crossroads ventures llc

DRAFT
Environmental Impact Statement

Appendix 18

Water Quality Data
Addendum 2002 - Data
Addendum 2003 - Data
Addendum 2003 - NYCDEP Report

The Belleayre Resort at Catskill Park

The City of New York

Department of Environmental Protection

71 Smith Avenue
Kingston, New York
12401

Joel A. Miele Sr., P.E.
Commissioner

Bureau of Water Supply

Michael A. Principe, Ph.D.
Acting Deputy Commissioner

Tel (914) 340-7500
Fax (914) 340-7504

APR - 9
the LA group

April 6, 2001

Arthur Rashap
Crossroads Ventures, LLC
P.O. Box 267, Andrew Lane Road
Mt. Tremper, NY 12457

Re: Stream Sampling Data

Dear Mr. Rashap:

In response to you requests for information of December 6 and 13, 2000 and as per our conversation last week, please find attached data that DEP has collected in connection with our Phase I Exploratory Monitoring of Tributaries Draining Properties of the Proposed Crossroads Ventures Development on Belleayre Mountain. This is the extent of data which has undergone quality control review and which is available at this time; additional information will be available in the future.

Reference should be made to the document "Phase I Exploratory Monitoring of Tributaries Draining Properties of the Proposed Crossroads Ventures Development on Belleayre Mountain" for the location of sampling sites (e.g. BELLE2, etc.).

Please feel free to call Charles Cutietta-Olson, Supervisor, Water Quality Impact Assessment Unit, at 914/773-4475 for any questions related to the data provided under this cover and call me if you have questions on the wider DEP involvement in the review of this project.

Sincerely,

Jeffrey D. Graf
Program Manager
West of Hudson Community Planning

Attachment

xc: Kevin Franke

Log # 743

for Dec 26 data only

ammonia value really nitrite
nitrite value really nitrate
nitrate value really ammonia

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
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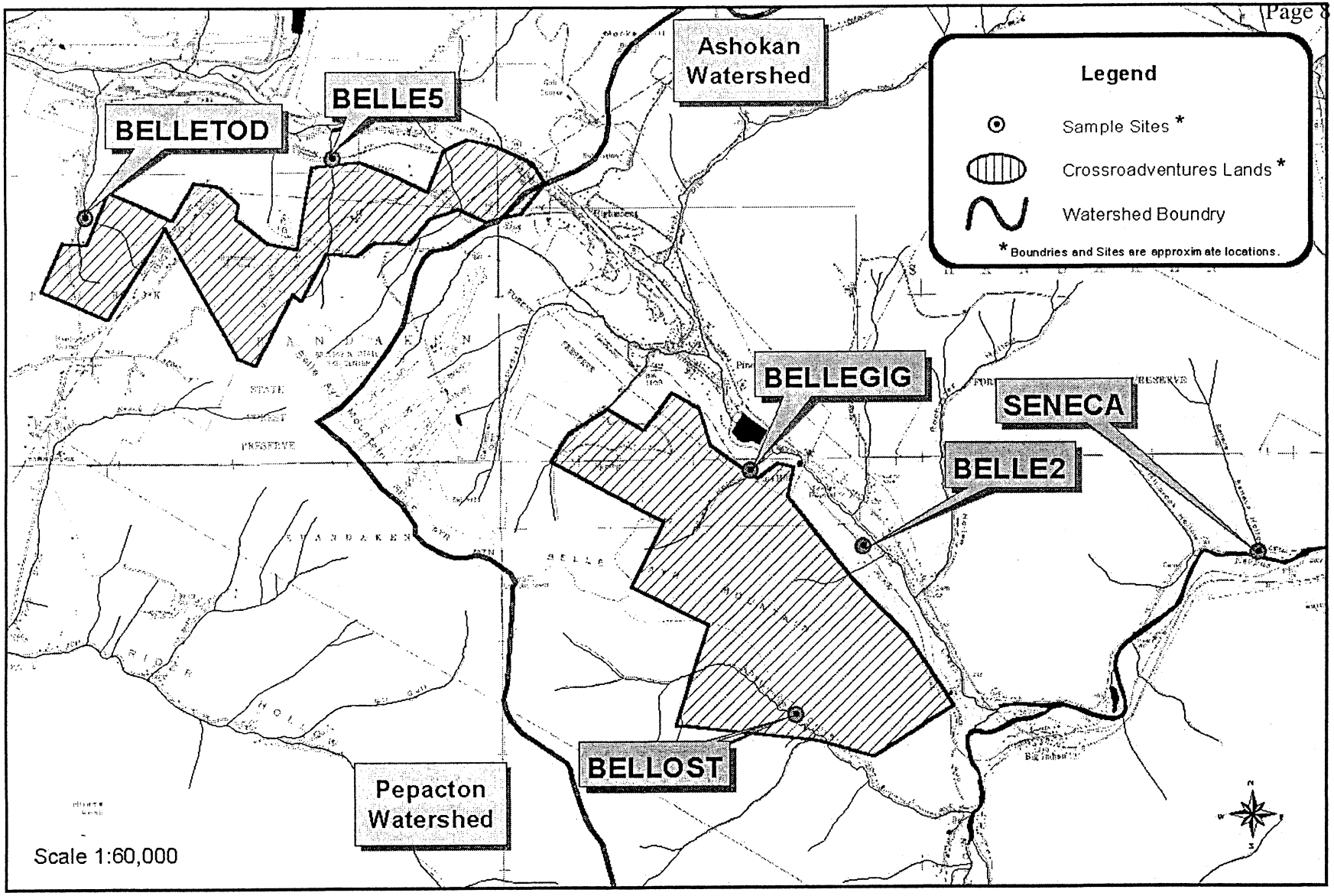


Figure 1. Map of Proposed Sampling Sites Located to Monitor Impacts from the Crossroads Ventures Development

- Grab only

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=BELLE2 "unnamed trib near E15"

Aug 22 – Dec 26 2000
No auto sampler

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
22AUG2000	10:24	9.75	9.79	6.67	Field	31.2	0.5	0.6	.
29AUG2000	10:42	10.5	9.56	7.01	Field	33.1	0.3	<0.4	.
05SEP2000	10:55	9.58	10.3	6.8	Field	34.6	0.3	<0.7	.
07SEP2000	11:36	F.E.	F.E.	F.E.		F.E.	0.5	.	.
12SEP2000	10:48	10.9	9.32	7.09	Field	34.7	1.3	2	.
19SEP2000	11:00	9.92	9.58	6.97	Field	35.2	0.4	<0.4	.
26SEP2000	10:21	9	F.E.	F.E.		F.E.	0.6	0.6	.
03OCT2000	10:50	9.07	9.31	6.99	Field	37.1	0.7	0.6	.
10OCT2000	10:25	F.E.	F.E.	F.E.		F.E.	0.2	<1.2	.
17OCT2000	10:45	8.27	10.2	7.19	Field	35	0.2	<0.4	.
24OCT2000	9:52	7	F.E.	F.E.		F.E.	0.2	L.E.	.
31OCT2000	10:37	7.52	10.5	7.14	Field	34	0.2	<0.4	.
08NOV2000	10:04	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.
14NOV2000	10:25	7.78	9.99	7.27	Field	35	0.5	0.8	.
21NOV2000	10:23	F.E.	F.E.	F.E.		F.E.	0.3	0.4	.
28NOV2000	10:30	6.91	9.82	7.27	Field	32	0.2	<0.5	<0.5
05DEC2000	10:21	F.E.	F.E.	F.E.		F.E.	0.3	2	.
12DEC2000	10:34	F.E.	F.E.	F.E.		F.E.	0.3	0.6	.
19DEC2000	10:21	5.06	11.4	6.29	Field	24	2.0	1	.
26DEC2000	10:20	F.E.	F.E.	F.E.		F.E.	0.7	<0.4	<0.4

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
22AUG2000	0.01	<0.01	L.E.	12		1			4272
29AUG2000	0.01	<0.01	0.16	L.E.		78			4365
05SEP2000	0.01	<0.01	0.18	5		L.E.			4458
07SEP2000	.	.	.	.		15			4551
12SEP2000	<0.01	<0.01	0.24	14		130			4634
19SEP2000	0.03	<0.01	0.23	18		11			4764
26SEP2000	<0.01	<0.01	0.25	L.E.		16			4876
03OCT2000	<0.01	L.E.	L.E.	13		20			5051
10OCT2000	<0.01	<0.01	0.28	<5		60			5121
17OCT2000	0.01	<0.01	0.27	11		110			5237
24OCT2000	<0.01	L.E.	0.31	13		8			5431
31OCT2000	L.E.	L.E.	0.35	5		8			5538
08NOV2000	0.02	L.E.	L.E.	11		1			5721
14NOV2000	<0.01	.	0.34	10		4			5851
21NOV2000	<0.01	L.E.	0.37	8		1			6012
28NOV2000	0.01	L.E.	0.36	6		2			6082
05DEC2000	<0.01	L.E.	0.38	17		<1			6235
12DEC2000	0.01	<0.01	0.32	11		<1			6334
19DEC2000	<0.01	<0.01	0.33	35		1			6493
26DEC2000	~~<0.01~~	~~0.45~~	~~0.01~~	<5		<1			6624
	0.01	<0.01	0.45						

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=BELLE5

Aug 22 - Dec 26
No Autosampler

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
22AUG2000	9:35	10.1	8.59	6.73	Field	45.5	0.2	0.4	.
29AUG2000	9:40	11.7	6.99	6.42	Field	51.1	0.4	1	.
05SEP2000	10:17	12.6	7.8	6.42	Field	57.2	2.2	10	.
07SEP2000	10:05	F.E.	F.E.	F.E.		F.E.	8.3	.	.
12SEP2000	10:00	15	7.63	7.34	Field	42.6	12.0	29.4	.
19SEP2000	10:18	11.2	7.29	6.31	Field	49.1	0.5	3	.
26SEP2000	9:48	9.5	F.E.	F.E.		F.E.	0.6	0.4	.
03OCT2000	10:08	11.1	6.37	7.03	Field	50.5	3.5	10.4	.
10OCT2000	9:46	F.E.	F.E.	F.E.		F.E.	0.4	2.6	.
17OCT2000	10:04	8.9	9.18	7.15	Field	48	0.3	<0.4	.
24OCT2000	9:18	6.5	F.E.	F.E.		F.E.	0.2	L.E.	.
31OCT2000	10:00	5.92	10.1	6.8	Field	45	0.2	<0.4	.
08NOV2000	9:30	F.E.	F.E.	F.E.		F.E.	0.1	<0.6	.
14NOV2000	9:51	6.21	9.69	6.9	Field	47	18.0	49	.
21NOV2000	9:34	F.E.	F.E.	F.E.		F.E.	0.4	1.8	.
28NOV2000	9:53	3.13	10.7	7.07	Field	45	0.5	1	<0.5
05DEC2000	9:43	F.E.	F.E.	F.E.		F.E.	0.1	<0.4	.
12DEC2000	10:00	1.47	11.1	6.83	Field	42	8.0	22	.
19DEC2000	9:54	0.79	12.6	6.19	Field	29	1.3	1.2	.
26DEC2000	9:40	F.E.	F.E.	F.E.		F.E.	1.0	1.8	0.4

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
22AUG2000	0.01	<0.01	L.E.	10		2			4274
29AUG2000	<0.01	<0.01	0.08	L.E.		2			4367
05SEP2000	0.02	<0.01	0.08	14		2			4460
07SEP2000	.	.	.	.		1			4553
12SEP2000	<0.01	<0.01	0.12	96		260			4636
19SEP2000	<0.01	<0.01	0.06	30		5			4766
26SEP2000	<0.01	<0.01	0.06	L.E.		3			4878
03OCT2000	<0.01	L.E.	L.E.	43		<9			5053
10OCT2000	<0.01	<0.01	0.06	<5		1			5123
17OCT2000	0.01	<0.01	<0.01	12		5			5239
24OCT2000	<0.01	L.E.	0.03	11		1			5433
31OCT2000	L.E.	L.E.	0.11	<5		<1			5540
08NOV2000	0.01	L.E.	L.E.	7		2			5723
14NOV2000	<0.01	.	0.12	48		<3			5853
21NOV2000	<0.01	L.E.	0.18	<5		<1			6014
28NOV2000	0.01	L.E.	0.25	<5		1			6084
05DEC2000	<0.01	L.E.	0.27	14		<1			6237
12DEC2000	0.02	<0.01	0.26	30		1			6336
19DEC2000	0.01	<0.01	0.46	12		F.E.			6491
26DEC2000	~~<0.01~~	~~0.24~~	~~0.02~~	<5		<1			6622
	0.02	<0.01	0.24						

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=BELLEGIG

Aug 22 - Nov 8

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)	NH3-N (mg/l) Total NH3+NH4
22AUG2000	9:55	8.74	10.8	6.66	Field	29.2	0.4	<0.4	.	0.01
29AUG2000	10:02	9.72	10.3	6.87	Field	30.9	0.2	<0.4	.	0.01
05SEP2000	10:35	8.9	11.1	6.69	Field	31.9	0.4	<0.7	.	0.02
07SEP2000	10:20	F.E.	F.E.	F.E.		F.E.	0.4	.	.	.
12SEP2000	10:22	10.6	10.2	7.05	Field	33	1.9	3.6	.	<0.01
19SEP2000	10:41	9.35	10.2	6.82	Field	34.3	0.3	2.4	.	0.01
26SEP2000	10:03	8	F.E.	F.E.		F.E.	0.2	<0.4	.	<0.01
03OCT2000	10:27	8.36	9.36	6.95	Field	35	0.7	<0.4	.	<0.01
10OCT2000	10:10	F.E.	F.E.	F.E.		F.E.	0.1	<0.4	.	0.01
17OCT2000	10:23	7.75	10.2	7.09	Field	34	0.4	<0.4	.	<0.01
24OCT2000	9:37	7	F.E.	F.E.		F.E.	0.2	L.E.	.	0.06
31OCT2000	10:18	6.13	11.1	6.93	Field	30	0.2	<0.4	.	L.E.
08NOV2000	9:47	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.	<0.01
09NOV2000	13:57	.	.	.		.	0.3	<0.4	0.4	.
09NOV2000	14:57	.	.	.		.	0.2	<0.4	<0.4	.
09NOV2000	15:57	.	.	.		.	0.2	<0.4	<0.4	.
09NOV2000	16:57	.	.	.		.	0.2	<0.4	<0.4	.
09NOV2000	17:57	.	.	.		.	0.3	<0.4	<0.4	.
09NOV2000	18:57	.	.	.		.	0.3	<0.4	0.4	.
09NOV2000	19:57	.	.	.		.	0.3	<0.4	<0.4	.
09NOV2000	20:57	.	Autosampler	.	9-11	.	0.3	<0.4	0.4	.
09NOV2000	21:57	.	.	.		.	0.2	<0.4	0.4	.
09NOV2000	22:57	.	.	.		.	0.4	<0.5	0.5	.
09NOV2000	23:57	.	.	.		.	0.2	<0.4	<0.4	.
10NOV2000	0:57	.	.	.		.	0.2	<0.5	<0.5	.
10NOV2000	1:57	.	.	.		.	0.2	<0.4	0.4	.
10NOV2000	2:57	.	.	.		.	0.2	<0.4	0.4	.
10NOV2000	3:57	.	.	.		.	0.2	<0.4	<0.4	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
22AUG2000	<0.01	L.E.	24		1			4273
29AUG2000	<0.01	0.22	L.E.		1			4366
05SEP2000	<0.01	0.23	12		L.E.			4459
07SEP2000	.	.	.		<1			4552
12SEP2000	<0.01	0.27	27	>=	360			4635
19SEP2000	<0.01	0.3	21		4			4765
26SEP2000	<0.01	0.27	L.E.		2			4877
03OCT2000	L.E.	L.E.	32		5			5052
10OCT2000	<0.01	0.35	<5		3			5122
17OCT2000	<0.01	0.23	15		3			5238
24OCT2000	L.E.	0.41	16		2			5432
31OCT2000	L.E.	0.36	9		<1			5539
08NOV2000	L.E.	L.E.	13		2			5722
09NOV2000	.	.	.		.	Autosampler	Storm Event	5755
09NOV2000	.	.	.		.	Autosampler	Storm Event	5756
09NOV2000	.	.	.		.	Autosampler	Storm Event	5757
09NOV2000	.	.	.		.	Autosampler	Storm Event	5758
09NOV2000	.	.	.		.	Autosampler	Storm Event	5759
09NOV2000	.	.	Autosampler	9-11	.	Autosampler	Storm Event	5760
09NOV2000	.	.	.		.	Autosampler	Storm Event	5761
09NOV2000	.	.	.		.	Autosampler	Storm Event	5762
09NOV2000	.	.	.		.	Autosampler	Storm Event	5763
09NOV2000	.	.	.		.	Autosampler	Storm Event	5764
09NOV2000	.	.	.		.	Autosampler	Storm Event	5765
10NOV2000	.	.	.		.	Autosampler	Storm Event	5766
10NOV2000	.	.	.		.	Autosampler	Storm Event	5767
10NOV2000	.	.	.		.	Autosampler	Storm Event	5768
10NOV2000	.	.	.		.	Autosampler	Storm Event	5769

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)	NH3-N (mg/l) Total NH3+NH4
10NOV2000	4:57	.	.	.		.	0.2	<0.4	0.4	.
10NOV2000	5:57	.	.	.		.	0.3	0.4	0.6	.
10NOV2000	6:57	.	.	.		.	0.4	<0.4	<0.4	.
10NOV2000	7:57	.	.	.		.	0.3	<0.4	<0.4	.
10NOV2000	8:57	.	.	.		.	0.3	<0.4	<0.4	.
10NOV2000	9:57	.	.	.		.	0.3	<0.5	<0.5	.
10NOV2000	10:57	.	.	.		.	0.2	<0.4	0.4	.
10NOV2000	12:17	.	.	.		.	0.3	<0.4	0.4	.
10NOV2000	14:17	.	.	.		.	0.3	<0.4	0.4	.
10NOV2000	16:17	.	.	.		.	0.2	<0.4	<0.4	.
10NOV2000	18:17	.	Autosampler 9-1			.	0.2	<0.4	<0.4	.
10NOV2000	20:17	.	.	.		.	0.2	<0.4	<0.4	.
10NOV2000	22:17	.	.	.		.	0.2	<0.4	<0.4	.
11NOV2000	0:17	.	.	.		.	0.2	<0.5	<0.5	.
11NOV2000	2:17	.	.	.		.	0.3	<0.4	0.4	.
11NOV2000	4:17	.	.	.		.	0.3	<0.4	<0.4	.
11NOV2000	6:17	.	.	.		.	0.3	<0.4	<0.4	.
11NOV2000	8:17	.	.	.		.	0.2	<0.4	<0.4	.
14NOV2000	10:08	6.87	10.4	7.2	Field	32	0.4	<0.5	.	0.02
21NOV2000	9:54	F.E.	F.E.	F.E.		F.E.	0.1	<0.4	.	<0.01
28NOV2000	10:12	5.55	10.8	7.21	Field	30	0.2	<0.5	0.5	<0.01
05DEC2000	10:04	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.	<0.01
12DEC2000	10:20	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.	0.01
19DEC2000	10:42	4.78	11.5	6.2	Field	25	1.6	1.4	.	0.01
26DEC2000	9:55	F.E.	F.E.	F.E.		F.E.	0.9	0.8	0.4	~~<0.01~~ 0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
10NOV2000	.	.	.		.	Autosampler	Storm Event	5770
10NOV2000	.	.	.		.	Autosampler	Storm Event	5771
10NOV2000	.	.	.		.	Autosampler	Storm Event	5772
10NOV2000	.	.	.		.	Autosampler	Storm Event	5773
10NOV2000	.	.	.		.	Autosampler	Storm Event	5774
10NOV2000	.	.	.		.	Autosampler	Storm Event	5775
10NOV2000	.	.	.		.	Autosampler	Storm Event	5776
10NOV2000	.	.	.		.	Autosampler	Storm Event	5778
10NOV2000	.	Autosampler 9-1	.		.	Autosampler	Storm Event	5779
10NOV2000	.	.	.		.	Autosampler	Storm Event	5780
10NOV2000	.	.	.		.	Autosampler	Storm Event	5781
10NOV2000	.	.	.		.	Autosampler	Storm Event	5782
10NOV2000	.	.	.		.	Autosampler	Storm Event	5783
11NOV2000	.	.	.		.	Autosampler	Storm Event	5784
11NOV2000	.	.	.		.	Autosampler	Storm Event	5785
11NOV2000	.	.	.		.	Autosampler	Storm Event	5786
11NOV2000	.	.	.		.	Autosampler	Storm Event	5787
11NOV2000	.	.	.		.	Autosampler	Storm Event	5788
14NOV2000	.	0.42	12		<1			5852
21NOV2000	L.E.	0.42	12		<1			6013
28NOV2000	L.E.	0.46	7		<1			6083
05DEC2000	L.E.	0.39	18		<1			6236
12DEC2000	<0.01	0.36	15		1			6335
19DEC2000	<0.01	0.46	27		F.E.			6492
26DEC2000	~~0.41~~ <0.01	~~0.02~~ 0.41	~~11~~ (11) ok QAP		1			6623

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=BELLETOD

22 Aug - 26 Dec
no data from each sample

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
22AUG2000	9:15	9.57	10.4	6.68	Field	42.4	1.5	2	.
29AUG2000	9:21	11.5	9.32	6.69	Field	44.9	1.1	2	.
05SEP2000	9:57	10.7	9.29	6.71	Field	45.6	3.0	1	.
07SEP2000	9:46	F.E.	F.E.	F.E.		F.E.	1.6	.	.
12SEP2000	9:38	14	8.29	6.86	Field	45.9	14.0	29	.
19SEP2000	9:58	11.3	9.1	6.78	Field	49.3	2.9	1.2	.
26SEP2000	9:24	8	F.E.	F.E.		F.E.	1.1	1.2	.
03OCT2000	9:40	9.47	7.19	6.57	Field	49	4.3	9	.
10OCT2000	9:30	4.5	F.E.	F.E.		F.E.	0.4	<0.4	.
17OCT2000	9:41	8.61	8.3	6.76	Field	49	1.5	2.4	.
24OCT2000	9:02	6.2	F.E.	F.E.		F.E.	1.1	L.E.	.
31OCT2000	9:42	5.99	10.2	6.82	Field	43	0.5	0.6	.
08NOV2000	9:07	5.5	F.E.	F.E.		F.E.	0.6	0.4	.
14NOV2000	9:33	6.61	9.7	6.9	Field	44	1.4	1.8	.
21NOV2000	9:14	3.8	F.E.	F.E.		F.E.	1.0	1.4	.
28NOV2000	9:35	4.3	10.5	6.86	Field	42	1.5	2.5	0.5
05DEC2000	9:20	3.1	F.E.	F.E.		F.E.	2.4	4.6	.
12DEC2000	9:43	2.85	11.4	6.62	Field	40	2.1	3.8	.
19DEC2000	9:33	2.46	12.7	5.97	Field	27	3.6	5.8	.
26DEC2000	9:20	2	F.E.	F.E.		F.E.	2.2	2	0.6

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
22AUG2000	0.01	<0.01	L.E.	16		26			4275
29AUG2000	0.02	<0.01	0.08	L.E.		32			4368
05SEP2000	0.01	<0.01	0.09	13		76			4461
07SEP2000	.	.	.	.		38			4554
12SEP2000	<0.01	<0.01	0.13	51	X10	TNTC			4637
19SEP2000	<0.01	<0.01	0.09	23		50			4767
26SEP2000	<0.01	<0.01	0.08	L.E.		11			4879
03OCT2000	<0.01	L.E.	L.E.	30		7			5054
10OCT2000	<0.01	<0.01	0.02	<5		7			5124
17OCT2000	0.02	<0.01	<0.01	31		3			5240
24OCT2000	<0.01	L.E.	0.04	18		3			5434
31OCT2000	L.E.	L.E.	0.13	<5		3			5541
08NOV2000	0.02	L.E.	L.E.	11		1			5724
14NOV2000	<0.01	.	0.18	19		4			5854
21NOV2000	<0.01	L.E.	0.18	8		26			6015
28NOV2000	<0.01	L.E.	0.21	8		20			6085
05DEC2000	<0.01	L.E.	0.2	20		8			6238
12DEC2000	0.01	<0.01	0.25	18		34			6337
19DEC2000	0.01	<0.01	0.25	24		F.E.			6490
26DEC2000	~~<0.01~~	~~0.2~~	~~0.02~~	8		2			6621
	0.02	<0.01	0.2						

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=BELLOST

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
22AUG2000	10:46	10.6	10.2	6.62	Field	25	0.5	<0.4	.
29AUG2000	10:20	11.1	9.69	6.61	Field	27.3	0.2	<0.4	.
05SEP2000	11:20	10.4	10.4	6.36	Field	28.6	0.2	<0.7	.
07SEP2000	11:54	F.E.	F.E.	F.E.		F.E.	0.4	.	.
12SEP2000	11:13	11	9.25	6.58	Field	31.8	3.1	1.6	.
19SEP2000	11:22	10.3	9.39	6.5	Field	29.3	0.3	0.8	.
26SEP2000	10:40	F.E.	F.E.	F.E.		F.E.	0.6	0.8	.
03OCT2000	11:13	8.93	9.17	6.6	Field	31.6	0.6	<0.4	.
10OCT2000	10:50	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.
17OCT2000	11:06	8.08	9.86	7.17	Field	31	0.3	<0.4	.
24OCT2000	10:14	7.5	F.E.	F.E.		F.E.	0.2	.	.
31OCT2000	11:02	7.11	10.1	7.15	Field	27	0.2	<0.4	.
08NOV2000	10:27	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.
14NOV2000	10:51	7.13	10.2	7.08	Field	29	0.4	<0.5	.
21NOV2000	10:55	F.E.	F.E.	F.E.		F.E.	0.2	<0.4	.
28NOV2000	10:53	4.99	10.8	7.06	Field	26	1.1	3.3	1.7
05DEC2000	10:46	F.E.	F.E.	F.E.		F.E.	0.3	<0.4	.
12DEC2000	10:54	F.E.	F.E.	F.E.		F.E.	0.3	1	.
19DEC2000	11:13	3.33	11.7	6.07	Field	24	6.9	3.4	.
26DEC2000	10:45	F.E.	F.E.	F.E.		F.E.	2.2	<0.4	<0.4

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
22AUG2000	0.01	<0.01	L.E.	14		3			4271
29AUG2000	0.01	<0.01	0.08	L.E.		2			4364
05SEP2000	0.01	<0.01	0.1	12		L.E.			4457
07SEP2000	.	.	.	.		2			4550
12SEP2000	<0.01	<0.01	0.16	21		120			4633
19SEP2000	0.01	<0.01	0.13	23		1			4763
26SEP2000	<0.01	<0.01	0.13	L.E.		3			4875
03OCT2000	0.01	L.E.	L.E.	13		5			5050
10OCT2000	0.01	<0.01	0.2	<5		4			5120
17OCT2000	0.01	<0.01	0.15	13		1			5236
24OCT2000	0.01	L.E.	0.18	15		4			5430
31OCT2000	L.E.	L.E.	0.16	<5		2			5537
08NOV2000	0.02	L.E.	L.E.	11		<1			5720
14NOV2000	<0.01	.	0.26	13		4			5850
21NOV2000	<0.01	L.E.	0.29	8		1			6011
28NOV2000	0.01	L.E.	0.38	8		<1			6081
05DEC2000	0.01	L.E.	0.32	18		<1			6234
12DEC2000	0.01	<0.01	0.3	14		<1			6333
19DEC2000	0.02	<0.01	0.52	28		F.E.			6494
26DEC2000	0.01	~~0.4~~	~~0.01~~	7		<1			6625
	0.02	0.01	0.4						

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
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NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2000 Crossroads Ventures Project Data

Site=SENECA

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
22AUG2000	11:04	11	10.1	7.01	Field	31.2	1.3	2.2	.
29AUG2000	11:05	13.9	8.65	7.02	Field	32.8	1.0	1.6	.
05SEP2000	11:35	12.6	8.89	6.97	Field	33.2	2.6	4.3	.
07SEP2000	12:04	F.E.	F.E.	F.E.		F.E.	1.4	.	.
12SEP2000	11:35	14.6	9.27	7.08	Field	36.7	3.6	8.8	.
19SEP2000	11:38	12.5	9.06	6.91	Field	35.3	1.1	1.4	.
26SEP2000	10:55	10.5	F.E.	F.E.		F.E.	1.7	2.4	.
03OCT2000	11:32	10.4	9.3	6.89	Field	36.1	1.1	1.4	.
10OCT2000	11:02	F.E.	F.E.	F.E.		F.E.	0.3	0.6	.
17OCT2000	11:19	9.28	9.64	7.11	Field	36	0.6	<0.4	.
24OCT2000	10:28	7.5	F.E.	F.E.		F.E.	0.7	L.E.	.
31OCT2000	11:26	6.46	10.1	7.01	Field	33	0.3	0.6	.
08NOV2000	10:43	F.E.	F.E.	F.E.		F.E.	0.5	0.4	.
14NOV2000	11:11	7.09	9.92	7.02	Field	35	0.5	0.7	.
21NOV2000	11:10	F.E.	F.E.	F.E.		F.E.	0.3	0.4	.
28NOV2000	11:11	4.45	11	7.27	Field	32	0.5	0.5	<0.5
05DEC2000	11:03	F.E.	F.E.	F.E.		F.E.	0.2	0.4	.
12DEC2000	11:10	F.E.	F.E.	F.E.		F.E.	0.5	1	.
19DEC2000	11:39	4.71	11.3	6.35	Field	24	2.4	2.8	.
26DEC2000	11:00	F.E.	F.E.	F.E.		F.E.	0.7	0.6	<0.4

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
22AUG2000	<0.01	<0.01	L.E.	23		1			4276
29AUG2000	0.02	<0.01	0.09	L.E.		1			4369
05SEP2000	0.02	<0.01	0.14	26		L.E.			4462
07SEP2000	.	.	.	.	>=	130			4555
12SEP2000	<0.01	<0.01	0.15	38	X10	TNTC			4638
19SEP2000	0.01	<0.01	0.13	43		4			4768
26SEP2000	<0.01	<0.01	0.12	L.E.		9			4880
03OCT2000	<0.01	L.E.	L.E.	26		3			5055
10OCT2000	<0.01	<0.01	0.1	11		3			5125
17OCT2000	<0.01	<0.01	0.01	27		3			5241
24OCT2000	<0.01	L.E.	<0.02	29		3			5435
31OCT2000	L.E.	L.E.	0.04	17		<1			5542
08NOV2000	0.03	L.E.	L.E.	15		1			5725
14NOV2000	<0.01	.	0.07	22		<1			5855
21NOV2000	<0.01	L.E.	0.14	12		1			6016
28NOV2000	0.01	L.E.	0.23	8		<1			6086
05DEC2000	<0.01	L.E.	0.12	18		4			6239
12DEC2000	0.01	<0.01	0.11	19		<1			6338
19DEC2000	<0.01	<0.01	0.09	26		F.E.			6495
26DEC2000	~~X~~0.01	~~0.06~~	~~0.01~~	10		<1			6626
	0.01	<0.01	0.06						

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

COLIFORMS CODING
Effective: 3/13/95 - Ben Nesin, Brewster, & Kensico Laboratories
3/27/95 - Grahamsville Laboratory

CODE	DEFINITION: Appearance of Plate
	Total coliform plates yielding ideal counts between 20-80 CFU/plate (fecal coliforms, 20-60 CFU/plate) or less than ideal counts, with the sum of the total number of colonies (sheen plus nonsheen) being less than CFU. Results will be reported as CFU/100ml and entered into the data as accordingly. NO CODE.
>=	If the total/fecal colony counts are in the ideal range of 20-80 CFU/plate and the total number of colonies exceed 200 CFU OR the total/fecal colony counts exceed the ideal range and the total number of colonies are below 200 CFU, the number expressed as coliforms/100ml preceded by a "greater than or equals to" sign will be reported.
x F	If the sheen total/fecal colony counts are greater the 80 CFU/plate and the total number of colonies exceed 200 CFU, results will be reported as "TNTC times F", F being the multiplication factor used to express the result in coliforms/100ml. (i.e., 20 ml sample used, result would be TNTC x 5, NOTE: code for TNTC is -99).
+/-	If confluent growth overwhelms the plate, yet a metallic sheen appears, "CONF +" will be reported indicating the presence of coliforms or a "CONF -" indicating the absence of coliforms. (NOTE: code for confluent growth is -108).
HTE	If samples were not received at the laboratory and analyzed within the 6 hour holding time, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE", indicating holding time exceeded.
HTE>6	If samples were received at the laboratory after 6 hours of collection and analyzed within 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE>6", indicating holding time exceeded, >6 hours. Used for storm event samples at Kensico Laboratory only.
HTE>8	If samples are received at the laboratory within 6 hours of collection, but not set up within 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE>8", indicating holding time exceeded, >8 hours. Used for storm event samples at Kensico Laboratory only.
>6<8	If samples are received at the laboratory within the 6 hour holding time and analyzed within 6 to 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by ">6<8", indicating analyses were started after 6 hours but before 8 hours of collection. Used for storm event samples at Kensico Laboratory only.
SPR	Spreading colony present on 50%, or more, of the plate. Suppression of colony growth may have existed.

(Revised: 9/97)

LABORATORY METHODS: 2000
BEN NESIN LABORATORY, ELAP ID NO. 10030

Variable	Date	Certification	Samples	Instrument	Reference / Procedure Change	Method
D.O.	01JUN98	Non-Potable Potable S & H Waste	Special	YSI DO Probe, Model No. 5905	1998 Primary Productivity Study of Cannonsville Reservoir	
Fecal Coli	02APR97	Non-Potable Y Potable Y S & H Waste NP	Special	Millipore Membrane Filter Apparatus	SM18: 9222D	
NH3-N	13MAY99	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	SM18: 4500-NH3, H	Automated Phenate
NO2-N	01MAY00	Non-Potable N Potable NP S & H Waste NP	Special	Dionex AS-450	EPA 1993 300.0	Ion Chromatography
NO3-N	01JUN88	Non-Potable Y Potable NP S & H Waste NP	Special	PE Jr. Coleman 35 Spectrophotometer	SM14: 419D	Brucine Sulfate
NO3-N	01MAY00	Non-Potable Y Potable NP S & H Waste NP	Special	Dionex AS-450	EPA 1993 300.0	Ion Chromatography
pH	01JAN98	Non-Potable Y Potable Y S & H Waste NP	Special	Orion 720A	SM18: 4500-H+,B	
Spec. Cond.	08OCT97	Non-Potable Y Potable NP S & H Waste NP	Special	YSI Model 3200	SM18: 2510B	
Susp. Solids	02APR97	Non-Potable Y Potable NP S & H Waste NP	Special	Filtration and Analytical Balance	SM18: 2540D	
Temperature	01JAN87	Non-Potable NA Potable NP S & H Waste NP	Special	Dial type metal stem therm. in 2F grad.	SM16: 212	
Total P	13MAY99	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	Valderrama, 1980	Simult. TN/TP
Total P	01JAN00	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	SM18: 4500-P,F	Persulf.Digest./Ascb.Acid
Turbidity	26JUN97	Non-Potable NA Potable NP S & H Waste NP	Special	Hach 2100 AN Turbidimeter	SM18: 2130B Change Formazin & AEPA to HACH Stabil Cal standards for primary calibration.	Nephelometric Method
Vol. Solids	02APR97	Non-Potable NA Potable NP S & H Waste NP	Special	Filtr., Muff.Furnace, and Balance	SM18: 2540E	

Certification Codes: Y = Yes, N = No, NA = Not Available, NP = Not Performed

NOV 8 2001
the LA group

BUREAU OF WATER SUPPLY

West-of-Hudson Community Planning

Jeffrey D. Graf
Program Manager

To: Kevin Franke Date: November 1, 2001

Subject: Stream Data for 2001

Per your e-mail request of Oct. 16, 2001, please find attached, data that is available at this time.

Please call me if you have questions on this information.

Attachment

xc: Stern, Cutietta-Olson

71 Smith Avenue, Kingston, NY 12401

(845)340-7533

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF DRINKING WATER QUALITY CONTROL
WATER QUALITY IMPACT ASSESSMENT
M E M O R A N D U M

Date: 29 October 2001

To: Jeff Graf, Supervisor, WOH Watershed Planning and Community Affairs

From: Charles R. Cutietta-Olson, Supervisor CRC-Olson

Subject: Attached sampling data from monitoring of the proposed Crossroads Ventures project

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Attached please find the water quality data collected so far in 2001 from sampling sites associated with the proposed Crossroads Ventures project. Please note that these data have not completed the end of year review for accuracy conducted by each District Laboratory, so these results should be considered provisional.

If you have any questions about these data or the monitoring program, please feel free to call me at (914) 773-4475.

c: T. Lawrence

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2001 Crossroads Ventures Project Data

Site=BELLE2

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
02JAN2001	10:15	F.E.	F.E.	F.E.		F.E.	0.5	0.6	.
09JAN2001	10:30	4.2	F.E.	F.E.		F.E.	0.4	<0.4	.
16JAN2001	11:10	5.5	F.E.	F.E.		F.E.	4.2	6.8	.
23JAN2001	11:10	3.44	11.6	6.41	Field	29.2	0.3	<0.4	.
30JAN2001	10:20	5	F.E.	F.E.		F.E.	0.5	0.6	.
06FEB2001	11:30	4.79	10.9	6.92	Field	29	0.3	<0.4	.
13FEB2001	10:40	5	F.E.	F.E.		F.E.	0.5	0.6	.
20FEB2001	11:10	5.26	11.3	6.74	Field	27	0.4	<0.4	.
27FEB2001	10:20	F.E.	F.E.	F.E.		F.E.	0.4	0.8	.
13MAR2001	11:20	4.56	11	7.04	Field	29	1.1	1.2	.
20MAR2001	10:30	5	F.E.	F.E.		F.E.	0.4	.	.
27MAR2001	11:10	4.3	11.5	6.87	Field	27	0.4	0.6	.
02APR2001	10:30	4.7	F.E.	F.E.		F.E.	0.5	<0.4	.
10APR2001	11:00	4.95	11.4	6.7	Field	25	3.3	4.2	.
17APR2001	10:10	F.E.	F.E.	F.E.		F.E.	0.9	0.8	<0.4
24APR2001	10:50	8.49	10.6	6.94	Field	27	0.5	<0.4	0.4
01MAY2001	9:40	7.7	F.E.	F.E.		F.E.	0.3	0.4	.
08MAY2001	10:20	7.84	9.89	7.07	Field	30	0.4	0.6	.
22MAY2001	10:40	8.22	9.78	6.86	Field	35	1.6	4	.
29MAY2001	10:50	7.6	.	.		.	0.4	1	.
05JUN2001	10:30	8.04	10.2	7.09	Field	33	0.5	0.8	.
12JUN2001	10:00	8.8	.	.		.	0.7	0.8	.
18JUN2001	10:40	9.28	9.94	7.08	Field	32	0.7	0.8	.
25JUN2001	10:40	8.9	.	.		.	0.4	0.4	.
03JUL2001	10:30	8.76	10	6.99	Field	34	0.2	0.8	.
10JUL2001	9:50	9	.	.		.	0.3	0.6	.
17JUL2001	10:20	9.71	9.47	6.97	Field	36	1.5	2.6	.
24JUL2001	10:20	F.E.	.	.		.	0.7	0.8	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
02JAN2001	0.01	<0.010	0.420	38		<1			010012
09JAN2001	<0.01	<0.010	0.420	5		<1			010121
16JAN2001	<0.01	<0.010	0.390	13		<2			010172
23JAN2001	0.01	<0.010	0.400	8		<1			010241
30JAN2001	0.01	<0.010	0.500	8		<1			010301
06FEB2001	<0.01	<0.010	0.440	11		<1			010387
13FEB2001	<0.01	<0.010	0.480	19		<1			010454
20FEB2001	0.01	<0.010	0.440	<5		<1			010525
27FEB2001	<0.01	<0.010	0.470	14		<1			010585
13MAR2001	<0.01	<0.010	0.460	32		<1			010729
20MAR2001	.	.	.	.		<1			010797
27MAR2001	0.02	<0.010	0.380	L.E.		5			010877
02APR2001	0.01	<0.010	0.390	12		3			010934
10APR2001	0.02	L.E.	0.350	<5		<2			011060
17APR2001	0.01	L.E.	0.520	<5		5			011232
24APR2001	0.01	<0.010	0.500	13		2			011308
01MAY2001	0.02	<0.004	0.430	11		<1			011403
08MAY2001	0.01	<0.004	0.410	10		4			011508
22MAY2001	0.02	<0.004	0.460	6		4			011711
29MAY2001	0.02	<0.004	0.440	14		2			011815
05JUN2001	0.01	<0.004	0.430	<6		1			011911
12JUN2001	<0.01	<0.004	0.440	15		3			012033
18JUN2001	0.01	<0.010	0.350	12		3			012386
25JUN2001	0.02	<0.010	0.360	13		4			012512
03JUL2001	0.01	<0.004	0.370	12		2			012615
10JUL2001	0.02	<0.004	0.390	9		<1			012685
17JUL2001	0.02	<0.004	0.430	18		34			012809
24JUL2001	<0.01	<0.004	0.400	14		26			012895

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2001 Crossroads Ventures Project Data

Site=BELLE2
(continued)

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
31JUL2001	10:30	10.6	10.1	7.01	Field	38	0.6	2.2	.
07AUG2001	10:00	12	.	.		.	0.4	1	.
14AUG2001	10:10	13.2	8.62	7	Field	41	0.3	0.4	.
21AUG2001	10:40	13.1	.	.		.	0.5	0.6	.
28AUG2001	10:00	13.6	7.49	7.03	Field	43	1.9	3	.
04SEP2001	10:00	9.5	.	.		.	0.3	<0.4	.
11SEP2001	10:30	13.1	8.27	7.14	Field	45	0.8	1.2	.
24SEP2001	10:40	11.2	9.44	6.99	Field	41	0.4	<0.4	.
090CT2001	11:20	7.36	9.63	6.77	Field	38	0.6	.	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
31JUL2001	<0.01	<0.004	0.400	12		6			012997
07AUG2001	0.01	<0.004	0.400	12		8			013078
14AUG2001	0.01	<0.004	0.430	13		26			013196
21AUG2001	<0.01	<0.004	0.320	6		8			013258
28AUG2001	0.02	<0.004	0.300	19		2			013378
04SEP2001	<0.01	<0.004	0.320	6		6			013418
11SEP2001	0.01	<0.004	0.380	14		16			013569
24SEP2001	0.02	<0.004	0.470	9		15			013728
090CT2001	.	.	.	.		2			013965

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLE5

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
02JAN2001	10:20	F.E.	F.E.	F.E.		F.E.	0.7	3.6	.
09JAN2001	9:50	1.9	F.E.	F.E.		F.E.	0.3	<0.4	.
16JAN2001	10:10	1.6	F.E.	F.E.		F.E.	0.3	<0.4	.
23JAN2001	10:30	1.03	10.9	6.64	Field	42.3	20.0	59.4	.
06FEB2001	10:42	0.16	11.8	6.64	Field	48	0.9	5.4	.
13FEB2001	9:40	0.5	F.E.	F.E.		F.E.	0.3	<0.4	.
20FEB2001	10:30	0.9	12.1	6.66	Field	47	0.4	<0.4	.
27FEB2001	9:30	F.E.	F.E.	F.E.		F.E.	0.3	<0.4	.
20MAR2001	9:40	F.E.	F.E.	F.E.		F.E.	0.3	0.6	.
27MAR2001	10:20	0.47	11.2	6.67	Field	56	0.3	<0.4	.
02APR2001	9:50	2	F.E.	F.E.		F.E.	0.2	<0.4	.
10APR2001	10:10	2.09	12.3	6.78	Field	48	1.3	1.8	.
17APR2001	9:40	F.E.	F.E.	F.E.		F.E.	0.7	0.8	0.4
24APR2001	10:00	8.66	10.4	6.82	Field	30	0.6	0.4	0.4
01MAY2001	9:00	6.1	F.E.	F.E.		F.E.	0.3	0.4	.
08MAY2001	9:40	6.54	9.45	6.68	Field	46	0.3	<0.4	.
22MAY2001	10:00	8.24	7.98	6.52	Field	52	0.7	1.4	.
29MAY2001	10:10	9.1	.	.		.	1.9	0.8	.
05JUN2001	9:50	8.8	9.97	7.02	Field	49	0.2	<0.4	.
12JUN2001	9:20	9.5	.	.		.	0.3	<0.4	.
18JUN2001	10:00	12.2	8.28	7.01	Field	50	0.4	<0.4	.
25JUN2001	10:10	11.5	.	.		.	0.2	<0.4	.
03JUL2001	10:00	11.1	7.21	6.39	Field	53	0.4	1.4	.
10JUL2001	9:10	11.4	.	.		.	0.2	1.8	.
04SEP2001	9:30	11	.	.		.	0.4	<0.4	.
11SEP2001	9:30	.	.	.		.	0.4	<0.4	.
24SEP2001	10:00	F.E.	F.E.	F.E.		F.E.	0.5	<0.4	.
090CT2001	10:10	1.86	8.61	6.59	Field	60	0.5	.	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
02JAN2001	0.01	<0.010	0.230	17		<1			010010
09JAN2001	0.01	<0.010	0.220	<5		<1			010119
16JAN2001	<0.01	<0.010	0.200	<6		<1			010170
23JAN2001	<0.01	<0.010	0.190	104		<2			010239
06FEB2001	<0.01	<0.010	0.310	15		<1			010385
13FEB2001	<0.01	<0.010	0.420	32		<1			010452
20FEB2001	0.01	<0.010	0.320	<5		<1			010523
27FEB2001	<0.01	<0.010	0.340	10		<1			010587
20MAR2001	<0.01	<0.010	0.270	<5		<1			010795
27MAR2001	<0.01	<0.010	0.270	L.E.		<1			010875
02APR2001	0.02	<0.010	0.330	<5		<1			010932
10APR2001	0.01	L.E.	0.780	<5		<2			011058
17APR2001	0.02	L.E.	0.350	8		<1			011230
24APR2001	0.02	<0.010	0.330	9		<1			011306
01MAY2001	0.02	<0.004	0.150	14		<1			011401
08MAY2001	0.01	<0.004	0.150	6		<1			011506
22MAY2001	0.01	<0.004	0.160	<6		<2			011709
29MAY2001	0.02	<0.004	0.120	9		<2			011813
05JUN2001	0.01	<0.004	0.150	<6		2			011909
12JUN2001	<0.01	<0.004	0.120	8		<1			012031
18JUN2001	0.02	<0.010	0.190	9		5			012384
25JUN2001	0.02	<0.010	0.110	10		1			012510
03JUL2001	0.01	<0.004	0.110	9		<1			012613
10JUL2001	0.02	<0.004	0.100	<6		<1			012683
04SEP2001	0.02	<0.004	0.200	7		3			013416
11SEP2001	0.02	<0.004	0.120	12		42			013567
24SEP2001	0.02	<0.004	0.050	10		110			013726
090CT2001	.	.	.	.		4			013963

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
2001 Crossroads Ventures Project Data

Site=BELLEGIG

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
02JAN2001	10:51	F.E.	F.E.	F.E.		F.E.	0.4	<0.4	.
09JAN2001	10:00	3	F.E.	F.E.		F.E.	0.2	<0.4	.
16JAN2001	10:30	3.9	F.E.	F.E.		F.E.	0.2	<0.4	.
23JAN2001	10:50	1.39	12.6	6.79	Field	29.9	0.2	<0.4	.
30JAN2001	10:00	3.1	F.E.	F.E.		F.E.	0.3	<0.4	.
06FEB2001	11:00	2.54	11.9	6.83	Field	30	0.2	<0.4	.
13FEB2001	10:00	2.5	F.E.	F.E.		F.E.	0.3	<0.4	.
20FEB2001	10:50	4	11.9	6.72	Field	27	0.5	0.6	.
27FEB2001	9:50	F.E.	F.E.	F.E.		F.E.	0.5	<0.4	.
13MAR2001	12:00	3.44	11.8	6.99	Field	29	0.4	<0.4	.
20MAR2001	10:00	3.1	F.E.	F.E.		F.E.	0.3	<0.4	.
27MAR2001	10:50	2.56	12.1	6.83	Field	29	0.2	<0.4	.
02APR2001	10:10	4.4	F.E.	F.E.		F.E.	0.4	<0.4	.
10APR2001	10:30	3.9	12	6.56	Field	27	1.4	2.6	.
17APR2001	9:50	F.E.	F.E.	F.E.		F.E.	0.4	0.4	<0.4
24APR2001	10:20	7.76	10.9	6.78	Field	25	0.3	<0.4	0.4
01MAY2001	9:20	7	F.E.	F.E.		F.E.	0.2	<0.4	.
08MAY2001	10:00	6.77	11	6.93	Field	29	0.2	0.4	.
22MAY2001	10:20	8.43	10.6	6.86	Field	34	1.4	1.6	.
29MAY2001	10:20	8.1	.	.		.	0.4	<0.4	.
05JUN2001	10:10	7.98	10.7	6.92	Field	30	0.2	<0.4	.
12JUN2001	9:40	8.8	.	.		.	0.3	<0.4	.
18JUN2001	10:20	9.78	10.5	6.97	Field	30	0.4	0.4	.
25JUN2001	10:20	9	.	.		.	0.2	<0.4	.
03JUL2001	10:10	8.46	10.7	6.9	Field	32	0.2	0.4	.
10JUL2001	9:30	10	.	.		.	0.1	<0.4	.
17JUL2001	10:00	9.95	9.77	6.91	Field	36	0.4	0.4	.
24JUL2001	9:40	F.E.	.	.		.	0.2	<0.4	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
02JAN2001	0.01	<0.010	0.410	34		<1			010011
09JAN2001	0.01	<0.010	0.410	14		1			010120
16JAN2001	0.01	<0.010	0.370	9		<1			010171
23JAN2001	<0.01	<0.010	0.360	12		<1			010240
30JAN2001	0.02	<0.010	0.480	12		1			010300
06FEB2001	<0.01	<0.010	0.460	13		<1			010386
13FEB2001	0.01	<0.010	0.580	28		<1			010453
20FEB2001	0.01	<0.010	0.460	<5		2			010524
27FEB2001	<0.01	<0.010	0.470	18		<1			010586
13MAR2001	<0.01	<0.010	0.500	28		5			010728
20MAR2001	<0.01	<0.010	0.410	9		<1			010796
27MAR2001	<0.01	<0.010	0.370	L.E.		<1			010876
02APR2001	0.01	<0.010	0.410	38		1			010933
10APR2001	0.02	L.E.	0.730	<5		6			011059
17APR2001	0.01	L.E.	0.510	<5		<1			011231
24APR2001	0.01	<0.010	0.550	14		3			011307
01MAY2001	0.02	<0.004	0.400	15		3			011402
08MAY2001	0.02	<0.004	0.410	17		2			011507
22MAY2001	0.04	<0.004	0.550	16		16			011710
29MAY2001	0.02	<0.004	0.500	16		<2			011814
05JUN2001	0.01	<0.004	0.550	8		<1			011910
12JUN2001	<0.01	<0.004	0.430	13		2			012032
18JUN2001	0.01	<0.010	0.610	17		2			012385
25JUN2001	0.02	<0.010	0.380	18		<1			012511
03JUL2001	0.01	<0.004	0.380	15		<1			012614
10JUL2001	0.02	<0.004	0.370	12		<1			012684
17JUL2001	0.02	<0.004	0.390	22		8			012808
24JUL2001	<0.01	<0.004	0.370	19		<1			012894

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
31JUL2001	10:10	10.8	9.34	6.89	Field	37	0.2	<0.4	.
07AUG2001	9:40	13.5	.	.		.	0.2	<0.4	.
14AUG2001	9:40	14.1	8.62	6.84	Field	39	0.2	<0.4	.
21AUG2001	10:20	14.1	.	.		.	0.9	<0.4	.
28AUG2001	9:40	13.7	8.51	6.88	Field	41	0.6	0.6	.
04SEP2001	9:40	9.9	.	.		.	0.2	<0.4	.
11SEP2001	10:10	13.3	9.11	6.83	Field	39	0.2	<0.4	.
24SEP2001	10:20	11.2	9.29	6.82	Field	41	0.6	<0.4	.
09OCT2001	10:40	6.05	10.9	6.72	Field	38	0.7	.	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
31JUL2001	0.01	<0.004	0.420	15		1			012996
07AUG2001	0.01	<0.004	0.500	17		5			013077
14AUG2001	0.01	<0.004	0.620	19		4			013195
21AUG2001	0.01	<0.004	0.550	13		25			013257
28AUG2001	0.02	<0.004	0.540	22		10			013377
04SEP2001	<0.01	<0.004	0.810	13		45			013417
11SEP2001	0.02	<0.004	0.760	22		25			013568
24SEP2001	0.02	<0.004	0.840	16		2			013727
09OCT2001	.	.	.	.		6			013964

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLETOD

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
02JAN2001	10:04	F.E.	F.E.	F.E.		F.E.	1.7	1.8	.
09JAN2001	9:20	2.1	F.E.	F.E.		F.E.	1.1	1.6	.
16JAN2001	9:40	5.5	F.E.	F.E.		F.E.	1.3	1.8	.
23JAN2001	10:10	0.14	12.6	6.64	Field	38.6	0.9	0.6	.
30JAN2001	9:10	1	F.E.	F.E.		F.E.	2.0	2.6	.
06FEB2001	10:20	2.24	12.3	6.7	Field	38	1.4	2	.
13FEB2001	9:20	2.5	F.E.	F.E.		F.E.	2.1	2.6	.
20FEB2001	10:10	3.43	12.2	6.47	Field	35	1.8	2	.
27FEB2001	9:10	F.E.	F.E.	F.E.		F.E.	1.5	1.8	.
13MAR2001	12:30	2.9	12	6.9	Field	40	2.2	2.2	.
20MAR2001	9:20	1	F.E.	F.E.		F.E.	0.9	1	.
27MAR2001	10:00	0.87	12.3	6.41	Field	42	1.5	1.8	.
02APR2001	9:30	3.2	F.E.	F.E.		F.E.	1.8	1.8	.
10APR2001	9:50	2.01	12.3	6.2	Field	27	5.1	9.8	.
17APR2001	9:10	F.E.	F.E.	F.E.		F.E.	2.0	2.8	0.6
24APR2001	9:50	9.15	10.3	6.55	Field	37	2.2	3	0.8
01MAY2001	8:50	7.4	F.E.	F.E.		F.E.	1.5	2.4	.
08MAY2001	9:20	7.77	10.5	6.8	Field	44	1.3	2.2	.
22MAY2001	9:30	9.94	8.17	6.6	Field	47	3.4	4.6	.
29MAY2001	9:50	10.2	.	.		.	2.2	2.4	.
05JUN2001	9:30	9.35	8.84	6.72	Field	51	2.0	2.6	.
12JUN2001	9:00	10.5	.	.		.	3.2	2.2	.
18JUN2001	9:40	11.2	9.73	7.03	Field	46	3.9	4.6	.
25JUN2001	9:50	11	.	.		.	2.5	3.4	.
03JUL2001	9:30	9.81	9.71	6.76	Field	47	1.9	4	.
10JUL2001	9:10	11.5	.	.		.	0.6	1.6	.
17JUL2001	9:20	12.3	7.54	6.51	Field	49	4.2	5.8	.
24JUL2001	9:00	F.E.	.	.		.	0.3	0.4	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
02JAN2001	0.01	<0.010	0.190	10		<1			010009
09JAN2001	0.01	<0.010	0.210	8		<1			010118
16JAN2001	0.01	<0.010	0.180	18		1			010169
23JAN2001	<0.01	<0.010	0.190	10		1			010238
30JAN2001	<0.01	<0.010	0.280	10		<1			010299
06FEB2001	<0.01	<0.010	0.240	15		3			010384
13FEB2001	<0.01	<0.010	0.260	16		<1			010451
20FEB2001	0.01	<0.010	0.190	<5		27			010522
27FEB2001	<0.01	<0.010	0.200	12		2			010588
13MAR2001	0.01	<0.010	0.300	62	>=	75			010727
20MAR2001	0.01	<0.010	0.240	11		39			010794
27MAR2001	0.01	<0.010	0.240	L.E.		32			010874
02APR2001	0.02	<0.010	0.260	<5		17			010931
10APR2001	0.02	L.E.	0.350	8		6			011057
17APR2001	0.02	L.E.	0.180	<5		1			011229
24APR2001	0.02	<0.010	0.130	18		<1			011305
01MAY2001	0.02	<0.004	0.120	15		<1			011400
08MAY2001	0.02	<0.004	0.140	15		<1			011505
22MAY2001	0.02	<0.004	0.190	14		2			011708
29MAY2001	0.02	<0.004	0.180	17		8			011812
05JUN2001	0.02	<0.004	0.160	9		13			011908
12JUN2001	<0.01	<0.004	0.160	14		28			012030
18JUN2001	0.02	<0.010	0.180	18		98			012383
25JUN2001	0.02	<0.010	0.130	14		56			012509
03JUL2001	0.02	<0.004	0.120	18		38			012612
10JUL2001	0.02	<0.004	0.130	12		15			012682
17JUL2001	0.03	<0.004	0.160	26		40			012807
24JUL2001	0.01	<0.004	0.180	12		6			012893

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLETOD
(continued)

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
31JUL2001	9:40	13.4	4.31	5.93	Field	53	0.6	<0.4	.
07AUG2001	9:00	14.5	.	.		.	1.8	4.2	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
31JUL2001	0.02	<0.004	0.180	10		6			012995
07AUG2001	0.01	<0.004	0.200	15		4			013076

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLOST

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
02JAN2001	11:12	F.E.	F.E.	F.E.		F.E.	1.1	<0.4	.
09JAN2001	11:00	F.E.	F.E.	F.E.		F.E.	0.5	<0.4	.
16JAN2001	11:40	3.8	F.E.	F.E.		F.E.	0.5	<0.4	.
23JAN2001	11:40	1.83	12	6.66	Field	27	0.6	<0.4	.
30JAN2001	11:00	3	F.E.	F.E.		F.E.	0.7	<0.4	.
06FEB2001	12:10	2.47	12.3	6.78	Field	27	0.5	<0.4	.
13FEB2001	11:00	2	F.E.	F.E.		F.E.	1.6	0.6	.
20FEB2001	11:40	3.48	12.4	6.74	Field	24	1.0	<0.4	.
27FEB2001	10:40	F.E.	F.E.	F.E.		F.E.	0.4	<0.4	.
13MAR2001	10:50	2.8	12.3	6.81	Field	25	0.6	0.4	.
20MAR2001	11:10	4.9	F.E.	F.E.		F.E.	0.5	0.4	.
27MAR2001	11:40	3.36	12.1	6.7	Field	27	0.7	<0.4	.
02APR2001	11:00	4	F.E.	F.E.		F.E.	1.0	<0.4	.
10APR2001	11:40	4.46	11.6	6.46	Field	26	5.7	4.8	.
17APR2001	10:40	F.E.	F.E.	F.E.		F.E.	1.1	0.8	<0.4
24APR2001	11:20	9.71	10.3	6.74	Field	24	1.1	0.4	0.4
01MAY2001	10:00	8.5	F.E.	F.E.		F.E.	0.4	0.4	.
08MAY2001	10:50	9.16	10.2	6.61	Field	27	0.3	0.4	.
22MAY2001	11:00	9.56	9.64	6.54	Field	31	1.1	1	.
29MAY2001	11:20	9.6	.	.		.	0.3	<0.4	.
05JUN2001	10:50	9.59	10.1	6.62	Field	27	0.4	<0.4	.
12JUN2001	10:20	10.1	.	.		.	0.4	<0.4	.
18JUN2001	11:10	12.3	9.44	6.73	Field	27	0.5	<0.4	.
25JUN2001	11:10	11.8	.	.		.	0.3	<0.4	.
03JUL2001	11:00	10.5	9.56	6.53	Field	30	0.2	0.4	.
10JUL2001	10:10	11.2	.	.		.	0.2	<0.4	.
17JUL2001	10:50	11	8.65	6.54	Field	34	0.2	<0.4	.
24JUL2001	10:40	F.E.	.	.		.	0.3	<0.4	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
02JAN2001	0.01	<0.010	0.360	20		<1			010013
09JAN2001	<0.01	<0.010	0.340	10		<1			010122
16JAN2001	0.01	<0.010	0.310	6		<1			010173
23JAN2001	<0.01	<0.010	0.290	8		<1			010242
30JAN2001	<0.01	<0.010	0.390	8		<1			010302
06FEB2001	<0.01	<0.010	0.380	23		<1			010388
13FEB2001	<0.01	<0.010	0.460	13		<1			010455
20FEB2001	0.01	<0.010	0.340	<5		<1			010526
27FEB2001	<0.01	<0.010	0.360	13		<1			010584
13MAR2001	0.01	<0.010	0.330	26		<1			010730
20MAR2001	0.02	<0.010	0.320	13		<1			010798
27MAR2001	0.02	<0.010	0.290	L.E.		<1			010878
02APR2001	0.01	<0.010	0.360	<5		1			010935
10APR2001	0.02	L.E.	0.710	<5		<2			011061
17APR2001	0.01	L.E.	0.630	<5		<1			011233
24APR2001	0.02	<0.010	0.640	11		5			011309
01MAY2001	0.02	<0.004	0.430	12		6			011404
08MAY2001	0.02	<0.004	0.380	9		<1			011509
22MAY2001	0.02	<0.004	0.320	7		<2			011712
29MAY2001	0.02	<0.004	0.360	14		<2			011816
05JUN2001	0.01	<0.004	0.370	6		2			011912
12JUN2001	<0.01	<0.004	0.290	12		30			012034
18JUN2001	0.02	<0.010	0.420	14		14			012387
25JUN2001	0.03	<0.010	0.260	14		4			012513
03JUL2001	0.01	<0.004	0.230	13		8			012616
10JUL2001	0.02	<0.004	0.220	10		1			012686
17JUL2001	0.02	<0.004	0.240	20		1			012810
24JUL2001	0.01	<0.004	0.220	15		<1			012896

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error

Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLOST
(continued)

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
31JUL2001	10:50	11.3	8.82	6.39	Field	38	0.1	<0.4	.
07AUG2001	10:20	12	.	.		.	0.3	0.8	.
14AUG2001	10:30	12.1	7.99	6.31	Field	41	0.5	0.8	.
21AUG2001	11:10	12.5	.	.		.	0.6	<0.4	.
28AUG2001	10:50	11.9	8.01	6.55	Field	44	0.5	1.4	.
04SEP2001	10:30	8.5	.	.		.	0.4	2.2	.
11SEP2001	11:00	12	7.5	6.35	Field	45	0.8	1	.
24SEP2001	11:11	10.6	7.46	6.31	Field	41	0.5	<0.4	.
09OCT2001	11:40	6.93	9.38	6.25	Field	36	0.9	.	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
31JUL2001	<0.01	<0.004	0.240	11		<1			012998
07AUG2001	0.01	<0.004	0.310	13		2			013079
14AUG2001	0.01	<0.004	0.340	16		<1			013197
21AUG2001	0.01	<0.004	0.300	8		<1			013259
28AUG2001	0.02	<0.004	0.300	16		<1			013379
04SEP2001	0.01	<0.004	0.460	8		19			013419
11SEP2001	0.02	<0.004	0.400	16		6			013570
24SEP2001	0.02	<0.004	0.470	10		2			013729
09OCT2001	.	.	.	.		<1			013966

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=SENECA

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
02JAN2001	11:30	F.E.	F.E.	F.E.		F.E.	0.4	0.4	.
09JAN2001	11:20	1.1	F.E.	F.E.		F.E.	0.4	<0.4	.
16JAN2001	12:00	1.5	F.E.	F.E.		F.E.	0.3	<0.4	.
23JAN2001	12:00	-.14	12.8	6.82	Field	28	0.7	<0.4	.
30JAN2001	11:20	0.5	F.E.	F.E.		F.E.	0.3	<0.4	.
06FEB2001	12:20	0.45	13	6.83	Field	27	0.2	<0.4	.
13FEB2001	11:20	2.75	F.E.	F.E.		F.E.	0.5	0.4	.
20FEB2001	12:00	3.9	12.2	6.79	Field	26	0.5	0.4	.
27FEB2001	11:00	F.E.	F.E.	F.E.		F.E.	0.4	<0.4	.
13MAR2001	10:30	1.25	12.7	6.93	Field	26	0.4	<0.4	.
20MAR2001	11:20	2.9	F.E.	F.E.		F.E.	0.3	<0.4	.
27MAR2001	12:00	3	12.2	6.82	Field	26	0.5	0.6	.
02APR2001	11:20	4.5	F.E.	F.E.		F.E.	0.7	<0.4	.
10APR2001	12:00	5.69	11.4	6.66	Field	24	4.9	7.8	.
17APR2001	10:50	F.E.	F.E.	F.E.		F.E.	1.1	1	0.6
24APR2001	11:40	11	10.3	6.93	Field	23	1.3	1.2	0.8
01MAY2001	10:10	8.5	F.E.	F.E.		F.E.	0.7	0.8	.
08MAY2001	11:10	8.05	10.9	6.86	Field	23	0.5	1.2	.
22MAY2001	11:20	10.7	10.1	6.86	Field	34	1.2	3	.
29MAY2001	12:00	10.5	.	.		.	1.0	2	.
05JUN2001	11:20	9.73	10.5	6.88	Field	29	0.7	1.4	.
12JUN2001	10:40	11	.	.		.	1.0	1.1	.
18JUN2001	11:30	12.6	9.86	7	Field	27	2.0	2.2	.
25JUN2001	11:20	11	.	.		.	0.8	1	.
03JUL2001	11:30	11.2	10.2	6.91	Field	31	0.7	1.6	.
10JUL2001	10:30	14	.	.		.	0.7	2.2	.
17JUL2001	11:10	13.7	9.02	6.92	Field	36	1.2	2.2	.
24JUL2001	11:10	F.E.	.	.		.	1.9	2.2	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
02JAN2001	0.02	<0.010	0.060	26		<1			010014
09JAN2001	0.01	<0.010	0.060	12		2			010123
16JAN2001	<0.01	<0.010	0.050	28		<1			010174
23JAN2001	<0.01	<0.010	0.070	12		<1			010243
30JAN2001	<0.01	<0.010	0.120	10		<1			010303
06FEB2001	0.01	<0.010	0.090	18		<1			010389
13FEB2001	<0.01	<0.010	0.060	6		<1			010456
20FEB2001	0.01	<0.010	0.010	<5		<1			010527
27FEB2001	<0.01	<0.010	0.020	12		<1			010589
13MAR2001	<0.01	<0.010	0.090	30		<1			010731
20MAR2001	<0.01	<0.010	0.050	<5		<1			010799
27MAR2001	<0.01	<0.010	0.040	L.E.		<1			010879
02APR2001	0.02	<0.010	0.050	8		2			010936
10APR2001	0.02	L.E.	0.160	12		<2			011062
17APR2001	<0.01	L.E.	0.070	<5		1			011234
24APR2001	0.01	<0.010	0.030	14		<1			011310
01MAY2001	0.02	<0.004	0.050	15		1			011405
08MAY2001	0.01	<0.004	0.090	15		<1			011510
22MAY2001	0.02	<0.004	0.240	18	>=	150			011713
29MAY2001	0.02	<0.004	0.160	24		4			011817
05JUN2001	<0.01	<0.004	0.100	10		4			011913
12JUN2001	<0.01	<0.004	0.100	16		<1			012035
18JUN2001	0.02	<0.010	0.110	21		11			012388
25JUN2001	0.03	<0.010	0.090	18		1			012514
03JUL2001	0.01	<0.004	0.120	18		2			012617
10JUL2001	0.02	<0.004	0.160	18		1			012687
17JUL2001	0.01	<0.004	0.220	28	>=	110			012811
24JUL2001	<0.01	<0.004	0.250	26		<4			012897

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=SENECA
(continued)

Date Collected	Grab Time	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	Total Suspended Solids (mg/l)	Volatile Suspended Solids (mg/l)
31JUL2001	11:10	13.8	9.46	6.83	Field	37	0.9	1.6	.
07AUG2001	10:50	17	.	.		.	0.8	1.4	.
14AUG2001	11:00	16.9	7.82	6.82	Field	40	0.8	1.2	.
21AUG2001	11:30	16.8	.	.		.	1.5	1.8	.
28AUG2001	11:10	15.8	7.3	6.8	Field	40	1.0	1	.
04SEP2001	10:50	10.7	.	.		.	1.3	4.6	.
11SEP2001	11:20	15.1	6.54	6.84	Field	38	0.7	0.8	.
24SEP2001	11:40	13.3	7.45	6.7	Field	36	1.0	1.2	.
09OCT2001	12:10	7.48	8.59	6.69	Field	36	2.7	.	.

Date Collected	NH3-N (mg/l) Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Site Code	Sample Type	Sample Number
31JUL2001	<0.01	<0.004	0.230	21		<1			012999
07AUG2001	0.01	<0.004	0.290	25	>=	77			013080
14AUG2001	0.02	<0.004	0.330	29	>=	320			013198
21AUG2001	0.01	<0.004	0.260	25		16			013260
28AUG2001	0.02	<0.004	0.280	29		4			013380
04SEP2001	0.01	<0.004	0.290	27		16			013420
11SEP2001	0.01	<0.004	0.240	25		22			013571
24SEP2001	0.02	<0.004	0.200	23		17			013730
09OCT2001	.	.	.	.		<2			013967

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Variable	Date	Certification	Samples	Instrument	Reference / Procedure Change	Method
D.O.	01JUN98	Non-Potable Potable S & H Waste	Special	YSI DO Probe, Model No. 5905	1998 Primary Productivity Study of Cannonsville Reservoir	
Fecal Coliforms	02APR97	Non-Potable Y Potable Y S & H Waste NP	Special	Millipore Membrane Filter Apparatus	SM18; 9222D	
NH3-N	13MAY99	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	SM18; 4500-NH3, H	Automated Phenate
NO2-N	01MAY00	Non-Potable N Potable NP S & H Waste NP	Special	Dionex AS-450	EPA 1993 300.0	Ion Chromatography
NO3-N	01MAY00	Non-Potable Y Potable NP S & H Waste NP	Special	Dionex AS-450	EPA 1993 300.0	Ion Chromatography
pH	01JAN98	Non-Potable Y Potable Y S & H Waste NP	Special	Orion 720A	SM18; 4500-H+,B	
Total Susp. Solids	02APR97	Non-Potable Y Potable NP S & H Waste NP	Special	Filtration and Analytical Balance	SM18; 2540D	
Temperature	01JAN87	Non-Potable NA Potable NP S & H Waste NP	Special	Dial type metal stem therm. in 2F grad.	SM16; 212	
Total P	01JAN00	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	SM18; 4500-P,F	Persulf.Digest./Ascb.Acid
Turbidity	26JUN97	Non-Potable NA Potable NP S & H Waste NP	Special	Hach 2100 AN Turbidimeter	SM18; 2130B Change Formazin & AEPA to HACH Stabil Cal standards for primary calibration.	Nephelometric Method
Turbidity	27AUG01	Non-Potable NA Potable NP S & H Waste NP	Special	Hach 2100 AN Turbidimeter	SM19; 2130B	Nephelometric Method
Volatile Susp. Sol.	02APR97	Non-Potable NA Potable NP S & H Waste NP	Special	Filtr., Muff.Furnace, and Balance	SM18; 2540E	

Certification Codes: Y = Yes, N = No, NA = Not Available, NP = Not Performed

Year=2001

Variable	Beginning Date	End Date	Comments
NH3	04JUN2001	05JUN2001	SAMPNOs 1908-1913: These samples are associated with an out of control filter blank (0.01 mg/l). <0.01 is acceptable.
NO2	08MAY2001	08MAY2001	SAMPNOs 1505-1510: These samples are associated with an out of control spike QC sample.
NO3	08MAY2001	08MAY2001	SAMPNOs 1505-1510: These samples are associated with an out of control run blank (0.01mg/l). <0.01 is acceptable.
NO3	21MAY2001	22MAY2001	SAMPNOs 1708-1713: These samples are associated with an out of control run blank (0.01 mg/l). <0.01 is acceptable.
NO3	29MAY2001	29MAY2001	SAMPNOs 1812-1817: These samples are associated with an out of control run blank (0.01 mg/l). <0.01 is acceptable.
NO3	18JUN2001	19JUN2001	SAMPNOs 2383-2388: These samples are associated with an out of control laboratory blank (0.01 mg/l). <0.01 is acceptable.
NO3	25JUN2001	25JUN2001	SAMPNOs 2509-2514: These samples are associated with a method blank that is above the detection limit.
SUSPSLDS	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extremely low flow through the stage pool.
TN	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extremely low flow through the stage pool.
TP	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extremely low flow through the stage pool.
TURB	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extremely low flow through the stage pool.

COLIFORMS CODING

Effective: 3/13/95 - Ben Nesin, Brewster, & Kensico Laboratories
3/27/95 - Grahamsville Laboratory

CODE	DEFINITION: Appearance of Plate
	Total coliform plates yielding ideal counts between 20-80 CFU/plate (fecal coliforms, 20-60 CFU/plate) or less than ideal counts, with the sum of the total number of colonies (sheen plus nonsheen) being less than CFU. Results will be reported as CFU/100ml and entered into the data as accordingly. NO CODE.
>=	If the total/fecal colony counts are in the ideal range of 20-80 CFU/plate and the total number of colonies exceed 200 CFU OR the total/fecal colony counts exceed the ideal range and the total number of colonies are below 200 CFU, the number expressed as coliforms/100ml preceded by a "greater than or equals to" sign will be reported.
x F	If the sheen total/fecal colony counts are greater the 80 CFU/plate and the total number of colonies exceed 200 CFU, results will be reported as "TNTC times F", F being the multiplication factor used to express the result in coliforms/100ml. (i.e., 20 ml sample used, result would be TNTC x 5, NOTE: code for TNTC is -99).
+/-	If confluent growth overwhelms the plate, yet a metallic sheen appears, "CONF +" will be reported indicating the presence of coliforms or a "CONF -" indicating the absence of coliforms. (NOTE: code for confluent growth is -108).
HTE	If samples were not received at the laboratory and analyzed within the 6 hour holding time, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE", indicating holding time exceeded.
HTE>6	If samples were received at the laboratory after 6 hours of collection and analyzed within 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE>6", indicating holding time exceeded, >6 hours. Used for storm event samples at Kensico Laboratory only.
HTE>8	If samples are received at the laboratory within 6 hours of collection, but not set up within 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE>8", indicating holding time exceeded, >8 hours. Used for storm event samples at Kensico Laboratory only.
>6<8	If samples are received at the laboratory within the 6 hour holding time and analyzed within 6 to 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by ">6<8", indicating analyses were started after 6 hours but before 8 hours of collection. Used for storm event samples at Kensico Laboratory only.
SPR	Spreading colony present on 50%, or more, of the plate. Suppression of colony growth may have existed.

(Revised: 9/97)

KEY TO SAMPLING LOCATIONS – 2001
CATSKILL WATERSHED
BEN NESIN LABORATORY, ELAP ID NO. 10030

SITE	DESCRIPTION

WQIA: Crossroads Ventures Project

BELLOST.....	Sample from Lost Clove to be collected on CRV property just upstream of confluence with tributary coming in from the south, approximately 1/4 mile downstream of NYSDEC trailhead area
BELLE2.....	This unnamed and probably intermittent tributary flows down from the central portion of the eastern area owned by CRV to Birch Creek approximately 1/4 mile below routine Hydrology site E15. Samples will be collected on the upstream side of the abandoned railroad. Site is accessed by driving up private road from Rt. 28 to the abandoned railroad, then walking east along the railroad to the first stream which originates from up the mountain. (Smaller tributaries which appear to originate from local seeps will be passed)
BELLEGIG.....	Sample from Giggle Hollow will be collected above a weir to be constructed adjacent to a NYSDEC day-use area. Giggle Hollow is a tributary to Birch Creek just below routine Hydrology site E3
BELLE5.....	This unnamed tributary flows near the Wild Acres Hotel and is a tributary to Townsend Hollow (Emory Brook). Samples are collected upstream of Kraft Road
BELLETOD.....	This unnamed tributary flows along Todd Mountain Road and is tributary to Birch Creek in the Village of Fleishmanns. Sample will be collected near the northwestern edge of CRV property, below the confluence of two forks in the stream
SENECA.....	Seneca Hollow will be used as a control stream for this project. Samples will be collected on the upstream (northern) side of County Road 150

Sample Site 3SE

[redacted]

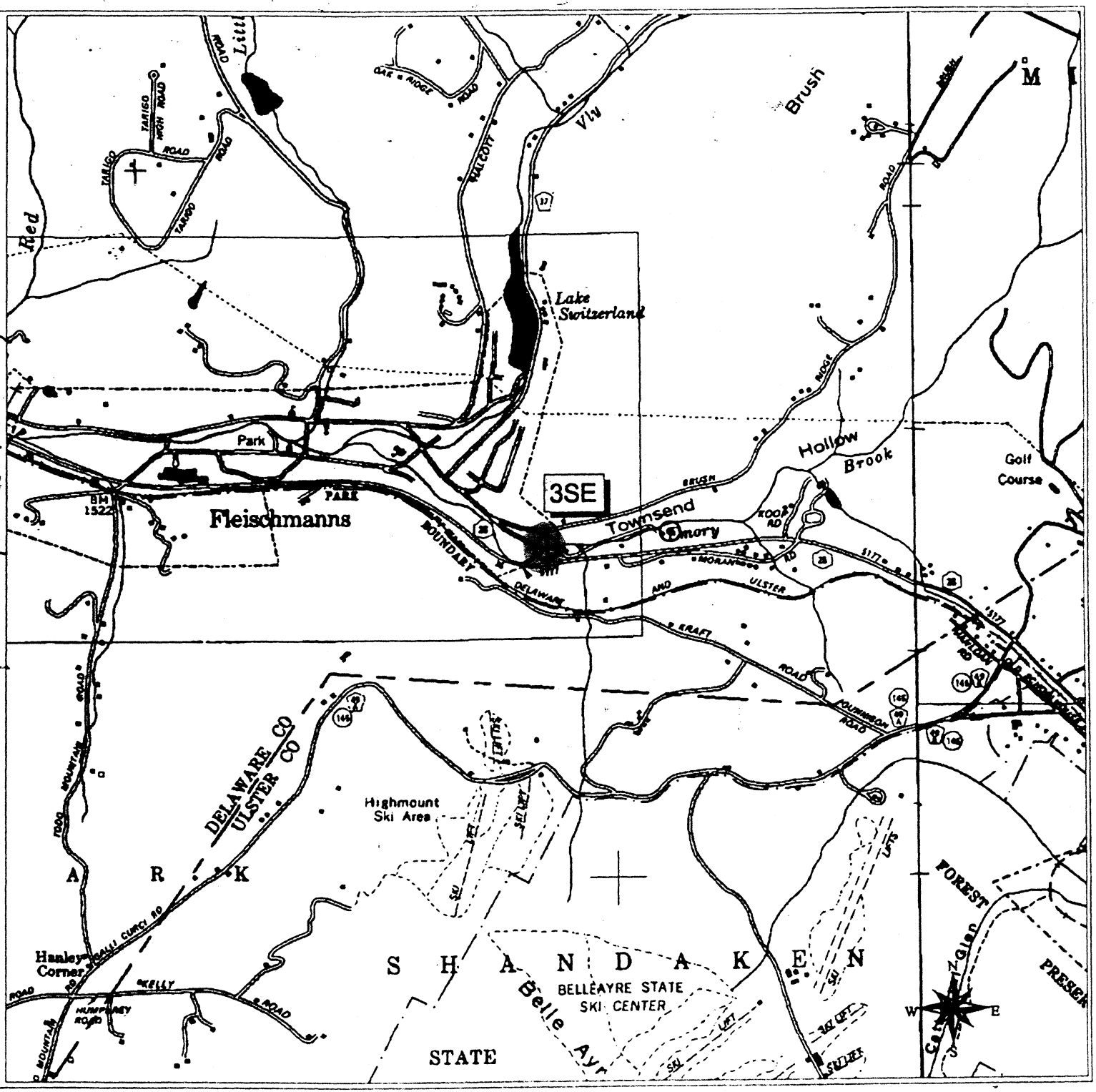
- EPA Primary
- EPA Secondary

Topo Quad: 42-23
66, 40 Fleischmanns

County Map and Quad:
Delaware P25

Gazetteer Page and Quad: 51, C4/5

Emory Brook
B



SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
1SE		C	1,3-DICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	DICHLORODIFLUOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1-DICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,2-DICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1-DICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	TRANS-1,2-DICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	CIS-1,2-DICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	2,2-DICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,2-DICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,3-DICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1-DICHLOROPROPENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	TRANS-1,3-DICHLOROPROPENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	CIS-1,3-DICHLOROPROPENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	ETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	HEXACHLOROBUTADIENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	ISOPROPYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	P-ISOPROPYLTOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	METHYLENE CHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	NAPHTHALENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	N-PROPYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	STYRENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1,1,2-TETRACHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1,2,2-TETRACHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	TETRACHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	TOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,2,4-TRICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,2,3-TRICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1,1-TRICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,1,2-TRICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	TRICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	TRICHLOROFLUOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,2,3-TRICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,3,5-TRIMETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	1,2,4-TRIMETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	VINYL CHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	M+P-XYLENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1SE		C	O-XYLENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
Field Parameters																							
3SE	NYCW99-21;	B	PH (FIELD)	08/19/99	6.60		SU		09/30/99	7.13		SU		10/21/99	6.37		SU	Y	11/09/99	6.67		SU	
3SE	NY6H98-201	B	PH	08/19/99	7.47		SU		09/30/99	6.67		SU		10/21/99	6.88		SU		11/09/99	7.18		SU	
3SE		B	CONDUCTIVITY (FIELD)	08/19/99	87.00		umhos/cm		09/30/99	55.10		umhos/cm		10/21/99	69.00		umhos/cm		11/09/99	54.20		umhos/cm	
3SE		B	CONDUCTIVITY	08/19/99	91.00		umhos/cm		09/30/99	61.00		umhos/cm		10/21/99	70.00		umhos/cm		11/09/99	62.00		umhos/cm	
3SE		B	TEMPERATURE (FIELD)	08/19/99	12.45		C		09/30/99	12.32		C		10/21/99	7.98		C		11/09/99	7.1		C	
3SE		B	DISSOLVED OXYGEN (FIELD)	08/19/99	9.15		MG/L		09/30/99	10.68		MG/L		10/21/99	10.07		MG/L		11/09/99	10.45		MG/L	
Nutrients and Solids Parameters																							
3SE		B	NITRATE/NITRITE NITROGEN	08/19/99	0.244		MG/L		09/30/99	0.116		MG/L		10/21/99	0.0693		MG/L		11/09/99	0.123		MG/L	
3SE SOLUBLE		B	NITRATE/NITRITE NITROGEN	08/19/99	0.253		MG/L		09/30/99	0.118		MG/L		10/21/99	0.0690		MG/L		11/09/99	0.122		MG/L	
3SE		B	NITRATE NITROGEN	08/19/99	0.244		MG/L		09/30/99	0.114		MG/L		10/21/99	0.0693		MG/L		11/09/99	----		MG/L	
3SE SOLUBLE		B	NITRATE NITROGEN	08/19/99	---		MG/L		09/30/99	0.116		MG/L		10/21/99	0.0690		MG/L		11/09/99	----		MG/L	
3SE		B	NITRITE NITROGEN	08/19/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/21/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
3SE SOLUBLE		B	NITRITE NITROGEN	08/19/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/21/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
3SE		B	TOTAL KJELDAHL NITROGEN	08/19/99	0.05	U	MG/L		09/30/99	0.05	U	MG/L		10/21/99	0.186		MG/L		11/09/99	0.0874		MG/L	
3SE		B	AMMONIA	08/19/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/21/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
3SE		B	TOTAL PHOSPHORUS	08/19/99	0.0089		MG/L		09/30/99	0.0156		MG/L		10/21/99	0.00687		MG/L		11/09/99	0.00615		MG/L	
3SE SOLUBLE		B	DISSOLVED PHOSPHORUS	08/19/99	0.0074		MG/L		09/30/99	0.0121		MG/L		10/21/99	0.00571		MG/L		11/09/99	0.00602		MG/L	
3SE		B	TURBIDITY	08/19/99	1.00		NTU		09/30/99	2.30		NTU		10/21/99	0.750		NTU		11/09/99	1.20		NTU	
3SE		B	TOTAL SOLIDS	08/19/99	51.00		MG/L		09/30/99	53.00		MG/L		10/21/99	48.00		MG/L		11/09/99	37.00		MG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
3SE SOLUBLE		B	TOTAL DISSOLVED SOLIDS	08/19/99	56.00		MG/L		09/30/99	41.00		MG/L		10/21/99	33.00		MG/L		11/09/99	—		MG/L	
3SE		B	TOTAL SUSPENDED SOLIDS	08/19/99	1.06	U	MG/L		09/30/99	1.00	U	MG/L		10/21/99	1.00	U	MG/L		11/09/99	1.04	U	MG/L	
Minerals and Hardness Parameters																							
3SE		B	CHLORIDE	08/19/99	10.40		MG/L		09/30/99	7.33		MG/L		10/21/99	7.42		MG/L		11/09/99	6.45		MG/L	
3SE		B	FLUORIDE	08/19/99	0.20	U	MG/L		09/30/99	0.20	U	MG/L		10/21/99	0.20	U	MG/L		11/09/99	0.20	U	MG/L	
3SE		B	SULFATE	08/19/99	6.79		MG/L		09/30/99	6.42		MG/L		10/21/99	6.57		MG/L		11/09/99	6.74		MG/L	
3SE		B	TOTAL ALKALINITY	08/19/99	15.40		MG/L		09/30/99	10.40		MG/L		10/21/99	10.90		MG/L		11/09/99	10.80		MG/L	
3SE		B	TOTAL HARDNESS	08/19/99	20.00		MG/L		09/30/99	17.80		MG/L		10/21/99	20.20		MG/L		11/09/99	18.00		MG/L	
Metals Parameters																							
3SE		B	ALUMINUM	08/19/99	20.00	U	UG/L		09/30/99	61.00	B	UG/L		10/21/99	30.30	U	UG/L		11/09/99	34.20	U	UG/L	
3SE SOLUBLE		B	ALUMINUM	08/19/99	41.50	B	UG/L		09/30/99	42.60	B	UG/L		10/21/99	34.20	U	UG/L		11/09/99	34.20	U	UG/L	
3SE		B	ANTIMONY	08/19/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/21/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
3SE SOLUBLE		B	ANTIMONY	08/19/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/21/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
3SE		B	ARSENIC	08/19/99	3.40	U	UG/L		09/30/99	3.43	U	UG/L		10/21/99	5.52	U	UG/L		11/09/99	5.52	U	UG/L	
3SE SOLUBLE		B	ARSENIC	08/19/99	3.60	B	UG/L		09/30/99	3.43	U	UG/L		10/21/99	3.71	U,W	UG/L		11/09/99	5.52	U	UG/L	
3SE		B	BARIUM	08/19/99	12.30	B	UG/L		09/30/99	10.80	B	UG/L		10/21/99	11.10	B	UG/L		11/09/99	5.50	B	UG/L	
3SE SOLUBLE		B	BARIUM	08/19/99	34.20	B	UG/L		09/30/99	10.40	B	UG/L		10/21/99	9.30	B	UG/L		11/09/99	5.40	B	UG/L	
3SE		B	BERYLLIUM	08/19/99	0.12	U	UG/L		09/30/99	0.12	U	UG/L		10/21/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	
3SE SOLUBLE		B	BERYLLIUM	08/19/99	0.12	U	UG/L		09/30/99	0.12	U	UG/L		10/21/99	0.41	B	UG/L		11/09/99	0.19	U	UG/L	
3SE		B	CADMIUM	08/19/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/21/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
3SE SOLUBLE		B	CADMIUM	08/19/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/21/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
3SE		B	CALCIUM	08/19/99	6730.00		UG/L		09/30/99	4820.00	B	UG/L		10/21/99	5690.00		UG/L		11/09/99	5120.00		UG/L	
3SE SOLUBLE		B	CALCIUM	08/19/99	10900.00		UG/L		09/30/99	4860.00	B	UG/L		10/21/99	5670.00		UG/L		11/09/99	5160.00		UG/L	
3SE		B	CHROMIUM	08/19/99	0.31	U	UG/L		09/30/99	0.31	U	UG/L		10/21/99	0.22	U	UG/L		11/09/99	0.22	U	UG/L	
3SE SOLUBLE		B	CHROMIUM	08/19/99	0.31	U	UG/L		09/30/99	0.31	U	UG/L		10/21/99	1.90	B	UG/L		11/09/99	0.22	U	UG/L	
3SE		B	COBALT	08/19/99	1.70	U	UG/L		09/30/99	1.70	U	UG/L		10/21/99	1.51	U	UG/L		11/09/99	1.51	U	UG/L	
3SE SOLUBLE		B	COBALT	08/19/99	1.70	U	UG/L		09/30/99	1.70	U	UG/L		10/21/99	2.20	B	UG/L		11/09/99	1.51	U	UG/L	
3SE		B	COPPER	08/19/99	2.80	U	UG/L		09/30/99	2.85	U	UG/L		10/21/99	1.78	U	UG/L		11/09/99	1.78	U	UG/L	
3SE SOLUBLE		B	COPPER	08/19/99	2.80	U	UG/L		09/30/99	3.60	B	UG/L	Y	10/21/99	1.78	U	UG/L		11/09/99	1.78	U	UG/L	
3SE		B	IRON	08/19/99	27.40	U	UG/L		09/30/99	66.60	B	UG/L		10/21/99	23.70	B	UG/L		11/09/99	12.40	U	UG/L	
3SE SOLUBLE		B	IRON	08/19/99	71.70	B	UG/L		09/30/99	32.20	B	UG/L		10/21/99	46.70	B	UG/L		11/09/99	12.40	U	UG/L	
3SE		B	LEAD	08/19/99	2.90	U	UG/L		09/30/99	2.92	U	UG/L		10/21/99	4.80		UG/L	Y	11/09/99	2.84	U	UG/L	
3SE SOLUBLE		B	LEAD	08/19/99	2.90	U	UG/L		09/30/99	2.92	U	UG/L		10/21/99	0.66	B	UG/L		11/09/99	2.84	U	UG/L	
3SE		B	MAGNESIUM	08/19/99	1510.00	B	UG/L		09/30/99	1180.00	B	UG/L		10/21/99	1340.00	B	UG/L		11/09/99	1180.00	B	UG/L	
3SE SOLUBLE		B	MAGNESIUM	08/19/99	2100.00	B	UG/L		09/30/99	1170.00	B	UG/L		10/21/99	1380.00	B	UG/L		11/09/99	1190.00	B	UG/L	
3SE		B	MANGANESE	08/19/99	20.40		UG/L		09/30/99	15.50	E	UG/L		10/21/99	17.30		UG/L		11/09/99	13.40	B	UG/L	
3SE SOLUBLE		B	MANGANESE	08/19/99	27.10		UG/L		09/30/99	12.00	B,E	UG/L		10/21/99	17.10		UG/L		11/09/99	15.10		UG/L	
3SE		B	MERCURY	08/19/99	0.06	B	UG/L		09/30/99	0.04	U	UG/L		10/21/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
3SE SOLUBLE		B	MERCURY	08/19/99	0.05	U	UG/L		09/30/99	0.04	U	UG/L		10/21/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
3SE		B	NICKEL	08/19/99	1.50	U	UG/L		09/30/99	1.55	U	UG/L		10/21/99	1.13	B	UG/L		11/09/99	1.13	U	UG/L	
3SE SOLUBLE		B	NICKEL	08/19/99	1.50	U	UG/L		09/30/99	1.55	U	UG/L		10/21/99	1.80	B	UG/L		11/09/99	1.13	U	UG/L	
3SE		B	POTASSIUM	08/19/99	857.00	U	UG/L		09/30/99	707.00	U	UG/L		10/21/99	900.00	U	UG/L		11/09/99	900.00	U	UG/L	
3SE SOLUBLE		B	POTASSIUM	08/19/99	1320.00	B	UG/L		09/30/99	707.00	U	UG/L		10/21/99	900.00	U	UG/L		11/09/99	900.00	U	UG/L	
3SE		B	SELENIUM	08/19/99	4.20	U,N	UG/L		09/30/99	4.15	U	UG/L		10/21/99	3.78	U,N	UG/L		11/09/99	3.78	U	UG/L	
3SE SOLUBLE		B	SELENIUM	08/19/99	4.20	U,N	UG/L		09/30/99	4.15	U	UG/L		10/21/99	1.61	U,W	UG/L		11/09/99	3.78	U	UG/L	
3SE		B	SILVER	08/19/99	0.65	U	UG/L		09/30/99	1.33	U	UG/L		10/21/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
3SE SOLUBLE		B	SILVER	08/19/99	0.65	U	UG/L		09/30/99	1.33	U	UG/L		10/21/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
3SE		B	SODIUM	08/19/99	6340.00		UG/L		09/30/99	2920.00	B	UG/L		10/21/99	4780.00	B	UG/L		11/09/99	3180.00	B	UG/L	
3SE SOLUBLE		B	SODIUM	08/19/99	4820.00	B	UG/L		09/30/99	2810.00	B	UG/L		10/21/99	3760.00	B	UG/L		11/09/99	3200.00	B	UG/L	
3SE		B	THALLIUM	08/19/99	5.10	U	UG/L		09/30/99	5.06	U	UG/L		10/21/99	4.38	U	UG/L		11/09/99	4.38	U	UG/L	
3SE SOLUBLE		B	THALLIUM	08/19/99	5.10	U	UG/L		09/30/99	5.06	U	UG/L		10/21/99	4.71	U	UG/L		11/09/99	4.38	U	UG/L	
3SE		B	VANADIUM	08/19/99	1.50	U	UG/L		09/30/99	1.47	U	UG/L		10/21/99	1.07	U	UG/L		11/09/99	1.07	U	UG/L	
3SE SOLUBLE		B	VANADIUM	08/19/99	1.50	U	UG/L		09/30/99	1.47	U	UG/L		10/21/99	1.07	U	UG/L		11/09/99	1.07	U	UG/L	
3SE		B	ZINC	08/19/99	0.92	U	UG/L		09/30/99	11.80	B	UG/L		10/21/99	5.10	B	UG/L		11/09/99	2.80	B	UG/L	
3SE SOLUBLE		B	ZINC	08/19/99	5.40	B	UG/L		09/30/99	9.90	B	UG/L		10/21/99	4.50	B	UG/L		11/09/99	3.10	B	UG/L	

Phenols and Volatile Organics Parameters

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
3SE		B	TOTAL PHENOLICS	08/19/99	0.0050	U	MG/L		09/30/99	0.0010	U	MG/L		10/21/99	0.0010	U	MG/L		11/09/99	0.0010	U	MG/L	
3SE		B	BENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	BROMOBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	BROMOCHLOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	BROMODICHLOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	BROMOFORM	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	BROMOMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TERT-BUTYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	SEC-BUTYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	N-BUTYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CARBON TETRACHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CHLOROFORM	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CHLOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2-DIBROMO-3-CHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	2-CHLOROTOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	4-CHLOROTOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	DIBROMOCHLOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2-DIBROMOETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	DIBROMOMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2-DICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,4-DICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,3-DICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	DICHLORODIFLUOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1-DICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2-DICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1-DICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TRANS-1,2-DICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CIS-1,2-DICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	2,2-DICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2-DICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,3-DICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1-DICHLOROPROPENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TRANS-1,3-DICHLOROPROPENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	CIS-1,3-DICHLOROPROPENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	ETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	HEXACHLOROBUTADIENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	ISOPROPYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	P-ISOPROPYLTOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	METHYLENE CHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	NAPHTHALENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	N-PROPYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	STYRENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1,1,2-TETRACHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1,2,2-TETRACHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TETRACHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2,4-TRICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2,3-TRICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1,1-TRICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,1,2-TRICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TRICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	TRICHLOROFLUOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2,3-TRICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,3,5-TRIMETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	1,2,4-TRIMETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	VINYL CHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	M+P-XYLENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
3SE		B	O-XYLENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
19PW		B	CARBON TETRACHLORIDE	07/08/99	0.50	U	UG/L																
19PW		B	CHLOROBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	CHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	CHLOROFORM	07/08/99	0.50	U	UG/L																
19PW		B	CHLOROMETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,2-DIBROMO-3-CHLOROPROPANE	07/08/99	0.50	U	UG/L																
19PW		B	2-CHLOROTOLUENE	07/08/99	0.50	U	UG/L																
19PW		B	4-CHLOROTOLUENE	07/08/99	0.50	U	UG/L																
19PW		B	DIBROMOCHLOROMETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,2-DIBROMOETHANE	07/08/99	0.50	U	UG/L																
19PW		B	DIBROMOMETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,2-DICHLOROBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	1,4-DICHLOROBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	1,3-DICHLOROBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	DICHLORODIFLUOROMETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,1-DICHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,2-DICHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,1-DICHLOROETHENE	07/08/99	0.50	U	UG/L																
19PW		B	TRANS-1,2-DICHLOROETHENE	07/08/99	0.50	U	UG/L																
19PW		B	CIS-1,2-DICHLOROETHENE	07/08/99	0.50	U	UG/L																
19PW		B	2,2-DICHLOROPROPANE	07/08/99	0.50	U	UG/L																
19PW		B	1,2-DICHLOROPROPANE	07/08/99	0.50	U	UG/L																
19PW		B	1,3-DICHLOROPROPANE	07/08/99	0.50	U	UG/L																
19PW		B	1,1-DICHLOROPROPENE	07/08/99	0.50	U	UG/L																
19PW		B	TRANS-1,3-DICHLOROPROPENE	07/08/99	0.50	U	UG/L																
19PW		B	CIS-1,3-DICHLOROPROPENE	07/08/99	0.50	U	UG/L																
19PW		B	ETHYLBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	HEXACHLOROBUTADIENE	07/08/99	0.50	U	UG/L																
19PW		B	ISOPROPYLBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	P-ISOPROPYLTOLUENE	07/08/99	0.50	U	UG/L																
19PW		B	METHYLENE CHLORIDE	07/08/99	0.50	U	UG/L																
19PW		B	NAPHTHALENE	07/08/99	0.50	U	UG/L																
19PW		B	N-PROPYLBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	STYRENE	07/08/99	0.50	U	UG/L																
19PW		B	1,1,1,2-TETRACHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,1,2,2-TETRACHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	TETRACHLOROETHENE	07/08/99	0.50	U	UG/L																
19PW		B	TOLUENE	07/08/99	0.50	U	UG/L																
19PW		B	1,2,4-TRICHLOROBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	1,2,3-TRICHLOROBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	1,1,1-TRICHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,1,2-TRICHLOROETHANE	07/08/99	0.50	U	UG/L																
19PW		B	TRICHLOROETHENE	07/08/99	0.50	U	UG/L																
19PW		B	TRICHLOROFLUOROMETHANE	07/08/99	0.50	U	UG/L																
19PW		B	1,2,3-TRICHLOROPROPANE	07/08/99	0.50	U	UG/L																
19PW		B	1,3,5-TRIMETHYLBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	1,2,4-TRIMETHYLBENZENE	07/08/99	0.50	U	UG/L																
19PW		B	VINYL CHLORIDE	07/08/99	0.50	U	UG/L																
19PW		B	M+P-XYLENE	07/08/99	0.50	U	UG/L																
19PW		B	O-XYLENE	07/08/99	0.50	U	UG/L																

Raw CMB Data

East Branch Upstream Primary Sites

Field Parameters

1PE	NYCW99-27;	C	PH (FIELD)	06/29/99	7.05		SU		09/30/99	6.80		SU		10/20/99	6.08		SU	Y	11/09/99	6.65		SU	
1PE	NY6H98-57	C	PH	06/29/99	7.15		SU		09/30/99	6.98		SU		10/20/99	6.76		SU		11/09/99	7.42		SU	
1PE		C	CONDUCTIVITY (FIELD)	06/29/99	80.00		umhos/cm		09/30/99	60.00		umhos/cm		10/20/99	48.90		umhos/cm		11/09/99	37.8		umhos/cm	
1PE		C	CONDUCTIVITY	06/29/99	80.00		umhos/cm		09/30/99	61.00		umhos/cm		10/20/99	72.00		umhos/cm		11/09/99	58		umhos/cm	
1PE		C	TEMPERATURE (FIELD)	06/29/99	19.06		C		09/30/99	13.76		C		10/20/99	8.64		C		11/09/99	5.68		C	
1PE		C	DISSOLVED OXYGEN (FIELD)	06/29/99	8.66		MG/L		09/30/99	9.11		MG/L		10/20/99	11.62		MG/L		11/09/99	12.93		MG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
Nutrients and Solids Parameters																							
1PE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.222		MG/L		09/30/99	0.137		MG/L		10/20/99	0.0412		MG/L		11/09/99	.0817		MG/L	
1PE SOLUBLE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.225		MG/L		09/30/99	----		MG/L		10/20/99	0.0407		MG/L		11/09/99	.0803		MG/L	
1PE		C	NITRATE NITROGEN	06/29/99	0.222		MG/L		09/30/99	0.132		MG/L		10/20/99	0.05	U	MG/L		11/09/99	----		MG/L	
1PE SOLUBLE		C	NITRATE NITROGEN	06/29/99	----		MG/L		09/30/99	----		MG/L		10/20/99	0.05	U	MG/L		11/09/99	----		MG/L	
1PE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
1PE SOLUBLE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
1PE		C	TOTAL KJELDAHL NITROGEN	06/29/99	0.186		MG/L		09/30/99	0.0804		MG/L		10/20/99	0.05	U	MG/L		11/09/99	0.05	U	MG/L	
1PE		C	AMMONIA	06/29/99	0.05	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
1PE		C	TOTAL PHOSPHORUS	06/29/99	0.0330		MG/L		09/30/99	0.0311		MG/L		10/20/99	0.00890		MG/L		11/09/99	0.0065		MG/L	
1PE SOLUBLE		C	DISSOLVED PHOSPHORUS	06/29/99	0.0167		MG/L		09/30/99	----		MG/L		10/20/99	0.00623		MG/L		11/09/99	0.0054		MG/L	
1PE		C	TURBIDITY	06/29/99	1.80		NTU		09/30/99	4.50		NTU		10/20/99	1.20		NTU		11/09/99	0.780		NTU	
1PE		C	TOTAL SOLIDS	06/29/99	43.00		MG/L		09/30/99	48.0		MG/L		10/20/99	50.00		MG/L		11/09/99	39.0		MG/L	
1PE SOLUBLE		C	TOTAL DISSOLVED SOLIDS	06/29/99	----		MG/L		09/30/99	37.0		MG/L		10/20/99	37.00		MG/L		11/09/99	----		MG/L	
1PE		C	TOTAL SUSPENDED SOLIDS	06/29/99	7.07		MG/L		09/30/99	8.44		MG/L		10/20/99	1.10		MG/L		11/09/99	1.50		MG/L	
Minerals and Hardness Parameters																							
1PE		C	CHLORIDE	06/29/99	5.74		MG/L		09/30/99	3.76		MG/L		10/20/99	3.71		MG/L		11/09/99	3.32		MG/L	
1PE		C	FLUORIDE	06/29/99	0.20	U	MG/L		09/30/99	0.2		MG/L		10/20/99	0.20	U	MG/L		11/09/99	0.20	U	MG/L	
1PE		C	SULFATE	06/29/99	5.88		MG/L		09/30/99	5.94		MG/L		10/20/99	6.38		MG/L		11/09/99	6.44		MG/L	
1PE		C	TOTAL ALKALINITY	06/29/99	21.20		MG/L		09/30/99	14.1		MG/L		10/20/99	13.90		MG/L		11/09/99	12.0		MG/L	
1PE		C	TOTAL HARDNESS	06/29/99	23.60		MG/L		09/30/99	21.9		MG/L		10/20/99	21.00		MG/L		11/09/99	18.0		MG/L	
Metals Parameters																							
1PE		C	ALUMINUM	06/29/99	136.00	B	UG/L		09/30/99	211.00		UG/L		10/20/99	34.20	U	UG/L		11/09/99	34.20	U	UG/L	
1PE SOLUBLE		C	ALUMINUM	06/29/99	20.60	B	UG/L		09/30/99	----		UG/L		10/20/99	30.30	U	UG/L		11/09/99	34.20	U	UG/L	
1PE		C	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.90	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.10	U	UG/L	
1PE SOLUBLE		C	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	----		UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.10	U	UG/L	
1PE		C	ARSENIC	06/29/99	3.40	U	UG/L		09/30/99	3.40	U	UG/L		10/20/99	5.52	U	UG/L		11/09/99	5.50	U	UG/L	
1PE SOLUBLE		C	ARSENIC	06/29/99	3.40	U	UG/L		09/30/99	----		UG/L		10/20/99	5.52	U	UG/L		11/09/99	5.50	U	UG/L	
1PE		C	BARIUM	06/29/99	15.10	B	UG/L		09/30/99	10.80	B	UG/L		10/20/99	9.80	B	UG/L		11/09/99	5.00	U	UG/L	
1PE SOLUBLE		C	BARIUM	06/29/99	11.50	B	UG/L		09/30/99	----		UG/L		10/20/99	15.20	B	UG/L		11/09/99	5.00	U	UG/L	
1PE		C	BERYLLIUM	06/29/99	0.12	U	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	
1PE SOLUBLE		C	BERYLLIUM	06/29/99	0.12	U	UG/L		09/30/99	----		UG/L		10/20/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	
1PE		C	CADMIUM	06/29/99	1.40	B	UG/L	Y	09/30/99	1.20	B	UG/L	Y	10/20/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
1PE SOLUBLE		C	CADMIUM	06/29/99	1.10	B	UG/L	Y	09/30/99	----		UG/L		10/20/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
1PE		C	CALCIUM	06/29/99	7180.00		UG/L		09/30/99	5930		UG/L		10/20/99	5910.00		UG/L		11/09/99	5480		UG/L	
1PE SOLUBLE		C	CALCIUM	06/29/99	7620.00		UG/L		09/30/99	----		UG/L		10/20/99	6500.00		UG/L		11/09/99	5310		UG/L	
1PE		C	CHROMIUM	06/29/99	0.64	B	UG/L		09/30/99	0.38	B	UG/L		10/20/99	0.41	B	UG/L		11/09/99	0.24	B	UG/L	
1PE SOLUBLE		C	CHROMIUM	06/29/99	0.31	U	UG/L		09/30/99	----		UG/L		10/20/99	0.60	B	UG/L		11/09/99	0.22	U	UG/L	
1PE		C	COBALT	06/29/99	1.70	U	UG/L		09/30/99	1.70	U	UG/L		10/20/99	1.51	B	UG/L		11/09/99	1.50	U	UG/L	
1PE SOLUBLE		C	COBALT	06/29/99	1.70	U	UG/L		09/30/99	----		UG/L		10/20/99	1.70	B	UG/L		11/09/99	1.50	U	UG/L	
1PE		C	COPPER	06/29/99	2.80	U	UG/L		09/30/99	3.10	B	UG/L		10/20/99	1.78	U	UG/L		11/09/99	1.80	U	UG/L	
1PE SOLUBLE		C	COPPER	06/29/99	2.80	U	UG/L		09/30/99	----		UG/L		10/20/99	3.20	B	UG/L	Y	11/09/99	1.80	U	UG/L	
1PE		C	IRON	06/29/99	247.00		UG/L		09/30/99	355.00		UG/L	Y	10/20/99	78.30	B	UG/L		11/09/99	24.5	B	UG/L	
1PE SOLUBLE		C	IRON	06/29/99	30.20	B	UG/L		09/30/99	----		UG/L		10/20/99	49.00	B	UG/L		11/09/99	12.4	U	UG/L	
1PE		C	LEAD	06/29/99	2.90	U	UG/L		09/30/99	2.90	U	UG/L		10/20/99	0.49	U	UG/L		11/09/99	2.8	U	UG/L	
1PE SOLUBLE		C	LEAD	06/29/99	2.90	U	UG/L		09/30/99	----		UG/L		10/20/99	2.84	U	UG/L		11/09/99	2.8	U	UG/L	
1PE		C	MAGNESIUM	06/29/99	1450.00	B	UG/L		09/30/99	1240	B	UG/L		10/20/99	1240.00	B	UG/L		11/09/99	1080	B	UG/L	
1PE SOLUBLE		C	MAGNESIUM	06/29/99	1510.00	B	UG/L		09/30/99	----		UG/L		10/20/99	1390.00	B	UG/L		11/09/99	1060	B	UG/L	
1PE		C	MANGANESE	06/29/99	66.70		UG/L		09/30/99	58.50	E	UG/L		10/20/99	26.70		UG/L		11/09/99	20.8		UG/L	
1PE SOLUBLE		C	MANGANESE	06/29/99	28.80		UG/L		09/30/99	----		UG/L		10/20/99	22.90		UG/L		11/09/99	16.0		UG/L	
1PE		C	MERCURY	06/29/99	0.05	U	UG/L		09/30/99	0.04	U	UG/L		10/20/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
1PE SOLUBLE		C	MERCURY	06/29/99	0.05	U	UG/L		09/30/99	----		UG/L		10/20/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
1PE		C	NICKEL	06/29/99	1.50	U	UG/L		09/30/99	1.50	U	UG/L		10/20/99	1.13	U	UG/L		11/09/99	1.1	U	UG/L	
1PE SOLUBLE		C	NICKEL	06/29/99	1.50	U	UG/L		09/30/99	----		UG/L		10/20/99	2.30	B	UG/L		11/09/99	1.1	U	UG/L	
1PE		C	POTASSIUM	06/29/99	694.00	B	UG/L		09/30/99	762	B	UG/L		10/20/99	508.00	B	UG/L		11/09/99	900	U	UG/L	
1PE SOLUBLE		C	POTASSIUM	06/29/99	625.00	B	UG/L		09/30/99	----		UG/L		10/20/99	900.00	U,N,W	UG/L		11/09/99	900	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
1PE		C	SELENIUM	06/29/99	4.20	U	UG/L		09/30/99	4.20	U	UG/L		10/20/99	1.61	U	UG/L		11/09/99	3.8	U	UG/L	
1PE SOLUBLE		C	SELENIUM	06/29/99	4.20		UG/L		09/30/99	----		UG/L		10/20/99	3.78	U	UG/L		11/09/99	3.8	U	UG/L	
1PE		C	SILVER	06/29/99	0.65	U	UG/L		09/30/99	1.30	U	UG/L		10/20/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
1PE SOLUBLE		C	SILVER	06/29/99	0.65	U	UG/L		09/30/99	----		UG/L		10/20/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
1PE		C	SODIUM	06/29/99	3510.00	B	UG/L		09/30/99	2320	B	UG/L		10/20/99	2120.00	B	UG/L		11/09/99	1980	B	UG/L	
1PE SOLUBLE		C	SODIUM	06/29/99	3720.00	B	UG/L		09/30/99	----		UG/L		10/20/99	3140.00	B	UG/L		11/09/99	1900	B	UG/L	
1PE		C	THALLIUM	06/29/99	7.00	B	UG/L		09/30/99	5.10	U	UG/L		10/20/99	4.71	U,W	UG/L		11/09/99	4.4	U	UG/L	
1PE SOLUBLE		C	THALLIUM	06/29/99	5.10	U	UG/L		09/30/99	----		UG/L		10/20/99	6.10	B	UG/L		11/09/99	4.4	U	UG/L	
1PE		C	VANADIUM	06/29/99	1.50	U	UG/L		09/30/99	1.50	U	UG/L		10/20/99	1.07	U	UG/L		11/09/99	1.1	U	UG/L	
1PE SOLUBLE		C	VANADIUM	06/29/99	1.50	U	UG/L		09/30/99	----		UG/L		10/20/99	1.60	B	UG/L		11/09/99	1.1	U	UG/L	
1PE		C	ZINC	06/29/99	8.40	B	UG/L		09/30/99	9.70	B	UG/L		10/20/99	6.70	B	UG/L		11/09/99	3.3	B	UG/L	
1PE SOLUBLE		C	ZINC	06/29/99	7.00	B	UG/L		09/30/99	----		UG/L		10/20/99	6.50	B	UG/L		11/09/99	4.0	B	UG/L	

Phenols and Volatile Organics Parameters

1PE		C	TOTAL PHENOLICS	06/29/99	0.0050	U	MG/L		09/30/99	0.0010	U	MG/L		10/20/99	0.0010	U	MG/L		11/09/99	0.0010	U	MG/L	
1PE		C	BENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	BROMOBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	BROMOCHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	BROMODICHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	BROMOFORM	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	BROMOMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TERT-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	SEC-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	N-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CARBON TETRACHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CHLOROFORM	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2-DIBROMO-3-CHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	2-CHLOROTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	4-CHLOROTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	DIBROMOCHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2-DIBROMOETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	DIBROMOMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,4-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,3-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	DICHLORODIFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1-DICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2-DICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TRANS-1,2-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CIS-1,2-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	2,2-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,3-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TRANS-1,3-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	CIS-1,3-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	ETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	HEXACHLOROBUTADIENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	ISOPROPYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	P-ISOPROPYLTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	METHYLENE CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	NAPHTHALENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	N-PROPYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	STYRENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1,1,2-TETRACHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1,2,2-TETRACHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
1PE		C	TETRACHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,4-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,3-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1,1-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1,2-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TRICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TRICHLOROFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,3-TRICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,3,5-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,4-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	VINYL CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	M+P-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	O-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
Field Parameters																							
2PE	NYCW99-9;	C	PH (FIELD)	06/29/99	7.16		SU		09/30/99	6.99		SU		10/20/99	5.99		SU	Y	11/09/99	6.74		SU	
2PE	NY6H98-21	C	PH	06/29/99	7.14		SU		09/30/99	7.12		SU		10/20/99	7.02		SU		11/09/99	7.41		SU	
2PE		C	CONDUCTIVITY (FIELD)	06/29/99	80.00		umhos/cm		09/30/99	66.00		umhos/cm		10/20/99	52.90		umhos/cm		11/09/99	40.10		umhos/cm	
2PE		C	CONDUCTIVITY	06/29/99	83.00		umhos/cm		09/30/99	67.00		umhos/cm		10/20/99	77.00		umhos/cm		11/09/99	61.00		umhos/cm	
2PE		C	TEMPERATURE (FIELD)	06/29/99	20.82		C		09/30/99	14.11		C		10/20/99	9.00		C		11/09/99	6.01		C	
2PE		C	DISSOLVED OXYGEN (FIELD)	06/29/99	8.79		MG/L		09/30/99	9.00		MG/L		10/20/99	12.60		MG/L		11/09/99	12.64		MG/L	
Nutrients and Solids Parameters																							
2PE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.162		MG/L		09/30/99	0.158		MG/L		10/20/99	0.0470		MG/L		11/09/99	0.0879		MG/L	
2PE SOLUBLE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.169		MG/L		09/30/99	0.164		MG/L		10/20/99	0.0466		MG/L		11/09/99	0.0885		MG/L	
2PE		C	NITRATE NITROGEN	06/29/99	0.162		MG/L		09/30/99	0.152		MG/L		10/20/99	0.05	U	MG/L		11/09/99	---		MG/L	
2PE SOLUBLE		C	NITRATE NITROGEN	06/29/99	---		MG/L		09/30/99	0.161		MG/L		10/20/99	0.05	U	MG/L		11/09/99	---		MG/L	
2PE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
2PE SOLUBLE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
2PE		C	TOTAL KJELDAHL NITROGEN	06/29/99	0.292		MG/L		09/30/99	0.120		MG/L		10/20/99	0.120		MG/L		11/09/99	0.05	U	MG/L	
2PE		C	AMMONIA	06/29/99	0.05	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
2PE		C	TOTAL PHOSPHORUS	06/29/99	0.0591		MG/L		09/30/99	0.0268		MG/L		10/20/99	0.00812		MG/L		11/09/99	0.00587		MG/L	
2PE SOLUBLE		C	DISSOLVED PHOSPHORUS	06/29/99	0.0256		MG/L		09/30/99	0.0140		MG/L		10/20/99	0.00570		MG/L		11/09/99	0.00419		MG/L	
2PE		C	TURBIDITY	06/29/99	4.00		NTU		09/30/99	4.80		NTU		10/20/99	0.750		NTU		11/09/99	0.83		NTU	
2PE		C	TOTAL SOLIDS	06/29/99	47.00		MG/L		09/30/99	52.00		MG/L		10/20/99	50.00		MG/L		11/09/99	34.00		MG/L	
2PE SOLUBLE		C	TOTAL DISSOLVED SOLIDS	06/29/99	---		MG/L		09/30/99	31.00		MG/L		10/20/99	32.00		MG/L		11/09/99	---		MG/L	
2PE		C	TOTAL SUSPENDED SOLIDS	06/29/99	11.10		MG/L		09/30/99	6.40		MG/L		10/20/99	1.00	U	MG/L		11/09/99	1.00		MG/L	
Minerals and Hardness Parameters																							
2PE		C	CHLORIDE	06/29/99	5.53		MG/L		09/30/99	4.22		MG/L		10/20/99	3.82		MG/L		11/09/99	3.19		MG/L	
2PE		C	FLUORIDE	06/29/99	0.20	U	MG/L		09/30/99	0.20	U	MG/L		10/20/99	0.20	U	MG/L		11/09/99	0.20	U	MG/L	
2PE		C	SULFATE	06/29/99	5.77		MG/L		09/30/99	6.10		MG/L		10/20/99	6.52		MG/L		11/09/99	6.58		MG/L	
2PE		C	TOTAL ALKALINITY	06/29/99	23.00		MG/L		09/30/99	15.70		MG/L		10/20/99	15.90		MG/L		11/09/99	13.50		MG/L	
2PE		C	TOTAL HARDNESS	06/29/99	25.90		MG/L		09/30/99	22.50		MG/L		10/20/99	22.10		MG/L		11/09/99	19.00		MG/L	
Metals Parameters																							
2PE		C	ALUMINUM	06/29/99	251.00		UG/L		09/30/99	179.00	B	UG/L		10/20/99	34.20	U	UG/L		11/09/99	34.20	U	UG/L	
2PE SOLUBLE		C	ALUMINUM	06/29/99	20.00	U	UG/L		09/30/99	59.10	B	UG/L		10/20/99	30.30	U	UG/L		11/09/99	34.20	U	UG/L	
2PE		C	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
2PE SOLUBLE		C	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
2PE		C	ARSENIC	06/29/99	3.40	U	UG/L		09/30/99	3.43	U	UG/L		10/20/99	9.00	B	UG/L		11/09/99	5.52	U	UG/L	
2PE SOLUBLE		C	ARSENIC	06/29/99	4.90	B	UG/L		09/30/99	3.43	U	UG/L		10/20/99	5.52	U	UG/L		11/09/99	5.52	U	UG/L	
2PE		C	BARIUM	06/29/99	19.30	B	UG/L		09/30/99	14.20	B	UG/L		10/20/99	12.80	B	UG/L		11/09/99	6.30	B	UG/L	
2PE SOLUBLE		C	BARIUM	06/29/99	13.80	B	UG/L		09/30/99	11.80	B	UG/L		10/20/99	13.20	B	UG/L		11/09/99	5.70	B	UG/L	
2PE		C	BERYLLIUM	06/29/99	0.12	U	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.31	B	UG/L		11/09/99	0.19	U	UG/L	
2PE SOLUBLE		C	BERYLLIUM	06/29/99	0.18	B	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	

Sample Site 2PE

Sample Site

EPA Primary

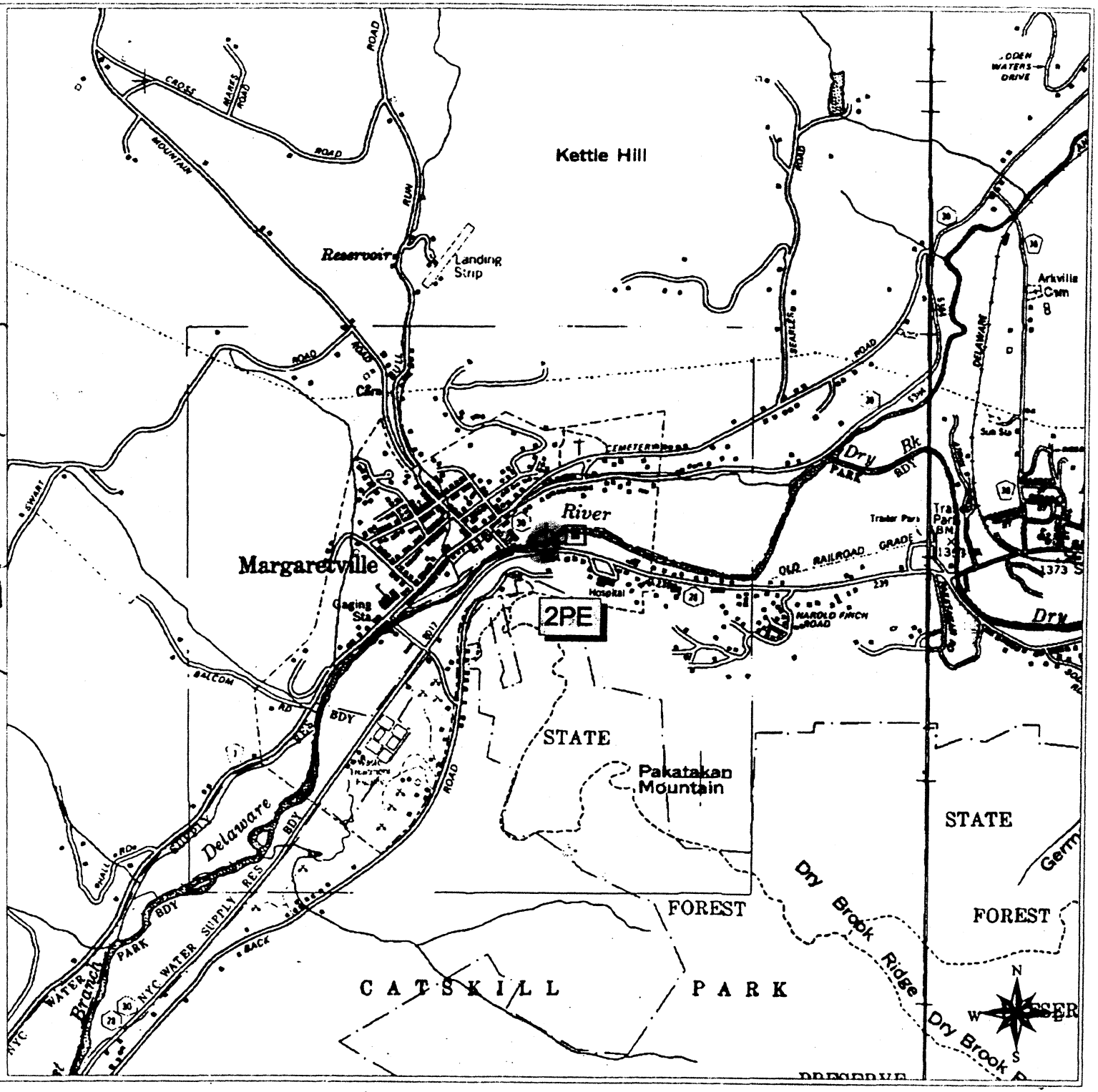
EPA Secondary

Topo Quad: 41-23
29,66 Margaretville

County Map and Quad:
Delaware P 21

Gazetteer Page and
Quad: 50, C/D 4

East Branch-
Delaware River
C



SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
1PE		C	TETRACHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,4-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,3-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1,1-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,1,2-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TRICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	TRICHLOROFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,3-TRICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,3,5-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	1,2,4-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	VINYL CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	M+P-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
1PE		C	O-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
Field Parameters																							
2PE	NYCW99-9;	C	PH (FIELD)	06/29/99	7.16		SU		09/30/99	6.99		SU		10/20/99	5.99		SU	Y	11/09/99	6.74		SU	
2PE	NY6H98-21	C	PH	06/29/99	7.14		SU		09/30/99	7.12		SU		10/20/99	7.02		SU		11/09/99	7.41		SU	
2PE		C	CONDUCTIVITY (FIELD)	06/29/99	80.00		umhos/cm		09/30/99	66.00		umhos/cm		10/20/99	52.90		umhos/cm		11/09/99	40.10		umhos/cm	
2PE		C	CONDUCTIVITY	06/29/99	83.00		umhos/cm		09/30/99	67.00		umhos/cm		10/20/99	77.00		umhos/cm		11/09/99	61.00		umhos/cm	
2PE		C	TEMPERATURE (FIELD)	06/29/99	20.82		C		09/30/99	14.11		C		10/20/99	9.00		C		11/09/99	6.01		C	
2PE		C	DISSOLVED OXYGEN (FIELD)	06/29/99	8.79		MG/L		09/30/99	9.00		MG/L		10/20/99	12.60		MG/L		11/09/99	12.64		MG/L	
Nutrients and Solids Parameters																							
2PE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.162		MG/L		09/30/99	0.158		MG/L		10/20/99	0.0470		MG/L		11/09/99	0.0879		MG/L	
2PE SOLUBLE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.169		MG/L		09/30/99	0.164		MG/L		10/20/99	0.0466		MG/L		11/09/99	0.0885		MG/L	
2PE		C	NITRATE NITROGEN	06/29/99	0.162		MG/L		09/30/99	0.152		MG/L		10/20/99	0.05	U	MG/L		11/09/99	----		MG/L	
2PE SOLUBLE		C	NITRATE NITROGEN	06/29/99	----		MG/L		09/30/99	0.161		MG/L		10/20/99	0.05	U	MG/L		11/09/99	----		MG/L	
2PE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
2PE SOLUBLE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
2PE		C	TOTAL KJELDAHL NITROGEN	06/29/99	0.292		MG/L		09/30/99	0.120		MG/L		10/20/99	0.120		MG/L		11/09/99	0.05	U	MG/L	
2PE		C	AMMONIA	06/29/99	0.05	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
2PE		C	TOTAL PHOSPHORUS	06/29/99	0.0591		MG/L		09/30/99	0.0268		MG/L		10/20/99	0.00812		MG/L		11/09/99	0.00587		MG/L	
2PE SOLUBLE		C	DISSOLVED PHOSPHORUS	06/29/99	0.0256		MG/L		09/30/99	0.0140		MG/L		10/20/99	0.00570		MG/L		11/09/99	0.00419		MG/L	
2PE		C	TURBIDITY	06/29/99	4.00		NTU		09/30/99	4.80		NTU		10/20/99	0.750		NTU		11/09/99	0.83		NTU	
2PE		C	TOTAL SOLIDS	06/29/99	47.00		MG/L		09/30/99	52.00		MG/L		10/20/99	50.00		MG/L		11/09/99	34.00		MG/L	
2PE SOLUBLE		C	TOTAL DISSOLVED SOLIDS	06/29/99	----		MG/L		09/30/99	31.00		MG/L		10/20/99	32.00		MG/L		11/09/99	----		MG/L	
2PE		C	TOTAL SUSPENDED SOLIDS	06/29/99	11.10		MG/L		09/30/99	6.40		MG/L		10/20/99	1.00	U	MG/L		11/09/99	1.00		MG/L	
Minerals and Hardness Parameters																							
2PE		C	CHLORIDE	06/29/99	5.53		MG/L		09/30/99	4.22		MG/L		10/20/99	3.82		MG/L		11/09/99	3.19		MG/L	
2PE		C	FLUORIDE	06/29/99	0.20	U	MG/L		09/30/99	0.20	U	MG/L		10/20/99	0.20	U	MG/L		11/09/99	0.20	U	MG/L	
2PE		C	SULFATE	06/29/99	5.77		MG/L		09/30/99	6.10		MG/L		10/20/99	6.52		MG/L		11/09/99	6.58		MG/L	
2PE		C	TOTAL ALKALINITY	06/29/99	23.00		MG/L		09/30/99	15.70		MG/L		10/20/99	15.90		MG/L		11/09/99	13.50		MG/L	
2PE		C	TOTAL HARDNESS	06/29/99	25.90		MG/L		09/30/99	22.50		MG/L		10/20/99	22.10		MG/L		11/09/99	19.00		MG/L	
Metals Parameters																							
2PE		C	ALUMINUM	06/29/99	251.00		UG/L		09/30/99	179.00	B	UG/L		10/20/99	34.20	U	UG/L		11/09/99	34.20	U	UG/L	
2PE SOLUBLE		C	ALUMINUM	06/29/99	20.00	U	UG/L		09/30/99	59.10	B	UG/L		10/20/99	30.30	U	UG/L		11/09/99	34.20	U	UG/L	
2PE		C	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
2PE SOLUBLE		C	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
2PE		C	ARSENIC	06/29/99	3.40	U	UG/L		09/30/99	3.43	U	UG/L		10/20/99	9.00	B	UG/L		11/09/99	5.52	U	UG/L	
2PE SOLUBLE		C	ARSENIC	06/29/99	4.90	B	UG/L		09/30/99	3.43	U	UG/L		10/20/99	5.52	U	UG/L		11/09/99	5.52	U	UG/L	
2PE		C	BARIUM	06/29/99	19.30	B	UG/L		09/30/99	14.20	B	UG/L		10/20/99	12.80	B	UG/L		11/09/99	6.30	B	UG/L	
2PE SOLUBLE		C	BARIUM	06/29/99	13.80	B	UG/L		09/30/99	11.80	B	UG/L		10/20/99	13.20	B	UG/L		11/09/99	5.70	B	UG/L	
2PE		C	BERYLLIUM	06/29/99	0.12	U	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.31	B	UG/L		11/09/99	0.19	U	UG/L	
2PE SOLUBLE		C	BERYLLIUM	06/29/99	0.18	B	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
2PE		C	CADMIUM	06/29/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/20/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
2PE SOLUBLE		C	CADMIUM	06/29/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/20/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
2PE		C	CALCIUM	06/29/99	8210.00		UG/L		09/30/99	6460.00		UG/L		10/20/99	6400.00		UG/L		11/09/99	5760.00		UG/L	
2PE SOLUBLE		C	CALCIUM	06/29/99	7960.00		UG/L		09/30/99	6490.00		UG/L		10/20/99	6850.00		UG/L		11/09/99	6060.00		UG/L	
2PE		C	CHROMIUM	06/29/99	0.56	B	UG/L		09/30/99	0.40	B	UG/L		10/20/99	0.44	B	UG/L		11/09/99	0.22	U	UG/L	
2PE SOLUBLE		C	CHROMIUM	06/29/99	0.37	B	UG/L		09/30/99	0.31	U	UG/L		10/20/99	0.22	U	UG/L		11/09/99	0.22	U	UG/L	
2PE		C	COBALT	06/29/99	1.70	U	UG/L		09/30/99	1.70	U	UG/L		10/20/99	3.10	B	UG/L		11/09/99	1.51	U	UG/L	
2PE SOLUBLE		C	COBALT	06/29/99	1.70	U	UG/L		09/30/99	1.70	U	UG/L		10/20/99	1.51	U	UG/L		11/09/99	1.51	U	UG/L	
2PE		C	COPPER	06/29/99	2.80	U	UG/L		09/30/99	3.10	B	UG/L		10/20/99	1.78	U	UG/L		11/09/99	1.78	U	UG/L	
2PE SOLUBLE		C	COPPER	06/29/99	2.80	U	UG/L		09/30/99	2.85	U	UG/L		10/20/99	2.60	B	UG/L		11/09/99	1.78	U	UG/L	
2PE		C	IRON	06/29/99	657.00		UG/L	Y	09/30/99	304.00		UG/L	Y	10/20/99	76.60	B	UG/L		11/09/99	14.60	B	UG/L	
2PE SOLUBLE		C	IRON	06/29/99	191.00		UG/L		09/30/99	53.10	B	UG/L		10/20/99	44.00	B	UG/L		11/09/99	12.40	U	UG/L	
2PE		C	LEAD	06/29/99	2.90	U	UG/L		09/30/99	2.92	U	UG/L		10/20/99	0.49	U	UG/L		11/09/99	2.84	U	UG/L	
2PE SOLUBLE		C	LEAD	06/29/99	2.90	U	UG/L		09/30/99	2.92	U	UG/L		10/20/99	2.84	U	UG/L		11/09/99	2.84	U	UG/L	
2PE		C	MAGNESIUM	06/29/99	1490.00	B	UG/L		09/30/99	1240.00	B	UG/L		10/20/99	1210.00	B	UG/L		11/09/99	1070.00	B	UG/L	
2PE SOLUBLE		C	MAGNESIUM	06/29/99	1410.00	B	UG/L		09/30/99	1200.00	B	UG/L		10/20/99	1260.00	B	UG/L		11/09/99	1130.00	B	UG/L	
2PE		C	MANGANESE	06/29/99	69.20		UG/L		09/30/99	37.20	E	UG/L		10/20/99	11.50	B	UG/L		11/09/99	11.20	B	UG/L	
2PE SOLUBLE		C	MANGANESE	06/29/99	17.90		UG/L		09/30/99	14.40	B,E	UG/L		10/20/99	11.20	B	UG/L		11/09/99	10.00	B	UG/L	
2PE		C	MERCURY	06/29/99	0.05	U	UG/L		09/30/99	0.04	U	UG/L		10/20/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
2PE SOLUBLE		C	MERCURY	06/29/99	0.05	U	UG/L		09/30/99	0.06	B	UG/L	Y	10/20/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
2PE		C	NICKEL	06/29/99	1.50	U	UG/L		09/30/99	1.55	U	UG/L		10/20/99	1.13	U	UG/L		11/09/99	1.13	U	UG/L	
2PE SOLUBLE		C	NICKEL	06/29/99	1.50	U	UG/L		09/30/99	1.55	U	UG/L		10/20/99	1.50	B	UG/L		11/09/99	1.13	U	UG/L	
2PE		C	POTASSIUM	06/29/99	638.00	B	UG/L		09/30/99	1030.00	B	UG/L		10/20/99	497.00	B	UG/L		11/09/99	900.00	U	UG/L	
2PE SOLUBLE		C	POTASSIUM	06/29/99	815.00	B	UG/L		09/30/99	707.00	U	UG/L		10/20/99	900.00	U	UG/L		11/09/99	900.00	U	UG/L	
2PE		C	SELENIUM	06/29/99	4.20	U	UG/L		09/30/99	4.15	U	UG/L		10/20/99	1.61	U	UG/L		11/09/99	3.78	U	UG/L	
2PE SOLUBLE		C	SELENIUM	06/29/99	4.20	U	UG/L		09/30/99	4.15	U	UG/L		10/20/99	3.78	U	UG/L		11/09/99	3.78	U	UG/L	
2PE		C	SILVER	06/29/99	4.10	B	UG/L		09/30/99	1.33	U	UG/L		10/20/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
2PE SOLUBLE		C	SILVER	06/29/99	0.65	U	UG/L		09/30/99	1.33	U	UG/L		10/20/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
2PE		C	SODIUM	06/29/99	3660.00	B	UG/L		09/30/99	2400.00	B	UG/L		10/20/99	2070.00	B	UG/L		11/09/99	1950.00	B	UG/L	
2PE SOLUBLE		C	SODIUM	06/29/99	3600.00	B	UG/L		09/30/99	2510.00	B	UG/L		10/20/99	3310.00	B	UG/L		11/09/99	2000.00	B	UG/L	
2PE		C	THALLIUM	06/29/99	6.70	B	UG/L		09/30/99	5.06	U	UG/L		10/20/99	4.71	U,W	UG/L		11/09/99	4.38	U	UG/L	
2PE SOLUBLE		C	THALLIUM	06/29/99	7.60	B	UG/L		09/30/99	5.06	U	UG/L		10/20/99	4.38	U	UG/L		11/09/99	4.38	U	UG/L	
2PE		C	VANADIUM	06/29/99	1.50	U	UG/L		09/30/99	1.47	U	UG/L		10/20/99	1.07	U	UG/L		11/09/99	1.07	U	UG/L	
2PE SOLUBLE		C	VANADIUM	06/29/99	1.50	U	UG/L		09/30/99	1.47	U	UG/L		10/20/99	1.07	U	UG/L		11/09/99	1.07	U	UG/L	
2PE		C	ZINC	06/29/99	11.50	B	UG/L		09/30/99	12.70	B	UG/L		10/20/99	10.80	B	UG/L		11/09/99	2.22	U	UG/L	
2PE SOLUBLE		C	ZINC	06/29/99	4.20	B	UG/L		09/30/99	10.80	B	UG/L		10/20/99	5.70	B	UG/L		11/09/99	2.60	B	UG/L	

Phenols and Volatile Organics Parameters

2PE		C	TOTAL PHENOLICS	06/29/99	0.0050	U	MG/L		09/30/99	0.0010	U	MG/L		10/20/99	0.0010	U	MG/L		11/09/99	0.0010	U	MG/L	
2PE		C	BENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	BROMOBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	BROMOCHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	BROMODICHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	BROMOFORM	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	BROMOMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TERT-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	SEC-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	N-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CARBON TETRACHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CHLOROBENZENE	06/29/99	0.54		UG/L	Y	09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CHLOROFORM	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2-DIBROMO-3-CHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	2-CHLOROTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	4-CHLOROTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	DIBROMOCHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2-DIBROMOETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	DIBROMOMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
2PE		C	1,4-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,3-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	DICHLORODIFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1-DICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2-DICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TRANS-1,2-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CIS-1,2-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	2,2-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,3-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TRANS-1,3-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	CIS-1,3-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	ETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	HEXACHLOROBUTADIENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	ISOPROPYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	P-ISOPROPYLTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	METHYLENE CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	NAPHTHALENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	N-PROPYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	STYRENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1,1,2-TETRACHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1,2,2-TETRACHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TETRACHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2,4-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2,3-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1,1-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,1,2-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TRICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	TRICHLOROFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2,3-TRICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,3,5-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	1,2,4-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	VINYL CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	M+P-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
2PE		C	O-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
Field Parameters																							
2SE	NYCW99-33;	C	PH (FIELD)	06/29/99	6.81		SU		09/29/99	6.70		SU		10/20/99	6.18		SU	Y	11/04/99	7.10		SU	
2SE	NY6H98-237	C	PH	06/29/99	7.08		SU		09/29/99	7.11		SU		10/20/99	6.96		SU		11/04/99	6.93		SU	
2SE		C	CONDUCTIVITY (FIELD)	06/29/99	88.00		umhos/cm		09/29/99	82.00		umhos/cm		10/20/99	71.00		umhos/cm		11/04/99	64.10		umhos/cm	
2SE		C	CONDUCTIVITY	06/29/99	92.00		umhos/cm		09/29/99	87.00		umhos/cm		10/20/99	91.00		umhos/cm		11/04/99	120.00		umhos/cm	
2SE		C	TEMPERATURE (FIELD)	06/29/99	19.87		C		09/29/99	14.49		C		10/20/99	8.52		C		11/04/99	6.39		C	
2SE		C	DISSOLVED OXYGEN (FIELD)	06/29/99	7.31		MG/L		09/29/99	7.98		MG/L		10/20/99	9.92		MG/L		11/04/99	10.37		MG/L	
Nutrients and Solids Parameters																							
2SE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.192		MG/L		09/29/99	0.290		MG/L		10/20/99	0.125		MG/L		11/04/99	0.160		MG/L	
2SE SOLUBLE		C	NITRATE/NITRITE NITROGEN	06/29/99	0.194		MG/L		09/29/99	0.290		MG/L		10/20/99	0.128		MG/L		11/04/99	0.131		MG/L	
2SE		C	NITRATE NITROGEN	06/29/99	0.192		MG/L		09/29/99	0.286		MG/L		10/20/99	0.125		MG/L		11/04/99	----		MG/L	
2SE SOLUBLE		C	NITRATE NITROGEN	06/29/99	----		MG/L		09/29/99	0.287		MG/L		10/20/99	0.128		MG/L		11/04/99	----		MG/L	
2SE		C	NITRITE NITROGEN	06/29/99	0.01		MG/L		09/29/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/04/99	0.01	U	MG/L	
2SE SOLUBLE		C	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/29/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/04/99	0.01	U	MG/L	
2SE		C	TOTAL KJELDAHL NITROGEN	06/29/99	0.289	U	MG/L		09/29/99	0.0524		MG/L		10/20/99	0.0947		MG/L		11/04/99	0.154		MG/L	
2SE		C	AMMONIA	06/29/99	0.05	U	MG/L		09/29/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/04/99	0.01	U	MG/L	
2SE		C	TOTAL PHOSPHORUS	06/29/99	0.0904		MG/L		09/29/99	0.0299		MG/L		10/20/99	0.0219		MG/L		11/04/99	0.0259		MG/L	
2SE SOLUBLE		C	DISSOLVED PHOSPHORUS	06/29/99	0.0383		MG/L		09/29/99	0.0192		MG/L		10/20/99	0.0135		MG/L		11/04/99	0.0144		MG/L	
2SE		C	TURBIDITY	06/29/99	10.00		NTU		09/29/99	2.70		NTU		10/20/99	1.80		NTU		11/04/99	2.90		NTU	

Sample Site 1TE

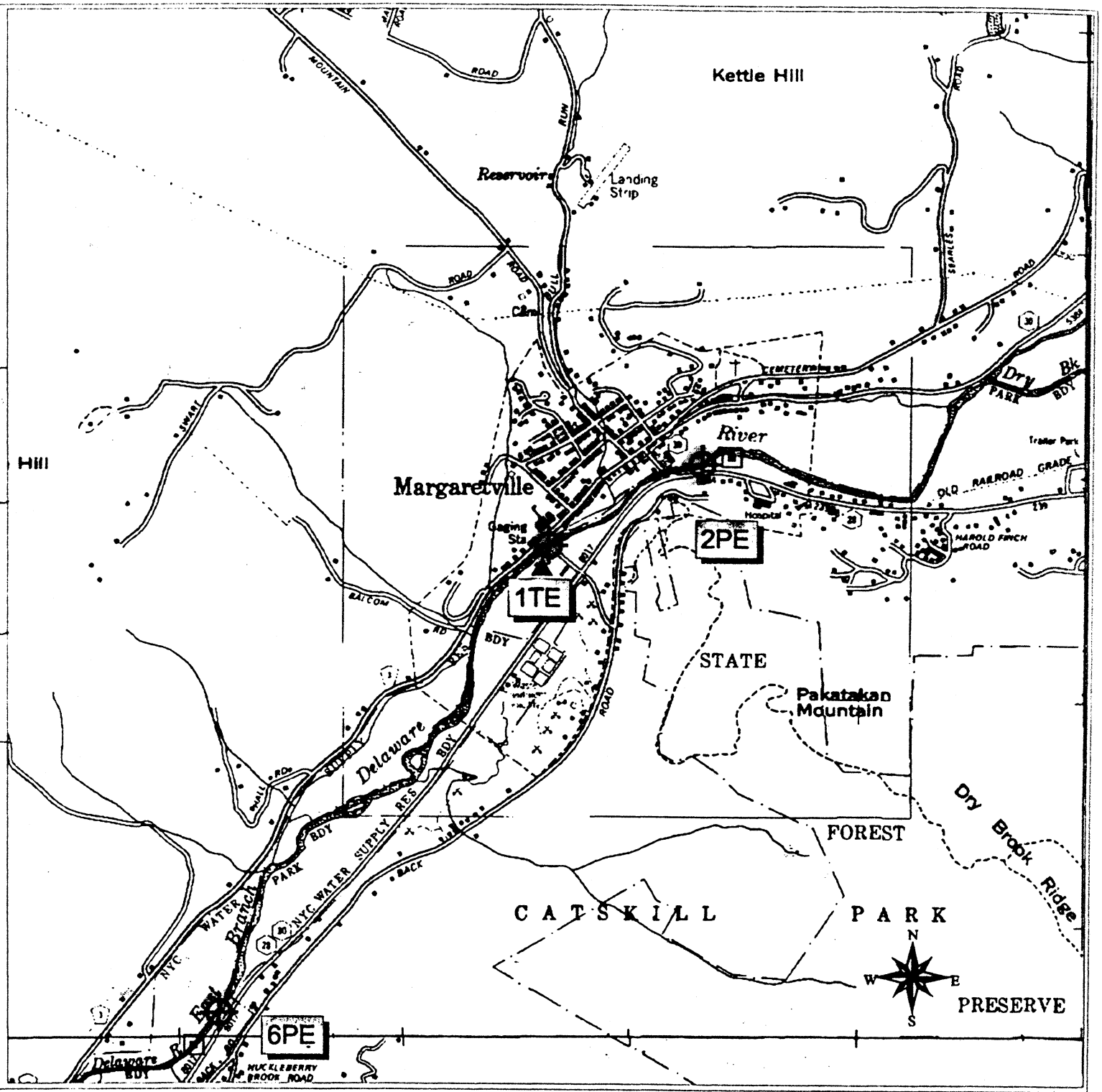
- Sample Site
- EPA Primary
- EPA Secondary
- EPA Tertiary

Topo Quad: 41-23 29, 66 Margaretville

County Map and Quad: Delaware P 21

Gazetteer Page and Quad: 50, C/D 3

East Branch Delaware River



RAW LAB DATA

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
4SE		A	ETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	HEXACHLOROBUTADIENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	ISOPROPYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	P-ISOPROPYLTOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	METHYLENE CHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	NAPHTHALENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	N-PROPYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	STYRENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,1,1,2-TETRACHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,1,2,2-TETRACHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	TETRACHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	TOLUENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,2,4-TRICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,2,3-TRICHLOROBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,1,1-TRICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,1,2-TRICHLOROETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	TRICHLOROETHENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	TRICHLOROFLUOROMETHANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,2,3-TRICHLOROPROPANE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,3,5-TRIMETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	1,2,4-TRIMETHYLBENZENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	VINYL CHLORIDE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	M+P-XYLENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
4SE		A	O-XYLENE	08/19/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/21/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
Tertiary Sites																							
Field Parameters																							
1TE	NYCW99-38	C	PH (FIELD)	09/21/99	6.55		SU		10/20/99	6.18		SU	Y	11/03/99	----		SU		11/18/99	7.56		SU	
1TE		C	PH	09/21/99	7.09		SU		10/20/99	7.17		SU		11/03/99	7.41		SU		11/18/99	7.22		SU	
1TE		C	CONDUCTIVITY (FIELD)	09/21/99	64.00		umhos/cm		10/20/99	51.90		umhos/cm		11/03/99	----		umhos/cm		11/18/99	56.10		umhos/cm	
1TE		C	CONDUCTIVITY	09/21/99	64.00		umhos/cm		10/20/99	78.00		umhos/cm		11/03/99	54.00		umhos/cm		11/18/99	68.00		umhos/cm	
1TE		C	TEMPERATURE (FIELD)	09/21/99	13.44		C		10/20/99	9.08		C		11/03/99	----		C		11/18/99	2.62		C	
1TE		C	DISSOLVED OXYGEN (FIELD)	09/21/99	8.92		MG/L		10/20/99	11.97		MG/L		11/03/99	----		MG/L		11/18/99	13.07		MG/L	
Nutrients and Solids Parameters																							
1TE		C	NITRATE/NITRITE NITROGEN	09/21/99	0.263		MG/L		10/20/99	0.0392		MG/L		11/03/99	0.156		MG/L		11/18/99	0.118		MG/L	
1TE SOLUBLE		C	NITRATE/NITRITE NITROGEN	09/21/99	0.277		MG/L		10/20/99	0.0405		MG/L		11/03/99	0.153		MG/L		11/18/99	0.116		MG/L	
1TE		C	NITRATE NITROGEN	09/21/99	0.263		MG/L		10/20/99	0.05	U	MG/L		11/03/99	----		MG/L		11/18/99	----		MG/L	
1TE SOLUBLE		C	NITRATE NITROGEN	09/21/99	0.277		MG/L		10/20/99	0.05	U	MG/L		11/03/99	----		MG/L		11/18/99	----		MG/L	
1TE		C	NITRITE NITROGEN	09/21/99	0.010	U	MG/L		10/20/99	0.01	U	MG/L		11/03/99	0.01	U	MG/L		11/18/99	0.01	U	MG/L	
1TE SOLUBLE		C	NITRITE NITROGEN	09/21/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/03/99	0.01	U	MG/L		11/18/99	0.01	U	MG/L	
1TE		C	TOTAL KJELDAHL NITROGEN	09/21/99	0.187		MG/L		10/20/99	0.05	U	MG/L		11/03/99	0.0606		MG/L		11/18/99	0.05	U	MG/L	
1TE		C	AMMONIA	09/21/99	0.010	U	MG/L		10/20/99	0.01	U	MG/L		11/03/99	0.01	U	MG/L		11/18/99	0.01	U	MG/L	
1TE		C	TOTAL PHOSPHORUS	09/21/99	0.0201		MG/L		10/20/99	0.00936		MG/L		11/03/99	0.0157		MG/L		11/18/99	0.00658		MG/L	
1TE SOLUBLE		C	DISSOLVED PHOSPHORUS	09/21/99	0.0160		MG/L		10/20/99	0.00627		MG/L		11/03/99	0.00718		MG/L		11/18/99	0.00560		MG/L	
1TE		C	TURBIDITY	09/21/99	2.60		NTU		10/20/99	1.50		NTU		11/03/99	3.20		NTU		11/18/99	1.50		NTU	
1TE		C	TOTAL SOLIDS	09/21/99	50.00		MG/L		10/20/99	49.00		MG/L		11/03/99	50.00		MG/L		11/18/99	41.00		MG/L	
1TE SOLUBLE		C	TOTAL DISSOLVED SOLIDS	09/21/99	----		MG/L		10/20/99	24.00		MG/L		11/03/99	----		MG/L		11/18/99	----		MG/L	
1TE		C	TOTAL SUSPENDED SOLIDS	09/21/99	2.00		MG/L		10/20/99	1.00	U	MG/L		11/03/99	3.16		MG/L		11/18/99	1.00	U	MG/L	
Minerals and Hardness Parameters																							
1TE		C	CHLORIDE	09/21/99	3.71		MG/L		10/20/99	3.84		MG/L		11/03/99	3.11		MG/L		11/18/99	4.33		MG/L	
1TE		C	FLUORIDE	09/21/99	0.20	U	MG/L		10/20/99	0.20	U	MG/L		11/03/99	0.20	U	MG/L		11/18/99	0.20	U	MG/L	
1TE		C	SULFATE	09/21/99	6.42		MG/L		10/20/99	6.50		MG/L		11/03/99	6.22		MG/L		11/18/99	6.69		MG/L	
1TE		C	TOTAL ALKALINITY	09/21/99	14.30		MG/L		10/20/99	15.40		MG/L		11/03/99	11.30		MG/L		11/18/99	15.10		MG/L	
1TE		C	TOTAL HARDNESS	09/21/99	23.00		MG/L		10/20/99	22.70		MG/L		11/03/99	18.00		MG/L		11/18/99	23.00		MG/L	
Metals Parameters																							

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
1TE		C	ALUMINUM	09/21/99	50.40	B	UG/L		10/20/99	34.20	U	UG/L		11/03/99	65.80	B	UG/L		11/18/99	33.30	B	UG/L	
1TE SOLUBLE		C	ALUMINUM	09/21/99	20.00	U	UG/L		10/20/99	30.30	U	UG/L		11/03/99	34.20	U	UG/L		11/18/99	34.20	U	UG/L	
1TE		C	ANTIMONY	09/21/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/03/99	3.08	U	UG/L		11/18/99	1.65	U	UG/L	
1TE SOLUBLE		C	ANTIMONY	09/21/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/03/99	3.08	U	UG/L		11/18/99	3.08	U	UG/L	
1TE		C	ARSENIC	09/21/99	3.60	B	UG/L		10/20/99	5.52	U	UG/L		11/03/99	5.90	B	UG/L		11/18/99	2.96	U	UG/L	
1TE SOLUBLE		C	ARSENIC	09/21/99	3.43	U	UG/L		10/20/99	5.52	U	UG/L		11/03/99	9.80	B	UG/L		11/18/99	5.52	U	UG/L	
1TE		C	BARIUM	09/21/99	13.10	B	UG/L		10/20/99	13.00	B	UG/L		11/03/99	10.90	B	UG/L		11/18/99	11.10	B	UG/L	
1TE SOLUBLE		C	BARIUM	09/21/99	11.50	B	UG/L		10/20/99	13.00	B	UG/L		11/03/99	9.20	B	UG/L		11/18/99	10.70	B	UG/L	
1TE		C	BERYLLIUM	09/21/99	0.17	B	UG/L		10/20/99	0.19	U	UG/L		11/03/99	0.22	B	UG/L		11/18/99	0.12	U	UG/L	
1TE SOLUBLE		C	BERYLLIUM	09/21/99	0.12	U	UG/L		10/20/99	0.19	U	UG/L		11/03/99	0.50	B	UG/L		11/18/99	0.19	U	UG/L	
1TE		C	CADMIUM	09/21/99	0.84	U	UG/L		10/20/99	0.62	U	UG/L		11/03/99	0.83	B	UG/L	Y	11/18/99	0.34	U	UG/L	
1TE SOLUBLE		C	CADMIUM	09/21/99	0.88	B	UG/L	Y	10/20/99	0.62	U	UG/L		11/03/99	0.62	U	UG/L		11/18/99	0.62	U	UG/L	
1TE		C	CALCIUM	09/21/99	6720.00		UG/L		10/20/99	6500.00		UG/L		11/03/99	6660.00		UG/L		11/18/99	6960.00		UG/L	
1TE SOLUBLE		C	CALCIUM	09/21/99	6480.00		UG/L		10/20/99	7390.00		UG/L		11/03/99	6130.00		UG/L		11/18/99	6780.00		UG/L	
1TE		C	CHROMIUM	09/21/99	0.67	B	UG/L		10/20/99	0.42	B	UG/L		11/03/99	0.64	B	UG/L		11/18/99	1.50	B	UG/L	
1TE SOLUBLE		C	CHROMIUM	09/21/99	0.31	U	UG/L		10/20/99	0.22	U	UG/L		11/03/99	0.22	U	UG/L		11/18/99	0.22	U	UG/L	
1TE		C	COBALT	09/21/99	1.70	U	UG/L		10/20/99	1.51	U	UG/L		11/03/99	1.51	U	UG/L		11/18/99	2.82	U	UG/L	
1TE SOLUBLE		C	COBALT	09/21/99	1.70	U	UG/L		10/20/99	1.51	U	UG/L		11/03/99	1.90	B	UG/L		11/18/99	1.51	U	UG/L	
1TE		C	COPPER	09/21/99	3.20	B	UG/L		10/20/99	3.60	B	UG/L	Y	11/03/99	1.78	U	UG/L		11/18/99	3.55	U	UG/L	
1TE SOLUBLE		C	COPPER	09/21/99	4.60	B	UG/L	Y	10/20/99	2.10	B	UG/L		11/03/99	4.00	B	UG/L	Y	11/18/99	1.78	U	UG/L	
1TE		C	IRON	09/21/99	116.00		UG/L		10/20/99	101.00		UG/L		11/03/99	359.00		UG/L	Y	11/18/99	77.60	B	UG/L	
1TE SOLUBLE		C	IRON	09/21/99	46.60	B	UG/L		10/20/99	45.90	B	UG/L		11/03/99	64.10	B	UG/L		11/18/99	39.40	B	UG/L	
1TE		C	LEAD	09/21/99	3.10		UG/L	Y	10/20/99	0.95	B	UG/L		11/03/99	0.99	U	UG/L		11/18/99	2.84	U	UG/L	
1TE SOLUBLE		C	LEAD	09/21/99	1.29	U	UG/L		10/20/99	2.84	U	UG/L		11/03/99	0.99	U	UG/L		11/18/99	2.84	U	UG/L	
1TE		C	MAGNESIUM	09/21/99	1190.00	B	UG/L		10/20/99	1210.00	B	UG/L		11/03/99	1200.00	B	UG/L		11/18/99	1240.00	B	UG/L	
1TE SOLUBLE		C	MAGNESIUM	09/21/99	1150.00	B	UG/L		10/20/99	1360.00	B	UG/L		11/03/99	1090.00	B	UG/L		11/18/99	1260.00	B	UG/L	
1TE		C	MANGANESE	09/21/99	18.20	E	UG/L		10/20/99	12.30	B	UG/L		11/03/99	19.20		UG/L		11/18/99	15.20		UG/L	
1TE SOLUBLE		C	MANGANESE	09/21/99	10.90	B,E	UG/L		10/20/99	11.70	B	UG/L		11/03/99	8.00	B	UG/L		11/18/99	14.80	B	UG/L	
1TE		C	MERCURY	09/21/99	0.04	U	UG/L		10/20/99	0.04	U	UG/L		11/03/99	0.04	U	UG/L		11/18/99	0.04	U	UG/L	
1TE SOLUBLE		C	MERCURY	09/21/99	0.04	U,N	UG/L		10/20/99	0.04	U	UG/L		11/03/99	0.04	U	UG/L		11/18/99	0.08	B	UG/L	Y
1TE		C	NICKEL	09/21/99	55.30		UG/L	Y	10/20/99	2.30	B	UG/L		11/03/99	1.20	B	UG/L		11/18/99	1.65	U	UG/L	
1TE SOLUBLE		C	NICKEL	09/21/99	1.55	U	UG/L		10/20/99	1.13	U	UG/L		11/03/99	1.30	B	UG/L		11/18/99	1.13	U	UG/L	
1TE		C	POTASSIUM	09/21/99	857.00	U	UG/L		10/20/99	504.00	B	UG/L		11/03/99	998.00	B	UG/L		11/18/99	1030.00	U	UG/L	
1TE SOLUBLE		C	POTASSIUM	09/21/99	857.00	U	UG/L		10/20/99	900.00	U	UG/L		11/03/99	900.00	U	UG/L		11/18/99	900.00	U	UG/L	
1TE		C	SELENIUM	09/21/99	4.15	U	UG/L		10/20/99	1.61	U,N,W	UG/L		11/03/99	3.78	U	UG/L		11/18/99	4.69	U	UG/L	
1TE SOLUBLE		C	SELENIUM	09/21/99	4.15	U	UG/L		10/20/99	3.78	U	UG/L		11/03/99	3.78	U	UG/L		11/18/99	3.78	U	UG/L	
1TE		C	SILVER	09/21/99	1.33	U	UG/L		10/20/99	0.67	U	UG/L		11/03/99	0.67	U	UG/L		11/18/99	0.31	U	UG/L	
1TE SOLUBLE		C	SILVER	09/21/99	1.33	U	UG/L		10/20/99	0.67	U	UG/L		11/03/99	0.67	U	UG/L		11/18/99	0.67	U	UG/L	
1TE		C	SODIUM	09/21/99	2650.00	B	UG/L		10/20/99	2290.00	B	UG/L		11/03/99	1810.00	B	UG/L		11/18/99	2610.00	B	UG/L	
1TE SOLUBLE		C	SODIUM	09/21/99	2540.00	B	UG/L		10/20/99	3750.00	B	UG/L		11/03/99	1520.00	B	UG/L		11/18/99	2440.00	B	UG/L	
1TE		C	THALLIUM	09/21/99	5.06	U	UG/L		10/20/99	4.71	U,W	UG/L		11/03/99	4.38	U	UG/L		11/18/99	2.73	U	UG/L	
1TE SOLUBLE		C	THALLIUM	09/21/99	5.06	U	UG/L		10/20/99	4.38	U	UG/L		11/03/99	4.38	U	UG/L		11/18/99	4.38	U	UG/L	
1TE		C	VANADIUM	09/21/99	1.47	U	UG/L		10/20/99	1.07	U	UG/L		11/03/99	1.07	U	UG/L		11/18/99	1.79	U	UG/L	
1TE SOLUBLE		C	VANADIUM	09/21/99	1.47	U	UG/L		10/20/99	1.07	U	UG/L		11/03/99	1.07	U	UG/L		11/18/99	1.07	U	UG/L	
1TE		C	ZINC	09/21/99	15.50	B	UG/L		10/20/99	29.40		UG/L		11/03/99	5.10	B	UG/L		11/18/99	21.00		UG/L	
1TE SOLUBLE		C	ZINC	09/21/99	5.00	B	UG/L		10/20/99	4.60	B	UG/L		11/03/99	5.20	B	UG/L		11/18/99	7.20	B	UG/L	

Phenols and Volatile Organics Parameters

1TE		C	TOTAL PHENOLICS	09/21/99	0.0050	U	MG/L		10/20/99	0.0010	U	MG/L		11/03/99	0.0010	U	MG/L		11/18/99	0.0010	U	MG/L	
1TE		C	BENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	BROMOBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	BROMOCHLOROMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	BROMODICHLOROMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	BROMOFORM	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	BROMOMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TERT-BUTYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	SEC-BUTYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	N-BUTYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	CARBON TETRACHLORIDE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
1TE		C	CHLOROBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	CHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	CHLOROFORM	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	CHLOROMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2-DIBROMO-3-CHLOROPROPANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	2-CHLOROTOLUENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	4-CHLOROTOLUENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	DIBROMOCHLOROMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2-DIBROMOETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	DIBROMOMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2-DICHLOROBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,4-DICHLOROBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,3-DICHLOROBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	DICHLORODIFLUOROMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1-DICHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2-DICHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1-DICHLOROETHENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TRANS-1,2-DICHLOROETHENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	CIS-1,2-DICHLOROETHENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	2,2-DICHLOROPROPANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2-DICHLOROPROPANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,3-DICHLOROPROPANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1-DICHLOROPROPENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TRANS-1,3-DICHLOROPROPENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	CIS-1,3-DICHLOROPROPENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	ETHYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	HEXACHLOROBUTADIENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	ISOPROPYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	P-ISOPROPYLTOLUENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	METHYLENE CHLORIDE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	NAPHTHALENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	N-PROPYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	STYRENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1,1,2-TETRACHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1,2,2-TETRACHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TETRACHLOROETHENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TOLUENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2,4-TRICHLOROBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2,3-TRICHLOROBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1,1-TRICHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,1,2-TRICHLOROETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TRICHLOROETHENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	TRICHLOROFLUOROMETHANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2,3-TRICHLOROPROPANE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,3,5-TRIMETHYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	1,2,4-TRIMETHYLBENZENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	VINYL CHLORIDE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	M+P-XYLENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
1TE		C	O-XYLENE	09/21/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/03/99	0.50	U	UG/L		11/18/99	0.50	U	UG/L	
Field Parameters																							
2TE	NYCW99-35	A	PH (FIELD)	09/21/99	6.61		SU		10/20/99	6.21		SU	Y	11/03/99	----		SU		11/18/99	7.65		SU	
2TE		A	PH	09/21/99	7.13		SU		10/20/99	7.21		SU		11/03/99	7.37		SU		11/18/99	7.13		SU	
2TE		A	CONDUCTIVITY (FIELD)	09/21/99	45.00		umhos/cm		10/20/99	33.10		umhos/cm		11/03/99	----		umhos/cm		11/18/99	35.10		umhos/cm	
2TE		A	CONDUCTIVITY	09/21/99	42.00		umhos/cm		10/20/99	51.00		umhos/cm		11/03/99	40.00		umhos/cm		11/18/99	44.00		umhos/cm	
2TE		A	TEMPERATURE (FIELD)	09/21/99	12.49		C		10/20/99	9.08		C		11/03/99	----		C		11/18/99	2.77		C	
2TE		A	DISSOLVED OXYGEN (FIELD)	09/21/99	9.25		MG/L		10/20/99	15.21		MG/L		11/03/99	----		MG/L		11/18/99	12.86		MG/L	

Nutrients and Solids Parameters

Sample Site 6PE

Sample Site

EPA Primary

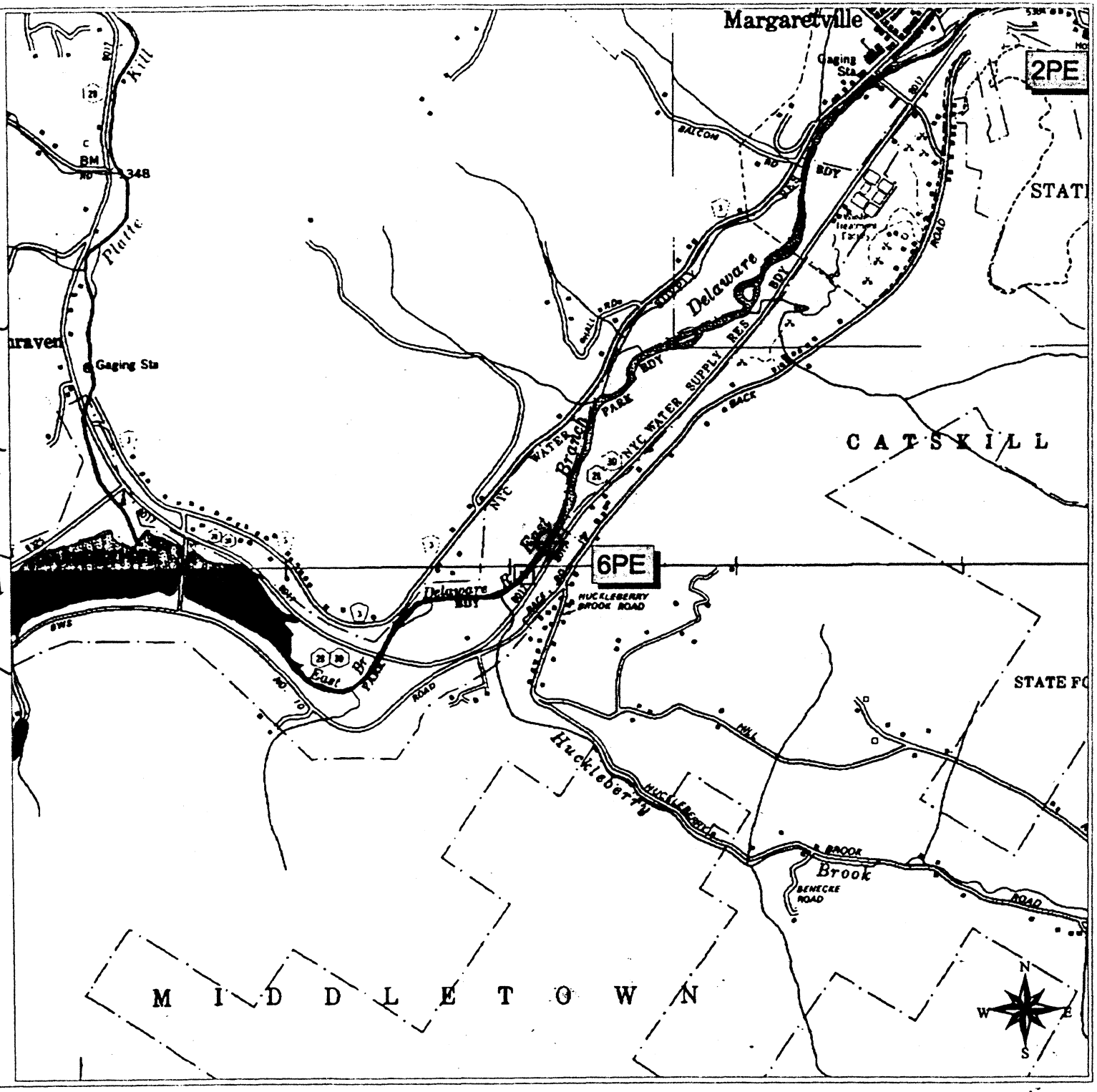
EPA Secondary

Topo Quad: 41-23
37, 64 Margaretville

County Map and Quad:
Delaware Q21

Gazetteer Page and
Quad: 50, C/D 3/4

East Branch-
Delaware River



SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
4PE		C	CHLOROBENZENE	06/28/99	0.56		UG/L	Y	09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	CHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	CHLOROFORM	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	CHLOROMETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2-DIBROMO-3-CHLOROPROPANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	2-CHLOROTOLUENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	4-CHLOROTOLUENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	DIBROMOCHLOROMETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2-DIBROMOETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	DIBROMOMETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2-DICHLOROBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,4-DICHLOROBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,3-DICHLOROBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	DICHLORODIFLUOROMETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1-DICHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2-DICHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1-DICHLOROETHENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	TRANS-1,2-DICHLOROETHENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	CIS-1,2-DICHLOROETHENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	2,2-DICHLOROPROPANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2-DICHLOROPROPANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,3-DICHLOROPROPANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1-DICHLOROPROPENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	TRANS-1,3-DICHLOROPROPENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	CIS-1,3-DICHLOROPROPENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	ETHYLBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	HEXACHLOROBUTADIENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	ISOPROPYLBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	P-ISOPROPYLTOLUENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	METHYLENE CHLORIDE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	NAPHTHALENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	N-PROPYLBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	STYRENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1,1,2-TETRACHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1,2,2-TETRACHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	TETRACHLOROETHENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	TOLUENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2,4-TRICHLOROBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2,3-TRICHLOROBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1,1-TRICHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,1,2-TRICHLOROETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	TRICHLOROETHENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	TRICHLOROFLUOROMETHANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2,3-TRICHLOROPROPANE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,3,5-TRIMETHYLBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	1,2,4-TRIMETHYLBENZENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	VINYL CHLORIDE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	M+P-XYLENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
4PE		C	O-XYLENE	06/28/99	0.50	U	UG/L		09/29/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/04/99	0.50	U	UG/L	
Field Parameters																							
6PE	NYCW99-18;	A	PH (FIELD)	06/29/99	7.22		SU		09/30/99	6.95		SU		10/20/99	5.98		SU	Y	11/09/99	6.63		SU	
6PE	NY6H98-162	A	PH	06/29/99	7.08		SU		09/30/99	6.98		SU		10/20/99	7.07		SU		11/09/99	7.46		SU	
6PE		A	CONDUCTIVITY (FIELD)	06/29/99	87.00		umhos/cm		09/30/99	68.00		umhos/cm		10/20/99	55.60		umhos/cm		11/09/99	42.30		umhos/cm	
6PE		A	CONDUCTIVITY	06/29/99	92.00		umhos/cm		09/30/99	68.00		umhos/cm		10/20/99	82.00		umhos/cm		11/09/99	63.00		umhos/cm	
6PE		A	TEMPERATURE (FIELD)	06/29/99	21.13		C		09/30/99	14.20		C		10/20/99	9.13		C		11/09/99	6.33		C	
6PE		A	DISSOLVED OXYGEN (FIELD)	06/29/99	8.14		MG/L		09/30/99	8.69		MG/L		10/20/99	12.21		MG/L		11/09/99	12.70		MG/L	

Nutrients and Solids Parameters

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
6PE		A	NITRATE/NITRITE NITROGEN	06/29/99	0.221		MG/L		09/30/99	0.153		MG/L		10/20/99	0.0516		MG/L		11/09/99	0.0886		MG/L	
6PE SOLUBLE		A	NITRATE/NITRITE NITROGEN	06/29/99	0.232		MG/L		09/30/99	0.151		MG/L		10/20/99	0.0515		MG/L		11/09/99	0.0887		MG/L	
6PE		A	NITRATE NITROGEN	06/29/99	0.206		MG/L		09/30/99	0.147		MG/L		10/20/99	0.0516		MG/L		11/09/99	---		MG/L	
6PE SOLUBLE		A	NITRATE NITROGEN	06/29/99	---		MG/L		09/30/99	0.147		MG/L		10/20/99	0.0515		MG/L		11/09/99	---		MG/L	
6PE		A	NITRITE NITROGEN	06/29/99	0.0157		MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
6PE SOLUBLE		A	NITRITE NITROGEN	06/29/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
6PE		A	TOTAL KJELDAHL NITROGEN	06/29/99	0.236		MG/L		09/30/99	0.108		MG/L		10/20/99	0.140		MG/L		11/09/99	0.05	U	MG/L	
6PE		A	AMMONIA	06/29/99	0.05	U	MG/L		09/30/99	0.01	U	MG/L		10/20/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
6PE		A	TOTAL PHOSPHORUS	06/29/99	0.0747		MG/L		09/30/99	0.0291		MG/L		10/20/99	0.00977		MG/L		11/09/99	0.00563		MG/L	
6PE SOLUBLE		A	DISSOLVED PHOSPHORUS	06/29/99	0.0245		MG/L		09/30/99	0.0130		MG/L		10/20/99	0.00555		MG/L		11/09/99	0.00355		MG/L	
6PE		A	TURBIDITY	06/29/99	17.20		NTU		09/30/99	5.50		NTU		10/20/99	1.20		NTU		11/09/99	0.58		NTU	
6PE		A	TOTAL SOLIDS	06/29/99	73.00		MG/L		09/30/99	47.00		MG/L		10/20/99	48.00		MG/L		11/09/99	35.00		MG/L	
6PE SOLUBLE		A	TOTAL DISSOLVED SOLIDS	06/29/99	---		MG/L		09/30/99	40.00		MG/L		10/20/99	14.00		MG/L		11/09/99	---		MG/L	
6PE		A	TOTAL SUSPENDED SOLIDS	06/29/99	30.20		MG/L		09/30/99	7.80		MG/L		10/20/99	1.80		MG/L		11/09/99	1.00	U	MG/L	
Minerals and Hardness Parameters																							
6PE		A	CHLORIDE	06/29/99	6.59		MG/L		09/30/99	4.41		MG/L		10/20/99	4.31		MG/L		11/09/99	3.64		MG/L	
6PE		A	FLUORIDE	06/29/99	0.20	U	MG/L		09/30/99	0.20	U	MG/L		10/20/99	0.20	U	MG/L		11/09/99	0.20	U	MG/L	
6PE		A	SULFATE	06/29/99	5.89		MG/L		09/30/99	6.26		MG/L		10/20/99	6.59		MG/L		11/09/99	6.73		MG/L	
6PE		A	TOTAL ALKALINITY	06/29/99	24.40		MG/L		09/30/99	15.70		MG/L		10/20/99	15.50		MG/L		11/09/99	14.40		MG/L	
6PE		A	TOTAL HARDNESS	06/29/99	28.00		MG/L		09/30/99	22.80		MG/L		10/20/99	23.00		MG/L		11/09/99	17.00		MG/L	
Metals Parameters																							
6PE		A	ALUMINUM	06/29/99	808.00		UG/L		09/30/99	237.00		UG/L		10/20/99	34.20	U	UG/L		11/09/99	34.20	U	UG/L	
6PE SOLUBLE		A	ALUMINUM	06/29/99	20.00	U	UG/L		09/30/99	44.90	B	UG/L		10/20/99	30.30	U	UG/L		11/09/99	34.20	U	UG/L	
6PE		A	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
6PE SOLUBLE		A	ANTIMONY	06/29/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/20/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
6PE		A	ARSENIC	06/29/99	3.40	U	UG/L		09/30/99	3.43	U	UG/L		10/20/99	7.30	B	UG/L		11/09/99	5.52	U	UG/L	
6PE SOLUBLE		A	ARSENIC	06/29/99	3.40	U	UG/L		09/30/99	3.43	U	UG/L		10/20/99	5.52	U	UG/L		11/09/99	5.52	U	UG/L	
6PE		A	BARIUM	06/29/99	24.20	B	UG/L		09/30/99	13.90	B	UG/L		10/20/99	13.20	B	UG/L		11/09/99	5.70	B	UG/L	
6PE SOLUBLE		A	BARIUM	06/29/99	13.90	B	UG/L		09/30/99	11.30	B	UG/L		10/20/99	13.40	B	UG/L		11/09/99	5.20	B	UG/L	
6PE		A	BERYLLIUM	06/29/99	0.15	B	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.27	B	UG/L		11/09/99	0.19	U	UG/L	
6PE SOLUBLE		A	BERYLLIUM	06/29/99	0.16	B	UG/L		09/30/99	0.12	U	UG/L		10/20/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	
6PE		A	CADMIUM	06/29/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/20/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
6PE SOLUBLE		A	CADMIUM	06/29/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/20/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	
6PE		A	CALCIUM	06/29/99	8630.00		UG/L		09/30/99	6410.00		UG/L		10/20/99	6700.00		UG/L		11/09/99	5860.00		UG/L	
6PE SOLUBLE		A	CALCIUM	06/29/99	8470.00		UG/L		09/30/99	6490.00		UG/L		10/20/99	7360.00		UG/L		11/09/99	5970.00		UG/L	
6PE		A	CHROMIUM	06/29/99	1.30	B	UG/L		09/30/99	0.31	U	UG/L		10/20/99	0.32	B	UG/L		11/09/99	0.22	U	UG/L	
6PE SOLUBLE		A	CHROMIUM	06/29/99	0.57	B	UG/L		09/30/99	0.31	U	UG/L		10/20/99	0.22	U	UG/L		11/09/99	0.22	U	UG/L	
6PE		A	COBALT	06/29/99	1.90	B	UG/L		09/30/99	1.70	U	UG/L		10/20/99	2.80	B	UG/L		11/09/99	1.51	U	UG/L	
6PE SOLUBLE		A	COBALT	06/29/99	2.60	B	UG/L		09/30/99	1.70	U	UG/L		10/20/99	1.51	U	UG/L		11/09/99	1.51	U	UG/L	
6PE		A	COPPER	06/29/99	2.80	U	UG/L		09/30/99	2.85	U	UG/L		10/20/99	1.78	U	UG/L		11/09/99	1.78	U	UG/L	
6PE SOLUBLE		A	COPPER	06/29/99	5.30	B	UG/L	Y	09/30/99	2.85	U	UG/L		10/20/99	4.60	B	UG/L	Y	11/09/99	1.78	U	UG/L	
6PE		A	IRON	06/29/99	1520.00		UG/L	Y	09/30/99	376.00		UG/L	Y	10/20/99	102.00		UG/L		11/09/99	12.40	U	UG/L	
6PE SOLUBLE		A	IRON	06/29/99	171.00		UG/L		09/30/99	48.20	B	UG/L		10/20/99	63.60	B	UG/L		11/09/99	12.40	U	UG/L	
6PE		A	LEAD	06/29/99	2.90	U	UG/L		09/30/99	2.92	U	UG/L		10/20/99	1.30	B,W	UG/L		11/09/99	2.84	U	UG/L	
6PE SOLUBLE		A	LEAD	06/29/99	2.90	U	UG/L		09/30/99	2.92	U	UG/L		10/20/99	2.84	U	UG/L		11/09/99	2.84	U	UG/L	
6PE		A	MAGNESIUM	06/29/99	1640.00	B	UG/L		09/30/99	1240.00	B	UG/L		10/20/99	1270.00	B	UG/L		11/09/99	1080.00	B	UG/L	
6PE SOLUBLE		A	MAGNESIUM	06/29/99	1400.00	B	UG/L		09/30/99	1200.00	B	UG/L		10/20/99	1360.00	B	UG/L		11/09/99	1110.00	B	UG/L	
6PE		A	MANGANESE	06/29/99	104.00		UG/L		09/30/99	39.60	E	UG/L		10/20/99	15.40		UG/L		11/09/99	13.00	B	UG/L	
6PE SOLUBLE		A	MANGANESE	06/29/99	23.60		UG/L		09/30/99	14.80	B,E	UG/L		10/20/99	15.30		UG/L		11/09/99	11.40	B	UG/L	
6PE		A	MERCURY	06/29/99	0.05	U	UG/L		09/30/99	0.04	U	UG/L		10/20/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
6PE SOLUBLE		A	MERCURY	06/29/99	0.05	U	UG/L		09/30/99	0.04	U	UG/L		10/20/99	0.04	U	UG/L		11/09/99	0.04	U	UG/L	
6PE		A	NICKEL	06/29/99	1.60	B	UG/L		09/30/99	1.70	B	UG/L		10/20/99	1.13	U	UG/L		11/09/99	1.13	U	UG/L	
6PE SOLUBLE		A	NICKEL	06/29/99	1.70	B	UG/L		09/30/99	1.55	U	UG/L		10/20/99	1.40	B	UG/L		11/09/99	1.13	U	UG/L	
6PE		A	POTASSIUM	06/29/99	975.00	B	UG/L		09/30/99	860.00	B	UG/L		10/20/99	536.00	B	UG/L		11/09/99	900.00	U	UG/L	
6PE SOLUBLE		A	POTASSIUM	06/29/99	911.00	B	UG/L		09/30/99	853.00	B	UG/L		10/20/99	900.00	U	UG/L		11/09/99	900.00	U	UG/L	
6PE		A	SELENIUM	06/29/99	4.20	U	UG/L		09/30/99	4.15	U	UG/L		10/20/99	1.61	U,N,W	UG/L		11/09/99	3.78	U	UG/L	
6PE SOLUBLE		A	SELENIUM	06/29/99	4.20	U	UG/L		09/30/99	4.15	U	UG/L		10/20/99	3.78	U	UG/L		11/09/99	3.78	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
6PE		A	SILVER	06/29/99	0.65	U	UG/L		09/30/99	1.33	U	UG/L		10/20/99	0.71	B	UG/L	Y	11/09/99	0.67	U	UG/L	
6PE SOLUBLE		A	SILVER	06/29/99	0.65	U	UG/L		09/30/99	1.33	U	UG/L		10/20/99	0.67	U	UG/L		11/09/99	0.67	U	UG/L	
6PE		A	SODIUM	06/29/99	4030.00	B	UG/L		09/30/99	2510.00	B	UG/L		10/20/99	2420.00	B	UG/L		11/09/99	2060.00	B	UG/L	
6PE SOLUBLE		A	SODIUM	06/29/99	4050.00	B	UG/L		09/30/99	2660.00	B	UG/L		10/20/99	3540.00	B	UG/L		11/09/99	2070.00	B	UG/L	
6PE		A	THALLIUM	06/29/99	7.20	B	UG/L		09/30/99	5.06	U	UG/L		10/20/99	4.71	U,W	UG/L		11/09/99	4.38	U	UG/L	
6PE SOLUBLE		A	THALLIUM	06/29/99	6.40	B	UG/L		09/30/99	5.06	U	UG/L		10/20/99	4.38	U	UG/L		11/09/99	4.38	U	UG/L	
6PE		A	VANADIUM	06/29/99	1.80	B	UG/L		09/30/99	1.47	U	UG/L		10/20/99	1.07	U	UG/L		11/09/99	1.07	U	UG/L	
6PE SOLUBLE		A	VANADIUM	06/29/99	1.50	U	UG/L		09/30/99	1.47	U	UG/L		10/20/99	1.07	U	UG/L		11/09/99	1.07	U	UG/L	
6PE		A	ZINC	06/29/99	10.20	B	UG/L		09/30/99	17.30	B	UG/L		10/20/99	29.90		UG/L		11/09/99	2.22	U	UG/L	
6PE SOLUBLE		A	ZINC	06/29/99	8.90	B	UG/L		09/30/99	12.10	B	UG/L		10/20/99	7.20	B	UG/L		11/09/99	2.22	U	UG/L	

Phenols and Volatile Organics Parameters

6PE		A	TOTAL PHENOLICS	06/29/99	0.0050	U	MG/L		09/30/99	0.0010	U	MG/L		10/20/99	0.0010	U	MG/L		11/09/99	0.0010	U	MG/L	
6PE		A	BENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	BROMOBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	BROMOCHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	BROMODICHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	BROMOFORM	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	BROMOMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TERT-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	SEC-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	N-BUTYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CARBON TETRACHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CHLOROBENZENE	06/29/99	0.68		UG/L	Y	09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CHLOROFORM	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2-DIBROMO-3-CHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	2-CHLOROTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	4-CHLOROTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	DIBROMOCHLOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2-DIBROMOETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	DIBROMOMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,4-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,3-DICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	DICHLORODIFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1-DICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2-DICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TRANS-1,2-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CIS-1,2-DICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	2,2-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,3-DICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TRANS-1,3-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	CIS-1,3-DICHLOROPROPENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	ETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	HEXACHLOROBUTADIENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	ISOPROPYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	P-ISOPROPYLTOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	METHYLENE CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	NAPHTHALENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	N-PROPYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	STYRENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1,1,2-TETRACHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1,2,2-TETRACHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TETRACHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TOLUENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	

SITE I.D.	EPA I.D.	STREAM CLASS	COMPOUND	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC	SAMPLE DATE	RESULT	FLAG	UNITS	WCAC
6PE		A	1,2,4-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2,3-TRICHLOROBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1,1-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,1,2-TRICHLOROETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TRICHLOROETHENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	TRICHLOROFLUOROMETHANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2,3-TRICHLOROPROPANE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,3,5-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	1,2,4-TRIMETHYLBENZENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	VINYL CHLORIDE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	M+P-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
6PE		A	O-XYLENE	06/29/99	0.50	U	UG/L		09/30/99	0.50	U	UG/L		10/20/99	0.50	U	UG/L		11/09/99	0.50	U	UG/L	
Secondary Sites																							
Field Parameters																							
1SE	NYCW99-32;	C	PH (FIELD)	08/19/99	6.21		SU	Y	09/30/99	6.97		SU		10/21/99	6.26		SU	Y	11/09/99	6.47		SU	Y
1SE	NY6H98-344	C	PH	08/19/99	7.16		SU		09/30/99	6.54		SU		10/21/99	6.76		SU		11/09/99	6.80		SU	
1SE		C	CONDUCTIVITY (FIELD)	08/19/99	55.00		umhos/cm		09/30/99	32.70		umhos/cm		10/21/99	43.00		umhos/cm		11/09/99	32.60		umhos/cm	
1SE		C	CONDUCTIVITY	08/19/99	54.00		umhos/cm		09/30/99	42.00		umhos/cm		10/21/99	41.00		umhos/cm		11/09/99	38.00		umhos/cm	
1SE		C	TEMPERATURE (FIELD)	08/19/99	16.36		C		09/30/99	12.44		C		10/21/99	6.70		C		11/09/99	5.30		C	
1SE		C	DISSOLVED OXYGEN (FIELD)	08/19/99	6.53		MG/L		09/30/99	10.05		MG/L		10/21/99	10.29		MG/L		11/09/99	10.43		MG/L	
Nutrients and Solids Parameters																							
1SE		C	NITRATE/NITRITE NITROGEN	08/19/99	0.05	U	MG/L		09/30/99	0.0637		MG/L		10/21/99	0.0433		MG/L		11/09/99	0.0969		MG/L	
1SE SOLUBLE		C	NITRATE/NITRITE NITROGEN	08/19/99	0.05	U	MG/L		09/30/99	0.0625		MG/L		10/21/99	0.0459		MG/L		11/09/99	0.0996		MG/L	
1SE		C	NITRATE NITROGEN	08/19/99	0.05	U	MG/L		09/30/99	0.0576		MG/L		10/21/99	0.05	U	MG/L		11/09/99	----		MG/L	
1SE SOLUBLE		C	NITRATE NITROGEN	08/19/99	----		MG/L		09/30/99	0.0590		MG/L		10/21/99	0.05	U	MG/L		11/09/99	----		MG/L	
1SE		C	NITRITE NITROGEN	08/19/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/21/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
1SE SOLUBLE		C	NITRITE NITROGEN	08/19/99	0.01	U	MG/L		09/30/99	0.01	U	MG/L		10/21/99	0.01	U	MG/L		11/09/99	0.01	U	MG/L	
1SE		C	TOTAL KJELDAHL NITROGEN	08/19/99	0.107		MG/L		09/30/99	0.153		MG/L		10/21/99	0.05	U	MG/L		11/09/99	0.05	U	MG/L	
1SE		C	AMMONIA	08/19/99	0.016		MG/L		09/30/99	0.01	U	MG/L		10/21/99	0.01	U	MG/L		11/09/99	0.0237		MG/L	
1SE		C	TOTAL PHOSPHORUS	08/19/99	0.0193		MG/L		09/30/99	0.0263		MG/L		10/21/99	0.00869		MG/L		11/09/99	0.0126		MG/L	
1SE SOLUBLE		C	DISSOLVED PHOSPHORUS	08/19/99	0.0104		MG/L		09/30/99	0.0114		MG/L		10/21/99	0.00472		MG/L		11/09/99	0.00424		MG/L	
1SE		C	TURBIDITY	08/19/99	1.60		NTU		09/30/99	7.20		NTU		10/21/99	1.60		NTU		11/09/99	0.83		NTU	
1SE		C	TOTAL SOLIDS	08/19/99	44.00		MG/L		09/30/99	36.00		MG/L		10/21/99	42.00		MG/L		11/09/99	31.00		MG/L	
1SE SOLUBLE		C	TOTAL DISSOLVED SOLIDS	08/19/99	36.00		MG/L		09/30/99	14.00		MG/L		10/21/99	18.20		MG/L		11/09/99	----		MG/L	
1SE		C	TOTAL SUSPENDED SOLIDS	08/19/99	2.92		MG/L		09/30/99	6.42		MG/L		10/21/99	2.90		MG/L		11/09/99	4.00		MG/L	
Minerals and Hardness Parameters																							
1SE		C	CHLORIDE	08/19/99	0.940		MG/L		09/30/99	1.90		MG/L		10/21/99	1.32		MG/L		11/09/99	1.03		MG/L	
1SE		C	FLUORIDE	08/19/99	0.20	U	MG/L		09/30/99	0.20	U	MG/L		10/21/99	0.20	U	MG/L		11/09/99	0.20	U	MG/L	
1SE		C	SULFATE	08/19/99	4.39		MG/L		09/30/99	5.96		MG/L		10/21/99	6.80		MG/L		11/09/99	6.78		MG/L	
1SE		C	TOTAL ALKALINITY	08/19/99	17.90		MG/L		09/30/99	7.33		MG/L		10/21/99	6.83		MG/L		11/09/99	9.00		MG/L	
1SE		C	TOTAL HARDNESS	08/19/99	2.00	U	MG/L		09/30/99	17.10		MG/L		10/21/99	16.20		MG/L		11/09/99	16.00		MG/L	
Metals Parameters																							
1SE		C	ALUMINUM	08/19/99	62.00	B	UG/L		09/30/99	249.00		UG/L		10/21/99	63.30	B	UG/L		11/09/99	84.40	B	UG/L	
1SE SOLUBLE		C	ALUMINUM	08/19/99	21.30	B	UG/L		09/30/99	49.60	B	UG/L		10/21/99	34.20	U	UG/L		11/09/99	34.20	U	UG/L	
1SE		C	ANTIMONY	08/19/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/21/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
1SE SOLUBLE		C	ANTIMONY	08/19/99	2.90	U	UG/L		09/30/99	2.94	U	UG/L		10/21/99	3.08	U	UG/L		11/09/99	3.08	U	UG/L	
1SE		C	ARSENIC	08/19/99	4.90	B	UG/L		09/30/99	3.43	U	UG/L		10/21/99	5.52	U	UG/L		11/09/99	5.52	U	UG/L	
1SE SOLUBLE		C	ARSENIC	08/19/99	4.00	B	UG/L		09/30/99	3.43	U	UG/L		10/21/99	3.71	U	UG/L		11/09/99	5.52	U	UG/L	
1SE		C	BARIUM	08/19/99	9.00	B	UG/L		09/30/99	10.90	B	UG/L		10/21/99	8.70	B	UG/L		11/09/99	5.20	B	UG/L	
1SE SOLUBLE		C	BARIUM	08/19/99	8.10	B	UG/L		09/30/99	9.20	B	UG/L		10/21/99	6.50	B	UG/L		11/09/99	7.90	B	UG/L	
1SE		C	BERYLLIUM	08/19/99	0.14	B	UG/L		09/30/99	0.12	U	UG/L		10/21/99	0.19	U	UG/L		11/09/99	0.19	U	UG/L	
1SE SOLUBLE		C	BERYLLIUM	08/19/99	0.12	U	UG/L		09/30/99	0.12	U	UG/L		10/21/99	0.31	B	UG/L		11/09/99	0.19	U	UG/L	
1SE		C	CADMIUM	08/19/99	0.84	U	UG/L		09/30/99	0.84	U	UG/L		10/21/99	0.62	U	UG/L		11/09/99	0.62	U	UG/L	

Sample Site 1PE

Sample Site

EPA Primary

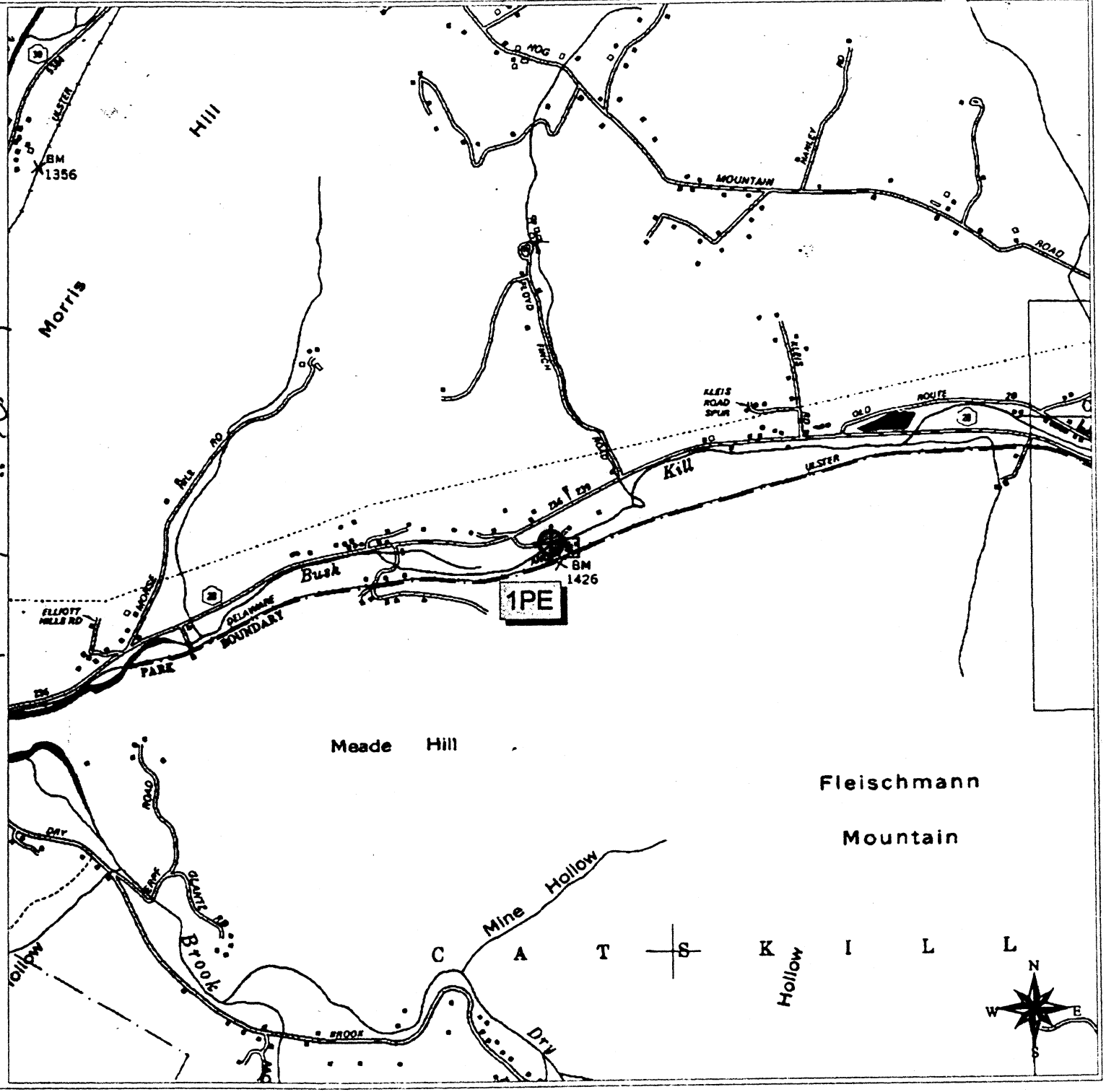
EPA Secondary

Topo Quad: 42 - 23 35, 67 Fleishmanns

County Map and Quad: Delaware P23

Gazetteer Page and Quad: 50, C/D 4

Bush kill C



0.25 0 0.25 Miles

crossroads ventures llc

DRAFT
Environmental Impact Statement

Appendix 18

Water Quality Data
Addendum 2002

The Belleayre Resort at Catskill Park

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
October 2001 - 2002 WQIA Stream Data

Site=BELLE2

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
09OCT2001	11:20		7.4	9.6	6.77	Field	38	0.6	0.02
23OCT2001	11:00		8.7	9.2	6.8	Field	41	0.4	0.02
05NOV2001	11:00		7.2	11.0	6.89	Field	36	0.2	0.01
20NOV2001	11:00		6.6	9.9	7.23	Field	37	0.2	0.01
04DEC2001	11:00		7.3	9.7	6.67	Field	34	0.6	0.02
18DEC2001	11:00		6.6	10.0	7	Field	30	1.0	0.02
02JAN2002	10:50		5.0	10.3	F.E.	Field	27	0.3	L.E.
15JAN2002	11:00		5.4	10.1	6.95	Field	29	0.3	0.03
29JAN2002	10:40		5.9	12.1	7.07	Field	29	0.5	0.02
12FEB2002	11:20		5.0	10.7	F.E.	Field	26	0.6	0.02
26FEB2002	10:50		6.0	11.3	6.74	Field	27	0.5	<0.02
12MAR2002	10:50		5.2	11.3	6.85	Field	27	0.7	0.02
26MAR2002	11:00		4.6	11.3	6.94	Field	26	0.3	<0.02
09APR2002	10:50		7.1	9.9	6.86	Field	25	0.4	0.01
23APR2002	10:30		6.8	10.4	6.95	Field	28	0.4	0.02
07MAY2002	10:30		7.7	10.7	6.93	Field	26	0.4	0.01
21MAY2002	10:20		6.9	9.9	6.83	Field	25	0.3	0.02
04JUN2002	10:50		8.0	10.1	7	Field	30	0.5	0.02
18JUN2002	10:40		9.1	10.3	6.89	Field	30	0.3	<0.02
01JUL2002	11:10		10.0	9.9	6.98	Field	34	0.3	<0.02
16JUL2002	10:50		10.4	9.8	7.03	Field	34	0.3	<0.02
30JUL2002	10:30		12.3	9.0	7.18	Field	39	0.7	<0.02
13AUG2002	10:20		13.6	7.6	7.07	Field	40	0.3	0.02
27AUG2002	10:30		13.6	7.6	7.06	Field	44	0.3	<0.02
10SEP2002	10:40		13.8	7.1	7.21	Field	43	0.2	<0.02
24SEP2002	10:40		12.1	8.3	6.98	Field	44	0.2	<0.02
15OCT2002	11:30		8.9	9.9	7.04	Field	32	0.5	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
09OCT2001	<0.004	0.48	8	1.4	.		2	013965	
23OCT2001	<0.004	0.39	8	0.4	0.6		<1	014182	
05NOV2001	<0.004	0.46	10	0.4	.		7	014320	
20NOV2001	L.E.	L.E.	7	<0.4	<0.4		2	014537	
04DEC2001	<0.004	0.58	9	<0.4	.		<2	014674	
18DEC2001	<0.004	0.4	10	1.2	.		<1	014867	
02JAN2002	<0.002	0.39	<6	0.4	.		<1	020019	
15JAN2002	<0.002	0.37	8	<0.4	.		<1	020134	
29JAN2002	<0.002	0.36	<6	<0.5	.		<1	020229	
12FEB2002	<0.002	0.35	12	<0.5	.		8	020371	
26FEB2002	<0.002	0.28	9	0.6	.		<1	020479	
12MAR2002	<0.002	0.3	6	0.6	.		<1	020606	
26MAR2002	<0.002	0.26	8	0.6	.		<1	020716	
09APR2002	<0.002	0.19	6	<0.5	.		<1	021013	
23APR2002	<0.002	0.19	7	<0.5	.		<1	021154	
07MAY2002	<0.002	0.15	8	0.6	.		<1	021359	
21MAY2002	<0.002	0.13	11	0.6	.		<1	021566	
04JUN2002	<0.002	0.18	10	<0.5	.		5	021718	
18JUN2002	<0.002	0.14	6	0.6	.		3	021879	
01JUL2002	<0.002	0.2	10	<0.5	.		1	021992	
16JUL2002	<0.002	0.25	15	<0.5	.		<1	022183	
30JUL2002	<0.002	0.27	11	<0.5	.		5	022347	
13AUG2002	<0.002	0.24	10	0.6	.		19	022511	
27AUG2002	<0.002	0.24	12	0.6	.		23	022634	
10SEP2002	<0.002	0.24	9	0.6	.		11	022799	
24SEP2002	<0.002	0.37	10	<0.5	.		8	023034	
15OCT2002	.	.	.	.	.		8	023352	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLE5

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
09OCT2001	10:10		1.9	8.6	6.59	Field	60	0.5	0.02
23OCT2001	10:10		7.7	6.4	6.63	Field	57	0.3	0.02
05NOV2001	10:10		4.0	8.7	6.83	Field	49	0.2	0.01
20NOV2001	10:00		3.7	9.5	6.97	Field	50	0.3	0.01
04DEC2001	10:00		5.6	10.6	6.84	Field	47	0.9	0.02
18DEC2001	10:10		3.7	11.8	6.99	Field	50	0.9	0.02
02JAN2002	9:50		0.6	12.6	F.E.	Field	46	0.2	L.E.
15JAN2002	10:00		1.0	11.9	7.01	Field	47	0.2	0.03
29JAN2002	9:50		1.8	13.5	7	Field	54	0.2	0.02
12FEB2002	10:20		0.2	12.9	F.E.	Field	46	0.4	0.02
26FEB2002	10:00		2.1	12.2	6.84	Field	47	0.3	<0.02
12MAR2002	9:40		0.8	13.0	6.88	Field	44	0.3	0.02
26MAR2002	9:30		1.6	12.4	6.96	Field	47	0.1	<0.02
09APR2002	10:00		4.3	11.9	7.07	Field	43	0.1	0.01
23APR2002	9:50		5.1	11.2	7.04	Field	48	0.1	0.02
28APR2002	1:50	Autosampler	.	.	.		.	0.4	0.02
28APR2002	2:51	Autosampler	.	.	.		.	0.3	0.02
28APR2002	3:52	Autosampler	.	.	.		.	0.3	0.02
28APR2002	5:54	Autosampler	.	.	.		.	0.5	0.02
28APR2002	6:55	Autosampler	.	.	.		.	0.4	0.02
28APR2002	7:56	Autosampler	.	.	.		.	0.3	0.02
28APR2002	9:15	Autosampler	.	.	.		.	0.4	0.02
28APR2002	19:45	Autosampler	.	.	.		.	0.4	0.02
28APR2002	20:45	Autosampler	.	.	.		.	2.7	0.02
28APR2002	21:46	Autosampler	.	.	.		.	1.3	0.02
28APR2002	22:47	Autosampler	.	.	.		.	0.5	0.02
28APR2002	23:48	Autosampler	.	.	.		.	0.4	0.02
29APR2002	0:49	Autosampler	.	.	.		.	0.5	0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
09OCT2001	<0.004	<0.010	15	0.6	.		4	013963	
23OCT2001	<0.004	<0.010	10	<0.4	0.6		<1	014180	
05NOV2001	<0.004	<0.010	17	<0.4	.		<1	014318	
20NOV2001	L.E.	L.E.	<6	<0.4	0.4		1	014535	
04DEC2001	<0.004	0.09	7	<0.4	.		<2	014672	
18DEC2001	<0.004	0.2	9	4.2	.		51	014865	
02JAN2002	<0.002	0.23	<6	<0.4	.		<1	020017	
15JAN2002	<0.002	0.2	<6	0.4	.		<1	020132	
29JAN2002	<0.002	0.26	<6	<0.5	.		<1	020227	
12FEB2002	<0.002	0.34	8	0.8	.		<1	020369	
26FEB2002	<0.002	0.2	<6	<0.5	.		<1	020477	
12MAR2002	<0.002	0.32	<6	<0.5	.		<1	020604	
26MAR2002	<0.002	0.19	4	<0.5	.		<1	020714	
09APR2002	<0.002	0.18	<6	<0.5	.		<1	021011	
23APR2002	0.002	0.13	<6	<0.5	.		<1	021152	
28APR2002	<0.002	0.19	7	1	.		.	021203	
28APR2002	<0.002	0.2	7	0.6	.		.	021204	
28APR2002	<0.002	0.2	8	<0.5	.		.	021205	
28APR2002	<0.002	0.22	8	0.6	.		.	021207	
28APR2002	<0.002	0.22	8	0.6	.		.	021208	
28APR2002	<0.002	0.22	8	0.6	.		.	021209	
28APR2002	<0.002	0.15	10	1	.		.	021196	
28APR2002	<0.002	0.15	10	1.2	.		.	021197	
28APR2002	<0.002	0.15	20	12	.		.	021198	
28APR2002	<0.002	0.17	12	3	.		.	021199	
28APR2002	<0.002	0.17	9	1.2	.		.	021200	
28APR2002	<0.002	0.18	7	1	.		.	021201	
29APR2002	<0.002	0.18	7	1.4	.		.	021202	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLE5
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
29APR2002	4:53	Autosampler	.	.	.		.	0.3	0.02
29APR2002	8:57	Autosampler	.	.	.		.	0.3	0.02
07MAY2002	9:50		7.7	11.0	7.08	Field	46	0.3	0.01
21MAY2002	9:40		4.9	11.4	6.96	Field	41	0.3	0.02
04JUN2002	9:50		8.3	10.5	7.07	Field	49	0.1	0.01
18JUN2002	10:00		9.7	10.2	6.98	Field	46	0.3	<0.02
01JUL2002	10:10		12.9	8.2	7.09	Field	56	0.3	<0.02
16JUL2002	9:50		13.9	7.0	7.3	Field	57	0.2	<0.02
15OCT2002	10:10		7.4	10.3	6.94	Field	38	0.3	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
29APR2002	<0.002	0.21	7	1	.		.	021206	
29APR2002	<0.002	0.23	6	0.6	.		.	021210	
07MAY2002	<0.002	0.12	6	<0.6	.		2	021357	
21MAY2002	<0.002	0.12	8	<0.5	.		<1	021564	
04JUN2002	<0.002	0.1	<6	<0.5	.		3	021716	
18JUN2002	<0.002	0.1	<6	<0.5	.		1	021877	
01JUL2002	<0.002	0.11	10	<0.5	.		5	021990	
16JUL2002	<0.002	0.19	13	<0.5	.		9	022181	
15OCT2002	.	.	.	.	.		1	023350	

Site=BELLEGIG

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
09OCT2001	10:40		6.1	10.9	6.72	Field	38	0.7	0.02
23OCT2001	10:30		7.6	10.2	6.78	Field	40	0.3	0.02
05NOV2001	10:30		6.3	11.0	6.87	Field	35	0.1	0.01
20NOV2001	10:30		5.6	10.8	7.1	Field	36	0.2	0.01
04DEC2001	10:40		6.2	10.9	6.77	Field	30	0.3	0.01
18DEC2001	10:40		5.5	11.0	6.97	Field	30	0.6	0.02
02JAN2002	10:20		3.2	12.4	F.E.	Field	29	0.2	L.E.
15JAN2002	10:20		3.8	11.9	6.93	Field	31	0.6	0.03
29JAN2002	10:10		4.6	13.3	6.99	Field	31	0.3	0.02
12FEB2002	10:50		3.7	11.4	F.E.	Field	27	0.3	0.02
26FEB2002	10:20		4.8	11.6	6.75	Field	28	0.3	<0.02
12MAR2002	10:20		4.0	11.8	6.76	Field	27	0.3	0.02
26MAR2002	9:50		4.3	11.8	6.88	Field	27	0.2	<0.02
26MAR2002	10:44	Autosampler	.	.	.		.	0.3	.
26MAR2002	11:44	Autosampler	.	.	.		.	0.2	.
26MAR2002	12:44	Autosampler	.	.	.		.	0.2	.
26MAR2002	13:44	Autosampler	.	.	.		.	0.3	.
26MAR2002	14:44	Autosampler	.	.	.		.	0.2	.
26MAR2002	15:44	Autosampler	.	.	.		.	0.3	.
26MAR2002	16:44	Autosampler	.	.	.		.	0.3	.
26MAR2002	17:44	Autosampler	.	.	.		.	0.3	.
26MAR2002	18:44	Autosampler	.	.	.		.	0.3	.
26MAR2002	19:44	Autosampler	.	.	.		.	0.5	.
26MAR2002	20:44	Autosampler	.	.	.		.	0.8	.
26MAR2002	21:44	Autosampler	.	.	.		.	1.0	.
26MAR2002	22:44	Autosampler	.	.	.		.	0.6	.
26MAR2002	23:44	Autosampler	.	.	.		.	0.5	.
27MAR2002	0:44	Autosampler	.	.	.		.	0.4	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
09OCT2001	<0.004	0.49	15	1.4	.		6	013964	
23OCT2001	<0.004	0.33	12	0.4	0.4		<1	014181	
05NOV2001	<0.004	0.47	15	<0.4	.		<1	014319	
20NOV2001	L.E.	L.E.	14	1.5	0.9		<1	014536	
04DEC2001	<0.004	0.74	16	0.4	.		1	014673	
18DEC2001	<0.004	0.64	14	0.8	.		<1	014866	
02JAN2002	<0.002	0.43	<6	<0.4	.		<1	020018	
15JAN2002	<0.002	0.42	11	1	.		14	020133	
29JAN2002	<0.002	0.46	10	<0.5	.		<1	020228	
12FEB2002	<0.002	0.49	16	<0.5	.		<1	020370	
26FEB2002	<0.002	0.36	13	<0.5	.		1	020478	
12MAR2002	<0.002	0.42	9	<0.5	.		1	020605	
26MAR2002	<0.002	0.32	12	<0.5	.		5	020715	
26MAR2002	<0.002	0.32	8	<0.5	.		.	020766	
26MAR2002	<0.002	0.32	9	<0.5	.		.	020767	
26MAR2002	<0.002	0.33	9	<0.5	.		.	020768	
26MAR2002	<0.002	0.33	9	<0.5	.		.	020769	
26MAR2002	<0.002	0.33	10	<0.5	.		.	020770	
26MAR2002	<0.002	0.33	10	<0.5	.		.	020771	
26MAR2002	<0.002	0.34	10	<0.5	.		.	020772	
26MAR2002	<0.002	0.36	11	<0.5	.		.	020773	
26MAR2002	<0.002	0.39	11	0.7	.		.	020774	
26MAR2002	<0.002	0.41	11	<0.5	.		.	020775	
26MAR2002	<0.002	0.39	12	1.5	.		.	020776	
26MAR2002	<0.002	0.38	14	2	.		.	020777	
26MAR2002	<0.002	0.38	12	1.1	.		.	020778	
26MAR2002	<0.002	0.38	14	0.7	.		.	020779	
27MAR2002	<0.002	0.4	13	0.9	.		.	020780	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error

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Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
27MAR2002	1:44	Autosampler	.	.	.		.	0.5	.
27MAR2002	2:44	Autosampler	.	.	.		.	0.4	.
27MAR2002	3:44	Autosampler	.	.	.		.	0.3	.
27MAR2002	4:44	Autosampler	.	.	.		.	0.3	.
27MAR2002	5:44	Autosampler	.	.	.		.	0.3	.
27MAR2002	6:44	Autosampler	.	.	.		.	0.3	.
27MAR2002	7:44	Autosampler	.	.	.		.	0.3	.
27MAR2002	8:44	Autosampler	.	.	.		.	0.2	.
27MAR2002	9:44	Autosampler	.	.	.		.	0.2	.
09APR2002	10:20		6.2	11.0	6.83	Field	27	0.3	0.01
23APR2002	10:10		5.7	11.2	6.82	Field	27	0.2	0.02
07MAY2002	10:10		7.3	11.0	6.84	Field	27	0.4	0.02
21MAY2002	10:00		6.0	11.0	6.72	Field	25	0.2	0.02
04JUN2002	10:20		7.5	10.9	6.81	Field	29	0.2	0.02
18JUN2002	10:20		8.4	10.9	6.74	Field	28	0.4	<0.02
01JUL2002	10:40		9.9	10.3	6.85	Field	32	0.2	<0.02
16JUL2002	10:30		10.4	9.6	6.98	Field	34	0.1	<0.02
23JUL2002	11:45	Autosampler	.	.	.		.	0.3	.
23JUL2002	13:30	Autosampler	.	.	.		.	6.2	.
23JUL2002	14:01	Autosampler	.	.	.		.	3.2	.
23JUL2002	14:32	Autosampler	.	.	.		.	0.9	.
23JUL2002	15:03	Autosampler	.	.	.		.	0.7	.
23JUL2002	15:34	Autosampler	.	.	.		.	0.5	.
23JUL2002	16:05	Autosampler	.	.	.		.	0.4	.
23JUL2002	16:36	Autosampler	.	.	.		.	0.3	.
23JUL2002	17:07	Autosampler	.	.	.		.	0.3	.
30JUL2002	10:10		13.1	8.6	7.11	Field	38	0.3	<0.02
13AUG2002	10:00		13.5	8.5	6.8	Field	39	0.2	0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
27MAR2002	<0.002	0.42	13	1.1	.		.	020781	
27MAR2002	<0.002	0.43	12	0.7	.		.	020782	
27MAR2002	<0.002	0.45	13	0.9	.		.	020783	
27MAR2002	<0.002	0.44	12	<0.5	.		.	020784	
27MAR2002	<0.002	0.44	11	0.7	.		.	020785	
27MAR2002	<0.002	0.43	11	<0.5	.		.	020786	
27MAR2002	<0.002	0.43	11	<0.5	.		.	020787	
27MAR2002	<0.002	0.42	11	<0.5	.		.	020788	
27MAR2002	<0.002	0.42	12	<0.5	.		.	020789	
09APR2002	<0.002	0.3	11	<0.5	.		<1	021012	
23APR2002	<0.002	0.3	12	<0.5	.		<1	021153	
07MAY2002	<0.002	0.28	14	<0.5	.		18	021358	
21MAY2002	<0.002	0.25	15	<0.5	.		1	021565	
04JUN2002	<0.002	0.25	15	<0.5	.		<1	021717	
18JUN2002	<0.002	0.25	12	<0.5	.		1	021878	
01JUL2002	<0.002	0.25	16	<0.5	.		1	021991	
16JUL2002	<0.002	0.28	23	<0.5	.		<1	022182	
23JUL2002	<0.002	0.33	18	0.2	.		.	022281	
23JUL2002	0.002	0.43	59	13.8	.		.	022282	
23JUL2002	0.002	0.47	70	6.6	.		.	022283	
23JUL2002	0.002	0.47	60	1.6	.		.	022284	
23JUL2002	<0.002	0.45	40	1	.		.	022285	
23JUL2002	<0.002	0.43	35	0.6	.		.	022286	
23JUL2002	<0.002	0.41	31	0.4	.		.	022287	
23JUL2002	<0.002	0.4	28	0.6	.		.	022288	
23JUL2002	<0.002	0.4	30	0.4	.		.	022289	
30JUL2002	<0.002	0.36	16	<0.5	.		<1	022346	
13AUG2002	<0.002	0.4	20	<0.5	.		1	022510	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
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Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
27AUG2002	10:00		13.4	7.9	6.77	Field	41	0.3	<0.02
10SEP2002	10:00		13.6	8.1	6.95	Field	42	0.2	<0.02
15SEP2002	8:15	Autosampler	.	.	.		.	0.3	<0.02
15SEP2002	8:45	Autosampler	.	.	.		.	0.2	<0.02
15SEP2002	9:46	Autosampler	.	.	.		.	0.3	<0.02
15SEP2002	10:47	Autosampler	.	.	.		.	0.3	<0.02
15SEP2002	11:48	Autosampler	.	.	.		.	0.1	<0.02
15SEP2002	12:49	Autosampler	.	.	.		.	0.2	<0.02
15SEP2002	13:50	Autosampler	.	.	.		.	0.2	<0.02
15SEP2002	14:51	Autosampler	.	.	.		.	0.2	<0.02
15SEP2002	15:52	Autosampler	.	.	.		.	0.3	<0.02
15SEP2002	16:53	Autosampler	.	.	.		.	0.3	<0.02
15SEP2002	17:54	Autosampler	.	.	.		.	0.1	<0.02
15SEP2002	18:55	Autosampler	.	.	.		.	0.1	<0.02
15SEP2002	19:56	Autosampler	.	.	.		.	0.2	<0.02
15SEP2002	20:57	Autosampler	.	.	.		.	0.1	<0.02
15SEP2002	21:58	Autosampler	.	.	.		.	0.2	<0.2
15SEP2002	22:59	Autosampler	.	.	.		.	0.1	<0.02
15SEP2002	23:59	Autosampler	.	.	.		.	0.2	<0.02
16SEP2002	1:01	Autosampler	.	.	.		.	0.2	<0.02
16SEP2002	2:02	Autosampler	.	.	.		.	0.4	<0.02
16SEP2002	3:03	Autosampler	.	.	.		.	0.4	0.02
16SEP2002	4:04	Autosampler	.	.	.		.	0.2	0.02
16SEP2002	5:05	Autosampler	.	.	.		.	0.2	0.02
22SEP2002	0:50	Autosampler	.	.	.		.	0.2	<0.02
22SEP2002	1:51	Autosampler	.	.	.		.	0.2	<0.02
22SEP2002	2:52	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	4:15	Autosampler	.	.	.		.	1.2	<0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
27AUG2002	<0.002	0.55	22	0.6	.		1	022633	
10SEP2002	<0.002	0.62	18	<0.5	.		4	022798	
15SEP2002	<0.002	0.58	32	1.4	.		.	022863	
15SEP2002	<0.002	0.58	28	0.6	.		.	022864	
15SEP2002	<0.002	0.57	26	0.6	.		.	022865	
15SEP2002	<0.002	0.57	25	0.6	.		.	022866	
15SEP2002	<0.002	0.56	24	0.4	.		.	022867	
15SEP2002	<0.002	0.56	24	0.2	.		.	022868	
15SEP2002	<0.002	0.56	27	0.6	.		.	022869	
15SEP2002	<0.002	0.56	23	0.2	.		.	022870	
15SEP2002	<0.002	0.56	23	0.6	.		.	022871	
15SEP2002	<0.002	0.58	41	4.3	.		.	022872	
15SEP2002	<0.002	0.59	26	1	.		.	022873	
15SEP2002	<0.002	0.59	25	1	.		.	022874	
15SEP2002	<0.002	0.58	23	0.2	.		.	022875	
15SEP2002	<0.002	0.58	24	0.4	.		.	022876	
15SEP2002	<0.002	0.58	25	0.6	.		.	022877	
15SEP2002	<0.002	0.58	31	0.2	.		.	022878	
15SEP2002	<0.002	0.58	26	0.2	.		.	022879	
16SEP2002	<0.002	0.58	28	0.8	.		.	022880	
16SEP2002	<0.002	0.58	35	7.1	.		.	022881	
16SEP2002	<0.002	0.65	36	6	.		.	022882	
16SEP2002	<0.002	0.67	27	1	.		.	022883	
16SEP2002	<0.002	0.67	27	2.6	.		.	022884	
22SEP2002	<0.002	0.63	19	0.2	.		.	022977	
22SEP2002	<0.002	0.63	20	0.2	.		.	022978	
22SEP2002	<0.002	0.63	20	0.2	.		.	022979	
22SEP2002	0.002	0.6	36	4.6	.		.	022956	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error

Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
22SEP2002	4:30	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	5:31	Autosampler	.	.	.		.	2.3	<0.02
22SEP2002	6:33	Autosampler	.	.	.		.	1.9	<0.02
22SEP2002	7:33	Autosampler	.	.	.		.	1.0	<0.02
22SEP2002	8:34	Autosampler	.	.	.		.	0.5	<0.02
22SEP2002	9:35	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	10:36	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	11:37	Autosampler	.	.	.		.	0.2	<0.02
22SEP2002	12:38	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	13:39	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	14:40	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	15:41	Autosampler	.	.	.		.	0.2	<0.02
22SEP2002	16:42	Autosampler	.	.	.		.	0.2	<0.02
22SEP2002	17:43	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	18:44	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	19:45	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	20:46	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	21:47	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	22:48	Autosampler	.	.	.		.	0.4	<0.02
22SEP2002	23:49	Autosampler	.	.	.		.	0.4	<0.02
24SEP2002	10:20		11.9	8.5	6.69	Field	40	0.2	<0.02
15OCT2002	10:50		7.7	10.5	6.96	Field	27	0.4	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
22SEP2002	0.002	0.6	28	1	.		.	022957	
22SEP2002	0.002	0.61	52	10.8	.		.	022958	
22SEP2002	0.002	0.7	39	4.6	.		.	022959	
22SEP2002	0.002	0.76	31	2.8	.		.	022960	
22SEP2002	<0.002	0.73	25	1.4	.		.	022961	
22SEP2002	0.002	0.71	22	0.7	.		.	022962	
22SEP2002	<0.002	0.7	22	0.8	.		.	022963	
22SEP2002	<0.002	0.68	21	0.8	.		.	022964	
22SEP2002	<0.002	0.68	21	0	.		.	022965	
22SEP2002	<0.002	0.67	22	0.4	.		.	022966	
22SEP2002	<0.002	0.66	20	0.4	.		.	022967	
22SEP2002	<0.002	0.65	20	0	.		.	022968	
22SEP2002	<0.002	0.64	20	1.2	.		.	022969	
22SEP2002	<0.002	0.65	24	0.5	.		.	022970	
22SEP2002	<0.002	0.64	22	0.4	.		.	022971	
22SEP2002	<0.002	0.64	20	0.4	.		.	022972	
22SEP2002	<0.002	0.63	22	0.3	.		.	022973	
22SEP2002	<0.002	0.63	19	0.4	.		.	022974	
22SEP2002	<0.002	0.63	19	0.6	.		.	022975	
22SEP2002	<0.002	0.63	19	0.2	.		.	022976	
24SEP2002	<0.002	0.63	20	<0.5	.		2	023033	
15OCT2002	.	.	.	.	.		1	023351	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLETOD

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
05NOV2001	9:50		8.3	6.8	6.23	Field	45	0.2	0.01
20NOV2001	9:40		5.4	6.9	6.38	Field	48	0.5	0.01
04DEC2001	9:40		5.1	9.3	6.35	Field	42	0.8	0.02
18DEC2001	9:40		4.5	10.6	6.75	Field	48	2.5	0.02
02JAN2002	9:30		1.9	12.0	F.E.	Field	40	0.8	L.E.
15JAN2002	9:40		2.2	11.4	6.55	Field	41	0.5	0.03
29JAN2002	9:30		3.5	11.3	6.73	Field	40	0.7	0.02
12FEB2002	9:50		2.6	12.1	F.E.	Field	36	1.0	0.02
26FEB2002	9:30		4.1	11.3	6.59	Field	40	1.1	0.02
12MAR2002	9:10		3.1	11.7	6.53	Field	40	0.8	0.02
26MAR2002	9:20		3.5	12.0	6.49	Field	41	1.0	0.02
09APR2002	9:30		6.2	11.2	6.7	Field	39	1.1	0.01
23APR2002	9:30		6.0	10.9	6.6	Field	42	1.2	0.02
07MAY2002	9:20		8.2	10.6	6.58	Field	39	2.1	0.01
21MAY2002	9:20		6.2	11.2	6.53	Field	35	1.6	0.02
04JUN2002	9:30		8.6	10.3	6.61	Field	44	2.4	0.01
18JUN2002	9:30		9.1	10.3	6.51	Field	43	2.4	<0.02
01JUL2002	9:40		11.7	9.4	6.65	Field	49	3.4	0.02
16JUL2002	9:30		13.6	6.2	6.26	Field	49	0.8	<0.02
30JUL2002	9:40		14.3	3.2	5.9	Field	60	0.7	<0.02
15OCT2002	9:40		8.5	8.4	6.4	Field	56	1.5	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
05NOV2001	<0.004	0.04	9	<0.6	.		2	014317	
20NOV2001	L.E.	L.E.	8	0.4	0.4		2	014534	
04DEC2001	<0.004	0.2	10	0.4	.		<2	014671	
18DEC2001	<0.004	0.3	14	1.2	.		12	014864	
02JAN2002	<0.002	0.24	<6	0.8	.		<1	020016	
15JAN2002	<0.002	0.23	<6	<0.4	.		<1	020131	
29JAN2002	0.002	0.23	8	<0.5	.		<1	020226	
12FEB2002	<0.002	0.21	11	0.6	.		<1	020368	
26FEB2002	<0.002	0.14	8	1.2	.		<1	020476	
12MAR2002	<0.002	0.19	8	0.6	.		<1	020603	
26MAR2002	<0.002	0.16	11	2.4	.		<1	020713	
09APR2002	<0.002	0.12	<6	1.4	.		1	021010	
23APR2002	<0.002	0.1	8	1.8	.		47	021151	
07MAY2002	<0.002	0.07	11	3	.		1	021356	
21MAY2002	<0.002	0.06	12	2.2	.		14	021563	
04JUN2002	<0.002	0.06	11	3.6	.		6	021715	
18JUN2002	<0.002	0.06	10	3.6	.		10	021876	
01JUL2002	<0.002	0.08	14	4.4	.		TNTC	021989	
16JUL2002	<0.002	0.18	18	1	.		7	022180	
30JUL2002	<0.002	0.24	11	<0.5	.		2	022345	
15OCT2002	.	.	.	.	.		62	023349	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLOST

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
09OCT2001	11:40		6.9	9.4	6.25	Field	36	0.9	0.03
23OCT2001	11:30		8.2	8.5	6.3	Field	38	0.4	0.02
05NOV2001	11:30		6.9	9.6	6.62	Field	33	0.1	0.01
20NOV2001	11:20		6.1	9.1	6.82	Field	33	0.3	0.01
04DEC2001	11:20		6.7	10.1	6.65	Field	28	0.5	0.01
18DEC2001	11:30		4.9	11.0	6.69	Field	26	1.6	0.02
02JAN2002	11:20		2.3	12.3	F.E.	Field	25	0.3	L.E.
15JAN2002	11:40		3.8	11.9	6.69	Field	27	0.2	0.03
29JAN2002	11:00		4.2	12.8	6.82	Field	26	0.5	0.02
12FEB2002	11:50		2.6	11.3	F.E.	Field	25	0.6	0.02
26FEB2002	11:10		5.0	11.5	6.67	Field	25	0.3	<0.02
12MAR2002	11:20		3.0	12.3	6.55	Field	25	0.3	0.02
26MAR2002	11:20		3.2	12.0	6.54	Field	26	0.2	<0.02
09APR2002	11:10		7.0	10.8	6.7	Field	25	0.3	0.01
23APR2002	10:50		6.9	11.2	6.57	Field	26	0.3	0.02
07MAY2002	11:00		8.8	10.9	6.58	Field	26	0.3	0.02
21MAY2002	10:50		6.6	10.9	6.6	Field	24	0.2	0.02
04JUN2002	11:20		9.5	10.5	6.6	Field	27	0.2	0.01
18JUN2002	11:20		10.9	10.0	6.6	Field	26	0.4	<0.02
01JUL2002	11:50		11.5	9.8	6.46	Field	29	0.2	<0.02
16JUL2002	11:30		11.8	8.8	6.51	Field	32	0.3	<0.02
23JUL2002	13:30	Autosampler	.	.	.		.	0.9	.
23JUL2002	13:45	Autosampler	.	.	.		.	1.1	.
23JUL2002	14:16	Autosampler	.	.	.		.	25.0	.
23JUL2002	14:47	Autosampler	.	.	.		.	4.1	.
23JUL2002	15:18	Autosampler	.	.	.		.	0.9	.
23JUL2002	15:49	Autosampler	.	.	.		.	0.4	.
23JUL2002	16:20	Autosampler	.	.	.		.	0.3	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
09OCT2001	<0.004	0.29	14	3	.		<1	013966	
23OCT2001	<0.004	0.22	11	1.4	0.4		1	014183	
05NOV2001	<0.004	0.27	10	<0.4	.		<1	014321	
20NOV2001	L.E.	L.E.	8	0.6	<0.4		<1	014538	
04DEC2001	<0.004	0.54	13	<0.4	.		<1	014675	
18DEC2001	<0.004	0.46	12	3	.		<1	014868	
02JAN2002	<0.002	0.39	<6	<0.4	.		<1	020020	
15JAN2002	<0.002	0.38	12	<0.4	.		<1	020135	
29JAN2002	<0.002	0.39	<6	<0.5	.		1	020230	
12FEB2002	<0.002	0.54	15	0.6	.		<1	020372	
26FEB2002	<0.002	0.35	10	<0.5	.		<1	020480	
12MAR2002	<0.002	0.45	6	<0.5	.		1	020607	
26MAR2002	<0.002	0.33	8	<0.5	.		1	020717	
09APR2002	<0.002	0.34	9	<0.5	.		<1	021014	
23APR2002	0.002	0.29	9	<0.5	.		<1	021155	
07MAY2002	<0.002	0.25	11	<0.5	.		2	021360	
21MAY2002	<0.002	0.21	12	<0.5	.		<1	021567	
04JUN2002	<0.002	0.15	12	<0.5	.		<1	021719	
18JUN2002	<0.002	0.15	8	<0.5	.		2	021880	
01JUL2002	<0.002	0.1	10	<0.5	.		3	021993	
16JUL2002	<0.002	0.13	13	<0.5	.		<1	022184	
23JUL2002	<0.002	0.2	16	2	.		.	022299	
23JUL2002	<0.002	0.24	19	1.8	.		.	022300	
23JUL2002	0.002	0.37	45	13.6	.		.	022301	
23JUL2002	<0.002	0.31	20	1.3	.		.	022302	
23JUL2002	<0.002	0.26	21	0.7	.		.	022303	
23JUL2002	<0.002	0.24	20	0.4	.		.	022304	
23JUL2002	<0.002	0.23	16	0.4	.		.	022305	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=BELLOST
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
23JUL2002	16:51	Autosampler	.	.	.		.	0.3	.
23JUL2002	17:22	Autosampler	.	.	.		.	0.3	.
30JUL2002	11:10		13.0	7.9	6.63	Field	37	0.2	<0.02
13AUG2002	11:10		13.1	8.2	6.42	Field	41	0.1	0.02
27AUG2002	11:10		12.3	8.6	6.42	Field	45	0.3	<0.02
10SEP2002	11:10		12.1	8.2	6.39	Field	45	0.3	<0.02
22SEP2002	4:15	Autosampler	.	.	.		.	0.5	<0.02
22SEP2002	4:45	Autosampler	.	.	.		.	0.3	<0.02
22SEP2002	5:46	Autosampler	.	.	.		.	210.0	<0.02
22SEP2002	6:47	Autosampler	.	.	.		.	70.0	<0.02
22SEP2002	7:48	Autosampler	.	.	.		.	4.0	<0.02
22SEP2002	8:49	Autosampler	.	.	.		.	1.4	<0.02
22SEP2002	9:50	Autosampler	.	.	.		.	0.9	<0.02
22SEP2002	10:51	Autosampler	.	.	.		.	0.6	<0.02
22SEP2002	11:52	Autosampler	.	.	.		.	0.6	<0.02
22SEP2002	12:53	Autosampler	.	.	.		.	0.6	<0.02
22SEP2002	13:54	Autosampler	.	.	.		.	0.5	<0.02
24SEP2002	11:20		11.2	8.3	6.33	Field	45	0.2	<0.02
15OCT2002	12:00		8.9	10.2	6.57	Field	26	0.4	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
23JUL2002	<0.002	0.22	14	0.2	.		.	022306	
23JUL2002	<0.002	0.21	14	0.4	.		.	022307	
30JUL2002	<0.002	0.2	12	<0.5	.		<1	022348	
13AUG2002	<0.002	0.22	12	<0.5	.		1	022512	
27AUG2002	<0.002	0.31	15	3.2	.		1	022635	
10SEP2002	<0.002	0.31	10	1.2	.		2	022800	
22SEP2002	0.002	0.3	14	1	.		.	022980	
22SEP2002	<0.002	0.3	12	0.6	.		.	022981	
22SEP2002	0.002	0.68	94	113.1	.		.	022982	
22SEP2002	0.002	0.66	45	28.7	.		.	022983	
22SEP2002	<0.002	0.49	17	1.2	.		.	022984	
22SEP2002	0.002	0.43	13	0.5	.		.	022985	
22SEP2002	<0.002	0.39	12	0.2	.		.	022986	
22SEP2002	<0.002	0.38	11	0.3	.		.	022987	
22SEP2002	<0.002	0.36	11	0.2	.		.	022988	
22SEP2002	<0.002	0.35	12	0.2	.		.	022989	
22SEP2002	<0.002	0.33	12	0	.		.	022990	
24SEP2002	<0.002	0.26	12	<0.5	.		<1	023035	
15OCT2002	.	.	.	.	.		7	023353	

Site=SENECA

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
09OCT2001	12:10		7.5	8.6	6.69	Field	36	2.7	0.02
23OCT2001	12:00		9.3	8.0	6.71	Field	39	1.0	0.02
05NOV2001	11:50		8.3	9.1	6.84	Field	37	0.5	0.01
20NOV2001	11:50		6.8	9.4	7.01	Field	37	0.7	0.01
04DEC2001	11:50		6.5	7.6	6.86	Field	37	1.4	0.01
18DEC2001	12:00		4.3	10.6	6.99	Field	34	0.5	0.02
02JAN2002	11:50		-0.1	13.2	F.E.	Field	29	0.5	L.E.
15JAN2002	12:10		1.3	12.0	6.8	Field	31	0.2	0.03
29JAN2002	11:40		3.8	12.5	6.95	Field	30	0.7	0.02
12FEB2002	12:20		2.7	11.4	F.E.	Field	26	0.4	0.02
26FEB2002	11:30		4.6	11.7	6.85	Field	27	0.2	0.02
12MAR2002	11:50		3.6	11.8	6.78	Field	26	0.3	0.02
26MAR2002	11:50		3.4	12.2	6.81	Field	26	0.7	<0.002
26MAR2002	12:22	Autosampler	.	.	.		.	0.8	.
26MAR2002	13:22	Autosampler	.	.	.		.	0.3	.
26MAR2002	14:22	Autosampler	.	.	.		.	0.2	.
26MAR2002	15:22	Autosampler	.	.	.		.	0.3	.
26MAR2002	16:22	Autosampler	.	.	.		.	0.3	.
26MAR2002	17:22	Autosampler	.	.	.		.	0.3	.
26MAR2002	18:22	Autosampler	.	.	.		.	0.4	.
26MAR2002	19:22	Autosampler	.	.	.		.	0.4	.
26MAR2002	20:22	Autosampler	.	.	.		.	0.5	.
26MAR2002	21:22	Autosampler	.	.	.		.	3.4	.
26MAR2002	22:22	Autosampler	.	.	.		.	5.3	.
26MAR2002	23:22	Autosampler	.	.	.		.	4.2	.
27MAR2002	0:22	Autosampler	.	.	.		.	2.7	.
27MAR2002	1:22	Autosampler	.	.	.		.	2.4	.
27MAR2002	2:22	Autosampler	.	.	.		.	1.7	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
09OCT2001	<0.004	0.1	24	5	.		<2	013967	
23OCT2001	<0.004	<0.010	24	1.4	0.6		<1	014184	
05NOV2001	<0.004	0.02	30	1.4	.		1	014322	
20NOV2001	L.E.	L.E.	34	2.2	1.1		4	014539	
04DEC2001	<0.004	0.07	23	2	.		<2	014676	
18DEC2001	<0.004	0.18	23	0.4	.		1	014869	
02JAN2002	<0.002	0.1	<6	1	.		<1	020021	
15JAN2002	<0.002	0.08	9	<0.6	.		<1	020136	
29JAN2002	<0.002	0.2	11	<0.5	.		4	020231	
12FEB2002	<0.002	0.07	13	<0.5	.		<1	020373	
26FEB2002	<0.002	0.02	9	<0.5	.		2	020481	
12MAR2002	<0.002	0.05	8	<0.5	.		<1	020608	
26MAR2002	<0.002	0.04	15	4.4	.		50	020718	
26MAR2002	<0.002	0.04	11	3.1	.		.	020742	
26MAR2002	<0.002	0.04	7	<0.5	.		.	020743	
26MAR2002	<0.002	0.04	8	<0.5	.		.	020744	
26MAR2002	<0.002	0.04	7	<0.5	.		.	020745	
26MAR2002	<0.002	0.05	7	<0.5	.		.	020746	
26MAR2002	<0.002	0.06	8	<0.5	.		.	020747	
26MAR2002	<0.002	0.09	9	<0.5	.		.	020748	
26MAR2002	<0.002	0.11	11	0.7	.		.	020749	
26MAR2002	<0.002	0.13	10	1.1	.		.	020750	
26MAR2002	<0.002	0.13	42	23.6	.		.	020751	
26MAR2002	<0.002	0.14	60	26.4	.		.	020752	
26MAR2002	<0.002	0.18	38	10.9	.		.	020753	
27MAR2002	<0.002	0.2	23	4.8	.		.	020754	
27MAR2002	<0.002	0.21	21	4.9	.		.	020755	
27MAR2002	<0.002	0.26	20	3.3	.		.	020756	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
27MAR2002	3:22	Autosampler	.	.	.		.	1.2	.
27MAR2002	4:22	Autosampler	.	.	.		.	0.9	.
27MAR2002	5:22	Autosampler	.	.	.		.	0.9	.
27MAR2002	6:22	Autosampler	.	.	.		.	0.7	.
27MAR2002	7:22	Autosampler	.	.	.		.	0.7	.
27MAR2002	8:22	Autosampler	.	.	.		.	0.7	.
27MAR2002	9:22	Autosampler	.	.	.		.	0.7	.
27MAR2002	10:22	Autosampler	.	.	.		.	0.7	.
27MAR2002	10:55	Autosampler	.	.	.		.	0.8	.
09APR2002	11:50		7.4	10.9	6.92	Field	26	0.4	0.02
23APR2002	11:10		6.2	11.3	6.83	Field	27	0.4	0.02
28APR2002	8:00	Autosampler	.	.	.		.	0.7	0.02
28APR2002	11:45	Autosampler	.	.	.		.	0.7	0.02
28APR2002	12:46	Autosampler	.	.	.		.	0.5	0.02
28APR2002	13:47	Autosampler	.	.	.		.	0.7	0.02
28APR2002	14:48	Autosampler	.	.	.		.	0.6	0.02
28APR2002	15:49	Autosampler	.	.	.		.	0.6	0.02
28APR2002	16:50	Autosampler	.	.	.		.	0.5	0.02
28APR2002	17:51	Autosampler	.	.	.		.	0.5	0.02
28APR2002	18:53	Autosampler	.	.	.		.	0.5	0.01
28APR2002	19:53	Autosampler	.	.	.		.	0.6	0.02
28APR2002	20:54	Autosampler	.	.	.		.	2.2	0.02
28APR2002	21:55	Autosampler	.	.	.		.	1.1	0.02
28APR2002	22:56	Autosampler	.	.	.		.	1.5	0.02
28APR2002	23:57	Autosampler	.	.	.		.	0.7	0.02
29APR2002	0:58	Autosampler	.	.	.		.	0.5	0.02
29APR2002	1:59	Autosampler	.	.	.		.	0.6	0.02
29APR2002	3:00	Autosampler	.	.	.		.	0.7	0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
27MAR2002	<0.002	0.27	19	2.7	.		.	020757	
27MAR2002	<0.002	0.26	16	1.6	.		.	020758	
27MAR2002	<0.002	0.24	16	1.6	.		.	020759	
27MAR2002	<0.002	0.22	14	1.3	.		.	020760	
27MAR2002	<0.002	0.21	12	0.9	.		.	020761	
27MAR2002	<0.002	0.18	12	0.7	.		.	020762	
27MAR2002	<0.002	0.17	13	1.3	.		.	020763	
27MAR2002	<0.002	0.15	12	1.6	.		.	020764	
27MAR2002	<0.002	0.15	13	1.3	.		.	020765	
09APR2002	<0.002	0.02	9	<0.5	.		<1	021015	
23APR2002	<0.002	0.03	10	<0.5	.		<1	021156	
28APR2002	<0.002	0.05	18	1.8	.		.	021211	
28APR2002	<0.002	0.04	18	2.6	.		.	021212	
28APR2002	<0.002	0.05	15	1	.		.	021213	
28APR2002	<0.002	0.06	14	0.8	.		.	021214	
28APR2002	<0.002	0.06	14	1	.		.	021215	
28APR2002	<0.002	0.07	14	0.8	.		.	021216	
28APR2002	<0.002	0.08	12	0.6	.		.	021217	
28APR2002	<0.002	0.08	12	0.8	.		.	021218	
28APR2002	<0.002	0.08	12	1	.		.	021219	
28APR2002	<0.002	0.09	15	1.4	.		.	021220	
28APR2002	<0.002	0.1	22	7.2	.		.	021221	
28APR2002	<0.002	0.1	17	2.4	.		.	021222	
28APR2002	<0.002	0.11	18	2.4	.		.	021223	
28APR2002	<0.002	0.14	16	1.2	.		.	021224	
29APR2002	<0.002	0.15	15	1	.		.	021225	
29APR2002	<0.002	0.15	14	1.2	.		.	021226	
29APR2002	<0.002	0.15	13	1.8	.		.	021227	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
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Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
29APR2002	4:01	Autosampler	.	.	.		.	0.6	0.02
29APR2002	5:02	Autosampler	.	.	.		.	0.4	0.01
29APR2002	6:03	Autosampler	.	.	.		.	0.5	0.01
29APR2002	7:04	Autosampler	.	.	.		.	0.5	0.02
29APR2002	8:05	Autosampler	.	.	.		.	0.8	0.02
29APR2002	9:06	Autosampler	.	.	.		.	0.7	0.01
29APR2002	9:46	Autosampler	.	.	.		.	0.7	0.01
07MAY2002	11:20		9.2	10.9	6.9	Field	27	0.3	0.01
21MAY2002	11:10		6.7	10.8	6.84	Field	25	0.5	0.02
04JUN2002	11:50		9.1	10.5	6.9	Field	30	0.4	0.01
18JUN2002	11:50		10.5	10.0	6.84	Field	28	0.4	<0.02
01JUL2002	12:10		14.1	9.1	6.91	Field	33	0.5	<0.02
16JUL2002	12:00		14.7	8.5	6.93	Field	34	0.5	<0.02
23JUL2002	13:30	Autosampler	.	.	.		.	5.9	.
23JUL2002	14:00	Autosampler	.	.	.		.	12.0	.
23JUL2002	14:31	Autosampler	.	.	.		.	3.2	.
23JUL2002	15:02	Autosampler	.	.	.		.	4.6	.
23JUL2002	15:33	Autosampler	.	.	.		.	4.5	.
23JUL2002	16:04	Autosampler	.	.	.		.	3.7	.
23JUL2002	16:35	Autosampler	.	.	.		.	2.9	.
23JUL2002	17:06	Autosampler	.	.	.		.	1.9	.
23JUL2002	17:37	Autosampler	.	.	.		.	2.1	.
30JUL2002	11:30		17.5	7.2	6.96	Field	38	0.8	<0.02
13AUG2002	11:30		16.9	6.2	6.76	Field	39	0.7	0.02
27AUG2002	11:30		15.7	7.0	6.7	Field	40	0.7	<0.03
10SEP2002	11:50		16.1	7.0	6.72	Field	40	0.5	<0.02
16SEP2002	1:00	Autosampler	.	.	.		.	1.7	<0.02
16SEP2002	1:45	Autosampler	.	.	.		.	4.5	<0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
29APR2002	<0.002	0.15	12	1.2	.		.	021228	
29APR2002	<0.002	0.16	13	1.4	.		.	021229	
29APR2002	<0.002	0.16	12	1.2	.		.	021230	
29APR2002	<0.002	0.16	13	1.2	.		.	021231	
29APR2002	<0.002	0.15	14	1.2	.		.	021232	
29APR2002	<0.002	0.14	14	1	.		.	021233	
29APR2002	<0.002	0.14	14	0.8	.		.	021234	
07MAY2002	<0.002	0.02	11	0.6	.		<1	021361	
21MAY2002	<0.002	0.03	14	<0.5	.		4	021568	
04JUN2002	<0.002	0.06	16	0.6	.		<1	021720	
18JUN2002	<0.002	0.05	13	1.2	.		5	021881	
01JUL2002	<0.002	0.1	18	0.8	.		<1	021994	
16JUL2002	<0.002	0.18	23	1.2	.		2	022185	
23JUL2002	0.002	0.28	47	10	.		.	022290	
23JUL2002	0.002	0.31	66	27.2	.		.	022291	
23JUL2002	0.002	0.31	41	7.4	.		.	022292	
23JUL2002	<0.002	0.3	41	8.6	.		.	022293	
23JUL2002	<0.002	0.3	38	7.2	.		.	022294	
23JUL2002	<0.002	0.29	36	6	.		.	022295	
23JUL2002	<0.002	0.28	36	5.2	.		.	022296	
23JUL2002	<0.002	0.28	34	4	.		.	022297	
23JUL2002	<0.002	0.27	32	3.6	.		.	022298	
30JUL2002	<0.002	0.2	25	1.8	.		3	022349	
13AUG2002	<0.002	0.26	27	1.2	.		4	022513	
27AUG2002	<0.002	0.29	29	0.8	.		34	022636	
10SEP2002	<0.002	0.28	26	0.8	.		4	022801	
16SEP2002	<0.002	0.26	48	L.E.	.		.	022853	
16SEP2002	<0.002	0.26	85	L.E.	.		.	022854	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error

Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Code	In Field SpCond (umhos/cm)	Turbidity (NTU)	NH3-N (mg/l) Total NH3+NH4
16SEP2002	2:46	Autosampler	.	.	.		.	2.9	0.02
16SEP2002	3:47	Autosampler	.	.	.		.	1.7	<0.02
16SEP2002	4:48	Autosampler	.	.	.		.	1.3	<0.02
16SEP2002	5:49	Autosampler	.	.	.		.	1.1	<0.02
16SEP2002	6:50	Autosampler	.	.	.		.	1.1	<0.02
16SEP2002	7:51	Autosampler	.	.	.		.	1.2	<0.02
16SEP2002	8:52	Autosampler	.	.	.		.	2.6	0.02
16SEP2002	9:53	Autosampler	.	.	.		.	2.0	<0.02
22SEP2002	1:10	Autosampler	.	.	.		.	1.6	<0.02
22SEP2002	4:00	Autosampler	.	.	.		.	6.3	<0.02
22SEP2002	5:00	Autosampler	.	.	.		.	6.3	<0.02
22SEP2002	6:01	Autosampler	.	.	.		.	7.0	<0.02
22SEP2002	7:02	Autosampler	.	.	.		.	5.4	<0.02
22SEP2002	8:03	Autosampler	.	.	.		.	4.1	<0.02
22SEP2002	9:04	Autosampler	.	.	.		.	3.4	<0.02
22SEP2002	10:05	Autosampler	.	.	.		.	1.9	<0.02
22SEP2002	12:07	Autosampler	.	.	.		.	2.1	<0.02
22SEP2002	13:08	Autosampler	.	.	.		.	1.9	<0.02
22SEP2002	14:09	Autosampler	.	.	.		.	2.4	<0.02
22SEP2002	15:10	Autosampler	.	.	.		.	1.6	<0.02
22SEP2002	16:11	Autosampler	.	.	.		.	1.5	<0.02
22SEP2002	17:12	Autosampler	.	.	.		.	1.3	<0.02
22SEP2002	18:13	Autosampler	.	.	.		.	2.0	<0.02
24SEP2002	11:50		14.0	8.2	6.69	Field	37	0.6	<0.02
15OCT2002	12:30		8.6	10.3	7.02	Field	27	0.7	.

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total P (ug/l)	Total Suspended Solids (mg/l)	Volatile Solids (mg/l)	Fecal Coli Code	Fecal Coliforms (CFU/100ml)	Sample Number	Sample Type
16SEP2002	<0.002	0.26	56	L.E.	.		.	022855	
16SEP2002	<0.002	0.25	44	L.E.	.		.	022856	
16SEP2002	<0.002	0.25	0.4	L.E.	.		.	022857	
16SEP2002	<0.002	0.24	39	L.E.	.		.	022858	
16SEP2002	<0.002	0.24	38	L.E.	.		.	022859	
16SEP2002	<0.002	0.25	36	L.E.	.		.	022860	
16SEP2002	<0.002	0.24	37	L.E.	.		.	022861	
16SEP2002	<0.002	0.24	36	L.E.	.		.	022862	
22SEP2002	<0.002	0.28	34	3.8	.		.	022998	
22SEP2002	0.002	0.25	56	15.4	.		.	022991	
22SEP2002	<0.002	0.29	59	12.6	.		.	022992	
22SEP2002	<0.002	0.3	67	17	.		.	022993	
22SEP2002	0.002	0.3	58	13	.		.	022994	
22SEP2002	0.002	0.29	46	9.2	.		.	022995	
22SEP2002	<0.002	0.29	41	6.8	.		.	022996	
22SEP2002	<0.002	0.28	37	4.4	.		.	022997	
22SEP2002	0.002	0.28	36	4.2	.		.	022999	
22SEP2002	<0.002	0.26	34	9.6	.		.	023000	
22SEP2002	<0.002	0.26	34	5.8	.		.	023001	
22SEP2002	<0.002	0.27	33	4	.		.	023002	
22SEP2002	<0.002	0.26	32	3	.		.	023003	
22SEP2002	<0.002	0.26	34	4.1	.		.	023004	
22SEP2002	<0.002	0.26	33	3.8	.		.	023005	
24SEP2002	<0.002	0.23	27	0.8	.		2	023036	
15OCT2002	.	.	.	.	.		10	023354	

DATA CODES: L.E. = Laboratory Error, F.E. = Field Error
Inclusion of results does not explicitly imply certification for all analytes by NYS DOH ELAP.

Variable	Date	Certification	Samples	Instrument	Reference / Procedure Change	Method
Fecal Coliforms	02APR97	Non-Potable Y Potable Y S & H Waste NP	Special	Millipore Membrane Filter Apparatus	SM18; 9222D	
NH3-N	13MAY99	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	SM18; 4500-NH3, H	Automated Phenate
NO2-N	01MAY00	Non-Potable N Potable NP S & H Waste NP	Special	Dionex DX-300	EPA 1993 300.0	Ion Chromatography
NO2-N	20MAY02	Non-Potable N Potable NP S & H Waste NP	Special	Dionex DX-600	EPA 1993 300.0	Ion Chromatography
NO3-N	01MAY00	Non-Potable Y Potable NP S & H Waste NP	Special	Dionex DX-300	EPA 1993 300.0	Ion Chromatography
NO3-N	20MAY02	Non-Potable Y Potable NP S & H Waste NP	Special	Dionex DX-600	EPA 1993 300.0	Ion Chromatography
Total Susp. Solids	02APR97	Non-Potable Y Potable NP S & H Waste NP	Special	Filtration and Analytical Balance	SM18; 2540D	
Total P	01JAN00	Non-Potable Y Potable NP S & H Waste NP	Special	Alpkem Flow Solution III/IV	SM18; 4500-P,F	Persulf.Digest./Ascb.Acid
Turbidity	26JUN97	Non-Potable NA Potable NP S & H Waste NP	Special	Hach 2100 AN Turbidimeter	SM18; 2130B Change Formazin & AEPA to HACH Stabil Cal standards for primary calibration.	Nephelometric Method
Turbidity	27AUG01	Non-Potable NA Potable NP S & H Waste NP	Special	Hach 2100 AN Turbidimeter	SM19; 2130B	Nephelometric Method
Volatile Susp. Sol.	02APR97	Non-Potable NA Potable NP S & H Waste NP	Special	Filtr., Muff.Furnace, and Balance	SM18; 2540E	

Certification Codes: Y = Yes, N = No, NA = Not Available, NP = Not Performed

Year=2001

Variable	Beginning Date	End Date	Comments
NH3	04JUN2001	05JUN2001	SAMPNOs 1908-1913: These samples are associated with an out of control filter blank (0.01 mg/l). <0.01 is acceptable.
NH3	19NOV2001	26NOV2001	SAMPNOs 4534-4539: These samples are associated with a method blank that is above the detection limit.
NO2	08MAY2001	08MAY2001	SAMPNOs 1505-1510: These samples are associated with an out of control spike QC sample.
NO3	08MAY2001	08MAY2001	SAMPNOs 1505-1510: These samples are associated with an out of control run blank (0.01mg/l). <0.01 is acceptable.
NO3	21MAY2001	22MAY2001	SAMPNOs 1708-1713: These samples are associated with an out of control run blank (0.01 mg/l). <0.01 is acceptable.
NO3	29MAY2001	29MAY2001	SAMPNOs 1812-1817: These samples are associated with an out of control run blank (0.01 mg/l). <0.01 is acceptable.
NO3	18JUN2001	19JUN2001	SAMPNOs 2383-2388: These samples are associated with an out of control laboratory blank (0.01 mg/l). <0.01 is acceptable.
NO3	25JUN2001	25JUN2001	SAMPNOs 2509-2514: These samples are associated with a method blank that is above the detection limit.
SUSPSLDS	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extreme ly low flow through the stage pool.
TN	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extreme ly low flow through the stage pool.
TP	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extreme ly low flow through the stage pool.
TURB	23JAN2001	23JAN2001	While collecting grab samples, the bottom sediment was stirred up. One liter & bacti samples were highly turbid. Upstream of sample was clear. Unable to recollect due to lack of bottles and extreme ly low flow through the stage pool.

Year=2002

Variable	Beginning Date	End Date	Comments
NH3	12FEB2002	12FEB2002	SAMPNOs 368-373: These samples are associated with a method blank that is above the detection limit.
NO2	23APR2002	23APR2002	SAMPNOs 1151-1156: Samples analyzed beyond holding time.
NO3	23APR2002	23APR2002	SAMPNOs 1151-1156: Samples analyzed beyond holding time.
SRP	28JAN2002	29JAN2002	SAMPNOs 226-231: These samples are associated with a method blank that is above the detection limit.

KEY TO SAMPLING LOCATIONS – 2002
CATSKILL WATERSHED
BEN NESIN LABORATORY, ELAP ID NO. 10030

SITE	DESCRIPTION
WQIA: Crossroads Ventures Project	
BELLOST	Sample from Lost Clove to be collected on CRV property just upstream of confluence with tributary coming in from the south, approximately 1/4 mile downstream of NYSDEC trailhead area
BELLE2	This unnamed and probably intermittent tributary flows down from the central portion of the eastern area owned by CRV to Birch Creek approximately 1/4 mile below routine Hydrology site E15. Samples will be collected on the upstream side of the abandoned railroad. Site is accessed by driving up private road from Rt. 28 to the abandoned railroad, then walking east along the railroad to the first stream which originates from up the mountain. (Smaller tributaries which appear to originate from local seeps will be passed)
BELLEGIG	Sample from Giggle Hollow will be collected above a weir to be constructed adjacent to a NYSDEC day-use area. Giggle Hollow is a tributary to Birch Creek just below routine Hydrology site E3
BELLE5	This unnamed tributary flows near the Wild Acres Hotel and is a tributary to Townsend Hollow (Emory Brook). Samples are collected upstream of Kraft Road
BELLETOD	This unnamed tributary flows along Todd Mountain Road and is tributary to Birch Creek in the Village of Fleishmanns. Sample will be collected near the northwestern edge of CRV property, below the confluence of two forks in the stream
SENECA	Seneca Hollow will be used as a control stream for this project. Samples will be collected on the upstream (northern) side of County Road 150

Average Daily Transducer Stage Values for Automated Belleayre Monitoring Stations

Date	BELLETOD Average Daily Stage (ft)	BELLETOD Comment	BELLE5 Average Daily Stage (ft)	BELLE5 Comment	BELLEGIG Average Daily Stage (ft)	BELLEGIG Comment	BELLOST Average Daily Stage (ft)	BELLOST Comment	SENECA Average Daily Stage (ft)	SENECA Comment
4/12/01					1.51					
4/13/01					1.62					
4/14/01					1.61					
4/15/01					1.51					
4/16/01					1.46					
4/17/01					1.42					
4/18/01					1.38					
4/19/01					1.34					
4/20/01					1.29					
4/21/01					1.29					
4/22/01					1.40					
4/23/01					1.43					
4/24/01					1.37					
4/25/01					1.31	C				
4/26/01					1.25	C				
4/27/01					1.21	C				
4/28/01					1.17	C				
4/29/01					1.14	C				
4/30/01					1.12	C				
5/1/01					1.09	C				
5/2/01					1.08	C				
5/3/01					1.07	C				
5/4/01					1.06	C				
5/5/01					1.05	C				
5/6/01					1.03	C				
5/7/01					1.02	C				
5/8/01					1.02	C				
5/9/01					1.02	C				
5/10/01					1.00	C				
5/11/01	0.89				0.99	C				
5/12/01	0.88				0.98	C				
5/13/01	0.87				0.97	C				
5/14/01	0.86				0.96	C				
5/15/01	0.85				0.95	C				
5/16/01	0.84				0.93	C				
5/17/01	0.83				0.92	C				
5/18/01	0.82				0.91	C				
5/19/01	0.81				0.89	C				
5/20/01	0.80				0.88	C				
5/21/01	0.78				0.86	C				
5/22/01	0.79				0.87	C				
5/23/01	0.78				0.87	C				
5/24/01	0.76				0.86	C				
5/25/01	0.75				0.85	C				
5/26/01	0.75				0.84	C				
5/27/01	0.78				0.85	C				
5/28/01	0.80				0.86	C				
5/29/01	0.76				0.86	C	2.40			
5/30/01	0.74				0.87		2.40			
5/31/01	0.74				0.89		2.39			
6/1/01	0.73				0.90		2.39			
6/2/01	0.81				0.93		2.46			

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
6/3/01	0.82				0.95		2.47			
6/4/01	0.80				0.96		2.48			
6/5/01	0.80				0.98		2.48			
6/6/01	0.80				1.00		2.47			
6/7/01	0.80				0.98		2.46			
6/8/01	0.80				0.98		2.45			
6/9/01	0.80				0.97		2.44			
6/10/01	0.80				0.95		2.42			
6/11/01	0.82				0.95		2.42			
6/12/01	0.81				0.94		2.41			
6/13/01	0.80				0.92		2.39			
6/14/01	0.79				0.91		2.38			
6/15/01	0.78				0.90		2.37			
6/16/01	0.80				0.90		2.37			
6/17/01	1.01				1.03		2.56			
6/18/01	0.95				1.04		2.52			
6/19/01	0.94				1.06		2.51			
6/20/01	0.93				1.05		2.50			
6/21/01	0.93				1.04		2.49			
6/22/01	0.92				1.02		2.47			
6/23/01	0.97				1.01		2.47			
6/24/01	0.98				0.99		2.46			
6/25/01	0.97				0.97		2.44			
6/26/01	0.97				0.96		2.43			
6/27/01	0.96				0.94		2.41			
6/28/01	0.95				0.93		2.41			
6/29/01	0.94				0.92		2.39			
6/30/01	0.94				0.91		2.39			
7/1/01	0.94				0.91		2.39			
7/2/01	0.92				0.89		2.38			
7/3/01	0.90				0.88		2.37			
7/4/01	0.89				0.86		2.37			
7/5/01	0.88				0.85		2.36			
7/6/01	0.86				0.84		2.35			
7/7/01	0.85				0.82		2.34			
7/8/01	0.85				0.81		2.34			
7/9/01	0.83				0.80		2.33			
7/10/01	0.81				0.79		2.33			
7/11/01	0.80				0.78		2.32			
7/12/01	0.78				0.78		2.32			
7/13/01	0.76				0.77		2.30			
7/14/01	0.75				0.76		2.30			
7/15/01	0.73				0.75		2.30			
7/16/01	0.71				0.74		2.29			
7/17/01	0.70				0.74		2.29			
7/18/01	0.69				0.73		2.28			
7/19/01	0.67				0.72		2.28			
7/20/01	0.66				0.71		2.27			
7/21/01	0.64				0.70		2.26			
7/22/01	0.62				0.69		2.26			
7/23/01	0.60				0.70		2.25			
7/24/01	0.58				0.68		2.23			
7/25/01	0.56				0.66		2.21			

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
7/26/01	0.75				0.69		2.24			
7/27/01	0.63				0.67		2.23			
7/28/01	0.60				0.65		2.21			
7/29/01	0.58				0.63		2.20			
7/30/01	0.56				0.63		2.18			
7/31/01	0.53				0.61		2.18			
8/1/01	0.49				0.61		2.16			
8/2/01	0.45				0.60		2.14			
8/3/01	0.47				0.61		2.16			
8/4/01	0.57				0.61		2.21			
8/5/01	0.47				0.60		2.20			
8/6/01	0.35				0.59		2.17			
8/7/01	0.25				0.58		2.15			
8/8/01	0.22	E			0.57		2.11			
8/9/01	0.19	E			0.56		2.07			
8/10/01	0.31	E			0.56		2.04			
8/11/01	0.22	E			0.55		2.01			
8/12/01	0.32	E			0.56		2.06			
8/13/01	0.20	E			0.55		2.03			
8/14/01	0.20	E			0.53		1.98			
8/15/01	0.20	E			0.52		1.94			
8/16/01	0.20	E			0.51		1.89			
8/17/01	0.38	E			0.52		1.95			
8/18/01	0.20	E			0.50		1.93			
8/19/01	0.20	E			0.48		1.86			
8/20/01	0.20	E			0.50		1.88			
8/21/01	0.20	E			0.48		1.87			
8/22/01	0.20	E			0.43		1.80			
8/23/01	0.20	E			0.41		1.75			
8/24/01	0.20	E			0.36		1.74			
8/25/01	0.20	E			0.29		1.65			
8/26/01	0.20	E			0.26		1.61			
8/27/01	0.20	E			0.23		1.56			
8/28/01	0.20	E			0.20		1.50			
8/29/01	0.20	E			0.16	C	1.49	C		
8/30/01	0.20	E			0.13	C	1.49	C		
8/31/01	0.21	E			0.20	C	1.58	C		
9/1/01	0.42	E			0.58	C	2.15	C		
9/2/01	0.20	E			0.42	C	2.07	C		
9/3/01	0.20	E			0.29	C	1.89	C		
9/4/01	0.28	E			0.37	C	1.90	C		
9/5/01	0.20	E			0.39	C	1.91	C	0.59	
9/6/01	0.20	E			0.28	C	1.81	C	0.59	C
9/7/01	0.20	E			0.21	C	1.68	C	0.59	C
9/8/01	0.19	E			0.15	C	1.56	C	0.59	C
9/9/01	0.19	E			0.12	C	1.49	C	0.59	C
9/10/01	0.19	E			0.31	C	1.65	C	0.62	C
9/11/01	0.20	E			0.51	C	1.95	C	0.60	C
9/12/01	0.20	E			0.29	C	1.90		0.58	
9/13/01	0.20	E			0.25	C	1.78		0.59	
9/14/01	0.56	E			0.60	C	2.08		0.67	
9/15/01	0.20	E			0.54	C	2.12		0.60	
9/16/01	0.20	E			0.38	C	2.01		0.59	

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
9/17/01	0.20	E			0.27	C	1.85		0.57	
9/18/01	0.20	E			0.23	C	1.74		0.57	
9/19/01	0.20	E	0.20		0.24	C	1.63		0.56	
9/20/01	0.30	E	0.23	NC	0.43	C	1.85		0.62	
9/21/01	0.52	E	0.20	NC	0.69	C	2.25		0.66	
9/22/01	0.20	E	0.20	NC	0.63	C	2.23		0.59	
9/23/01	0.20	E	0.20	NC	0.56	C	2.16		0.57	
9/24/01	0.20	E	0.20	NC	0.52	C	2.09		0.57	
9/25/01	0.81	E	1.74	NC	0.79	C	2.40	E	0.74	
9/26/01	0.62	E	1.52	NC	0.78	C	1.99	E	0.62	
9/27/01	0.51	E	0.90	NC	0.75	C	0.87	E	0.59	
9/28/01	0.56	E	0.82	NC	0.74	C	0.29	E	0.58	
9/29/01	0.57	E	0.64	NC	0.74	C	0.28	C	0.58	
9/30/01	0.46	E	0.39	NC	0.74	C	0.28	C	0.57	
10/1/01	0.41	E	0.24	NC	0.74	C	0.26	C	0.57	
10/2/01	0.37	E	0.20	NC	0.73	C	0.26	C	0.57	
10/3/01	0.33	E	0.20	NC	0.73	C	0.25	C	0.57	
10/4/01	0.29	E	0.20	NC	0.73	C	0.25	C	0.57	
10/5/01	0.25	E	0.20	NC	0.74	C	0.25	C	0.57	
10/6/01	0.31	E	0.20	NC	0.74	C	0.26	C	0.58	
10/7/01	0.22	E	0.20	NC	0.74	C	0.26	C	0.57	
10/8/01	0.20	E	0.20	NC	0.72	C	0.25	C	0.59	
10/9/01	0.20	E	0.21	NC	0.72	C	0.24	C	0.59	
10/10/01	0.20	E	0.20	NC	0.74	C	0.24	C	0.59	
10/11/01	0.20	E	0.20	NC	0.74	C	0.23	C	0.59	
10/12/01	0.20	E	0.20	NC	0.73	C	0.23	C	0.59	
10/13/01	0.20	E	0.20	NC	0.73	C	0.23	C	0.59	
10/14/01	0.20	E	0.20	NC	0.72	C	0.24	C	0.59	
10/15/01	0.39	E	0.20	NC	0.75	C	0.26	C	0.62	
10/16/01	0.21	E	0.20	NC	0.73	C	0.27	C	0.60	
10/17/01	0.20	E	0.20	NC	0.73	C	0.29	C	0.61	
10/18/01	0.20	E	0.21	NC	0.72	C	0.29	C	0.60	
10/19/01	0.20	E	0.21	NC	0.72	C	0.29	C	0.60	
10/20/01	0.20	E	0.20	NC	0.70	C	0.29	C	0.60	
10/21/01	0.20	E	0.20	NC	0.69	C	0.29	C	0.60	
10/22/01	0.20	E	0.20	NC	0.70	C	0.29	C	0.60	
10/23/01	0.22	E	0.20	NC	0.71	C	0.26	C	0.60	
10/24/01	0.79	E	0.30	NC	0.74	C	0.27	C	0.64	
10/25/01	0.58	E	0.21	NC	0.74	C	0.29	C	0.62	
10/26/01	0.53	E	0.20	NC	0.75	C	0.29	C	0.61	
10/27/01	0.52	E	0.24	NC	0.75	C	0.28	C	0.61	
10/28/01	0.51	E	0.31	NC	0.75	C	0.28	C	0.60	
10/29/01	0.53	E	0.29	NC	0.75	C	0.28	C	0.60	
10/30/01	0.54	E	0.30	NC	0.75	C	0.27	C	0.60	
10/31/01	0.55	E	0.27	NC	0.75	C	0.28	C	0.60	
11/1/01	0.56	E	0.28	NC	0.75	C	0.29	C	0.60	
11/2/01	0.57	E	0.25	NC	0.75	C	0.29	C	0.59	
11/3/01	0.57	E	0.22	NC	0.75	C	0.28	C	0.59	
11/4/01	0.57	E	0.21	NC	0.77	C	0.28	C	0.59	
11/5/01	0.57	E	0.21	NC	0.78	C	0.28	C	0.60	
11/6/01	0.57		0.21	NC	0.79	C	0.28		0.59	C
11/7/01	0.56		0.21	NC	0.79	C	0.29		0.59	C
11/8/01	0.55		0.21	NC	0.79	C	0.30		0.58	C

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
11/9/01	0.55		0.21	NC	0.78	C	0.30		0.58	C
11/10/01	0.53		0.21	NC	0.78	C	0.29		0.58	C
11/11/01	0.52		0.21	NC	0.77	C	0.29		0.57	C
11/12/01	0.49		0.21	NC	0.77	C	0.28		0.57	C
11/13/01	0.49		0.21	NC	0.76	C	0.28		0.57	C
11/14/01	0.50		0.21	NC	0.75	C	0.28		0.57	C
11/15/01	0.50		0.23	NC	0.75	C	0.27		0.56	C
11/16/01	0.50		0.21	NC	0.74	C	0.26		0.56	C
11/17/01	0.48		0.21	NC	0.73	C	0.25		0.55	C
11/18/01	0.46		0.21	NC	0.73	C	0.25		0.55	C
11/19/01	0.45		0.21	NC	0.72	C	0.25		0.55	C
11/20/01	0.54		0.21	NC	0.73	C	0.24		0.57	C
11/21/01	0.51	C	0.21	NC	0.73	C	0.23		0.57	C
11/22/01	0.47	C	0.22	NC	0.72	C	0.23		0.56	C
11/23/01	0.46	C	0.23	NC	0.71	C	0.23		0.56	C
11/24/01	0.44	C	0.23	NC	0.71	C	0.24		0.56	C
11/25/01	0.56	C	0.27	NC	0.71	C	0.27		0.57	C
11/26/01	0.67	C	0.27	NC	0.72	C	0.28		0.57	C
11/27/01	0.61	C	0.27	NC	0.73	C	0.28		0.56	C
11/28/01	0.62	C	0.26	NC	0.72	C	0.28		0.56	C
11/29/01	0.65	C	0.26	NC	0.73	C	0.28		0.56	C
11/30/01	0.74	C	0.77	NC	0.77	C	0.31		0.64	C
12/1/01	0.79	C	1.91	NC	0.83	C	0.44		0.73	C
12/2/01	0.79	C	1.90	NC	0.94	C	0.46		0.65	C
12/3/01	0.80	C	1.89	NC	0.97	C	0.45		0.61	C
12/4/01	0.80	C	2.00	NC	0.96	C	0.44		0.59	C
12/5/01	0.80	C	2.05	C	0.95		0.42	C	0.58	C
12/6/01	0.80	C	1.93	C	0.94		0.41	C	0.58	C
12/7/01	0.79	C	1.71	C	0.93		0.39	C	0.57	C
12/8/01	0.78	C	1.47	C	0.92		0.37	C	0.57	C
12/9/01	0.78	C	1.44	C	0.91		0.36	C	0.58	C
12/10/01	0.77	C	1.26	C	0.90		0.35	C	0.57	C
12/11/01	0.76	C	1.19	C	0.89		0.34	C	0.57	C
12/12/01	0.76	C	1.08	C	0.89		0.33	C	0.56	C
12/13/01	0.77	C	1.40	C	0.89		0.33	C	0.57	C
12/14/01	0.79	C	1.85	C	0.90		0.35	C	0.58	C
12/15/01	0.78	C	2.04	C	0.92		0.37	C	0.60	C
12/16/01	0.78	C	2.01	C	0.93		0.37	C	0.58	C
12/17/01	0.81	C	2.06	C	0.96		0.39	C	0.59	C
12/18/01	0.94	C	2.24	C	1.02		0.46	C	0.76	C
12/19/01	0.94		2.22		1.07		0.49		0.76	C
12/20/01	0.95		2.21		1.10		0.49		0.78	C
12/21/01	0.95		2.20		1.09		0.48		0.82	C
12/22/01	0.94		2.18		1.07		0.47		0.82	C
12/23/01	0.94		2.17		1.06		0.46		0.83	C
12/24/01	0.95		2.19		1.05		0.46		0.83	C
12/25/01	0.94		2.17		1.03		0.44		0.81	C
12/26/01	0.93		2.16		1.02		0.43		0.79	C
12/27/01	0.93		2.15		1.01		0.42		0.78	C
12/28/01	0.92		2.14		0.99		0.41		0.77	C
12/29/01	0.91		2.13		0.98		0.40		0.76	C
12/30/01	0.91		2.12		0.97		0.39		0.74	C
12/31/01	0.90		2.10		0.96		0.38		0.73	C

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
1/1/02	0.89		2.08		0.95		0.38		0.71	C
1/2/02	0.88		2.05		0.93		0.37		0.70	C
1/3/02	0.87		2.01	E	0.92	C	0.36		0.70	C
1/4/02	0.86		1.93	E	0.92	C	0.36		0.69	C
1/5/02	0.86		1.81	E	0.91	C	0.36		0.69	C
1/6/02	0.85		1.73	E	0.90	C	0.35		0.69	C
1/7/02	0.85		1.75	E	0.90	C	0.35		0.71	C
1/8/02	0.84		1.51	E	0.89	C	0.34		0.69	C
1/9/02	0.84		1.43	E	0.89	C	0.33		0.69	C
1/10/02	0.83		1.40	E	0.88	C	0.33		0.71	C
1/11/02	0.82		1.28	E	0.87	C	0.32		0.71	C
1/12/02	0.82		1.11	E	0.87	C	0.32		0.69	C
1/13/02	0.81		1.05	E	0.86	C	0.32		0.68	C
1/14/02	0.80		0.92	E	0.85	C	0.31		0.66	C
1/15/02	0.79		0.88	E	0.85	C	0.31		0.65	C
1/16/02	0.78		0.81	E	0.84		0.30		0.65	C
1/17/02	0.78		0.76	E	0.83		0.30		0.63	C
1/18/02	0.77		0.70	E	0.83		0.30		0.61	C
1/19/02	0.76		0.63	E	0.82		0.30		0.58	C
1/20/02	0.76		0.59	E	0.82		0.29		0.56	C
1/21/02	0.75		0.55	E	0.82		0.29		0.54	C
1/22/02	0.74		0.51	E	0.81		0.29		0.51	C
1/23/02	0.76		0.56	E	0.81		0.29		0.50	C
1/24/02	0.84		1.20	E	0.82		0.31		0.56	C
1/25/02	0.88		2.09	E	0.85		0.35		0.68	C
1/26/02	0.89		2.07	E	0.86		0.37		0.68	C
1/27/02	0.90		2.06	E	0.87		0.38		0.73	C
1/28/02	0.91		2.06	E	0.88		0.40		0.80	C
1/29/02	0.94		2.12	E	0.90		0.43		0.91	C
1/30/02	1.12		2.31	C	1.04		0.53		1.02	C
1/31/02	1.15		2.31	C	1.17		0.56		1.08	C
2/1/02	1.20		2.34	C	1.20		0.60		1.16	C
2/2/02	1.14		2.33	C	1.22		0.74		1.19	C
2/3/02	1.12		2.30	C	1.22		0.72		1.20	C
2/4/02	1.10		2.27	C	1.19		0.69		1.20	C
2/5/02	1.07		2.24	C	1.15		0.66		1.16	C
2/6/02	1.05		2.22	C	1.12		0.64		1.12	C
2/7/02	1.03		2.21	C	1.10		0.63		1.08	C
2/8/02	1.02		2.19	C	1.07		0.62		1.05	C
2/9/02	1.00		2.17	C	1.05		0.60		1.01	C
2/10/02	1.02		2.19	C	1.04		0.60		1.01	C
2/11/02	1.10		2.28	C	1.07		0.64		1.06	C
2/12/02	1.06		2.23	C	1.07		0.64		1.04	C
2/13/02	1.05	C	2.21		1.09		0.64		1.08	
2/14/02	1.03	C	2.19		1.09		0.63		1.09	
2/15/02	1.02	C	2.18		1.08		0.62		1.09	
2/16/02	1.02	C	2.19		1.08		0.62		1.09	
2/17/02	1.01	C	2.17		1.06		0.61		1.07	
2/18/02	0.99	C	2.16		1.05		0.60		1.04	
2/19/02	0.98	C	2.15		1.03		0.58		1.01	
2/20/02	0.98	C	2.15		1.02		0.58		1.00	
2/21/02	1.00	C	2.17		1.02		0.58		0.99	
2/22/02	0.99	C	2.17		1.01		0.58		0.97	

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
2/23/02	0.98	C	2.17		1.00		0.57		0.95	
2/24/02	0.98	C	2.16		1.01		0.57		0.94	
2/25/02	0.97	C	2.15		1.00		0.57		0.93	
2/26/02	0.97	C	2.15		1.00		0.58		0.92	
2/27/02	0.97		2.15		1.00		0.59		0.92	C
2/28/02	0.95		2.14		0.99		0.57		0.92	C
3/1/02	0.95		2.13		0.98		0.56		0.91	C
3/2/02	0.94		2.13		0.97		0.56		0.90	C
3/3/02	0.98		2.23		1.00		0.62		0.97	C
3/4/02	0.97		2.21		1.02		0.62		0.94	C
3/5/02	0.97		2.20		1.05		0.64		0.95	C
3/6/02	0.97		2.20		1.06		0.64		0.97	C
3/7/02	0.98		2.19		1.06		0.64		0.99	C
3/8/02	0.97		2.17		1.04		0.63		1.00	C
3/9/02	0.97		2.17		1.04		0.63		1.00	C
3/10/02	1.02		2.24		1.08		0.69		1.06	C
3/11/02	1.00		2.23		1.10		0.69		1.05	C
3/12/02	1.00		2.23		1.12		0.69		1.09	C
3/13/02	1.00		2.21		1.12	C	0.68		1.11	
3/14/02	1.00		2.20		1.11	C	0.67		1.11	
3/15/02	1.00		2.19		1.10	C	0.66		1.10	
3/16/02	1.01		2.20		1.09	C	0.66		1.09	
3/17/02	1.00		2.19		1.08	C	0.64		1.06	
3/18/02	1.00		2.19		1.08	C	0.64		1.04	
3/19/02	0.99		2.19		1.08	C	0.64		1.03	
3/20/02	0.99		2.19		1.08	C	0.63		1.03	
3/21/02	1.00		2.18		1.08	C	0.63		1.05	
3/22/02	0.99		2.17		1.07	C	0.62		1.05	
3/23/02	0.98		2.16		1.06	C	0.61		1.04	
3/24/02	0.98		2.15		1.05	C	0.60		1.05	
3/25/02	0.97		2.15		1.04	C	0.59		1.05	
3/26/02	1.01		2.16		1.05	C	0.60		1.09	
3/27/02	1.12		2.28		1.11		0.70		1.31	C
3/28/02	1.12		2.27		1.16		0.72		1.41	C
3/29/02	1.12		2.26		1.18		0.72		1.42	C
3/30/02	1.14		2.31		1.20		0.76		1.39	C
3/31/02	1.13		2.31		1.25		0.78		1.36	C
4/1/02	1.14		2.32		1.27		0.78		1.34	C
4/2/02	1.12		2.30		1.25		0.76		1.30	C
4/3/02	1.12		2.29		1.22		0.75		1.26	C
4/4/02	1.10		2.27		1.19		0.72		1.22	C
4/5/02	1.08		2.26		1.17		0.70		1.18	C
4/6/02	1.07		2.25		1.15		0.68		1.15	C
4/7/02	1.05		2.24		1.13		0.66		1.12	C
4/8/02	1.04		2.23		1.11		0.65		1.10	C
4/9/02	1.03		2.22		1.09		0.63		1.08	C
4/10/02	1.03		2.22		1.08		0.60		1.06	
4/11/02	1.01		2.20		1.07		0.59		1.04	
4/12/02	1.00		2.20		1.05		0.59		1.03	
4/13/02	0.99		2.21		1.05		0.59		1.03	
4/14/02	0.99		2.21		1.05		0.60		1.02	
4/15/02	1.01		2.23		1.05		0.62		1.04	
4/16/02	1.00		2.23		1.06		0.63		1.02	

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
4/17/02	1.01		2.22		1.08		0.64		1.02	
4/18/02	1.01		2.22		1.09		0.64		1.04	
4/19/02	1.01		2.22		1.09		0.64		1.06	
4/20/02	1.01		2.21		1.09		0.63		1.07	
4/21/02	1.00		2.20		1.08		0.62		1.06	
4/22/02	0.99		2.20		1.07		0.61		1.06	
4/23/02	0.98		2.19		1.05		0.60		1.05	
4/24/02	0.97		2.18		1.04		0.59		1.03	
4/25/02	0.98		2.19		1.03		0.59		1.03	
4/26/02	0.97		2.18		1.02		0.59		1.02	
4/27/02	0.95		2.18		1.01		0.57		1.00	
4/28/02	1.00		2.23		1.02		0.61		1.05	
4/29/02	1.03		2.28		1.08		0.69		1.13	
4/30/02	1.07		2.28		1.15		0.73		1.24	
5/1/02	1.09		2.28		1.18		0.74		1.30	
5/2/02	1.11		2.28		1.19		0.75		1.32	
5/3/02	1.09		2.27	C	1.17	C	0.76		1.30	
5/4/02	1.07		2.26	C	1.15	C	0.75		1.27	
5/5/02	1.06		2.24	C	1.13	C	0.73		1.25	
5/6/02	1.05		2.22	C	1.11	C	0.71		1.22	
5/7/02	1.04		2.21	C	1.09	C	0.70		1.19	
5/8/02	1.02		2.20		1.08		0.68		1.15	
5/9/02	1.01		2.20		1.07		0.66		1.13	
5/10/02	1.00		2.19		1.05		0.64		1.11	
5/11/02	0.98		2.18		1.03		0.63		1.08	
5/12/02	0.99		2.19		1.03		0.62		1.07	
5/13/02	1.04		2.25		1.04		0.65		1.12	
5/14/02	1.09		2.30		1.09		0.71		1.20	
5/15/02	1.12		2.27		1.18		0.73		1.30	
5/16/02	1.11		2.27		1.19		0.73		1.33	
5/17/02	1.10		2.25		1.18		0.72		1.33	
5/18/02	1.17		2.28		1.18		0.74		1.34	
5/19/02	1.14		2.27		1.16		0.73		1.30	
5/20/02	1.14		2.27		1.15		0.73		1.28	
5/21/02	1.13		2.26		1.15		0.72		1.29	
5/22/02	1.12		2.25	E	1.14		0.72		1.27	
5/23/02	1.10		2.24	E	1.13		0.70		1.24	
5/24/02	1.08		2.23	E	1.11		0.69		1.20	
5/25/02	1.06		2.22	E	1.09		0.67		1.16	
5/26/02	1.04		2.21	E	1.06		0.66		1.13	
5/27/02	1.02		2.20	E	1.04		0.64		1.10	
5/28/02	1.01			L	1.03		0.63		1.08	
5/29/02	0.99			L	1.02		0.61		1.05	
5/30/02	0.98			L	1.01		0.60		1.03	
5/31/02	0.99			L	1.00		0.60		1.03	
6/1/02	0.98			L	0.99		0.59		1.02	
6/2/02	0.96			L	0.98		0.57		1.00	
6/3/02	0.95			L	0.99		0.56		0.98	
6/4/02	0.94		2.15	L	0.98		0.55		0.97	
6/5/02	0.95		2.16		0.99		0.56		0.98	
6/6/02	1.02		2.23		1.01		0.61		1.02	
6/7/02	1.17		2.35		1.10		0.71		1.13	
6/8/02	1.17		2.32		1.18		0.73		1.21	

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
6/9/02	1.14		2.29		1.18		0.72		1.25	
6/10/02	1.10		2.26		1.16		0.70		1.25	
6/11/02	1.07		2.24		1.14		0.69		1.21	
6/12/02	1.08		2.24		1.13		0.68		1.18	
6/13/02	1.05		2.22		1.11		0.66		1.14	
6/14/02	1.04		2.22		1.10		0.65		1.11	
6/15/02	1.03		2.22		1.10		0.64		1.10	
6/16/02	1.05		2.24		1.10		0.65		1.09	
6/17/02	1.02		2.23		1.09		0.64		1.07	
6/18/02	1.01		2.21		1.09		0.64		1.07	
6/19/02	1.00		2.20		1.08	C	0.62		1.06	
6/20/02	0.99		2.18		1.07	C	0.61		1.06	
6/21/02	0.98		2.17		1.06	C	0.60		1.04	
6/22/02	0.97		2.16		1.04	C	0.59		1.02	
6/23/02	0.98		2.17		1.02	C	0.59		1.02	
6/24/02	0.96		2.15		1.00	C	0.58		1.00	
6/25/02	0.94		2.14		0.99	C	0.56		0.98	
6/26/02	0.93		2.13		0.96	C	0.56		0.96	
6/27/02	0.92		2.11		0.95	C	0.55		0.95	
6/28/02	0.90		2.10		0.93	C	0.54		0.93	
6/29/02	0.88		2.07		0.91	C	0.54		0.91	
6/30/02	0.87		2.01		0.89	C	0.52		0.90	
7/1/02	0.85		1.87		0.89	C	0.52		0.89	
7/2/02	0.83		1.63	E	0.88		0.51	C	0.87	
7/3/02	0.81		1.44	E	0.86		0.50	C	0.85	
7/4/02	0.80		1.26	E	0.86		0.50	C	0.84	
7/5/02	0.78		1.05	E	0.85		0.49	C	0.82	
7/6/02	0.77		0.90	E	0.83		0.48	C	0.81	
7/7/02	0.75		0.77	E	0.81		0.47	C	0.79	
7/8/02	0.74		0.71	E	0.80		0.46	C	0.77	
7/9/02	0.73		0.76	E	0.80		0.45	C	0.76	
7/10/02	0.72		0.59	E	0.80		0.45	C	0.74	
7/11/02	0.70		0.47	E	0.79		0.44	C	0.73	
7/12/02	0.68		0.44	E	0.78		0.43	C	0.72	
7/13/02	0.67		0.44	E	0.78		0.49	C	0.71	
7/14/02	0.65		0.48	E	0.77		0.54	C	0.70	
7/15/02	0.64		0.51	E	0.77		0.54	C	0.69	
7/16/02	0.63		0.47	E	0.76		0.53	C	0.67	
7/17/02	0.61		0.44	E	0.75		0.53	C	0.66	
7/18/02	0.60		0.44	E	0.74		0.52	C	0.65	
7/19/02	0.65		0.52	E	0.75		0.53	C	0.66	
7/20/02	0.62		0.45	E	0.74		0.53	C	0.65	
7/21/02	0.59		0.44	E	0.73		0.52	C	0.64	
7/22/02	0.56		0.44	E	0.71		0.51	C	0.63	
7/23/02	0.64		0.62	E	0.72		0.52	C	0.65	
7/24/02	0.61		0.44	E	0.72		0.51	C	0.64	
7/25/02	0.57		0.44	E	0.70		0.51		0.63	
7/26/02	0.56		0.44	E	0.69		0.50		0.62	
7/27/02	0.57		0.44	E	0.68		0.49		0.63	
7/28/02	0.57		0.51	E	0.68		0.49		0.64	
7/29/02	0.59		0.48	E	0.68		0.49		0.65	
7/30/02	0.51		0.45	E	0.67		0.49		0.63	
7/31/02	0.41		0.45	E	0.66		0.48		0.62	

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8/1/02	0.26		0.45	E	0.64		0.47		0.62	
8/2/02	0.29	E	0.45	E	0.65		0.47		0.63	C
8/3/02	0.41	E	0.45	E	0.64		0.46		0.63	C
8/4/02	0.08	E	0.45	E	0.63		0.45		0.60	C
8/5/02	0.50	E	0.45	E	0.64		0.47		0.62	C
8/6/02	0.32	E	0.45	E	0.62		0.45		0.59	C
8/7/02	0.04	E	0.45	E	0.61		0.43		0.64	C
8/8/02	0.00	E	0.45	E	0.60		0.43		0.60	C
8/9/02	0.00	E	0.45	E	0.59		0.42		0.59	C
8/10/02	0.00	E	0.45	E	0.58		0.41		0.57	C
8/11/02	0.00	E	0.44	E	0.57		0.40		0.57	C
8/12/02	0.00	E	0.44	E	0.56		0.39		0.62	C
8/13/02	0.00	E	0.44	E	0.55		0.38		0.58	C
8/14/02	0.00	E	0.44	E	0.54		0.37		0.57	C
8/15/02	0.00	E	0.44	E	0.52		0.37		0.58	C
8/16/02	0.00	E	0.44	E	0.52		0.36		0.55	C
8/17/02	0.00	E	0.44	E	0.52		0.37		0.54	C
8/18/02	0.00	E	0.44	E	0.50		0.37		0.53	C
8/19/02	0.00	E	0.44	E	0.47		0.36		0.53	C
8/20/02	0.00	E	0.44	E	0.47		0.35		0.54	C
8/21/02	0.00	E	0.44	E	0.44		0.34		0.53	C
8/22/02	0.00	E	0.44	E	0.43		0.33		0.54	C
8/23/02	0.00	E	0.44	E	0.42		0.33		0.54	C
8/24/02	0.16	E	0.44	E	0.54		0.37		0.60	C
8/25/02	0.15	E	0.44	E	0.52		0.39		0.58	C
8/26/02	0.00	E	0.44	E	0.47		0.38		0.56	C
8/27/02	0.00	E	0.44	E	0.42		0.36		0.56	C
8/28/02	0.00	E	0.44	E	0.37		0.34		0.55	
8/29/02	0.41	E	0.61	E	0.62		0.45		0.69	
8/30/02	0.27	E	0.44	E	0.63		0.49		0.61	
8/31/02	0.00	E	0.44	E	0.54		0.45		0.59	
9/1/02	0.00	E	0.44	E	0.50		0.41		0.58	
9/2/02	0.00	E	0.44	E	0.48		0.39		0.58	
9/3/02	0.00	E	0.44	E	0.46		0.39		0.57	
9/4/02	0.72	E	0.91	E	0.67		0.44		0.66	
9/5/02	0.29	E	0.44	E	0.59		0.43		0.58	
9/6/02	0.00	E	0.44	E	0.53		0.41		0.57	
9/7/02	0.00	E	0.44	E	0.49		0.39		0.56	
9/8/02	0.00	E	0.44	E	0.45		0.37		0.56	
9/9/02	0.00	E	0.44	E	0.41		0.37		0.55	
9/10/02	0.00	E	0.45	E	0.33		0.34		0.55	
9/11/02	0.01	E	0.44	E	0.25		0.32		0.55	
9/12/02	0.00	E	0.44	E	0.20		0.31		0.54	
9/13/02	0.00	E	0.44	E	0.19		0.31		0.54	
9/14/02	0.00	E	0.44	E	0.17		0.30	C	0.54	
9/15/02	0.00	E	0.44	E	0.25		0.31	C	0.56	
9/16/02	0.00	E	0.44	E	0.46		0.37	C	0.60	
9/17/02	0.00	E	0.44	E	0.36		0.36	C	0.55	
9/18/02	0.00	E	0.44	E	0.27		0.35	C	0.54	
9/19/02	0.00	E	0.44	E	0.21		0.33	C	0.54	
9/20/02	0.00	E	0.45	E	0.17		0.32	C	0.53	
9/21/02	0.00	E	0.45	E	0.15		0.31	C	0.53	
9/22/02	0.38	E	0.46	E	0.48		0.38	C	0.63	

Date	BELLETOD Average Daily Stage (ft)	Comment	BELLE5 Average Daily Stage (ft)	Comment	BELLEGIG Average Daily Stage (ft)	Comment	BELLOST Average Daily Stage (ft)	Comment	SENECA Average Daily Stage (ft)	Comment
9/23/02	0.02	E	0.44	E	0.50		0.38	C	0.56	
9/24/02	0.01	E	0.44	E	0.39		0.35	C	0.54	
9/25/02	0.01	E	0.44	E	0.33		0.32	C	0.53	
9/26/02	0.00	E	0.44	E	0.32		0.31	C	0.53	
9/27/02	0.50	E	0.58	E	0.67		0.45	C	0.69	
9/28/02	0.69		1.16	E	0.78		0.60	C	0.73	
9/29/02	0.35	C	0.44	E	0.73		0.57		0.60	
9/30/02	0.03	C	0.44	E	0.69		0.53		0.57	
10/1/02	0.00	C	0.44	E	0.66		0.50		0.56	
10/2/02	0.00	C	0.44	E	0.66		0.49		0.55	
10/3/02	0.00	C	0.44	E	0.66		0.48		0.56	
10/4/02	0.00	C	0.44	E	0.66		0.47		0.55	
10/5/02	0.14	C	0.45	E	0.70		0.50		0.57	
10/6/02	0.01	C	0.44	E	0.70		0.50		0.56	
10/7/02	0.00	C	0.44	E	0.70		0.50		0.55	
10/8/02	0.00	C	0.44	E	0.70		0.49		0.54	
10/9/02	0.00	C	0.45	E	0.70		0.49		0.54	
10/10/02	0.00	C	0.44	E	0.70		0.49		0.54	
10/11/02	0.09	C	0.60	E	0.75		0.53		0.65	
10/12/02	0.90	C	2.39	E/C	1.10		0.95		1.05	
10/13/02	0.76	C	2.33	E/C	1.22		0.94		1.01	
10/14/02	0.78	C	2.26	E/C	1.16		0.88		1.03	
10/15/02	0.79	C	2.22	E/C	1.12		0.84		1.06	
10/16/02	1.05		2.33		1.18		0.99		1.20	
10/17/02	1.17		2.43		1.40		1.39		1.44	
10/18/02	1.11	C	2.35	C	1.32		1.32	C	1.41	C
10/19/02	1.08	C	2.30	C	1.25		1.28	C	1.35	C
10/20/02	1.06	C	2.26	C	1.20		1.24	C	1.27	C
10/21/02	1.04	C	2.24	C	1.16		1.21	C	1.19	C
10/22/02	1.02	C	2.22	C	1.13		1.19	C	1.13	C
10/23/02	1.00	C	2.21	C	1.10		1.17	C	1.08	C
10/24/02	0.98	C	2.20	C	1.08		1.16	C	1.05	C

Comments

E - (Estimated stage) the transducer stage did not have a corresponding staff plate reading for either the prior and/or post site visit, so the stage is considered estimated

C - (Corrected Stage) the transducer stage was corrected for drifting or debris accumulation on the stage control (leaves, twigs, etc)

NC - (Not Correlated) no water at site when transducer was installed, so no inital correlation/correction factor between the transducer and staff plate could be established

E/C - (Estimated and Corrected Stage) estimate of stage with a stage correction because the prior site visit had a stage below the stage plate and could not be correlated to the transducer reading and the post site visit needed a new correction factor because the transducer stage and staff plate reading differed by more than 0.03ft

L - (Lost Data) Logging equipment sufferred an error and data was not recoverable

Stage Values

All Average Daily Stage values were calculated from 15-minute stage data from midnight to midnight and are in units of feet. All daily stage values in this table are transducer stage values and does not include the reading from the staff plate. Raw transducer stage values were corrected back to the last site visit if the transducer stage value differed from the staff plate values by more than 0.03 ft. The first appearance in the table of a transducer stage denotes when the transducer was installed. Controls at some of the sites have changed considerably because of storm events, so discharge values for a given stage have changed over time. Construction of the rating tables for the sites are in progress.

At BELLETOD, between 5/11/01 and 4/16/02, the transducer stage had no measureable water below approximately 0.20 ft. On 4/16/02, the transducer was lowered approximately 0.20 ft, so that a zero value on the staff plate had a corresponding transducer stage of 0.00 ft.

At BELLE5, for the entire period of record, there is no measureable water at the transducer when the stage goes below 0.45ft and transducer values below 1.00 ft are below the bottom of the staff plate. The staff plate had 1.00 ft added to the reading because the transducer is positioned below the bottom of the staff plate

15-Minute Transducer Stage Values for Storm Event Monitoring at the Automated Belleayre Monitoring Stations

Date and Time	BELLETOD 15-Minute Stage (ft)	BELLETOD Comment	BELLE5 15-Minute Stage (ft)	BELLE5 Comment	BELLEGIG 15-Minute Stage (ft)	BELLEGIG Comment	BELLOST 15-Minute Stage (ft)	BELLOST Comment	SENECA 15-Minute Stage (ft)	SENECA Comment
03/26/02 0:15	0.97		2.14		1.04	C	0.59		1.03	
03/26/02 0:30	0.97		2.14		1.03	C	0.59		1.04	
03/26/02 0:45	0.97		2.15		1.04	C	0.59		1.05	
03/26/02 1:00	0.97		2.15		1.04	C	0.58		1.04	
03/26/02 1:15	0.97		2.14		1.04	C	0.59		1.05	
03/26/02 1:30	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 1:45	0.97		2.14		1.04	C	0.59		1.04	
03/26/02 2:00	0.97		2.14		1.04	C	0.60		1.05	
03/26/02 2:15	0.97		2.14		1.04	C	0.59		1.04	
03/26/02 2:30	0.97		2.15		1.04	C	0.59		1.04	
03/26/02 2:45	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 3:00	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 3:15	0.97		2.14		1.04	C	0.59		1.05	
03/26/02 3:30	0.97		2.14		1.04	C	0.59		1.04	
03/26/02 3:45	0.97		2.14		1.04	C	0.59		1.05	
03/26/02 4:00	0.97		2.14		1.04	C	0.58		1.05	
03/26/02 4:15	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 4:30	0.97		2.14		1.04	C	0.58		1.03	
03/26/02 4:45	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 5:00	0.97		2.14		1.03	C	0.58		1.05	
03/26/02 5:15	0.97		2.14		1.04	C	0.58		1.05	
03/26/02 5:30	0.97		2.14		1.04	C	0.58		1.03	
03/26/02 5:45	0.97		2.13		1.04	C	0.59		1.04	
03/26/02 6:00	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 6:15	0.97		2.13		1.04	C	0.58		1.04	
03/26/02 6:30	0.97		2.14		1.04	C	0.59		1.05	
03/26/02 6:45	0.97		2.14		1.04	C	0.59		1.04	
03/26/02 7:00	0.97		2.14		1.04	C	0.58		1.04	
03/26/02 7:15	0.97		2.14		1.04	C	0.59		1.05	
03/26/02 7:30	0.97		2.13		1.04	C	0.59		1.05	
03/26/02 7:45	0.97		2.13		1.04	C	0.58		1.04	
03/26/02 8:00	0.97		2.14		1.04	C	0.58		1.03	
03/26/02 8:15	0.97		2.13		1.04	C	0.58		1.05	
03/26/02 8:30	0.97		2.14		1.04	C	0.59		1.04	
03/26/02 8:45	0.97		2.13		1.03	C	0.58		1.03	
03/26/02 9:00	0.97		2.14		1.03	C	0.58		1.05	
03/26/02 9:15	0.97		2.14		1.04	C	0.59		1.05	
03/26/02 9:30	0.97		2.13		1.04	C	0.58		1.05	
03/26/02 9:45	0.97		2.14		1.04	C	0.58		1.05	
03/26/02 10:00	0.97		2.14		1.04	C	0.58		1.05	
03/26/02 10:15	0.97		2.14		1.04		0.58		1.05	
03/26/02 10:30	0.97		2.14		1.04		0.58		1.05	
03/26/02 10:45	0.97		2.15		1.04		0.59		1.05	
03/26/02 11:00	0.97		2.14		1.05		0.57		1.05	
03/26/02 11:15	0.97		2.15		1.05		0.59		1.05	
03/26/02 11:30	0.97		2.14		1.04		0.58		1.05	
03/26/02 11:45	0.97		2.14		1.04		0.59		1.05	
03/26/02 12:00	0.97		2.13		1.04		0.58		1.07	E
03/26/02 12:15	0.97		2.14		1.04		0.58		1.07	E
03/26/02 12:30	0.97		2.14		1.04		0.58		1.07	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
03/26/02 12:45	0.97		2.14		1.04		0.58		1.07	C
03/26/02 13:00	0.97		2.14		1.04		0.58		1.07	C
03/26/02 13:15	0.97		2.14		1.04		0.58		1.07	C
03/26/02 13:30	0.97		2.14		1.04		0.58		1.07	C
03/26/02 13:45	0.97		2.13		1.04		0.58		1.07	C
03/26/02 14:00	0.97		2.14		1.04		0.58		1.07	C
03/26/02 14:15	0.97		2.13		1.04		0.58		1.07	C
03/26/02 14:30	0.97		2.15		1.04		0.59		1.07	C
03/26/02 14:45	0.97		2.14		1.04		0.58		1.06	C
03/26/02 15:00	0.97		2.14		1.04		0.59		1.06	C
03/26/02 15:15	0.97		2.15		1.04		0.58		1.06	C
03/26/02 15:30	0.97		2.14		1.04		0.58		1.07	C
03/26/02 15:45	0.97		2.15		1.04		0.58		1.07	C
03/26/02 16:00	0.97		2.14		1.04		0.57		1.07	C
03/26/02 16:15	0.98		2.14		1.04		0.59		1.07	C
03/26/02 16:30	0.98		2.14		1.04		0.60		1.07	C
03/26/02 16:45	0.98		2.15		1.04		0.59		1.07	C
03/26/02 17:00	0.98		2.15		1.04		0.58		1.07	C
03/26/02 17:15	0.98		2.14		1.04		0.60		1.07	C
03/26/02 17:30	0.98		2.15		1.04		0.59		1.07	C
03/26/02 17:45	0.98		2.15		1.04		0.59		1.07	C
03/26/02 18:00	0.98		2.15		1.05		0.59		1.07	C
03/26/02 18:15	0.98		2.15		1.04		0.60		1.08	C
03/26/02 18:30	0.99		2.15		1.05		0.60		1.09	C
03/26/02 18:45	1.00		2.15		1.06		0.60		1.09	C
03/26/02 19:00	1.01		2.15		1.06		0.60		1.09	C
03/26/02 19:15	1.02		2.15		1.06		0.61		1.09	C
03/26/02 19:30	1.02		2.16		1.06		0.61		1.11	C
03/26/02 19:45	1.02		2.17		1.07		0.61		1.11	C
03/26/02 20:00	1.02		2.16		1.06		0.61		1.11	C
03/26/02 20:15	1.03		2.16		1.07		0.61		1.11	C
03/26/02 20:30	1.04		2.17		1.06		0.62		1.12	C
03/26/02 20:45	1.05		2.19		1.07		0.63		1.14	C
03/26/02 21:00	1.07		2.21		1.08		0.64		1.16	C
03/26/02 21:15	1.10		2.23		1.09		0.65		1.19	C
03/26/02 21:30	1.12		2.24		1.10		0.68		1.26	C
03/26/02 21:45	1.13		2.26		1.10		0.67		1.28	C
03/26/02 22:00	1.16		2.27		1.10		0.68		1.32	C
03/26/02 22:15	1.19		2.30		1.11		0.68		1.34	C
03/26/02 22:30	1.22		2.32		1.10		0.68		1.36	C
03/26/02 22:45	1.24		2.33		1.10		0.68		1.36	C
03/26/02 23:00	1.25		2.34		1.10		0.69		1.36	C
03/26/02 23:15	1.25		2.35		1.11		0.70		1.36	C
03/26/02 23:30	1.25		2.34		1.10		0.69		1.34	C
03/26/02 23:45	1.22		2.36		1.11		0.70		1.34	C
03/26/02 23:59	1.21		2.34		1.11		0.72		1.32	C
03/27/02 0:15	1.19		2.33		1.11		0.72		1.32	C
03/27/02 0:30	1.18		2.33		1.11		0.72		1.32	C
03/27/02 0:45	1.18		2.32		1.11		0.73		1.32	C
03/27/02 1:00	1.18		2.31		1.12		0.72		1.32	C
03/27/02 1:15	1.17		2.30		1.12		0.72		1.34	C
03/27/02 1:30	1.16		2.30		1.13		0.72		1.34	C
03/27/02 1:45	1.16		2.30		1.13		0.71		1.34	C

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
03/27/02 2:00	1.16		2.30		1.14		0.72		1.34	C
03/27/02 2:15	1.16		2.29		1.13		0.72		1.32	C
03/27/02 2:30	1.15		2.29		1.12		0.71		1.32	C
03/27/02 2:45	1.15		2.29		1.13		0.72		1.32	C
03/27/02 3:00	1.14		2.29		1.12		0.70		1.30	C
03/27/02 3:15	1.14		2.29		1.12		0.72		1.30	C
03/27/02 3:30	1.14		2.29		1.12		0.71		1.30	C
03/27/02 3:45	1.14		2.29		1.12		0.71		1.30	C
03/27/02 4:00	1.13		2.28		1.12		0.70		1.29	C
03/27/02 4:15	1.13		2.28		1.12		0.70		1.29	C
03/27/02 4:30	1.13		2.28		1.12		0.70		1.28	C
03/27/02 4:45	1.12		2.28		1.12		0.70		1.28	C
03/27/02 5:00	1.13		2.28		1.12		0.70		1.28	C
03/27/02 5:15	1.12		2.28		1.12		0.70		1.28	C
03/27/02 5:30	1.12		2.28		1.11		0.70		1.28	C
03/27/02 5:45	1.12		2.28		1.12		0.70		1.28	C
03/27/02 6:00	1.12		2.28		1.10		0.70		1.28	C
03/27/02 6:15	1.12		2.28		1.11		0.70		1.28	C
03/27/02 6:30	1.11		2.28		1.11		0.70		1.28	C
03/27/02 6:45	1.12		2.28		1.10		0.70		1.28	C
03/27/02 7:00	1.12		2.28		1.11		0.70		1.28	C
03/27/02 7:15	1.11		2.27		1.10		0.69		1.28	C
03/27/02 7:30	1.11		2.27		1.10		0.70		1.27	C
03/27/02 7:45	1.11		2.26		1.10		0.70		1.28	C
03/27/02 8:00	1.10		2.27		1.10		0.69		1.28	C
03/27/02 8:15	1.10		2.27		1.10		0.70		1.28	C
03/27/02 8:30	1.10		2.26		1.10		0.70		1.27	C
03/27/02 8:45	1.10		2.26		1.10		0.70		1.28	C
03/27/02 9:00	1.10		2.26		1.10		0.69		1.28	C
03/27/02 9:15	1.10		2.26		1.10		0.68		1.28	C
03/27/02 9:30	1.10		2.26		1.10		0.69		1.28	C
03/27/02 9:45	1.10		2.26		1.10		0.69		1.28	C
03/27/02 10:00	1.10		2.29		1.10		0.69		1.28	C
03/27/02 10:15	1.10		2.29		1.10		0.68		1.29	C
03/27/02 10:30	1.10		2.29		1.10		0.69		1.29	C
03/27/02 10:45	1.10		2.29		1.10		0.70		1.28	C
03/27/02 11:00	1.10		2.29		1.10		0.69		1.28	C
03/27/02 11:15	1.10		2.29		1.10		0.69		1.29	C
03/27/02 11:30	1.10		2.29		1.10		0.70		1.28	C
03/27/02 11:45	1.10		2.29		1.10		0.70		1.28	C
03/27/02 12:00	1.10		2.29		1.10		0.68		1.29	C
03/27/02 12:15	1.10		2.29		1.10		0.70		1.29	C
03/27/02 12:30	1.10		2.29		1.10		0.70		1.30	C
03/27/02 12:45	1.10		2.29		1.10		0.70		1.30	C
03/27/02 13:00	1.10		2.29		1.10		0.70		1.30	C
03/27/02 13:15	1.10		2.28		1.10		0.70		1.30	C
03/27/02 13:30	1.10		2.29		1.10		0.70		1.30	C
03/27/02 13:45	1.10		2.29		1.10		0.70		1.30	C
03/27/02 14:00	1.10		2.28		1.10		0.70		1.30	C
03/27/02 14:15	1.10		2.29		1.10		0.70		1.32	C
03/27/02 14:30	1.10		2.29		1.10		0.70		1.32	C
03/27/02 14:45	1.10		2.28		1.10		0.69		1.32	C
03/27/02 15:00	1.10		2.28		1.10		0.72		1.32	C

Date and Time	BELLETOD 15-Minute Stage (ft)	BELLETOD Comment	BELLE5 15-Minute Stage (ft)	BELLE5 Comment	BELLEGIG 15-Minute Stage (ft)	BELLEGIG Comment	BELLOST 15-Minute Stage (ft)	BELLOST Comment	SENECA 15-Minute Stage (ft)	SENECA Comment
03/27/02 15:15	1.10		2.28		1.10		0.70		1.32	C
03/27/02 15:30	1.10		2.28		1.10		0.70		1.32	C
03/27/02 15:45	1.10		2.27		1.10		0.72		1.32	C
03/27/02 16:00	1.10		2.28		1.10		0.70		1.32	C
03/27/02 16:15	1.11		2.27		1.10		0.72		1.32	C
03/27/02 16:30	1.11		2.28		1.10		0.70		1.33	C
03/27/02 16:45	1.11		2.27		1.10		0.71		1.32	C
03/27/02 17:00	1.10		2.27		1.10		0.71		1.33	C
03/27/02 17:15	1.11		2.27		1.10		0.71		1.33	C
03/27/02 17:30	1.10		2.27		1.11		0.73		1.34	C
03/27/02 17:45	1.11		2.27		1.11		0.72		1.33	C
03/27/02 18:00	1.11		2.27		1.11		0.70		1.33	C
03/27/02 18:15	1.10		2.27		1.11		0.70		1.33	C
03/27/02 18:30	1.11		2.27		1.11		0.70		1.35	C
03/27/02 18:45	1.11		2.27		1.11		0.72		1.33	C
03/27/02 19:00	1.11		2.27		1.12		0.72		1.33	C
03/27/02 19:15	1.10		2.27		1.11		0.71		1.34	C
03/27/02 19:30	1.11		2.27		1.12		0.71		1.35	C
03/27/02 19:45	1.12		2.27		1.12		0.72		1.35	C
03/27/02 20:00	1.11		2.27		1.12		0.72		1.35	C
03/27/02 20:15	1.11		2.27		1.12		0.72		1.35	C
03/27/02 20:30	1.11		2.27		1.11		0.72		1.35	C
03/27/02 20:45	1.12		2.27		1.12		0.70		1.35	C
03/27/02 21:00	1.11		2.27		1.12		0.72		1.35	C
03/27/02 21:15	1.11		2.27		1.12		0.71		1.35	C
03/27/02 21:30	1.12		2.27		1.12		0.72		1.35	C
03/27/02 21:45	1.11		2.27		1.12		0.72		1.36	C
03/27/02 22:00	1.11		2.27		1.12		0.72		1.37	C
03/27/02 22:15	1.12		2.27		1.12		0.72		1.36	C
03/27/02 22:30	1.12		2.27		1.12		0.72		1.37	C
03/27/02 22:45	1.12		2.27		1.13		0.72		1.35	C
03/27/02 23:00	1.12		2.27		1.12		0.72		1.35	C
03/27/02 23:15	1.11		2.27		1.12		0.72		1.35	C
03/27/02 23:30	1.12		2.27		1.12		0.72		1.37	C
03/27/02 23:45	1.12		2.27		1.13		0.72		1.37	C
03/27/02 23:59	1.12		2.27		1.12		0.72		1.37	C
04/28/02 0:15	0.95		2.18		1.00		0.57		1.00	
04/28/02 0:30	0.95		2.18		1.01		0.57		1.00	
04/28/02 0:45	0.95		2.18		1.01		0.57		1.00	
04/28/02 1:00	0.96		2.18		1.00		0.57		1.00	
04/28/02 1:15	0.95		2.18		1.01		0.57		1.00	
04/28/02 1:30	0.96		2.18		1.01		0.57		1.00	
04/28/02 1:45	0.96		2.18		1.01		0.57		1.00	
04/28/02 2:00	0.96		2.19		1.01		0.57		1.00	
04/28/02 2:15	0.96		2.19		1.00		0.57		1.00	
04/28/02 2:30	0.96		2.19		1.01		0.59		1.00	
04/28/02 2:45	0.96		2.18		1.00		0.57		1.01	
04/28/02 3:00	0.96		2.18		1.01		0.57		1.00	
04/28/02 3:15	0.96		2.18		1.00		0.57		1.00	
04/28/02 3:30	0.96		2.18		1.01		0.57		1.00	
04/28/02 3:45	0.96		2.18		1.00		0.57		1.00	
04/28/02 4:00	0.96		2.18		1.00		0.57		1.00	
04/28/02 4:15	0.96		2.18		1.01		0.57		1.00	

Date and Time	BELLETOD 15-Minute Stage (ft)	BELLETOD Comment	BELLE5 15-Minute Stage (ft)	BELLE5 Comment	BELLEGIG 15-Minute Stage (ft)	BELLEGIG Comment	BELLOST 15-Minute Stage (ft)	BELLOST Comment	SENECA 15-Minute Stage (ft)	SENECA Comment
04/28/02 4:30	0.96		2.19		1.01		0.58		1.00	
04/28/02 4:45	0.96		2.19		1.01		0.57		1.00	
04/28/02 5:00	0.97		2.19		1.01		0.59		1.01	
04/28/02 5:15	0.97		2.19		1.01		0.58		1.01	
04/28/02 5:30	0.97		2.19		1.01		0.57		1.01	
04/28/02 5:45	0.97		2.19		1.01		0.58		1.01	
04/28/02 6:00	0.97		2.20		1.01		0.58		1.02	
04/28/02 6:15	0.97		2.19		1.01		0.59		1.02	
04/28/02 6:30	0.97		2.20		1.01		0.59		1.02	
04/28/02 6:45	0.97		2.19		1.00		0.59		1.02	
04/28/02 7:00	0.97		2.20		1.01		0.59		1.02	
04/28/02 7:15	0.97		2.20		1.01		0.58		1.02	
04/28/02 7:30	0.97		2.20		1.01		0.59		1.02	
04/28/02 7:45	0.97		2.20		1.01		0.59		1.02	
04/28/02 8:00	0.97		2.20		1.01		0.59		1.02	
04/28/02 8:15	0.98		2.21		1.01		0.59		1.03	
04/28/02 8:30	0.98		2.21		1.01		0.61		1.04	
04/28/02 8:45	0.99		2.21		1.02		0.61		1.04	
04/28/02 9:00	0.99		2.22		1.02		0.60		1.05	
04/28/02 9:15	0.99		2.22		1.02		0.60		1.05	
04/28/02 9:30	0.99		2.22		1.01		0.60		1.05	
04/28/02 9:45	1.00		2.23		1.02		0.60		1.06	
04/28/02 10:00	1.00		2.23		1.02		0.60		1.06	
04/28/02 10:15	1.00		2.24		1.02		0.60		1.06	
04/28/02 10:30	1.00		2.24		1.01		0.62		1.06	
04/28/02 10:45	1.01		2.24		1.01		0.61		1.06	
04/28/02 11:00	1.01		2.25		1.01		0.62		1.06	
04/28/02 11:15	1.02		2.25		1.02		0.62		1.06	
04/28/02 11:30	1.03		2.26		1.02		0.62		1.07	
04/28/02 11:45	1.03		2.26		1.02		0.62		1.07	
04/28/02 12:00	1.03		2.26		1.03		0.63		1.08	
04/28/02 12:15	1.03		2.27		1.02		0.62		1.08	
04/28/02 12:30	1.03		2.26		1.02		0.63		1.08	
04/28/02 12:45	1.03		2.26		1.02		0.62		1.08	
04/28/02 13:00	1.02		2.26		1.02		0.63		1.07	
04/28/02 13:15	1.02		2.25		1.02		0.63		1.07	
04/28/02 13:30	1.01		2.25		1.01		0.62		1.07	
04/28/02 13:45	1.01		2.25		1.02		0.62		1.06	
04/28/02 14:00	1.01		2.25		1.01		0.62		1.06	
04/28/02 14:15	1.01		2.25		1.01		0.62		1.06	
04/28/02 14:30	1.01		2.25		1.02		0.62		1.06	
04/28/02 14:45	1.00		2.24		1.02		0.62		1.06	
04/28/02 15:00	1.00		2.24		1.02		0.62		1.06	
04/28/02 15:15	1.00		2.24		1.02		0.62		1.05	
04/28/02 15:30	1.00		2.24		1.03		0.62		1.06	
04/28/02 15:45	1.00		2.24		1.03		0.64		1.05	
04/28/02 16:00	1.00		2.24		1.03		0.62		1.05	
04/28/02 16:15	1.00		2.23		1.03		0.62		1.05	
04/28/02 16:30	1.00		2.23		1.03		0.62		1.05	
04/28/02 16:45	1.00		2.23		1.03		0.62		1.05	
04/28/02 17:00	1.00		2.23		1.03		0.62		1.05	
04/28/02 17:15	1.00		2.23		1.03		0.62		1.05	
04/28/02 17:30	0.99		2.23		1.03		0.62		1.05	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
04/28/02 17:45	0.99		2.23		1.03		0.62		1.05	
04/28/02 18:00	0.99		2.22		1.03		0.62		1.05	
04/28/02 18:15	0.99		2.23		1.03		0.62		1.05	
04/28/02 18:30	0.99		2.22		1.02		0.62		1.05	
04/28/02 18:45	0.99		2.22		1.03		0.62		1.05	
04/28/02 19:00	0.99		2.23		1.03		0.61		1.05	
04/28/02 19:15	0.99		2.22		1.03		0.62		1.05	
04/28/02 19:30	1.00		2.22		1.03		0.61		1.05	
04/28/02 19:45	1.01		2.24		1.03		0.62		1.06	
04/28/02 20:00	1.04		2.25		1.05		0.64		1.08	
04/28/02 20:15	1.09		2.27		1.07		0.64		1.10	
04/28/02 20:30	1.11		2.29		1.06		0.66		1.12	
04/28/02 20:45	1.11		2.30		1.06		0.66		1.14	
04/28/02 21:00	1.09		2.30		1.05		0.65		1.15	
04/28/02 21:15	1.09		2.31		1.05		0.66		1.15	
04/28/02 21:30	1.09		2.30		1.05		0.66		1.14	
04/28/02 21:45	1.08		2.30		1.05		0.65		1.14	
04/28/02 22:00	1.08		2.30		1.05		0.65		1.14	
04/28/02 22:15	1.08		2.29		1.05		0.66		1.13	
04/28/02 22:30	1.07		2.29		1.05		0.66		1.13	
04/28/02 22:45	1.07		2.29		1.05		0.67		1.13	
04/28/02 23:00	1.06		2.28		1.05		0.66		1.12	
04/28/02 23:15	1.05		2.28		1.05		0.66		1.12	
04/28/02 23:30	1.05		2.28		1.05		0.66		1.12	
04/28/02 23:45	1.05		2.28		1.05		0.67		1.12	
04/28/02 23:59	1.05		2.28		1.05		0.68		1.12	
04/29/02 0:15	1.05		2.28		1.05		0.66		1.13	
04/29/02 0:30	1.05		2.29		1.06		0.66		1.13	
04/29/02 0:45	1.05		2.29		1.06		0.68		1.13	
04/29/02 1:00	1.05		2.29		1.06		0.68		1.13	
04/29/02 1:15	1.05		2.29		1.05		0.68		1.13	
04/29/02 1:30	1.05		2.29		1.06		0.68		1.13	
04/29/02 1:45	1.05		2.29		1.06		0.66		1.13	
04/29/02 2:00	1.04		2.29		1.05		0.66		1.13	
04/29/02 2:15	1.04		2.29		1.05		0.66		1.13	
04/29/02 2:30	1.04		2.29		1.07		0.67		1.13	
04/29/02 2:45	1.03		2.29		1.06		0.68		1.13	
04/29/02 3:00	1.03		2.29		1.06		0.67		1.13	
04/29/02 3:15	1.03		2.29		1.07		0.66		1.13	
04/29/02 3:30	1.04		2.29		1.07		0.67		1.13	
04/29/02 3:45	1.04		2.29		1.06		0.68		1.13	
04/29/02 4:00	1.04		2.29		1.07		0.66		1.13	
04/29/02 4:15	1.03		2.29		1.06		0.67		1.13	
04/29/02 4:30	1.03		2.29		1.07		0.68		1.13	
04/29/02 4:45	1.03		2.29		1.06		0.68		1.13	
04/29/02 5:00	1.03		2.29		1.07		0.68		1.13	
04/29/02 5:15	1.03		2.29		1.07		0.68		1.13	
04/29/02 5:30	1.03		2.29		1.07		0.68		1.13	
04/29/02 5:45	1.03		2.29		1.06		0.68		1.13	
04/29/02 6:00	1.03		2.29		1.07		0.68		1.13	
04/29/02 6:15	1.03		2.29		1.07		0.68		1.12	
04/29/02 6:30	1.03		2.29		1.07		0.68		1.12	
04/29/02 6:45	1.03		2.29		1.07		0.68		1.12	

Date and Time	BELLETOD 15-Minute Stage (ft)	BELLETOD Comment	BELLE5 15-Minute Stage (ft)	BELLE5 Comment	BELLEGIG 15-Minute Stage (ft)	BELLEGIG Comment	BELLOST 15-Minute Stage (ft)	BELLOST Comment	SENECA 15-Minute Stage (ft)	SENECA Comment
04/29/02 7:00	1.03		2.29		1.07		0.68		1.12	
04/29/02 7:15	1.03		2.29		1.07		0.68		1.12	
04/29/02 7:30	1.03		2.29		1.06		0.68		1.12	
04/29/02 7:45	1.03		2.29		1.07		0.68		1.12	
04/29/02 8:00	1.03		2.29		1.07		0.68		1.12	
04/29/02 8:15	1.03		2.29		1.06		0.68		1.12	
04/29/02 8:30	1.03		2.29		1.07		0.68		1.12	
04/29/02 8:45	1.03		2.29		1.06		0.68		1.12	
04/29/02 9:00	1.03		2.29		1.06		0.67		1.12	
04/29/02 9:15	1.03		2.29		1.06		0.68		1.12	
04/29/02 9:30	1.03		2.29		1.06		0.68		1.12	
04/29/02 9:45	1.03		2.29		1.06		0.68		1.12	
04/29/02 10:00	1.03		2.29		1.07		0.69		1.12	
04/29/02 10:15	1.03		2.29		1.07		0.70		1.12	
04/29/02 10:30	1.03		2.29		1.07		0.69		1.12	
04/29/02 10:45	1.03		2.29		1.07		0.69		1.12	
04/29/02 11:00	1.03		2.29		1.07		0.68		1.12	
04/29/02 11:15	1.03		2.29		1.07		0.69		1.12	
04/29/02 11:30	1.03		2.29		1.07		0.70		1.12	
04/29/02 11:45	1.03		2.29		1.07		0.70		1.12	
04/29/02 12:00	1.03		2.29		1.07		0.70		1.12	
04/29/02 12:15	1.03		2.29		1.07		0.70		1.12	
04/29/02 12:30	1.03		2.29		1.07		0.70		1.12	
04/29/02 12:45	1.03		2.29		1.07		0.70		1.12	
04/29/02 13:00	1.03		2.29		1.07		0.70		1.12	
04/29/02 13:15	1.03		2.29		1.07		0.71		1.12	
04/29/02 13:30	1.03		2.28		1.08		0.70		1.12	
04/29/02 13:45	1.03		2.29		1.08		0.70		1.12	
04/29/02 14:00	1.03		2.29		1.08		0.71		1.12	
04/29/02 14:15	1.03		2.28		1.08		0.70		1.12	
04/29/02 14:30	1.03		2.28		1.08		0.71		1.12	
04/29/02 14:45	1.03		2.28		1.08		0.70		1.12	
04/29/02 15:00	1.03		2.28		1.08		0.70		1.12	
04/29/02 15:15	1.03		2.28		1.08		0.70		1.12	
04/29/02 15:30	1.03		2.28		1.08		0.71		1.12	
04/29/02 15:45	1.03		2.28		1.08		0.70		1.12	
04/29/02 16:00	1.03		2.28		1.09		0.70		1.13	
04/29/02 16:15	1.03		2.28		1.09		0.70		1.12	
04/29/02 16:30	1.03		2.28		1.09		0.71		1.13	
04/29/02 16:45	1.03		2.28		1.09		0.71		1.13	
04/29/02 17:00	1.03		2.28		1.09		0.71		1.14	
04/29/02 17:15	1.03		2.28		1.08		0.71		1.13	
04/29/02 17:30	1.03		2.28		1.08		0.71		1.14	
04/29/02 17:45	1.03		2.28		1.08		0.71		1.14	
04/29/02 18:00	1.04		2.28		1.08		0.71		1.14	
04/29/02 18:15	1.03		2.28		1.10		0.70		1.14	
04/29/02 18:30	1.03		2.28		1.08		0.70		1.14	
04/29/02 18:45	1.03		2.28		1.09		0.71		1.14	
04/29/02 19:00	1.03		2.28		1.09		0.71		1.14	
04/29/02 19:15	1.03		2.28		1.09		0.71		1.14	
04/29/02 19:30	1.04		2.28		1.10		0.73		1.15	
04/29/02 19:45	1.04		2.28		1.10		0.71		1.15	
04/29/02 20:00	1.04		2.28		1.10		0.70		1.15	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
04/29/02 20:15	1.04		2.28		1.10		0.70		1.16	
04/29/02 20:30	1.04		2.28		1.10		0.71		1.16	
04/29/02 20:45	1.04		2.28		1.10		0.71		1.16	
04/29/02 21:00	1.04		2.28		1.10		0.71		1.16	
04/29/02 21:15	1.04		2.28		1.10		0.71		1.16	
04/29/02 21:30	1.04		2.28		1.10		0.71		1.16	
04/29/02 21:45	1.04		2.28		1.10		0.71		1.16	
04/29/02 22:00	1.04		2.28		1.11		0.73		1.16	
04/29/02 22:15	1.04		2.28		1.10		0.71		1.17	
04/29/02 22:30	1.04		2.28		1.11		0.71		1.17	
04/29/02 22:45	1.04		2.28		1.12		0.71		1.17	
04/29/02 23:00	1.04		2.28		1.11		0.71		1.17	
04/29/02 23:15	1.04		2.28		1.11		0.71		1.18	
04/29/02 23:30	1.04		2.28		1.12		0.72		1.18	
04/29/02 23:45	1.04		2.28		1.11		0.70		1.18	
04/29/02 23:59	1.05		2.28		1.12		0.71		1.18	
07/23/02 0:15	0.53		0.44	E	0.71		0.51	C	0.63	
07/23/02 0:30	0.53		0.44	E	0.71		0.51	C	0.63	
07/23/02 0:45	0.54		0.44	E	0.71		0.51	C	0.63	
07/23/02 1:00	0.54		0.44	E	0.71		0.51	C	0.63	
07/23/02 1:15	0.55		0.44	E	0.71		0.51	C	0.63	
07/23/02 1:30	0.55		0.44	E	0.71		0.51	C	0.63	
07/23/02 1:45	0.55		0.44	E	0.71		0.51	C	0.63	
07/23/02 2:00	0.55		0.44	E	0.71		0.51	C	0.63	
07/23/02 2:15	0.55		0.44	E	0.71		0.51	C	0.63	
07/23/02 2:30	0.55		0.44	E	0.71		0.51	C	0.64	
07/23/02 2:45	0.56		0.44	E	0.71		0.51	C	0.63	
07/23/02 3:00	0.56		0.44	E	0.71		0.51	C	0.63	
07/23/02 3:15	0.56		0.44	E	0.71		0.51	C	0.63	
07/23/02 3:30	0.56		0.44	E	0.71		0.51	C	0.63	
07/23/02 3:45	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 4:00	0.57		0.44	E	0.71		0.51	C	0.64	
07/23/02 4:15	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 4:30	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 4:45	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 5:00	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 5:15	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 5:30	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 5:45	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 6:00	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 6:15	0.57		0.44	E	0.71		0.51	C	0.64	
07/23/02 6:30	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 6:45	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 7:00	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 7:15	0.57		0.45	E	0.71		0.51	C	0.63	
07/23/02 7:30	0.57		0.44	E	0.70		0.51	C	0.63	
07/23/02 7:45	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 8:00	0.57		0.44	E	0.71		0.51	C	0.63	
07/23/02 8:15	0.57		0.44	E	0.70		0.51	C	0.63	
07/23/02 8:30	0.58		0.44	E	0.71		0.51	C	0.63	
07/23/02 8:45	0.58		0.44	E	0.70		0.51	C	0.64	
07/23/02 9:00	0.58		0.44	E	0.70		0.51	C	0.63	
07/23/02 9:15	0.58		0.44	E	0.70		0.51	C	0.63	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
07/23/02 9:30	0.58		0.44	E	0.70		0.51	C	0.63	
07/23/02 9:45	0.58		0.44	E	0.70		0.51	C	0.63	
07/23/02 10:00	0.58		0.44	E	0.70		0.51	C	0.63	
07/23/02 10:15	0.57		0.44	E	0.70		0.51	C	0.63	
07/23/02 10:30	0.56		0.44	E	0.70		0.50	C	0.63	
07/23/02 10:45	0.56		0.44	E	0.70		0.51	C	0.63	
07/23/02 11:00	0.56		0.44	E	0.70		0.50		0.63	
07/23/02 11:15	0.56		0.44	E	0.70		0.50		0.63	
07/23/02 11:30	0.55		0.44	E	0.70		0.49		0.63	
07/23/02 11:45	0.55		0.44	E	0.70		0.50		0.63	
07/23/02 12:00	0.55		0.44	E	0.70		0.50		0.62	
07/23/02 12:15	0.55		0.44	E	0.71		0.49		0.62	
07/23/02 12:30	0.55		0.44	E	0.70		0.49		0.62	
07/23/02 12:45	0.55		0.44	E	0.70		0.49		0.62	
07/23/02 13:00	0.55		0.44	E	0.71		0.49		0.62	
07/23/02 13:15	0.55		0.44	E	0.71		0.49		0.62	
07/23/02 13:30	0.59		0.45	E	0.77		0.53		0.64	
07/23/02 13:45	0.96		0.45	E	0.82		0.56		0.67	
07/23/02 14:00	1.01		0.44	E	0.85		0.55		0.69	
07/23/02 14:15	0.95		2.01	E	0.85		0.55	C	0.69	
07/23/02 14:30	0.92		2.12	E	0.83		0.54	C	0.68	
07/23/02 14:45	0.89		2.10	E	0.81		0.54	C	0.69	
07/23/02 15:00	0.87		2.06	E	0.79		0.54	C	0.70	
07/23/02 15:15	0.85		2.02	E	0.77		0.53	C	0.71	
07/23/02 15:30	0.82		1.96	E	0.77		0.53	C	0.71	
07/23/02 15:45	0.80		1.86	E	0.76		0.53	C	0.71	
07/23/02 16:00	0.78		1.70	E	0.75		0.53	C	0.71	
07/23/02 16:15	0.77		1.52	E	0.75		0.53	C	0.71	
07/23/02 16:30	0.75		1.34	E	0.73		0.53	C	0.70	
07/23/02 16:45	0.74		1.16	E	0.73		0.53	C	0.69	
07/23/02 17:00	0.73		1.01	E	0.73		0.53	C	0.69	
07/23/02 17:15	0.72		0.85	E	0.73		0.52	C	0.68	
07/23/02 17:30	0.71		0.75	E	0.73		0.52	C	0.68	
07/23/02 17:45	0.71		0.67	E	0.73		0.52	C	0.67	
07/23/02 18:00	0.71		0.59	E	0.73		0.52	C	0.66	
07/23/02 18:15	0.70		0.52	E	0.72		0.52	C	0.66	
07/23/02 18:30	0.69		0.44	E	0.72		0.52	C	0.66	
07/23/02 18:45	0.69		0.44	E	0.72		0.52	C	0.66	
07/23/02 19:00	0.69		0.45	E	0.72		0.52	C	0.66	
07/23/02 19:15	0.69		0.44	E	0.72		0.52	C	0.66	
07/23/02 19:30	0.69		0.44	E	0.73		0.52	C	0.66	
07/23/02 19:45	0.69		0.44	E	0.73		0.52	C	0.66	
07/23/02 20:00	0.69		0.44	E	0.73		0.52	C	0.65	
07/23/02 20:15	0.68		0.44	E	0.73		0.52	C	0.65	
07/23/02 20:30	0.68		0.44	E	0.72		0.52	C	0.65	
07/23/02 20:45	0.67		0.44	E	0.72		0.52	C	0.65	
07/23/02 21:00	0.68		0.45	E	0.72		0.52	C	0.66	
07/23/02 21:15	0.67		0.44	E	0.72		0.52	C	0.65	
07/23/02 21:30	0.67		0.44	E	0.72		0.52	C	0.66	
07/23/02 21:45	0.67		0.45	E	0.72		0.52	C	0.66	
07/23/02 22:00	0.67		0.45	E	0.72		0.52	C	0.66	
07/23/02 22:15	0.67		0.44	E	0.72		0.52	C	0.66	
07/23/02 22:30	0.67		0.45	E	0.72		0.52	C	0.66	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
07/23/02 22:45	0.66		0.45	E	0.72		0.52	C	0.66	
07/23/02 23:00	0.66		0.44	E	0.72		0.52	C	0.66	
07/23/02 23:15	0.66		0.44	E	0.72		0.52	C	0.66	
07/23/02 23:30	0.66		0.44	E	0.72		0.52	C	0.66	
07/23/02 23:45	0.66		0.44	E	0.72		0.52	C	0.66	
07/23/02 23:59	0.66		0.44	E	0.72		0.52	C	0.66	
07/24/02 0:15	0.65		0.45	E	0.72		0.52	C	0.66	
07/24/02 0:30	0.65		0.45	E	0.72		0.52	C	0.65	
07/24/02 0:45	0.65		0.45	E	0.72		0.52	C	0.65	
07/24/02 1:00	0.65		0.45	E	0.72		0.51	C	0.65	
07/24/02 1:15	0.65		0.44	E	0.73		0.52	C	0.65	
07/24/02 1:30	0.65		0.44	E	0.73		0.51	C	0.65	
07/24/02 1:45	0.65		0.44	E	0.72		0.52	C	0.65	
07/24/02 2:00	0.65		0.44	E	0.73		0.52	C	0.65	
07/24/02 2:15	0.65		0.44	E	0.72		0.52	C	0.65	
07/24/02 2:30	0.65		0.44	E	0.73		0.52	C	0.65	
07/24/02 2:45	0.64		0.45	E	0.73		0.51	C	0.65	
07/24/02 3:00	0.65		0.44	E	0.73		0.51	C	0.65	
07/24/02 3:15	0.65		0.44	E	0.73		0.51	C	0.65	
07/24/02 3:30	0.64		0.45	E	0.73		0.52	C	0.65	
07/24/02 3:45	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 4:00	0.64		0.45	E	0.73		0.51	C	0.65	
07/24/02 4:15	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 4:30	0.64		0.45	E	0.73		0.51	C	0.65	
07/24/02 4:45	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 5:00	0.64		0.45	E	0.73		0.51	C	0.65	
07/24/02 5:15	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 5:30	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 5:45	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 6:00	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 6:15	0.64		0.44	E	0.72		0.51	C	0.65	
07/24/02 6:30	0.64		0.45	E	0.73		0.51	C	0.65	
07/24/02 6:45	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 7:00	0.64		0.44	E	0.72		0.51	C	0.65	
07/24/02 7:15	0.63		0.44	E	0.72		0.51	C	0.65	
07/24/02 7:30	0.64		0.44	E	0.73		0.51	C	0.65	
07/24/02 7:45	0.63		0.44	E	0.72		0.51	C	0.65	
07/24/02 8:00	0.63		0.44	E	0.72		0.51	C	0.65	
07/24/02 8:15	0.63		0.45	E	0.73		0.50	C	0.65	
07/24/02 8:30	0.63		0.44	E	0.72		0.51	C	0.65	
07/24/02 8:45	0.62		0.44	E	0.72		0.51	C	0.65	
07/24/02 9:00	0.63		0.45	E	0.72		0.51	C	0.65	
07/24/02 9:15	0.62		0.44	E	0.72		0.51	C	0.65	
07/24/02 9:30	0.62		0.45	E	0.72		0.51	C	0.64	
07/24/02 9:45	0.62		0.44	E	0.72		0.51	C	0.65	
07/24/02 10:00	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 10:15	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 10:30	0.63		0.44	E	0.72		0.51	C	0.64	
07/24/02 10:45	0.63		0.45	E	0.72		0.51	C	0.64	
07/24/02 11:00	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 11:15	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 11:30	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 11:45	0.62		0.44	E	0.72		0.51	C	0.64	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
07/24/02 12:00	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 12:15	0.62		0.44	E	0.72		0.51	C	0.64	
07/24/02 12:30	0.62		0.44	E	0.72		0.51	C	0.63	
07/24/02 12:45	0.61		0.44	E	0.72		0.51	C	0.63	
07/24/02 13:00	0.61		0.44	E	0.72		0.51	C	0.63	
07/24/02 13:15	0.61		0.44	E	0.72		0.51	C	0.63	
07/24/02 13:30	0.61		0.44	E	0.72		0.51	C	0.63	
07/24/02 13:45	0.61		0.44	E	0.72		0.51	C	0.63	
07/24/02 14:00	0.61		0.44	E	0.72		0.51	C	0.63	
07/24/02 14:15	0.61		0.44	E	0.72		0.50	C	0.63	
07/24/02 14:30	0.60		0.44	E	0.72		0.50	C	0.63	
07/24/02 14:45	0.60		0.44	E	0.71		0.51	C	0.63	
07/24/02 15:00	0.60		0.44	E	0.72		0.50	C	0.62	
07/24/02 15:15	0.60		0.44	E	0.72		0.51		0.63	
07/24/02 15:30	0.60		0.44	E	0.71		0.51		0.63	
07/24/02 15:45	0.60		0.44	E	0.72		0.50		0.62	
07/24/02 16:00	0.59		0.44	E	0.71		0.51		0.63	
07/24/02 16:15	0.59		0.44	E	0.72		0.51		0.62	
07/24/02 16:30	0.59		0.44	E	0.71		0.50		0.62	
07/24/02 16:45	0.59		0.44	E	0.71		0.51		0.62	
07/24/02 17:00	0.59		0.44	E	0.71		0.51		0.62	
07/24/02 17:15	0.59		0.44	E	0.71		0.51		0.63	
07/24/02 17:30	0.59		0.44	E	0.71		0.51		0.62	
07/24/02 17:45	0.59		0.44	E	0.71		0.51		0.62	
07/24/02 18:00	0.59		0.44	E	0.71		0.52		0.62	
07/24/02 18:15	0.59		0.44	E	0.71		0.51		0.62	
07/24/02 18:30	0.59		0.44	E	0.71		0.52		0.62	
07/24/02 18:45	0.59		0.44	E	0.71		0.51		0.62	
07/24/02 19:00	0.59		0.44	E	0.72		0.51		0.62	
07/24/02 19:15	0.59		0.44	E	0.71		0.52		0.62	
07/24/02 19:30	0.59		0.44	E	0.71		0.51		0.63	
07/24/02 19:45	0.59		0.44	E	0.71		0.52		0.62	
07/24/02 20:00	0.59		0.44	E	0.71		0.51		0.63	
07/24/02 20:15	0.59		0.44	E	0.72		0.52		0.63	
07/24/02 20:30	0.58		0.44	E	0.71		0.52		0.63	
07/24/02 20:45	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 21:00	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 21:15	0.59		0.44	E	0.71		0.52		0.62	
07/24/02 21:30	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 21:45	0.59		0.44	E	0.72		0.52		0.63	
07/24/02 22:00	0.59		0.45	E	0.72		0.52		0.63	
07/24/02 22:15	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 22:30	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 22:45	0.59		0.44	E	0.71		0.51		0.63	
07/24/02 23:00	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 23:15	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 23:30	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 23:45	0.59		0.44	E	0.71		0.52		0.63	
07/24/02 23:59	0.59		0.44	E	0.71		0.52		0.63	
09/15/02 0:15	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 0:30	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 0:45	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 1:00	0.00	E	0.44	E	0.17		0.29	C	0.54	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/15/02 1:15	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 1:30	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 1:45	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 2:00	0.00	E	0.44	E	0.18		0.29	C	0.54	
09/15/02 2:15	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 2:30	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 2:45	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 3:00	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 3:15	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 3:30	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 3:45	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 4:00	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 4:15	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 4:30	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 4:45	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 5:00	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 5:15	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 5:30	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 5:45	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 6:00	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 6:15	0.00	E	0.44	E	0.16		0.29	C	0.54	
09/15/02 6:30	0.00	E	0.44	E	0.16		0.29	C	0.54	
09/15/02 6:45	0.00	E	0.44	E	0.16		0.29	C	0.54	
09/15/02 7:00	0.00	E	0.44	E	0.17		0.29	C	0.54	
09/15/02 7:15	0.00	E	0.44	E	0.16		0.29	C	0.54	
09/15/02 7:30	0.00	E	0.44	E	0.16		0.29	C	0.55	
09/15/02 7:45	0.00	E	0.44	E	0.16		0.31	C	0.55	
09/15/02 8:00	0.00	E	0.44	E	0.17		0.29	C	0.55	
09/15/02 8:15	0.00	E	0.44	E	0.18		0.31	C	0.55	
09/15/02 8:30	0.00	E	0.44	E	0.19		0.31	C	0.55	
09/15/02 8:45	0.00	E	0.44	E	0.20		0.31	C	0.55	
09/15/02 9:00	0.00	E	0.44	E	0.20		0.31	C	0.56	
09/15/02 9:15	0.00	E	0.44	E	0.20		0.31	C	0.56	
09/15/02 9:30	0.00	E	0.44	E	0.20		0.31	C	0.55	
09/15/02 9:45	0.00	E	0.44	E	0.20		0.31	C	0.56	
09/15/02 10:00	0.00	E	0.44	E	0.20		0.31	C	0.55	
09/15/02 10:15	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 10:30	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 10:45	0.00	E	0.44	E	0.23		0.31	C	0.56	
09/15/02 11:00	0.00	E	0.44	E	0.24		0.31	C	0.56	
09/15/02 11:15	0.00	E	0.44	E	0.24		0.31	C	0.55	
09/15/02 11:30	0.00	E	0.44	E	0.24		0.31	C	0.56	
09/15/02 11:45	0.00	E	0.44	E	0.23		0.31	C	0.56	
09/15/02 12:00	0.00	E	0.44	E	0.23		0.31	C	0.55	
09/15/02 12:15	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 12:30	0.00	E	0.44	E	0.22		0.31	C	0.55	
09/15/02 12:45	0.00	E	0.44	E	0.22		0.31	C	0.55	
09/15/02 13:00	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 13:15	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 13:30	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 13:45	0.00	E	0.44	E	0.22		0.31	C	0.56	
09/15/02 14:00	0.00	E	0.44	E	0.22		0.30	C	0.55	
09/15/02 14:15	0.00	E	0.44	E	0.22		0.30	C	0.56	

Date and Time	BELLETOD		BELLE5		BELLEGIG		BELLOST		SENECA	
	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment
09/15/02 14:30	0.00	E	0.44	E	0.22		0.30	C	0.56	
09/15/02 14:45	0.00	E	0.44	E	0.21		0.30	C	0.56	
09/15/02 15:00	0.00	E	0.44	E	0.21		0.30	C	0.56	
09/15/02 15:15	0.00	E	0.44	E	0.20		0.30	C	0.56	
09/15/02 15:30	0.00	E	0.44	E	0.20		0.30	C	0.56	
09/15/02 15:45	0.00	E	0.44	E	0.20		0.31	C	0.56	
09/15/02 16:00	0.00	E	0.44	E	0.21		0.30	C	0.56	
09/15/02 16:15	0.00	E	0.44	E	0.21		0.30	C	0.56	
09/15/02 16:30	0.00	E	0.44	E	0.22		0.30	C	0.56	
09/15/02 16:45	0.00	E	0.44	E	0.24		0.31	C	0.56	
09/15/02 17:00	0.00	E	0.44	E	0.28		0.32	C	0.57	
09/15/02 17:15	0.00	E	0.44	E	0.34		0.32	C	0.58	
09/15/02 17:30	0.00	E	0.44	E	0.36		0.32	C	0.59	
09/15/02 17:45	0.00	E	0.44	E	0.36		0.34	C	0.59	
09/15/02 18:00	0.00	E	0.44	E	0.36		0.34	C	0.59	
09/15/02 18:15	0.00	E	0.44	E	0.37		0.33	C	0.59	
09/15/02 18:30	0.00	E	0.44	E	0.40		0.32	C	0.59	
09/15/02 18:45	0.00	E	0.44	E	0.44		0.32	C	0.58	
09/15/02 19:00	0.00	E	0.44	E	0.46		0.32	C	0.58	
09/15/02 19:15	0.00	E	0.44	E	0.46		0.32	C	0.58	
09/15/02 19:30	0.00	E	0.44	E	0.46		0.32	C	0.58	
09/15/02 19:45	0.00	E	0.44	E	0.45		0.32	C	0.58	
09/15/02 20:00	0.00	E	0.44	E	0.44		0.32	C	0.58	
09/15/02 20:15	0.01	E	0.44	E	0.44		0.32	C	0.58	
09/15/02 20:30	0.00	E	0.44	E	0.44		0.32	C	0.58	
09/15/02 20:45	0.00	E	0.44	E	0.44		0.32	C	0.58	
09/15/02 21:00	0.00	E	0.44	E	0.42		0.32	C	0.58	
09/15/02 21:15	0.00	E	0.44	E	0.42		0.32	C	0.58	
09/15/02 21:30	0.00	E	0.44	E	0.40		0.32	C	0.58	
09/15/02 21:45	0.00	E	0.44	E	0.38		0.32	C	0.58	
09/15/02 22:00	0.00	E	0.44	E	0.38		0.32	C	0.58	
09/15/02 22:15	0.01	E	0.44	E	0.36		0.32	C	0.58	
09/15/02 22:30	0.00	E	0.44	E	0.36		0.32	C	0.58	
09/15/02 22:45	0.00	E	0.44	E	0.34		0.31	C	0.58	
09/15/02 23:00	0.00	E	0.44	E	0.34		0.31	C	0.58	
09/15/02 23:15	0.00	E	0.44	E	0.33		0.31	C	0.58	
09/15/02 23:30	0.00	E	0.44	E	0.32		0.31	C	0.58	
09/15/02 23:45	0.00	E	0.44	E	0.32		0.32	C	0.58	
09/15/02 23:59	0.00	E	0.44	E	0.32		0.32	C	0.58	
09/16/02 0:15	0.00	E	0.44	E	0.32		0.32	C	0.59	
09/16/02 0:30	0.00	E	0.44	E	0.32		0.33	C	0.59	
09/16/02 0:45	0.00	E	0.44	E	0.35		0.34	C	0.60	
09/16/02 1:00	0.00	E	0.44	E	0.38		0.36	C	0.61	
09/16/02 1:15	0.00	E	0.44	E	0.43		0.36	C	0.63	
09/16/02 1:30	0.00	E	0.44	E	0.48		0.37	C	0.64	
09/16/02 1:45	0.00	E	0.44	E	0.54		0.39	C	0.65	
09/16/02 2:00	0.00	E	0.44	E	0.56		0.41	C	0.66	
09/16/02 2:15	0.00	E	0.44	E	0.60		0.41	C	0.67	
09/16/02 2:30	0.00	E	0.44	E	0.64		0.42	C	0.68	
09/16/02 2:45	0.00	E	0.44	E	0.64		0.41	C	0.69	
09/16/02 3:00	0.00	E	0.44	E	0.66		0.41	C	0.69	
09/16/02 3:15	0.00	E	0.44	E	0.66		0.40	C	0.69	
09/16/02 3:30	0.01	E	0.44	E	0.64		0.39	C	0.69	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/16/02 3:45	0.00	E	0.44	E	0.64		0.39	C	0.69	
09/16/02 4:00	0.01	E	0.44	E	0.62		0.39	C	0.68	
09/16/02 4:15	0.00	E	0.44	E	0.60		0.39	C	0.68	
09/16/02 4:30	0.00	E	0.44	E	0.60		0.38	C	0.67	
09/16/02 4:45	0.00	E	0.44	E	0.58		0.38	C	0.67	
09/16/02 5:00	0.00	E	0.44	E	0.58		0.37	C	0.66	
09/16/02 5:15	0.00	E	0.44	E	0.56		0.37	C	0.65	
09/16/02 5:30	0.00	E	0.44	E	0.55		0.37	C	0.65	
09/16/02 5:45	0.00	E	0.44	E	0.54		0.37	C	0.64	
09/16/02 6:00	0.00	E	0.44	E	0.53		0.37	C	0.63	
09/16/02 6:15	0.00	E	0.44	E	0.52		0.37	C	0.63	
09/16/02 6:30	0.00	E	0.44	E	0.51		0.37	C	0.63	
09/16/02 6:45	0.00	E	0.44	E	0.50		0.37	C	0.62	
09/16/02 7:00	0.00	E	0.44	E	0.50		0.37	C	0.62	
09/16/02 7:15	0.00	E	0.44	E	0.49		0.37	C	0.61	
09/16/02 7:30	0.00	E	0.44	E	0.48		0.36	C	0.61	
09/16/02 7:45	0.00	E	0.44	E	0.48		0.37	C	0.61	
09/16/02 8:00	0.00	E	0.44	E	0.46		0.37	C	0.60	
09/16/02 8:15	0.01	E	0.44	E	0.46		0.36	C	0.60	
09/16/02 8:30	0.00	E	0.44	E	0.46		0.36	C	0.60	
09/16/02 8:45	0.01	E	0.44	E	0.44		0.36	C	0.59	
09/16/02 9:00	0.00	E	0.44	E	0.44		0.36	C	0.59	
09/16/02 9:15	0.00	E	0.44	E	0.44		0.36	C	0.59	
09/16/02 9:30	0.00	E	0.44	E	0.42		0.36	C	0.59	
09/16/02 9:45	0.00	E	0.44	E	0.42		0.37	C	0.59	
09/16/02 10:00	0.00	E	0.44	E	0.42		0.36	C	0.59	
09/16/02 10:15	0.00	E	0.44	E	0.42		0.37	C	0.58	
09/16/02 10:30	0.00	E	0.44	E	0.41		0.36	C	0.58	
09/16/02 10:45	0.00	E	0.44	E	0.40		0.37	C	0.58	
09/16/02 11:00	0.00	E	0.44	E	0.40		0.37	C	0.58	
09/16/02 11:15	0.00	E	0.44	E	0.40		0.37	C	0.58	
09/16/02 11:30	0.00	E	0.44	E	0.38		0.36	C	0.58	
09/16/02 11:45	0.00	E	0.44	E	0.38		0.37	C	0.57	
09/16/02 12:00	0.00	E	0.44	E	0.38		0.37	C	0.57	
09/16/02 12:15	0.00	E	0.44	E	0.37		0.37	C	0.57	
09/16/02 12:30	0.00	E	0.44	E	0.37		0.37	C	0.58	
09/16/02 12:45	0.00	E	0.44	E	0.37		0.37	C	0.58	
09/16/02 13:00	0.00	E	0.44	E	0.38		0.37	C	0.58	
09/16/02 13:15	0.01	E	0.44	E	0.38		0.37	C	0.58	
09/16/02 13:30	0.01	E	0.44	E	0.38		0.37	C	0.58	
09/16/02 13:45	0.00	E	0.44	E	0.38		0.37	C	0.58	
09/16/02 14:00	0.00	E	0.44	E	0.38		0.37	C	0.58	
09/16/02 14:15	0.00	E	0.44	E	0.38		0.37	C	0.58	
09/16/02 14:30	0.00	E	0.44	E	0.39		0.37	C	0.58	
09/16/02 14:45	0.00	E	0.44	E	0.40		0.37	C	0.58	
09/16/02 15:00	0.00	E	0.44	E	0.40		0.37	C	0.58	
09/16/02 15:15	0.00	E	0.44	E	0.41		0.37	C	0.58	
09/16/02 15:30	0.00	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 15:45	0.01	E	0.44	E	0.42		0.37	C	0.58	
09/16/02 16:00	0.01	E	0.44	E	0.42		0.37	C	0.58	
09/16/02 16:15	0.00	E	0.44	E	0.42		0.37	C	0.58	
09/16/02 16:30	0.00	E	0.44	E	0.42		0.37	C	0.58	
09/16/02 16:45	0.00	E	0.44	E	0.42		0.37	C	0.58	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/16/02 17:00	0.00	E	0.44	E	0.42		0.37	C	0.58	
09/16/02 17:15	0.00	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 17:30	0.00	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 17:45	0.00	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 18:00	0.01	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 18:15	0.00	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 18:30	0.00	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 18:45	0.01	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 19:00	0.01	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 19:15	0.01	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 19:30	0.01	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 19:45	0.01	E	0.44	E	0.42		0.37	C	0.57	
09/16/02 20:00	0.01	E	0.44	E	0.43		0.37	C	0.57	
09/16/02 20:15	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 20:30	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 20:45	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 21:00	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 21:15	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 21:30	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 21:45	0.01	E	0.44	E	0.44		0.37	C	0.56	
09/16/02 22:00	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 22:15	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 22:30	0.01	E	0.44	E	0.44		0.38	C	0.57	
09/16/02 22:45	0.01	E	0.44	E	0.44		0.38	C	0.56	
09/16/02 23:00	0.01	E	0.44	E	0.44		0.38	C	0.57	
09/16/02 23:15	0.01	E	0.44	E	0.44		0.37	C	0.57	
09/16/02 23:30	0.01	E	0.44	E	0.44		0.38	C	0.57	
09/16/02 23:45	0.01	E	0.44	E	0.44		0.38	C	0.57	
09/16/02 23:59	0.01	E	0.44	E	0.44		0.38	C	0.57	
09/22/02 0:15	0.01	E	0.45	E	0.16		0.29	C	0.53	
09/22/02 0:30	0.01	E	0.45	E	0.15		0.29	C	0.53	
09/22/02 0:45	0.01	E	0.44	E	0.15		0.29	C	0.52	
09/22/02 1:00	0.01	E	0.44	E	0.15		0.29	C	0.53	
09/22/02 1:15	0.01	E	0.45	E	0.16		0.29	C	0.53	
09/22/02 1:30	0.01	E	0.44	E	0.15		0.29	C	0.53	
09/22/02 1:45	0.01	E	0.44	E	0.15		0.29	C	0.53	
09/22/02 2:00	0.01	E	0.44	E	0.15		0.29	C	0.53	
09/22/02 2:15	0.01	E	0.44	E	0.15		0.29	C	0.53	
09/22/02 2:30	0.01	E	0.45	E	0.15		0.29	C	0.53	
09/22/02 2:45	0.00	E	0.45	E	0.15		0.29	C	0.53	
09/22/02 3:00	0.01	E	0.45	E	0.15		0.29	C	0.53	
09/22/02 3:15	0.01	E	0.45	E	0.16		0.29	C	0.53	
09/22/02 3:30	0.01	E	0.45	E	0.15		0.29	C	0.53	
09/22/02 3:45	0.01	E	0.45	E	0.15		0.30	C	0.53	
09/22/02 4:00	0.01	E	0.45	E	0.16		0.30	C	0.55	
09/22/02 4:15	0.01	E	0.45	E	0.20		0.33	C	0.57	
09/22/02 4:30	0.01	E	0.45	E	0.24		0.33	C	0.58	
09/22/02 4:45	0.01	E	0.45	E	0.26		0.36	C	0.58	
09/22/02 5:00	0.00	E	0.44	E	0.28		0.36	C	0.60	
09/22/02 5:15	0.01	E	0.45	E	0.40		0.40	C	0.62	
09/22/02 5:30	0.00	E	0.45	E	0.62		0.44	C	0.65	
09/22/02 5:45	0.01	E	0.45	E	0.60		0.46	C	0.67	
09/22/02 6:00	0.00	E	0.45	E	0.62		0.45	C	0.69	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/22/02 6:15	0.01	E	0.44	E	0.72		0.46	C	0.70	
09/22/02 6:30	0.86	E	0.45	E	0.74		0.51	C	0.73	
09/22/02 6:45	0.83	E	0.44	E	0.74		0.49	C	0.76	
09/22/02 7:00	0.89	E	0.45	E	0.74		0.46	C	0.76	
09/22/02 7:15	0.88	E	0.45	E	0.72		0.45	C	0.77	
09/22/02 7:30	0.84	E	0.44	E	0.72		0.43	C	0.78	
09/22/02 7:45	0.80	E	0.73	E	0.70		0.43	C	0.78	
09/22/02 8:00	0.78	E	0.82	E	0.68		0.42	C	0.77	
09/22/02 8:15	0.74	E	0.79	E	0.68		0.41	C	0.77	
09/22/02 8:30	0.72	E	0.68	E	0.66		0.41	C	0.75	
09/22/02 8:45	0.69	E	0.52	E	0.64		0.41	C	0.73	
09/22/02 9:00	0.68	E	0.45	E	0.62		0.41	C	0.72	
09/22/02 9:15	0.67	E	0.44	E	0.61		0.39	C	0.71	
09/22/02 9:30	0.66	E	0.44	E	0.60		0.39	C	0.69	
09/22/02 9:45	0.65	E	0.44	E	0.58		0.39	C	0.68	
09/22/02 10:00	0.65	E	0.45	E	0.58		0.39	C	0.67	
09/22/02 10:15	0.65	E	0.44	E	0.56		0.39	C	0.67	
09/22/02 10:30	0.66	E	0.44	E	0.56		0.39	C	0.66	
09/22/02 10:45	0.65	E	0.45	E	0.54		0.39	C	0.65	
09/22/02 11:00	0.65	E	0.45	E	0.54		0.39	C	0.65	
09/22/02 11:15	0.65	E	0.45	E	0.52		0.38	C	0.64	
09/22/02 11:30	0.64	E	0.44	E	0.52		0.38	C	0.64	
09/22/02 11:45	0.64	E	0.45	E	0.52		0.37	C	0.63	
09/22/02 12:00	0.64	E	0.44	E	0.51		0.37	C	0.63	
09/22/02 12:15	0.63	E	0.45	E	0.50		0.37	C	0.62	
09/22/02 12:30	0.62	E	0.44	E	0.50		0.37	C	0.62	
09/22/02 12:45	0.62	E	0.45	E	0.50		0.37	C	0.62	
09/22/02 13:00	0.61	E	0.45	E	0.49		0.37	C	0.62	
09/22/02 13:15	0.60	E	0.45	E	0.48		0.37	C	0.61	
09/22/02 13:30	0.60	E	0.44	E	0.48		0.37	C	0.60	
09/22/02 13:45	0.59	E	0.45	E	0.48		0.37	C	0.60	
09/22/02 14:00	0.58	E	0.44	E	0.48		0.37	C	0.62	
09/22/02 14:15	0.58	E	0.44	E	0.48		0.37	C	0.64	
09/22/02 14:30	0.57	E	0.45	E	0.47		0.38	C	0.64	
09/22/02 14:45	0.57	E	0.44	E	0.46		0.38	C	0.65	
09/22/02 15:00	0.56	E	0.45	E	0.46		0.38	C	0.65	
09/22/02 15:15	0.55	E	0.44	E	0.46		0.37	C	0.64	
09/22/02 15:30	0.55	E	0.45	E	0.46		0.39	C	0.64	
09/22/02 15:45	0.54	E	0.44	E	0.46		0.39	C	0.64	
09/22/02 16:00	0.53	E	0.45	E	0.46		0.39	C	0.64	
09/22/02 16:15	0.52	E	0.45	E	0.46		0.39	C	0.64	
09/22/02 16:30	0.51	E	0.44	E	0.46		0.39	C	0.64	
09/22/02 16:45	0.50	E	0.45	E	0.46		0.39	C	0.64	
09/22/02 17:00	0.49	E	0.45	E	0.46		0.39	C	0.63	
09/22/02 17:15	0.48	E	0.45	E	0.48		0.39	C	0.63	
09/22/02 17:30	0.47	E	0.45	E	0.48		0.39	C	0.63	
09/22/02 17:45	0.46	E	0.45	E	0.48		0.39	C	0.63	
09/22/02 18:00	0.45	E	0.45	E	0.50		0.39	C	0.62	
09/22/02 18:15	0.43	E	0.44	E	0.50		0.39	C	0.62	
09/22/02 18:30	0.42	E	0.45	E	0.52		0.39	C	0.62	
09/22/02 18:45	0.41	E	0.45	E	0.52		0.39	C	0.62	
09/22/02 19:00	0.40	E	0.44	E	0.54		0.39	C	0.62	
09/22/02 19:15	0.38	E	0.44	E	0.54		0.39	C	0.62	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/22/02 19:30	0.37	E	0.44	E	0.56		0.39	C	0.61	
09/22/02 19:45	0.36	E	0.45	E	0.56		0.39	C	0.61	
09/22/02 20:00	0.34	E	0.45	E	0.56		0.39	C	0.61	
09/22/02 20:15	0.33	E	0.44	E	0.58		0.39	C	0.61	
09/22/02 20:30	0.32	E	0.45	E	0.58		0.39	C	0.61	
09/22/02 20:45	0.30	E	0.45	E	0.58		0.39	C	0.61	
09/22/02 21:00	0.29	E	0.45	E	0.58		0.39	C	0.60	
09/22/02 21:15	0.27	E	0.45	E	0.58		0.39	C	0.60	
09/22/02 21:30	0.26	E	0.45	E	0.58		0.39	C	0.60	
09/22/02 21:45	0.24	E	0.44	E	0.58		0.39	C	0.60	
09/22/02 22:00	0.23	E	0.45	E	0.58		0.39	C	0.60	
09/22/02 22:15	0.22	E	0.44	E	0.58		0.39	C	0.60	
09/22/02 22:30	0.22	E	0.44	E	0.58		0.39	C	0.59	
09/22/02 22:45	0.21	E	0.45	E	0.58		0.39	C	0.59	
09/22/02 23:00	0.20	E	0.44	E	0.58		0.39	C	0.59	
09/22/02 23:15	0.19	E	0.45	E	0.58		0.39	C	0.59	
09/22/02 23:30	0.19	E	0.44	E	0.58		0.39	C	0.59	
09/22/02 23:45	0.19	E	0.44	E	0.58		0.39	C	0.59	
09/22/02 23:59	0.18	E	0.44	E	0.58		0.39	C	0.59	
09/23/02 0:15	0.17	E	0.44	E	0.58		0.39	C	0.59	
09/23/02 0:30	0.16	E	0.44	E	0.58		0.39	C	0.59	
09/23/02 0:45	0.14	E	0.45	E	0.58		0.39	C	0.59	
09/23/02 1:00	0.13	E	0.45	E	0.58		0.38	C	0.59	
09/23/02 1:15	0.12	E	0.45	E	0.58		0.38	C	0.59	
09/23/02 1:30	0.10	E	0.44	E	0.57		0.38	C	0.59	
09/23/02 1:45	0.08	E	0.45	E	0.57		0.38	C	0.58	
09/23/02 2:00	0.05	E	0.45	E	0.57		0.38	C	0.58	
09/23/02 2:15	0.03	E	0.45	E	0.56		0.38	C	0.58	
09/23/02 2:30	0.02	E	0.45	E	0.56		0.38	C	0.59	
09/23/02 2:45	0.00	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 3:00	0.00	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 3:15	0.00	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 3:30	0.01	E	0.45	E	0.56		0.38	C	0.58	
09/23/02 3:45	0.01	E	0.45	E	0.56		0.38	C	0.58	
09/23/02 4:00	0.01	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 4:15	0.01	E	0.45	E	0.56		0.38	C	0.58	
09/23/02 4:30	0.00	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 4:45	0.01	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 5:00	0.01	E	0.44	E	0.56		0.38	C	0.58	
09/23/02 5:15	0.01	E	0.44	E	0.54		0.38	C	0.58	
09/23/02 5:30	0.01	E	0.44	E	0.55		0.38	C	0.58	
09/23/02 5:45	0.01	E	0.44	E	0.54		0.38	C	0.58	
09/23/02 6:00	0.01	E	0.44	E	0.54		0.38	C	0.57	
09/23/02 6:15	0.01	E	0.44	E	0.54		0.38	C	0.57	
09/23/02 6:30	0.01	E	0.44	E	0.54		0.38	C	0.57	
09/23/02 6:45	0.01	E	0.44	E	0.54		0.38	C	0.57	
09/23/02 7:00	0.01	E	0.44	E	0.54		0.38	C	0.57	
09/23/02 7:15	0.01	E	0.44	E	0.53		0.38	C	0.57	
09/23/02 7:30	0.01	E	0.44	E	0.53		0.38	C	0.57	
09/23/02 7:45	0.01	E	0.44	E	0.53		0.38	C	0.57	
09/23/02 8:00	0.01	E	0.44	E	0.52		0.38	C	0.57	
09/23/02 8:15	0.01	E	0.44	E	0.52		0.38	C	0.56	
09/23/02 8:30	0.01	E	0.44	E	0.52		0.38	C	0.56	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/23/02 8:45	0.01	E	0.44	E	0.52		0.38	C	0.56	
09/23/02 9:00	0.01	E	0.44	E	0.52		0.38	C	0.56	
09/23/02 9:15	0.01	E	0.44	E	0.52		0.38	C	0.56	
09/23/02 9:30	0.01	E	0.44	E	0.52		0.38	C	0.56	
09/23/02 9:45	0.01	E	0.44	E	0.52		0.38	C	0.56	
09/23/02 10:00	0.01	E	0.44	E	0.51		0.38	C	0.56	
09/23/02 10:15	0.01	E	0.44	E	0.51		0.37	C	0.56	
09/23/02 10:30	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 10:45	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 11:00	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 11:15	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 11:30	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 11:45	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 12:00	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 12:15	0.01	E	0.44	E	0.50		0.38	C	0.56	
09/23/02 12:30	0.01	E	0.44	E	0.50		0.38	C	0.55	
09/23/02 12:45	0.01	E	0.44	E	0.49		0.38	C	0.56	
09/23/02 13:00	0.01	E	0.44	E	0.49		0.38	C	0.55	
09/23/02 13:15	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 13:30	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 13:45	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 14:00	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 14:15	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 14:30	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 14:45	0.01	E	0.44	E	0.48		0.38	C	0.55	
09/23/02 15:00	0.01	E	0.44	E	0.47		0.38	C	0.55	
09/23/02 15:15	0.01	E	0.44	E	0.47		0.38	C	0.55	
09/23/02 15:30	0.01	E	0.44	E	0.47		0.38	C	0.55	
09/23/02 15:45	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 16:00	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 16:15	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 16:30	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 16:45	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 17:00	0.01	E	0.44	E	0.46		0.38	C	0.54	
09/23/02 17:15	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 17:30	0.01	E	0.44	E	0.46		0.38	C	0.55	
09/23/02 17:45	0.01	E	0.44	E	0.45		0.38	C	0.55	
09/23/02 18:00	0.01	E	0.44	E	0.45		0.38	C	0.55	
09/23/02 18:15	0.01	E	0.44	E	0.44		0.38	C	0.55	
09/23/02 18:30	0.01	E	0.44	E	0.44		0.38	C	0.54	
09/23/02 18:45	0.01	E	0.44	E	0.44		0.38	C	0.55	
09/23/02 19:00	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 19:15	0.01	E	0.44	E	0.45		0.38	C	0.54	
09/23/02 19:30	0.01	E	0.44	E	0.44		0.38	C	0.54	
09/23/02 19:45	0.01	E	0.44	E	0.44		0.38	C	0.54	
09/23/02 20:00	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 20:15	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 20:30	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 20:45	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 21:00	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 21:15	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 21:30	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 21:45	0.01	E	0.44	E	0.44		0.37	C	0.55	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/23/02 22:00	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 22:15	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 22:30	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/23/02 22:45	0.01	E	0.44	E	0.44		0.37	C	0.55	
09/23/02 23:00	0.01	E	0.44	E	0.44		0.37	C	0.55	
09/23/02 23:15	0.01	E	0.44	E	0.44		0.36	C	0.55	
09/23/02 23:30	0.01	E	0.44	E	0.44		0.37	C	0.55	
09/23/02 23:45	0.00	E	0.44	E	0.44		0.37	C	0.55	
09/23/02 23:59	0.01	E	0.44	E	0.44		0.37	C	0.54	
09/26/02 0:15	0.01	E	0.44	E	0.32		0.29	C	0.53	
09/26/02 0:30	0.01	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 0:45	0.01	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 1:00	0.01	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 1:15	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 1:30	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 1:45	0.01	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 2:00	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 2:15	0.01	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 2:30	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 2:45	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 3:00	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 3:15	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 3:30	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 3:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 4:00	0.01	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 4:15	0.00	E	0.44	E	0.31		0.29	C	0.53	
09/26/02 4:30	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 4:45	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 5:00	0.01	E	0.44	E	0.30		0.28	C	0.53	
09/26/02 5:15	0.01	E	0.44	E	0.30		0.29	C	0.54	
09/26/02 5:30	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 5:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 6:00	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 6:15	0.00	E	0.44	E	0.30		0.28	C	0.53	
09/26/02 6:30	0.01	E	0.44	E	0.30		0.28	C	0.53	
09/26/02 6:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 7:00	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 7:15	0.01	E	0.44	E	0.30		0.28	C	0.53	
09/26/02 7:30	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 7:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 8:00	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 8:15	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 8:30	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 8:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 9:00	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 9:15	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 9:30	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 9:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 10:00	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 10:15	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 10:30	0.00	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 10:45	0.01	E	0.44	E	0.30		0.29	C	0.53	
09/26/02 11:00	0.00	E	0.44	E	0.30		0.28	C	0.53	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/26/02 11:15	0.01	E	0.44	E	0.30		0.28	C	0.53	
09/26/02 11:30	0.01	E	0.44	E	0.30		0.28	C	0.53	
09/26/02 11:45	0.00	E	0.44	E	0.30		0.32	C	0.53	
09/26/02 12:00	0.01	E	0.44	E	0.30		0.32	C	0.53	
09/26/02 12:15	0.00	E	0.44	E	0.30		0.32	C	0.53	
09/26/02 12:30	0.01	E	0.44	E	0.30		0.32	C	0.53	
09/26/02 12:45	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 13:00	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 13:15	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 13:30	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 13:45	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 14:00	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 14:15	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 14:30	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 14:45	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 15:00	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 15:15	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 15:30	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 15:45	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 16:00	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 16:15	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 16:30	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 16:45	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 17:00	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 17:15	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 17:30	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 17:45	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 18:00	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 18:15	0.01	E	0.44	E	0.28		0.30	C	0.53	
09/26/02 18:30	0.01	E	0.44	E	0.28		0.32	C	0.53	
09/26/02 18:45	0.01	E	0.44	E	0.28		0.31	C	0.53	
09/26/02 19:00	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 19:15	0.01	E	0.44	E	0.29		0.32	C	0.53	
09/26/02 19:30	0.00	E	0.44	E	0.30		0.32	C	0.54	
09/26/02 19:45	0.01	E	0.44	E	0.31		0.32	C	0.54	
09/26/02 20:00	0.01	E	0.44	E	0.32		0.33	C	0.54	
09/26/02 20:15	0.01	E	0.44	E	0.32		0.34	C	0.54	
09/26/02 20:30	0.00	E	0.44	E	0.34		0.34	C	0.54	
09/26/02 20:45	0.01	E	0.44	E	0.36		0.34	C	0.54	
09/26/02 21:00	0.01	E	0.44	E	0.37		0.35	C	0.54	
09/26/02 21:15	0.01	E	0.44	E	0.39		0.35	C	0.55	
09/26/02 21:30	0.01	E	0.44	E	0.41		0.35	C	0.55	
09/26/02 21:45	0.01	E	0.44	E	0.42		0.36	C	0.56	
09/26/02 22:00	0.00	E	0.44	E	0.44		0.36	C	0.56	
09/26/02 22:15	0.01	E	0.44	E	0.46		0.36	C	0.56	
09/26/02 22:30	0.01	E	0.44	E	0.48		0.36	C	0.56	
09/26/02 22:45	0.01	E	0.44	E	0.49		0.36	C	0.56	
09/26/02 23:00	0.00	E	0.44	E	0.50		0.36	C	0.56	
09/26/02 23:15	0.01	E	0.44	E	0.50		0.36	C	0.56	
09/26/02 23:30	0.01	E	0.44	E	0.51		0.36	C	0.56	
09/26/02 23:45	0.01	E	0.44	E	0.52		0.36	C	0.56	
09/26/02 23:59	0.00	E	0.44	E	0.52		0.36	C	0.56	
09/27/02 0:15	0.01	E	0.44	E	0.52		0.36	C	0.56	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/27/02 0:30	0.01	E	0.44	E	0.52		0.36	C	0.56	
09/27/02 0:45	0.00	E	0.44	E	0.52		0.37	C	0.57	
09/27/02 1:00	0.00	E	0.44	E	0.53		0.37	C	0.57	
09/27/02 1:15	0.01	E	0.44	E	0.53		0.38	C	0.57	
09/27/02 1:30	0.00	E	0.44	E	0.53		0.38	C	0.58	
09/27/02 1:45	0.00	E	0.44	E	0.53		0.38	C	0.58	
09/27/02 2:00	0.01	E	0.44	E	0.53		0.38	C	0.58	
09/27/02 2:15	0.01	E	0.44	E	0.53		0.38	C	0.58	
09/27/02 2:30	0.01	E	0.44	E	0.54		0.38	C	0.58	
09/27/02 2:45	0.01	E	0.44	E	0.55		0.38	C	0.60	
09/27/02 3:00	0.01	E	0.44	E	0.55		0.38	C	0.60	
09/27/02 3:15	0.00	E	0.44	E	0.55		0.39	C	0.60	
09/27/02 3:30	0.01	E	0.44	E	0.56		0.38	C	0.60	
09/27/02 3:45	0.01	E	0.44	E	0.57		0.39	C	0.62	
09/27/02 4:00	0.00	E	0.44	E	0.58		0.39	C	0.62	
09/27/02 4:15	0.00	E	0.44	E	0.59		0.39	C	0.63	
09/27/02 4:30	0.00	E	0.44	E	0.61		0.39	C	0.64	
09/27/02 4:45	0.01	E	0.44	E	0.62		0.41	C	0.66	
09/27/02 5:00	0.01	E	0.44	E	0.63		0.41	C	0.66	
09/27/02 5:15	0.01	E	0.44	E	0.63		0.41	C	0.66	
09/27/02 5:30	0.01	E	0.44	E	0.64		0.41	C	0.66	
09/27/02 5:45	0.01	E	0.44	E	0.64		0.41	C	0.67	
09/27/02 6:00	0.01	E	0.44	E	0.64		0.41	C	0.68	
09/27/02 6:15	0.01	E	0.44	E	0.65		0.41	C	0.68	
09/27/02 6:30	0.00	E	0.44	E	0.65		0.41	C	0.68	
09/27/02 6:45	0.01	E	0.44	E	0.65		0.41	C	0.68	
09/27/02 7:00	0.01	E	0.44	E	0.65		0.41	C	0.68	
09/27/02 7:15	0.01	E	0.44	E	0.65		0.41	C	0.68	
09/27/02 7:30	0.00	E	0.44	E	0.65		0.42	C	0.69	
09/27/02 7:45	0.01	E	0.44	E	0.65		0.42	C	0.68	
09/27/02 8:00	0.01	E	0.44	E	0.65		0.42	C	0.68	
09/27/02 8:15	0.10	E	0.44	E	0.65		0.42	C	0.68	
09/27/02 8:30	0.25	E	0.44	E	0.65		0.42	C	0.68	
09/27/02 8:45	0.39	E	0.44	E	0.65		0.43	C	0.68	
09/27/02 9:00	0.55	E	0.44	E	0.65		0.42	C	0.68	
09/27/02 9:15	0.65		0.44	E	0.66		0.43	C	0.68	
09/27/02 9:30	0.68		0.44	E	0.66		0.43	C	0.68	
09/27/02 9:45	0.70		0.44	E	0.65		0.43	C	0.68	
09/27/02 10:00	0.71		0.44	E	0.65		0.43	C	0.68	
09/27/02 10:15	0.73		0.44	E	0.66		0.43	C	0.69	
09/27/02 10:30	0.74		0.44	E	0.67		0.43	C	0.69	
09/27/02 10:45	0.76		0.44	E	0.67		0.44	C	0.69	
09/27/02 11:00	0.80		0.44	E	0.67		0.45	C	0.70	
09/27/02 11:15	0.80		0.44	E	0.67		0.45	C	0.69	
09/27/02 11:30	0.80		0.44	E	0.67		0.45	C	0.69	
09/27/02 11:45	0.81		0.44	E	0.67		0.45	C	0.69	
09/27/02 12:00	0.81		0.44	E	0.67		0.45	C	0.68	
09/27/02 12:15	0.81		0.44	E	0.67		0.45	C	0.69	
09/27/02 12:30	0.81		0.44	E	0.67		0.44	C	0.68	
09/27/02 12:45	0.81		0.44	E	0.66		0.45	C	0.68	
09/27/02 13:00	0.79		0.44	E	0.66		0.44	C	0.68	
09/27/02 13:15	0.79		0.44	E	0.66		0.44	C	0.68	
09/27/02 13:30	0.78		0.44	E	0.65		0.44	C	0.68	

Date and Time	BELLETOD		BELLE5		BELLEGIG		BELLOST		SENECA	
	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment
09/27/02 13:45	0.77		0.44	E	0.64		0.44	C	0.67	
09/27/02 14:00	0.77		0.44	E	0.65		0.44	C	0.67	
09/27/02 14:15	0.76		0.44	E	0.64		0.44	C	0.66	
09/27/02 14:30	0.76		0.44	E	0.64		0.44	C	0.66	
09/27/02 14:45	0.75		0.44	E	0.64		0.44	C	0.66	
09/27/02 15:00	0.75		0.44	E	0.64		0.44	C	0.66	
09/27/02 15:15	0.74		0.44	E	0.64		0.44	C	0.66	
09/27/02 15:30	0.74		0.44	E	0.64		0.45	C	0.66	
09/27/02 15:45	0.74		0.44	E	0.65		0.45	C	0.65	
09/27/02 16:00	0.74		0.44	E	0.67		0.46	C	0.66	
09/27/02 16:15	0.73		0.44	E	0.68		0.46	C	0.67	
09/27/02 16:30	0.72		0.44	E	0.68		0.46	C	0.68	
09/27/02 16:45	0.72		0.44	E	0.69		0.47	C	0.68	
09/27/02 17:00	0.71		0.44	E	0.70		0.48	C	0.68	
09/27/02 17:15	0.71		0.44	E	0.70		0.48	C	0.68	
09/27/02 17:30	0.70		0.44	E	0.70		0.48	C	0.69	
09/27/02 17:45	0.70		0.44	E	0.71		0.48	C	0.69	
09/27/02 18:00	0.69		0.44	E	0.71		0.48	C	0.69	
09/27/02 18:15	0.69		0.44	E	0.71		0.48	C	0.70	
09/27/02 18:30	0.69		0.44	E	0.71		0.48	C	0.70	
09/27/02 18:45	0.69		0.44	E	0.71		0.48	C	0.70	
09/27/02 19:00	0.68		0.44	E	0.70		0.48	C	0.70	
09/27/02 19:15	0.68		0.44	E	0.71		0.48	C	0.69	
09/27/02 19:30	0.67		0.44	E	0.71		0.48	C	0.68	
09/27/02 19:45	0.67		0.44	E	0.71		0.48	C	0.68	
09/27/02 20:00	0.67		0.44	E	0.71		0.49	C	0.68	
09/27/02 20:15	0.67		0.44	E	0.72		0.50	C	0.68	
09/27/02 20:30	0.66		0.45	E	0.72		0.50	C	0.68	
09/27/02 20:45	0.66		0.44	E	0.72		0.50	C	0.68	
09/27/02 21:00	0.66		0.44	E	0.73		0.50	C	0.68	
09/27/02 21:15	0.66		0.44	E	0.75		0.53	C	0.72	
09/27/02 21:30	0.68		0.44	E	0.77		0.57	C	0.74	
09/27/02 21:45	1.02		0.56	E	0.86		0.59	C	0.78	
09/27/02 22:00	1.08		0.44	E	0.90		0.63	C	0.88	
09/27/02 22:15	1.05		1.66	E	0.92		0.61	C	0.90	
09/27/02 22:30	1.04		2.15	E	0.91		0.61	C	0.96	
09/27/02 22:45	1.02		2.14	E	0.88		0.61	C	0.98	
09/27/02 23:00	1.01		2.12	E	0.86		0.61	C	0.97	
09/27/02 23:15	0.99		2.26	E	0.85		0.61	C	0.94	
09/27/02 23:30	0.98		2.25	E	0.84		0.61	C	0.92	
09/27/02 23:45	0.95		2.24	E	0.82		0.61	C	0.90	
09/27/02 23:59	0.94		2.23	E	0.82		0.61	C	0.88	
09/28/02 0:15	0.92		2.22	E	0.81		0.61	C	0.86	
09/28/02 0:30	0.92		2.21	E	0.81		0.59	C	0.86	
09/28/02 0:45	0.91		2.20	E	0.81		0.59	C	0.84	
09/28/02 1:00	0.90		2.19	E	0.80		0.59	C	0.84	
09/28/02 1:15	0.88		2.18	E	0.80		0.59	C	0.83	
09/28/02 1:30	0.87		2.17	E	0.81		0.59	C	0.82	
09/28/02 1:45	0.87		2.16	E	0.81		0.59	C	0.83	
09/28/02 2:00	0.86		2.15	E	0.80		0.59	C	0.83	
09/28/02 2:15	0.85		2.14	E	0.80		0.59	C	0.83	
09/28/02 2:30	0.85		2.13	E	0.80		0.59	C	0.83	
09/28/02 2:45	0.84		2.12	E	0.80		0.59	C	0.82	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/28/02 3:00	0.84		2.11	E	0.80		0.59	C	0.82	
09/28/02 3:15	0.83		2.10	E	0.80		0.59	C	0.82	
09/28/02 3:30	0.83		2.08	E	0.80		0.59	C	0.81	
09/28/02 3:45	0.82		2.07	E	0.80		0.59	C	0.81	
09/28/02 4:00	0.82		2.05	E	0.79		0.59	C	0.80	
09/28/02 4:15	0.81		2.03	E	0.79		0.59	C	0.80	
09/28/02 4:30	0.80		2.00	E	0.79		0.59	C	0.80	
09/28/02 4:45	0.80		1.97	E	0.79		0.59	C	0.79	
09/28/02 5:00	0.79		1.94	E	0.78		0.59	C	0.79	
09/28/02 5:15	0.79		1.89	E	0.78		0.59	C	0.79	
09/28/02 5:30	0.78		1.83	E	0.78		0.59	C	0.78	
09/28/02 5:45	0.78		1.77	E	0.78		0.59	C	0.78	
09/28/02 6:00	0.77		1.71	E	0.78		0.59	C	0.78	
09/28/02 6:15	0.77		1.65	E	0.78		0.59	C	0.78	
09/28/02 6:30	0.76		1.58	E	0.77		0.60	C	0.78	
09/28/02 6:45	0.75		1.52	E	0.77		0.59	C	0.78	
09/28/02 7:00	0.75		1.46	E	0.77		0.60	C	0.78	
09/28/02 7:15	0.75		1.42	E	0.77		0.60	C	0.78	
09/28/02 7:30	0.74		1.38	E	0.77		0.60	C	0.78	
09/28/02 7:45	0.73		1.33	E	0.77		0.61	C	0.78	
09/28/02 8:00	0.73		1.29	E	0.77		0.61	C	0.77	
09/28/02 8:15	0.73		1.26	E	0.77		0.61	C	0.77	
09/28/02 8:30	0.72		1.22	E	0.77		0.61	C	0.77	
09/28/02 8:45	0.72		1.19	E	0.77		0.61	C	0.76	
09/28/02 9:00	0.70	C	1.16	E	0.77		0.61	C	0.76	
09/28/02 9:15	0.70	C	1.13	E	0.77		0.60	C	0.76	
09/28/02 9:30	0.69	C	1.11	E	0.77		0.61	C	0.76	
09/28/02 9:45	0.69	C	1.09	E	0.77		0.61	C	0.76	
09/28/02 10:00	0.69	C	1.07	E	0.77		0.61	C	0.75	
09/28/02 10:15	0.69	C	1.06	E	0.77		0.61	C	0.75	
09/28/02 10:30	0.68	C	1.04	E	0.77		0.60	C	0.75	
09/28/02 10:45	0.68	C	1.03	E	0.77		0.60		0.74	
09/28/02 11:00	0.68	C	1.02	E	0.77		0.60		0.74	
09/28/02 11:15	0.68	C	1.01	E	0.77		0.60		0.74	
09/28/02 11:30	0.68	C	1.00	E	0.77		0.60		0.73	
09/28/02 11:45	0.67	C	0.98	E	0.77		0.60		0.73	
09/28/02 12:00	0.67	C	0.97	E	0.77		0.60		0.73	
09/28/02 12:15	0.67	C	0.95	E	0.77		0.60		0.72	
09/28/02 12:30	0.67	C	0.94	E	0.77		0.60		0.72	
09/28/02 12:45	0.67	C	0.92	E	0.77		0.61		0.72	
09/28/02 13:00	0.66	C	0.91	E	0.77		0.60		0.72	
09/28/02 13:15	0.66	C	0.89	E	0.77		0.60		0.72	
09/28/02 13:30	0.66	C	0.88	E	0.77		0.61		0.71	
09/28/02 13:45	0.66	C	0.87	E	0.77		0.60		0.71	
09/28/02 14:00	0.66	C	0.86	E	0.77		0.60		0.71	
09/28/02 14:15	0.65	C	0.85	E	0.77		0.60		0.70	
09/28/02 14:30	0.65	C	0.83	E	0.78		0.60		0.70	
09/28/02 14:45	0.65	C	0.82	E	0.77		0.61		0.70	
09/28/02 15:00	0.65	C	0.80	E	0.78		0.60		0.70	
09/28/02 15:15	0.64	C	0.79	E	0.78		0.60		0.70	
09/28/02 15:30	0.64	C	0.78	E	0.77		0.62		0.69	
09/28/02 15:45	0.64	C	0.76	E	0.78		0.60		0.69	
09/28/02 16:00	0.63	C	0.75	E	0.78		0.60		0.69	

Date and Time	BELLETOD 15-Minute Stage (ft)	Comment	BELLE5 15-Minute Stage (ft)	Comment	BELLEGIG 15-Minute Stage (ft)	Comment	BELLOST 15-Minute Stage (ft)	Comment	SENECA 15-Minute Stage (ft)	Comment
09/28/02 16:15	0.63	C	0.74	E	0.77		0.61		0.69	
09/28/02 16:30	0.62	C	0.74	E	0.78		0.61		0.68	
09/28/02 16:45	0.62	C	0.73	E	0.78		0.60		0.68	
09/28/02 17:00	0.61	C	0.72	E	0.78		0.60		0.68	
09/28/02 17:15	0.61	C	0.70	E	0.78		0.60		0.68	
09/28/02 17:30	0.61	C	0.69	E	0.78		0.60		0.68	
09/28/02 17:45	0.60	C	0.69	E	0.78		0.60		0.67	
09/28/02 18:00	0.60	C	0.68	E	0.78		0.60		0.67	
09/28/02 18:15	0.59	C	0.66	E	0.77		0.60		0.67	
09/28/02 18:30	0.59	C	0.66	E	0.77		0.60		0.67	
09/28/02 18:45	0.59	C	0.65	E	0.77		0.60		0.67	
09/28/02 19:00	0.58	C	0.64	E	0.77		0.60		0.67	
09/28/02 19:15	0.58	C	0.63	E	0.77		0.60		0.66	
09/28/02 19:30	0.58	C	0.61	E	0.77		0.60		0.67	
09/28/02 19:45	0.57	C	0.61	E	0.77		0.60		0.66	
09/28/02 20:00	0.57	C	0.60	E	0.77		0.60		0.66	
09/28/02 20:15	0.57	C	0.58	E	0.77		0.60		0.66	
09/28/02 20:30	0.57	C	0.57	E	0.77		0.60		0.66	
09/28/02 20:45	0.56	C	0.56	E	0.77		0.60		0.66	
09/28/02 21:00	0.56	C	0.55	E	0.77		0.60		0.66	
09/28/02 21:15	0.56	C	0.54	E	0.77		0.60		0.66	
09/28/02 21:30	0.56	C	0.53	E	0.77		0.60		0.66	
09/28/02 21:45	0.56	C	0.53	E	0.77		0.60		0.66	
09/28/02 22:00	0.55	C	0.52	E	0.77		0.60		0.65	
09/28/02 22:15	0.55	C	0.51	E	0.77		0.60		0.65	
09/28/02 22:30	0.55	C	0.50	E	0.77		0.60		0.65	
09/28/02 22:45	0.55	C	0.50	E	0.77		0.60		0.64	
09/28/02 23:00	0.54	C	0.49	E	0.77		0.60		0.64	
09/28/02 23:15	0.54	C	0.49	E	0.77		0.60		0.64	
09/28/02 23:30	0.54	C	0.47	E	0.77		0.60		0.64	
09/28/02 23:45	0.54	C	0.47	E	0.76		0.60		0.64	
09/28/02 23:59	0.54	C	0.46	E	0.76		0.59		0.64	
10/16/02 0:15	0.81		2.22		1.11		0.82		1.05	
10/16/02 0:30	0.81		2.22		1.11		0.82		1.05	
10/16/02 0:45	0.81		2.21		1.11		0.82		1.05	
10/16/02 1:00	0.81		2.21		1.11		0.82		1.05	
10/16/02 1:15	0.81		2.22		1.11		0.83		1.05	
10/16/02 1:30	0.81		2.21		1.10		0.82		1.05	
10/16/02 1:45	0.81		2.21		1.11		0.82		1.05	
10/16/02 2:00	0.81		2.21		1.11		0.83		1.05	
10/16/02 2:15	0.81		2.21		1.11		0.82		1.05	
10/16/02 2:30	0.81		2.21		1.11		0.82		1.05	
10/16/02 2:45	0.81		2.21		1.11		0.82		1.05	
10/16/02 3:00	0.81		2.21		1.11		0.82		1.05	
10/16/02 3:15	0.81		2.21		1.10		0.82		1.05	
10/16/02 3:30	0.81		2.21		1.11		0.82		1.05	
10/16/02 3:45	0.81		2.21		1.10		0.82		1.05	
10/16/02 4:00	0.81		2.21		1.11		0.82		1.05	
10/16/02 4:15	0.81		2.21		1.10		0.82		1.05	
10/16/02 4:30	0.81		2.21		1.10		0.82		1.05	
10/16/02 4:45	0.81		2.21		1.10		0.82		1.05	
10/16/02 5:00	0.81		2.21		1.10		0.82		1.05	
10/16/02 5:15	0.81		2.21		1.11		0.82		1.04	

Date and Time	BELLETOD 15-Minute Stage (ft)	BELLETOD Comment	BELLE5 15-Minute Stage (ft)	BELLE5 Comment	BELLEGIG 15-Minute Stage (ft)	BELLEGIG Comment	BELLOST 15-Minute Stage (ft)	BELLOST Comment	SENECA 15-Minute Stage (ft)	SENECA Comment
10/16/02 5:30	0.81		2.21		1.11		0.82		1.05	
10/16/02 5:45	0.81		2.21		1.10		0.82		1.05	
10/16/02 6:00	0.81		2.21		1.10		0.81		1.05	
10/16/02 6:15	0.81		2.21		1.10		0.82		1.04	
10/16/02 6:30	0.81		2.21		1.10		0.82		1.05	
10/16/02 6:45	0.82		2.21		1.10		0.82		1.05	
10/16/02 7:00	0.81		2.21		1.10		0.82		1.04	
10/16/02 7:15	0.81		2.21		1.10		0.81		1.04	
10/16/02 7:30	0.81		2.21		1.10		0.82		1.04	
10/16/02 7:45	0.82		2.21		1.10		0.82		1.04	
10/16/02 8:00	0.82		2.21		1.10		0.82		1.04	
10/16/02 8:15	0.83		2.21		1.10		0.82		1.05	
10/16/02 8:30	0.84		2.21		1.10		0.82		1.05	
10/16/02 8:45	0.85		2.21		1.10		0.81		1.05	
10/16/02 9:00	0.85		2.22		1.10		0.82		1.05	
10/16/02 9:15	0.84		2.22		1.10		0.82		1.05	
10/16/02 9:30	0.85		2.21		1.10		0.81		1.05	
10/16/02 9:45	0.84		2.21		1.11		0.82		1.05	
10/16/02 10:00	0.85		2.22		1.11		0.82		1.05	
10/16/02 10:15	0.85		2.22		1.11		0.82		1.04	
10/16/02 10:30	0.85		2.22		1.10		0.82		1.04	
10/16/02 10:45	0.85		2.22		1.11		0.82		1.04	
10/16/02 11:00	0.86		2.22		1.11		0.82		1.05	
10/16/02 11:15	0.87		2.22		1.10		0.82		1.04	
10/16/02 11:30	0.87		2.22		1.10		0.82		1.05	
10/16/02 11:45	0.87		2.23		1.11		0.82		1.05	
10/16/02 12:00	0.88		2.23		1.11		0.82		1.06	
10/16/02 12:15	0.89		2.25		1.11		0.83		1.07	
10/16/02 12:30	0.93		2.26		1.12		0.84		1.08	
10/16/02 12:45	0.94		2.27		1.12		0.84		1.10	
10/16/02 13:00	0.96		2.29		1.12		0.84		1.12	
10/16/02 13:15	0.98		2.30		1.13		0.86		1.15	
10/16/02 13:30	1.01		2.32		1.15		0.88		1.17	
10/16/02 13:45	1.06		2.36		1.15		0.89		1.20	
10/16/02 14:00	1.09		2.39		1.17		0.89		1.22	
10/16/02 14:15	1.12		2.41		1.17		0.91		1.22	
10/16/02 14:30	1.14		2.42		1.18		0.93		1.24	
10/16/02 14:45	1.17		2.43		1.19		0.93		1.25	
10/16/02 15:00	1.19		2.44		1.20		0.96		1.26	
10/16/02 15:15	1.21		2.44		1.20		0.98		1.28	
10/16/02 15:30	1.22		2.45		1.21		0.99		1.29	
10/16/02 15:45	1.24		2.47		1.23		1.00		1.31	
10/16/02 16:00	1.25		2.48		1.23		0.99		1.31	
10/16/02 16:15	1.25		2.47		1.24		1.04		1.33	
10/16/02 16:30	1.26		2.47		1.24		1.02		1.37	
10/16/02 16:45	1.29		2.48		1.24		1.02		1.40	
10/16/02 17:00	1.31		2.49		1.25		1.03		1.41	
10/16/02 17:15	1.30		2.49		1.24		1.06		1.42	
10/16/02 17:30	1.30		2.49		1.26		1.05		1.43	
10/16/02 17:45	1.32		2.50		1.27		1.08		1.43	
10/16/02 18:00	1.34		2.49		1.27		1.10		1.44	
10/16/02 18:15	1.38		2.50		1.27		1.12		1.43	
10/16/02 18:30	1.38		2.50		1.30		1.19		1.44	

Date and Time	BELLETOD 15-Minute Stage (ft)	BELLETOD Comment	BELLE5 15-Minute Stage (ft)	BELLE5 Comment	BELLEGIG 15-Minute Stage (ft)	BELLEGIG Comment	BELLOST 15-Minute Stage (ft)	BELLOST Comment	SENECA 15-Minute Stage (ft)	SENECA Comment
10/16/02 18:45	1.44		2.50		1.30		1.21		1.45	
10/16/02 19:00	1.45		2.51		1.30		1.28		1.48	
10/16/02 19:15	1.46		2.51		1.30		1.32		1.48	
10/16/02 19:30	1.46		2.53		1.30		1.28		1.48	
10/16/02 19:45	1.46		2.51		1.33		1.29		1.49	
10/16/02 20:00	1.49		2.51		1.32		1.34		1.48	
10/16/02 20:15	1.44		2.51		1.33		1.32		1.47	
10/16/02 20:30	1.44		2.50		1.32		1.37		1.48	
10/16/02 20:45	1.42		2.52		1.34		1.41		1.48	
10/16/02 21:00	1.42		2.51		1.33		1.43		1.47	
10/16/02 21:15	1.40		2.51		1.34		1.41		1.47	
10/16/02 21:30	1.37		2.50		1.34		1.41		1.46	
10/16/02 21:45	1.36		2.50		1.34		1.40		1.44	
10/16/02 22:00	1.36		2.51		1.34		1.41		1.45	
10/16/02 22:15	1.35		2.51		1.34		1.38		1.44	
10/16/02 22:30	1.32		2.50		1.35		1.39		1.44	
10/16/02 22:45	1.31		2.50		1.34		1.39		1.44	
10/16/02 23:00	1.29		2.51		1.34		1.39		1.43	
10/16/02 23:15	1.29		2.50		1.35		1.45		1.43	
10/16/02 23:30	1.28		2.50		1.35		1.41		1.43	
10/16/02 23:45	1.28		2.51		1.35		1.41		1.43	
10/16/02 23:59	1.27		2.50		1.35		1.42		1.43	
10/17/02 0:15	1.26		2.50		1.35		1.39		1.43	
10/17/02 0:30	1.26		2.49		1.36		1.41		1.43	
10/17/02 0:45	1.25		2.49		1.36		1.42		1.42	
10/17/02 1:00	1.24		2.49		1.36		1.41		1.44	
10/17/02 1:15	1.24		2.49		1.35		1.41		1.44	
10/17/02 1:30	1.23		2.48		1.37		1.41		1.43	
10/17/02 1:45	1.23		2.49		1.38		1.39		1.43	
10/17/02 2:00	1.22		2.47		1.38		1.39		1.44	
10/17/02 2:15	1.22		2.47		1.39		1.40		1.45	
10/17/02 2:30	1.22		2.47		1.39		1.39		1.45	
10/17/02 2:45	1.22		2.48		1.39		1.42		1.45	
10/17/02 3:00	1.21		2.47		1.40		1.39		1.45	
10/17/02 3:15	1.21		2.47		1.41		1.41		1.45	
10/17/02 3:30	1.21		2.47		1.40		1.41		1.46	
10/17/02 3:45	1.20		2.47		1.41		1.41		1.44	
10/17/02 4:00	1.20		2.47		1.40		1.40		1.45	
10/17/02 4:15	1.20		2.46		1.42		1.40		1.45	
10/17/02 4:30	1.20		2.46		1.42		1.42		1.45	
10/17/02 4:45	1.20		2.45		1.41		1.43		1.45	
10/17/02 5:00	1.20		2.47		1.42		1.41		1.45	
10/17/02 5:15	1.19		2.45		1.42		1.41		1.45	
10/17/02 5:30	1.19		2.45		1.40		1.40		1.44	
10/17/02 5:45	1.19		2.46		1.41		1.41		1.44	
10/17/02 6:00	1.19		2.45		1.42		1.40		1.45	
10/17/02 6:15	1.19		2.45		1.41		1.40		1.44	
10/17/02 6:30	1.18		2.45		1.41		1.40		1.44	
10/17/02 6:45	1.18		2.46		1.42		1.40		1.44	
10/17/02 7:00	1.18		2.44		1.42		1.41		1.44	
10/17/02 7:15	1.18		2.44		1.42		1.40		1.44	
10/17/02 7:30	1.18		2.45		1.41		1.38		1.43	
10/17/02 7:45	1.18		2.45		1.42		1.39		1.44	

Date and Time	BELLETOD		BELLE5		BELLEGIG		BELLOST		SENECA	
	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment
10/17/02 8:00	1.18		2.44		1.41		1.40		1.44	
10/17/02 8:15	1.18		2.44		1.42		1.41		1.44	
10/17/02 8:30	1.18		2.44		1.42		1.40		1.43	
10/17/02 8:45	1.18		2.45		1.41		1.38		1.44	
10/17/02 9:00	1.17		2.44		1.40		1.39		1.43	
10/17/02 9:15	1.17		2.45		1.40		1.40		1.43	
10/17/02 9:30	1.17	C	2.44		1.41		1.38		1.43	
10/17/02 9:45	1.17	C	2.43		1.42		1.39		1.43	
10/17/02 10:00	1.17	C	2.43	C	1.41		1.39		1.43	
10/17/02 10:15	1.17	C	2.43	C	1.41		1.39		1.43	
10/17/02 10:30	1.16	C	2.43	C	1.40		1.38		1.44	
10/17/02 10:45	1.16	C	2.43	C	1.41		1.38		1.43	
10/17/02 11:00	1.16	C	2.42	C	1.41		1.39	C	1.43	
10/17/02 11:15	1.16	C	2.42	C	1.41		1.39	C	1.43	
10/17/02 11:30	1.16	C	2.42	C	1.41		1.39	C	1.43	C
10/17/02 11:45	1.16	C	2.42	C	1.40		1.40	C	1.43	C
10/17/02 12:00	1.16	C	2.42	C	1.40		1.37	C	1.43	C
10/17/02 12:15	1.16	C	2.43	C	1.40		1.39	C	1.43	C
10/17/02 12:30	1.16	C	2.42	C	1.41		1.39	C	1.43	C
10/17/02 12:45	1.16	C	2.41	C	1.42		1.38	C	1.43	C
10/17/02 13:00	1.16	C	2.41	C	1.40		1.38	C	1.43	C
10/17/02 13:15	1.16	C	2.41	C	1.40		1.38	C	1.42	C
10/17/02 13:30	1.16	C	2.41	C	1.42		1.38	C	1.43	C
10/17/02 13:45	1.16	C	2.41	C	1.40		1.39	C	1.43	C
10/17/02 14:00	1.16	C	2.41	C	1.40		1.39	C	1.42	C
10/17/02 14:15	1.16	C	2.41	C	1.40		1.39	C	1.43	C
10/17/02 14:30	1.15	C	2.41	C	1.40		1.36	C	1.43	C
10/17/02 14:45	1.14	C	2.41	C	1.40		1.37	C	1.43	C
10/17/02 15:00	1.15	C	2.41	C	1.41		1.37	C	1.43	C
10/17/02 15:15	1.14	C	2.41	C	1.39		1.37	C	1.43	C
10/17/02 15:30	1.14	C	2.41	C	1.40		1.37	C	1.44	C
10/17/02 15:45	1.14	C	2.40	C	1.40		1.38	C	1.43	C
10/17/02 16:00	1.14	C	2.40	C	1.40		1.38	C	1.43	C
10/17/02 16:15	1.14	C	2.40	C	1.40		1.38	C	1.43	C
10/17/02 16:30	1.14	C	2.40	C	1.39		1.38	C	1.44	C
10/17/02 16:45	1.14	C	2.40	C	1.40		1.37	C	1.44	C
10/17/02 17:00	1.14	C	2.40	C	1.39		1.38	C	1.44	C
10/17/02 17:15	1.14	C	2.40	C	1.40		1.38	C	1.44	C
10/17/02 17:30	1.14	C	2.39	C	1.40		1.36	C	1.43	C
10/17/02 17:45	1.14	C	2.40	C	1.39		1.37	C	1.44	C
10/17/02 18:00	1.14	C	2.40	C	1.39		1.36	C	1.44	C
10/17/02 18:15	1.14	C	2.39	C	1.39		1.37	C	1.45	C
10/17/02 18:30	1.14	C	2.39	C	1.40		1.36	C	1.44	C
10/17/02 18:45	1.14	C	2.39	C	1.39		1.38	C	1.44	C
10/17/02 19:00	1.14	C	2.40	C	1.39		1.38	C	1.44	C
10/17/02 19:15	1.14	C	2.39	C	1.39		1.37	C	1.44	C
10/17/02 19:30	1.14	C	2.40	C	1.39		1.38	C	1.44	C
10/17/02 19:45	1.14	C	2.40	C	1.38		1.38	C	1.45	C
10/17/02 20:00	1.14	C	2.39	C	1.39		1.38	C	1.45	C
10/17/02 20:15	1.14	C	2.39	C	1.39		1.37	C	1.45	C
10/17/02 20:30	1.16	C	2.40	C	1.40		1.38	C	1.45	C
10/17/02 20:45	1.18	C	2.40	C	1.38		1.38	C	1.44	C
10/17/02 21:00	1.18	C	2.39	C	1.38		1.36	C	1.44	C

Date and Time	BELLETOD		BELLE5		BELLEGIG		BELLOST		SENECA	
	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment	15-Minute Stage (ft)	Comment
10/17/02 21:15	1.18	C	2.39	C	1.39		1.37	C	1.45	C
10/17/02 21:30	1.18	C	2.39	C	1.38		1.38	C	1.45	C
10/17/02 21:45	1.18	C	2.40	C	1.39		1.36	C	1.44	C
10/17/02 22:00	1.18	C	2.39	C	1.39		1.35	C	1.45	C
10/17/02 22:15	1.17	C	2.39	C	1.38		1.38	C	1.45	C
10/17/02 22:30	1.17	C	2.39	C	1.37		1.37	C	1.44	C
10/17/02 22:45	1.17	C	2.39	C	1.38		1.35	C	1.44	C
10/17/02 23:00	1.17	C	2.39	C	1.38		1.35	C	1.45	C
10/17/02 23:15	1.16	C	2.39	C	1.38		1.36	C	1.45	C
10/17/02 23:30	1.16	C	2.38	C	1.37		1.36	C	1.44	C
10/17/02 23:45	1.16	C	2.39	C	1.37		1.36	C	1.44	C
10/17/02 23:59	1.16	C	2.38	C	1.37		1.36	C	1.44	C

Comments

E - (Estimated stage) the transducer stage did not have a corresponding staff plate reading for either the prior and/or post site visit, so the stage is considered estimated

C - (Corrected Stage) the transducer stage was corrected for drifting or debris accumulation on the stage control (leaves, twigs, etc)

NC - (Not Correlated) no water at site when transducer was installed, so no initial correlation/correction factor between the transducer and staff plate could be established

E/C - (Estimated and Corrected Stage) estimate of stage with a stage correction because the prior site visit had a stage below the stage plate and could not be correlated to the transducer reading and the post site visit needed a new correction factor because the transducer stage and staff plate reading differed by more than 0.03ft

L - (Lost Data) Logging equipment sufferred an error and data was not recoverable

Stage Values

Included in this table is the 15-minute data from midnight before the first storm sample is collected until midnight after the last storm sample is collected. For each storm event time period, not all sites were sampled and not all samples collected by the autosampler were submitted to the laboratory. BELLETOD has never been storm event sampled. Raw transducer stage values were corrected back to the last site visit if the transducer stage value differed from the staff plate values by more than 0.03 ft. Controls at some of the sites have changed considerably because of storm events, so discharge values for a given stage have changed over time. Construction of the rating tables for the sites are in progress.

At BELLETOD, between 5/11/01 and 4/16/02, the transducer stage had no measureable water below approximately 0.20 ft. On 4/16/02, the transducer was lowered approximately 0.20 ft, so that a zero value on the staff plate had a corresponding transducer stage of 0.00 ft.

At BELLE5, for the entire period of record, there is no measureable water at the transducer when the stage goes below 0.45ft and transducer values below 1.00 ft are below the bottom of the staff plate. The staff plate had 1.00 ft added to the reading because the transducer is positioned below the bottom of the staff plate

The City of New York
Department of Environmental Protection

71 Smith Avenue
Kingston, New York
12401

Christopher O. Ward
Commissioner

Bureau of Water Supply

Michael A. Principe, Ph.D.
Deputy Commissioner

Tel (845) 340-7500
Fax (845) 340-7504

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEP
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(718) DEP-HELP

November 14, 2002

RECEIVED
NOV 18 2002
The LA Group

Kevin J. Franke
The LA Group
40 Long Alley
Saratoga Springs, NY 12866

Re: Request for Additional NYCDEP-Collected Data

Dear Mr. Franke:

Enclosed, please find data requested in your letter of October 22, 2002. In addition to our 2001 report and supplemental data, please find enclosed a laboratory methods table, a comments table, and a key to sampling locations.

Please feel free to call me on any of this material.

Sincerely,

Jeffrey D. Graf
Program Manager

Attachments

xc (w/o attachments): Principe, Hoffer, Stern, Lawrence, Cutietta Olson

crossroads ventures llc

DRAFT
Environmental Impact Statement

Appendix 18

Water Quality Data
Addendum 2003

The Belleayre Resort at Catskill Park

The City of New York
Department of Environmental Protection
71 Smith Avenue
Kingston, New York
12401

Christopher O. Ward
Commissioner

Bureau of Water Supply
Michael A. Principe, Ph.D.
Deputy Commissioner

Tel (845) 340-7532
Fax (845) 340-7504

RECEIVED
JUL 31 2003
The LA Group

July 29, 2003

TO: Tracy Lawrence

FROM: Kelly Seelbach, Upstate DWQC Data Coordinator K Seelbach

SUBJECT: Requested Data

****

Request Number: O03-31

Requested By: Kevin Franke
The LA Group for Crossroads Ventures
40 Long Alley
Saratoga, NY 12866

Data Requested: A printout of all water quality monitoring data for WQIA sample sites BELLETOD, BELLE5, BELLE2, BELLEGIG, BELLOST, and SENECA for the period January 1, 2002 – March 31, 2003.

Date Needed By: July 25, 2003

Date Request Received: July 16, 2003

Date Request Completed: July 25, 2003

Reason for Request: Data sharing agreement with project developer.

Enclosed please find the information requested by Mr. Franke. Also included are a laboratory methods table, a comments table, a coliforms coding table, and a key to sampling locations. Data for 2002 have been checked and corrected. All data for 2003 are presently being entered into the computer and have not been reviewed. If there are any questions regarding the information, he will need to speak with Karen Hacker, Director, Ben Nesin Laboratory, 2389 Route 28A, Shokan, NY 12481, 845-657-7617.

This request contains 28 pages.

Enc.
KCS:kcs
xc:D. Smith (w/o enc.)
C. Olson (w/o enc.)
K. Hacker (w/o enc.)
L. Emery (w/o enc.)
K. Franke (w/o enc.)
file

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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The City of New York
Department of Environmental Protection

71 Smith Avenue
Kingston, New York
12401-3911

Christopher O. Ward
Commissioner

Bureau of Water Supply

Michael A. Principe, Ph.D.
Deputy Commissioner

Tel (914) 742-2001
Fax (914) 742-2027

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RECEIVED
AUG 0 4 2003
The LA Group

July 30, 2003

Kevin J. Franke, Associate
The LA Group, P.C.
40 Long Alley
Saratoga Springs, NY 12866

RE: DEP Water Quality Monitoring Data Request

Mr. Franke:
Please find the enclosed DEP water quality monitoring data for DEP's six (6) monitoring stations in the vicinity of the proposed Belleayre Resort at Catskill Park. These data represent samples collected by DEP from January 1, 2003 - March 31, 2003. In accordance with DEP's data quality procedures **data for samples collected in 2003 are considered provisional** as they have not been fully reviewed and approved.

If you have any questions regarding these data please contact me at (845)340-7522.

Sincerely,

Tracy Lawrence
Assistant Supervisor,
Water Quality Impact Assessment

NYC-DEP Bureau of Water Supply
Ben Nesin Laboratory, ELAP ID Number 10030
January 1, 2002 - March 31, 2003 WQIA Data

Site=BELLE2

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)	NH3-N (mg/l), Total NH3+NH4
02JAN2002	10:50		5.0	10.3	F.E.	Field	27	0.3	.	.	L.E.
15JAN2002	11:00		5.4	10.1	6.95	Field	29	0.3	.	.	0.03
29JAN2002	10:40		5.9	12.1	7.07	Field	29	0.5	.	.	0.02
12FEB2002	11:20		5.0	10.7	F.E.	Field	26	0.6	.	.	0.02
26FEB2002	10:50		6.0	11.3	6.74	Field	27	0.5	.	.	<0.02
12MAR2002	10:50		5.2	11.3	6.85	Field	27	0.7	.	.	0.02
26MAR2002	11:00		4.6	11.3	6.94	Field	26	0.3	.	.	<0.02
09APR2002	10:50		7.1	9.9	6.86	Field	25	0.4	.	.	<0.02
23APR2002	10:30		6.8	10.4	6.95	Field	28	0.4	.	.	0.02
07MAY2002	10:30		7.7	10.7	6.93	Field	26	0.4	.	.	<0.02
21MAY2002	10:20		6.9	9.9	6.83	Field	25	0.3	.	.	0.02
04JUN2002	10:50		8.0	10.1	7	Field	30	0.5	.	.	0.02
18JUN2002	10:40		9.1	10.3	6.89	Field	30	0.3	.	.	<0.02
01JUL2002	11:10		10.0	9.9	6.98	Field	34	0.3	.	.	<0.02
16JUL2002	10:50		10.4	9.8	7.03	Field	34	0.3	.	.	<0.02
30JUL2002	10:30		12.3	9.0	7.18	Field	39	0.7	.	.	<0.02
13AUG2002	10:20		13.6	7.6	7.07	Field	40	0.3	.	.	0.02
27AUG2002	10:30		13.6	7.6	7.06	Field	44	0.3	.	.	<0.02
10SEP2002	10:40		13.8	7.1	7.21	Field	43	0.2	.	.	<0.02
24SEP2002	10:40		12.1	8.3	6.98	Field	44	0.2	.	.	<0.02
15OCT2002	11:30		8.9	9.9	7.04	Field	32	0.5	.	.	<0.02
12NOV2002	11:10		8.1	10.4	F.E.	Field	30	0.2	.	.	<0.02
10DEC2002	11:10		5.1	10.8	F.E.	Field	27	0.3	.	.	<0.02
14JAN2003	11:20		4.9	11.7	F.E.	Field	24	0.2	0.7	5	<0.02
11FEB2003	11:30		3.6	11.3	6.81	Field	28	0.2	0.6	5.6	0.02
11MAR2003	11:20		4.3	11.5	6.85	Field	27	0.3	L.E.	L.E.	<0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
02JAN2002	<0.002	0.39	<6	.	<0.5	<1		020019	
15JAN2002	<0.002	0.37	8	.	<0.5	<1		020134	
29JAN2002	<0.002	0.36	<6	.	<0.5	<1		020229	
12FEB2002	<0.002	0.35	12	.	<0.5	8		020371	
26FEB2002	<0.002	0.28	9	.	0.6	<1		020479	
12MAR2002	<0.002	0.3	6	.	0.6	<1		020606	
26MAR2002	<0.002	0.26	8	.	0.6	<1		020716	
09APR2002	<0.002	0.19	6	.	<0.5	<1		021013	
23APR2002	<0.002	0.19	7	.	<0.5	<1		021154	
07MAY2002	<0.002	0.15	8	.	0.6	<1		021359	
21MAY2002	<0.002	0.13	11	.	0.6	<1		021566	
04JUN2002	<0.002	0.18	10	.	<0.5	5		021718	
18JUN2002	<0.002	0.14	6	.	0.6	3		021879	
01JUL2002	<0.002	0.2	10	.	<0.5	1		021992	
16JUL2002	<0.002	0.25	15	.	<0.5	<1		022183	
30JUL2002	<0.002	0.27	11	.	<0.5	5		022347	
13AUG2002	<0.002	0.24	10	.	0.6	19		022511	
27AUG2002	<0.002	0.24	12	.	0.6	23		022634	
10SEP2002	<0.002	0.24	9	.	0.6	11		022799	
24SEP2002	<0.002	0.37	10	.	<0.5	8		023034	
15OCT2002	<0.002	0.2	7	.	<0.6	8		023352	
12NOV2002	0.003	0.18	<6	.	<0.5	<1		023899	
10DEC2002	<0.002	0.18	<6	.	<0.5	<1		025679	
14JAN2003	<0.002	0.17	9	<2	L.E.	<1		030113	
11FEB2003	<0.002	0.26	6	7	<0.5	<1		030584	
11MAR2003	<0.002	0.27	8	L.E.	0.8	47		030794	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLE5

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
02JAN2002	9:50		0.6	12.6	F.E.	Field	46	0.2	.	.
15JAN2002	10:00		1.0	11.9	7.01	Field	47	0.2	.	.
29JAN2002	9:50		1.8	13.5	7	Field	54	0.2	.	.
12FEB2002	10:20		0.2	12.9	F.E.	Field	46	0.4	.	.
26FEB2002	10:00		2.1	12.2	6.84	Field	47	0.3	.	.
12MAR2002	9:40		0.8	13.0	6.88	Field	44	0.3	.	.
26MAR2002	9:30		1.6	12.4	6.96	Field	47	0.1	.	.
09APR2002	10:00		4.3	11.9	7.07	Field	43	0.1	.	.
23APR2002	9:50		5.1	11.2	7.04	Field	48	0.1	.	.
28APR2002	9:15	Autosampler	.	.	.		.	0.4	.	.
28APR2002	19:45	Autosampler	.	.	.		.	0.4	.	.
28APR2002	20:45	Autosampler	.	.	.		.	2.7	.	.
28APR2002	21:46	Autosampler	.	.	.		.	1.3	.	.
28APR2002	22:47	Autosampler	.	.	.		.	0.5	.	.
28APR2002	23:48	Autosampler	.	.	.		.	0.4	.	.
28APR2002	1:50	Autosampler	.	.	.		.	0.4	.	.
28APR2002	2:51	Autosampler	.	.	.		.	0.3	.	.
28APR2002	3:52	Autosampler	.	.	.		.	0.3	.	.
28APR2002	5:54	Autosampler	.	.	.		.	0.5	.	.
28APR2002	6:55	Autosampler	.	.	.		.	0.4	.	.
28APR2002	7:56	Autosampler	.	.	.		.	0.3	.	.
29APR2002	0:49	Autosampler	.	.	.		.	0.5	.	.
29APR2002	4:53	Autosampler	.	.	.		.	0.3	.	.
29APR2002	8:57	Autosampler	.	.	.		.	0.3	.	.
07MAY2002	9:50		7.7	11.0	7.08	Field	46	0.3	.	.
21MAY2002	9:40		4.9	11.4	6.96	Field	41	0.3	.	.
04JUN2002	9:50		8.3	10.5	7.07	Field	49	0.1	.	.
18JUN2002	10:00		9.7	10.2	6.98	Field	46	0.3	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
02JAN2002	L.E.	<0.002	0.23	<6	.	<0.5	<1		020017	
15JAN2002	0.03	<0.002	0.2	<6	.	<0.5	<1		020132	
29JAN2002	0.02	<0.002	0.26	<6	.	<0.5	<1		020227	
12FEB2002	0.02	<0.002	0.34	8	.	0.8	<1		020369	
26FEB2002	<0.02	<0.002	0.2	<6	.	<0.5	<1		020477	
12MAR2002	0.02	<0.002	0.32	<6	.	<0.5	<1		020604	
26MAR2002	<0.02	<0.002	0.19	4	.	<0.5	<1		020714	
09APR2002	<0.02	<0.002	0.18	<6	.	<0.5	<1		021011	
23APR2002	0.02	0.002	0.13	<6	.	<0.5	<1		021152	
28APR2002	0.02	<0.002	0.15	10	.	1	.		021196	
28APR2002	0.02	<0.002	0.15	10	.	1.2	.		021197	
28APR2002	0.02	<0.002	0.15	20	.	12	.		021198	
28APR2002	0.02	<0.002	0.17	12	.	3	.		021199	
28APR2002	0.02	<0.002	0.17	9	.	1.2	.		021200	
28APR2002	0.02	<0.002	0.18	7	.	1	.		021201	
28APR2002	0.02	<0.002	0.19	7	.	1	.		021203	
28APR2002	0.02	<0.002	0.2	7	.	0.6	.		021204	
28APR2002	0.02	<0.002	0.2	8	.	<0.5	.		021205	
28APR2002	0.02	<0.002	0.22	8	.	0.6	.		021207	
28APR2002	0.02	<0.002	0.22	8	.	0.6	.		021208	
28APR2002	0.02	<0.002	0.22	8	.	0.6	.		021209	
29APR2002	0.02	<0.002	0.18	7	.	1.4	.		021202	
29APR2002	0.02	<0.002	0.21	7	.	1	.		021206	
29APR2002	0.02	<0.002	0.23	6	.	0.6	.		021210	
07MAY2002	<0.02	<0.002	0.12	6	.	<0.6	2		021357	
21MAY2002	0.02	<0.002	0.12	8	.	<0.5	<1		021564	
04JUN2002	<0.02	<0.002	0.1	<6	.	<0.5	3		021716	
18JUN2002	<0.02	<0.002	0.1	<6	.	<0.5	1		021877	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLE5
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
01JUL2002	10:10		12.9	8.2	7.09	Field	56	0.3	.	.
16JUL2002	9:50		13.9	7.0	7.3	Field	57	0.2	.	.
27SEP2002	22:15	Autosampler	.	.	.		.	6.2	.	.
27SEP2002	23:16	Autosampler	.	.	.		.	1.7	.	.
28SEP2002	0:17	Autosampler	.	.	.		.	0.6	.	.
28SEP2002	1:18	Autosampler	.	.	.		.	0.5	.	.
28SEP2002	2:19	Autosampler	.	.	.		.	0.4	.	.
28SEP2002	3:20	Autosampler	.	.	.		.	0.3	.	.
28SEP2002	4:21	Autosampler	.	.	.		.	0.4	.	.
28SEP2002	5:22	Autosampler	.	.	.		.	0.3	.	.
28SEP2002	6:23	Autosampler	.	.	.		.	0.3	.	.
28SEP2002	7:24	Autosampler	.	.	.		.	0.4	.	.
15OCT2002	10:10		7.4	10.3	6.94	Field	38	0.3	.	.
16OCT2002	12:00	Autosampler	.	.	.		.	0.3	.	.
16OCT2002	13:45	Autosampler	.	.	.		.	0.6	.	.
16OCT2002	14:46	Autosampler	.	.	.		.	1.9	.	.
16OCT2002	15:47	Autosampler	.	.	.		.	2.6	.	.
16OCT2002	16:48	Autosampler	.	.	.		.	2.9	.	.
16OCT2002	17:49	Autosampler	.	.	.		.	2.8	.	.
16OCT2002	18:50	Autosampler	.	.	.		.	8.2	.	.
16OCT2002	19:51	Autosampler	.	.	.		.	4.7	.	.
16OCT2002	20:52	Autosampler	.	.	.		.	3.3	.	.
16OCT2002	21:53	Autosampler	.	.	.		.	4.9	.	.
16OCT2002	23:55	Autosampler	.	.	.		.	2.3	.	.
17OCT2002	1:57	Autosampler	.	.	.		.	2.2	.	.
17OCT2002	3:59	Autosampler	.	.	.		.	2.2	.	.
17OCT2002	6:01	Autosampler	.	.	.		.	1.4	.	.
17OCT2002	8:03	Autosampler	.	.	.		.	1.1	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
01JUL2002	<0.02	<0.002	0.11	10	.	<0.5	5		021990	
16JUL2002	<0.02	<0.002	0.19	13	.	<0.5	9		022181	
27SEP2002	.	0.002	0.88	22	.	6.2	.		023187	
27SEP2002	.	<0.002	0.54	41	.	4.2	.		023188	
28SEP2002	.	<0.002	0.5	16	.	0.6	.		023189	
28SEP2002	.	<0.002	0.43	16	.	<0.5	.		023190	
28SEP2002	.	<0.002	0.38	14	.	<0.5	.		023191	
28SEP2002	.	<0.002	0.37	12	.	<0.5	.		023192	
28SEP2002	.	0.002	0.3	12	.	<0.5	.		023193	
28SEP2002	.	<0.002	0.28	10	.	<0.5	.		023194	
28SEP2002	.	<0.002	0.25	10	.	<0.5	.		023195	
28SEP2002	.	<0.002	0.23	13	.	<0.5	.		023196	
15OCT2002	<0.02	<0.002	0.16	<6	.	<0.6	1		023350	
16OCT2002	.	<0.002	0.1	<6	.	<0.5	.		023484	
16OCT2002	.	<0.002	0.1	11	.	3.4	.		023485	
16OCT2002	.	<0.002	0.1	14	.	8.4	.		023486	
16OCT2002	.	<0.002	0.12	25	.	16.2	.		023487	
16OCT2002	.	<0.002	0.15	23	.	13.6	.		023488	
16OCT2002	.	<0.002	0.17	23	.	15.4	.		023489	
16OCT2002	.	<0.002	0.2	56	.	40.6	.		023490	
16OCT2002	.	<0.002	0.22	43	.	33.2	.		023491	
16OCT2002	.	<0.002	0.25	27	.	15.8	.		023492	
16OCT2002	.	<0.002	0.25	17	.	11.4	.		023493	
16OCT2002	.	<0.002	0.23	14	.	4.2	.		023494	
17OCT2002	.	L.E.	L.E.	10	.	10.9	.		023495	
17OCT2002	.	L.E.	L.E.	8	.	4.6	.		023496	
17OCT2002	.	L.E.	L.E.	7	.	4	.		023497	
17OCT2002	.	L.E.	L.E.	<6	.	2.6	.		023498	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLE5
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
17OCT2002	9:43	Autosampler	.	.	.		.	1.1	.	.
12NOV2002	10:20		7.0	10.6	F.E.	Field	46	0.4	.	.
10DEC2002	10:00		0.8	12.2	F.E.	Field	44	0.2	.	.
14JAN2003	10:10		0.1	13.1	F.E.	Field	42	0.3	4.1	6.1
11FEB2003	10:10		0.6	9.7	6.69	Field	49	0.2	5.6	6.6
11MAR2003	10:10		0.9	11.3	6.4	Field	54	0.2	L.E.	L.E.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
17OCT2002	.	L.E.	L.E.	6	.	2.6	.		023499	
12NOV2002	<0.02	0.003	0.07	<6	.	<0.5	<1		023897	
10DEC2002	<0.02	<0.002	0.2	<6	.	<0.5	<1		025677	
14JAN2003	<0.02	<0.002	0.2	7	<2	L.E.	<1		030111	
11FEB2003	0.02	<0.002	0.29	<6	4	2.4	<1		030582	
11MAR2003	<0.02	<0.002	0.31	<6	L.E.	<0.5	<1		030792	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLEGIG

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
02JAN2002	10:20		3.2	12.4	F.E.	Field	29	0.2	.	.
15JAN2002	10:20		3.8	11.9	6.93	Field	31	0.6	.	.
29JAN2002	10:10		4.6	13.3	6.99	Field	31	0.3	.	.
12FEB2002	10:50		3.7	11.4	F.E.	Field	27	0.3	.	.
26FEB2002	10:20		4.8	11.6	6.75	Field	28	0.3	.	.
12MAR2002	10:20		4.0	11.8	6.76	Field	27	0.3	.	.
26MAR2002	9:50		4.3	11.8	6.88	Field	27	0.2	.	.
26MAR2002	10:44	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	11:44	Autosampler	.	.	.		.	0.2	.	.
26MAR2002	12:44	Autosampler	.	.	.		.	0.2	.	.
26MAR2002	13:44	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	14:44	Autosampler	.	.	.		.	0.2	.	.
26MAR2002	15:44	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	16:44	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	17:44	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	18:44	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	19:44	Autosampler	.	.	.		.	0.5	.	.
26MAR2002	20:44	Autosampler	.	.	.		.	0.8	.	.
26MAR2002	21:44	Autosampler	.	.	.		.	1.0	.	.
26MAR2002	22:44	Autosampler	.	.	.		.	0.6	.	.
26MAR2002	23:44	Autosampler	.	.	.		.	0.5	.	.
27MAR2002	0:44	Autosampler	.	.	.		.	0.4	.	.
27MAR2002	1:44	Autosampler	.	.	.		.	0.5	.	.
27MAR2002	2:44	Autosampler	.	.	.		.	0.4	.	.
27MAR2002	3:44	Autosampler	.	.	.		.	0.3	.	.
27MAR2002	4:44	Autosampler	.	.	.		.	0.3	.	.
27MAR2002	5:44	Autosampler	.	.	.		.	0.3	.	.
27MAR2002	6:44	Autosampler	.	.	.		.	0.3	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
02JAN2002	L.E.	<0.002	0.43	<6	.	<0.5	<1		020018	
15JAN2002	0.03	<0.002	0.42	11	.	1	14		020133	
29JAN2002	0.02	<0.002	0.46	10	.	<0.5	<1		020228	
12FEB2002	0.02	<0.002	0.49	16	.	<0.5	<1		020370	
26FEB2002	<0.02	<0.002	0.36	13	.	<0.5	1		020478	
12MAR2002	0.02	<0.002	0.42	9	.	<0.5	1		020605	
26MAR2002	<0.02	<0.002	0.32	12	.	<0.5	5		020715	
26MAR2002	.	<0.002	0.32	8	.	<0.5	.		020766	
26MAR2002	.	<0.002	0.32	9	.	<0.5	.		020767	
26MAR2002	.	<0.002	0.33	9	.	<0.5	.		020768	
26MAR2002	.	<0.002	0.33	9	.	<0.5	.		020769	
26MAR2002	.	<0.002	0.33	10	.	<0.5	.		020770	
26MAR2002	.	<0.002	0.33	10	.	<0.5	.		020771	
26MAR2002	.	<0.002	0.34	10	.	<0.5	.		020772	
26MAR2002	.	<0.002	0.36	11	.	<0.5	.		020773	
26MAR2002	.	<0.002	0.39	11	.	0.7	.		020774	
26MAR2002	.	<0.002	0.41	11	.	<0.5	.		020775	
26MAR2002	.	<0.002	0.39	12	.	1.5	.		020776	
26MAR2002	.	<0.002	0.38	14	.	2	.		020777	
26MAR2002	.	<0.002	0.38	12	.	1.1	.		020778	
26MAR2002	.	<0.002	0.38	14	.	0.7	.		020779	
27MAR2002	.	<0.002	0.4	13	.	0.9	.		020780	
27MAR2002	.	<0.002	0.42	13	.	1.1	.		020781	
27MAR2002	.	<0.002	0.43	12	.	0.7	.		020782	
27MAR2002	.	<0.002	0.45	13	.	0.9	.		020783	
27MAR2002	.	<0.002	0.44	12	.	<0.5	.		020784	
27MAR2002	.	<0.002	0.44	11	.	0.7	.		020785	
27MAR2002	.	<0.002	0.43	11	.	<0.5	.		020786	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
27MAR2002	7:44	Autosampler	.	.	.		.	0.3	.	.
27MAR2002	8:44	Autosampler	.	.	.		.	0.2	.	.
27MAR2002	9:44	Autosampler	.	.	.		.	0.2	.	.
09APR2002	10:20		6.2	11.0	6.83	Field	27	0.3	.	.
23APR2002	10:10		5.7	11.2	6.82	Field	27	0.2	.	.
07MAY2002	10:10		7.3	11.0	6.84	Field	27	0.4	.	.
21MAY2002	10:00		6.0	11.0	6.72	Field	25	0.2	.	.
04JUN2002	10:20		7.5	10.9	6.81	Field	29	0.2	.	.
18JUN2002	10:20		8.4	10.9	6.74	Field	28	0.4	.	.
01JUL2002	10:40		9.9	10.3	6.85	Field	32	0.2	.	.
16JUL2002	10:30		10.4	9.6	6.98	Field	34	0.1	.	.
23JUL2002	11:45	Autosampler	.	.	.		.	0.3	.	.
23JUL2002	13:30	Autosampler	.	.	.		.	6.2	.	.
23JUL2002	14:01	Autosampler	.	.	.		.	3.2	.	.
23JUL2002	14:32	Autosampler	.	.	.		.	0.9	.	.
23JUL2002	15:03	Autosampler	.	.	.		.	0.7	.	.
23JUL2002	15:34	Autosampler	.	.	.		.	0.5	.	.
23JUL2002	16:05	Autosampler	.	.	.		.	0.4	.	.
23JUL2002	16:36	Autosampler	.	.	.		.	0.3	.	.
23JUL2002	17:07	Autosampler	.	.	.		.	0.3	.	.
30JUL2002	10:10		13.1	8.6	7.11	Field	38	0.3	.	.
13AUG2002	10:00		13.5	8.5	6.8	Field	39	0.2	.	.
27AUG2002	10:00		13.4	7.9	6.77	Field	41	0.3	.	.
10SEP2002	10:00		13.6	8.1	6.95	Field	42	0.2	.	.
15SEP2002	8:15	Autosampler	.	.	.		.	0.3	.	.
15SEP2002	8:45	Autosampler	.	.	.		.	0.2	.	.
15SEP2002	9:46	Autosampler	.	.	.		.	0.3	.	.
15SEP2002	10:47	Autosampler	.	.	.		.	0.3	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
27MAR2002	.	<0.002	0.43	11	.	<0.5	.		020787	
27MAR2002	.	<0.002	0.42	11	.	<0.5	.		020788	
27MAR2002	.	<0.002	0.42	12	.	<0.5	.		020789	
09APR2002	<0.02	<0.002	0.3	11	.	<0.5	<1		021012	
23APR2002	0.02	<0.002	0.3	12	.	<0.5	<1		021153	
07MAY2002	0.02	<0.002	0.28	14	.	<0.5	18		021358	
21MAY2002	0.02	<0.002	0.25	15	.	<0.5	1		021565	
04JUN2002	0.02	<0.002	0.25	15	.	<0.5	<1		021717	
18JUN2002	<0.02	<0.002	0.25	12	.	<0.5	1		021878	
01JUL2002	<0.02	<0.002	0.25	16	.	<0.5	1		021991	
16JUL2002	<0.02	<0.002	0.28	23	.	<0.5	<1		022182	
23JUL2002	.	<0.002	0.33	18	.	0.2	.		022281	
23JUL2002	.	0.002	0.43	59	.	13.8	.		022282	
23JUL2002	.	0.002	0.47	70	.	6.6	.		022283	
23JUL2002	.	0.002	0.47	60	.	1.6	.		022284	
23JUL2002	.	<0.002	0.45	40	.	1	.		022285	
23JUL2002	.	<0.002	0.43	35	.	0.6	.		022286	
23JUL2002	.	<0.002	0.41	31	.	<0.5	.		022287	
23JUL2002	.	<0.002	0.4	28	.	0.6	.		022288	
23JUL2002	.	<0.002	0.4	30	.	<0.5	.		022289	
30JUL2002	<0.02	<0.002	0.36	16	.	<0.5	<1		022346	
13AUG2002	0.02	<0.002	0.4	20	.	<0.5	1		022510	
27AUG2002	<0.02	<0.002	0.55	22	.	0.6	1		022633	
10SEP2002	<0.02	<0.002	0.62	18	.	<0.5	4		022798	
15SEP2002	<0.02	<0.002	0.58	32	.	1.4	.		022863	
15SEP2002	<0.02	<0.002	0.58	28	.	0.6	.		022864	
15SEP2002	<0.02	<0.002	0.57	26	.	0.6	.		022865	
15SEP2002	<0.02	<0.002	0.57	25	.	0.6	.		022866	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
15SEP2002	11:48	Autosampler	.	.	.		.	0.1	.	.
15SEP2002	12:49	Autosampler	.	.	.		.	0.2	.	.
15SEP2002	13:50	Autosampler	.	.	.		.	0.2	.	.
15SEP2002	14:51	Autosampler	.	.	.		.	0.2	.	.
15SEP2002	15:52	Autosampler	.	.	.		.	0.3	.	.
15SEP2002	16:53	Autosampler	.	.	.		.	0.3	.	.
15SEP2002	17:54	Autosampler	.	.	.		.	0.1	.	.
15SEP2002	18:55	Autosampler	.	.	.		.	0.1	.	.
15SEP2002	19:56	Autosampler	.	.	.		.	0.2	.	.
15SEP2002	20:57	Autosampler	.	.	.		.	0.1	.	.
15SEP2002	21:58	Autosampler	.	.	.		.	0.2	.	.
15SEP2002	22:59	Autosampler	.	.	.		.	0.1	.	.
15SEP2002	23:59	Autosampler	.	.	.		.	0.2	.	.
16SEP2002	1:01	Autosampler	.	.	.		.	0.2	.	.
16SEP2002	2:02	Autosampler	.	.	.		.	0.4	.	.
16SEP2002	3:03	Autosampler	.	.	.		.	0.4	.	.
16SEP2002	4:04	Autosampler	.	.	.		.	0.2	.	.
16SEP2002	5:05	Autosampler	.	.	.		.	0.2	.	.
22SEP2002	4:15	Autosampler	.	.	.		.	1.2	.	.
22SEP2002	4:30	Autosampler	.	.	.		.	0.4	.	.
22SEP2002	5:31	Autosampler	.	.	.		.	2.3	.	.
22SEP2002	6:32	Autosampler	.	.	.		.	1.9	.	.
22SEP2002	7:33	Autosampler	.	.	.		.	1.0	.	.
22SEP2002	8:34	Autosampler	.	.	.		.	0.5	.	.
22SEP2002	9:35	Autosampler	.	.	.		.	0.4	.	.
22SEP2002	10:36	Autosampler	.	.	.		.	0.4	.	.
22SEP2002	11:37	Autosampler	.	.	.		.	0.2	.	.
22SEP2002	12:38	Autosampler	.	.	.		.	0.3	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
15SEP2002	<0.02	<0.002	0.56	24	.	<0.5	.		022867	
15SEP2002	<0.02	<0.002	0.56	24	.	<0.5	.		022868	
15SEP2002	<0.02	<0.002	0.56	27	.	0.6	.		022869	
15SEP2002	<0.02	<0.002	0.56	23	.	<0.5	.		022870	
15SEP2002	<0.02	<0.002	0.56	23	.	0.6	.		022871	
15SEP2002	<0.02	<0.002	0.58	41	.	4.3	.		022872	
15SEP2002	<0.02	<0.002	0.59	26	.	1	.		022873	
15SEP2002	<0.02	<0.002	0.59	25	.	1	.		022874	
15SEP2002	<0.02	<0.002	0.58	23	.	<0.5	.		022875	
15SEP2002	<0.02	<0.002	0.58	24	.	<0.5	.		022876	
15SEP2002	<0.02	<0.002	0.58	25	.	0.6	.		022877	
15SEP2002	<0.02	<0.002	0.58	31	.	<0.5	.		022878	
15SEP2002	<0.02	<0.002	0.58	26	.	<0.5	.		022879	
16SEP2002	<0.02	<0.002	0.58	28	.	0.8	.		022880	
16SEP2002	<0.02	<0.002	0.58	35	.	7.1	.		022881	
16SEP2002	0.02	<0.002	0.65	36	.	6	.		022882	
16SEP2002	0.02	<0.002	0.67	27	.	1	.		022883	
16SEP2002	0.02	<0.002	0.67	27	.	2.6	.		022884	
22SEP2002	<0.02	0.002	0.6	36	.	4.6	.		022956	
22SEP2002	<0.02	0.002	0.6	28	.	1	.		022957	
22SEP2002	<0.02	0.002	0.61	52	.	10.8	.		022958	
22SEP2002	<0.02	0.002	0.7	39	.	4.6	.		022959	
22SEP2002	<0.02	0.002	0.76	31	.	2.8	.		022960	
22SEP2002	<0.02	<0.002	0.73	25	.	1.4	.		022961	
22SEP2002	<0.02	0.002	0.71	22	.	0.7	.		022962	
22SEP2002	<0.02	<0.002	0.7	22	.	0.8	.		022963	
22SEP2002	<0.02	<0.002	0.68	21	.	0.8	.		022964	
22SEP2002	<0.02	<0.002	0.68	21	.	<0.5	.		022965	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
22SEP2002	13:39	Autosampler	.	.	.		.	0.3	.	.
22SEP2002	14:40	Autosampler	.	.	.		.	0.3	.	.
22SEP2002	15:41	Autosampler	.	.	.		.	0.2	.	.
22SEP2002	16:42	Autosampler	.	.	.		.	0.2	.	.
22SEP2002	17:43	Autosampler	.	.	.		.	0.3	.	.
22SEP2002	18:44	Autosampler	.	.	.		.	0.4	.	.
22SEP2002	19:45	Autosampler	.	.	.		.	0.3	.	.
22SEP2002	20:46	Autosampler	.	.	.		.	0.3	.	.
22SEP2002	21:47	Autosampler	.	.	.		.	0.4	.	.
22SEP2002	22:48	Autosampler	.	.	.		.	0.4	.	.
22SEP2002	23:49	Autosampler	.	.	.		.	0.4	.	.
23SEP2002	0:50	Autosampler	.	.	.		.	0.2	.	.
23SEP2002	1:51	Autosampler	.	.	.		.	0.2	.	.
23SEP2002	2:52	Autosampler	.	.	.		.	0.4	.	.
24SEP2002	10:20		11.9	8.5	6.69	Field	40	0.2	.	.
26SEP2002	19:45	Autosampler	.	.	.		.	0.2	.	.
26SEP2002	20:30	Autosampler	.	.	.		.	0.2	.	.
26SEP2002	21:31	Autosampler	.	.	.		.	0.3	.	.
26SEP2002	22:32	Autosampler	.	.	.		.	0.3	.	.
26SEP2002	23:33	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	0:34	Autosampler	.	.	.		.	0.1	.	.
27SEP2002	1:35	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	2:36	Autosampler	.	.	.		.	0.3	.	.
27SEP2002	3:37	Autosampler	.	.	.		.	0.1	.	.
27SEP2002	4:38	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	5:39	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	6:40	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	7:41	Autosampler	.	.	.		.	0.2	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
22SEP2002	<0.02	<0.002	0.67	22	.	<0.5	.		022966	
22SEP2002	<0.02	<0.002	0.66	20	.	<0.5	.		022967	
22SEP2002	<0.02	<0.002	0.65	20	.	<0.5	.		022968	
22SEP2002	<0.02	<0.002	0.64	20	.	1.2	.		022969	
22SEP2002	<0.02	<0.002	0.65	24	.	0.5	.		022970	
22SEP2002	<0.02	<0.002	0.64	22	.	<0.5	.		022971	
22SEP2002	<0.02	<0.002	0.64	20	.	<0.5	.		022972	
22SEP2002	<0.02	<0.002	0.63	22	.	<0.5	.		022973	
22SEP2002	<0.02	<0.002	0.63	19	.	<0.5	.		022974	
22SEP2002	<0.02	<0.002	0.63	19	.	0.6	.		022975	
22SEP2002	<0.02	<0.002	0.63	19	.	<0.5	.		022976	
23SEP2002	<0.02	<0.002	0.63	19	.	<0.5	.		022977	
23SEP2002	<0.02	<0.002	0.63	20	.	<0.5	.		022978	
23SEP2002	<0.02	<0.002	0.63	20	.	<0.5	.		022979	
24SEP2002	<0.02	<0.002	0.63	20	.	<0.5	2		023033	
26SEP2002	.	<0.002	0.6	21	.	1.2	.		023079	
26SEP2002	.	<0.002	0.6	21	.	<1.0	.		023080	
26SEP2002	.	0.003	0.59	22	.	1	.		023081	
26SEP2002	.	<0.002	0.6	20	.	0.6	.		023082	
26SEP2002	.	<0.002	0.6	20	.	2.4	.		023083	
27SEP2002	.	<0.002	0.6	19	.	<0.5	.		023084	
27SEP2002	.	<0.002	0.61	20	.	<0.5	.		023085	
27SEP2002	.	<0.002	0.6	21	.	0.6	.		023086	
27SEP2002	.	<0.002	0.61	21	.	0.9	.		023087	
27SEP2002	.	<0.002	0.6	24	.	0.8	.		023088	
27SEP2002	.	<0.002	0.61	21	.	0.6	.		023089	
27SEP2002	.	<0.002	0.62	21	.	<0.5	.		023090	
27SEP2002	.	<0.002	0.61	23	.	0.6	.		023091	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
27SEP2002	8:42	Autosampler	.	.	.		.	0.4	.	.
27SEP2002	9:47	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	10:48	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	11:49	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	12:50	Autosampler	.	.	.		.	0.3	.	.
27SEP2002	13:51	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	14:52	Autosampler	.	.	.		.	0.1	.	.
27SEP2002	15:53	Autosampler	.	.	.		.	0.3	.	.
27SEP2002	16:54	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	17:55	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	18:56	Autosampler	.	.	.		.	0.4	.	.
27SEP2002	19:57	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	20:58	Autosampler	.	.	.		.	0.2	.	.
27SEP2002	21:59	Autosampler	.	.	.		.	5.0	.	.
27SEP2002	23:00	Autosampler	.	.	.		.	1.5	.	.
28SEP2002	0:01	Autosampler	.	.	.		.	0.5	.	.
28SEP2002	1:02	Autosampler	.	.	.		.	0.3	.	.
28SEP2002	2:03	Autosampler	.	.	.		.	0.3	.	.
28SEP2002	3:04	Autosampler	.	.	.		.	0.2	.	.
28SEP2002	4:05	Autosampler	.	.	.		.	0.2	.	.
28SEP2002	5:06	Autosampler	.	.	.		.	0.2	.	.
28SEP2002	6:07	Autosampler	.	.	.		.	0.2	.	.
28SEP2002	7:08	Autosampler	.	.	.		.	0.2	.	.
28SEP2002	8:09	Autosampler	.	.	.		.	0.2	.	.
28SEP2002	9:10	Autosampler	.	.	.		.	0.3	.	.
15OCT2002	10:50		7.7	10.5	6.96	Field	27	0.4	.	.
16OCT2002	12:15	Autosampler	.	.	.		.	0.8	.	.
16OCT2002	13:30	Autosampler	.	.	.		.	0.5	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
27SEP2002	.	<0.002	0.62	20	.	<0.5	.		023092	
27SEP2002	.	<0.002	0.61	20	.	<0.5	.		023138	
27SEP2002	.	<0.002	0.6	20	.	<0.5	.		023139	
27SEP2002	.	<0.002	0.6	20	.	<0.5	.		023140	
27SEP2002	.	<0.002	0.6	20	.	<0.5	.		023141	
27SEP2002	.	<0.002	0.61	19	.	<0.5	.		023142	
27SEP2002	.	<0.002	0.6	22	.	<0.5	.		023143	
27SEP2002	.	<0.002	0.59	20	.	<0.5	.		023144	
27SEP2002	.	<0.002	0.6	19	.	<0.5	.		023145	
27SEP2002	.	<0.002	0.61	19	.	<0.5	.		023146	
27SEP2002	.	<0.002	0.62	26	.	0.5	.		023147	
27SEP2002	.	<0.002	0.62	22	.	<0.5	.		023148	
27SEP2002	.	<0.002	0.61	21	.	<0.5	.		023149	
27SEP2002	.	<0.002	0.52	55	.	8.6	.		023150	
27SEP2002	.	<0.002	0.67	29	.	1	.		023151	
28SEP2002	.	<0.002	0.74	27	.	L.E.	.		023152	
28SEP2002	.	<0.002	0.77	23	.	L.E.	.		023153	
28SEP2002	.	<0.002	0.83	22	.	L.E.	.		023154	
28SEP2002	.	<0.002	0.91	21	.	L.E.	.		023155	
28SEP2002	.	<0.002	0.99	21	.	L.E.	.		023156	
28SEP2002	.	<0.002	>1.0	21	.	L.E.	.		023157	
28SEP2002	.	<0.002	>1.0	21	.	L.E.	.		023158	
28SEP2002	.	<0.002	>1.0	22	.	L.E.	.		023159	
28SEP2002	.	<0.002	>1.0	19	.	L.E.	.		023160	
28SEP2002	.	<0.002	>1.0	20	.	L.E.	.		023161	
15OCT2002	<0.02	<0.002	0.53	16	.	<0.6	1		023351	
16OCT2002	.	<0.002	0.44	21	.	0.8	.		023500	
16OCT2002	.	<0.002	0.38	22	.	1	.		023501	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLEGIG
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
16OCT2002	14:31	Autosampler	.	.	.		.	0.8	.	.
16OCT2002	15:32	Autosampler	.	.	.		.	0.7	.	.
16OCT2002	16:33	Autosampler	.	.	.		.	0.8	.	.
16OCT2002	17:34	Autosampler	.	.	.		.	1.1	.	.
16OCT2002	18:35	Autosampler	.	.	.		.	1.4	.	.
16OCT2002	19:36	Autosampler	.	.	.		.	1.1	.	.
16OCT2002	20:37	Autosampler	.	.	.		.	1.0	.	.
16OCT2002	21:38	Autosampler	.	.	.		.	1.8	.	.
16OCT2002	22:39	Autosampler	.	.	.		.	1.1	.	.
16OCT2002	23:40	Autosampler	.	.	.		.	1.0	.	.
17OCT2002	0:41	Autosampler	.	.	.		.	1.0	.	.
17OCT2002	1:42	Autosampler	.	.	.		.	1.4	.	.
17OCT2002	2:43	Autosampler	.	.	.		.	1.3	.	.
17OCT2002	3:44	Autosampler	.	.	.		.	1.5	.	.
17OCT2002	4:45	Autosampler	.	.	.		.	1.7	.	.
17OCT2002	5:46	Autosampler	.	.	.		.	1.7	.	.
17OCT2002	6:47	Autosampler	.	.	.		.	1.3	.	.
17OCT2002	7:48	Autosampler	.	.	.		.	1.3	.	.
17OCT2002	8:49	Autosampler	.	.	.		.	0.9	.	.
17OCT2002	9:50	Autosampler	.	.	.		.	0.9	.	.
12NOV2002	10:40		7.4	10.7	F.E.	Field	29	0.2	.	.
10DEC2002	10:40		3.0	11.4	F.E.	Field	27	0.2	.	.
14JAN2003	10:40		2.7	12.1	F.E.	Field	25	0.2	0.8	5.2
11FEB2003	10:50		0.9	12.1	6.88	Field	29	0.1	0.6	5.6
11MAR2003	10:40		1.6	12.3	6.69	Field	28	0.2	L.E.	L.E.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
16OCT2002	.	<0.002	0.36	23	.	1.2	.		023502	
16OCT2002	.	<0.002	0.36	22	.	1.2	.		023503	
16OCT2002	.	<0.002	0.49	25	.	2	.		023504	
16OCT2002	.	<0.002	0.52	23	.	3.2	.		023505	
16OCT2002	.	<0.002	0.51	26	.	5.4	.		023506	
16OCT2002	.	<0.002	0.51	28	.	4.8	.		023507	
16OCT2002	.	<0.002	0.54	24	.	3.4	.		023508	
16OCT2002	.	<0.002	0.46	23	.	4.4	.		023509	
16OCT2002	.	<0.002	0.55	22	.	3	.		023510	
16OCT2002	.	<0.002	0.51	22	.	2.8	.		023511	
17OCT2002	.	L.E.	L.E.	21	.	2.8	.		023512	
17OCT2002	.	L.E.	L.E.	23	.	3.8	.		023513	
17OCT2002	.	L.E.	L.E.	24	.	4.8	.		023514	
17OCT2002	.	L.E.	L.E.	22	.	3.6	.		023515	
17OCT2002	.	L.E.	L.E.	22	.	3.6	.		023516	
17OCT2002	.	L.E.	L.E.	22	.	2.8	.		023517	
17OCT2002	.	L.E.	L.E.	22	.	3	.		023518	
17OCT2002	.	L.E.	L.E.	20	.	2.6	.		023519	
17OCT2002	.	L.E.	L.E.	19	.	2.2	.		023520	
17OCT2002	.	L.E.	L.E.	20	.	1.2	.		023521	
12NOV2002	<0.02	0.003	0.29	11	.	<0.5	<1		023898	
10DEC2002	<0.02	<0.002	0.26	9	.	<0.5	<1		025678	
14JAN2003	<0.02	<0.002	0.24	13	6	L.E.	1	E	030112	
11FEB2003	0.02	<0.002	0.32	11	11	<0.5	<1		030583	
11MAR2003	<0.02	<0.002	0.33	12	L.E.	<0.5	<1		030793	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLETOD

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)	NH3-N (mg/l), Total NH3+NH4
02JAN2002	9:30		1.9	12.0	F.E.	Field	40	0.8	.	.	L.E.
15JAN2002	9:40		2.2	11.4	6.55	Field	41	0.5	.	.	0.03
29JAN2002	9:30		3.5	11.3	6.73	Field	40	0.7	.	.	0.02
12FEB2002	9:50		2.6	12.1	F.E.	Field	36	1.0	.	.	0.02
26FEB2002	9:30		4.1	11.3	6.59	Field	40	1.1	.	.	0.02
12MAR2002	9:10		3.1	11.7	6.53	Field	40	0.8	.	.	0.02
26MAR2002	9:20		3.5	12.0	6.49	Field	41	1.0	.	.	0.02
09APR2002	9:30		6.2	11.2	6.7	Field	39	1.1	.	.	<0.02
23APR2002	9:30		6.0	10.9	6.6	Field	42	1.2	.	.	0.02
07MAY2002	9:20		8.2	10.6	6.58	Field	39	2.1	.	.	<0.02
21MAY2002	9:20		6.2	11.2	6.53	Field	35	1.6	.	.	0.02
04JUN2002	9:30		8.6	10.3	6.61	Field	44	2.4	.	.	<0.02
18JUN2002	9:30		9.1	10.3	6.51	Field	43	2.4	.	.	<0.02
01JUL2002	9:40		11.7	9.4	6.65	Field	49	3.4	.	.	0.02
16JUL2002	9:30		13.6	6.2	6.26	Field	49	0.8	.	.	<0.02
30JUL2002	9:40		14.3	3.2	5.9	Field	60	0.7	.	.	<0.02
15OCT2002	9:40		8.5	8.4	6.4	Field	56	1.5	.	.	<0.02
12NOV2002	9:50		7.4	10.5	F.E.	Field	43	0.7	.	.	<0.02
10DEC2002	9:40		2.0	11.9	F.E.	Field	40	0.4	.	.	<0.02
14JAN2003	9:40		1.9	12.4	F.E.	Field	36	0.6	4.3	5.8	<0.02
11FEB2003	9:30		0.2	12.7	6.51	Field	40	0.5	3.5	6.4	0.02
11MAR2003	9:40		0.6	12.6	6.5	Field	40	1.3	L.E.	L.E.	<0.02

Date Collected	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
02JAN2002	<0.002	0.24	<6	.	0.8	<1		020016	
15JAN2002	<0.002	0.23	<6	.	<0.5	<1		020131	
29JAN2002	0.002	0.23	8	.	<0.5	<1		020226	
12FEB2002	<0.002	0.21	11	.	0.6	<1		020368	
26FEB2002	<0.002	0.14	8	.	1.2	<1		020476	
12MAR2002	<0.002	0.19	8	.	0.6	<1		020603	
26MAR2002	<0.002	0.16	11	.	2.4	<1		020713	
09APR2002	<0.002	0.12	<6	.	1.4	1		021010	
23APR2002	<0.002	0.1	8	.	1.8	47		021151	
07MAY2002	<0.002	0.07	11	.	3	1		021356	
21MAY2002	<0.002	0.06	12	.	2.2	14		021563	
04JUN2002	<0.002	0.06	11	.	3.6	6		021715	
18JUN2002	<0.002	0.06	10	.	3.6	10		021876	
01JUL2002	<0.002	0.08	14	.	4.4	TNTC		021989	
16JUL2002	<0.002	0.18	18	.	1	7		022180	
30JUL2002	<0.002	0.24	11	.	<0.5	2		022345	
15OCT2002	<0.002	0.1	12	.	1.6	62		023349	
12NOV2002	<0.002	0.09	<6	.	0.8	2		023896	
10DEC2002	<0.002	0.15	<6	.	<0.5	1		025676	
14JAN2003	<0.002	0.14	15	<2	L.E.	9	E	030110	
11FEB2003	<0.002	0.22	<6	12	<0.5	<1		030581	
11MAR2003	<0.002	0.22	8	L.E.	2.2	<1		030791	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLOST

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
02JAN2002	11:20		2.3	12.3	F.E.	Field	25	0.3	.	.
15JAN2002	11:40		3.8	11.9	6.69	Field	27	0.2	.	.
29JAN2002	11:00		4.2	12.8	6.82	Field	26	0.5	.	.
12FEB2002	11:50		2.6	11.3	F.E.	Field	25	0.6	.	.
26FEB2002	11:10		5.0	11.5	6.67	Field	25	0.3	.	.
12MAR2002	11:20		3.0	12.3	6.55	Field	25	0.3	.	.
26MAR2002	11:20		3.2	12.0	6.54	Field	26	0.2	.	.
09APR2002	11:10		7.0	10.8	6.7	Field	25	0.3	.	.
23APR2002	10:50		6.9	11.2	6.57	Field	26	0.3	.	.
07MAY2002	11:00		8.8	10.9	6.58	Field	26	0.3	.	.
21MAY2002	10:50		6.6	10.9	6.6	Field	24	0.2	.	.
04JUN2002	11:20		9.5	10.5	6.6	Field	27	0.2	.	.
18JUN2002	11:20		10.9	10.0	6.6	Field	26	0.4	.	.
01JUL2002	11:50		11.5	9.8	6.46	Field	29	0.2	.	.
16JUL2002	11:30		11.8	8.8	6.51	Field	32	0.3	.	.
23JUL2002	13:30	Autosampler	.	.	.		.	0.9	.	.
23JUL2002	13:45	Autosampler	.	.	.		.	1.1	.	.
23JUL2002	14:16	Autosampler	.	.	.		.	25.0	.	.
23JUL2002	14:47	Autosampler	.	.	.		.	4.1	.	.
23JUL2002	15:18	Autosampler	.	.	.		.	0.9	.	.
23JUL2002	15:49	Autosampler	.	.	.		.	0.4	.	.
23JUL2002	16:20	Autosampler	.	.	.		.	0.3	.	.
23JUL2002	16:51	Autosampler	.	.	.		.	0.3	.	.
23JUL2002	17:22	Autosampler	.	.	.		.	0.3	.	.
30JUL2002	11:10		13.0	7.9	6.63	Field	37	0.2	.	.
13AUG2002	11:10		13.1	8.2	6.42	Field	41	0.1	.	.
27AUG2002	11:10		12.3	8.6	6.42	Field	45	0.3	.	.
10SEP2002	11:10		12.1	8.2	6.39	Field	45	0.3	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
02JAN2002	L.E.	<0.002	0.39	<6	.	<0.5	<1		020020	
15JAN2002	0.03	<0.002	0.38	12	.	<0.5	<1		020135	
29JAN2002	0.02	<0.002	0.39	<6	.	<0.5	1		020230	
12FEB2002	0.02	<0.002	0.54	15	.	0.6	<1		020372	
26FEB2002	<0.02	<0.002	0.35	10	.	<0.5	<1		020480	
12MAR2002	0.02	<0.002	0.45	6	.	<0.5	1		020607	
26MAR2002	<0.02	<0.002	0.33	8	.	<0.5	1		020717	
09APR2002	<0.02	<0.002	0.34	9	.	<0.5	<1		021014	
23APR2002	0.02	0.002	0.29	9	.	<0.5	<1		021155	
07MAY2002	0.02	<0.002	0.25	11	.	<0.5	2		021360	
21MAY2002	0.02	<0.002	0.21	12	.	<0.5	<1		021567	
04JUN2002	<0.02	<0.002	0.15	12	.	<0.5	<1		021719	
18JUN2002	<0.02	<0.002	0.15	8	.	<0.5	2		021880	
01JUL2002	<0.02	<0.002	0.1	10	.	<0.5	3		021993	
16JUL2002	<0.02	<0.002	0.13	13	.	<0.5	<1		022184	
23JUL2002	.	<0.002	0.2	16	.	2	.		022299	
23JUL2002	.	<0.002	0.24	19	.	1.8	.		022300	
23JUL2002	.	0.002	0.37	45	.	13.6	.		022301	
23JUL2002	.	<0.002	0.31	20	.	1.3	.		022302	
23JUL2002	.	<0.002	0.26	21	.	0.7	.		022303	
23JUL2002	.	<0.002	0.24	20	.	<0.5	.		022304	
23JUL2002	.	<0.002	0.23	16	.	<0.5	.		022305	
23JUL2002	.	<0.002	0.22	14	.	<0.5	.		022306	
23JUL2002	.	<0.002	0.21	14	.	<0.5	.		022307	
30JUL2002	<0.02	<0.002	0.2	12	.	<0.5	<1		022348	
13AUG2002	0.02	<0.002	0.22	12	.	<0.5	1		022512	
27AUG2002	<0.02	<0.002	0.31	15	.	3.2	1		022635	
10SEP2002	<0.02	<0.002	0.31	10	.	1.2	2		022800	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLOST
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
22SEP2002	4:15	Autosampler	.	.	.		.	0.5	.	.
22SEP2002	4:45	Autosampler	.	.	.		.	0.3	.	.
22SEP2002	5:46	Autosampler	.	.	.		.	210.0	.	.
22SEP2002	6:47	Autosampler	.	.	.		.	70.0	.	.
22SEP2002	7:48	Autosampler	.	.	.		.	4.0	.	.
22SEP2002	8:49	Autosampler	.	.	.		.	1.4	.	.
22SEP2002	9:50	Autosampler	.	.	.		.	0.9	.	.
22SEP2002	10:51	Autosampler	.	.	.		.	0.6	.	.
22SEP2002	11:52	Autosampler	.	.	.		.	0.6	.	.
22SEP2002	12:53	Autosampler	.	.	.		.	0.6	.	.
22SEP2002	13:54	Autosampler	.	.	.		.	0.5	.	.
24SEP2002	11:20		11.2	8.3	6.33	Field	45	0.2	.	.
26SEP2002	21:00	Autosampler	.	.	.		.	0.8	.	.
27SEP2002	0:45	Autosampler	.	.	.		.	2.9	.	.
27SEP2002	1:46	Autosampler	.	.	.		.	1.4	.	.
27SEP2002	2:47	Autosampler	.	.	.		.	7.3	.	.
27SEP2002	3:48	Autosampler	.	.	.		.	1.9	.	.
27SEP2002	4:49	Autosampler	.	.	.		.	2.8	.	.
27SEP2002	5:50	Autosampler	.	.	.		.	2.4	.	.
27SEP2002	6:51	Autosampler	.	.	.		.	1.2	.	.
27SEP2002	7:52	Autosampler	.	.	.		.	1.2	.	.
27SEP2002	8:53	Autosampler	.	.	.		.	0.9	.	.
27SEP2002	9:54	Autosampler	.	.	.		.	0.8	.	.
27SEP2002	10:15	Autosampler	.	.	.		.	0.8	.	.
27SEP2002	11:16	Autosampler	.	.	.		.	1.4	.	.
27SEP2002	12:17	Autosampler	.	.	.		.	1.4	.	.
27SEP2002	13:18	Autosampler	.	.	.		.	0.6	.	.
27SEP2002	14:19	Autosampler	.	.	.		.	0.3	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
22SEP2002	<0.02	0.002	0.3	14	.	1	.		022980	
22SEP2002	<0.02	<0.002	0.3	12	.	0.6	.		022981	
22SEP2002	<0.02	0.002	0.68	94	.	113.1	.		022982	
22SEP2002	<0.02	0.002	0.66	45	.	28.7	.		022983	
22SEP2002	<0.02	<0.002	0.49	17	.	1.2	.		022984	
22SEP2002	<0.02	0.002	0.43	13	.	0.5	.		022985	
22SEP2002	<0.02	<0.002	0.39	12	.	<0.5	.		022986	
22SEP2002	<0.02	<0.002	0.38	11	.	<0.5	.		022987	
22SEP2002	<0.02	<0.002	0.36	11	.	<0.5	.		022988	
22SEP2002	<0.02	<0.002	0.35	12	.	<0.5	.		022989	
22SEP2002	<0.02	<0.002	0.33	12	.	<0.5	.		022990	
24SEP2002	<0.02	<0.002	0.26	12	.	<0.5	<1		023035	
26SEP2002	.	<0.002	0.33	13	.	0.8	.		023102	
27SEP2002	.	<0.002	0.34	14	.	0.6	.		023103	
27SEP2002	.	<0.002	0.33	13	.	<0.5	.		023104	
27SEP2002	.	<0.002	0.36	14	.	2	.		023105	
27SEP2002	.	<0.002	0.37	13	.	<0.7	.		023106	
27SEP2002	.	<0.002	0.39	14	.	<0.5	.		023107	
27SEP2002	.	<0.002	0.41	13	.	<0.5	.		023108	
27SEP2002	.	<0.002	0.6	14	.	<0.5	.		023109	
27SEP2002	.	<0.002	0.38	12	.	<0.5	.		023110	
27SEP2002	.	<0.002	0.37	13	.	<0.5	.		023111	
27SEP2002	.	<0.002	0.37	13	.	<0.5	.		023112	
27SEP2002	.	<0.002	0.36	14	.	<0.5	.		023114	
27SEP2002	.	<0.002	0.37	14	.	<0.5	.		023115	
27SEP2002	.	<0.002	0.37	26	.	5.4	.		023116	
27SEP2002	.	<0.002	0.36	16	.	<0.5	.		023117	
27SEP2002	.	<0.002	0.36	16	.	<0.5	.		023118	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLOST
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
27SEP2002	15:20	Autosampler	.	.	.		.	0.4	.	.
27SEP2002	16:21	Autosampler	.	.	.		.	0.5	.	.
27SEP2002	17:22	Autosampler	.	.	.		.	1.2	.	.
27SEP2002	18:23	Autosampler	.	.	.		.	0.9	.	.
27SEP2002	19:24	Autosampler	.	.	.		.	0.6	.	.
27SEP2002	20:25	Autosampler	.	.	.		.	0.4	.	.
27SEP2002	21:26	Autosampler	.	.	.		.	6.3	.	.
27SEP2002	22:27	Autosampler	.	.	.		.	36.0	.	.
27SEP2002	23:28	Autosampler	.	.	.		.	4.2	.	.
28SEP2002	0:29	Autosampler	.	.	.		.	1.8	.	.
28SEP2002	1:30	Autosampler	.	.	.		.	1.4	.	.
28SEP2002	2:31	Autosampler	.	.	.		.	0.7	.	.
28SEP2002	3:32	Autosampler	.	.	.		.	0.8	.	.
28SEP2002	4:33	Autosampler	.	.	.		.	0.7	.	.
28SEP2002	5:34	Autosampler	.	.	.		.	0.5	.	.
28SEP2002	6:35	Autosampler	.	.	.		.	0.6	.	.
28SEP2002	7:36	Autosampler	.	.	.		.	0.6	.	.
28SEP2002	8:37	Autosampler	.	.	.		.	0.6	.	.
28SEP2002	9:38	Autosampler	.	.	.		.	0.6	.	.
15OCT2002	12:00		8.9	10.2	6.57	Field	26	0.4	.	.
16OCT2002	12:30	Autosampler	.	.	.		.	0.4	.	.
16OCT2002	13:30	Autosampler	.	.	.		.	1.5	.	.
16OCT2002	14:31	Autosampler	.	.	.		.	1.7	.	.
16OCT2002	15:32	Autosampler	.	.	.		.	5.8	.	.
16OCT2002	16:33	Autosampler	.	.	.		.	8.8	.	.
16OCT2002	17:34	Autosampler	.	.	.		.	21.0	.	.
16OCT2002	18:35	Autosampler	.	.	.		.	34.0	.	.
16OCT2002	19:36	Autosampler	.	.	.		.	33.0	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
27SEP2002	.	<0.002	0.36	16	.	<0.5	.		023119	
27SEP2002	.	<0.002	0.37	13	.	0.6	.		023120	
27SEP2002	.	<0.002	0.39	16	.	<0.5	.		023121	
27SEP2002	.	<0.002	0.4	15	.	<0.5	.		023122	
27SEP2002	.	<0.002	0.41	15	.	0.6	.		023123	
27SEP2002	.	<0.002	0.42	16	.	0.8	.		023124	
27SEP2002	.	<0.002	0.43	23	.	5.4	.		023125	
27SEP2002	.	<0.002	0.4	41	.	20.6	.		023126	
27SEP2002	.	<0.002	0.48	21	.	3.7	.		023127	
28SEP2002	.	<0.002	0.52	20	.	2.4	.		023128	
28SEP2002	.	<0.002	0.52	20	.	3.8	.		023129	
28SEP2002	.	<0.002	0.52	17	.	1.2	.		023130	
28SEP2002	.	<0.002	0.52	20	.	1.8	.		023131	
28SEP2002	.	<0.002	0.52	17	.	1.2	.		023132	
28SEP2002	.	<0.002	0.53	17	.	0.8	.		023133	
28SEP2002	.	<0.002	0.53	16	.	1	.		023134	
28SEP2002	.	<0.002	0.54	15	.	1.2	.		023135	
28SEP2002	.	<0.002	0.55	14	.	0.8	.		023136	
28SEP2002	.	<0.002	0.56	15	.	0.7	.		023137	
15OCT2002	<0.02	<0.002	0.29	12	.	<0.6	7		023353	
16OCT2002	.	<0.002	0.1	14	.	<0.5	.		023467	
16OCT2002	.	<0.002	0.35	16	.	1.2	.		023468	
16OCT2002	.	<0.002	0.33	19	.	2.3	.		023469	
16OCT2002	.	<0.002	0.28	26	.	17.9	.		023470	
16OCT2002	.	<0.002	0.36	44	.	49.6	.		023471	
16OCT2002	.	0.004	0.36	45	.	49.4	.		023472	
16OCT2002	.	0.003	0.41	66	.	70.7	.		023473	
16OCT2002	.	0.002	0.44	69	.	73.5	.		023474	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=BELLOST
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
16OCT2002	20:37	Autosampler	.	.	.		.	23.0	.	.
16OCT2002	21:38	Autosampler	.	.	.		.	13.0	.	.
16OCT2002	22:39	Autosampler	.	.	.		.	7.9	.	.
17OCT2002	0:41	Autosampler	.	.	.		.	4.0	.	.
17OCT2002	2:43	Autosampler	.	.	.		.	3.2	.	.
17OCT2002	4:45	Autosampler	.	.	.		.	2.6	.	.
17OCT2002	6:47	Autosampler	.	.	.		.	2.1	.	.
17OCT2002	8:49	Autosampler	.	.	.		.	1.6	.	.
17OCT2002	10:51	Autosampler	.	.	.		.	1.6	.	.
12NOV2002	11:30		7.3	10.9	F.E.	Field	25	0.3	.	.
10DEC2002	11:40		2.4	11.8	F.E.	Field	24	0.4	.	.
14JAN2003	11:50		1.8	12.5	F.E.	Field	23	0.5	0.6	5.5
11FEB2003	11:50		1.4	12.3	6.57	Field	26	0.2	0.7	5.9
11MAR2003	11:50		2.3	12.4	6.45	Field	25	0.9	L.E.	L.E.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
16OCT2002	.	0.002	0.44	47	.	52.3	.		023475	
16OCT2002	.	0.002	0.36	106	.	31.9	.		023476	
16OCT2002	.	0.002	0.33	38	.	19.8	.		023477	
17OCT2002	.	0.002	0.48	17	.	11.4	.		023478	
17OCT2002	.	<0.002	0.48	15	.	6.4	.		023479	
17OCT2002	.	0.002	0.41	13	.	5.2	.		023480	
17OCT2002	.	0.002	0.4	12	.	5	.		023481	
17OCT2002	.	0.002	0.37	12	.	3.6	.		023482	
17OCT2002	.	0.002	0.38	11	.	2.4	.		023483	
12NOV2002	<0.02	0.003	0.19	8	.	<0.5	<1		023900	
10DEC2002	<0.02	<0.002	0.25	<6	.	<0.5	1		025680	
14JAN2003	<0.02	<0.002	0.26	11	2	L.E.	<1		030114	
11FEB2003	0.02	<0.002	0.36	7	7	<0.5	<1		030585	
11MAR2003	<0.02	<0.002	0.34	10	L.E.	0.9	1	E	030795	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=SENECA

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
02JAN2002	11:50		-0.1	13.2	F.E.	Field	29	0.5	.	.
15JAN2002	12:10		1.3	12.0	6.8	Field	31	0.2	.	.
29JAN2002	11:40		3.8	12.5	6.95	Field	30	0.7	.	.
12FEB2002	12:20		2.7	11.4	F.E.	Field	26	0.4	.	.
26FEB2002	11:30		4.6	11.7	6.85	Field	27	0.2	.	.
12MAR2002	11:50		3.6	11.8	6.78	Field	26	0.3	.	.
26MAR2002	11:50		3.4	12.2	6.81	Field	26	0.7	.	.
26MAR2002	12:22	Autosampler	.	.	.		.	0.8	.	.
26MAR2002	13:22	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	14:22	Autosampler	.	.	.		.	0.2	.	.
26MAR2002	15:22	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	16:22	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	17:22	Autosampler	.	.	.		.	0.3	.	.
26MAR2002	18:22	Autosampler	.	.	.		.	0.4	.	.
26MAR2002	19:22	Autosampler	.	.	.		.	0.4	.	.
26MAR2002	20:22	Autosampler	.	.	.		.	0.5	.	.
26MAR2002	21:22	Autosampler	.	.	.		.	3.4	.	.
26MAR2002	22:22	Autosampler	.	.	.		.	5.3	.	.
26MAR2002	23:22	Autosampler	.	.	.		.	4.2	.	.
27MAR2002	0:22	Autosampler	.	.	.		.	2.7	.	.
27MAR2002	1:22	Autosampler	.	.	.		.	2.4	.	.
27MAR2002	2:22	Autosampler	.	.	.		.	1.7	.	.
27MAR2002	3:22	Autosampler	.	.	.		.	1.2	.	.
27MAR2002	4:22	Autosampler	.	.	.		.	0.9	.	.
27MAR2002	5:22	Autosampler	.	.	.		.	0.9	.	.
27MAR2002	6:22	Autosampler	.	.	.		.	0.7	.	.
27MAR2002	7:22	Autosampler	.	.	.		.	0.7	.	.
27MAR2002	8:22	Autosampler	.	.	.		.	0.7	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
02JAN2002	L.E.	<0.002	0.1	<6	.	1	<1		020021	
15JAN2002	0.03	<0.002	0.08	9	.	<0.6	<1		020136	
29JAN2002	0.02	<0.002	0.2	11	.	<0.5	4		020231	
12FEB2002	0.02	<0.002	0.07	13	.	<0.5	<1		020373	
26FEB2002	0.02	<0.002	0.02	9	.	<0.5	2		020481	
12MAR2002	0.02	<0.002	0.05	8	.	<0.5	<1		020608	
26MAR2002	<0.02	<0.002	0.04	15	.	4.4	50		020718	
26MAR2002	.	<0.002	0.04	11	.	3.1	.		020742	
26MAR2002	.	<0.002	0.04	7	.	<0.5	.		020743	
26MAR2002	.	<0.002	0.04	8	.	<0.5	.		020744	
26MAR2002	.	<0.002	0.04	7	.	<0.5	.		020745	
26MAR2002	.	<0.002	0.05	7	.	<0.5	.		020746	
26MAR2002	.	<0.002	0.06	8	.	<0.5	.		020747	
26MAR2002	.	<0.002	0.09	9	.	<0.5	.		020748	
26MAR2002	.	<0.002	0.11	11	.	0.7	.		020749	
26MAR2002	.	<0.002	0.13	10	.	1.1	.		020750	
26MAR2002	.	<0.002	0.13	42	.	23.6	.		020751	
26MAR2002	.	<0.002	0.14	60	.	26.4	.		020752	
26MAR2002	.	<0.002	0.18	38	.	10.9	.		020753	
27MAR2002	.	<0.002	0.2	23	.	4.8	.		020754	
27MAR2002	.	<0.002	0.21	21	.	4.9	.		020755	
27MAR2002	.	<0.002	0.26	20	.	3.3	.		020756	
27MAR2002	.	<0.002	0.27	19	.	2.7	.		020757	
27MAR2002	.	<0.002	0.26	16	.	1.6	.		020758	
27MAR2002	.	<0.002	0.24	16	.	1.6	.		020759	
27MAR2002	.	<0.002	0.22	14	.	1.3	.		020760	
27MAR2002	.	<0.002	0.21	12	.	0.9	.		020761	
27MAR2002	.	<0.002	0.18	12	.	0.7	.		020762	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
27MAR2002	9:22	Autosampler	.	.	.		.	0.7	.	.
27MAR2002	10:22	Autosampler	.	.	.		.	0.7	.	.
27MAR2002	10:55	Autosampler	.	.	.		.	0.8	.	.
09APR2002	11:50		7.4	10.9	6.92	Field	26	0.4	.	.
23APR2002	11:10		6.2	11.3	6.83	Field	27	0.4	.	.
28APR2002	8:00	Autosampler	.	.	.		.	0.7	.	.
28APR2002	11:45	Autosampler	.	.	.		.	0.7	.	.
28APR2002	12:46	Autosampler	.	.	.		.	0.5	.	.
28APR2002	13:47	Autosampler	.	.	.		.	0.7	.	.
28APR2002	14:48	Autosampler	.	.	.		.	0.6	.	.
28APR2002	15:49	Autosampler	.	.	.		.	0.6	.	.
28APR2002	16:50	Autosampler	.	.	.		.	0.5	.	.
28APR2002	17:51	Autosampler	.	.	.		.	0.5	.	.
28APR2002	18:53	Autosampler	.	.	.		.	0.5	.	.
28APR2002	19:53	Autosampler	.	.	.		.	0.6	.	.
28APR2002	20:54	Autosampler	.	.	.		.	2.2	.	.
28APR2002	21:55	Autosampler	.	.	.		.	1.1	.	.
28APR2002	22:56	Autosampler	.	.	.		.	1.5	.	.
28APR2002	23:57	Autosampler	.	.	.		.	0.7	.	.
29APR2002	0:58	Autosampler	.	.	.		.	0.5	.	.
29APR2002	1:59	Autosampler	.	.	.		.	0.6	.	.
29APR2002	3:00	Autosampler	.	.	.		.	0.7	.	.
29APR2002	4:01	Autosampler	.	.	.		.	0.6	.	.
29APR2002	5:02	Autosampler	.	.	.		.	0.4	.	.
29APR2002	6:03	Autosampler	.	.	.		.	0.5	.	.
29APR2002	7:04	Autosampler	.	.	.		.	0.5	.	.
29APR2002	8:05	Autosampler	.	.	.		.	0.8	.	.
29APR2002	9:06	Autosampler	.	.	.		.	0.7	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
27MAR2002	.	<0.002	0.17	13	.	1.3	.		020763	
27MAR2002	.	<0.002	0.15	12	.	1.6	.		020764	
27MAR2002	.	<0.002	0.15	13	.	1.3	.		020765	
09APR2002	0.02	<0.002	0.02	9	.	<0.5	<1		021015	
23APR2002	0.02	<0.002	0.03	10	.	<0.5	<1		021156	
28APR2002	0.02	<0.002	0.05	18	.	1.8	.		021211	
28APR2002	0.02	<0.002	0.04	18	.	2.6	.		021212	
28APR2002	0.02	<0.002	0.05	15	.	1	.		021213	
28APR2002	0.02	<0.002	0.06	14	.	0.8	.		021214	
28APR2002	0.02	<0.002	0.06	14	.	1	.		021215	
28APR2002	0.02	<0.002	0.07	14	.	0.8	.		021216	
28APR2002	0.02	<0.002	0.08	12	.	0.6	.		021217	
28APR2002	0.02	<0.002	0.08	12	.	0.8	.		021218	
28APR2002	<0.02	<0.002	0.08	12	.	1	.		021219	
28APR2002	0.02	<0.002	0.09	15	.	1.4	.		021220	
28APR2002	0.02	<0.002	0.1	22	.	7.2	.		021221	
28APR2002	0.02	<0.002	0.1	17	.	2.4	.		021222	
28APR2002	0.02	<0.002	0.11	18	.	2.4	.		021223	
28APR2002	0.02	<0.002	0.14	16	.	1.2	.		021224	
29APR2002	0.02	<0.002	0.15	15	.	1	.		021225	
29APR2002	0.02	<0.002	0.15	14	.	1.2	.		021226	
29APR2002	0.02	<0.002	0.15	13	.	1.8	.		021227	
29APR2002	0.02	<0.002	0.15	12	.	1.2	.		021228	
29APR2002	<0.02	<0.002	0.16	13	.	1.4	.		021229	
29APR2002	<0.02	<0.002	0.16	12	.	1.2	.		021230	
29APR2002	0.02	<0.002	0.16	13	.	1.2	.		021231	
29APR2002	0.02	<0.002	0.15	14	.	1.2	.		021232	
29APR2002	<0.02	<0.002	0.14	14	.	1	.		021233	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
29APR2002	9:46	Autosampler	.	.	.		.	0.7	.	.
07MAY2002	11:20		9.2	10.9	6.9	Field	27	0.3	.	.
21MAY2002	11:10		6.7	10.8	6.84	Field	25	0.5	.	.
04JUN2002	11:50		9.1	10.5	6.9	Field	30	0.4	.	.
18JUN2002	11:50		10.5	10.0	6.84	Field	28	0.4	.	.
01JUL2002	12:10		14.1	9.1	6.91	Field	33	0.5	.	.
16JUL2002	12:00		14.7	8.5	6.93	Field	34	0.5	.	.
23JUL2002	13:30	Autosampler	.	.	.		.	5.9	.	.
23JUL2002	14:00	Autosampler	.	.	.		.	12.0	.	.
23JUL2002	14:31	Autosampler	.	.	.		.	3.2	.	.
23JUL2002	15:02	Autosampler	.	.	.		.	4.6	.	.
23JUL2002	15:33	Autosampler	.	.	.		.	4.5	.	.
23JUL2002	16:04	Autosampler	.	.	.		.	3.7	.	.
23JUL2002	16:35	Autosampler	.	.	.		.	2.9	.	.
23JUL2002	17:06	Autosampler	.	.	.		.	1.9	.	.
23JUL2002	17:37	Autosampler	.	.	.		.	2.1	.	.
30JUL2002	11:30		17.5	7.2	6.96	Field	38	0.8	.	.
13AUG2002	11:30		16.9	6.2	6.76	Field	39	0.7	.	.
27AUG2002	11:30		15.7	7.0	6.7	Field	40	0.7	.	.
10SEP2002	11:50		16.1	7.0	6.72	Field	40	0.5	.	.
16SEP2002	1:00	Autosampler	.	.	.		.	1.7	.	.
16SEP2002	1:45	Autosampler	.	.	.		.	4.5	.	.
16SEP2002	2:46	Autosampler	.	.	.		.	2.9	.	.
16SEP2002	3:47	Autosampler	.	.	.		.	1.7	.	.
16SEP2002	4:48	Autosampler	.	.	.		.	1.3	.	.
16SEP2002	5:49	Autosampler	.	.	.		.	1.1	.	.
16SEP2002	6:50	Autosampler	.	.	.		.	1.1	.	.
16SEP2002	7:51	Autosampler	.	.	.		.	1.2	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
29APR2002	<0.02	<0.002	0.14	14	.	0.8	.		021234	
07MAY2002	<0.02	<0.002	0.02	11	.	0.6	<1		021361	
21MAY2002	0.02	<0.002	0.03	14	.	<0.5	4		021568	
04JUN2002	<0.02	<0.002	0.06	16	.	0.6	<1		021720	
18JUN2002	<0.02	<0.002	0.05	13	.	1.2	5		021881	
01JUL2002	<0.02	<0.002	0.1	18	.	0.8	<1		021994	
16JUL2002	<0.02	<0.002	0.18	23	.	1.2	2		022185	
23JUL2002	.	0.002	0.28	47	.	10	.		022290	
23JUL2002	.	0.002	0.31	66	.	27.2	.		022291	
23JUL2002	.	0.002	0.31	41	.	7.4	.		022292	
23JUL2002	.	<0.002	0.3	41	.	8.6	.		022293	
23JUL2002	.	<0.002	0.3	38	.	7.2	.		022294	
23JUL2002	.	<0.002	0.29	36	.	6	.		022295	
23JUL2002	.	<0.002	0.28	36	.	5.2	.		022296	
23JUL2002	.	<0.002	0.28	34	.	4	.		022297	
23JUL2002	.	<0.002	0.27	32	.	3.6	.		022298	
30JUL2002	<0.02	<0.002	0.2	25	.	1.8	3		022349	
13AUG2002	0.02	<0.002	0.26	27	.	1.2	4		022513	
27AUG2002	<0.02	<0.002	0.29	29	.	0.8	34		022636	
10SEP2002	<0.02	<0.002	0.28	26	.	0.8	4		022801	
16SEP2002	<0.02	<0.002	0.26	48	.	L.E.	.		022853	
16SEP2002	<0.02	<0.002	0.26	85	.	L.E.	.		022854	
16SEP2002	0.02	<0.002	0.26	56	.	L.E.	.		022855	
16SEP2002	<0.02	<0.002	0.25	44	.	L.E.	.		022856	
16SEP2002	<0.02	<0.002	0.25	40	.	L.E.	.		022857	
16SEP2002	<0.02	<0.002	0.24	39	.	L.E.	.		022858	
16SEP2002	<0.02	<0.002	0.24	38	.	L.E.	.		022859	
16SEP2002	<0.02	<0.002	0.25	36	.	L.E.	.		022860	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
16SEP2002	8:52	Autosampler	.	.	.		.	2.6	.	.
16SEP2002	9:53	Autosampler	.	.	.		.	2.0	.	.
22SEP2002	4:00	Autosampler	.	.	.		.	6.3	.	.
22SEP2002	5:00	Autosampler	.	.	.		.	6.3	.	.
22SEP2002	6:01	Autosampler	.	.	.		.	7.0	.	.
22SEP2002	7:02	Autosampler	.	.	.		.	5.4	.	.
22SEP2002	8:03	Autosampler	.	.	.		.	4.1	.	.
22SEP2002	9:04	Autosampler	.	.	.		.	3.4	.	.
22SEP2002	10:05	Autosampler	.	.	.		.	1.9	.	.
22SEP2002	1:10	Autosampler	.	.	.		.	1.6	.	.
22SEP2002	12:07	Autosampler	.	.	.		.	2.1	.	.
22SEP2002	13:08	Autosampler	.	.	.		.	1.9	.	.
22SEP2002	14:09	Autosampler	.	.	.		.	2.4	.	.
22SEP2002	15:10	Autosampler	.	.	.		.	1.6	.	.
22SEP2002	16:11	Autosampler	.	.	.		.	1.5	.	.
22SEP2002	17:12	Autosampler	.	.	.		.	1.3	.	.
22SEP2002	18:13	Autosampler	.	.	.		.	2.0	.	.
24SEP2002	11:50		14.0	8.2	6.69	Field	37	0.6	.	.
27SEP2002	0:45	Autosampler	.	.	.		.	2.0	.	.
27SEP2002	2:45	Autosampler	.	.	.		.	1.3	.	.
27SEP2002	3:46	Autosampler	.	.	.		.	1.2	.	.
27SEP2002	4:47	Autosampler	.	.	.		.	2.6	.	.
27SEP2002	5:48	Autosampler	.	.	.		.	2.3	.	.
27SEP2002	6:49	Autosampler	.	.	.		.	1.7	.	.
27SEP2002	7:50	Autosampler	.	.	.		.	1.5	.	.
27SEP2002	8:51	Autosampler	.	.	.		.	2.2	.	.
27SEP2002	9:52	Autosampler	.	.	.		.	1.0	.	.
27SEP2002	10:44	Autosampler	.	.	.		.	1.2	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
16SEP2002	0.02	<0.002	0.24	37	.	L.E.	.		022861	
16SEP2002	<0.02	<0.002	0.24	36	.	L.E.	.		022862	
22SEP2002	<0.02	0.002	0.25	56	.	15.4	.		022991	
22SEP2002	<0.02	<0.002	0.29	59	.	12.6	.		022992	
22SEP2002	<0.02	<0.002	0.3	67	.	17	.		022993	
22SEP2002	<0.02	0.002	0.3	58	.	13	.		022994	
22SEP2002	<0.02	0.002	0.29	46	.	9.2	.		022995	
22SEP2002	<0.02	<0.002	0.29	41	.	6.8	.		022996	
22SEP2002	<0.02	<0.002	0.28	37	.	4.4	.		022997	
22SEP2002	<0.02	<0.002	0.28	34	.	3.8	.		022998	
22SEP2002	<0.02	0.002	0.28	36	.	4.2	.		022999	
22SEP2002	<0.02	<0.002	0.26	34	.	9.6	.		023000	
22SEP2002	<0.02	<0.002	0.26	34	.	5.8	.		023001	
22SEP2002	<0.02	<0.002	0.27	33	.	4	.		023002	
22SEP2002	<0.02	<0.002	0.26	32	.	3	.		023003	
22SEP2002	<0.02	<0.002	0.26	34	.	4.1	.		023004	
22SEP2002	<0.02	<0.002	0.26	33	.	3.8	.		023005	
24SEP2002	<0.02	<0.002	0.23	27	.	0.8	2		023036	
27SEP2002	.	<0.002	0.21	34	.	3.6	.		023093	
27SEP2002	.	<0.002	0.2	37	.	5.4	.		023094	
27SEP2002	.	<0.002	0.2	38	.	5.8	.		023095	
27SEP2002	.	<0.002	0.2	58	.	15.8	.		023096	
27SEP2002	.	<0.002	0.2	40	.	6.8	.		023097	
27SEP2002	.	<0.002	0.2	37	.	5.4	.		023098	
27SEP2002	.	<0.002	0.19	37	.	5.4	.		023099	
27SEP2002	.	<0.002	0.19	39	.	13.2	.		023100	
27SEP2002	.	<0.002	0.2	39	.	4.8	.		023101	
27SEP2002	.	<0.002	0.2	38	.	5	.		023162	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
27SEP2002	11:45	Autosampler	.	.	.		.	1.8	.	.
27SEP2002	12:46	Autosampler	.	.	.		.	2.2	.	.
27SEP2002	13:47	Autosampler	.	.	.		.	1.1	.	.
27SEP2002	14:48	Autosampler	.	.	.		.	1.0	.	.
27SEP2002	15:49	Autosampler	.	.	.		.	1.2	.	.
27SEP2002	16:50	Autosampler	.	.	.		.	1.1	.	.
27SEP2002	17:51	Autosampler	.	.	.		.	1.3	.	.
27SEP2002	18:52	Autosampler	.	.	.		.	1.2	.	.
27SEP2002	19:53	Autosampler	.	.	.		.	0.7	.	.
27SEP2002	20:54	Autosampler	.	.	.		.	0.7	.	.
27SEP2002	21:55	Autosampler	.	.	.		.	5.0	.	.
27SEP2002	22:56	Autosampler	.	.	.		.	9.0	.	.
27SEP2002	23:57	Autosampler	.	.	.		.	4.2	.	.
28SEP2002	0:58	Autosampler	.	.	.		.	3.2	.	.
28SEP2002	1:59	Autosampler	.	.	.		.	2.8	.	.
28SEP2002	3:00	Autosampler	.	.	.		.	2.5	.	.
28SEP2002	4:01	Autosampler	.	.	.		.	2.5	.	.
28SEP2002	5:02	Autosampler	.	.	.		.	3.6	.	.
28SEP2002	6:03	Autosampler	.	.	.		.	1.5	.	.
28SEP2002	7:04	Autosampler	.	.	.		.	1.4	.	.
28SEP2002	8:05	Autosampler	.	.	.		.	1.8	.	.
28SEP2002	9:06	Autosampler	.	.	.		.	3.2	.	.
28SEP2002	10:07	Autosampler	.	.	.		.	3.5	.	.
15OCT2002	12:30		8.6	10.3	7.02	Field	27	0.7	.	.
16OCT2002	12:00	Autosampler	.	.	.		.	0.9	.	.
16OCT2002	12:45	Autosampler	.	.	.		.	1.1	.	.
16OCT2002	13:46	Autosampler	.	.	.		.	4.1	.	.
16OCT2002	14:47	Autosampler	.	.	.		.	5.2	.	.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
27SEP2002	.	<0.002	0.19	36	.	4.6	.		023163	
27SEP2002	.	<0.002	0.2	34	.	3.8	.		023164	
27SEP2002	.	<0.002	0.2	30	.	3	.		023165	
27SEP2002	.	<0.002	0.2	31	.	2.4	.		023166	
27SEP2002	.	<0.002	0.2	27	.	7.8	.		023167	
27SEP2002	.	<0.002	0.2	28	.	2.6	.		023168	
27SEP2002	.	<0.002	0.2	26	.	3.4	.		023169	
27SEP2002	.	<0.002	0.21	28	.	3.2	.		023170	
27SEP2002	.	<0.002	0.22	26	.	2.6	.		023171	
27SEP2002	.	<0.002	0.22	26	.	2.2	.		023172	
27SEP2002	.	<0.002	0.2	127	.	66.8	.		023173	
27SEP2002	.	<0.002	0.26	76	.	35.6	.		023174	
27SEP2002	.	<0.002	0.28	48	.	12.7	.		023175	
28SEP2002	.	<0.002	0.28	39	.	9.6	.		023176	
28SEP2002	.	<0.002	0.3	32	.	6.4	.		023177	
28SEP2002	.	<0.002	0.29	32	.	5.4	.		023178	
28SEP2002	.	<0.002	0.33	29	.	9.4	.		023179	
28SEP2002	.	<0.002	0.36	29	.	4.8	.		023180	
28SEP2002	.	<0.002	0.4	27	.	3.8	.		023181	
28SEP2002	.	<0.002	0.44	25	.	3.5	.		023182	
28SEP2002	.	<0.002	0.48	29	.	4.6	.		023183	
28SEP2002	.	<0.002	0.5	27	.	4.8	.		023184	
28SEP2002	.	<0.002	0.53	29	.	3.8	.		023185	
15OCT2002	<0.02	<0.002	0.08	19	.	1.3	10		023354	
16OCT2002	.	<0.002	0.06	26	.	1.2	.		023522	
16OCT2002	.	<0.002	0.06	32	.	5	.		023523	
16OCT2002	.	<0.002	0.06	51	.	14.6	.		023524	
16OCT2002	.	<0.002	0.07	51	.	15.4	.		023525	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Site=SENECA
(continued)

Date Collected	Grab Time	Site Code	Temperature (degrees C)	D.O. (mg/l)	pH (Units)	pH Analysis	In Field SpCond (umhos/cm)	Turbidity (NTU)	Chloride (mg/l)	Sulfate (mg/l)
16OCT2002	15:48	Autosampler	.	.	.		.	5.7	.	.
16OCT2002	16:49	Autosampler	.	.	.		.	35.0	.	.
16OCT2002	17:50	Autosampler	.	.	.		.	23.0	.	.
16OCT2002	18:51	Autosampler	.	.	.		.	19.0	.	.
16OCT2002	19:52	Autosampler	.	.	.		.	17.0	.	.
16OCT2002	20:53	Autosampler	.	.	.		.	8.3	.	.
16OCT2002	21:54	Autosampler	.	.	.		.	5.3	.	.
16OCT2002	22:55	Autosampler	.	.	.		.	3.4	.	.
17OCT2002	1:58	Autosampler	.	.	.		.	2.3	.	.
17OCT2002	2:59	Autosampler	.	.	.		.	2.2	.	.
17OCT2002	4:00	Autosampler	.	.	.		.	2.1	.	.
17OCT2002	6:02	Autosampler	.	.	.		.	1.7	.	.
17OCT2002	8:04	Autosampler	.	.	.		.	1.7	.	.
17OCT2002	11:07	Autosampler	.	.	.		.	1.7	.	.
12NOV2002	12:00		8.6	10.5	F.E.	Field	30	0.3	.	.
10DEC2002	12:00		0.9	12.3	F.E.	Field	25	0.3	.	.
14JAN2003	12:20		0.7	13.3	F.E.	Field	24	0.1	0.8	5.8
11FEB2003	12:20		0.0	12.0	6.76	Field	27	0.2	0.7	6.4
11MAR2003	12:10		0.0	13.5	6.59	Field	26	0.2	L.E.	L.E.

Date Collected	NH3-N (mg/l), Total NH3+NH4	NO2-N (mg/l)	NO3-N (mg/l)	Total Phosphorus (ug/l)	Soluble Reactive Phosphorus (ug/l)	Total Suspended Solids (mg/l)	Fecal Coliforms (CFU/100ml)	Fecal Coli Code	Sample Number	Sample Type
16OCT2002	.	<0.002	0.08	56	.	20.4	.		023526	
16OCT2002	.	<0.002	0.1	140	.	61.8	.		023527	
16OCT2002	.	<0.002	0.18	75	.	35	.		023528	
16OCT2002	.	L.E.	L.E.	72	.	31.5	.		023529	
16OCT2002	.	L.E.	L.E.	61	.	25.4	.		023530	
16OCT2002	.	L.E.	L.E.	44	.	13.7	.		023531	
16OCT2002	.	L.E.	L.E.	35	.	7.4	.		023532	
16OCT2002	.	L.E.	L.E.	30	.	5.6	.		023533	
17OCT2002	.	L.E.	L.E.	23	.	3.6	.		023534	
17OCT2002	.	L.E.	L.E.	25	.	4	.		023535	
17OCT2002	.	L.E.	L.E.	24	.	3.6	.		023536	
17OCT2002	.	L.E.	L.E.	21	.	3	.		023537	
17OCT2002	.	L.E.	L.E.	21	.	2.2	.		023538	
17OCT2002	.	L.E.	L.E.	19	.	2.8	.		023539	
12NOV2002	<0.02	0.003	0.01	22	.	0.6	4		023901	
10DEC2002	<0.02	<0.002	0.04	6	.	<0.5	2		025681	
14JAN2003	<0.02	<0.002	0.03	12	2	L.E.	<1		030115	
11FEB2003	<0.02	<0.002	0.09	8	8	1	<1		030586	
11MAR2003	<0.02	<0.002	0.07	11	L.E.	<0.5	<1		030796	

DATA CODE: L.E. = Laboratory Error, F.E. = Field Error
All results that fall within the scope of the NELAP program meet that programs's requirements unless stated in the comments and methods tables.

Variable	Date	Certification	Samples	Instrument	Reference / Procedure Change	Method
Chloride	01MAY00	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-300	EPA 1993 300.0	Ion Chromoatography
Chloride	20MAY02	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-600	EPA 1993 300.0	Ion Chromoatography
D.O.	11MAR96	Non-Potable NA Potable NP S & H Waste NP	Stream	Hydrolab Surveyor III	SM18; 4500-O,C	Measured in situ
Fecal Coliforms	02APR97	Non-Potable Y Potable Y S & H Waste NP	Stream	Millipore Membrane Filter Apparatus	SM18; 9222D	
Fecal Coliforms	01JAN03	Non-Potable Y Potable Y S & H Waste NP	Stream	Millipore Membrane Filter Apparatus	EPA 600/8-78-017	
NH3-N	13MAY99	Non-Potable Y Potable NP S & H Waste NP	Stream	Alpkem Flow Solution III/IV	SM18; 4500-NH3, H	Automated Phenate
NO2-N	01MAY00	Non-Potable N Potable NP S & H Waste NP	Stream	Dionex DX-300	EPA 1993 300.0	Ion Chromatography
NO2-N	20MAY02	Non-Potable N Potable NP S & H Waste NP	Stream	Dionex DX-600	EPA 1993 300.0	Ion Chromatography
NO3-N	01MAY00	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-300	EPA 1993 300.0	Ion Chromatography
NO3-N	20MAY02	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-600	EPA 1993 300.0	Ion Chromatography
pH	01APR99	Non-Potable Y Potable NP S & H Waste NP	Stream	Hydrolab Surveyor III	SM18; 4500-H+,B Pathogen streams are analyzed in the FIELD using Orion 250A pH Meter.	Measured in situ
Sulfate	12DEC00	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-300	EPA 1993 300.0	Ion Chromatography
Sulfate	20MAY02	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-600	EPA 1993 300.0	Ion Chromatography
Specific Cond.	08OCT97	Non-Potable Y Potable NP S & H Waste NP	Stream	Hydrolab Surveyor III or YSI Model 3200	SM18; 2510B	

Certification Codes: Y = Yes, N = No, NA = Not Available, NP = Not Performed

Variable	Date	Certification	Samples	Instrument	Reference / Procedure Change	Method
SRP	01FEB01	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-300	SM18;4500-P,F	Automated Anion Analysis
SRP	20MAY02	Non-Potable Y Potable NP S & H Waste NP	Stream	Dionex DX-600	EPA 1993 300.0	Ion Chromatography
Total Susp. Solids	02APR97	Non-Potable Y Potable NP S & H Waste NP	Stream	Filtration and Analytical Balance	SM18; 2540D	
Temperature	11MAR96	Non-Potable NA Potable NP S & H Waste NP	Stream	Hydrolab Surveyor III	SM18; 2550B	Measured in situ
Total P	01JAN00	Non-Potable Y Potable NP S & H Waste NP	Stream	Alpkem Flow Solution III/IV	SM18; 4500-P,F	Persulf.Digest./Ascb.Acid
Turbidity	27AUG01	Non-Potable NA Potable NP S & H Waste NP	Stream	Hach 2100 AN Turbidimeter	SM19; 2130B	Nephelometric Method

Certification Codes: Y = Yes, N = No, NA = Not Available, NP = Not Performed

Year=2002

Variable	Beginning Date	End Date	Comments
ALL	01JAN2002	31DEC2002	Sample results of less than ten times the limit of detection may be associated with a blank that is more than one tenth the sample level.
NH3	12FEB2002	12FEB2002	SAMPNOs 368-373: These samples are associated with a method blank that is above the detection limit.
NO2	23APR2002	23APR2002	SAMPNOs 1151-1156: Samples analyzed beyond holding time.
NO2	15OCT2002	21OCT2002	SAMPNOs 3349-3354: Holding time exceeded.
NO2	12NOV2002	12NOV2002	SAMPNOs 3896-3901: These samples are associated with a method blank that is above the detection limit. Blank=0.003mg/l, LOD=0.002mg/l.
NO2	02DEC2002	10DEC2002	SAMPNOs 5676-5681: Holding time exceeded.
NO3	23APR2002	23APR2002	SAMPNOs 1151-1156: Samples analyzed beyond holding time.
NO3	15OCT2002	21OCT2002	SAMPNOs 3349-3354: Holding time exceeded.
NO3	02DEC2002	10DEC2002	SAMPNOs 5676-5681: Holding time exceeded.
SRP	28JAN2002	29JAN2002	SAMPNOs 226-231: These samples are associated with a method blank that is above the detection limit.
SRP	15OCT2002	21OCT2002	SAMPNOs 3349-3354: Holding time exceeded.

Year=2003

Variable	Beginning Date	End Date	Comments
ALL	01JAN2003	.	Sample results of less than ten times the limit of detection may be associated with a blank that is more than one tenth the sample level.
CL	14APR2003	15APR2003	SAMPNOs 031333-031338: These samples are associated with a method blank that is above the detection limit. Blank=0.6mg/l, LOD=0.4mg/l.
CL	05MAY2003	20MAY2003	SAMPNOs 031663-031668: These samples are associated with a method blank that is above the detection limit. Blank=0.5mg/l, LOD=0.4mg/l.
CL	09JUN2003	23JUN2003	SAMPNOs 032140-032145: These samples are associated with a method blank that is above the detection limit. Blank=0.5mg/l, MDL=0.4mg/l.
NO2	03MAR2003	11MAR2003	SAMPNOs 791-796: These samples are associated with an out of control spike QC sample. Recovery=112.8%, UCL=110%, LCL=90%.
NO2	10MAR2003	11MAR2003	SAMPNOs 791-796: These samples are associated with an out of control spike QC sample. Recovery=65%, UCL=110%, LCL=90%.
NO2	05MAY2003	13MAY2003	SAMPNOs 031663-031668: Holding time exceeded.
NO3	05MAY2003	13MAY2003	SAMPNOs 031663-031668: Holding time exceeded.
SO4	05MAY2003	20MAY2003	SAMPNOs 031663-031668: These samples are associated with a method blank that is above the detection limit. Blank=0.6mg/l, LOD=0.5mg/l.
SRP	11FEB2003	11FEB2003	SAMPNOs 581-586: These samples are associated with an out of control duplicate QC sample. Dup difference=4.5ug/l, UCL=1.7ug/l.
SRP	05MAY2003	13MAY2003	SAMPNOs 031663-031668: Holding time exceeded.
SUSPSLDS	11MAR2003	11MAR2003	SAMPNOs 791-796: Holding time exceeded.

COLIFORMS CODING

Used:3/13/95–12/31/02 - Ben Nesin, Brewster, Kensico Laboratories
3/27/95–12/31/02 - Grahamsville Laboratory

CODE	DEFINITION: Appearance of Plate
	Total coliform plates yielding ideal counts between 20-80 CFU/plate (fecal coliforms, 20-60 CFU/plate) or less than ideal counts, with the sum of the total number of colonies (sheen plus nonsheen) being less than 200 CFU. Results will be reported as CFU/100ml and entered into the data as accordingly. NO CODE.
>=	If the total/fecal colony counts are in the ideal range of 20-80 CFU/plate and the total number of colonies exceed 200 CFU OR the total/fecal colony counts exceed the ideal range and the total number of colonies are below 200 CFU, the number expressed as coliforms/100ml preceded by a "greater than or equals to" sign will be reported.
x F	If the sheen total/fecal colony counts are greater the 80 CFU/plate and the total number of colonies exceed 200 CFU, results will be reported as "TNTC times F", F being the multiplication factor used to express the result in coliforms/100ml. (i.e., 20 ml sample used, result would be TNTC x 5, NOTE: code for TNTC is -99).
+/-	If confluent growth overwhelms the plate, yet a metallic sheen appears, "CONF +" will be reported indicating the presence of coliforms or a "CONF -" indicating the absence of coliforms. (NOTE: code for confluent growth is -108).
HTE	If samples were not received at the laboratory and analyzed within the 6 hour holding time, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE", indicating holding time exceeded.
HTE>6	If samples were received at the laboratory after 6 hours of collection and analyzed within 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE>6", indicating holding time exceeded, >6 hours. Used for storm event samples at Kensico Laboratory only.
HTE>8	If samples are received at the laboratory within 6 hours of collection, but not set up within 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by the letters "HTE>8", indicating holding time exceeded, >8 hours. Used for storm event samples at Kensico Laboratory only.
>6<8	If samples are received at the laboratory within the 6 hour holding time and analyzed within 6 to 8 hours of collection, the number expressed as coliforms/100ml will be reported, followed by ">6<8", indicating analyses were started after 6 hours but before 8 hours of collection. Used for storm event samples at Kensico Laboratory only.
SPR	Spreading colony present on 50%, or more, of the plate. Suppression of colony growth may have existed.

(Revised: 9/97)

Effective 1/1/03 – Ben Nesin, Brewster, Grahamsville, and Kensico Laboratories

CODE	DEFINITION: Appearance of Plate(s)
NO CODE	Coliform plates having **ideal counts** (i.e. between 20-80 CFU/plate for non-potable total coliform, 0-80 CFU/plate for potable total coliform, or 20-60 CFU/plate for fecal coliform), and no more than 200 **colonies in total** (i.e. the sum of the sheen plus non-sheen or blue plus non-blue colonies) *OR* Coliform plates for non-potable samples having zero **total/fecal colonies** (i.e. the sheen or blue colonies), and no more than 200 colonies in total, THEN, the result will be reported as CFU/100ml without the use of a code.
E	If the total/fecal colony count of a non-potable sample is between 1 and 19, *OR* If the total/fecal colony count is ideal, but there are more than 200 colonies in total, *OR* If the total/fecal colony count of a non-potable sample is zero, but there are more than 200 colonies in total, THEN, the result reported as CFU/100 mL will be coded with an "E".
>	If the total/fecal colony count is above ideal and there are no more than 200 colonies in total, the result reported as CFU/100 mL will be coded with a ">".
E,>	If the total/fecal colony count is above ideal and there are more than 200 colonies in total, *OR* If there are more than 200 colonies in total, THEN, the result reported as CFU/100 mL will be coded with an "E,>".
+/-	Confluent Growth results are coded using a "+" if total/fecal colony growth is observed on the plate, or coded using a "-" if total/fecal colony growth is absent. (NOTE: The value reported for a confluent growth result is –108).
HTE	If samples were not received at the laboratory and analyzed within the 6-hour holding time, the result reported as CFU/100ml will be coded with "HTE". The HTE code may be used in conjunction with any other code.

KEY TO SAMPLING LOCATIONS – 2002
CATSKILL WATERSHED
BEN NESIN LABORATORY, ELAP ID NO. 10030

SITE	DESCRIPTION

WQIA: Crossroads Ventures Project

BELLOST..... Lost clove flows along the southern area owned by CRV and is a tributary to Esopus Creek. Sample Lost Clove just downstream of Lost Clove Road at the NYSDEC trailhead area at the end of the road. A staff plate is mounted to the riprap downstream of Lost Clove Road.

BELLE2..... This unnamed tributary flows down from the central portion of the eastern area owned by CRV to Birch Creek approximately 1/4 mile below routine Hydrology site E15. The site is accessed by driving up private road from Rt. 28 to the abandoned railroad, then walking east along the railroad (about 1500 ft) where the stream passes beneath the railroad tracks at a trestle (Smaller tributaries which appear to originate from local seeps will be passed). Sample about 40 feet upstream of the abandoned railroad where water cascades from a large flat rock.

BELLEGIG..... Giggle Hollow flows along the eastern edge of the Belleayre Day-Use Area and is a tributary to Birch Creek just below routine WOH Hydrology site E3. Sample adjacent to the upper parking area, below the pavilions, near the stage pool outfall. There is a staff plate attached to large concrete block adjacent to the stream.

BELLE5..... This unnamed tributary flows near the Wild Acres Hotel and is a tributary to Townsend Hollow (Emory Brook)(Pepacton watershed). This site is located about 1 mile past the Wild Acres Hotel on the left hand side of the road near a faded red garage. Sample about 50 feet below the staff plate upstream of Kraft Road

BELLETOD..... This unnamed tributary flows along Todd Mountain Road and is tributary to Bushkill (Pepacton watershed) near the Village of Fleishmanns. Sample above the residence/private pond near the northwest edge of CRV property and below the seasonal use portion of Todd Mountain Road. There is a staff plate about 20 feet upstream of the private pond.

SENECA..... Seneca Hollow will be used as a control stream for this project and is a tributary of Esopus Creek. Samples are collected from above the stage pool upstream of Ulster County Road 47 near NYSDEC Public Fishing access to Esopus Creek. There is a staff plate attached to a large boulder.

crossroads ventures llc

DRAFT
Environmental Impact Statement

Appendix 18

Water Quality Data

Addendum 2003 – NYCDEP Report

This NYCDEP Report is on local water quality. Please note Section 2.3.5, Pesticide and Toxic Compound Monitoring Program, on page 27 and the top of 28. It explains that during a 2-year extensive monitoring effort of over 100 sites of suspected potential pollution, including golf courses, "no significant sources of contamination . . . were found."

The Belleayre Resort at Catskill Park

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY

This report provides the status of various research programs addressing the sources, fate, and transport of key constituents, and the status of the evaluation of data generated by other agencies. This report also addresses research on watershed processes affecting water quality, special research projects, and contains abstracts from a watershed monitoring seminar later in the year.

May 15, 2003

Prepared in accordance with the November 2002 United States Environmental Protection Agency Filtration Avoidance Determination

Prepared by: Division of Drinking Water Quality Control
Bureau of Water Supply

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1. Introduction

1.1 Purpose

This report addresses the requirement "Submit Research Objectives Report" under Section 5.1 (Watershed Monitoring Program) of the November 2002 New York City Filtration Avoidance Determination (for the Catskill/Delaware Water Supply System). This requirement states that this report "will provide the status of various research programs addressing the sources, fate, and transport of key constituents, and the status of the evaluation of data generated by other agencies. This report will also address research on watershed processes affecting water quality such as key modeling programs. It will also identify special research projects that will be conducted during the following year and will assess need for conducting a watershed monitoring seminar to disseminate data in the upcoming year and, as appropriate, identify a target date". This report is required to be posted on the NYCDEP website.

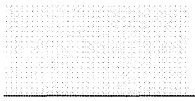
1.2 Scope

This report may be viewed as a companion to the Bureau's Watershed Water Quality Annual Report (due at the end of July each year). The Annual Report addresses DEP data, obtained from the previous year, whereas this Research Objectives Report focuses on current research and future research, still in the developmental stage, and research programs on the watershed conducted by outside agencies.

The report is laid out parallel to the structure of the FAD. The order of studies described is under the following headings: Environmental Infrastructure; Protection and Remediation Programs; Watershed Monitoring, Modeling and GIS; and Data and Methods Development.

Although the requirement for this report, as stated in the Purpose above, is to describe ongoing research pertinent to the Filtration Avoidance Determination (FAD—which is directed towards the Catskill/Delaware Water Supply System) we have included other studies for completeness including those being conducted East-of-Hudson and those conducted on analytical method development, e.g., for pathogen enumeration, fisheries studies, and work carried out under the Croton Process Studies contract.

Periodic seminars on watershed monitoring are part of the City's efforts to foster communication on NYC's watershed. The need for such seminars must be evaluated on a regular basis and "identified" in the Research Objectives Report. To comply with this requirement, on September 11 and 12, 2003, the First Annual New York City Watershed Science and Technical Conference will take place in Kingston, N.Y. It is expected that there will be approximately 15 papers presented, with DEP staff contributing several. The abstracts from DEP submissions are presented in the Appendix of this report.



2. Current BWS Research

2.1 Environmental Infrastructure

2.1.1 Stormwater Management Practices Monitoring Demonstration Project

Managers: James Benson/Eve Bocca
Start & Completion Date: February 2001 & October 2004
Status (% Complete): 10
Project Cost: $313K
Objective and Justification:

The objective of this project is to 1) assess watershed conditions, monitor water quality and evaluate sampling data, and identify incidences of improperly controlled stormwater that result in the discharge of pollutants to the water supply, and 2) through the design, construction and monitoring of stormwater management practices, eliminate nonpoint sources of pollution in the water supply watersheds and generate important data concerning the effectiveness of different stormwater management practices in reducing stormwater related pollution. Sites where stormwater practices will be implemented will be selected based upon the availability of water quality data, watershed condition and land use data, and the affected waterbody's classification on the DEC's Priority Waterbody List (PWL). The proposed program is consistent with both the New York State Nonpoint Source Management Plan and the applicable County Water Quality Strategies, which prioritize watershed assessment and remediation programs. The project is also consistent with the federal and state Unified Watershed Assessment, developed under the Clean Water Action Plan to integrate the protection and restoration of water and water-related natural resources.

Implications for Watershed Management:

Numerous stormwater management control facilities are being installed throughout the New York City drinking water supply watershed to remediate nonpoint sources of water pollution and minimize the impact of new and existing development on water quality. The New York City Watershed Regulations require that the stormwater management facilities meet certain design and performance standards. While not mandated by EPA, these types of management practices are recommended to treat stormwater runoff from land use development projects. Within the East of Hudson watersheds of the New York City drinking water supply watershed, stormwater pollution prevention plans that include SMPs such as these are required to reduce total phosphorus and total suspended solids from stormwater runoff to pre-construction levels.

The information gained in this study will be directly applied to DEP's regulatory and non-regulatory stormwater and nonpoint source management programs. This study will provide critical site-specific information on facility performance, design standards and maintenance needs.

This project is particularly important because little site specific information is available concerning the treatment abilities of SMPs as they relate to New York City's drinking water quality goals, SMP performance standards and programs.

Following an initial monitoring period, DEP will implement retrofits on two existing Stormwater Management Practices (SMPs) in the West Branch and Croton Falls reservoir drainage basins, in the Town of Carmel, New York. The objectives of this program are:

- To initiate and provide high runoff (storm event) monitoring in a manner that is sufficient to compare the percent removal of two wetland extended detention basins to the design pollutant removal efficiencies for wetland extended detention basins, as specified in the New York State Department of Environmental Conservation's (DEC's) "Reducing Impacts of Runoff from New Development (NYSDEC, 1992).
- To quantify the effectiveness of the retrofitted wetland extended detention basins by comparing pre and post retrofit monitoring data as well as comparing the monitoring data from the retrofitted inlet and outlet structures. Specifically, an annual load reduction of Total Phosphorus (TP), Total Suspended Solids (TSS), and Dissolved Organic Carbon (DOC), will be calculated.

Problems Encountered:

Pre-construction storm sampling was to begin in October 2002 (but was postponed because it was dependent on the release of SDWA funds and installation of monitoring facilities).

DEP was awarded two grants; a Water Resources Development Act (WRDA) grant, for the construction of two wetland extended detention basins and a Safe Drinking Water Act (SDWA) grant, for the associated monitoring stations, that will allow DEP to assess how well these facilities reduce TP, TSS, and DOC loads in stormwater. On 8/7/01 DEP provided the United States Army Corps of Engineers (Corps) with additional information that was identified as being necessary for the Corps to prepare the Project Management Plan for the WRDA portion of the project. It has been over a year and a half since DEP provided the Corps with the information it requested, and DEP has not yet received the Project Management Plan, which is necessary to advance the program, from the Corps.

2.1.2 Stormwater BMP Retrofit Effectiveness Monitoring

Manager: Tracy Lawrence
Start Date: September 2003
Completion Date: September 2005
Status (% Complete): 0
Project Cost: $60K + (contract lab costs unknown at this time)
Objectives and Justification:

The WOH Stormwater BMP Retrofit program was set forth as part of the NYC Watershed Agreement. In the agreement the City allocated $7.6 million for stormwater BMP retrofits to treat stormwater runoff in concentrated areas of impervious surfaces in the WOH district. The Division of Watershed Lands and Community Planning (WLCP) is preparing a contract with the Catskill Watershed Corporation (CWC) which will cover laboratory analyses of samples. At the request of WLCP, WQIA's role is to develop and implement a pilot stromwater BMP monitoring program to determine the effectiveness of retrofitted BMPs to improve water quality. It is presumed that once WQIA has documented an adequate monitoring protocol that it will be used as template for future CWC stormwater BMP monitoring. This project is currently in the planning stage with the intent of beginning field work in 2003.

Implications for Watershed Management:

This research will determine which stormwater BMP technologies perform best at meeting DEP's water quality objectives and ultimately help quantify the success of the BMP retrofit program.

Problems Encountered: None.

2.2 Protection and Remediation Programs

2.2.1 Waterfowl Management at Kensico Reservoir

Manager: Christopher A. Nadareski
Start & Completion Date: 1993 - Ongoing
Status: Ongoing
Project Cost: Nearly $3.8M from 1995 to 2003
Objective and Justification:

The objective of the Waterfowl Management Program at Kensico Reservoir is to quantify wildlife pollutant contributions and mitigate where possible. As part of DEP's Watershed Protection/Filtration Avoidance Program, a Waterfowl Management Program was established to measure the level of pollutant impact imposed by wildlife. Comprehensive wildlife surveys were conducted at Kensico to identify potential pollutant sources. Waterfowl species which include most waterbirds were routinely surveyed to determine species richness (species diversity) and

evenness (species population). Preliminary surveys conducted by DEP indicated that populations of several water bird species fluctuated daily (diurnal/nocturnal), seasonally, and spatially on the reservoirs. A relationship between avian populations and bacteria (fecal coliform) levels from untreated water samples revealed a positive correlation. As a result, DEP instituted a permanent Waterfowl Management Program through a contract to reduce or eliminate waterfowl activity in order to mitigate seasonal fecal coliform bacteria elevations.

Implications for Watershed Management:

Since waterfowl were identified as a significant contributor of fecal coliform bacteria, a bird harassment program was developed to eliminate resident and migratory waterfowl populations from Kensico. The program was initially implemented in December of 1993 and has continued through the present resulting in a successful elimination of bird concentrations and corresponding lower bacteria levels.

The basis for the Waterfowl Management Program Contract is to continue the success of waterfowl management at NYC's Kensico Reservoir (which resulted in the elimination of the seasonal fecal coliform bacteria elevations), and expand its waterfowl management operations (bird deterrence-harassment). EPA's Filtration Avoidance Determination in the November 2002 FAD (WMP) requires DEP to expand the Waterfowl Management Program to include several reservoirs throughout the NYC Water Supply on an "As Needed" contingency. Each NYC reservoir has been categorized with a different level of mitigative intensity using similar waterfowl management techniques including a standard daily operation at Kensico and an "As Needed" program triggered by elevated waterfowl populations and increases in bacterial levels at several other reservoirs (West Branch, Rondout, Ashokan, Croton Falls, and Cross River). This standard program will be conducted annually from August through March and "As Needed" into mid-April. A supplemental program to monitor and curtail breeding populations of three waterfowl species (geese, cormorants, and swans) will be implemented annually from April through June.

Problems Encountered: None.

2.2.2 Identify Watershed Sources of *E. coli* Found in the Water Supply and Estimate Nutrient Contributions from Waterfowl Fecal Matter.

Manager: Neil deLuca, Christopher A. Nadareski
Start & Completion Date: This project has not been started
Status (% Complete): 2
Project Cost: $323K
Objective and Justification:

Part I: The objective is to attempt to link *E.coli* isolates from our water supply to potential sources of contamination within the watershed, through the comparison of ribotypes (RT). DEP has been collecting *E.coli* from water samples with elevated fecal coliform counts, geese and gull

feces, human feces, wild and domestic animals feces and other potential sources of pollution since 1991. This collection of approximately 2500 *E.coli* has been serotyped and is being stored at the Penn State Unversity, Gastroenteric Disease Center. For this project, DEP's collection of these 2500 *E.coli* will be ribotyped with the DEP RiboPrinter from Qualicon.

The RiboPrinter Microbial Characterization System is an automated ribotyping system that generates restriction-cut DNA fragments containing RNA sequences that, after processing through algorithms, produce a genetic fingerprint (RiboPrint pattern) of each isolate. These genetic fingerprints are normalized digital representations of the genetic data for each sample. They serve as a stable, reproducible depictions of the genetic data for each isolate analyzed with the RiboPrinter system.

We have ribotyped only a small portion of this collection to date using *Eco*R1 restriction enzyme and have had mixed results. For this current project, we are using *Hin*d III restriction enzyme instead of *Eco*R1 because of its superior discriminatory ability with *E.coli*. Dr. Charles Tseng from Perdue University, has compared combinations and single restriction enzymes for *E.coli* using a RiboPrinter and concluded that *Hin*d III was the best single restriction enzyme for *E.coli*.

Funding has been requested for 1 temporary staff member, whose responsibilities will be to reconcile DEP's *E.coli,* archived at Penn State University to what DEP has in its dataset. This will be completed before any request for isolates are sent. Then they will process the samples through the RiboPrinter, run QC samples and maintain the RiboPrinter.

Part II: The objective of this study will be to estimate phosphorus and nitrogen loading to reservoir from Canada Geese *(Branta canadensis*), gulls (*Larus spp.*) other waterfowl, and beavers. Up to 200 fecal samples will be collected and submitted for P and N analysis. Additionally, waterbird population surveys will be conducted to collect data on the number of birds utilizing the reservoir and their residency time. Nutrient loading will be calculated using these data, and these results may be incorporated into DEP's Cannonsville Water Quality Model. In combination with Part I of this project, approximately 200 *E.coli* isolates from these fecal samples will ribotyped using *Hin*d III restriction enzyme. Since waterfowl do contribute fecal coliforms to DEP reservoirs, the addition of the *E. coli* from upstate birds to our RiboGroup libraries will increase our confidence in making decisions on Bacterial Source Tracking.

A sufficient roosting and foraging population of geese, gulls and other waterfowl have the potential to impact the nutrient budget of a water supply reservoir by moving nutrients into the reservoir from the surrounding foraging areas and cycling nutrients within the reservoir. To elucidate the role waterfowl play in the nutrient balance, this study is being implemented to calculate P and N loadings via direct deposition by roosting birds.

Implications for Watershed Management:

Once DEP has expanded the RiboPrinter library and dataset at the conclusion of this project, DEP will have increased confidence in the conclusions of these analyses. This capability to help identify the sources of *E.coli* in the watershed will allow DEP to apply remedial measures in appropriate locations to alleviate fecal contamination of the water supply, and identify whether coliforms are from anthropogenic or non-anthropogenic sources. This is important in defining coliform-restricted basins.

The transport of nutrients from foraging areas to the reservoir can have implications for water quality if the loading is high enough. Increases in nutrient levels can negatively impact water quality by increasing the rate of eutrophication, increasing primary production and as a result decrease the reservoir's capacity to improve water quality. Waterfowl may be one of several sources of nutrient inputs and are easily manageable if shown to be a major contributor of P and N, or *E. coli*.

Problems Encountered: None.

2.2.3 Forest Ecosystem Health: Phase I

Manager: Deborah Layton
Start & Completion Date: April 1999 to June 2003
Status (% Complete): 90
Project Cost: N/A
Objective and Justification:

This pilot project tests a systematic method for gathering information on NYC-owned forest lands, as well as performs an initial inventory of EOH forest conditions. This inventory is useful in a variety of ways and will be used:

- To develop a database of information that can be used as ground-truthing for the GIS that may be used by several disciplines within DEP.
- To determine forest ecosystem health and further research needs for its management as it relates to nutrient export, and therefore water quality.
- To assess the sampling protocol for sample size needed for adequate capture of stand variability.

The initial phase of the study is to be short-term (completed with a final report in the first half of 2003) and will lay the groundwork, in consultation with Land Acquisition and Stewardship Program personnel, for further forest inventory and research work to be carried out both EOH and WOH.

Sixteen sites were chosen at West Branch, Bog Brook, East Branch, Amawalk, Titicus, Cross River, Middle Branch, Muscoot, and Kensico Reservoirs and 235 plots established. Of these, fewer than 20 plots remain to be measured.

Implications for Watershed Management:

The sampling regime used in this project was found to adequately sample vegetation in the overstory and at the sapling/shrub level of the stand for all sites. At the herbaceous/seedling level of vegetation, however, where four meter-square plots were sampled per acre, species present were not adequately sampled in larger study areas with more variable terrain, soils, etc. In smaller, more homogeneous study sites, though, this sampling strategy worked well. When other plot sizes were tested, variation was captured no better with plots up to four times larger on one of the sites with high variability. The additional time required to sample these much larger plots, therefore, does not appear to be justified.

The presence of exotic/invasive species is believed to have a negative net effect on forest resilience and sustainability. This, in turn, has the potential for changing nutrient outflows from forested areas. A preliminary data analysis indicates that exotic and invasive plant species make up approximately 14% of the sapling/shrub level, 37.5% of the seedling level, and 24% of vines, throughout the EOH watershed. Percentages of exotics, overall, were lowest in the West Branch basin and highest at Cross River Reservoir. Based on this data, further study and inventory may allow prioritization and determination of the need for managing exotic/invasive species.

Vegetation complexity contributes to water quality protection by providing many layers through which precipitation may be intercepted and evaporated. Where complexity is reduced, there is greater potential for forest disturbances to have a greater immediate impact on water quality. Total percent vegetative cover at ground level ranged from 13% to 63% at the various research sites. These data can assist land managers in determining whether some forest stands require the application of various silvicultural practices to encourage more complexity.

Some initial data analysis has resulted in negative findings that also bear on watershed management concerns. For example, surface soil pH values had no statistical correlation with dominant overstory species. No correlation was found between overstory species richness and occurrence of either native or exotic species in the understory. Other interrelationships in parameters in all vegetation levels will be further explored through additional data analysis.

Problems Encountered: None.

2.2.4 Effects of Silvicultural Treatment on Forest Ecosystem Health

Manager: Deborah Layton
Start & Completion Date: April 1999 to May 2010
Status (% Complete): 20
Project Cost: N/A
Objective and Justification:

The objectives of the study are:

- To determine whether recruitment of desirable species is increased and undesirable species decreased by application of current silvicultural methods on these lands.
- To determine whether observed improvements, if any, are adequate to ensure forest cover without further intervention.
- To determine whether enhanced seedling germination, survival and growth, or other aspects of forest health are desirable.

Silvicultural treatments were applied to selected areas near reservoirs as part of dam rehabilitation projects. Work consisted of removal of hazardous trees (particularly along highways, utility corridors, and property boundaries), management of exotic shrubs and vines by cutting, removal (when feasible), and cut-stem treatment with herbicide (as needed), and thinning of stands to encourage establishment and growth of native regeneration.

To date, no areas suitable for treatment have been excluded from treatment to serve as control plots. This occurs because of management considerations that are beyond the control of researchers involved. Thus, measurement methods were selected to circumvent this problem. Baseline measurements were completed during the summers of 1999, 2000 and 2001 at West Branch, Bog Brook, East Branch, Amawalk, Titicus, Cross River, Middle Branch, Muscoot, and Kensico Reservoirs. At Amawalk, Titicus, and Cross River reservoirs, the silvicultural treatment had already taken place prior to plot installation, so an attempt was made to locate sites with similar species and conditions to serve as control plots to match with these treated sites. To determine whether the treated and untreated areas could be used for statistical analysis, the following conditions must be met:

- The treated site must have a lower average basal area than the untreated site,
- The overstory species must be similar with evidence that undesirable species, if any, were partially or completely removed from the canopy in the treated area and still exist in at least a portion of the plots in the untreated area and
- The understory species must be similar with evidence that any exotic/invasive species were removed from the treated area and continue to exist on at least a portion of the untreated area.

Of the sites selected for possible side-by-side comparison, only one of the Amawalk sites met the necessary criteria for similarity between the treatment and control. At the other reservoirs, a before-and-after sampling scheme was initiated.

Pre-treatment plots were established at West Branch, Kensico, and Bog Brook Reservoirs. Neither Kensico nor Bog Brook has yet received treatment. Silvicultural treatment work was completed at West Branch from early September 1999 through late April/early May 2000. As the sites required at least one growing season to recover from treatment, no measurements were taken in the summer immediately following cutting. Initial post-cut measurements were completed in the summer of 2001.

Implications for Watershed Management:

On the Amawalk site there has been a favorable reduction in overall coverage of exotic species but, to date, the number of tree seedlings has not reached a desirable number. Results from the first year after thinning at all three West Branch sites indicate a substantial increase in numbers of seedlings. All three sites now have in excess of 10,000 tree and shrub seedlings per acre. Only one site has experienced an increase in numbers of exotic/invasive seedlings though all have experienced some increase in exotic/invasive cover.

The study will be measured and reported at least two more times over the next 5 years before any recommendations can be made about continuing this treatment on other sites.

Problems Encountered: None.

2.2.5 Deer Herbivory Impacts on Forest Regeneration: Deer Exclosure Study

Manager: Deborah Layton
Start & Completion Date: September 1999 to December 2008
Status (% Complete): 35
Project Cost: N/A
Objective and Justification:

The objective of this project is to obtain basic information on the impacts of deer on the watershed. It is generally believed that locally high deer populations in the Croton watershed are adversely impacting forest tree seedling regeneration and overall plant ecosystem structure and diversity. Many researchers have used deer exclosures as a way of observing the direct impact of deer herbivory on the understory in forests.

Some very small (1 meter diameter) plots were previously established in the watershed to observe deer herbivory impacts. These showed increased numbers and sizes of tree seedlings within the small fences but findings were somewhat difficult to interpret as the small exclosures tended to collect large quantities of leaves that may have improved microsite conditions

(increased moisture and nutrients, improved protection from cold) beyond that of simply removing deer herbivory. For this reason, DWQC's Natural Resources Division constructed larger deer exclosures to further study local deer herbivory impacts.

In the spring of 2000 two large deer exclosures were constructed on the Croton watershed–one at Bog Brook Reservoir and one at Kensico Reservoir. These consist of a 60 foot by 60 foot square chain-link fence eight feet high, with a locked gate at one corner of the fence for researcher access. Each exclosure plot has a companion plot nearby in the same forest stand. The Bog Brook 1 site primarily has a red pine overstory while the Louden Cove 1 site is primarily hardwood. In the spring of 2001, a second deer exclosure was erected at Bog Brook Reservoir in a Norway spruce stand nearby the first exclosure. A companion control plot was also established in this stand.

Baseline measurements were taken one growing season following installation of the plots. Measurements have been repeated annually through the fall 2002. Results to date have not shown any statistically significant difference between the fenced and unfenced areas. Both sites are scheduled for thinning within the next few years. It is expected that differences in herbivory will become more apparent following the thinning operation.

Implications for Watershed Management:

This project will obtain basic information on the impacts of deer on the watershed to help guide decisions on proper forestry management.

Problems Encountered: None.

2.2.6 Forest Ecosystem Health Assessment Phase II: Continuous Forest Inventory West of Hudson

Manager: Deborah Layton
Start & Completion Date: Long-term study begun May 2002
Status (% Complete): ongoing
Project Cost: N/A
Objective and Justification:

The objective of this project is to establish permanent plots for the purpose of gathering information about longer-term forest processes, such as average tree height, diameter and volume growth rates; mortality and recruitment; and general changes in species composition. Continuous Forest Inventory (CFI) plots will provide this data and track larger-scale changes in forests over time in a way that is similar to the Forest Service Forest Inventory and Analysis or Forest Health Monitoring plots, but at a scale that is better suited to management of City-owned lands.

The first season of plot establishment and data collection performed in the Ashokan basin in 2002 serves as the pilot project for other CFI plots to follow. CFI plots will be established during the growing season in each major basin in the WOH region each year until plots are distributed on all basins. Plots will be re-measured at approximately 10-year intervals in order to monitor overall stand dynamics.

Implications for Watershed Management:

Land managers on New York City watershed lands intend to manage the watershed's forests for ecosystem integrity and sustainability as existing literature indicates that higher water quality can be expected from lands that recover quickly from disturbance. Many kinds of information are needed to gain an overall picture of the health and sustainability of NYC-owned forests. A substantial database and scientific study of local conditions is required to write Basin Management Plans for City-owned lands and to offer guidance to local governments concerning land and forest management for water quality. This study will contribute to this database and may serve in the development of useful tools and equations that will expedite continuing inventory and management efforts throughout the watershed.

Problems Encountered: None.

2.2.7 Stream Management Program

Manager: Dan Davis
Start & Completion Date: 2000 – 2004
Status (% Complete): 50
Project Cost: $357K (SDWA funds)
Objective and Justification:

The Stream Management Program (SMP) is coordinating a set of studies to a) identify channel forming flows and associated hydraulic geometry at USGS stream gages in order to improve the accuracy of regional relationships of bankfull discharge/hydraulic geometry to drainage area, b) develop design geometry and fluvial processes data for up to 15 reference stream reaches and monitor biological and aquatic habitat, c) monitor the effectiveness of stream restoration demonstration projects installed on three unstable stream reaches, and to monitor six control sites (three stable and three unstable sites), over a five year period, and d) monitor rates of streambank erosion and stream bed scour at a subset of the study stream reaches. This information will ultimately guide NYCDEP's stream management activities by development of stream assessment and restoration tools and databases as well evaluating the effectiveness of the Stream Management Program's stream restoration projects. The Stream Management Program (SMP) will apply the $357,000 SDWA FY2000 grant and DEP match to funding the first two to three years of the proposed database development and project monitoring program. The proposed program spans a minimum of five years and is designed to be able to extend beyond that period contingent upon funding and/or data need.

Previous FAD reports and other NYCDEP documents have referred to an Erosion and Scour Study. As explained below (under the Problems Encountered heading) SMP has postponed the Erosion and Scour Study. In the interim, streambank erosion and stream bed scour rates will be monitored at several reaches in support of the Reference Reach Database Development and Monitoring Effectiveness of Stream Restoration Demonstration Projects.

(a) Bankfull Discharge Regional Relationships: SMP is engaged in the long-term development of identifying and optimizing Catskill Mountain regional bankfull discharge and hydraulic geometry relationships. Bankfull discharge, a common surrogate for channel forming discharge, forms a basis for assessing and classifying stream morphology. Bankfull channel dimensions are also used as the basis for natural channel design. Regional relationships, presented in the form of equations and curves are tools used to identify bankfull discharge in the field as an important part of stream assessments and to assist in developing and evaluating restoration designs. The SDWA FFY2000 grant award to the SMP includes funds to reactivate 5 discontinued USGS gages (selected to optimize the data set) and to perform calibration surveys at up to 10 USGS gages (including the 5 reactivated gages). DEP has contracted with USGS to reactivate the gages and to assist in the surveys.

(b) Reference Reach Database Development: SMP is currently developing a database documenting baseline and ongoing geomorphic and biologic conditions at up to 15 reference stable stream reaches. Documenting the form and function of stable stream reaches, which owing to their morphology are able to effectively pass both flood flows and sediment supplied by their watershed, will provide a valuable set of templates for stream stability restoration design BMPs, and a baseline of sediment transport, hydraulic and biologic characteristics for stable streams in the NYC watershed. This effort is a compilation of data collection efforts to characterize hydrology, geomorphology, and biology. SMP has contracted with USGS to perform hydrologic and biologic analyses on the selected reference reaches. The funding for this phase includes installation of crest stage gages (CSGs) at up to 5 reaches, developing associated discharge-stage rating tables, conducting aquatic habitat surveys, fish population/community assessment and sampling benthic macroinvertebrates at all selected reference reaches. USGS is also working with SMP to perform a particle tracer study which will identify bed mobilizing flows in 5 reference reaches. SMP is also performing stream bed material composition analysis (via seiving sediment), and detailed, design engineering level topographic and morphologic surveys at five of the reaches. Additional funding will be required to continue similar surveys/assessments at the reference reaches and to install CSGs at reference reaches beyond the first five. The full scope of the project consists of at least five years of data collection/analysis. NYCDEP will work with USGS via a contract partially paid for by SDWA grant funds to perform work necessary to satisfy the scope of this project. Additional contracts with soil and water conservation districts and licensed surveyors will also be necessary.

(c) Monitoring the Effectiveness of Stream Restoration Demonstration Projects: The development of Stream Management Plans includes the design and construction of one or more Best Management Practices (BMPs). Many of the BMPs will employ natural channel design concepts in stream restoration projects. These projects are considered demonstration projects because they are intended to demonstrate alternative methods of solving stream instability/water quality issues. The effectiveness of at least three BMPs will be evaluated using a set of three reaches per BMP: the BMP treatment reach, a control reach without treatment, and a stable reference reach. Each of these reaches will be monitored parallel in time, and include crest-stage gage installation and discharge rating curve development, geomorphic assessment, biological monitoring, aquatic habitat monitoring, and bed material composition analysis. The full scope of the project consists of at least five years of data collection/analysis. NYCDEP will work with USGS via a contract partially paid for by SDWA grant funds to perform work necessary to satisfy the scope of this project. Additional contracts with soil and water conservation districts and licensed surveyors will also be necessary.

(d) Stream Erosion and Scour Monitoring: Monitoring streambank erosion rates and stream bed scour and fill will be useful in identifying (1) natural erosion and scour rates in stable streams and (2) evaluating the effectiveness of stream restoration projects to reduce erosion and scour rates. This project is really a component of projects (b) and (c), in that a sub-set of the reaches in those two projects will be monitored for stream bed scour. Future reporting will provide the status of these activities in the respective studies, therefore there won't be a reference to project (d) in subsequent reports. Streambank erosion rates will be monitored at permanently monumented cross sections at all reference reaches and at six (6) reaches in project (c): three treatment reaches and three control reaches. This effort will also serve as a pilot study to evaluate the use of scour chains as an effective means of measuring stream bed scour in Catskill Mountain streams, which are typcially coarse-bedded.

Implications for Watershed Management:

The SMP database developed by the projects outlined above is considered important to successfully implementing stream management plans to reduce sediment transport and erosion developed for priority sub-basins in the NYC WOH watershed. SMP is currently working with county Soil and Water Conservation Districts (SWCD) to develop plans for Batavia Kill, West Branch Delaware River, Broadstreet Hollow, Stoney Clove, and Chestnut Creek. Future plans will be developed for Esopus Creek, West Kill, East Branch Delaware River, and Schoharie Creek.

Regional curves for the Catskills have been developed (and will be augmented by the above project) and are applied in the watershed assessments for each basin. The reference reach database is under development and SMP anticipates that the data will be useful in identifying target reference conditions for assessment of streams and restoring unstable stream reaches. Rather than relying on reference reach data developed outside the area of management, SMP and other stream managers can use region specific data to help design restoration projects. Monitoring the effectiveness of stream restoration demonstration projects will be useful in evaluating the effectiveness of the natural channel

design method in restoring multiple functions to degraded stream reaches in the NYC WHO watershed. The streambank erosion rate and stream bed scour monitoring will be initiated in Summer 2003. We anticipate that the data will be useful in establishing baseline erosion and scour rates in stable streams as well as documenting the rates in treated reaches and in comparable untreated unstable reaches. Further, we will be testing whether the scour chain method, typically employed in gravel bed and sand bed streams is a viable method in the coarser bed streams common in the Catskills.

Problems Encountered:

There have been a few problems that have resulted in either delays in data collection or in study scope changes. In the Fall of 2001, NYCDEP entered into a contract with USGS to perform many of the tasks described above. Therefore, even though SDWA funds were not available until recently we were able to begin data collection for most of the scope within the original proposed schedule. There were no delays in the biological monitoring and most of the hydrological monitoring is on schedule. The geomorphic survey work that is not performed by the SWCD or SMP staff required development of a contract with specifications for a survey company to perform the tasks. To date, we have been able to identify 9 reference reaches that satisfy the selection criteria. We anticipate adding reference reaches this year, assuming suitable reaches can be identified.

During the 2002 field season, researchers from Pennsylvania State University, with whom SMP had contracted to perform the Erosion and Scour Study scope of work began field surveys. At that time they determined that the methods called for in the study — particularly the bed scour chain installation component — would require significantly greater effort than originally anticipated, due to the coarseness of the bed material in Catskills streams. In Autumn 2002 they terminated the contract to perform the study. The Stream Management Program consulted with members of its advisory board in December concerning this study. Concerns were expressed that scour chain methodology had not been adequately tested in coarse-bed mountain streams, and that the large scope of the study warranted further testing of the methodology before such a commitment of staff resources was made. On their advice, then, the SMP decided to postpone the re-contracting of the Erosion and Scour Study until these methods were further evaluated. Insofar as monitoring through scour chain installation and harvest was already included in the scope of the reference reach database development study and the stream restoration demonstration monitoring study, it was decided to use these as pilot studies for the methodology. Other methods for determining bed scour rates will be researched concomitantly. A final determination regarding the methods will be made following the first "harvest" and re-installation of the scour chains, which will likely occur in 2004.

2.2.8 New York State Freshwater Wetlands Remapping Program

Managers: Laurie Machung/James Benson
Start & Completion Date: August 2002 through December 2004
Status (% Complete): 50
Project Cost: N/A
Objective and Justification:

At DEP's request, DEC is currently examining existing data sources and conducting field work to revise the NYS Freshwater Maps for the EOH watersheds. Specifically, DEC is verifying the boundaries of existing regulatory wetlands, locating additional wetlands that meet the regulatory threshold of 12.4 acres, and identifying smaller wetlands of Unusual Local Importance (ULIs) that are adjacent to the reservoirs.

In 2002, DEP received and reviewed DEC's summary of the draft modifications to the NYS Freshwater Wetlands for portions of the NYC watershed in Westchester County. DEC contractors identified approximately 2302 acres of wetlands for amendment to the states regulatory maps. Through field checks, DEP identified an additional 91 acres. The proposed amendments include 74 ULIs (~ 230 acres) 28 new 12.4-acre or larger wetlands (~ 676 acres) and boundary modifications of 54 existing 12.4 acre wetlands (~1487 acres). Field work for Putnam county map revisions is scheduled for the 2003 growing season.

Implications for Watershed Management:

If adopted after public hearings, these amendments would increase the area of wetlands subject to both DEC regulations and the WR&R. Regulated acres would increase from 5338 acres to 7731 acres in Westchester County alone. A similar increase is anticipated for Putnam County.

Problems Encountered: None.

2.2.9 Wetland Characterization and Preliminary Functional Assessment

Manager: Laurie Machung
Start & Completion Date: March 1 2002 through March 1 2004
Status (% Complete): 40
Project Cost: $83,900
Objective and Justification:

To better understand the distribution, types, and functions of wetlands in the NYC watershed, DEP has contracted the U.S. Fish and Wildlife Service to conduct a "Watershed-based Preliminary Assessment of Wetland Functions" (W-PAWF). For the W-PAWF, the USFWS attaches hydrogeomorphic modifiers to each wetland polygon in the National Wetlands Inventory (NWI)

database to support preliminary, basin-wide assessments of eight wetland functions: surface water detention, streamflow maintenance, nutrient cycling, sediment and particulate retention, shoreline stabilization, fish habitat, waterfowl and waterbird habitat, and other wildlife habitat. Pilot W-PAWF projects were first completed in the West Branch and Boyd Corners Reservoir Basins in 1999 and in the Neversink and Cannonsville Reservoir Basins in 2002. For the current contract, the USFWS will complete a W-PAWF for the entire Croton, Catskill, and Delaware Watersheds.

Implications for Watershed Management:

In its current state, the NWI provides information on the cover types and other general characteristics of wetlands. The addition of hydrogeomorphic features to this database will provide further information about individual wetlands, such as their landscape settings and hydrologic connectivity, that will enable a watershed-scale functional assessment. The hydrogeomorphic characterization will also enable DEP to quantify the abundance of wetlands among various landscape settings. This type of analysis has already proven beneficial for DEP to quantify the acreage of isolated wetlands that were potentially removed from federal jurisidiction in 2002. Thus, the W-PAWF will enable DEP to focus its wetland programs by identifying functionally significant wetlands in need of protection.

Problems Encountered: None.

2.2.10 Mapping Update of Watershed Wetlands and Wetland Trend Analysis in EOH Watershed Wetlands

Manager: Barbara Dibeler

Start & Completion Date: Estimated start date-June 2003; estimated completion date-June 2004 (USFWS contract is not yet registered)

Status (% Complete): 0

Project Cost: $99,300

Objective and Justification:

I. NWI Mapping Update in WOH and EOH Watersheds

This project involves a contract with USFWS to update the National Wetland Inventory (NWI) through analysis of spring 2003, leaf-off, 1:40,000 scale color infrared aerial photography. The original NWI, completed by USFWS in 1995, was based on analysis of medium scale color infrared (CIR) photography dating from 1982-1987.

The NWI update will improve knowledge of present wetland resources by mapping recently constructed ponds and identifying filled or altered wetlands, as well as small wetlands that may have been omitted from the original NWI due to the scale and quality of the aerial photography. For WOH, information on wetland changes and causes of change for the period from 1980s-2003 will be mapped. The updated NWI coverage is expected to be complete by June 2004.

II. Wetland Trend Analysis in EOH Watershed Wetlands

This project continues the recent USFWS EOH wetland trends analysis and will provide insight into the causes of EOH wetland losses and changes since 1994. The first USFWS EOH wetland trends project mapped changes in wetlands and analyzed wetland trends for a 26-year period (1968-1984, and 1984-1994). The 2003 aerial photography acquired for the NWI update spring 2003 (see above) will be used to map and assess the causes of recent changes in wetland cover type, distribution, and extent.

The project will support EOH wetland protection efforts in through up-to-date information on wetland changes and causes of change for the period from 1994-2003. The EOH wetland trend analysis is expected to be complete by June 2004.

Implications for Watershed Management:

Results from this work will support the wetland protection program and regulatory permit decisions, and provide inputs for terrestrial water quality modeling.

Problems Encountered:

Some contractural delays were encountered early on in the project, but the project is proceeding on schedule.

2.2.11 Hydroacoustics Monitoring Program (Fisheries)

Manager: Tom Baudanza
Start Date: June 2003
Completion Date: Ongoing
Project Cost: $191K (for capital equipment); (in-house for on-going component)
Objective and Justification:

Hydroacoustic surveys of reservoir fish populations will be conducted to assess potential impacts associated with chemical treatments. The purpose of this program is to work with DEC to run pilot projects that will: 1) assess potential fish impacts associated with applying copper sulfate for the control of phytoplankton; 2) evaluate fish behavioral response (potential avoidance) to copper exposure; and 3) through long-term monitoring, assess population recoveries where impacts are determined. The monitoring will include initial pre-treatment stock assessments at Rondout, West Branch, New Croton and Kensico Reservoirs to determine seasonal (spring, summer and fall) population levels and distribution patterns prior to chemical exposure. Surveys will then be conducted during pilot applications of chemical treatments (under SPDES permits and when needed) to evaluate both distribution patterns and behavioral response (potential avoidance) to chemical exposure. Post treatment surveys will be conducted and compared with pre-treatment population estimates for evaluating possible impacts. Permanent transects (open water and shoreline) will be established with a Geographic Positioning System(GPS) to precisely determine data

point locations and allow for conducting identical follow-up surveys during and after chemical applications. Population recoveries will also be evaluated as part of the annual post-treatment monitoring.

Hydroacoustic surveys involve placing a hydroacoustic system on a boat, traversing pre-determined GPS transects of the reservoir and sampling fish as they pass through the acoustic beam. Targeted fish produce characteristic traces on chart recorder echograms. The returning signal is relayed to the echo processor to produce estimates of fish density, biomass and size.

Abundance estimates for these surveys are determined by dividing the total number of echoes by the average number of echoes per fish, to obtain an estimate of number of fish sampled. Biomass estimates are calculated by converting average fish target strength data by area to length. The mean length is converted to mean weight using a standardized length-weight relationship. Total biomass for each area is then calculated as numeric fish estimate times the mean weight/ fish. Gill nets will be deployed during the hydroacoustic surveys to validate species composition.

Training in the use of the hydroacoustic gear has been scheduled for June 2003.

Implications for Watershed Management:

The implementation of Hydroacoustics Monitoring will provide several benefits for the DEP goals and mission. The determination of potential impacts to reservoir fisheries will ensure compliance with state regulations governing chemical applications for water quality treatment. In addition, acoustic survey information will allow DEP Operations to adjust intake elevations to minimize fish entrainment and mortality, and subsequent elevations in fecal coliforms due to foraging birds.

Problems Encountered: None.

2.2.12 Stream Reclassification Program (Fisheries)

Manager: Tom Baudanza
Start Date: June 1996
Completion Date: projected 2013
Status (% Complete): 33%
Project Cost: N/A
Objective and Justification:

Streams in New York State are classified and regulated based on existing or anticipated best use standards. The objective of this program is to enhance the protection of watershed tributaries under the New York State Codes, Rules, and Regulations (NYCRR) Title 6, by determining the presence of trout and trout spawning streams. Trout and trout spawning waters have stricter water quality standards and enhanced compliance criteria under any regulated action. The DWQC Stream Reclassification Program (Fisheries) began in 1996.

Reclassification surveys concentrate on likely trout habitat sections of stream including riffles, pools and undercut banks. Streams are electrofished using a Smith-Root Model 12 Electrofisher. All fish collected are held for processing (identification, length & weight) and examined for external anomalies prior to release. Presence of trout under 100mm (young-of-the-year) is used to indicate the occurrence of trout spawning. Physical and chemical stream data collected includes temperature, depth, width, DO, pH, conductivity, stream gradient and estimated discharge. Bottom substrate and land characteristics are also described. Collection reports and reclassification petitions are submitted to DEC on an annual basis.

To date, streams in the watersheds of the Kensico, West Branch, New Croton, Rondout, Ashokan and Schoharie Reservoirs have been inventoried and petitions submitted to NYSDEC for final determination of classification upgrades.

Implications for Watershed Management:

Classification upgrades reflecting trout and trout spawning function to discourage and limit future development within the NYC watersheds through the imposition of higher water quality standards.

Problems Encountered: None.

2.3 Watershed Monitoring, Modeling and GIS

2.3.1 New York City's Ambient Surface Water Monitoring

Manager: Dale Borchert
Start & Completion Date: January 1, 2003 through December 31, 2003
Status (% Complete): 2
Project Cost: $137K
Objective and Justification:

The project objectives are:

- To quantify the analyte load removal efficiency of best management practices that can be determined through high runoff monitoring;
- To quantify the changes in analyte loads from selected catchments that can be observed through high runoff monitoring before, during and following land development activities;
- To provide high runoff monitoring input data for the Reservoir Modeling Program.

During this phase of the study the objectives and accomplishments have been:

- Continue storm event monitoring at the two impact sites and one control site identified and monitored under previous funding awarded for the first two years of this project. The initial proposal involved monitoring two small watersheds, approximately 100-200 acres in area,

where a land use change is expected to occur sometime in the next few years. High Runoff monitoring would occur for approximately 10 years, allowing for approximately 2 years of pre-development monitoring, 2 years of monitoring during construction and 6 years of post-development monitoring. The analytes collected at the site will be Total Phosphorus, Total Dissolved Phosphorus, Nitrite-Nitrate, Dissolved Organic Carbon and Total Suspended Solids. Approximately eight (8) storm events will be sampled each year. Samples will be collected and analyzed based on their location along the hydrograph. Approximately 10 samples will be collected from each sampling location during each storm event.

- Extend for one year the contract for laboratory services that was obtained with the funding for the first two years of this project. This contract has been awarded to Aqua-Pro Tech Laboratories in New Jersey.
- Extend for one year funding for two temporary staff members, whose responsibilities will be the collection and processing of data from these two sites. These staff members were hired with funds from the first two years of the project.
- Purchase small parts or accessories that become necessary for the maintenance of previously purchased equipment.

Implications for Watershed Management:

The results of this project have the potential to guide the Department's regulatory section in their application of the City's Waterhsed Rules and Regulations. This project could identify whether stormwater pollution prevention plans required under the City's watershed regulations are effective at reducing the water quality impacts associated with land use development. It could also identify the change in pollutant loads associated with land use development. This study could contribute to a revision of the Department's expectations of stormwater pollution prevention plans, providing a way to quantify the impact DEP's Regulations have on water quality.

Problems Encountered:

This project is for one year of a study that expects to monitor land use changes over an extended period. Monitoring equipment needed to be installed on catchments where land use changes were expected to occur, but had not yet received their approvals. For one study site, the landowner did not receive an approval on his application to construct a golf course. He has indicated that he will instead construct a residential subdivision on this location. This change in plans would still provide a suitable study area, but at this time, plans for a subdivision have not yet been prepared. At the second study site, the applicant received his approvals and began construction earlier than expected, reducing the amount of pre-construction data available for this study.

2.3.2 Pathogen Fate, Transport and Source Identification Study (Year 1)

Manager: Yves Mikol

Start & Completion Date: Activities began during the Spring of 2002 but the city-wide hiring freeze delayed the hiring of microbiologists necessary to process samples collected. The project will be completed one year from the hiring of three microbiologists.

Status (% Complete): 0

Project Cost: $440K

Objective and Justification:

The objectives of the project are to (a) validate a methodology for rapid field sampling, and (b) apply the methodology to increase the number of sites sampled throughout the watershed and collect additional upstream samples to identify sources.

DEP's pathogen monitoring program has developed since 1992 an extensive database on the protozoan pathogen concentrations at our keypoints, as well as in various streams within the watershed through a substantive fixed frequency, fixed location sampling network. Moreover, the pathogen group has a substantial database on the temporal changes in pathogen concentrations in streams resulting from storm events. These data are being used to correlate pathogen concentration data with differences in surrounding land-use, and other factors in order to identify potential sources of pathogens in the watershed. Ultimately, it is DEP's goal to obtain data not only on the sources of pathogens but also on transport properties. This information is needed for both watershed and risk management purposes. However, the current sampling approach used by DEP requires a substantial investment in labor and equipment. Special pumps and equipment are required to sample the streams, and it takes time to set up the equipment and filter the required 100 liters of water. Due to the sampling constraints, DEP has been unable to systematically monitor and assess the many different small scale projects or locations that might be potential sources or sinks of protozoan pathogens. This type of monitoring should be done in and near the project site, with a sampling approach that is flexible and that can respond to immediate concerns (e.g. an overflowing sewer). Locations of potential interest include, for example, areas of potentially failing septic system, housing developments, wetlands, industrial parks, shopping centers, stormwater outfalls, BMPs, etc.

Since the original submission of the proposal, the first year of this two-year project has been divided in three tasks.

Task 1: The first task focuses on a number of methodological issues that were identified with EPA Method 1623 in order to maximize recoveries. Some of these issues include volume to be sampled, associations between filtering time and flow rates, interferences with the water matrix (clay or organic matter), additional sample washing techniques based on the nature of the interference, and impact of decreased pressure filter on recoveries.

Task 2: The second task will utilize results from the first task to enhance the existing dataset with specific baseflow information on reservoir loading and sources associated with certain land-use. This task is designed as a "range finding" effort to characterize baseflow and stormflow loading. Results from Year 1 will guide the sampling plan for Year 2.

Task 3: The third task will provide for the development of a protocol for in-reservoir sampling. The protocol will be used to identify the relative importance of transport from storm events and will be critical for the implementation of the second year of the program.

Implications for Watershed Management:

The understanding of transport of pathogens (*Cryptosporidium* spp. and *Giardia* spp.) from source points to reservoirs is very important because the data is needed for both watershed and risk management purposes. The proposed work scope will leverage existing DEP resources and will be integrated with other DEP monitoring programs. Laboratory analysis of samples by Method 1623 will enable DWQC field staff to quickly collect 10 L samples. Collection of a larger number of samples at a lower volume will provide better synoptic information about the distribution of sources.

The identification of sampling sites with elevated (oo)cysts within the watershed will provide opportunities to investigate the land use types affecting the sampling sites and remediate anthropogenic sources. The development of protocols for in-reservoir sampling will also assist with the monitoring of sewage spills.

Problems Encountered:

The hiring of three microbiologists is required for processing the sample load added by this project. Uncertainties about hiring dates have delayed the preparation of QAPPs and sample collection.

2.3.3 Stream Biomonitoring

Manager: Martin Rosenfeld
Start Date: August 1994
Completion Date: ongoing
Status (% Complete): ongoing
Project Cost: N/A
Objective and Justification:

The primary objective of the program is the assessment of water quality for the purpose of supporting healthy biotic communities in watershed streams and rivers, through the sampling and identification of benthic macroinvertebrates. Other objectives include trend analysis at sites with a sufficiently long assessment record (>5 years), development of model benthic communities that

reflect a gradient of increasing specific conductance or total phosphorus concentration, and the assessment of impacts from point sources using the NYSDEC's "Biological Impairment Criteria for Flowing Waters".

Biological monitoring is an aspect of water quality monitoring originally called for in the Clean Water Act of 1972. The DEC's Stream Biomonitoring Unit has established clear protocols for documenting impacts to aquatic macroinvertebrate communities in streams, and these protocols have been incorporated into Addendum E of the Memorandum of Understanding between the DEC and the DEP. Since 1994, WQIA has been following these protocols to conduct stream benthic macroinvertebrate biomonitoring in the watersheds of the New York City water supply system.

Implications for Watershed Management:

In addition to providing ongoing evaluation of the biotic health of watershed streams, data generated by the stream biomonitoring program have proved useful in a variety of contexts where the assessment of impacts to aquatic biota from anthropogenic sources has been required. These include the assessment of impacts from spills (e.g., to the Bronx River in November 2000), and from WWTP discharges and suspended solids (to Esopus Creek from the Shandaken Tunnel discharge). Stream biomonitoring data have also been used to nominate waterbodies within NYC's water supply watershed for inclusion on NYS's Priority Waterbody List, and have been included in the FAD Annual Report. Program staff have contributed their expertise to a number of outreach programs, most notably by assisting NYC Trout Unlimited evaluate the feasibility of introducing trout to Alley Creek in Queens, New York.

Problems Encountered:

DEP contracts with an outside laboratory to perform taxonomic identifications of 100-count benthic macroinvertebrate subsamples to levels specified in the program's protocols. The initial contract was let to a laboratory which was later found to be unqualified to perform the work. This contract was cancelled and a new one is in the process of going out to bid. New subsamples were taken and the program will be back on track by the fall of 2003.

2.3.4 Monitoring Crossroads Ventures Proposed Development of Belleayre Mountain

Manager: Tracy Lawrence
Start Date: August 2001
Completion Date: August 2011
Status (% Complete): 10
Project Cost: N/A
Objectives and Justification:

In response to the "Belleayre Resort at Catskill Park" development project proposed by Crossroads Ventures LLC (CRV), the Water Quality Impact Assessment group (WQIA) designed a program to monitor the water quality of area streams before, during and after project construction. The project site straddles the watershed divide between the Ashokan and Pepacton Reservoirs near the Village of Pine Hill. The developer envisions two 18-hole golf courses, a 17 lot residential subdivision, 700 hotel units, associated clubhouses, and maintenance and staff buildings disturbing 573 of the project's 1900 acres making this one of the largest proposed land use changes in the Catskill Region in decades. DEP developed a Quality Assurance Project Plan (QAPP) with an objective to monitor the water quality of six tributaries in the vicinity of proposed development area. The monitoring plan was designed as a 4-phase program with an anticipated duration of approximately 10 years. Phase I of the program, which was implemented from August 2000 to July 2001, involved weekly water quality sampling to describe the pre-development conditions at the six study tributaries. Additionally, one-time sampling for pathogens, pesticides and toxic compounds was conducted and stream community bioassessments were made. Phase II, currently underway, included the installation of automated monitoring equipment to continuously monitor stream stage and includes the development of stream discharge rating curves for all sampling locations. In addition to routine monitoring storm-event monitoring was also an added component of Phase II. Phase III is the construction monitoring phase, and Phase IV is the post-construction monitoring period during which DEP expects water quality to stabilize. This development project has yet to complete the SEQRA process therefore construction has not begun. As this project moves forward WQIA will implement Phases III and IV of it monitoring program.

Implications for Watershed Management:

Little information exists on the affects of large scale land use changes on water quality in the Catskills Mountains, or on the water quality of headwater streams. Headwater streams of the Catskills are major sources of high quality water to the NYC Catskill and Delaware Water Supplies. Information gained from this research will assist in the future management and review of development projects and land-use changes in the Catskill Region.

Problems Encountered:

No problems have been encountered so far. This project is on schedule with adequate staff and resources to meet program objectives.

2.3.5 Pesticide and Toxic Compound Monitoring Program

Manager: Tracy Lawrence
Start Date: ongoing
Completion Date: ongoing
Status (% Complete): ongoing
Project Cost: $120,000 to start; $20,000 annually
Objectives and Justification:

The objectives of the Pesticide and Toxic Chemical Monitoring Program are:

- to identify potential source areas using available data,
- to attempt to detect toxic contaminants in watershed streams,
- to infer the threat to the water supply of any compounds detected, and
- to make recommendations for any future pesticide and toxic compound monitoring programs.

In FY 2000, DEP was granted additional funds to substantially increase monitoring of pesticides and toxics compounds in the watershed. This 2-year program (2001-2002) expanded on past pesticide monitoring by focusing on potential source areas, by including other toxic contaminants such as VOCs, SVOCs, PAHs, PCBs, and metals, and by including analysis of stream sediments.

The project sample design was focused at three scales. The first is at "targeted" sites which are near suspected potential pollution sources (e.g., golf courses and landfills). The second, "node" sites, include major tributaries in order to broadly characterize ambient concentrations at the basin and sub-basin scale. The third is Water Supply System Keypoints, where water leaves a reservoir via an aqueduct to assess source water quality.

The program sampled over 100 sites throughout the upstate watersheds during the 2-year period. Sampling efforts were focused on two annual periods; first pesticides were monitored during the spring and early summer season as these seasons are believed to correspond to periods of higher application rates and higher rainfall events when stream flows are dominated by runoff, and second toxic compounds were monitored during the late summer and fall low flow periods when chronic low-level anthropogenic influences on water quality are expected to be more pronounced. In addition keypoints were monitored annually and will continue to be monitored annually past the completion of this project. Streambed sediments from selected source water tributaries were monitored for the presence of persistent organic compounds and metals.

This extensive monitoring effort identified no significant sources of contamination and no sample results were found to exceed any NYS AWQS. In fact, the vast majority of water quality analyses preformed were reported as non-detect for all monitored compounds. A complete report of the project's findings is in progress. It will include a review of other agencies' research to derive the most complete assessment possible regarding the chronic exposure of pesticides and toxic compounds in NYC Water Supply.

Implications for Watershed Management:

Identifying pollution sources and determining the risk they pose to the water supply are the first steps in the watershed management process. By implementing a source-targeted sampling program and including a review of other agencies' work in a final report, WQIA will evaluate whether or not there is any exposure to pesticides and toxic compounds through the water supply. With the implementation of ongoing watershed management and monitoring programs, this baseline condition is not expected to change in the foreseeable future.

Problems Encountered: None.

2.3.6 Storm Water Monitoring of PAHs and Pesticides using ELISA

Manager: Charles Cutietta-Olson
Start Date: May 2003
Completion Date: ongoing
Status (% Complete): QAPP being written
Project Cost: N/A
Objectives and Justification:

To further characterize the magnitude of the water quality problem of pesticides and PAHs in stormwater, Enzyme-linked immunosorbent assay (ELISA) techniques will be used to quantify some of these compounds in an event-based sampling regime. Past work by the USGS found that samples of stormwater contained higher concentrations of pesticides and pesticide degradates than baseflow samples in two tributaries in the Croton System. DEP's watershed pesticide and toxics sampling program targeted baseflow primarily as event-based sampling typically involves several samples and can be very expensive to analyze for pesticides and PAHs using certified methods. The program will begin by sampling at USGS gage stations in the Croton System watershed so that concentrations can be combined with discharge to develop actual load estimates. Since ELISA is much less costly than certified laboratory analysis, this program should be a very cost-efficient method of investigating a complicated water quality issue.

Implications for Watershed Management:

While detections of pesticides and PAHs in Source Waters are very rare and have never reached MCL concentrations, the fact that detections have occurred at all indicates that some exposure is present. By developing loads for worst-case conditions (e.g., stormwater in urban areas), the Water Quality Impact Assessment (WQIA) group hopes to more accurately characterize the range of concentrations in the Croton System, and also possibly identify source areas that can be managed through BMPs, public education, or other means.

Problems Encountered:

The variety of ELISA laboratory kits are limited to a few select pesticides and semi-volatile compounds can be monitored. Acquiring space to conduct the analyses and store kits (which need refrigeration) are current and anticipated problems, and the kits are perishable and must be used within a prescribed period of time.

2.3.7 Trihalomethane Formation Potential Sources in New York City's Croton System

Manager: Gerard Marzec
Start & Completion Date: Field component 4/99-11/99; Report – second draft completed 9/02
Status (% Complete): 99% (In final review stage)
Project Cost - $119,738 (Projected); $115,400 (Actual)
Objective and Justification:

The objective of this project was to address the management question of how much Trihalomethane Formation Potential (THMFP) precursor material is contributed to New York City reservoirs by upstream watershed sources compared with upstream autochthonous production in the tributary reservoirs. Ultrafiltration of reservoir and stream samples, and loading estimates from upstream sources into Muscoot and New Croton reservoirs, suggest the importance of terrestrial sources of THMFP. Comparisons of upstream and downstream THMFP levels suggest that the upstream reservoirs acted as sinks of THMFP precursors. The contribution of THMFP precursors from wetlands and wastewater treatment plants was quantified. Wetlands proved to be a potentially significant source, especially when they comprise a large part of the watershed. The significance of the contribution from WWTPs increased with the size of the plant and low flow conditions in the stream. At other times, the contribution of the WWTPs was comparable to that of the watershed.

A draft report for all the objectives of the study was completed in 2002 and is awaiting final review.

Implications for Watershed Management:

The results suggest that the watershed-wide management of phosphorus alone would be insufficient for adequate control of THM. Management of TOC/DOC from this watershed appears to be more critical for achieving the goals of meeting future disinfection by-product regulations.

Problems Encountered:

The analytical component of this study was handled by a contract laboratory. This necessitated additional data quality review, laboratory audits and follow-up. Data transfer was an additional problem that required a considerable amount of data entry and review.

2.3.8 Development of an Enhanced Hydrologic Gage Network throughout NYC's 3 Watersheds

Manager: James Mayfield
Start & Completion Date: 7/1/1995 – 12/31/2003
Status (% Complete): 98
Project Cost: $2.8M
Objective and Justification:

The objective of this project is to enhance DEP's hydrologic gauge network. Stream discharge measurements are essential to develop more accurate water budgets, calculate constituent loads, and aid in the interpretation of water quality results. The information can be used to calibrate/verify models, assist in the evaluation of the effectiveness of management practices, aid in trend analysis, and assist in operational decisions. Prior to this project, there were a limited number of flow stations in the NYC water supply watershed. Between 1994 and 1996, seven stream and eight reservoir release flow gauges were installed on the East-of-Hudson (EOH) system through a contract with the United States Geological Survey (USGS). Three additional gauges have since been added to the EOH network for a total of 18 stations. An expansion of the USGS network in the West-of-Hudson (WOH) was begun in 1995. Currently, a total of 49 stations are located in the WOH drainage basins (this number only includes stations upstream of reservoirs, i.e. it does not include reservoir releases outside of the watershed or reservoir elevation stations). Site selection criteria for the stream gauges included: paired upper-lower sites in the same watershed, land use, a multivariate cluster analysis, knowledge of the watershed, and specific data needs. The data from the network are collected and managed by the USGS under a separate contact.

Implications for Watershed Management:

The USGS network provides continuous streamflow data that is used by various programs in DEP for a variety of functions. The stations provide hydrological data that is used in operational decisions, assists in planning water quality sampling and interpreting results, provides critical data for water quality models (GWLF, TMDL, reservoir models, etc.), and in planning management strategies for nonpoint source pollutant control. It is critical that the data be readily available, accurate, and reliable.

Problems Encountered:

Identifying appropriate site locations and securing landowner permission for equipment installation has delayed the completion of the network. The final gauge installation is waiting for approval from the landowner before construction can proceed. If permission is not granted for that site, an alternative location has been determined. The contract will be completed by the end of 2003.

2.3.9 Monitoring of NYC's Reservoirs for Zebra Mussels

Manager: Sharon Neuman
Start & Completion Date: April through November, annually
Status: On-going
Project Cost: Approximately $37,060 per year
Objective and Justification:

The objective of this contract is to monitor all 19 of New York City's Reservoirs for the presence of zebra mussel larvae (veligers) and settlement on a monthly basis April, May, June, October and November, and on a bi-monthly basis during the warm months of July, August, and September. Sampling includes pump/plankton net sampling to monitor for veligers, and substrate sampling as well as bridal veil sampling to monitor for juveniles and adults. The contract lab analyzes these samples and provides a monthly report to the project manager as to whether or not zebra mussels have been detected. To date, zebra mussels have not been found within the NYC reservoir system.

Zebra mussels were first introduced to North America in the mid-1980s, and first identified on this continent in 1988. It is believed that they were transported by ships from Europe in their freshwater ballast, which was discharged into freshwater ports of the Great Lakes. Since their arrival in the United States, zebra mussels have been reproducing rapidly and migrating to other bodies of water at a much faster rate than any of our nation's scientists had predicted. They have been found as far west as Oklahoma, as far south as Louisiana, as far east as New York State, and north well into Canada. They have been found in all of the Great Lakes and many major rivers in the Midwest and the South. In New York State, in addition to Lakes Erie and Ontario, zebra

mussels have migrated throughout the Erie Canal, and are found in the Mohawk River, the St. Lawrence River, the Susquehanna River, and the Hudson River, as well as several lakes. DEP is concerned about infestation of New York City's reservoirs by this mollusk.

Zebra mussels reproduce quickly and are capable of clogging pipes, which would seriously impair DEP's operations, preventing an adequate flow of water from the reservoirs to the City and those upstate communities dependent on the New York City water supply. As suppliers of water to over nine million people, it is DEP's responsibility to monitor New York City's water supply for zebra mussels, since early identification of a zebra mussel problem will allow us to gain control of the situation quickly and will save us money in the long run.

Implications for Watershed Management:

Monitoring for zebra mussels is critical for watershed management, at this point in time. In addition to zebra mussels potentially preventing an adequate supply of water from reaching communities meant to use this system for drinking water, they also create taste and odor problems in the water. Early detection of zebra mussels would allow us to gain control of the problem quickly, as mentioned above, and would allow us to preserve the excellent water quality of this system, as well as save us money, in the long run.

Problems Encountered: None.

2.3.10 Development of 1-D Croton System Models, Phase 1 of 3 Phases

Manager: Todd Echelman
Start & Completion Date: 6/02 - 5/03
Status (% Complete): 90
Project Cost: $99K
Objective and Justification:

Development of One-Dimensional Hydrothermal Models for selected Croton System Reservoirs will be conducted in three phases. Model simulations for the following seven Croton system reservoirs are to be made as a part of Phase 1: Cross River, Amawalk, Titicus, Croton Falls, Diverting, Muscoot, and New Croton Reservoirs. Model calibration for a single year of historical conditions will be conducted on five of these seven reservoirs, these being Cross River Reservoir, Amawalk, Titicus, Croton Falls, and Diverting. Model calibration and verification for two years of historical conditions will be conducted on Muscoot and New Croton.

NYCDEP will provide historical data for either 1998 or 1999 for Cross River Reservoir, Amawalk, Titicus, Croton Falls, and Diverting, and for both 1998 and 1999 for Muscoot and New Croton. Model calibration and verification will be based on these historical conditions. The accuracy of model predictions will be based on a comparison of model predictions and observations for these periods. The predictions and observations used will be water column and outflow temperatures. The continuous simulation of hydrothermal conditions from the spring of 1998 through the fall of 1999, including the winter period of 1998-99, will be included in each simulation.

Implications for Watershed Management:

The Croton watershed can be characterized as a low to medium density residential area and as such, has water quality concerns primarily related to suburban development. These reservoirs are smaller and shallower than the Catskill and Delaware system reservoirs and due to different physical conditions react to external loadings in a different way than the deeper, larger reservoirs. Problems that DEP faces in the Croton System include eutrophication, seasonally high color, oxygen depletion and release of hydrogen sulfide and metals (i.e. Fe and Mn) from the sediments, and bacterial contamination from wildlife or spills. The reservoir models of this program are in an early phase planning and development. The models are planned to have compatibility with the existing Catskill-Delaware reservoir models, with added functionality to accommodate the Croton reservoirs' characteristics. These models will be used to guide both watershed management and operational changes.

Problems Encountered: None.

2.3.11 Development and Application of Watershed Loading Models for Evaluating Effects of Watershed Management on NYC Reservoir Water Quality.

Manager: Elliot Schneiderman
Start & Completion Date: Ongoing
Status (% Complete): Ongoing
Project Cost: N/A
Objective and Justification:

The NYC DEP Modeling Program is engaged in ongoing research to develop, improve and apply Generalized Watershed Loading Function (GWLF) models for simulating water, nutrient, and sediment loads to the NYC reservoirs under various watershed management scenarios. The GWLF models are linked to Reservoir Receiving Water Models for evaluating the effects of watershed management on reservoir trophic state. Improvement of GWLF model parameters and algorithms are implemented and tested as additional data and results of watershed source, fate, and transport studies become available. Model improvement and testing based on new data and research provides increased reliability and confidence in model simulation of watershed processes that effect water quality.

Implications for Watershed Management:

Simulation modeling is a powerful tool for evaluating the effects of watershed land use and management on reservoir water quality. Evaluation of watershed management scenarios using models provides guidance to DEP and watershed management programs for most effective utilization of resources for improving reservoir water quality. The DEP models have been used for a preliminary evaluation of the effectiveness of watershed management programs to control eutrophication in the Cannonsville and Pepacton Reservoirs (NYC 2001 Watershed Protection Summary, Assessment, and Long-term Plan 12/01). This application involves analyses of long-term scenarios, and will be revisited, using updated and improved data and research results, in the next five-year Comprehensive Water Quality/Program Evaluation Report due to EPA 3/31/06.

Problems Encountered: None.

2.3.12 The Development of Six West of Hudson Reservoir Models

Manager: Todd Echelman
Start & Completion Date: 1997-2003
Status (% Complete): 99%
Project Cost: $ 3.7M
Objective and Justification:

Model development for the six West of Hudson reservoirs has been conducted in several phases. The initial phase involved development of one- and two-dimensional hydrothermal and water quality models for a single reservoir (Cannonsville). Subsequently models were developed the five other West of Hudson reservoirs (Pepacton, Neversink, Rondout, Schoharie, and Ashokan) and two East of Hudson reservoirs (West Branch and Kensico), comprising the entire Catskill-Delaware reservoir system. These models were developed to address primarily eutrophication related issues, though additional uses and features have been developed (guidance regarding reservoir operational decisions, THM, resuspension, etc.).

Implications for Watershed Management:

The Catskill and Delaware reservoirs have a diverse set of water quality concerns primarily related to eutrophication and turbidity events. Reservoir models are tools to evaluate reservoir and aqueduct water quality, as a function of external and internal environmental conditions. The primary external forces that drive water quality for the Catskill-Delaware reservoirs are nutrient and sediment loads carried by the streams that drain the surrounding drainage basin, but internal forces within the reservoirs (i.e. resuspension and biogeochemical processes) are also important. The water quality parameters of most concern include: total phosphorus, chlorophyll, turbidity, and algal blooms that generate disinfection by-products (THMs). The reservoir models of this program are designed to assess how watershed management can be used to control these parameters and improve water quality of the water supply.

Problems Encountered: None

2.3.13 Analysis of Stormwater at Beerston –Cannonsville Watershed

Manager: Don Kent
Start & Completion Date: October 1991 – September 2004
Status (% Complete): 85
Project Cost: $520,780 (based on the maximum number of samples analyzed)
Objective and Justification:

The objective of this project is to provide continuous long term nutrient load data needed to support the NYCDEP's ongoing research of the Cannonsville Watershed and Reservoir Models. Beginning in October of 1991 the NYCDEP has funded, under a contract with Health Research, Inc. (HRI), the storm event and routine sampling of the West Branch of the Delaware River at Beerston, NY. Under this contract the NYS Department of Environmental Conservation (NYSDEC) collects storm event and routine samples which are analyzed by the NYS Department of Health (NYSDOH). To date, approximately 5,200 water samples have been collected during each of the five and half previous 24-month contract periods. A sixth 24-month contract has been renewed which, after contract completion, will result in a total of 13 years of data from all the contracts combined. The table below outlines the parameters measured.

Analyses of Water Samples	Number of Samples per Contract Period [1]
Total Phosphorus	800
Total Soluble Phosphorus	800
Soluble Reactive Phosphorus	800
Ammonia-N	800
Nitrate-Nitrite-N	800
Particulate Organic Carbon	400
Soluble Organic Carbon	400
Chlorophyll *a*	400

[1] This is an approximate number of samples which is subject to change based on the frequency and duration of storm event conditions during any 24 month contract period.

Implications for Watershed Management:

Accurate and continuous nutrient loads are a critical aspect of ongoing research designed to increase the reliability of and confidence in the Cannonsville Reservoir and Watershed Model simulations. As these models are used to evaluate the effects of watershed land use and management on reservoir water quality this monitoring needs to be continued so that reservoir responses

to watershed management actions may be evaluated. Additionally, the information gained for Cannonsville in terms of data requirements for model testing and management action evaluation will be useful in assisting similar efforts on the other watersheds.

Problems Encountered:

None

2.4 Data and Methods Development

2.4.1 Communication of Water Quality Data Analyses and Model Applications

Manager: Lorraine Janus
Start & Completion Date:10/00 - 10/04
Status (% Complete): 50
Project Cost: $646K
Objective and Justification:

Task I. Automation of DWQC's Routine Reports: Water Quality Annual and Long-term Trend Reports.

The objective of this task is to automate the production of two related reports. The first report is an annual report (i.e., covers a one-year time period). It will be formulated in such a way that the basic tables and figures will be repeated year after year. The second report design will be one that focuses on analysis of long-term trends. This report will be produced at five year intervals with the data base expanded by five years each time. The "Trends" report is intended to highlight any long-term changes that occur in the water and will contribute to evaluation of the effectiveness of the MOA on an on-going basis

Task II. Condensed Version of the Report on Effectiveness of DEP's MOA Programs.

The objective of this task is to produce a condensed and non-technical version of DEP's report on the effectiveness of the MOA programs to communicate the benefits of watershed management to a broad audience Supplemental Annual Report. At the present, the scope of the report will include: i) a comparison of current water quality to benchmarks (regulatory limits) and an evaluation of long-term trends, ii) description of program implementation since the signing of the MOA in 1997 and quantification of effects to date, iii) projection of future effects of programs in each reservoir basin. This last item required modeling work to estimate the balance between the increasing pressures of 'build-out' with the anti-degradation effects of the Watershed Rules and Regulations and MOA Programs. This balance will affect future pollutant loadings to the water supply and projections of these loads were used to project how reservoirs will respond. Several comparative scenarios were developed, including projections for water quality both with and without MOA programs to highlight MOA effectiveness and expectations for the long-term.

Task III. Bureau-wide, long-term development and project management of DEP's Intra/Internet.

The objective of this task is to meet information demands and to improve the availability of information for decision makers. As of this time, DEP has developed a website with basic descriptive information about the Department, reports, and periodic updates of current information about water quality and *Cryptosporidium*. However, there are increasing demands for more information to be made readily available on a more current basis. The mechanism for the analysis and summarization of an extensive data set, and targeted reporting of the information needs to be developed. The implementation of a web application for database publishing would allow the access of water quality and other databases through the use of browsers (e.g., Netscape or Internet Explorer). The same web application would enable reports to be generated dynamically directly to the internet or intranet. This would greatly automate the data sharing process; as long as data users know how to use a browser, they would be able to access and analyze data.

Task IV. Media Conversion of Historical Water Quality Data

The objective of this task is to make DWQC's historical water quality data more accessible. Microfiche copies of original handwritten lab books will be converted to digital format. The data is currently contained on seventy-one 16 mm micro-cartridges that require an optical reader. The lab books contain the results of chemical, biological and physical examinations made at the Mt. Prospect, Mt. Pleasant, Mt. Kisco, Kensico, Ben Nesin, Grahamsville and Central Laboratories between 1897-1985. These records are essential for analysis of long-term trends and conversion to digital format will make this feasible.

Task V. Implementation of WQIS for Enhanced Data Organization.

The objective of this Task is to implement a Water Quality Information System (WQIS) for enhanced data organization and analysis.. It will allow DEP to display water quality information in a geographically meaningful way and allow integration of the GIS with water quality data.

Implications for Watershed Management:

Better communication with the public, both lay and professional, about the breadth and depth of the City's watershed research and protection programs serves the interests of all involved. Using the medium of the internet puts the facts and many facets of the City's extensive efforts at the fingertips of millions of individuals who consume the water supply being protected as well as thousands of people who live near the supply's sources. These constituents can learn of their own stakes in these programs and the ways in which they are linked to each other, upstate and down. Many of the programs are the first of their kinds. Written documentation and a website will make this information more available. Increased accessibility can also help the City and its partners build support for new programs and innovations that may be needed in the future.

Within the Bureau and the Division, this project will make water quality data more accessible to scientific and managerial personnel. Increased data accessibility will result in quicker and more efficient conversions of data into knowledge-based, operational and policy decisions.

Problems Encountered: None

2.4.2 DEP and National Weather Service (NWS) Data Coordination Project

Manager: James Porter

Start & Completion Date: 4/30/02 – ongoing

Status (% Complete): Ongoing indefinitely. Will be modified as data users' needs change, and with changes in technology.

Project Cost: N/A

Objective and Justification:

The are two main objectives of this project: 1) DEP receives specially-designed, Internet-accessible, hydrometeorological products from the National Weather Service and associated River Forecast Centers (e.g., probabilistic forecasts of inflow to reservoirs, used by DEP Division of Operations for reservoir balancing, and additional locations for river stage forecasts used in operating the storm event program; and 2) NWS receives near-real-time (NRT) data from the Hydrology Meteorological Network, which they use for numerous purposes including flood forecasting, emergency management, and calibration of doppler radar areal precipitation estimates. NWS will also add DEP rainfall data to the IFLOWS Internet page of NRT precipitation data, which will be a benefit to both agencies (by providing easy access to rainfall data from any Internet connection) and to Emergency Managers in watershed communities. Several types of historical data are also being shared between agencies for various and sundry research purposes.

This project is based on Recommendations S-1 and G-6 of the report "Recommendations to Address Flood Warning Deficiencies in the Delaware River Basin" (Delaware River Basin Commission, Flood Advisory Committee, April 2001). It was specifically requested by the Chair of the DRBC Flood Advisory Committee via a letter to DEP. The project is being formally tracked by the DRBC.

Implications for Watershed Management:

Specialized products from the NWS will allow DEP Division of Operations to better operate and balance the reservoirs, and will assist DWQC with storm event sampling. This project has also opened useful channels of communication with NWS and River Forecast Center staff that DEP now uses to obtain even more detailed and timely information (beyond what is available on the Internet) in planning for, and during, major storm events, snowmelt, etc. Through acquisition of NRT data from DEP, NWS greatly improves their ability to make highly localized and timely forecasts of floods and other dangerous weather-related situations. This benefits local communities, in the spirit of the Watershed Agreement, and also benefits DEP staff and facilities located in the watershed. Additional benefits and management implications will surely arise in the future as this collaboration continues.

Problems Encountered: None

2.4.3 Ribotyping of *E. coli* from Sewage Treatment Plants

Manager: Neil deLuca
Start & Completion Date: November 2002 - November 2003
Status (% Complete): 10
Project Cost: $16K
Objective and Justification:

The objective is to provide links between *E. coli* in the water supply to *E. coli* from possible sources of contamination. DEP has been ribotyping *E. coli* isolates from the watershed from a variety of sources since December 1999. These sources included geese, gulls, dogs, wildlife and water samples. The addition of sewage treatment plant (STP) *E. coli* to our ribotype database will allow DEP to make a more comprehensive comparison of possible contaminants to NYC source water supply, by adding *E. coli* most likely from humans to the library. The inclusion of human *E. coli* will increase the size and versatility of our data set, since there has been a limited set of human *E. coli* in the library.

We are currently in the collection phase of the project; isolating, confirming and storing *E. coli* from specific STPs. DEP will be also collecting *E. coli* from a rest stop on a major road, which should be exclusively human. The restriction enzyme *Hin*d III will be used for the ribotyping phase of this project, with the use of an additional enzyme if necessary.

The *E. coli* ribotyped for this project are likely mostly of human origin. These ribotypes will either create or be added to an existing RiboGroup. Identification of individual host sources of fecal *E. coli* is our goal and a prerequisite for remedial action by DEP management. The comparison of RiboGroups will be made by two methods. First we will compare RiboGroups obtained from STPs to RiboGroups in our existing library. Secondly, data will be analyzed by BioNumerics (Applied Maths) which is a powerful statistical tool using a mathematical program, that analyzes datasets to produce correlations for tree and cluster figures.

Implications for Watershed Management:

One of DEP's priorities is to maintain and deliver drinking water of the highest quality to the residents of New York City and the surrounding areas. By the end of this project, we hope to provide management with the information to identify areas by source. Armed with this knowledge, management will be able to take remedial action to assess and correct these situations. It will also provide information important for the identification of coliform-restricted basins.

Problems Encountered: None

2.4.4 Comparison of the Distribution of *Cryptosporidium* Genotypes in Storm Water Samples from Two Watersheds

Manager: Kerri Ann Alderisio
Start & Completion Date: 2001 - 2003
Status: (% Complete): 90
Project Cost: N/A
Objective and Justification:

The objective of this study is to assess the source and public health significance of *Cryptosporidium* oocyst contamination in storm water within two New York City Watersheds. A PCR-RFLP technique based on the small subunit rRNA gene was used in the analysis of 40 storm water samples collected from the Malcolm Brook over a one year period. The distribution of *Cryptosporidium* spp. and genotypes in storm water samples collected in this study was compared with the data obtained from 29 storm water samples from the Ashokan Brook in a previous study done by the New York City Department of Environmental Protection. Results demonstrate some shared genotypes between the two watersheds; however, there were also genotypes recovered that were specific to each site.

The Malcolm Brook catchment is approximately 108 acres in area. It consists of sewered, relatively high-density suburban residential lots (approximately 4 lots per acre), corporate office parks and forested areas. The Ashokan Brook drainage basin, in contrast, is mostly undisturbed and forested, and differs in topography, fauna and flora. Both of these watersheds were studied and compared to determine if there were any differences in the sources identified as contributors of *Cryptosporidium* oocysts, given the varied land use of these areas.

Implications for Watershed Management:

Finding different types of oocysts in different land use areas may help to shape the future design of sampling efforts for *Cryptosporidium* oocysts. This information may be helpful in qualifying the public health risk of different watershed categories with respect to the potential contribution from different sources, since not all *Cryptosporidium* species or subspecies are infectious to humans. Water samples (60 of 69) from both watersheds were positive for *Cryptosporidium* oocysts by PCR, almost all of which belonged to species and genotypes that have never been seen in humans or domestic animals before. Of the 60 positive samples analyzed from both watersheds, 54 (90%) were linked to either known or unknown animal sources. In addition, the detection of *C. hominis*, along with animal types, was noted in several samples collected from the Malcolm Brook over a two-week period in March of 2002. The fact that 90% of samples from both watersheds yielded types from animal species, rather than from humans, significantly helps qualify the risk of infection to humans, and allows management to concentrate more effort on areas impacted by human sources. Altogether, 18 *Cryptosporidium* parasites were found in storm

water samples from these watersheds, only 10 of which could be attributed to known species/ groups of animals. Additional work is needed in this area to help identify the sources of these other 8 subspecies.

Problems Encountered: None

2.4.5 Pressure as a Potential Indicator for the Need to Apply Method Modifications for Improved Recovery of *Cryptosporidium* spp. oocysts and *Giardia* spp. cysts in Water Samples Using Method 1623HV

Manager: Kerri Ann Alderisio
Start & Completion Date: June 2002 – June 2003
Status (% Complete): 85
Project Cost: N/A
Objective and Justification:

The objective of this study is to determine if the recovery efficiency of *Giardia* cysts and *Cryptosporidium* oocysts varies when samples are collected at different filter pressures. Investigators challenged protozoan collection filters (Envirocheck HV) at three different pressures with a matrix created in the laboratory using local Catskill clay. Laboratory created matrix samples were spiked with equal amounts of (oo)cysts and filtered at three different pressures: 10psi, 25psi and greater than 50psi. Percent recovery of the target organisms has been recorded for each pressure.

The most current US EPA method for the analysis of protozoan samples from surface waters (Method 1623HV) recommends performing a matrix spike sample along with the first sample collected at a particular site, with a follow up frequency of every twenty samples. The method does not currently require the monitoring and recording of pressure throughout the filtration process, only that the procedure maintains a flow rate of two liters per minute. Water quality and matrix quality vary within watersheds, as well as across the country, and these differences have the potential to affect the quality of the sample result. Some sample matrices may have high turbidity, but not raise filter pressure; whereas others may have relatively low turbidity yet increase filter pressure dramatically.

Implications for Watershed Management

Preliminary data analysis of field filter pressure and the frequency of the detection of *Cryptosporidium* and *Giardia* indicates a signal of decreased recovery at increased filter pressures. Since there are distinctly different components within the matrices throughout the New York City watershed, the results of this study may have a great impact on the way samples are collected in the future. Results support that samples filtered at the lower pressure had greater (oo)cyst recovery than those filtered at higher pressure – a result of pressure, or increased processing per 50L. These data indicate the importance of monitoring and recording pressure while collecting samples for protozoan analysis, as well as the need to be very familiar with the matrix in a

sample in order to appropriately analyze samples and qualify the data produced at each collection site. This is true for samples collected in house, as well as those collected for national databases such as the upcoming LT2.

Problems Encountered: None

2.4.6 Improved Recovery of *Cryptosporidium* oocysts in High Turbidity Matrix Spike Samples Using a Dual Immunomagnetic Separation and a Sodium Hexametaphosphate Procedure with Method 1623HV

Manager: Kerri Ann Alderisio
Start & Completion Date: October 2002 – April 2003
Status (% Complete): 100
Project Cost: N/A
Objective and Justification:

The objective of this work was to apply two method modifications to US EPA Method 1623HV to determine their effectiveness in improving the recovery of *Giardia* cysts and *Cryptosporidium* oocysts from high turbidity matrices. Sample filtration data resulted in high turbidity and high filter pressure mimicking local storm event measurements. Cyst and oocyst recoveries from these samples were significantly low compared to (oo)cyst recovery from less turbid samples. A dual IMS procedure and sodium hexametaphosphate wash were introduced, both independently and in combination, to attempt to improve the recovery of the (oo)cysts.

Researchers have endeavored to improve the recovery of protozoa from water samples for several years. As a result, there has been much emphasis on both laboratory analytical procedure and field sample collection. With the improved time saving steps of US EPA Method 1623 compared to the ASTM and ICR methodologies there has been increased focus on the ability to process more quality control samples in a protozoan laboratory than ever before. This is particularly true in the area of matrix spike testing. Although the methods have not yet reached 100 % recovery of *Giardia* cysts and *Cryptosporidium* oocysts, laboratories are able to qualify data with the addition of more matrix spike samples in their quality assurance sampling plans. This information is helpful when performing data analysis and when comparing occurrence data for these pathogenic protozoa at different locations throughout various watersheds.

Implications for Watershed Management:

The initial average oocyst percent recovery using the 1623HV method (12%) was increased by the dual IMS procedure (58%), and the sodium hexametaphosphate wash (66%). Results from two trials combining both method improvements demonstrated the most significant *Cryptosporidium* oocyst recovery (81%). The recovery of *Giardia* cysts did not improve significantly with either of the tested methods. Data suggest that these procedures may also improve the recovery of *Cryptosporidium* oocysts from other difficult matrix samples. This information is

extremely valuable to the sample collector and sample analyst, since these two techniques have been shown to improve recovery compared to samples analyzed not using these techniques. Triggers can be established in the field (turbidity/ pressure) that can identify the need to introduce analytical improvements back at the laboratory in order to improve (oo)cyst recovery from certain matrices.

Problems Encountered: None

2.4.7 Croton Process Study

Manager: Kimberlee Kane
Start & Completion Date: 4/1/99 – 6/30/03
Status (% Complete): 95
Project Cost: $6.03M
Objective and Justification:

The objective of this contract is to provide basic scientific information into the hydrological and biogeochemical processes that link land use and geographic sources to water quality. This project is conducted by a research consortium consisting of SUNY-ESF, UFI, USGS, and Syracuse University. The research focuses on the problems of cultural eutrophication and its impacts, as well as problems associated with naturally occurring organic carbon.

The project contains both a terrestrial component and a reservoir component. The terrestrial component included three "intensive sites" that spanned a range of development from pristine to high density residential, "broad brush sites" that sampled a broad range of land uses, wetland studies and an integrative modeling component. The reservoir component conducted specialized monitoring of all the Croton reservoirs, with a special emphasis on New Croton and Muscoot Reservoirs. The reservoir investigations focused on the sources, spatial/temporal variations, and key physical, chemical and biological processes within the reservoirs related to nutrients, organic carbon and color.

Implications for Watershed Management:

This project will provide a strong scientific basis for many management decisions in the Croton System, especially the design of mitigation programs to address problems such as disinfection by-products and phosphorus.

Problems Encountered: None.

2.4.8 Croton Watershed Strategy

Manager: Kimberlee Kane
Start & Completion Date: 12/5/00 – 12/5/03
Status (% Complete): 80
Project Cost: $2.64M
Objective and Justification:

In December 2002, DEP concluded the first phase of the Croton Watershed Strategy project. This project was a two-year effort to develop an integrated watershed management plan for the Croton System. The primary objective of this project is to allow DEP to optimize management efforts and focus limited resources on critical areas to achieve maximum water quality benefit.

For the Croton Watershed Strategy, DEP retained the services of Malcolm Pirnie, Hydro-Qual and LimnoTech to:

- Conduct a watershed assessment for four critical indicator variables: total phosphorus, total suspended solids, pathogens, and toxic chemicals;
- Implement the methodology in a Decision Support Tool to allow DEP to continue to update the watershed assessment; and
- Recommend watershed management alternatives for DEP's consideration.

For the watershed analysis, the twelve Croton reservoir basins were divided into 74 smaller subbasins. The watershed assessment examined both existing conditions in the watershed and potential future impacts to water quality associated with further development of the watershed. A separate assessment methodology was developed for each water quality variable based on available data and current understanding of the watershed sources. The analysis identifies each subbasins' relative potential to impair water quality compared to other subbasins.

Additional work is planned for the Croton Watershed Strategy project in 2003. This work includes the development of a Tracking Tool which will track implementation of projects by basin, estimate reductions of phosphorus based on existing or proposed implementation projects, estimate increases of phosphorus based on new development, and generate basin status reports. Additional critical watershed analyses, field verification and outreach efforts are also planned during the coming year.

Implications for Watershed Management:

The Croton Watershed Strategy project has provided a more detailed and comprehensive watershed analysis than was previously available. It will be valuable in a wide variety of DEP activities such as: prioritization of mitigation projects, guidance for field investigations and water quality monitoring, and SEQRA review of new development projects. The Decision Support Tool will also allow DEP to update this analysis as new data is developed.

Problems Encountered: None

3. Future BWS Research (Funded Proposals)

3.1 Protection and Remediation Programs

3.1.1 USGS Forest Health and Soil Nutrient Status

Manager: Peter Murdoch (James Porter for DEP)

Start & Completion Date: 4/1/02 – 3/31/03

Status (% Complete): This project is the continuation of over 10 years of research on the impacts of acidic deposition on surface water quality in the NYC water supply watersheds. The current work is just one funding cycle of an on-going project expected to last several years into the future.

Project Cost: $785K

Objective and Justification:

The overall goal of this study is to learn to use forest harvesting to increase the retention of nutrients (mainly nitrogen and calcium) and decrease acidification and release of aluminum into surface waters in forested regions impacted by acidic deposition. As 75-80% of the West-of-Hudson water supply region is forested, this could be an extremely important tool. Specific objectives are: 1) Determine an approximate threshold of forest harvesting intensity above which nutrient release to surface waters is increased (degrading water quality), and below which nutrient release is reduced (improving water quality); 2) Determine how the availability of calcium and nitrogen affects the growth and health of, and nutrient release from, declining sugar maple stands; 3) Use forest growth models in conjunction with the results of Objectives 1 and 2 to predict the long-term (50-100 year) consequences of the interactions of nitrogen deposition, Ca depletion, and forest harvest, with obvious implications for long-term forest health and water quality; and 4) Develop a regional map of forest condition and sensitivity to logging with regard to surface water quality impacts.

Implications for Watershed Management:

This research will help managers develop scientifically-based land management plans aimed at maintaining and improving water quality. Such a tool has great significance for DEP. As part of the Watershed Agreement, DEP is spending at least $250 million on land acquisition within the watershed. Given that 75-80% of the West-of-Hudson water supply region is forested, much of the land being purchased is forested. DEP is developing management plans for all acquired lands. DEP also influences management of private forest land through the Watershed Forestry Program, in which planners develop management plans for private landowners. To date, over 250 management plans have been developed, covering over 40,000 acres. There is also the potential to influence management of state-owned lands within the watershed.

Problems Encountered: None.

3.1.2 Stream Management Program Research

Manager: Dan Davis
Start & Completion Date: 2003-2005
Status (% Complete): 0
Project Cost: $294K
Objective and Justification:

As described in Section 2.2.7, the Stream Management Program (SMP) is engaged in developing baseline data on stream condition in the Catskill Mountains for stable (reference) stream reaches, unstable stream reaches and stream restoration project reaches. Two of the four studies required additional funding to continue the baseline monitoring effort. The bankfull discharge study and erosion and scour monitoring (redefined erosion and scour study) have sufficient funding from the FFY2000 SDWA grant and SMP funds for completion. The principle objectives of the two studies requiring additional funding are (1) provide a baseline of sediment transport, hydraulic, and biologic characteristics for stable streams in the NYC WOH watershed; (2) inform stream restoration design; and (3) to evaluate the effectiveness of the SMP in protecting and enhancing the raw stream water quality in the NYC WOH watersheds. The information from the studies described below will help guide NYCDEP's stream management activities by development of stream assessment and restoration tools and database as well evaluating the effectiveness of the Stream Management Program's stream restoration projects. The Stream Management Program (SMP) will apply the $294,000 SDWA FY2001 grant and DEP match to the proposed database development and project monitoring program as described below. The proposed program spans a minimum of five years and is designed to be able to extend beyond that period contingent upon funding and/or data need. It is likely that the reference reach database project will require additional funding to continue.

(a) Reference Reach Database Development: This is a continuation of SMP's database development documenting baseline and ongoing geomorphic and biologic conditions at up to 15 reference stable stream reaches. Documenting the form and function of stable stream reaches, which owing to their morphology are able to effectively pass both flood flows and sediment supplied by their watershed, will provide a valuable set of templates for stream stability restoration design BMPs, and a baseline of sediment transport, hydraulic, and biologic characteristics for stable streams in the NYC watershed. This effort is a compilation of data collection efforts to characterize hydrology, geomorphology, and biology. SMP has contracted with USGS to perform hydrologic and biologic analyses on the reference reaches. This phase of the project will include installation of crest stage gages at up to 5 reaches, developing associated discharge-stage rating tables, conducting aquatic habitat surveys, fish population/community assessment and sampling benthic macroinvertebrates. USGS is also working with SMP to perform a particle tracer study which will identify bed mobilizing flows in 5 reference reaches. This phase will continue the effort. SMP is also performing stream bed material composition analysis (via sieving sediment),

and detailed, design engineering level topographic and morphologic surveys. This phase of the project is intended to provide up to one-two more years of sampling and analysis at the study reaches.

(b) Monitoring the Effectiveness of Stream Restoration Demonstration Projects: This is a continuation of the project described in Section 2.5.1. The effectiveness of at least three BMPs will be evaluated using a set of three reaches per BMP: the BMP treatment reach, a control reach without treatment, and a stable reference reach. Each of these reaches will be monitored parallel in time, and include crest-stage gage installation and discharge rating curve development, geomorphic assessment, biological monitoring, aquatic habitat monitoring, and bed material composition analysis. This phase of the project is intended to provide up to two more years of sampling and analysis at the study reaches.

Implications for Watershed Management:
Same as described in Section 2.2.7.

Problems Encountered: None.

3.1.3 Reference Wetlands Monitoring Program - Year 1

Manager: Laurie Machung
Start & Completion Date: pending contract registration
Status (% Complete): 2
Project Cost: $262K
Objective and Justification:

The objectives of the reference wetland monitoring program are to compare the baseline characteristics and water quality functions of wetlands among the various hydrogeomorphic settings described by the USFWS in the Watershed-based Preliminary Assessment of Wetland Functions. From 2000 to 2002, Natural Resources monitored the vegetation, soils, and surface water quality of six wetlands located throughout the West Branch and Boyd Corners Reservoir Basins.

In 2003, a two-year monitoring program will be initiated in the Catskill and Delaware Watersheds through Safe Drinking Water Act funds. In the first year of the Catskill/Delaware Monitoring Program, 22 reference wetlands occupying terrene and lentic landscape positions throughout the Catskill and Delaware Watersheds will be selected. Baseflow sampling of the 22 reference sites will be initiated in year 1. Water quality samples will be collected from the wetland outflows and analyzed for dissolved major cations, pH, specific conductance, total alkalinity, Cl, TN, TP, and DOC. Storm and groundwater sampling will be conducted at a subset of the study sites in order to develop rudimentary mass balances. Vegetation and soil sampling will also be completed at 11 of the 22 sites in year 1.

Implications for Watershed Management:

Results from this monitoring program will enable DEP to compare water quality functions of terrene and lotic wetland types. Analysis of reference wetland water quality and vegetation data in a hydrogeomorphic context will also provide a framework for the development of wetland assessment methodologies to guide both regulatory and non-regulatory wetland protection programs.

Problems Encountered:

While site selection has been initiated, sampling for this project will be delayed until the registration of an agreement with SUNY ESF. SUNY ESF will conduct baseflow and storm sampling upon contract registration. Vegetation, soils, and water quality monitoring will be delayed pending the hiring of two temporary Research Assistants.

3.1.4 Reference Wetlands Monitoring Program – Year 2

Manager: Laurie Machung
Start & Completion Date: pending contract registration
Status (% Complete): 0
Project Cost: $238K
Objective and Justification:

This project is the continuation of the Catskill/Delaware reference wetlands monitoring program established with Safe Drinking Water Act Funds to compare the baseline characteristics and water quality functions of terrene and lotic wetlands. In year 2, water quality, vegetation, and soil sampling will be completed at the 22 reference sites. Storm and groundwater sampling will be completed and rudimentary mass balances will be developed to assess nitrogen and phosphorus budgets for a subset of terrene and lotic wetlands. A final report summarizing the findings of the monitoring program will be produced.

Implications for Watershed Management:

Results from this monitoring program will enable DEP to compare water quality functions of terrene and lotic wetland types. Analysis of reference wetland water quality and vegetation data in a hydrogeomorphic context will also provide a framework for the development of wetland assessment methodologies to guide both regulatory and non-regulatory wetland protection programs.

Problems Encountered:

Year two of the Wetland Functional Assessment Project will not be initiated until year one (Grant 3) tasks have been completed and SDWA Grant 4 funds are in place. The project schedule for year one is dependent on the registration of an agreement with SUNY ESF and upon the hiring of two Research Assistants.

3.2 Watershed Monitoring, Modeling and GIS

3.2.1 Ambient Surface Water Quality Monitoring

Manager: Dale Borchert
Start & Completion Date: January 1, 2004 through December 31, 2004
Status (% Complete): 0
Project Cost: $200K
Objective and Justification:

This proposal is a continuation of the work described in section 2.3.1. The project objectives are:

- Continue storm event monitoring at the two impact sites and one control site identified and monitored under previous funding awarded for the first three years of this project. The initial proposal involved monitoring two small watersheds, approximately 100-200 acres in area, where a land use change is expected to occur sometime in the next few years. High Runoff monitoring would occur for approximately 10 years, allowing for approximately 2 years of pre-development monitoring, 2 years of monitoring during construction and 6 years of post-development monitoring. The analytes collected at the site will be Total Phosphorus, Total Dissolved Phosphorus, Nitrite-Nitrate, Dissolved Organic Carbon and Total Suspended Solids. Approximately eight (8) storm events will be sampled each year. Samples will be collected and analyzed based on their location along the hydrograph. Approximately 10 samples will be collected from each sampling location during each storm event.
- Extend for a fourth year the contract for laboratory services that was obtained with the funding for the first three years of this project.
- Extend for one year funding for two temporary staff members, whose responsibilities will be the collection and processing of data from these two sites. These staff members were hired with funds from the first two years of the project.
- Purchase small parts or accessories that become necessary for the maintenance of previously purchased equipment.

Implications for Watershed Management:

The results of this project have the potential to guide the Department's regulatory section in their application of the City's Watershed Rules and Regulations. This project could identify whether stormwater pollution prevention plans required under the City's watershed regulations are effective at reducing the water quality impacts associated with land use development. It could also identify the change in pollutant loads associated with land use development. This study could contribute to a revision of the Department's expectations of stormwater pollution prevention plans, providing a realistic look at the impact our Regulations have on water quality.

Problems Encountered: None.

3.2.2 Pathogen Fate And Transport Study (Year 2)

Manager: Yves Mikol
Start & Completion Date: This project will start at completion of Year 1 of the study.
Status (% Complete): 0
Project Cost: $200K
Objective and Justification:
Objective 1: Targeted sampling program follow-up

DEP will conduct data analysis from Year 1 results and select sites with positive findings, continue monitoring at these primary sites, identify and monitor intermediate sites between primary sites and reservoir, and evaluate pathogens transport.

Objective 2: Fate in reservoirs

Results from the first year sampling may suggest that more intensive sampling is warranted at sites within reservoirs following storm events. Multiple data sets will be required to compensate for uncontrollable parameters (i.e., variability between storm events and laboratory holding times).

Implications for Watershed Management:

Data collected will provide information on land-based sources of pathogens and pathogen transport into the reservoirs. This information is needed for both watershed and risk management purposes.

Problems Encountered:

Start of Year 1 has been delayed till June-July 2003. Year 2 will begin at completion of Year 1.

3.2.3 Croton System Reservoir Models

Manager: Todd Echelman
Start & Completion Date: pending contract registration
Status (% Complete): 0
Project Cost: $100K
Objective and Justification:

The objectives of this project is to further develop reservoir models for the Croton System as listed below:

Phase I - See Section 2.3.10.
Phase II – testing of reservoir hydrothermal and water quality models
Phase IIa. New Croton Reservoir (limited model testing and setup, described herein)
Remainder of Phase II – testing of water quality model for New Croton Reservoir; setup and testing of hydrothermal and water quality models for remaining Croton System reservoirs.

Phase III – linkage of reservoir and terrestrial models; development of reservoir water quality management software (future; beyond the scope of the work described herein)

Implications for Watershed Management:

The Croton watershed can be characterized as a low to medium density residential area and as such, has water quality concerns primarily related to suburban development. These reservoirs are smaller and shallower than the Catskill and Delaware system reservoirs and due to different physical conditions react to external loadings in a different way than the deeper, larger reservoirs. Problems that DEP faces in the Croton System include eutrophication, seasonally high color, oxygen depletion and release of hydrogen sulfide and metals (i.e. Fe and Mn) from the sediments, and bacterial contamination from wildlife or spills. The reservoir models of this program are in an early phase planning and development. The models are planned to have compatibility with the existing Catskill-Delaware reservoir models, with added functionality to accommodate the Croton reservoirs' characteristics. These models will be used to guide both watershed management and operational changes.

Problems Encountered: None.

3.2.4 Plan for Development of 3-D Kensico Reservoir Model

Manager: Todd Echelman
Start & Completion Date: pending contract registration
Status (% Complete): 0
Project Cost: $70K
Objective and Justification:

The objective is to adapt a three dimensional (3-D) model for Kensico Reservoir, with the capabilities described below.

The NYCDEP needs a Kensico Reservoir model that requires minimal staff commitments (e.g. compatible with Microsoft Windows and with integrated graphic user interface). In addition to hydrodynamic and eutrophication (like other Catskill/Delaware models), the model must have sediment transport (alum floc), particle tracking (pathogen), spill (from adjacent road, bridge, & airport), and flexible user defined (pathogen, turbidity) constituent capabilities, with associated easy grid and control file generation, and post-processing.

All model components will be compatible with Microsoft Windows 95/98/ NT 4.0, or newer releases. Model components shall be designed in separate modules, each with integrated graphic user interface, for easy coupling of modules: hydrodynamics, eutrophication, sediment transport, particle tracking, spill, a flexible user defined constituent module, grid generator, control file generator, and post-processor.

The hydrodynamic module will include equations semi-implicit in time, to increase computational stability and reduce computer run times by avoiding inefficiently small time steps of integration.

The eutrophication module will include five interacting sub-systems: net phytoplankton production, the phosphorus cycle, the nitrogen cycle, the dissolved oxygen balance, and the particulate organic carbon balance (which can be related to sediment exchange processes).

The sediment transport module will include sediment particles in suspension and/or as bedload depending on flow conditions. The sediment mixture will be represented through a suitable number of size classes, with a set of equations for all size classes, taken as a whole and solved simultaneously describing the behavior of a non-uniform sediment, including natural phenomena such as differential settling and hydraulic sorting.

The particle tracking module will be able to deal with fate of sediments as a result of alum treatments. The flexible user defined turbidity module shall include adaptable relationships to solids size classes and carbon species. Constituents of total and fecal coliform will be incorporated into one of the above modules.

The grid generator module will be able to create both rectilinear and boundary fitted grids, with an automated gridding algorithm to generate a land-water-shoreline type grid system. Users shall be able to edit the computer produced grid to better conform to the shoreline or represent openings to restricted passages (e.g. turbidity curtains, narrow aqueduct intake structures, etc.).

Implications for Watershed Management:

The primary external forces that affect Kensico Reservoir are the large inflows of the Catskill and Delaware aqueducts, but local streams and waterfowl also affect water quality in the reservoir. The primary water quality objectives for Kensico Reservoir are strict control of bacterial and turbidity levels to meet the conditions of the Surface Water Treatment Rule, and continuous surveillance for pathogens. The Kensico model development is planned to have compatibility with the existing Catskill-Delaware reservoir models to allow linkage with upstream reservoirs, thus providing a means of tracking the transport of turbidity and organisms in the water supply. This will allow DEP to forecast appropriate times and flow rates for operational changes to protect water quality entering into the distribution system.

Problems Encountered: None.

3.2.5 Assess Adequacy of Phosphorus TMDLs to Control Eutrophication in NYC Reservoirs.

Manager: Mark Zion
Start & Completion Date: Jan. 02 – Dec. 04
Status (% Complete): 5
Project Cost: N/A
Objective and Justification:

The objective of this study is to use DEP's Nutrient Management Eutrophication Modeling System to assess how different phosphorus reduction strategies, consistent with the annual TMDL, affect reservoir trophic state. The Phase II total phosphorus TMDLs for New York City's Reservoirs are implemented to minimize the occurrence of algal blooms and associated water quality impairment for the water supply. The TMDLs are expressed as an annual load of total phosphorus into each reservoir that will result in a target in-lake phosphorus concentration. For the Catskill/Delaware System Reservoirs, an annual load may not sufficiently address the nature of nutrient availability for algal growth. Phosphorus loading reductions targeted on a seasonal basis or from specific sources and land uses may have similar reductions in annual total phosphorus load with differing impacts on reservoir water quality and trophic state. Hence, the reservoir may meet its TMDL but still suffer excessive algal growth during the growing season.

Implications for Watershed Management:

This research project is part of a series of FAD requirements to use DEP's water quality models to provide further recommendations to DEC for any changes in phosphorus TMDLs requirements. Additionally, results of the project may highlight watershed management programs and strategies with the greatest effects on reservoir trophic status.

Problems Encountered: None.

3.2.6 Integrated Program of Measurements, Process Studies, and Modeling for the Turbidity Problem at Schoharie Reservoir and Esopus Creek.

Manager: David Smith
Start & Completion Date: July 2003 – December 2006
Status (% Complete): 0
Project Cost: $2.5M
Objective and Justification:

The primary objective is to develop and test deterministic, dynamic, scientifically credible, models for temperature and turbidity for Schoharie Reservoir and Esopus Creek (supported by the integrated programs of field measurements, sampling and laboratory analyses and process studies) that will be capable of supporting evaluation and design of rehabilitation technologies to abate the turbidity problems of these systems, and simultaneously meet specified temperature goals for Esopus Creek.

Implications for Watershed Management:

The Upstate Freshwater Institute (UFI) will conduct integrated programs of field monitoring/laboratory analyses, process studies, development and testing of turbidity and temperature models, and application of models. These work elements will support evaluation and design of rehabilitation technologies for the turbidity problems in Schoharie Reservoir and Esopus Creek that will continue to meet temperature requirements for specified fish populations in this creek. [This work will be conducted under contract to DEP, and will require extensive co-operation with consultants selected by DEP (operating under a separate contract) who will conduct engineering tasks related to the evaluation of alternatives and design of the selected technology(ies)].

Problems Encountered: None.

3.3 Data and Methods Development

3.3.1 Total Phosphorus Tracking of Lawn Fertilizers

Manager: Kimberlee Kane
Start & Completion Date: June 2004
Status (% Complete): 0
Project Cost: $50K
Objective and Justification:

The objective of this study is to obtain watershed-specific information on lawn care practices, types of fertilizer used and the frequency of application. While many factors will effect the amount of phosphorus exported from managed lawns, lawn care practices, particularly fertilizer use, is likely the most manageable.

This project will survey all homeowners within a reservoir basin regarding their typical lawn care practices, and offer free soil tests and lawn care literature. The survey will also likely ask for information on other potential sources of phosphorus (e.g. automatic dishwashing detergent). The grant money will be used to contract with either the local Soil and Water Conservation District, local college, or local Extension office. The information obtained will be used to assess: percent of homeowners who fertilize, percent of homeowners who use landscaper services, phosphorus content of the fertilizer used, relationship between fertilizer application and soil phosphorus concentrations.

Implications for Watershed Management:

Many of the Croton System reservoirs have elevated levels of phosphorus and require reductions in nonpoint sources of phosphorus in order to meet water quality standards. Since low density residential land is the largest land use in the Croton watershed, effective management options to reduce phosphorus loading from residential areas are desired. This type of watershed-specific data is necessary to further management plans for phosphorus in the Croton watershed.

Problems Encountered: None

3.3.2 Ribotyping Using a Second or Third Restriction Enzyme and a Test Application On Sewers and Septic Systems

Manager: Neil deLuca / Kerri Alderisio
Start & Completion Date: None at this time
Status (% Complete): 0
Project Cost: $138K
Objective and Justification:

The objective in the first phase of this project will be to analyze the data from the previous SDWA project, " Identify Watershed Sources of *E. coli* found in the Water Supply and Estimate Nutrient Contributions from Waterfowl Fecal Matter". This will consist of 2500 archived *E. coli,* ribotyped with *Hin*d III restriction enzyme together with approximately 1200 *E.coli* isolates already run by DEP with *Eco*R1. This analysis will determine if the use of this second restriction enzyme can differentiate origin type (Bacterial Source Tracking – BST) better than one single enzyme. If the use of a second enzyme (*Eco*R1) is determined to be beneficial, then the remaining isolates not yet analyzed using *Eco*R1 will be ribotyped under the second phase to result in a dataset of approximately 2500 *E. coli*, each ribotyped with both enzymes for improved subset discrimination.

The objective in the second phase of this project will be to ribotype 700 isolates with *Eco*R1, based on the findings from the first phase and to increase the size of the potential human sources of contamination in our ribotyped library of archived *E. coli*. This portion also consists of isolating approximately 340 *E. coli* from sewers, septic systems and water bodies and ribotyping using *Hin*d III restriction enzyme. Depending on the analysis in phase I of this project, DEP will determine if additional ribotyping of these 340 *E. coli* with *Eco*R1 is warranted. If the use of *Eco*R1 restriction enzymes is not of any value, a third enzyme, MLU I, will be tried in its place. It is much more cost effective to use a single restriction enzyme when ribotyping, but if two restriction enzymes produce the desired goal, this will become our protocol.

The RiboPrinter Microbial Characterization System is an automated ribotyping system that generates restriction-cut DNA fragments containing RNA sequences that, after processing through algorithms, produce a genetic fingerprint (RiboPrint pattern) of each isolate. These genetic fingerprints are normalized digital representations of the genetic data for each sample. They serve as a stable, reproducible depictions of the genetic data for each isolate analyzed with the RiboPrinter system.

Implication for Watershed Management:

As a result of this project, we hope to be able to better discriminate human fecal contamination from other sources of fecal contamination. If successful, this would allow watershed managers to identify sources of fecal contamination with increased confidence, and to take appropriate remedial action as well as aid in the identification of coliform-restricted basins.

Problems Encountered: None.

4. Review of Research Programs by Outside Agencies

4.1 Protection and Remediation Programs

4.1.1 Stream-Water Chemistry, Nutrients, and Pesticides in Town Brook, a Headwater Stream of the Cannonsville Reservoir Watershed, Delaware County, New York, 1999.

Author: Michael R. McHale and Patrick J. Phillips, USGS.

Date: June 2002

Executive Summary:

A 1-year study was conducted in the Town Brook watershed in Delaware County, N.Y. to determine annual nutrient loads and characterize stream-water chemical and pesticide concentration dynamics. Town Brook drains a 37-km^2 watershed at the headwaters of the Cannonsville Reservoir watershed, which is part of the New York City drinking water supply. The Town Brook watershed was selected for study because it is about 54 percent agricultural land and 45 percent forest, and is the location of research to test the effectiveness of BMPs on farms within the watershed.

This study is a preliminary step to more intensive research to evaluate BMP effectiveness within the watershed. Objectives of the study were to (1) provide an estimate of annual nutrient export from the watershed, (2) document the seasonal variability in nutrient export and identify times of the year when nutrient loading to streams is greatest, (3) investigate the relation between runoff rate and nutrient and pesticide concentrations, and (4) describe the processes that affect nutrient and pesticide release in stormflow, baseflow, and elevated baseflow, and calculate the contribution of each of the flow components to total annual nutrient export.

Annual nutrient loads for 1999 (in kilograms per hectare per year) were: ammonia, 0.25, nitrate, 4.3; total nitrogen, 10.6; orthophosphate, 0.26; total dissolved phosphorus, 0.30; and total phosphorus, 1.2. Although storm-flow accounted for only 41 percent of annual runoff during 1999, it accounted for 49 to 68 percent of annual nutrient export.

Storm-flow pesticide concentrations reflected the "flushing" that occurs during the first storms after spring pesticide applications. Pesticide and metabolite concentrations were as much as 25 times greater during storms than during base-flow and were detected in all storm-flow samples.

Description of Data Collected:

Nutrients	Chemistry	Pesticides [1]	Covariates
Total Phosphorus (TP)	pH	Atrazine	Runoff
Total Dissolved Phosphorus (TDP)	Ca^{2+}	Deethylatrazine	Precipitation
Orthophosphate (OP)	Mg^{2+}	Metolachlor	Temperature
Nitrate (NO_3^-)	Na^+	Metolachlor ESA	
Total Ammonia (NH_3 , NH_4^+)	K^+	Metolachlor OA	
Total Nitrogen (TN)	Cl^-	Simazine	
	SO_4^{2-}	Pendimethalin	
	SiO_2	Deisopropylatrazine	
	DOC		
	ANC		
	Specific Conductance		

1. Samples were analyzed for sixty pesticides and pesticide metabolites. Only those detected are listed

Study Evaluation:

These results emphasize the need for base-flow and storm-flow sampling to characterize the dynamics of chemical and pesticide concentrations in streams and to accurately estimate nutrient export from agricultural watersheds. Nutrient loads will be used by NYC DEP to calibrate the GWLF model for the Town Brook watershed. An evaluation of BMP effectiveness will depend on the forthcoming intensive detailed research that will focus on the source and transport mechanism of agricultural nutrients.

4.1.2 Effectiveness of Whole Farm Planning and Implementation in Achieving Water Quality Improvement and Protection of New York City Water Supplies. (A Paired Watershed Study)

Author: Patricia L. Bishop, NYS DEC, Bureau of Watershed Management.

Dates: 1/1999, 5/2002

Executive Summary:

A research study, which relies on event-based monitoring to track water quality, is being conducted by scientists at the NYS Department of Environmental Conservation in the New York City Watershed to help determine the effectiveness of whole farm planning (WFP) and implementation. The study aims to test the ability of the WFP process to correctly identify significant sources of on-farm pollution, and subsequently recommend and implement cost effective management practices that substantially reduce pollutant losses from those sources. A paired watershed design is utilized consisting of one dairy farm and one non-agricultural control site close to one another and of similar size, shape, elevation and soils. The agricultural watershed is 160 ha

and consists almost entirely of the farm itself. It is the headwaters of a small tributary that arises on the farm. Land use in the watershed is approximately two-thirds forested; the remaining acreage consists of rotated cropland, permanent hayland and pasture, and the farmstead area. The control site is also a headwater watershed, drains 90 ha, and is composed of forest land, abandoned field returning to forest, and shrub land. There is one permanent residence and several weekend residences in the watershed.

Both sites were monitored for two years (June 1993 - May 1995) prior to any BMP implementation. Monitoring resumed in November 1996 and is continuing for seven years. Currently, the project is in the sixth year of post-implementation monitoring.

Description of Data Collected:

Approximately 1300 water samples were collected during the two years of pre-implementation monitoring; the vast majority of which represented runoff event periods. In the four years of post-implementation monitoring, approximately 2500 samples have been collected, with the major emphasis being on runoff periods.

Chemical Analyses	Biological Analyses	Covariates
Total Phosphorus (TP)	Cryptosporidium	Runoff
Total Dissolved Phosphorus (TDP)	Giardia	Precipitation
Soluble Reactive Phosphorus (SRP)	Macroinvertebrates	
Particulate Phosphorus (PP)		
Nitrate + Nitrite (NO_x)		
Total Ammonia (T-NH_3)		
Total Kjedahl Nitrogen (TKN)		
Total Organic Carbon (TOC)		
Total Suspended Solids (TSS)		
pH, Alkalinity		

Study Evaluation:

This is an ongoing study whose results show that between pre and post BMP implementation, a statistically significant decrease in loads was achieved at the farm site.

Unfortunately the effectiveness of each individual BMP in decreasing the total farm load cannot be ascertained. This limits the applicability these results in any modeling attempt to scale these results up to the Cannonsville Reservoir watershed scale.

4.1.3 Evaluation and Management of Phosphorus in the Town Brook Watershed: Initial BMP Investigations

Author: Town Brook Research Group (W.J. Gburek, USDA ARS, Project Manager)

Date: 4/28/2002

Executive Summary:

The TBRG, in association with the WAC, submitted a Safe Drinking Water Act (SDWA) proposal to New York State for $100K from FY 1999 funds. This proposal, titled, "Evaluation and Management of Phosphorus in the Town Brook Watershed: Initial BMP Investigations," was accepted with the following research tasks.

Tasks:

1. Evaluation of soil P amendments targeted for high-P soils that have the potential to reduce P loss in runoff.
2. Evaluation of potential benefits of stream bank fencing and riparian buffers to reduce P loss in the Town Brook Watershed (TBW).
3. Evaluation of the effectiveness of barnyard improvements, as well as filter strips used to treat barnyard runoff, in reducing P loss.
4. Evaluation of the potential for subsurface transport of P below cropped and pasture land within the TBW.

All work on this project was completed and the final report was submitted in Fall 2002. The report was accepted by NYS DEC and US EPA, and the TBRG has been reimbursed for the work. WAC has a copy of the full report, as well as the Executive Summary that provides a brief portrayal of the results of the research.

Overall, the results of the project demonstrate that some existing BMPs, such as stream fencing and vegetated filter strips, can decrease field losses and watershed-scale export of P, as long as the BMPs are properly and continuously managed and maintained. Further, selected coal combustion by-products, when used as soil amendments, have the potential to decrease soil P solubility, and thereby runoff P, with no negative effects on crop yield or trace metal transport.

Description of Data Collected:

Task 1: Water extractable and plant available (Mehlich-3) soil P after incubation of soil amendments in a variety of soils

Task 2: Observation of frequency of cattle defecations and urinations occurring in and near streams; TP, Water-extractable P (WEP), and TN in whole manure patties; rapid bioassessment of stream using EPA rapid bioassessment protocol.

Task 3: Soluble P in monitoring wells and plant available (Morgan's extractable) P in soil samples from vegetative filter strip

Task 4: Soluble P concentration in drainage effluent from undisturbed soil columns in laboratory.

Study Evaluation:

Whole-farm and watershed-scale Best Management Practices (BMPs) expected to reduce phosphorus (P) loss from agriculture are being systematically applied within the New York City (NYC) water supply watersheds by the NYC Watershed Agricultural Program (WAP) that is administered by the Watershed Agricultural Council (WAC). Comprehensive, research-based evaluations of the impacts that selected BMPs, both individually and in combination, have on P loss at the field, farm, and watershed scales are needed. Results of research-based evaluations of BMPs will allow the WAP to develop and implement farm- and watershed-scale management strategies to control P loss from agriculture within the water supply watersheds in an efficient and economical manner.

The Town Brook Research Project received SDWA funding of $100K for fiscal year 1999 and $500k for fiscal year 2000. Research is being conducted by the Town Brook Research Group (TBRG) currently consisting of scientists from The Agricultural Research Service-USDA (University Park, PA), Cornell Department of Biological and Environmental Engineering, USGS (Albany, NY), and the New York City DEP.

To extend the FY 1999 effort, TBRG and the WAC submitted an expanded proposal for $500K against FY 2000 SDWA funding. This proposal was also accepted, with research tasks as follows.

1. Evaluate P balances within the TBW at farm and watershed scales.
2. Delineate critical source areas for P loss based on landscape and management factors.
3. Assess BMP effectiveness in reducing P loss from selected critical source areas.
4. Develop fate and transport models that incorporate effects of BMPs to extrapolate Town Brook Watershed results to the scale of the Cannonsville Reservoir Basin.

The $500K project recently received approval of what has come to be called the "Field" Quality Assurance Project Plan (QAPP) from EPA. A modeling QAPP that will govern the modeling activities under Tasks 1 and 4 is under development. The bulk of the field work will be done during 2003 growing season, extending into early Summer 2004.

4.2 Watershed Monitoring, Modeling and GIS

4.2.1 Water Quality Monitoring in the Source Water Areas for New York City: An Integrative Watershed Approach. A report on the second year of monitoring.

Author: Stroud Water Research Center, Avondale, PA.

Date: November 2002.

Executive Summary:

The executive summary is over six pages long so only the first two paragraphs will be repeated here to indicate what the study is about and progress made to date:

"The Stroud Water Research Center (SWRC) is presenting the results from the second year of a multi-year effort to monitor the water quality in the streams, rivers, and reservoirs that are New York City's (NYC) drinking water supply. The monitoring program involves specific physical, chemical, and biological measures to help measure, quantify, and determine the sources and impacts of selected contaminants across the entire NYC drinking water supply watershed. The project was designed to enhance the on-going monitoring system within the watershed and to provide an additional baseline of information useful in measuring changes in water quality in response to changes in land use and implementation of best management practices (BMP) for mitigating both point and non-point source pollution. The project focuses on the elements of ecosystem impairment (e.g. differences in stream community structure and stream/reservoir productivity, levels of nutrient processing or sequestering) and source (e.g. point sources such as wastewater treatment plants and non-point sources such as agricultural fields).

"With completing the second year of our monitoring program, we now have two years of data collected at our study sites. Patterns in the data are beginning to emerge and we are beginning to get a picture of how the monitoring tasks of our project interrelate to one another within the overall picture of watershed influences on stream water quality in the New York City drinking-water supply area. However, we still do not wish to draw firm conclusions regarding the environmental health of the study sites, broad patterns of water quality, or the sources of contamination in the study watersheds. Once again, we caution the reader against making any firm judgments or drawing any definitive conclusions concerning the relative condition of any given study site based on the two years of data presented here."

Description of Data Collected:

The data collected is for the eight project elements:

- Molecular Tracer Analysis
- Nutrients and Major Ions in Transport
- Macroinvertebrate Community Structure and Function
- Organic Particle Dynamics
- DOC and BDOC Dynamics
- Nitrogen (N), Phosphorus (P), and Dissolved Organic Carbon (DOC) Spiraling
- Net Stream Metabolism
- Reservoir Primary Productivity

Study Evaluation:

It is too soon to evaluate how DEP will use the results of this study.

4.2.2 Watershed Modeling of the Cannonsville Basin 1: Development, Calibration, and Validation of the SWAT2000 Model – Draft: July 2002. SWAT

Author: Bryan Tolson and Christine Shoemaker, Cornell University
Date: July 2002
Executive Summary:

A spatially distributed watershed model of the Cannonsville Basin has been developed using SWAT2000 (Neitsch et al. 2001a) to describe phosphorus transport to the Cannonsville Reservoir. A SWAT2000 parameter set representative of the basin has been developed and successfully tested against measured flow and water quality data. The model will eventually be used to spatially and temporally evaluate the performance of a wide range of phosphorus management options in order to help local decision-makers allocate resources and efficiently reduce phosphorus loading to the reservoir.

Description of Data Collected:

The SWAT2000 model application used previously collected land use, soils, climate, point sources, groundwater phosphorus, agricultural phosphorus sources and management practice data.

Study Evaluation:

In August 2002 DEP reviewed a draft report of work in progress and provided comments to the authors. The work reported on in the report indicated a good start towards the ultimate goal of developing a SWAT model application for Cannonsville. However, the model was not sufficiently calibrated and model testing revealed significant areas where additional model development and calibration were needed. If these areas are adequately addressed in the future, the SWAT model may prove to be a useful tool for DEP, in conjunction with DEP's GWLF model applications, for evaluating the effects of land use and watershed management on reservoir eutrophication.

4.2.3 Phosphorus Impacts From Onsite Septic Systems to Surface Waters in the Cannonsville Reservoir Basin, NY. (DCAP Evaluation)

Author: Laurence D. Day, Delaware County Soil and Water Conservation District
Date: June 2001
Executive Summary:

This study was undertaken to determine the potential phosphorus contributions from onsite wastewater treatment systems (OWTSs, commonly know as septic systems) within the watershed of the Cannonsville Reservoir. This report brings together many facts needed to make this determination, emphasizing local data as much as possible.

Based on DEP records and NRCS soil mapping, GIS analyses indicate that the majority of OWTSs use effluent distribution devices of design inappropriate for the soils in which they were installed. This situation has improved only within the last decade. The problem caused by the inappropriate fit between soil characteristics and OWTS leachfield design increase the likelihood of inadequate treatment of septic system effluent. This may have public health implications beyond environmental phosphorus discharges, such as pathogen transport. It is estimated that existing residential OWTSs in the basin number about 6773. Assuming a typical effluent P concentration of 5.3 mg/L, the 6773 OWTSs would produce a total of 6257 kg yr^{-1} in their effluent. An average distance of 417 ft. separates the OWTSs and surface waters. The average age of OWTSs in the basin is about 30 years.

The proportion of residential OWTS-derived phosphorus reaching surface waters in the Cannonsville basin is estimated to be in the range of 15% to 35% of the total effluent P content. The estimated phosphorus load to surface waters in the basin is therefore expected to range between 939kg and 2190 kg per year.

Description of Data Collected:

Extensive GIS analyses were performed using data records of OWTS locations collected by NYC DEP, soil survey mapping performed by the USDA NRCS, USGS contour maps, NYS DOT planimetric map for house and road data, NYS DEC hydrographic data, Delaware county tax parcel data, and available DOQQs (Digital Ortho Quarter Quad aerial photography).

Study Evaluation:

DEP is using the estimate of 63% of OWTS locations being in unsuitable or marginal soils from the GIS analysis in the report as an estimate of the percentage of failing systems in GWLF modeling of the Cannonsville watershed.

4.2.4 Settling Properties of *Cryptosporidium* and *Giardia* under Different Environmental Conditions

Authors: International Center For Environmental Resources and Development, The City College and University of New York

Date: Draft Report January 2003

Executive Summary:

In general, the protozoan parasites *Cryptosporidium* spp. and *Giardia lamblia* have been implicated as the causative agents of many outbreaks of waterborne intestinal illness. A literature review indicated that *Cryptosporidium* and *Giardia* are commonly detected over a wide range of concentrations in a wide variety of aquatic systems. Water appears to be an important vehicle for transmission of these parasites, along with direct contact with contaminated fecal material or by ingestion of contaminated food or water. Sedimentation has been hypothesized as an important mechanism that reduces the concentration of *Cryptosporidium* and *Giardia* in lakes and reservoirs, and sedimentation rates are needed for modeling work.

Research conducted so far on this issue, lacks information on the settling characteristics of these pathogens in lakes and reservoirs. The present work is trying to address this important issue. An experimental laboratory water column was set up to analyze settling velocities of *Cryptosporidium* and *Giardia* in the flow field.

The experimental set included Particle Image Velocity (PIV), which contains, PIV CAM 10-30 digital camera, synchronizer, laser head and argon laser power supplies. The results were compared with mathematical values of settling velocities using Stokes' Law. In addition, size and density of *Cryptosporidium* and *Giardia* were measured in the laboratory. Results obtained clearly identified that their settling velocities are unique and dependent on the density and diameter of them. In addition the effect of temperature was investigated and proved to be an important factor.

The objectives of this research were to:

- Provide a setting rate that could be used in water quality models.
- Conduct a comprehensive literature review about the settling characteristics of *G. lamblia* cysts and *C. parvum* oocysts.
- Measure particle sizes of *G. lamblia* cysts and *C. parvum* oocysts.
- Measure densities of *G. lamblia* cysts and *C. parvum* oocysts by "Density Gradient Method" using cesium chloride with high-speed centrifuge.
- Calculate the settling velocity of *G. lamblia* cysts and *C. parvum* oocysts using "Stokes Law".
- Measure the settling velocity of *G. lamblia* cysts and *C. parvum* oocysts in a Plexiglas settling tank with the Particle Image Velocimetry system.
- Compare the settling rates derived by different methods.

Description of Data Collected:

The projects data included in laboratory measurements of size, density, and settling velocity for both *G. lamblia* cysts and *C. parvum* oocysts. Additional computations of Stokes Law settling velocities were obtained using an equivalent radius for the cysts and oocysts and a theoretical fluid temperature of 4° C.

Size measurements were conducted on scanning electron microscope images of 7 *G. lamblia* cysts and *C. parvum* oocysts. For *C. parvum*, 7 spherical oocysts measured had diameters ranging between 3.05 and 4.44 μm with a mean of 3.56. For *G. lamblia* 7 ellipsoidal cysts were measured. Lengths ranged from 8.81 to 10.72 μm with a mean of 9.77 μm. Widths ranged from 5.01 to 9.80 μm with a mean of 6.55 μm. Dimensions for each protozoan are similar to previously published values. However the mean for *C. parvum* falls outside the accepted size range for *Cryptosporidium* as published in EPA Method 1623.

Density measurements were made using 5-25% by weight cesium chloride solutions to bracket a range of densities between 1.0365-g/cm^3 and 1.2275-g/cm^3. This method required 500,000 formalized cysts and oocysts to be added to separate vials and centrifuged at 33,000 rpm

for 24hours at 4° C. Madena's 1998 literature value (1.0365-g/cm^3) was chosen as the starting point using a 5% CsCl solution at 1.0365-g/cm^3. Results from the initial trial indicated that both cysts and oocysts had densities greater than 1.0365-g/cm^3. Subsequent trials repeated the centrifugation using two separate brackets (1.0447-1.0788 and 1.0877-1.1245 g/cm^3) for *C. parvum* and two brackets for *G. lamblia* (1.1340-1.1739 and 1.1843-1.2275 g/cm^3). Final results for *C. parvum* indicated a density between 1.0447 and 1.0967 g/cm^3 while final results for the denser *G. lamblia* were between 1.1843 and 1.2275.

Settling rates were determined using theoretical and empirical techniques. The theoretical method employed Stokes Law and assumed perfectly spherical particles in a completely laminar environment. Direct measurements of settling velocities were obtained using particle image velocimetry, an optical imaging technique that "captures" the location of particles at two points in time and calculates a velocity based on differences in distance and time. 12 trials were conducted on both formalized and live *G. lamblia* cysts and *C. parvum* oocysts. For *C. parvum*, trials were conducted at 20°C and 10°C. Approximately 4x10^7 cysts and oocysts were used per trial. A considerable range of settling rates was found with results ranging between 20 cm and 90 meters per day. With respect to the higher rates, these values do not seem realistic and the great disparity between calculated and measured values (~100-500 fold) for *C. parvum* raises potential questions on the accuracy of this experimental method.

Study Evaluation:

DEP will use the information gained from this study to aid in the development of transport and fate models for cysts and oocysts. Prior to this study little empirical data was available on settling vectors. Historical data had indicated a decrease in pathogen occurrence (percent detection) taking place as waters passed through one or more reservoirs. These decreases lead to a sedimentation hypothesis, which appears supported by the results of this research.

4.3 Data and Methods Development

4.3.1 Assessment of Mercury, PCB and Organochlorine Pesticide Residues in Indicator Fish Species in the NYC Reservoir System

Author: Jefferey Loukmas, NYSDEC

Date: 2001 - 2004

Executive Summary:

The New York State Department of Environmental Conservation (DEC) was awarded SDWA funding to assess contaminant levels in fish collected from NYC reservoirs. In the SDWA grant application, DEP was listed as a cooperating agency for collecting fish for this study.

Description of Data Collected:

The study collected fish for analysis of mercury, PCBs/pesticides, and dioxins/furans. Samples are collected by electrofishing, gill netting, trap netting, and angling. Six indicator species targeted for collection and include smallmouth bass, largemouth bass, walleye, brown trout, lake trout, and yellow perch. Other species are substituted when indicator species are not collected.

In 2002, fish were collected from the following waters for contaminants analyses: Amawalk, Bog Brook, Cannonsville, Diverting, East Branch, Middle Branch, Muscoot, Pepacton, Titicus, and West Branch. Additional DOH consumption advisories are forthcoming. Further sampling will conducted in 2003 at Schoharie and Pepacton Reservoirs.

Study Evaluation:

The monitoring of toxics in fish tissue provides DEP and the public with valuable information for informed decisions regarding the consumption of fish. In New York State, the general health advisory issued by the New York State Department of Health (DOH) to eat no more than one meal (1/2 pound) per week applies to fish taken from any of the State's freshwaters. Specific consumption advisories for NYC reservoirs above and beyond the general statewide advisory for exceedence of mercury standards include:

- Ashokan Reservoir: eat no more than one meal per month of smallmouth bass over 16 inches and walleye (all sizes).
- Boyds Corner Reservoir: eat no more than one meal per month of largemouth bass over 16 inches and walleye (all sizes).
- Cannonsville Reservoir: eat no more than one meal per month of smallmouth bass over 15 inches.
- Cross River Reservoir: eat no more than one meal per month of largemouth bass over 16 inches and smallmouth bass over 16 inches.
- Neversink Reservoir: eat no more than one meal per month of smallmouth bass (all sizes).
- Pepacton Reservoir: eat no more than one meal per month of smallmouth bass over 15 inches.
- Rondout Reservoir: eat no more than one meal per month of smallmouth bass over 16 inches.
- Schoharie Reservoir: eat no more than one meal per month of walleye (all sizes).

4.3.2 Pharmaceuticals and Other Organic Wastewater Compounds in the Croton River Watershed – USGS

Author: Patrick Phillips, NYSDEC

Date: 2000

Executive Summary:

Through the Toxic Substances Hydrology Program, National Reconnaissance of Emerging Contaminants in US Streams, USGS staff sampled 11 sites in the Croton System with varying percentages of wastewater inputs. This program was an initial survey to determine if selected

organic wastewater contaminants (OWCs) could be detected in streams. All samples had at least three OWCs, and half contained at least seven or more OWCs; 34 compounds were detected at least once. The median total OWC concentration (summation of detected compounds) was 1.69 mg/L, and the maximum total OWC was 45.1 mg/L.

Description of Data Collected:

Single grab samples were collected during low-flow conditions in August 2000. The table below lists detected compound types and some specific examples of the compounds detected.

Compound Type	**Example**
Nonprescription drugs	Caffeine, acetaminophen
Detergent metabolites	para-Nonylphenol
Polycyclic aromatic hydrocarbons	Fluoranthene
Disinfectants	Triclosan
Insect repellants	N-N-Diethyltoluamide (DEET)
Fire retardants	tris(2-chloroethyl) phosphate
Plasticizers	Bisphenol A
Antibiotics	Sulfamethoxazole and trimethoprim
Steroids	Cholesterol and coprostanol
Reproductive hormones	17ß-Estradiol
Antioxidants	5-methyl-1H-benzotriazole
Insecticides	Chlorpyrifos
Solvents	Tetrachloroethylene
Prescription drugs	Codeine
Deodorizers	1,4-Dichlorobenzene

Study Evaluation:

This survey demonstrated that the compounds are present, and that the low-level detection limit analytical methods employed by the USGS hold promise for identifying this relatively new class of contaminants in ambient waters.

Appendix. DEP Abstracts for the First Annual New York City Watershed Science and Technical Conference, Kingston, N.Y., September 11-12, 2003

Stormwater Best Management Practices For Pollutant Removals

Dale Borchert

ABSTRACT: The City of New York Department of Environmental Protection (DEP) has implemented a Kensico Reservoir watershed management and protection plan that targets the control of fecal coliform bacteria and turbidity that could enter the reservoir from its watershed. Among other practices, DEP has constructed nine Best Management Practices (BMP) with extended detention basins (with plans for a 10th) on streams that discharge into Kensico Reservoir.

With the construction of these BMPs, DEP developed a stormwater monitoring program to evaluate the effectiveness of these structures in reducing loads of fecal coliform, total suspended solids, turbidity (a quasi-load) and total phosphorus. Between 2000 and 2007, DEP intends to monitor at least one year's worth of storm events at each of these extended detention basins to quantify their ability to reduce loads of the above analytes.

As part of this program, DEP monitored BMP Facility 12 between March 2000 and September 2001. During this period, sufficient data were collected to calculate storm loads of fecal coliform during 11 events, total suspended solids during 13 events and turbidity and total phosphorus during 14 events. The Regression of Loads technique (Martin and Smoot, 1986) was used to calculate load removal efficiencies. This technique calculates the regression between the input loads and output loads, where 1 minus the slope of the regression line (constrained through the origin) is assumed to be the percent reduction of analyte load. Based on this analysis, BMP Facility 12 was found to remove 49% of the fecal coliform loads, 73% of the total suspended solids loads, 51% of the turbidity quasi-loads and 54% of the total phosphorus loads.

THMs in the Croton System

Gerard Marzec

ABSTRACT: Disinfection by-products (DBPs) are compounds that are formed when organic matter in raw water reacts with chlorine during the disinfection process. One group of these compounds, which DEP monitors, is the trihalomethanes (THM), of which chloroform is the main constituent. The USEPA has set limits on THM and other DBPs, such as the haloacetic acids (HAAs), because they are potential carcinogens.

Trihalomethane levels are typically higher in the Croton System and, as a result, have been the subject of recent research. The sources of precursors for disinfection by-products in New Croton Reservoir have been assessed via monitoring of trihalomethane formation potential (THMFP)

in the reservoir and in its major tributaries from 1992 through 1998. As a result of this initial work, DEP undertook a multi-objective study of THMFP sources in 1999. In 2002, draft compilation report was completed and the highlights of this study were:

- THMFP in New Croton appears to originate primarily from upstream terrestrial sources,
- Four upstream reservoirs (Amawalk, Croton Falls, Cross River and Diverting) acted as sinks of THMFP precursors. Titicus was undergoing dam rehabilitation during this study. The low reservoir elevation may have caused the reservoir to act like a source of precursors, but the cause is not clear.
- Wetlands and, at times WWTPs, proved to be significant sources of the THMFP concentrations in the streams, and
- THMFP concentrations in New Croton Reservoir were linked to potential THM levels at Jerome Park Reservoir.

Regular monitoring of the distribution system THM compliance monitoring sites provides the status of THM levels compared to EPA limits. The Catskill/Delaware and Croton systems are below the historical 100 µg L-1 MCL as well as the 80 µg L-1 MCL which became effective in 2002.

Croton Watershed Strategy Project
Kimberlee Kane

ABSTRACT: In December 2002, DEP concluded the Croton Watershed Strategy project. This project was a two year effort to develop an integrated watershed management plan for the Croton System. The primary goal of this project was to allow DEP to optimize management efforts and focus limited resources on critical areas to achieve maximum water quality benefit.

For the Croton Watershed Strategy, DEP retained the services of Malcolm Pirnie, Hydro-Qual and LimnoTech to:

- Conduct a watershed assessment for four critical indicator variables: total phosphorus, total suspended solids, pathogens, and toxic chemicals;
- Implement the methodology in a Decision Support Tool to allow DEP to continue to update the watershed assessment; and
- Recommend watershed management alternatives for DEP's consideration.

For this analysis, the twelve Croton reservoir basins were divided into 74 smaller subbasins. The watershed assessment examined both existing conditions in the watershed and potential future impacts to water quality associated with further development of the watershed. A separate assessment methodology was developed for each water quality variable based on available data

and current understanding of the watershed sources. The methodology focuses on impairment from terrestrial sources; it does not consider in-reservoir sources or contributions from upstream basins and aqueduct discharges. The assessment was not intended to predict actual levels or concentrations of water quality variables in the reservoirs and does not include any actual monitoring data. Instead, the analysis identifies each subbasins' relative potential to impair water quality compared to other subbasins.

Individual reports were developed for each of the reservoir basins. The Basin Reports provide: potential point and nonpoint water quality impairment sources for each variable ("Areas of Concern"); subbasin scores that indicate the relative potential for water quality impairment from each source and each subbasin; and basin-specific management recommendations. Background information on the physical, environmental, and demographic characteristics of each basin are also included in the reports.

A final, watershed-wide analysis was also conducted as part of the project. The analysis compares subbasins and Areas of Concern across the watershed objectively, prioritizing the recommendations based on several factors including: reservoir operations, 60-day travel time, phosphorus restricted basins, trout streams, and wetlands/sensitive environments. Management recommendations were grouped into five general areas: wastewater, stormwater, open space preservation, road drainage improvement and agriculture.

The Croton Watershed Strategy project has provided a more detailed and comprehensive watershed analysis than was previously available. This will be valuable in a wide variety of DEP activities. The Decision Support Tool will also allow DEP to update this analysis as new data is developed.

Additional work is planned for the Croton Watershed Strategy project in 2003. This work includes the development of a Tracking Tool which will track implementation of projects by basin, estimate reductions of phosphorus based on existing or proposed implementation projects, estimate increases of phosphorus based on new development, and generate basin status reports. Additional critical watershed analyses, field verification and outreach efforts are also planned during 2003.

Improved Recovery of Cryptosporidium oocysts in High Turbidity Matrix Spike Samples Using a Dual Immunomagnetic Separation and a Sodium Hexametaphosphate Procedure with Method 1623HV

K.A. Alderisio and L.A. Blancero

ABSTRACT: Fifty liter samples were spiked with clay sediment, Giardia spp. cysts and Cryptosporidium spp. oocysts in the laboratory to determine the potential effect of this matrix on (oo)cyst recovery during storm events. Sample filtration data resulted in high turbidity and high filter pressure mimicking local storm event measurements. Cyst and oocyst recoveries from these samples were significantly low compared to recoveries attained from less turbid samples. A dual IMS procedure and sodium hexametaphosphate wash were introduced, both independently and in combination, to attempt to improve the recovery of the (oo)cysts. The initial average oocyst percent recovery using the 1623HV method (12%) was increased by the dual IMS procedure (58%), and the sodium hexametaphosphate wash (66%). Results from two additional trials combining both method improvements demonstrated the most significant Cryptosporidium oocyst recovery (81%). The recovery of Giardia cysts did not improve significantly with either of the tested methods. Data suggest that these procedures may also improve the recovery of Cryptosporidium oocysts from other difficult matrix samples.

Researchers have endeavored to improve the recovery of protozoa from water samples for several years. In this quest, there has been much emphasis on both laboratory analytical procedure and field sample collection. With the improved time saving steps of US EPA Method 1623 compared to the ASTM and ICR methodologies, there has been increased focus on the ability to process more quality control samples in a protozoan laboratory than ever before. This is particularly true in the area of matrix spike testing. Although the methods have not yet reached 100 % recovery of Giardia cysts and Cryptosporidium oocysts, laboratories are able to qualify data with the addition of more matrix spike samples in their quality assurance sampling plans. This information is helpful when performing data analysis and when comparing occurrence data for these pathogenic protozoa at different locations throughout various watersheds.

DEP's Waterfowl Management Program to Reduce Coliform Bacteria in Reservoirs

Christopher Nadareski and Michael Usai

ABSTRACT: DEP's Wildlife Studies Section is responsible for the development and implementation of the Waterfowl Management Program (WMP) at Kensico Reservoir, which includes monitoring and managing goose, gull, duck, cormorant and other duck-like bird populations roosting and breeding on the reservoir. Through presence-absence studies, correlational analysis and microbiological studies, DEP has identified waterbirds as a major source of fecal coliform bacteria in New York City's drinking water reservoirs. Federal and state approved wildlife management techniques are used to maintain significantly lower fecal coliform bacteria levels

during the autumn and winter when bacteria levels were traditionally elevated. Roosting bird population surveys consisting of censusing all waterbirds roosting on the water are conducted daily from August through March and weekly from April through July at Kensico Reservoir. . Waterbird roosting population surveys are conducted at Croton Falls Reservoir and Cross River Reservoir on a biweekly basis and are conducted weekly at source reservoirs to Kensico (West Branch, Rondout, and Ashokan). Bird censuses and management are also conducted at the two distribution reservoirs (Hillview and Jerome Reservoirs). Overhead wires to preclude bird activity on the surface of the reservoirs are maintained by DEP's Operations staff for all of Hillview Reservoir and the north basin of Jerome Reservoir. Waterbird populations remained low enough to forestall active harassment and not impact water quality at these locations. Egg-depredation to control Canada Goose (Branta canadensis) gosling production is conducted at Kensico, Jerome, West Branch, and Rondout Reservoirs. . DEP's Waterfowl Management Program have been highly effective at reducing waterbird populations roosting on the reservoirs and the egg-depredation has been greatly reduced productivity and almost eliminated the molting goose population at Kensico Reservoir. The Waterfowl Management Program has averted bird- related seasonal increases in fecal coliform bacteria.

Modeling Watershed Management Effects On Phosphorus Loads To Cannonsville Reservoir

Elliot M. Schneiderman, Mark S. Zion, Margaret W. Gitau, David G. Lounsbury, and William J. Gburek*

ABSTRACT: The effectiveness of New York City's (NYC) watershed management programs to control phosphorus (P) loads to the Cannonsville water supply reservoir was evaluated using the Generalized Watershed Loading Functions (GWLF) model, a watershed-scale hydrologic and water quality model. Four watershed management programs addressing both point and non-point sources were evaluated: wastewater treatment plant upgrades; agricultural best management practices (BMPs); urban stormwater BMPs; and septic system rehabilitations. A calibrated GWLF model for the Cannonsville watershed was used to estimate P loads under pre-management, or baseline, conditions. Phosphorus reductions due to each watershed management program were then estimated from BMP implementation and effectiveness data. These reductions were incorporated in the baseline model in a management scenario to estimate the effects of the four watershed management programs on P loading to the reservoir. Estimated reductions in P loading due to implementation of the four watershed management programs were substantial, exceeding 25% for both dissolved and particulate P. Reductions in total watershed loads depend on a combination of the effectiveness of the management program, the rate of implementation, and the watershed-wide contribution of the managed P sources under baseline conditions. Urban stormwater management provided small reductions in both dissolved and particulate P due to the small amount of urban land use areas in this watershed. Wastewater treatment plant upgrades and the implementation of agricultural BMPs provided most of the estimated loading reductions.

Modeling to Assess Different Strategies to Achieve the TMDL for Cannonsville Reservoir

Mark S. Zion and Elliot M. Schneiderman*

ABSTRACT: The purpose of this study is to use modeling to assess how different phosphorus loading reduction strategies, each consistent with the TMDL, affect reservoir algal biomass and trophic state (measured as chlorophyll.) Different phosphorus loading reduction strategies influence both the nature and timing of nutrient availability for algal growth in a reservoir. Therefore, different strategies (that result in the same TMDL) may have different impacts on algal biomass and reservoir water quality. Modeling results may be used to assess the effects of different strategies, and phosphorus loading reductions targeted on a seasonal basis, or from specific sources and land uses, may be evaluated for their ability to reduce algal biomass (chlorophyll.) Modeling assessments may be used to select watershed management strategies that will be most effective in minimizing the algal response to a given TMDL.

New York City Department of Environmental Protection (DEP) has developed a Nutrient Management Eutrophication Modeling System to examine how the timing and sources of phosphorus loads affect the reservoir water quality. The modeling system uses the Generalized Watershed Loading Functions (GWLF) model to generate a long-term time series (30+ years) of watershed flow and nutrient loads under a prescribed set of watershed management conditions and utilizing historical meteorologic forcings for input. These watershed model results are then input into the reservoir model, which generates an in-lake growing season chlorophyll a concentration for each year of the simulation. A probability density function of the annual growing season chlorophyll a concentration is formed, and provides a signature of reservoir eutrophication potential.

For this study, various watershed management scenarios are designed such that phosphorus loads to the reservoir are reduced to levels consistent with the annual TMDL requirements. Watershed management scenarios which consider seasonal changes in loads and changes in loads due to different sources, land uses, and management programs are identified. Each scenario is input to the modeling system to simulate a new time series of watershed loads, generating a chlorophyll frequency distribution and, thus, providing a signature for reservoir eutrophication potential. Comparison of these reservoir eutrophication signatures for different management scenarios reveals the range of effects of implementing the current annual total phosphorus TMDLs on reservoir eutrophication.