

Mr. Patrick Lynch, Area Hydrologist
Metro Region of Waters
Department of Natural Resources
1200 Warner Road
St. Paul, Minnesota 5510-6793

April 20, 2006

Re: Outlet Operations for Upper and Lower Prior Lakes, Year 2005

Dear Mr. Lynch:

Here is the District's Annual Outlet Operations report.

If you have questions or need additional information, please contact us.

Sincerely,
Prior Lake-Spring Lake Watershed District

Jim Eggen
District Technician

Attachment: Outlet Operations for Upper and Lower Prior Lakes, Year 2005.

Cc w/ Attachment:

Tracy Cervenka, Recording Secretary – 7 copies.

Please distribute to the County Commissioners.

PLSLWD Board Members:

Bill Schmokel, Bill Kallberg, Larry Mueller, Roger Wahl, Craig Gontarek.
Shannon Lotthammer, District Administrator
Ed Matthiesen, District Engineer, Wenck Associates
Terry Schwalbe, Lower Minnesota River Watershed District
Frank Boyles, City Manager, City of Prior Lake
Mark McNeill, City Administrator, City of Shakopee
Bruce Loney, Public Works Director, City of Shakopee

outletletter05

Outlet Operations for Upper and Lower Prior Lakes, Year 2005

District staff inspected the Prior Lake outlet and channel on numerous occasions in 2005, particularly late in the year as the lake level rose and when water was actually discharged.

The outlet-channel system was determined to be in acceptable condition for the discharge of water in the amounts reasonably anticipated in the spring and summer. However, the lake remained relatively low through that time. It only became necessary to open the outlet in the fall. On October 5 the District sent the DNR and others a letter indicating that the outlet would likely be opened. On October 10 the District opened the outlet for the first time during the year. Prior Lake was 902.65 feet, its highest year-to-date level. The lake peaked at elevation 903.10 feet on October 18 and was at 902.72 at the end of the year.

Based on observations and measurements made in the outlet channel, a volume of 2,292 acre-feet of water was discharged from Prior Lakes during calendar year 2005. (Compare: 13 acre-feet in 2004, 5,921 acre-feet in 2003, 9,520 acre-feet in 2002, 8,692 acre-feet in 2001, and 80 acre-feet in 2000).

Refer to Attachment A for a schematic of the Prior Lake outlet structure. Attachment B summarizes the outlet operations for the year. There is an established flow-discharge relationship for the Prior Lake outlet, as shown in Attachment C. The table of attachment D and the graph of attachment E summarize Prior Lake levels, the operation of the outlet, and records of precipitation.

The surface flows to area lakes ran negligibly low in late summer due to modest precipitation. Then, lakes reached their peak elevations unusually late in the year. We know this to be the case in general given precipitation records and for Spring and Prior Lakes since they are monitored most closely. The recorded elevations Spring Lake are shown in the attached table and graph; refer to Attachment F.

The District received about 38 inches of precipitation during 2005. Attachment G and H summarize the precipitation. The year's precipitation is above the annual average of 29 inches. However a disproportionately large amount of the 2005 total occurred unusually late in the year.

After the autumn rains, the Prior Lake outlet was opened in October and was kept partially or fully open for most of the time through the end of the year. Upper Prior Lake became free of ice on April 4 and iced-over again on December 12.

- Attachments:
- A Prior Lake Outlet – Schematic
 - B Outlet Operations
 - C Flow Discharge Relationship
 - D Prior Lakes Staff Gauge Readings, table
 - E Prior Lakes Elevations, graph
 - F Spring Lake Elevations
 - G Summary of Precipitation for several Locations
 - H Precipitation Recorded at PLSWLD Office