

2019 Nebraska Flood Challenges & Solutions

Nebraska Department of
Environment and Energy

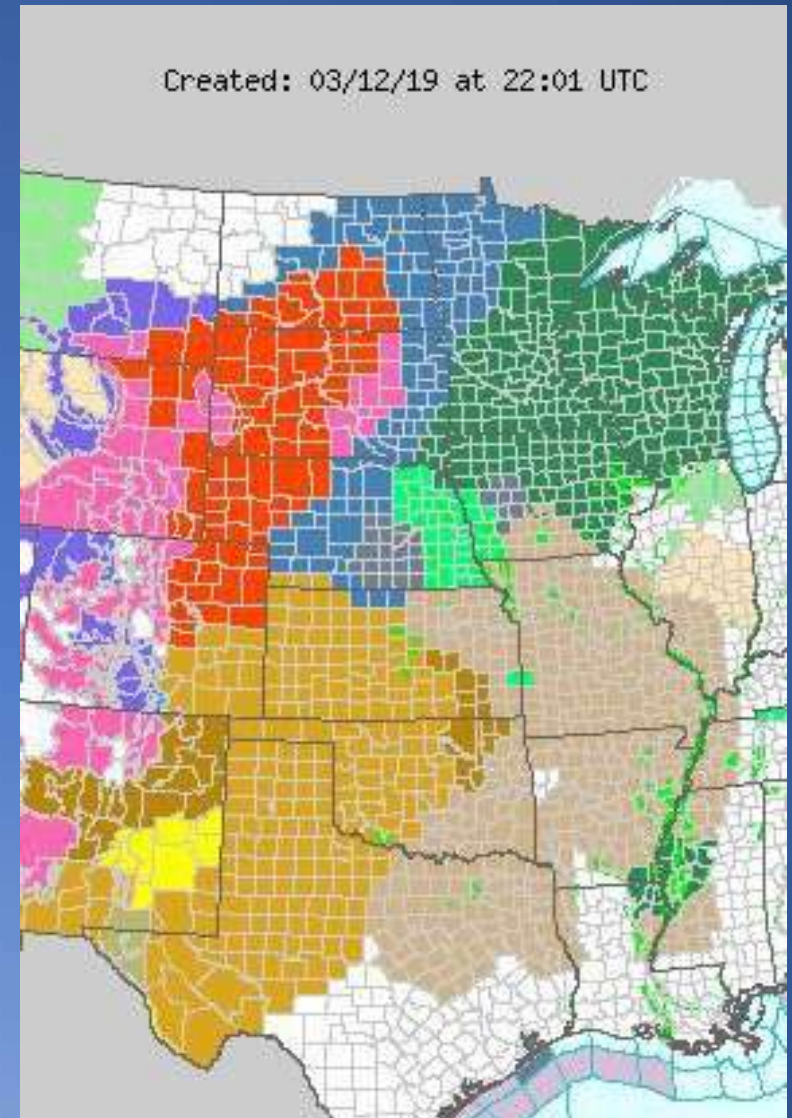
Waste Section

Erik Waiss, PG

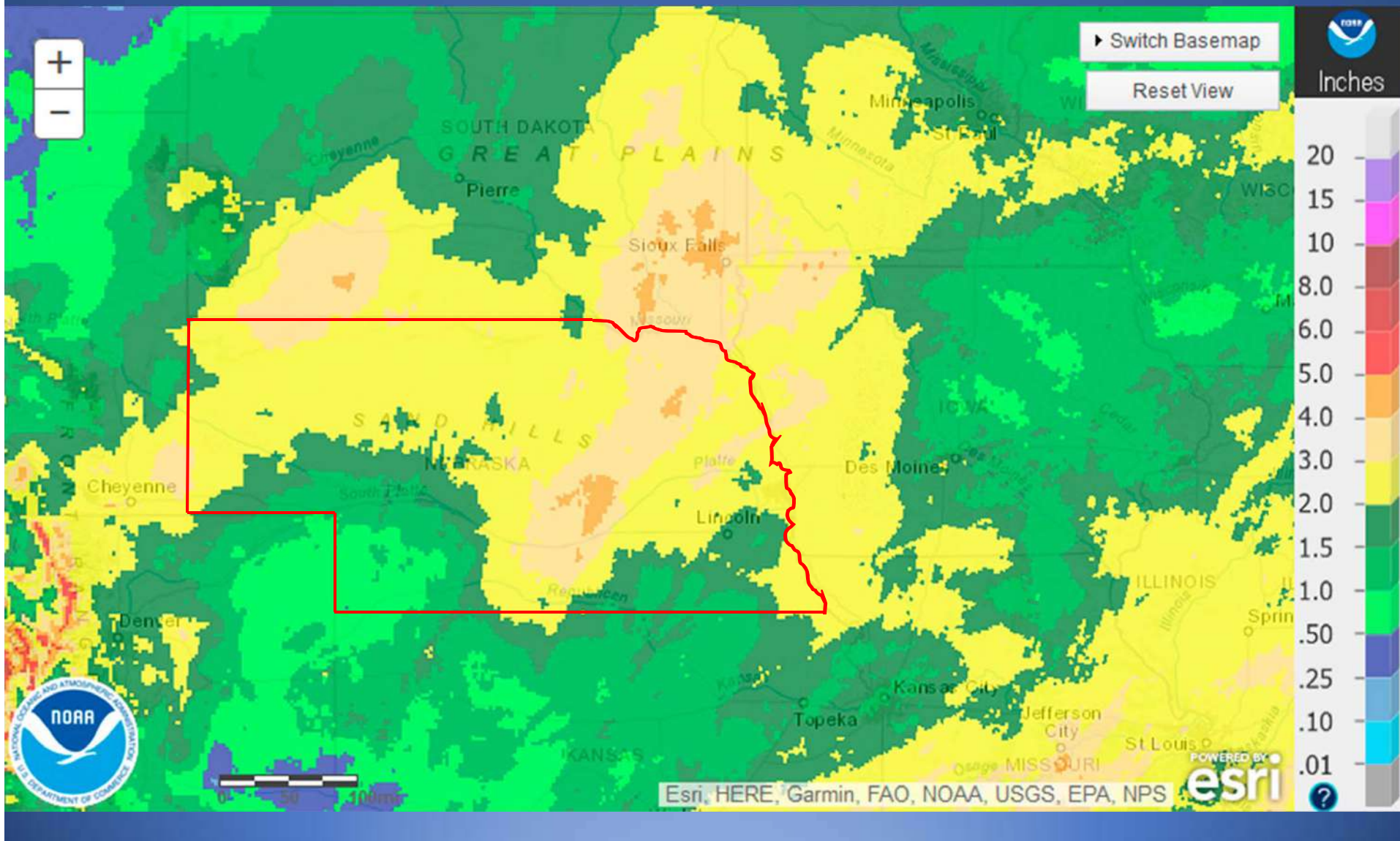
October 1, 2019

The Bomb Drops

- Bombogenesis or Bomb Cyclone – a 24 millibar drop in pressure in <24 hours.
- High Winds rush in to fill pressure drop – often brings moisture, causes precipitation
- March 12, 2019 - Severe weather across the entire center of the continent.
- Blizzard across Western Nebraska transitioning into rain in the East.



The Sky Opens



The Flood Begins

- Rain falling on snow caused rapid melting
- Soils/ground still frozen, no infiltration of water resulted in nearly all overland run-off
- River systems quickly reached capacity, Ice-damming on many rivers in many places
- Record flooding across much of eastern Nebraska
- Missouri River floods along entire eastern border.
- Platte, Elkhorn, Loup, Niobrara and many other rivers overtop their banks
- Widespread inundation across many counties.



Nasa, 2019

March, 2018



Platte River

Elkhorn River

Omaha

Missouri River

March 20, 2018



March 16, 2019



NEBRASKA

Good Life. Great Resources.

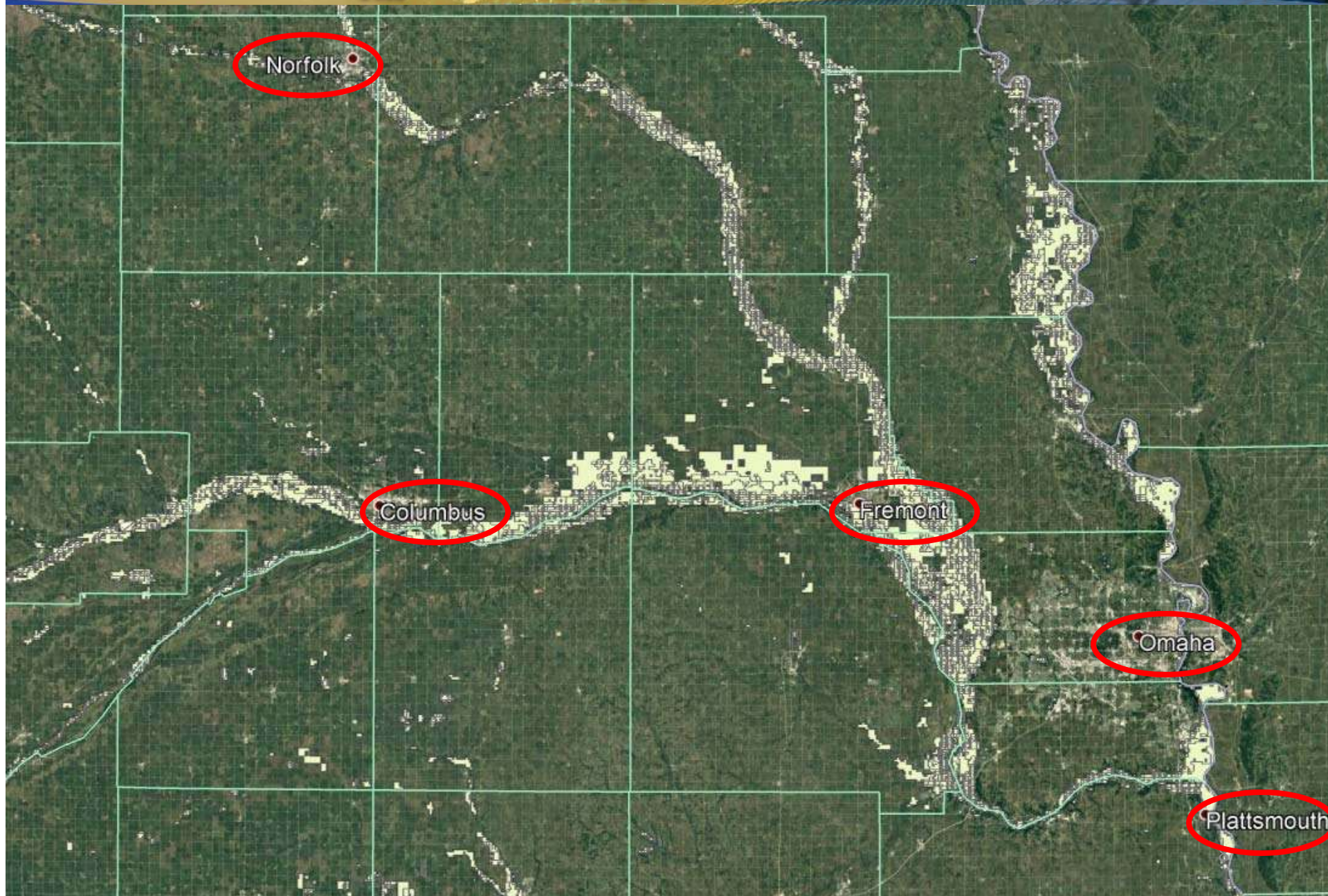
Department of Environment and Energy

Air

Water

Land

Energy





NEMA, 2019 (Near Niobrara State Park)



NPPD, 2019

Spencer Dam, on Niobrara River, before and after flood. Dam and dike overtopped by floodwaters and failed, rafted ice blocks battered the pump house. Most of Dike was completely washed away, only portions of concrete dam remain.

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Air

Water

Land

Energy



NEMA, 2019

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Department of Environment and Energy
Air *Water* *Land* *Energy*



NEMA, 2019

Human Health, then Environment

- Massive Mobilization of Emergency Response including US Army National Guard across dozens of counties
- NDEE begins to advise on disaster management
- Help the people, then clean the mess

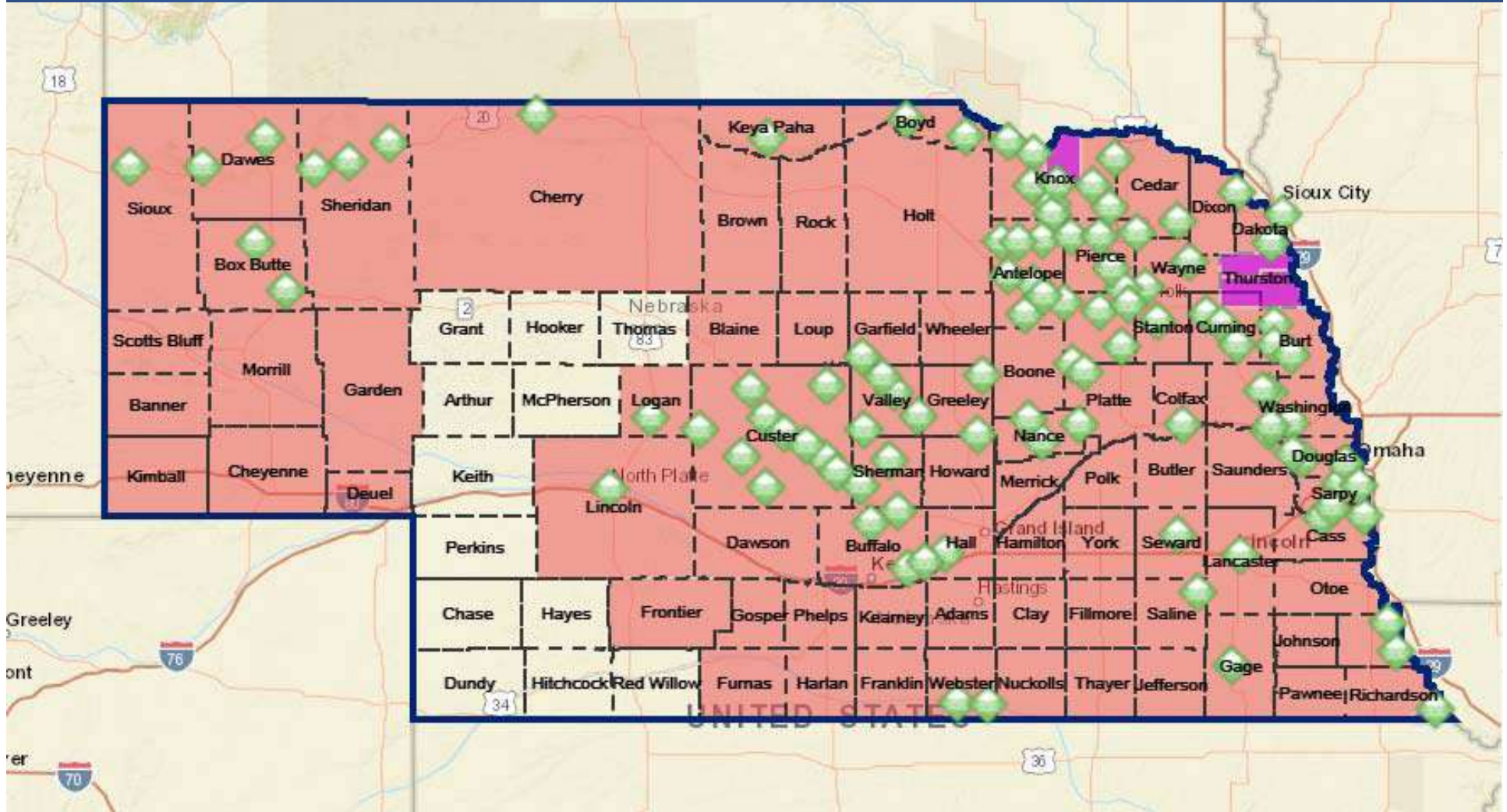


National Review, 2019

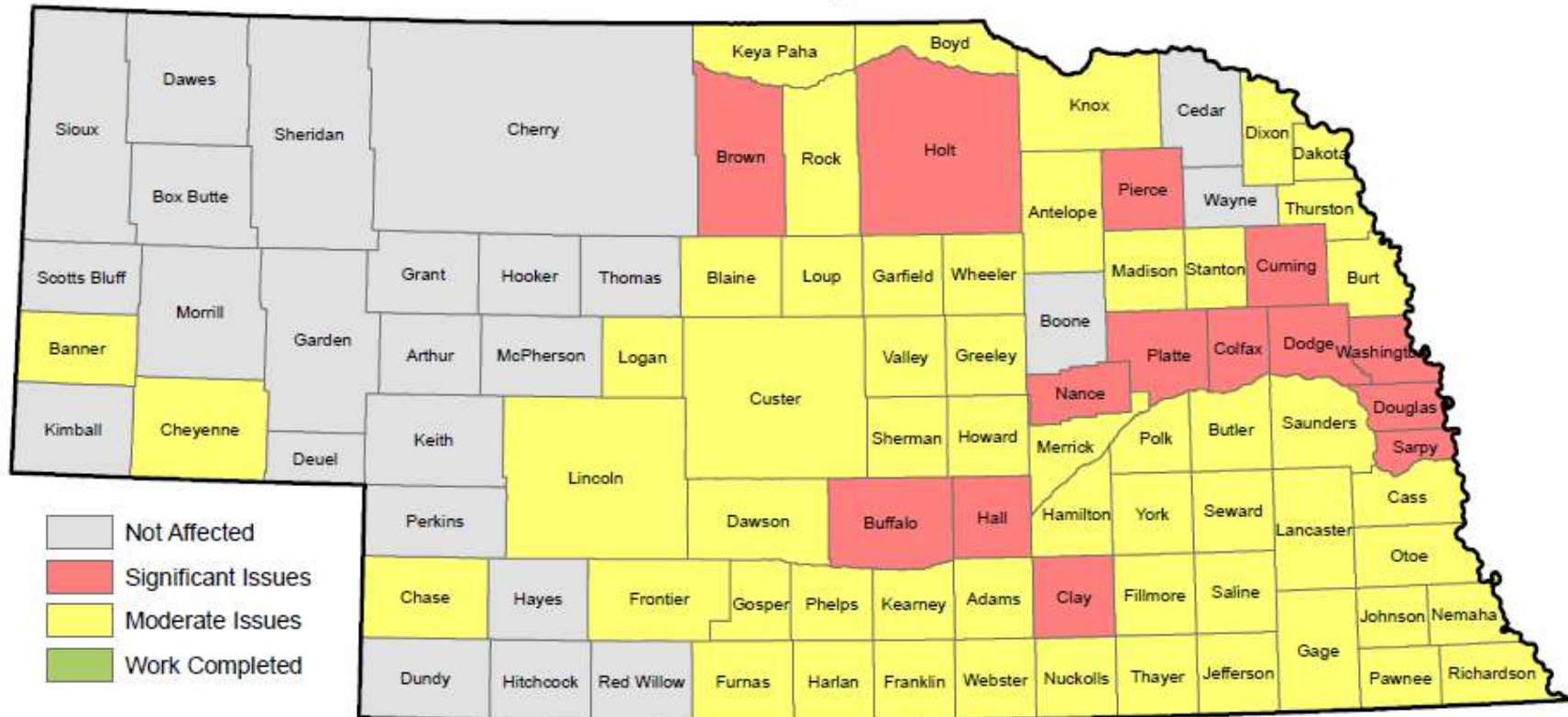


New York Times, 2019

Declared Emergency Areas

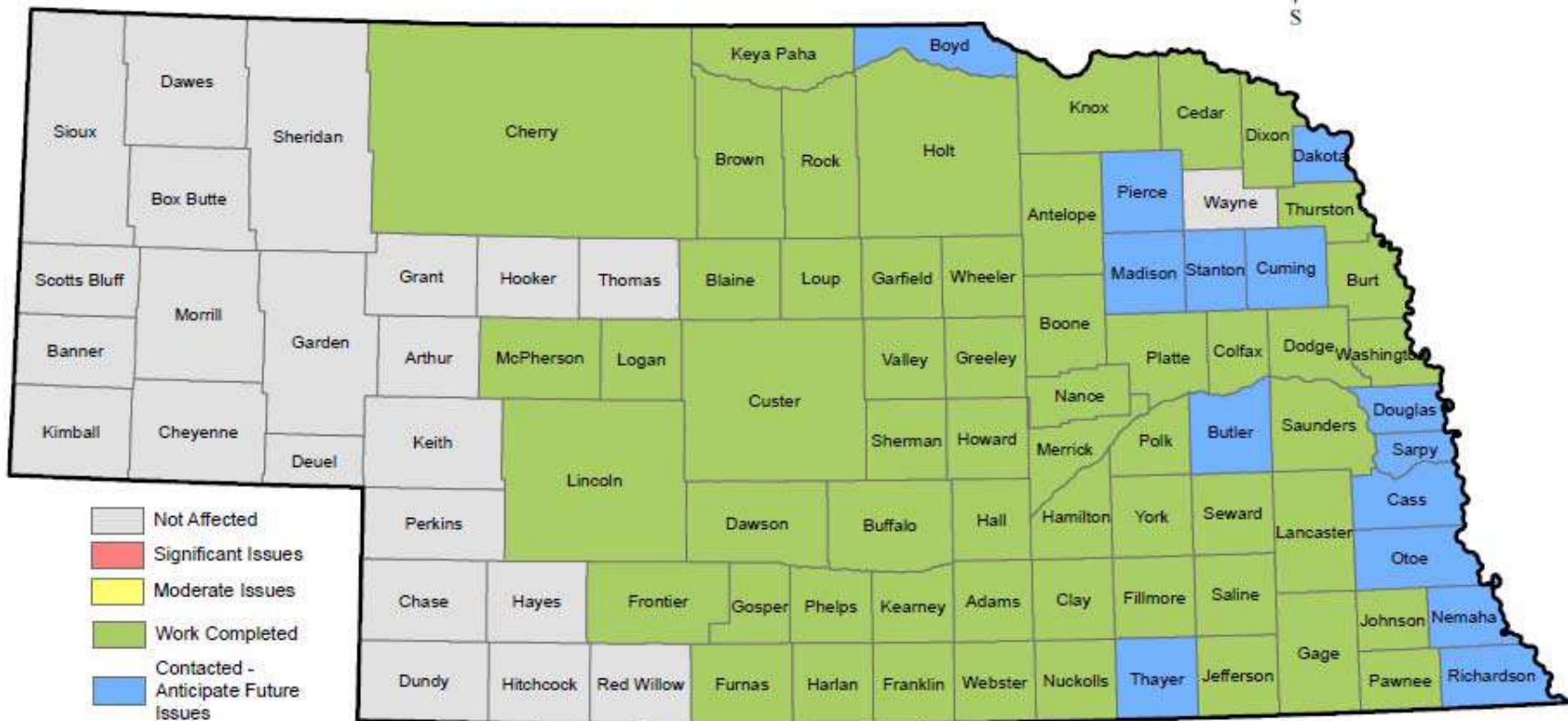


Waste Debris Management Status



Ranking based on percentage of county inundated by flood waters.

Waste Debris Management Status



Flood Damage Estimates

- Loss of Livestock and Crop Losses total nearly \$900,000,000
- Infrastructure of roads, bridges, and more, nearly half a billion dollars lost.
- Over 2,000 Homes and 340 businesses damaged or destroyed
- 104 cities, 81 counties, and 5 tribal areas declare emergencies
 - Major damage in Nance and Sarpy counties
 - (\$231 million and \$106 million, respectively)

Carcass Disposal

- Thousands of head lost to event, many were actually missing from their former location, some found at other locations
- NEMA/FEMA initiated program to remove and dispose of livestock, especially from properties that did not have livestock
- NDEE uses its newly created Flood Hotline to answer all flood related calls, forward info to responders
 - Last day to report carcasses was April 15
 - Reported carcasses were disposed by end of April
- "Normal" disposal of all carcasses resumed after April 30

Cornstalks and Vegetative Debris

- Corn stalks and similar were rafted into a lot of areas by flood waters, blocking ditches, snagging in fence lines, and obstructing culverts.
- Municipalities and Counties are staging stalks removed from ditches/culverts on site(s) to compost or land apply as soil amendment
 - Stalks applied in this way must be incorporated into soil
 - See our Flood Damaged Grain & Hay guidance
- Allowable at Brush & Tree sites with lawn waste and similar vegetative material

Orphan Tank Program

- NEMA/FEMA/EPA program to locate and remove orphan fuel tanks
- Propane, Fuel, and other tanks floated away during the flood
- Many found in difficult to reach locations
- Property owners could contact the NDEE Flood Hotline to report tanks, that information was forwarded to responders
- Tank program ran through the month of May



Photo courtesy Dean McFarrich, Ray-Carroll Fuels



NDEE, 2019

Erosion and Deposition



NDEE, 2019

Flood Sediments

- Floodwaters deposited sand and silt across many plots of land near the rivers
- Some areas had a layer of sand over 4 feet thick
- Sediment can be pushed back into the river with the permission of the US Army Corps of Engineers
- Many places scrape and pile on site
- Impractical to transport for disposal
 - Six inches of dry sand spread over One acre weighs over 1,000 tons
- Can be used as fill on site

Building Debris

- Large volumes of material generated in every flooded community
- Contents of houses and businesses
 - Furniture and Carpet
 - Household Hazardous Waste
 - White goods
 - Putrescible wastes
- Complete demolition of compromised structures
 - Asbestos checks/removal required by a licensed inspector/abatement contractor.
 - Structural debris can go to MSW or C&D landfill

Debris removal guidelines

In efforts to expedite the debris removal process, please follow these rules

Placing debris **near or on trees, poles or other structures** makes removal difficult. This includes fire hydrants and meters.

Debris separation

Please separate debris into the **six categories**, shown below.

Electronics

Television, computer, stereo, phone, DVD player

Large Appliances

Refrigerator, washer/dryer, air conditioner, stove, water heater, dishwasher

Do not leave doors **unsealed or unsecured**

Hazardous waste

Oil, battery, pesticide, paint, cleaning supplies, compressed gas

Vegetative debris

Tree branches, leaves, logs, plants

Construction debris

Building materials, drywall, lumber, carpet, plumbing

Household garbage

Bagged garbage, discarded food, paper, packaging, furniture.

Debris should be placed curbside

10 feet

Debris should not **block roadway**



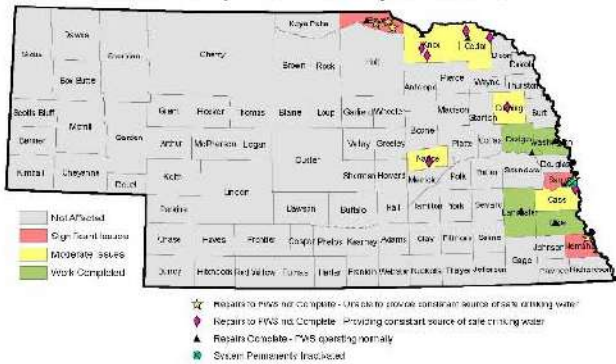
NDEE, 2019



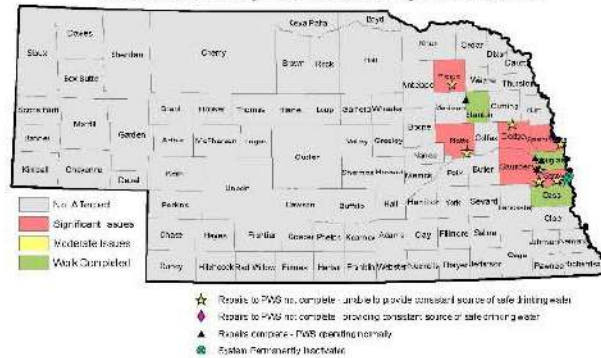
NDEE Coordination

- NDEE was already responding to localized flooding due to ice-jams before the bomb cyclone
- Activation of the State Emergency Operations Center (SEOC), NDEE on site day 1
- NDEE started pushing out information to Emergency Managers across the State
- NDEE Flood Hotline begins taking calls
- Updated Guidance and new Guidance posted on website front page, also sent out to E.M.s and other State Agencies
- Developed weekly Dashboard for response effort

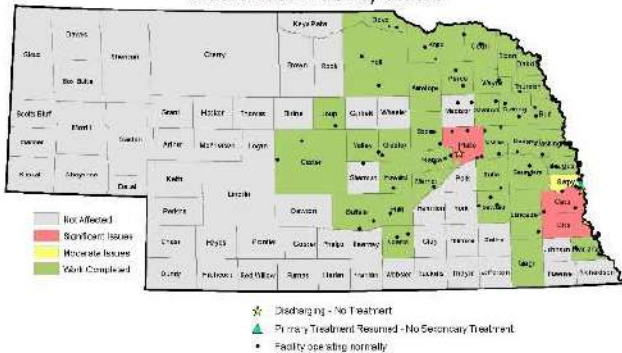
Community Public Water Systems Status



Non-Community Public Water Systems Status



Wastewater Facility Status



Waste Debris Management Status



Livestock Facility Status



Branches	
Waste/debris	<p>Objectives:</p> <ul style="list-style-type: none"> Orphan Hazardous Container identification, collection, disposal in coordination with the Environmental Protection Agency Public guidance and outreach for debris management <p>Status:</p> <ul style="list-style-type: none"> Work with the EPA on reporting and recovering containers of hazardous substances Container locations reported—163 Total container locations closed—530 Total container inventory at staging areas—1,572 Met with emergency managers in multiple counties
Wastewater	<p>Objectives:</p> <ul style="list-style-type: none"> Investigate discharges and evaluate structures for damage Work with livestock waste control facilities (LWCF) on creating a timeline for resuming normal operations. Work with waste water treatment facilities (WWTF) on timeline for restarting normal operations. Offer/provide financial assistance from the State Revolving Fund (SRF), if needed <p>Status:</p> <ul style="list-style-type: none"> Plattsmouth WWTF is rebuilding electrical systems and expecting a return to providing primary treatment toward the end of the week. Nebraska City WWTF is waiting for replacement motors and pumps that should arrive toward the end of this week. Once they arrive, the system will begin treating wastewater. The City of Omaha Papillon Creek Wastewater Resource Recovery Facility (WWRFF) is now partially operational The Monroe WWTF is bypassing because of damage Made state revolving loan funds available to affected communities. These loans — with 0% interest, and 0% administrative fees — will act as bridge financing until FEMA public assistance is available.
Drinking/public water	<p>Objectives:</p> <ul style="list-style-type: none"> Provide technical assistance to Public Water Systems (PWS) compromised by flooding Coordinate with PWS owners/operators to develop timelines for restoring service <p>Status:</p> <ul style="list-style-type: none"> Currently, four community PWS, and 13 non-community PWS with primary sources of water still off-line Made state revolving loan funds available to affected communities. These loans — with 0% interest and 0% administrative fees — will act as bridge financing until FEMA public assistance is available.
Air	<p>Objectives:</p> <ul style="list-style-type: none"> Coordinate with local emergency managers/fire departments for individual burn permits for flood damage structures Work with public information office to put out public service message about burn requirements <p>Status:</p> <ul style="list-style-type: none"> Burn permits requested — 2 Burn permits issued — 2 Burn permits denied — 0
Energy	<p>Objectives:</p> <ul style="list-style-type: none"> Administer NED weatherization and loan programs Provide info on Nebraska Energy Office programs to the Joint Operations Center (JOC), participate in outreach like Multi-Agency Resource Centers (MARCs) and more, as resources allow Determine the impact of tagging homes on energy office aid programs <p>Status:</p> <ul style="list-style-type: none"> Initiated the Dollar and Energy Savings Loan at 1% interest. 14 loans committed for \$177,884 Four loans entered (not yet committed) for \$30,046.33 1st Reviews: one loan for \$12,330 Total: 19 loans for \$229,426.33 Initiated the Weatherization Assistance Program for emergency repairs/replacement for HVAC systems Two applications completed Five applications in-progress 35 pending applications

Q&A

- <http://dee.ne.gov>
- <https://nema.nebraska.gov>
- Dhhs.ne.gov/pages/asbestos.aspx
- <https://earthobservatory.nasa.gov>
- Nema.Nebraska.gov/tech-hazard/LEPC-local-emergency-planning-committees
- Compliance Assistance Visits available for any facility on request

Thank you

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- Erik: (402) 471-8308