2.90	0.01	13.33	4.10	13.1		>20,000	
Average DG	<1		0.18	0.57	2.33	2.90	0.01	13.33	4.10	13.1	NA	>20,000	
Septic Tank													NT
Average Septic Tank													
Background (BG)	<1		0.32	0.36	0.92	1.28	0.02	21.78	4.20	16.5		>20,000	
Average BG	<1		0.32	0.36	0.92	1.28	0.02	21.78	4.20	16.5	NA	>20,000	

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow:	450	gpd			Soil Texture Group II	
Sample Point Date Sampled: 1/17/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													HRS: NO METER
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)									5.60	4.6	4.6	<333	
Average PW									5.60	4.6	4.6	<333	
Down-gradient (DG)									6.20	6.9	5.5	<333	
Average DG									6.20	6.9	5.5	<333	
Background (BG)													NS
Average BG													

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 1/17/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT No elapsed time meter
Average PT													
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)													NS
Average PW													
Down-gradient (DG)									6.20	4.6	4.9	<333	
Average DG									6.20	4.6	4.9	<333	
Background (BG)													NS
Average BG													

Brown							Gloucester, Virginia						
													Soil Texture Group I
Sample Point Date Sampled: 2/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													HRS: 33.2
Sample Chamber (SC)													NS
Average SC													
Pad Well (PW)													NS
Average PW													
Down-gradient (DG)													NS
Average DG													
Background (BG)													NS
Average BG													

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 2/15/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													SEALED
Average PT													HRS: 135.54
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)									7.99	9.4	5.6	2,121	
Average PW									7.99	9.4	5.6	2,121	
Down-gradient (DG)									14.67	9.5	5.5	10,000	
Average DG									14.67	9.5	5.5	10,000	
Background (BG)									14.19	10.9	6.0	11,667	
Average BG									14.19	10.9	6.0	11,667	

Brown							Richmond, VA						
Installation Date: Oct-9-97							Design Flow: 150 gpd						Soil Texture Group I
Sample Point Date Sampled: 2/15/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													samples not taken due to dog problem
Average PT													**HRS:**
Sample Chamber (SC)													samples not taken due to dog problem
Average SC													
Pad Well (PW)													samples not taken due to dog problem
Average PW													
Down-gradient (DG)													samples not taken due to dog problem
Average DG													
Background (BG)													samples not taken due to dog problem
Average BG													

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date: Aug-30-96							Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled: 1/17/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													**HRS: NO METER**
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)									4.80	12.0	6.2	13,333	
Average PW									4.80	12.0	6.2	13,333	
Down-gradient (DG)									5.60	12.9	6.1	2,424	
Average DG									5.60	12.9	6.1	2,424	
Background (BG)									5.90	15.0	5.6	>20,000	
Average BG									5.90	15.0	5.6	>20,000	

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date: Nov-19-96							Design Flow = 450 gpd						Soil Texture Group II
Sample Point Date Sampled: 1/17/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													**HRS: 73.02**
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)									7.00	14.0	5.2	23,333	
Average PW									7.00	14.0	5.2	23,333	
Down-gradient (DG)									6.80	15.1	5.4	<333	
Average DG									6.80	15.1	5.4	<333	
Background (BG)									7.20	13.0	5.6	>20,000	
Average BG									7.20	13.0	5.6	>20,000	

Link Project							Virginia Beach. VA						
Installation Date:			Aug-8-95				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled: 1/28/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													**HRS: 28.1**
Sample Chamber (SC)	19.00	113.0	0.11	1.90	15.87	17.77	11.34	102.32	6.90	19.6	6.6	3,333	Sampling chamber and the surrounding area was full of water. Took the sample from the chamber and area. Sample integrity compromised.
Average SC	19.00	113.0	0.11	1.90	15.87	17.77	11.34	102.32	6.90	19.6	6.6	3,333	
Pad Well (PW)	14.30		0.14	1.42	0.92	2.34	0.50	63.69	4.18	17.5	6.7	7,000	
Average PW	14.30		0.14	1.42	0.92	2.34	0.50	63.69	4.18	17.5	6.7	7,000	
Down-gradient (DG)	<1		0.18	0.46	2.67	3.13	0.53	221.90	11.28	18.4	5.8	>20,000	
Average DG	<1		0.18	0.46	2.67	3.13	0.53	221.90	11.28	18.4	5.8	>20,000	
Background (BG)	<1		0.32	0.48	0.92	1.40	0.12	31.82	12.50	15.8	6.3	>20,000	
Average BG	<1		0.32	0.48	0.92	1.40	0.12	31.82	12.50	15.8	6.3	>20,000	

Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled: 1/28/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)	111.00	< 1	0.11	40.49	0.92	41.41	0.66	71.86	1.77	19.1	8.1	183,333,333	
Average PT	111.00	< 1	0.11	40.49	0.92	41.41	0.66	71.86	1.77	19.1	8.1	183,333,333	HRS: NO METER
Sample Chamber (SC)	1.37	< 1	0.84	0.86	43.48	44.34	2.41	74.11	7.95	17.5	5.3	> 2,000	System was running when sample was taken
Average SC	1.37	< 1	0.84	0.86	43.48	44.34	2.41	74.11	7.95	17.5	5.3	> 2,000	
Pad Well (PW)	< 1		1.25	7.13	29.16	36.29	2.51	73.77	3.98	17.9	6.3	> 20,000	
Average PW	< 1		1.25	7.13	29.16	36.29	2.51	73.77	3.98	17.9	6.3	> 20,000	
Down Gradient (DG)	1.20		1.15	1.43	30.30	31.73	9.44	71.55	5.50	16.4	5.7	> 20,000	
Average DG	1.20		1.15	1.43	30.30	31.73	9.44	71.55	5.50	16.4	5.7	> 20,000	
Background (BG)	1.90		3.00	4.00	3.04	7.04	0.17	43.76	4.80	16.4	6.7	> 20,000	
Average BG	1.90		3.00	4.00	3.04	7.04	0.17	43.76	4.80	16.4	6.7	> 20,000	

L. Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 2/9/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)	350.25	60.00	59.73	98.67	0.93	99.60	14.24	95.20	0.69	14.3	7.5	33,333	
Average PT	350.25	60.00	59.73	98.67	0.93	99.60	14.24	95.20	0.69	14.3	7.5	33,333	HRS: 21.28
Sample Chamber (SC)	29.15	<1	1.54	4.37	84.25	88.62	8.80	79.64	9.01	14.1	5.2	3,030	Force fed the system
Average SC	29.15	<1	1.54	4.37	84.25	88.62	8.80	79.64	9.01	14.1	5.2	3,030	
Pad Well (PW)	1.32				0.92			9.49	9.66	15.8	6.1	7,333	
Average PW	1.32				0.92			9.49	9.66	15.8	6.1	7,333	
Down-gradient (DG)	1.62		0.41	0.86	0.92	1.78	0.01	8.43	10.65	16.2	5.2	667	
Average DG	1.62		0.41	0.86	0.92	1.78	0.01	8.43	10.65	16.2	5.2	667	
Background (BG)	1.68		1.05	1.42	0.92	2.34	0.10	5.24	9.20	16.1	5.9	<333	
Average BG	1.68		1.05	1.42	0.92	2.34	0.10	5.24	9.20	16.1	5.9	<333	

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 2/9/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													SITE NOT FINISHED
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled: 1/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													**HRS:**
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)													WELLS CANNOT BE FOUND
Average PW													
Down-gradient (DG)													
Average DG													
Downfall (DF-1)													
Average DF-1													
Downfall (DF-2)													
Average DF-2													

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 1/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3**	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)									0.55	23.2	8.6		LEAK Not taken
Average PT													**HRS: 26.21**
Sample Chamber (SC)	1.28	<1	0.59	0.98	34.43	35.41	4.19	32.10	8.20	5.8	6.9	1,533	System was running when sample was taken
Average SC	1.28	<1	0.59	0.98	34.43	35.41	4.19	32.10	8.20	5.8	6.9	1,533	
Downfall DF													NS
Average DF													
Down-gradient (DG)													NS
Average DG													
Background (BG)													NS
Average BG													

Anderson Property (Serial No. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled: 1/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													BURIED
Average PT													**HRS: 802.88**
Sample Chamber (SC)		<1										18,667	Timed sampling results are attached
Average SC		<1							13.82	5.8	NA	18,667	
Downfall (DF-2)												909	pH meter broken
Average DF-2									13.61	5.0	NA	909	
Downfall (DF-1)												18,667	
Average DF-1									16.60	5.1	NA	18,667	

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
	Installation Date:		Aug. 6, 1996				Design Flow:	600	gpd				Soil Texture Group III
Sample Point Date Sampled: 1/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													**HRS: METER IN HOUSE**
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW-1)												< 333	pH meter broken
Average PW-1									10.37	6.1	NA	< 333	
Down-gradient (DG)												< 333	
Average DG									16.26	5.8	NA	< 333	
Background (BG)												3,636	
Average BG									16.23	7.5	NA	3636	
Pad Well (PW-2)												667	
Average PW-2									17.49	6.7	NA	667	

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 1/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Female owner did not want lid removed due to concerns over damage.
Average PT													**HRS: meter in house**
Sample Chamber (SC)	8.35	<1	4.18	8.52	31.55	40.07	8.91	60.01	11.17	9.4	NA	<67	pH meter broken System was running when sample was taken
Average SC	8.35	<1	4.18	8.52	31.55	40.07	8.91	60.01	11.17	9.4	NA	<67	
Pad Well (PW)	2.85		0.52	0.73			0.85					<1,000	
Average PW	2.85		0.52	0.73			0.85		11.82	9.8	NA	<1,000	
Down-gradient (DG)	1.12											<667	
Average DG	1.12								14.66	9.9	NA	<667	
Background (BG)													NS

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled: 1/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													NT
Average PT													**HRS: 127.72 & 111.99**
Sample Chamber (SC)													NT
Average SC													
Pad Well (PW)													NS
Average PW													
Down-gradient (DG)													NS
Average DG													
Background (BG)													NS
Average BG													

Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group 1
Sample Point Date Sampled: 1/31/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													house not occupied
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow:				gpd		Soil Texture Group I
Sample Point Date Sampled: 2/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)	4.75	<1	0.39	0.59	0.92	1.51	0.50	5.22	12.83	15.3	7.1	<33,333	repairmen filled PT with water
Average PT	4.75	<1	0.39	0.59	0.92	1.51	0.50	5.22	12.83	15.3	7.1	<33,333	**HRS: 1.56**
Sample Chamber (SC)	2.51	53.3	0.29	1.11	5.99	7.10	0.23	5.98	13.82	14.5	6.5	2,533	System was dry, force fed the system for 2 minutes and then took the sample
Average SC	2.51	53.3	0.29	1.11	5.99	7.10	0.23	5.98	13.82	14.5	6.5	2,533	
Pad Well (PW)													NS
Average PW													

BNM Timed Studies for Jan 99 **Roxanne Taggart Groover**

TSS Studies

Site #4	1/28/99				
Sample	**Time (min)**	**Initial Wt**	**Final Wt**	**Amt of Sample (ml)**	**TSS**
SC	bucket	1.0942	1.0945	15	2E-05
SC	1	1.0945	1.095	15	3.33E-05
SC	2	1.1044	1.1053	15	6E-05
SC	3	1.1089	1.1988	15	0.005993
SC	4	1.1013	1.1019	15	4E-05
SC	5	1.1032	1.104	15	5.33E-05
SC	10	1.1064	1.1098	15	0.000227
SC	15	1.1114	1.1173	15	0.000393

Site #19	1/18/99				
Sample	**Time (min)**	**Initial Wt**	**Final Wt**	**Amt of Sample (ml)**	**TSS**
SC	bucket	1.0942	1.0943	15	6.67E-06
SC	1	1.0871	1.0876	15	3.33E-05
SC	2	1.0987	1.0992	15	3.33E-05
SC	3	1.0974	1.0978	15	2.67E-05
SC	4	1.0987	1.0988	15	6.67E-06
SC	5	1.0955	1.0957	15	1.33E-05
SC	10	1.0995	1.1002	15	4.67E-05
SC	15	1.0969	1.0981	15	8E-05

Fecal Studies

Site #4					AVG value
Sample	**Time (min)**	**1/10**	**1/100**	**1/1000**	
SC	bucket	tntc	tntc	tntc	> 200,000
SC	1	tntc	tntc	tntc	> 200,000
SC	2	tntc	tntc	297	> 200,000
SC	3	tntc	tntc	352	> 200,000
SC	4	tntc	tntc	108	> 200,000
SC	5	90	tntc	96	> 200,000
SC	10	tntc	832	252	> 200,000
SC	15	tntc	tntc	192	> 200,000

Site #19	1/18/99				AVG. value
Sample	**Time (min)**	**1/10**	**1/100**	**1/1000**	
SC	bucket	292	7	1	2424
SC	1	376	56	4	18,667
SC	2	tntc	484	70	> 233,333
SC	3	tntc	436	17	56,667
SC	4	tntc	140	93	> 200,000
SC	5	tntc	240	62	207,000
SC	10	tntc	396	27	90,000
SC	15	tntc	428	67	> 223,333

Sample ID	Cl Result	Nitrite Result	Nitrate Result	Nitrite + Nitrate
blank	1.30	0.07	0.85	0.92
2bg	15.59	0.07	8.82	8.88
2dg	25.62	0.07	4.30	4.37
5bg	21.78	0.07	0.85	0.92
5dg	13.33	0.07	2.26	2.33
5pw	13.87	0.23	0.85	1.08
5dc	5.85	0.07	0.85	0.92
13bg	31.82	0.07	0.85	0.92
13dg	221.92	0.07	2.60	2.67
13pw	63.69	0.07	0.85	0.92
13sc	102.32	0.07	15.80	15.87
14bg	43.76	0.07	2.97	3.04
14dg	71.55	0.07	30.24	30.30
14pw	73.77	0.07	29.09	29.16
14sc	74.11	0.07	43.41	43.48
14pt	71.86	0.07	0.85	0.92
std3	100.12	9.72	9.65	19.38
15bg	5.24	0.07	0.85	0.92
15pw	9.49	0.07	0.85	0.92
15dg	8.43	0.07	0.85	0.92
15sc	79.64	0.07	84.18	84.25
15pt	95.20	0.07	0.86	0.93
24pt	5.22	0.07	0.85	0.92
24sc	5.98	0.07	5.92	5.99
18SC	32.10	0.07	34.36	34.43
21 SC	60.01	0.07	31.49	31.55
Lab Control 1	95.82	9.47	9.27	18.74
Lab Control 2	300.01	29.83	50.42	80.26
2bg	1.98	0.07	0.86	0.93
2sc	147.56	0.07	23.86	23.94
2pt	65.46	0.25	0.86	1.11
3sc	146.97	0.07	23.85	23.93

Total Kjeldahl Nitrogen Run #1 January 1999

Date of Analysis 14-Feb-99 Analyst Derek Krepp

Date of Samples 1/18/99, 1/20/99, 1/28/99, 2/9/99, 2/11/99

Sample ID	Date Sampled	Sample vol (ml)	Potential (mV)	Concentration (mg/l)	Dil. Factor	Results (mg/l) NH3-N
STD 1		25	0.068	0.1	1	0.1
STD 2		25	0.015	1	1	1
STD 3		25	-0.037	10	1	10
STD 4		25	-0.099	100	1	100
STD 5		25	-0.152	1000	1	1000
D. Smith SC	18-Jan-99	25	0.015	0.975	1	0.975
T. Smith PW	18-Jan-99	25	0.022	0.729	1	0.729
T. Smith SC	18-Jan-99	25	-0.0371	8.519	1	8.519
Harmon BG	20-Jan-99	25	0.034	0.443	1	0.443
Harmon DG	20-Jan-99	25	0.032	0.481	1	0.481
Harmon SC	20-Jan-99	25	0.005	1.478	1	1.478
Harmon PT	20-Jan-99	25	-0.0885	72.244	1	72.244
#5 BG	28-Jan-99	25	0.039	0.360	1	0.360
#5 DG	28-Jan-99	25	0.028	0.568	1	0.568
#5 PW	28-Jan-99	25	0.032	0.481	1	0.481
#5 DC	28-Jan-99	25	0.007	1.360	1	1.360
Link BG	28-Jan-99	25	0.032	0.481	1	0.481
Link PW	28-Jan-99	25	0.006	1.418	1	1.418
Link DG	28-Jan-99	25	0.033	0.462	1	0.462
Link SC	28-Jan-99	25	-0.001	1.897	1	1.897
Sharf BG	28-Jan-99	25	-0.0189	3.995	1	3.995
Sharf PW	28-Jan-99	25	-0.0329	7.128	1	7.128
Sharf DG	28-Jan-99	25	0.0058	1.434	1	1.434
Sharf SC	28-Jan-99	25	0.018	0.861	1	0.861
Sharf PT	28-Jan-99	25	-0.0746	40.490	1	40.490
L. Smith BG	9-Feb-99	25	0.006	1.418	1	1.418
L. Smith DG	9-Feb-99	25	0.018	0.861	1	0.861
L. Smith SC	9-Feb-99	25	-0.022	4.367	1	4.367
L. Smith PT	9-Feb-99	25	-0.0961	98.673	1	98.673
#24 SC	11-Feb-99	25	0.012	1.105	1	1.105
#24 PT	11-Feb-99	25	0.027	0.592	1	0.592
#24 PT MS	11-Feb-99	25	-0.095	94.347	1	94.347
#24 PT MSD	11-Feb-99	25	-0.095	94.347	1	94.347
LSC STD 3		25	-0.038	8.828	1	8.828

Quality Control Run #1	
% Recovery Matrix Spike	93.8%
% Recovery MSD	93.8%
% Recovery LCS	88.3%
orrelation Coefficient	0.9996

Ammonia Nitrogen Run #1 January 1999

Date of Analysis 13-Feb-99 Analyst Derek Krepp

Date of Samples 1/18/99, 1/20/99, 1/28/99, 2/9/99, 2/11/99

Sample ID	Date Sampled	Sample vol (ml)	Potential (mV)	Concentration (mg/l)	Dil. Factor	Results (mg/l) NH3-N
STD 1		50	0.088	0.1	1	0.1
STD 2		50	0.052	1	1	1
STD 3		50	-0.009	10	1	10
STD 4		50	-0.059	100	1	100
STD 5		50	-0.115	1000	1	1000
D. Smith SC	18-Jan-99	50	0.055	0.589	1	0.589
T. Smith PW	18-Jan-99	50	0.058	0.515	1	0.515
T. Smith SC	18-Jan-99	50	0.016	3.343	1	3.343
Harmon BG	20-Jan-99	50	0.011	4.177	1	4.177
Harmon DG	20-Jan-99	50	0.080	0.193	1	0.193
Harmon SC	20-Jan-99	50	0.039	1.200	1	1.200
Harmon PT	20-Jan-99	50	-0.044	48.515	1	48.515
#5 BG	28-Jan-99	50	0.069	0.316	1	0.316
#5 DG	28-Jan-99	50	0.082	0.177	1	0.177
#5 PW	28-Jan-99	50	0.088	0.135	1	0.135
#5 DC	28-Jan-99	50	0.092	0.113	1	0.113
Link BG	28-Jan-99	50	0.096	0.095	1	0.095
Link PW	28-Jan-99	50	0.072	0.276	1	0.276
Link DG	28-Jan-99	50	0.080	0.193	1	0.193
Link SC	28-Jan-99	50	0.052	0.673	1	0.673
STD 3		50	-0.003	7.793	1	7.793
Sharf BG	28-Jan-99	50	0.019	2.996	1	2.996
Sharf PW	28-Jan-99	50	0.038	1.252	1	1.252
Sharf DG	28-Jan-99	50	0.040	1.153	1	1.153
Sharf SC	28-Jan-99	50	0.047	0.841	1	0.841
Sharf PT	28-Jan-99	50	0.093	0.111	1	0.111
L. Smith BG	9-Feb-99	50	0.042	1.050	1	1.050
L. Smith DG	9-Feb-99	50	0.063	0.412	1	0.412
L. Smith SC	9-Feb-99	50	0.033	1.540	1	1.540
L. Smith PT	9-Feb-99	50	-0.049	59.727	1	59.727
#24 SC	11-Feb-99	50	0.071	0.289	1	0.289
#24 PT	11-Feb-99	50	0.064	0.394	1	0.394
#24 PT MS	11-Feb-99	50	-0.022	18.163	1	18.163
#24 PT MSD	11-Feb-99	50	-0.023	18.990	1	18.990

Quality Control Run #1	
% Recovery Matrix Spike	88.8%
% Recovery MSD	93.0%
% Recovery STD 3	12.5%
Correlation Coefficient	0.9975

Total Phosphorus Calculation Sheet

Total Phosphorus Calculation Sheet				
Concentration	Absorbance	Slope Fit Line	Intercept Fit Line	Regression Stat
0	0	1.6106	-0.0008	1.0000
0.05	0.079			
0.25	0.404			
0.5	0.801			
1	1.611			

Jan-99
Run # 1

Actual Data ID #	Absorbance	Calculated Conc	Dilution	Result (mg/l)
6	1.348	0.84	5	4.19
7	1.364	0.85	1	0.85
8	0.573	0.36	25	8.91
9	0.099	0.06	1	0.06
10	0.048	0.03	1	0.03
11	0.373	0.23	25	5.80
12	0.422	0.26	50	13.13
13	0.474	0.29	25	7.37
14	0.028	0.02	1	0.02
15	0.009	0.01	1	0.01
16	0.118	0.07	1	0.07
17	0.162	0.10	1	0.10
18	0.194	0.12	1	0.12
19	0.844	0.52	1	0.52
20	0.73	0.45	25	11.34
21	0.804	0.50	1	0.50
22	0.054	0.03	5	0.17
23	0.808	0.50	5	2.51
24	0.607	0.38	25	9.43
25	0.388	0.24	10	2.41
26	1.06	0.66	1	0.66
27	0.158	0.10	1	0.10
28	0.022	0.01	1	0.01
29	0.566	0.35	25	8.80
30	0.458	0.28	50	14.24
31	0.073	0.05	5	0.23
32	0.08	0.05	10	0.50

ID #	Result (mg/l)
D. Simth SC	4.187
T. Smith PW	0.847
T. Smith SC	8.907
Harmon BG	0.062
Harmon DG	0.030
Harmon SC	5.802
Harmon PT	13.126
Merritt SC	7.370
#5 BG	0.018
#5 DG	0.006
#5 PW	0.074
#5 DC	0.101
Link BG	0.121
Link DG	0.525
Link SC	11.344
Control	0.500
Sharf BG	0.170
Sharf PW	2.511
Sharf DG	9.435
Sharf SC	2.414
Sharf PT	0.659
L. Smith BG	0.099
L. Smith DG	0.014
L. Smith SC	8.798
L. Smith PT	14.244
#24 SC	0.229
#24 PT	0.502

IC Data Calculations Sheet

Month January
Schedule
Run # 2

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	20224973
30	786994779
150	4452600965
300	9083163670

Chloride Regression Output

Intercept	-60040919.77
Slope	30381558.47
Pearson's , r	0.999869888

Nitrite Curve

Std Conc	Peak Area
0	0
3	136757277
15	764851019
30	1503591588

Nitrite Regression Output

Intercept	-3611559.065
Slope	50409294.17
r coefficient	0.999891203

Nitrate Curve

Std Conc	Peak Area
0	0
5	272096016
25	1658468661
50	3575223321

Nitrate Regression Output

Intercept	-61844648.18
Slope	71914582.38
r coefficient	0.9992396

Sample Data and Results

Sample #	Sample ID	Cl Area	Nitrite Area	Nitrate Area	Cl Result	Nitrite Result	Nitrate Result	Nitrite + Nitrate
6	Lab Control	9054706918	1500252968	3564317120	300.01	29.83	50.42	80.26
7	2bg	0	0	0	1.98	0.07	0.86	0.93
8	2sc	4423180627	0	1654379757	147.56	0.07	23.86	23.94
	2pt	1928818627	8989952	0	65.46	0.25	0.86	1.11
	3sc	4405123193	0	1653599564	146.97	0.07	23.85	23.93
					1.98	0.07	0.86	0

IC Data Calculations Sheet

Month	January
Schedule	
Run #	2

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	20224973
30	786994779
150	4452600965
300	9083163670

Nitrite Curve

Std Conc	Peak Area
0	0
3	136757277
15	764851019
30	1503591588

Nitrate Curve

Std Conc	Peak Area
0	0
5	272096016
25	1658468661
50	3575223321

Chloride Regression Output

Intercept	-60040919.77
Slope	30381558.47
Pearson's , r	0.999869888

Nitrite Regression Output

Intercept	-3611559.065
Slope	50409294.17
r coefficient	0.999891203

Nitrate Regression Output

Intercept	-61844648.18
Slope	71914582.38
r coefficient	0.9992396

Sample Data and Results

Sample #	Sample ID	Cl Area	Nitrite Area	Nitrate Area	Cl Result	Nitrite Result	Nitrate Result	Sample ID
6	Lab Control	9054706918	1500252968	3564317120	300.01	29.83	50.42	Lab Control
7	2bg	0	0	0	1.98	0.07	0.86	2bg
8	2sc	4423180627	0	1654379757	147.56	0.07	23.86	2sc
	2pt	1928818627	8989952	0	65.46	0.25	0.86	2pt
	3sc	4405123193	0	1653599564	146.97	0.07	23.85	3sc
					1.98	0.07	0.86	
					1.98	0.07	0.86	
					1.98	0.07	0.86

IC Data Calculations Sheet

Month	January
Schedule	
Run #	1

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	18268014
30	820031881
150	4666439347
300	9444683983

Chloride Regression Output

Intercept	-56281325.75
Slope	31613642.77
Pearson's , r	0.999897684

Nitrite Curve

Std Conc	Peak Area
0	0
3	144674798
15	811461078
30	1592185510

Nitrite Regression Output

Intercept	-3600282.145
Slope	53390052.39
r coefficient	0.999876988

Nitrate Curve

Std Conc	Peak Area
0	0
5	283977202
25	1731861810
50	3701382998

Nitrate Regression Output

Intercept	-60257606.66
Slope	74478155.46
r coefficient	0.999376917

Sample Data and Results

Sample #	Sample ID	Cl Area	Nitrite Area	Nitrate Area	Cl Result	Nitrite Result	Nitrate Result	Nitrite + Nitrate
6	18SC	958450103	0	2498863212	32.10	0.07	34.36	34.43
7	21 SC	1840721908	0	2284738362	60.01	0.07	31.49	31.55
8	Lab Control	2972980600	501954978	629933883	95.82	9.47	9.27	18.74
					1.78	0.07	0.81	0.88

FOR JAN
2/15/99

LONG + ARTHUR - #9

2C.4

ARRIVED ON SITE: 3P
LEFT SITE 330

Sample	Depth(ft)	pH	DO(mg/L)	Temp(°C)
BG	1.04	6.0	14.19	10.9
PW	1.21	5.6	7.99	9.4
DG	0.76	5.5	14.67	9.5
SC	> NOT TESTED PER BWM			
PT				

HRS 135 SU

SITE CONDITIONS:
DUCKS, GEESE, & PEACOCKS KEPT IN PEN BEHIND HOUSE

BG
PW - slight sediment tint in purge
DG

FOR JAN

2/15/98

BROWN - #10
RICHMOND

ARRIVED ON SITE : 250P
LEFT SITE : 257P

DOG NOT MOVED WILL RETRY IN FEB

Arrive: 9:45 AM
Leave: 10:55 AM

Kemp - #4

Jan 28

Sample	pH	DO mg/L	Temp °C	Time Grab	Time Read
BG		4.1 mg/L	13C	9:53	10:11
PW		3.1 mg/L	12°C	9:57	10:05
DG		4.4 mg/L	12°C	10:00	10:08
SC		11.1 mg/L	10.9°C	10:15	10:16
PT	NO SAMPLE TAKEN				

Conditions
Sunny, warm, little breeze

150.61 hr

Sample collected from bucket

Arrive: 11:20 AM
Leave: 11:55 AM Farrell -#5 Jan 28

Sample	pb	DO mg/L	Temp °C	Time Grab	Time Read
BG		4.2 mg/L	16.5°C	11:32	11:44
PW		4.1 mg/L	15.8°C	11:36	11:46
DG		4.1 mg/L	13.1°C	11:38	11:47
DC		4.2 mg/L	12.5°C	11:40	11:49

PT - NO SAMPLE TAKEN

Conditions

sunny, warm, no breeze

39.20 hr

- 2563

CYNARA

~~HG~~ SMITH

FOR JAN
2/9/99

ARRIVED ON SITE: 645
LEFT SITE: 7:30

Sample	depth(ft)	pH	DO(mg/L)	Temp(°C)
BG	1.20	5.9	9.20	16.1
PW	3.22	6.1	9.62	15.8
DG	1.52	5.2	10.69	16.2
SC	—	5.2	9.0	14.1
PT	—	7.5	0.69	14.3

HRS 21.28

SITE CONDITIONS:

BG - 2X PURGE
PW - VERY LITTLE WATER
DG - 2X PURGE
SC - DRY, FORCEFED
PT - LOW FLOW

RY

BROWN - #8
GLO CO.

FOR JAN 2/11/99

ARRIVED ON SITE: 6:59
LEFT SITE: 805

Sample	D(ft)	ph	DO(mg/L)	Temp(°C)
BG	2&2			
PW	3.2			
DG	2 & 2			
SC	—	NO SAMPLE AVAILABLE		
PT	—			

HRS.

SITE CONDITIONS:

BG
PW
DG — DRY WELLS
WELL CAP CUT OFF BY MOWER
SC - NO SAMPLE, DRY
PT

PURGED SM. AMOUNT OF WATER IN (ea) WELL 1/2" - 1"; WAITED 50 MIN NO REGENERATION

RH

1.56 49.26 water meter

@ 22.7°C

MOORE - #24

FOR JAN 2/11/99

ARRIVED ON SITE: 2:20P
LEFT SITE: 2:56P

Sample	Depth(ft)	pH	DO(mg/L)	Temp(°C)
PW	Hit bottom — NO SAMPLE			
SC	—	6.5	13.82	14.5
PT	—	7.1	12.83	15.3

HRS: 1.56

SITE CONDITIONS:

PW - INSIDE PIPE CONDENSATION
SC - DRY, FORCE-FED (2 MIN)
PT - FULL, NO ODOR, SEPTIC FIRM
CAME OUT & FILL ST W/ WATER
TO TEST FOR LEAK, MOST LIQUID
IN PT ASSUMED TO BE WATER

RY

BNM?

NESBITT – ~~#4~~ #6 1/17/~~97~~98

ARRIVED ON SITE: 7.16A
LEFT SITE 7:45+

Sample	~~Depth~~	pH	DO(mg/L)	Temp(°C)	READ GRAB TIME
BL					
PIT					
DC					
SC					
POND	> NO SAMPLES TAKEN PER BNM				

HRS: NO METER

SITE CONDITIONS:

FALLEN TREES DUE TO ~~THE~~ DEC ICESTORM
STANDING WATER, VERY MUCKY SOIL

[illegible] – 3/4
[illegible] – FULL

7/98

9.5°C

AOA - # ~~5~~ 7 * BNM?

1/17/98

ARRIVED ON SITE: 8:34A
LEFT SITE: 9:10A

Sample	Depth(ft)	pH	DO(mg/L)	Temp(°C)	Gate Read Time
BG					
PW					
DG					
SC					
Pump					

HRS: NO METER

SITE CONDITIONS:

FALLEN TREES DUE TO DEC ICESTORM
STANDING WATER, MUDDY SOIL

[illegible]

[illegible]

[illegible]

TREE (PINE) HAS FALLEN ON SYSTEM
NO APPARENT DAMAGE DONE

[illegible]

EASTER - ~~#~~ BNM? 6 #11 * 1/17/99

ARRIVED ON SITE 10:45A
LEFT SITE: 11:15A

Smpk	Depth(ft)	pH	DO(mg/L)	Temp(°C)	Time Grab	Time Read
BG		5.6	5.9	~~8~~ 15	11:00	11:05
PW		6.2	4.8	12	10:57	
DG		6.1	5.4	12.9	10:55	
SC						
PUMP						

> NO SAMPLES TAKEN PER BNM

HRS: NO METER AVAILABLE *

SITE CONDITIONS:

* THIS IS SITE THAT OWNERS REPORTED
DRAINAGE DITCH ALONG SYSTEM HAS
FLOWING WATER
VERY MUDDY SOIL
BG: PURGED, CLOUDY (SEDIMENT?) - FULL
PW PURGED - 1/4
DG PURGED - FULL

RM

5.7°C

MUNFORD – BNM? #1 #12 * 1/12/99

ARRIVED ON SITE: 12:16 P
LEFT SITE: 1:05 P

SAMPLE	DEPTH (ft)	pH	DO (mg/L)	TEMP (°C)	TIME BEGIN	TIME END
BG	5.6	7.2	13	12.30	12:51
PW	5.2	7.1	14	12.45	1?
DG	5.4	6.5	15.1	12.47	1.02
SC					
PUMP					

> NO SAMPLES TAKEN PER BNM

HRS: 73.02

SITE CONDITIONS:
MOIST SOIL, DITCHES ALONG ROAD FULL OF RUNNING WATER

RN

12.3°C

9905A

T. SMITH — # ~~12~~ BNM #? #21

1/18/99

ARRIVED ON SITE: 10:27A
LEFT SITE: 11:20A

SAMPLE	DEPTH (ft)	pH	DO (mg/L)	TEMP (°C)	TIME GRAB	TIME READ
BG	—	NO SAMPLE AVAILABLE				
PW	2.25		11.92	9.8	11:03	11:08
DG	2.7		14.66	9.9	10:56	1106
SC	—		11.17	9.4	10:50	1110
PUMP	NO SAMPLE TAKEN **					

HRS:

SITE CONDITIONS:

RAINY, MUDDY GROUND

BG — DRY WELL

PW — ½ PURGE, ONLY ½ 250mL w/ACID

DG — HEAVY SEDIMENT IN PURGE (3" MAX), ONLY ½ SAMPLE NO ACID 250 mL

SC — FULL BUCKET, SYSTEM IS RUNNING

** PUMP — NO SAMPLE TAKEN, OWNER WORRIED ABOUT DAMAGE, HAD TO REPAIR ONCE SOMEONE RAN OVER TANK LID

RW

Samson - #22 1/10/99

ARRIVED ON SITE: 11.25A
LEFT SITE: 12N

#1
127.72 h

#2
111.99 h

Sample	Depth(ft)	pH	DO(mg/L)	Temp(°C)	Time	Comments
BG						
PW						
DC						~~NO SAMPLE AVAILABLE~~
SC						
Pump						> SAMPLE NOT TAKEN BNM

HRS: #1 127.72
#2 111.99

SITE CONDITIONS:
WET, OVERCAST
BG - DRY WELL
PW1 - NOT USED
PW2
DC > NO SAMPLE AVAILABLE

JACOBSEN - #20 1/18/99

ARRIVED ON SITE: 12:47 P
LEFT SITE: 1:25 P

Sample	Depth (ft)	pH	DO (mg/L)	Temp (°C)	Time GRAB	Time READ
BG	1.2		16.23	7.5	1:02	1:18
PW1	1.72		10.37	6.1	1:05	1:15
PW2	1.5		17.49	6.7	1:08	1:19
DG	1.08		16.26	5.8	1:10	1:17

SC
Pump } NO SAMPLE TAKEN PER BNM

HTS:

SITE CONDITIONS:
DRIZZLING RAIN, STANDING WATER

BG
PW1
PW2
DG } FULL PURGE REFILLED QUICKLY!!

RY

TIMED SC READINGS 540-667-8878

10:44 DARIAN ANDERSON - #19 1/18/98

ARRIVED ON SITE: 4:08
LEFT SITE: 5:20

Fee: $1.35

SAMPLE	pH pth(ft)	pH	DO(mg/L)	Temp(°C)	Time GRAB READ
DF1	2.45		16.6	5.1	
DF2	1.88		13.61	5°	
DIST BX			13.52	5.8	

PUMP - NO SAMPLE TAKEN PER BNM
HRS: 802.55

SITE CONDITIONS:
SNOW ON GROUND (LT. PATCHES)
JUST STOPPED RAINING
VERY WET
DF1 - ONLY 1" OF SAMPLE WATER @ time
DF2 - ONLY 1/2" " "

SC TIMED SAMPLES

SAMPLE	pH	DO	Temp
1		10.76	6.4
2		10.35	6.5
3		10.8	6.5
4		11.19	6.7
5		11.5	6.9
10		12.2	6.5
15		12.4	6.7

HAD TO RUN PUMP 2 MIN TO GET FLOW
WAITED 15 MIN AFTER 30 SEC PUMP NO FLOW!!

25

D. Smith - #18

1/18/99

ARRIVED ON SITE: 7:11P
LEFT SITE: 810P

SAMPLE	DEPTH(ft)	pH	DO(mg/L)	TEMP(°C)	TIME GRAB DEAD
BG	3.10	NO SAMPLE AVAILABLE			
DF					
DG	~~DRY WELL~~				
SC					
PT	NO SAMPLE AVAILABLE				

HRS: 26.21

SITE CONDITIONS:
VERY DAMP, CAN SMELL ANIMAL WASTE
BG - DRY WELL
DF = DRY WELL
DG = DRY WELL
SC - 1/4 FULL
PT - WATER IS CONT. RUNNING, HAVE CHECKED FOR POSSIBLE LEAK
NO SAMPLES

RK

12.5°C

PROJECT: SAWMILL - #1

E. SHORES

1/20/99

ARRIVED ON SITE: 2:37P
LEFT SITE: 3:10P

SAMPLE	Depth(ft)	pH	DO(mg/L)	Temp(°C)
BG	3.16	4.8	12.14	11.4
PW1	4.4	5.6	11.54	11.0
PW2	4.1	5.6	13.11	11.1
DG	3.7	5.4	9.73	11.4
SC	> NO SAMPLES TAKEN PER BNM			
PT				

HRS: 186.69

SITE CONDITIONS:

OVERCAST, DAMP
AREA AROUND SYSTEM OVERGROWN
BOLTS NEED TO BE TIGHTENED

RY

HARMON - #2 1/20/99
E. SHORES

ARRIVED ON SITE: 345P
LEFT SITE: 442P

SAMPLE	Depth(ft)	pH	DO(mg/L)	Temp(oC)
BG	2.8	5.5	12.14	9.8
PW	3.8	— NO SAMPLE		—
DG	3.1	4.9	11.35	10.2
SC	~~—~~	4.4	10.42	10.0
PT	—	7.5	3.41	10.2

HRS: 20.26

SITE CONDITIONS:
BG - 2X PURGE
PW - DRY WELL
DG - 2X PURGE
SC - FULL BUCKET, SYSTEM DRIPPING

KY

1/20/99

MERRITT - #3
E. SHORES

1/20/99

ARRIVED ONSITE: 5:32
LEFT SITE: 5:52

SAMPLE	DEPTH	pH	DO (mg/L)	TEMP (°C)	Time Water Read
BL		— DRY WELL —			
PW	-3.5'	— DRY WELL			
DG	2.4	— DRY WELL			
SC		7.0	14.23	11.0	

PT — SEALED, NO SAMPLE AVAILABLE
MRS: 44.76

SITE CONDITIONS:
BL — DRY WELL
DW — DRY WELL
DL — DRY WELL
SC — BUCKET, FULL OF SEDIMENT, NO SOIL W/ACID SAMPLE
PT — SEALED

SHARF -#14 1/28/99

ARRIVED ON SITE: 12:50P
LEFT SITE: 1:49P

11859

SAMPLE	Depth	pH	DO(mg/L)	Temp(°C)	TIME GRAB READ
BG	3'	6.7	4.80	16.4	
PW	3'	6.3	3.98	17.9	
DG	2.94	5.7	5.50	16.4	
SC	—	5.3	7.95	17.5	
PT	—	8.1	1.77	19.1	

HRS: NO METER

SITE CONDITIONS:
VERY DRY
BG: 2X PURGE
PW: 2X PURGE
DG: 2X PURGE
SC: SYSTEM RUNNING
25.3°C

ZX

LINK - #13 1/28/99

ARRIVED ON SITE: 2:04P
LEFT SITE: 2:54P

SAMPLE	DEPTH (ft)	pH	DO (mg/L)	Temp (°C)	TIME GRAB READ
BG	1.3	6.3	12.50	15.8	
PW	2.1	6.7	4.18	17.5	
DG	1.60	5.8	11.28	18.4	
SC	—	6.6	6.90	19.6	
PT	—	NO SAMPLE TAKEN			

HRS: 28.10

SITE CONDITIONS:

BG: 2X PURGE

PW: RAN OVER BY LAWNMOW outside CAP MISSING, 2X PURGE, YELLOW

DG: WELL TILTED TO SIDE, BENDLITE IN PIPE, NO INNER CAP SOME BENDLITE DROPPED INTO WELL, 2X PURGE

SC: AREA FULL, BUCKET FULL OF SEDIMENT DIPPED FROM AREA INSTEAD (CHAMBER)

DID NOT REGENERATE HEAVY SEDIMENT

CARTER - #23
SALEM, VA

31 JAN 99

ARRIVED ON SITE: 605P
LEFT SITE: 615P

SITE STILL NOT OCCUPIED
SYSTEM INSTALLED BUT NOT BEING USED

PURAFLO® PEAT TREATMENT SYSTEM

FEBRUARY 1999 SAMPLING AND MONITORING RESULTS

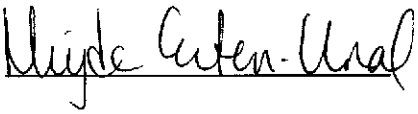
Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



Saw Mill Project							**Northampton Co. VA**						
Installation Date:			Aug-8-95				Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Finished													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Pad Well (PW-2)													
Average PW-2													
Downgradient (DG)													
Average DG													
Background (BG)													
Average BG													

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled 3/4/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Sample very frothy
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	4.91	10.3	7.8	200,000,000	**HRS: 22.53**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	15.14	8.9	5.1	303	Sample from bucket
Pad Well (PW)													
Average PW#	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		No sample ...dry well
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	9.44	9.5	5.3	<667	
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	13.36	9.6	6.7	<1667	

Merrit							Eastern Shore						
Installation Date: May 29-96							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled: 3/4/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Sealed
Average PT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		**HRS: 47.39**
Sample Chamber (SC)													heavy sediment
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	14.86	11.2	7.2	<333	Sample from bucket
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	8.14	11.9	6.9	<50,000	very little water in purge
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	8.60	12.7	7.2	113,333	very little water in purge
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	7.33	11.5	6.5	<333	very little water in purge

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Sample Chamber (SC) Project completed													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Septic Tank													
Average Septic Tank													**HRS:**
Background (BG)													
Average BG													

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Brown							Gloucester, Virginia						
											Soil Texture Group I		
Sample Point Date Sampled: 03/05/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)									0.98	27.4	7.2		
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	4.37	10.1	7.6	48,500,000	**HRS:**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	11.94	9.4	5.6	3,636	force-fed
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	16.13	9.0	5.7	< 20,000	very little water to purge
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	16.74	8.9	5.8	< 333	very little water to purge
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	16.33	9.6	6.4	< 333	very little water to purge

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date:			Jan-8-95				Design Flow:	450	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Brown							Richmond, VA						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled:2/21/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Not taken
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	NA	NA	7.1		DO Meter not functioning **HRS: 42.53**
Sample Chamber (SC)													owner was not pleased about holding dog, opted not to force-feed system
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	NS	NS	NS		Dry,
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	NS	NS	NS		Dry Well
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	NA	NA	5.2	<333	DO Meter not functioning
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	NA	NA	5.3	<333	DO Meter not functioning

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date:			Aug-30-96				Design Flow:	300	gpd				Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date:			Nov-19-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Link Project							Virginia Beach. VA						
Installation Date:			Aug-8-95				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled: 2/23/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Faint Odor
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	3.91	11.3	7.4	8,181,818	**HRS: 31.93**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	7.73	10.0	6.8	116,667	Heavy Sediment
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	9.37	10.0	6.8	<8,181	Med. Sediment
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	14.70	9.2	6.2	<2,667	Light Sediment
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	13.45	9.0	6.3	<10,000	Light Sediment

Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow:		150	gpd			Soil Texture Group I
Sample Point Date Sampled: 2/23/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	2.68	9.9	7.4	8,666,667	**HRS: No Meter**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	10.12	9.5	5.1	1933	System Running
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	8.61	10.9	6.5	<2,000	Heavy Sediment
Down Gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	7.76	10.6	5.8	<4,667	Heavy Sediment
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	7.99	10.8	6.6	<333	

L.Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 3/2/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	3.21	8.6	7.2	50,000,000	**HRS: 22.20**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	9.33	8.3	5.6	10,000	System Running
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	12.65	7.9	5.9	<333	
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	12.24	7.9	5.3	<667	
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	11.46	7.5	6.1	<1,333	

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) House not occupied													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Downfall (DF-1)													
Average DF-1													
Downfall (DF-2)													
Average DF-2													

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 2/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3**	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)									0.55	23.2	8.6	1,000,000 7,333,333	Heavy fecal smell in air Large animal population in area
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	5.30	12.4	7.2	4,166,667	**HRS: 29.56**
Sample Chamber (SC)													Floating debris in
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	11.97	8.2	6.2	4,000	Distribution chamber
Downfall DF													
Average DF	NT	NT	NT	NT	NT	NT	NT	NT	14.89	7.7	6.4	<667	light sediment
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	15.01	7.3	5.8	<1,212	heavy sediment
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	NS	NS	NS		dry well

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow:	300	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Wells not marked													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Downfall (DF-2)													
Average DF-2													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date:			Aug. 6, 1996				Design Flow:	600	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project completed									1.47	24.2	7.3		
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													
Pad Well (PW-2)													
Average PW-2													

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 2/19/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Owner does not want lid lifted meter in house
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	NS	NS	NS		**HRS:**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	16.14	7.5	4.8	<181	
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	16.73	7.3	5.8	<333	
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	NS	NS	NS		dry well
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	16.95	9.3	6.0	<333	

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 2/14/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Visual leak in main inlet pipe several lg sinkholes aound PT
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	3.60	11.9	7.1		**HRS: 4.5**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	13.29	9.4	6.0	>20,000	force-fed
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	13.96	8.9	6.7	<333	
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	14.03	8.2	6.4	<333	
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	13.47	9.2	7.2	<333	

Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled:3/1/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Had been checked for leaks, PT filled with water
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	12.85	11.3	7.2	1,000,000	**HRS: 1.62**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	11.60	10.5	6.8	<67	force-fed
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	NS	NS	NS		dry well

	Fecal Coliform -							
	Analyst:	**Roxanne Groover**						
Site #	**Site**	**Observed Colonies**		**Sample volume = 30 mL**				
		Dilution						
		1/10	**1/100**	**1/1000**	**1/10000**	**1/100000**	**1.00E-06**	
1	Sawmill BG	*	FINISHED		*	*	*	
	Sawmill PW1	*	FINISHED		*	*	*	
	Sawmill PW2	*	FINISHED		*	*	*	
	Sawmill DG	*	FINISHED		*	*	*	
	Sawmill SC	FINISHED			*	*	*	
	Sawmill Pump	*	*	FINISHED				
2	Harmon BG	*	5	0	*	*	*	
	Harmon PW	*	NS		*	*	*	
	Harmon DG	*	2	0	*	*	*	
	Harmon SC	9	1	0	*	*	*	
	Harmon Pump	*	*	TNTC	TNTC	TNTC	TNTC	
3	Merritt BG	*	0	0	*	*	*	
	Merritt PW	*	0	15	*	*	*	
	Merritt DG	*	3	34	*	*	*	
	Merritt SC	10	0	0	*	*	*	
	Merritt Pump	*	*	*	NS			
4	Kemp BG	*	FINISHED		*	*	*	
	Kemp PW	*	FINISHED		*	*	*	
	Kemp DG	*	FINISHED		*	*	*	
	Kemp SC	FINISHED			*	*	*	
	Kemp Pump	*	*	*	FINISHED			
5	Farrell BG	*	0	0	*	*	*	
	Farrell PW	*	0	1	*	*	*	
	Farrell DG	*	0	3	*	*	*	
	Farrell Dbox	33	10	1	*	*	*	
	Farrell Septic	*	*	*	0	0	0	
6	Nesbitt BG	*	FINISHED		*	*	*	
	Nesbitt PW	*	FINISHED		*	*	*	
	Nesbitt DG	*	FINISHED		*	*	*	
	Nesbitt SC	FINISHED			*	*	*	
	Nesbitt Pump	*	*	*	FINISHED			
7	AOA BG	*	FINISHED		*	*	*	
	AOA PW	*	FINISHED		*	*	*	
	AOA DG	*	FINISHED		*	*	*	
	AOA SC	FINISHED			*	*	*	
	AOA Pump	*	*	*	FINISHED			
8	C. Brown BG	*	1	0	*	*	*	
	C. Brown PW	*	0	6	*	*	*	
	C. Brown DG	*	0	0	*	*	*	
	C. Brown SC	TNTC	10	2	*	*	*	
	C. Brown Pump	*	*	*	TNTC	~~171~~ ~~TNTC~~	12	

Site #	Site	Observed Colonies		Sample volume = 30 mL				
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
9	Long Arthur BG	*	FINISHED		*	*	*	
	Long Arthur PW	*	FINISHED		*	*	*	
	Long Arthur DG	*	FINISHED		*	*	*	
	Long Arthur SC	FINISHED			*	*	*	
	Long Arthur Pump	*	*	*	FINISHED			
10	E. Brown BG	*	0	0	*	*	*	
	E. Brown PW	*	NS		*	*	*	
	E. Browm DG	*	0	0	*	*	*	
	E. Brown SC		NS		*	*	*	
	E. Brown Pump	*	*	*	NT			
11	Easter BG	*	FINISHED		*	*	*	
	Easter PW	*	FINISHED		*	*	*	
	Easter DG	*	FINISHED		*	*	*	
	Easter SC	FINISHED			*	*	*	
	Easter Pump	*	*	*	FINISHED			
12	Munford BG	*	FINISHED		*	*	*	
	Munford PW	*	FINISHED		*	*	*	
	Munford DG	*	FINISHED		*	*	*	
	Munford SC	FINISHED			*	*	*	
	Munford Pump	*	*	*	FINISHED			
13	Link BG	*	0	3	*	*	*	
	Link PW	*	11	16	*	*	*	
	Link DG	*	8	0	*	*	*	
	Link SC	TNTC	TNTC	35	*	*	*	
	Link Pump	*	*	*	TNTC	14	13	
14	Sharf BG	*	0	0	*	*	*	
	Sharf PW	*	6	0	*	*	*	
	Sharf DG	*	14	2	*	*	*	
	Sharf SC	58	14	10	*	*	*	
	Sharf Pump	*	*	*	156	26	15	
15	L. Smith BG	*	0	0	*	*	*	
	L. Smith PW	*	1	0	*	*	*	
	L. Smith DG	*	2	0	*	*	*	
	L. Smith SC	TNTC	30	8	*	*	*	
	L. Smith Pump	*	*	*	TNTC	TNTC	15	
16	Henderson BG	*	NS		*	*	*	
	Henderson PW	*	NS		*	*	*	
	Henderson DG	*	NS		*	*	*	
	Henderson SC	NS			*	*	*	
	Henderson Pump	*	*	*	NS			
17	Stanley DF1	*	FINISHED		*	*	*	
	Stanley DF2	*	FINISHED		*	*	*	
	Stanley DG	*	FINISHED		*	*	*	
	Stanley Dbox	FINISHED			*	*	*	
	Stanley Pump	*	*	*	FINISHED			

Site #	Site	Observed Colonies		Sample volume = 30 mL				
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
18	D. Smith DF	*	2	0	*	*	*	
	D. Smith DG	*	2	2	*	*	*	412
	D. Smith SC	70	17	1	*	*	*	
	D. Smith Pump	*	*	*	30	22	13	
19	Anderson DF1	*	FINISHED		*	*	*	
	Anderson DF2	*	FINISHED		*	*	*	
	Anderson Dbox	FINISHED			*	*	*	
	Anderson Pump	*	*	*	FINISHED			
20	Jacobson BG	*	FINISHED		*	*	*	
	Jacobson PW1	*	FINISHED		*	*		
	Jacobson PW2	*	FINISHED		*	*	*	
	Jacobson DG	*	FINISHED		*	*	*	
	Jacobson SC	FINISHED			*	*	*	
	Jacobson Pump	*	*	*	FINISHED			
21	T. Smith BG	*	0	0	*	*	*	
	T. Smith PW	*	0	0	*	*	*	
	T. Smith DG	*	NS		*	*	*	
	T. Smith SC	5	1	0	*	*	*	
	T. Smith Pump	*	*	*	NS			
22	Samson BG	*	FINISHED		*	*	*	
	Samson PW1	*	FINISHED		*	*	*	
	Samson PW2	*	FINISHED		*	*	*	
	Samson DG	*	FINISHED		*	*	*	
	Samson SC	FINISHED			*	*	*	
	Sampson Pump	*	*	*	FINISHED			
23	Carter BG	*	1	0	*	*	*	
	Carter PW	*	0	0	*	*	*	
	Carter DG	*	0	0	*	*	*	
	Carter SC	TNTC	TNTC 87	6	*	*	*	
	Carter Pump	*	*	*	NS			
24	Moore PW	*	NS		*	*	*	
	Moore SC	2	0		*	*	*	
	Moore Pump	*	*	*	0	3	0	

Site #	Site	Colonies/100ml of sample						AVG VALUE
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	
1	Sawmi	*	FINISHED		*	*	*	
	Sawmi	*	FINISHED		*	*	*	
	Sawmi	*	FINISHED		*	*	*	
	Sawmi	*	FINISHED		*	*	*	
	Sawmi	FINISHED			*	*	*	
	Sawmi	*	*	*	FINISHED			
2	Harmo	*	1666.667	0	*	*	*	<1667
	Harmo	*	NS		*	*	*	
	Harmo	*	666.6667	0	*	*	*	<667
	Harmo	300	333.3333	0	*	*	*	303
	Harmo	*	*	*	#VALUE!	#VALUE!	#VALUE!	>200X10^6
3	Merritt	*	0	0	*	*	*	<333
	Merritt	*	0	50000	*	*	*	<50,000
	Merritt	*	1000	113333.3	*	*	*	113,333
	Merritt	333.3333333	0	0	*	*	*	<333
	Merritt	*	*	*	otAvailabl	0	0	
4	Kemp	*	FINISHED		*	*	*	
	Kemp	*	FINISHED		*	*	*	
	Kemp	*	FINISHED		*	*	*	
	Kemp	FINISHED			*	*	*	
	Kemp	*	*	*	FINISHED			
5	Farrell	*	0	0	*	*	*	<333
	Farrell	*	0	3333.333	*	*	*	<3333
	Farrell	*	0	10000	*	*	*	<10,000
	Farrell	1100	3333.333	3333.333	*	*	*	1100
	Farrell	*	*	*	0	0	0	<33,333
6	Nesbitt	*	FINISHED		*	*	*	
	Nesbitt	*	FINISHED		*	*	*	
	Nesbitt	*	FINISHED		*	*	*	
	Nesbitt	FINISHED			*	*	*	
	Nesbitt	*	*	*	FINISHED			
7	AOA B	*	FINISHED		*	*	*	
	AOA P	*	FINISHED		*	*	*	
	AOA D	*	FINISHED		*	*	*	
	AOA S	FINISHED			*	*	*	
	AOA P	*	*	*	FINISHED			
8	C. Bro	*	333.3333	0	*	*	*	<333
	C. Bro	*	0	20000	*	*	*	<20,000
	C. Bro	*	0	0	*	*	*	<333
	C. Bro	#VALUE!	3333.333	6666.667	*	*	*	3636
	C. Bro	*	*	*	#VALUE!	57000000	40000000	48,500,000

Site #	Site	Colonies/100ml of sample Dilution						AVG values
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
9	Long	*	FINISHED		*	*	*	
	Long	*	FINISHED		*	*	*	
	Long	*	FINISHED		*	*	*	
	Long	FINISHED			*	*	*	
	Long	*	*	*	FINISHED			
10	E. Bro	*	0	0	*	*	*	<333
	E. Bro	*	NS		*	*	*	NS
	E. Bro	*	0	0	*	*	*	<333
	E. Bro	NS			*	*	*	NS
	E. Bro	*	*	*	NT			NT
11	Easter	*	FINISHED		*	*	*	
	Easter	*	FINISHED		*	*	*	
	Easter	*	FINISHED		*	*	*	
	Easter	FINISHED			*	*	*	
	Easter	*	*	*	FINISHED			
12	Munfor	*	FINISHED		*	*	*	
	Munfor	*	FINISHED		*	*	*	
	Munfor	*	FINISHED		*	*	*	
	Munfor	FINISHED			*	*	*	
	Munfor	*	*	*	FINISHED			
13	Link B	*	0	10000	*	*	*	<10,000
	Link P	*	3666.667	53333.33	*	*	*	<9181
	Link D	*	2666.667	0	*	*	*	<2667
	Link S	#VALUE!	#VALUE!	116666.7	*	*	*	116,667
	Link P	*	*	*	#VALUE!	4666667	43333333	8,181,818
14	Sharf	*	0	0	*	*	*	<333
	Sharf	*	2000	0	*	*	*	<2000
	Sharf	*	4666.667	6666.667	*	*	*	<4667
	Sharf	1933.333333	4666.667	33333.33	*	*	*	1933
	Sharf	*	*	*	5200000	8666667	50000000	8,666,667
15	L. Smi	*	0	0	*	*	*	<1333
	L. Smi	*	333.3333	0	*	*	*	<333
	L. Smi	*	666.6667	0	*	*	*	<667
	L. Smi	#VALUE!	10000	26666.67	*	*	*	19000
	L. Smith Pump		*	*	#VALUE!	#VALUE!	50000000	50,000,000
16	Hende	*	NS		*	*	*	
	Hende	*	NS		*	*	*	
	Hende	*	NS		*	*	*	
	Hende	NS			*	*	*	
	Hende	*	*	*	NS			
17	Stanle	*	FINISHED		*	*	*	
	Stanle	*	FINISHED		*	*	*	
	Stanle	*	FINISHED		*	*	*	
	Stanle	FINISHED			*	*	*	
	Stanle	*	*	*	FINISHED			

Site #	Site	Colonies/100ml of sample						
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
18	D. Smi	*	666.6667	0	*	*	*	<667
	D. Smi	*	666.6667	6666.667	*	*	*	<1212
	D. Smi	2333.333333	5666.667	3333.333	*	*	*	<4000
	D. Smi	*	*	*	1000000	7333333	43333333	4,166,667
19	Anders	*	FINISHED		*	*	*	
	Anders	*	FINISHED		*	*	*	
	Anders	FINISHED			*	*	*	
	Anders	*	*	*	FINISHED			
20	Jacobs	*	FINISHED		*	*	*	
	Jacobs	*	FINISHED		*	*	*	
	Jacobs	*	FINISHED		*	*	*	
	Jacobs	*	FINISHED		*	*	*	
	Jacobs	FINISHED			*	*	*	
	Jacobs	*	*	*	FINISHED			
21	T. Smi	*	0	0	*	*	*	<333
	T. Smi	*	0	0	*	*	*	<333
	T. Smi	*	NS		*	*	*	
	T. Smi	166.6666667	333.3333	0	*	*	*	<181
	T. Smi	*	*	*	NS			
22	Samso	*	FINISHED		*	*	*	
	Samso	*	FINISHED		*	*	*	
	Samso	*	FINISHED		*	*	*	
	Samso	*	FINISHED		*	*	*	
	Samso	FINISHED			*	*	*	
	Samps	*	*	*	FINISHED			
23	Carter	*	333.3333	0	*	*	*	<333
	Carter	*	0	0	*	*	*	<333
	Carter	*	0	0	*	*	*	<333
	Carter	TNTC ~~#VALUE!~~	TNTC ~~29000~~	20000	*	*	*	>20,000
	Carter	*	*	*	NS			
24	Moore	*	NS		*	*	*	
	Moore	66.66666667	0	0	*	*	*	<67
	Moore	*	*	*	0	1000000	0	1000000

For FOB
3/5/99

Brown - #8
Slo Co

ARRIVED ON SITE: 8A
LEFT SITE: 8:50A

Sample	Depth(ft)	pH	DO(mg/L)	Temp(°C)
BG	2.44	6.4	16.33	9.6
PW	3.52	5.7	16.13	9.0
DG	2.70	5.8	16.74	8.9
SC	—	5.6	11.94	9.4
PT	—	7.6	4.37	10.1

HRS: 33.20

SITE CONDITIONS:
STANDING WATER IN DITCHES, GROUND IS SATURATED (SINK WHEN WALKING)
BG - VERY LITTLE WATER TO FORCE
PW - "
DG - "
SC - EMPTY, FORCE-FED, SYSTEM GURGLING

For Feb

Harmon - #2

3/18/99

ARRIVED ON SITE: 338.0
LEFT SITE: 4P

SAMPLES	Depth(ft)	pH	DO(mg/L)	Temp(°C)
BL	2.21	4.17	13.36	9.0
PW	—	NO SAMPLE		
DL	2.84	5.3	9.44	9.5
SC	—	5.1	15.14	8.9
PT	—	7.8	4.91	10.3
HRS:	22.53			

SITE CONDITIONS:
DRY, VERY WINDY, 45°C

BL-) 2Y PURGE
DL-
PW - DRY WELL
SC- SAMPLE FROM BUCKET
PT- SAMPLE VERY FILTHY (FOAM?)

RY

FOR FEB

MERRITT #3

3/8/95

ARRIVED ON SITE: 1:58P
LEFT SITE: 2:21P

Sample	Depth(ft)	pH	DO(mg/L)	Temp(°C)
BL	2.19	6.5	7.33	11.5
PW	2.92	6.9	5.14	11.9
DL	2.10	7.2	5.66	12.7
SC	—	7.2	14.84	11.2
PT	—	NO SAMPLE AVAILABLE		

HRS: 47.39

SITE CONDITIONS:
VERY DRY, SAND LOOKS LIKE RAINY FELL RECENTLY, VERY WINDY, 52°F

BL
PW
DL
} VERY LITTLE WATER TO PURGE 1/16 OF BAILER MAY

SC - SAMPLE FROM BOWL, SEDIMENT (LIGHT)
PT - SEALED

RM

FOR FEB

L. SMITH - #15
W. MOREELAND

3/2/99

ARRIVED ON SITE: 7:42
LEFT SITE: 8:20

Smpl	Depth (ft)	pH	DO (mg/L)	Temp (oC)
BG	1.64	6.1	11.46	7.5
PW	1.40	5.9	12.65	7.5
DG	1.5	5.3	12.24	7.5
SC	—	5.6	9.33	8.3
PT	—	7.2	3.21	8.4

Hrs: 22.20

SITE CONDITIONS: POOLS OF STANDING WATER, SOGGY GROUND

BG
DW
DG
} FULL 2X PURGE

SC - SYSTEM RUNNING, CHAMBER ½ FULL

RY

For Feb

FARRELL - #5
MATHEWS, VA

3/2/99

ARRIVED ON SITE: 414P
LEFT SITE: 4:48 P

SAMPLE	Depth (ft)	pH	DO (mg/L)	Temp (°C)
BG	FULL	5.9	8.43	10.0
PW	1.3	5.6	6.73	10.1
DG	0.8	6.0	8.77	9.5
DC	—	7.0	11.61	9.9
SEPTIC	—	7.2	5.21	9.1

HRS: 39.22

SITE CONDITIONS:
SLIGHTLY DAMP, STILL UNOCCUPIED
STANDING WATER

BG
PW
DG
} 3X PURGE } HEAVY SEDIMENT

DC - full of debris

Ry

FOR FEB

MOORE - #24

3/1/99

ARRIVED ON SITE: 2:22P
LEFT SITE: 2:52P

SAMPLE	DEPTH(ft)	pH	DO(mg/L)	TEMP(°C)
PW	—	NO SAMPLE AVAILABLE		
SC	—	6.8	11.6	10.5
PT	—	7.2	12.85	11.3

HRS. 1.62

SITE CONDITIONS
SLIGHTLY DAMP SOIL, BREEZY, 52°F

PW - DRY WELL
SC - TUBE FED 12 MIN

PREPARED BY: RN

BROWN - #10 21 FEB 99

ARRIVED ONSITE: 8:15
LEFT SITE: 8:45

Sample	Depth (ft)	pH	DO (mg/L)	Temp (°C)
BG	1.74	5.3	*	*
PW	—	NO SAMPLE AVAILABLE		
DG	1.46	5.2	*	*
SC	—	NO SAMPLE AVAILABLE		
PT	—	7.1	*	*

HRS: 42.53

SITE CONDITIONS:
VERY DRY,
BG - 2 x PUDDLE
AG - COVERED W/ DIRT
DG - 2 x PUDDLE
SC - NO SAMPLE AVAILABLE
PT
DG H.S DUE HOLES AROUND SYSTEM

* DO meter giving inconsistent readings

4.6C

D. SMITH - #18 2/20/99

ARRIVED ON SITE 11:32
LEFT SITE - 12:10

Sample	Depth (ft)	pH	DO (mg/L)	Temp (°C)
BG	— NO SAMPLE			
DF	2.80	6.4	14.89	7.7
DG	2.6	5.8	15.01	7.3
SC	—	6.2	11.97	8.2
PT	—	7.2	5.30	12.4

HRS: 29.56

SITE CONDITIONS:
VERY DAMP, ANIMAL WASTE SMELL IN AIR

BG - DRY WELL
DF - LIGHT SEDIMENT
DG - HEAVY SEDIMENT
SC - FLOATING DEBRIS
PT -

RK

STANLEY - #17 2/20/95

ARRIVED ON SITE: 10:45
LEFT SITE: 11:10

OWNERS DID NOT FLAG WELLS
NO SAMPLES

JAN
15/99

T. SMITH - #21
FAIRFAX

19 FEB 99

ARRIVED ONSITE: 515P
LEFT SITE: 530 P

B Release
109173
END Release

SAMPLE	Depth (ft)	pH	DO (mg/L)	Temp (°C)
BL	2.60	4.0	16.95	7.3
PW	2.92	5.8	16.45	7.3
DL	~~2.6 NOT SAMPLE~~			~~7.5~~ RS
SC	—	4.6	16.14	7.5
PT	— NO SAMPLE —			

HRS.

Hotel:

SITE CONDITIONS:

BL - 2X PURGE
PW - 2X PURGE
DL - DRY WELL
SC
PT - CUST. DOES NOT WANT LID TO TANK LIFTED. NO SAMPLE OBTAINED

PREPARED

RM

CARTER - #23
SALEM, VA

2/14/99

ARRIVED ON SITE: 536
LEFT SITE: 618

Sample	Depth (ft)	pH	DO (mg/L)	Temp (°C)
BG	2.4	7.2	13.47	9.2
PW	1.5	6.7	13.96	8.9
DG	1.0	6.4	14.03	8.2
SC	—	6.0	13.29	9.4
PT	—	7.1	3.60	11.9

HRS. 4.50

SITE CONDITIONS: OWNERS HAVE JUST MOVED IN. VERY MUDDY

BG
PW
DG
} 2X PURGE

SC - DRY, FORCE FED

PT - VISUAL LEAK @ MAIN INLET PIPE
POSSIBLE LEAK IN TANK (RUNNING WATER SOUND), SEVERAL LG SINK HOLES, 1 HOLE EXTENDS UNDERGROUND ~ 8FT TOWARDS HOUSE

RW

LINK - #13 2/23/99

ARRIVED ON SITE: 1:10P
LEFT SITE: 1:35P

SAMPLE	Depth(ft)	pH	DO (mg/L)	Temp(°C)
BL	0.64	6.3	13.45	9.0
~~PNDL~~ PW	2.44	6.5 ~~6.2~~	9.31	10.0
~~DG~~ DW	1.96	6.25 ~~E~~	14.76	9.2
SC	—	6.8	7.73	10.0
PT	—	7.4	3.91	11.3

HRS: 31.93

SITE CONDITIONS:
SLIGHTLY DAMP
BL - 2X, SLIGHT SEDIMENT
PW - 2X, MED SEDIMENT
DW - 2X, SLIGHT SEDIMENT
SC - THRU ⅓ FULL HEAVY SEDIMENT
PT - FAINT ODOR
SLIGHT SETTLING AROUND UNIT

Ray & Sumant

JAN 99

1.5

SHARF - #14

~~LINK - #13~~ 8

2/23/99

ARRIVED ON SITE: 12.25
LEFT SITE: 12.44

SAMPLE	DEPTH(ft)	pH	DO(mg/L)	TEMP(°C)
BG	3.22	6.6	7.99	10.8
PW	3.54	6.5	8.61	10.9
DG	3.58	5.8	7.76	10.6
SC	—	5.1	10.12	9.5
PT	—	7.4	2.68	9.9

HRS: NO METER

SITE CONDITIONS
VERY DRY
BG - 2X
PW - 2X FORCE, HEAVY SEDIMENT
DG - 2X, HEAVY SEDIMENT
SYSTEM DRIPPING
SLIGHT COLOR
SOME SETTLING AROUND UNIT

[illegible] SUMANT

BORD NA MÓNA
ENVIRONMENTAL PRODUCTS U.S. INC.

March 24, 1998

Ms. Patricia Miller, Ph.D.
Commonwealth of Virginia, Dept. of Health
Onsite Sewage and Water Services
P.O. Box 2448, Suite 117
Richmond, VA 23218-2448

RE: ***Puraflo®*** **Peat Biofilter Water Quality Results for Virginia Test Sites - December 1997 and January 1998**

Dear Patricia:

Bord na Móna is pleased to present the treatment performance results for sampling of the Virginia test sites. The onsite sampling and laboratory analysis was performed by Old Dominion University (ODU). This submittal includes original copies of the summary tables, back-up data, and chain-of-custody records for both December 1997 and January 1998.

We now have a total of 22 sites that are being sampled. I will keep you advised of our estimated schedule for additional well installation.

If you have any questions or need additional information, please give me a call at 1-800-PURAFLO (787-2356).

Sincerely,

Christopher K. Keiger, P.G.

Enclosure

cc: Halcyon Associates, Inc.

P.O. BOX 77457, GREENSBORO, N.C. 27417, U.S.A TELEPHONE: (336) 547-9338 FAX: (336) 547-8559
email address: bordmona@nr.infi.net

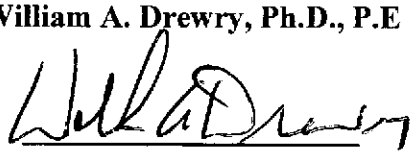
PURAFLO® PEAT TREATMENT SYSTEM

MARCH 1999 SAMPLING AND MONITORING RESULTS

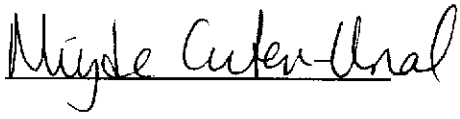
Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E



Mujde Erten-Unal, Ph.D.



MARCH 1999 RESULTS

Saw Mill Project							Northampton Co. VA						
Installation Date: Aug-8-95							Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Pad Well (PW-2)													
Average PW-2													
Downgradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled: 04/01/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													STRONG ODOR
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	4.55	13.2	8.1	1,133,333	**HRS: 24.21**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	13.64	14.0	5.0	8,333	SAMPLE FROM BUCKET
Pad Well (PW)													
Average PW#	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		DRY WELL
Down-gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	8.80	13.2	5.6	<333	2X PURGE
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	11.36	13.0	6.7	<333	2X PURGE

MARCH 1999 RESULTS

Merrit							Eastern Shore						
Installation Date:			May 29-96				Design Flow:	450	gpd				Soil Texture Group I
Sample Point Date Sampled:04/01/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													SEALED
Average PT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**HRS: 49.43**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	13.66	13.3	7.1	<333	SAMPLE FROM BUCKET
Pad Well (PW)													HEAVY SEDIMENT
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	7.77	12.7	6.8	2,000	SMALL PURGE
Down-gradient (DG)													HEAVY SEDIMENT
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	8.34	13.4	7.5	<333	SMALL PURGE
Background (BG)													HEAVY SEDIMENT
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	6.12	12.7	6.8	<333	SMALL PURGE

MARCH 1999 RESULTS

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Sample Chamber (SC) Project Completed													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Septic Tank													
Average Septic Tank													**HRS:**
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date: Jun-6-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Brown							Gloucester, Virginia						
													Soil Texture Group I
Sample Point Date Sampled: 04/02/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)									0.98	27.4	7.2		DID NOT TAKE
Average PT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**HRS:**
Sample Chamber (SC)													
Average SC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL
Pad Well (PW)													
Average PW	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL
Down-gradient (DG)													
Average DG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL
Background (BG)													
Average BG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL

MARCH 1999 RESULTS

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Brown							Richmond, VA						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled: 04/02/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													DOG!!!!!
Average PT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**HRS:**
Sample Chamber (SC)													
Average SC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DOG!!!!!
Pad Well (PW)													
Average PW	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DOG!!!
Down-gradient (DG)													
Average DG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DOG!!!
Background (BG)													
Average BG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DOG!!!

MARCH 1999 RESULTS

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date: Aug-30-96							Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Munford Property (Serial No. 146)							**Suffolk VA**						
Installation Date: Nov-19-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Link Project							Virginia Beach. VA						
Installation Date: Aug-8-95							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled: 03/30/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													* Invalid fecal data due to water bath malfunction
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	1.96	8.2	7.3	*	**HRS: 39.89**
Sample Chamber (SC)													SYSTEM RUNNING CHAMBER HALF FULL
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	8.08	17.3	7.0	*	HEAVY SEDIMENT
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	7.81	14.4	6.9	*	NO OUTSIDE CAP
Down-gradient (DG)													NO INSIDE CAP
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	14.70	13.9	6.0	*	TILTED
Background (BG)													HEAVY
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	11.24	14.2	6.1	*	SEDIMENTATION

MARCH 1999 RESULTS

Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled: 03/30/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													* Invalid fecals data due to water bath malfunction
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	3.16	17.1	6.9	*	**HRS: NO METER**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	8.49	16.2	5.3	*	SYSTEM RUNNING
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	6.42	115.7	6.2	*	SLIGHT SEDIMENT
Down Gradient (DG)													
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	5.52	16.0	6.1	*	SLIGHT SEDIMENT
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	6.98	17.0	7.8	*	SLIGHT SEDIMENT

MARCH 1999 RESULTS

L.Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 03/29/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	4.20	15.0	6.0	6,333,333	**HRS: 24.89**
Sample Chamber (SC)													SYSTEM RUNNING
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	10.78	14.8	5.8	333	CHAMBER HAS WATER
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	6.70	15.1	6.3	<333	
Down-gradient (DG)													
Average DG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	7.35	14.1	6.3	<333	

MARCH 1999 RESULTS

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) House on Market													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Downfall (DF-1)													
Average DF-1													
Downfall (DF-2)													
Average DF-2													

MARCH 1999 RESULTS

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 03/21/99	**BOD** mg/l	**SS** mg/l	**Free NH_3**	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)									0.55	23.2	8.6		STILL RUNNING CONTINUOUSLY
Average PT	NT	NT	NT	NT	NT	NT	NT	NT	7.06	10.7	7.4	63,333	**HRS: 34.27**
Sample Chamber (SC)													BROKEN LID HEAVY SEDIMENT
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	8.34	9.3	6.6	633	FLOATING IN BOX
Downfall DF													
Average DF	NT	NT	NT	NT	NT	NT	NT	NT	16.22	7.8	7.3	<333	
Down-gradient (DG)													WATER TO TOP OF WELL
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	13.94	7.9	6.7	<333	2X PURGE
Background (BG)													WATER TO TOP OF WELL
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	16.45	6.9	7.6	<333	2X PURGE

MARCH 1999 RESULTS

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow:	300	gpd				Soil Texture Group III
Sample Point Date Sampled: 03/21/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													
Sample Chamber (SC)													
Average SC													
Downfall (DF-2)													
Average DF-2													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													
Pad Well (PW-2)													
Average PW-2													

MARCH 1999 RESULTS

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													OWNER DOES NOT WANT LID LIFTED
Average PT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**HRS: 15.7 & 16.6**
Sample Chamber (SC)													
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	16.37	7.5	6.5	667	SYSTEM RUNNING
Pad Well (PW)													SLIGHT PURGE
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	16.43	8.6	6.8	<333	HEAVY SEDIMENT
Down-gradient (DG)													
Average DG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL
Background (BG)													
	NT	NT	NT	NT	NT	NT	NT	NT	16.19	9.3	7.2	**<333**	2X PURGE

MARCH 1999 RESULTS

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date:			Oct. 22, 1996				Design Flow:	750	gpd				Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MARCH 1999 RESULTS

Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled:03/15/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Large sink holes Safety Hazard melted snow causing flowing channels
Average PT	NS	NS	NS	N	NS	NS	NS	NS	NS	NS	NS	NS	**HRS: 9.21**
Sample Chamber (SC)													SAMPLE FROM CHAMBER
Average SC	NT	NT	NT	NT	NT	NT	NT	NT	6.80	11.4	6.8	19,000	1/5 FULL
Pad Well (PW)													
Average PW	NT	NT	NT	NT	NT	NT	NT	NT	14.45	9.4	6.4	<1,000	2X PURGE
Down-gradient (DG)													WATER OUTSIDE
Average DG	NT	NT	NT	NT	NT	NT	NT	NT	15.58	9.5	6.7	3,667	INNER WELL
Background (BG)													
Average BG	NT	NT	NT	NT	NT	NT	NT	NT	15.06	9.7	6.9	2,667	2X PURGE

MARCH 1999 RESULTS

Moore Property							**Mecklenburg Co., VA**						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 03/15/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													DID NOT TAKE
Average PT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	**HRS: 1.71**
Sample Chamber (SC)													
Average SC	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL
Pad Well (PW)													
Average PW	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	DRY WELL

	Fecal Coliforms - MARCH 1999							
	Analyst:	Roxanne Groover						
Site #	Site	Observed Colonies		Sample volume = 30 mL				
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	
1	Sawmill BG	*	project	finished	*	*	*	
	Sawmill PW1	*	project	finished	*	*	*	
	Sawmill PW2	*	project	finished	*	*	*	
	Sawmill DG	*	project	finished	*	*	*	
	Sawmill SC		project	finished	*	*	*	
	Sawmill Pump	*	project	finished	*	*	*	
2	Harmon BG	*	0	0	*	*	*	
	Harmon PW	*	NS	NS	*	*	*	
	Harmon DG	*	0	0	*	*	*	
	Harmon SC	176	25	0	*	*	*	
	Harmon Pump	*	*	TNTC	34	4		
3	Merritt BG	*	0	0	*	*	*	
	Merritt PW	*	6	0	*	*	*	
	Merritt DG	*	0	0	*	*	*	
	Merritt SC	3	0	0	*	*	*	
	Merritt Pump	*	*	*	NS			
4	Kemp BG	*	project	finished	*	*	*	
	Kemp PW	*	project	finished	*	*	*	
	Kemp DG	*	project	finished	*	*	*	
	Kemp SC		project	finished	*	*	*	
	Kemp Pump	*	project	finished	*	*	*	
5	Farrell BG	*	project	finished	*	*	*	
	Farrell PW	*	project	finished	*	*	*	
	Farrell DG	*	project	finished	*	*	*	
	Farrell Dbox		project	finished	*	*	*	
	Farrell Septic	*	project	finished	*	*	*	
6	Nesbitt BG	*	project	finished	*	*	*	
	Nesbitt PW	*	project	finished	*	*	*	
	Nesbitt DG	*	project	finished	*	*	*	
	Nesbitt SC		project	finished	*	*	*	
	Nesbitt Pump	*	project	finished	*	*	*	
7	AOA BG	*	project	finished	*	*	*	
	AOA PW	*	project	finished	*	*	*	
	AOA DG	*	project	finished	*	*	*	
	AOA SC		project	finished	*	*	*	
	AOA Pump	*	project	finished	*	*	*	
8	C. Brown BG	*	NS	*	*	*	*	
	C. Brown PW	*	NS	*	*	*	*	
	C. Brown DG	*	NS	*	*	*	*	
	C. Brown SC		NS	*	*	*	*	
	C. Brown Pump	*	*	*	NS	*	*	

Site #	Site	Observed Colonies		Sample volume = 30 mL			
		Dilution					
		1/10	1/100	1/1000	1/10000	1/100000	/1000000
9	Long Arthur BG	*	project	finished	*	*	*
	Long Arthur PW	*	project	finished	*	*	*
	Long Arthur DG	*	project	finished	*	*	*
	Long Arthur SC		project	finished	*	*	*
	Long Arthur Pump	*	project	finished	*	*	*
10	E. Brown BG	*	NS	*	*	*	*
	E. Brown PW	*	NS	*	*	*	*
	E. Browm DG	*	NS	*	*	*	*
	E. Brown SC		NS	*	*	*	*
	E. Brown Pump	*	*	*	NS		
11	Easter BG	*	project	finished	*	*	*
	Easter PW	*	project	finished	*	*	*
	Easter DG	*	project	finished	*	*	*
	Easter SC		project	finished	*	*	*
	Easter Pump	*	project	finished	*	*	*
12	Munford BG	*	project	finished	*	*	*
	Munford PW	*	project	finished	*	*	*
	Munford DG	*	project	finished	*	*	*
	Munford SC		project	finished	*	*	*
	Munford Pump	*	project	finished	*	*	*
13	Link BG	*	data not	available	*	*	*
	Link PW	*	data not	available	*	*	*
	Link DG	*	data not	available	*	*	*
	Link SC		data not	available	*	*	*
	Link Pump	*	*	*	*	*	*
14	Sharf BG	*	data not	available	*	*	*
	Sharf PW	*	data not	available	*	*	*
	Sharf DG	*	data not	available	*	*	*
	Sharf SC		data not	available	*	*	*
	Sharf Pump	*	*	*	*	*	*
15	L. Smith BG	*	1	0	*	*	*
	L. Smith PW	*	1	0	*	*	*
	L. Smith DG	*	NS	NS	*	*	*
	L. Smith SC	10	0	0	*	*	*
	L. Smith Pump		*	*	TNTC	19	8
16	Henderson BG	*	site not	occupied	*	*	*
	Henderson PW	*	site not	occupied	*	*	*
	Henderson DG	*	site not	occupied	*	*	*
	Henderson SC		site not	occupied	*	*	*
	Henderson Pump	*	site not	occupied	*	*	*
17	Stanley DF1	*	project	finished	*	*	*
	Stanley DF2	*	project	finished	*	*	*
	Stanley DG	*	project	finished	*	*	*
	Stanley Dbox		project	finished	*	*	*
	Stanley Pump	*	project	finished	*	*	*

Site #	Site	Observed Colonies		Sample volume = 30 mL			
		Dilution					
		1/10	1/100	1/1000	1/10000	1/100000	/1000000
18	D. Smith BG	*	0	0	*	*	*
	D. Smith DF	*	0	0	*	*	*
	D. Smith DG	*	0	0	*	*	*
	D. Smith SC	19	1	1	*	*	*
	D. Smith Pump	*	*	19	4	0	*
19	Anderson DF1	*	project	finished	*	*	*
	Anderson DF2	*	project	finished	*	*	*
	Anderson Dbox		project	finished	*	*	*
	Anderson Pump	*	project	finished	*	*	*
20	Jacobson BG	*	project	finished	*	*	*
	Jacobson PW1	*	project	finished	*	*	
	Jacobson PW2	*	project	finished	*	*	*
	Jacobson DG	*	project	finished	*	*	*
	Jacobson SC		project	finished	*	*	*
	Jacobson Pump	*	project	finished	*	*	*
21	T. Smith BG	*	0	0	*	*	*
	T. Smith PW	*	0	0	*	*	*
	T. Smith DG	*	ns	*	*	*	*
	T. Smith SC	20	13	3	*	*	*
	T. Smith Pump	*	*	ns	*	*	*
22	Samson BG	*	project	finished	*	*	*
	Samson PW1	*	project	finished	*	*	*
	Samson PW2	*	project	finished	*	*	*
	Samson DG	*	project	finished	*	*	*
	Samson SC		project	finished	*	*	*
	Sampson Pump	*	project	finished	*	*	*
23	Carter BG	*	8	0	*	*	*
	Carter PW	*	3	0	*	*	*
	Carter DG	*	11	0	*	*	*
	Carter SC	123	57	0	*	*	*
	Carter Pump	*	*	*	*	*	*
24	Moore PW	*	NS	NS	*	*	*
	Moore SC	*	NS	NS	*	*	*
	Moore Pump	*	*	NS	*	*	*

Site #	Site	Colonies/100ml of sample						Average Values
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	/100 mL
1	Sawmill BG	*	project	finished	*	*	*	
	Sawmill PW1	*	project	finished	*	*	*	
	Sawmill PW2	*	project	finished	*	*	*	
	Sawmill DG	*	project	finished	*	*	*	
	Sawmill SC	*	project	finished	*	*	*	
	Sawmill Pump	*	project	finished	*	*	*	
2	Harmon BG	*	0	0	*	*	*	**<333**
	Harmon PW	*	NS	NS	*	*	*	**NS**
	Harmon DG	*	0	0	*	*	*	**<333**
	Harmon SC	5866.667	8333.333	0	*	*	*	**8,333**
	Harmon Pump	*	*	*	1133333	1333333	0	**1,133,333**
3	Merritt BG	*	0	0	*	*	*	**<333**
	Merritt PW	*	2000	0	*	*	*	**<2000**
	Merritt DG	*	0	0	*	*	*	**<333**
	Merritt SC	100	0	0	*	*	*	**<333**
	Merritt Pump	*	*	*	NS	*	*	**NS**
4	Kemp BG	*	project	finished	*	*	*	
	Kemp PW	*	project	finished	*	*	*	
	Kemp DG	*	project	finished	*	*	*	
	Kemp SC	*	project	finished	*	*	*	
	Kemp Pump	*	project	finished	*	*	*	
5	Farrell BG	*	project	finished	*	*	*	
	Farrell PW	*	project	finished	*	*	*	
	Farrell DG	*	project	finished	*	*	*	
	Farrell Dbox	*	project	finished	*	*	*	
	Farrell Septic	*	project	finished	*	*	*	
6	Nesbitt BG	*	project	finished	*	*	*	
	Nesbitt PW	*	project	finished	*	*	*	
	Nesbitt DG	*	project	finished	*	*	*	
	Nesbitt SC	*	project	finished	*	*	*	
	Nesbitt Pump	*	project	finished	*	*	*	
7	AOA BG	*	project	finished	*	*	*	
	AOA PW	*	project	finished	*	*	*	
	AOA DG	*	project	finished	*	*	*	
	AOA SC	*	project	finished	*	*	*	
	AOA Pump	*	project	finished	*	*	*	
8	C. Brown BG	*	NS	*	*	*	*	
	C. Brown PW	*	NS	*	*	*	*	
	C. Brown DG	*	NS	*	*	*	*	
	C. Brown SC	*	NS	*	*	*	*	
	C. Brown Pump	*	*	*	NS	*	*	

Site #	Site	Colonies/100ml of sample						Average
		Dilution						Values
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	/100 mL
9	Long Arthur BG	*	project	finished	*	*	*	
	Long Arthur PW	*	project	finished	*	*	*	
	Long Arthur DG	*	project	finished	*	*	*	
	Long Arthur SC	*	project	finished	*	*	*	
	Long Arthur Pump	*	project	finished	*	*	*	
10	E. Brown BG	*	NS	*	*	*	*	
	E. Brown PW	*	NS	*	*	*	*	
	E. Brown DG	*	NS	*	*	*	*	
	E. Brown SC	*	NS	*	*	*	*	
	E. Brown Pump	*	*	*	NS	*	*	
11	Easter BG	*	project	finished	*	*	*	
	Easter PW	*	project	finished	*	*	*	
	Easter DG	*	project	finished	*	*	*	
	Easter SC	*	project	finished	*	*	*	
	Easter Pump	*	project	finished	*	*	*	
12	Munford BG	*	project	finished	*	*	*	
	Munford PW	*	project	finished	*	*	*	
	Munford DG	*	project	finished	*	*	*	
	Munford SC	*	project	finished	*	*	*	
	Munford Pump	*	project	finished	*	*	*	
13	Link BG	*	data not	available	*	*	*	
	Link PW	*	data not	available	*	*	*	
	Link DG	*	data not	available	*	*	*	
	Link SC	0	data not	available	*	*	*	
	Link Pump	*	*	*	*	*	*	
14	Sharf BG	*	data not	available	*	*	*	
	Sharf PW	*	data not	available	*	*	*	
	Sharf DG	*	data not	available	*	*	*	
	Sharf SC	0	data not	available	*	*	*	
	Sharf Pump	*	*	*	*	*	*	
15	L. Smith BG	*	333.3333	0	*	*	*	<333
	L. Smith PW	*	333.3333	0	*	*	*	<333
	L. Smith DG	*	NS	NS	*	*	*	
	L. Smith SC	333.3333	0	0	*	*	*	333
	L. Smith Pump	*	*	*	TNTC	6333333	26666667	6,333,333
16	Henderson BG	*	site not	occupied	*	*	*	
	Henderson PW	*	site not	occupied	*	*	*	
	Henderson DG	*	site not	occupied	*	*	*	
	Henderson SC	*	site not	occupied	*	*	*	
	Henderson Pump	*	site not	occupied	*	*	*	
17	Stanley DF1	*	project	finished	*	*	*	
	Stanley DF2	*	project	finished	*	*	*	
	Stanley DG	*	project	finished	*	*	*	
	Stanley Dbox	0	project	finished	*	*	*	
	Stanley Pump	*	project	finished	*	*	*	

Site #	Site	Colonies/100ml of sample Dilution						Average Values
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	/100 mL
18	D. Smith BG	*	0	0	*	*	*	**<333**
	D. Smith DF	*	0	0	*	*	*	**<333**
	D. Smith DG	*	0	0	*	*	*	**<333**
	D. Smith SC	633.3333	333.3333	3333.333	*	*	*	**633**
	D. Smith Pump	*	*	63333.33	133333.3	0	*	**63,333**
19	Anderson DF1	*	project	finished	*	*	*	
	Anderson DF2	*	project	finished	*	*	*	
	Anderson Dbox	0	project	finished	*	*	*	
	Anderson Pump	*	project	finished	*	*	*	
20	Jacobson BG	*	project	finished	*	*	*	
	Jacobson PW1	*	project	finished	*	*	*	
	Jacobson PW2	*	project	finished	*	*	*	
	Jacobson DG	*	project	finished	*	*	*	
	Jacobson SC	0	project	finished	*	*	*	
	Jacobson Pump	*	project	finished	*	*	*	
21	T. Smith BG	*	0	0	*	*	*	**<333**
	T. Smith PW	*	0	0	*	*	*	**<333**
	T. Smith DG	*	ns	*	*	*	*	
	T. Smith SC	666.6667	4333.333	10000	*	*	*	**667**
	T. Smith Pump	*	*	ns	*	*	*	
22	Samson BG	*	project	finished	*	*	*	
	Samson PW1	*	project	finished	*	*	*	
	Samson PW2	*	project	finished	*	*	*	
	Samson DG	*	project	finished	*	*	*	
	Samson SC	*	project	finished	*	*	*	
	Sampson Pump	*	project	finished	*	*	*	
23	Carter BG	*	2666.667	0	*	*	*	**2,667**
	Carter PW	*	1000	0	*	*	*	**<1000**
	Carter DG	*	3666.667	0	*	*	*	**3,667**
	Carter SC	4100	19000	0	*	*	*	**19,000**
	Carter Pump	*	*	*	*	*	*	
24	Moore PW	*	NS	NS	*	*	*	
	Moore SC	*	NS	NS	*	*	*	
	Moore Pump	*	*	NS	*	*	*	

PURAFLO® PEAT TREATMENT SYSTEM

APRIL 1999 SAMPLING AND MONITORING RESULTS

RECEIVED
JUN 1 1 1999

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

William A. Drewry, Ph.D., P.E

Mujde Erten-Unal, Ph.D.

RESULTS APRIL 1999

Saw Mill Project							Northampton Co. VA						
Installation Date: Aug-8-95							Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Pad Well (PW-2)													
Average PW-2													
Downgradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd				Soil Texture Group I
Sample Point Date Sampled: 05/10/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													frothy, slight odor
Average PT	399.00	13.3					7.114		3.86	20.0	7.8	4,233,333	**HRS: 26.49**
Sample Chamber (SC)													
Average SC	3.75	6.70					10.017		12.41	20.7	5.1	<667	force-fed
Pad Well (PW)												NS	
Average PW#												NS	no sample
Down-gradient (DG)													
Average DG	<1						0.067		11.89	19.2	5.9	<333	
Background (BG)													
Average BG	1.70						0.129		11.38	19.1	6.7	<333	

RESULTS APRIL 1999

Merrit							Eastern Shore						
Installation Date:			May 29-96				Design Flow:	450	gpd			Soil Texture Group I	
Sample Point Date Sampled:05/10/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													sealed
Average PT												NS	**HRS: 50.92**
Sample Chamber (SC)													from bucket
Average SC	2.68	20.0							12.86	19.6	7.2	8,333	heavy sediment
Pad Well (PW)													
Average PW												NS	no sample
Down-gradient (DG)													
Average DG												NS	no sample
Background (BG)													
Average BG												NS	no sample

RESULTS APRIL 1999

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow:	300	gpd				Soil Texture Group
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Sample Chamber (SC) Project Completed													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Septic Tank													
Average Septic Tank													**HRS:**
Background (BG)													
Average BG													

RESULTS APRIL 1999

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-6-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date:			Nov. 1, 1996				Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Brown							Gloucester, Virginia						
													Soil Texture Group I
Sample Point Date Sampled:05/18/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													strong odor
Average PT	101.45	53.3					6.405		4.34	22.1	7.7	1,033,333	**HRS:38.71**
Sample Chamber (SC)													
Average SC	2.86	26.70					6.986		9.74	20.8	7.2	400	system running
Pad Well (PW)													
Average PW												NS	no sample
Down-gradient (DG)													
Average DG												NS	no sample
Background (BG)													
Average BG												NS	no sample

RESULTS APRIL 1999

Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date:			Jan-8-95				Design Flow:	450	gpd				Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Brown							Richmond, VA						
Installation Date:			Oct-9-97				Design Flow:	150	gpd			Soil Texture Group I	
Sample Point Date Sampled: NS	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT												NS	**HRS:**
Sample Chamber (SC)													
Average SC												NS	
Pad Well (PW)													
Average PW												NS	
Down-gradient (DG)													
Average DG												NS	
Background (BG)													
Average BG												NS	

RESULTS APRIL 1999

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date: Aug-30-96							Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Munford Property (Serial No. 146)							**Suffolk VA**						
Installation Date:			Nov-19-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Link Project							Virginia Beach. VA						
Installation Date:			Aug-8-95				Design Flow:	450	gpd				Soil Texture Group II
Sample Point Date Sampled: 05/03/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT	137.50	26.7			0.88		7.379	89.09	3.03	15.9	7.3	633,333	**HRS: 45.21**
Sample Chamber (SC)													very HEAVY sediment in chamber
Average SC	4.20	33.3			18.46		10.978	85.00	7.46	15.1	7.0	567	
Pad Well (PW)													
Average PW	25.07						4.800		6.02	14.6	6.8	< 333	slight sediment
Down-gradient (DG)													
Average DG	< 1				34.35		0.740	32.10	11.17	14.4	6.1	< 667	slight sediment
Background (BG)													
Average BG	< 1				0.80		0.361	2.44	9.95	14.4	6.5	< 1,333	slight sediment

RESULTS APRIL 1999

Sharf							Virginia Beach						
Installation Date:					Oct-9-97		Design Flow:		150	gpd			Soil Texture Group I
Sample Point Date Sampled: 05/03/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													slight odor
Average PT	344.50	26.7			0.86		7.837	86.99	3.54	15.3	7.8	566,667	**HRS: no meter**
Sample Chamber (SC)													
Average SC	<1	20.0			50.72		10.381	89.41	11.46	14.8	5.0	14667	from bucket
Pad Well (PW)													
Average PW					28.21		2.046	74.96	8.18	14.9	6.5	<333	slight sediment
Down Gradient (DG)													
Average DG	2.60				33.61			86.68	11.32	14.7	6.4	<1,000	slight sediment
Background (BG)													
Average BG	<1				1.63		0.128	26.96	6.76	15.4	7.2	<333	slight sediment

RESULTS APRIL 1999

L.Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 05/02/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													slight odor
Average PT	430.00	93.30			0.88		10.540	97.14	6.90	18.9	7.7	3,333	**HRS: 26.25**
Sample Chamber (SC)													system running
Average SC	29.43	46.70			65.57		12.419	79.41	11.11	18.1	5.7	1,367	fresh sample
Pad Well (PW)													
Average PW					0.89			98.73	ns			NS	dry well
Down-gradient (DG)													
Average DG									ns			NS	dry well
Background (BG)													
Average BG									ns			NS	dry well

RESULTS APRIL 1999

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) House on Market													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Stanley Property							Page Co. VA						
Installation Date:			Nov. 1, 1996				Design Flow:	450	gpd				Soil Texture Group IV
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Downfall (DF-1)													
Average DF-1													
Downfall (DF-2)													
Average DF-2													

RESULTS APRIL 1999

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 4/26/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													strong odor
Average PT	143.75	13.30			0.90		7.300	42.10	2.64	16.9	7.2	1,000,000	**HRS: 38.85**
Sample Chamber (SC)													cracked lid
Average SC	3.68	33.30			73.42		8.543	46.04	12.90	15.6	7.2	< 33	HEAVY debris
Downfall DF													
Average DF												NS	no sample
Down-gradient (DG)													
Average DG												NS	no sample
Background (BG)													
Average BG												NS	no sample

RESULTS APRIL 1999

Anderson Property (SERIAL NO. 134)							**Frederick Co. VA**						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Downfall (DF-2)													
Average DF-2													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed									1.47	24.2	7.3		
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													
Pad Well (PW-2)													
Average PW-2													

RESULTS APRIL 1999

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 04/26/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													owner does not want lid lifted
Average PT												NS	**HRS: meter in house**
Sample Chamber (SC)													
Average SC	1.92	86.70			24.43		5.313	51.64	10.71	13.0	5.5	< 33	system running
Pad Well (PW)													
Average PW	5.01				22.25		1.364	41.69	10.72	12.5	5.6	32,333	
Down-gradient (DG)													
Average DG												NS	no sample
Background (BG)													
	1.08				0.90		0.287	4.79	10.37	12.0	6.7	< 333	

RESULTS APRIL 1999

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS APRIL 1999

Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 04/19/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													sink holes **SAFETY HAZARD**
Average PT												NS	**HRS:16.00**
Sample Chamber (SC)												21,333 66,667	
Average SC	2.98	413.0			19.62		5.064	21.92	10.16	12.4	6.5	44,000	FORCE-FED
Pad Well (PW)													
Average PW	5.92				2.96		0.041	6.95	11.95	12.4	6.5	<333	
Down-gradient (DG)													
Average DG	<1				1.58		0.018	5.20	11.76	12.4	6.7	7,333	
Background (BG)													
Average BG	2.75				2.22		0.020	11.66	10.28	11.4	6.4	<333	

RESULTS APRIL 1999

Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow:			gpd			Soil Texture Group I
Sample Point Date Sampled: 04/19/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													cannot lift lid alone **no sample**
Average PT													**HRS:1.86**
Sample Chamber (SC)													
Average SC					1.16		0.191	8.52	11.58	13.4	6.7	<3,333	force-fed
Pad Well (PW)													
Average PW													**dry well**

	Fecal Coliform - APRIL 1999							
	Analyst:	Roxanne Groover						
Site #	Site	Observed Colonies		Sample volume = 30 mL				
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	
1	Sawmill BG	*	project	finished	*	*	*	
	Sawmill PW1	*	project	finished	*	*	*	
	Sawmill PW2	*	project	finished	*	*	*	
	Sawmill DG	*	project	finished	*	*	*	
	Sawmill SC	*	project	finished	*	*	*	
	Sawmill Pump	*	project	finished	*	*	*	
2	Harmon BG	*	0	0	*	*	*	
	Harmon PW	*	NS	NS	*	*	*	
	Harmon DG	*	1	0	*	*	*	
	Harmon SC	TNTC	2	0	*	*	*	
	Harmon Pump	*	*	TNTC	127	6	*	
3	Merritt BG	*	NS	*	*	*	*	
	Merritt PW	*	NS	*	*	*	*	
	Merritt DG	*	NS	*	*	*	*	
	Merritt SC	115	25	4	*	*	*	
	Merritt Pump	*	*	NS	*	*	*	
4	Kemp BG	*	project	finished	*	*	*	
	Kemp PW	*	project	finished	*	*	*	
	Kemp DG	*	project	finished	*	*	*	
	Kemp SC	*	project	finished	*	*	*	
	Kemp Pump	*	project	finished	*	*	*	
5	Farrell BG	*	project	finished	*	*	*	
	Farrell PW	*	project	finished	*	*	*	
	Farrell DG	*	project	finished	*	*	*	
	Farrell Dbox	*	project	finished	*	*	*	
	Farrell Septic	*	project	finished	*	*	*	
6	Nesbitt BG	*	project	finished	*	*	*	
	Nesbitt PW	*	project	finished	*	*	*	
	Nesbitt DG	*	project	finished	*	*	*	
	Nesbitt SC	*	project	finished	*	*	*	
	Nesbitt Pump	*	project	finished	*	*	*	
7	AOA BG	*	project	finished	*	*	*	
	AOA PW	*	project	finished	*	*	*	
	AOA DG	*	project	finished	*	*	*	
	AOA SC	*	project	finished	*	*	*	
	AOA Pump	*	project	finished	*	*	*	
8	C. Brown BG	*	NS	*	*	*	*	
	C. Brown PW	*	NS	*	*	*	*	
	C. Brown DG	*	NS	*	*	*	*	
	C. Brown SC	12	8	2	*	*	*	
	C. Brown Pump	*	*	96	31	5		

Site #	Site	Observed Colonies	Sample volume = 30 mL				
		Dilution					
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000
9	Long Arthur BG	*	project	finished	*	*	*
	Long Arthur PW	*	project	finished	*	*	*
	Long Arthur DG	*	project	finished	*	*	*
	Long Arthur SC	*	project	finished	*	*	*
	Long Arthur Pump	*	project	finished	*	*	*
10	E. Brown BG	*	NS	*	*	*	*
	E. Brown PW	*	NS	*	*	*	*
	E. Browm DG	*	NS	*	*	*	*
	E. Brown SC	*	NS	*	*	*	*
	E. Brown Pump	*	NS	*	*	*	*
11	Easter BG	*	project	finished	*	*	*
	Easter PW	*	project	finished	*	*	*
	Easter DG	*	project	finished	*	*	*
	Easter SC	*	project	finished	*	*	*
	Easter Pump	*	project	finished	*	*	*
12	Munford BG	*	project	finished	*	*	*
	Munford PW	*	project	finished	*	*	*
	Munford DG	*	project	finished	*	*	*
	Munford SC	*	project	finished	*	*	*
	Munford Pump	*	project	finished			
13	Link BG	*	4	1	*	*	*
	Link PW	*	0	0	*	*	*
	Link DG	*	2	0	*	*	*
	Link SC	17	2	0	*	*	*
	Link Pump	*	*	TNTC	19	3	
14	Sharf BG	*	0	0	*	*	*
	Sharf PW	*	0	0	*	*	*
	Sharf DG	*	3	0	*	*	*
	Sharf SC	TNTC	44	8	*	*	*
	Sharf Pump	*	*	TNTC	17	0	*
15	L. Smith BG	*	NS	NS	*	*	*
	L. Smith PW	*	NS	NS	*	*	*
	L. Smith DG	*	NS	NS	*	*	*
	L. Smith SC	41	13	0	*	*	*
	L. Smith Pump	*	*	0	0	0	0
16	Henderson BG	*	site not	occupied	*	*	*
	Henderson PW	*	site not	occupied	*	*	*
	Henderson DG	*	site not	occupied	*	*	*
	Henderson SC	*	site not	occupied	*	*	*
	Henderson Pump	*	site not	occupied			*
17	Stanley DF1	*	project	finished	*	*	*
	Stanley DF2	*	project	finished	*	*	*
	Stanley DG	*	project	finished	*	*	*
	Stanley Dbox	*	project	finished	*	*	*
	Stanley Pump	*	project	finished			

Site #	Site	Observed Colonies		Sample volume = 30 mL				
			Dilution					
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
18	D. Smith BG	*	NS	NS	*	*	*	
	D. Smith DF	*	NS	NS				
	D. Smith DG	*	NS	NS	*	*	*	
	D. Smith SC	0	0	0	*	*	*	
	D. Smith Pump	*	*	TNTC	24	3	*	
19	Anderson DF1	*	project	finished	*	*	*	
	Anderson DF2	*	project	finished	*	*	*	
	Anderson Dbox	*	project	finished	*	*	*	
	Anderson Pump	*	project	finished	*	*	*	
20	Jacobson BG	*	project	finished	*	*	*	
	Jacobson PW1	*	project	finished	*	*	*	
	Jacobson PW2	*	project	finished	*	*	*	
	Jacobson DG	*	project	finished	*	*	*	
	Jacobson SC	*	project	finished	*	*	*	
	Jacobson Pump	*	project	finished	*	*	*	
21	T. Smith BG	*	0	0	*	*	*	
	T. Smith PW	*	97	0	*	*	*	
	T. Smith DG	*	NS	NS	*	*	*	
	T. Smith SC	1	0	0	*	*	*	
	T. Smith Pump	*	*	NS	*	*	*	
22	Samson BG	*	project	finished	*	*	*	
	Samson PW1	*	project	finished	*	*	*	
	Samson PW2	*	project	finished	*	*	*	
	Samson DG	*	project	finished	*	*	*	
	Samson SC	*	project	finished	*	*	*	
	Sampson Pump	*	project	finished	*	*	*	
23	Carter BG	*	0	0	*	*	*	
	Carter PW	*	0	0	*	*	*	
	Carter DG	*	22	0	*	*	*	
	Carter SC	TNTC	64	20	*	*	*	
	Carter Pump	*	*	NS	*	*	*	
24	Moore PW	*	NS		*	*	*	
	Moore SC	TNTC	TNTC	0	*	*	*	
	Moore Pump	*	*	NS	*	*	*	

Site #	Site	Colonies/100ml of sample						Average FC per 100 mL
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	
1	Sawmill BG	*	project	finished	*	*	*	
	Sawmill PW1	*	project	finished	*	*	*	
	Sawmill PW2	*	project	finished	*	*	*	
	Sawmill DG	*	project	finished	*	*	*	
	Sawmill SC	*	project	finished	*	*	*	
	Sawmill Pump	*	project	finished	*	*	*	
2	Harmon BG	*	0	0	*	*	*	<333
	Harmon PW	*	NS	NS	*	*	*	NS
	Harmon DG	*	333.3	0	*	*	*	<333
	Harmon SC	TNTC	666.7	0.0	*	*	*	<667
	Harmon Pump	*	*	*	4233333.3	2000000.0	*	4,233,333
3	Merritt BG	*	*	NS	*	*	*	NS
	Merritt PW	*	*	NS	*	*	*	NS
	Merritt DG	*	*	NS	*	*	*	NS
	Merritt SC	3833.3	8333.3	13333.3	*	*	*	8,333
	Merritt Pump	*	*	NS	*	*	*	NS
4	Kemp BG	*	project	finished	*	*	*	
	Kemp PW	*	project	finished	*	*	*	
	Kemp DG	*	project	finished	*	*	*	
	Kemp SC	*	project	finished	*	*	*	
	Kemp Pump	*	project	finished	*	*	*	
5	Farrell BG	*	project	finished	*	*	*	
	Farrell PW	*	project	finished	*	*	*	
	Farrell DG	*	project	finished	*	*	*	
	Farrell Dbox	*	project	finished	*	*	*	
	Farrell Septic	*	project	finished	*	*	*	
6	Nesbitt BG	*	project	finished	*	*	*	
	Nesbitt PW	*	project	finished	*	*	*	
	Nesbitt DG	*	project	finished	*	*	*	
	Nesbitt SC	*	project	finished	*	*	*	
	Nesbitt Pump	*	project	finished	*	*	*	
7	AOA BG	*	project	finished	*	*	*	
	AOA PW	*	project	finished	*	*	*	
	AOA DG	*	project	finished	*	*	*	
	AOA SC	*	project	finished	*	*	*	
	AOA Pump	*	project	finished	*	*	*	
8	C. Brown BG	*	*	NS	*	*	*	NS
	C. Brown PW	*	*	NS	*	*	*	NS
	C. Brown DG	*	*	NS	*	*	*	NS
	C. Brown SC	400	2666.7	6666.7	*	*	*	400
	C. Brown Pump	*	*	320000	1033333.3	1666666.7	0	1,033,333

Site #	Site	Colonies/100ml of sample						Average
		Dilution						FC per
		1/10	1/100	1/1000	1/10000	1/100000	/1000000	100 mL
9	Long Arthur BG	*	project	finished	*	*	*	
	Long Arthur PW	*	project	finished	*	*	*	
	Long Arthur DG	*	project	finished	*	*	*	
	Long Arthur SC	*	project	finished	*	*	*	
	Long Arthur Pump	*	project	finished	*	*	*	
10	E. Brown BG	*	NS	*	*	*	*	NS
	E. Brown PW	*	NS	*	*	*	*	NS
	E. Brown DG	*	NS	*	*	*	*	NS
	E. Brown SC	*	NS	*	*	*	*	NS
	E. Brown Pump	*	NS	*	*	*	*	NS
11	Easter BG	*	project	finished	*	*	*	
	Easter PW	*	project	finished	*	*	*	
	Easter DG	*	project	finished	*	*	*	
	Easter SC	*	project	finished	*	*	*	
	Easter Pump	*	project	finished	*	*	*	
12	Munford BG	*	project	finished	*	*	*	
	Munford PW	*	project	finished	*	*	*	
	Munford DG	*	project	finished	*	*	*	
	Munford SC	*	project	finished	*	*	*	
	Munford Pump	*	project	finished	*	*	*	
13	Link BG	*	1333.3	3333.3	*	*	*	<1,333
	Link PW	*	0	0	*	*	*	<333
	Link DG	*	666.7	0	*	*	*	<667
	Link SC	566.7	666.7	0	*	*	*	567
	Link Pump	*	*	TNTC	633333.33	1000000	0	633,333
14	Sharf BG	*	0	0	*	*	*	<333
	Sharf PW	*	0	0	*	*	*	<333
	Sharf DG	*	1000	0	*	*	*	<1000
	Sharf SC	*	14666.7	26666.7	*	*	*	14,667
	Sharf Pump	*	*	*	566666.7	0	*	566,667
15	L. Smith BG	*	NS	NS	*	*	*	NS
	L. Smith PW	*	NS	NS	*	*	*	NS
	L. Smith DG	*	NS	NS	*	*	*	NS
	L. Smith SC	1366.7	4333.3	0	*	*	*	1,367
	L. Smith Pump	*	*	0	0	0	0	3,333
16	Henderson BG	*	site not	completed	*	*	*	
	Henderson PW	*	site not	completed	*	*	*	
	Henderson DG	*	site not	completed	*	*	*	
	Henderson SC	*	site not	completed	*	*	*	
	Henderson Pump	*	site not	completed	*	*	*	
17	Stanley DF1	*	project	finished	*	*	*	
	Stanley DF2	*	project	finished	*	*	*	
	Stanley DG	*	project	finished	*	*	*	
	Stanley Dbox	*	project	finished	*	*	*	
	Stanley Pump	*	project	finished	*	*	*	

Site #	Site	Colonies/100ml of sample						Average
			Dilution					FC per
		1/10	1/100	1/1000	1/10000	1/100000	/1000000	100 mL
18	D. Smith BG	*	NS	NS	*	*	*	NS
	D. Smith DF	*	NS	NS	*	*	*	NS
	D. Smith DG	*	NS	NS	*	*	*	NS
	D. Smith SC	0	0	0	*	*	*	<33
	D. Smith Pump	*	*	*	800000	1000000	*	1,000,000.0
19	Anderson DF1	*	project	finished	*	*	*	
	Anderson DF2	*	project	finished	*	*	*	
	Anderson Dbox	*	project	finished	*	*	*	
	Anderson Pump	*	project	finished	*	*	*	
20	Jacobson BG	*	project	finished	*	*	*	
	Jacobson PW1	*	project	finished	*	*	*	
	Jacobson PW2	*	project	finished	*	*	*	
	Jacobson DG	*	project	finished	*	*	*	
	Jacobson SC	*	project	finished	*	*	*	
	Jacobson Pump	*	project	finished	*	*	*	
21	T. Smith BG	*	0	0	*	*	*	<333
	T. Smith PW	*	32333.3	0	*	*	*	32,333.0
	T. Smith DG	*	NS	NS	*	*	*	NS
	T. Smith SC	33.3	0	0	*	*	*	<33
	T. Smith Pump	*	*	NS	*	*	*	NS
22	Samson BG	*	project	finished	*	*	*	
	Samson PW1	*	project	finished	*	*	*	
	Samson PW2	*	project	finished	*	*	*	
	Samson DG	*	project	finished	*	*	*	
	Samson SC	*	project	finished	*	*	*	
	Sampson Pump	*	project	finished	*	*	*	
23	Carter BG	*	0	0	*	*	*	<333
	Carter PW	*	0	0	*	*	*	<333
	Carter DG	*	7333.3	0.0	*	*	*	7,333.0
	Carter SC	*	21333.3	66666.7	*	*	*	44,000.0
	Carter Pump	*	*	NS	*	*	*	NS
24	Moore PW	*	*	NS	*	*	*	NS
	Moore SC	TNTC	TNTC	0	*	*	*	<3,333
	Moore Pump	*	*	NS	*	*	*	NS

Site #	Site	Ini.WT	Vol	Fin wt.	TSS	Ini D.O	Fin D.O	%sample	BOD	Seed vol.
1	Sawmill BG	*								
finished	Sawmill PW1	*								
	Sawmill PW2	*								
	Sawmill DG	*								
	Sawmill SC									
	Sawmill Pump									
2	Harmon BG	*				10.02	7.7	30	1.71667	1.805
	Harmon PW	*				ns		30	ns	1.805
	Harmon DG	*				10.13	8.32	30	0.01667	1.805
	Harmon SC	1.149	15	1.149	6.7	9.38	6.45	30	3.75	1.805
	Harmon pump	1.1868	15	1.187	13.3	9.92	0.14	2	398.75	1.805
3	Merritt BG	*				ns		30	ns	1.805
	Merritt PW	*				ns		30	ns	1.805
	Merritt DG	*				ns		30	ns	1.805
	Merrit SC	1.1384	15	1.139	20.0	10.08	7.47	30	2.68333	1.805
	Merrit pump	sealed	15	sealed	ns	ns		2	ns	1.805
4	Kemp BG									
finished	Kemp PW									
	Kemp DG									
	Kemp SC									
	Kemp Pump									
5	Farrell BG									
finished	Farrell PW									
	Farell DG									
	Farell SC									
	Farell Septic									
6	Nesbitt BG									
finished	Nesbitt PW									
	Nesbitt DG									
	Nesbitt SC									
	Nesbitt Pump									
7	AOA BG									
finished	AOA PW									
	AOA DG									
	AOA SC									
	AOA Pump									
8	Glo Brown BG	*				ns		30	ns	0.371
	Glo Brown PW	*				ns		30	ns	0.371
	Glo Brown DG	*				ns		30	ns	0.371
	Glo Brown SC	1.1635	15	1.164	26.7	9.39	8.16	30	2.86333	0.371
	Glo Brown Pump	1.1522	15	1.153	53.3	9.81	7.41	2	101.45	0.371
9	LongArthur BG									
finished	LongArthur PW									
	LongArthur DG									
	LongArthur SC									
	LongArthur Pump									

Site #	Site	Ini.WT	Vol	Fin wt.	TSS	Ini D.O	Fin D.O	%sample	BOD	Seed vol.
10	E. Brown BG	*				ns		30	ns	
	E. Brown PW	*				ns		30	ns	
	E. Brown DG	*				ns		30	ns	
	E. Brown SC	ns	15	ns	ns	ns		30	ns	
	E. Brown Pump	ns	15	ns	ns	ns		2	ns	
11	Easter BG									
finished	Easter PW									
	Easter DG									
	Easter SC									
	Easter Pump									
12	Munford BG									
finished	Munford PW									
	Munford DG									
	Munford SC									
	Munford pump									
13	Link BG	*				10.68	8.74	30	0.7	1.73
	Link PW	*				9.38	0.13	30	25.0667	1.73
	Link DG	*				10.6	9.06	30	-0.6333	1.73
	Link SC	1.1742	15	1.175	33.3	10.26	7.27	30	4.2	1.73
	Link Pump	1.154	15	1.154	26.7	10.42	5.94	2	137.5	1.73
14	Sharf BG	*				10.41	8.59	30	0.3	1.73
	Sharf PW	*				10.33	8.35	30	0.83333	1.73
	Sharf DG	*				10.37	7.86	30	2.6	1.73
	Sharf SC	1.1644	15	1.165	20.0	10.59	8.66	30	0.66667	1.73
	Sharf Pump	1.1615	15	1.162	26.7	10.43	1.81	2	344.5	1.73
15	L. Smith BG	*				ns		30	ns	1.73
	L. Smith PW	*				ns		30	ns	1.73
	L. Smith DG	*				ns		30	ns	1.73
	L. Smith SC	1.1782	15	1.179	46.7	10.69	0.13	30	29.4333	1.73
	L. Smith Pump	1.1415	15	1.143	93.3	10.44	0.11	2	430	1.73
16	Henderson BG	*						30	0	
not	Henderson PW	*						30	0	
occupied	Henderson DG	*						30	0	
	Henderson SC		15		0			30	0	
	Henderson Pump		15		0			2	0	
17	Stanley DF1	*						30	0	
finished	Stanley DF-2									
	Stanley DG									
	Stanley Dbox									
	Stanley Pump									
18	Dsmith DF	*				ns		30	ns	2.855
	Dsmith DG	*				ns		30	ns	2.855
	Dsmith SC	1.1427	15	1.143	33.3	12.09	8.13	30	3.68333	2.855
	Dsmith Pump	1.1518	15	1.152	13.3	11.47	5.74	2	143.75	2.855
19	Anderson DF1									
finished	Anderson DF2									
	Anderson Dbox									
	Anderson Pump									

Site #	Site	Ini.WT	Vol	Fin wt.	TSS	Ini D.O	Fin D.O	%sample	BOD	Seed vol.
20	Jacobson BG									
finished	Jacobson PW1									
	Jacobson PW2									
	Jacobson DG									
	Jacobson SC									
	Jacobson Pump									
21	T. Smith BG	*				11.96	8.78	30	1.08333	2.855
	T. Smith PW	*				12.05	7.69	30	5.01667	2.855
	T. Smith DG	*				ns		30	ns	2.855
	T. Smith SC	1.1804	15	1.182	86.7	11.96	8.53	30	1.91667	2.855
	T. Smith Pump	ns	15	ns	ns	ns		2	ns	2.855
22	Samson BG									
finished	Samson PW									
	Samson DG									
	Samson SC									
	Samson Pump									
23	Carter BG	*				8.85	6.21	30	2.75	1.815
	Carter PW	*				8.49	4.9	30	5.91667	1.815
	Carter DG	*				8.76	6.81	30	0.45	1.815
	Carter SC	1.2061	15	1.212	413.3	8.69	5.98	30	2.98333	1.815
	Carter Pump	ns	15	ns	ns	ns	ns	2	ns	1.815
24	Moore PW	*				ns		30	ns	1.815
	Moore SC	1.1489	15	1.149	0.0	8.71	5.98	30	3.05	1.815
	Moore Pump	ns	15	ns	ns	ns		2	ns	1.815

IC Data Calculations Sheet

Month April & May
Schedule
Run # 2

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	18268014
30	820031881
150	4666439347
300	9444683983

Chloride Regression Output

Intercept	-56281325.75
Slope	31613642.77
Pearson's , r	0.999897684

Nitrite Curve

Std Conc	Peak Area
0	0
3	144674798
15	811461078
30	1592185510

Nitrite Regression Output

Intercept	-3600282.145
Slope	53390052.39
r coefficient	0.999876988

Nitrate Curve

Std Conc	Peak Area
0	862360
5	284503714
25	1733881286
50	3701937759

Nitrate Regression Output

Intercept	-59287414.31
Slope	74479184.7
r coefficient	0.999386479

Sample Data and Results

Sample #	Sample ID	Cl Area	Nitrite Area	Nitrate Area	Cl Result	Nitrite Result	Nitrate Result	Nitrite + Nitrate
6	#13 BG	20798006	0	0	2.44	0.07	0.80	0.86
7	DG	958450103	0	2498863212	32.10	0.07	34.35	34.41
8	SC	2630844669	0	1310609624	85.00	0.07	18.39	18.46
9	PT	2760262062	0	1363956	89.09	0.07	0.81	0.88
10	#14 BG	796040496	0	57363168	26.96	0.07	1.57	1.63
11	PW	2313441363	0	2036402044	74.96	0.07	28.14	28.21
12	DG	2684099754	0	2438870795	86.68	0.07	33.54	33.61
13	SC	2770309866	0	3713214623	89.41	0.07	50.65	50.72
14	PT	2693890772	0	0	86.99	0.07	0.80	0.86
15	#15 PW	3064841160	0	2347886	98.73	0.07	0.83	0.89
16	SC	2454284600	17893462	4794675356	79.41	0.40	65.17	65.57
17	PT	3014563733	0	1015696	97.14	0.07	0.81	0.88
18	#18 DC	1399287941	0	5404018599	46.04	0.07	73.35	73.42
19	PT	1274504990	0	2471426	42.10	0.07	0.83	0.90
20	#21 BG	95282648	0	2769466	4.79	0.07	0.83	0.90
21	PW	1261597002	0	1592784832	41.69	0.07	22.18	22.25
22	SC	1576109394	0	1754863793	51.64	0.07	24.36	24.43
23	Blank	3861409	0	0	1.90	0.07	0.80	0.86

Note that the Nitrate and Nitrite are expressed as Nitrogen as Nitrate and Nitrogen as Nitrite.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.999969683
R Square	0.999939368
Adjusted R Square	0.999919157
Standard Error	0.005541516
Observations	5

ANOVA

	df	*SS*	*MS*	*F*
Regression	1	1.519317075	1.519317075	49475.62499
Residual	3	9.21252E-05	3.07084E-05	
Total	4	1.5194092		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.002269865	0.003479714	0.652313729	0.560722475
X Variable 1	1.509250375	0.006785247	222.4311691	2.00379E-07

Significance F
2.00379E-07

Lower 95%	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
-0.008804148	0.013343878	-0.008804148	0.013343878
1.487656671	1.530844079	1.487656671	1.530844079

IC Data Calculations Sheet

Month: April & May
Schedule:
Run #: 1

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	18774128
30	819189679
150	4645249829
300	9366197359

Chloride Regression Output

Intercept	-49567795.38
Slope	31349337.87
Pearson's , r	0.999908905

Nitrite Curve

Std Conc	Peak Area
0	0
3	143277916
15	821055172
30	1589637895

Nitrite Regression Output

Intercept	-2091047.411
Slope	53381982.76
r coefficient	0.999742281

Nitrate Curve

Std Conc	Peak Area
0	739776
5	284433840
25	1728947588
50	3703183076

Nitrate Regression Output

Intercept	-60466537.74
Slope	74489630.39
r coefficient	0.999341215

Sample Data and Results

Sample #	Sample ID	Cl Area	Nitrite Area	Nitrate Area	Cl Result	Nitrite Result	Nitrate Result	Nitrite + Nitrate
6	Carter BG	316005181	0	102122116	11.66	0.04	2.18	2.22
7	Carter PW	168322865	0	156813590	6.95	0.04	2.92	2.96
8	Carter DG	113335583	0	54271012	5.20	0.04	1.54	1.58
9	Carter SC	637652440	0	1398174411	21.92	0.04	19.58	19.62
10	Moore SC	217532526	0	23158206	8.52	0.04	1.12	1.16
11	Blank	575056	0	0	1.60	0.04	0.81	0.85

Note that the Nitrate and Nitrite are expressed as Nitrogen as Nitrate and Nitrogen as Nitrite.

Total Phosphorus Calculation Sheet

Total Phosphorus Calculation Sheet				
Concentration	Absorbance	Slope Fit Line	Intercept Fit Line	Regression Stat
0	0	1.5093	0.0023	1.0000
0.05	0.075			
0.25	0.388			
0.5	0.754			
1	1.511			

April & May
Run # 1

Actual Data ID #	Absorbance	Calculated Conc	Dilution	Result (mg/l)
6	0.197	0.13	1	**0.13**
7	0.104	0.07	1	**0.07**
8	0.607	0.40	25	**10.02**
9	1.076	0.71	10	**7.11**
10	0.424	0.28	25	**6.99**
11	0.969	0.64	10	**6.41**
12	0.547	0.36	1	**0.36**
13	1.451	0.96	5	**4.80**
14	1.119	0.74	1	**0.74**
15	0.665	0.44	25	**10.98**
16	1.116	0.74	10	**7.38**
17	0.195	0.13	1	**0.13**
18	0.62	0.41	5	**2.05**
19	0.629	0.42	25	**10.38**
20	1.185	0.78	10	**7.84**
21	0.752	0.50	25	**12.42**
22	1.593	1.05	10	**10.54**
23	0.808	0.53	1	**0.53**
24	0.518	0.34	25	**8.54**
25	1.104	0.73	10	**7.30**
26	0.435	0.29	1	**0.29**
27	0.414	0.27	5	**1.36**
28	0.323	0.21	25	**5.31**
29	0.033	0.02	1	**0.02**
30	0.064	0.04	1	**0.04**
31	0.03	0.02	1	**0.02**
32	0.308	0.20	25	**5.06**
33	0.06	0.04	5	**0.19**
34	0.508	0.34	5	**1.68**
35	0.538	0.35	5	**1.77**

ID #	Result (mg/l)
#2 BG	0.129
DG	0.067
SC	10.017
PT	7.114
#8 SC	6.986
PT	6.405
#13 BG	0.361
PW	4.800
DG	0.740
SC	10.978
PT	7.379
#14 BG	0.128
PW	2.046
SC	10.381
PT	7.837
#15 SC	12.419
PT	10.540
CONTROL	0.534
#18 DC	8.543
PT	7.300
#21 BG	0.287
PW	1.364
SC	5.313
#23 BG	0.020
PW	0.041
DG	0.018
SC	5.064
#24 SC	0.191
MS SC	1.675
MSD SC	1.775

Quality Control Run #1	
% Recovery Matrix Spike	116.25%
% Recovery MSD	123.14%
% Recovery LSC	106.8%
orrelation Coefficient	-0.9999

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FACSIMILE TRANSMITTAL SHEET

DATE: 8/~~1~~17/99

TO: GREG O'DONNELL

FROM: MUJDE ERTEN-UNAL

SUBJECT: JUNE DATA

NUMBER OF PAGES: 25 (INCLUDING THIS PAGE)

MESSAGE:

Hi Greg;

Here's the June data. The hard copies ~~will~~ w/ chain of custody forms & field notes are coming in the mail.

We're very close to finishing July data. It will be coming very soon as well.

Thanks.

Mujde

Old Dominion University is an equal opportunity, affirmative action institution

Saw Mill Project — Northampton Co. VA

Installation Date: Aug-8-95 | Design Flow: 1,000 gpd | Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Pad Well (PW-2)													
Average PW-2													
Downgradient (DG)													
Average DG													
Background (BG)													
Average BG													

AUG-17-1999 16:27 FROM CIVIL & ENVIRO. ENGR. TO 9133654785559 P.10/25

Long-Arthur Property (Serial # 149)

Installation Date: Jan-8-95

Henrico Co. VA

Design Flow: 450 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

AUG-17-1999 16:27 FROM CIVIL & ENVIRO. ENGR. TO 9133654785559 P.05/25

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6, 1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

4

Nesbitt Property (Serial No. 166)

Installation Date: Jun-6-96

Gloucester Co. VA

Design Flow: 450 gpd

Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													
Sample Chamber (SC)													HRS:
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

5

Agency on Aging (Serial No. 143)

Installation Date: Nov. 1, 1996

Gloucester Co. VA

Design Flow: 450 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date: Aug-30-96							Design Flow: 300 gpd						Soil Texture Group II
Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

AUG-17-1999 16:28 FROM CIVIL & ENVIRO. ENGR. TO 9133654785559 P.13/25

Munford Property (Serial No. 146)

Installation Date: Nov-19-96

Suffolk VA

Design Flow: 450 gpd

Soil Texture Group II

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

6

Samson Property (Serial No. 137)

Installation Date: Oct. 22, 1996

Fairfax Co. VA

Design Flow: 750 gpd

Soil Texture Group I

ample Point / ate Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
'ump Tank (PT) roject Completed													
verage PT													HRS:
ample Chamber (SC)													
verage SC													
ad Well (PW)													
verage PW													
own-gradient (DG)													
verage DG													
ackground (BG)													
verage BG													

Jacobsen Property (Serial No. 125)

Installation Date: Aug. 6, 1996

Fairfax Co. VA

Design Flow: 600 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Mid Well (PW-1)													
Average PW-1													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													
Mid Well (PW-2)													
Average PW-2													

10

Stanley Property — Page Co. VA

Installation Date: Nov. 1; 1996 — Design Flow: 450 gpd — Soil Texture Group IV

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Downfall (DF-1)													
Average DF-1													
Downfall (DF-2)													
Average DF-2													

Anderson Property (SERIAL NO. 134)

Installation Date: Feb. 6, 1997

Frederick Co. VA

Design Flow: 300 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Downfall (DF-2)													
Average DF-2													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

AUG-17-1999 16:29 FROM CIVIL & ENVIRO. ENGR. TO 9133654785559 P.22/25

T. Smith — Fairfax Co.

Installation Date: — Design Flow: 450 gpd — Soil Texture Group III

Sample Point / Date Sampled: 06/13/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT									NS	NS	NS	NS	OWNER ISSUE HRS: meter in house
Sample Chamber (SC)													
Average SC									10.12	19.5	6.3	7000	From Bucket
Pond Well (PW)													Not enough water for purge
Average PW									NS	NS	NS	NS	
Down-gradient (DG)													Not enough water for purge
Average DG									NS	NS	NS	NS	
Background (BG)													Not enough water for purge
									NS	NS	NS	NS	

13

Link Project — Virginia Beach, VA

Installation Date: Aug-8-95 | Design Flow: 450 gpd | Soil Texture Group II

Sample Point / Date Sampled: 07/13/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT									1.20	24.2	7.7	366,667	slight odor **HRS: 55.3**
Sample Chamber (SC)													
Average SC									8.58	24.9	7.3	661	full chamber HEAVY!!! Sediment
Pad Well (PW)													
Average PW									8.90	24.2	7.5	<333	slight sediment
Down-gradient (DG)													
Average DG									10.78	24.1	6.8	<4,333	slight sediment
Background (BG)													
Average BG									11.43	24.1	6.4	<333	well has been demolished heavy sediment

Sharf — Virginia Beach

Installation Date: Oct-9-97 | Design Flow: 150 gpd | Soil Texture Group I

Sample Point / Date Sampled: 07/13/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													SITE WAS BEING HOOKED TO PUBLIC SEWAGE
Average PT									1.91	24.2	8.0	333,333	HRS: no meter
Sample Chamber (SC)													
Average SC									10.47	23.8	5.8	<167	from bucket
Bad Well (PW)													
Average PW									9.82	23.5	6.7	<333	
Down Gradient (DG)													cannot find, might have been buried
Average DG									NS	NS	NS	NS	
Background (BG)													
Average BG									11.11	23.8	6.8	<333	

AUG-17-1999 16:26 FROM CIVIL & ENVIRD. ENGR. TO 9133654785559 P.04/25

Merrit							Eastern Shore						
Installation Date:			May 29-96				Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled: 06/09/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT									NS	NS	NS	NS	sealed HRS: 53.25
Sample Chamber (SC)													
Average SC									10.97	26.1	7.0	5,000	From Bucket, light sediment
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
Average BG									NS	NS	NS	NS	Dry well

Harmon							Eastern Shore						
Installation Date:							Design Flow: 300 gpd						Soil Texture Group I
Sample Point / Date Sampled: 06/09/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT									3.88	25.7	7.6	766,667	Strong Odor HRS: 28.19
Sample Chamber (SC)													
Average SC									8.46	28.3	6.2	6,000	From bucket, system dripping
Bad Well (PW)													
Average PW#									NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Not enough water for purge
Background (BG)													
Average BG									NS	NS	NS	NS	Not enough water for purge

Brown							Richmond, VA						
Installation Date: Oct-9-97							Design Flow: 150 gpd						Soil Texture Group I
Sample Point Date Sampled: Not Done	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													DOG IS STILL AN ISSUE
Average PT												NS	HRS:
Sample Chamber (SC)													
Average SC												NS	
Pad Well (PW)													
Average PW												NS	
Down-gradient (DG)													
Average DG												NS	
Background (BG)													
Average BG												NS	

AUG-17-1999 16:29 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 9 P.19/25

D.Smith — **Page County**

Installation Date: — Design Flow: 450 gpd — Soil Texture Group III

Sample Point / Date Sampled: 06/13/99	BOD mg/l	SS mg/l	Free NH_3	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Strong Odor, low water level, believe there is a leak, has been reported several times
Average PT									3.64	24.7	7.3	366,667	**HRS: 40.91**
Sample Chamber (SC)													
Average SC									16.21	25.1	7.1	5,667	lid still broken
Downfall DF													
Average DF									NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
Average BG									NS	NS	NS	NS	Dry Well

L.Smith — West Moreland County

Installation Date: | Design Flow: 450 gpd | Soil Texture Group III

Sample Point / Date Sampled: 06/07/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Blue Color STRONG Odor
Average PT									3.34	23.7	7.3	86,667	**HRS: 27.35**
Sample Chamber (SC)													
Average SC									7.80	23.4	6.6	1,515	Force- fed
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
Average BG									NS	NS	NS	NS	Dry Well

AUG-17-1999 16:29 FROM CIVIL & ENVIRO. ENGR. TO 9133654778559 P.17/25

Henderson — West Moreland County

Installation Date:

Design Flow: 450 gpd

Soil Texture Group III

Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) House on Market													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

AUG-17-1999 16:27 FROM CIVIL & ENVIRO. ENGR. TO 9133654785559 P.09/25

Brown							Gloucester, Virginia						
												Soil Texture Group I	
Sample Point Date Sampled: 07/13/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Running, extremely full, strong odor inside of meter box wet
Average PT									1.29	23.5	8.0	1,366,667	**HRS: 42.12**
Sample Chamber (SC)													
Average SC									6.18	25.2	6.5	9,000	dripping
Pad Well (PW)													
Average PW									NS	NS	NS	NS	dry well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	dry well
Background (BG)													
Average BG									NS	NS	NS	NS	dry well

AUG-17-1999 16:30 FROM CIVIL & ENVIRO. ENGR. TO 9133654778559 P.24/25

Carter Property

Installation Date:

Salem, VA

Design Flow: gpd

Soil Texture Group I

mple Point ite Sampled: 06/01/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
mp Tank (PT)													Safety Hazard Sink Holes
erage PT									NS	NS	NS	NS	**HRS: 20.82**
mple Chamber (SC)													
erage SC									10.11	21.2	7.1	BAD SAMPLE	very little in bucket
d Well (PW)													
erage PW									NS	NS	NS	NS	Dry well
wn-gradient (DG)													
erage DG									NS	NS	NS	NS	Dry well
ckground (BG)													
erage BG									NS	NS	NS	NS	Dry Well

AUG-17-1999 16:30 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 P.25/25

TOTAL P.25

Moore Property — Mecklenburg Co., VA

Installation Date: — Design Flow: gpd — Soil Texture Group I

mple Point te Sampled: 07/02/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
mp Tank (PT)													Too heavy to lift alone
erage PT									NS	NS	NS	NS	HRS: 1.95
mple Chamber (SC)													dry bucket force-fed
erage SC									11.22	20.1	6.9	BAD SAMPLE	
d Well (PW)													Dry Well
erage PW									NS	NS	NS	NS	

AUG-17-1999 16:27 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 9 P.06/25

Farrell Property (SERIAL NO.000223)							Mathews Co. VA							
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group	
Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments	
Sample Chamber (SC) Project Completed														
Average SC														
Pad Well (PW)														
Average PW														
Down-gradient (DG)														
Average DG														
Septic Tank														
Average Septic Tank														
Background (BG)													HRS:	
Average BG														

OLD DOMINION UNIVERSITY

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FACSIMILE TRANSMITTAL SHEET

DATE: 11/5/99

TO: GREG O'DONNELL

FROM: Mujde

SUBJECT: August Data

NUMBER OF PAGES: 14 (INCLUDING THIS PAGE)

MESSAGE:

The originals will be mailed all together on Monday. I also e-mail the results this afternoon. Will

Mujde

Old Dominion University is an equal opportunity, affirmative action institution.

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Sampling Results-AUGUST 1999

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/19/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													OWNER ISSUE
Average PT	NS	NS							NS	NS	NS	NS	HRS: meter in house
Sample Chamber (SC)													
Average SC									11.70	13.2	6.3	800	From Bucket
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Not Enough for Purge
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
									NS	NS	NS	NS	Dry Well

NOV-05-1999 14:19 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 P.06/14

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Sampling Results-AUGUST 1999

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/19/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Not enough water in tank to get sample. Asked owner to do laundry
Average PT									NS	NS	NS	NS	**HBS: 59.6**
Sample Chamber (SC)													Sample Integrity compromised, heavy debris
Average SC									11.97	13.2	6.2	NS	
Downfall DF													
Average DF									NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
Average BG									NS	NS	NS	NS	Dry Well

NOV-05-1999 14:19 FROM CIVIL & ENVIRO. ENGR. TO 91336547B559 P.05/14

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Sampling Results-AUGUST 1999

L.Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/28/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Slight Odor Blue Tint
Average PT									2.29	19.3	6.6	2,100,000	**HRS: 31.5**
Sample Chamber (SC)													Drip to run during sample
Average SC									7.48	17.6	5.1	1,000	Fresh Sample
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Cannot get lid off
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Well coming out of ground
Background (BG)													
Average BG									9.56	17.5	4.7	<333	2X Purge

NOV-05-1999 14:18 FROM CIVIL & ENVIRO. ENGR. TO 913365478559 P.03/14

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Sampling Results-AUGUST 1999

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) House on Market													
Average PT												NS	HRS:
Sample Chamber (SC)													
Average SC												NS	
Pad Well (PW)													
Average PW												NS	
Down-gradient (DG)													
Average DG												NS	
Background (BG)													
Average BG												NS	

NOV-05-1999 14:18 FROM CIVIL & ENVIRO. ENGR. TO 913365478559 P.04/14

Sampling Results-AUGUST 1999

Brown							Gloucester, Virginia						
												Soil Texture Group I	
Sample Point Date Sampled: 10/29/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Strong Odor
Average PT									4.13	17.4	8.7	12,000,000	**HRS: 51.07**
Sample Chamber (SC)													
Average SC									8.58	16.4	8.5	1,367	Fresh sample. Dripping
Pad Well (PW)													
Average PW									8.46	17.7	8.4	<333	Light Sediment
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Well has been plowed under
Background (BG)													
Average BG									8.96	16.8	5.0	<333	Under Briar Bush

NOV-05-1999 14:18 FROM CIVIL & ENVIRO. ENGR. TO 913365478559 P.02/14

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Sampling Results-AUGUST 1999

Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 10/26/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													House on Market
Average PT									NS	NS	NS	NS	HRS: Key Missing
Sample Chamber (SC)													
Average SC									7.86	18.1	5.8	<333	From Bucket
Pad Well (PW)													
Average PW									7.14	16.2	6.2	<333	Heavy Sediment
Down-gradient (DG)													
Average DG									7.49	16.4	6.3	<333	Missing Outside Cap
Background (BG)													No outer cap
Average BG									NS	NS	NS	NS	Not enough for purge

NOV-05-1999 14:19 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 P.07/14

Sampling Results-AUGUST 1999

Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 10/26/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT									NT	NT	NT	NT	HRS:
Sample Chamber (SC)													
Average SC									NS	NS	NS	NS	Bucket Empty
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Dry Well

NOV-05-1999 14:19 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 P.08/14

	Fecal Coliform - AUGUST 1999							
	Analyst:	Roxanne Groover						
Site #	Site	Observed Colonies		Sample volume = 30 mL				
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	
1	Sawmill BG	*	project	finished	*	*	*	
	Sawmill PW1	*	project	finished	*	*	*	
	Sawmill PW2	*	project	finished	*	*	*	
	Sawmill DG	*	project	finished	*	*	*	
	Sawmill SC	*	project	finished	*	*	*	
	Sawmill Pump	*	project	finished	*	*	*	
2	Harmon BG	*	project	finished	*	*	*	
	Harmon PW	*	project	finished	*	*	*	
	Harmon DG	*	project	finished	*	*	*	
	Harmon SC		project	finished	*	*	*	
	Harmon Pump	*	project	finished			*	
3	Merritt BG	*	project	finished	*	*	*	
	Merritt PW	*	project	finished	*	*	*	
	Merritt DG	*	project	finished	*	*	*	
	Merritt SC		project	finished	*	*	*	
	Merritt Pump	*	project	finished			*	
4	Kemp BG	*	project	finished	*	*	*	
	Kemp PW	*	project	finished	*	*	*	
	Kemp DG	*	project	finished	*	*	*	
	Kemp SC	*	project	finished	*	*	*	
	Kemp Pump	*	project	finished	*	*	*	
5	Farrell BG	*	project	finished	*	*	*	
	Farrell PW	*	project	finished	*	*	*	
	Farrell DG	*	project	finished	*	*	*	
	Farrell Dbox		project	finished	*	*	*	
	Farrell Septic	*	project	finished			*	
6	Nesbitt BG	*	project	finished	*	*	*	
	Nesbitt PW	*	project	finished	*	*	*	
	Nesbitt DG	*	project	finished	*	*	*	
	Nesbitt SC	*	project	finished	*	*	*	
	Nesbitt Pump	*	project	finished	*	*	*	
7	AOA BG	*	project	finished	*	*	*	
	AOA PW	*	project	finished	*	*	*	
	AOA DG	*	project	finished	*	*	*	
	AOA SC	*	project	finished	*	*	*	
	AOA Pump	*	project	finished	*	*	*	
8	C. Brown BG	*	0	0	*	*	*	
	C. Brown PW	*	0	0	*	*	*	
	C. Brown DG	*	NS	NS	*	*	*	
	C. Brown SC	41	7	0	*	*	*	
	C. Brown Pump	*	*	TNTC	210	36	*	

Aug99Fecal

Site #	Site	Observed Colonies		Sample volume = 30 mL				
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
9	Long Arthur BG	*	project	finished	*	*	*	
	Long Arthur PW	*	project	finished	*	*	*	
	Long Arthur DG	*	project	finished	*	*	*	
	Long Arthur SC	*	project	finished	*	*	*	
	Long Arthur Pump	*	project	finished	*	*	*	
10	E. Brown BG	*	project	finished	*	*	*	
	E. Brown PW	*	project	finished	*	*	*	
	E. Brown DG	*	project	finished	*	*	*	
	E. Brown SC		project	finished	*	*	*	
	E. Brown Pump	*	project	finished			*	
11	Easter BG	*	project	finished	*	*	*	
	Easter PW	*	project	finished	*	*	*	
	Easter DG	*	project	finished	*	*	*	
	Easter SC	*	project	finished	*	*	*	
	Easter Pump	*	project	finished	*	*	*	
12	Munford BG	*	project	finished	*	*	*	
	Munford PW	*	project	finished	*	*	*	
	Munford DG	*	project	finished	*	*	*	
	Munford SC	*	project	finished	*	*	*	
	Munford Pump	*	project	finished				
13	Link BG	*	project	finished	*	*	*	
	Link PW	*	project	finished	*	*	*	
	Link DG	*	project	finished	*	*	*	
	Link SC		project	finished	*	*	*	
	Link Pump	*	project	finished			*	
14	Sharf BG	*	PUBLIC	SEWAGE	*	*	*	
	Sharf PW	*	PUBLIC	SEWAGE	*	*	*	
	Sharf DG	*	PUBLIC	SEWAGE	*	*	*	
	Sharf SC	PUBLIC	PUBLIC	SEWAGE	*	*	*	
	Sharf Pump	*	*	PUBLIC	SEWAGE	PUBLIC	*	
15	L. Smith BG	*	0	0	*	*	*	
	L. Smith PW	*	NS	NS	*	*	*	
	L. Smith DG	*	NS	NS	*	*	*	
	L. Smith SC	30	9	0	*	*	*	
	L. Smith Pump	*	*	TNTC	63	1	*	
16	Henderson BG	*	site not	occupied	*	*	*	
	Henderson PW	*	site not	occupied	*	*	*	
	Henderson DG	*	site not	occupied	*	*	*	
	Henderson SC	*	site not	occupied	*	*	*	
	Henderson Pump	*	site not	occupied			*	
17	Stanley DF1	*	project	finished	*	*	*	
	Stanley DF2	*	project	finished	*	*	*	
	Stanley DG	*	project	finished	*	*	*	
	Stanley Dbox	*	project	finished	*	*	*	
	Stanley Pump	*	project	finished				

Aug99Fecal

Site #	Site	Observed Colonies	Sample volume = 30 mL					
			Dilution					
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	
18	D. Smith BG	*	NS	NS	*	*	*	
	D. Smith DF	*	NS	NS				
	D. Smith DG	*	NS	NS	*	*	*	
	D. Smith SC	TNTC	TNTC	TNTC	*	*	*	
	D. Smith Pump	*	*	NS	NS	NS	*	
19	Anderson DF1	*	project	finished	*	*	*	
	Anderson DF2	*	project	finished	*	*	*	
	Anderson Dbox	*	project	finished	*	*	*	
	Anderson Pump	*	project	finished	*	*	*	
20	Jacobson BG	*	project	finished	*	*	*	
	Jacobson PW1	*	project	finished	*	*	*	
	Jacobson PW2	*	project	finished	*	*	*	
	Jacobson DG	*	project	finished	*	*	*	
	Jacobson SC	*	project	finished	*	*	*	
	Jacobson Pump	*	project	finished	*	*	*	
21	T. Smith BG	*	NS	NS	*	*	*	
	T. Smith PW	*	NS	NS	*	*	*	
	T. Smith DG	*	NS	NS	*	*	*	
	T. Smith SC	24	3	0	*	*	*	
	T. Smith Pump	*	*	NS	NS	NS	*	
22	Samson BG	*	project	finished	*	*	*	
	Samson PW1	*	project	finished	*	*	*	
	Samson PW2	*	project	finished	*	*	*	
	Samson DG	*	project	finished	*	*	*	
	Samson SC	*	project	finished	*	*	*	
	Sampson Pump	*	project	finished	*	*	*	
23	Carter BG	*	NS	NS	*	*	*	
	Carter PW	*	0	0	*	*	*	
	Carter DG	*	0	0	*	*	*	
	Carter SC	0	0	0	*	*	*	
	Carter Pump	*	*	NS	NS	NS	*	
24	Moore PW	*	NS	NS	*	*	*	
	Moore SC	NS	NS	NS	*	*	*	
	Moore Pump	*	*	NS	NS	NS	*	

Aug99Fecal

ite #	Site	Colonies/100ml of sample						Average FC per 100 mL
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	
1	Sawmill BG	*	project	finished	*	*	*	
	Sawmill PW1	*	project	finished	*	*	*	
	Sawmill PW2	*	project	finished	*	*	*	
	Sawmill DG	*	project	finished	*	*	*	
	Sawmill SC	*	project	finished	*	*	*	
	Sawmill Pump	*	project	finished	*	*	*	
2	Harmon BG	*	project	finished	*	*	*	
	Harmon PW	*	project	finished	*	*	*	
	Harmon DG	*	project	finished	*	*	*	
	Harmon SC		project	finished	*	*	*	
	Harmon Pump	*	project	finished			*	
3	Merritt BG	*	project	finished	*	*	*	
	Merritt PW	*	project	finished	*	*	*	
	Merritt DG	*	project	finished	*	*	*	
	Merritt SC		project	finished	*	*	*	
	Merritt Pump	*	project	finished			*	
4	Kemp BG	*	project	finished	*	*	*	
	Kemp PW	*	project	finished	*	*	*	
	Kemp DG	*	project	finished	*	*	*	
	Kemp SC	*	project	finished	*	*	*	
	Kemp Pump	*	project	finished	*	*	*	
5	Farrell BG	*	project	finished	*	*	*	
	Farrell PW	*	project	finished	*	*	*	
	Farrell DG	*	project	finished	*	*	*	
	Farrell Dbox	*	project	finished	*	*	*	
	Farrell Septic	*	project	finished	*	*	*	
6	Nesbitt BG	*	project	finished	*	*	*	
	Nesbitt PW	*	project	finished	*	*	*	
	Nesbitt DG	*	project	finished	*	*	*	
	Nesbitt SC	*	project	finished	*	*	*	
	Nesbitt Pump	*	project	finished	*	*	*	
7	AOA BG	*	project	finished	*	*	*	
	AOA PW	*	project	finished	*	*	*	
	AOA DG	*	project	finished	*	*	*	
	AOA SC	*	project	finished	*	*	*	
	AOA Pump	*	project	finished	*	*	*	
8	C. Brown BG	*	0	0	*	*	*	<333
	C. Brown PW	*	0	0	*	*	*	<333
	C. Brown DG	*	NS	NS	*	*	*	NS
	C. Brown SC	1,367	2,333	0	*	*	*	1,367
	C. Brown Pump	*	*	TNTC	7,000,000	12,000,000		12,000,000

Aug99Fecal

Ite #	Site	Colonies/100ml of sample						Average FC per 100 mL
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	/1000000	
9	Long Arthur BG	*	project	finished	*	*	*	
	Long Arthur PW	*	project	finished	*	*	*	
	Long Arthur DG	*	project	finished	*	*	*	
	Long Arthur SC	*	project	finished	*	*	*	
	Long Arthur Pump	*	project	finished	*	*	*	
10	E. Brown BG	*	project	finished	*	*	*	
	E. Brown PW	*	project	finished	*	*	*	
	E. Brown DG	*	project	finished	*	*	*	
	E. Brown SC		project	finished	*	*	*	
	E. Brown Pump	*	project	finished			*	
11	Easter BG	*	project	finished	*	*	*	
	Easter PW	*	project	finished	*	*	*	
	Easter DG	*	project	finished	*	*	*	
	Easter SC	*	project	finished	*	*	*	
	Easter Pump	*	project	finished	*	*	*	
12	Munford BG	*	project	finished	*	*	*	
	Munford PW	*	project	finished	*	*	*	
	Munford DG	*	project	finished	*	*	*	
	Munford SC	*	project	finished	*	*	*	
	Munford Pump	*	project	finished	*	*	*	
13	Link BG	*	project	finished	*	*	*	
	Link PW	*	project	finished	*	*	*	
	Link DG	*	project	finished	*	*	*	
	Link SC		project	finished	*	*	*	
	Link Pump	*	project	finished				
14	Sharf BG	*	project	finished	*	*	*	
	Sharf PW	*	project	finished	*	*	*	
	Sharf DG	*	project	finished	*	*	*	
	Sharf SC		project	finished	*	*	*	
	Sharf Pump	*	project	finished			*	
15	L. Smith BG	*	0	0	*	*	*	<333
	L. Smith PW	*	NS	NS	*	*	*	NS
	L. Smith DG	*	NS	NS	*	*	*	NS
	L. Smith SC	1,000	3,000	0	*	*	*	1,000
	L. Smith Pump	*	*	TNTC	2,100,000	333,333		2,100,000
16	Henderson BG	*	site not	occupied	*	*	*	Site not occupied
	Henderson PW	*	site not	occupied	*	*	*	Site not occupied
	Henderson DG	*	site not	occupied	*	*	*	Site not occupied
	Henderson SC	*	site not	occupied	*	*	*	Site not occupied
	Henderson Pump	*	site not	occupied	*	*	*	Site not occupied
17	Stanley DF1	*	project	finished	*	*	*	
	Stanley DF2	*	project	finished	*	*	*	
	Stanley DG	*	project	finished	*	*	*	
	Stanley Dbox	*	project	finished	*	*	*	
	Stanley Pump	*	project	finished	*	*	*	

Aug99Fecal

Ice #	Site	Colonies/100ml of sample						Average FC per 100 mL
		Dilution						
		1/10	1/100	1/1000	1/10000	1/100000	/1000000	
18	D. Smith BG	*	NS	NS	*	*	*	NS
	D. Smith DF	*	NS	NS	*	*	*	NS
	D. Smith DG	*	NS	NS	*	*	*	NS
	D. Smith SC	TNTC	TNTC	TNTC	*	*	*	Invalid sample
	D. Smith Pump	*	*	NS	NS	NS	*	NS
19	Anderson DF1	*	project	finished	*	*	*	
	Anderson DF2	*	project	finished	*	*	*	
	Anderson Dbox	*	project	finished	*	*	*	
	Anderson Pump	*	project	finished	*	*	*	
20	Jacobson BG	*	project	finished	*	*	*	
	Jacobson PW1	*	project	finished	*	*	*	
	Jacobson PW2	*	project	finished	*	*	*	
	Jacobson DG	*	project	finished	*	*	*	
	Jacobson SC	*	project	finished	*	*	*	
	Jacobson Pump	*	project	finished	*	*	*	
21	T. Smith BG	*	NS	NS	*	*	*	NS
	T. Smith PW	*	NS	NS	*	*	*	NS
	T. Smith DG	*	NS	NS	*	*	*	NS
	T. Smith SC	800	1,000	0	*	*	*	800
	T. Smith Pump	*	*	NS	NS	NS	*	NS
22	Samson BG	*	project	finished	*	*	*	
	Samson PW1	*	project	finished	*	*	*	
	Samson PW2	*	project	finished	*	*	*	
	Samson DG	*	project	finished	*	*	*	
	Samson SC	*	project	finished	*	*	*	
	Sampson Pump	*	project	finished	*	*	*	
23	Carter BG	*	NS	NS	*	*	*	NS
	Carter PW	*	0	0	*	*	*	<333
	Carter DG	*	0	0	*	*	*	<333
	Carter SC	0	0	0	*	*	*	<333
	Carter Pump	*	*	NS	NS	NS	*	NS
24	Moore PW	*	NS	NS	*	*	*	NS
	Moore SC	NS	NS	NS	*	*	*	NS
	Moore Pump	*	*	NS	NS	NS	*	NS

RESULTS - September 1999

Saw Mill Project							Northampton Co. VA						
Installation Date: Aug-8-95							Design Flow: 1,000 gpd						Soil Texture Group II
Sample Point Date Sampled11/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Entire site Not Sampled													Area overgrown plants growing through system
Average PT												NS	**HRS: 215.79**
Sample Chamber (SC)													
Average SC												NS	
Pad Well (PW-1)													
Average PW-1												NS	
Pad Well (PW-2)													
Average PW-2												NS	
Downgradient (DG)													
Average DG												NS	
Background (BG)													
Average BG												NS	

RESULTS - September 1999

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Long-Arthur Property (Serial # 149)							Henrico Co. VA						
Installation Date: Jan-8-95							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													not done at this time Scheduled
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS - September 1999

Kemp Property							Mathews Co. VA						
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I
Sample Point Date Sampled: 10/10/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													PROPERTY CHAINED
Average PT									NS	NS	NS	NS	**HRS:**
Sample Chamber (SC)													
Average SC									NS	NS	NS	NS	
Pad Well (PW)													
Average PW									NS	NS	NS	NS	
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	
Background (BG)													
Average BG									NS	NS	NS	NS	

RESULTS - September 1999

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date: Jun-6-96							Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled: 11/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT								43.07	2.86	17.7	7.0	2,133,333	**HRS:348.95**
Sample Chamber (SC)													
Average SC								40.64				800	Came back later, no equipment
Pad Well (PW)													
Average PW								NS	8.26	14.9	4.6	2,667	Heavy Sediment
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Outside pipe full of water
Background (BG)													
Average BG									NS	NS	NS	NS	Not enough for purge

RESULTS - September 1999

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Agency on Aging (Serial No. 143)							Gloucester Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 11/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													**sealed**
Average PT									NT	NT	NT	NT	**HRS:44.39**
Sample Chamber (SC)													Chamber 1/3 full
Average SC								51.44	6.35	14.7	6.0	7,333	Very heavy sediment and scum
Pad Well (PW)													
Average PW								51.69	7.56	14.2	6.2	<56,667	
Down-gradient (DG)													
Average DG								49.34	10.51	14.7	5.6	<333	
Background (BG)													
Average BG									NS	NS	NS	NS	Not enough for purge

RESULTS - September 1999

Easter Property (Serial No. 127)							Isle of Wight Co. VA						
Installation Date: Aug-30-96							Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled: 11/16/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT									NS	NS	NS	NS	**HRS:**
Sample Chamber (SC)													
Average SC									NS	NS	NS	NS	
Pad Well (PW)													
Average PW									NS	NS	NS	NS	
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	
Background (BG)													
Average BG									NS	NS	NS	NS	

RESULTS - September 1999

Munford Property (Serial No. 146)							Suffolk VA						
Installation Date:			Nov-19-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled: 11/16/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													strong odor
Average PT								49.14	2.92	14.3	na	22,666,667	**HRS:99.22**
Sample Chamber (SC)													
Average SC								142.82	10.61	14.5	na	5,000	from bucket
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	dry well
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	cannot find well in overgrowth
Background (BG)													Sample integrity compromised Very muddy and heavy sediment
Average BG								8.14	8.91	14.5	na	NS	strong odor

RESULTS - September 1999

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date: Oct. 22, 1996							Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled: 10/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													strong odor almost black
Average PT								0.87	6.76	15.4	8.9	40,000,000	HRS:
Sample Chamber (SC)													
Average SC								0.87	11.15	14.9	8.3	5,000	from bucket
Pad Well (PW)													
Average PW									NS	NS	NS	NS	lids will not come off
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	lids will not come off
Background (BG)													
Average BG									NS	NS	NS	NS	lids will not come off

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RESULTS - September 1999

Jacobsen Property (Serial No. 125)							Fairfax Co. VA						
Installation Date: Aug. 6, 1996							Design Flow: 600 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													running sound
Average PT								470.81	5.09	16.0	7.4	40,666,667	**HRS:meter inside**
Sample Chamber (SC)													
Average SC								184.53	10.01	14.7	7.9	<3,667	from bucket
Pad Well (PW-1)													
Average PW-1									NS	NS	NS	NS	dry well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	dry well
Background (BG)													
Average BG									NS	NS	NS	NS	dry well
Pad Well (PW-2)													
Average PW-2									NS	NS	NS	NS	dry well

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RESULTS - September 1999

Stanley Property							Page Co. VA						
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd						Soil Texture Group IV
Sample Point Date Sampled: 10/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													low volume, very dark slight odor
Average PT								0.87	1.63	16.4	7.8	20,000,000	**HRS: 115.97**
Sample Chamber (SC) (d-box)													
Average SC								0.87	6.91	14.2	6.5	4,384	full, medium sediment
Down-gradient (DG)													
Average DG								0.87	NS	NS	NS	NF	Could not find
Downfall (DF-1)													
Average DF-1								0.89	7.14	15.4	6.9	163,000	
Downfall (DF-2)													
Average DF-2								0.89	8.47	15.2	6.7	11,000	

RESULTS - September 1999

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date: Feb. 6, 1997							Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													buried
Average PT									NS	NS	NS	NS	**HRS: 1040.42**
Sample Chamber (SC)													Very heavy sediment and not full, not enough sample volume for analysis
Average SC								0.87	10.31	14.8	7.4	NA	
Downfall (DF-2)													
Average DF-2									NS	NS	NS	NS	
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	
Background (BG)													
Average BG									NS	NS	NS	NS	

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RESULTS - September 1999

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													OWNER ISSUE
Average PT	NS	NS							NS	NS	NS	NS	**HRS: meter in house**
Sample Chamber (SC)													
Average SC								60.83	10.64	15.8	6.9	<267	From Bucket
Pad Well (PW)													
Average PW								24.19	11.30	15.40	7.30	<333	
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
									NS	NS	NS	NS	Dry Well

13

RESULTS - September 1999

Link Project							Virginia Beach. VA						
Installation Date:			Aug-8-95				Design Flow:	450	gpd			Soil Texture Group II	
Sample Point Date Sampled: 11/16/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													strong odor
Average PT								97.96	2.43	14.5	6.9	27,000,000	**HRS: 73.49**
Sample Chamber (SC)													heavy sediment lid off, system running
Average SC								102.32	5.40	14.3	6.2	4,667	
Pad Well (PW)													
Average PW								106.52	6.26	14.7	6.4	<333	heavy sediment
Down-gradient (DG)													Sample integrity compromised Very heavy sediment strong odor
Average DG								128.61	7.06	14.3	5.7	NS	
Background (BG)													
Average BG								57.31	8.80	14.5	5.4	<333	

RESULTS - September 1999

Sharf							Virginia Beach						
Installation Date:			Oct-9-97				Design Flow:	150	gpd				Soil Texture Group I
Sample Point Date Sampled:	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) Project Completed													ON PUBLIC SEWAGE
Average PT													**HRS: no meter**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down Gradient (DG)													
Average DG													
Background (BG)													
Average BG													

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RESULTS - September 1999

Merrit							Eastern Shore						
Installation Date:			May 29-96				Design Flow:	450	gpd				Soil Texture Group I
Sample Point Date Sampled: 11/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													sealed
Average PT									NT	NT	NT	NT	**HRS:67.63**
Sample Chamber (SC)													Very heavy debris and scum in the bucket, sample integrity compromised
Average SC								100.70	8.56	17.7	5.9	NA	
Pad Well (PW)													
Average PW									NS	NS	NS	NS	NOT ENOUGH FOR PURGE
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	NOT ENOUGH FOR PURGE
Background (BG)													
Average BG									NS	NS	NS	NS	NOT ENOUGH FOR PURGE

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RESULTS - September 1999

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow:	300	gpd			Soil Texture Group I	
Sample Point Date Sampled:11/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													strong odor frothy
Average PT								71.52	4.61	15.8	7.6	20,000,000	**Hrs: 36.84**
Sample Chamber (SC)													
Average SC								70.98	11.08	16.6	3.3	<2,000	from bucket
Pad Well (PW)													
Average PW#								NS	NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG								39.09	7.35	16.0	4.6	<333	2X purge
Background (BG)													
Average BG								8.01	8.78	15.7	5.8	>20,000	Heavy Sediment

RESULTS - September 1999

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Brown							Richmond, VA						
Installation Date:			Oct-9-97				Design Flow:	150	gpd			Soil Texture Group I	
Sample Point Date Sampled:	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													not done at this time
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

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RESULTS - September 1999

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 10/20/99	**BOD** mg/l	**SS** mg/l	**Free NH_3**	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													LEAK Tank empty
Average PT									NS	NS	NS	NS	**HRS: 59.78**
Sample Chamber (SC)													Heavy debris, not enough
Average SC								138.49	8.31	13.6	7.3	NS	sample for analysis
Downfall DF													
Average DF									NS	NS	NS	NS	Dry Well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Dry Well
Background (BG)													
Average BG									NS	NS	NS	NS	Dry Well

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RESULTS - September 1999

L.Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled: 11/11/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													Slight Odor Blue Tint
Average PT								106.39	2.38	17.3	7.1		**HRS: 31.92**
Sample Chamber (SC)													Drip to run during sample
Average SC							#NAME?	103.35	9.01	16.4	5.2		Fresh Sample
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	Cannot get lid off
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Well coming out of ground
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Not enough to purge

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RESULTS - September 1999

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point **Date Sampled**	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT) House on Market													
Average PT													**HRS:**
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

RESULTS - September 1999

Brown							Gloucester, Virginia						
												Soil Texture Group I	
Sample Point / Date Sampled: 10/10/99	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								1,888	3.86	17.8	6.9	<2,666,667	**HRS: 51.86**
Sample Chamber (SC)													
Average SC								1,828	8.33	18.0	4.8	NS	Sample integrity compromised due to heavy scum and sediment sitting
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Dry well
Down-gradient (DG)													
Average DG									NS	NS	NS	NS	Well has been plowed under
Background (BG)													
Average BG									10.22	17.6	5.3	NS	Not enough sample to analyze

RESULTS - September 1999

Carter Property							Salem, VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 10/27/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													House on Market
Average PT									NS	NS	NS	NS	**HRS: Key Missing**
Sample Chamber (SC)													
Average SC								19.86	8.56	17.1	6.1	<33	dripping
Pad Well (PW)													
Average PW								0.88	7.81	18.0	5.9	<333	Heavy Sediment
Down-gradient (DG)													
Average DG								0.87	10.32	18.1	5.6	4,242	Missing Outside Cap
Background (BG)													No outer cap
Average BG									NS	NS	NS	NS	Dry well

RESULTS - September 1999

Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled: 11/13/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total P** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Pump Tank (PT)													
Average PT									NT	NT	NT	NT	HRS: 3.81
Sample Chamber (SC)													
Average SC								6.62	10.22	16.20	6.80	1,867	from bucket
Pad Well (PW)													
Average PW									NS	NS	NS	NS	Dry Well

RESULTS - September 1999

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date: Jun-12-97							Design Flow: 300 gpd						Soil Texture Group
Sample Point Date Sampled: 10/10/99	**BOD** mg/l	**SS** mg/l	**Free NH_3** mg/l	**TKN-N** mg/l	**$NO_{3,2}$-N** mg/l	**Total N** mg/l	**Total** mg/l	**CL** mg/l	**DO** mg/l	**Temp.** deg. C.	**pH**	**FC** per 100 ml	**Comments**
Sample Chamber (SC)													
Average SC								6.41	7.64	17.10	6.60	<333	Some debris
Pad Well (PW)													
Average PW								19.71	8.43	18.7	6.1	<36,667	
Down-gradient (DG)													
Average DG								20.10	6.15	17.8	4.4	<333	
Septic Tank													
Average Septic Tank									NS	NS	NS	NS	**HRS: 41.75**
Background (BG)													
Average BG									NS	NS	NS	NS	Could not open

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FACSIMILE TRANSMITTAL SHEET

DATE: 5-11-00

TO: MR. STEVE BRANZ

FROM: MUJDE ERTEN-UNAL

SUBJECT: BNM NOV 99, DEC 99, JAN 2000 DATA

NUMBER OF PAGES: 39 (INCLUDING THIS PAGE)

MESSAGE:

Hello;

This is the data for Nov, Dec 99 & Jan 2000. We still will submit Feb, March April May data for the last 2 sites #23 & #24 Carter & Moore for fecal coliforms & chlorides.

I will put the chain of custodies & field notes in mail with the originals. Thanks.

Mujde

Old Dominion University is an equal opportunity, affirmative action institution.

PURAFLO® PEAT TREATMENT SYSTEM

NOVEMBER 1999 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

November 1999
Sampling Results

Saw Mill Project								Northampton Co. VA						
Installation Date:			Aug-8-95					Design Flow: 1,000 gpd					Soil Texture Group II	
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total M mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Entire site Not Sampled													
Average PT													HRS: 220.86
Sample Chamber (SC)													
Average SC													
Pad Well (PW-1)													
Average PW-1													
Pad Well (PW-2)													
Average PW-2													
Downgradient (DG)													
Average DG													
Background (BG)													
Average BG													

MAY-11-2000 15:34 FROM CIVIL & ENVIRO. ENGR. TO 91336479559 P.03/39

November 1999
Sampling Results

Harmon							Eastern Shore						
Installation Date:			Dec-1-97				Design Flow: 300 gpd						Soil Texture Group I
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								NS	NS	NS	NS	NS	Hrs: 46.45
Sample Chamber (SC)													
Average SC								37.88	2.93	13.7	6.4	<467	from bucket
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	Not enough to purge
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Lid stuck
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Lid stuck

November 1999
Sampling Results

Merrit																
Installation Date:			May 29-96					Eastern Shore								
								Design Flow:	450	gpd					Soil Texture Group I	
Sample Point / Date Sampled	BOD mg/l		SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments		
Pump Tank (PT)														sealed		
Average PT									NT	NT	NT	NT	NT	HRS: 85.33		
Sample Chamber (SC)																
Average SC									198.33	2.72	15.3	5.6	< 500	Chamber full, heavy sediment		
Pad Well (PW)																
Average PW									NS	NS	NS	NS	NS	Lid stuck		
Down-gradient (DG)																
Average DG									145.35	2.91	14.80	6.50	< 333	2X purge		
Background (BG)																
Average BG									3.16	2.81	13.40	6.40	< 333	2X purge		

MAY-11-2000 15:35 FROM CIVIL & ENVIRO. ENGR. TO 9136547555 P.05/39

November 1999
Sampling Results

Kemp Property							Mathews Co. VA							
Installation Date: Sept. 6,1995							Design Flow: 450 gpd						Soil Texture Group I	
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													PROPERTY CHAINED
Average PT								NS	NS	NS	NS	NS	HRS:
Sample Chamber (SC)													
Average SC								NS	NS	NS	NS	NS	
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	
Background (BG)													
Average BG								NS	NS	NS	NS	NS	

MAY-11-2000 15:35 FROM CIVIL & ENVIRO. ENGR. TO 91335478559 P.06/29

November 1999
Sampling Results

Farrell Property (SERIAL NO.000223)							Mathews Co. VA						
Installation Date:			Jun-12-97				Design Flow: 300 gpd						Soil Texture Group
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Sample Chamber (SC)													half of lid was off lid is cracked
Average SC								NS	NS	NS	NS	NS	too much debris to get valid sample
Pad Well (PW)													Water above well compromised
Average PW								NS	NS	NS	NS	NS	
Down-gradient (DG)													
Average DG								< 1	6.46	13.7	5.6	< 333	2X purge
Septic Tank													House has been unused for extended period
Average Septic Tank								18.47	4.38	12.7	6.8	< 3,333	HRS: 41.75
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Lid stuck

MAY-11-2000 15:35 FROM CIVIL & ENVIRO. ENGR. TO 9133654755 P.07/35

November 1999
Sampling Results

Nesbitt Property (Serial No. 166)							Gloucester Co. VA						
Installation Date:			Jun-8-96				Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								23.32	0.84	15.4	7.2	9,666,667	HRS: 354.84
Sample Chamber (SC)													
Average SC								23.94	5.71	12.7	5.4	667	From container
Pad Well (PW)													Water & bandite over opening
Average PW								NS	NS	NS	NS	NS	Compromised
Down-gradient (DG)													
Average DG								21.73	4.91	12.80	4.90	< 333	2X purge
Background (BG)													
Average BG								NS	NS	NS	NS	NS	not enough for purge

MAY-11-2000 15:35 FROM CIVIL & ENVIRO. ENGR. TO 3133654778559 P.08/39

November 1999
Sampling Results

Agency on Aging (Serial No. 143)								Gloucester Co. VA						
Installation Date:			Nov. 1, 1996					Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled:	BOD mg/l	SS mg/l	tee NH_3TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l		Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													sealed
Average PT								NT	NT	NT	NT	NT	HRS:
Sample Chamber (SC)													Chamber 1/3 full
Average SC								19.23	7.02	7.4	6.8	10,000	lots of debris
Pad Well (PW)													
Average PW								17.98	5.51	7.2	6.5	136,667	2X purge
Down-gradient (DG)													
Average DG								19.86	7.95	9.0	5.8	7,333	heavy sediment
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Not enough for purge

99-11-2000 15:26 FROM CIVIL & ENVRO. ENGR. TO 9133654778553 P.09/29

November 1999
Sampling Results

Brown							Gloucester, Virginia						
													Soil Texture Group I
Sample Point Date Sampled:	BOD mg/l	SS mg/l	see NH_3 TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100ml	Comments
Pump Tank (PT)												
Average PT							1168	2.23	15.6	7.9	6,000,000	HRS: 55.03
Sample Chamber (SC)												
Average SC							1179	6.17	12.3	4.2	103,333	fresh sample
Pad Well (PW)												
Average PW							NS	NS	NS	NS	NS	Not enough for purge
Down-gradient (DG)												
Average DG							NS	NS	NS	NS	NS	Well has been plowed under
Background (BG)												
Average BG							NS	NS	NS	NS	NS	Not enough for purge

MAY-11-2000 15:36 FROM CIVIL & ENVIRO. ENGR. TO 91336479559 P.12/39

November 1999
Sampling Results

Long-Arthur Property (Serial # 149)								Henrico Co. VA						
Installation Date: Jan-6-96								Design Flow: 450 gpd						Soil Texture Group III
Sample Point / Date Sampled	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl. mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Lid cannot be lifted
Average PT								NS	NS	NS	NS	NS	HRS:
Sample Chamber (SC)													
Average SC								511.55	1.09	11.2	5.6	<33	
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	not enough for purge
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	not enough for purge
Background (BG)													
Average BG								NS	NS	NS	NS	NS	not enough for purge

MAY-11-2000 15:36 FROM CIVIL & ENVIRO. ENGR. TO 91335475559 P.11/35

November 1999
Sampling Results

Brown							Richmond, VA						
Installation Date:			Oct-9-97				Design Flow: 150 gpd						Soil Texture Group I
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Safety Hazard
Average PT								NS	NS	NS	NS	NS	HRS:
Sample Chamber (SC)													
Average SC								NS	NS	NS	NS	NS	
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	
Background (BG)													
Average BG								NS	NS	NS	NS	NS	

MAY-11-2000 15:36 FROM CIVIL & ENVIRO. ENGR. TO 91336475559 P.12/39

November 1999
Sampling Results

Easter Property (Serial No. 127)								Isle of Wight Co. VA						
Installation Date:			Aug-30-96					Design Flow: 300 gpd						Soil Texture Group II
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3	TKN-N	$NO_{2,3}$-N	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													System has been recently by owners
Average PT								NS	NS	NS	NS	NS	HRS:
Sample Chamber (SC)													
Average SC								NS	NS	NS	NS	NS	
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	
Background (BG)													
Average BG								NS	NS	NS	NS	NS	

MAY-11-2000 15:57 FROM CIVIL & ENVIRO. ENGR. TO 9135547559 P.13/39

November 1999
Sampling Results

Munford Property (Serial No. 146)								Suffolk VA						
Installation Date:			Nov-19-96					Design Flow: 450 gpd						Soil Texture Group II
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								NS	NS	NS	NS	NS	HRS: 101.78
Sample Chamber (SC)													
Average SC								<1	9.81	11.4	6.2	<33	From bucket
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	dry well
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	dry well
Background (BG)													
Average BG								NS	NS	NS	NS	NS	dry well

MAY-11-2000 15:37 FROM CIVIL & ENVIRO. ENER. TO 9135547855S P.14/39

November 1999
Sampling Results

Link Project							Virginia Beach, VA						
Installation Date:			Aug-8-95				Design Flow: 450 gpd						Soil Texture Group II
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	rxn NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								NS	NS	NS	NS	NS	HRS: 81.23
Sample Chamber (SC)													
Average SC								208.42	4.90	14.3	6.4	<33	from pipe
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	Wells compromised
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Well compromised
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Well compromised

MAY-11-2000 15:36 FROM CIVIL & ENVIRO. ENGR. TO 9133654559 P.15/39

November 1999
Sampling Results

Sharf								Virginia Beach						
Installation Date:								Design Flow: 150 gpd						Soil Texture Group I
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) Project Completed													ON PUBLIC SEWAGE
Average PT													HRS: no meter
Sample Chamber (SC)													
Average SC													
Fed Well (PW)													
Average PW													
Down Gradient (DG)													
Average DG													
Background (BG)													
Average BG													

MAY-11-2000 15:38 FROM CIVIL & ENVIRO. ENGR. TO 913365475559 P.15/39

November 1999
Sampling Results

L.Smith							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	nse NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	Cl. mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													PT had flowers on top
Average PT								NS	NS	NS	NS	NS	HRS: 41.67
Sample Chamber (SC)													
Average SC								68.45	2.72	15.9	5.7	1,400	dripping
Pad Well (PW)													pipe coming out of ground
Average PW								NS	NS	NS	NS	NS	
Down-gradient (DG)													pipe coming out of ground
Average DG								NS	NS	NS	NS	NS	
Background (BG)													pipe coming out of ground
Average BG								NS	NS	NS	NS	NS	

MAY-11-2000 15:38 FROM CIVIL & ENVIRO. ENGR. TO 9137654559 P.17/39

November 1999
Sampling Results

Henderson							West Moreland County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT) House on Market													
Average PT													HRS:
Sample Chamber (SC)													
Average SC													
Pad Well (PW)													
Average PW													
Down-gradient (DG)													
Average DG													
Background (BG)													
Average BG													

November 1999
Sampling Results

Stanley Property							Page Co. VA							
Installation Date: Nov. 1, 1996							Design Flow: 450 gpd							Soil Texture Group IV
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								NS	NS	NS	NS	NS	Alarm going off HRS: 131.2
Sample Chamber (SC) D-80X													
Average SC								470	3.93	11.3	5.9	1,867	Heavy debris Partially full
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	Dry well
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Dry well
Downfall (DF-1)													
Average DF-1								NS	NS	NS	NS	NS	Dry well
Downfall (DF-2)													
Average DF-2								NS	NS	NS	NS	NS	Dry well

NOV-11-2000 15:58 FROM CIVIL & ENVIRO. ENGR. TO 9123547559 P.19/39

November 1999
Sampling Results

D.Smith							Page County						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													Power has been turned off house appears abandoned
Average PT								NS	NS	NS	NS	NS	HRS: 2224.62
Sample Chamber (SC)													nearly empty
Average SC								24.06	3.84	11.2	5.9	210000.00	heavy debris
Downfall DF													
Average DF								NS	NS	NS	NS	NS	Dry well
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Dry well
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Dry well

MAY-11-2000 15:29 FROM CIVIL & ENVIRO. ENGR. TO 913365475559 P.20/36

November 1999
Sampling Results

Anderson Property (SERIAL NO. 134)							Frederick Co. VA						
Installation Date:			Feb. 6, 1997				Design Flow: 300 gpd						Soil Texture Group III
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													buried
Average PT								NS	NS	NS	NS	NS	HRS: 1324.73
Sample Chamber (SC)													
Average SC								1029	3.73	11.3	5.8	80,000	Full of debris
Downfall (DF-2)													
Average DF-2								NS	NS	NS	NS	NS	not a well
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	
Background (BG)													
Average BG								NS	NS	NS	NS	NS	

November 1999
Sampling Results

Jacobsen Property (Serial No. 125)								Fairfax Co. VA						
Installation Date:			Aug. 6, 1996					Design Flow:	600	gpd				Soil Texture Group III
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{2,3}$-N mg/l	Total N mg/l	Total P mg/l	Cl mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments	
Pump Tank (PT)														
Average PT								423.62	1.79	12.3	6.2	20,333,333	HRS:meter inside	
Sample Chamber (SC)														
Average SC								381.39	2.79	11.7	5.6	< 5,333	Dripping	
Pad Well (PW-1)													Light sediment	
Average PW-1								66.91	2.58	11.10	5.40	< 333	single purge	
Down-gradient (DG)													Mod sediment	
Average DG								213.31	2.86	11.40	5.50	< 333	2x PURGE	
Background (BG)														
Average BG								7.10	2.25	11.70	5.40	< 333	2X purge	
Pad Well (PW-2)														
Average PW-2								NS	NS	NS	NS	NS	Not enough for purge	

MAY-11-2000 15:39 FROM CIVIL & ENVIRO. ENGR. TO 91336547855 P.22/29

November 1999
Sampling Results

T. Smith							Fairfax Co.						
Installation Date:							Design Flow: 450 gpd						Soil Texture Group III
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100ml	Comments
Pump Tank (PT)													
Average PT	NS	NS						NS	NS	NS	NS	NS	OWNER ISSUE HRS: water in house
Sample Chamber (SC)													
Average SC								21.87	3.76	13.4	4.9	<460	Flowing
Pad Well (PW)													
Average PW								<1	4.06	11.80	5.30	< 333	light sediment 2X purge
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Not enough for purge
Background (BG)													
								NS	NS	NS	NS	NS	Not enough for purge

MAY-11-2000 15:49 FROM CIVIL & ENVIRO. ENGR. TO 913365475559 P.23/39

November 1999
Sampling Results

Samson Property (Serial No. 137)							Fairfax Co. VA						
Installation Date:			Oct. 22, 1996				Design Flow: 750 gpd						Soil Texture Group I
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								1086.92	2.40	16.0	6.2	310,000,000	HRS: 194.85 172.90
Sample Chamber (SC)													
Average SC								1019.70	2.70	15.6	5.6	4,850	From bucket
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	Lid stuck
Down-gradient (DG)													
Average DG								NS	NS	NS	NS	NS	Cannot find
Background (BG)													
Average BG								NS	NS	NS	NS	NS	Dry well

November 1999
Sampling Results

Carter Property							Salem, VA							
Installation Date:							Design Flow: gpd							Soil Texture Group I
Sample Point / Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								NS	NS	NS	NS	NS	HRS: Key Missing
Sample Chamber (SC)													
Average SC								<1	2.89	13.8	6.6	<33	from bucket
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	dry well
Down-gradient (DG)													
Average BG								NS	NS	NS	NS	NS	dry well
Background (BG)													
Average BG								NS	NS	NS	NS	NS	dry well

MAY-11-2000 15:40 FROM CIVIL & ENVIRO. ENGR. TO 5123634755 P.25/33

November 1999
Sampling Results

Moore Property							Mecklenburg Co., VA						
Installation Date:							Design Flow: gpd						Soil Texture Group I
Sample Point Date Sampled:	BOD mg/l	SS mg/l	ree NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
Pump Tank (PT)													
Average PT								NS	NS	NS	NS	NS	HRS: 4.24
Sample Chamber (SC)													
Average SC								< 1	2.78	14.20	6.20	< 33	From bucket
Pad Well (PW)													
Average PW								NS	NS	NS	NS	NS	dry well

	Fecal Coliform - NOV 1999							
	Analyst:	Roxanne Groover						
ite #	Site	Observed Colonie	Sample volume = 30 mL					
		Dilution						
		1/10	1/100	1/1000	1/10000	1/10000	1.00E-08	
1	Sawmill BG	*	NS	NS	*	*	*	
	Sawmill PW1	*	NS	NS	*	*	*	
	Sawmill PW2	*	NS	NS	*	*	*	
	Sawmill DG	*	NS	NS	*	*	*	
	Sawmill SC	*	NS	NS	*	*	*	
	Sawmill Pump	*	NS	NS	*	*	*	
2	Harmon BG	*	NS	NS	*	*	*	
	Harmon PW	*	NS	NS	*	*	*	
	Harmon DG	*	NS	NS	*	*	*	
	Harmon SC	8	2	0	*	*	*	
	Harman Pump	*	*	NS	NS	NS	*	
3	Merritt BG	*	0	0	*	*	*	
	Merritt PW	*	NS	NS	*	*	*	
	Merritt DG	*	0	0	*	*	*	
	Merritt SC	15	0	0	*	*	*	
	Merritt Pump	*	*	SEALED	SEALED	SEALED	*	
4	Kemp BG	*	NS	NS	*	*	*	
	Kemp PW	*	NS	NS	*	*	*	
	Kemp DG	*	NS	NS	*	*	*	
	Kemp SC	NS	NS	NS	*	*	*	
	Kemp Pump	*	NS	NS	NS	*	*	
5	Farrell BG	*	NS	NS	*	*	*	
	Farrell PW	*	NS	NS	*	*	*	
	Farrell DG	*	0	0	*	*	*	
	Farrell Obox	NS	NS	NS	*	*	*	
	Farrell Septic	*	*	0	0	0	*	
6	Nesbitt BG	*	NS	NS	*	*	*	
	Nesbitt PW	*	NS	NS	*	*	*	
	Nesbitt DG	*	1	0	*	*	*	
	Nesbitt SC	20	11	1	*	*	*	
	Nesbitt Pump	*	*	520	163	29	*	
7	AOA BG	*	NS	NS	*	*	*	
	AOA PW	*	115	41	*	*	*	
	AOA DG	*	22	0	*	*	*	
	AOA SC	115	30	8	*	*	*	
	AOA Pump	*	*	SEALED	SEALED	SEALED	*	
8	C. Brown BG	*	NS	NS	*	*	*	
	C. Brown PW	*	NS	NS	*	*	*	
	C. Brown DG	*	NS	NS	*	*	*	
	C. Brown SC	312	102	31	*	*	*	
	C. Brown Pump	*	*	TNTC	350	18	*	

ite #	Site	Observed Colonie Sample volume = 30 mL						
		Dilution						
		1/10	1/100	1/1000	1/10000	/100000	1/1000000	
9	Long Arthur BG	*	NS	NS	*	*	*	
	Long Arthur PW	*	NS	NS	*	*	*	
	Long Arthur DG	*	NS	NS	*	*	*	
	Long Arthur SC	0	0	0	*	*	*	
	Long Arthur Pump	*	*	NS	NS	NS	*	
10	E. Brown BG	*	NS	NS	*	*	*	
	E. Brown PW	*	NS	NS	*	*	*	
	E. Brown DG	*	NS	NS	*	*	*	
	E. Brown SC	NS	NS	NS	*	*	*	
	E. Brown Pump	*	*	NS	NS	NS	*	
11	Easter BG	*	NS	NS	*	*	*	
	Easter PW	*	NS	NS	*	*	*	
	Easter DG	*	NS	NS	*	*	*	
	Easter SC	*	NS	NS	*	*	*	
	Easter Pump	*	*	NS	NS	NS	*	
12	Munford BG	*	NS	NS	*	*	*	
	Munford PW	*	NS	NS	*	*	*	
	Munford DG	*	NS	NS	*	*	*	
	Munford SC	0	0	0	*	*	*	
	Munford Pump	*	*	NS	NS	NS	*	
13	Link BG	*	NS	NS	*	*	*	
	Link PW	*	NS	NS	*	*	*	
	Link DG	*	NS	NS	*	*	*	
	Link SC	0	0	0	*	*	*	
	Link Pump	*	*	NS	NS	NS	*	
14	Sharf BG	*	PUBLIC	SEWAGE	*	*	*	
	Sharf PW	*	PUBLIC	SEWAGE	*	*	*	
	Sharf DG	*	PUBLIC	SEWAGE	*	*	*	
	Sharf SC	PUBLIC	PUBLIC	SEWAGE	*	*	*	
	Sharf Pump	*	*	PUBLIC	SEWAGE	PUBLIC	*	
15	L. Smith BG	*	NS	NS	*	*	*	
	L. Smith PW	*	NS	NS	*	*	*	
	L. Smith DG	*	NS	NS	*	*	*	
	L. Smith SC	42	9	1	*	*	*	
	L. Smith Pump	*	*	NS	NS	NS	*	
16	Henderson BG	*	site not	occupied	*	*	*	
	Henderson PW	*	site not	occupied	*	*	*	
	Henderson DG	*	site not	occupied	*	*	*	
	Henderson SC	*	site not	occupied	*	*	*	
	Henderson Pump	*	site not	occupied			*	
17	Stanley DF1	*	NS	NS	*	*	*	
	Stanley DF2	*	NS	NS	*	*	*	
	Stanley DG	*	NS	NS	*	*	*	
	Stanley Dbox	56	19	0	*	*	*	
	Stanley Pump	*	*	NS	NS	NS	*	

ite #	Site	Observed Colonie Sample volume = 30 mL						
			Dilution					
		1/10	1/100	1/1000	1/10000	/100000	1/1000000	
19	D. Smith BG	*	NS	NS	*	*	*	
	D. Smith DF	*	NS	NS				
	D. Smith DG	*	NS	NS	*	*	*	
	D. Smith SC	TNTC	243	83	*	*	*	
	D. Smith Pump	*	*	NS	NS	NS	*	
19	Anderson DF1	*	NS	NS	*	*	*	
	Anderson DF2	*	NS	NS	*	*	*	
	Anderson Dbox	TNTC	165	24	*	*	*	
	Anderson Pump	*	BURIED	BURIED	*	*	*	
20	Jacobson BG	*	0	0	*	*	*	
	Jacobson PW1	*	0	0	*	*	*	
	Jacobson PW2	*	NS	NS	*	*	*	
	Jacobson DG	*	1	0	*	*	*	
	Jacobson SC	TNTC	16	0	*	*	*	
	Jacobson Pump	*	*	TNTC	412	81	*	
21	T. Smith BG	*	NS	NS	*	*	*	
	T. Smith PW	*	0	0	*	*	*	
	T. Smith DG	*	NS	NS	*	*	*	
	T. Smith SC	7	2	0	*	*	*	
	T. Smith Pump	*	*	NS	NS	NS	*	
22	Samson BG	*	NS	NS	*	*	*	
	Samson PW1	*	NS	NS	*	*	*	
	Samson PW2	*	NS	NS	*	*	*	
	Samson DG	*	NS	NS	*	*	*	
	Samson SC	51	24	1	*	*	*	
	Sampson Pump	*	*	TNTC	308	93	*	
23	Carter BG	*	NS	NS	*	*	*	
	Carter PW	*	NS	NS	*	*	*	
	Carter DG	*	NS	NS	*	*	*	
	Carter SC	NS	NS	NS	*	*	*	
	Carter Pump	*	*	NS	NS	NS	*	
24	Moore PW	*	NS	NS	*	*	*	
	Moore SC	NS	NS	NS	*	*	*	
	Moore Pump	*	*	NS	NS	NS	*	

Site #	Site	Colonies/100ml of sample						Average
		Dilution						FC per
		1/10	1/100	1/1000	1/10000	1/100000	1.00E-06	100 mL
1	Sawmill BG	*	NS	NS	*	*	*	NS
	Sawmill PW1	*	NS	NS	*	*	*	NS
	Sawmill PW2	*	NS	NS	*	*	*	NS
	Sawmill DG	*	NS	NS	*	*	*	NS
	Sawmill SC	*	NS	NS	*	*	*	NS
	Sawmill Pump	*	NS	NS	*	*	*	NS
2	Harmon BG	*	NS	NS	*	*	*	NS
	Harmon PW	*	NS	NS	*	*	*	NS
	Harmon DG	*	NS	NS	*	*	*	NS
	Harmon SC	267	667	0	*	*	*	<467
	Harmon Pump	*	*	NS	NS	NS	*	NS
3	Merritt BG	*	<333	0	*	*	*	<333
	Merritt PW	*	NS	NS	*	*	*	NS
	Merritt DG	*	<333	0	*	*	*	<333
	Merritt SC	500	0	0	*	*	*	<500
	Merritt Pump	*	*	SEALED	SEALED	SEALED	*	NS
4	Kemp BG	*	NS	NS	*	*	*	NS
	Kemp PW	*	NS	NS	*	*	*	NS
	Kemp DG	*	NS	NS	*	*	*	NS
	Kemp SC	NS	NS	NS	*	*	*	NS
	Kemp Pump	*	NS	NS	*	*	*	NS
5	Farrell BG	*	NS	NS	*	*	*	NS
	Farrell PW	*	NS	NS	*	*	*	NS
	Farrell DG	*	<333	0	*	*	*	<333
	Farrell Dbox	NS	NS	NS	*	*	*	NS
	Farrell Septic	*	*	<3333	0	0	*	<3333
6	Nesbitt BG	*	NS	NS	*	*	*	NS
	Nesbitt PW	*	NS	NS	*	*	*	NS
	Nesbitt DG	*	<333	0	*	*	*	<333
	Nesbitt SC	667	3,667	3,333	*	*	*	667
	Nesbitt Pump	*	*	1,733,333	5,433,333	9,666,667	*	9,666,867
7	AOA BG	*	NS	NS	*	*	*	NS
	AOA PW	*	38,333	136,667	*	*	*	138,867
	AOA DG	*	7,333	0	*	*	*	7,333
	AOA SC	3,833	10,000	20,000	*	*	*	10,000
	AOA Pump	*	*	SEALED	SEALED	SEALED	*	NS
8	C. Brown BG	*	NS	NS	*	*	*	NS
	C. Brown PW	*	NS	NS	*	*	*	NS
	C. Brown DG	*	NS	NS	*	*	*	NS
	C. Brown SC	10,400	34,000	103,333	*	*	*	103,333
	C. Brown Pump	*	*	TNTC	11,666,667	6,000,000		6,000,000

Site #	Site	Colonies/100ml of sample						Average
		Dilution						FC per
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	100 mL
9	Long Arthur BG	*	NS	NS	*	*	*	NS
	Long Arthur PW	*	NS	NS	*	*	*	NS
	Long Arthur DG	*	NS	NS	*	*	*	NS
	Long Arthur SC	<33	0	0	*	*	*	<33
	Long Arthur Pump	*	*	NS	NS	NS	*	NS
10	E. Brown BG	*	NS	NS	*	*	*	NS
	E. Brown PW	*	NS	NS	*	*	*	NS
	E. Brown DG	*	NS	NS	*	*	*	NS
	E. Brown SC	NS	NS	NS	*	*	*	NS
	E. Brown Pump	*	*	NS			*	NS
11	Easter BG	*	NS	NS	*	*	*	NS
	Easter PW	*	NS	NS	*	*	*	NS
	Easter DG	*	NS	NS	*	*	*	NS
	Easter SC	*	NS	NS	*	*	*	NS
	Easter Pump	*	*	NS	NS	NS	*	NS
12	Munford BG	*	NS	NS	*	*	*	NS
	Munford PW	*	NS	NS	*	*	*	NS
	Munford DG	*	NS	NS	*	*	*	NS
	Munford SC	<33	0	0	*	*	*	<33
	Munford Pump	*	*	NS	NS	NS	*	NS
13	Link BG	*	NS	NS	*	*	*	NS
	Link PW	*	NS	NS	*	*	*	NS
	Link DG	*	NS	NS	*	*	*	NS
	Link SC	<33	0	0	*	*	*	<33
	Link Pump	*	*	NS	NS	NS		NS
14	Sharf BG	*	PUBLIC	SEWAGE	*	*	*	NS
	Sharf PW	*	PUBLIC	SEWAGE	*	*	*	NS
	Sharf DG	*	PUBLIC	SEWAGE	*	*	*	NS
	Sharf SC	PUBLIC	PUBLIC	SEWAGE	*	*	*	NS
	Sharf Pump	*	*	PUBLIC	SEWAGE	PUBLIC	*	NS
15	L. Smith BG	*	NS	NS	*	*	*	NS
	L. Smith PW	*	NS	NS	*	*	*	NS
	L. Smith DG	*	NS	NS	*	*	*	NS
	L. Smith SC	1,400	3,000	3,333	*	*	*	1,400
	L. Smith Pump	*	*	NS	NS	NS		NS
16	Henderson BG	*	site on	market	*	*	*	NS
	Henderson PW	*	site on	market	*	*	*	NS
	Henderson DG	*	site on	market	*	*	*	NS
	Henderson SC	*	site on	market	*	*	*	NS
	Henderson Pump	*	site on	market	*	*	*	NS
17	Stanley DF1	*	NS	NS	*	*	*	NS
	Stanley DF2	*	NS	NS	*	*	*	NS
	Stanley DG	*	NS	NS	*	*	*	NS
	Stanley Dbox	1,667	6,333	0	*	*	*	1,667
	Stanley Pump	*	*	NS	NS	NS	*	NS

Site #	Site	Colonies/100ml of sample						Average
		Dilution						FC per
		1/10	1/100	1/1000	1/10000	1/100000	1/1000000	100 mL
18	D. Smith BG	*	NS	NS	*	*	*	NS
	D. Smith DF	*	NS	NS	*	*	*	NS
	D. Smith DG	*	NS	NS	*	*	*	NS
	D. Smith SC	TNTC	81000	210,000	*	*	*	210,000
	D. Smith Pump	*	*	NS	NS	NS	*	NS
19	Anderson DF1	*	NS	NS	*	*	*	NS
	Anderson DF2	*	NS	NS	*	*	*	NS
	Anderson Dbox	TNTC	55,000	80,000	*	*	*	80,000
	Anderson Pump	*	BURIED	BURIED	*	*	*	BURIED
20	Jacobson BG	*	<333	0	*	*	*	<333
	Jacobson PW1	*	<333	0	*	*	*	<333
	Jacobson PW2	*	NS	NS	*	*	*	NS
	Jacobson DG	*	<333	0	*	*	*	<333
	Jacobson SC	TNTC	5,333	0	*	*	*	<5333
	Jacobson Pump	*	*	TNTC	13,733,333	20,333,333	*	20,333,333
21	T. Smith BG	*	NS	NS	*	*	*	NS
	T. Smith PW	*	<333	0	*	*	*	<333
	T. Smith DG	*	NS	NS	*	*	*	NS
	T. Smith SC	233	667	0	*	*	*	<450
	T. Smith Pump	*	*	NS	NS	NS	*	NS
22	Samson BG	*	NS	NS	*	*	*	NS
	Samson PW1	*	NS	NS	*	*	*	NS
	Samson PW2	*	NS	NS	*	*	*	NS
	Samson DG	*	NS	NS	*	*	*	NS
	Samson SC	1,700	8,000	3,333	*	*	*	4,850
	Sampson Pump	*	*	TNTC	10,266,667	31,000,000	*	310,000,000
23	Carter BG	*	NS	NS	*	*	*	NS
	Carter PW	*	NS	NS	*	*	*	NS
	Carter DG	*	NS	NS	*	*	*	NS
	Carter SC	0	0	0	*	*	*	<33
	Carter Pump	*	*	NS	NS	NS	*	NS
24	Moore PW	*	NS	NS	*	*	*	NS
	Moore SC	NS	NS	NS	*	*	*	<33
	Moore Pump	*	*	NS	NS	NS	*	NS

Nov-99

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	1871090
30	870727298
150	4480754625
300	9140945676
500	18730503760
700	20862022710
1000	29980796750
1200	35714533790
1500	44939421530

Chloride Regression Output

Intercept	531137842.2
Slope	29728872.98
Pearson's , r	0.996940257

Sample Data and Results

Sample #	Sample ID	Cl Area	Cl Result
1	#2 SC	1657337756	37.88
2	#3 BG	625109247	3.16
3	#3 DG	4852223445	145.35
4	#3 SC	6427122220	198.33
5	#5 PW 12/30/99	438187045	0.00
6	#5 PT	1080245545	18.47
7	#6 DG 12/30/99	1177140116	21.73
8	#6 SC	1242713595	23.94
9	#6 PT	1224398018	23.32
10	#7 DG 12/30/99	1121698250	19.86
11	#7 PW	1065591147	17.98
12	#7 SC	1102875949	19.23
13	#8 SC 12/30/99	35301823271	1169.59
14	#8 PT	35266283034	1168.40
15	#9 SC	15738824520	511.55
16	#12 SC	376566402	0.00
17	#13 SC	6727180510	208.42
18	#15 SC	2566219915	68.45
19	#17 Dbox	14494216710	469.68
20	#18 SC	1246958352	24.08
21	#19 Dbox	31122899370	1029.03
22	#20 BG	742101247	7.10
23	#20 DG	6872647910	213.31
24	#20 PW2	2520309308	66.91
25	#20 SC	11869559850	381.39
26	#20 PT	13124887070	423.62
27	#21 PW	316935939	0.00
28	#21 SC	1181399582	21.87
29	#22 SC	30845773230	1019.70
30	#22 PT	32844128120	1086.92
31	#23 SC	248538260	0.00
32	#24 SC	307549919	0.00

PURAFLO® PEAT TREATMENT SYSTEM

DECEMBER 1999 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

December 1999
Sampling Results

Site # Dec-99	Site	Observed Colonie Sample volume = 30 mL						
		Dilution						
		1/10	1/100	1/1000	1/10000	/100000	1/1000000	
23	Carter BG	*	NS	NS	*	*	*	
	Carter PW	*	NS	NS	*	*	*	
	Carter DG	*	NS	NS	*	*	*	
	Carter SC	0	0	0	*	*	*	
	Carter Pump	*	*	NS	NS	NS	*	
24	Moore PW	*	NS	NS	*	*	*	
	Moore SC	0	0	0	*	*	*	
	Moore Pump	*	*	NS	NS	NS	*	

Site # Dec-99	Site	Colonies/100ml of sample						Average FC per 100 mL
		Dilution						
		1/10	1/100	1/1000	1/10000	/100000	1/1000000	
23	Carter BG	*	NS	NS	*	*	*	NS
	Carter PW	*	NS	NS	*	*	*	NS
	Carter DG	*	NS	NS	*	*	*	NS
	Carter SC	0	0	0	*	*	*	< 33
	Carter Pump	*	*	NS	NS	NS	*	NS
24	Moore PW	*	NS	NS	*	*	*	NS
	Moore SC	0	0	0	*	*	*	< 33
	Moore Pump	*	*	NS	NS	NS	*	NS

IC Data Calculations Sheet

Dec-99

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	1247373
50	834869846
100	4158580647
200	9195417217
500	19583316680
700	22134428160
1000	31961084390
1200	39654738480
1500	47352241464

Chloride Regression Output

Intercept	363686972.41260
Slope	31589779.21258
Pearson's r	0.99640

Sample Data and Results

Sample #	Sample ID	Cl Area	Cl Result
1	#23 SC	298339421	0.00
2	#24 SC	449437584	2.74

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Puraflo Sampling Results
2000

PURAFLO® PEAT TREATMENT SYSTEM

JANUARY 2000 SAMPLING AND MONITORING RESULTS

Submitted by

Old Dominion University
Department of Civil and Environmental Engineering

January 2000
Sampling Results

Site #	Site	Observed Colonie Sample volume = 30 mL						
		Dilution						
		1/10	1/100	1/1000	1/10000	/100000	1/1000000	
23	Carter BG	*	0	0	*	*	*	
	Carter PW	*	0	0	*	*	*	
	Carter DG	*	0	0	*	*	*	
	Carter SC	0	0	0	*	*	*	
	Carter Pump	*	*	NS	NS	NS	*	
24	Moore PW	*	0	0	*	*	*	
	Moore SC	0	0	0	*	*	*	
	Moore Pump	*	*	NS	NS	NS	*	

Site #	Site	Colonies/100ml of sample						Average FC per 100 mL
		Dilution						
		1/10	1/100	1/1000	1/10000	/100000	1/1000000	
23	Carter BG	*	0	0	*	*	*	<333
	Carter PW	*	0	0	*	*	*	<333
	Carter DG	*	0	0	*	*	*	<333
	Carter SC	0	0	0	*	*	*	<33
	Carter Pump	*	*	NS	NS	NS	*	NS
24	Moore PW	*	0	0	*	*	*	<333
	Moore SC	0	0	0	*	*	*	<33
	Moore Pump	*	*	NS	NS	NS	*	NS

IC Data Calculations Sheet

Jan-00

Standard Curves and Regression Data

Chloride Curve

Std Conc	Peak Area
0	701030
30	850267569
150	4513659010
300	9169028596
500	19118137060
700	21020616230
1000	30920507870
1200	36746629180
1500	44317024670

Chloride Regression Output

Intercept	641981833.7
Slope	29903110.54
Pearson's , r	0.996232574

Sample Data and Results

Sample #	Sample ID	Cl Area	Cl Result
1	#23 BG	352198	0.00
	#23 DG	1072417	0.00
	#23 PW	1450467	0.00
	#23 SC	10910701	0.00
	#24 PW	1034682	0.00
	#24 SC	46088772	0.00

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Puraflo
Miller Stephenson Sampling and Chain of Custody
December 2000

ENVIROCOMPLIANCE
LABORATORIES, INC.

816 Kiwanis Street
Hampton, Virginia 23661
Phone 757 • 244 • 3424
Fax 757 • 244 • 3243

Certificate of Analysis

Miller Stephenson & Assoc.
Attn: Trevor Manning
5033 Rouse Drive
Virginia Beach, VA 23462

Project Name : North Star
Date Received: December 04, 2000
Date Sampled : December 04, 2000
Time Sampled : 14:30
Date Issued : December 14, 2000

Lab # 1/Sample ID : NS-RE

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Fecal Coliform	< 2	MPN/100ml	2	12-04/1733	12-06/1410	9221C	ETS
BOD	< 2	mg/l	2	12-05/1115	12-10/1645	405.1	PEJ
TSS	2	mg/l	1	12-07/1155	12-08/1030	160.2	PEJ

Lab # 2/Sample ID : NS-PT

Parameter	Result	Units	DL	Date/Time Prepared	Date/Time Analyzed	Method	Analyst
Fecal Coliform	>1600	MPN/100ml	2	12-04/1733	12-06/1410	9221C	ETS
BOD	90	mg/l	2	12-05/1115	12-10/1645	405.1	PEJ
TSS	750	mg/l	1	12-07/1155	12-08/1030	160.2	PEJ

BDL = Below Detection Limit

Laure K. Ray
Laboratory Manager

H0C08638-1

EnviroCompliance Laboratories, Inc.
816 Kiwanis Street
Hampton, VA 23661
(757) 244-3424 Fax (757) 244-3243

CHAIN OF CUSTODY

Page _____ of _____

Client : MSA, P.C.
Contact : CHARLES HALL
Address : 5033 Rouse Drive
City : VA Beach, VA
Phone : 490-9264 Fax : 499-0634
PO No. :

PROJECT NO. | PROJECT NAME: NORTH STAR

SAMPLERS: (Signatures) PEYTON MANNING T (Print)

STATION	DATE	TIME	SAMPLE IDENTIFICATION	# Cont	Matrix	Comp/Grb	Preserv	ANALYSIS: Fecal	ANALYSIS: BOD, TSS	
	12-4-00	2:30	1. NS-PE	2			/	X	X	1.
	12-4-00	2:30	2. NS-PT	2			/	X	X	2.
			3.							3.
			4.							4.
			5.							5.
			6.							6.
			7.							7.
			8.							8.
			9.							9.
			10.							10.
			11.							11.
			12.							12.
			13.							13.
			14.							14.
			15.							15.
			16.							16.
			17.							17.
			18.							18.
			19.							19.
			20.							20.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Temp.
T-A.M	12-4-00	3:23	Laura K Ray	4°C
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Cond.
Relinquished by: (Signature)	Date	Time	Received for Lab by:	

LAB USE ONLY

MSA HOC08638 Rec:12-04 Due:12/11
Fecal BOD,TSS

Matrices: W=Water S=Soil O=Organic Aq=Aqueous Sl=Sludge F=Filter M=Misc.

Preservatives: N=Nitric H=Hydrochloric Na=Sodium Hydroxide S=Sulfuric T=Thiosulfate Z=Zinc Acetate

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4. Estimate of Flow Data

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All flow at each site and data on the flow for each site is in the above sections 2 and 3 of thispacket. All data is accounted for.

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5. Information on When the Units Were Started up vs the Sampling Dates

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All sample dates and start up dates for sites are located in sections 2 and 3 of the packet.

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6. List of Key Participants

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1. Joe Walsh: President of Bord na Mona
2. Chris Keiger: Business Development and Product Manager for Bord na Mona Environmental Products (now Anua)
3. Jennifer Reasor: Sampling Analysts
4. Sanika Paranjapa: Sampling Analyst
5. Sudhanva Paranjapa: Sampling Analyst
6. Mujde Erten-Unal, Ph.D: Program Director, Associate Professor Civil & Environmental Engineering
7. Roxanne Groover: Sampling Analyst
8. Greg O'Donnell: Civil Engineer at Bord na Mona's U.S. headquarters in Greensboro, North Carolina
9. William A. Drewry, Ph.D, PE: Program Director
10. Steve Branz: Project Engineer for Bord na Mona
11. Robert Crissman: Operations Manager for Bord na Mona
12. Laure K. Ray: Laboratory Manager for EnviroCompliance Laboratories, Inc.

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7. Data Spreadsheet for the Statistical Analysis.

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Please see separately attached spreadsheet provided by Onsidian Onsite Services.

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8. Puraflo Peat Biofilter Virginia Demonstration Project Report

BORD NA MÓNA

ENVIRONMENTAL PRODUCTS U.S. INC.

PURAFLO® PEAT BIOFILTER

VIRGINIA DEMONSTRATION PROJECT REPORT

December 1999

P.O. BOX 77457, GREENSBORO, N.C. 27417, U.S.A TELEPHONE: (336) 547-9338 FAX: (336) 547-8559
email address: bordmona@nr.infi.net

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3. Purpose and Objectives of the Demonstration Project

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    - Treatment Standards
    - Site Selection
    - Sample Points
    - Test Parameters
    - Testing Frequency and Duration
    - Well Design and Installation
    - Sampling Protocol and Practice
    - Method of Analysis

5. Discussion of Methodology and Interpretation of Results

6. Puraflo® Performance and Soil Treatment of Effluent

7. Recommendations for Future Studies

8. Conclusions Regarding Puraflo®

Appendix A – Sample Well Design

Appendix B – FC Tests, ODU/HRSD Protocol and Standard Field Operating Protocol

Appendix C – ODU Notes on Well Damage and Site Conditions

Appendix D – Infiltration Rate Table

Appendix E – Test Data

Background

Bord na Móna (the Irish Peat Board) has extensive expertise in peat harvesting and peat-based technology. The progressive research and development program in Bord na Móna's Environmental Division has produced several peat-based technologies/products, including the Puraflo® peat biofilter. Puraflo® was developed in the early 1980's to provide advanced secondary treatment to domestic strength (septic tank) effluent. In January 1994, Bord na Móna established a U.S. company to introduce Puraflo® to the United States and serve the onsite market.

Introduction

Although it had considerable test data on the performance of the Puraflo® system from Ireland and Alabama, in August 1994 Bord na Móna Environmental Products proposed an experimental protocol to the Virginia Department of Health (VDH) to test the Puraflo® peat biofilter (Puraflo®.) The protocol was designed to be in accordance with Section 2.25 of the VDH Sewage Handling and Disposal Regulations. On June 9, 1995 VDH issued GMP #69 to permit and process applications for Puraflo® in accordance with the terms and conditions of a revised and mutually agreed upon experimental protocol.

The first test site under the new GMP was installed in August 1995 and Old Dominion University (ODU) in Norfolk, Virginia was engaged to conduct sampling and analysis.

Purpose and Objectives of the Demonstration Project

The purpose of the project was to demonstrate that Puraflo®'s highly treated effluent could be safely dispersed into the receiving soil with a reduced stand-off distance between the bottom of the gravel disposal pad or trench and the seasonal high water table or rock. The performance of conventional systems with VDH-required (unreduced) stand-off distance would be used as a comparative performance standard. Higher hydraulic loading rates were also proposed in the protocol to demonstrate the soils' increased hydraulic capacity with pre-treated effluent. Proposed loading rates typically reduced the required drainfield area by 50%.

In addition to a reduced unsaturated zone and higher loading rates, the project was designed to demonstrate/verify the expected treatment performance of the peat filter and evaluate any product-specific elements of the treatment and disposal system design. Substantial prior research and test data were available to support the objectives of this demonstration project. Hence, the project was not designed with scientific research in mind but rather to test the performance of the product and observe the system performance in a representative number of real life applications.

The letter accompanying GMP#69 from VDH outlined the primary objective as follows:

"To the greatest extent possible, the Division is interested in assuring that the Puraflo[w] system, with reduced stand-off distances, can perform as well or better than a conventional system in terms of risk to public health and longevity. To the greatest extent possible, the research we are funding at Virginia Tech will be used to establish this standard. In order to define a standard of performance, we used data from an ongoing research project that is evaluating the performance of onsite systems. The initial standard is stringent. Upon completion of this research, the department may wish to relax the performance standard, if data indicates the initial standard is too stringent."

Methodology - Proposed

Treatment Standards:

The protocol proposed that average fecal coliform samples collected from unsaturated soil horizons would average 10 cfu/100ml or less with no single sample exceeding 200 cfu/100ml. It was agreed later by the Health Department, Bord na Móna and Old Dominion University that fecal counts would be expressed in terms of geometric mean in accordance with common industry practice. "Unsaturated soil horizons" primarily refers to the drainfield or gravel pad wells which were intended to provide an effluent sample from 12 inches beneath the drainfield trench/pad. These drainfield wells were not part of Bord na Móna's original proposal but were an added VDH requirement. The original proposal called for sampling wells immediately adjacent to the drainfield but not in the actual drainfield.

This fecal coliform standard was proposed to measure sufficient treatment at a specified depth beneath the drainfield trench/pad. The protocol called for samples to be taken from unsaturated soil conditions "For the purpose of evaluating test results, only samples collected from collection ports installed above seasonally saturated soil horizons shall be used."

To ensure domestic strength waste is being treated/evaluated, influent (septic tank) BOD_5 must have an average of 150 mg/l or greater. Individual samples must be greater than 100 and less than 300 mg/l. Six of the 24 sites reported an average BOD_5 influent of less than 150 mg/l but none were less than 112 mg/l. However, 6 sites also reported an average BOD_5 influent *in excess* of 300 mg/l with the highest being 512 mg/l. Most sites experienced a wide range of BOD_5 waste strength. So, one quarter of the test sites had influent in excess of the standard domestic effluent strength going into the Puraflo® system.

The GMP also said that "Any system that shows surfacing of effluent shall be considered a failure" and that "Ponding depth within the absorption area shall be monitored on a monthly basis." These criteria were included to determine the life expectancy of systems loaded with pre-treated effluent at higher application rates (reduced drainfield size).

Site Selection:

To study the effects of higher hydraulic loading rates with pretreated effluent and the effects of final treatment in different soils, it was agreed that of the 24 test sites, 6 systems would be installed in each of the 4 major Soil Texture Groups. Sites were selected on this basis. Due to difficulty in securing suitable Group IV sites and VDH interest in piedmont soils, two of the Group IV sites were replaced with piedmont sites, which necessitated a considerable delay in beginning sampling at those locations.

Sample Points:

Per the experimental protocol, the well 12 inches beneath the drainfield was the primary sampling point. Septic tank effluent and Puraflo® effluent samples were also included on a less frequent schedule to establish waste strength and level of treatment from the Puraflo® units. This was not required by the protocol.

During the course of the demonstration project, samples were taken from the septic tank, Puraflo® sample chamber, drainfield well, down-gradient well and background well whenever possible. The number of wells exceeded the sampling points required by the protocol.

Test Parameters:

Per the experimental protocol, the drainfield well was to be tested for fecal coliform bacteria, pH and chlorides and the septic tank and Puraflo® system was to be tested for BOD_5 only. Nitrate-nitrogen testing and testing of Puraflo®-treated effluent in the sample chamber was optional.

During the first phase of the demonstration project (July 1997 through September 1998), all sample points were tested on a monthly basis for a full range of parameters (BOD_5, TSS, NH_3, TKN, Total-N, $NO_{3,2}$-N, Total-P, Chloride, DO, pH, temperature and Fecal Coliform). Between September 1998 and August 1999, all sample points were tested for the full range of parameters on a quarterly basis and fecal coliforms, pH and chlorides on a monthly basis. After August 1999, all sample points were tested for fecal coliforms, pH and chlorides on a monthly basis.

Testing Frequency and Duration:

Per the experimental protocol, sites were to be sampled on a monthly basis for 18 months.

Due to the specific nature of the site selection process and the realities of selling a "new" septic system to property owners, a much larger number of installations than anticipated were required in order to select sites with the appropriate characteristics. The lack of experience by both VDH and Bord na Móna with a project of this size and scope delayed the start of the project from 1995 until July 1997. To minimize the impact, testing began as soon as 12 of the 24 sites were available. The remaining systems were brought on line at later dates. Most of the test systems serve new construction. A significant time delay

was encountered between site evaluation/design and dwelling construction/system installation/use.

In addition, due to the nature of the test wells, well samples were only collected/available approximately 50 percent of the time. When samples were available it tended to be in the wet season under saturated conditions or after significant rain events. Due to dry conditions, sampling was suspended in July and August of 1998 with the approval of the VDH. A revised testing/sampling schedule was proposed by Bord na Móna in September 1998 to address the impact of dry weather on data availability. (At that point the relevance of the data being collected under saturated conditions was not considered.) The new proposal was not approved by VDH until December 1998 and then not implemented until January 1999.

For the above reasons, some limited testing will continue until April 2000 in order to secure 18 sample events for all sites, although the quantity of data collected thus far exceeds the requirements of the experimental protocol on many levels. A clear benefit of the extended testing duration and dry weather delays is that the performance of many of the systems will be observed over a 30-month period. The extended testing duration will provide useful information on the consistency and longevity of the treatment process.

Well Design and Installation:

VDH in conjunction with Bord na Móna and ODU (see drawing, Appendix A), designed the groundwater wells at each of the 24 sites. The wells were located strategically as follows:

1. One up-gradient of the area to measure background groundwater quality;
2. One within the treated wastewater absorption area, and
3. One ten feet down gradient of the wastewater disposal area.

Groundwater gradient was based on topography and/or direction to the nearest groundwater discharge point. This method of groundwater gradient determination was used because three points of reference were not available at most of the sites and groundwater mounding is possible in the absorption area that would create an artificial gradient.

Borings were advanced using a mechanically driven power auger or by hand auger resulting in a 4 to 6 inch bore-hole. The up-gradient and down-gradient borings were terminated once groundwater was encountered or at a maximum depth of 5.5 feet below ground surface. The boring located beneath the footprint of the absorption area was terminated at approximately 24 inches below the bottom of the bed or trench. After boring completion, monitoring wells were installed by placing, in each bore-hole, a 2-inch inside diameter, schedule 40 PVC pipe, 12-inch length screen with a minimum of 0.010-inch slots, an end cap and flush joint casing. The annular space between the pipe and the bore-hole wall was backfilled with a washed filter type sand to a minimum of six-inches above the screen. A one-foot minimum bentonite seal was placed above the sand. Where appropriate, a grout cement seal was placed from the top of the bentonite to ground surface. In some instances the bentonite seal was placed all the way to ground

surface. Water-tight caps and protective covers were installed to minimize damage from traffic, mowers, domestic tampering and surface infiltration. General industry monitoring well construction standards and decontamination procedures were followed during installation.

Sampling Protocol and Practice:

Effluent samples were taken from the pump tank with the use of a bailer (tube with spigot) with the exception of the one re-circulated system (sample was taken from the septic tank.)

Puraflo® effluent samples were taken from the sample chamber for pad disposal systems or from a drop box for trench disposal systems. In general, an unforced, free running sample should be taken from the end of the sample pipe in the sample chamber. This is not always possible since it is dependent on the activity (water consumption) of the occupants prior to sampling. In reality, samples were collected as free unforced running/grab samples; forced (pump activated) running/grab samples; and as composite samples from a left-in-place bucket or directly from the base of the sample chamber.

Forced (pump activated) samples were taken by the researchers by running the pump manually for 30 seconds, waiting 5 minutes, and then taking a sample out of the bucket.

Taking composite samples from left-in-place buckets was the most common method of collection. Unfortunately, this method tended to yield artificially high TSS counts due to accumulation in the collection bucket and buckets that were not cleaned between sampling.

Groundwater samples were collected on a monthly schedule at each of the sites. The sampling was conducted using the following protocol.

First, all wells were checked for any odors or adverse conditions and the static water level recorded on that date. Prior to securing a water sample, each well was purged by hand bailing a minimum of three casing volumes or until dry. The groundwater was then allowed to recharge to equilibrium and the samples collected. All tools and equipment were thoroughly cleaned prior to entering the wells. The samples were poured into the designated sample bottles, labeled, preserved according to required protocols, placed on ice and delivered to the laboratory within the specified holding time with chain-of-custody attached.

Method of Analysis

The laboratory analysis for all of the parameters was conducted using the Standard Methods for Examination of Water and Wastewater Handbook. ODU used the membrane filtration method to test for fecal coliforms. With approval of VDH, figures for these tests were revised during the project to comply with the Hampton Roads Sanitation District's guidelines, accepted by the Virginia Department of Environmental Quality (see ODU notes, *Appendix B*).

Discussion of Methodology and Interpretation of Results

The results show that the Puraflo® system is a robust system capable of consistently producing a high quality effluent under a wide range of real-life applications. The requirements of the protocol were demonstrated with respect to influent (septic tank) waste strength and increased hydraulic loading on the drainfield with highly treated effluent. Organic (BOD_5) loading of the Puraflo® system ranged from 112 to 512 mg/l.

Another performance requirement in the protocol identified ponding as a "failure." No ponding was observed at any of the test sites and except for a temporary surfacing of treated effluent at a site in Virginia Beach (which later was disappeared naturally), no ponding was observed at any of the other 236 installations as of 12/1/99. Systems are regularly inspected by either the researchers or by local and central-office health department personnel.

The performance standard for fecal coliform at 12 inches below the drainfield trench/pad was not demonstrated because the conditions under which samples were obtained (saturated conditions) are excluded by the protocol.

Due to the design of the test wells, saturated conditions at 12 inches beneath the drainfield trench/pad were required to attain a sufficient sample volume from the test wells. Therefore, when drainfield well samples were available, the conditions under which the samples were collected did not meet the requirements established in the protocol, namely, that the samples be taken from unsaturated soil horizons. The drainfield samples obtained represent saturated conditions where the water table is at the seasonal high as determined by Chroma II mottling.

Most of the selected sites had a seasonal high water table condition at 12 inches (or less) below the drainfield installation depth. As a result, drainfield well samples were only attained during the wet season or after significant rainfall events. The large number of dry wells encountered during the summer months and during the severe drought of 1999 (February through the Fall) indicate that the systems were operating in an unsaturated state during those periods but no samples were available.

Based on published research, under such conditions and given the quality of the Puraflo® effluent, the required FC standard would have been achieved with a high degree of certainty had samples been available (by suction lysimeter for example) during unsaturated conditions. Down-gradient and background wells frequently exceeded the standard indicating the likelihood of external contamination. The integrity of a sample well penetrating the actual drainfield is difficult to assure against short-circuiting.

Almost all of the test wells sustained some physical damage, even to the point where they had to be replaced (see ODU notes, *Appendix C*). In some cases when the researcher went to a site, he/she found the well caps missing, surface water on the interior seal, or the well missing altogether after being run over by lawnmowers or other machinery. Damage to the wells might have allowed leakage and infiltration of contaminated water.

At three sites, most noticeably, the property owners may have added to the fecal contamination of the samples. One placed uncomposted chicken manure directly on the drainfield to improve grass growth (*Stanley/* the drainfield was also installed in a former heavily used cattle pasture). Another keeps turkeys, ducks, and other poultry within 50 feet of the wells with a pond that overflowed at least once (*Long-Arthur*); and a third system was installed in a neighborhood with a large number of failing septic systems (*D. Smith*). This last site also has a leaking septic tank, which was reported to the local health department. Due to lack of funds, the tank still has not been repaired.

Although not required in the original experimental protocol, Bord na Móna undertook substantial additional testing of the Puraflo® effluent to demonstrate system performance. Through September 1999, the average influent BOD_5/TSS and fecal coliforms for all 23 single pass systems was 270/489 mg/l and 1,279,315 cfu/100ml respectively. The average Puraflo® effluent BOD_5/TSS and fecal coliforms for all systems was 6.6/26 mg/l and 611 cfu/100ml respectively. The performance of the re-circulation system (50% of the Puraflo® effluent was returned to the pump tank) was even better. The retired couple who owned the house with the re-circulating peat system occupied the dwelling on an intermittent/seasonal basis thus verifying Puraflo®'s ability to perform under intermittent/seasonal conditions.

The BOD readings from the tanks may also be related to the depth of the sample taken during any one sampling event: deeper layers may have greater BOD counts. In some cases, researchers found tanks that were only half-full, which may have led to higher figures.

As a result of all these factors, the demonstration project can not reliably make a direct comparison between the performance of the Puraflo® system followed by 6 to 12 inches of unsaturated soil versus a conventional drainfield followed by the required (unreduced) depth of unsaturated soil.

Puraflo® Performance and Soil Treatment of Effluent

Reliable research is available to show that additional treatment of septic tank effluent can be substituted for soil depth. Most significantly, Virginia Tech's C.S. Duncan, R.B. Reneau, Jr., and C. Hagedorn published a paper entitled "Impact of Effluent Quality and Soil Depth on Renovation of Domestic Wastewater" in the proceedings of the Seventh International Symposium in Individual and Small Community Sewage Systems.

The percentage reductions and effluent quality from the pre-treatment systems (re-circulating sand filter and constructed wetland) selected for this study is comparable with the effluent quality produced by the Puraflo® peat filter. Fecal coliform counts for the sand filter and constructed wetland ranged from 170 to 3,200 cfu/100 ml respectively. The fecal coliform mean for all Puraflo® systems combined was 611 cfu/100ml with only two of the 24 individual site means exceeding 3,200 cfu/100 ml. This is an impressive performance by the Puraflo® system considering the influent strength in the demonstration project (1,279,315 cfu/100ml) far exceeded the influent strength observed in the Virginia Tech study (35,800 cfu/100ml).

The method of dosing (time dosing) and hydraulic loading on the soil sample was comparable with the manner in which the experimental Puraflo® systems were designed and operated. In fact, this and other recognized studies support a drainfield area reduction (typically 50%) for pretreated effluent.

The pretreated sand filter and constructed wetland effluent was applied to columns of fine loamy soil (core samples). Leachate samples were extracted from the unsaturated column sample at specific depths using a suction lysimeter. No fecal coliforms were detected at 30 cm (11.81 inches) for either of the pretreated effluents. At 15 cm (5.90 inches) no fecal coliforms were detected from the sand filter effluent and 40 cfu/100ml were detected from the constructed wetland effluent.

All of the test Puraflo® systems were installed in difficult conditions with the bottom of the pad or trench between 6" and 12" from the seasonal high water table or rock. It is clear that under the correct sampling conditions the Puraflo® effluent would have met the required standard of 10 cfu/100ml on average with no single sample exceeding 200 cfu/100ml at 12 inches below the drainfield.

Recommendations for Future Studies

This was a demonstration project to verify the treatment performance of the Puraflo® system under real-life applications and, as such, the project was highly successful. Despite a good-faith effort of all involved, a conclusive demonstration of some of the objectives was not attainable via the proposed methodology. The sampling methodology was not sufficiently sophisticated and the testing environment was not sufficiently controlled to allow certain deductions to be made directly. In many respects, the target sampling at 12 inches below the drainfield crossed over into the realm of scientific research. It will be crucial to the conclusion of future projects to set realistic objectives and apply appropriate methodology.

The duration of the project extended far beyond what was expected because the lag time associated with attaining the required number of sites with the specified characteristics was underestimated. In hindsight, the two-phase testing approach that resulted from this delay could have been built into the study from the start.

Conclusions Regarding Puraflo®

Puraflo® has been shown to be a safe, effective and efficient treatment system capably of producing a highly treated effluent under a wide and varied range of domestic applications. The technology can be applied in difficult situations including, shallow depth to wetness conditions and reduced drainfield area. In addition, the product's performance was demonstrated in all four major soil group classifications.

Effluent from the Puraflo® modules almost meets standards for human contact. Final polishing of the effluent by the soil ensures that Virginia's ground and surface waters are

protected from almost all contaminants. Puraflo® will serve and protect the environment and the health of Virginia's citizens.

Time Dosing

Although several of the test sites used dose on demand, time dosing has become a standard feature of the Puraflo® system. As well as the treatment and hydraulic disposal advantages of micro-dosing, time dosing can be an effective means of detecting leaks, infiltration and system abuse.

Stand-off Distances

The system has been proven to work in very difficult soils and site conditions without ponding or surfacing of effluent. Eleven of the 24 test sites were installed in soils with less than 12" to the seasonal high water table or rock.

Pad Design

The project has shown there are safe and useful applications for the pad disposal method. The performance of the pad disposal system can be enhanced by installing long, narrow pads on contour rather than the original 16' X 20' pad proposal. This facilitates lateral movement out of the pad and minimizes the potential for mounding under the system.

The original experimental protocol also limited the square footage of the pad and required trench extensions from the pad to make up additional square footage as required. This practice was found to be problematic in the field and in some cases it prevented more hydraulically appropriate configurations from being applied.

The infiltration rate used for all designs has been simplified from the original charts outlined in GMP #69 (and later versions in GMPs #79 and 93). The rates are the same, just the format has been changed. *(See Appendix D).*

Treatment Capacity

The protocol described each Puraflo® module as capable of treating approximately 125 gallons per day. In fact, after extensive testing by Bord na Móna, it was learned that each module can effectively treat up to 150 gallons per day when time dosing is implemented. This is the standard that is used in all other states besides Virginia, with similar test results.

System Design

Of the 24 test sites, 22 were designed by Bord na Móna or its representative, 2 were designed by Virginia-certified engineers. Of the remaining 236 systems installed as of 12/1/99, 231 were designed by Bord na Móna or its representative and 3 were designed by Virginia-certified engineers.

The fact that Puraflo® is a proprietary, "pre-engineered" system allows the manufacturer and its authorized representatives to provide accurate and appropriate siting and technical information to the VDH for the permitting process.

Applications

In addition to single family homes, Puraflo® is in use for a number of larger domestic and commercial applications in Virginia. Applications other than single family residences include the following, a golf course, two fire stations, a marina, two churches, a yacht business, a trucking company; multi-family homes; and visitor's center for an archaeological site.

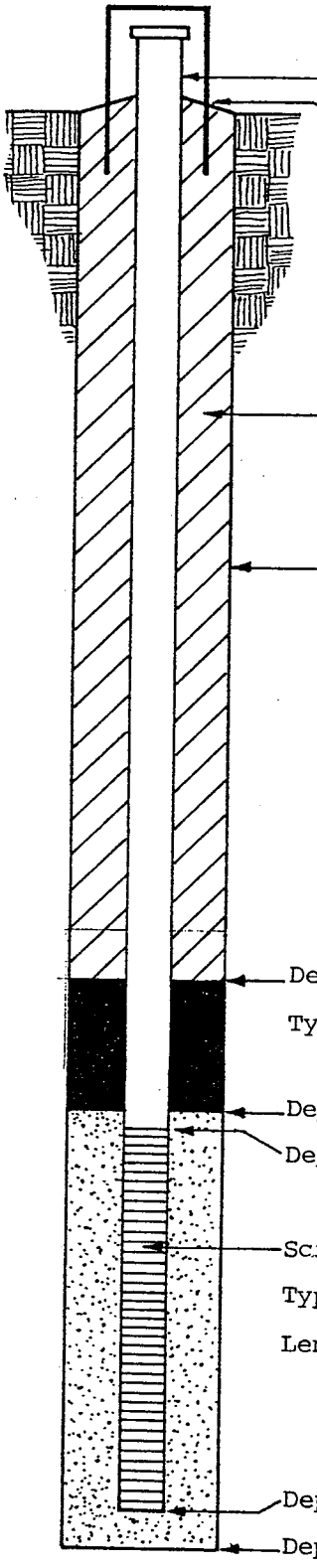
In the test sites and in the other Virginia installations, safe and successful disposal of the Puraflo® system effluent has been proven by many different methods; shallow gravel pads; shallow trenches; discharge with disinfection by ultra-violet light and chlorination. This demonstrates Puraflo®'s ability to work with gravity, pressure or any other approved disposal method.

All of these issues need to be addressed in the final approval document.

Appendix A

Sample Well Design

MONITORING WELL CONSTRUCTION DETAILS



Stick-Up Riser Pipe: (WELL ID)

Type of Surface Seal: BENTONITE / GROUT MIX

Riser Pipe I.D.: (WELL ID)

Type of Riser Pipe: SCHEDULE 40 PVC

Borehole Diameter: 4"

Type of Backfill: BENTONITE 3/8" PELLETS

Depth to Top of Seal: (VARIES)

Type of Seal: BENTONITE HIGH YIELD GEL & PELLETS

Depth to Top of Sand Pack: (VARIES)

Depth to Top of Screen: (VARIES)

Screen I.D.: BRADY MACHINE SLOTTED

Type of Screen: PVC 0.010

Length of Screen: 12"

Depth to Bottom of Screen: (VARIES)

Depth to Bottom of Hole: (VARIES)

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Appendix B

FC Tests, ODU/HRSD Protocol and Standard Field Operating Protocol

FECAL COLIFORM REPORTING PROCEDURE

Calculation of Reported Values for Non-Split Volumes :

1. Calculation:

$$\text{FC/100 mL.} = \frac{\text{Number of colonies counted}}{\text{Volume of sample filtered(mL)}} \times 100$$

2. Selecting Correct Plate Counts for Calculation of Reported Values:

   a. Select the sample quantity that produces a plate count within the desired range of 20-60 colonies and calculate the FC/100 mL See Example 1, Section A,3.

   b. If all of the plates have no colonies, select the largest volume filtered: calculate the FC/100 as if there was one colony on the plate. Report as a A<@ value. See Example 2, Section A,3.

   c. If all the sample volumes have plate counts less than 20, total the number of colonies in all volumes and calculate the FC/100 mL. Remember to include the total volume in the calculation. See Example 3, Section A,3.

   d. If none of the sample volumes have plate counts in the desired range, but some counts are <20, and some >60 (or TNTC), select the plate with counts closest to the desired range and calculate FC/100 mL. See Example 4, Section A,3. If more than one sample volume have plate counts equally distant from the desired range, calculate the FC/100 mL for both and **AVERAGE** the results for a final reported value. See Example 5, Section A,3.

   e. If more than one volume per sample have plate counts in the 20-60 range, calculate the counts per 100 mL. For **EACH** volume and average the results. Report the **AVERAGE** as the final result. See Example 6, Section A,3.

   f. If all sample volumes have greater than 60 but less than 200 total colonies per plate, or if all plates counts are TNTC (>200 colonies/plate), select the smallest volume filtered and calculate as if there were 60 colonies on the plate. Report result as a A>@ value. See Example 7, Section A,3. On the following day, add a dilution volume (100, 10, 1, and 0.1mL). Do not delete the other volumes.

   g. If a plate(s) exhibits atypical colony morphology which is too indistinct for an accurate count, make a note on the sheet. Use plate counts from the other volumes to calculate the FC/100mL. See Example 8, Section A,3.

   h. If a plate count for a particular volume cannot be used, use plate counts form the other sample volumes to calculate the FC/100mL.

TABLES

A. Examples Unsplit Volumes with calculations.

Example	# Colonies/Plate Volume filtered 1 mL	# Colonies/Plate Volume Filtered 10 mL	# Colonies/Plate Volume Filtered 100 mL	Plate Count/Vol.	FC/100 mL
1	3	32	TNTC	32/10 mL	320
2	0	0	0	1/100 mL	<1
3	5	12	18	35/111 mL	32
4	12	18	65	18/10 mL	180
5	3	18	62	18/10 mL 62/100 mL	180 62 AVG =121
6	3	20	59	20/ 10 mL 59/100 mL	200 59 AVG =130
7	61	100	199	60/1 mL	>6,000
8	TNTC	TNTC	TNTC	60/1 mL	>6,000
9	1	12	*	13/11 mL	118

* AColony morphology too indistinct for an accurate count@

Standard Field Operating Protocol:

Arrive on site:
- Time and weather conditions logged

Visual Inspection of monitoring wells
- Conditions logged
- Depth readings taken
- Wells purged
  - Any characteristics of water logged
  - Standard bailers

Visual Inspections of Puraflo system and Sample Chamber
- Conditions logged
- Sample obtained
  - From bucket – necessary implement added when inability to constantly obtain fresh sample
  - Fresh sample – occasionally system is operating
  - Force-fed – last resort, only used if previous visit resulted in no sample or verbal instruction to do so
    - System is manually fed for 30sec-2 min
    - Five minutes of effluent is allowed to waste
    - Sample collected
  - Samples are collected in a 500 ml plastic container

Obtainment of samples from monitoring wells
- Conditions logged
- Samples are collected in a 500 ml plastic container

Visual Inspection of Pump Tank
- Obtainment of samples from pump tank
  - Samples are collected in a 500 ml plastic container
- Hours from usage logged – if available
- Condition of tank logged

On Site Analysis conducted
- DO, pH, and Temp using standard equipment
  - Equipment is tested monthly for accuracy
- Testing done from alleged cleanest to dirtiest sample
  - BG, DG, PW, SC, PT

Time for departure logged
- Additional comments noted

Appendix C

ODU Notes on Well Damage and Site Conditions

Greg,

Here are the additional field conditions that you need for your report.

Sawmill – System is not being maintained. Wells cannot be located due to overgrowth. Small trees are growing up through the puraflo system. Wells have always had high level of moisture inside, which is an indicator that the well has been compromised. Additionally rust color has been noted since the beginning of the project in the BG pipe.

Harmon – System is located between a used car dealership and an auto junkyard. Both have been seen practicing unsafe disposal of hazardous materials.

Merritt – Downgradient and Padwell sample sites were compromised by flooding during February and March of 1999. Well depth is no longer the same as initial parameters. This would indicate that the well integrity has been compromised.

Kemp – During flood period of 1999 ground was percolating at time of sample. System has been tampered with (rocks in sample chamber, missing screws). Site has been unoccupied for most of testing period. It is currently chained off and inaccessible for sampling.

Farrell – During flood period BG was under water. Additionally DG and PW typically have water between 2 and 4 inch piping which indicates a compromised well. DC lid is cracked which could cause invalid results for analysis. Oily sheen has been noted in well samples on several occasions.

Nesbitt – Property is located next to farm with several horses.

AOA – Water has been found inside the BG well. Oily sheen seen in PW sample. Caps have had to be replaced due to owner damage.

C. Brown – System is located in middle of field, which is used for rotational crop planting. DG has been plowed under and cannot be located. PW has been struck by farm equipment.

Long – Arthur – House has small pond, which is occupied by a variety of geese, ducks, peacocks, and assorted wildfowl. During drought period no drop was noticed in water level of pond. During raining season soil is extremely swamp-like.

E. Brown – VICIOUS dog is chained where samples cannot be taken from SC, BG, PW, and DG.

Easter – Site has been replumbed (by owner) and connected to house located at rear of original property.

Munford – Site has geese and ducks roaming freely.

Link – Site now has commercial nursery operating within 10ft of system and BG. All of the wells are missing caps and SC has been found with lid off.

Sharf – System has been disconnected. Owner on city sewage.

L. Smith – PW and DG wells are rising and cannot be used for sampling.

Henderson- House has never been occupied.

Stanley – Owners use raw chicken litter for fertilizer. Front yard, where wells are located, is used to grow hay. Wells have been mowed over by equipment once and had to be relocated.

Jacobson – no unusual conditions

T. Smith – Commercial horse farm is located uphill of property. Owner has expressed concern over liquid flowing from neighbor's property that has septic odor.

Samson – Excessive moisture has been found on wells. Currently lids cannot be removed for sampling.

Carter – Land had to be regraded and filled in. During raining season trenches were formed. Sinkholes have been filled in around the PT.

Moore – no unusual conditions

The following owners would probably be agreeable to Don's desire to conduct additional studies:

C. Brown
L. Smith
Moore
Samson

Let me know if you need any additional information.

Regards,
Roxanne

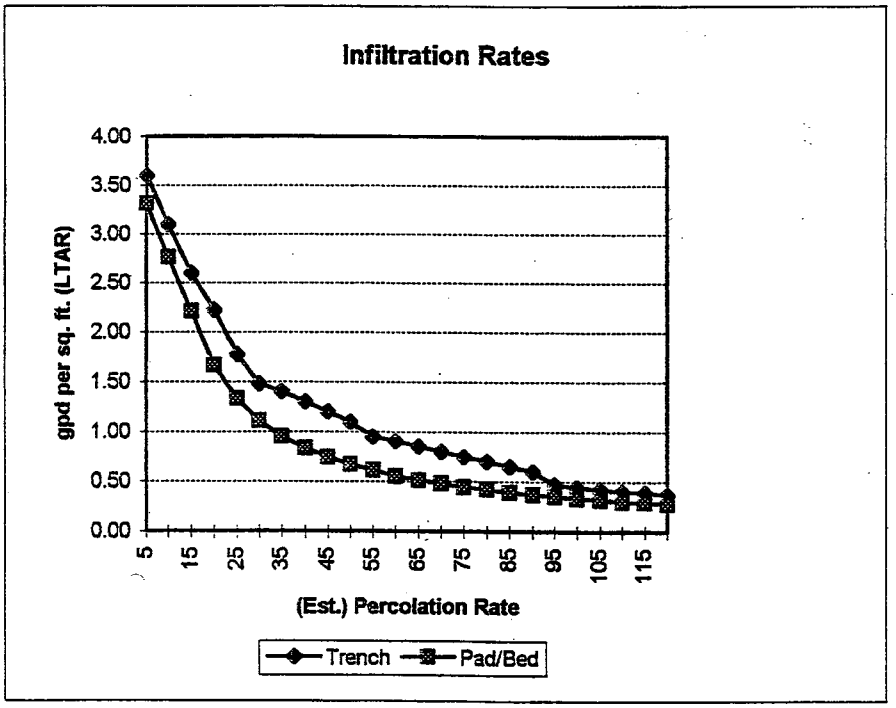
Appendix D

Infiltration Rate Table

TABLE 1

INFILTRATION RATES

Perc Rate	Soil Group	Trench	Pad/Bed
min./inch	Classification/Texture	gpd/sq.ft.	gpd/sq.ft.
5		3.60	3.31
10	**Group I** - Sand, Loamy Sand	3.10	2.76
15		2.60	2.21
20		2.22	1.66
25		1.77	1.33
30	**Group II** - Sandy Loam, Loam,	1.48	1.11
35	(Sandy Clay Loam)	1.40	0.95
40		1.30	0.83
45		1.20	0.74
50		1.10	0.67
55		0.95	0.61
60		0.90	0.55
65	**Group III** - Sandy Clay Loam,	0.85	0.51
70	Silt Loam, Clay Loam,	0.80	0.48
75	Silty Clay Loam, Silt	0.75	0.44
80		0.70	0.42
85		0.65	0.39
90		0.60	0.37
95		0.47	0.35
100		0.44	0.33
105	**Group IV** - Sandy Clay,	0.42	0.32
110	Silty Clay, Clay	0.40	0.30
115		0.39	0.29
120		0.37	0.28



Appendix E

Test Data

1. Saw Mill Project — Northampton Co. VA

Installation Date: Aug-8-95 — Design Flow: 1,000 gpd — Soil Texture Group II

	Sample Point / Date Sampled	BOD mg/l	SS mg/l	Free NH_3 mg/l	TKN-N mg/l	$NO_{3,2}$-N mg/l	Total N mg/l	Total P mg/l	CL mg/l	DO mg/l	Temp. deg. C.	pH	FC per 100 ml	Comments
	Pump Tank (PT)													
1	Jul-22-97													
2	Aug-7-97		0.00	9.40	32.15	1.20	33.35	8.43	16.10	1.50		6.00	*TNTC	~ Data can not be calc'ed
3	Sept 9- 97													No Sample
4	Oct 7-97	440.50	7.00	66.80	71.70	0.97	72.67	3.03	133.54	3.68	20.70	6.80	1,770,000	No Sample
5	Nov 26-97	178.75	33.00	91.91	90.84	0.65	91.49	11.73	197.94	1.55	13.10	8.20	4,530,000	
6	Dec-15-97	570.00	593.00	96.68	103.80	0.57	104.37	11.19	189.16	1.54	10.90	8.30	4,070,000	
7	Jan-14-98	257.00	346.67	94.91	98.80	0.06	98.86	11.98	183.28	3.14	9.70	8.00	56,667	
8	Feb-27-98													No Sample
9	Mar-27-98													No Sample
10	Apr-17-98													NSA
11	May-31-98													NSA
12	Jun-1-98													NSA
13	Jul-98													Too dry
14	Aug-98													Too dry
15	Sep-27-98													NSA
16	Oct-98													New proposal review
17	Nov-98													New proposal review
18	Dec-98													New proposal review
19	Jan-20-99													NSR - COMPLETE
20	Feb-99													
21	Mar-99													
22	Apr-99													
23	May-99													
24	Jun-99													
25	Jul-99													
26	Aug-99													
27	Nov-11-99													NSA - Testing Recommenced
	Average PT	361.56	195.93	71.94	79.46	0.69	80.15	9.27	144	2.28			1,166,136	ALL FC ARE GEOMEANS
	Sample Chamber (SC)													
1	Jul-22-97													
2	Aug-7-97	2.70	0.00	0.48	10.90	16.00	26.90	2.08	40.30	2.60		6.00	165	
3	Sept 9- 97	8.18	33.33	0.31	4.26	24.19	28.45	8.88	34.75	n/a		n/a	n/a	
4	Oct 7-97	11.77	0.00	0.37	2.35	37.74	40.09	10.70	80.47	4.85	23.00	6.60	1	
5	Nov 26-97	1.00	1.00	8.66	10.40	103.28	113.68	10.37	188.94	2.09	11.50	7.20	1	
6	Dec-15-97	1.00	33.00	0.93	1.45	116.75	118.20	10.10	194.17	1.63	8.70	7.00	1	
7	Jan-14-98	1.00	20.00	0.33	0.15	49.72	49.87	10.16	89.90	3.90	8.80	6.90	1	
8	Feb-27-98	8.40	1.00	0.48	0.87	5.63	6.50	1.14	16.96	0.52	10.00	5.80		Data cannot be calc'ed
9	Mar-27-98	8.97	26.70			33.10			50.90	0.95	16.10	6.40		
10	Apr-17-98	5.00	0.00	0.13	0.14	57.44	57.58	4.51	42.91	1.42	15.20	6.40	203	
11	May-31-98	3.55	13.30	0.15	0.15			9.35		10.93	17.70	6.00	667	
12	Jun-1-98													NSA
13	Jul-98													Too dry
14	Aug-98													Too dry
15	Sep-27-98	1.75	1.00	0.51	0.53			15.40		11.30	17.70	6.90	2,333	
16	Oct-98													New proposal review
17	Nov-98													New proposal review
18	Dec-98													New proposal review
19	Jan-20-99													NSR - COMPLETE
20	Feb-99													
21	Mar-99													
22	Apr-99													
23	May-99													
24	Jun-99													
25	Jul-99													
26	Aug-99													
27	Nov-11-99													NSA - Testing Recommenced
	Average SC	4.85	11.76	1.24	3.12	49.32	55.16	8.27	82	4.02			22	
	Pad Well (PW#1)													
1	Jul-22-97													
2	Aug-7-97													
3	Sept 9- 97													
4	Oct 7-97													
5	Nov 26-97													
6	Dec-15-97													
7	Jan-14-98													No Sample
8	Feb-27-98	2.80	40.00	0.55	0.74	7.32	8.06	0.33	18.27	0.54	9.60	5.30		Data cannot be calc'ed
9	Mar-27-98	7.70		0.30	0.15	2.60	2.75	0.12	67.00	0.61	15.40	5.50		
10	Apr-17-98	5.00		0.46	0.47	3.03	3.50	0.13	31.35	1.69	13.60	5.50	290	
11	May-31-98	1.12		0.25	0.26	3.69	3.95	0.08	20.49	11.35	15.20	5.50	1	
12	Jun-1-98													NSA
13	Jul-98													Too dry
14	Aug-98													Too dry
15	Sep-27-98													NSA
16	Oct-98													New proposal review
17	Nov-98													New proposal review
18	Dec-98													New proposal review
19	Jan-20-99									11.94	11.00	5.60	300	COMPLETE
20	Feb-99													
21	Mar-99													
22	Apr-99													
23	May-99													
24	Jun-99													
25	Jul-99													
26	Aug-99													
27	Nov-11-99													NSA - Testing Recommenced