

Visit report 10/10/2016: IHNC Surge Barrier

By: Paul Bakker

After a short drive to the Northeast of New Orleans we arrived at the first visit of the week. On the North end of the Inner Harbour Navigation Channel (IHNC in short) Surge Barrier we were met by Steve Spencer and his colleagues. The visit started with an introduction in which the basics were discussed.

A short overview of the IHNC Surge Barrier – just to get a feeling of its vastness. The IHNC Surge Barrier is part of a larger Hurricane and Storm Damage Risk Reduction System with an estimated overall price tag of \$14.4billion – although this number has never been checked afterwards. The surge Barrier is 1.8miles long and contains 3 gates. By itself the barrier costed about \$1.3billion. It has been built to withstand various hurricanes with a chance of (re)occurrence of 1/100 per year.

Apart from the surge barrier we also learned at which points the levies surrounding New Orleans failed, how the rest of the risk reduction system is laid out and which problems have arisen so far – with the new system in place. Said problems mainly consist out of subsidence of levies. The courses in question – along Lake Pontchartrain – will be restored back to their designed heights. Though, as a result, armouring of levies has partly been postponed. The armouring is meant to prevent erosion of the protected side of the levy during overtopping and increases the resilience of the risk reduction system. In theory the armouring enables the system to withstand hurricanes and storms with a lower chance than 1/100 per year.

After an extensive exchange of questions and answers, and insights it was time to go outside and behold the closing to the Sector Gate. The test had already been started, but we were still able to see the majority of the process of the closing – and the opening later on – of the gate. While walking on the IHNC Surge Barrier the subject soon switched to the operation and maintenance of this marvellous piece of civil engineering.

Steve showed us how design and maintenance once again have proven to be intertwined. All three gates are of a different design. From North to South there is a sector gate, a barge gate and a vertical liftgate. Therefore each gate requires its own spare parts and maintenance requires knowledge of three very different gate designs. On account of maintenance the barge gate is seen as the weakest of the three. The barge gates original purpose had been to take over from the sector gate if the latter were to be out of order. Consequentially the barge gate was supposed to be closed most of the time. Too late the United States Army Corps of Engineers (USACE) decided the gate should be open on default. Were this to be known beforehand a second sector gate would be better. The fast pace has – to some extent – thwarted the project. Something that has also been mentioned by Matthijs van Ledden during his guest lecture.

Furthermore Steve explained the importance of regular testing and maintenance, and adequate documentation in particular – besides preserving the right level of flood protection. If the IHNC Surge Barrier is maintained properly, all damages as a result of a hurricane or storm will be fixed and paid by the USACE.

All in all Steve has put some concerns with regard to the maintenance of the barrier at ease. The maintenance of the structure is paid via taxes and so far the budget has sufficed to pay for all scheduled maintenance. There is also money for unexpected and large maintenance of the IHNC Surge Barrier.

There is a lot more to write about, but that would not benefit this text. We thank Steve for an amazing site visit packed with information.