

02287497 N.W. WELLFIELD CANAL NEAR DADE BROWARD LEVEE, NEAR PENNSUCO, FL

LOCATION.--Lat 25°53'28", long 80°25'13", in NE ¼ sec.27, T.52 S., R.39 E., Miami-Dade County, Hydrologic Unit 03090202, (Pennsoco quadrangle), 0.7 mi north of Pennsoco Canal, 1.9 mi east of Dade Broward Levee, 2.0 mi southwest of the Miami Canal, 4 mi east of Levee 30 Canal, and 2.5 mi west of Pennsoco.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--February 1991 to current year.

GAGE.--Satellite data collection platform with water-stage shaft encoder and acoustic doppler velocity meter. Electronic data logger at auxiliary gage downstream of NW 137th Avenue gated culverts began February 24, 2003. Datum of gage is National Geodetic Vertical Datum of 1929 (DERM bench mark). Prior to February 21, 2003, site was 1.0 mi upstream at datum 0.10 ft lower. Prior to October 9, 2002, acoustic velocity meter. Acoustic doppler velocity meter installed February 21, 2003.

REMARKS.--Records fair except for flows below 40 cfs and estimated daily discharges, which are poor. Flow is the sum of regulation from vertical control structure DERM No. 1, NW 137th Avenue gated culverts and from levee seepage. Flow is positive to the east. Discharge computed from relations between stage vs. area and index velocity vs. mean channel velocity.

ANNUAL MEAN and ANNUAL RUNOFF (AC-FT) SUMMARY STATISTICS.--Figures represent 7 water years of complete discharge (1992, 1996-2000, 2004).

EXTREME STAGES FOR PERIOD OF RECORD.--Maximum gage height, 7.07 ft Oct. 15-17, 1999; minimum, 1.39 ft May 28, 1992.

EXTREME STAGES FOR CURRENT YEAR.--Maximum gage height, 5.76 ft Sept. 29; minimum, 2.85 ft June 28, 29.

EXTREME STAGES FOR AUXILIARY GAGE DOWNSTREAM FOR PERIOD OF RECORD.--Maximum gage height, 5.71 ft Sept. 29, 2003; minimum, 2.83 ft June 28, 29, 2004.

EXTREME STAGES FOR AUXILIARY GAGE DOWNSTREAM FOR CURRENT YEAR.--Maximum gage height, 5.67 ft Oct. 1; minimum, 2.83 ft June 28, 29.

UPSTREAM
GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.73	5.01	4.38	---	4.48	3.87	3.42	3.47	2.99	2.90	3.73	4.00
2	5.70	4.99	4.33	---	---	3.83	3.39	3.41	2.95	2.90	4.23	4.36
3	---	4.98	4.26	3.84	4.37	3.81	3.38	3.60	2.92	2.94	4.48	4.47
4	---	4.97	4.22	---	4.30	3.78	3.36	4.00	2.89	2.99	4.52	4.65
5	---	5.06	4.20	3.83	4.24	3.76	3.34	3.85	2.90	3.02	4.51	5.14
6	5.56	5.16	4.18	3.82	4.20	3.74	3.33	3.74	2.90	2.99	4.64	5.41
7	5.53	5.19	4.14	3.79	4.15	3.72	3.31	3.67	2.97	2.97	4.56	5.52
8	5.50	5.20	4.10	3.76	4.09	3.69	3.30	3.63	3.05	3.04	4.48	5.56
9	5.48	5.23	4.08	3.73	4.04	3.66	3.28	3.59	3.03	2.97	4.44	5.62
10	5.46	5.21	4.09	3.73	4.02	3.65	3.28	3.55	3.12	2.92	4.39	5.63
11	5.44	5.19	4.08	3.71	4.00	3.63	3.30	3.51	3.19	2.89	4.33	5.64
12	5.42	---	4.05	3.69	3.97	3.62	3.38	3.48	3.09	2.91	4.25	5.62
13	5.40	---	4.04	3.68	3.94	3.61	3.62	3.43	3.04	2.99	4.19	5.59
14	5.37	5.10	4.10	3.67	3.93	3.61	3.81	3.41	3.00	3.08	4.13	5.58
15	5.34	5.06	4.17	3.66	3.92	3.62	3.68	3.40	2.99	---	4.07	5.58
16	5.31	5.02	4.12	3.65	3.89	3.63	3.60	3.42	---	3.04	4.03	5.56
17	5.29	4.98	4.10	3.63	3.85	3.62	3.54	3.40	2.94	3.05	4.04	5.51
18	---	4.94	4.06	3.70	3.81	3.60	3.49	3.36	2.90	3.06	4.05	5.45
19	---	4.91	4.04	3.83	3.78	3.59	3.44	3.33	2.88	3.18	4.03	5.39
20	---	4.87	4.01	3.77	3.76	3.57	3.42	3.31	2.94	3.43	4.00	5.34
21	---	4.82	3.98	3.74	3.74	3.56	3.39	3.28	3.00	3.38	3.98	5.33
22	5.24	4.78	3.96	3.73	3.73	3.54	3.37	3.26	3.14	3.36	3.98	5.38
23	5.20	4.73	3.96	3.71	3.71	3.52	3.36	3.23	3.16	3.29	4.01	5.38
24	5.16	4.67	3.96	3.68	---	3.50	3.34	3.20	3.07	3.26	4.00	5.50
25	5.12	4.63	3.94	3.68	3.83	3.51	3.32	3.18	---	3.27	4.03	5.51
26	5.08	4.59	3.93	3.68	4.14	3.61	3.30	3.16	2.96	---	4.00	5.64
27	5.04	4.55	3.91	3.69	4.04	3.60	3.28	3.15	2.91	3.43	3.99	5.70
28	---	4.51	3.90	3.66	3.97	3.54	3.35	3.13	2.87	3.81	4.02	5.73
29	5.10	4.46	3.89	3.62	3.91	3.50	3.48	3.09	3.05	3.70	3.98	5.41
30	5.07	4.41	3.87	3.63	---	3.46	---	3.06	2.96	3.61	3.95	5.06
31	5.06	---	3.86	3.88	---	3.44	---	3.03	---	3.56	3.91	---
TOTAL	---	---	125.91	---	---	112.39	---	105.33	---	---	128.95	160.26
MEAN	---	---	4.06	---	---	3.63	---	3.40	---	---	4.16	5.34
MAX	---	---	4.38	---	---	3.87	---	4.00	---	---	4.64	5.73
MIN	---	---	3.86	---	---	3.44	---	3.03	---	---	3.73	4.00

02287497 N.W. WELLFIELD CANAL NEAR DADE BROWARD LEVEE, NEAR PENNSUCO, FL-Continued

DOWNSTREAM
GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	3.79	3.95	4.46	4.54	4.91	4.47	5.17
2	---	---	---	---	---	3.77	3.91	4.32	4.56	4.96	4.64	5.19
3	---	---	---	---	---	3.75	3.87	4.21	4.51	5.04	4.74	5.18
4	---	---	---	---	---	3.74	3.84	4.13	4.46	4.98	4.72	5.22
5	---	---	---	---	---	3.72	3.81	4.05	4.45	4.99	4.72	5.39
6	---	---	---	---	---	3.71	3.78	3.98	4.52	4.98	4.72	5.55
7	---	---	---	---	---	3.70	3.76	3.92	4.47	4.96	4.74	5.56
8	---	---	---	---	---	3.68	3.73	3.87	4.43	4.92	4.92	5.55
9	---	---	---	---	---	3.65	3.70	3.82	4.42	4.87	4.97	5.50
10	---	---	---	---	---	3.68	3.67	3.78	4.62	4.83	5.03	5.46
11	---	---	---	---	---	3.74	3.65	3.75	4.70	4.77	5.01	5.43
12	---	---	---	---	---	3.69	3.63	3.73	4.70	4.71	4.99	5.41
13	---	---	---	---	---	3.65	3.61	3.84	4.63	4.65	4.94	5.49
14	---	---	---	---	---	3.62	3.59	4.27	4.59	4.60	4.98	5.52
15	---	---	---	---	---	3.61	3.69	4.14	4.68	4.56	5.02	5.50
16	---	---	---	---	---	3.77	3.68	4.04	4.73	4.58	4.99	5.47
17	---	---	---	---	---	4.24	3.72	3.96	4.70	4.61	4.97	5.45
18	---	---	---	---	---	4.19	3.66	3.91	4.70	4.56	4.94	5.43
19	---	---	---	---	---	4.11	3.70	3.88	4.68	4.52	4.92	5.42
20	---	---	---	---	---	4.03	3.67	3.84	4.71	4.49	4.97	5.40
21	---	---	---	---	---	3.96	3.64	3.80	4.70	4.48	5.06	5.37
22	---	---	---	---	---	3.90	3.61	3.83	4.85	4.46	5.06	5.34
23	---	---	---	---	---	3.92	3.58	4.02	5.10	4.43	5.05	5.27
24	---	---	---	---	---	3.97	3.56	4.24	5.10	4.40	5.05	5.39
25	---	---	---	---	---	3.73	3.88	3.55	4.35	4.39	5.04	5.43
26	---	---	---	---	---	3.98	3.82	3.72	4.46	5.04	5.06	5.44
27	---	---	---	---	---	3.88	3.97	3.88	4.41	5.03	4.36	5.43
28	---	---	---	---	---	3.82	4.38	3.83	4.56	5.00	4.34	5.47
29	---	---	---	---	---	---	4.23	3.82	4.71	4.97	4.37	5.20
30	---	---	---	---	---	---	4.14	4.21	4.70	4.95	4.41	5.18
31	---	---	---	---	---	---	4.04	---	4.61	---	4.38	5.17
TOTAL	---	---	---	---	---	120.05	112.02	127.59	141.61	143.91	153.48	162.66
MEAN	---	---	---	---	---	3.87	3.73	4.12	4.72	4.64	4.95	5.42
MAX	---	---	---	---	---	4.38	4.21	4.71	5.10	5.04	5.20	5.68
MIN	---	---	---	---	---	3.61	3.55	3.73	4.42	4.34	4.47	5.17

02287497 N.W. WELLFIELD CANAL NEAR DADE BROWARD LEVEE, NEAR PENNSUCO, FL-Continued

DOWNSTREAM
GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.65	4.84	4.25	3.82	4.45	3.84	3.40	3.47	2.97	2.88	3.72	3.81
2	5.60	4.83	4.21	3.81	4.40	3.81	3.38	3.42	2.93	2.89	4.23	3.51
3	5.55	4.82	4.19	3.81	4.34	3.78	3.36	3.60	2.89	2.93	4.48	3.42
4	5.50	4.81	4.18	3.81	4.27	3.75	3.34	4.00	2.87	2.98	4.52	3.39
5	5.46	4.91	4.17	3.80	4.22	3.73	3.32	3.85	2.89	3.01	4.50	3.85
6	5.42	5.02	4.14	3.78	4.17	3.71	3.31	3.74	2.88	2.99	4.64	4.04
7	5.39	5.05	4.10	3.75	4.12	3.69	3.29	3.66	2.96	2.97	4.55	4.00
8	5.35	5.05	4.06	3.72	4.07	3.66	3.27	3.60	3.04	3.03	4.48	4.05
9	5.32	5.09	4.04	3.70	4.02	3.63	3.26	3.56	3.01	2.96	4.45	3.97
10	5.30	5.06	4.05	3.69	3.99	3.62	3.26	3.52	3.10	2.91	4.39	3.91
11	5.28	5.03	4.05	3.67	3.98	3.60	3.28	3.48	3.18	2.88	4.33	3.85
12	5.25	5.00	4.02	3.65	3.96	3.59	3.36	3.43	3.08	2.90	4.24	3.81
13	5.23	4.96	4.01	3.64	3.93	3.59	3.60	3.40	3.03	2.98	4.19	3.76
14	5.20	4.92	4.07	3.64	3.91	3.59	3.79	3.38	2.98	3.07	4.12	3.74
15	5.16	4.89	4.14	3.62	3.91	3.60	3.67	3.36	2.97	3.06	4.07	3.75
16	5.13	4.85	4.09	3.62	3.87	3.61	3.58	3.39	2.99	3.03	4.03	3.76
17	5.10	4.82	4.07	3.61	3.83	3.60	3.52	3.37	2.92	3.05	4.03	3.74
18	5.09	4.78	4.03	3.67	3.79	3.58	3.47	3.33	2.88	3.05	4.04	3.73
19	5.06	4.76	4.00	3.80	3.76	3.57	3.42	3.30	2.87	3.16	4.02	3.73
20	5.02	4.72	3.97	3.75	3.74	3.55	3.40	3.28	2.93	3.41	3.99	3.68
21	5.00	4.67	3.94	3.72	3.73	3.54	3.39	3.25	2.99	3.37	3.97	3.68
22	5.06	4.63	3.93	3.71	3.71	3.52	3.37	3.23	3.13	3.35	3.96	3.91
23	5.02	4.59	3.93	3.69	3.70	3.50	3.35	3.20	3.14	3.28	4.00	3.97
24	4.98	4.55	3.93	3.66	3.69	3.48	3.34	3.17	3.06	3.25	3.99	3.78
25	4.95	4.51	3.91	3.65	3.83	3.49	3.32	3.15	2.99	3.26	4.02	3.76
26	4.91	4.47	3.89	3.65	4.13	3.59	3.30	3.13	2.94	3.31	3.99	3.96
27	4.87	4.43	3.88	3.66	4.04	3.59	3.27	3.12	2.89	3.41	3.98	3.99
28	4.83	4.40	3.87	3.63	3.96	3.53	3.35	3.10	2.85	3.79	4.00	3.92
29	4.92	4.35	3.85	3.60	3.90	3.48	3.48	3.07	3.02	3.69	3.97	4.28
30	4.90	4.30	3.84	3.62	---	3.45	3.45	3.04	2.95	3.60	3.93	4.80
31	4.89	---	3.82	3.85	---	3.42	---	3.01	---	3.55	3.90	---
TOTAL	160.39	143.11	124.63	114.80	115.42	111.69	101.90	104.61	89.33	98.00	128.73	115.55
MEAN	5.17	4.77	4.02	3.70	3.98	3.60	3.40	3.37	2.98	3.16	4.15	3.85
MAX	5.65	5.09	4.25	3.85	4.45	3.84	3.79	4.00	3.18	3.79	4.64	4.80
MIN	4.83	4.30	3.82	3.60	3.69	3.42	3.26	3.01	2.85	2.88	3.72	3.39

02287497 N.W. WELLFIELD CANAL NEAR DADE BROWARD LEVEE, NEAR PENNSUCO, FL-Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	144	108	e103	148	98	51	74	59	50	84	57
2	129	141	106	e101	e150	96	48	70	58	53	92	13
3	e132	140	108	94	137	96	40	89	56	51	108	13
4	e138	140	111	e102	131	96	42	112	54	55	107	9.3
5	e138	135	108	95	124	95	42	96	54	60	113	2.8
6	142	133	107	94	120	94	62	89	52	56	116	16
7	146	137	104	95	117	95	54	83	46	58	112	23
8	147	138	106	94	116	95	58	82	51	66	106	18
9	148	136	103	95	110	93	65	77	55	60	98	21
10	148	141	103	93	108	92	66	80	66	56	98	22
11	146	143	104	93	105	91	69	81	68	54	96	21
12	147	e151	103	92	102	90	84	76	60	60	93	25
13	148	e151	102	91	102	89	96	75	58	63	90	23
14	149	148	105	89	100	89	100	72	58	64	91	26
15	150	144	111	89	98	90	90	72	60	e64	89	21
16	152	144	106	89	99	89	86	72	e63	56	85	14
17	152	140	105	91	100	89	82	70	57	50	86	17
18	e152	136	103	93	99	87	81	68	56	50	86	17
19	e151	136	101	96	97	85	79	66	53	69	82	18
20	e152	133	103	96	94	83	77	64	55	83	82	19
21	e150	130	101	93	91	82	77	65	52	70	79	17
22	151	125	102	92	90	82	76	65	45	63	81	45
23	147	123	100	90	89	79	74	64	59	59	85	43
24	145	120	99	90	e98	78	73	64	58	58	80	16
25	145	118	99	89	96	82	72	65	e56	51	77	5.8
26	143	115	98	89	104	88	72	62	54	e53	78	2.0
27	141	112	96	87	96	88	71	64	53	74	81	-0.08
28	e140	110	96	91	97	82	67	62	51	103	84	23
29	148	111	96	90	98	52	67	60	70	87	81	104
30	147	108	94	95	---	27	74	58	57	78	81	174
31	142	---	95	112	---	30	---	58	---	70	80	---
TOTAL	4,488	3,983	3,183	2,903	3,116	2,602	2,095	2,255	1,694	1,944	2,801	825.82
MEAN	145	133	103	93.6	107	83.9	69.8	72.7	56.5	62.7	90.4	27.5
MAX	152	151	111	112	150	98	100	112	70	103	116	174
MIN	122	108	94	87	89	27	40	58	45	50	77	-0.08
AC-FT	8,900	7,900	6,310	5,760	6,180	5,160	4,160	4,470	3,360	3,860	5,560	1,640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2004, BY WATER YEAR (WY)

MEAN	167	176	166	163	162	152	153	141	149	151	172	166
MAX	219	228	225	231	225	217	268	248	235	219	229	210
(WY)	(1998)	(1996)	(1999)	(1999)	(1998)	(1995)	(1994)	(1994)	(1994)	(1997)	(1994)	(1995)
MIN	97.5	128	99.6	93.6	93.7	83.9	69.8	60.1	56.5	62.7	90.4	27.5
(WY)	(2002)	(2002)	(2002)	(2004)	(2002)	(2004)	(2004)	(1992)	(2004)	(2004)	(2004)	(2004)

SUMMARY STATISTICS

	FOR 2004 WATER YEAR		WATER YEARS 1991 - 2004	
ANNUAL TOTAL	31,889.82			
ANNUAL MEAN	87.1		168	
HIGHEST ANNUAL MEAN			208	
LOWEST ANNUAL MEAN			87.1	
HIGHEST DAILY MEAN	174	Sep 30	360	Aug 16, 1992
LOWEST DAILY MEAN	-0.08	Sep 27	-0.08	Sep 27, 2004
ANNUAL SEVEN-DAY MINIMUM	14	Sep 2	14	Sep 2, 2004
ANNUAL RUNOFF (AC-FT)	63,250		121,800	
10 PERCENT EXCEEDS	141		222	
50 PERCENT EXCEEDS	89		184	
90 PERCENT EXCEEDS	50		87	

e Estimated

The period of record statistics were computed from complete water year's of record. See the annual mean and annual runoff (ac-ft) summary statistics section of the manuscript.