

**Wilson, George**

**From:** (b)(6) Per request of U.S. Army Corps of Engineers  
**Sent:** Monday, January 30, 2012 12:13 PM  
**To:** Wilson, George  
**Cc:** (b)(6) Per request of U.S. Army Corps of Engineers  
**Subject:** RE: Info in GI 204 related to Corps - Draft Official Use Only (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Mr. Wilson,

I have reviewed your memo below pertaining to Fort Calhoun Station along the Missouri River north of Omaha, and I have the following comments pertaining to the water levels shown in your memo:

- 1) The FEMA estimates for 100-year and 500-year flood elevations appear to be correct, assuming elevations are referenced to NGVD29. However, USACE estimates for the 100-year and 500-year flood elevations are (b)(5) respectively, as found in the Upper Mississippi River System Flow Frequency Study published in January 2004;
- 2) The estimate of a flood elevation of (b)(5) for a PMF downstream of the Missouri River mainstem dams appears to be correct. However, a spillway design flood (roughly the equivalent of a PMF upstream of Gavins Point Dam) passing through Gavins Point Dam results in a flood elevation of (b)(5) at Fort Calhoun Station;
- 3) The failure of Ft. Randall dam concurrent with events giving rise to a PMF at the site would result in flood elevations ranging from (b)(5) depending on what the Fort Randall pool is at time of failure, rather than a single elevation of (b)(5). Any failure of Fort Randall Dam would also assume failure of Gavins Point Dam due to the depth and duration of flooding resulting from a Fort Randall Dam failure;
- 4) The failure of Oahe Dam concurrent with events giving rise to a PMF at the site would result in a flood elevation in excess of (b)(5) for normal Oahe pool levels. Any failure of Oahe Dam would also assume the failure of Big Bend, Fort Randall and Gavin Point dams due to the extreme depth and duration of flooding resulting from an Oahe Dam failure; and
- 5) The failure of Oahe Dam, coupled with subsequent failure of Big Bend, Fort Randall and Gavins Point dams, would result in a flood elevation of approximately (b)(5) at Fort Calhoun Station, assuming the Oahe pool is at top of spillway gates or higher at time of failure.

All of the above elevations are given in NGVD29; if elevations are desired in NAVD88, the above elevations should be increased by approximately (b)(5). Our most recent hydraulic modeling of dam failures on the Missouri River was completed in 2009, while the elevations contained in your memo appear to be from a study done in 1985; the results of the 2009 modeling should be considered to supersede any previous dam failure studies along the Missouri River.

George Wilson  
Branch Chief  
USNRC  
Office of Nuclear Reactor Regulation  
Division of Operating Reactor Licensing  
Plant Licensing Branch LPL1-1  
301-415-1711

It should be noted that for any flood elevations for an event exclusive of dam failure, the hydraulic modeling upon which the elevations above are based does not assume any flood fight efforts by locals upstream and downstream of Fort Calhoun Station. Based on the 2011 Missouri River flood, this may not be a valid assumption and the resulting flood elevations may be 1 to 2 (or more) feet higher than shown above; however, detailed hydraulic modeling has not been done to evaluate this scenario.

All of the above information is to be considered FOUO. If you have any questions pertaining to my comments above, I may be reached as shown below.

(b)(6) Per request of U.S. Army Corps of Engineers

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(b)(6) Per request of U.S. Army Corps of Engineers

U.S. Army Corps of Engineers  
1615 Capital Ave, Suite 9000  
Omaha, NE 68102-9000

W: (b)(6) Per request of U.S. Army Corps of Engineers

BB: (b)(6) Per request of U.S. Army Corps of Engineers

-----Original Message-----

From: (b)(6) Per request of U.S. Army Corps of Engineers

Sent: Friday, January 27, 2012 3:23 PM

To: (b)(6) Per request of U.S. Army Corps of Engineers

Cc: (b)(6) Per request of U.S. Army Corps of Engineers

Subject: FW: Info in GI 204 related to Corps - Draft ~~Official Use Only~~ (UNCLASSIFIED)  
Importance: High

Classification: UNCLASSIFIED

Caveats: NONE

-----Original Message--

From: (b)(6) Per request of U.S. Army Corps of Engineers

Sent: Friday, January 27, 2012 3:01 PM

To: (b)(6)

Per request of U.S. Army Corps of Engineers

Cc:

Subject: FW: Info in GI 204 related to Corps - Draft ~~Official Use Only~~ (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Very short suspense. Please provide the requested info by Monday, 30 Jan. Thanks

(b)(6) Per request of U.S. Army Corps of Engineers

Northwestern Division, U.S. Army Corps of Engineers

Phone: (b)(6)

Per request of U.S. Army Corps of Engineers

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