

**DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS**

COMPLETE STATEMENT

OF

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BEFORE

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SUBCOMMITTEE ON WASTE, SUPERFUND AND OVERSIGHT
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UNITED STATES SENATE

ON

**Five Years from the Flood: Oversight of the Army Corps'
Management of the Missouri River and Suggestions for Improvement**

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Chairman Rounds, I am David Ponganis, Programs Director of the Northwestern Division of the U.S. Army Corps of Engineers (Corps). I am pleased to be here today to discuss the efforts of the Corps in the Missouri River basin to reduce the risk of flood damage during and after the Missouri River flood of 2011.

The Missouri River Mainstem Reservoir System is comprised of six multi-purpose dams and reservoirs, which include hydroelectric power plants and recreational areas; levees downstream along the main stem of the Missouri River (both federal and non-federal); and a 735-mile navigation channel extending from Sioux City, Iowa to the mouth near St. Louis, Missouri. The six dams on the mainstem of the Missouri River form the largest system of reservoirs in the United States.

The Corps is charged with responsibly managing this complex and extensive system for eight congressionally authorized purposes: flood control, navigation, hydropower, municipal and industrial water supply, water quality control, recreation, irrigation, and fish and wildlife. The Missouri River Master Manual is the Corps manual that guides the operating regime of the reservoirs under a wide range of water conditions (years of drought, years with flood conditions, and normal rain years) consistent with the authorized purposes. In addition, operation of the System must also comply with other applicable Federal statutory and regulatory requirements, including the Endangered Species Act.

Cycles of flooding and drought have always been a major part of the Missouri River Basin hydrology. The 2011 flooding was the result of unprecedented hydrologic events. Following a wet fall of 2010, heavy snow accumulated on the upper plains of Montana, Wyoming, North Dakota and South Dakota. Mountain snowpack, which was just slightly above average most of the winter, surged late in the season and peaked much above average in early May. But it was the unprecedented record rainfall in May and June over much of Montana, North Dakota and South Dakota that, when combined with runoff from the plains and mountain snowpack, resulted in the extraordinary flood event of 2011. Runoff above Sioux City, Iowa, totaled 62 million acre feet compared to the normal 25 million acre feet, more than double the average and the highest on record, requiring record releases from all six mainstem dams. Releases from Gavins Point Dam were maintained between 150,000 cubic feet per second (cfs) and 160,000 cfs from mid-June through mid-August, more than double the previous record release of 70,000 cfs.

While much damage occurred in the basin during this flood, the Missouri River Mainstem Reservoir System, including the federal and non-federal levees, along with the response actions taken by federal, state, and local agencies, and private citizens both before and during the flood, provided substantial benefits. Without them, the damages and safety risks would have been much greater. Important repairs have been completed since then. The Missouri River Mainstem Reservoir System continues to provide great benefits to the region and the nation.

During the Missouri River flood of 2011, the Corps expended approximately \$70 million on fortifying existing levees, building temporary levees, monitoring dam and levee safety and other activities, such as providing flood fight supplies to states and tribes, within Corps authorities under Public Law 84-99. These actions by the Omaha and Kansas City Districts of the Corps were highly effective in reducing flood damages along the main stem of the Missouri River.

Following the flood, the Corps initiated a variety of post-flood actions. These included: 1) both internal and independent external technical reviews of the water management operation, 2) an “after action review” of the flood fight response and, 3) a concerted effort to assess and repair the key features of the infrastructure that the Corps owns and operates on the Missouri River, and eligible non-federal levees under the Corps PL 84-99 program. In addition, we also participated in a review of our reservoir operations by the Government Accountability Office (GAO).

The Corps set up an external technical review panel to assess the Corps’ operation of the mainstem reservoir system prior to, during, and after the 2011 flood event for the purpose of gaining lessons learned and recommendations to improve future operations. The independent review panel recommended infrastructure investment to ensure that our flood release spillways and tunnels are ready for service and that our levees are in good condition. Consistent with this recommendation, the Corps has spent over \$580 million dollars since 2011 to repair federal and non-federal infrastructure on the Missouri River, including the dams, levees and channel structures. The bulk of these repairs were completed prior to the 2012 runoff season. However, some of the repairs, particularly for larger items such as the spillway structures and gates, are still underway.

The independent panel also recommended that the Corps conduct several studies on the operation of the Missouri River Mainstem Reservoir System. The 2011 flood was a historical event that provided a new “data point” to incorporate into the tools used to predict, monitor and manage this system. The Corps has updated numerous internal technical reports and has partnered with NOAA on three additional reports. These include an attribution study of the 2011 flood; an evaluation of the feasibility of managing the reservoir system for anticipated wet and dry cycles; and a study that is looking at changes in the basin climatology and hydrology since the 1970’s. One of the highest priorities of the Corps is to collaborate with other Federal agencies that produce water supply forecasts and to incorporate information and lessons learned from the 2011 flood event into the models and tools we use to manage Missouri River operations.

Post 2011 flood, the Corps has worked with the National Weather Service (NWS), the Natural Resource Conservation Service (NRCS) and the states to share existing data, and have developed a proposal for a comprehensive plains snowpack and soil moisture monitoring network for the upper plains.

Since the 2011 flood, the Corps has also greatly enhanced its coordination with Tribes, state and local government officials and other agencies during periods of heightened

flood risk including monthly basin update calls leading up to and during the peak runoff season to ensure awareness and two way communication of potential flood risk. These calls include direct input from the National Weather Service and are recorded and available online through the Corps web site.

In September 2014, the GAO issued a report on its review of the Corps water release decisions and communication during the 2011 flood and the 2012 drought. As part of this review, the GAO worked with the National Academy of Sciences and convened a meeting of nine experts to discuss the Corps' data, forecasts and release decisions. These experts concluded that the Corps took appropriate action during the 2011 flood and 2012 drought given the circumstances, but recommended that the Corps evaluate the pros and cons of incorporating new forecasting techniques into its management of the Missouri River reservoirs. That evaluation is ongoing and is expected to be completed later this summer.

We are hopeful that improvements in runoff forecasting and sharing of critical data will provide even greater lead time for flood events resulting from high plains and mountain snowpack, although they will have little impact on the more typical rainfall-driven flooding which is most common in the lower basin. The Corps is also communicating more frequently and more broadly with federal, state, county and local officials, Tribes, emergency management officials, independent experts and the media to discuss conditions on the ground and current Corps' reservoir release plans and forecasts.

This concludes my testimony. Thank you for allowing me to testify about the flooding in 2011 and future operation of the Missouri River Mainstem Reservoir System. I would be happy to answer any questions you may have.