Responding to a Water-Quality Event

The 2013 South Platte Flood in Nebraska

Joint meeting of the Nebraska Surface Water Monitoring Council and the Nebraska Groundwater Advisory Committee

November 19, 2013

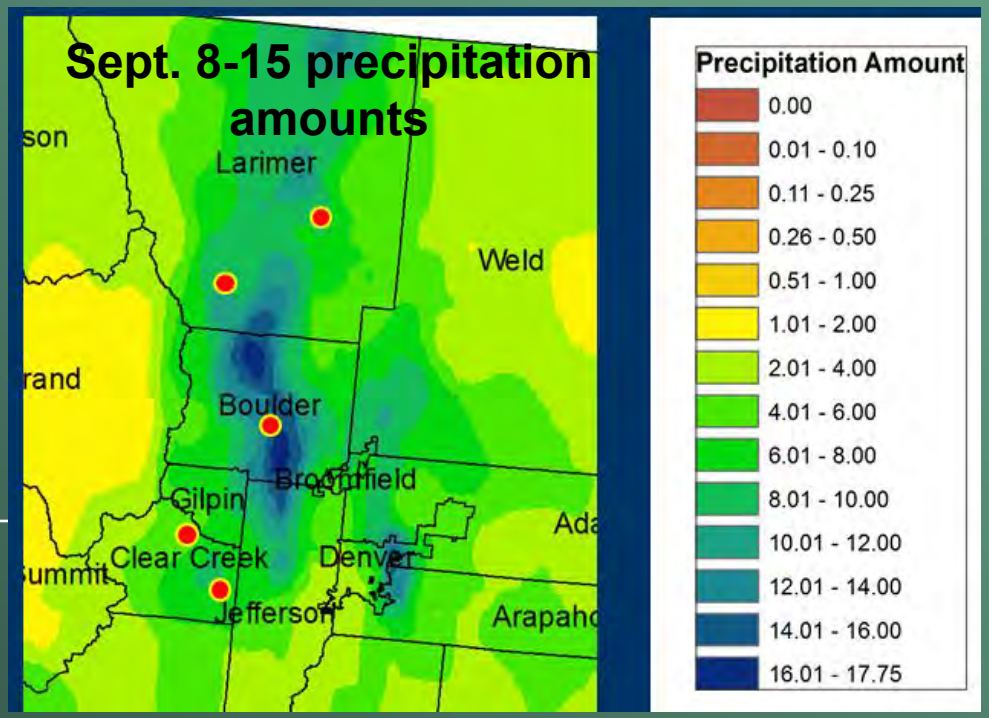
OUTLINE

- The timeline of the 2013 South Platte Flood

- What worked well? What challenges were faced?

It starts to rain…

- Excessive rainfall in Northeast CO
  - 8-17 inches of rainfall in the upper S Platte Basin between Sept. 8-15
  - 8.6 inches around Boulder on Sept 12 alone

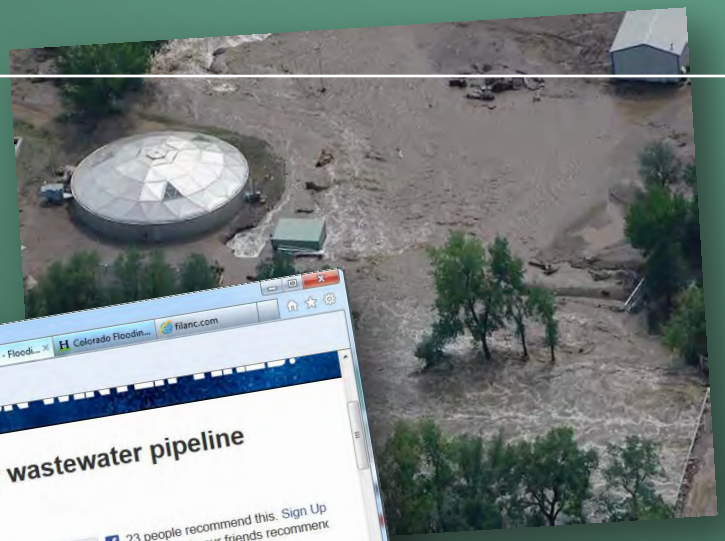


September 12

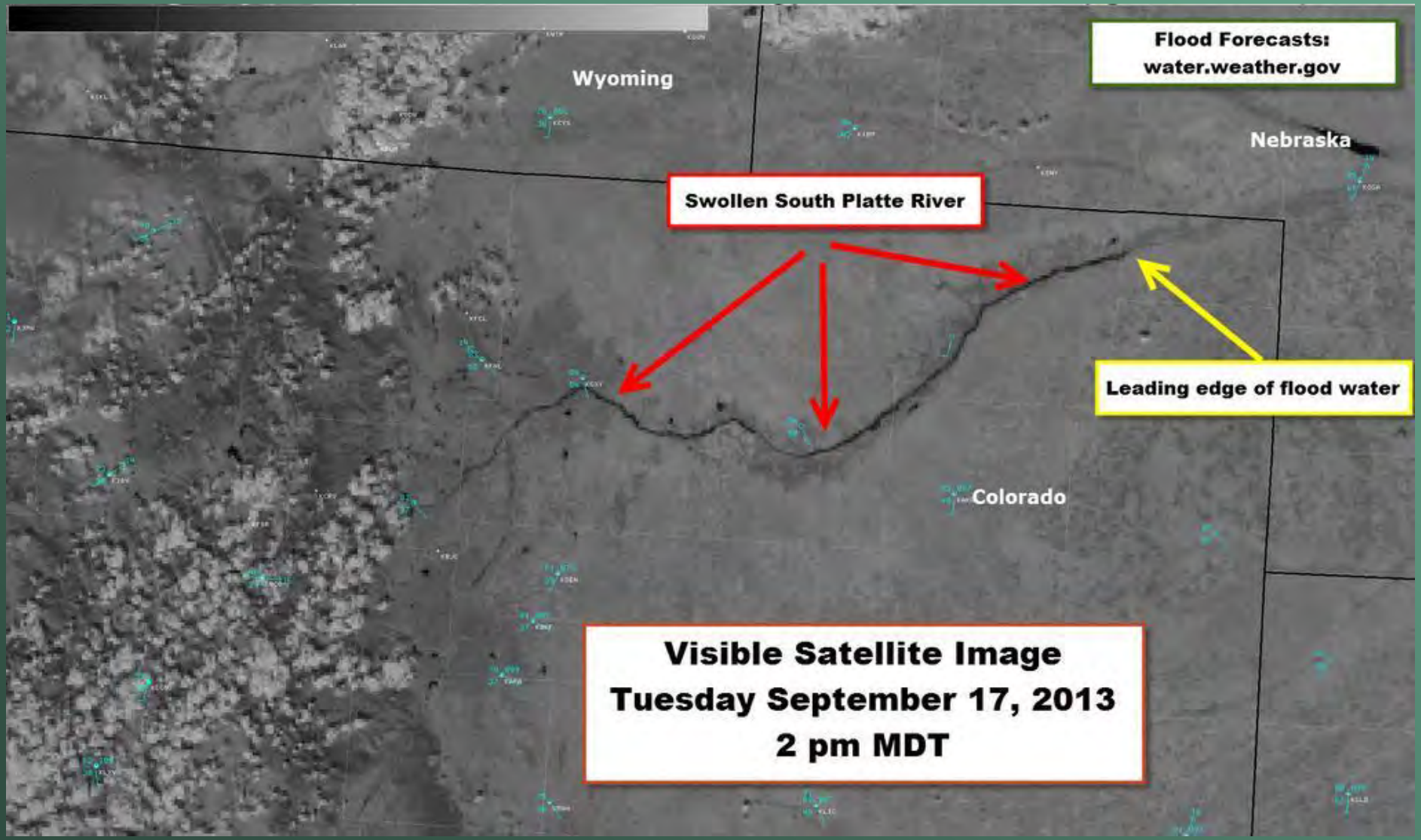
It's still a far-off tragedy in the news

September 14

We start hearing about spills



September 17



September 18

1011 HD

Home Weather News Sports Central Nebraska North Platte Video 1011Cares
MomsEveryday Seniors More

Flooding Could Spread to Parts of Nebraska

Recommend 13

By: Associated Press Email
Updated: Mon 5:11 AM, Sep 16, 2013

Home / Headlines List / Article

Nebraska officials are warning that flooding is possible next week along the South Platte River because of the heavy rain that has fallen in Colorado.

Central Nebraska forecasters are concerned because much of the area experiencing flooding in Colorado now feeds into the South Platte River basin.

The National Weather Service predicts the South Platte will approach flood stage near Roscoe around the middle of next week.

National Weather Service forecaster Matt Masek says it doesn't look like the river will flood at this point, but that could change if more rain falls in the basin.

Masek says the forecast will become more clear early next week.

Western NE Authorities Getting Flooded With

The flood wave reaches Nebraska

- USGS streamgagers are already mobilized
- USGS samplers start discussing whether to enact their flood-sampling plan

September 19

Nebraska USGS crew collects a sample on the rising limb at Roscoe

Other agencies also begin responding

September 20

Misquote causes some consternation

"…the state Department of Environmental Quality won't test moving water, but it could sample standing water that accumulates in public places, such as reservoirs and parks."

September 20

- Flooding along the Platte is forecast to be minimal. This may be more of a “water-quality event”
- USGS starts coordinating its water-quality response with other offices
  - Colorado USGS office
  - Nebraska Department of Health and Human Services
  - Nebraska Department of Environmental Quality
  - Cities of Lincoln and Kearney
  - University of Nebraska-Lincoln
- General sense is that we think our water supplies are protected but we really don’t know what’s in the water, especially the petroleum by-products

September 20

- USGS revises it's flood-sampling plan to
  - Be consistent with Colorado USGS sampling; and
  - To try to meet the needs of municipal water systems
- The USGS plan?
  - Synoptic sampling across the Platte with short turnaround
    - E. Coli; Benzene, Toluene, ethylene, Xylene (BTEX) screens
    - Volatile-Organic-Compound (VOC) sample for the City of Lincoln
  - At a subset of samples, analyze for a wide suite of analytes
    - Sampling expected over a two-week time frame
  - Keep our continuous monitor running on the Platte River at Louisville
- Flood sampling plans for other agencies

September 24

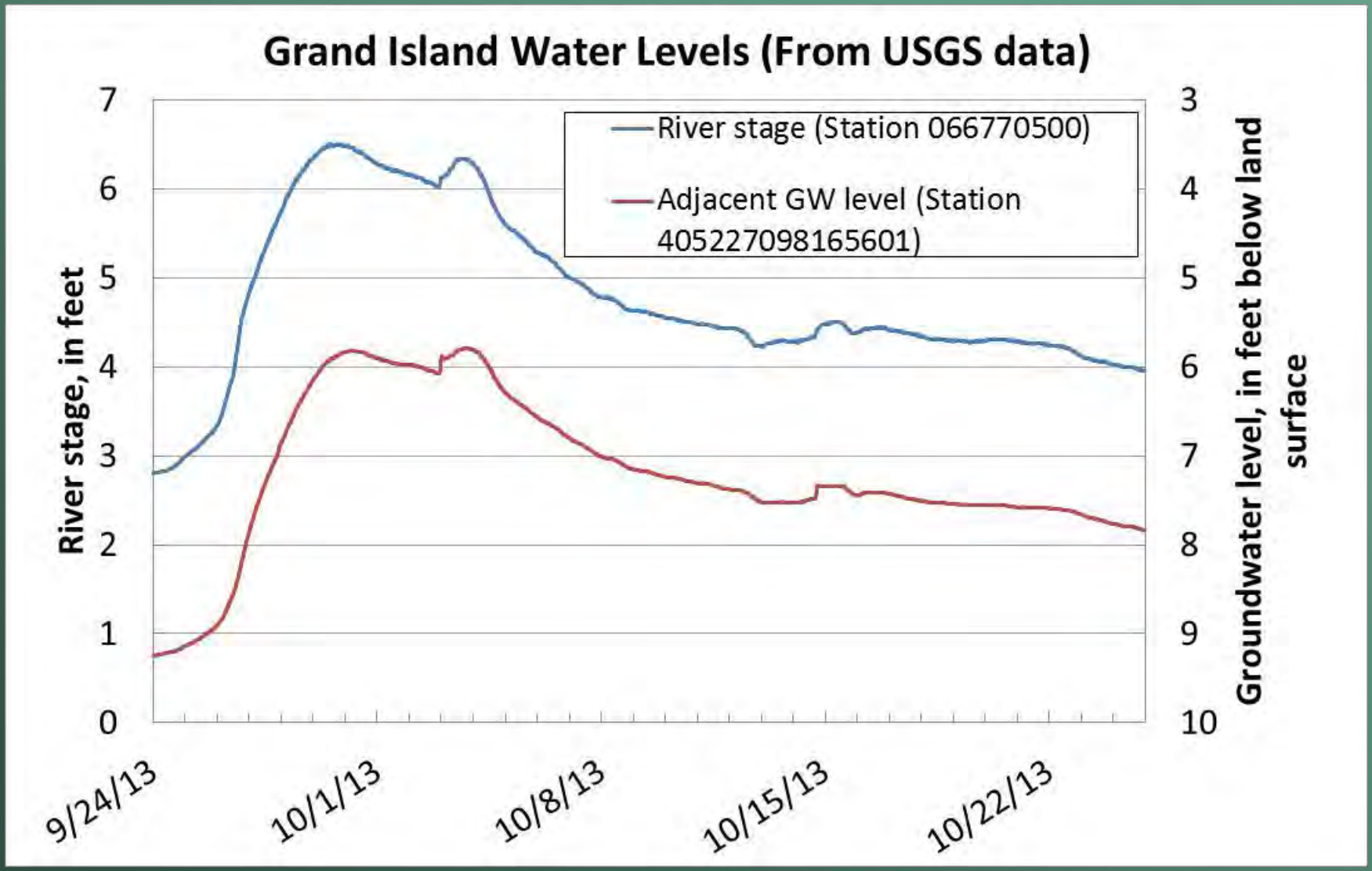
- Wide analytical array
- BTEX & E. Coli
- BTEX, E. Coli, and continuous-water quality

- **USGS collects a set of nine synoptic samples**

September 26

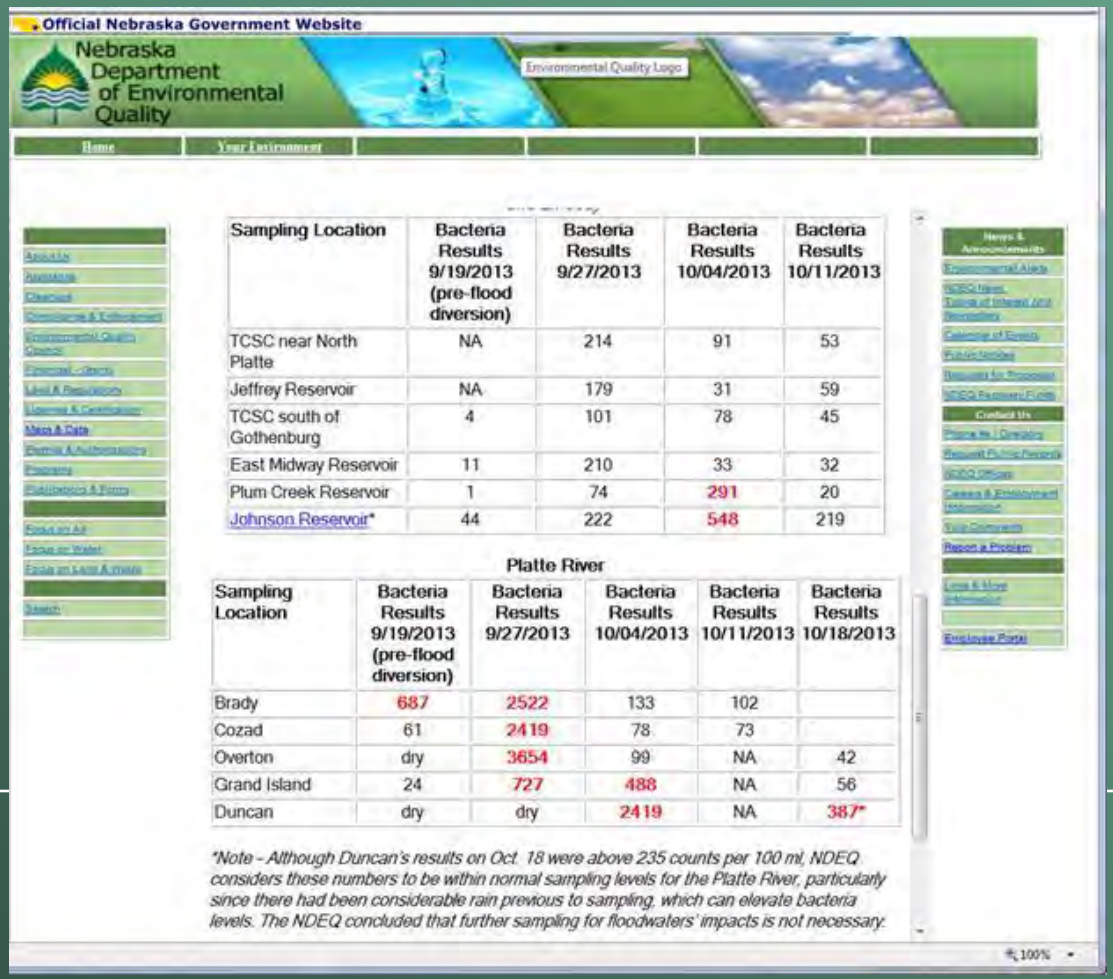
- BTEX samples are analyzed at the USGS office with in-house gas chromatograph
  - None of the samples show detections (though the detection limits were unknown)
  - Preliminary results disseminated to local partners
- City of Lincoln analyzed the Brady sample
  - No VOCs detected
  - Total Org. Carbon = 21.2 ppm (or mg/L)
  - F, NO3, and Br all normal

Sidebar: SW-GW response at Grand Island



September 27

- NDEQ news releases include E. Coli sampling results



Official Nebraska Government Website

Nebraska Department of Environmental Quality

Environmental Quality Logo

Home | Your Environment

Sampling Location	Bacteria Results 9/19/2013 (pre-flood diversion)	Bacteria Results 9/27/2013	Bacteria Results 10/04/2013	Bacteria Results 10/11/2013
TCSC near North Platte	NA	214	91	53
Jeffrey Reservoir	NA	179	31	59
TCSC south of Gothenburg	4	101	78	45
East Midway Reservoir	11	210	33	32
Plum Creek Reservoir	1	74	291	20
Johnson Reservoir*	44	222	548	219

Platte River

Sampling Location	Bacteria Results 9/19/2013 (pre-flood diversion)	Bacteria Results 9/27/2013	Bacteria Results 10/04/2013	Bacteria Results 10/11/2013	Bacteria Results 10/18/2013
Brady	687	2522	133	102	
Cozad	61	2419	78	73	
Overton	dry	3654	99	NA	42
Grand Island	24	727	488	NA	56
Duncan	dry	dry	2419	NA	387*

*Note - Although Duncan's results on Oct. 18 were above 235 counts per 100 ml, NDEQ considers these numbers to be within normal sampling levels for the Platte River, particularly since there had been considerable rain previous to sampling, which can elevate bacteria levels. The NDEQ concluded that further sampling for floodwaters' impacts is not necessary.

September 30

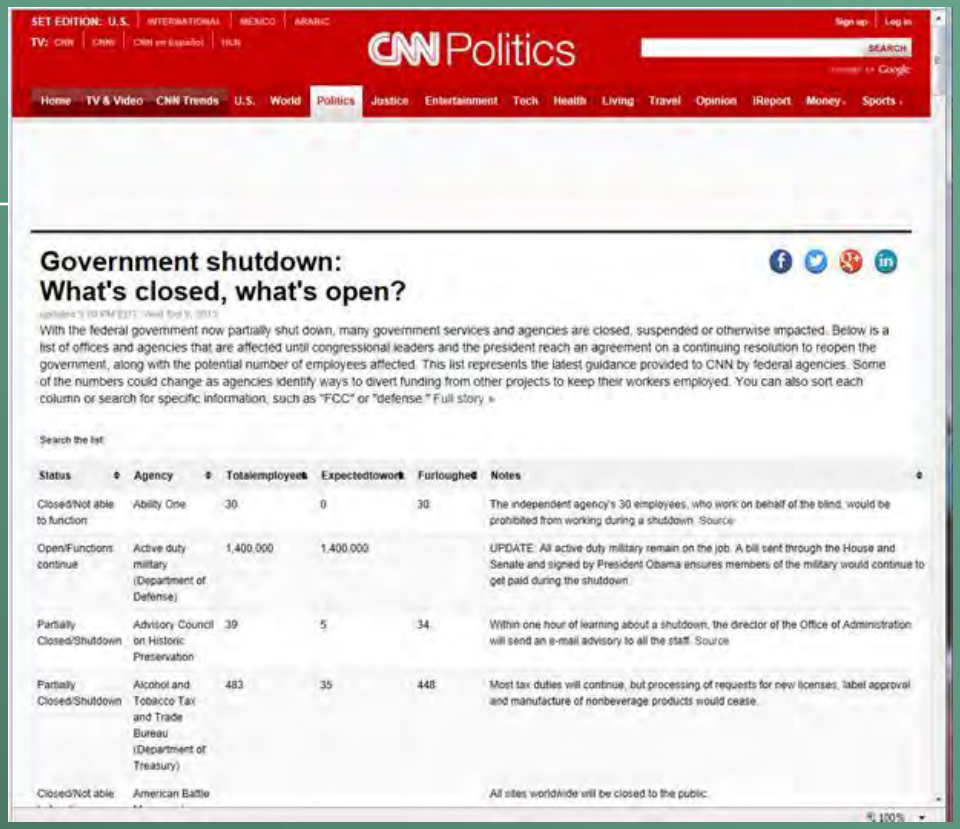
- City of Lincoln analyzes VOC samples (collected by USGS and Lincoln crews) at Duncan and North Bend
  - Same-day analyses
  - Duncan: No VOCs, TOC = 22.6 ppm
  - N. Bend: No VOCs, TOC = 4.84 ppm (Pre-flood?)

September 30

- USGS prepares for another round of sampling at Duncan, Venice, and Louisville

October 1

- Federal government shutdown
  - USGS is directed to shut down its operations
  - Continuous water-quality equipment on the Platte River at Louisville keeps working
  - Some emergency stream-gaging continues in Nebraska
- State and local agencies continue sampling



SET EDITION: U.S. | INTERNATIONAL | MEXICO | ARABIC
TV: CNN | CNN | CNN en Español | HLN
Sign up | Log in
CNN Politics
SEARCH
Home | TV & Video | CNN Trends | U.S. | World | Politics | Justice | Entertainment | Tech | Health | Living | Travel | Opinion | iReport | Money | Sports

Government shutdown: What's closed, what's open?

With the federal government now partially shut down, many government services and agencies are closed, suspended or otherwise impacted. Below is a list of offices and agencies that are affected until congressional leaders and the president reach an agreement on a continuing resolution to reopen the government, along with the potential number of employees affected. This list represents the latest guidance provided to CNN by federal agencies. Some of the numbers could change as agencies identify ways to divert funding from other projects to keep their workers employed. You can also sort each column or search for specific information, such as "FCC" or "defense." Full story »

Search the list

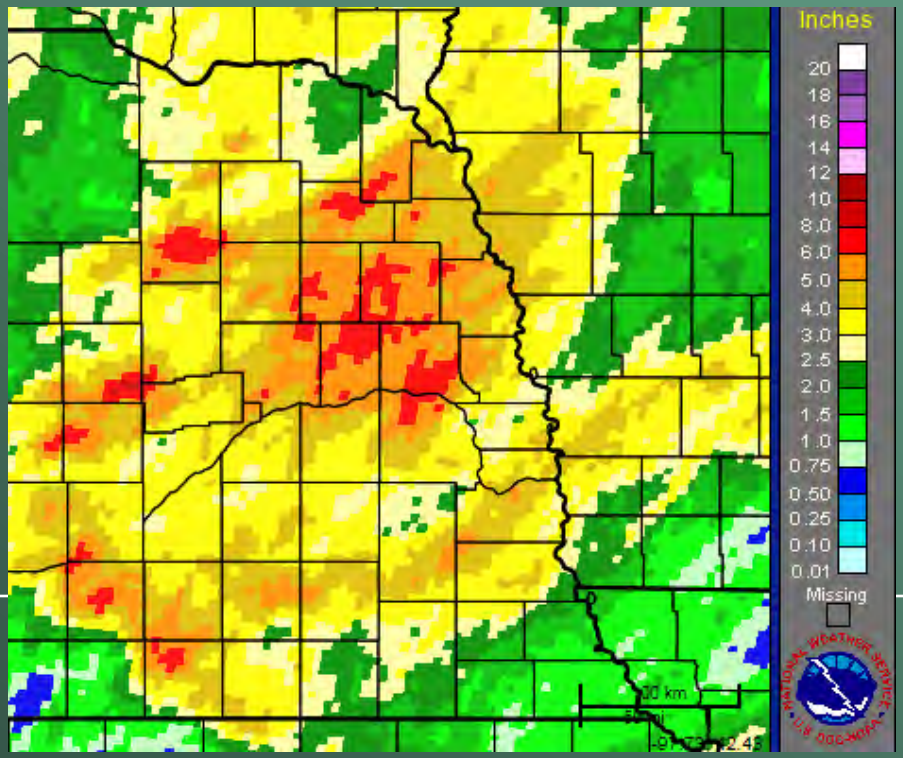
Status	Agency	Totalemployees	Expectedtowork	Furloughed	Notes
Closed/Not able to function	Ability One	30	0	30	The independent agency's 30 employees, who work on behalf of the blind, would be prohibited from working during a shutdown. Source
Open/Functions continue	Active duty military (Department of Defense)	1,400,000	1,400,000		UPDATE: All active duty military remain on the job. A bill sent through the House and Senate and signed by President Obama ensures members of the military would continue to get paid during the shutdown.
Partially Closed/Shutdown	Advisory Council on Historic Preservation	39	5	34	Within one hour of learning about a shutdown, the director of the Office of Administration will send an e-mail advisory to all the staff. Source
Partially Closed/Shutdown	Alcohol and Tobacco Tax and Trade Bureau (Department of Treasury)	483	35	448	Most tax duties will continue, but processing of requests for new licenses, label approval and manufacture of nonbeverage products would cease.
Closed/Not able	American Battle				All sites worldwide will be closed to the public.

October 1

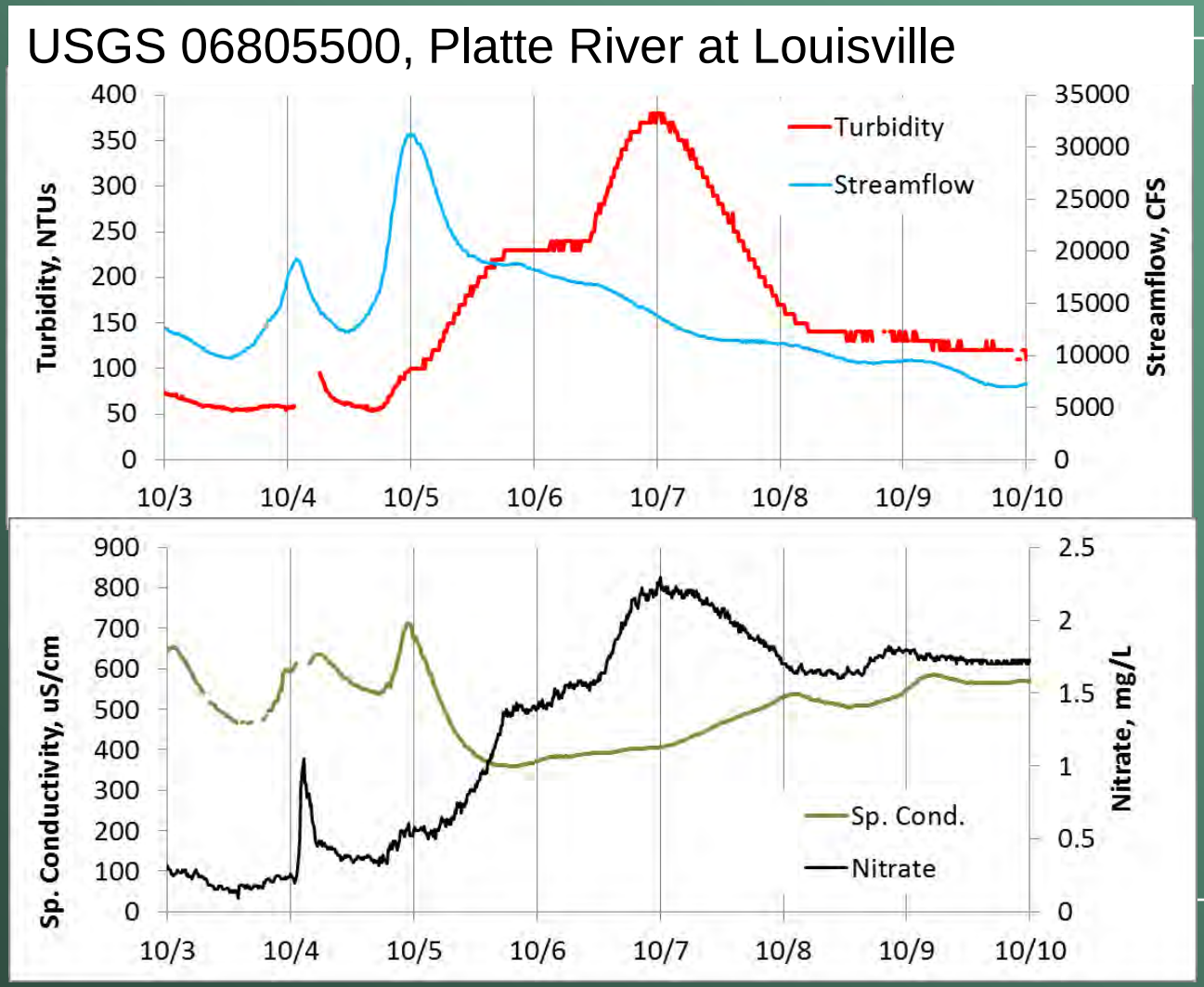
- City of Lincoln additional samples
  - Venice 10/01 No VOCs detected; TOC 19.4 ppm
  - Ashland 10/01 No VOCs detected; TOC 11.6 ppm
    - Ashland TOC 9/25 = 6.0 ppm
- City of Lincoln was able to obtain very rapid analytical turnaround throughout the flood:
  - Thanks to Candy Stock and staff at Midwest Labs for VOC analyses
  - Thanks to Eileen Thaden and Allison Trentman at the Lincoln Water System – Ashland Water Treatment Plant Laboratory

October 2-3

- As the South Platte River flood wave approaches the Lower Platte:
  - Significant rainfall hits the Loup, Elkhorn, and Salt Creek Basins



October 4-7



- **October 4:**
  - **S. Platte flood wave arrives at the Louisville gage**
  - **Runoff from the Loup, Salt Creek, and Elkhorn basins 'muddies' the S. Platte flood signature**

October 11


http://journalstar.com/news/local/flooded-
Flooded Platte River no lon...
File Edit View Favorites Tools Help
Page Safety Tools
Email Alerts | Digital Access | e-Edition | Subscriber Services | Advertise | Contact Us | Store
JournalStar.com
51°
Clear
Weekly Forecast
News Sports Entertainment Opinion Obituaries Photos Classifieds Get It! Mugshot
Hot Topics
Pics: NU falls to Gophers
Nebraska landslides
Celebrate!
Kenny Bell's dog drama
56th St. const
Home / News - Lincoln Journal Star Online / Lincoln News
Flooded Platte River no longer is health risk, authorities say
Recommend 7
Tweet 3
+1 0
Share 1
Print
Email
SUPER SAVER PHARMACY
FLU SHOT
125%

October 17 and on

- October 17:
  - Government reopens and USGS sends E. Coli sampling results from Sept. 24 to Dept. of Health and and Dept. of Environmental Quality. Highest level was 1900 colonies/100 mL
- Preliminary USGS results available online
  - Nebraska USGS 2013 flood samples
  - http://waterdata.usgs.gov/ne/nwis/
  - Analytical results for nutrients, bacteria, dissolved metals, wastewater indicator compounds, and oils and grease.

South Platte flood epilogue

- Tragedy in Colorado
- The water-*quantity*-related threat seemed to wane as the pulse moved through Nebraska
- In Nebraska, the water-*quality*-related threat:
  - Was a news-worthy unknown
    - News reports indicated ~19,000 gallons of oil spilled and ‘millions’ of gallons of raw sewage
    - By comparison, 96.5×10^9 gallons of water passed by Roscoe between Sept 15 and Oct. 5 (8.6×10^9 gallons on Sept. 23 alone)
  - Was alleviated by confidence in the drinking-water infrastructure and further diminished by the sampling results

Successes

- Though more could have been done, coordination was effective
- In the news media, our messages didn’t seem to conflict with one another
- Duplication of effort seemed to be minimal

Challenges to a flood response

- In responding to a water-quality event, an agency has to balance:
  - Its existing mission and duties
  - The existing mission of related agencies
  - The public good
  - Funding
- The best laid plans of mice and men often go awry
  - Each event is unique
  - Last-minute adjusting is inevitable, but can lead to problems
  - Gov't shutdown

Questions?
How do you rate the 2013 water-quality response?

- Is there a need for more water-quality coordination?
  - There is already an interagency group in place for managing/monitoring water-*quantity* during floods
  - http://silverjackets.dnr.ne.gov/index.html

- If so, does that need justify the setup time?

CONTACT INFORMATION

USGS Nebraska Water Science Center **(402) 328-4100**
5231 South 19th St. **http://ne.water.usgs.gov**
Lincoln, NE 68512-1271

Dave Rus **(402) 328-4127**

e-mail: dlrus@usgs.gov

Robert B. Swanson
Director
(402) 328-4110
rswanson@usgs.gov

Richard C. Wilson, P.E.
Deputy Director
(402) 328-4120
wilson@usgs.gov

Jason M. Lambrecht
Associate Director for
Hydrologic Data
(402) 328-4124
jmlambre@usgs.gov

Ronald B. Zelt
Associate Director for NAWQA
(402) 328-4140
rbzelt@usgs.gov

Aug. 16, 2013 vs Sept 17, 2013