

City of Elko

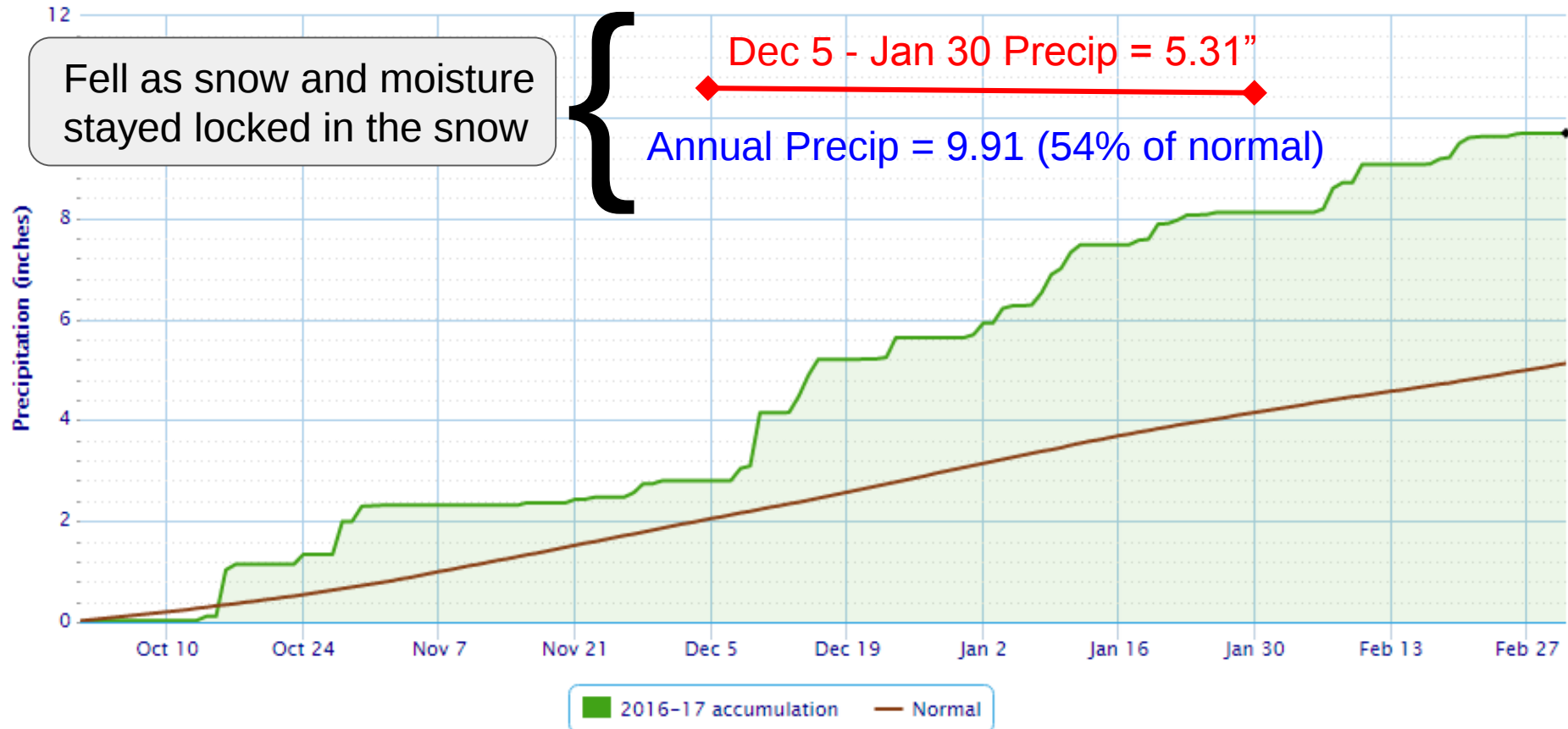
Feb 2017 Flood Event



Accumulated Precipitation – Elko Area, NV (ThreadEx)



Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values

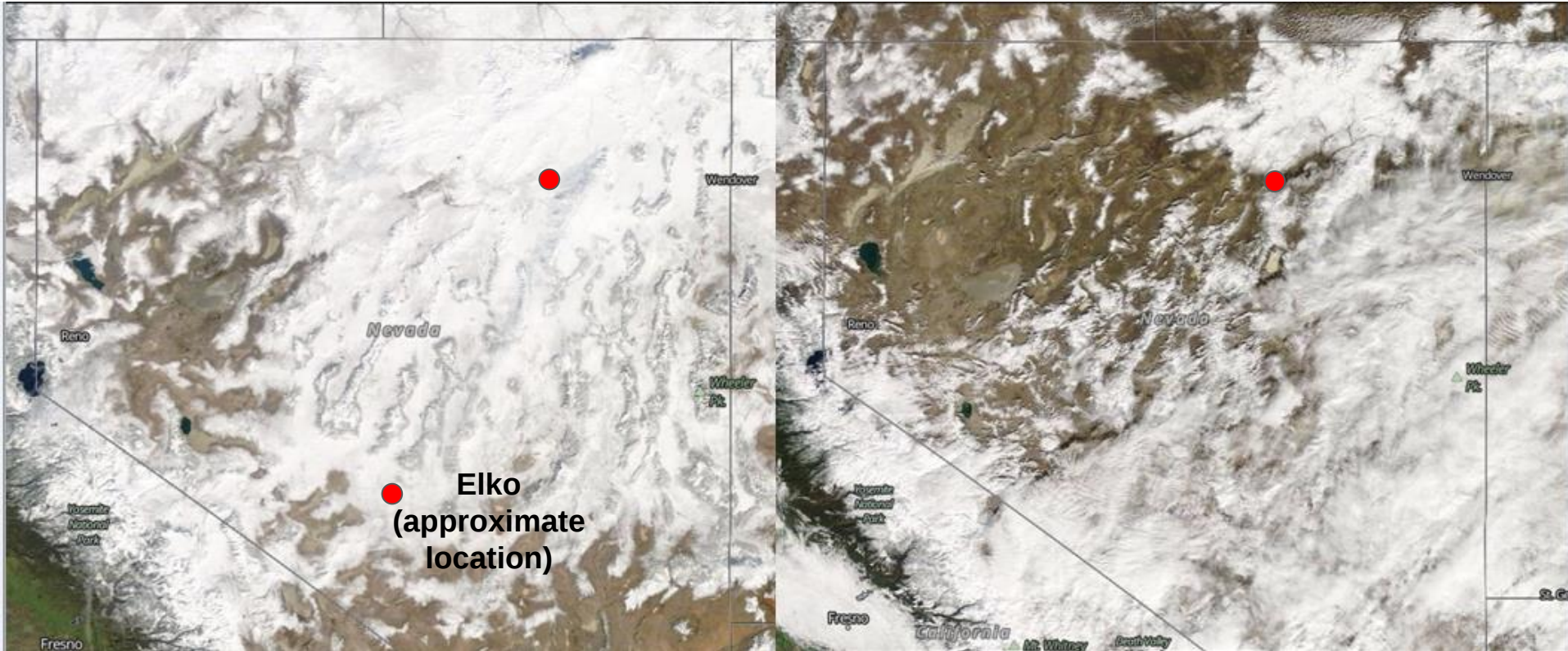


Big changes in a short time period

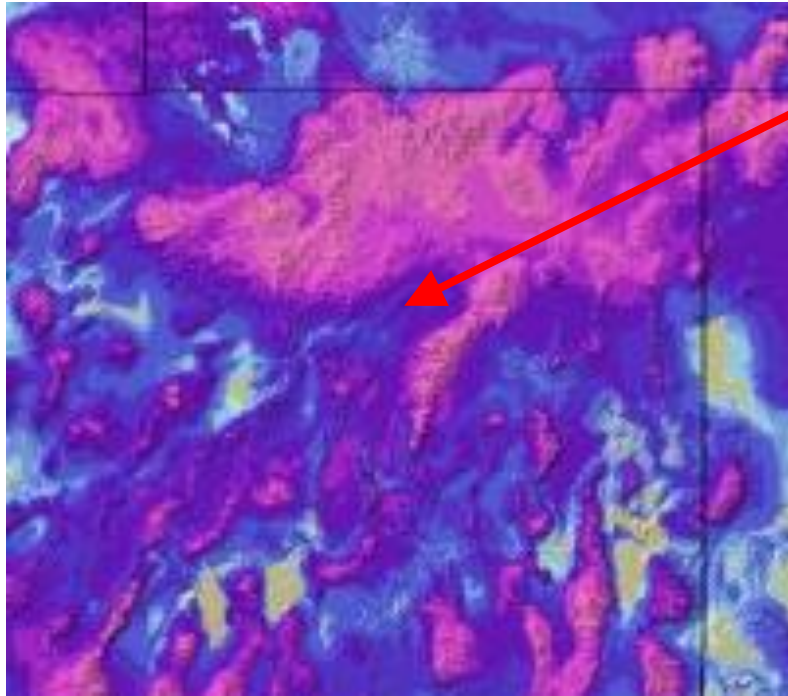
- Beginning of month
 - Normal temps (Feb 1)
High 38/Low 15
 - Snow depth - 8 inches
- By Feb 8
 - Temperatures well above normal
 - 3 day rainfall of 0.59 inches (in addition to snow melt)
 - No snow depth (Trace)

1	2	3	4	5	6A	6B	7	8	9	10	11	12	1
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	M
1	45	14	30	4	35	0	0.00	0.0	8	2.4	12	110	
2	43	25	34	8	31	0	T	T	6	4.2	10	70	
3	47	29	38	11	27	0	T	T	5	8.7	22	200	
4	48	30	39	12	26	0	0.00	0.0	4	4.0	15	170	
5	50	26	38	11	27	0	0.00	0.0	3	6.9	25	180	
6	51	36	44	17	21	0	0.07	0.0	1	11.0	24	220	
7	50	34	42	14	23	0	0.41	0.0	T	10.0	26	240	
8	48	29	39	11	26	0	0.11	0.0	T	2.8	12	250	
9	59	39	49	21	16	0	0.00	0.0	T	12.5	28	180	
10	49	34	42	14	23	0	0.36	0.0	0	5.8	16	270	
11	44	26	35	6	30	0	0.00	0.0	0	6.1	17	50	

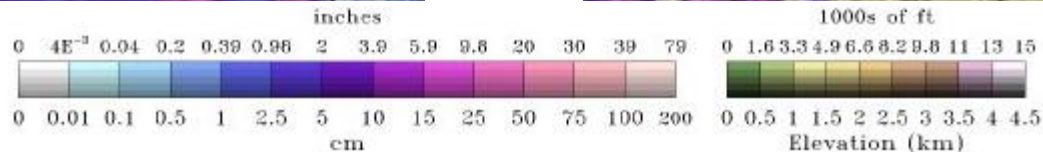
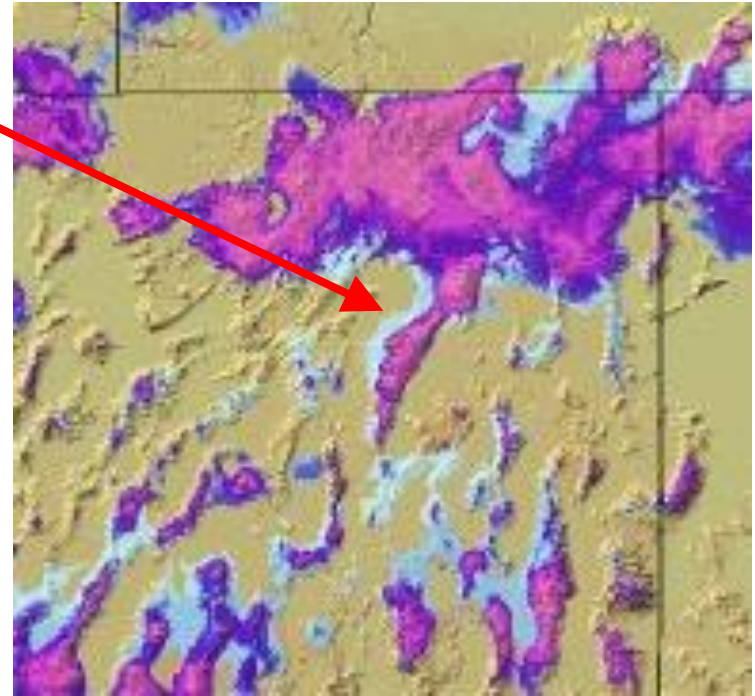
Snowpack differences from Jan 28 (left) to Feb 11 (right)



Differences in snow water equivalent (Left image: Jan 28; Right image: Feb 11)



Elko

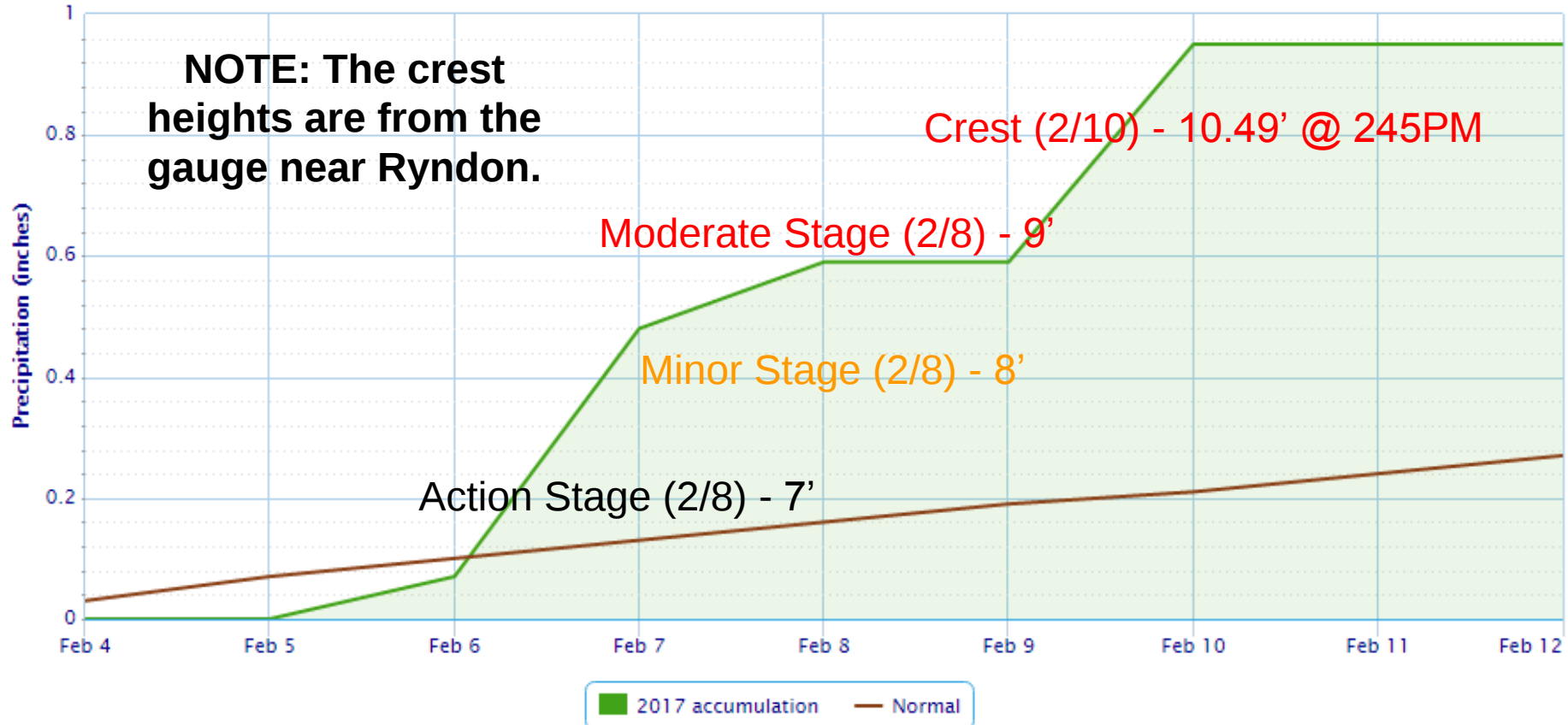


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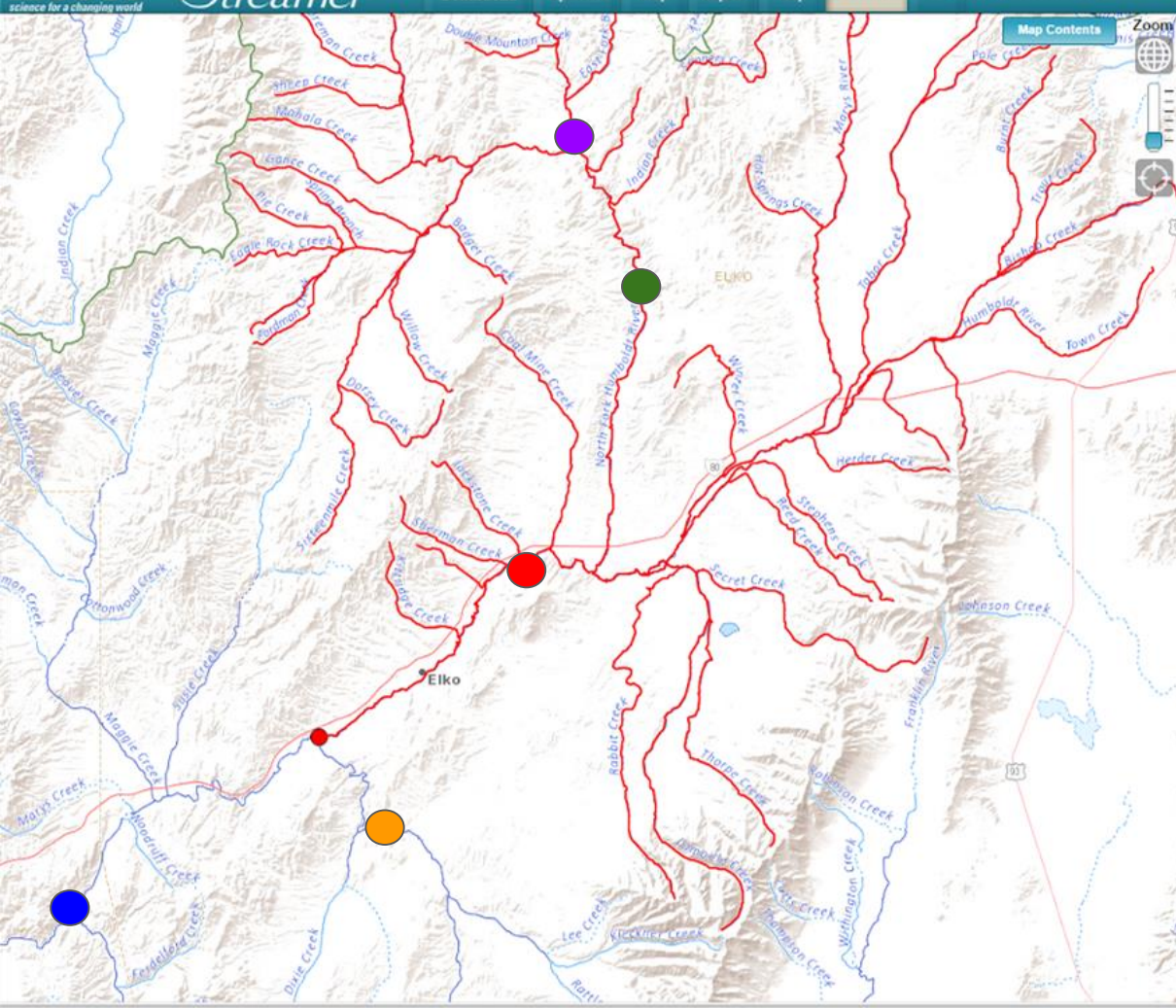
NOTE: The crest heights are from the gauge near Ryndon.



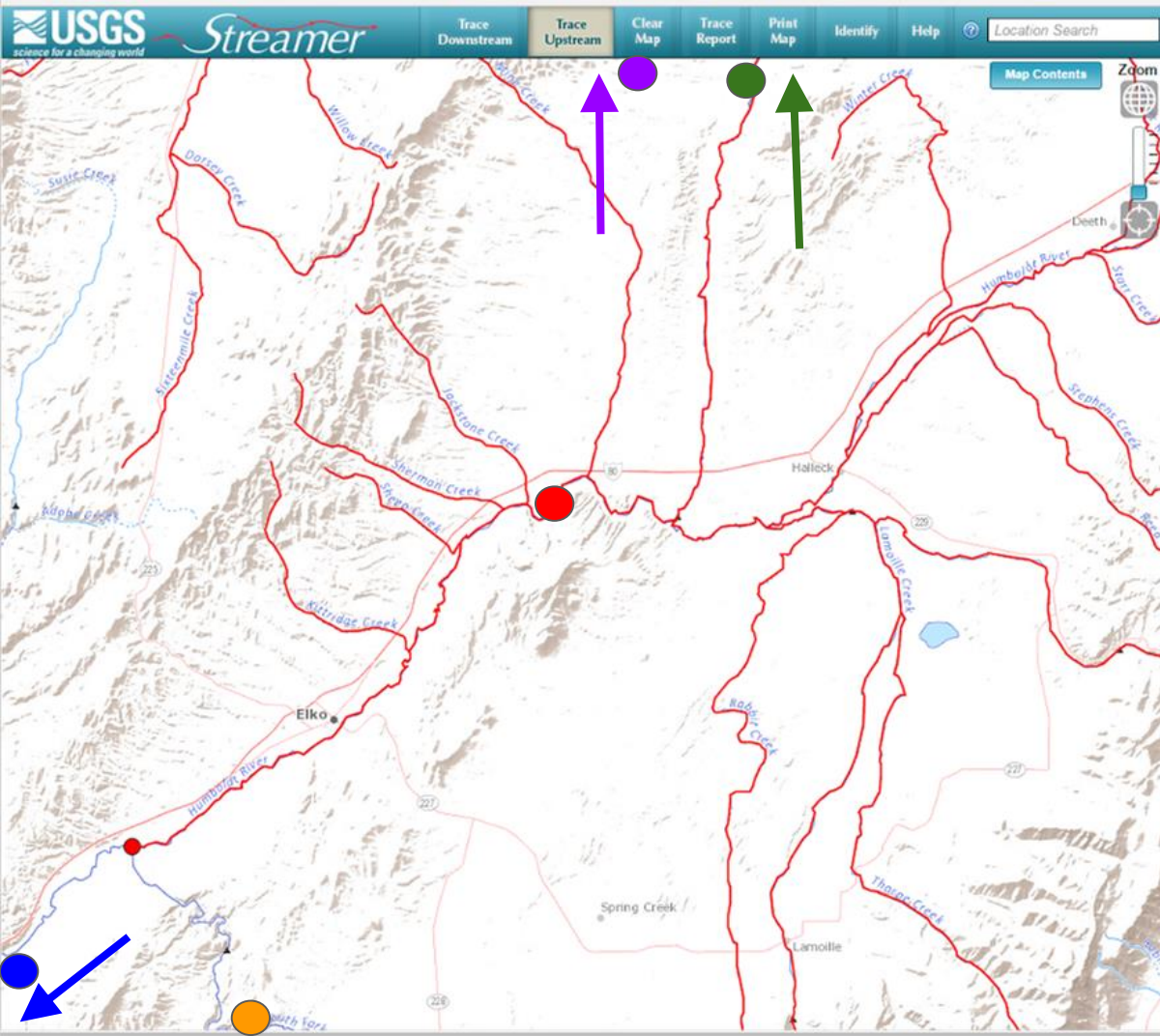
Daily rainfall = 0.07"

0.41"

0.11"

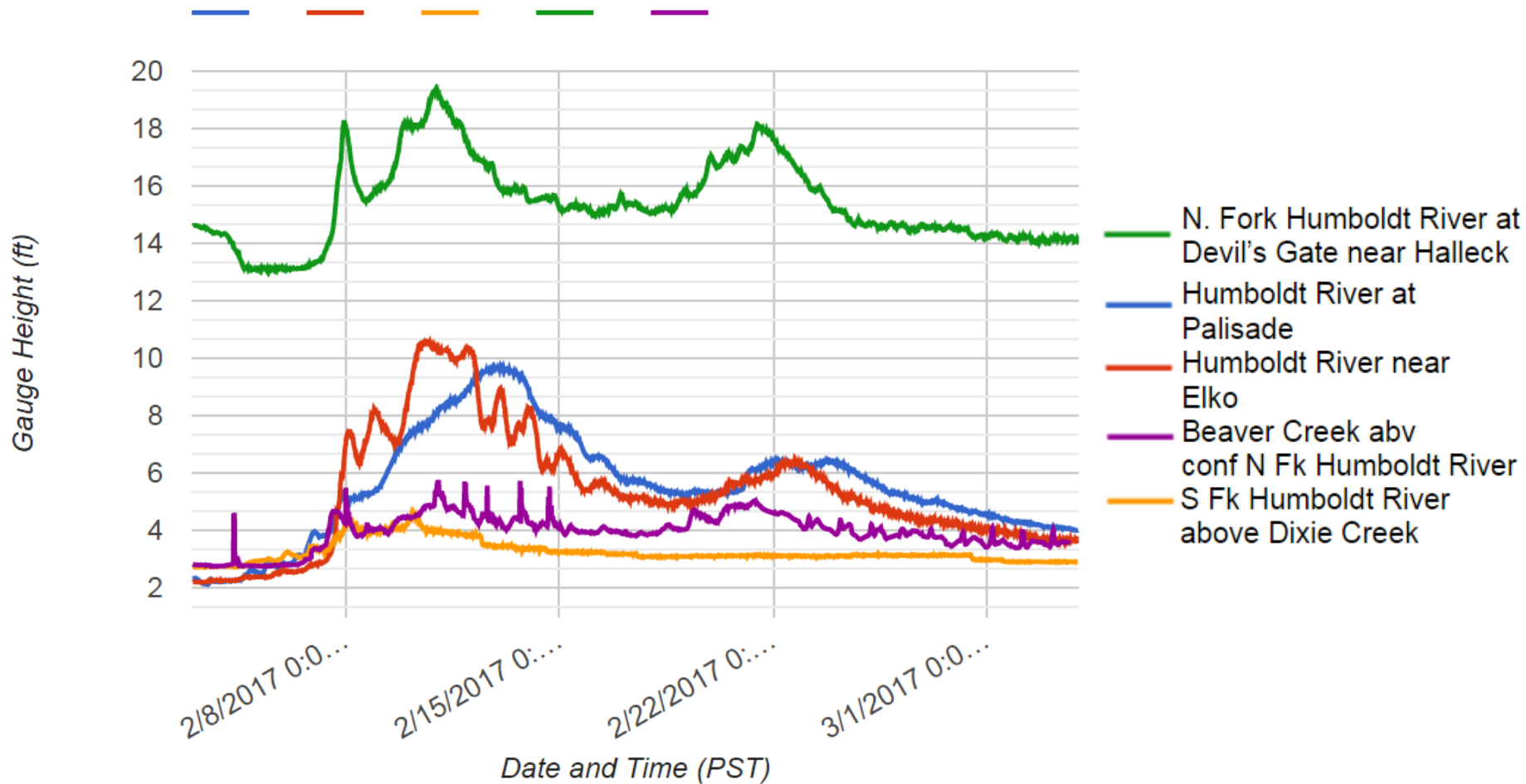


- Beaver Creek abv
conf N Fk Humboldt River
- N. Fork Humboldt River at
Devil's Gate near Halleck
- Humboldt River near
Elko
- S Fk Humboldt River
above Dixie Creek
- Humboldt River at
Palisade

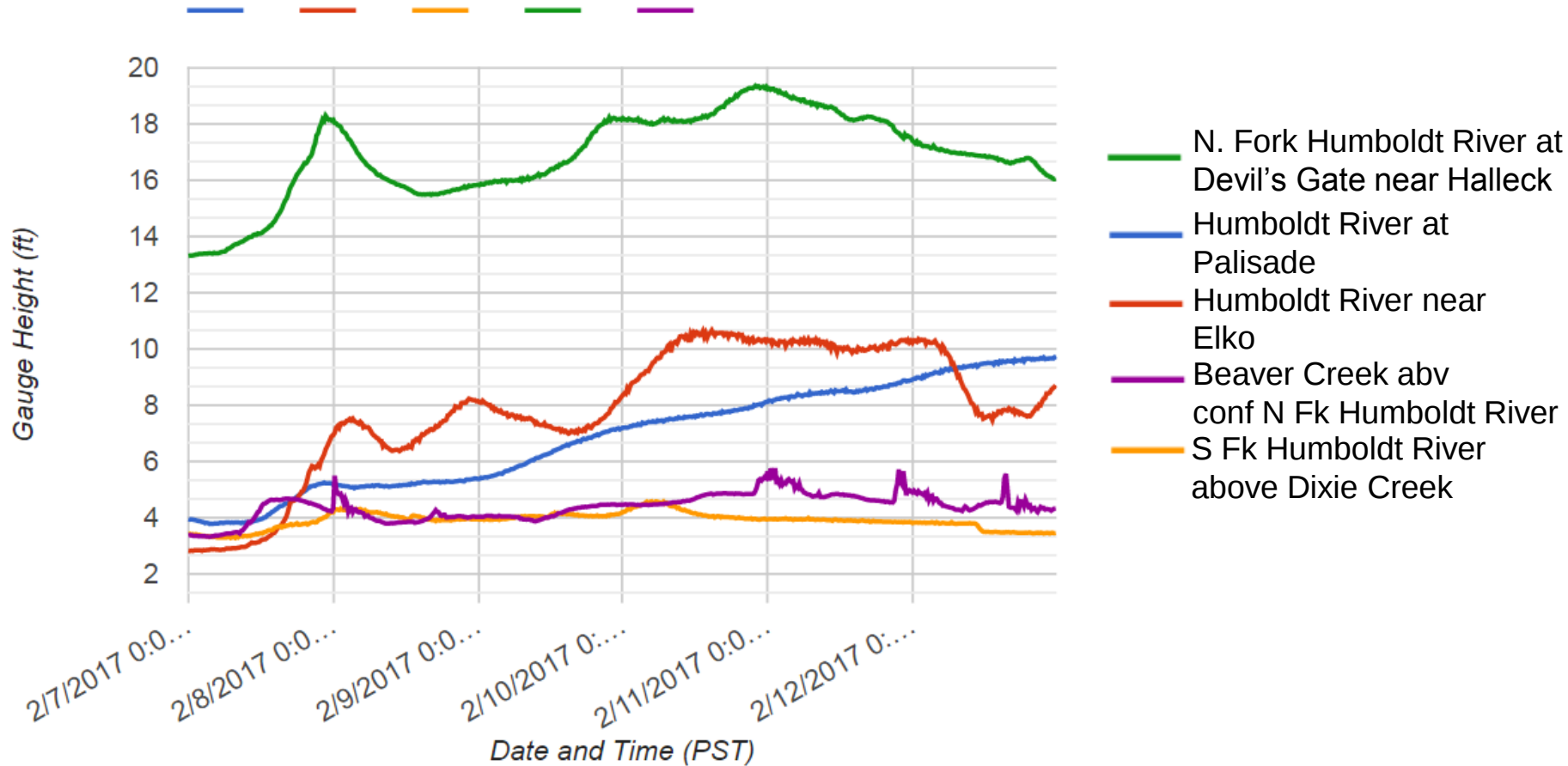


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Upper Humboldt River Gauges



Upper Humboldt River Gauges



How did this flood compare to historical records?

Stage Height at Gauge (feet)	Date of Occurrence
12.30	02/13/1962
12.18	03/04/1983
10.66*	02/10/2017 (245PM)*
10.22	05/17/1984
9.60	04/30/1952

*Unofficial measurement



City of Elko Flood Emergency Response Timeline

Tuesday, February 7 – Wednesday, February 8:

- Public Works Department starts pumping water from low-lying areas.
- Daily flood situation updates between City Administration, Fire Chief, Police Chief, and Public Works Director.

Thursday, February 9:

- Police and Fire Department Representatives attend flood update briefings at Elko County Sheriff's Office regarding regional & local flooding.
- Police, Fire, and Engineering Department evaluate condition of all Flood Control Detention Dams.
- Additional pumps and sand bags delivered to Public Works Department.

Friday, February 10:

- Public Works Department deploys additional pumps and sandbags. 11 pumps deployed.
- City Administration visits FISH Thrift Store, Elko Regional Airport, Humanitarian Camp, and 8-Mile Creek Detention Dam.
- City Administration investigates multiple flood-related social media reports.
- 3:00 pm Flood Situation meeting held: City Administration, Fire, Police, Public Works, and Engineering Departments.
- 4:00 pm City Officials attend Elko County Regional Flood Meeting.
- 7:00 pm Police Department personnel directed to monitor flood situation overnight.
- Public Works, Water/Sewer Department Staff working 24-hour shifts.
- Water begins receding prior to 12:00 am.

Saturday, February 11:

Sometime after 12:00 am, Humboldt River levels rise quickly and unexpectedly; additional flooding on south side of river occurs.

8:00 am Fire Chief attends regional flood update at Elko County Emergency Operations Center.

9:00 am Police Chief activates Emergency Operation Center and conducts briefing at Elko Police Department; Phone number established. City Manager notifies all City Council members. **City of Elko Disaster Operation Plan activated.**

9:00 am NDF Work Crews filling sandbags.

10:00 am Police Chief requests Emergency Shelter Activation and notifies Red Cross. Elko Centennial High School Gymnasium secured as shelter location.

10:10 am Police Officers deployed to bridges to keep traffic moving.

10:15 am Voluntary Evacuation begins. Police and Fire Department Teams go door-to-door within the flood zone to make personal contact with flood victims.

10:15 am Contact established with Reno area Red Cross Disaster Relief Coordinator.

10:20 am Nixle Alert #1 – Voluntary Evacuation.

10:30 am Contact established with Elko County School District.

11:00 am Nixle Alert #2 – Sand Bags Available.

11:00 am Press Conference #1.

11:45 am NV Energy begins shutting down electrical service in flood impacted areas; Nixle Alert #3 issued regarding electrical service.

Saturday, February 11 (continued):

- 12:00 pm EOC Emergency Briefing conducted for City Council, City Manager, Assistant City Manager, and Department Directors; Interview(s) with local media.
- 2:00 pm Emergency City Council Meeting held; **City Council declares local State of Emergency;** Interviews with local media.
- 2:00 pm Southwest Gas begins shutting down gas service to flood impacted area.
- 2:45 pm Rescue vessel on standby from NDOW.
- 4:00 pm Press conference #2.
- 6:15 pm LDS Volunteers (60+) completed sand bagging.
- 7:00 pm Elko Police patrol flood zone overnight with 2 teams.
- EOC staffed overnight.
- Public Works, Water/Sewer Department Staff continue working 24-hour shifts.
- Water Reclamation Facility Staff working 24-hour shifts.

Sunday, February 12:

- 1:00 am Sand bags depleted.
- 9:00 am EOC Briefing for City and all affected agencies, utilities, and disaster management personnel.
- 9:45 am Southside Elementary School closed until further notice.
- 10:10 am Nixle Alert #4 – Sand Bags.

Sunday, February 12 (continued):

- 10:20 am Nixle Alert #5 – Safety.
- 10:40 am Nixle Alert #6 – 8-mile Creek Flood Control Detention Dam.
- 11:00 am Press Conference #3.
- 11:05 am Red Cross Volunteers go door-to-door within the flood zone to make personal contact with flood victims.
- 11:35 am Medical Call – Carbon Monoxide poisoning.
- 1:25 pm Nixle Alert #7 – EOC Hours of Operation.
- 7:00 pm Medical Call – chest pains/emergency transport.

Monday, February 13:

- 8:00 am EOC reopened/partial reactivation.
- 9:00 am EOC Briefing for City and all affected agencies, utilities, and disaster management personnel.
- 11:00 am Nixle Alert #8 – Red Cross Resource Center Established at Fire Station #2.
- 11:30 am Nixle Alert #9 – Humboldt River Status
- 11:45 am Nixle Alert #10 - Police and Fire Department Teams go door-to-door within the flood zone to make personal contact with flood victims.

Monday, February 13 (continued):

- 12:00 pm EOC coordinated resources from Linkan Engineering and Team Rubicon for flood victims requesting assistance.
- 12:30 pm Press Conference #4.
- 1:00 pm Press Release #1 – City Manager
- 1:00 pm Disaster Recovery meeting: Police, Fire, and Building Departments w/Team Rubicon and Linkan Engineering.
- 4:00 pm EOC Briefing for City and all affected agencies, utilities, and disaster management personnel.
- 5:30 pm EOC closed for day; EOC number remains active.

Tuesday, February 14:

8:00 am EOC reopened/partial reactivation.

9:00 am Public Works Department and Elko Sanitation begin placing roll-off trash containers in flood zone.

9:00 am EOC Briefing for City and all affected agencies, utilities, and disaster management personnel.

9:00 am Public Works Department still pumping flood impacted areas.

9:15 am City Building Department, NV Energy, and School District inspecting Southside Elementary School for possible re-energization.

Tuesday, February 14 (continued):

10:00 am Fire Department coordinating 4 NDF Crews to reposition sand bags.

10:00 am Red Cross activates Field Tent at 6th and Wilson Streets.

10:30 am Nixle Alert # 11 – Trash Dumpsters Available

10:30 am Nixle Alert #12 – EOC Information

11:00 am Elko Fire Department patrolling flood zone.

12:00 pm US Postal Service, Fed Ex, UPS holding deliveries.

3:00 pm Press Release #2 – City Manager

END OF EMERGENCY RESPONSE – TRANSITION TO RECOVERY BEGINS

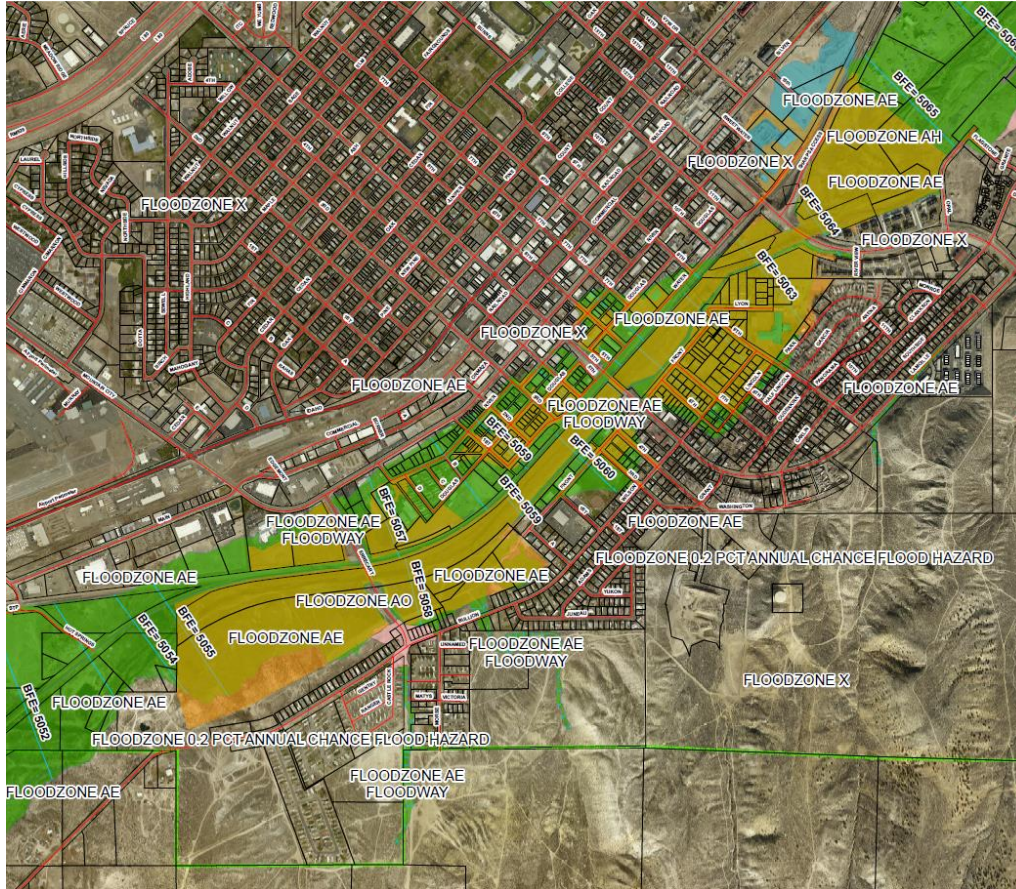
Key Observations

- Humboldt River levels appear higher than recent flood events; City river gauge inundated.
- Post-flood high water mark measured at 5,060' elevation, 7' above the bottom of storm drain infrastructure (5,053').
- More storm drains impacted than recent flood events; HARP Pathway appears “topped” near 12th Street Bridge; south side of river already flooded prior to overflow.
- No Reverse 911 System to assist with evacuations and/or dissemination of information.
- USGS Ryndon river gauge (upstream) does not measure flow generated from Adobe and/or Elko Mountains; Jackstone Creek, Sherman Creek, Sheep Creek, Kittridge Creek, 8-mile Creek, Adobe Creek, etc. All creeks were at or above flood stage.
- Elko Regional Airport's recent drainage improvements prevented flood damage from Adobe Creek.

Key Observations (continued)

- City of Elko Water Reclamation Facility (WRF) experienced extremely high flows starting on February 11 and lasting until February 15.
- WRF permitted for a peak daily flow of 5.1 Million Gallons Per Day; Peak flows during the flood event exceeded 11 Million Gallons Per Day.
- The additional “inflow” is attributed to submerged manhole covers and homeowner sewer cleanouts within the flood zone.
- All water entering the WRF was pumped through the treatment process, but effluent pumps reach capacity at 6.7 Million Gallons Per Day; treated water overflowed into emergency storage locations.
- Overflows were reprocessed as WRF plant intake returned to normal; Report submitted to NDEP on February 14.

100 YEAR FEMA FLOOD MAP VS. OBSERVED FLOODING



Green/Blue = FEMA Flood Hazard Area
Orange/Yellow = Observed Flood Area

NOTE: USGS Determines Final Flood Designation

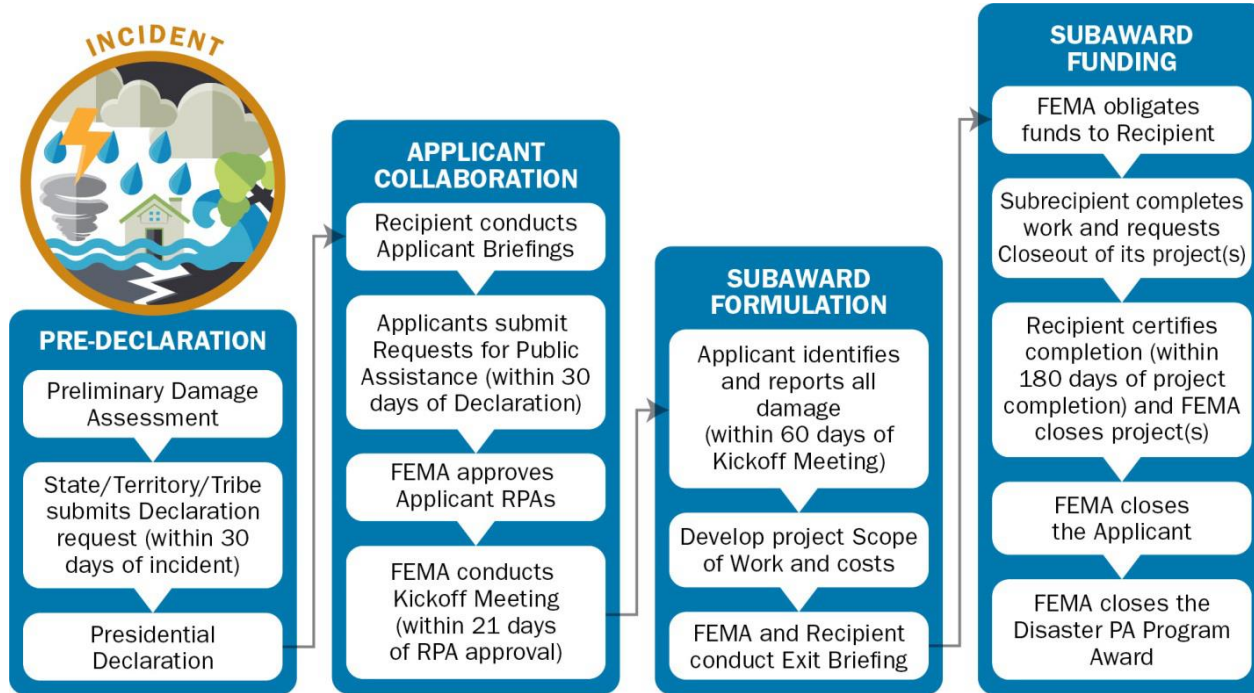
Disaster Recovery Efforts

- A Red Cross Resource Center was established at Elko Fire Station #2 on February 13 to coordinate necessary resource needs for flood victims; Red Cross emergency storage area established at Elko Regional Airport.
- The City of Elko and Elko Sanitation deployed construction debris roll-off containers in the flood impacted areas starting February 14.
- The City of Elko Building Department coordinated the restoration of electricity and natural gas service in affected areas starting February 14; approximately 200 inspections performed to date.
- Volunteer efforts coordinated through the City of Elko Emergency Operations Center starting February 11; Team Rubicon leading volunteer clean-up efforts February 18 – 20.
- The City of Elko Animal Control patrolled the flood area to provide necessary assistance with missing animals and related issues starting on February 14; Animal Shelter coordinating w/Animal Control.
- Public Communication: 12 Nixle Alerts; 4 Press Conferences; 6 Press Releases; Emergency City Council Meeting on February 11; Regional Flood Update on February 14 City Council Meeting; multiple door-to-door visits by Police/Fire Departments, Red Cross Volunteers, and City Staff; numerous media interviews.

Damage Assessment Phase

- City Officials attend Elko County meeting to discuss the collection, tabulation, and submission of emergency response data to the State and Federal agencies (February 15).
- Rapid Damage Assessment Teams deployed throughout City to assess damage to City infrastructure February 11 - 17.
- The City of Elko submits initial Emergency Response/Response Phase Costs to Elko County Support Service Manager by February 17.
- NGO private property damage assessments conducted by Red Cross.
- City Officials attend second Elko County meeting to discuss the collection, tabulation, and submission of emergency response data to the State and Federal agencies (February 22).
- State of Nevada Department of Emergency Management (DEM) Team tours City of Elko on February 23.
- State of Nevada DEM & FEMA Ground Team tours public infrastructure on March 2; Individual Assessment Team (State of Nevada/FEMA/Small Business Administration) tours private property on March 3.
- Thresholds have been met to receive assistance from FEMA. Declaration signed by Governor's office and forwarded to President Trump for signature. Approximate time for signature is 14 days

FEMA Public Assistance Program Implementation Process for Local Agency Assistance



FEMA INDIVIDUAL DISASTER ASSISTANCE PROGRAMS & INFORMATION

<https://www.fema.gov/individual-disaster-assistance>

Homeowners, renters, and business owners who had disaster losses should register online for disaster assistance at www.disasterassistance.gov or call the FEMA registration line at: **1.800.621.FEMA** (3362) (TTY 1.800.462.7585).

National Flood Insurance Program

The National Flood Insurance Program offers insurance for flood coverage. Homes and businesses with mortgages from federally regulated or insured lenders in high-risk flood areas are required to have flood insurance. While flood insurance is not federally required if you live in a moderate- to low-risk flood area, it is still available and strongly recommended.

https://www.floodsmart.gov/floodsmart/pages/commercial_coverage/cc_overview.jsp

Estimated City of Elko Costs

Labor - Exempt and Hourly	52,356.64
Debris Removal - Roll offs	61,320.00
10 rollofs emptied 3 times daily for 4 days at 12.5 tons/each	
Pumps	19,000.00
Sand	7,227.65
Supplies	379.82
Streets Damage	601,409.00
Culvert Damage	90,000.00
Truck Engine	7,500.00
Parks	30,000.00
Total Estimated Costs	869,193.11

Questions From February 28 Public Comment Period

- When was river the highest? According to the National Weather Service, the Humboldt River was the highest on February 13, 1962.
- Who installed the culvert at 12th Street? Project Lifesaver and HARP Pathway Project files currently under review.
- Accumulated rocks/dredging? Project Lifesaver files under review; interviews with former City employees underway.
- Why haven't storm drains been addressed? Project Lifesaver files under review; interviews with former City employees underway.
- Why no free vouchers to the Landfill? Free construction debris roll-off containers were placed in the flood impacted areas. Vouchers may be considered in the future.

Questions (continued)

- Where was the Mayor? Mayor Chris Johnson reported to the Emergency Operations Center on Saturday, February 11 and attended multiple EOC and Staff briefings thereafter. Mayor Johnson attended Mayor's Day at the Nevada Legislature on February 28 at the request of the Nevada League of Cities. Mayor Johnson has worked with Senator Goicoechea to secure DEM and FEMA assistance.
- Status of gauge in the river? The City river gauge was inundated early on February 11. Post-flood measurements have been recorded.
- Where are we going from here? City is preparing for future flooding events and reviewing all Project Lifesaver and HARP Pathway Project files. City is coordinating flood relief efforts with County, State, and Federal agencies.
- Why not an agenda item? The City conducted an Emergency Declaration meeting on February 11, gave a detailed flood report on February 14, and rescinded the Declaration on February 28. Until February 28, the City had received no requests for a specific agenda item.

Questions (continued)

- Why haven't the Police responded? The Elko Police Department was actively engaged in flood response efforts and has been responsive to calls for service. The Elko Police Department actively patrols flood damaged areas.
- Has anyone on the City Council been to damaged homes? Yes, multiple City Council members have been to flood damaged homes and toured flood impacted areas.
- Is the City planning on managing volunteers? Yes, the City has, and will continue to manage and/or facilitate appropriate volunteer groups. Future volunteer efforts will be coordinated through the EOC (if applicable).
- Why/when were gate (or backflow) valves removed? Unknown at this time. Project Lifesaver files under review; interviews with former City employees underway.
- Why were pumps not running on Friday evening, February 10? Eleven pumps were deployed and 9 person crews were monitoring pump operations. All pumps intakes were checked regularly and pumps were refueled when necessary.

PUBLIC COMMENT

