

Missouri River Mainstem Reservoir System Summary of September 2010 Flood Meetings

Two public meetings regarding the summer 2010 flooding were held in Missouri on September 21, 2010. The purpose of the meetings was to inform stakeholders on the regulation of the mainstem system during the flood event and to provide the affected public with an opportunity to ask questions and make comments related to the Corps' summer flood response. A copy of the press release announcing the meetings is included as Attachment 1; the meeting presentation is included as Attachment 2.

Corps of Engineer attendees included Jody Farhat, Chief of Missouri River Basin Water Management; Kevin Grode, Reservoir Regulation team leader; Monique Farmer, NWO Acting Chief of Public Affairs; Willem Helms, NWK Acting Chief of Emergency Management; Cliff Sanders, NWK Non-Federal Levee Inspector; Glen Bellew, NWK Federal Levee Inspector; and Scott Vollink, NWK Levee Safety Program Manager.

Meetings were held at 9 a.m. in Columbia, Missouri and 7 p.m. in Oregon (Holt County) Missouri. Prior to the evening meeting the Holt County Assessor, Carla Markt, took Jody, Kevin and Monique on a tour of the affected area in Holt County including the Idecker levee breach and the Big Lake community. Marshall White, a reporter from the St. Joseph (Missouri) News Press also participated in the tour. The news article he wrote regarding the meeting is included as Attachment 3.

Approximately twenty stakeholders attended the meeting in Columbia including representatives from the offices of Senator Claire McCaskill, and Congressman Blaine Luetkemeyer. Approximately 60 stakeholders attended the meeting in Oregon including a representative from Congressman Sam Grave's office and Missouri State Representative Mike Thomson.

The purpose of the presentation was to inform the attendees about system regulation during the spring and summer of 2010 and to reduce the amount of misinformation circulating in the local area. In particular information was provided regarding releases from Gavins Point (a small percentage of the total flow in the Missouri River), the amount of available flood control storage in Gavins (very little), the available system flood storage at the beginning of the runoff season (all available, plus additional storage in Fort Peck) and the runoff from mountain snowpack (forecasted to be below normal as late as mid-April).

Following each presentation, the floor was opened for questions and answers. The questions/comments generally fell into three categories - water management system operations, levee repair and channel maintenance, and communication. A list of issues for each category is provided below:

Water Management

- There is a need for more flood control storage in the reservoir system, only 22 percent of the total system storage is available for flood control.

- Increasing the volume of flood control storage was considered during the 14-year Master Manual update process. It was determined, based on adverse impacts to the other authorized purposes, that maintaining the originally designed flood control storage space was the most prudent. The Missouri River Authorized Purposes Study (MRAPS) currently underway is an appropriate avenue for the public to possibly change how flood control storage would be considered.
- Flood control should take highest priority in regulation decisions.
 - Flood Control was given top priority this year; however the Corps is still required to support all authorized purposes.
- Releases from Fort Peck should have been reduced to provide additional flood control downstream.
 - The reason additional flood control storage was available at Fort Peck was because that reservoir had yet to recover from the 8-year drought. Releases from that reservoir have been maintained at the minimum level to serve water supply and irrigation below the project for the past 2+ years. Fort Peck is the uppermost project and water can only be "moved" to this project by limiting releases. Although flood control and navigation are dominant purposes, the Corps is still required to support the other authorized purposes. Regardless, those minimum releases were captured by Garrison reservoir. Garrison releases were also the set at the minimum to meet the water supply needs downstream of that project. The result being is that releases from Fort Peck made no impact to the releases made from Gavins Point Dam.
- Who makes regulation decisions?
 - The Water Management staff makes the day-to-day operational decisions regarding the reservoir system with input from many others during critical periods.
- What is the role of FEMA in reservoir regulation?
 - FEMA is not involved in reservoir regulation decisions, however they were included in daily flood briefing for coordination of efforts
- Gavins Point spring pulse should be cancelled next year.
 - The Master Manual criteria will be used to determine whether or not a spring pulse will be conducted next spring. The criteria consider downstream conditions.
- The Corps needs to re-look reservoir regulation due to changes in runoff characteristics in basin due to urbanization and farm field tiling.
 - This theory could be examined within the MRAPS study.
- Farmer's Almanac predicted a wet year, the Corps should use this type of information in regulation plans.
 - Regulation decisions are based on existing conditions in accordance with the Master Manual.
- Has regulation of the reservoir system changed due to construction of mitigation sites?
 - No. The regulation of the system is not based on any criteria related to mitigation sites.

- Did regulation of the system for terns and plovers contribute to flooding?
 - Regulation of the system for terns and plovers did not contribute to flooding below Gavins Point dam. We did, however, hold off on reaching the full evacuation rate until the last of the terns and plovers fledged below Gavins Point. The same is true at Garrison. These actions did not contribute to this summer's flooding.
- Evacuation of reservoir system should be delayed to allow for interior drainage, levee inspection, levee repair, and pump installation in one area.
 - At the peak, over 9 million acre-feet of water needed to be evacuated from the system prior to the start of next year's runoff season. Delaying the evacuation has the result of increasing the evacuation rate later in the season. At the current planned evacuation rate, interior drainage will be available throughout the fall provided precipitation patterns return to more normal conditions. If we delay the evacuation and move to a higher evacuation rate, interior drainage will not be possible until flows drop to the winter release rate.
- What are the stage forecasts for various locations this fall – assuming it stops raining?
 - River stage forecasts were provided for several locations for the next couple months as well as stages once the Gavins releases are lowered in early December to winter releases.
- When will the stages reach the winter level?
 - A 10-day extension to the navigation season will be provided. Therefore release reductions will not begin until early December and it will be mid-to late-December before the full reduction is seen on the lower river.
- Flood damages in Holt County were presented.
 - This year's flooding inundated 43,000 acres and another 17,000 acres were flooded with surface water. Holt County also sustained large property losses in Big Lake. Other losses were incurred to tourism, the railroad, rural homes, roads and bridges, and levees.
- How big a staff do you have, and how experienced are they?
 - Water Management staff in Omaha is 13 people including 8 engineers, 1 information technology specialist, 1 biologist, 1 technician, 1 budget analyst and a secretary. Most staff members have more than 15 years experience.
- Did we learn anything that would change next year's regulation?
 - We will be proposing changes to the reservoir unbalancing criteria to avoid starting a runoff season with 3 feet of water in the flood control pool at Oahe. Unbalancing could provide a similar benefit to fish and wildlife if done in the conservation pool rather than the flood control pool.
- How much of the flow comes from the reservoirs and how much is from uncontrolled areas?
 - The reservoir system controls runoff from approximately half of the total drainage basin. At the peak of the flooding, releases from the reservoirs constituted 10 to 15 percent of the total flow in the Missouri River.
- A map is needed that shows the drainage areas controlled by the reservoir system.

- We will add that to future presentations
- When will the Summary of 2009 Operations be released?
 - In late September 2010
- What were the stage reductions and damages prevented by the mainstem system?
 - Stage reductions and damages prevented will be available later this fall, hopefully by the AOP meetings in October.
- Why does it take 3 congressionals and the governor calling the General to get a reduction in reservoir releases?
 - Release decisions are made based on the ever-changing conditions on the ground. The involvement of Division and District leadership can be expected during critical conditions. Release decisions are always made with the intension of providing the best balance of risk both upstream and downstream.
- More water should be evacuated during the winter rather than fall.
 - Higher winter releases increase the likelihood of ice-induced flooding, not so much in the reach below Gavins Point, but in reaches below several of the other projects whose releases are necessary to back up Gavins Point releases.
- Where does ice-induced flooding occur?
 - Ice induced flooding is an issue in the reach below Garrison, Oahe and Fort Randall dams. Releases from these projects are often restricted to reduce the likelihood of ice-induced flooding.
- What is the plan for release of AOP and AOP fall public meetings?
 - The draft AOP will be released this week (Sept 22) and the public meetings are scheduled for Oct. 19-21.
- What the Corps and the Service call “connectivity” is called “flooding” in Missouri
 - Noted.

Levee Repair and Channel Maintenance

- Channel maintenance has been reduced in recent years, rock placement is 10 feet lower than previous levels,
 - River engineers must make the best use of limited Operations and Maintenance (O&M) funds. This may necessitate less bank protection in some areas compared to previous years.
- Is the O&M tail of the mitigation projects taking money away from channel maintenance in other areas?
 - It has the potential to do that in future years, has not been the primary issue to date.
- How long does it take to get approvals for levee repairs?
 - It can take up to 6 months, but efforts are being made to expedite the process.
- When will the repair work be completed?
 - It is the Corps’ intention to have the repairs completed before flood season next year.

- Explain difference between Federal levees and private levees.
 - Federal levees are flood control structures built and maintained by either the Corps or a local sponsor. Private levees are built and maintained by a local sponsor.
- What is the PL84-99 Rehabilitation and Inspection Program?
 - Private levees in the PL84-99 program must meet specified engineering standards for operation and maintenance. If a levee in the program is damaged during a flood event, Federal funds can be used to repair the damage.
- Explain difference between primary and secondary levees.
 - Primary levees protect major damage areas including cities, towns and important infrastructure. Secondary levees may be constructed between the primary levee and the river to provide a lower level of protection to other areas, particularly agricultural lands.
- Explain how levees get into PL84-99 program.
 - Levees must be inspected and meet the Corps' engineering standards to be considered for the PL84-99 program. Levees in the program must be operated and maintained in accordance with specified Corps standards to remain in the program.
- If a levee dropped out of the PL84-99 program, is there any way to get Federal funds to cover the repairs?
 - Only levees that were in the program at the time of the flood event are eligible for Federal funding to cover the repairs.
- What impact does channel aggradation/degradation have on levees in various reaches?
 - Water Management's "Missouri River Stage Trends" report, which is updated every other year and is available on our website, shows trends in channel capacity for locations along the river. To date, the Corps has not studied the impacts of channel changes on private levee systems.
- Who pays for additional level of protection added to levee?
 - If damaged in a flood event, Federal levees would be returned to the authorized level of protection. Federal funds may be used to repair levees in the PL84-99 program to their pre-flood condition. The cost of any improvements beyond the pre-flood level would be borne by the local sponsors.
- How has the level of protection changed since the levees were constructed?
 - Federal levees generally provide more protection today than when they were built due to the construction of the reservoir systems.
- Who is in charge of inspecting Federal levees?
 - The Corps inspects Federal levees.

Communication

- Press releases weren't consistent with regards to whether or not release changes would impact stages downstream.
 - Due to the long travel time from Gavins Point Dam to the Rulo-St. Joseph area, which is on the order of 4 to 5 days, the release reductions that were

made from Gavins Point Dam during the flood event did not reduce peak stages, but did speed the decline in river levels following the crest. When releases were subsequently increased, they were timed to coincide with the decline of tributary streams to avoid causing an increase in the peak stages at all locations.

- How does the Corps communicate with stakeholders?
 - The Corps communicates with stakeholders via our website and through email press releases and public meetings. During the flood event, conference calls were also held with other Federal, state and local officials to keep them informed of river, reservoir and levee conditions.
- How can folks get on the email distribution list?
 - Folks can be added to our email distribution list by providing us their email address at a public meeting or by using the “Contact Us” link on our website.
- What is the website address?
 - Our website is at <http://www.nwd-mr.usace.army.mil/rcc/> or you can Google “Corps Missouri River” and select the first item on the resulting list of sites.

Other

- Who manages the Columbia Bottoms mitigation area?
 - The Missouri Department of Conservation. For more information, see their website at <http://mdc.mo.gov/regions/st-louis/columbia-bottom>
- Why did Corps prohibit the railroad from putting drainage structures through the railroad embankment near Big Lake?
 - JSF followed up on this question. Omaha District Hydrologic Engineering Branch found no record of any review of drainage structures through the railroad embankment in the previous 10 years.
- Suspicion that we intentionally flood property along the river to create an atmosphere for willing sellers for the Missouri River Recovery Program.
 - The Corps would never and has never intentionally flood property to create an atmosphere for willing sellers.
- Corps contractor called requesting information on properties along the river during flood and just prior to BG McMahon’s editorial stating that “the system is operating as designed”.
 - This was purely coincident. The Missouri River Recovery Program purchases land along the river from willing sellers for mitigation projects, however the Corp would never intentionally flood property to create an atmosphere for willing sellers. BG McMahon’s statement that “the system is operating as designed” was referring to the tremendous flood protection that was being provided by the Federal flood protection projects including the reservoirs and levee system.
- How can stakeholders have input into the MRAPS study process?
 - The MRAPS study is still in the very early stages. Interested stakeholders can get more information and sign up for the MRAPS email list by going to the study website at <http://mraps.org>

- When will the National Academy of Sciences (NAS) sediment study be released?
 - The study will be released on Tuesday Sept 28, 2010.