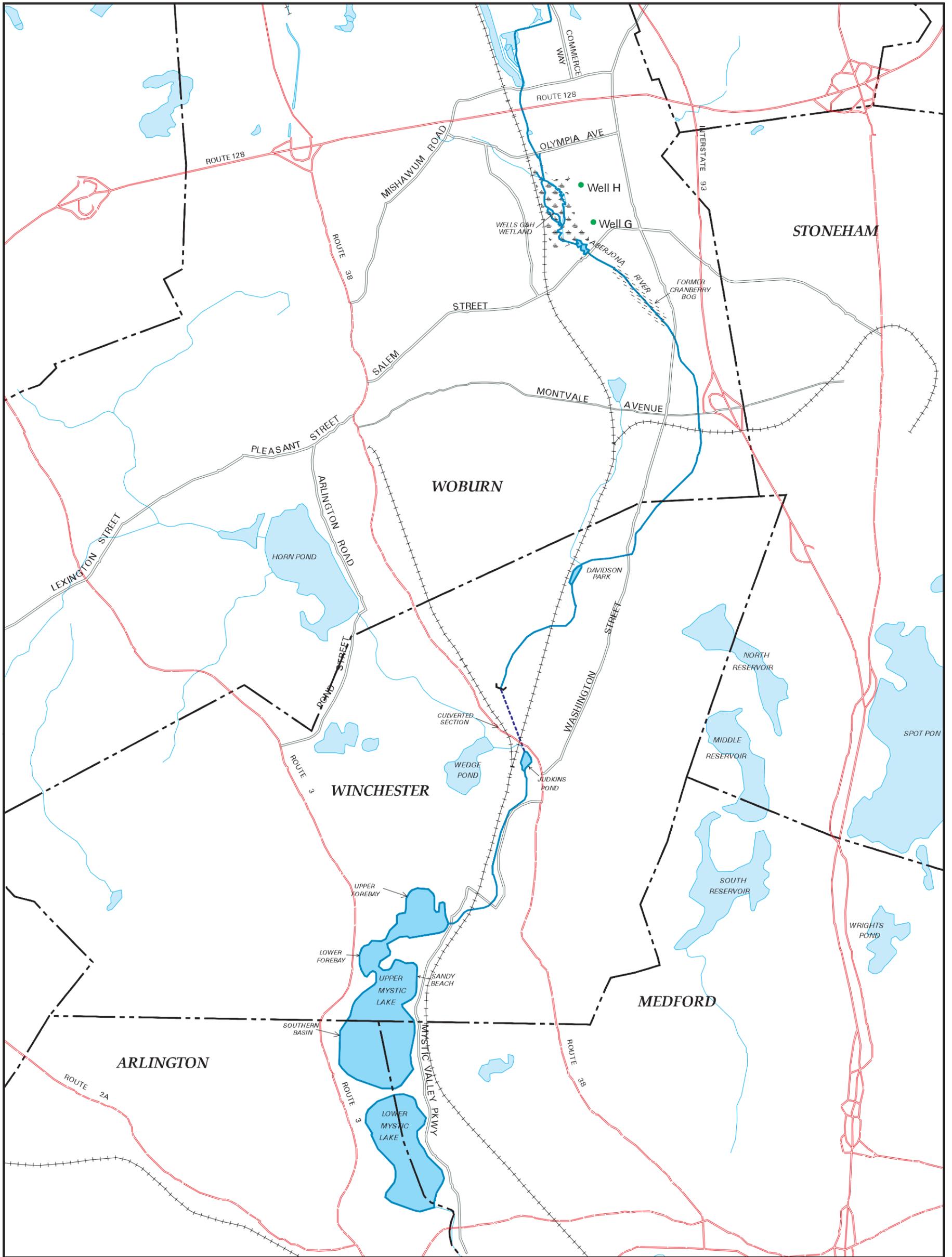


US EPA ARCHIVE DOCUMENT



LEGEND

- Well Location
- Aberjona River
- Bodies of Water
- +++++ Rail Lines
- Study Area Reach
- Culvert
- ▲▲▲ Wetlands

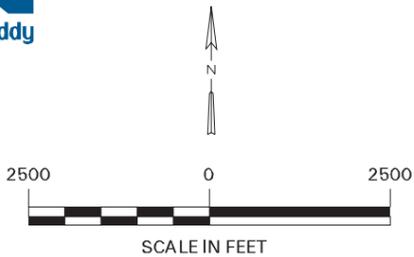
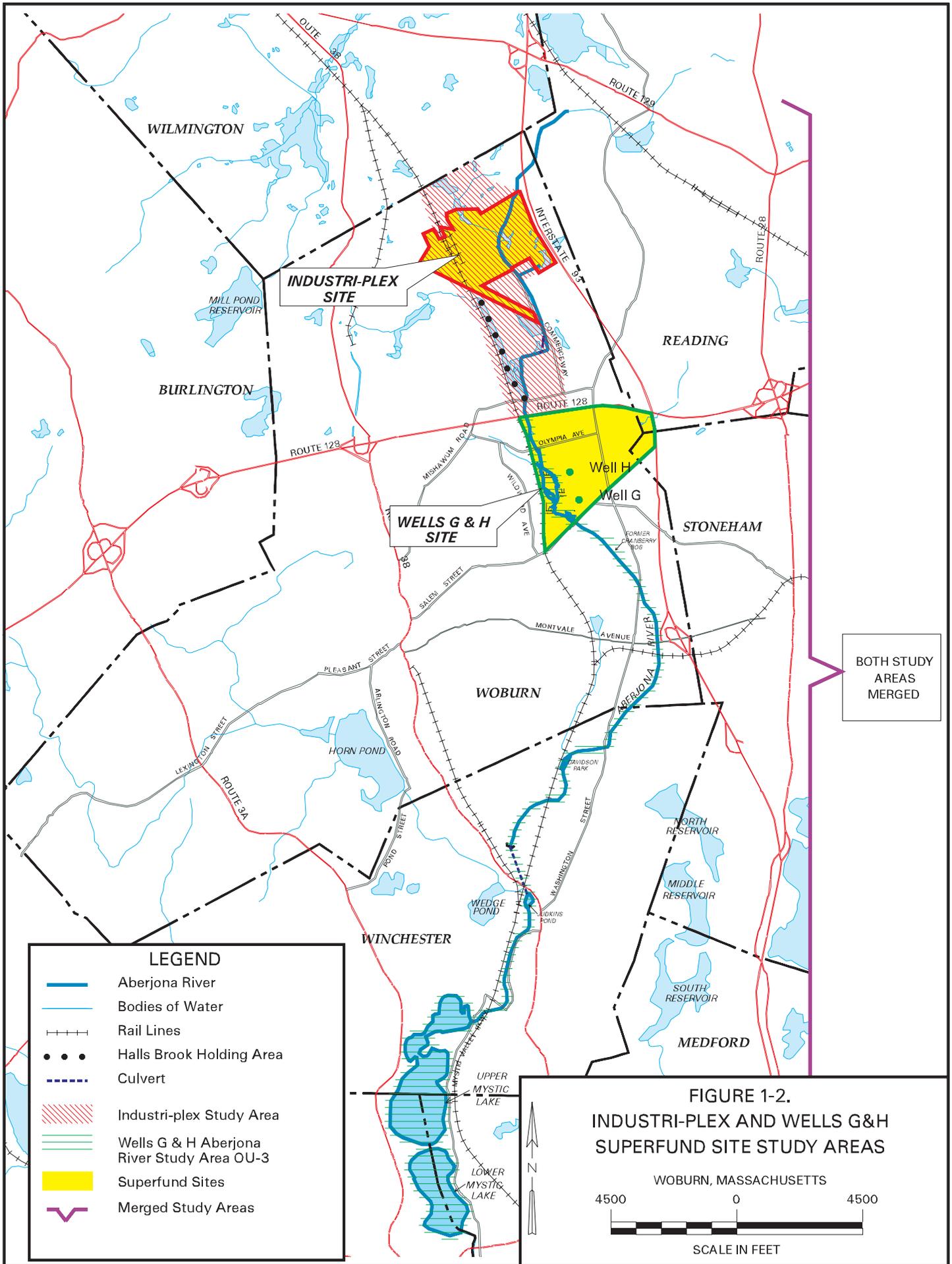
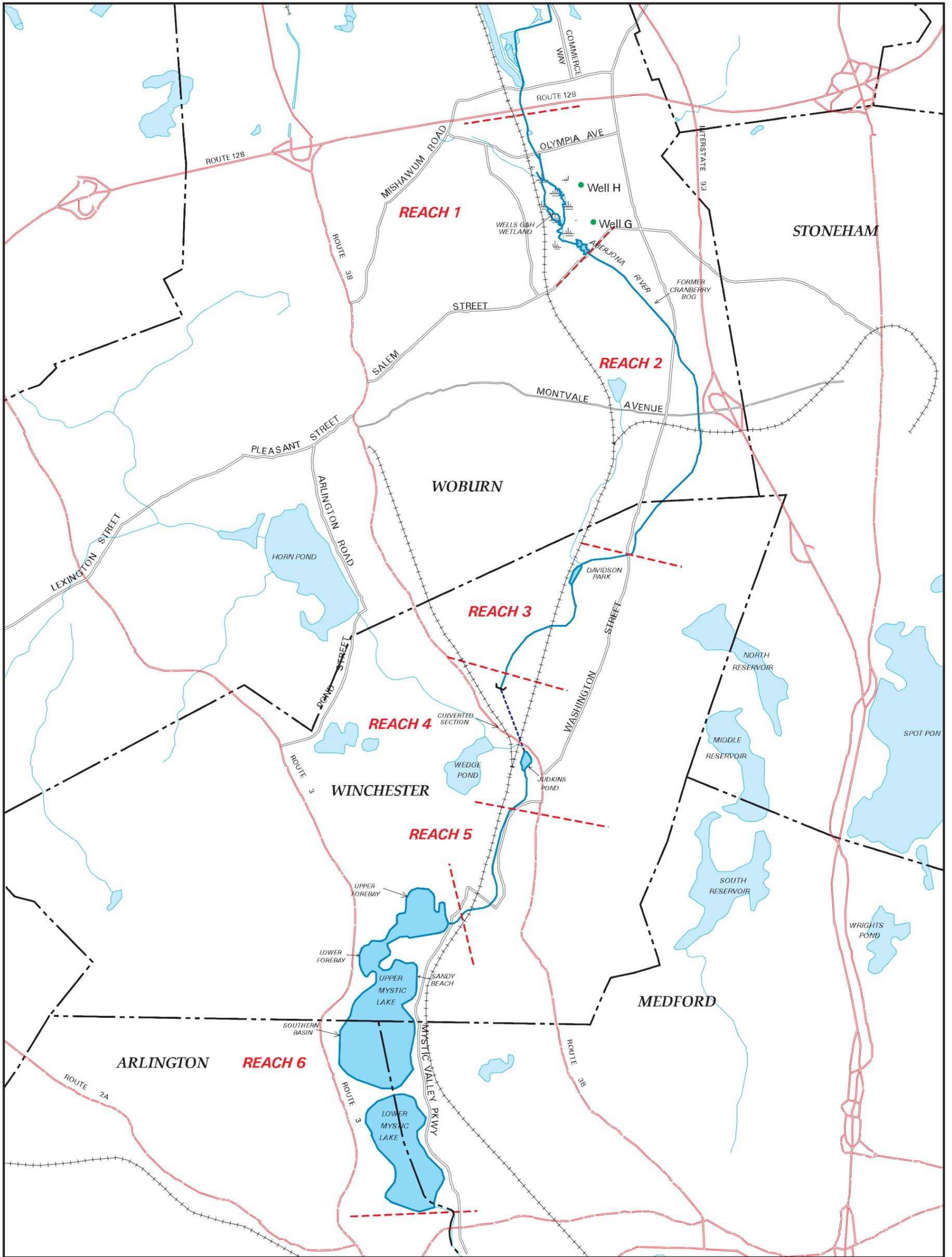


FIGURE 1-1.
ABERJONA RIVER STUDY AREA
WELLS G&H SUPERFUND SITE OU3





LEGEND

- Well Location
- Aberjona River
- Bodies of Water
- Rail Lines
- Study Area Reach
- Culvert
- Wetlands

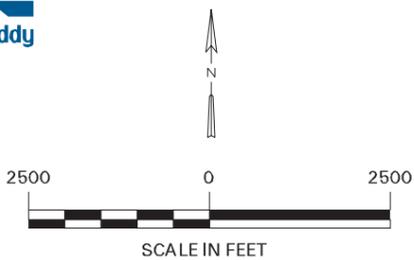
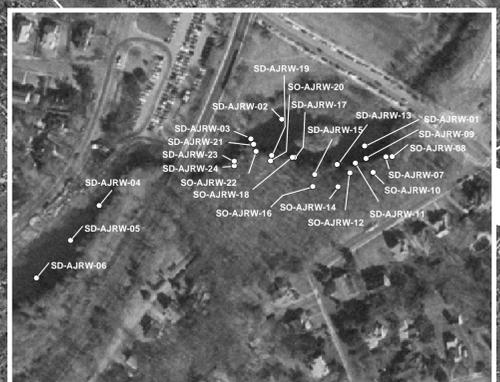
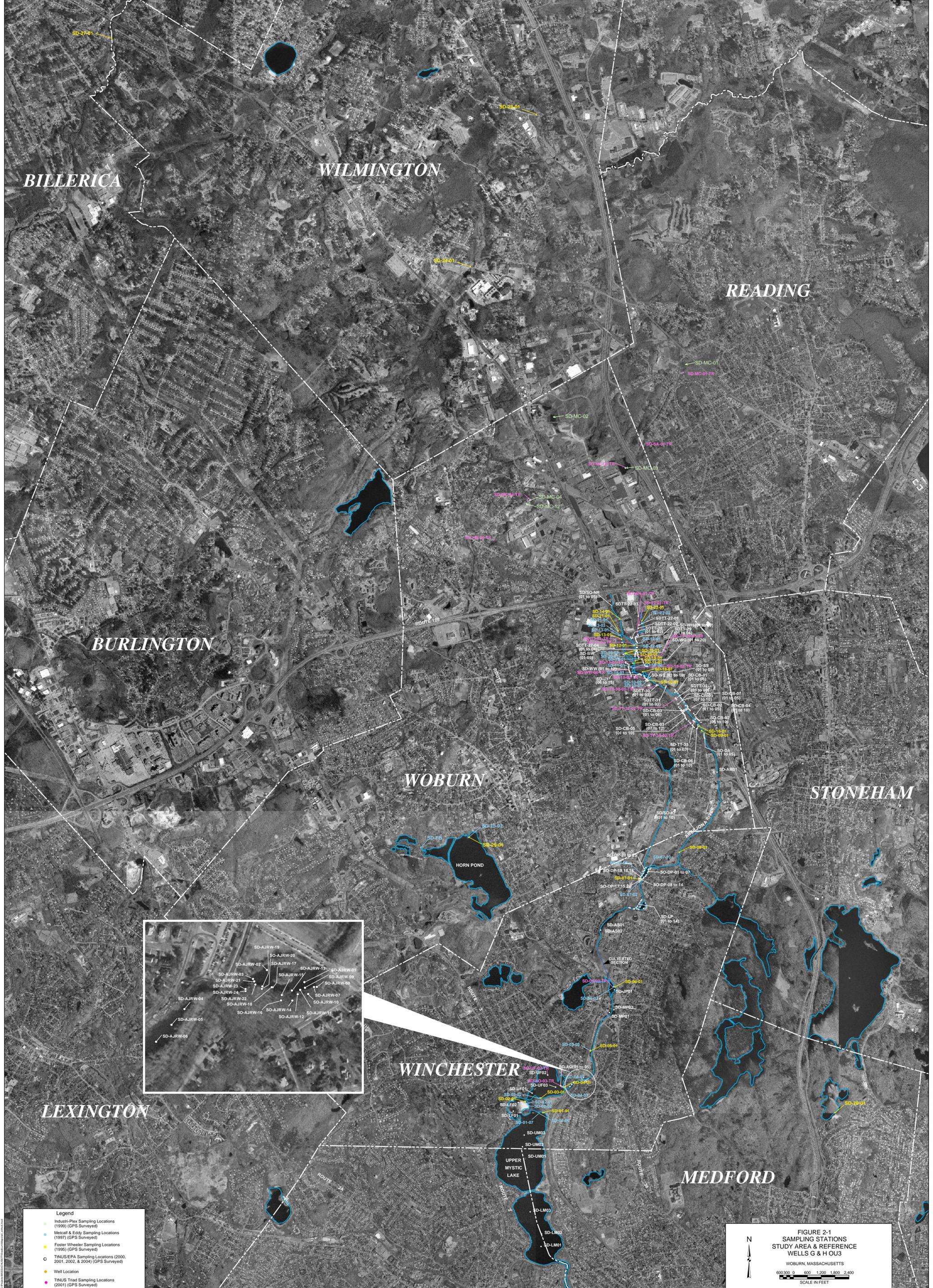


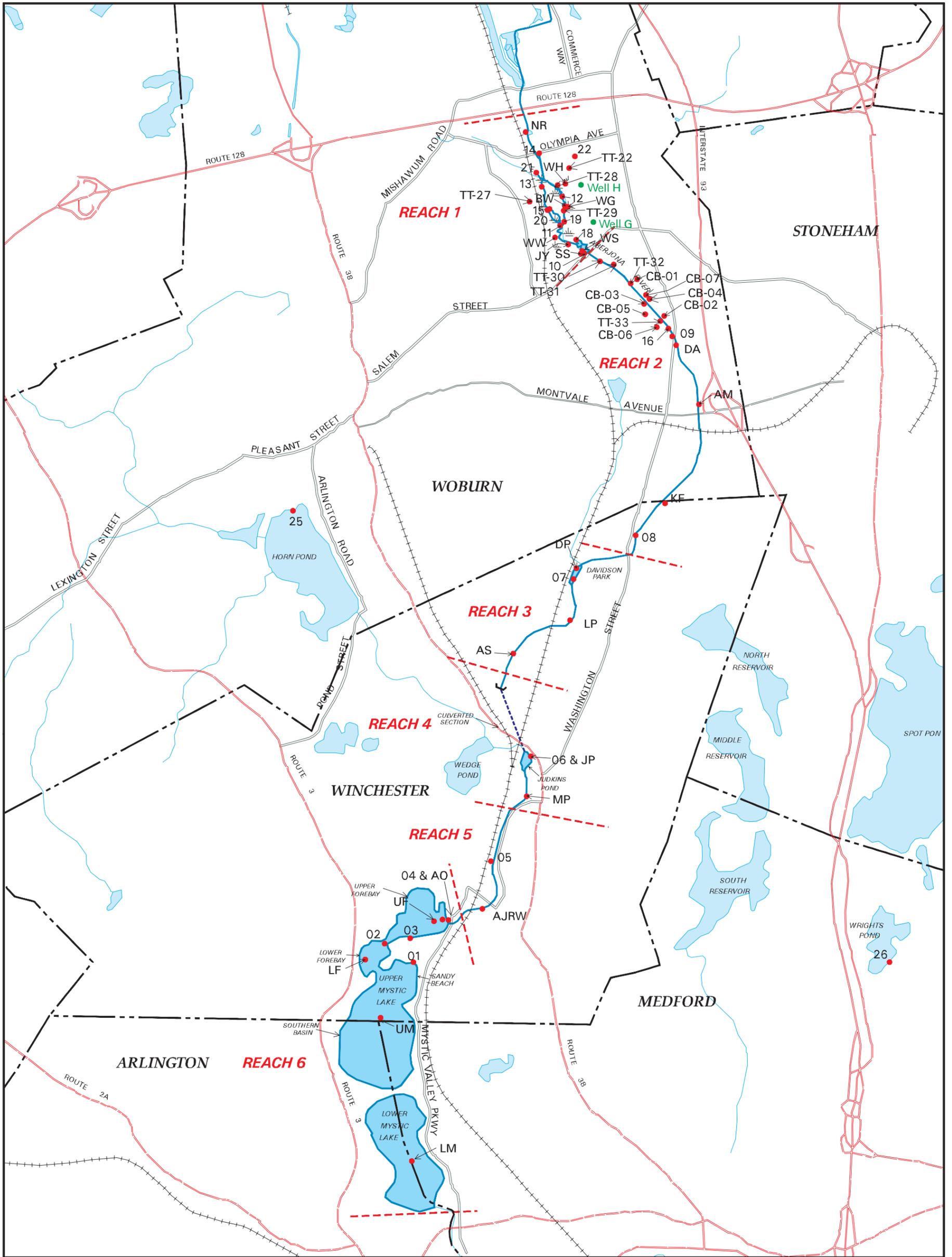
FIGURE 1-3.
REACHES OF THE ABERJONA RIVER
SAMPLING STATIONS
WELLS G&H SUPERFUND SITE OU3



- Legend**
- Industri-Flex Sampling Locations (1999) (GPS Surveyed)
 - Metcalf & Eddy Sampling Locations (1997) (GPS Surveyed)
 - Foster Wheeler Sampling Locations (1996) (GPS Surveyed)
 - TNUS/EPA Sampling Locations (2000, 2001, 2002, & 2004) (GPS Surveyed)
 - Well Location
 - TNUS Tined Sampling Locations (2001) (GPS Surveyed)

FIGURE 2-1
SAMPLING STATIONS
STUDY AREA & REFERENCE
WELLS G & H O/U3
 WOBURN, MASSACHUSETTS

600 300 0 300 1,200 1,800 2,400
 SCALE IN FEET



LEGEND

- Well Location
- Sample Station
- Aberjona River
- Bodies of Water
- +++++ Rail Lines
- - - - - Study Area Reach
- - - - - Culvert
- Wetlands

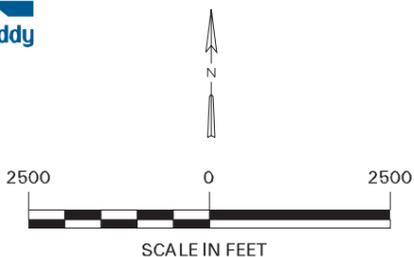
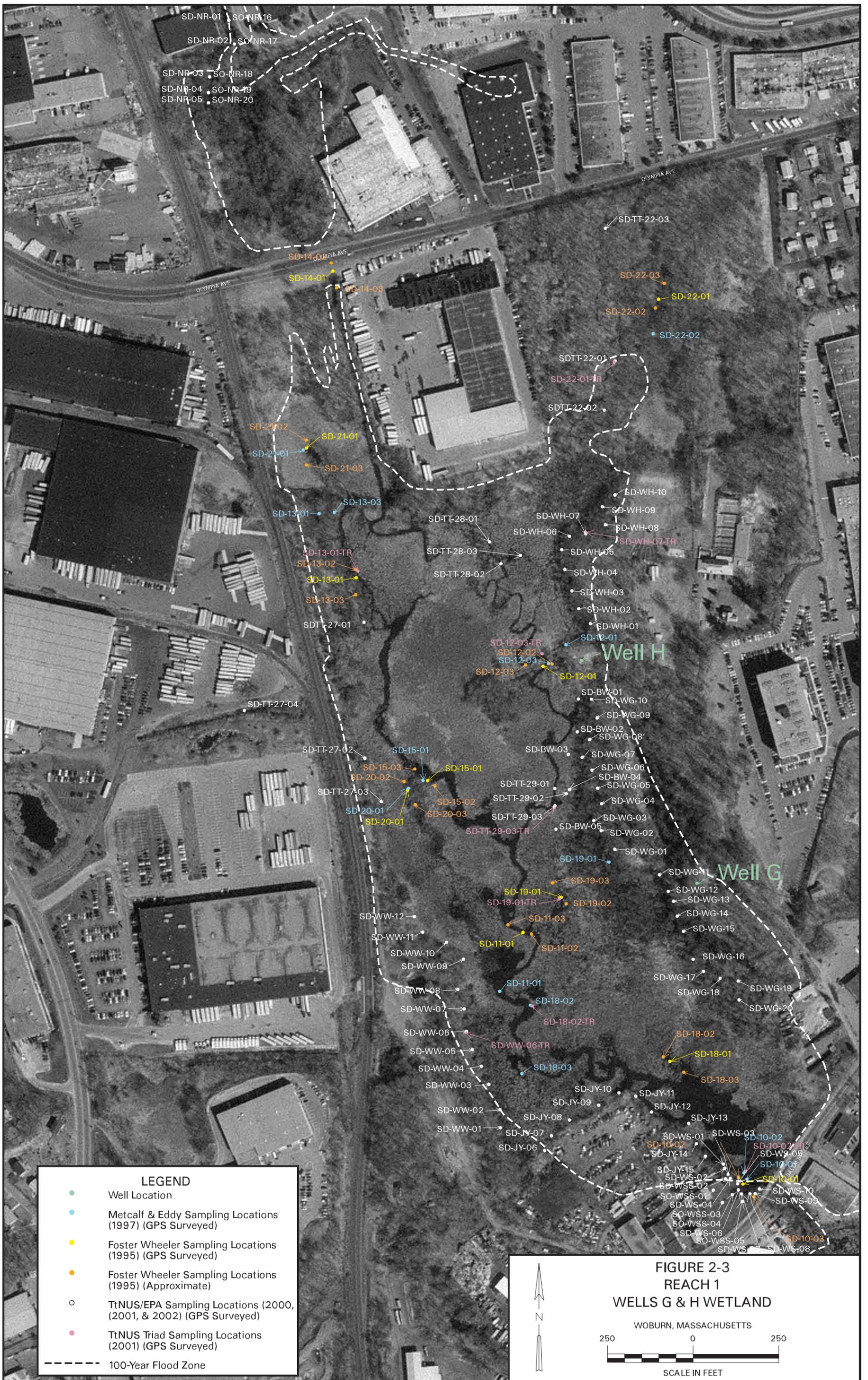


FIGURE 2-2.
SURFACE WATER, SEDIMENTS, & SOIL
SAMPLING STATIONS
WELLS G&H SUPERFUND SITE OU3



LEGEND

- Well Location
- Metcalf & Eddy Sampling Locations (1997) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- TtNUS/EPA Sampling Locations (2000, 2001, & 2002) (GPS Surveyed)
- TtNUS Triad Sampling Locations (2001) (GPS Surveyed)
- - - 100-Year Flood Zone

FIGURE 2-3
REACH 1
WELLS G & H WETLAND
 WOBURN, MASSACHUSETTS

250 0 250
 SCALE IN FEET



LEGEND

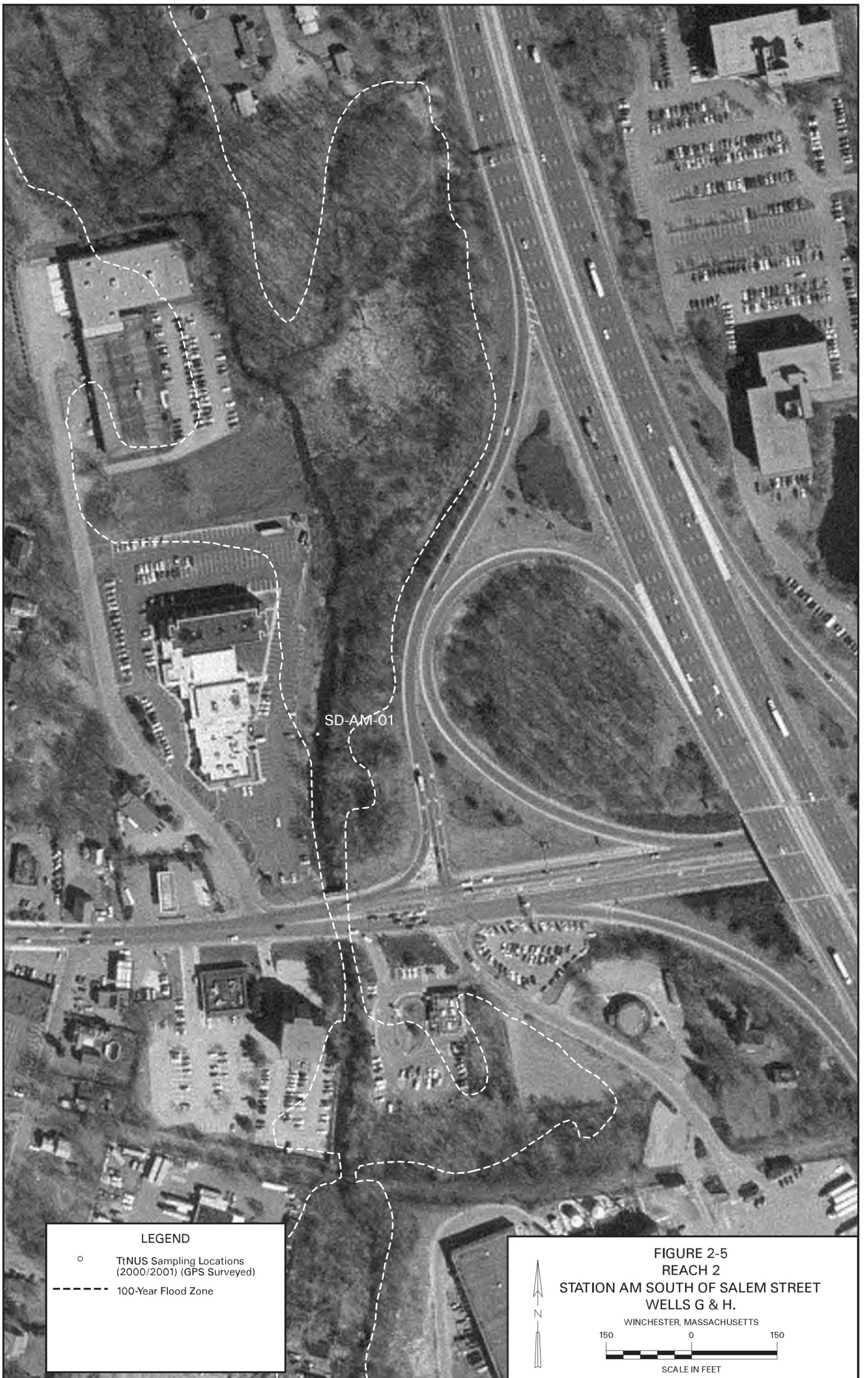
- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- TtNUS/EPA Sampling Locations (2000, 2001, & 2002) (GPS Surveyed)
- TtNUS Triad Sampling Locations (2001) (GPS Surveyed)
- 100-Year Flood Zone

**FIGURE 2-4
REACH 2
WELLS G & H.**

WOBURN, MASSACHUSETTS

250 0 250

SCALE IN FEET



LEGEND

- TtNUS Sampling Locations (2000/2001) (GPS Surveyed)
- - - 100-Year Flood Zone

FIGURE 2-5
REACH 2
STATION AM SOUTH OF SALEM STREET
WELLS G & H.
WINCHESTER, MASSACHUSETTS

150 0 150

SCALE IN FEET

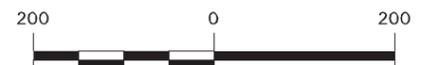


LEGEND

- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- TtNUS/EPA Sampling Locations (2000, 2001, & 2002) (GPS Surveyed)
- 100-Year Flood Zone

FIGURE 2-6
REACH 2
STATION 8 NORTH OF DAVIDSON PARK
WELLS G & H.

WINCHESTER, MASSACHUSETTS



SCALE IN FEET



LEGEND

- Metcalf & Eddy Sampling Locations (1997) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- TtNUS/EPA Sampling Locations (2001, & 2002) (GPS Surveyed)
- 100-Year Flood Zone

FIGURE 2-7
REACH 3
DAVIDSON PARK
SEDIMENT AND SURFACE SOIL
WELLS G & H.

WINCHESTER, MASSACHUSETTS

150 0 150

SCALE IN FEET



LEGEND

- TtNUS Sampling Locations (2000/2001) (GPS Surveyed)
- - - - 100-Year Flood Zone

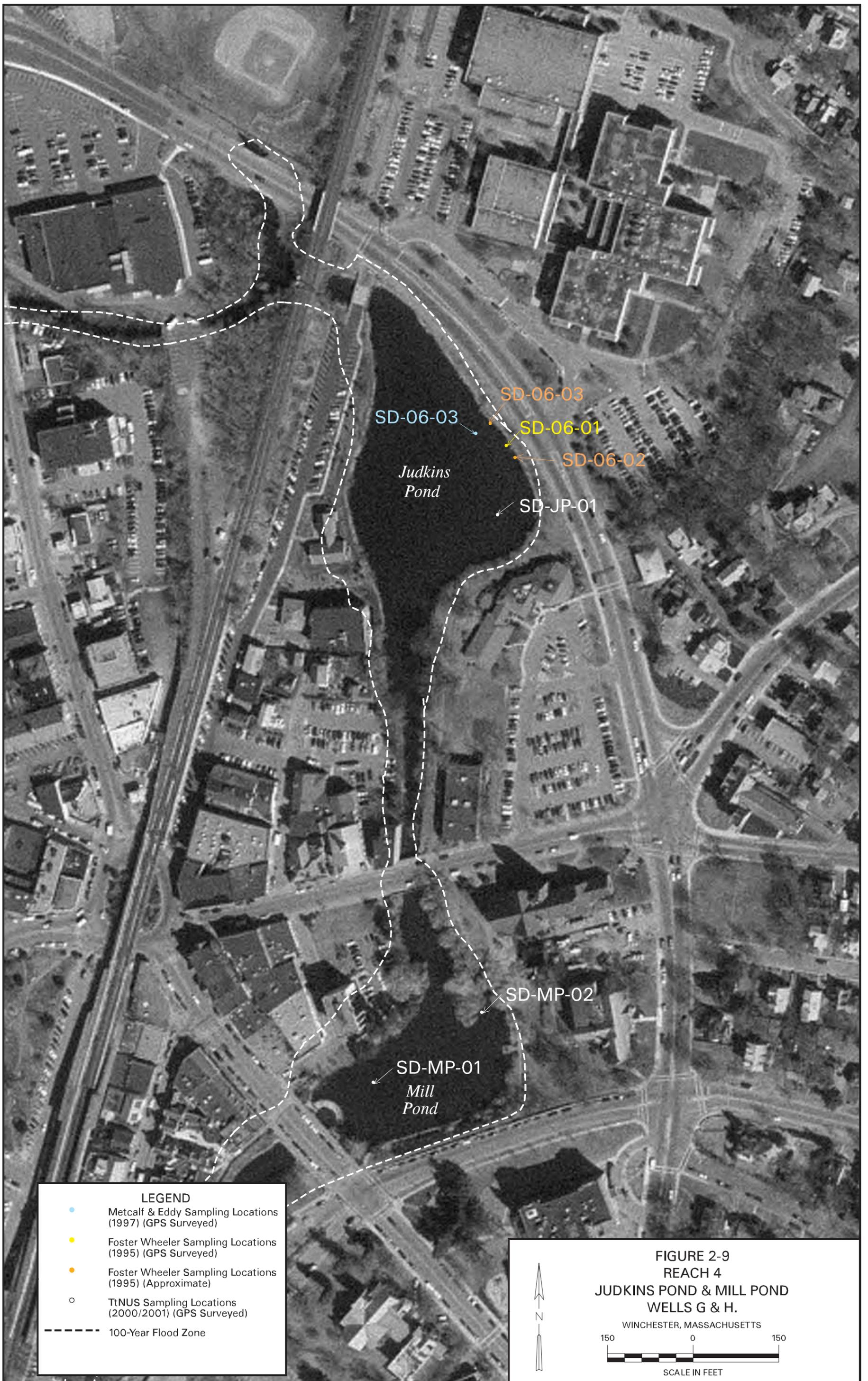


FIGURE 2-8
REACH 3 & 4
STATION AS SOUTH OF DAVIDSON PARK
WELLS G & H.

WINCHESTER, MASSACHUSETTS



SCALE IN FEET



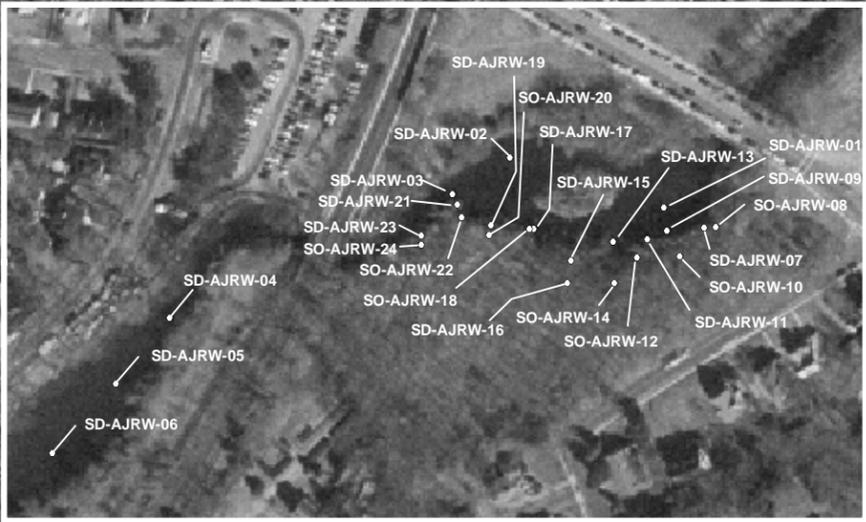
LEGEND

- Metcalf & Eddy Sampling Locations (1997) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- TtNUS Sampling Locations (2000/2001) (GPS Surveyed)
- 100-Year Flood Zone

FIGURE 2-9
REACH 4
JUDKINS POND & MILL POND
WELLS G & H.
 WINCHESTER, MASSACHUSETTS

150 0 150

SCALE IN FEET



Legend

LEGEND

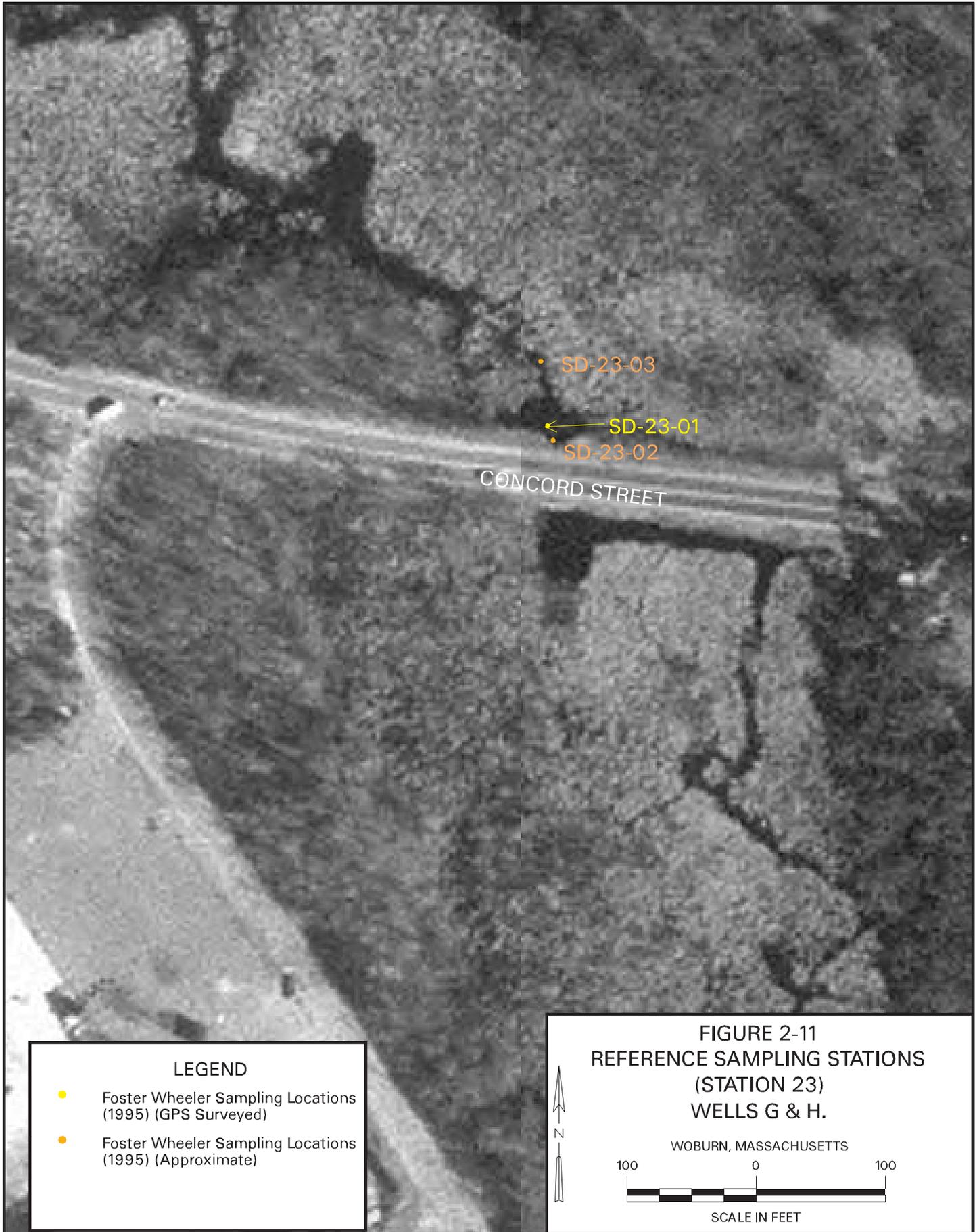
- Metcalf & Eddy Sampling Locations (1997) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- TtNUS/EPA Sampling Locations (2000, 2001, 2002, & 2004) (GPS Surveyed)
- - - 100-Year Flood Zone

FIGURE 2-10
REACH 5 & 6
MYSTIC LAKE
WELLS G & H.
 WINCHESTER, MASSACHUSETTS

N

400 200 0 400 800 1,200 1,600

SCALE IN FEET

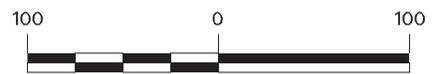


LEGEND

- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)

**FIGURE 2-11
REFERENCE SAMPLING STATIONS
(STATION 23)
WELLS G & H.**

WOBURN, MASSACHUSETTS



SCALE IN FEET



LEGEND

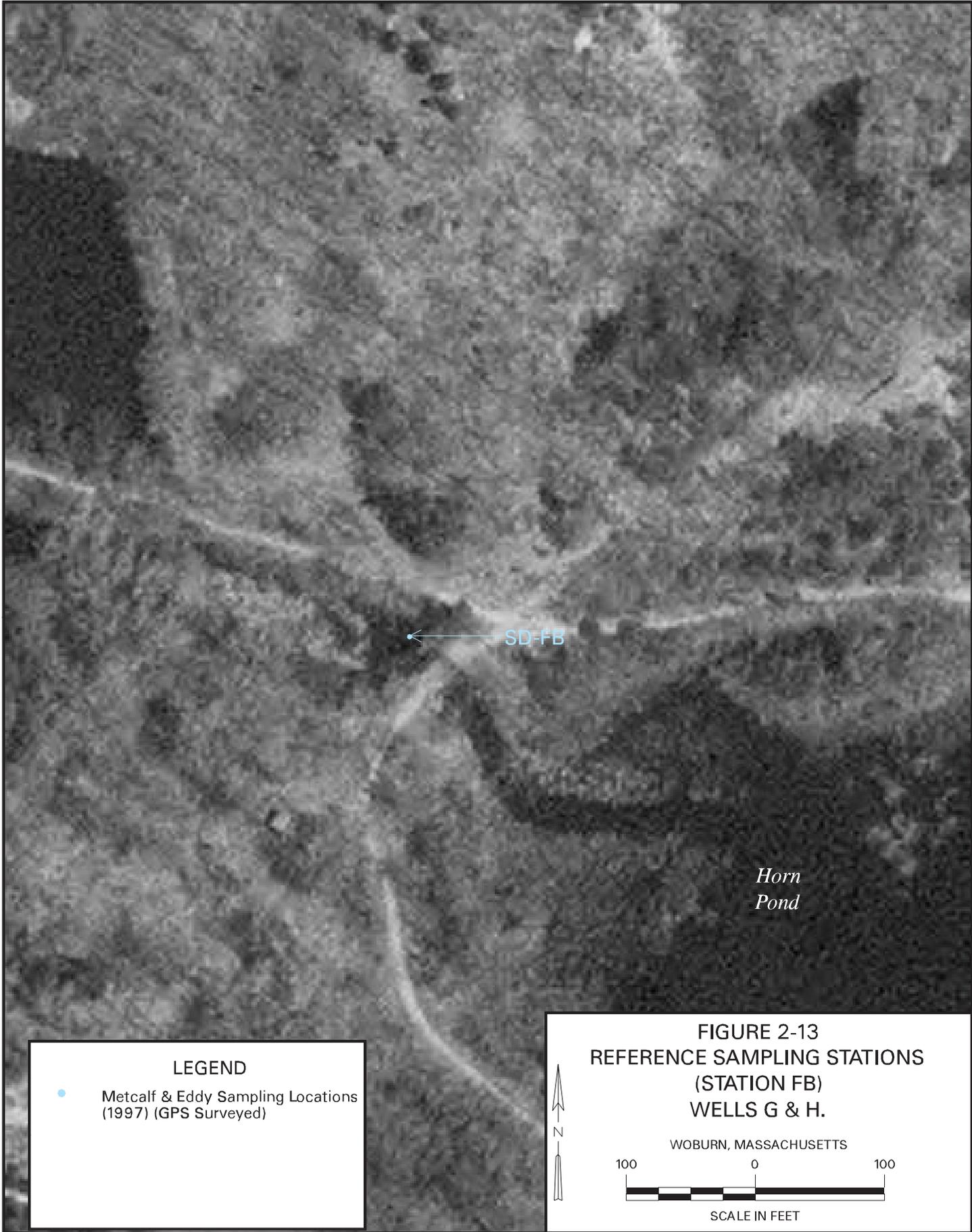
- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)

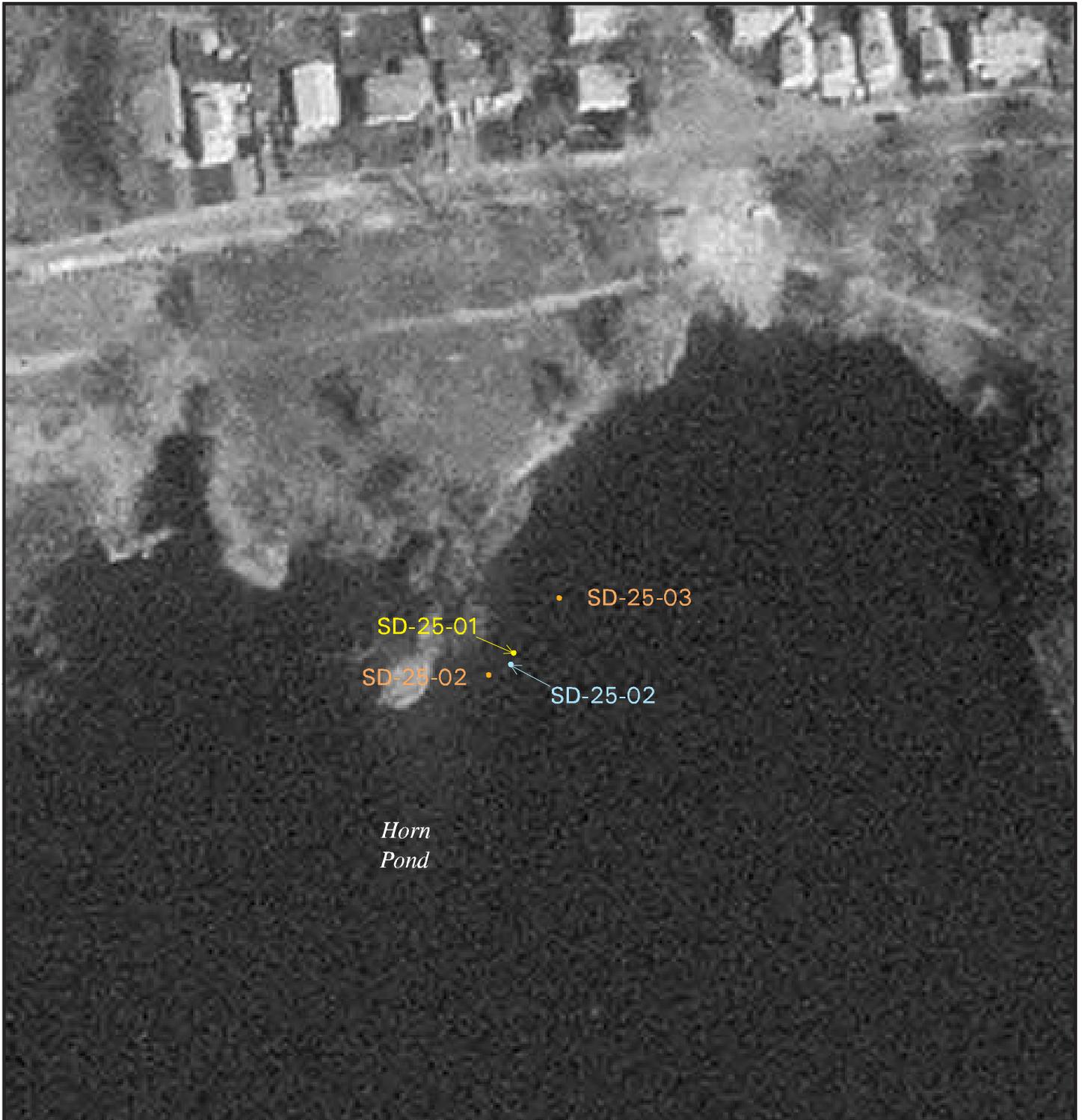
FIGURE 2-12
REFERENCE SAMPLING STATIONS
(STATION 24)
WELLS G & H.

WOBURN, MASSACHUSETTS



SCALE IN FEET





*Horn
Pond*

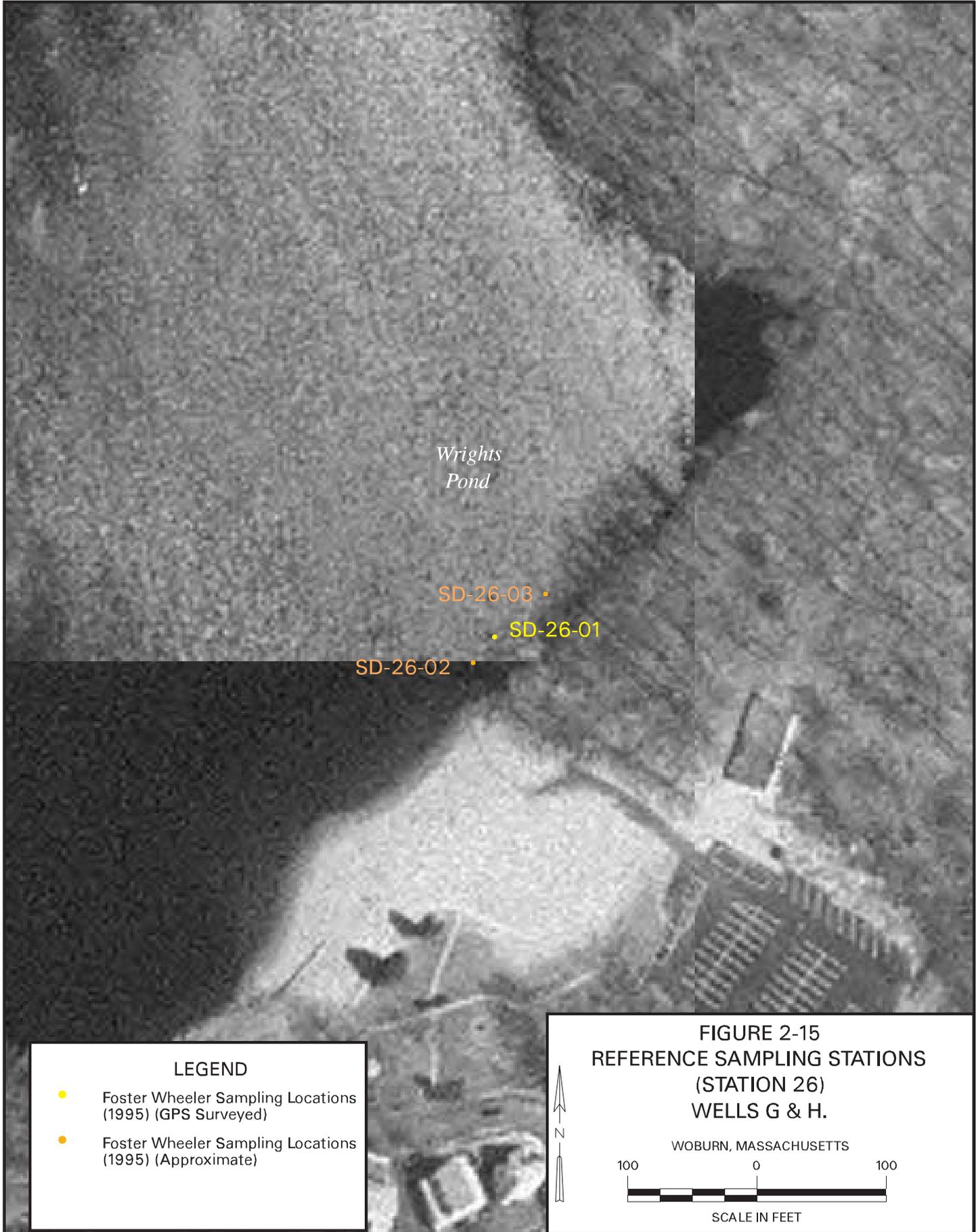
LEGEND

- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)
- Metcalf & Eddy Sampling Locations (1997) (GPS Surveyed)

**FIGURE 2-14
REFERENCE SAMPLING STATIONS
(STATION 25)
WELLS G & H.**



SCALE IN FEET





Shawshheen River

• SD-27-03

← SD-27-01

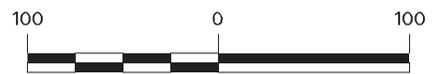
• SD-27-02

LEGEND

- Foster Wheeler Sampling Locations (1995) (GPS Surveyed)
- Foster Wheeler Sampling Locations (1995) (Approximate)

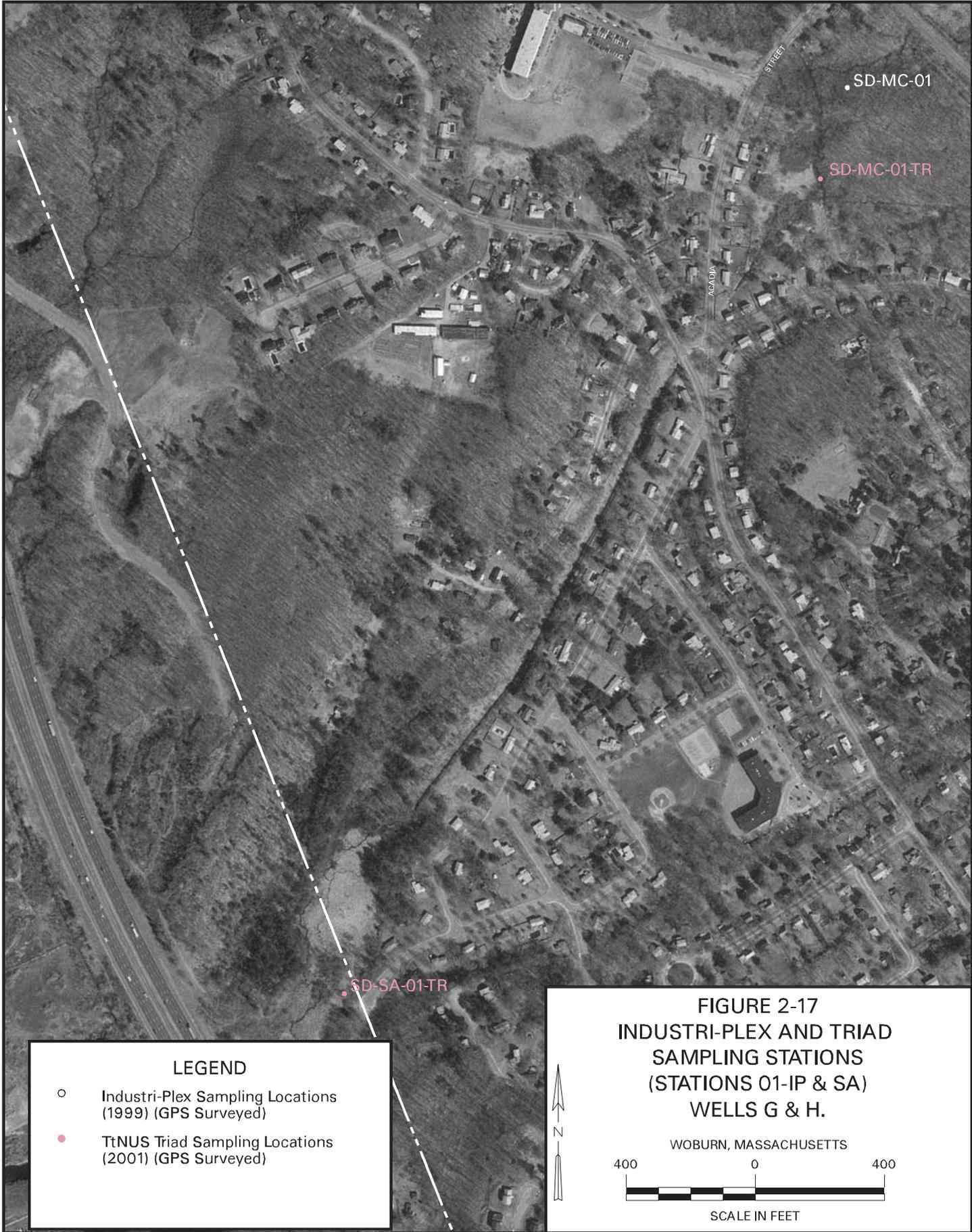
**FIGURE 2-16
REFERENCE SAMPLING STATIONS
(STATION 27)
WELLS G & H.**

WOBURN, MASSACHUSETTS



SCALE IN FEET





SD-MC-01

SD-MC-01-TR

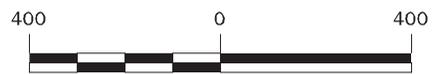
SD-SA-01-TR

LEGEND

- Industri-Plex Sampling Locations (1999) (GPS Surveyed)
- TiNUS Triad Sampling Locations (2001) (GPS Surveyed)

**FIGURE 2-17
INDUSTRI-PLEX AND TRIAD
SAMPLING STATIONS
(STATIONS 01-IP & SA)
WELLS G & H.**

WOBURN, MASSACHUSETTS



SCALE IN FEET



SD-MC-02

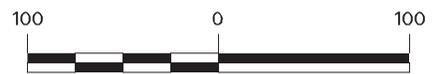
*South
Pond*

LEGEND

- Industri-Plex Sampling Locations (1999) (GPS Surveyed)

**FIGURE 2-18
INDUSTRI-PLEX SAMPLING STATIONS
(STATION 02-IP)
WELLS G & H.**

WOBURN, MASSACHUSETTS



SCALE IN FEET



*Phillips
Pond*

SD-MC-03-TR

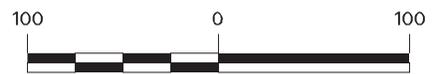
SD-MC-03

LEGEND

- Industri-Plex Sampling Locations (1999) (GPS Surveyed)
- TtNUS Triad Sampling Locations (2001) (GPS Surveyed)

**FIGURE 2-19
INDUSTRI-PLEX AND TRIAD
SAMPLING STATIONS
(STATION 03-IP)
WELLS G & H.**

WOBURN, MASSACHUSETTS



SCALE IN FEET





LEGEND

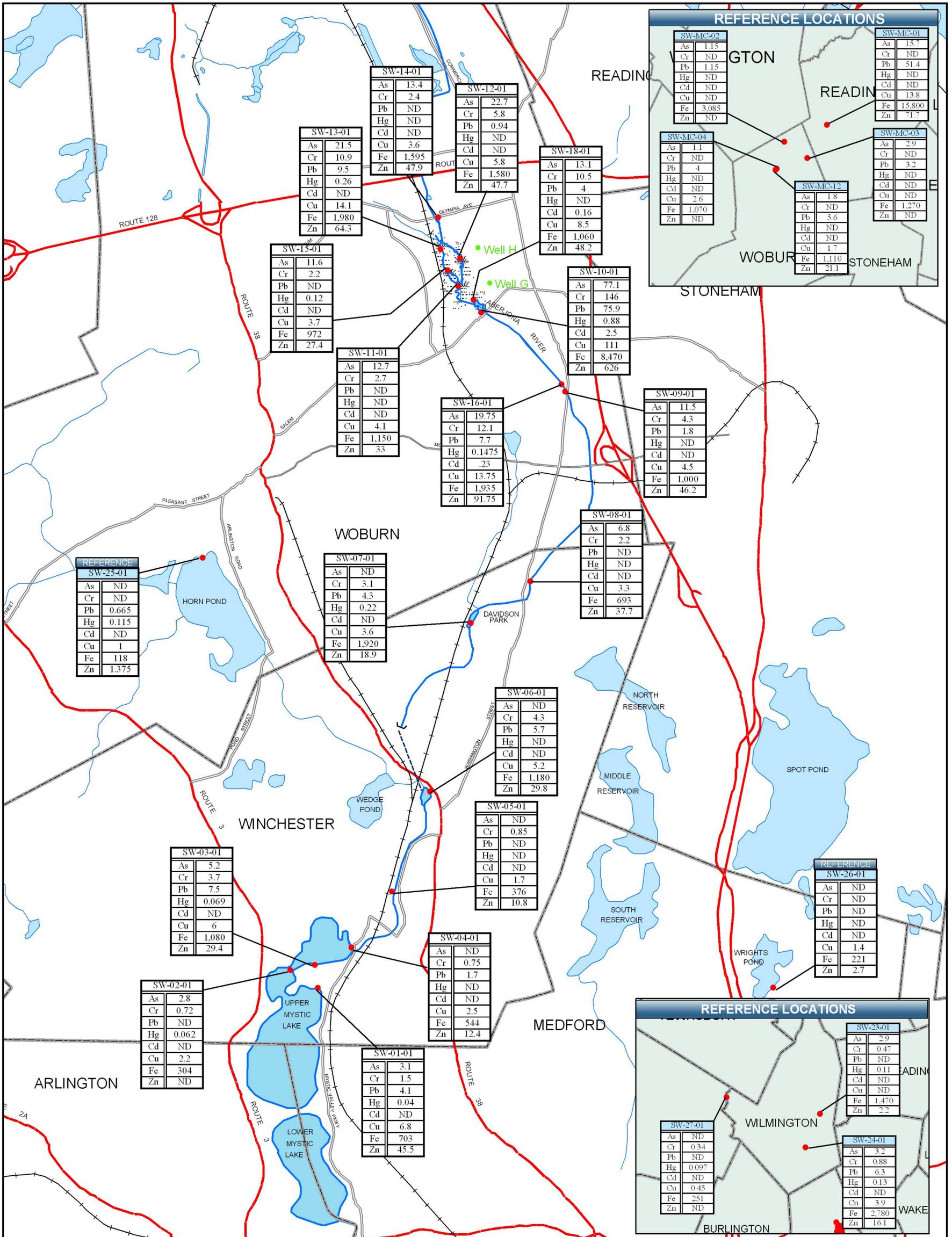
- Industri-Plex Sampling Locations (1999) (GPS Surveyed)
- TtNUS Triad Sampling Locations (2001) (GPS Surveyed)

**FIGURE 2-20
INDUSTRI-PLEX AND TRIAD
SAMPLING STATIONS
(STATIONS 04-IP, 12-IP, & HB-TR)
WELLS G & H.**

WOBURN, MASSACHUSETTS

300 0 300

SCALE IN FEET



REFERENCE
SW-25-01

As	ND
Cr	ND
Pb	0.665
Hg	0.115
Cd	ND
Cu	1
Fe	118
Zn	1.375

SW-07-01

As	ND
Cr	3.1
Pb	4.3
Hg	0.22
Cd	ND
Cu	3.6
Fe	1,920
Zn	18.9

SW-03-01

As	5.2
Cr	3.7
Pb	7.5
Hg	0.069
Cd	ND
Cu	6
Fe	1,080
Zn	29.4

SW-02-01

As	2.8
Cr	0.72
Pb	ND
Hg	0.062
Cd	ND
Cu	2.2
Fe	304
Zn	ND

SW-01-01

As	3.1
Cr	1.5
Pb	4.1
Hg	0.04
Cd	ND
Cu	6.8
Fe	703
Zn	45.5

SW-04-01

As	ND
Cr	0.75
Pb	1.7
Hg	ND
Cd	ND
Cu	2.5
Fe	544
Zn	12.4

SW-05-01

As	ND
Cr	0.85
Pb	ND
Hg	ND
Cd	ND
Cu	1.7
Fe	376
Zn	10.8

SW-06-01

As	ND
Cr	4.3
Pb	5.7
Hg	ND
Cd	ND
Cu	5.2
Fe	1,180
Zn	29.8

SW-08-01

As	6.8
Cr	2.2
Pb	ND
Hg	ND
Cd	ND
Cu	3.3
Fe	693
Zn	37.7

SW-09-01

As	11.5
Cr	4.3
Pb	1.8
Hg	ND
Cd	ND
Cu	4.5
Fe	1,000
Zn	46.2

SW-16-01

As	19.75
Cr	12.1
Pb	7.7
Hg	0.1475
Cd	.23
Cu	13.75
Fe	1,935
Zn	91.75

SW-11-01

As	12.7
Cr	2.7
Pb	ND
Hg	ND
Cd	ND
Cu	4.1
Fe	1,150
Zn	33

SW-15-01

As	11.6
Cr	2.2
Pb	ND
Hg	0.12
Cd	ND
Cu	3.7
Fe	972
Zn	27.4

SW-13-01

As	21.5
Cr	10.9
Pb	9.5
Hg	0.26
Cd	ND
Cu	14.1
Fe	1,980
Zn	64.3

SW-14-01

As	13.4
Cr	2.4
Pb	ND
Hg	ND
Cd	ND
Cu	3.6
Fe	1,595
Zn	47.9

SW-12-01

As	22.7
Cr	5.8
Pb	0.94
Hg	ND
Cd	ND
Cu	5.8
Fe	1,580
Zn	47.7

SW-18-01

As	13.1
Cr	10.5
Pb	4
Hg	ND
Cd	0.16
Cu	8.5
Fe	1,060
Zn	48.2

SW-10-01

As	77.1
Cr	146
Pb	75.9
Hg	0.88
Cd	2.5
Cu	111
Fe	8,470
Zn	626

REFERENCE LOCATIONS

SW-MC-02	As: 1.15, Cr: ND, Pb: 1.15, Hg: ND, Cd: ND, Cu: ND, Fe: 3,085, Zn: ND
SW-MC-01	As: 15.7, Cr: ND, Pb: 51.4, Hg: ND, Cd: ND, Cu: 13.8, Fe: 15,800, Zn: 71.7
SW-MC-04	As: 1.1, Cr: ND, Pb: 4, Hg: ND, Cd: ND, Cu: 2.6, Fe: 1,070, Zn: ND
SW-MC-03	As: 2.9, Cr: ND, Pb: 3.2, Hg: ND, Cd: ND, Cu: ND, Fe: 1,270, Zn: ND
SW-MC-12	As: 1.8, Cr: ND, Pb: 5.6, Hg: ND, Cd: ND, Cu: 1.7, Fe: 1,110, Zn: 21.1

REFERENCE
SW-26-01

As	ND
Cr	ND
Pb	ND
Hg	ND
Cd	ND
Cu	1.4
Fe	221
Zn	2.7

REFERENCE LOCATIONS

SW-23-01	As: 2.9, Cr: 0.47, Pb: ND, Hg: 0.11, Cd: ND, Cu: ND, Fe: 1,470, Zn: 2.2
SW-27-01	As: ND, Cr: 0.34, Pb: ND, Hg: 0.097, Cd: ND, Cu: 0.45, Fe: 251, Zn: ND
SW-24-01	As: 3.2, Cr: 0.88, Pb: 6.3, Hg: 0.13, Cd: ND, Cu: 3.9, Fe: 2,780, Zn: 16.1

- Legend**
- Well Location
 - Sample Station
 - Aberjona River
 - Bodies of Water
 - Rail Lines
 - - - Culvert
 - ▨ Wetlands

Location Number

As	Total
Cr	Concentration
Pb	of Detected
Hg	Analytes
Cd	In ug/L
Cu	ND-None
Fe	Detected
Zn	

Blue shading indicates reference location.

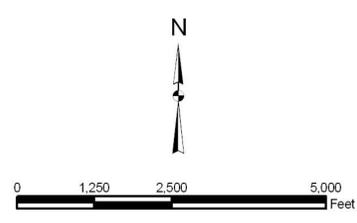
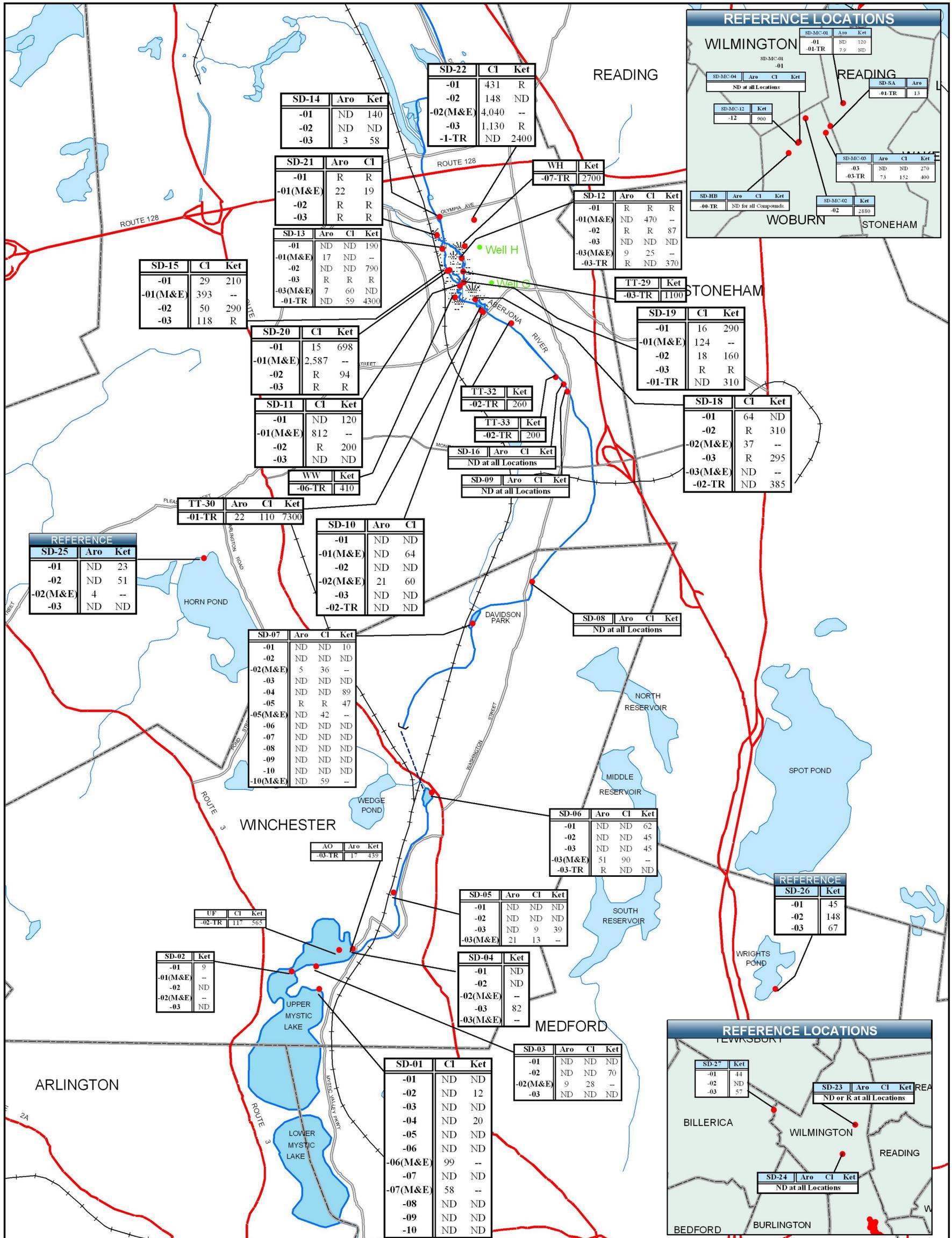


FIGURE 2-21.
SELECTED METALS DETECTED AT
SURFACE WATER SAMPLING LOCATIONS
WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)

METCALF & EDDY



Legend

- Well Location
- Sample Station
- Aberjona River
- Bodies of Water
- +— Rail Lines
- - - Culvert
- ▨ Wetlands

Site No.	Aro	Cl	Ket
Total Concentration of Detected Analytes in ug/Kg.			
ND - None Detected			
R - All Nondetects Rejected			
- - - Not Analyzed			

Aro - Aromatic Volatile Organic Compounds
Cl - Chlorinated Volatile Organic Compounds
Ket - Ketones

If an organic group is not shown, no analytes in this group were detected in any of the sediment locations from this site.

M&E sediment locations distinguished from F-W sediment locations by (M&E) next to the location number.

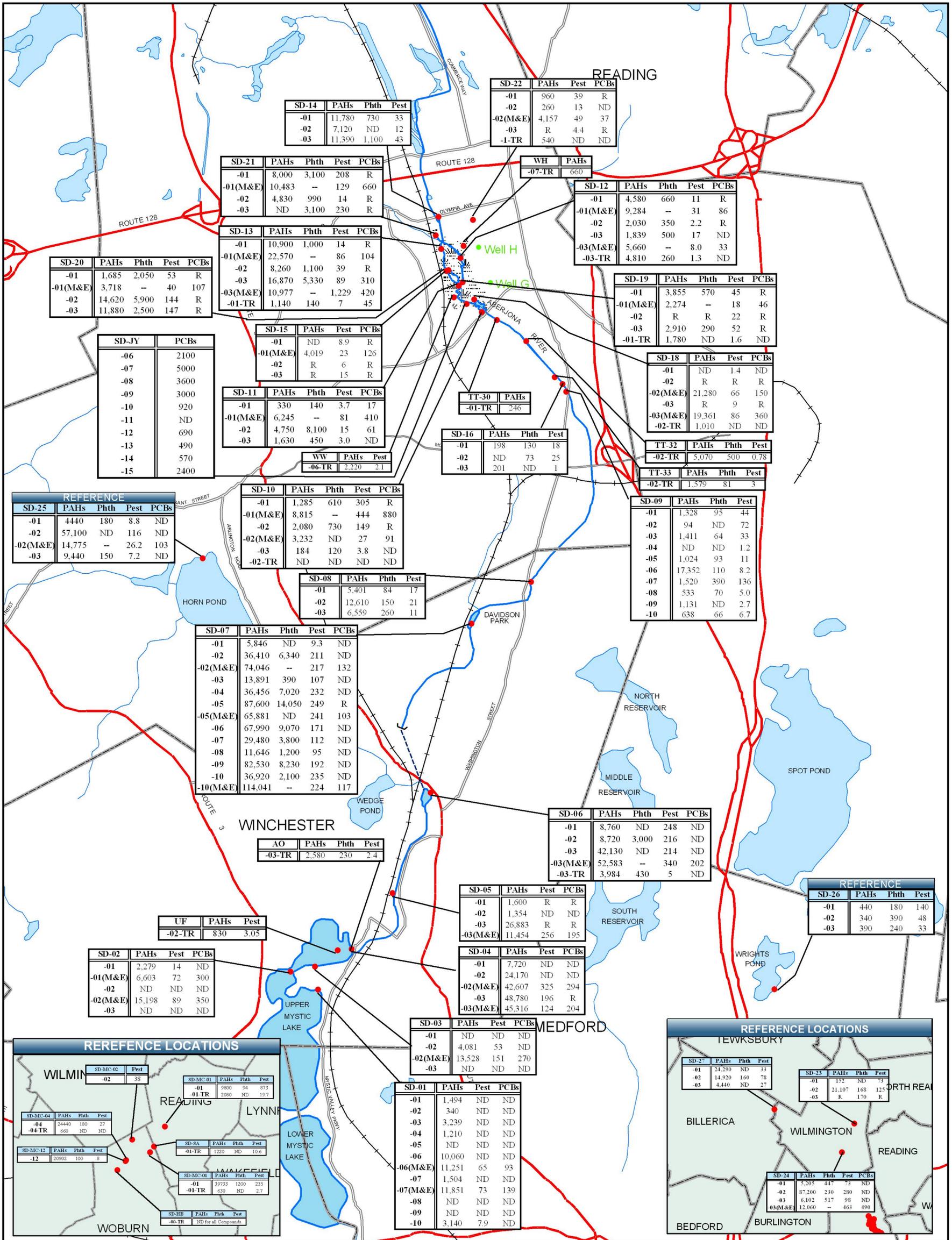
N

0 1,250 2,500 5,000 Feet

FIGURE 2-22.
VOLATILE ORGANIC COMPOUNDS
IN 1995, 1997, AND 2001 SEDIMENT
WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)

METCALF & EDDY

G:\Projects\MASSACHUSETTS\Woburn\Mapshots\loc2.mxd



Legend

- Well Location
- Sample Station
- ABERJONA RIVER
- Bodies of Water
- Rail Lines
- - - Culvert
- ▨ Wetlands

Site No.	PAHs	Phth	Pest	PCBs
Location Numbers	Total Concentration of Detected Analytes in ug/Kg.			
	ND - None Detected			
	R - All Nondetects Rejected			
	- Not Analyzed			
	PAHs - Polycyclic Aromatic Hydrocarbons			
	Phth - Phthalate Compounds			
	Pest - Pesticides			
	PCBs - Polychlorinated Biphenyl Compounds			
	If an organic group is not shown, no analytes in this group were detected in any of the sediment locations from this site.			
	M&E sediment locations distinguished from FW and TT sediment locations by (M&E) next to the location number.			

Blue shading indicates reference location.

N

0 1,250 2,500 5,000 Feet

FIGURE 2-23.
PAHs, PESTICIDES, AND PCBs
DETECTED IN 1995, 1997, AND 2001 SEDIMENT
WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)
METCALF & EDDY

G:\Projects\Massachusetts\Woburn\Map\MapScheme2.mxd

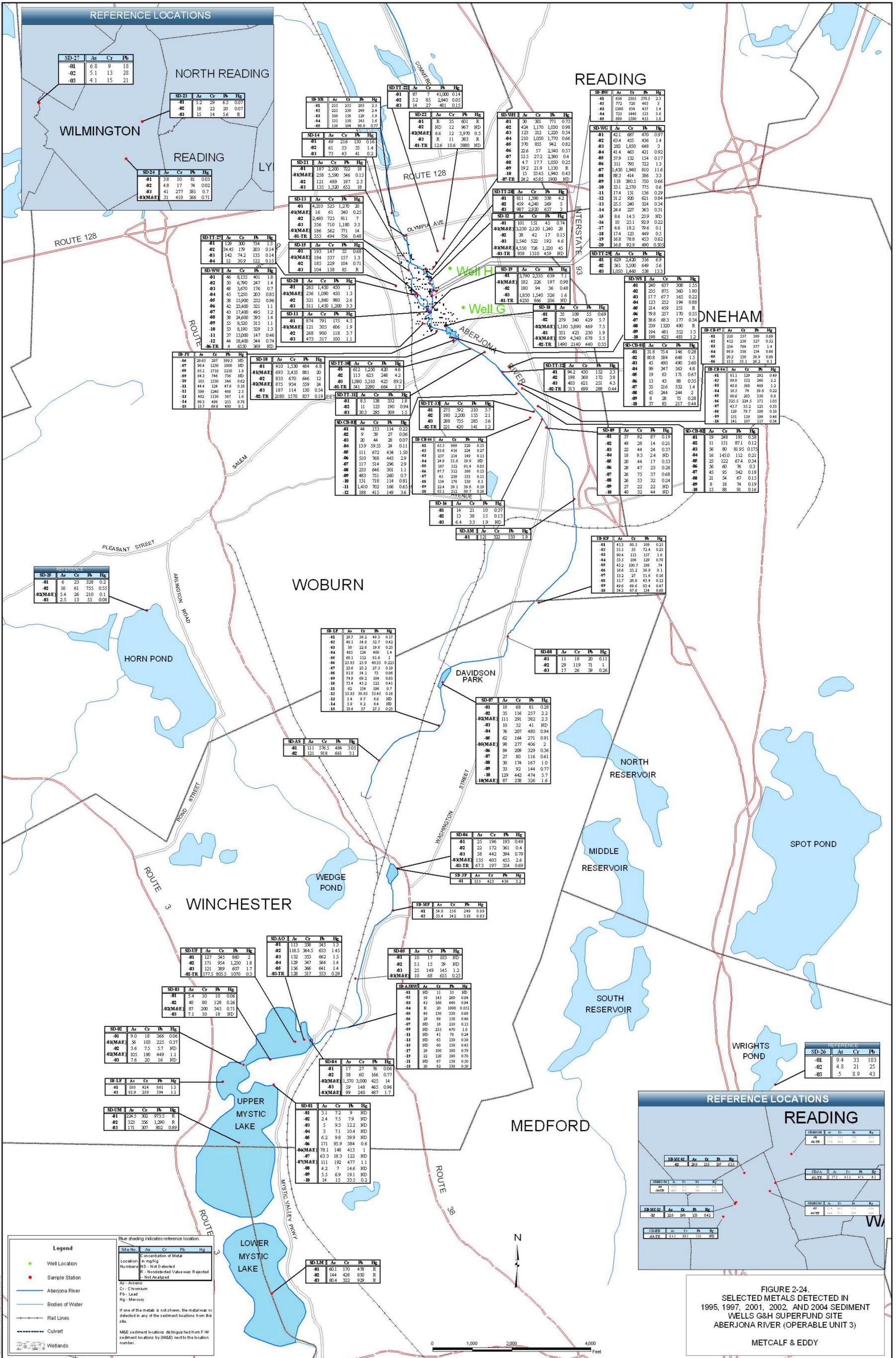


FIGURE 2-25. METALS COMPARISON ALONG RIVER LENGTH

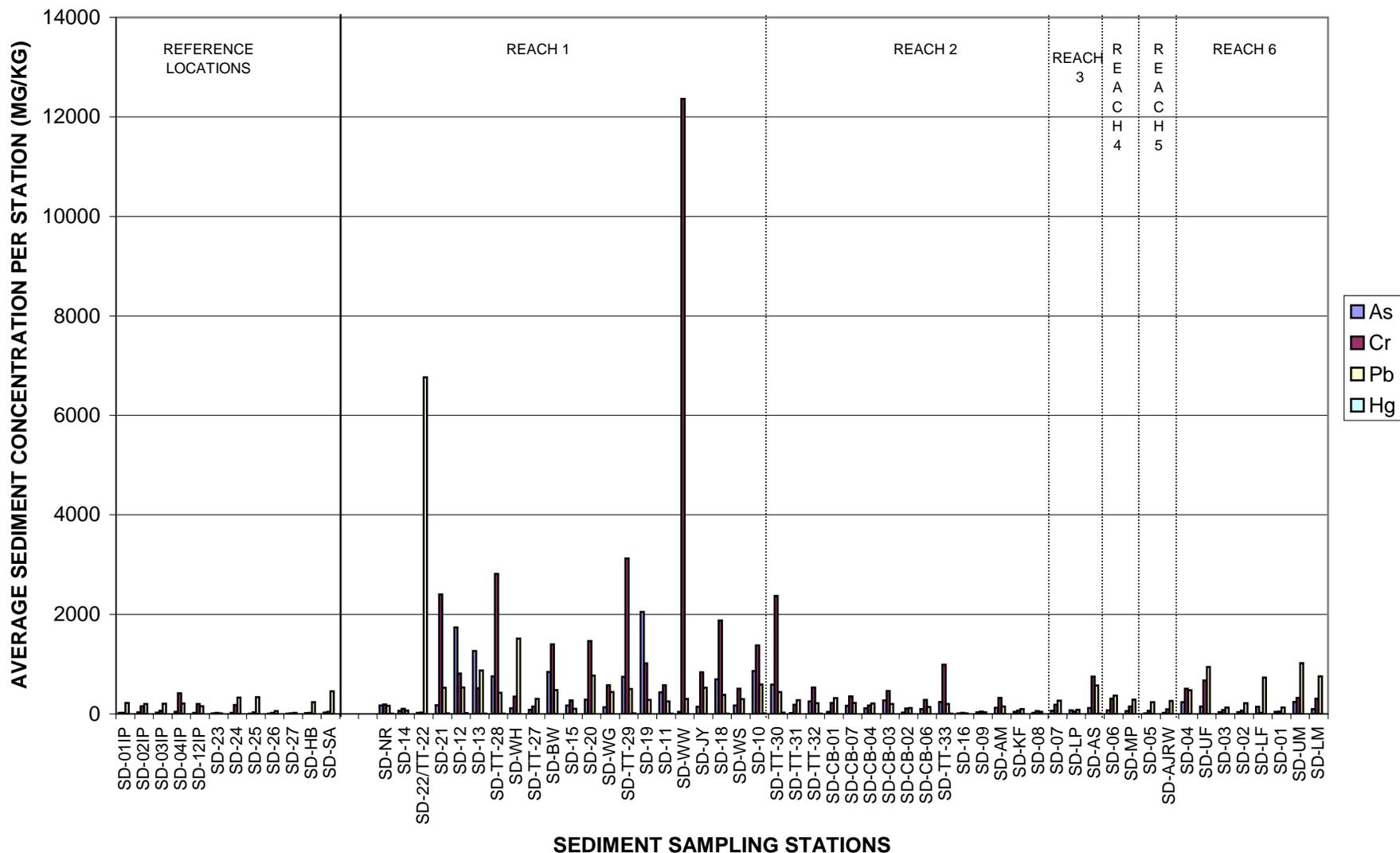


FIGURE 2-26. METALS COMPARISON ALONG RIVER LENGTH - ARSENIC

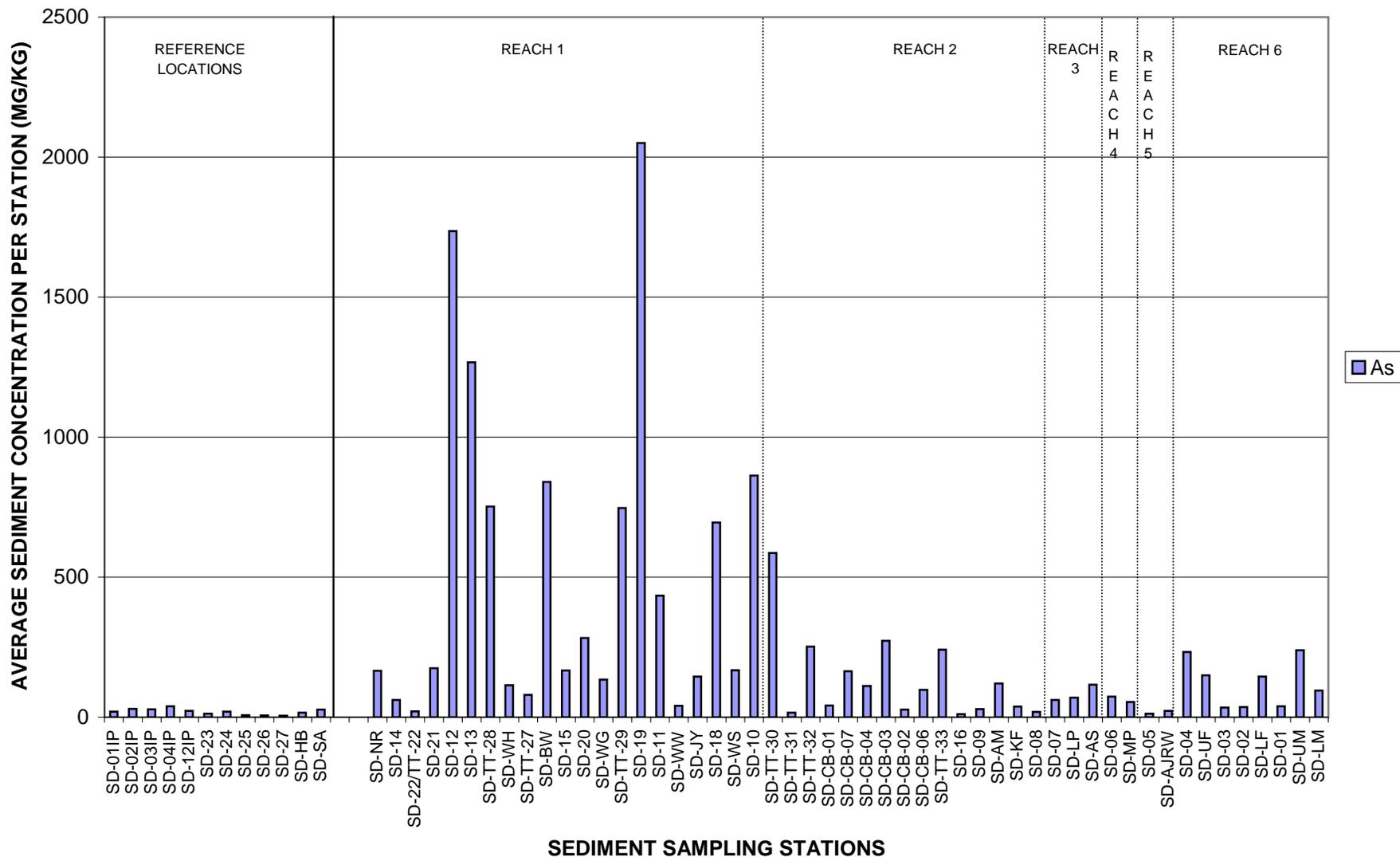


FIGURE 2-27. METALS COMPARISON ALONG RIVER LENGTH - CHROMIUM

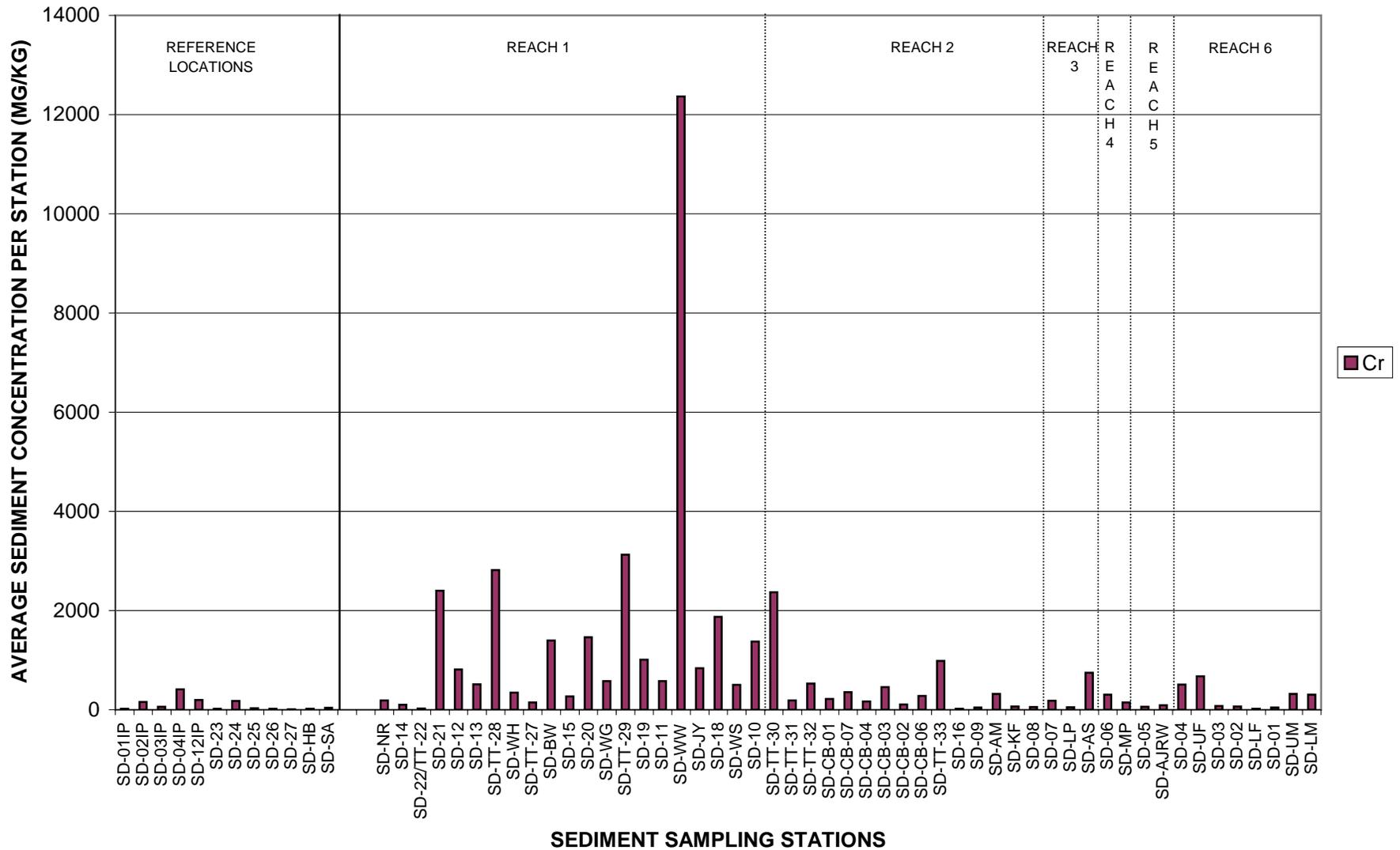


FIGURE 2-28. METALS COMPARISON ALONG RIVER LENGTH - LEAD

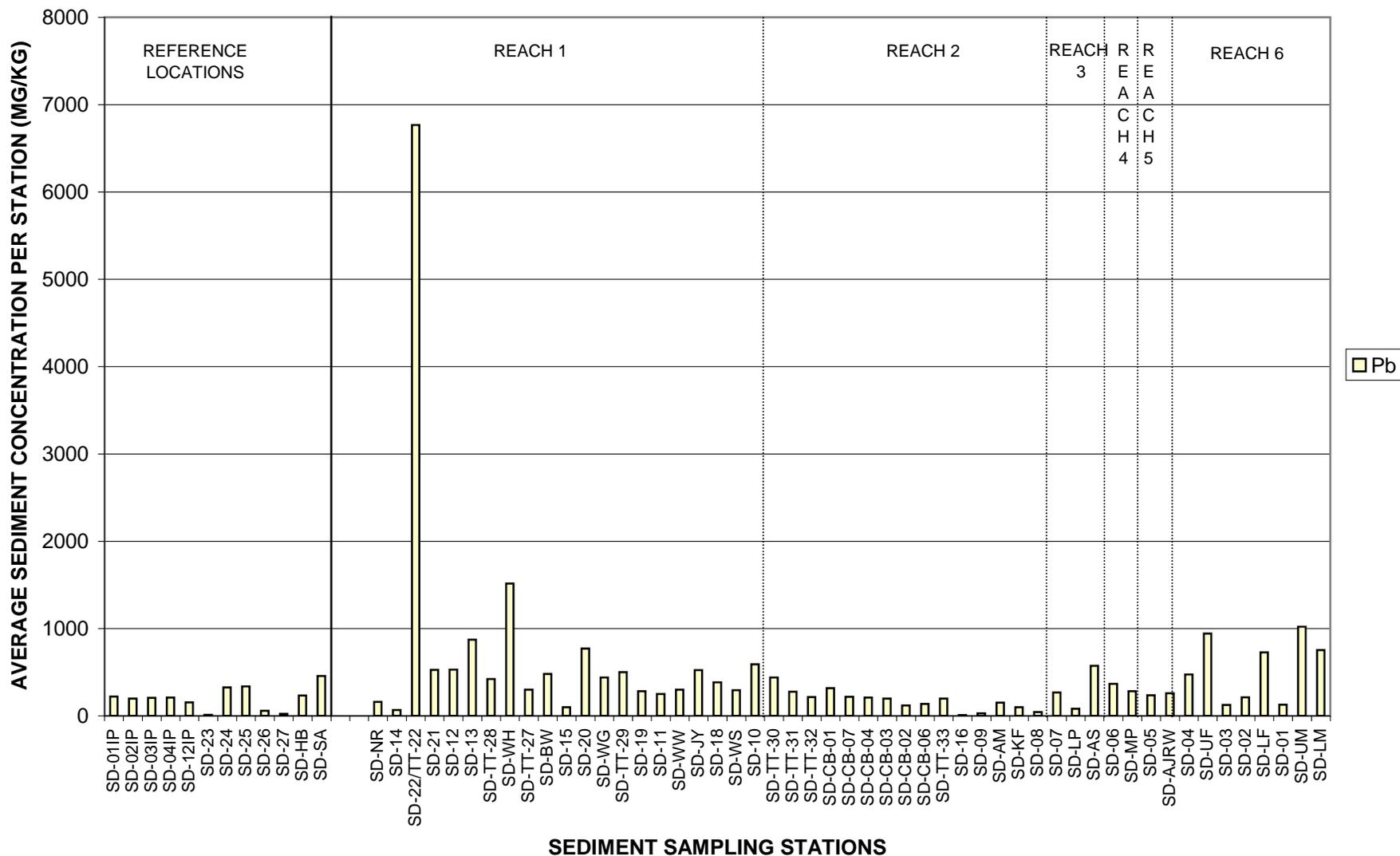
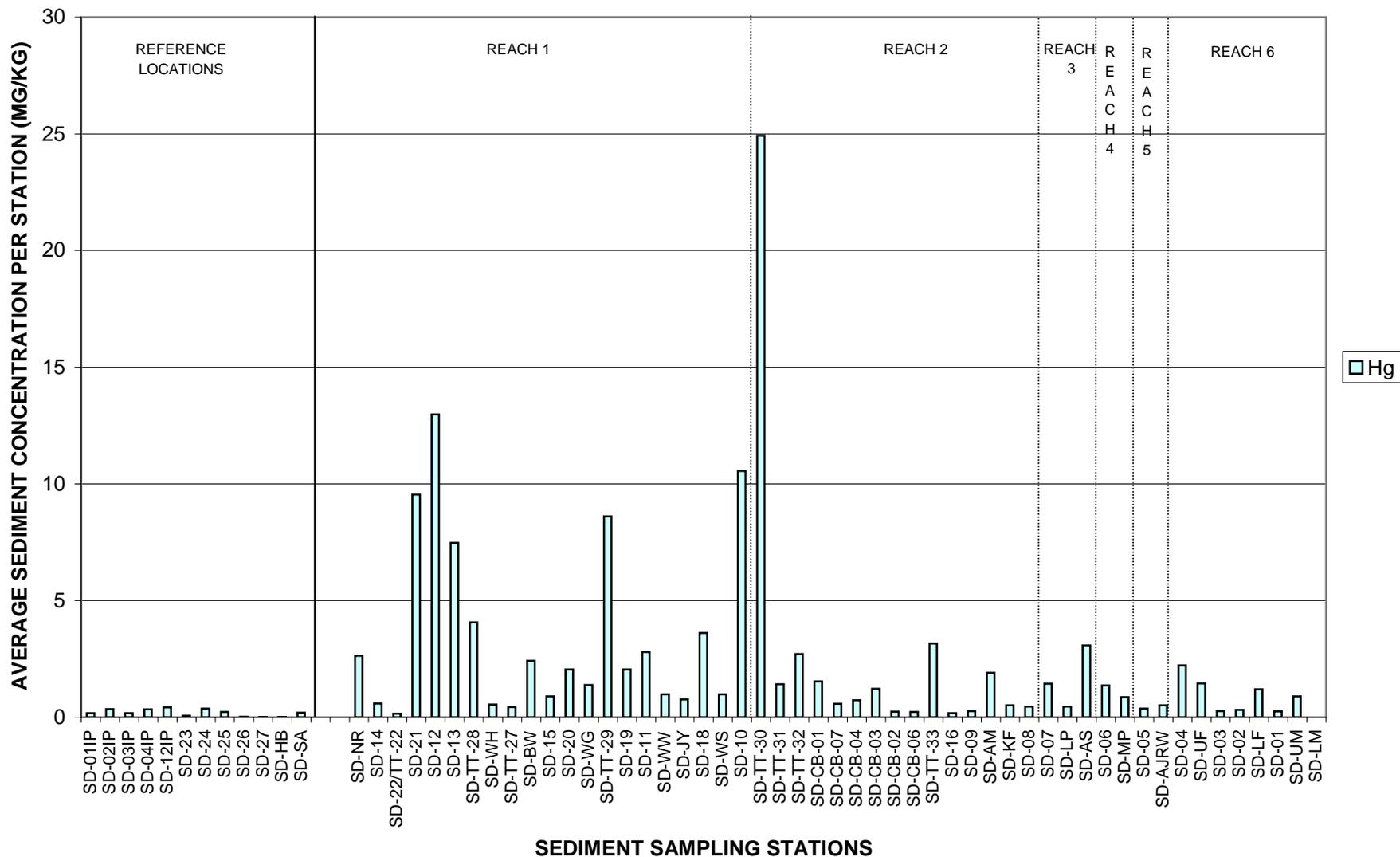
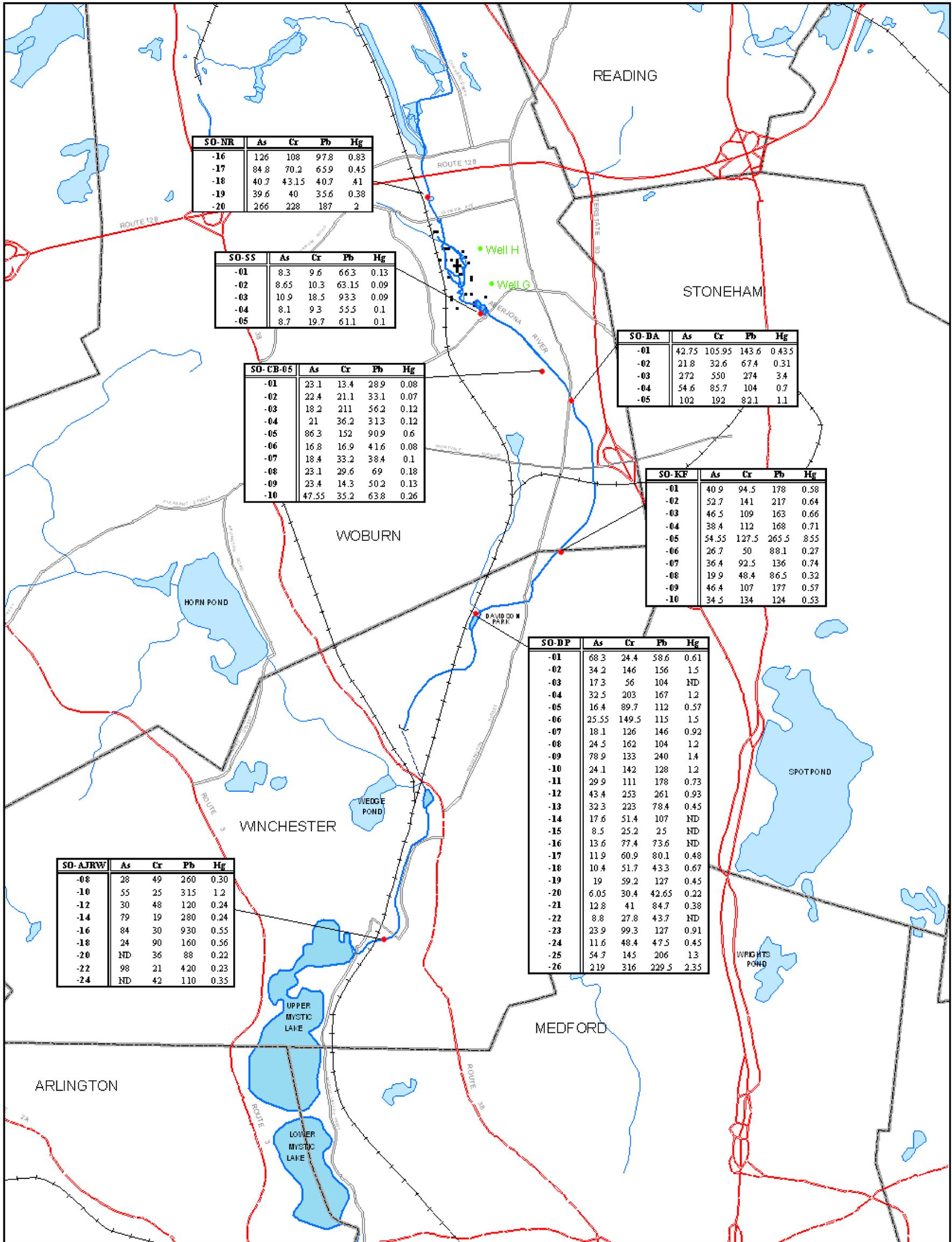


FIGURE 2-29. METALS COMPARISON ALONG RIVER LENGTH - MERCURY





SO-NR	As	Cr	Pb	Hg
-16	126	108	97.8	0.83
-17	84.8	70.2	65.9	0.45
-18	40.7	43.15	40.7	41
-19	39.6	40	35.6	0.38
-20	266	228	187	2

SO-SS	As	Cr	Pb	Hg
-01	8.3	9.6	66.3	0.13
-02	8.65	10.3	63.15	0.09
-03	10.9	18.5	93.3	0.09
-04	8.1	9.3	55.5	0.1
-05	8.7	19.7	61.1	0.1

SO-CB-05	As	Cr	Pb	Hg
-01	23.1	13.4	28.9	0.08
-02	22.4	21.1	33.1	0.07
-03	18.2	211	56.2	0.12
-04	21	36.2	31.3	0.12
-05	86.3	152	90.9	0.6
-06	16.8	16.9	41.6	0.08
-07	18.4	33.2	38.4	0.1
-08	23.1	29.6	6.9	0.18
-09	23.4	14.3	50.2	0.13
-10	47.55	35.2	63.8	0.26

SO-DA	As	Cr	Pb	Hg
-01	42.75	105.95	143.6	0.435
-02	21.8	32.6	67.4	0.31
-03	272	550	274	3.4
-04	54.6	85.7	104	0.7
-05	102	192	82.1	1.1

SO-KF	As	Cr	Pb	Hg
-01	40.9	94.5	178	0.58
-02	52.7	141	217	0.64
-03	46.5	109	163	0.66
-04	38.4	112	168	0.71
-05	54.55	127.5	265.5	8.55
-06	26.7	50	88.1	0.27
-07	36.4	92.5	136	0.74
-08	19.9	48.4	86.5	0.32
-09	46.4	107	177	0.57
-10	34.5	134	124	0.53

SO-DP	As	Cr	Pb	Hg
-01	68.3	24.4	58.6	0.61
-02	34.2	146	156	1.5
-03	17.3	56	104	ND
-04	32.5	203	167	1.2
-05	16.4	89.7	112	0.57
-06	25.55	149.5	115	1.5
-07	18.1	126	146	0.92
-08	24.5	162	104	1.2
-09	78.9	133	240	1.4
-10	24.1	142	128	1.2
-11	29.9	111	178	0.73
-12	43.4	253	261	0.93
-13	32.3	223	78.4	0.45
-14	17.6	51.4	107	ND
-15	8.5	25.2	2.5	ND
-16	13.6	77.4	73.6	ND
-17	11.9	60.9	80.1	0.48
-18	10.4	51.7	43.3	0.67
-19	19	59.2	127	0.45
-20	6.05	30.4	42.65	0.22
-21	12.8	41	84.7	0.38
-22	8.8	27.8	43.7	ND
-23	23.9	99.3	127	0.91
-24	11.6	48.4	47.5	0.45
-25	54.7	145	206	1.3
-26	219	316	229.5	2.35

SO-AJRW	As	Cr	Pb	Hg
-08	28	49	260	0.30
-10	55	25	315	1.2
-12	30	48	120	0.24
-14	79	19	280	0.24
-16	84	30	930	0.55
-18	24	90	160	0.56
-20	ND	36	88	0.22
-22	98	21	420	0.23
-24	ND	42	110	0.35

Legend

- Well Location
- Sample Station
- ABERJONA RIVER
- Bodies of Water
- Rail Lines
- Culvert
- Wetlands

Site No.	As	Cr	Pb	Hg
Location Numbers	Concentration of Metal in mg/Kg.			
	ND - Not Detected			
	R - Nondetected Value was Rejected			
	- Not Analyzed			
	As - Arsenic			
	Cr - Chromium			
	Pb - Lead			
	Hg - Mercury			
	If one of the metals is not shown, the metal was not detected in any of the soil locations from this site.			

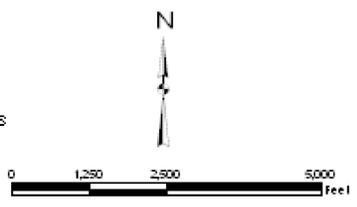
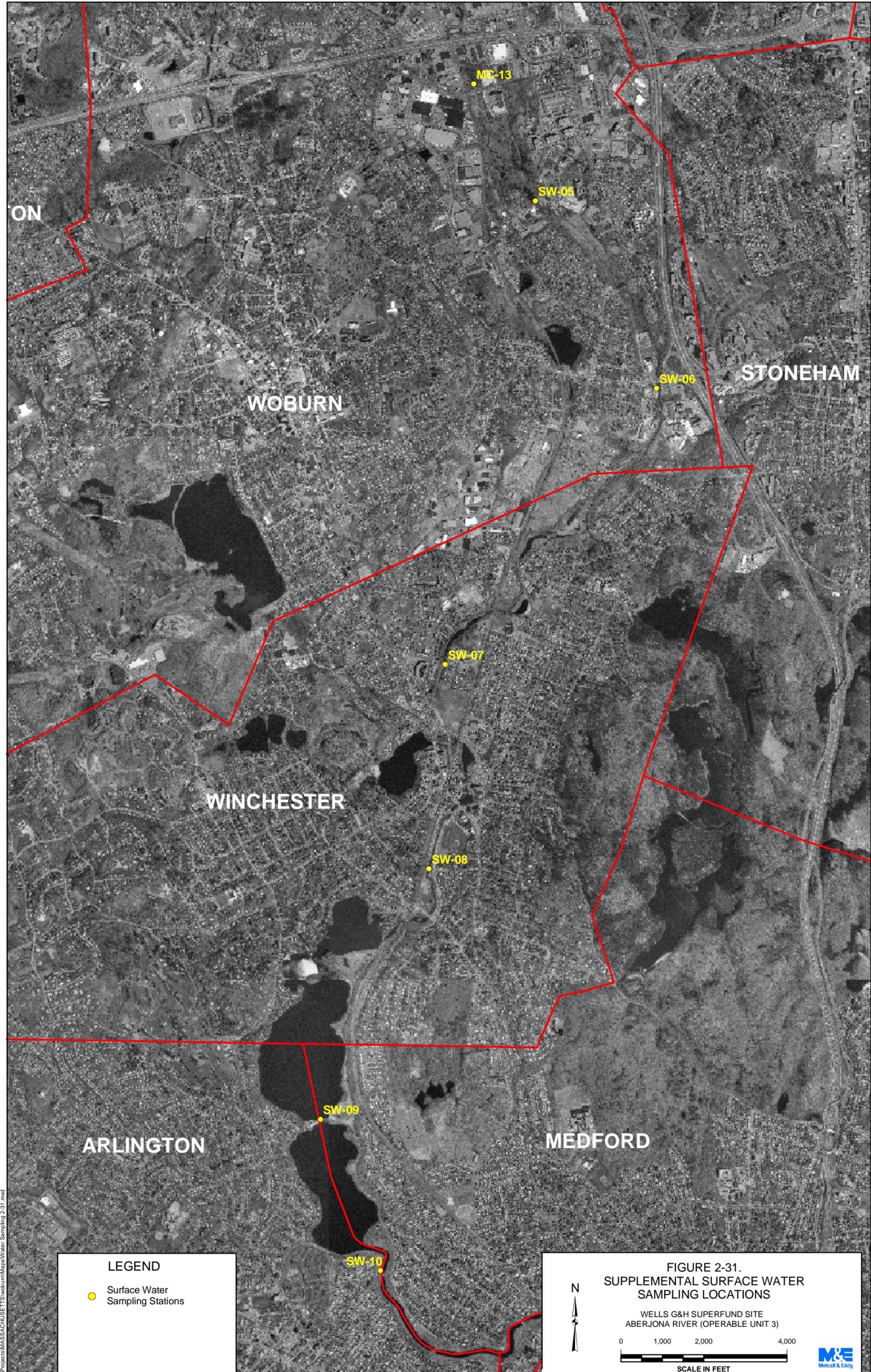


FIGURE 2-30.
SELECTED METALS DETECTED AT
SOIL SAMPLING STATIONS
WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)
METCALF & EDDY

G:\Projects\WAS\SUBSETS\Watershed\Map\Map2002.mxd



ON

WOBURN

STONEHAM

WINCHESTER

ARLINGTON

MEDFORD

MC-13

SW-03

SW-06

SW-07

SW-08

SW-09

SW-10

LEGEND

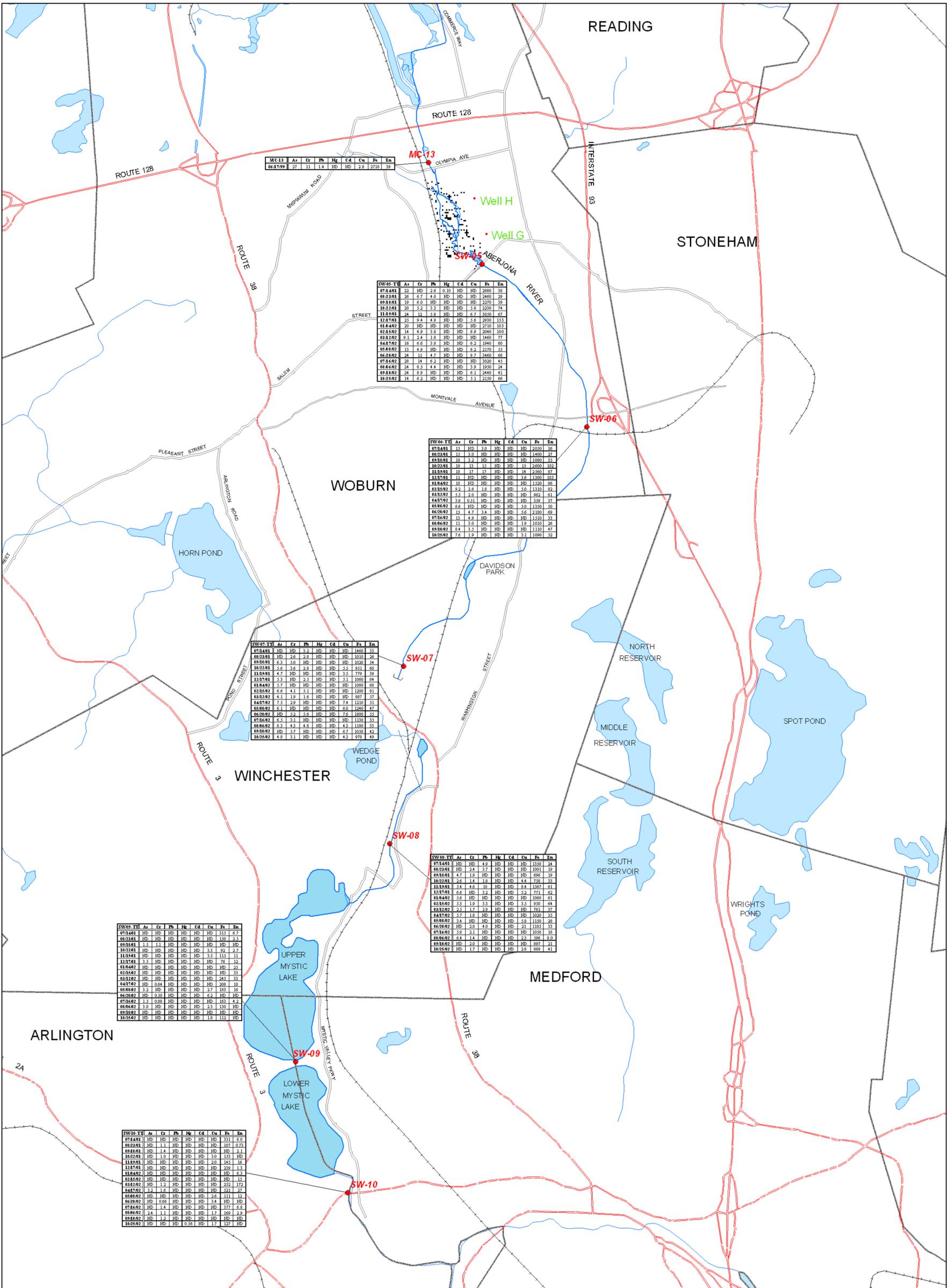
- Surface Water Sampling Stations

FIGURE 2-31.
SUPPLEMENTAL SURFACE WATER SAMPLING LOCATIONS

WELLS G&H SUPERFUND SITE
 ABERJONA RIVER (OPERABLE UNIT 3)

0 1,000 2,000 4,000

SCALE IN FEET



MC-13	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
06/7/99	27	11	1.4	ND	ND	2.8	2710	39

SW-06-T1	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
07/8/01	22	ND	2.8	0.10	ND	ND	2880	38
08/2/01	26	6.7	4.0	ND	ND	ND	2460	28
09/8/01	19	6.0	ND	ND	ND	ND	2270	39
10/2/01	20	3.2	3.3	ND	ND	3.0	2230	74
11/9/01	24	10	5.0	ND	ND	6.2	3000	67
12/7/01	25	9.4	4.9	ND	ND	5.6	2930	153
01/6/02	20	ND	ND	ND	ND	ND	2710	103
02/5/02	14	4.9	3.9	ND	ND	6.9	2040	100
03/2/02	9.1	2.4	1.8	ND	ND	ND	1460	77
04/7/02	16	6.6	3.8	ND	ND	6.2	1940	60
05/0/02	13	4.9	ND	ND	ND	6.2	2170	55
06/2/02	24	11	4.7	ND	ND	8.7	3460	68
07/8/02	28	14	6.2	ND	ND	ND	3020	45
08/6/02	24	8.5	4.4	ND	ND	3.9	1950	24
09/8/02	24	9.2	ND	ND	ND	6.1	2440	41
10/2/02	14	6.2	ND	ND	ND	5.1	2150	66

SW-06-T1	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
07/8/01	15	ND	3.0	ND	ND	ND	2050	36
08/2/01	15	3.0	ND	ND	ND	ND	1400	27
09/8/01	15	3.4	ND	ND	ND	ND	1000	15
10/2/01	15	13	13	ND	ND	15	2400	102
11/9/01	15	17	17	ND	ND	14	2550	87
12/7/01	11	ND	ND	ND	ND	3.6	1300	153
01/6/02	10	ND	ND	ND	ND	ND	1200	86
02/5/02	9.2	2.6	1.8	ND	ND	5.0	1310	82
03/2/02	5.5	2.0	ND	ND	ND	ND	950	41
04/7/02	3.8	0.51	ND	ND	ND	ND	339	37
05/0/02	6.6	ND	ND	ND	ND	5.0	1350	20
06/2/02	13	4.7	3.4	ND	ND	5.6	2380	69
07/8/02	13	4.9	ND	ND	ND	ND	1410	33
08/6/02	11	3.0	ND	ND	ND	1.9	1010	26
09/8/02	8.1	3.5	ND	ND	ND	ND	1110	47
10/2/02	7.8	1.9	ND	ND	ND	3.1	1090	52

SW-07-T1	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
07/8/01	ND	ND	3.7	ND	ND	ND	1460	38
08/2/01	ND	2.6	2.8	ND	ND	ND	1010	26
09/8/01	6.3	5.0	ND	ND	ND	ND	1090	54
10/2/01	5.6	3.6	2.8	ND	ND	5.4	951	60
11/9/01	4.7	ND	ND	ND	ND	3.5	779	38
12/7/01	5.3	ND	2.3	ND	ND	5.1	1060	84
01/6/02	5.7	ND	ND	ND	ND	ND	1080	68
02/5/02	6.6	4.1	5.1	ND	ND	6.0	1200	81
03/2/02	4.1	1.9	1.6	ND	ND	ND	887	57
04/7/02	7.3	2.9	ND	ND	ND	7.4	1210	51
05/0/02	6.1	ND	ND	ND	ND	6.0	1240	47
06/2/02	ND	5.9	5.6	ND	ND	7.6	1800	55
07/8/02	6.2	3.1	ND	ND	ND	4.5	1130	35
08/6/02	6.3	4.3	4.8	ND	ND	5.3	1180	33
09/8/02	ND	5.7	ND	ND	ND	6.7	1050	42
10/2/02	4.8	3.1	ND	ND	ND	4.2	978	40

SW-08-T1	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
07/8/01	ND	ND	4.9	ND	ND	ND	1350	24
08/2/01	ND	2.4	3.7	ND	ND	ND	1001	19
09/8/01	4.7	1.9	ND	ND	ND	ND	696	19
10/2/01	2.6	1.4	1.8	ND	ND	4.4	758	33
11/9/01	5.4	4.6	10	ND	ND	8.4	1567	61
12/7/01	6.6	ND	3.2	ND	ND	5.2	771	62
01/6/02	5.6	ND	ND	ND	ND	ND	1060	61
02/5/02	5.3	1.9	3.3	ND	ND	3.5	930	44
03/2/02	2.5	1.7	2.8	ND	ND	ND	761	37
04/7/02	5.7	1.8	ND	ND	ND	ND	1000	35
05/0/02	ND	2.8	4.0	ND	ND	5.8	1150	23
06/2/02	ND	2.8	4.0	ND	ND	21	1185	35
07/8/02	5.8	2.1	ND	ND	ND	ND	1050	16
08/6/02	6.4	1.4	ND	ND	ND	2.3	996	8.0
09/8/02	ND	2.0	ND	ND	ND	ND	897	21
10/2/02	ND	1.7	ND	ND	ND	3.8	859	41

SW-09-T1	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
07/8/01	ND	ND	ND	ND	ND	ND	315	6.7
08/2/01	ND	ND	ND	ND	ND	ND	140	2.5
09/8/01	1.5	1.1	ND	ND	ND	ND	ND	ND
10/2/01	ND	ND	ND	ND	ND	3.1	29	2.7
11/9/01	ND	ND	ND	ND	ND	3.3	132	13.1
12/7/01	3.5	ND	ND	ND	ND	7.6	12	ND
01/6/02	ND	ND	ND	ND	ND	ND	26	ND
02/5/02	ND	ND	ND	ND	ND	ND	33	ND
03/2/02	ND	ND	ND	ND	ND	245	33	ND
04/7/02	0.64	ND	ND	ND	ND	ND	208	18
05/0/02	3.2	ND	ND	ND	ND	2.9	183	16
06/2/02	0.80	ND	ND	ND	ND	6.2	ND	ND
07/8/02	1.5	0.88	ND	ND	ND	163	4.2	ND
08/6/02	3.8	ND	ND	ND	ND	2.3	130	ND
09/8/02	ND	ND	ND	ND	ND	ND	ND	ND
10/2/02	ND	ND	ND	ND	ND	1.8	113	ND

SW-10-T1	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
07/8/01	ND	ND	ND	ND	ND	ND	331	6.0
08/2/01	ND	1.1	ND	ND	ND	ND	107	6.23
09/8/01	ND	1.4	ND	ND	ND	ND	ND	2.1
10/2/01	ND	1.0	ND	ND	ND	3.0	153	ND
11/9/01	ND	ND	ND	ND	ND	2.0	145	16
12/7/01	ND	ND	ND	ND	ND	239	1.3	ND
01/6/02	ND	ND	ND	ND	ND	ND	6.3	ND
02/5/02	ND	ND	ND	ND	ND	ND	1.15	ND
03/2/02	ND	1.2	ND	ND	ND	252	172	ND
04/7/02	3.2	1.6	ND	ND	ND	291	27	ND
05/0/02	ND	ND	ND	ND	ND	2.6	111	11
06/2/02	ND	0.66	ND	ND	ND	3.4	ND	ND
07/8/02	ND	1.4	ND	ND	ND	277	6.8	ND
08/6/02	2.1	1.1	ND	ND	ND	1.7	169	2.9
09/8/02	ND	1.2	ND	ND	ND	ND	ND	ND
10/2/02	ND	ND	0.36	ND	ND	1.7	127	ND

Legend

- Well Location
- Sample Station
- Aberjona River
- Bodies of Water
- Rail Lines
- Culvert
- Wetlands

Site No.	Metal
Collection Date	Total concentration of detected analytes in µg/L.
	ND - Not Detected
As - Arsenic	Cd - Cadmium
Cr - Chromium	Cu - Copper
Pb - Lead	Fe - Iron
Hg - Mercury	Zn - Zinc

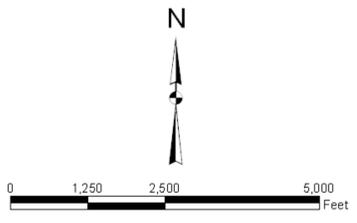
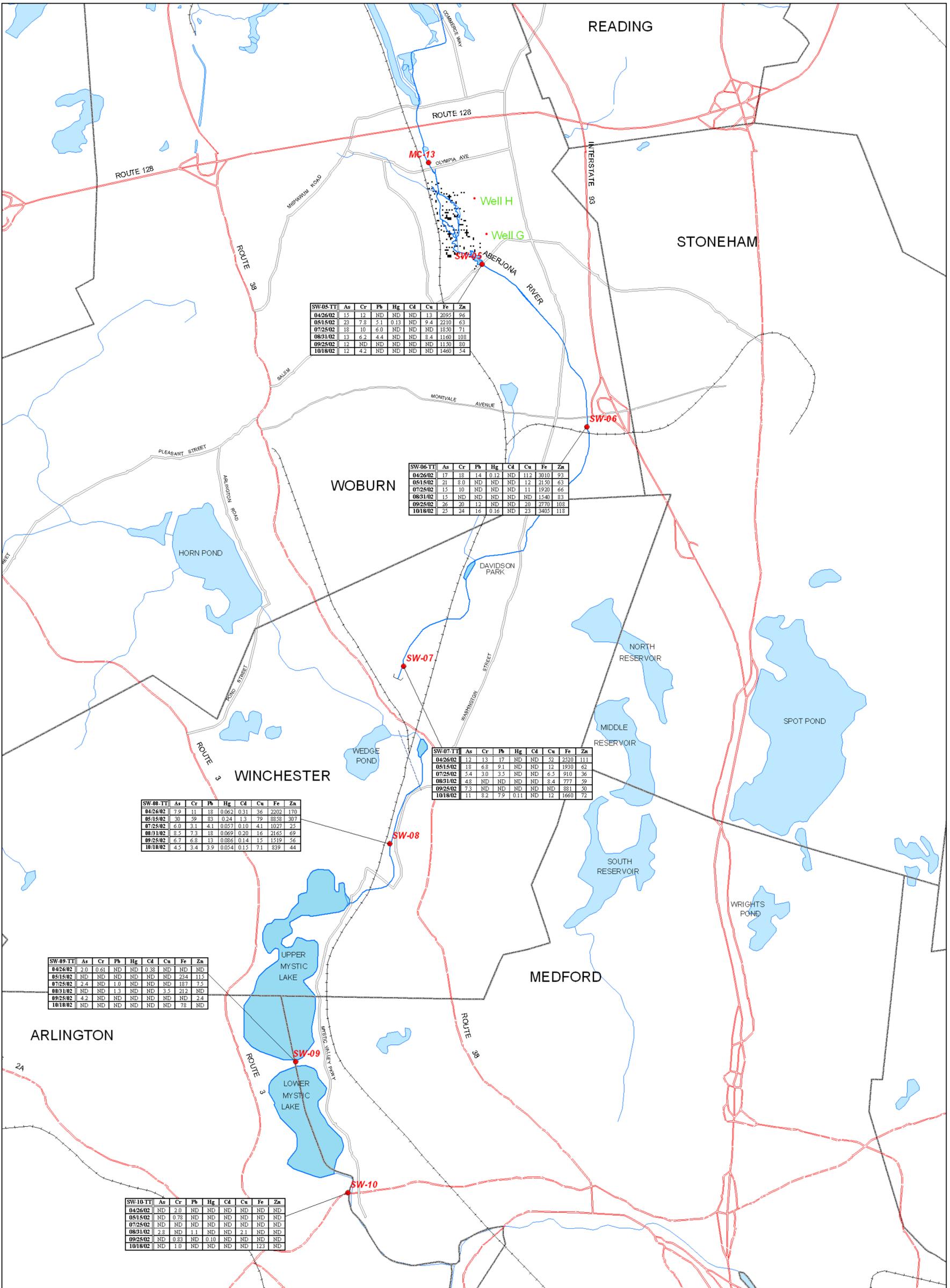


FIGURE 2-32.
SELECTED METALS DETECTED
AT SURFACE WATER SAMPLING
LOCATIONS-BASEFLOW
WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)
METCALF & EDDY

© 2005 Metcalf & Eddy, Inc. All rights reserved. No part of this document may be reproduced without written permission from Metcalf & Eddy, Inc.



SW-05 TT	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
04/26/02	15	12	ND	ND	ND	13	2025	96
05/15/02	23	7.8	5.1	0.13	ND	9.4	2210	63
07/25/02	18	10	6.0	ND	ND	ND	1830	71
08/31/02	13	6.2	4.4	ND	ND	8.4	1160	108
09/25/02	12	ND	ND	ND	ND	ND	1130	80
10/18/02	12	4.2	ND	ND	ND	ND	1460	34

SW-06 TT	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
04/26/02	17	18	14	0.12	ND	112	3010	93
05/15/02	21	8.0	ND	ND	ND	12	2150	63
07/25/02	15	10	ND	ND	ND	11	1920	66
08/31/02	15	ND	ND	ND	ND	ND	1540	83
09/25/02	26	26	12	ND	ND	20	2770	108
10/18/02	23	24	16	0.16	ND	23	3405	118

SW-07 TT	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
04/26/02	12	13	17	ND	ND	52	2320	111
05/15/02	18	6.8	9.1	ND	ND	12	1930	62
07/25/02	5.4	3.0	3.5	ND	ND	6.5	910	36
08/31/02	4.8	ND	ND	ND	ND	8.4	777	39
09/25/02	7.3	ND	ND	ND	ND	ND	881	30
10/18/02	11	8.2	7.9	0.11	ND	12	1660	72

SW-08 TT	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
04/26/02	7.9	11	18	0.062	0.31	36	2202	170
05/15/02	30	59	83	0.24	1.3	79	8838	307
07/25/02	6.0	3.1	4.1	0.037	0.10	4.1	1027	25
08/31/02	8.5	7.3	18	0.069	0.20	16	2163	69
09/25/02	6.7	6.8	13	0.086	0.14	15	1519	56
10/18/02	4.5	3.4	3.9	0.054	0.13	7.1	839	44

SW-09 TT	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
04/26/02	2.0	0.61	ND	ND	0.38	ND	ND	ND
05/15/02	ND	ND	ND	ND	ND	254	113	ND
07/25/02	2.4	ND	1.0	ND	ND	187	75	ND
08/31/02	ND	ND	1.3	ND	ND	3.5	212	ND
09/25/02	4.2	ND	ND	ND	ND	ND	ND	2.4
10/18/02	ND	ND	ND	ND	ND	ND	78	ND

SW-10 TT	As	Cr	Pb	Hg	Cd	Cu	Fe	Zn
04/26/02	ND	2.0	ND	ND	ND	ND	ND	ND
05/15/02	ND	0.78	ND	ND	ND	ND	ND	ND
07/25/02	ND	ND	ND	ND	ND	ND	ND	ND
08/31/02	2.8	ND	1.1	ND	ND	2.1	ND	ND
09/25/02	ND	0.83	ND	0.10	ND	ND	ND	ND
10/18/02	ND	1.0	ND	ND	ND	ND	123	ND

Legend

- Well Location
- Sample Station
- Aberjona River
- Bodies of Water
- Rail Lines
- Culvert
- Wetlands

Site No.	Metal
Collection Date	Total concentration of detected analytes in ug/L.
	ND - Not Detected
As - Arsenic	Cd - Cadmium
Cr - Chromium	Cu - Copper
Pb - Lead	Fe - Iron
Hg - Mercury	Zn - Zinc

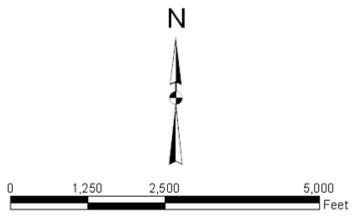
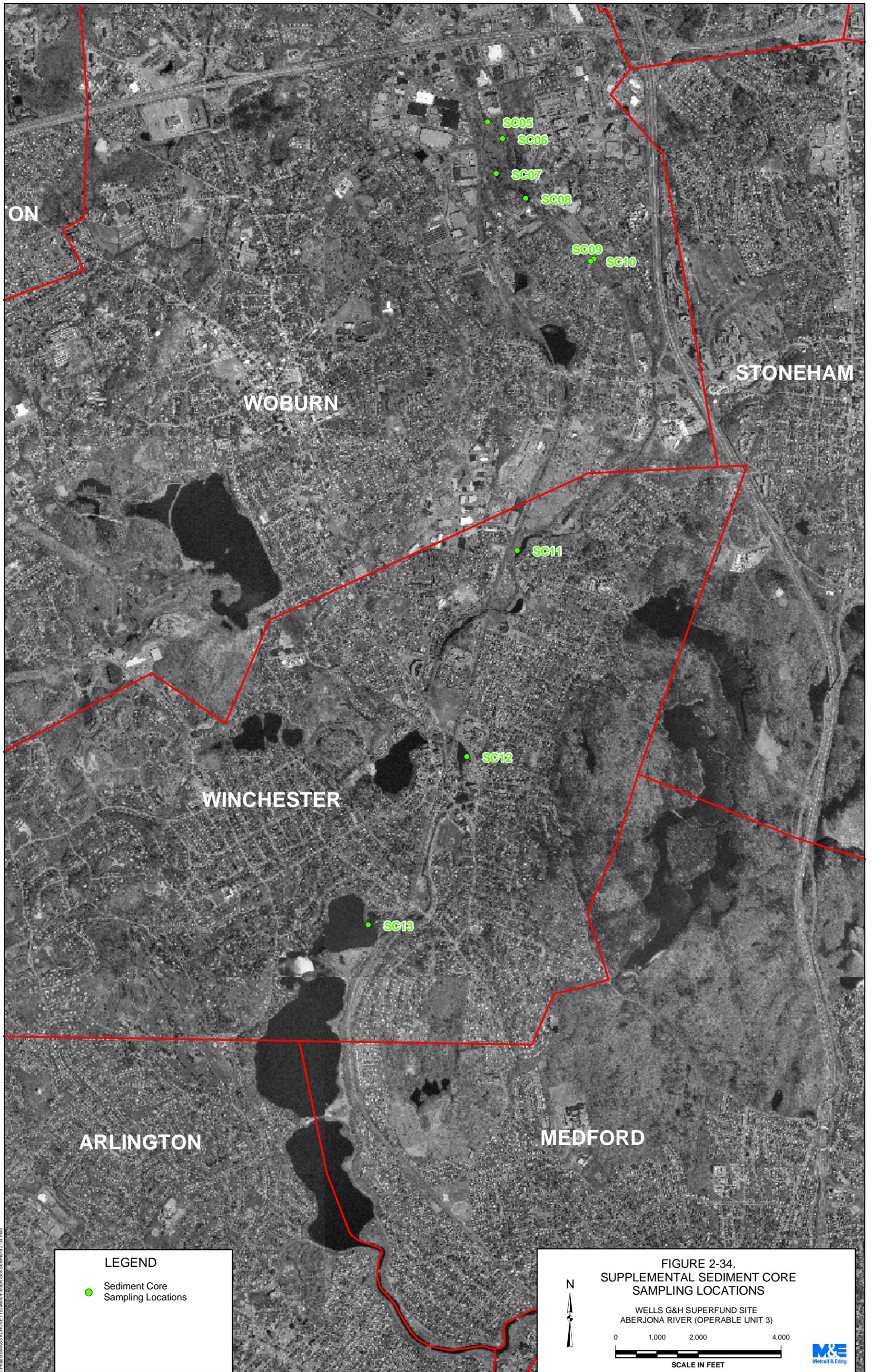


FIGURE 2-33.
SELECTED METALS DETECTED
AT SURFACE WATER SAMPLING
LOCATIONS - STORM EVENTS
WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)
METCALF & EDDY

© 2002 Metcalf & Eddy, Inc. All rights reserved. No part of this document may be reproduced without the prior written permission of Metcalf & Eddy, Inc.



LEGEND

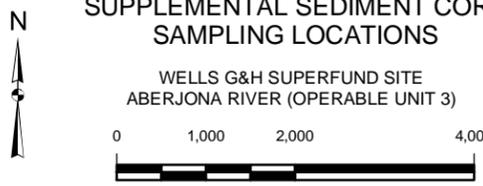
- Sediment Core Sampling Locations

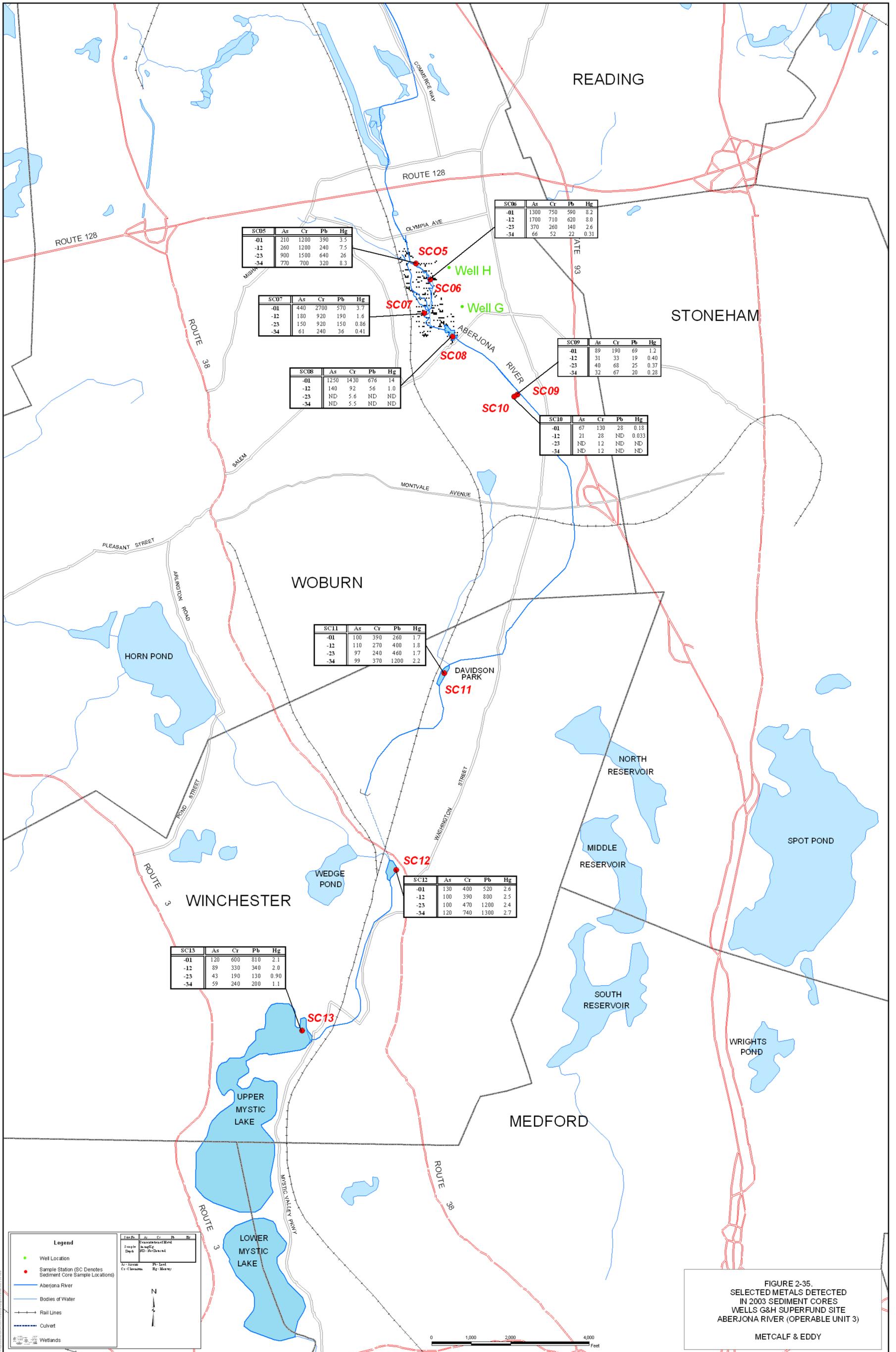
FIGURE 2-34.
SUPPLEMENTAL SEDIMENT CORE SAMPLING LOCATIONS

WELLS G&H SUPERFUND SITE
ABERJONA RIVER (OPERABLE UNIT 3)

0 1,000 2,000 4,000

SCALE IN FEET





SC05	As	Cr	Pb	Hg
-01	210	1200	390	3.5
-12	260	1200	240	7.5
-23	900	1500	640	26
-34	770	700	320	8.3

SC06	As	Cr	Pb	Hg
-01	1300	750	590	8.2
-12	1700	710	620	8.0
-23	370	260	140	2.6
-34	66	52	22	0.31

SC07	As	Cr	Pb	Hg
-01	440	2700	570	3.7
-12	180	920	190	1.6
-23	150	920	150	0.86
-34	61	240	36	0.41

SC08	As	Cr	Pb	Hg
-01	1250	1430	676	14
-12	140	92	56	1.0
-23	ND	5.6	ND	ND
-34	ND	5.5	ND	ND

SC09	As	Cr	Pb	Hg
-01	89	190	69	1.2
-12	31	33	19	0.40
-23	40	68	25	0.37
-34	32	67	20	0.28

SC08	As	Cr	Pb	Hg
-01	1250	1430	676	14
-12	140	92	56	1.0
-23	ND	5.6	ND	ND
-34	ND	5.5	ND	ND

SC10	As	Cr	Pb	Hg
-01	67	130	28	0.18
-12	21	28	ND	0.033
-23	ND	1.2	ND	ND
-34	ND	1.2	ND	ND

SC11	As	Cr	Pb	Hg
-01	100	390	260	1.7
-12	110	270	400	1.8
-23	97	240	460	1.7
-34	99	370	1200	2.2

SC12	As	Cr	Pb	Hg
-01	130	400	520	2.6
-12	100	390	800	2.5
-23	100	470	1200	2.4
-34	120	740	1300	2.7

SC13	As	Cr	Pb	Hg
-01	120	600	810	2.1
-12	89	330	340	2.0
-23	43	190	130	0.90
-34	59	240	200	1.1

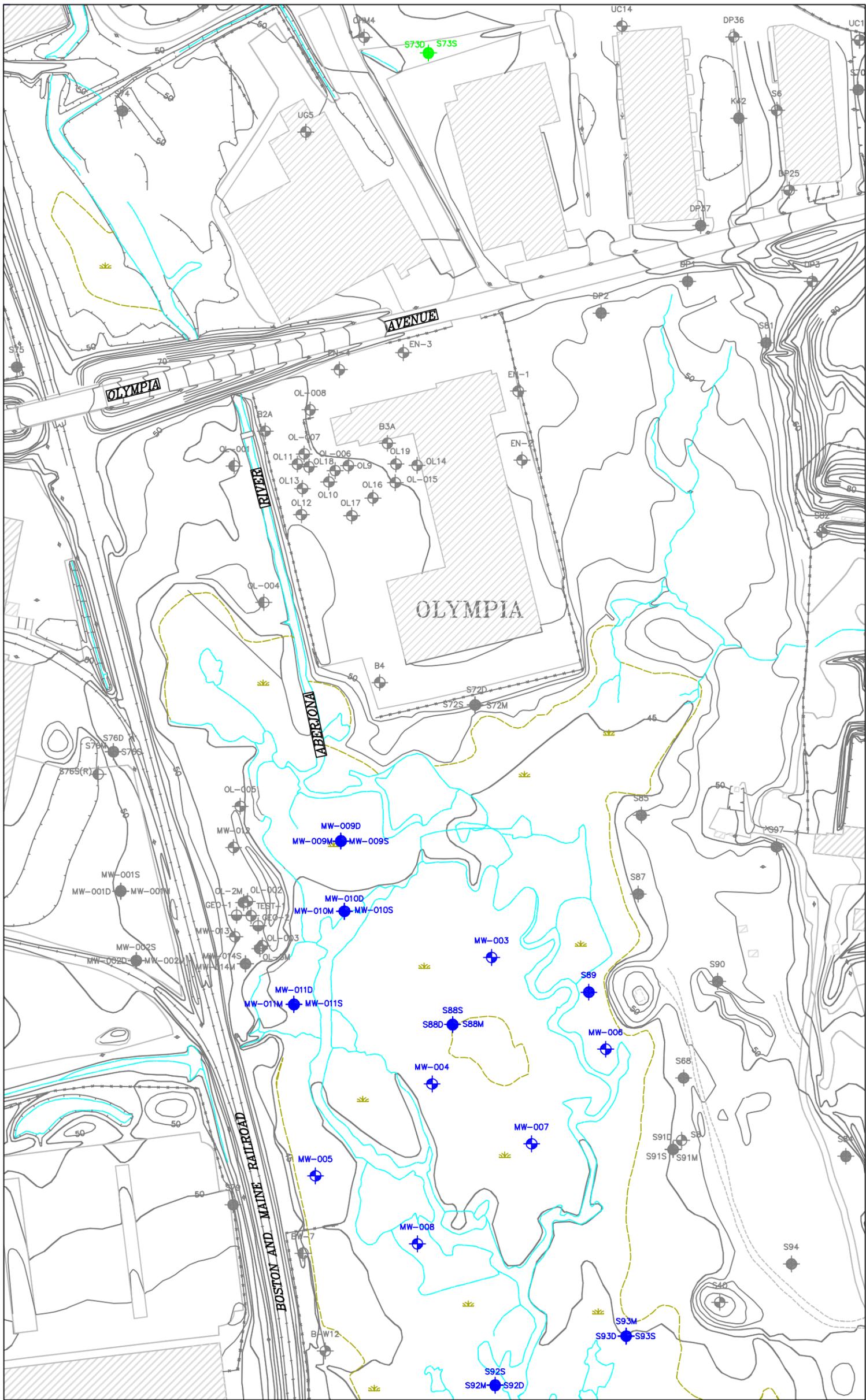
Legend

- Well Location
- Sample Station (SC Denotes Sediment Core Sample Locations)
- Aberjona River
- Bodies of Water
- Rail Lines
- Culvert
- Wetlands

Sample Depth	As	Cr	Pb	Hg
0-1 ft	As	Cr	Pb	Hg
1-2 ft	As	Cr	Pb	Hg
2-3 ft	As	Cr	Pb	Hg
3-4 ft	As	Cr	Pb	Hg

0 1,000 2,000 4,000 Feet

FIGURE 2-35. SELECTED METALS DETECTED IN 2003 SEDIMENT CORES WELLS G&H SUPERFUND SITE ABERJONA RIVER (OPERABLE UNIT 3) METCALF & EDDY



LEGEND

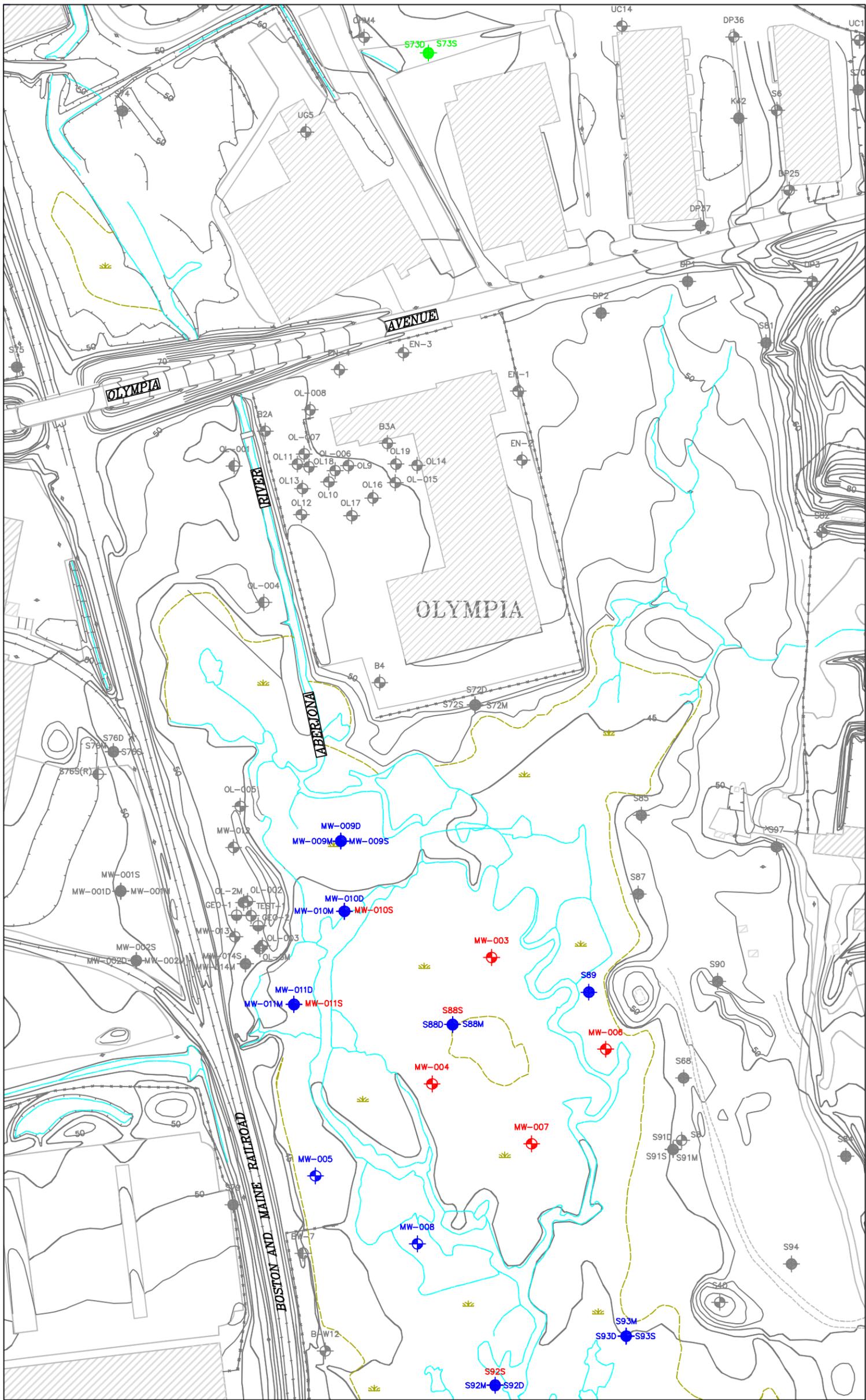
-  SHALLOW MONITORING WELL
-  INTERMEDIATE MONITORING WELL
-  DEEP MONITORING WELL
-  BEDROCK MONITORING WELL
-  MULTI-LEVEL MONITORING WELL
-  WELLS EVALUATED
-  WELLS NOT EVALUATED



FIGURE 2-36
GROUNDWATER
MONITORING WELL LOCATIONS
WELLS G&H OU3
SUPERFUND SITE
WOBURN, MASSACHUSETTS

TRC Boot Mills South
Foot of John Street
Lowell, MA 01852
978-970-5600





LEGEND

-  SHALLOW MONITORING WELL
-  INTERMEDIATE MONITORING WELL
-  DEEP MONITORING WELL
-  BEDROCK MONITORING WELL
-  MULTI-LEVEL MONITORING WELL
-  WELLS EVALUATED
-  WELLS EVALUATED AND SHOWN TO HAVE AN MCL EXCEEDANCE (REFER TO TABLE 2-268 FOR SECONDARY MCL EXCEEDANCES)
-  WELLS NOT EVALUATED



FIGURE 2-37
 EXCEEDANCES OF MCLS
 IN MONITORING WELLS
 WELLS G&H OU3
 SUPERFUND SITE
 WOBURN, MASSACHUSETTS



Boott Mills South
 Foot of John Street
 Lowell, MA 01852
 978-970-5600



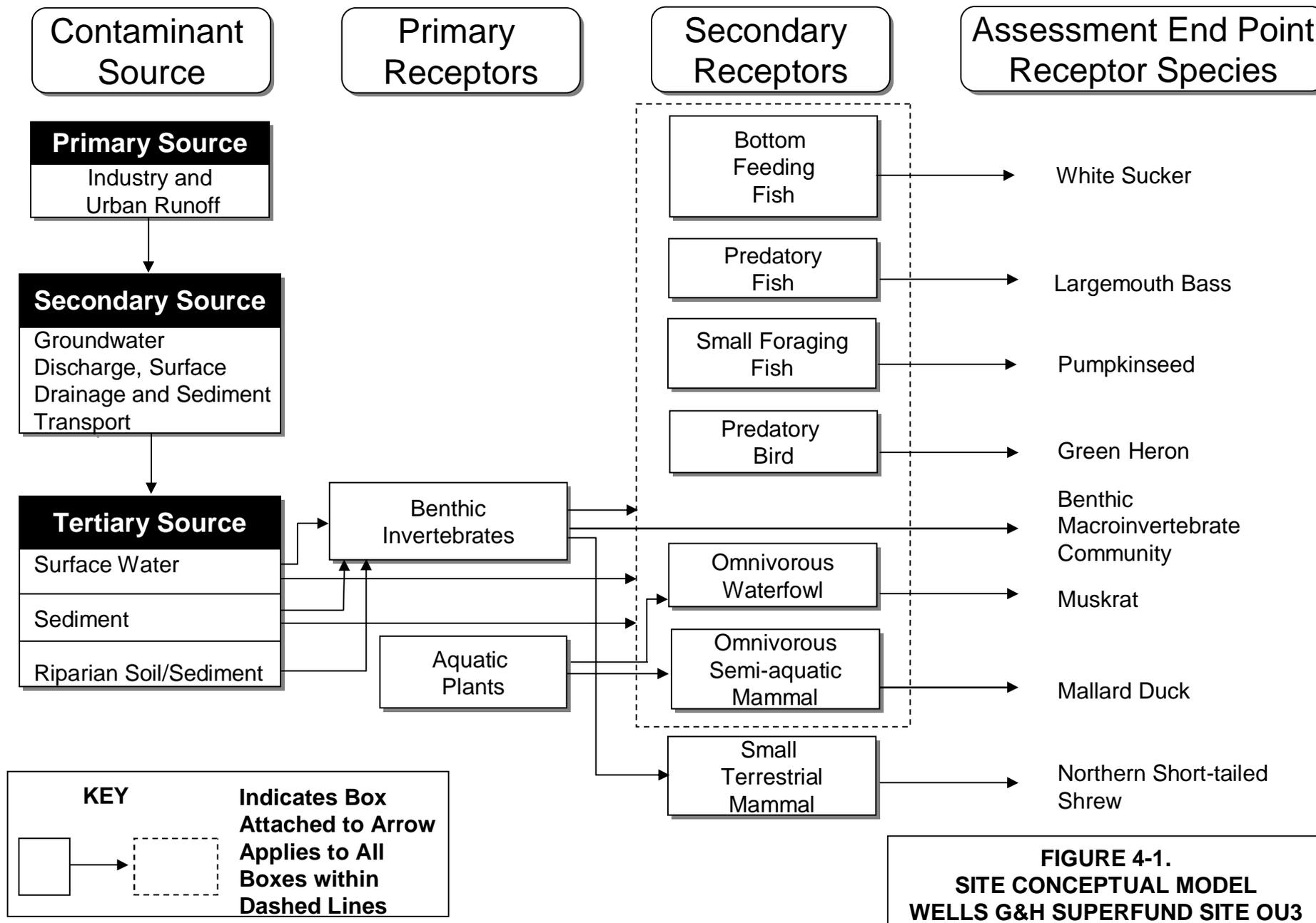


FIGURE 4-1.
SITE CONCEPTUAL MODEL
WELLS G&H SUPERFUND SITE OU3

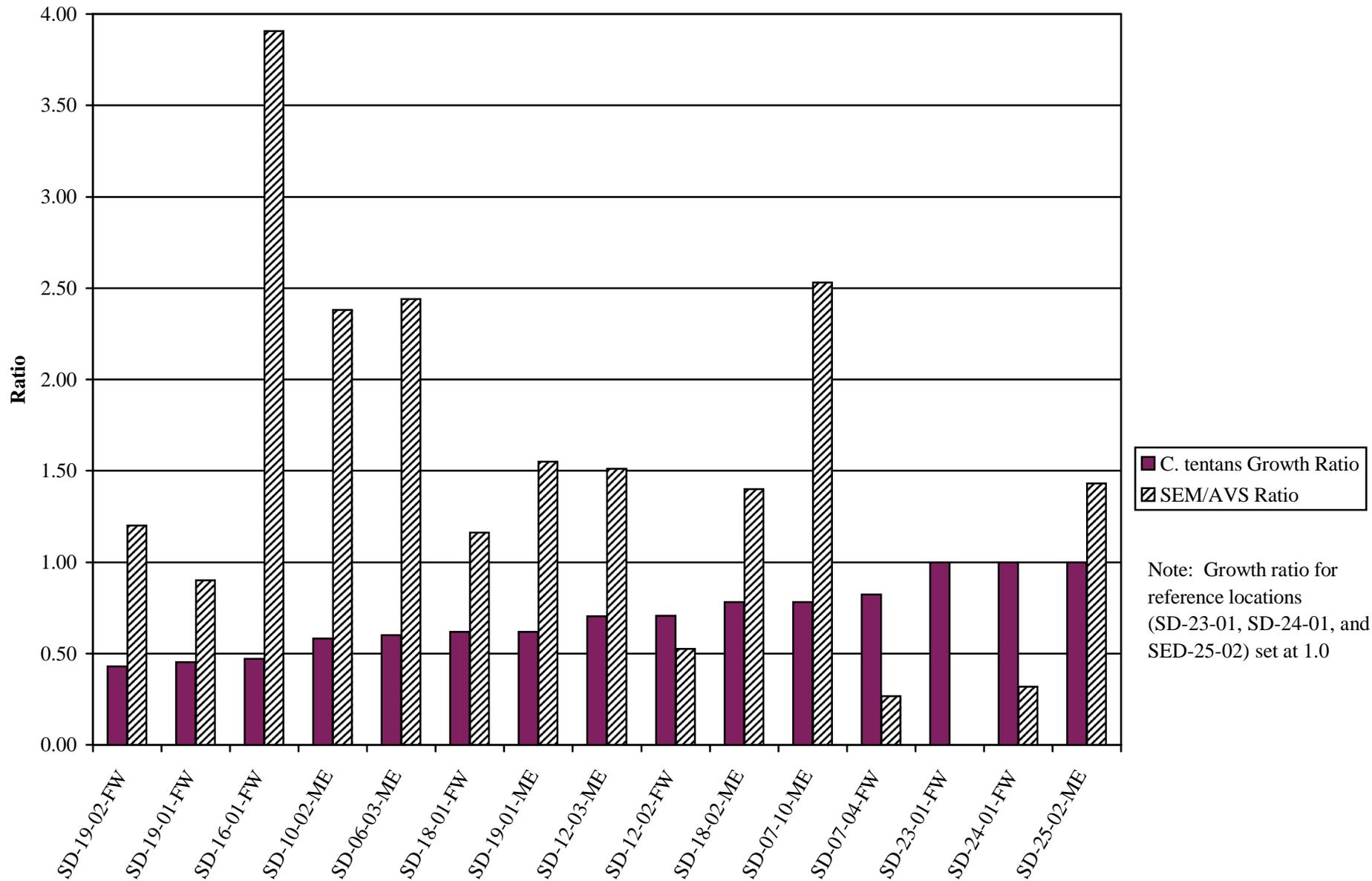


FIGURE 4-2. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO SEM/AVS RATIO IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

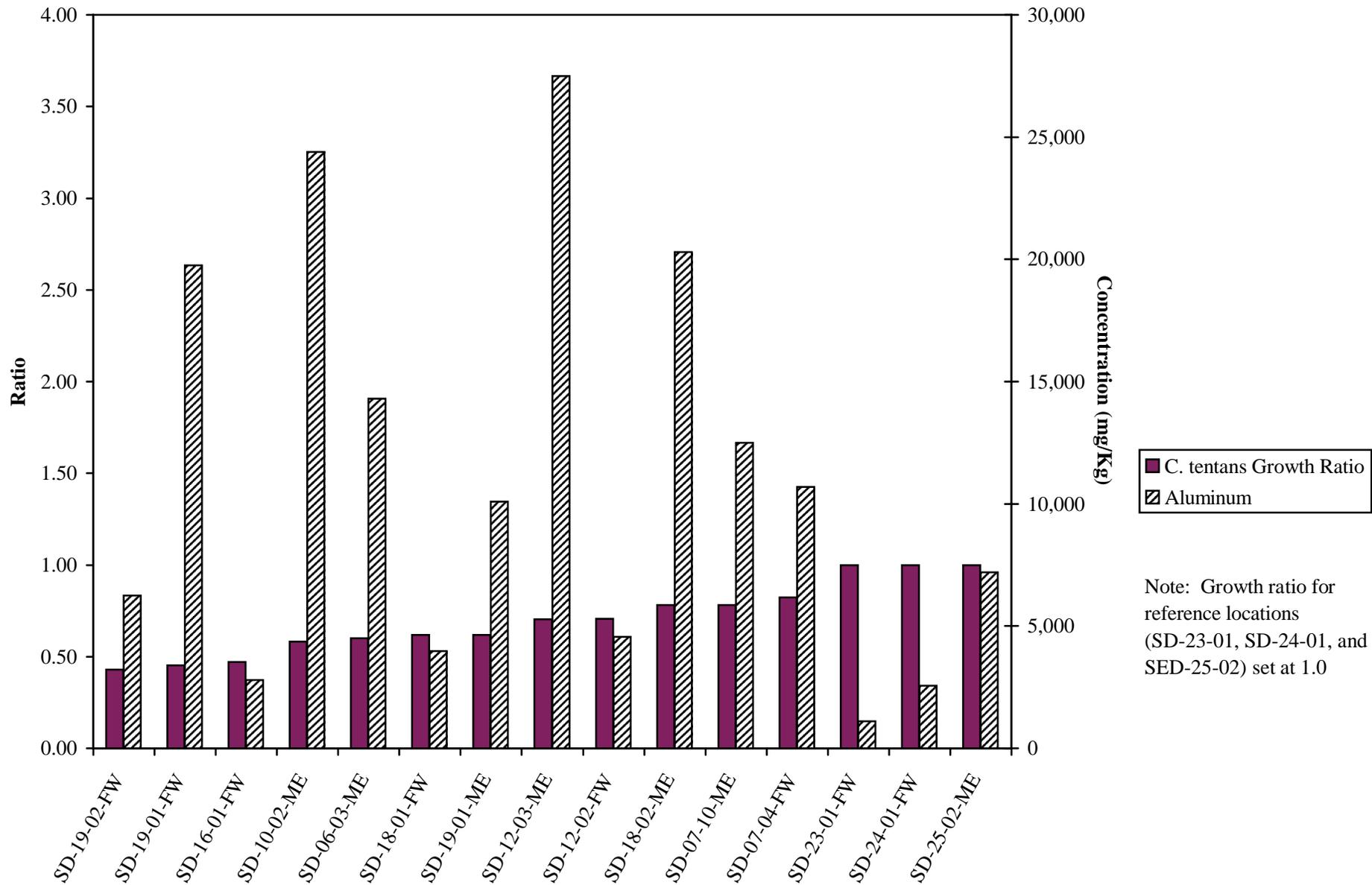


FIGURE 4-3. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO ALUMINUM IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

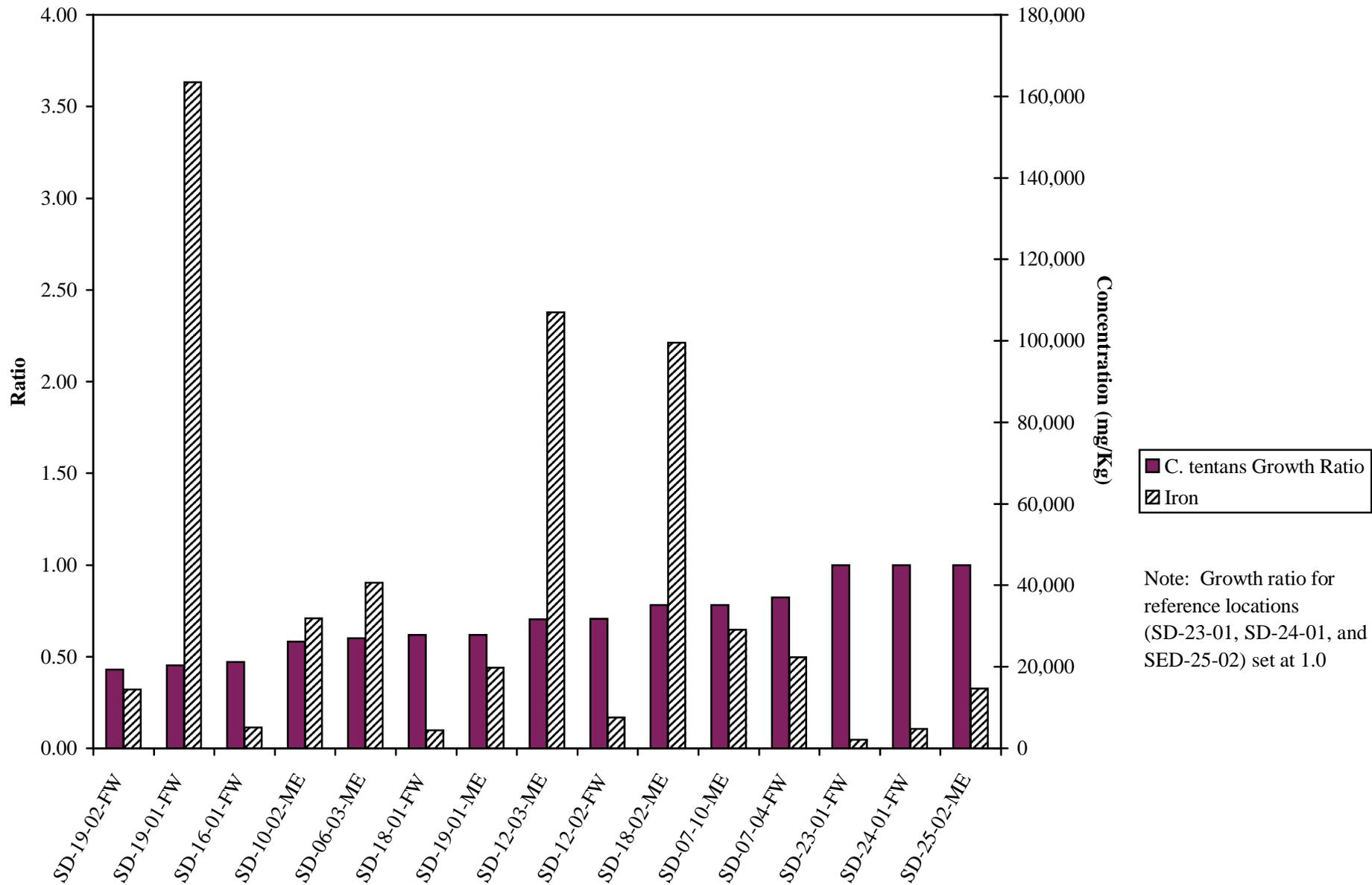


FIGURE 4-4. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO IRON IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

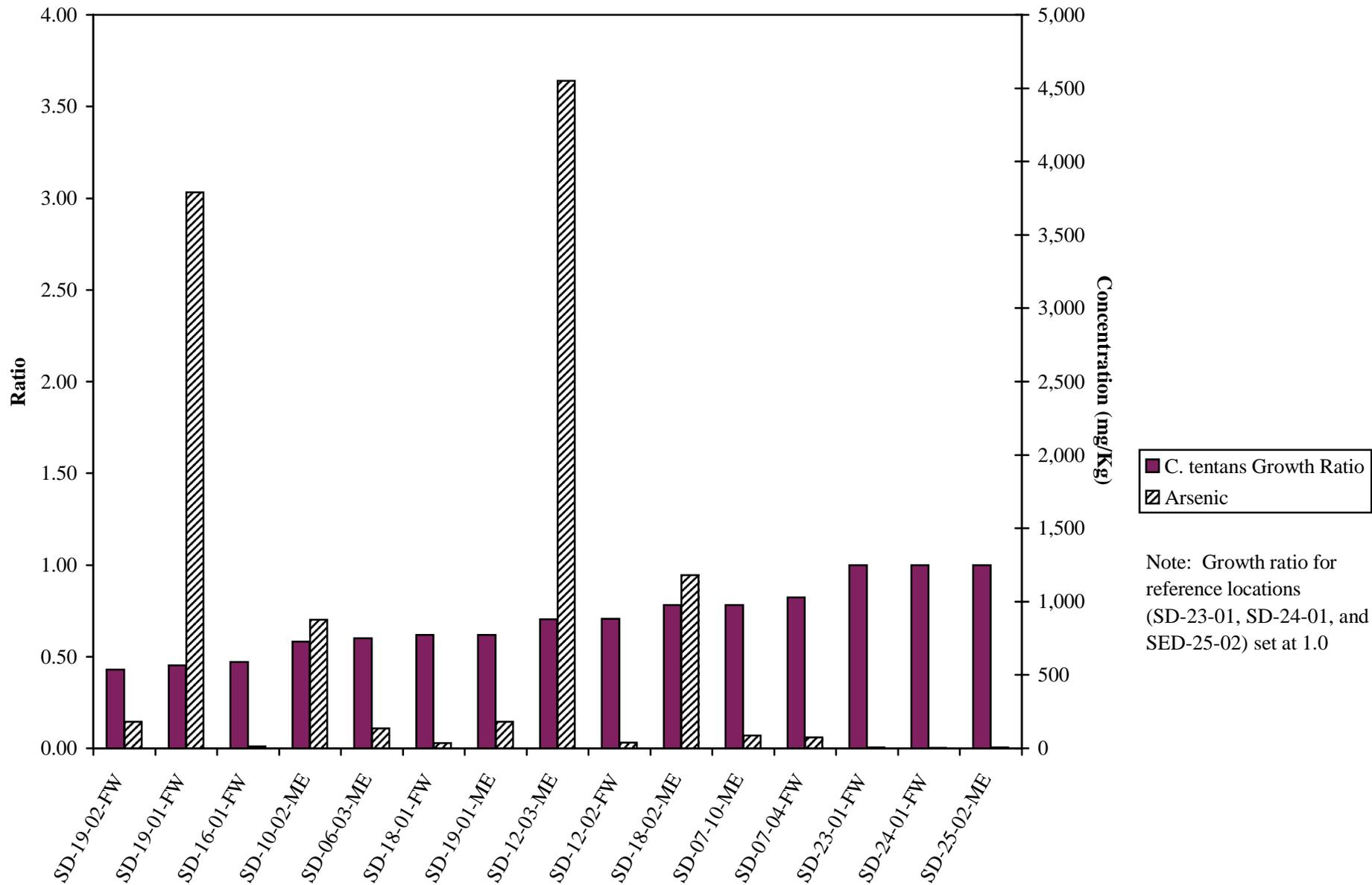


FIGURE 4-5. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO ARSENIC IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

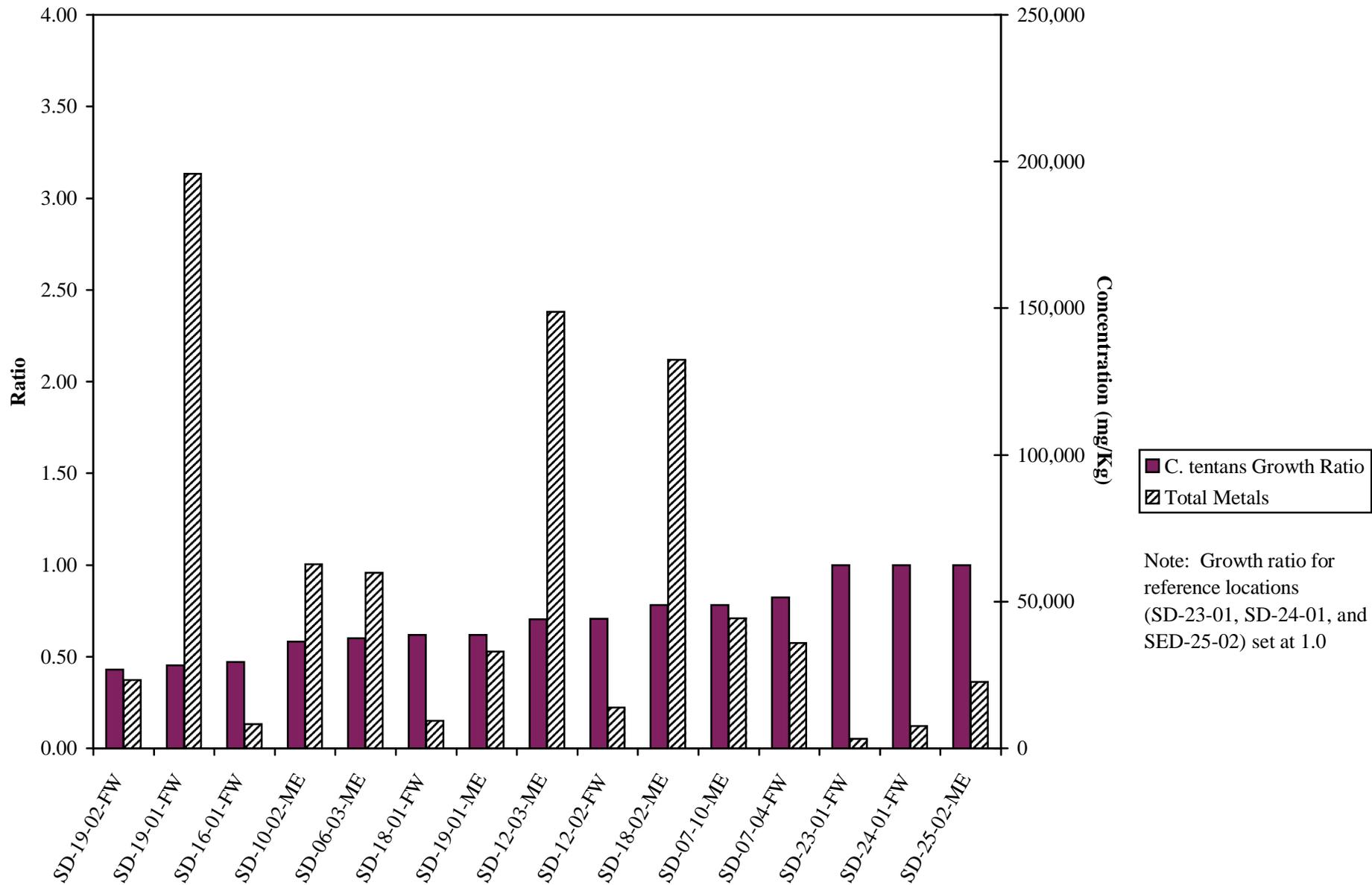


FIGURE 4-6. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO TOTAL METALS IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

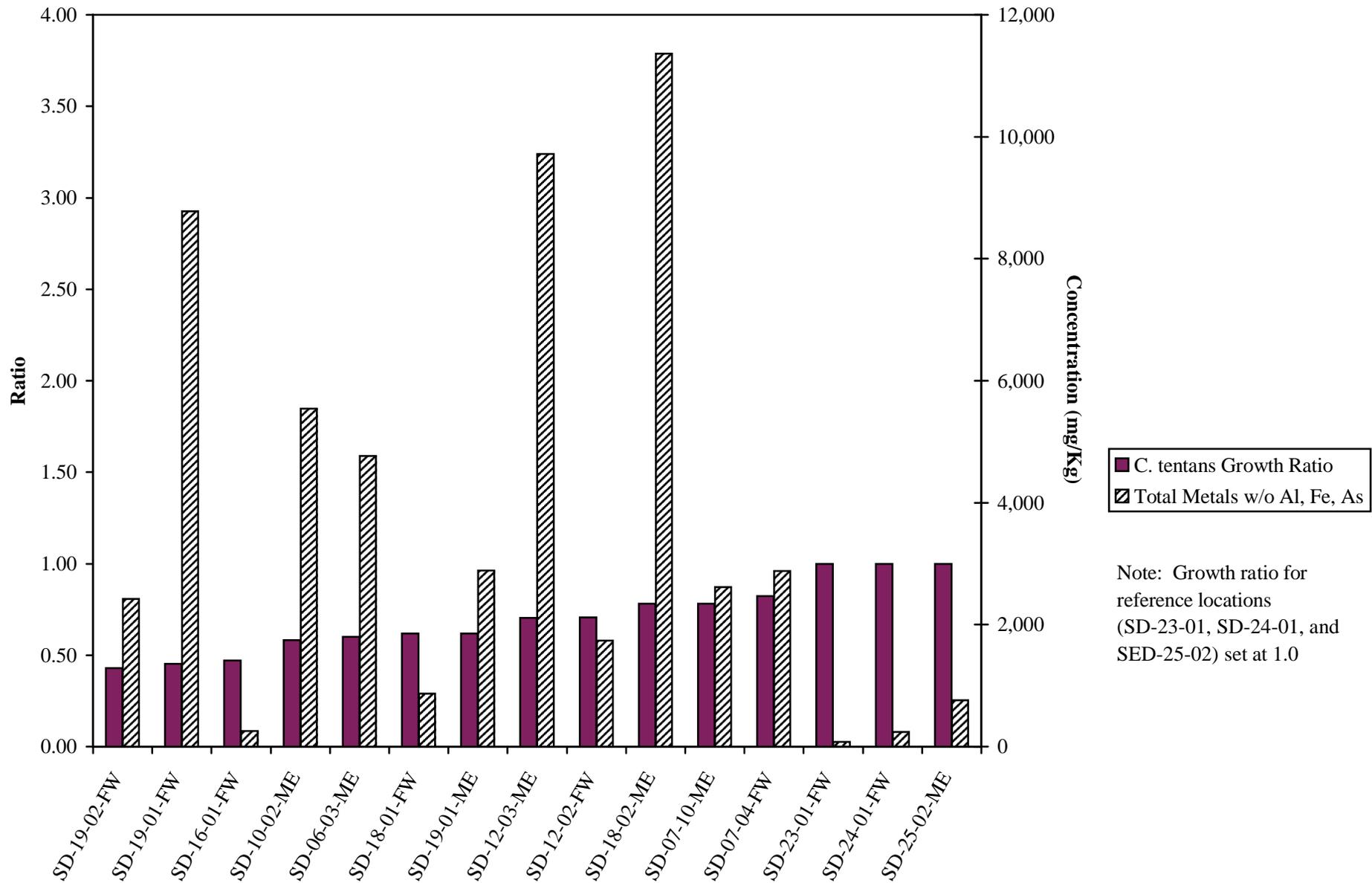


FIGURE 4-7. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO TOTAL METALS (WITHOUT ALUMINUM, IRON AND ARSENIC) IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

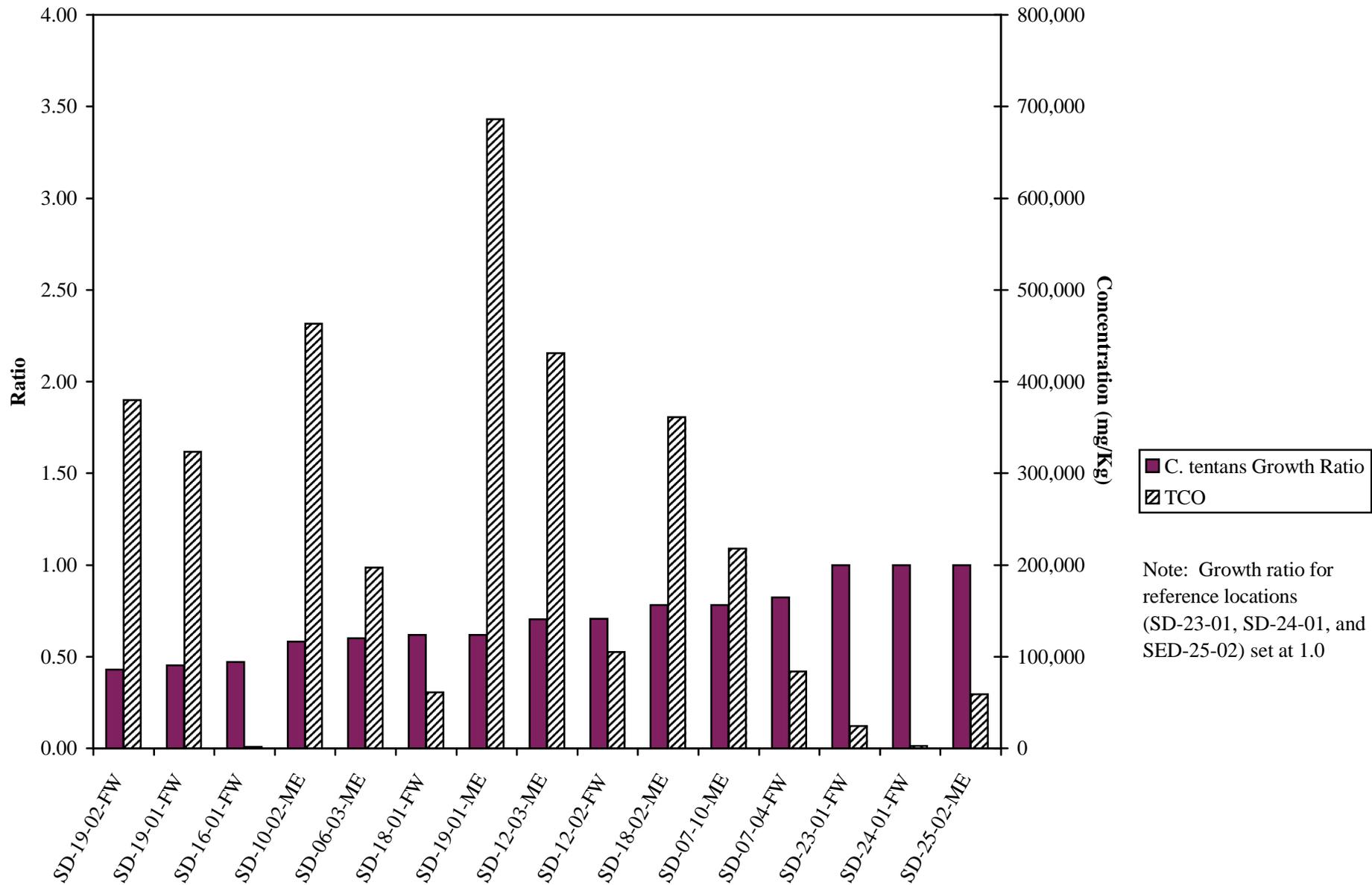


FIGURE 4-8. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO TOTAL COMBUSTIBLE ORGANICS IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

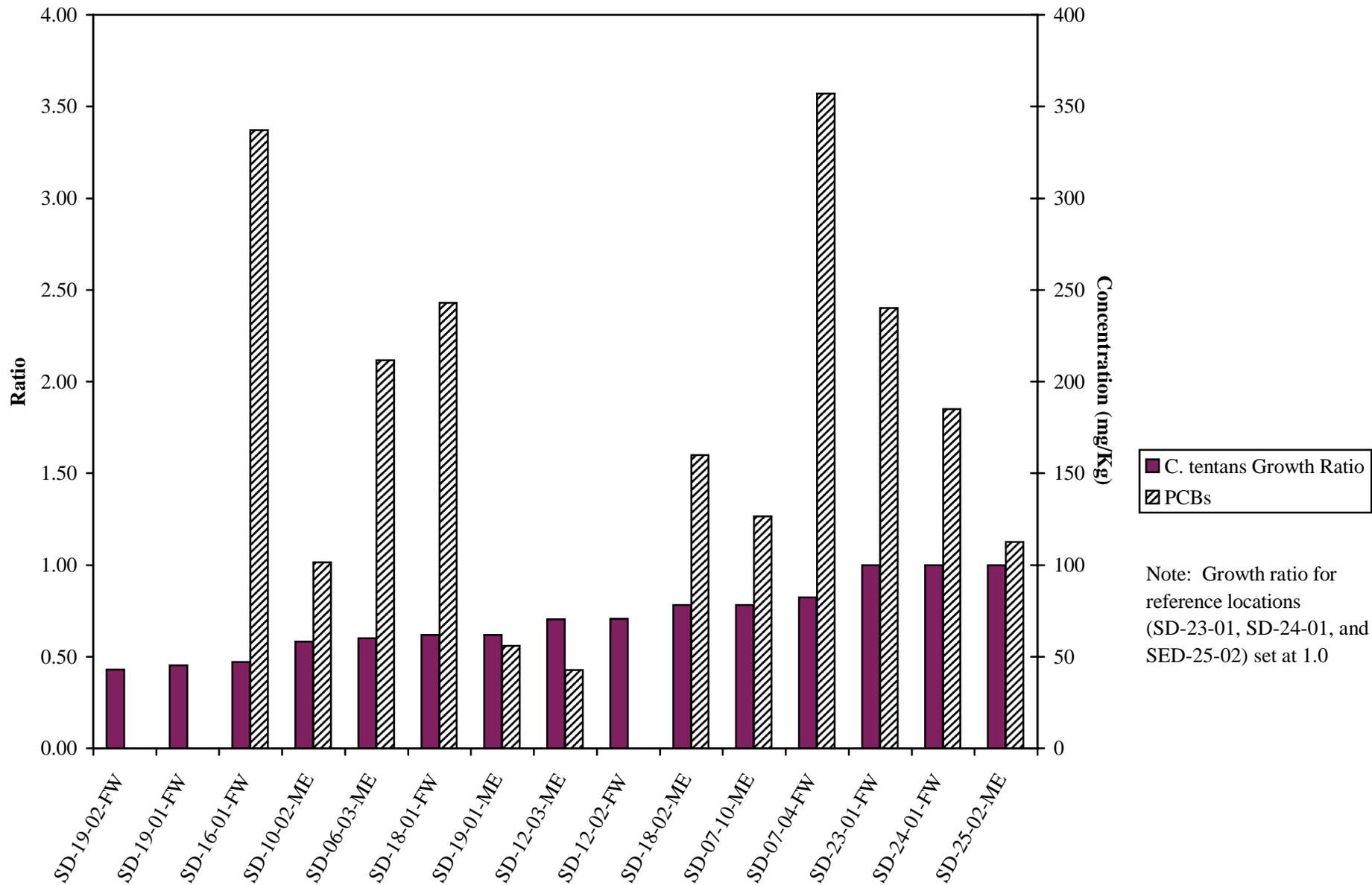


FIGURE 4-9. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO PCBs IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

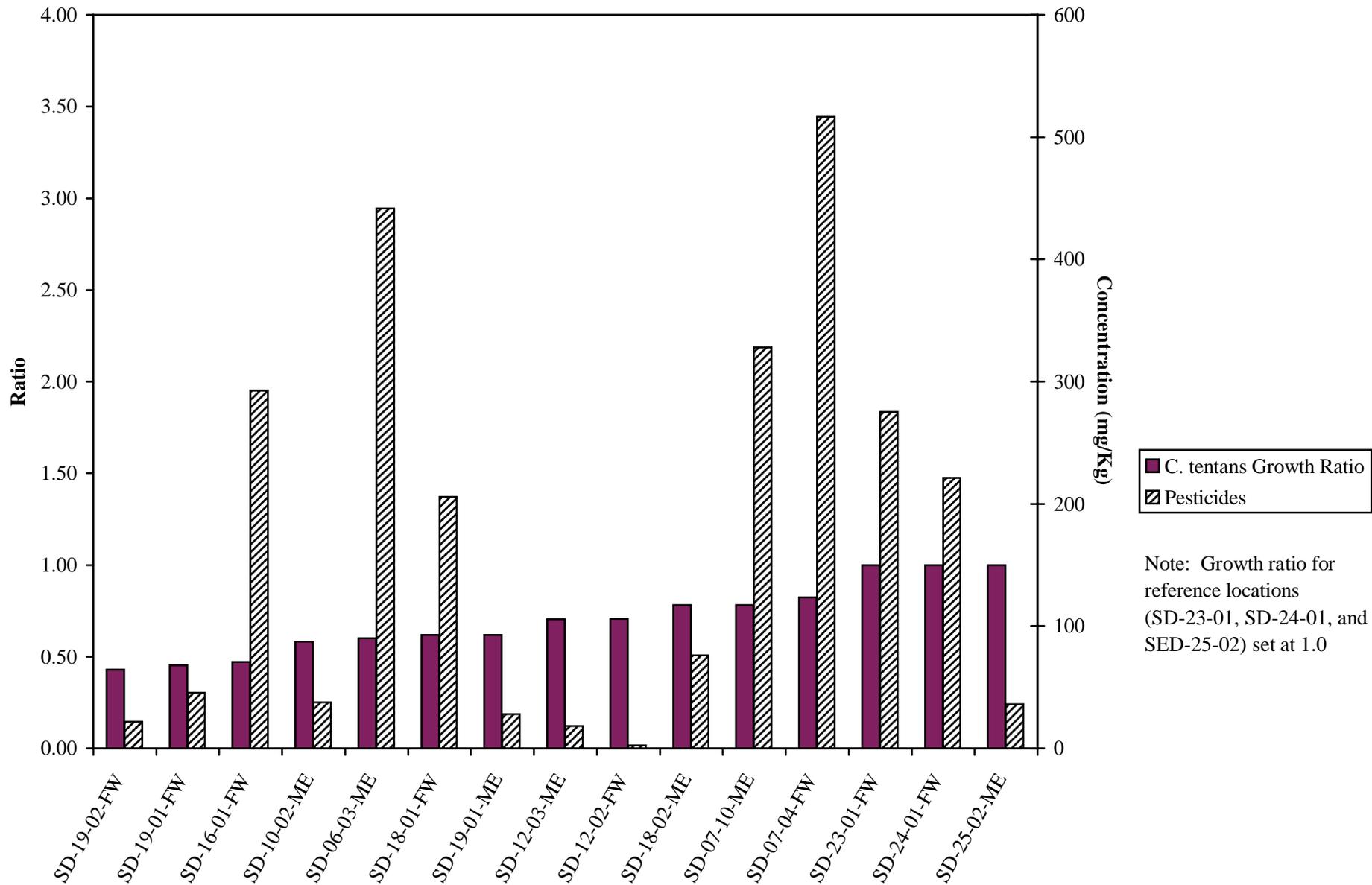


FIGURE 4-10. COMPARISON OF C. TENTANS SITE-TO-REFERENCE GROWTH RATIO TO PESTICIDES IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

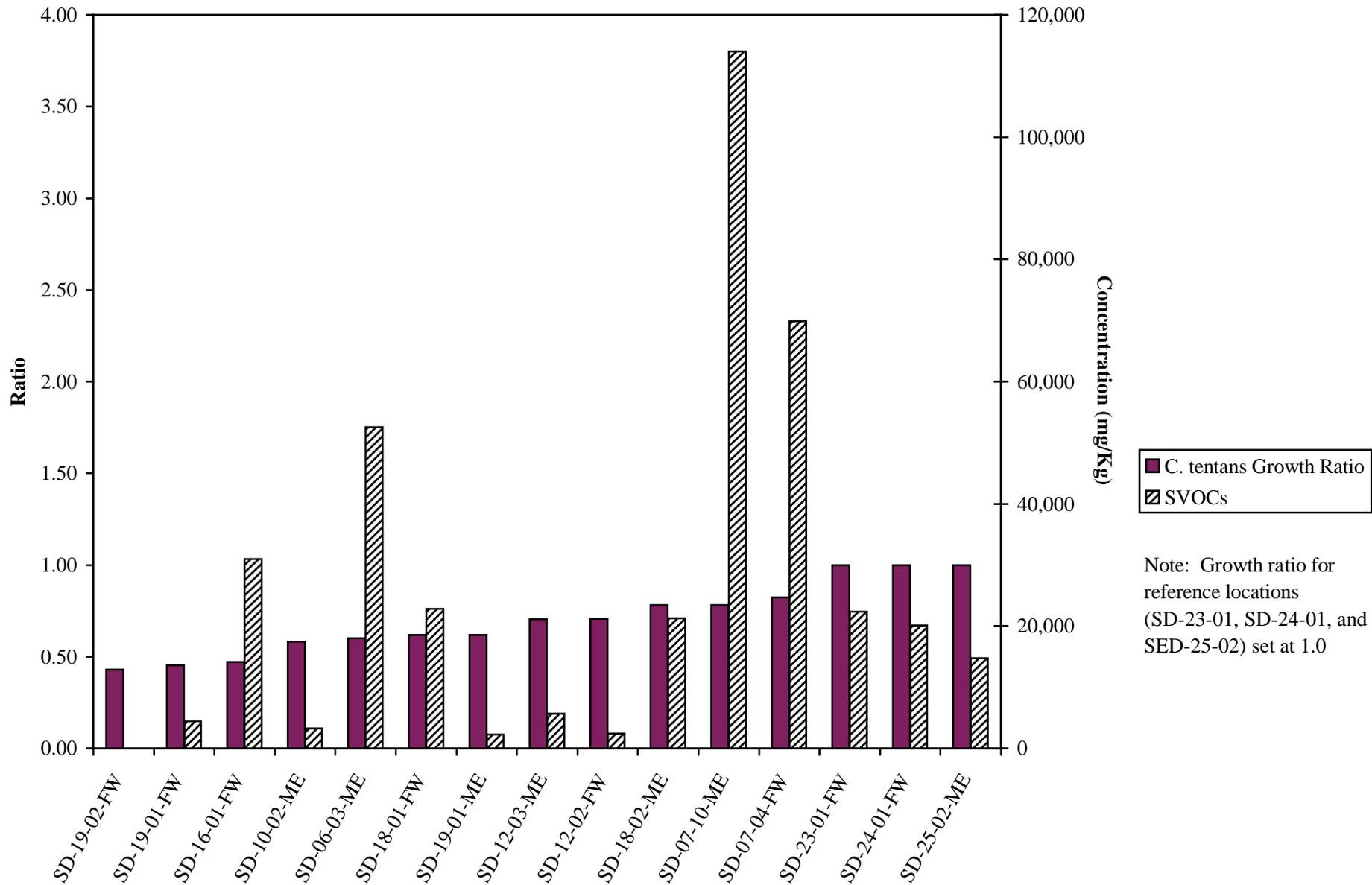


FIGURE 4-11. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO SVOCs IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

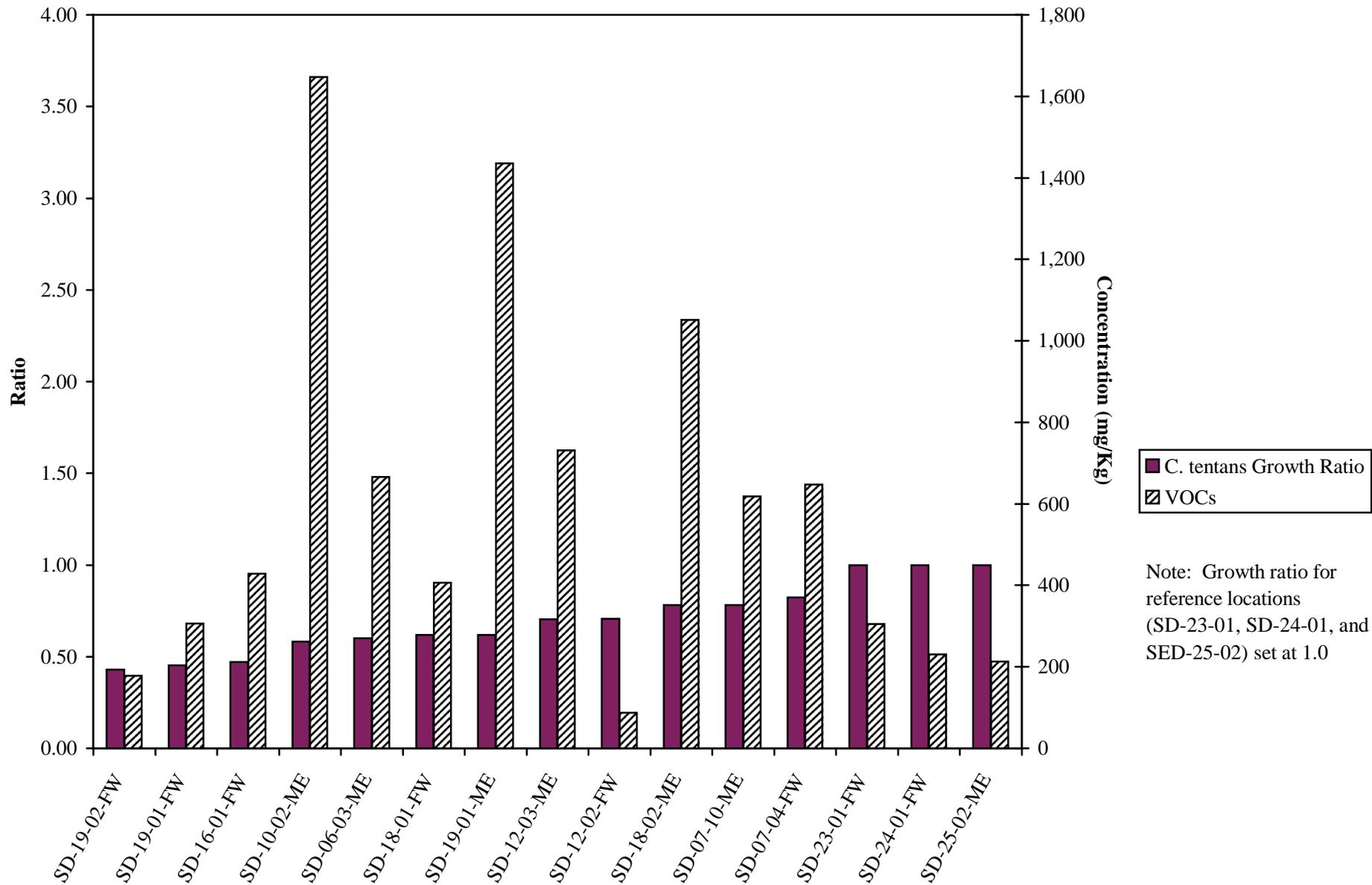


FIGURE 4-12. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO VOCs IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

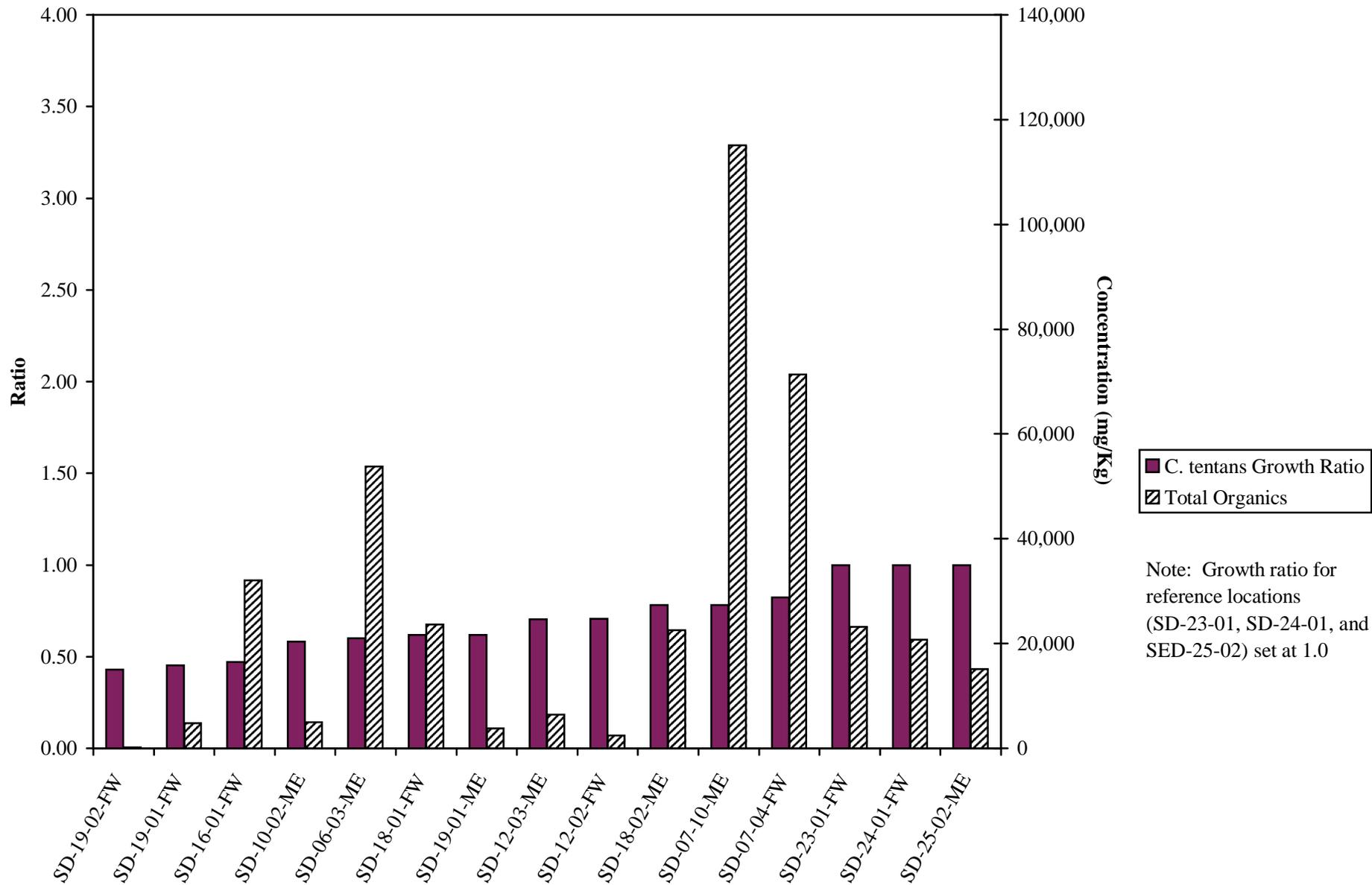


FIGURE 4-13. COMPARISON OF *C. TENTANS* SITE-TO-REFERENCE GROWTH RATIO TO TOTAL ORGANICS IN SEDIMENT WELLS G&H SUPERFUND SITE OU3

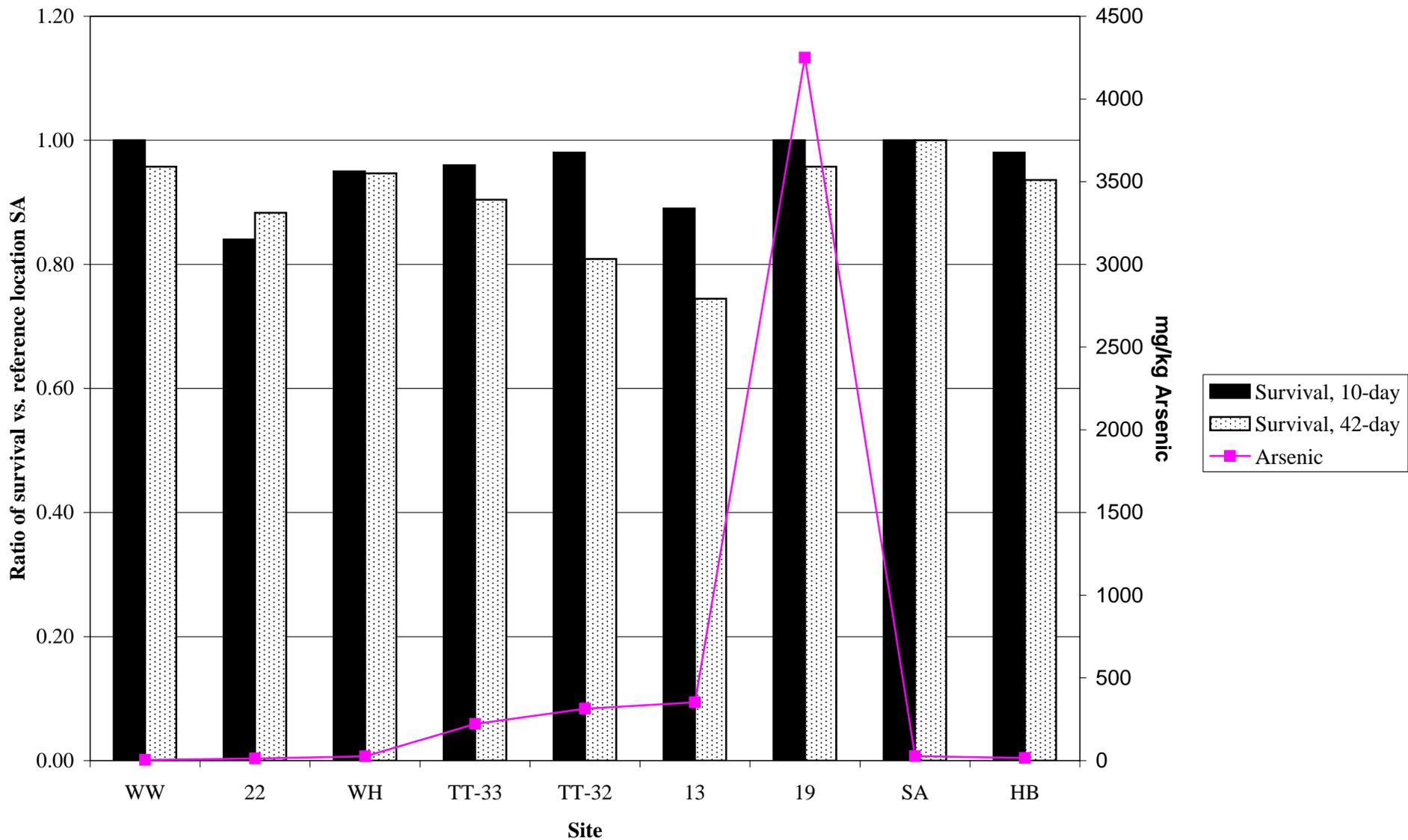


Figure 4-14. Comparison of *H. azteca* survival endpoints to wetland reference locations

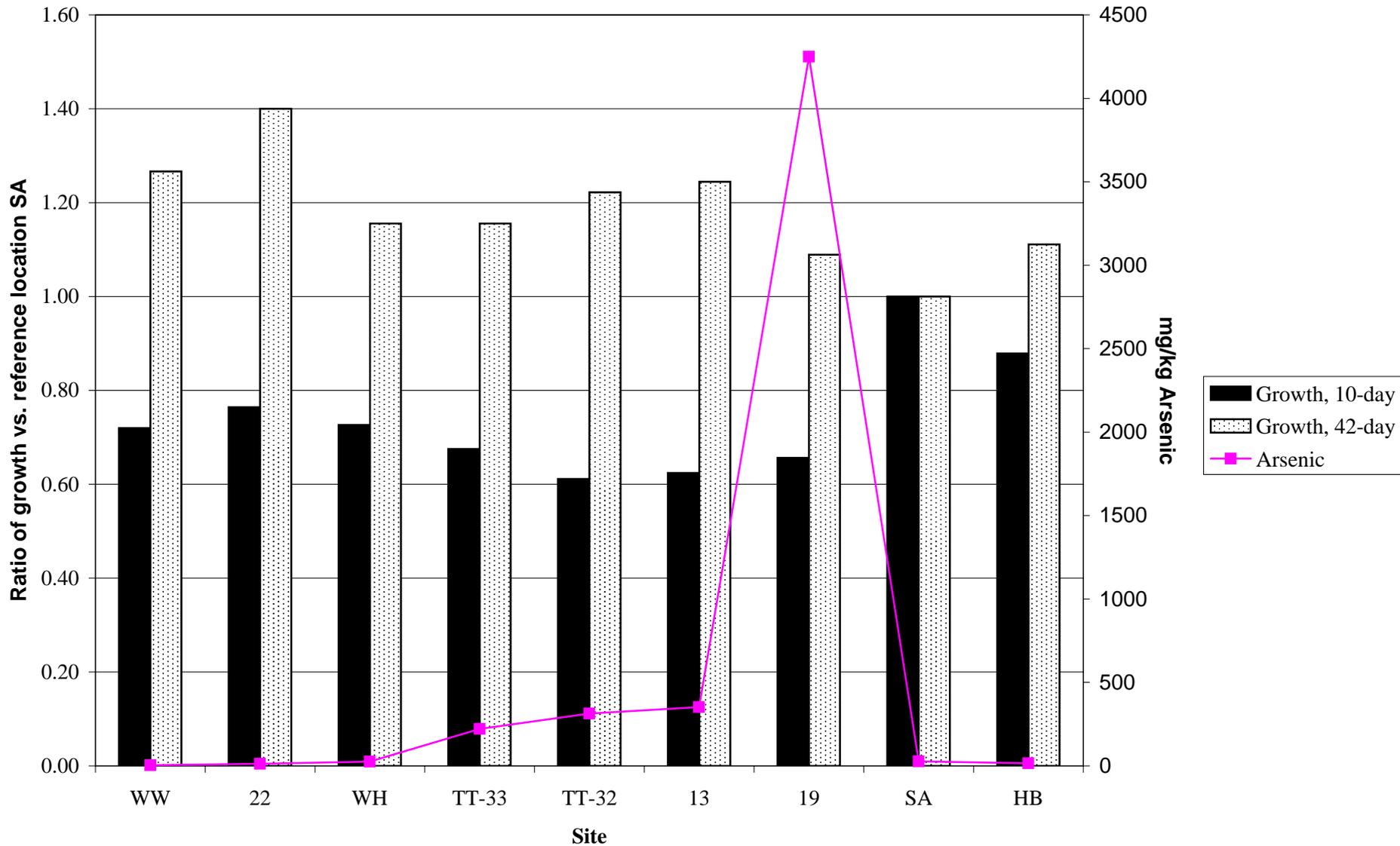


Figure 4-15. Comparison of *H. azteca* growth endpoints to wetland reference locations

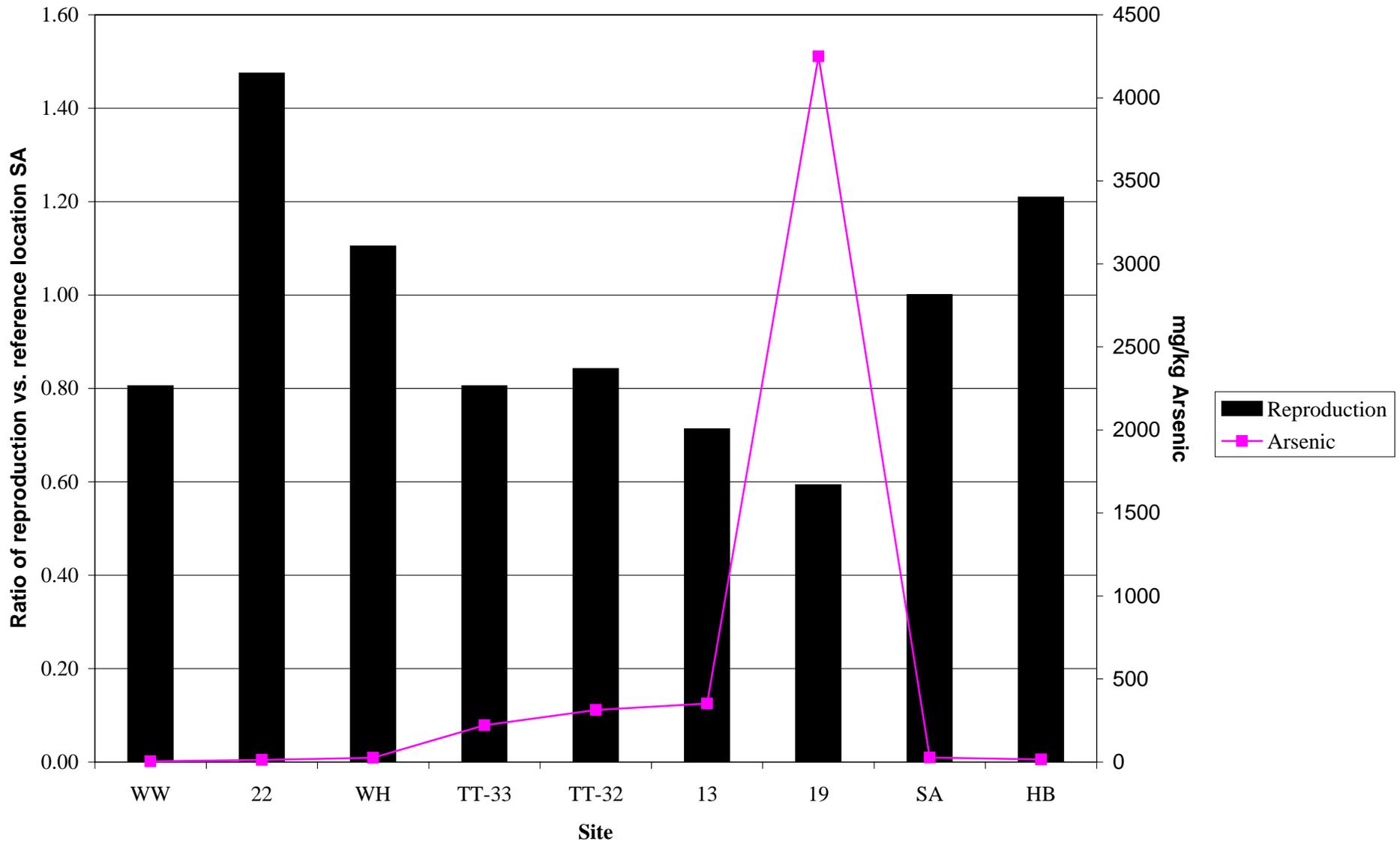


Figure 4-16. Comparison of *H. azteca* reproduction endpoint to wetland reference locations

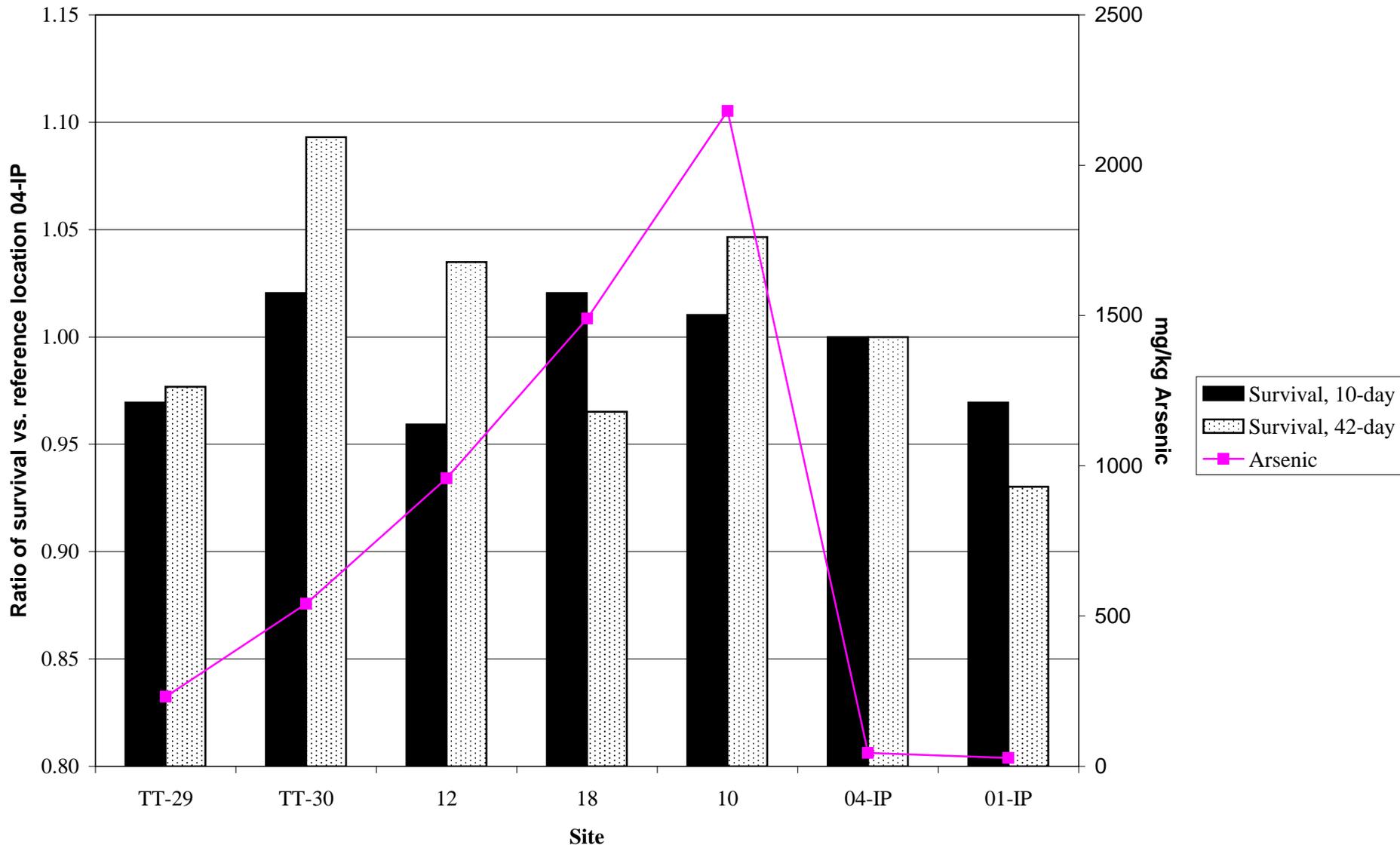


Figure 4-17. Comparison of *H. azteca* survival endpoints to stream reference locations

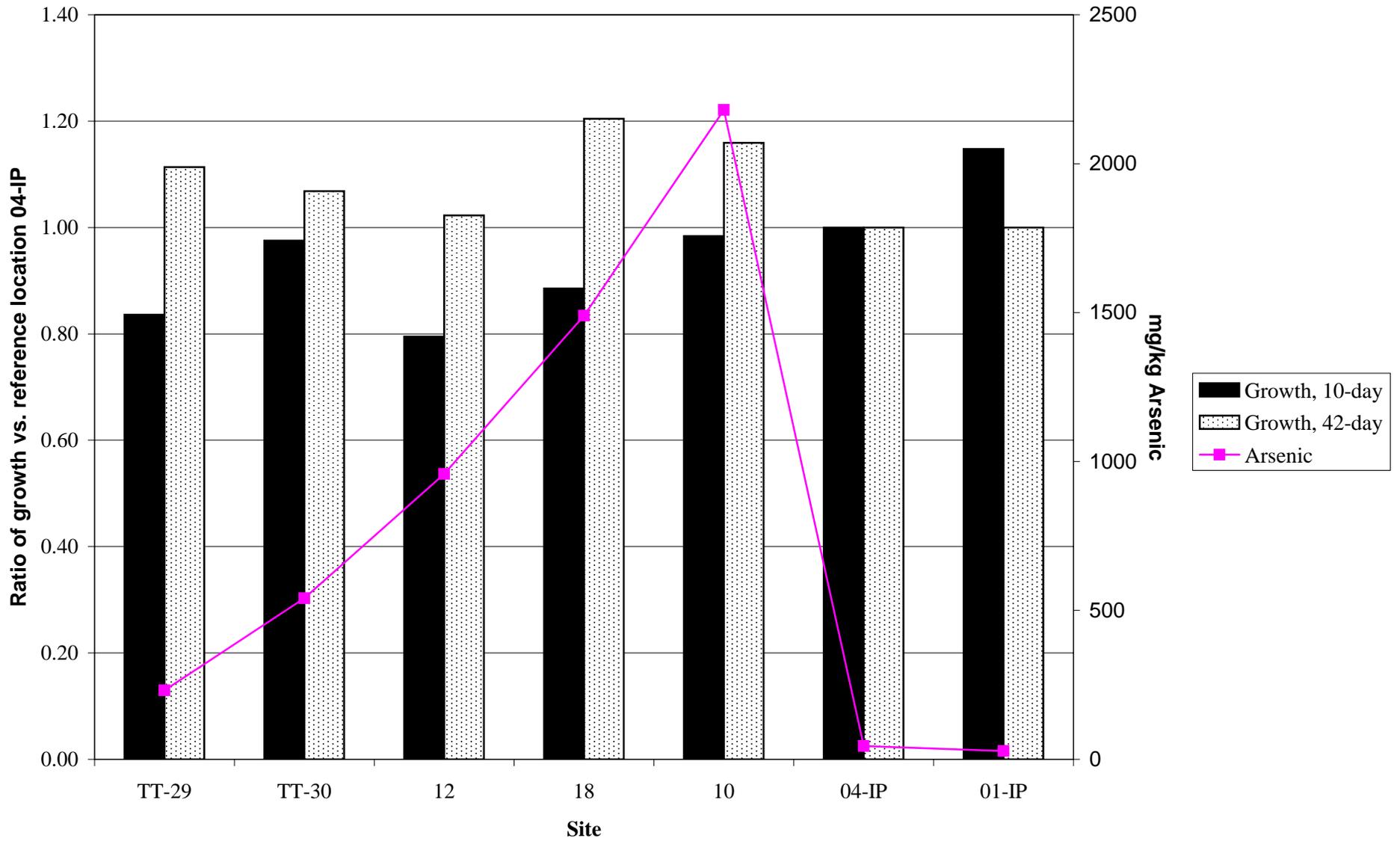


Figure 4-18. Comparison of *H. azteca* growth endpoints to stream reference locations

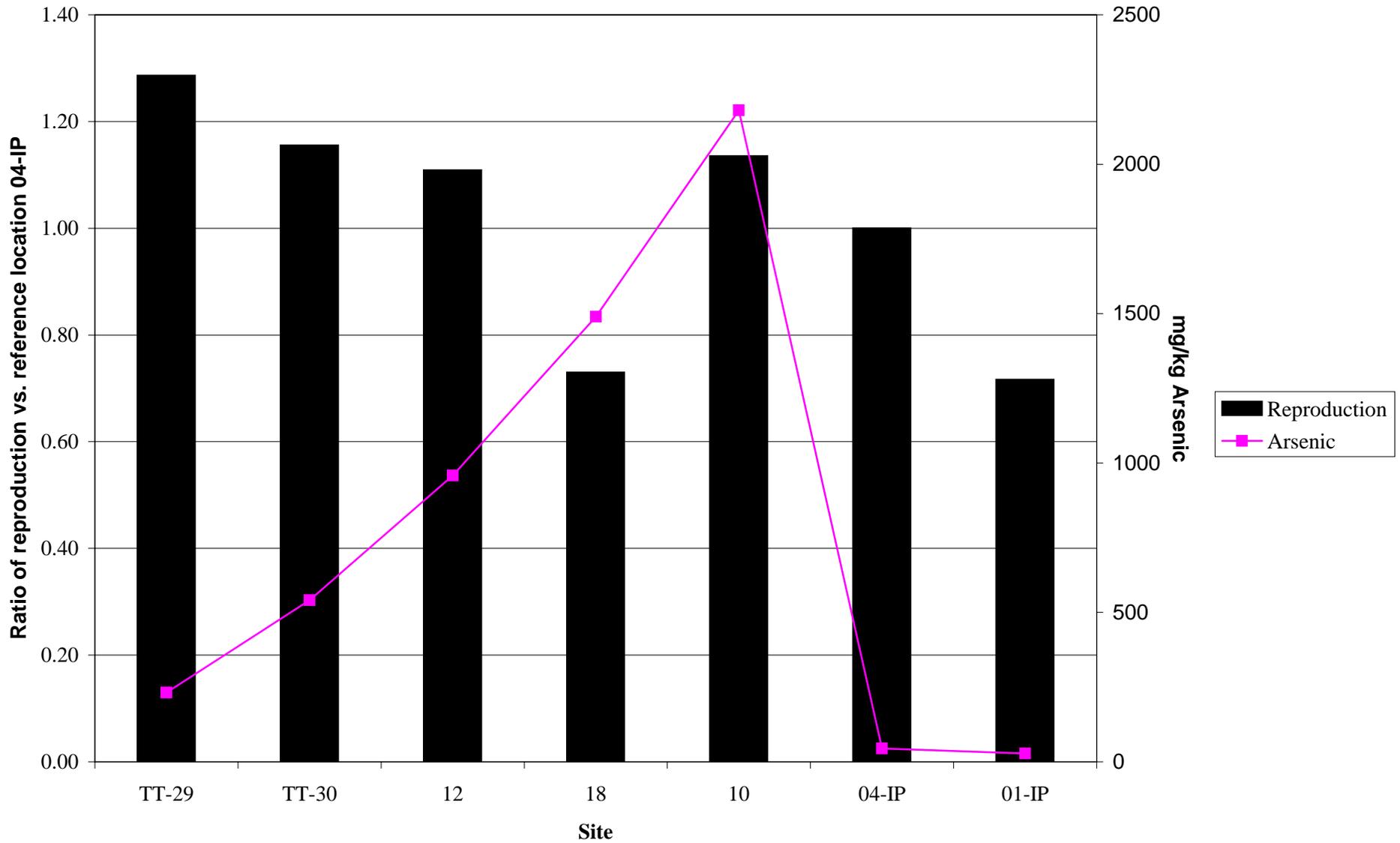


Figure 4-19. Comparison of *H. azteca* reproduction endpoint to stream reference locations

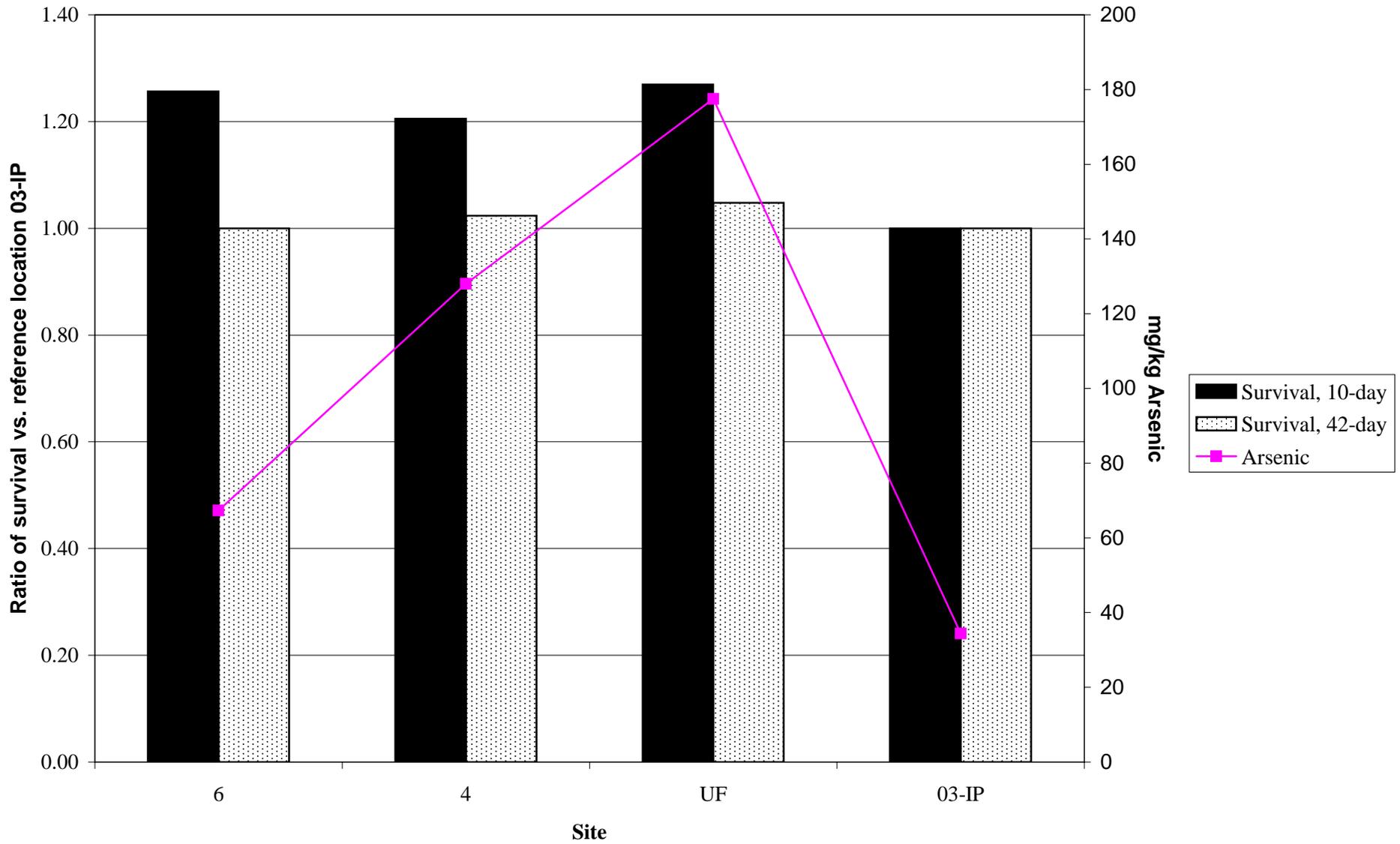


Figure 4-20. Comparison of *H. azteca* survival endpoints to pond reference locations

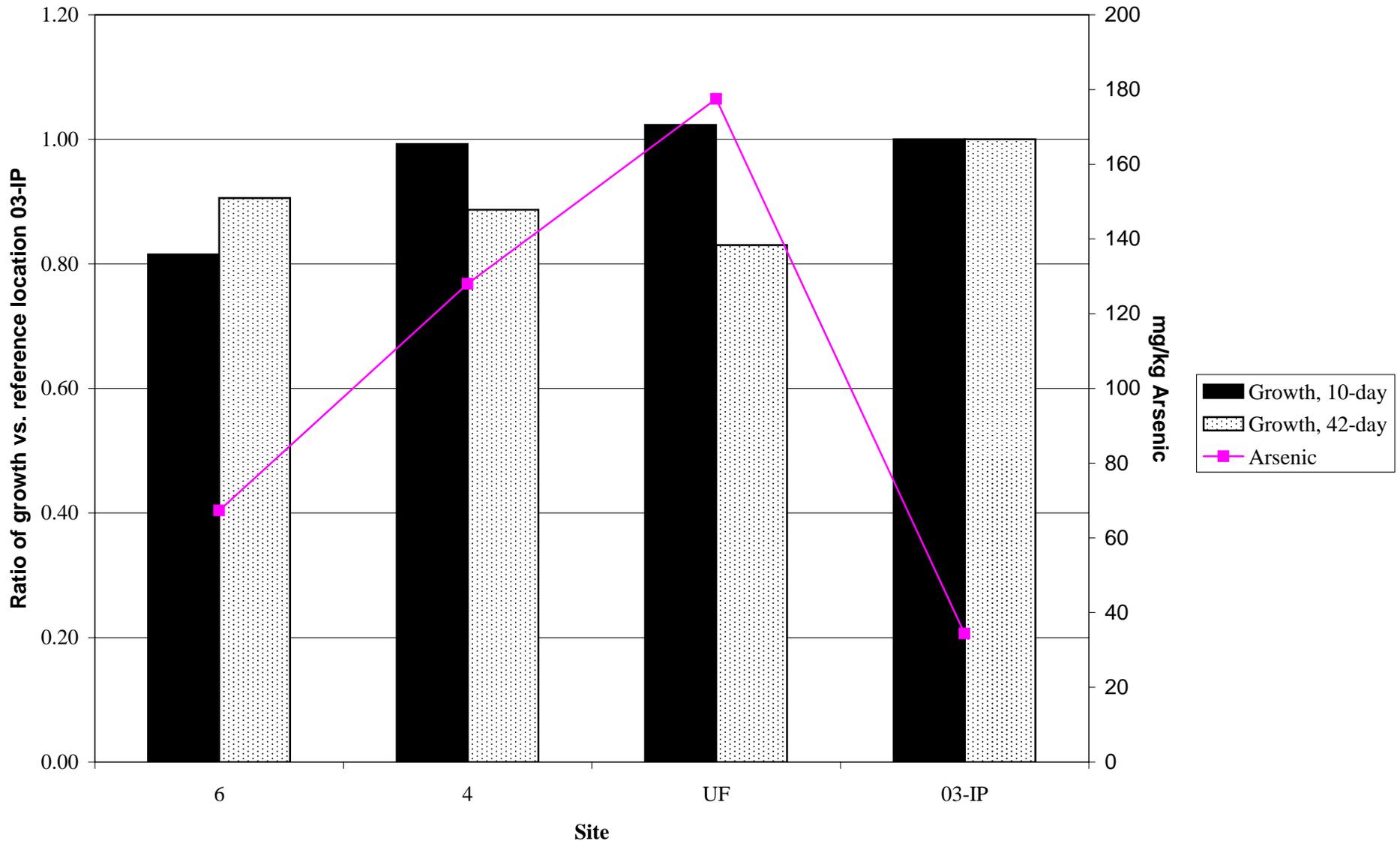


Figure 4-21. Comparison of *H. azteca* growth endpoints to pond reference locations

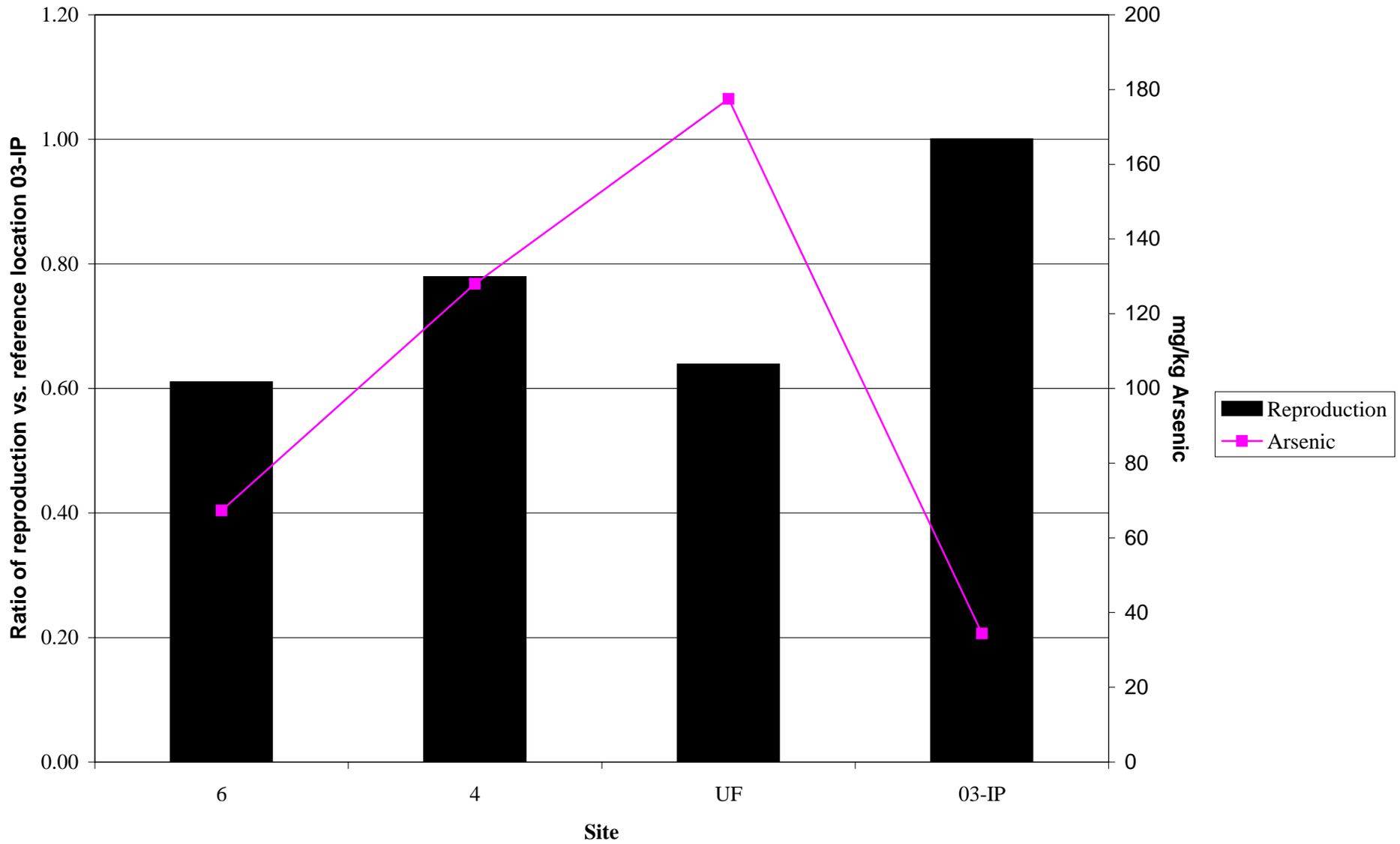


Figure 4-22. Comparison of *H. azteca* reproduction endpoint to pond reference locations

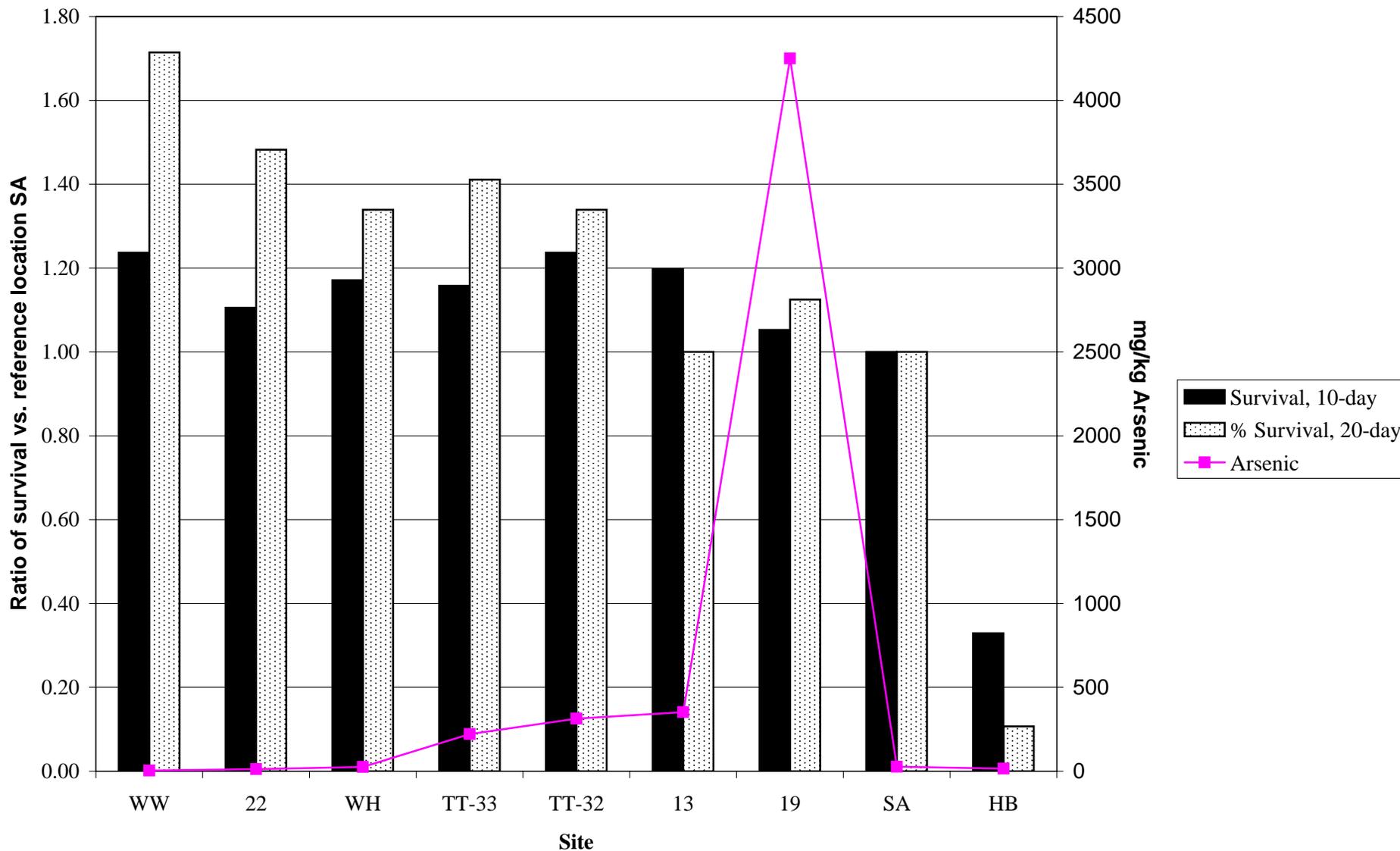


Figure 4-23. Comparison of *C. tentans* survival endpoints to wetland reference locations

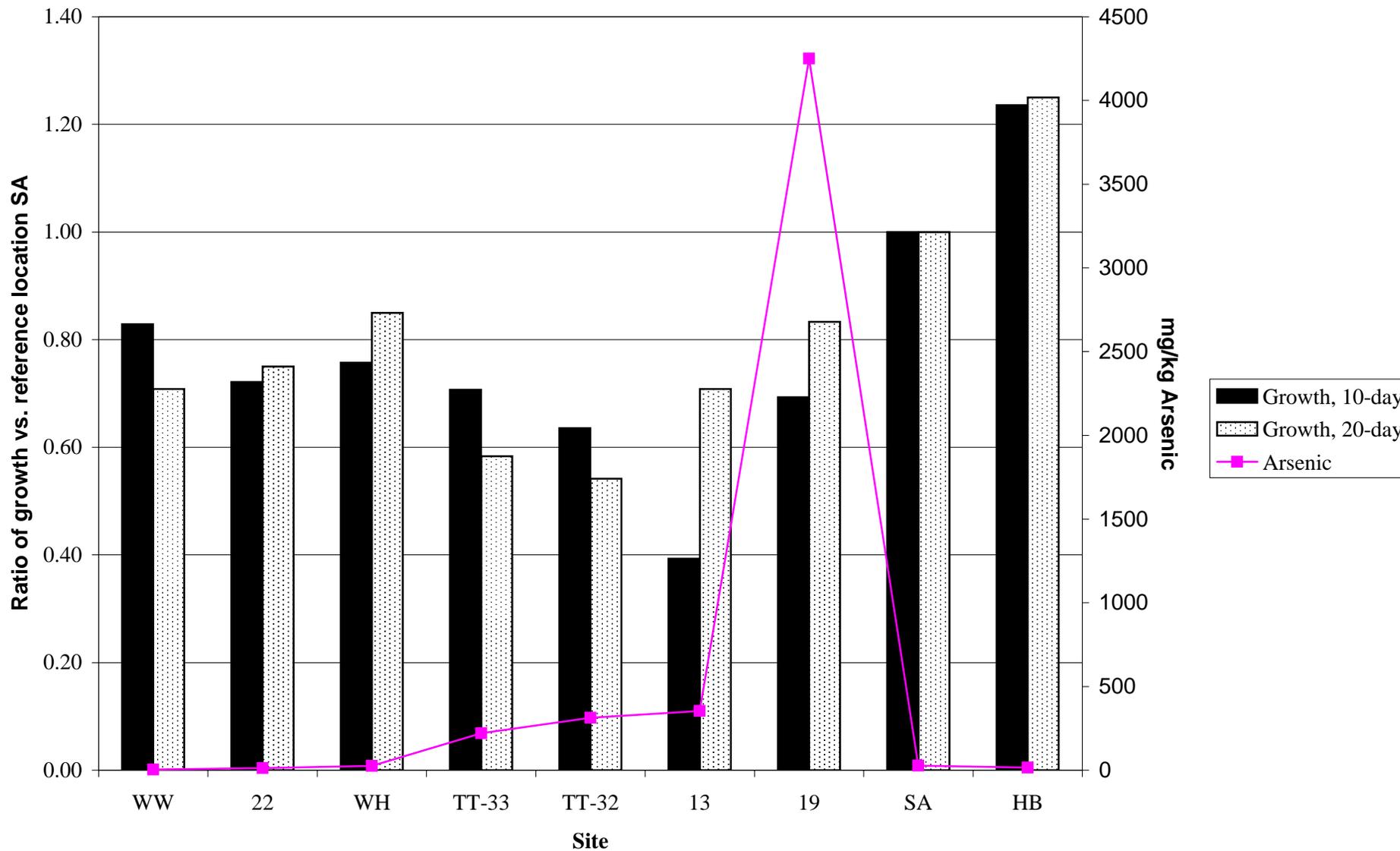


Figure 4-24. Comparison of *C. tentans* growth endpoints to wetland reference locations

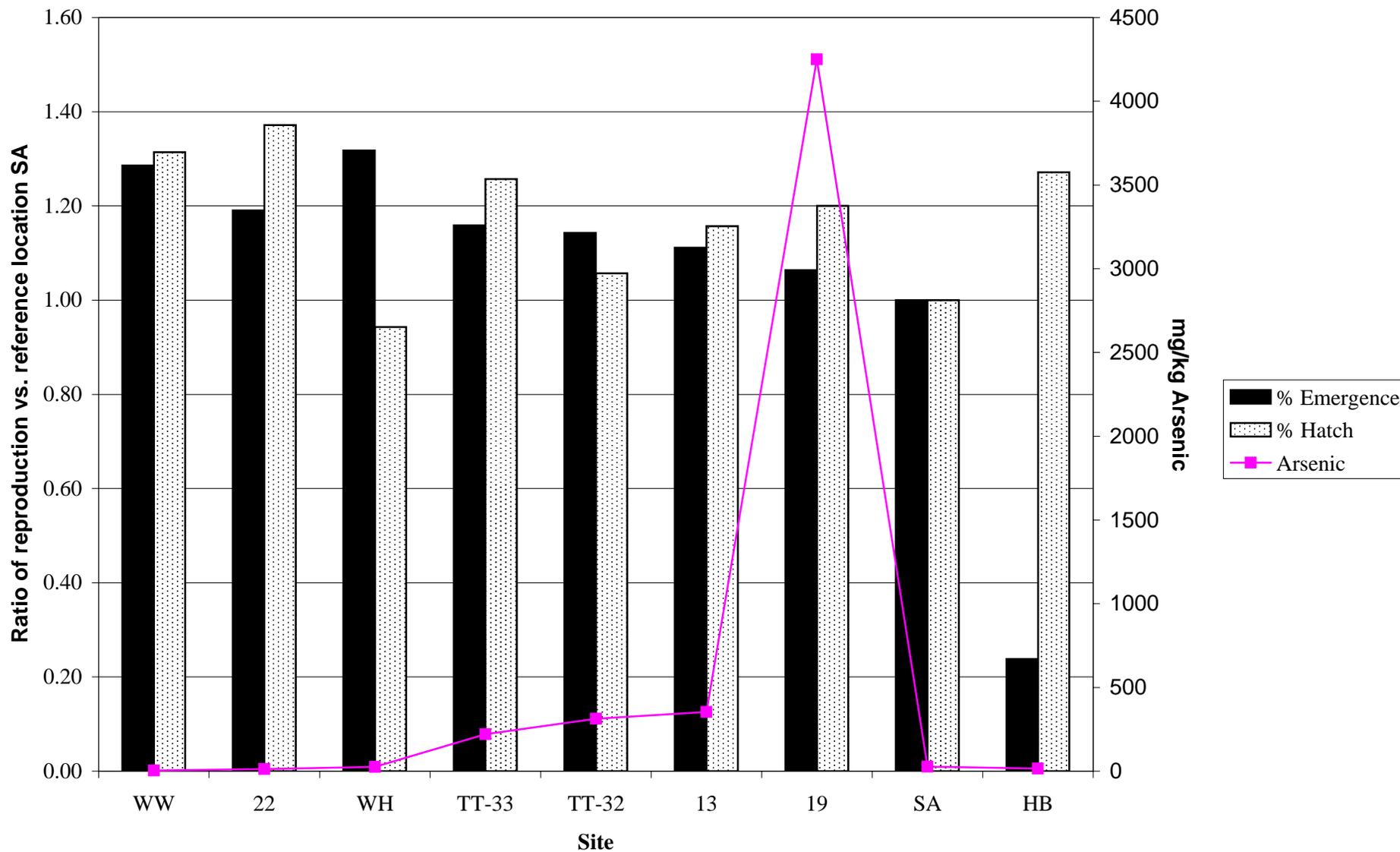


Figure 4-25. Comparison of *C. tentans* reproduction endpoints to wetland reference locations

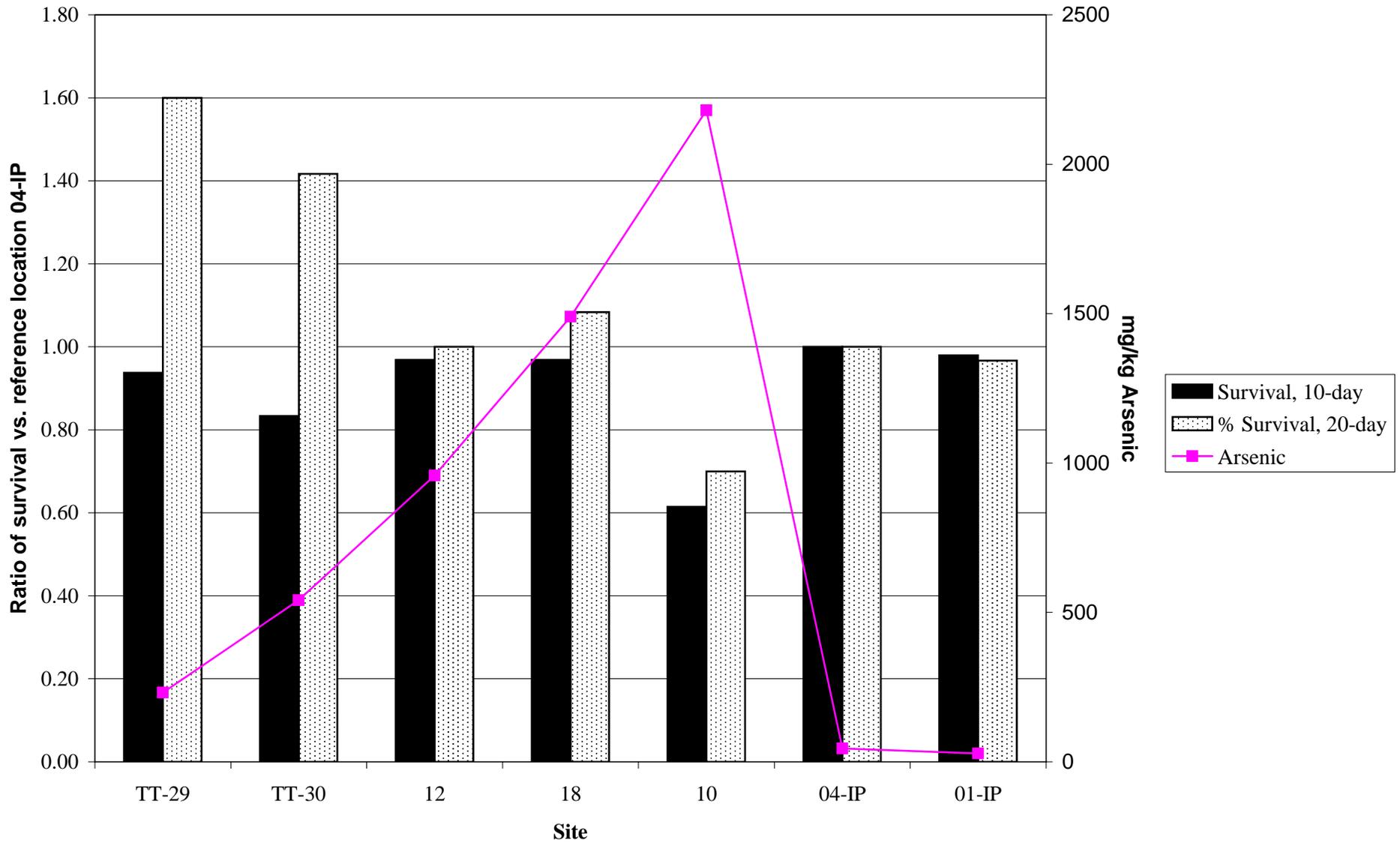


Figure 4-26. Comparison of *C. tentans* survival endpoints to stream reference locations

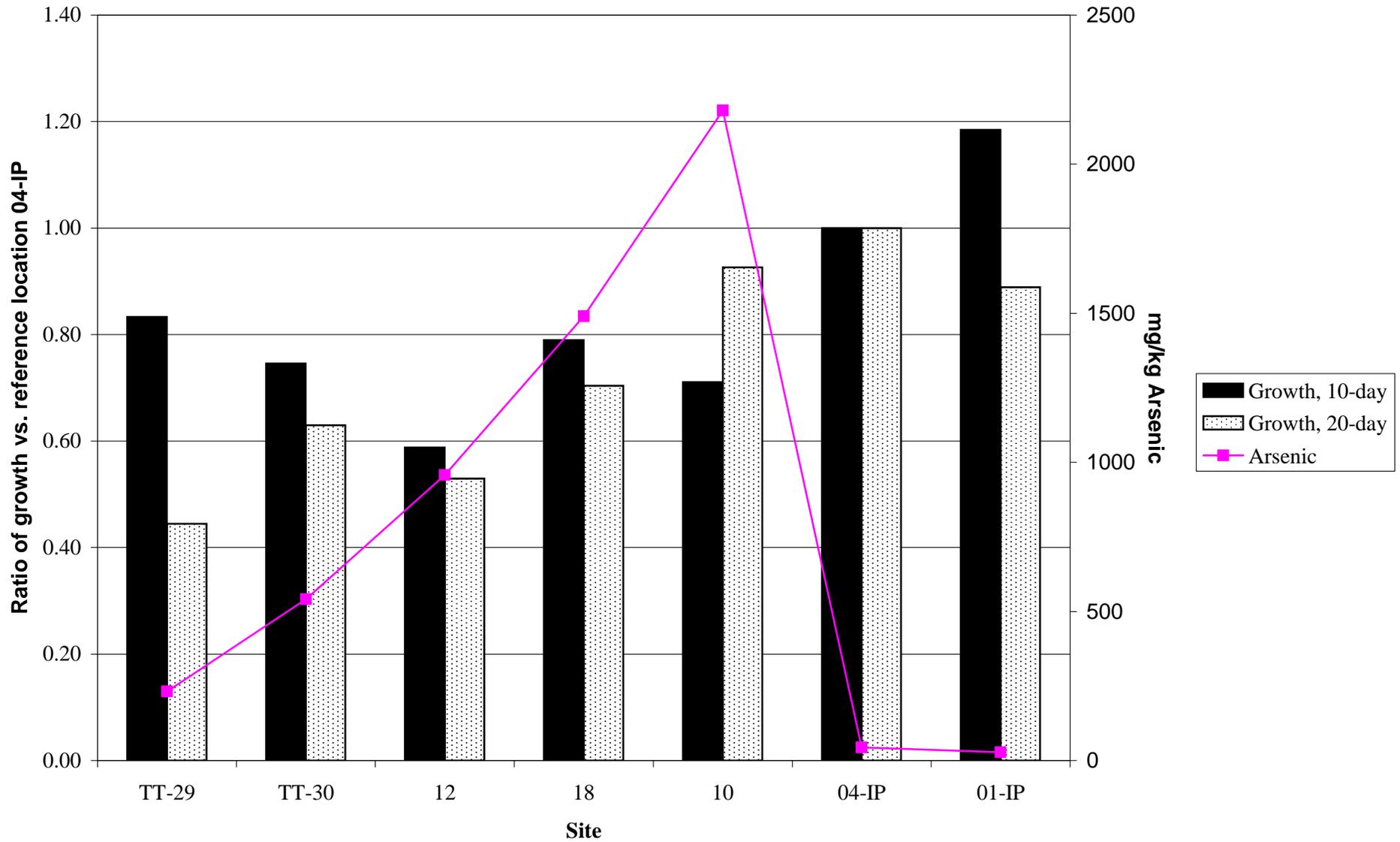


Figure 4-27. Comparison of *C. tentans* growth endpoints to stream reference locations

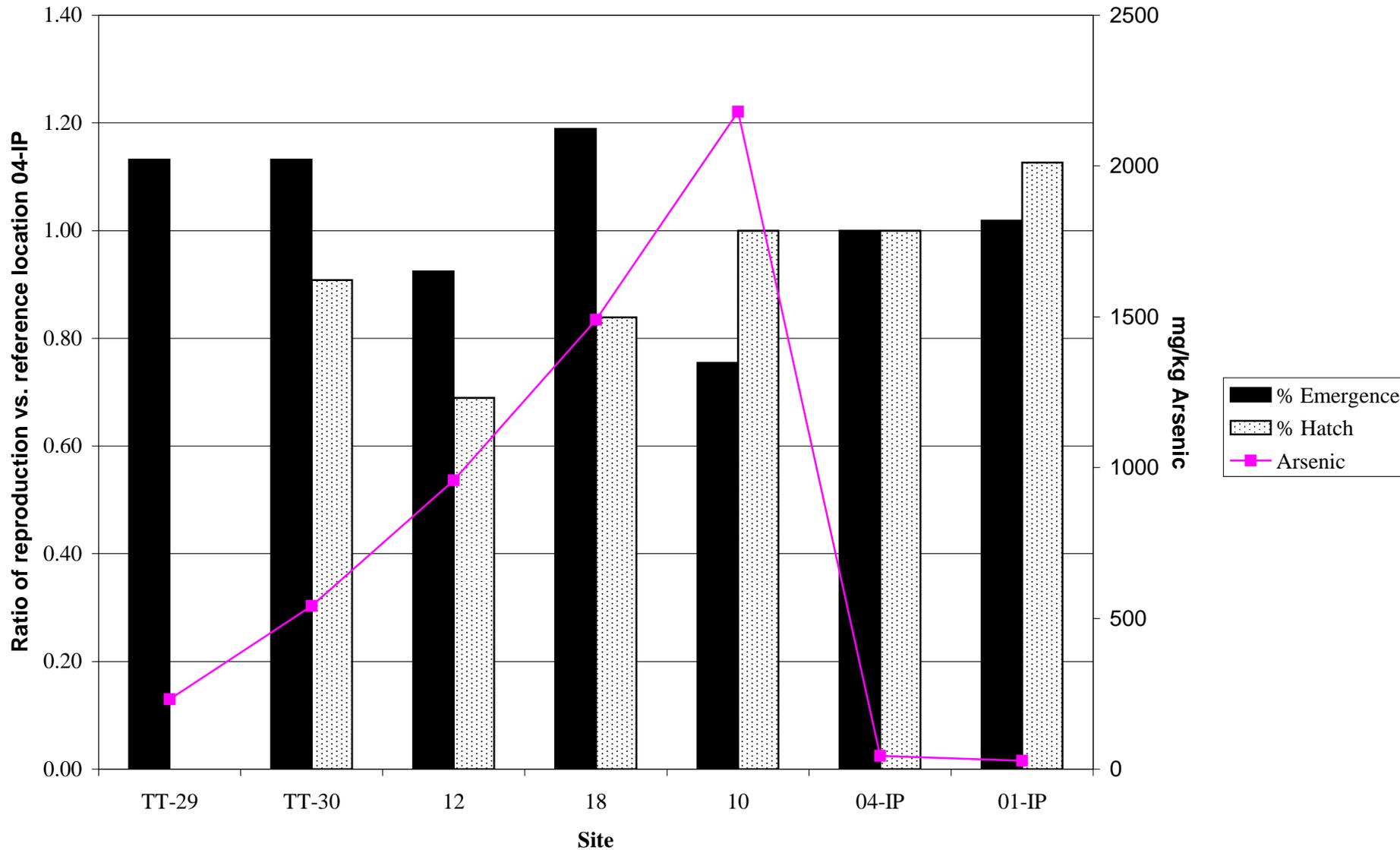


Figure 4-28. Comparison of *C. tentans* reproduction endpoints to stream reference locations

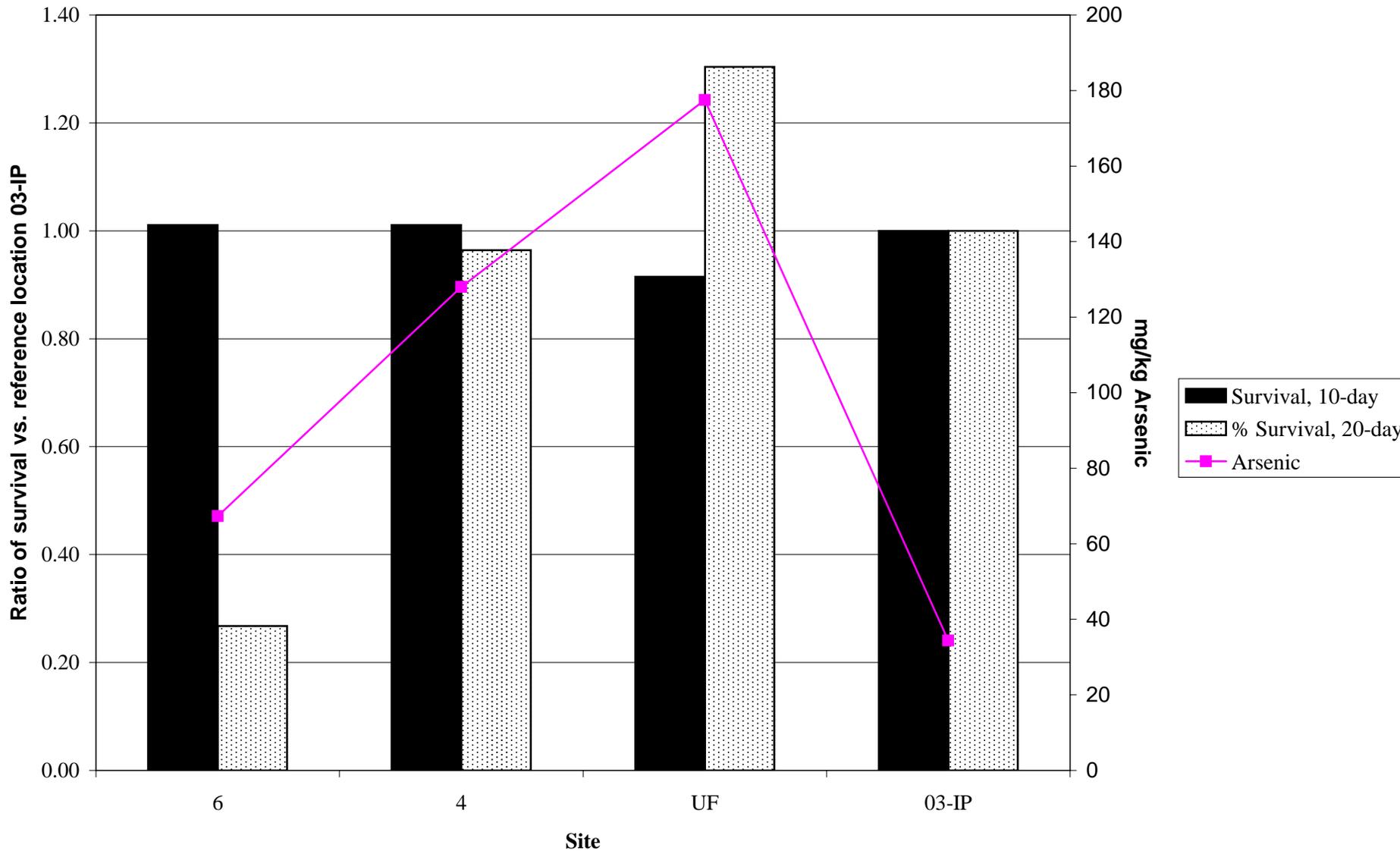


Figure 4-29. Comparison of *C. tentans* survival endpoints to pond reference locations

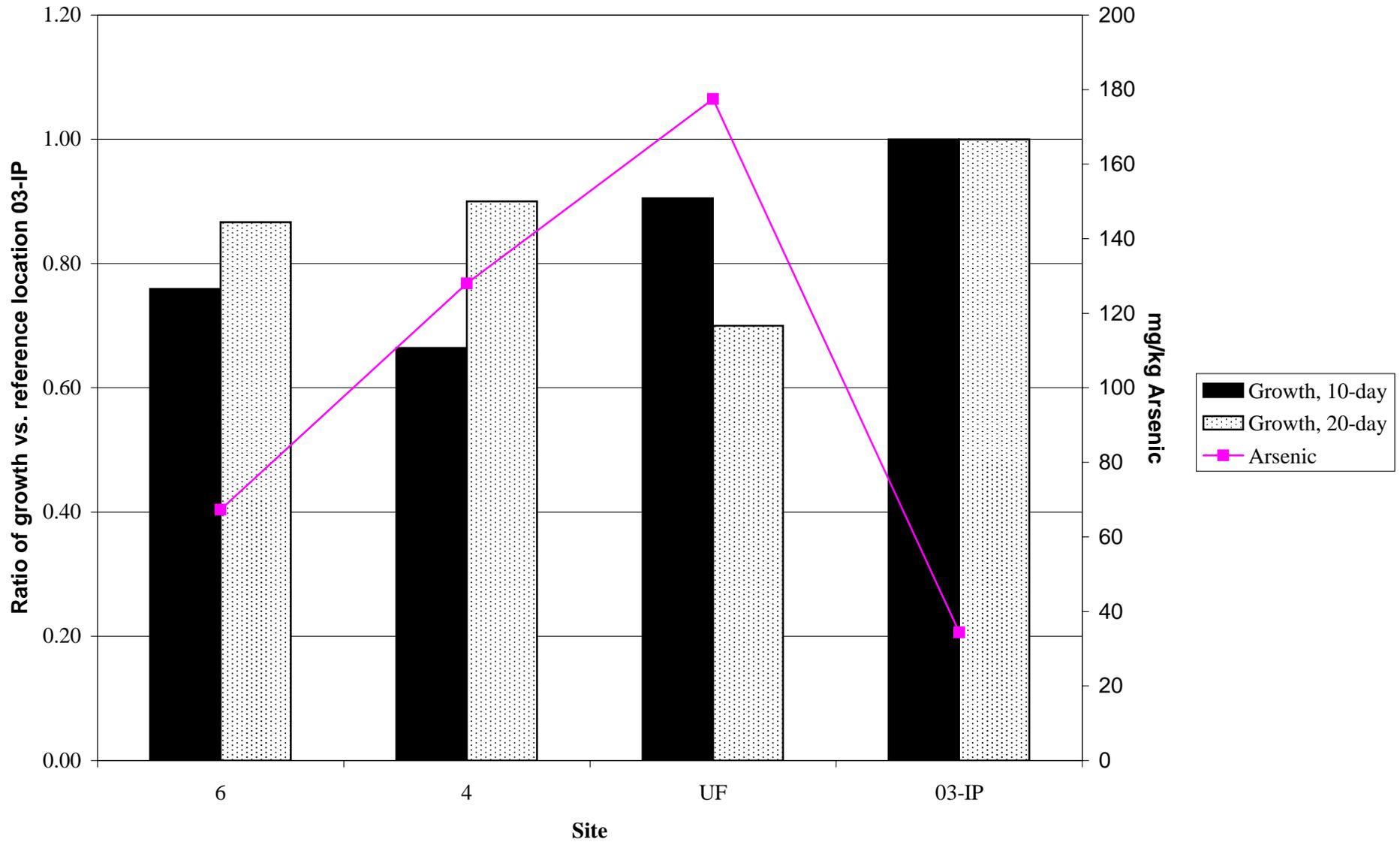


Figure 4-30. Comparison of *C. tentans* growth endpoints to pond reference locations

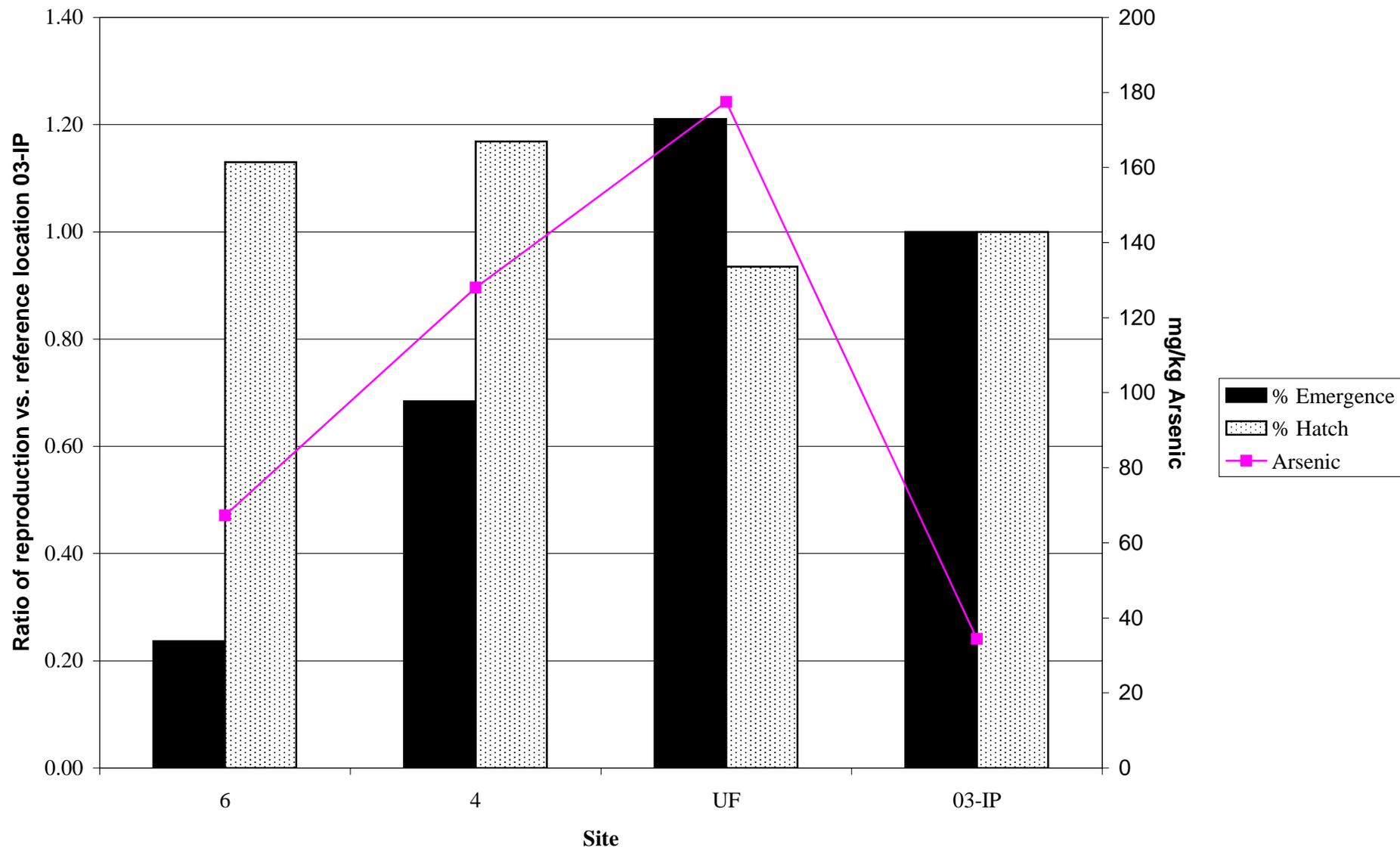


Figure 4-31. Comparison of *C. tentans* reproduction endpoints to pond reference locations

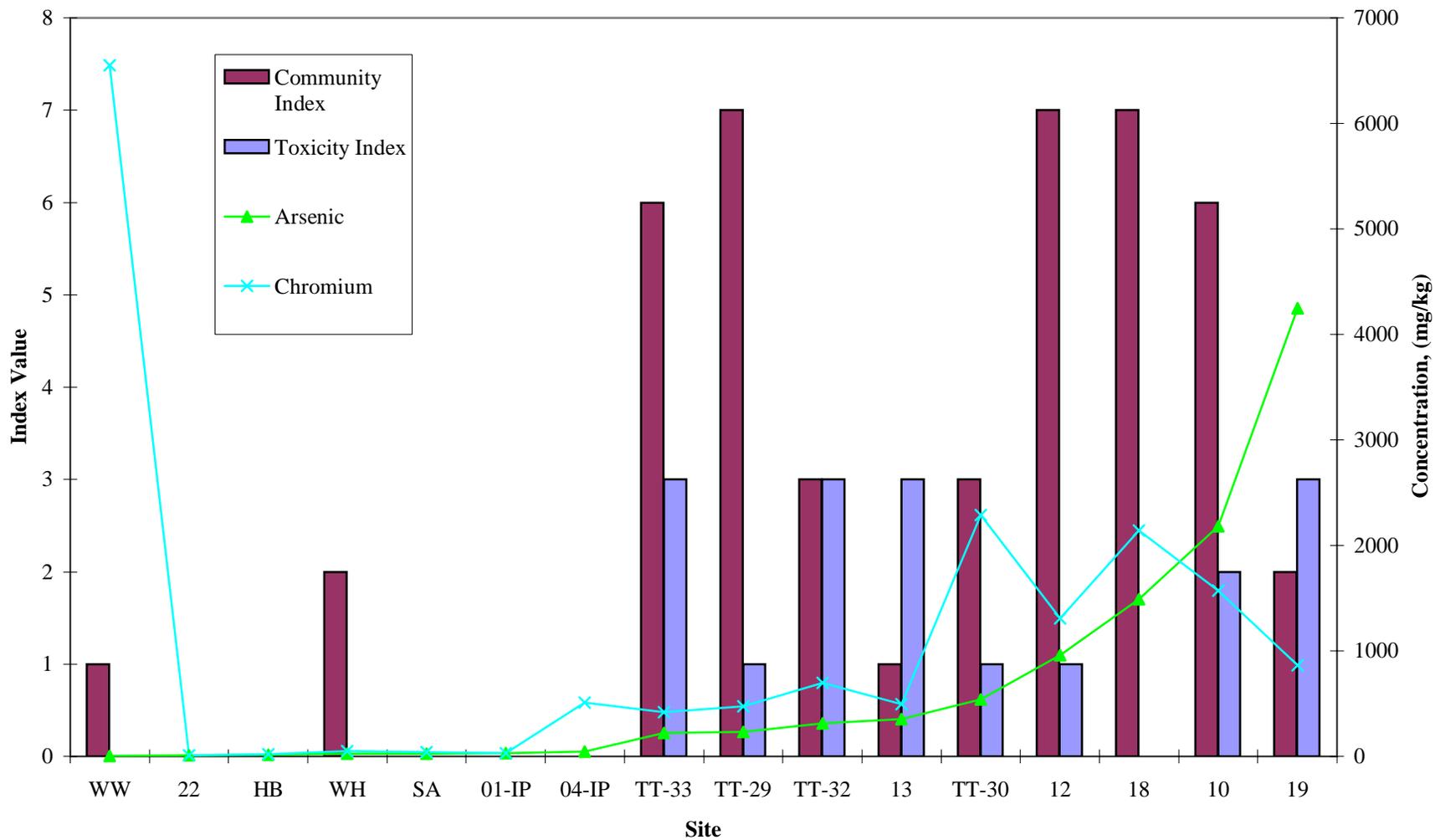


Figure 4-32. Comparison of Benthic Community Indices to Arsenic and Chromium Concentrations for Triad Stream and Wetland Sampling Locations.

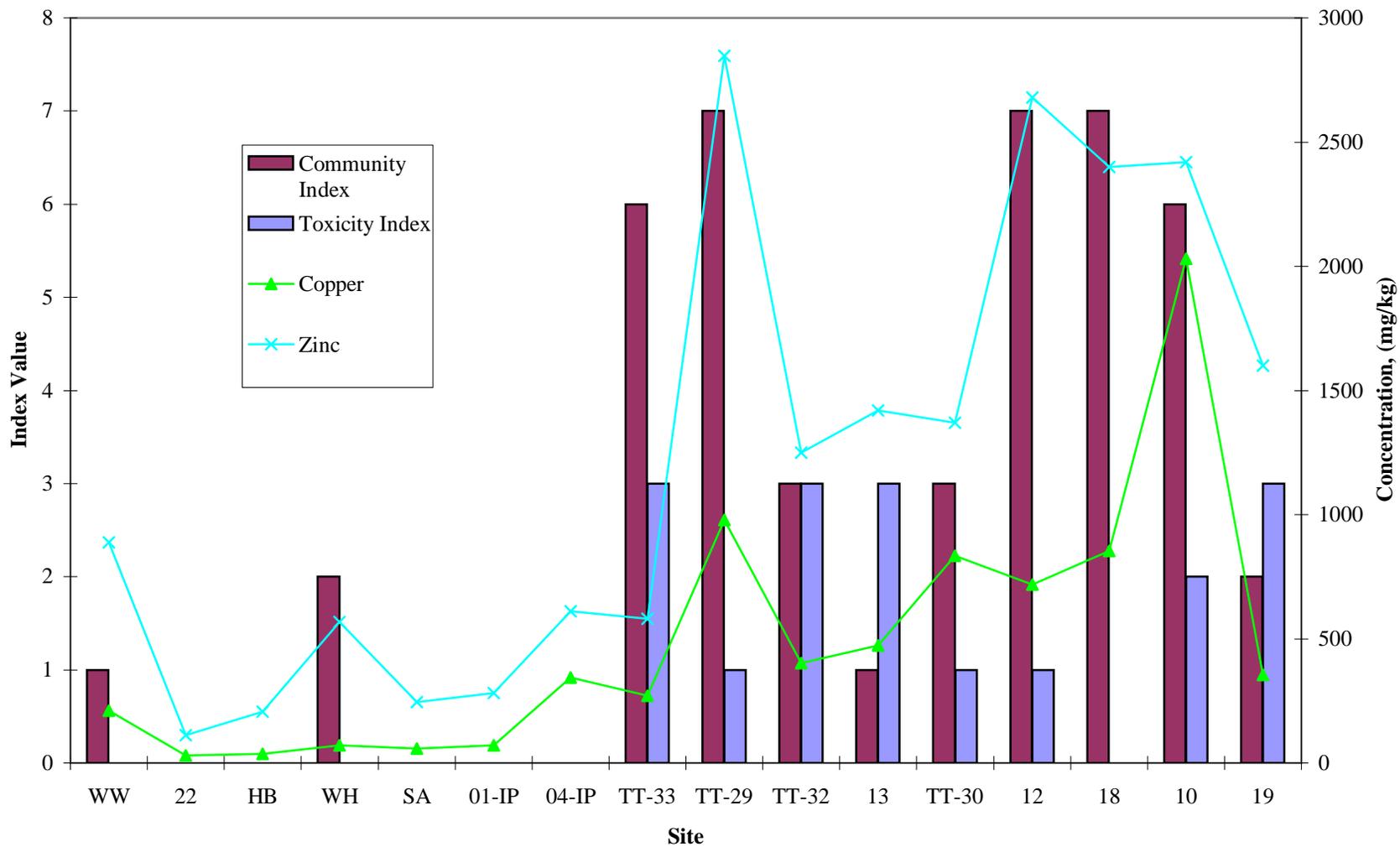


Figure 4-33. Comparison of Benthic Community Indices to Copper and Zinc Concentrations for Triad Stream and Wetland Sampling Locations.

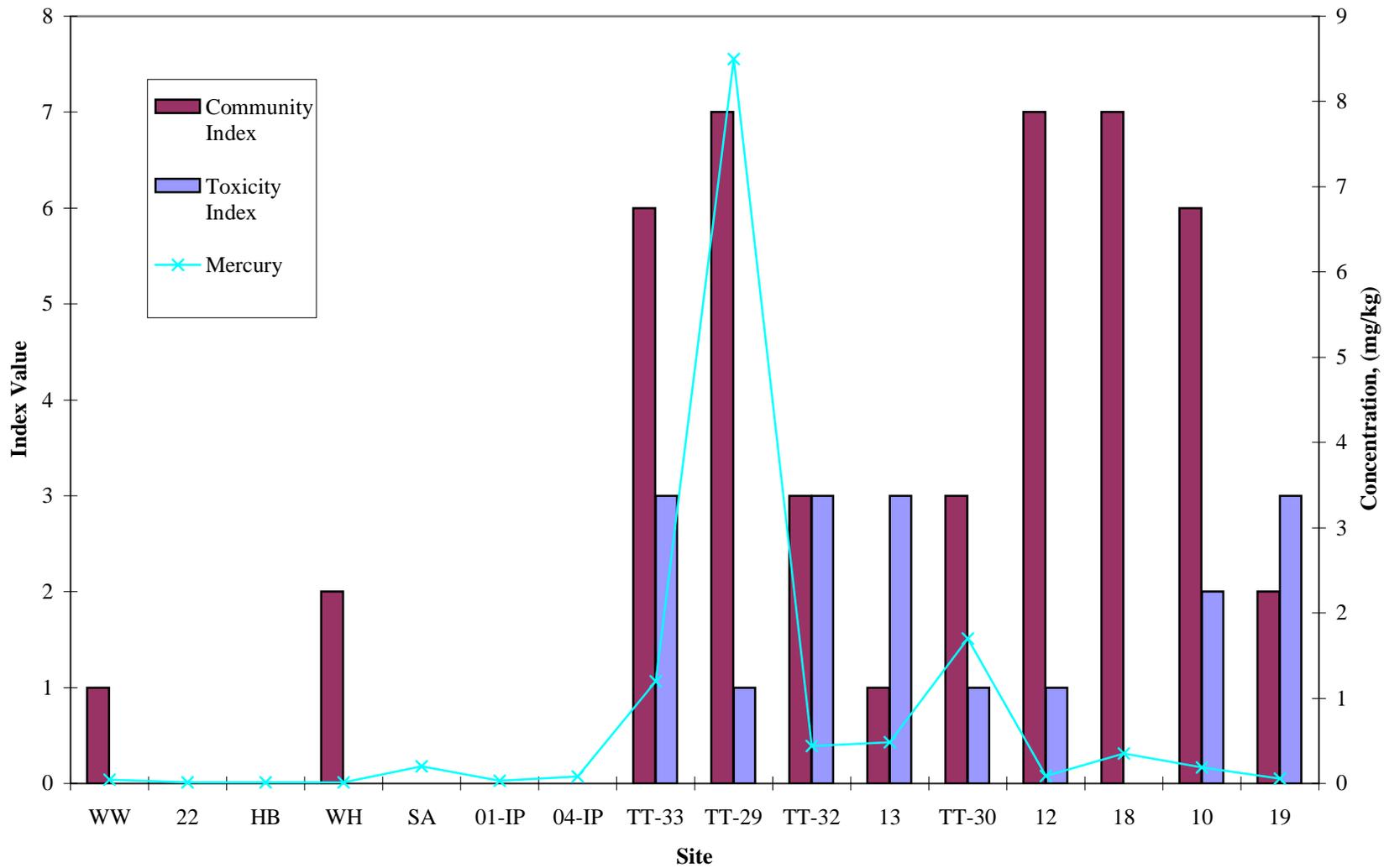
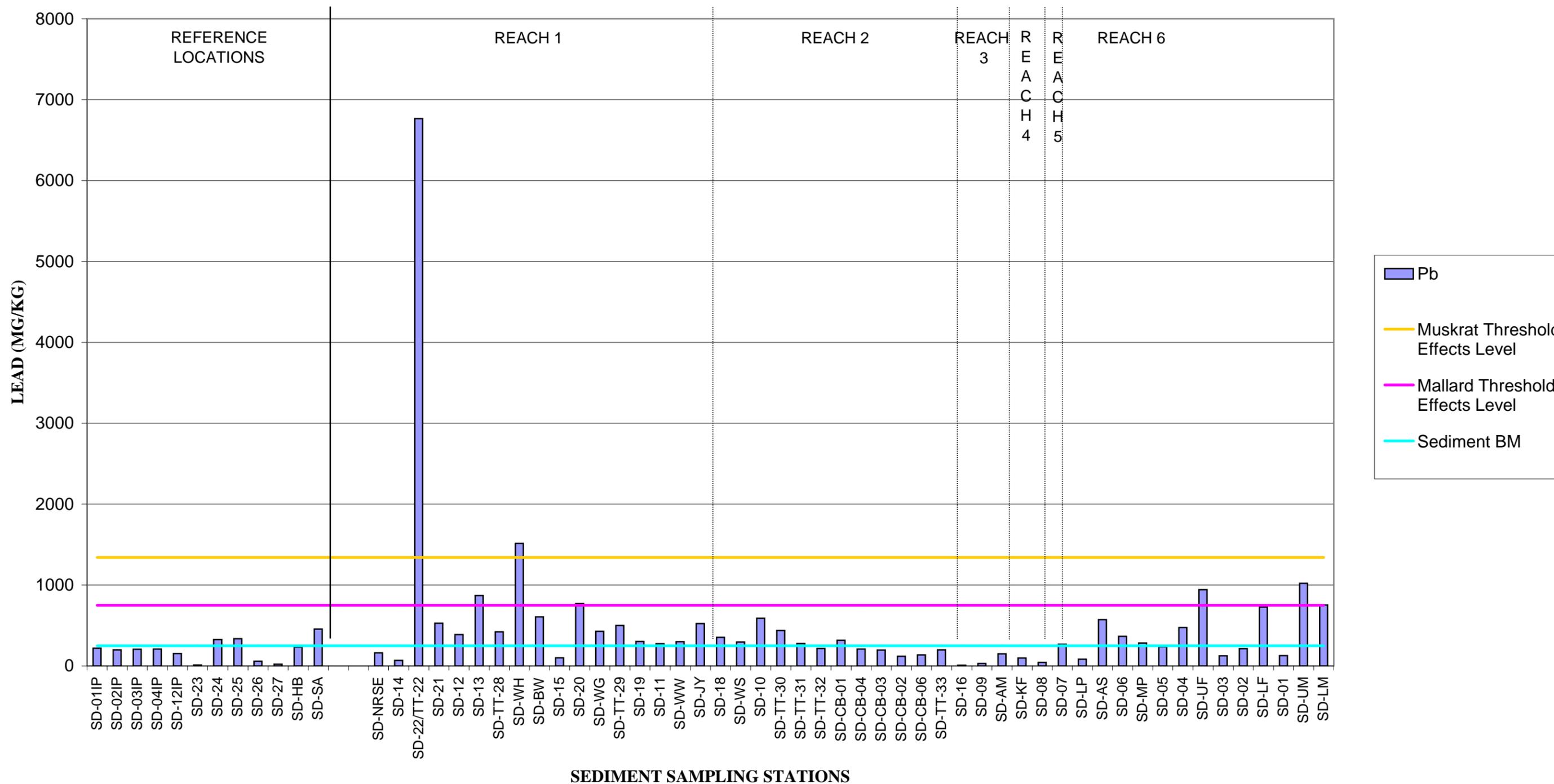
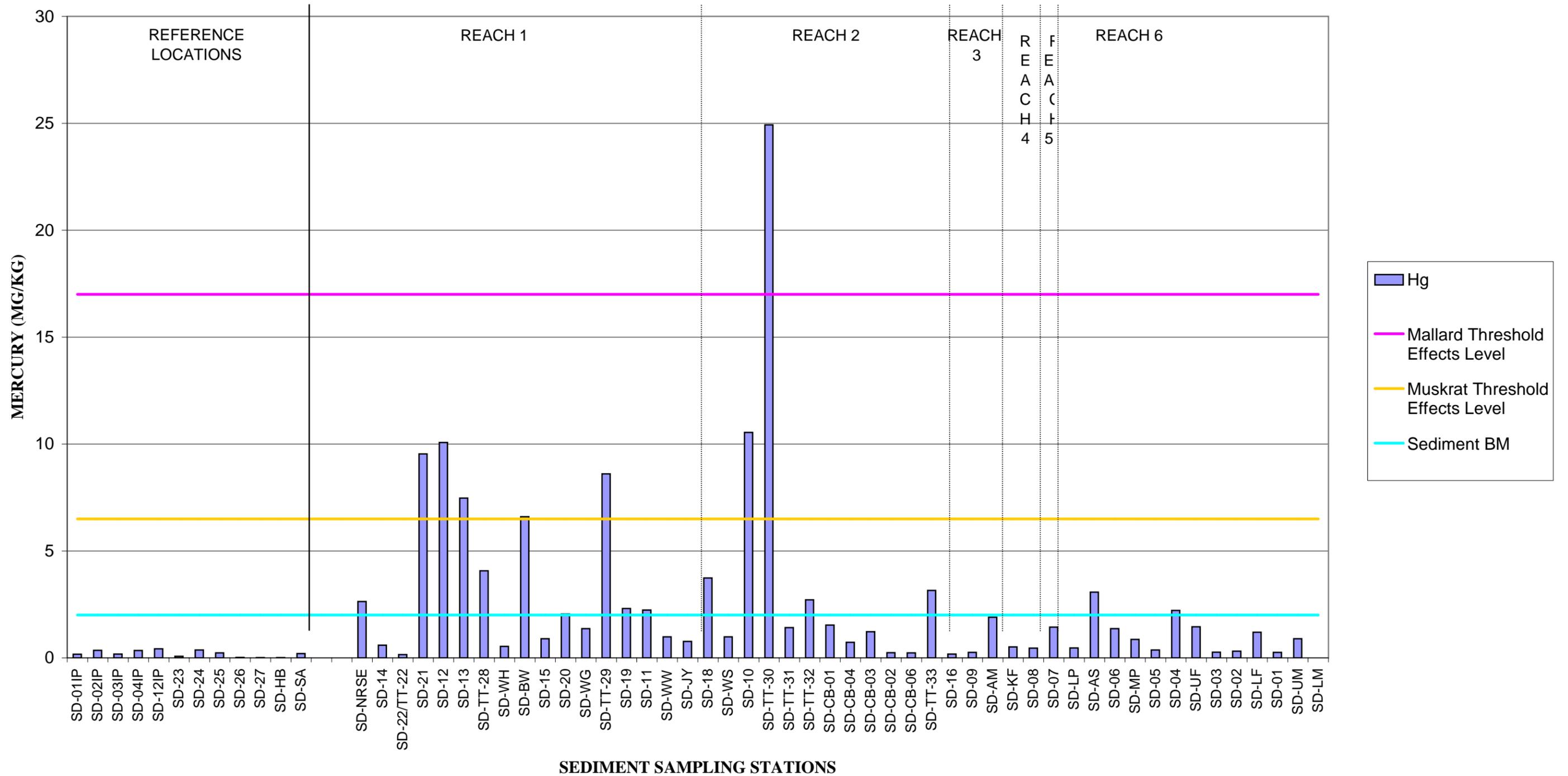


Figure 4-34. Comparison of Benthic Community Indices to Mercury Concentrations for Triad Stream and Wetland Sampling Locations.

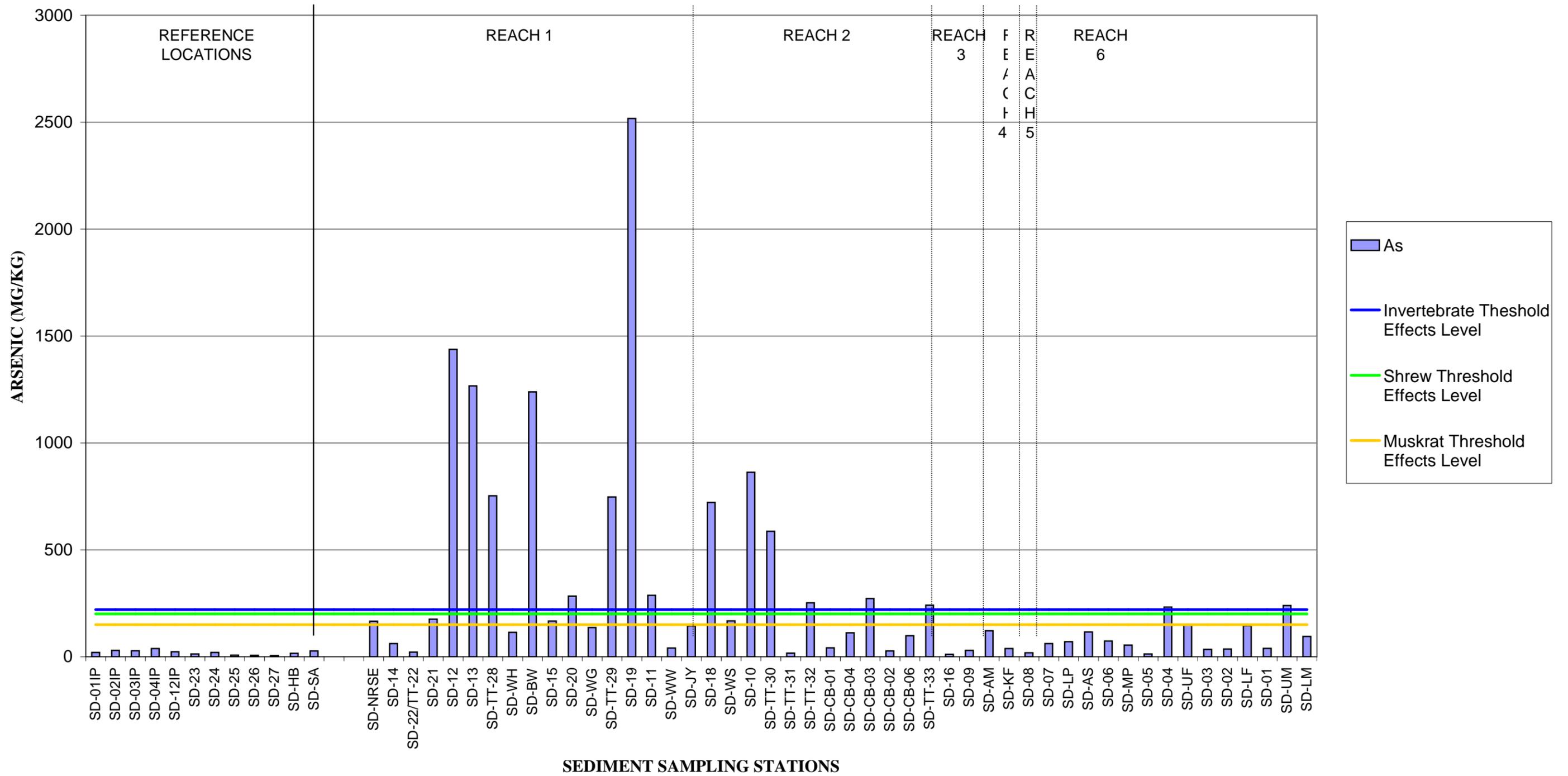
**FIGURE 4-35. COMPARISON OF LEAD IN SEDIMENTS TO ECOLOGICAL THRESHOLDS
WELLS G&H SUPERFUND SITE**



**FIGURE 4-36. COMPARISON OF MERCURY IN SEDIMENTS TO ECOLOGICAL THRESHOLDS
WELLS G&H SUPERFUND SITE**



**FIGURE 4-37. COMPARISON OF ARSENIC IN SEDIMENTS TO ECOLOGICAL THRESHOLDS
WELLS G&H SUPERFUND SITE**



**FIGURE 4-38. COMPARISON OF CHROMIUM IN SEDIMENTS TO ECOLOGICAL THRESHOLDS
WELLS G&H SUPERFUND SITE**

