

Floodplain Groundwater Sampling

Genicom and Shifflet Farm

November 16, 2005

Genicom Sampling

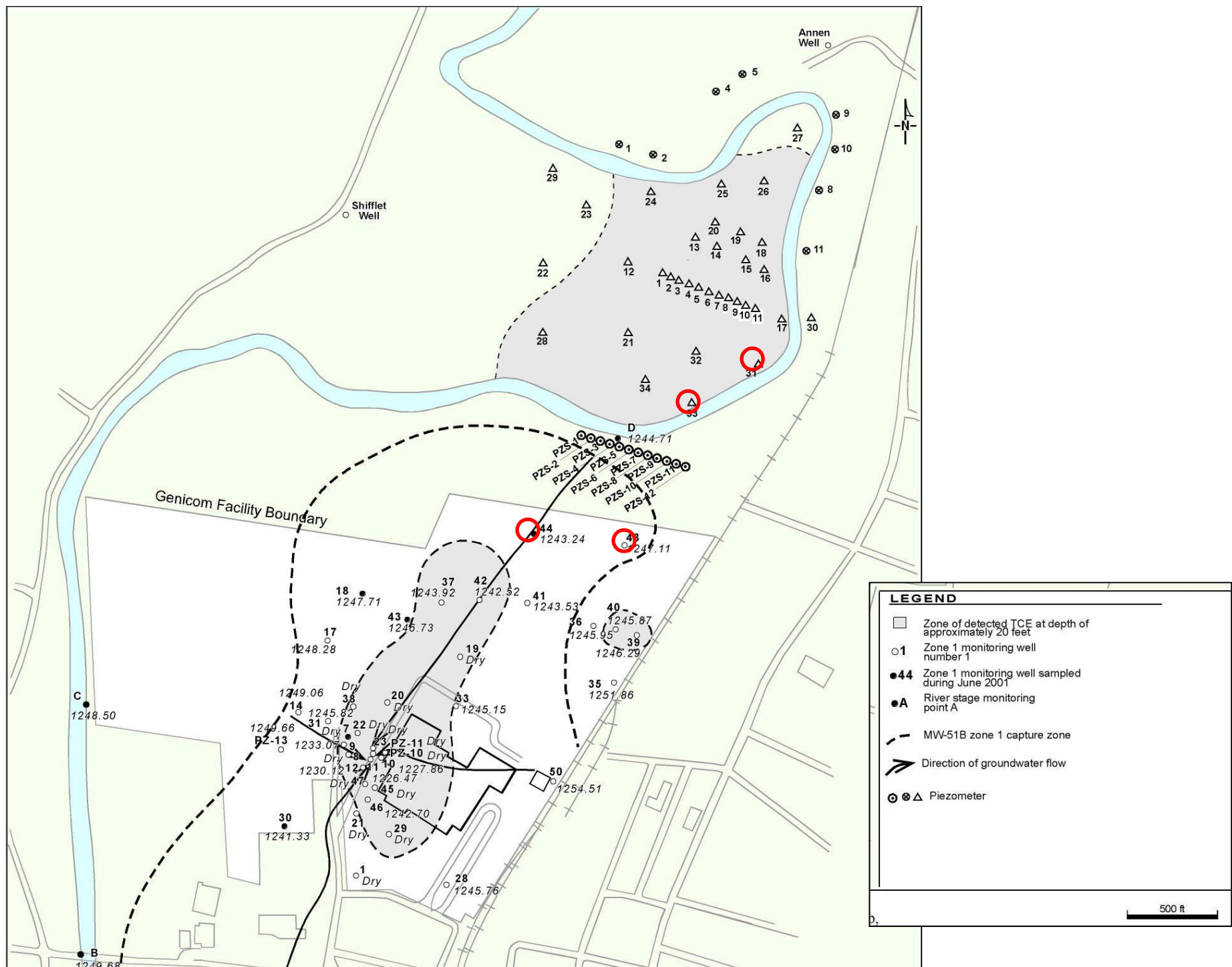
- Genicom monitors GW for TCE and breakdown products
- Opportunity to sample for mercury in shallow wells and piezometers in floodplain
- Access to Shifflet Farm and cow ponds

Sampling Collection Method

- EPA Method 1669 – Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels

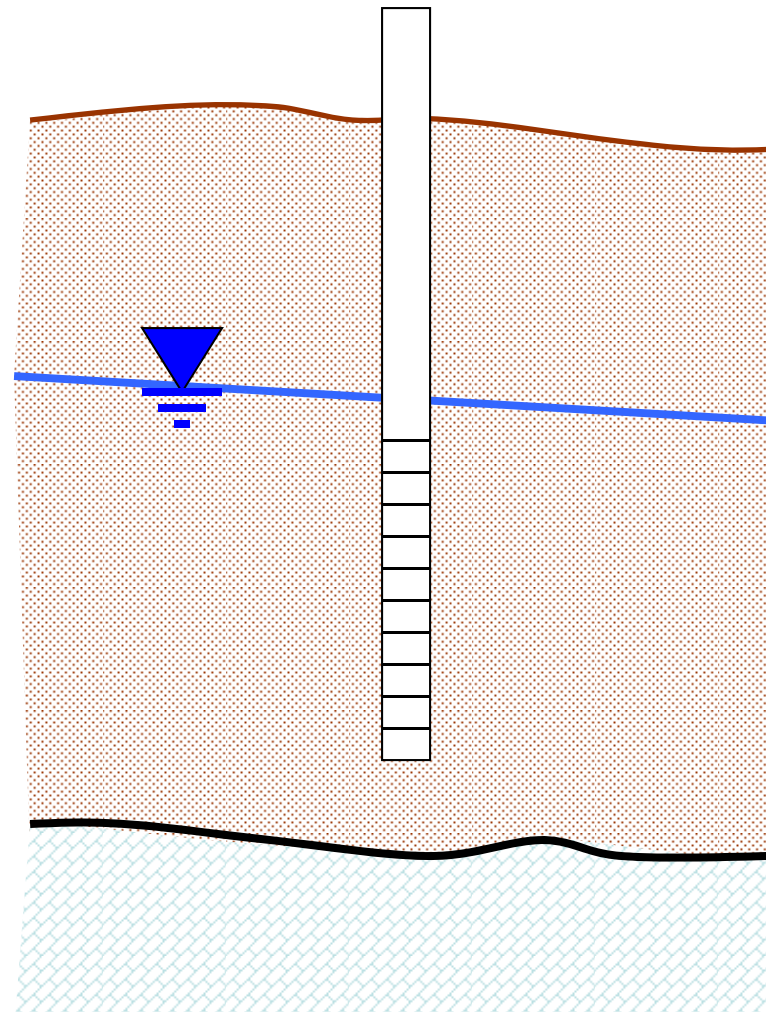
Analytical Methods

- VOCs - SW846- Method 8260B (USACE Lab)
- Mercury (Filtered and Unfiltered) Method 1631, Rev. E (VDEQ Lab)
- Methyl Mercury – (Filtered and Unfiltered) Method 1630 (USGS Lab)



Well Construction (alluvial aquifer wells)

- MW-44A and MW-44B
 - 2" PVC
 - 15 feet deep
 - 10' screen
- PZ-31 and PZ-33
 - 1" PVC
 - 12 feet deep
 - 5' screen





Genicom, MW 44A



11/16/2005

MW 44A



11/16/2005

MW 44A

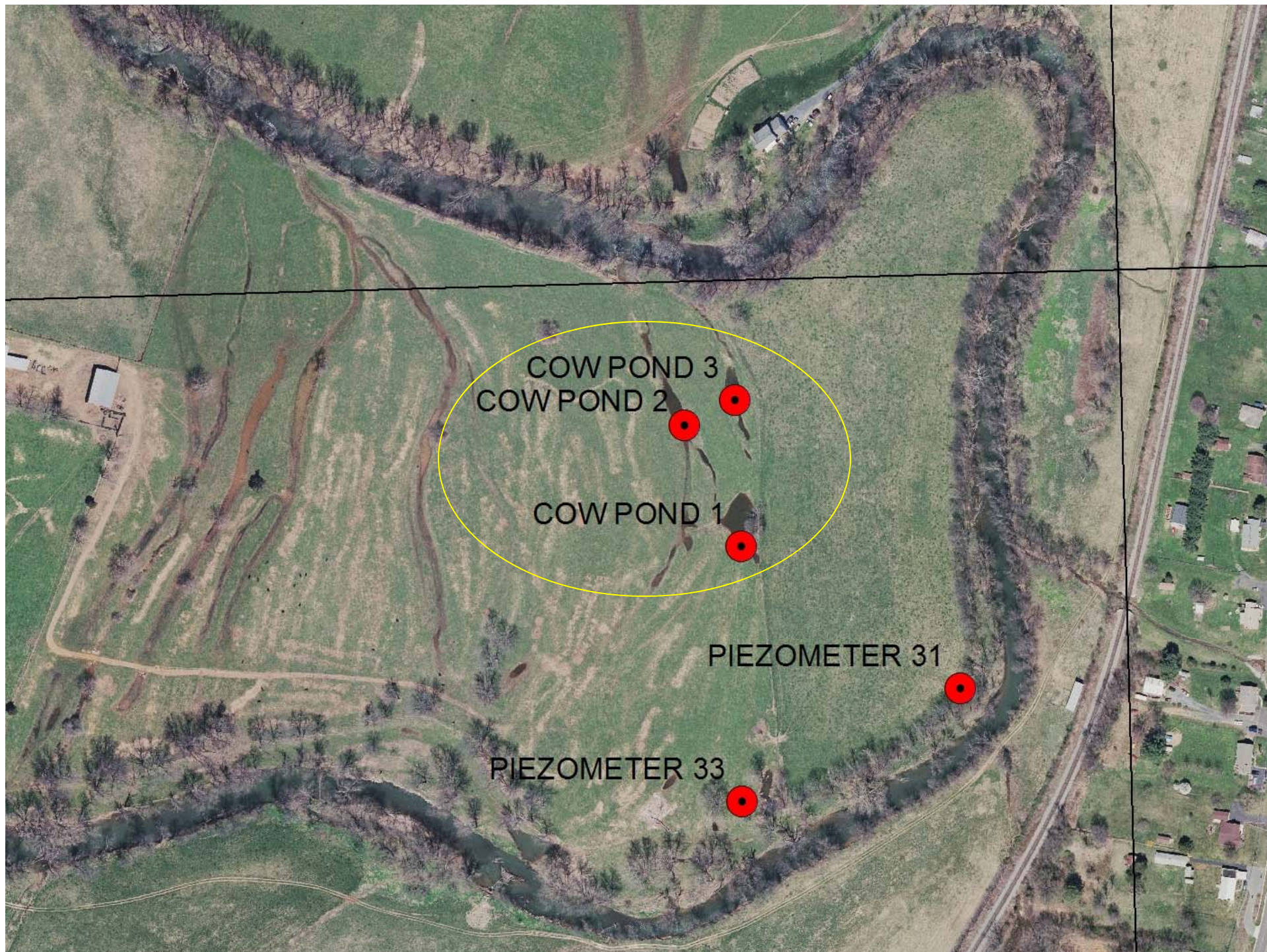


11/16/2005

MW 48A



11/16/2005



COW POND 3
COW POND 2

COW POND 1

PIEZOMETER 31

PIEZOMETER 33

COW POND #1



11/16/2005



11/16/2005

COW POND #1



Cow Pond #2



11/16/2005



11/16/2005

Looking back at Cow Pond #1 from Cow Pond #2

Cow Pond #1



11/16/2005



Cow Pond #3

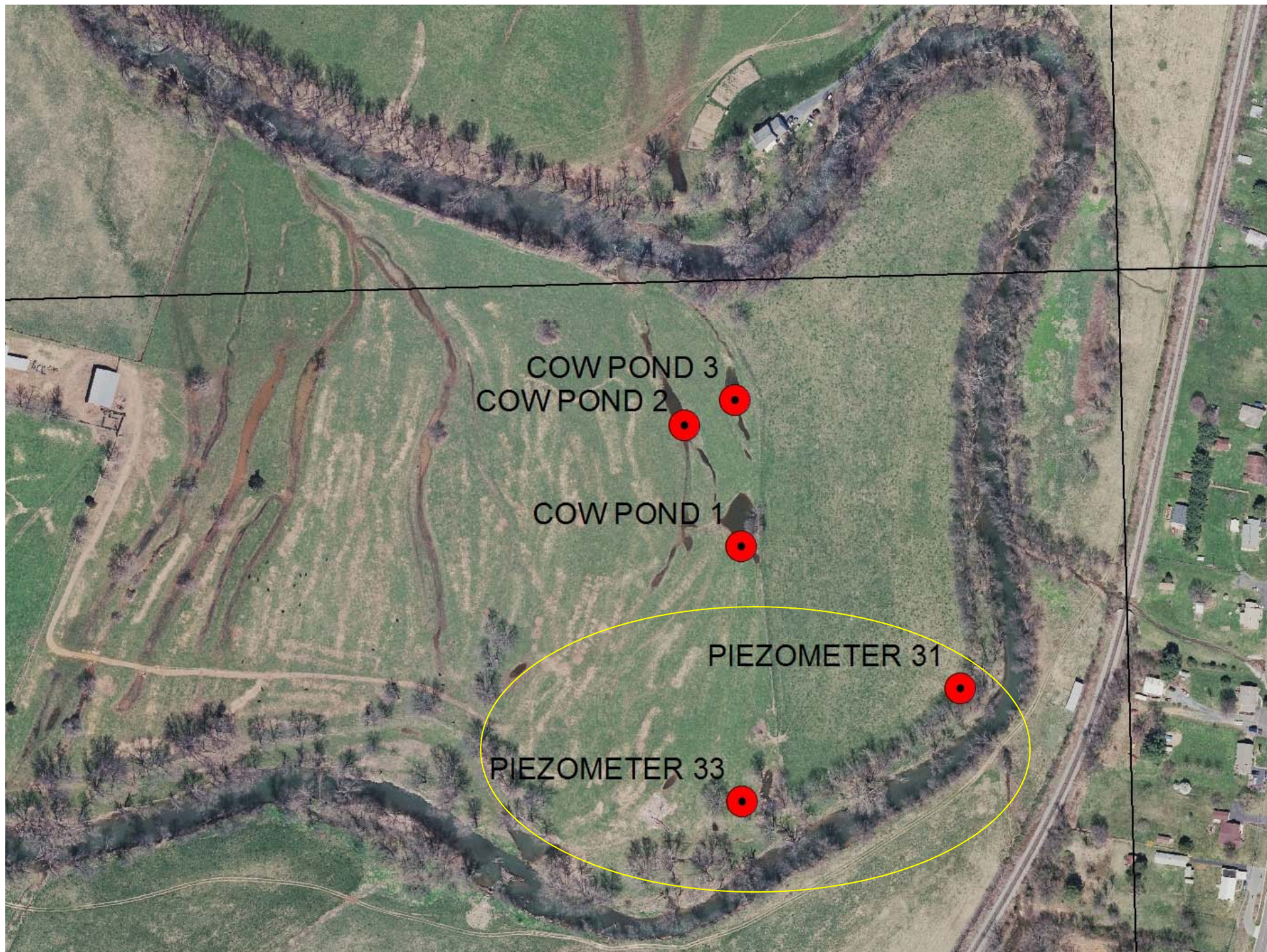


11/16/2005

Cow Pond #3



11/16/2005



COW POND 3
COW POND 2

COW POND 1

PIEZOMETER 31

PIEZOMETER 33

Piezometer 31



11/16/2005

Piezometer 33



11/16/2005

TABLE 1 - WATER QUALITY MEASUREMENTS FOR GROUNDWATER AND SURFACE WATER
GENICOM FACILITY AND SHIFFLET PROPERTY
WAYNESBORO, VIRGINIA

Field ID:	UNITS	MW-44A	MW-48A	PZ-31	PZ-33	COW POND #1	COW POND #2	COW POND #3
Sampling Date:		11/16/2005	11/16/2005	11/16/2005	11/16/2005	11/16/2005	11/16/2005	11/16/2005
Water Quality Measurements								
Temperature	C	15.23	13.76	15.20	15.62	15.40	15.73	15.52
Specific Conductance	mS/cm	0.000	0.064	0.176	0.224	0.597	0.236	0.152
pH		5.96	4.96	6.58	7.35	7.67	8.11	8.28
Oxygen Reducing Potential	mv	211	207	180	-14	148	147	136
Dissolved Oxygen	mg/l	10.98	1.57	0.89	1.56	5.17	8.75	8.62
Turbidity	NTU	123	22	6	488	100	95	0

NOTES:

Provided groundwater water quality measurements were those measured upon stabilization

C = Degrees Celcius

mS/cm = milliSiemens per cubic meter

mv = millivolts

mg/l = milligrams per liter

NTU = Nephelometric Turbidity Units

TABLE 2 - GROUNDWATER, SURFACE WATER, AND QUALITY CONTROL ANALYTICAL RESULTS
GENICOM FACILITY AND SHIFFLET PROPERTY
WAYNESBORO, VIRGINIA

Field ID:	UNI TS	MW- 44A	MW-48A	PZ-31	PZ-33	COW POND #1	FIELD DUPLICAT E (COW POND #1)	FIELD BLANK	TRIP BLANK
Lab ID:	ug/l	J15877- 2	J15877- 3	J15877- 5	J15877- 6	J15877- 4	J15877-7	J15877- 8	J15877- 1
Sampling Date:	ug/l	11/16/05	11/16/05	11/16/05	11/16/05	11/16/05	11/16/05	11/16/05	11/16/05
VOCs EPA SW846 8260B	ug/l								
Acetone	ug/l	<10	<10	<10	<10	<10	11.2	<10	<10
Chloroform	ug/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0
1,1-Dichloroethane	ug/l	<1.0	<1.0	0.95 J	1.4	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	ug/l	<1.0	<1.0	6.9	13.4	<1.0	<1.0	<1.0	<1.0
cis-1,2- Dichloroethene	ug/l	<1.0	<1.0	3.7	1.5	<1.0	<1.0	<1.0	<1.0
1,1,1- Trichloroethane	ug/l	<1.0	<1.0	3.7	7.6	<1.0	<1.0	<1.0	<1.0
Trichloroethene	ug/l	<1.0	<1.0	29.4	59.3	<1.0	<1.0	<1.0	<1.0

NOTES:

VOCs = Volatile Organic Compounds

ug/l = micrograms per liter or parts per billion

<1.0 = not detected above the analytical method detection limit

J = estimated value, analyte detected below the analytical method detection limit

TIC = tentatively identified compound (0 indicates that no TICs were identified)

Bold designates analyte was detected in sample

NEXT UP,
TED
“The Sampling
Machine”



11/16/2005

		0.45 µm Filtered Hg NG/L					Unfiltered Hg NG/L					
		Sample	Co m cod e	Eq. Blnk	Co m Co de		Split 1	Co m Co de	Split 2	Co m Co de	Eq. Blnk	Com Code
Station ID	Collection Date Time											
Genicom Well MW-44a												
	11/16/2005 09:00	1.500	U	1.500	U		7.300				1.500	U
Genicom Well MW-48												
	11/16/2005 10:40	1.500	U				12.700					
Schifflet Farm Pond 1												
	11/16/2005 12:30	49.000		1.500	U		370.000		350.000			
Schifflet Farm Pond 2												
	11/16/2005 13:00	27.000		1.500	U		430.000					
Schifflet Farm Pond 3												
	11/16/2005 13:10	12.000		1.500	U		54.000					
Genicom Piezometer 31												
	11/16/2005 14:00	1.500	U				1.500	U				
Genicom Piezometer 33												
	11/16/2005 14:36	1.500	U				620.000					

U= sample below detection limit of 1.5 Ng/L



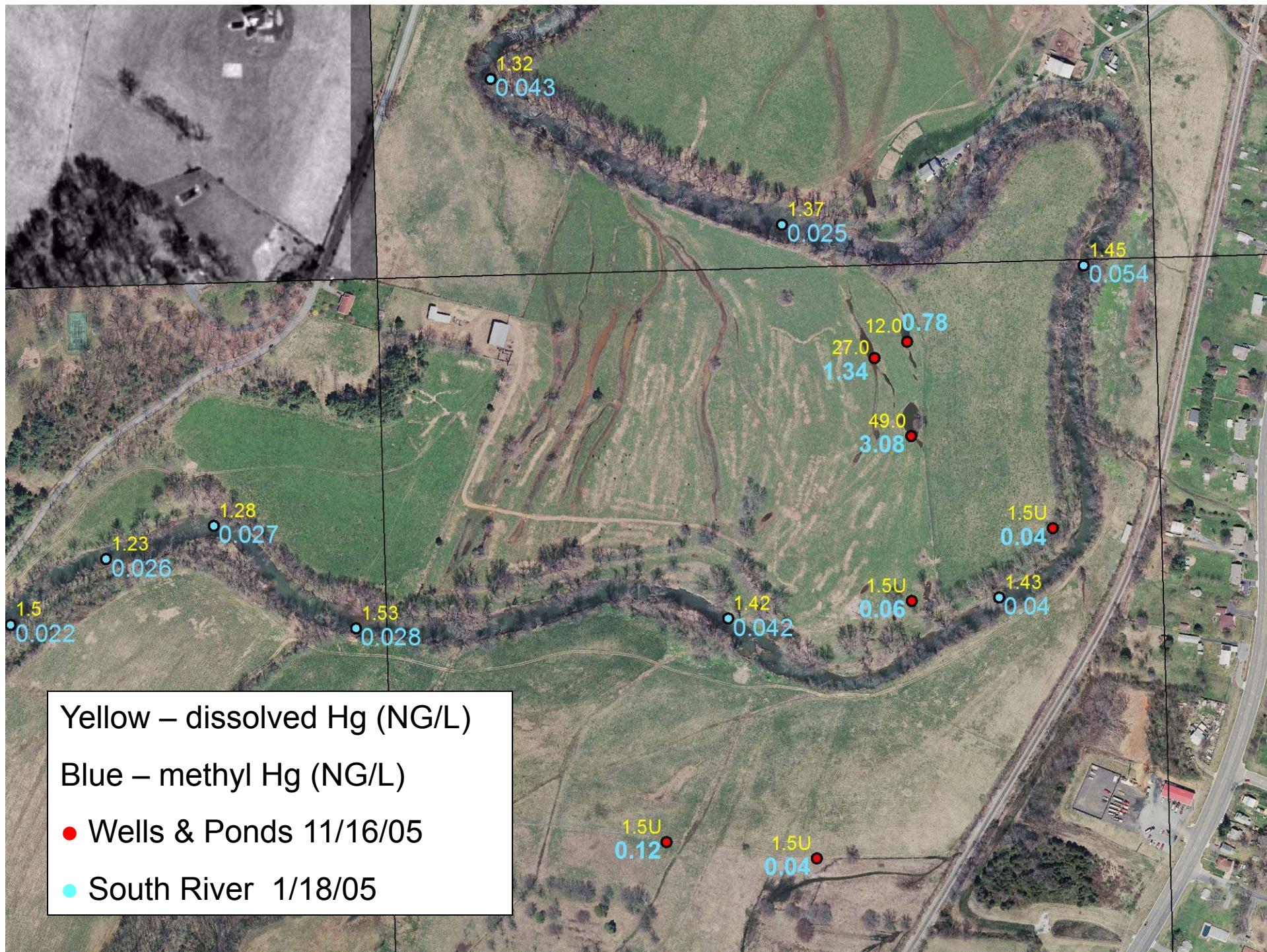
Next:
Methyl Mercury
with
Jack

Note: DDL = Daily Detection Limit m = meters param = parameter name Parameter_Name IN ('PTHG','BMHG','BTHG','DRY_WT','FMHG','FT

PROJECT:SOUTH RIVER

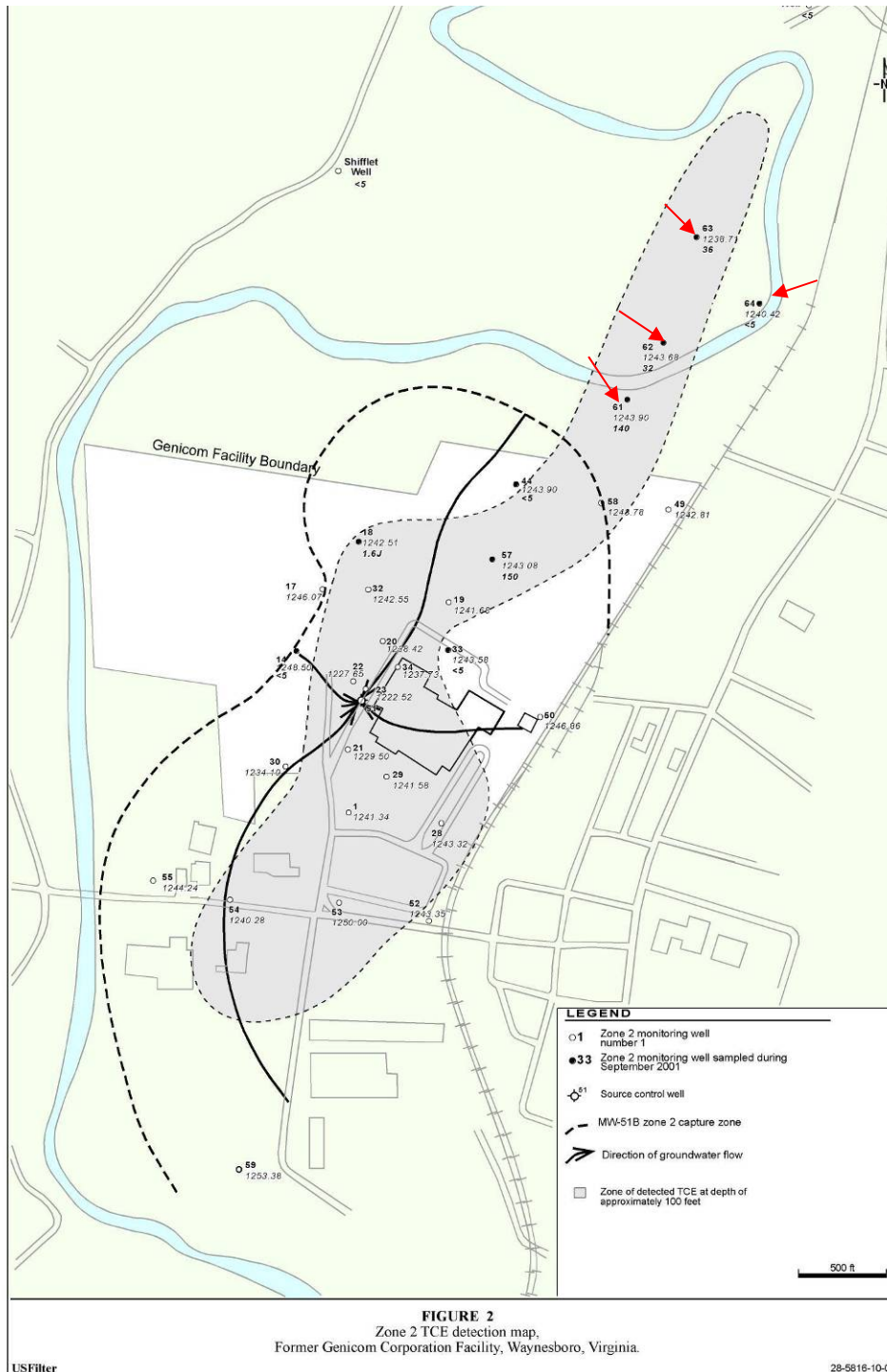
SITE NAME	AMPLE DATE	AMPLE TIME	SAMPLE	RESULTS ID	BOTTLE ID	PARAMETER	DDL	D-Flag	Value	UNITS	FIELD ID
GENICOM WELL 44A	11/16/05	09:00 AM	QA	69492	WIT176AE S	UMHG	0.01	<	0.04	ng/L	15637
GENICOM WELL 44A	11/16/05	10:00 AM	GW	69490	WIM325AJA	FMHG	0.01	None	0.12	ng/L	15636
GENICOM WELL 48A	11/16/05	11:05 AM	GW	69493	DIS264AJD	FMHG	0.01	<	0.04	ng/L	15638
SHIFFLETT FARM POND 1	11/16/05	12:15 PM	SW	69482	WIM134AJA	FMHG	0.01	None	3.08	ng/L	15631
SHIFFLETT FARM POND 2	11/16/05	12:45 PM	SW	69484	JFD253AJJ	FMHG	0.01	None	1.34	ng/L	15632
SHIFFLETT FARM POND 3	11/16/05	01:20 PM	SW	69486	DPK056AEZ	UMHG	0.01	None	1.00	ng/L	15633
SHIFFLETT FARM POND 3	11/16/05	01:20 PM	SW	69487	WIM131AJA	FMHG	0.01	None	0.78	ng/L	15633
SHIFFLETT FARM PIEZOMETER 31	11/16/05	02:00 PM	GW	69489	WIM123AJA	FMHG	0.01	<	0.04	ng/L	15635
SHIFFLETT FARM PIEZOMETER 33	11/16/05	02:40 PM	GW	69488	WIM302AJA	FMHG	0.01	None	0.06	ng/L	15634
PARAMETER KEY	UMHG	Unfiltered methyl-mercury									
	FMHG	Filtered methyl-mercury									

South River at Dooks over past 8 months – Filtered Methyl-Hg
Count = 24
Mean = 0.46 ng/L



Extra Slides

Genicom Zone 2 (bedrock aquifer)



MW-61B



Well Boring Log

Project #:	Well/borehole Name:
	MW-61B
Client:	Drilling Method:
GE - Genicom	Tubex/ Air Rotary
Technician:	Contractor/Driller:
Aaron Hartman	Eichelbergers, Inc.
Start Date/Time:	Total Depth:
9/6/2000	136 ft
Finish Date/Time:	
9/7/2000	

Borehole

Diameter	To Depth	Remarks
6 in	98 ft	Tubex
5.5 in	136 ft	Air Rotary

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1	1

Time	Top Depth	Bottom Depth	Sample Collected	Head Space (ppm)	Description: color, angularity, sorting, grain size, MATERIAL TYPE "with" subordinate material	Comments*
	0	5			Medium brown sand with fine gravel and silt	moist
	5	22			Medium brown sandstone gravel with sand and silt (well rounded and alluvial in origin)	
	22	28			Light brown clay with sand and gravel (flaggy)	very wet and thick
	28	38			Flaggy sand with gravel (siltstone & sandstone) and clay	very wet with light brown, thick wash; @ 33 ft wash thinned
	38	44			Large cuttings (weathered, very fractured bedrock)	~ 4 - 5 gpm; orange-brown wash
	44	50			Very large cuttings (1/2" - 2") of light brown/ tan siltstone with bedding planes and oxidized, flaggy, soft shale	very fractured

MW-62B (next to PZ-33)



Well Boring Log

Project #:	Well/borehole Name:
	MW-62B
Client:	Drilling Method:
GE - Genicom	Stradex, Air Rotary
Technician:	Contractor/Driller:
Jeff Meitrott	Eichelbergers, Inc./ Chris Brenneman
Start Date/Time:	Total Depth:
1/2/2001	138 ft
Finish Date/Time:	
1/4/2001	

Borehole		
Diameter	To Depth	Remarks
6 in	100	Stradex
5.5 in	105	Air Rotary
6 in	138	Stradex

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1	1

Time	Top Depth	Bottom Depth	Sample Collected	Head Space (ppm)	Description: color, angularity, sorting, grain size, MATERIAL TYPE "with" subordinate material	Comments*
	0	15			Brown silt and gravel, cobbles (river deposits)	soft; @ 14 ft becoming wet
	15	35			Wet, brown silt and gravel; large cobbles	
	35	38			1/8" chunks of gray weathered dolomite	
	38	40			Gray dolomite with quartz	
	40	50			Gray, weathered dolomite chunks (1/8" - 1" in size)	driller notes rock became more competent at 47 ft

MW-63B (near Cow Pond 1)



Groundwater Services

Geologic Log

	Project No.		Client						
	5816-11-01		GE - Waynesboro						
Start	Date	Time	Geologist			Well/Boring No.	Total Depth	Page	of
	8/23/01		Jeff Meitrott			MW-63B	135 ft	1	2
Finish	Date	Time	Drilling Contractor			Drilling/Sampling Method			
	8/23/01		Jerry Book - Eichelbergers			Stradex			

Depth		Description	Remarks	PID Reading (PPM)
From	To			
0	12	Sandstone cobbles, orange-brown sand		
12	17	Sandstone cobbles, orange-brown sand with siltstone and (oolitic) fragments		
17	26	Dark gray dolomite with some weathered brown shale and light brown silty clay		
26	38	Light brown silty clay with some gray-brown weathered laminated shale	Very soft	
38	40	Gray weathered dolomite, weathered light brown shale		

MW-64B (next to PZ-31)



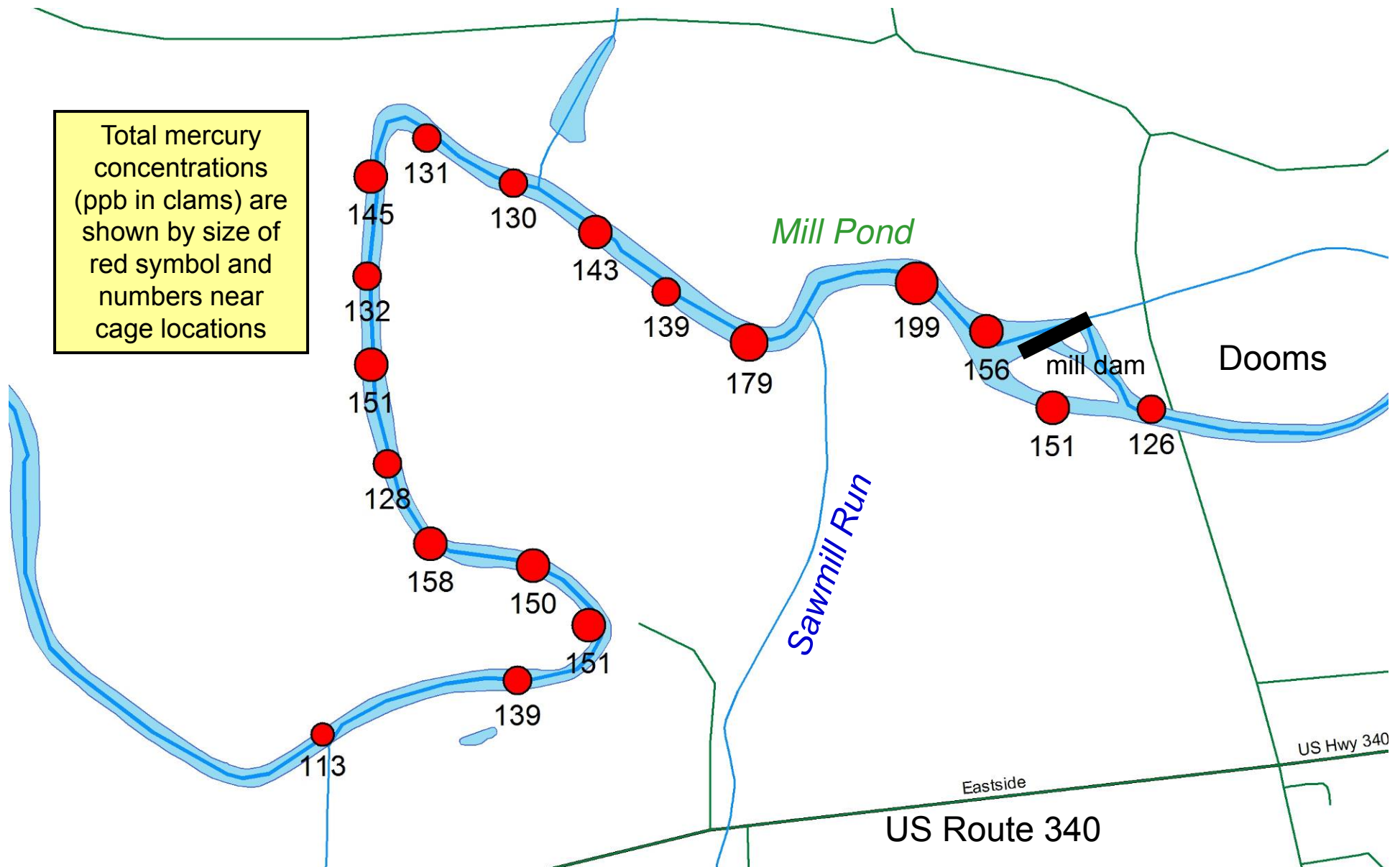
Groundwater Services

Geologic Log

Project No.		Client	
5816-11-01		GE - Waynesboro	
Start	Date	Time	Geologist
	8/21/01		Jeff Meitrott
		Well/Boring No.	Total Depth
		MW-64B	136 ft
Finish	Date	Time	Drilling Contractor
	8/21/01		Jerry Book - Eichelbergers
		Drilling/Sampling Method	
		Stradex	

Depth		Description	Remarks	PID Reading (PPM)
From	To			
0	12	Brown fine sand		
12	18	Brown silty clay with some fine sand, little round gravel	Brown wash	
18	22	Brownish red siltstone and brown weathered gray dolomite		
22	30	Reddish brown phyllite, some grayish brown weathered shaley dolomite		
30	32	Brown shaley weathered dolomite with some reddish brown phyllite, some light brown silty clay	Lt. brown wash	
32	42	Light brown weathered shaley dolomite	Water is clay	
			colored (clay	

Pond Reach: Map of Mercury in Clams



Parks Reach: Map of Mercury in Clams

