

473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN

Mississippi Headwaters Basin
Mississippi Headwaters Subbasin

LOCATION.--Lat 47°34'28", long 95°05'08" referenced to North American Datum of 1983, Beltrami County, MN, Hydrologic Unit 07010101.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Gage heights were recorded hourly during Jul. 15, 2003 at 19:00 CDT to Oct. 27, 2011 at 09:00 CDT.

Daily-average gage heights were recorded from Jun. 16, 2011 to Oct. 26, 2011.

GAGE.--Water level and water temperature were measured with an OTT Orpheus Mini 0-4m submersible pressure transducer accurate to 0.01 feet and 0.5°C respectively, but differences in temperature are accurate to 0.1°C. Data were recorded hourly by a built-in data logger that is part of the pressure transducer assembly. The data logger is housed inside the 2-inch, schedule-40, PVC pipe, which is screened in the lake water-column. The gage is powered by 3 AA alkaline batteries that are inside of the communications rod. No telemetry or phone line is wired into the gage.

COOPERATION.--The unnamed lake gage is operated by the U.S. Geological Survey in cooperation with Enbridge Energy Limited Partnership, the Minnesota Pollution Control Agency, and Beltrami County.

REMARKS.--Unnamed Lake is located at the National Crude-Oil Spill Research Site near Bemidji, Minnesota. The land around this lake is all owned by Beltrami County. This lake has been used for many research purposes related to the the National Crude-Oil Spill Research Site.

EXTREMES FOR PERIOD OF RECORD.--Highest gage height: 7.08 feet (1389.59 feet NAVD88) on Jun. 27, 2011 at 08:00 CDT and Jun. 28, 2011 at 13:00 CDT; lowest gage height: 6.46 feet (1389.59 feet NAVD88) on Sept. 30, 2011 at 17:00 CDT.

Highest daily-average gage height: 7.07 feet (1389.58 feet NAVD88) on Jun. 27 & 28, 2011; lowest daily-average gage height: 6.47 feet (1388.98 feet NAVD88) on Sept. 29 & 30, 2011.

EXTREMES FOR CURRENT YEAR.--Highest gage height: 7.08 feet (1389.59 feet NAVD88) on Jun. 27, 2011 at 08:00 CDT and Jun. 28, 2011 at 13:00 CDT; lowest gage height: 6.46 feet (1389.59 feet NAVD88) on Sept. 30, 2011 at 17:00 CDT.

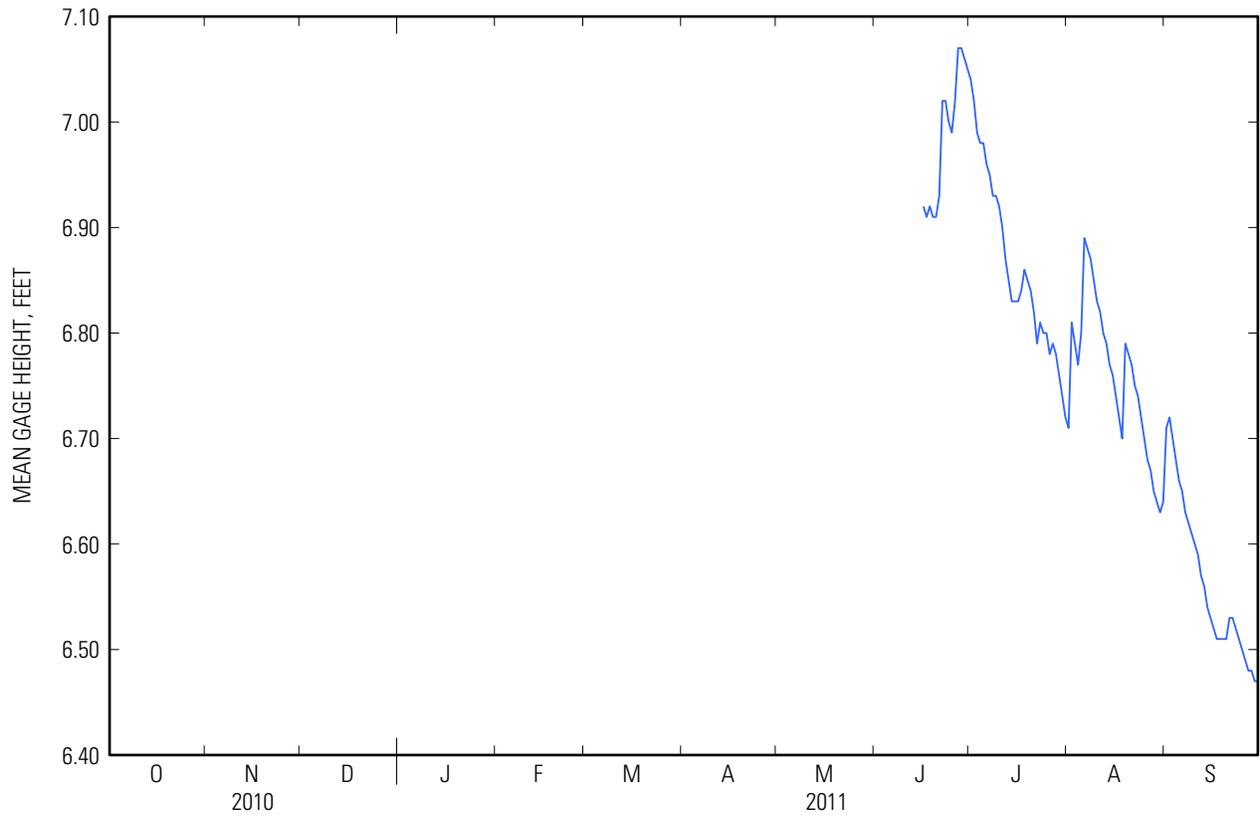
Highest daily-average gage height: 7.07 feet (1389.58 feet NAVD88) on Jun. 27 & 28, 2011; lowest daily-average gage height: 6.47 feet (1388.98 feet NAVD88) on Sept. 29 & 30, 2011.

473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	---	---	---	---	---	7.04	6.71	6.71
2	---	---	---	---	---	---	---	---	---	7.02	6.81	6.72
3	---	---	---	---	---	---	---	---	---	6.99	6.79	6.70
4	---	---	---	---	---	---	---	---	---	6.98	6.77	6.68
5	---	---	---	---	---	---	---	---	---	6.98	6.80	6.66
6	---	---	---	---	---	---	---	---	---	6.96	6.89	6.65
7	---	---	---	---	---	---	---	---	---	6.95	6.88	6.63
8	---	---	---	---	---	---	---	---	---	6.93	6.87	6.62
9	---	---	---	---	---	---	---	---	---	6.93	6.85	6.61
10	---	---	---	---	---	---	---	---	---	6.92	6.83	6.60
11	---	---	---	---	---	---	---	---	---	6.90	6.82	6.59
12	---	---	---	---	---	---	---	---	---	6.87	6.80	6.57
13	---	---	---	---	---	---	---	---	---	6.85	6.79	6.56
14	---	---	---	---	---	---	---	---	---	6.83	6.77	6.54
15	---	---	---	---	---	---	---	---	---	6.83	6.76	6.53
16	---	---	---	---	---	---	---	---	6.92	6.83	6.74	6.52
17	---	---	---	---	---	---	---	---	6.91	6.84	6.72	6.51
18	---	---	---	---	---	---	---	---	6.92	6.86	6.70	6.51
19	---	---	---	---	---	---	---	---	6.91	6.85	6.79	6.51
20	---	---	---	---	---	---	---	---	6.91	6.84	6.78	6.51
21	---	---	---	---	---	---	---	---	6.93	6.82	6.77	6.53
22	---	---	---	---	---	---	---	---	7.02	6.79	6.75	6.53
23	---	---	---	---	---	---	---	---	7.02	6.81	6.74	6.52
24	---	---	---	---	---	---	---	---	7.00	6.80	6.72	6.51
25	---	---	---	---	---	---	---	---	6.99	6.80	6.70	6.50
26	---	---	---	---	---	---	---	---	7.02	6.78	6.68	6.49
27	---	---	---	---	---	---	---	---	7.07	6.79	6.67	6.48
28	---	---	---	---	---	---	---	---	7.07	6.78	6.65	6.48
29	---	---	---	---	---	---	---	---	7.06	6.76	6.64	6.47
30	---	---	---	---	---	---	---	---	7.05	6.74	6.63	6.47
31	---	---	---	---	---	---	---	---	---	6.72	6.64	---
Mean	---	---	---	---	---	---	---	---	---	6.86	6.76	6.56
Max	---	---	---	---	---	---	---	---	---	7.04	6.89	6.72
Min	---	---	---	---	---	---	---	---	---	6.72	6.63	6.47
Med	---	---	---	---	---	---	---	---	---	6.84	6.77	6.53

473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued

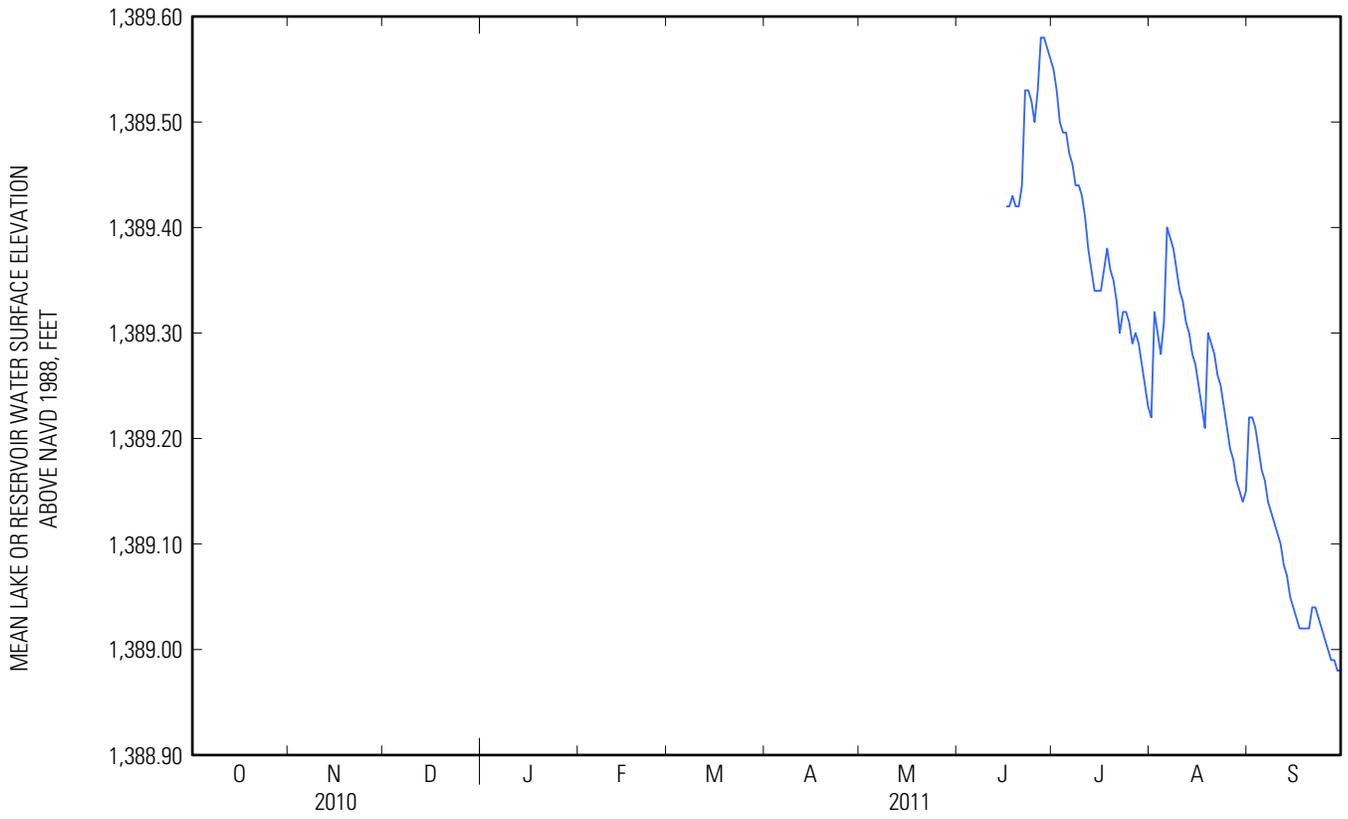


473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued

LAKE OR RESERVOIR WATER SURFACE ELEVATION ABOVE NAVD 1988, FEET
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	---	---	---	---	---	1,389.55	1,389.22	1,389.22
2	---	---	---	---	---	---	---	---	---	1,389.53	1,389.32	1,389.22
3	---	---	---	---	---	---	---	---	---	1,389.50	1,389.30	1,389.21
4	---	---	---	---	---	---	---	---	---	1,389.49	1,389.28	1,389.19
5	---	---	---	---	---	---	---	---	---	1,389.49	1,389.31	1,389.17
6	---	---	---	---	---	---	---	---	---	1,389.47	1,389.40	1,389.16
7	---	---	---	---	---	---	---	---	---	1,389.46	1,389.39	1,389.14
8	---	---	---	---	---	---	---	---	---	1,389.44	1,389.38	1,389.13
9	---	---	---	---	---	---	---	---	---	1,389.44	1,389.36	1,389.12
10	---	---	---	---	---	---	---	---	---	1,389.43	1,389.34	1,389.11
11	---	---	---	---	---	---	---	---	---	1,389.41	1,389.33	1,389.10
12	---	---	---	---	---	---	---	---	---	1,389.38	1,389.31	1,389.08
13	---	---	---	---	---	---	---	---	---	1,389.36	1,389.30	1,389.07
14	---	---	---	---	---	---	---	---	---	1,389.34	1,389.28	1,389.05
15	---	---	---	---	---	---	---	---	---	1,389.34	1,389.27	1,389.04
16	---	---	---	---	---	---	---	---	1,389.42	1,389.34	1,389.25	1,389.03
17	---	---	---	---	---	---	---	---	1,389.42	1,389.36	1,389.23	1,389.02
18	---	---	---	---	---	---	---	---	1,389.43	1,389.38	1,389.21	1,389.02
19	---	---	---	---	---	---	---	---	1,389.42	1,389.36	1,389.30	1,389.02
20	---	---	---	---	---	---	---	---	1,389.42	1,389.35	1,389.29	1,389.02
21	---	---	---	---	---	---	---	---	1,389.44	1,389.33	1,389.28	1,389.04
22	---	---	---	---	---	---	---	---	1,389.53	1,389.30	1,389.26	1,389.04
23	---	---	---	---	---	---	---	---	1,389.53	1,389.32	1,389.25	1,389.03
24	---	---	---	---	---	---	---	---	1,389.52	1,389.32	1,389.23	1,389.02
25	---	---	---	---	---	---	---	---	1,389.50	1,389.31	1,389.21	1,389.01
26	---	---	---	---	---	---	---	---	1,389.53	1,389.29	1,389.19	1,389.00
27	---	---	---	---	---	---	---	---	1,389.58	1,389.30	1,389.18	1,388.99
28	---	---	---	---	---	---	---	---	1,389.58	1,389.29	1,389.16	1,388.99
29	---	---	---	---	---	---	---	---	1,389.57	1,389.27	1,389.15	1,388.98
30	---	---	---	---	---	---	---	---	1,389.56	1,389.25	1,389.14	1,388.98
31	---	---	---	---	---	---	---	---	---	1,389.23	1,389.15	---
Mean	---	---	---	---	---	---	---	---	---	1,389.38	1,389.27	1,389.07
Max	---	---	---	---	---	---	---	---	---	1,389.55	1,389.40	1,389.22
Min	---	---	---	---	---	---	---	---	---	1,389.23	1,389.14	1,388.98
Med	---	---	---	---	---	---	---	---	---	1,389.36	1,389.28	1,389.04

473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued



473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water temperatures were recorded hourly during Jul. 15, 2003 at 19:00 CDT to Oct. 27, 2011 at 09:00 CDT.

PERIOD OF DAILY RECORD.--Daily-average water temperatures were recorded from Jun. 16, 2011 to Oct. 26, 2011.

INSTRUMENTATION.--Water temperature is measured with an OTT Orpheus Mini 0-4m pressure transducer internal thermistor. Water temperatures are accurate to plus-or-minus 0.5°C, but differences in temperature are accurate to 0.1°C. Water temperature measuring range capability of -25°C to 70°C, ice free. Record is currently uncalibrated while sufficient calibration data is being collected.

COOPERATION.--The unnamed lake gage is operated by the U.S. Geological Survey in cooperation with Enbridge Energy Limited Partnership, the Minnesota Pollution Control Agency, and Beltrami County.

REMARKS.--Unnamed Lake is located at the National Crude-Oil Spill Research Site near Bemidji, Minnesota. The land around this lake is all owned by Beltrami County. This lake has been used for many research purposes related to the the National Crude-Oil Spill Research Site.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum hourly, 28.9°C on Jul. 04, 2011 at 19:00 CDT, Jul. 05, 2011 at 18:00 CDT and Jul. 08, 2011 at 18:00 CDT; minimum hourly, 12.0°C on Sept. 22, 2011 at 10:00 CDT.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily-average, 27.9°C on Jul. 05, 2011; minimum daily-average, 13.0°C on Sept. 22, 2011.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum hourly, 28.9°C on Jul. 04, 2011 at 19:00 CDT, Jul. 05, 2011 at 18:00 CDT and Jul. 08, 2011 at 18:00 CDT; minimum hourly, 12.0°C on Sept. 22, 2011 at 10:00 CDT.

Maximum daily-average, 27.9°C on Jul. 05, 2011; minimum daily-average, 13.0°C on Sept. 22, 2011.

473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	---	---	---	---	---	---	---	---	---	25.9	27.0	21.9
2	---	---	---	---	---	---	---	---	---	26.1	27.1	22.5
3	---	---	---	---	---	---	---	---	---	26.0	26.8	21.9
4	---	---	---	---	---	---	---	---	---	27.3	27.2	20.0
5	---	---	---	---	---	---	---	---	---	27.9	27.3	19.4
6	---	---	---	---	---	---	---	---	---	27.3	26.0	19.6
7	---	---	---	---	---	---	---	---	---	27.6	24.9	20.1
8	---	---	---	---	---	---	---	---	---	27.8	24.9	21.0
9	---	---	---	---	---	---	---	---	---	27.3	24.0	22.1
10	---	---	---	---	---	---	---	---	---	27.4	23.3	22.4
11	---	---	---	---	---	---	---	---	---	26.8	23.7	22.7
12	---	---	---	---	---	---	---	---	---	25.3	23.8	22.7
13	---	---	---	---	---	---	---	---	---	24.3	23.9	20.1
14	---	---	---	---	---	---	---	---	---	23.5	24.6	16.6
15	---	---	---	---	---	---	---	---	---	23.3	25.1	14.9
16	---	---	---	---	---	---	---	---	19.7	25.1	25.0	14.5
17	---	---	---	---	---	---	---	---	20.1	25.9	24.3	13.7
18	---	---	---	---	---	---	---	---	20.5	26.4	24.5	13.5
19	---	---	---	---	---	---	---	---	21.4	27.1	24.5	14.0
20	---	---	---	---	---	---	---	---	21.0	26.9	23.4	14.6
21	---	---	---	---	---	---	---	---	19.4	27.1	22.5	13.7
22	---	---	---	---	---	---	---	---	18.0	27.4	22.8	13.0
23	---	---	---	---	---	---	---	---	17.9	25.5	24.0	13.1
24	---	---	---	---	---	---	---	---	19.0	24.8	24.2	13.4
25	---	---	---	---	---	---	---	---	21.0	26.2	23.9	14.0
26	---	---	---	---	---	---	---	---	21.7	26.0	24.3	14.3
27	---	---	---	---	---	---	---	---	21.2	25.4	23.6	14.9
28	---	---	---	---	---	---	---	---	20.7	26.2	23.2	15.5
29	---	---	---	---	---	---	---	---	22.5	26.9	23.4	15.8
30	---	---	---	---	---	---	---	---	24.2	26.7	23.4	14.6
31	---	---	---	---	---	---	---	---	---	26.8	22.0	---
Mean	---	---	---	---	---	---	---	---	---	26.3	24.5	17.4
Max	---	---	---	---	---	---	---	---	---	27.9	27.3	22.7
Min	---	---	---	---	---	---	---	---	---	23.3	22.0	13.0
Med	---	---	---	---	---	---	---	---	---	26.4	24.2	15.7

473428095050801 UNNAMED LAKE, WEST SIDE, SOUTHEAST OF PINEWOOD, MN—Continued

