



The looming dam failure of 2011

MONTANA OFFICE OF TOURISM

The Fort Peck Dam in Montana. With unprecedented flooding in the upper Midwest this spring, some people are concerned about the dam's stability.

Flooding • An upstream dam failure along the Missouri River would wreak chaos, including in St. Louis.

BY BERNARD SHANKS

There is very real threat of a flood that will leave St. Louis in chest-high water. The reason: Six old, huge, faulty dams that normally have reserve space for spring snow melt are nearly full now — before the spring floods start. Floodgates that haven't been opened in 50 years have begun to open. Flooding has begun. And the human and economic toll could be ghastly.

Why another flood disaster? Six dams from Fort Peck in Montana to Gavins Point in South Dakota, authorized by the Flood Control Act of 1944, are in the process of failing at flood control. With spring water levels low, they can hold back more than three years of average Missouri River flow — enough to stop the worst floods and protect 750 miles of the Missouri River valley and heartland cities. This year, that is not the case.

Let me give you a sense of scale. These reservoirs are massive. Four of the nation's 10 largest reservoirs are along the Missouri River — Fort Peck, Fort Randall, Garrison and Oahe. Three of these had less than five feet of total storage space behind the floodgates at the end of May. With a combined height of 700 feet, these three dams are nearly full. Melting snow surely will complete the task.

With cities from Wolf Point, Mont., to St. Louis facing record levels of water, hundreds of thousands of people are threatened by the unprecedented opening of floodgates. The greatest fear is the massive Fort Peck Dam, a hydraulic-fill dam that is the largest of its kind.

The Fort Peck Dam is built with a flawed design that has suffered a well-known fate for this type of dam — liquefaction — in which saturated soil loses its stability. Hydraulic-fill dams are prone to almost instant collapse from stress or earthquakes. California required all hydraulic-fill dams be torn out or rebuilt — and no other large dams have been built this way since.

At three miles wide, Fort Peck Dam last opened its floodgates 36 years ago. By the end of the first week in June, the U.S. Army Corps of Engineers will be releasing a record spill of water. The corps recently answered the question of possible failure with a statement the dam is “absolutely safe.” It may be the largest at-risk dam in the nation.

Downstream, Garrison Dam never has had to use its floodgates since the dam was constructed 50 years ago. By mid-June, the corps plans to dump water equal to a good-sized river. The same is true for Oahe Dam, the next one downstream. Since the reservoirs are nearly full, the corps has no choice.

Effective flood control from six large dams is no longer an option. As a corps representative said, “It now moves us into uncharted territory.”

We must all pose a question of national significance to the corps: What if Fort Peck Dam should fail?

Here is a likely scenario: Garrison, Oahe and three



LARRY MAVER • AP

The Musselshell River floods homes and farms near Martinsdale, Mont., late last month.

other downstream earthen dams would have to catch and hold a massive amount of water, an area covering nearly 250 square miles 100 feet deep. But earthen dams, when overtopped with floodwater, do not stand. They break and erode away, usually within an hour. All are full.

There is a possibility a failure of Fort Peck Dam could lead to a domino-like collapse of all five downstream dams. It probably would wreck every bridge, highway, pipeline and power line and split the heartland of the nation, leaving a gap 1,500 miles wide. Countless sewage treatment plants, toxic waste sites and even Superfund sites would be flushed downstream. The death toll and blow to our economy would be ghastly.

Years after Katrina and the New Orleans levee breaks, professional engineers and a federal court judge ruled the Corps of Engineers was to blame.

Are we once again at the brink of a massive corps failure? The corps is infamous for management errors, caving to commercial pressure and losing sight of its primary mission. This pending threat is so huge that it is gambling with the nation's security.

The corps is placing the nation at risk, and if the dams fail, Leon Panetta, who will become secretary of Defense later this month, will have the great Missouri Flood Disaster on his desk. And the entire nation will demand answers as to why the U.S. Army Corps of Engineers did not avert disaster with more economically and ecologically sound methods of flood prevention.

Bernard Shanks, an adviser to the Resource Renewal Institute, has studied the six main-stem Missouri River dams for more than four decades. He has worked for the U.S. Geological Survey and served as director of the Washington Department of Fish and Wildlife. He has written three books on public land policy and is completing a book on the hazards of the Missouri River dams.