

East DL Outlet Pipeline Installation Complete

On Monday, Dec. 12, the final piece of the East Devils Lake outlet pipeline was installed (pictured). Additional welding work on the closure sections was completed that week, marking the end of that phase of the project. The final section of the pipeline involved several pieces of steel transition pipe that connected two concrete sections of the outlet.

In the beginning of October, Garney Construction began the pipeline installation portion of the outlet project. Over the course of only two and a half months, they installed about 19,000 feet of concrete and 8,040 feet of steel welded pipe – 5.1 miles total. Thanks to decent weather over the course of that fall, Garney was able to maintain their aggressive construction schedule.

Throughout the remainder of the winter, work will proceed on the intake and outfall portions of the outlet. If all phases of construction remain on schedule, the East Devils Lake outlet will be operational by June 2012.

When completed, the East Devils Lake outlet will be approximately 5.5 miles in length, from the southeast corner of East Devils Lake to Tolna Coulee. At the intake, one 50 cubic feet per second (cfs), and four 75 cfs pumps will move up to 350 cfs of Devils Lake floodwater.



The transition sections (above) and final connecting section (below) of the outlet pipeline are installed by Garvey Construction crew members.

The west and East Devils Lake outlets will have a combined operating capacity of 600 cfs. Together, the two outlet projects will be able to remove up to 200,000 acre-feet of water from Devils Lake over the course of a full seven-

month operating season if they are operated near maximum capacity. That amount of water, in addition to evaporation, could exceed the average (1993-2010) Devils Lake inflows of 247,000 acre-feet.

SWC Approves Funding for Valley City Buy-outs



Homes like this one along the banks of the Sheyenne River in Valley City will be bought with the help of cost-share assistance from the Water Commission.

At their Dec. 9 meeting in Bismarck, the North Dakota State Water Commission approved a \$3 million cost-share request from Valley City for floodway property buy-outs. The Commission's contribution will cover 75 percent of the total \$4 million cost of the first phase of this effort.

The purpose of the request was to allow the city to move forward with phase one of their buy-out program, which will allow the city to purchase 32 properties in flood-prone areas. Of those 32 properties along the river, 27 are single-family homes, four are apartment buildings, and one is commercial.

The phase one properties were selected due to their proximity to

the river's edge and the inferior levees that are built behind them – posing an added risk to public safety, adjacent neighborhoods, downtown businesses, and the Valley City State University campus.

Valley City has stated that by conducting this phase one buy-out effort, their dependence on sandbags and Hesco barriers would be almost eliminated during future floods.

Valley City plans to construct permanent flood control on these properties, making them ineligible for federal funding under the Hazard Mitigation Grant Program.

Acquisition of these properties will also clear areas for temporary flood control measures if needed, while the permanent flood control projects proceed.

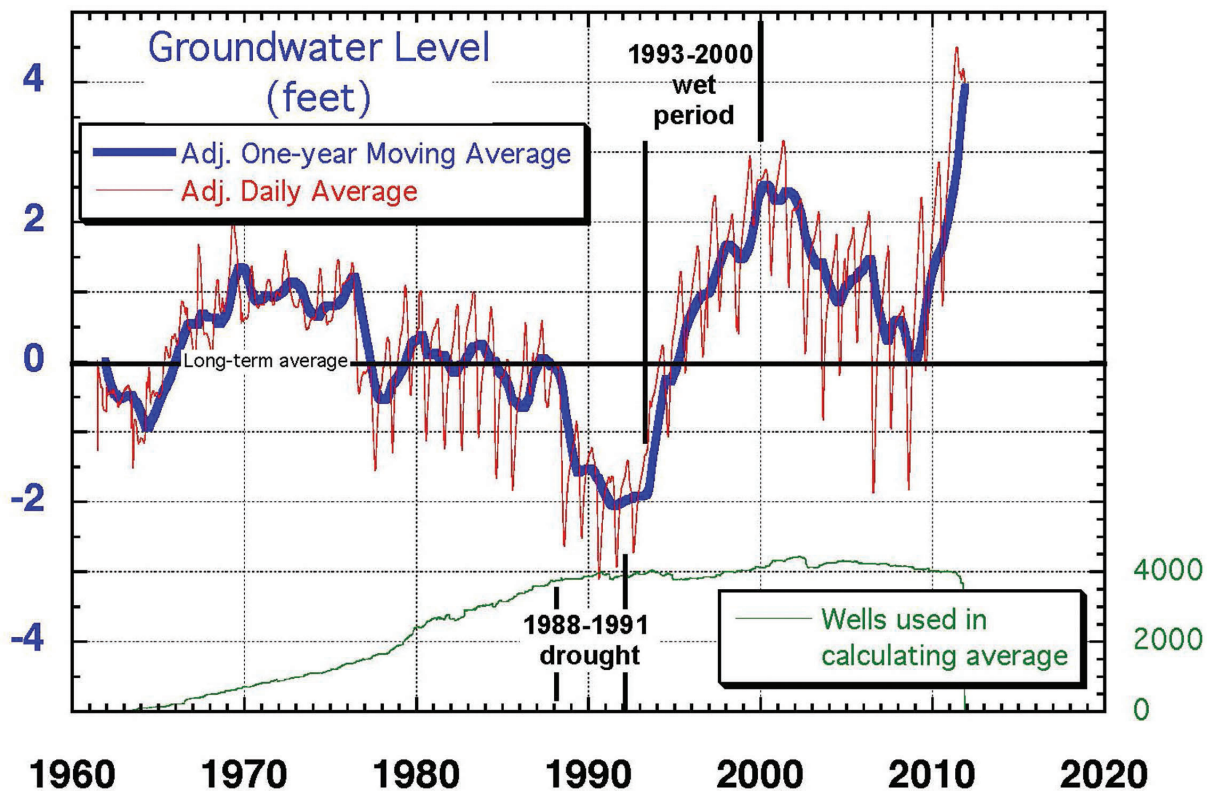


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SWC DEVELOPS Composite Hydrograph

Composite Hydrograph of Observation Wells State of North Dakota



Source: Jon Patch, Hydrologist, NDSWC

By Jon Patch

The Water Appropriation Division of the State Water Commission (SWC) monitors a network of over 4,000 sites (including observation wells, stream gages, and surface water sampling locations) to keep tabs on the water resource conditions throughout the state. This composite hydrograph merges every water level measurement stored in the SWC database to build a single hydrograph of groundwater level changes in the state as a whole.

The computer program that processes all the water level data for this composite hydrograph is designed so that it does not unfairly weight any specific well, no matter how long it was monitored, how often it was monitored, or the period of time it was monitored.

North Dakota's groundwater trends follow climatic cycles. Of particular note are the "wetter" periods in the mid to late 1960s, and from 1993 to 2000, as well as the "drier" period in 1988 to 1991. The recent downward trend since 2000 represents a return to more normal

precipitation amounts statewide. However, 2009 through 2011 were wetter than normal, and resulted in an average increase of over four feet in groundwater levels.

The daily average groundwater level at the end of 2011, nearly two feet higher than the 2010 peak, was the highest on record since widespread monitoring began in the 1960s.