FREQUENTLY ASKED QUESTIONS RELATED TO HURRICANE HARVEY AND LAKE CONROE DAM

Q. How do I get information related to evacuations and/or road closures in my area?

A. For Montgomery County, visit www.mctxoem.org for general information. From this page, you can click on the large red banner at the top labeled "Montgomery County Smart 911" and register to receive text alerts from the Montgomery County Emergency Communication District. You can also visit www.gis.mctx.org for a map showing high water locations, live stream gauges, and other public safety information. Finally, Montgomery County has a Smartphone app available. Search the "app store" for ReadyMCTX to download the app.

A. For Harris County, visit www.traffic.houstontranstar.org or www.houstonemergency.org for general information. To receive emergency text alerts, please visit www.houstonemergency.org/alerts/. There are several options to sign up for alerts in Harris County or the City of Houston. The Harris County Flood Control District's mapping application can be found at www.hcfcd.org/interactive-mapping-tools/. Harris County has a Smartphone app available. Search the "app store" for ReadyHarris.

Q. How is the public informed when flooding is imminent?

A. During emergency operations, SJRA communicates information regarding its releases to a number of local emergency and law enforcement organizations who are responsible for notifying the public and managing any evacuations. These organizations include the National Weather Service, the Emergency Management Offices for Montgomery and Harris counties, and the Conroe Police and Fire Departments. Montgomery County residents can visit www.mctxoem.org to register for text alerts via Montgomery County Smart 911. Montgomery County also has a Smartphone app available. Search the "app store" for ReadyMCTX.

Q. How do I find specific information about river levels at my location downstream of the Lake Conroe dam?

A. The National Weather Service hosts a website that provides river level forecasts at selected sites on many rivers and streams. http://water.weather.gov/ahps2/index.php?wfo=hgx

Q. Water is coming up to my back door. What should I do?

A. If you feel your life is in immediate danger, leave your home as soon as possible. If you are unable to leave your home on your own, call 911 or the non-emergency line for the Montgomery County Sherriff's Department, 936-760-5800. If water is in your house, never go into your attic. You could be trapped by rising water and not visible to first responders. Emergency officials recommend retreating to your roof, if possible.

Q. What is the normal level of the lake? How high can the water get?

A. The normal lake level is 201' MSL (mean sea level). SJRA has a flowage easement that allows raising the lake level up to six feet over normal pool level during extreme storm events, which is a level of 207' MSL. This gives SJRA's reservoir operators a buffer zone within which to manage storm events. The top of the dam is at 212' MSL, and although the water level could physically exceed 207' for short periods of time without threatening the structural integrity of the dam, the operational protocol for the dam is designed with the water level below the 207' MSL flowage easement.

Q. What is the 207' MSL flowage easement?

A. When the dam was built in 1973, the SJRA acquired a flowage easement around the perimeter of the lake that allows the lake to be raised six feet up to an elevation of 207' MSL during storm events. This easement is recorded in the county deed records to notify landowners that any structures below this elevation are subject to being flooded.

Q. What is the maximum amount that can be released from the dam at one time?

A. The spillway gates are rated to handle a peak release in excess of 150,000 cubic feet per second (cfs) during an extreme storm event. Go to www.sjra.net to the General Information tab on the Lake Conroe website to locate facts and figures related to the Lake Conroe dam and reservoir. You can also access real-time lake release and level updates on our Home Page.

Q. Why didn't you just let more water out of the dam faster during the storm?

A. Harvey's incredible rainfall (over 20 inches in the Lake Conroe watershed) caused a peak inflow of approximately 130,000 cfs, and during the event, the peak release from the dam was 79,000 cfs. Even though the dam is CAPABLE of releasing more than that amount of water, the reservoir is designed to operate so that peak releases from the dam can always remain LOWER than the peak inflows coming into the lake by temporarily allowing the water level to rise within the six foot flowage easement to minimize risk to life and property on both sides of the dam.

Q. How does Lake Conroe affect downstream flooding?

A. Lake Conroe actually reduces downstream flooding by reducing the peak flow that would otherwise flow down the West Fork of the San Jacinto River. During a storm event, the releases from Lake Conroe are kept at a significantly lower rate than the peak rate of inflows coming into the lake. If the dam had not been built, the peak flows in the river would continue downstream unabated the way they do in the other watersheds that feed into the West Fork. Even though it was not designed for flood control, the Lake Conroe dam has significantly REDUCED downstream flooding for every major storm in the watershed since it was constructed in 1973. The following link shows a map of peak flows during

Hurricane Harvey: http://www.sjra.net/wp-content/uploads/2017/08/Hurricane-Harvey-Peak-Inflows-083017.pdf

Q. Can't SJRA just hold the water back and not release it from the lake?

A. No. SJRA operators have limited discretion in how they operate the spillway gates and are not able to simply "let the lake rise" to further reduce downstream flows. There is only about 18 inches of "freeboard" between the top of the spillway gates and the water level at normal lake level. Freeboard is the distance between the water line and the point at which the water would overflow the gate. Operators cannot allow the water to overtop the gates because they are not designed to sustain that type of force. Therefore, the gates must be raised as the lake level rises to allow water to flow from under the gates. The following photograph shows the limited "freeboard" at normal lake level.

Q. What determines how SJRA operates its gates?

A. The main two goals of SJRA's gate operations are (i) to protect the spillway gates and the dam's earthen embankment, and (ii) to ensure that the peak flowrate released from the dam is always LOWER than the peak inflow coming into the lake. In terms of protecting the spillway gates, it is important that water not be allowed to flow over the top of the spillway gates. As the lake level rises, the gates must be raised so that excess storm flows can be passed under the gates. In terms of peak flowrates, during the Hurricane Harvey event, the peak flowrate coming into Lake Conroe was approximately 130,000 cfs. The peak release rate going out of the dam was 79,100 cfs. This means that Lake Conroe reduced the amount of flow that would have gone down the river by about 40 percent while keeping the water level in the lake within the six-foot flowage easement.

Q. Why didn't SJRA just pre-release water before the storm to make more room to catch the water coming into the lake?

A. The San Jacinto River Authority never pre-releases water from Lake Conroe prior to a storm event for numerous reasons (the same reasons cited by State of Texas dam safety officials in their

recommendation against pre-releasing). First, in order to pre-release water at a reasonably safe rate (so that it doesn't cause flooding downstream), it would take weeks to accomplish enough drop in lake level to have any hope of buffering a major storm event. Forecasts aren't accurate enough that far in advance to make reasonable decisions about a major release of water. Second, if we did try to pre-release in advance of a storm, we would be artificially filling the river downstream and adding water to Lake Houston. If the subsequent heavy rains fell in other watersheds (which is highly likely given the relatively small size of Lake Conroe's watershed), then we would have pre-filled the west fork of the San Jacinto River and Lake Houston, which could exacerbate downstream flooding problems. Third, if we pre-released and ended up not receiving significant rainfall in our watershed, then we would have drained critical supplies of stored water from Lake Conroe. Meteorologists simply cannot precisely predict how much and exactly where it is going to rain with enough notice (several weeks) to allow a safe pre-release from a reservoir. Fourth, the soils in the dam below the normal water line of 201' MSL are fully saturated with water, and if the lake level was lowered below 201' MSL too quickly, the reduction of water pressure against the face of the dam could cause instability of the soils on the upstream slope. Finally, the general policy in this country is that dam operations pass floodwaters through a dam in an amount equal to or less than the inflow into the reservoir. For this reason, dam operators strictly adhere to gate operating protocols designed by their engineers to accomplish this objective, and pre-releasing is inconsistent with those protocols for the reasons stated above.

Q. How long do you continue to release water following a storm event?

A. During and after storm events, we will continue to release until the reservoir returns to the normal pool level of 201' MSL. Depending on weather conditions, this could take weeks. As the lake level drops, releases from the dam are decreased accordingly, taking into account inflows that continue to drain into the lake from surrounding areas.

Q. Is there a lake elevation above which Lake Conroe is closed?

A. There is no formal threshold elevation for determining lake closures. However, at approximately 203' MSL, submerged obstacles, increased levels of floating debris, and other navigational hazards render the lake generally unsafe to motorized boating activities. The decision to close the lake ultimately rests with the SJRA.

Q. When will Lake Conroe crest and what will be the maximum elevation?

A. It is not possible to precisely determine when Lake Conroe will crest during a storm event. Many variables are involved, which make estimating difficult. These include but are not limited to: rate and duration of rainfall, location of rainfall, soil moisture content, rate of controlled releases from the dam, etc.

Q. Who maintains and operates Lake Houston?

A. Lake Houston is owned by the City of Houston and is maintained and operated by the Coastal Water Authority under a service contract.

Q. Is Lake Houston flooding a result of the Lake Conroe dam release?

A. Historically in prior rainfall events, the peak flow released from Lake Conroe has made up roughly 10 percent of the overall flows going into Lake Houston. The majority of the inflows come from the numerous other watersheds that feed into Lake Houston. Initial estimates for this event indicate that the water released from Lake Conroe is most likely between 10 and 20 percent of the overall Lake Houston inflow. An important point to remember is that Lake Conroe's contribution to the overall peak inflow would be much greater were it not for the Lake Conroe dam's ability to temporarily buffer flows. The peak release from Lake Conroe is kept at a significantly lower rate than the peak rate of inflows coming into the lake. This means that the flows in the river going into Lake Houston would be significantly greater if the Lake Conroe dam did not exist.

Q. My house flooded during Harvey and has never flooded during previous releases from the dam. How did that happen?

A. This storm event shattered all previous records for rainfall and streamflows. The previous storm of record for our area was the flood of October 1994. In 1994, the rainfall totals in the Lake Conroe watershed were approximately 13 inches. In Hurricane Harvey, the Lake Conroe watershed received over 22 inches of rainfall. The Lake Creek watershed received over 21 inches. The Spring Creek watershed had areas with over 29 inches. All of these watersheds contribute flow directly into the West Fork of the San Jacinto River. This means that numerous watersheds experiencing record rainfalls all flowed into the same areas. The following link shows a map of peak flows during Hurricane Harvey and how much was attributable to each watershed: http://www.sjra.net/wp-content/uploads/2017/08/Hurricane-Harvey-Peak-Inflows-083017.pdf.

Q. I live in Woodforest subdivision in Montgomery County. Why is my home flooded?

Woodforest subdivision is located in the Lake Creek watershed (see map showing peak flows from different watersheds at http://www.sjra.net/wp-content/uploads/2017/08/Hurricane-Harvey-Peak-Inflows-083017.pdf). The flow in Lake Creek at the Fish Creek Thoroughfare bridge peaked at approximately 63,000 cfs. The creek significantly exceeded its banks and is the main contributing factor to flooding within Woodforest. The flows in this part of Lake Creek are not affected by releases from the Lake Conroe dam.

Q. Where does the water go after it is released from the Lake Conroe dam?

A. Water released from the Lake Conroe dam flows directly into the West Fork of the San Jacinto River. The river then flows in a southeasterly direction across Montgomery County and into Lake Houston. Several major watersheds drain into the West Fork along the way. The following link shows a map of peak flows during Hurricane Harvey and how much was attributable to each watershed: http://www.sjra.net/wp-content/uploads/2017/08/Hurricane-Harvey-Peak-Inflows-083017.pdf. From Lake Houston, the water continues downstream to the Houston Ship Channel and into Galveston Bay.

Q. Why weren't we warned beforehand that SJRA was going to release during Hurricane Harvey?

A. During emergency operations, SJRA communicates information regarding its releases through numerous channels, including real-time website feeds, press releases, and direct communication with local emergency officials. It is these local law enforcement and emergency organizations who then notify the public and manage any road closures and evacuations. In addition, Montgomery County residents can visit www.mctxoem.org to register for text alerts via Montgomery County Smart 911. Montgomery County also has a Smartphone app available. Search the "app store" for ReadyMCTX.

Q. Who cleans up debris on and around Lake Conroe?

A. During and immediately after a storm event, Lake Conroe personnel are focused on gate operations and recovery. Once the event passes and as time permits, SJRA will address any debris that creates a navigational hazard or a safety threat in the immediate vicinity of the spillway. SJRA is not involved in the cleanup of debris from private property or other areas around the reservoir.

Q. If my dock on Lake Conroe was damaged by the storm and doesn't exist anymore, do I have to pay my annual license fee?

A. No, if a dock no longer exists, the homeowner will not be required to renew their annual dock license. SJRA field operations staff will be verifying docks around the lake that have been removed or destroyed. Upon confirmation from the operations field team, the Administrative Department will contact the customer and discontinue the fee until the structure is replaced.

Q. Who do I call to help me get my dock repaired?

A. SJRA requires that all contractors doing business on the lake be licensed and provide liability insurance. Should a homeowner wish to get a list of contractors, the Lake Conroe Division can provide that to them.

Q. Will Lake Conroe be open for Labor Day?

A. Lake Conroe will not be open for recreational boating on Labor Day weekend due to hazardous debris and unsafe conditions on the reservoir; however, vessels will be allowed on the reservoir for the limited purposes of (i) clean up or debris removal or (ii) moving vessels to safe harbor or taking them off the water. All vessels will be limited to NO WAKE speed in all areas of the reservoir.

Q. Will Lake Conroe Park be open for Labor Day?

A. No. Lake Conroe Park on SH 105 will remain closed through Labor Day weekend due to debris and unsafe conditions.