

## **NeFSMA**

### **Helping Protect the Good Life**

#### 2019 Newsletter Volume 1

#### **MESSAGE FROM THE CHAIR**

NeFSMA Members,

Thank you for your continued dedication to floodplain and stormwater management in Nebraska! We are rapidly approaching what will be NeFSMA's 11<sup>th</sup> Annual Conference on July 11<sup>th</sup> in Nebraska City. After our record flooding experience in March, it's been quite a year already for Nebraska and we're still in the core of the rainfall flooding risk season. As a group of professionals working in the floodplain and stormwater management industry, we know how significant the damage from flooding can be, both from the standpoint of infrastructure and on people's lives, as those impacted pick up the pieces and evaluate how to move on. Our thoughts are with those who lost loved ones, property, livestock, and farmland as a result of this significant flood event. A huge thank you goes out to first responders along with all of the individuals, public and private, who put in long hours to both help with the event while it was happening and to deal with the aftermath.

For this year's conference we have lined up a range of speakers on topics covering all the bases, but we'll have some special focus on what happened in March and the uniqueness of this flood. We'll also cover some information communities can use to help with recovery from this flood as well as preparation for the next one, knowing that unfortunately at some point this will happen again. Also included in our planned activities are a flood response workshop offered by Nebraska Silver Jackets and an opportunity to take the CFM exam the day prior to the conference. Of course, we'll also have an evening social at the Lied Lodge and Conference Center in Nebraska City the night before the conference. Sign-up/registration for all events is available now!

Looking forward to this fall, please consider telling floodplain managers you know about our fall meeting planned for the SAC Museum in Ashland on November 21<sup>st</sup>. We plan to





focus the floodplain management portion of this meeting on the local floodplain management experience during the recent flood event and will be offering impacted local floodplain managers the opportunity to attend for free. Stay tuned for more details.

Finally, I would like to take this opportunity to thank the other members of the NeFSMA Board of Directors for their continued efforts to ensure that NeFSMA continues to be a leader in floodplain and stormwater management. This organization would not be what it is without everyone's efforts! Looking forward to seeing you all at our upcoming Nebraska City event!

John Callen,  
NeFSMA Chair

## 11<sup>th</sup> Annual NeFSMA Conference

Join us for our 11<sup>th</sup> Annual Conference and associated events!

Our 11<sup>th</sup> Annual Conference will be held July 11<sup>th</sup>, 2019 in Nebraska City.  
Pre-approved CECs will be available for Certified Floodplain Managers.

The conference will be held at the Lied Lodge and Conference Center (<https://www.liedlodge.org/>)

On the evening of July 10<sup>th</sup>, 2019 there will be a hospitality reception at the conference center. It is a great chance to catch up with other members and network with Nebraska's floodplain and stormwater professionals.

Contact the Lied Lodge and Conference Center at (800) 546-5433 before June 17, 2019 if you plan to stay overnight.

Visit [www.nefsma.com/Events](http://www.nefsma.com/Events) to find a current conference agenda.

Registration:

Members - \$120                      Non-Members - \$155  
Registration deadline is Friday, July 5, 2019

## Flood Response Workshop

The Nebraska Silver Jackets, with assistance from NeFSMA, will be hosting a free event, Flood Response Workshop and Lessons Learned, on July 10<sup>th</sup>, 2019 at the Kimmel Orchard & Vineyard Education Foundation, 5985 G Road, Nebraska City, NE.

The event is free, but space is limited. You must [register](#) at NeFSMA.com by July 5<sup>th</sup>, 2019.

[Click here for the agenda.](#)

The Silver Jackets are collaborative state-led interagency teams, continuously working together to reduce flood risk at the state level. Through the Silver Jackets program, the U.S. Army Corps of Engineers, the Federal Emergency Management Agency, additional federal, state and sometimes local and Tribal agencies provide a unified approach to addressing a state's priorities. Often, no single agency has the complete solution, but each may have one or more pieces to contribute. The Silver Jackets team is the forum where all relevant agencies come together with the state to collaboratively plan and implement that interagency solution. Through partnerships, Silver Jackets optimizes the multi-agency utilization of federal resources by leveraging state/ local/ Tribal resources, including data/information, talent and funding, and preventing duplication of effort.

## CFM Study Session and Test

July 10: 8:30am to 12:00pm (Study Session); 1:30pm to 4:30pm (Test)

Rowe Memorial Public Safety Complex

158 Central Ave, Nebraska City, NE 68410

To apply go to the Exam section on the Certification Program link of [www.floods.org](http://www.floods.org) (ASFPM). Applications must be submitted by two weeks prior to the exam.

**\*SPECIAL NOTE ON CFM EXAM\***

To help you better prepare for the CFM Exam, the ASFPM Certification Board of Regents released a study guide that explains recommended prerequisites, what to expect on exam day, links to all technical references backing up each exam question, and supplemental study materials including videos and online tutorials. Visit this information on the [ASFPM website \(click here\)](#).

Contact Chuck Chase for even more study ideas, or for further information.

[chuck.chase@nebraska.gov](mailto:chuck.chase@nebraska.gov), 402-471-9422

## **Additional Training and Education Opportunities**

### *World O! Water*

September 7, 2019: 12:00pm – 4:00pm

Chalco Hills Recreation Area, 8901 S. 154<sup>th</sup> St., Omaha, NE 68138

[www.worldowater.org](http://www.worldowater.org)

Contact [OmahaStormwater@ci.omaha.ne.us](mailto:OmahaStormwater@ci.omaha.ne.us) with questions.

World O! Water is a fun, annual event for people of all ages to learn about the important role that water plays in our lives and community. Join us this year on September 7<sup>th</sup> to experience live demonstrations, science experiments, games, and canoe rides while talking to local experts about water quality, conservation, and recreational activities. Your family, youth group, scout troop, school class, and even your dog, is welcome to attend this free event held at Wehrspann Lake inside the Chalco Hills Recreations Area.

## **A High-Stakes Fight to Protect Lincoln's Water Supply**

Joe Duggan

Ben Day will never forget the moment he stepped into a full-blown public works crisis.

As he entered the Lincoln Water System's control center, on Sunday, March 17, he saw about a dozen city employees engaged in a high-stakes fight. Not far away, an unrelenting churn of floodwater had blown the banks of the Platte River and now threatened to cut off drinking water to all 285,000 residents of Lincoln, Nebraska.

As a water/wastewater engineer for Olsson who had worked alongside the City of Lincoln for years, Ben had been inside the secure control center many times. But never like this.

He scanned the bank of video monitors, recognizing images of valves and pump machinery. But that noise ... what was beeping?

"It was pretty surreal – the alarms going off," he said. "It was clear, something wasn't right."

And the next four days would be unlike anything he had experienced in more than two decades as a professional engineer.



A National Guard helicopter drops sandbags near a city of Lincoln well. Photo by Staff Sgt. Herschel Talley, Nebraska National Guard

### **Conditions for catastrophe**

The emergency began unfolding March 12 when Nebraska was struck by a bomb cyclone, the popular name for a storm triggered by a rapid plunge in barometric pressure. The drop recorded in Nebraska was comparable to a category 3 hurricane, and it unleashed destructive winds, a crippling blizzard in the western half of the state, and heavy rains in the east.

The volume of rain over the next three days wasn't as problematic as the timing. A severe winter had piled snow upon the landscape and frozen the soil more than a foot beneath it. Frigid temperatures in the weeks preceding the storm had left creeks and rivers engorged with ice. Nothing slowed massive runoff generated by up to 3 inches of rain and rapidly melting snow. As a result, several major drainages in central and eastern Nebraska flooded simultaneously.

The torrents killed four people in Nebraska, plus one in western Iowa. Flooding forced the evacuations of entire communities, damaged thousands of homes and hundreds of businesses, and held Fremont – a city of 26,000 – virtually hostage for four days. Ice and water swept away livestock, adding drowned cattle to those killed by the blizzard.

No fewer than 17 flood records were set in the region, including on the Missouri River. As levees failed, water damaged or destroyed close to 200 miles of highway, nearly 30 state bridges, and scores of county roads. As if Nebraska had been cast back to the Pleistocene, freakish ice flows in the Niobrara River Valley nearly obliterated everything in their path, including a hydroelectric dam near Spencer.

The storm racked up a staggering \$2 billion in damage in Nebraska alone. Gov. Pete Ricketts has called it the most widespread natural disaster ever recorded in the state.

By Saturday, March 16, floodwater had flushed down tributaries to the lower Platte River. The frequently shallow Platte swelled to a depth of 24 feet, breaking a record that had stood since 1997, the Omaha World-Herald reported. The peril confronting Lincoln's drinking water system prompted the Nebraska Army National Guard to drop sandbags via helicopter near the wellfields. But the floodwater kept rising.

That morning, public works officials asked Ben, along with other outside consultants and contractors, if they would be willing to help.

Lincoln draws water from clusters of vertical wells in what are referred to as the north and south wellfields. The city also operates four horizontal collector wells, three of which are on an island in the river channel, the fourth near the east bank. Underground mains transfer the water to two treatment plants in Ashland, before another network of mains pipes the treated water to Nebraska's second-largest city.

Shortly after he was contacted, Ben participated on a conference call with engineers from the city, Black & Veatch, and HDR. He then contacted key staff at Olsson to make sure resources were ready to go.

Except with the river still raging, there was nowhere to go.

### **River rises, threats worsen**

On Sunday, March 17, water kept rising after an upstream levee had failed. Soon, a road adjacent to the north wellfield was under water, Miki Esposito, director of the Transportation and Utility Department, would later tell the Lincoln Journal Star.

"That's when it got really scary," she said.



Access road to Lincoln Water System wellfield. Photo Credit: Ben Day

Throughout a beautifully sunny St. Patrick's Day, Ben monitored reports that the river was still rising. Late in the afternoon, he contacted Derek Bookstrom, a utility contractor who frequently works on city projects, and they headed for Ashland.

"We had to get eyes on it to appreciate how severe it was," Ben said.

They discovered several feet of water covering all roads leading to the wellfields. The flood had literally blocked all access by land.

The two headed to the control center. There they learned how intermittent outages had cut power to some wells over the previous two days, momentarily ceasing supply to the treatment plants.

The city had enough water in reserve to last a day or two, but without constant replenishment from the wells, the system could not meet Lincoln's average seasonal demand of 35 million gallons per day.

As maintenance workers used kayaks to reach valves and keep some water flowing to the treatment plants, officials asked citizens to voluntarily reduce their water consumption. But the situation quickly worsened when pressure was lost in the transmission main.

On the night of March 17, Mayor Chris Beutler ordered mandatory water restrictions, which required citizens to cut their consumption by half and businesses by 25 percent.



Downed powerlines near the Lincoln wellfield. Photo Credit: Ben Day



## **Eyes on the damage**

Early on Monday, March 18, city officials asked Ben and other consultants to inspect the horizontal well houses on an island in the river. Before long, Ben found himself in an airboat that carefully navigated acres of slack water pooled over access roads.

Upon reaching the island, they inspected two pump houses and determined they had not been flooded. The third well also showed no obvious signs of damage. But the route to the fourth horizontal well, on the south end of the island, was blocked by treacherous current. The team headed back.

Meanwhile, the city focused on making emergency repairs to damaged roads so utility crews could fix downed lines and restore power to all the wellfields. But they had to wait for water to recede.

On the morning of Tuesday, March 19, an engineer and resident who lives in a lake development near the wellfields offered to help engineers get another look at damage on the island. The next day, they boarded the personal boat and made the inspection. They saw that flooding had severely eroded part of the north well field, undercutting two supply mains and destroying a vertical well. The boat ride had yielded some valuable intelligence.

## **Up and over**

Gradually, the receding water revealed piles of sand covering access roads like snow drifts. All of it had to be pushed aside before gravel was brought in to support heavy utility trucks. By Thursday, March 21, downed and damaged power equipment had been repaired.

On the same day, Ben and about 30 others received a safety briefing from members of Nebraska Task Force One, a highly trained urban search-and-rescue team that deploys to major disasters across the country. The previous week, the team had rescued 10 people stranded by flooding.

That afternoon, Ben and others climbed into a National Guard helicopter and flew to the island to help restart two of the horizontal collector wells. Another team was able to restart one of the remaining horizontal wells, but the well on the north tip of the island still lacked power. Nevertheless, the city and its consultants had successfully restored 60 million gallons of capacity to the system, more than enough to meet Lincoln's daily demand for water.

Meanwhile, contractors were directed to clear access roads and fill wash outs at the south vertical wellfield. Those wells also returned to production, but a damaged main at the north vertical wellfield kept portions of the supply out of commission.

Lincoln residents once again had full access to a reliable supply of safe drinking water. All consumption restrictions ended. The crisis was over.



## **A close call**

On Friday, March 22, the Lincoln Water System (LWS) submitted a preliminary cost estimate of \$15 million to \$17 million in damage and expenses to the Federal Emergency Management Agency.

Ben said he was very impressed with the capability and commitment of LWS staff, who kept the system functional under an extreme set of challenges. He mentioned Steve Owen, Donna Garden, Rick Roberts, Eric Lee, John Keith, and Corbin Harms, but said there were many additional public works staff who contributed to the effort.

“There was always a comfort level that they’ll figure this out,” he said. “You’re in a room full of professionals. Everyone knew what to do.”

## NeFSMA's 2019 Western Nebraska Seminar and Kingsley Dam Tour

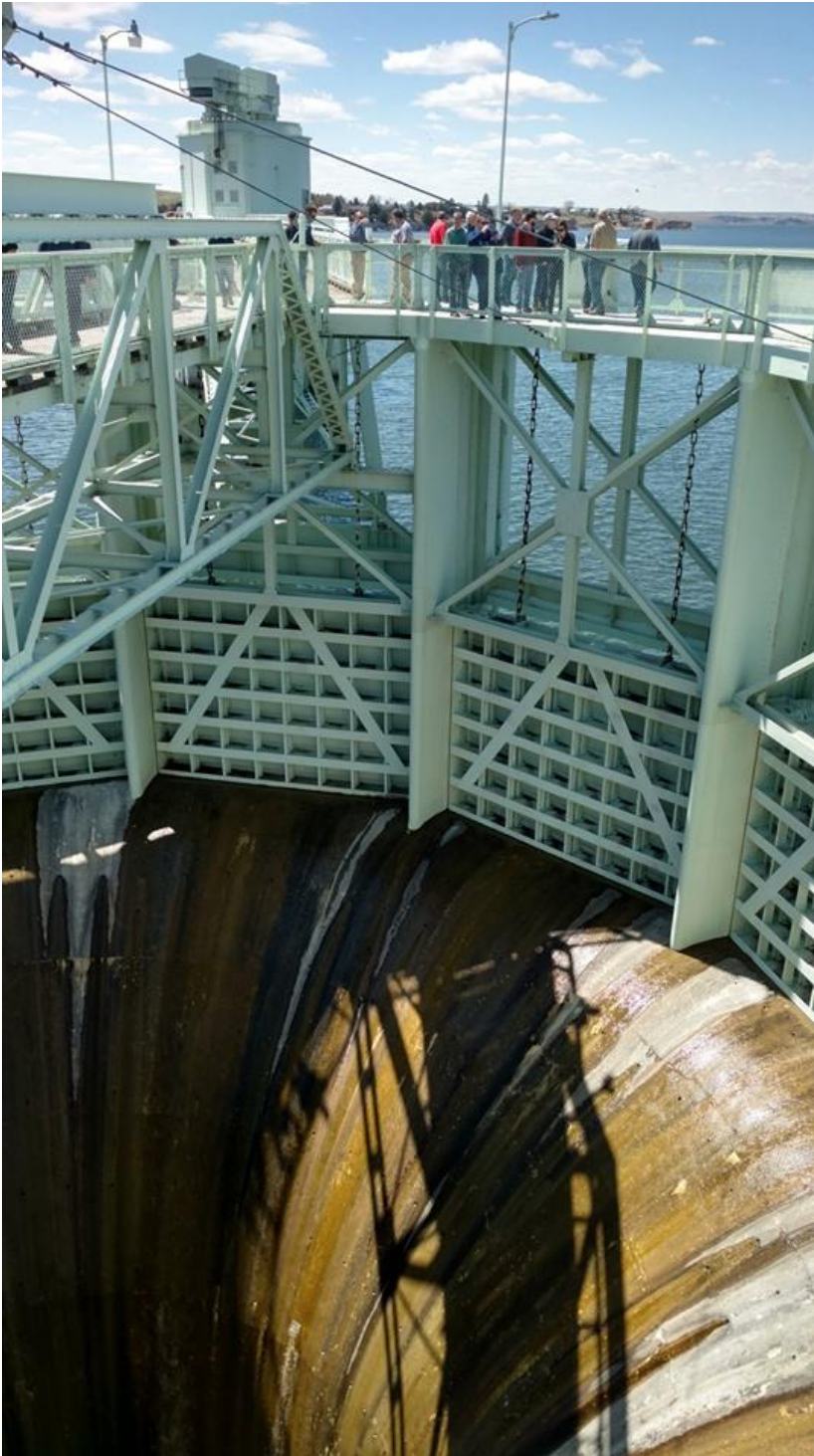
On May 2<sup>nd</sup> and 3<sup>rd</sup>, 2019, a group of NeFSMA members and other professionals met in Ogallala for a seminar on issues ranging from dam safety to endangered species to the Platte River Basin. Additionally, attendees took part in a special tour of the Kingsley Dam at Lake McConaughy. Below are some photos from the dam tour.



Nate Nielsen, Kingsley Dam Foreman, CNPPD, led the tour. Here he points out features in the main outlet tower. Photo Credit: Rocky Keehn

Rocky Keehn stands beside a collection of wrenches used in the operation of the dam's hydropower plant. Photo Credit: Rocky Keehn





The tour group views the Morning Glory Spillway

Photo Credit: Rocky Keehn

**Thank you to all the presenters and attendees for a great event!**

### **Safety Reminder**

Low head dams and other hydraulic structures are very dangerous. In Nebraska, and across the county, these structures have led to fatalities among anglers, kayakers, swimmers, and would-be rescuers.

Please spread the word among your communities and with friends and family to avoid these structures when visiting waterways. Additional information about the dangers of low head dams can be accessed at the following links:

[The Danger of Low Head Dams](#)

[ASDSO Public Safety at Dams](#)

[Over, Under, Gone: The Killer in Our Rivers \(PBS Special on the topic\)](#)

## Editor's Picks

Articles that may be of interest to the NeFSMA membership

[Coverage of March 2019 flooding in Columbus and Platte County, Nebraska](#)

[National Geographic article on a centuries old method of managing scarce water](#)

[Ellicott City, Maryland Faces Tough Decisions](#)

[Being Water Wise in the Landscape \(Great article to share with friends, family, neighbors\)](#)

[National Municipal Stormwater Alliance \(NMSA\) 2019 State of Stormwater Report](#)

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