

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

June 27, 2007

Re: Outlet Operations for Prior Lake, Year 2006

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: 2006 Outlet Operations for Prior Lake, its Outlet and Channel.

Cc w/ Attachment:

Tracy Cervenka, Recording Secretary – 7 copies.

Please distribute to the County Commissioners.

PLSLWD Board Members:

Bill Schmokel, Bill Kallberg Craig Gontarek, Larry Mueller, Roger Wahl.

Mike Kinney, 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

Greg Spoden, State Climatology Office, U of MN

outletletter06

Outlet Operations, Prior Lake, Year 2006

Prior Lake water was discharged through the outlet structure and channel during:

- 1) The first 13 days in the year (continued discharge from late 2005),
- 2) Several days in late March, and
- 3) March 30 until May 19 when the outlet was closed for the year. (During six days in April, the outlet was closed temporarily for a few hours per day to facilitate the District's downstream construction activities in the channel. Those construction activities are part of the on-going efforts to improve the outlet channel).

In late May, the level of Prior Lake declined below the permitted outlet elevation (902.5 ft). Therefore the outlet was closed at that time; it was not operated during the remainder of the year.

Under most circumstances, the District has some control of the Prior Lake elevation by discharging water from the artificial outlet, to the outlet channel, and northerly to the Minnesota River. (Prior Lake was a landlocked basin until the outlet became operational in the early 1980s).

Before and during operation in the spring, the outlet channel system was inspected and determined to be in acceptable condition for the discharge of water in the amounts reasonably anticipated. The elevations of Prior Lake became high enough (generally above 902.50 ft) early in the year to require that water be released. Based on field measurements and estimations, a volume of 4,331 acre-feet of water was discharged from Prior Lake during calendar year 2006. Annual discharge volumes are largely weather-dependent and are variable as noted below.

- 2,299 acre-feet, year 2005,
- 13 acre-feet, year 2004,
- 5,921 acre-feet, year 2003,
- 9,520 acre-feet, year 2002,
- 8,692 acre-feet, year 2001,
- 80 acre-feet, year 2000.

The channel also receives surface drainage along its 7-mile northerly course to the Minnesota River. Those added volumes are not included in the above-listed Prior Lake discharges. Most of that additional surface runoff to the channel originates outside of (north of) the jurisdictional boundary of the District.

The Prior Lake outlet structure is shown in attachment A. This structure was built in the early 1980s; the District is making plans to replace it. 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. Attachment F shows the recorded levels of Spring Lake; this second largest lake in the District drains into Prior Lake. There are nine other, smaller lakes in the District; seven of them drain ultimately to Prior Lake.

The District received about 27.7 inches of precipitation during 2006. Attachment G and H summarize measurements representative of the precipitation received. Precipitation is also shown on the Prior Lake levels graph of attachment E. The 2006 precipitation was below the annual average of 29 inches.

- Attachments:
- A. Prior Lake Outlet
 - B. Prior Lake Outlet Operations
 - C. Flow Discharge Relationship, Prior Lake
 - D. Prior Lake Elevation Recordings, with Precipitation.
 - E. Prior Lakes Elevations
 - F. Spring Lake Elevations
 - G. Summary of Precipitation for Several Locations within PLSLWD
 - H. Precipitation Recorded at PLSWLD Office