# After Action Report

## State of Colorado 2013 Floods and Black Forest Fire

June 30, 2015

COLORADO
Division of Homeland Security & Emergency Management
Department of Public Safety

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# EXECUTIVE SUMMARY

## Colorado 2013 Floods

Starting on September 9, 2013, a slow-moving storm (similar to the storm that occurred in Colorado in 1938) stalled over Colorado, resulting in heavy rains and catastrophic flooding along the Front Range. The situation intensified on September 10 and 11, ultimately affecting 18 counties. Over a five-day period, historic rainfall swept through the Front Range, with some areas receiving more than 17 inches of rain. On September 17, 2013, the National Oceanic and Atmospheric Administration (NOAA) declared the event a 1,000-year rainfall event, with some seven-day totals approaching 20 inches, exceeding average annual amounts. Statewide, the flooding killed 10 people, destroyed 1,882 structures, and damaged at least 16,000 other structures. Some of the hardest hit communities included Jamestown, Lyons, Longmont, Glen Haven, Estes Park, and Evans. At one point, more than 1,200 people were missing (all have since been accounted for) and more than 18,000 people were evacuated, making this disaster the largest domestic evacuation operation since Hurricane Katrina.

## 2013 Black Forest Fire

The Black Forest Fire in El Paso County, June 11-20, 2013, was the most destructive forest fire in Colorado history. The 14,280-acre blaze damaged and destroyed 489 homes and forced the evacuation of 41,000 residents. Two people were killed when the fire consumed their house. Approximately 966 firefighters fought the blaze in a nationally coordinated effort costing over $9 million.

## After Action Report Development

The State of Colorado initiated the effort to develop an after action report (AAR) to identify strengths and areas for improvement observed during response and recovery efforts for both the 2013 Floods and the Black Forest Fire. The AAR process included the development of a questionnaire that was provided to key stakeholders with the intent to gather information regarding response and recovery-related activities, the conduct of stakeholder interviews, and the review of event records. Through research and review of written materials as well as the interviews with State and local emergency management personnel, key strengths and areas for improvement were identified.

The strengths and areas for improvement identified in this AAR directly affect the ability of the State of Colorado as a whole to respond to and recover from a disaster and are not specific to any one department, agency, county or jurisdiction. As such, the responsibility for identifying and implementing the identified recommendations and solutions to ensure that strengths are sustained and areas for improvement are remedied rests in the hands of the State of Colorado and the counties. The associated improvement plan serves as a detailed roadmap to enhance the outcome of emergency management efforts.

While this AAR is focused on the events surrounding the 2013 Floods and Black Forest Fire, it is designed to strengthen the State's capacity to effectively respond in a highly coordinated way to any disaster or emergency.

The AAR is composed of the following sections:

- The **Timeline** section includes a timeline and important actions and milestones associated with the State's response to the 2013 Floods.
- The **Summary of the 2013 Floods** section includes an analysis of strengths and areas of improvement and additional issues for consideration for each component.
- The **Summary of the 2013 Black Forest Fire** section includes an analysis of strengths and areas of improvement and additional issues for consideration for each component.
- The **Conclusion** section provides a summary of the overall AAR.

- Appendix A includes an **improvement plan** that can serve as a standalone document and provides a roadmap for State and local agencies to improve overall emergency response and recovery capabilities.
- Appendices B through F include **reference documents** that were used during the development of this AAR.

## OVERARCHING STRENGTHS AND AREAS FOR IMPROVEMENT

Listed below are the overarching strengths and areas for improvement identified during the response and recovery from the 2013 Floods and Black Forest Fire.

### Overall Key Strengths

- **Professionalism:** This event highlighted countless examples of well-trained professionals and volunteers demonstrating dedication and effective service delivery to the residents of Colorado during adverse conditions.
- **Cooperation:** The State of Colorado and FEMA Region VIII personnel worked effectively together. The Joint Field Office (JFO) was set up across the street from the State Emergency Operations Center (SEOC), which provided the ability for close coordination as needed.
- **Early Warning and Notification:** This was a key factor in the limited number of fatalities experienced during the floods. The use of public information for announcements, first responders out doing door-to-door notifications, as well as the use of Reverse 911 in the affected areas, enabled residents to evacuate in a timely manner.

### Overall Key Areas for Improvement

- **Communication and Coordination:** Better operational communication and coordination between field personnel and the various emergency operations centers is needed. Many times information was coming from various sources and caused confusion. Establishing clearly defined communication methods and processes for sharing information with all stakeholders (field personnel, local, state, federal, private sector and the public) across disciplines would help to reduce confusion and duplication of efforts.
- **Staffing:** Often times there were insufficient staff to fulfill the necessary roles within the various EOC. Pre-identification of individuals to staff the SEOC when activated would be helpful in order to ensure proper training is in place
- **Training:** While many staff members have participated in previous training efforts, additional targeted training is needed to better prepare State staff to respond to an emergency.
- **Understanding of Roles and Responsibilities:** A better understanding of the roles and responsibilities of various agencies and how they integrate into the overall response organization through the SEOC is needed.

## NEXT STEPS

Each incident response is an opportunity for all State and County personnel to learn how to respond better the next time. By initiating this report, the State of Colorado has demonstrated a deep commitment to learning lessons from response and recovery operations, developing solutions to identified issues, and following through on their implementation of identified recommendations and solutions in the interest of better serving the residents of the State of Colorado.

# EVENT OVERVIEW

## 2013 Floods

The 2013 Colorado floods was a natural disaster occurring in the U.S. State of Colorado. Starting on September 9, 2013, a slow-moving cold front stalled over Colorado, clashing with warm humid monsoonal air from the south. This resulted in heavy rain and catastrophic flooding along Colorado's Front Range from Colorado Springs north to Fort Collins. The situation intensified on September 11 and 12. Boulder County was worst hit, with 9.08 inches of rain recorded by September 12 and up to 17 inches of rain recorded by September 15, which is comparable to Boulder County's average annual precipitation (20.7 inches).

The floodwaters spread across a range of almost 200 miles from north to south, affecting 18 counties. Governor John Hickenlooper declared a disaster emergency on September 12, 2013, in 14 counties: Adams, Arapahoe, Broomfield, Boulder, Denver, El Paso, Fremont, Jefferson, Larimer, Logan, Morgan, Pueblo, Washington, and Weld. By September 15, federal emergency declarations covered those 14 counties as well as Clear Creek County.

Among the hardest-hit communities was Boulder County, located on the northwestern end of the Denver Metropolitan Area. Boulder's Daily Camera reported that heavy rains started on the evening of September 11 and continued through the following morning. The National Weather Service recorded rainfall amounts exceeding 8 inches in Boulder on September 12 and amounts exceeding 4 inches the next day. Similarly high rainfall totals occurred in other spots along the Front Range. Colorado State University and the National Weather Service (NWS) concluded the precipitation in Boulder County and other parts of the State qualified as a 1,000-year event, meaning that any one year has just a 1 in 1,000 chance of experiencing such heavy precipitation.

Three deaths occurred in Boulder County. Over 1,600 individuals were evacuated, with 262 homes destroyed and nearly 300 more damaged. Nearly 900 square miles were damaged by flooding. Roads suffered extensive damage in Big Thompson Canyon and Buckhorn Canyon, with some sections completely washed away.

On September 12, the Boulder Creek, which flows roughly eastward through town, crested in downtown Boulder at 7.78 feet, the highest water level observed at that location since 1894. The main highway running through Boulder was partially closed southeast of town and partially destroyed northwest of town, isolating the nearby mountain community of Lyons. Thousands of residents faced power outages and evacuation orders in the Denver-Boulder area as officials called in the National Guard to assist rescue efforts. Schools, businesses, and government offices closed. Many roads remained closed and impassable for weeks, so multiple mountain communities remained isolated.

Larimer County was also hit hard, with 1,120 square mile affected by flooding, and 1,500 homes and 200 businesses destroyed. An additional 4,500 homes and 500 businesses were estimated to be damaged. Extensive road damage in Big Thompson Canyon completely cut off road access to the communities of Drake, Glen Haven, and Cedar Park. Six dams also failed in the County. Both U.S. Route 36 and U.S. Route 34, the major routes into the tourist town of Estes Park, were severely damaged. Hundreds of Estes Park residents were also isolated by the destruction of sections of Fish Creek Road and all nine crossings across Fish Creek. Damaged sewer lines dumped raw sewage down the creek and into the Big Thompson River.

Weld County, in northeast Colorado, was flooded by the overflow of the South Platte River. Flooding in Weld County affected 3,000 homes, over 350 commercial properties, and 2,377 agricultural parcels. One hundred twenty-two bridges were damaged and 654 miles of road in Weld County were either damaged by flooding or under standing water. Portions of Greeley, the County seat, were under mandatory evacuation and whole neighborhoods in Greeley and nearby Evans were submerged after days of flooding. The shutdown of a wastewater treatment facility in Evans put remaining residents on restrictions, including orders not to flush their toilets, do laundry, or bathe.

In Morgan County, the communities of Goodrich, Orchard, and Weldona were placed under an immediate evacuation order the morning of September 14.

## Black Forest Fire

The Black Forest Fire began near Highway 83 and Shoup Road in Black Forest, Colorado around 1:00 p.m. on June 11, 2013. As of June 20, 2013, the fire was 100 percent contained, 14,280 acres (22.31 square miles) were burned, at least 509 homes were said to be destroyed, and two people had died. This was the most destructive fire in the State's history, surpassing the 2012 Waldo Canyon Fire, which also began near Colorado Springs.

The evacuation area covered 94,000 acres (147 square mile) acres, 13,000 homes, and 38,000 people. Three shelters were established in the area, including Elbert County Fairgrounds, which accepted humans, pets, and large animals. Two other shelters were designated for large animals only.

As of June 13, the Denver Post reported 457 firefighters were working the fire line, including agencies around the fire, the Colorado Air National Guard, and select personnel from fire suppression teams on Fort Carson and the nearby United States Air Force Academy. Of note, 3 x UH-60 and 3 x CH-47 from 2-4 GSAB were instrumental in providing immediate response to assist in fighting the fires. The Battalion, commanded by LTC Tyler Smith, launched with very little notice to provide much needed support to the Front Range region. One of the CH-47D aircraft, "Patches", was involved in the effort every day. Governor John Hickenlooper addressed emergency managers at the command post on June 12. U.S. Northern Command assisted with firefighting efforts.

As of Friday, June 21, the fire was completely contained but the total number of homes lost had risen. Sheriff Maketa stated the assessed value of the lost homes totaled about $90 million. The number was revised upward the next day to 511 homes lost. As of June 20, 2013, the cost for fighting the fire was estimated at $9,323,955.

At the completion of the first of four parts of the Black Forest assessment in early July, the El Paso County Assessor's office reported the fire destroyed 486 homes and damaged 37, causing $85,444,052 in damage.

# TIMELINE

## Colorado Severe Storms, Flooding, Landslides, and Mudslides (DR-4145)

Starting on September 9, 2013, a slow-moving storm similar to the one in September of 1938 that also had a north-south footprint with a similar atmospheric circulation[1] , resulting in heavy rains and catastrophic flooding along the Front Range. The situation intensified on September 10 and 11, ultimately affecting 18 counties with some areas witnessing 17" of rain. As a result of this, the State Emergency Operations Center (SEOC) was activated to a Level 3 on September 12, 2013.

On September 13, 2013, several counties signed a local disaster declaration and sent it to the State for consideration. On the same day, Governor Hickenlooper signed Executive Order D 2013-26 declaring a Disaster Emergency due to the flooding and ordered that $6 million be transferred into the State's Disaster Emergency Fund. Additionally, at the request of Governor Hickenlooper, President Obama signed a major disaster declaration for Colorado on September 14, 2013.

Under the major disaster declaration, the 11 counties designated for Individual Assistance were Adams, Arapahoe, Boulder, Clear Creek, El Paso, Fremont, Jefferson, Larimer, Logan, Morgan, and Weld. The 18 counties designated for Public Assistance were Adams, Arapahoe, Boulder, Clear Creek, Crowley, Denver, El Paso, Fremont, Gilpin, Jefferson, Lake, Larimer, Lincoln, Logan, Morgan, Sedgwick, Washington, and Weld.

On September 17, 2013, the NOAA declared the event a 1,000-year rainfall event, with some seven-day totals approaching 20 inches, exceeding average annual amounts.

The flooding killed 10 people, forced more than 18,000 from their homes, destroyed 1,882 structures, and damaged at least 16,000 others. Some of the hardest hit communities included Jamestown, Lyons, Longmont, Glen Haven, Estes Park, and Evans.

Below is the timeline as pulled together from the Colorado SEOC reports dated September 12–25, 2013:

**September 12, 2013**

- SEOC Activation Level 3
- Ten counties and three city emergency operations centers (EOCs) fully or partially activated.
- VHF radio traffic overwhelms Boulder County Network.
- Type II Incident Management Team and water rescue teams requested.
- Portions of US 34 and US 36 closed; reports of bridge collapsed.
- Road collapse reports in Boulder, Larimer, and Denver counties.
- Colorado Department of Public Health and Environment (CDPHE) has multiple divisions in response capacity
- CDPHE authorizes neighboring counties to Boulder and Longmont to sign permits and related functions along with the State Vital Records Office.
- Colorado (CO) Task Force (TF) 1 requested by Boulder County
- Fatalities: 2
- Evacuated: 0 reported
- In Temporary Shelters: 0 reported

[1] CSU Colorado Climate Center CIRES Western Water Assessment

**September 13, 2013**

- SEOC Activation Level 1
- Ten counties and five city EOCs fully or partially activated.
- Governor signed Executive Order D 2013-26 declaring a Disaster Emergency.
- Governor orders $6 million transferred to Disaster Emergency Fund.
- Disaster recovery coordination calls begin.
- Temporary Flight Restriction in place over Boulder County.
- Damage to water diversions and ditches forcing uncontrolled flows into reservoirs.
- 74 power outages reported affecting 10,113 customers.
- Second SAT T1 Team (Salt Lake) requested by Boulder. Utah (UT) TF 1 deploys to Boulder.
- National Guard deploys to local jurisdictions through deployment of helicopters, fuel tenders, and liaisons.
- Fatalities: 4
- Evacuated: 6,500
- In Temporary Shelters: 1,153

**September 14, 2013**

- SEOC Activation Level 1
- Six counties and four city EOCs fully or partially activated.
- President signs major disaster declaration for Colorado.
- Long-term recovery call conducted to coordinate focus on Disaster Assistance Center/Disaster Recovery Centers.
- Temporary Flight Restriction continues over Boulder County.
- CDPHE monitoring compromise of sewage treatment plants and for discharge and issuing notifications of potential drinking water contamination.
- Department of Natural Resources monitoring reports of six dams being breached.
- Fatalities: 4
- Evacuated: 14,500
- In Temporary Shelters: 856

**September 15, 2013**

- SEOC Activation Level 1
- Eight counties and seven agency/city EOCs fully or partially activated.
- I-25 northbound/southbound lanes reopened. Portions of Hwy 6 closed.
- Temporary Flight Restriction continues over Boulder County.
- Boulder County area sustains damage to 150 miles of roads, 40 bridges, and 100 culverts.
- Peak of river impacting Sterling.
- Animal sheltering established at Logan County Fairgrounds.
- Logan County hospitals on pre-evacuation notice.
- FEMA White Incident Support Team (IST), UT-TF1, Nebraska (NE)-TF1 and CO-TF1 deployed. Missouri (MO)-TF1 and Nevada (NV)-TF1 activated as Type I Task Forces.
- 40 power outages reported affecting 5,139 customers.
- Washington County EOC notified BNSF Railroad of possible washing out of bridge east of Brush.
- Fatalities: 5
- Evacuated: 11,750
- In Temporary Shelters: 528

**September 16, 2013**

- SEOC Activation Level 1
- Nine counties and four agency/city EOCs fully or partially activated.
- Portions of US 34, CO 5, CO 7, CO 14, Hwy 72 closed.
- 24 shelters open statewide.
- Plans being developed for immunization of State employees.
- Three Search and Rescue (SAR) Task Forces conducting operations in Boulder County.
- 173 power outages affecting 8,126 customers; gas service suspended for 4,977 customers.
- Planning conducted for Disaster Recovery Center establishment in Boulder and Larimer counties.
- Allen Park, Longmont, and Wall Street communities inaccessible.
- CDOT estimates 30 State highway bridges destroyed; 20 damaged. Number of railways impacted.
- Sterling Sewer system seriously impacted for 7-10 days.
- Fatalities: 6
- Evacuated: 11,750
- In Temporary Shelters: 536

**September 17, 2013**

- SEOC Activation Level 1
- Governor and Federal Emergency Management Agency (FEMA) Administrator hold joint press conference; focus remains SAR.
- Nine counties and three agency/city EOCs fully or partially activated.
- Portions of State Hwy 138, 113, 55 and 194 closed. Portions of I-76 closed.
- Train derailment in Coal Creek Canyon reported.
- Extensive animal sheltering ongoing in Longmont and Boulder County.
- Three SAR Task Forces conducting operations in Boulder County and two in Larimer County.
- Power outages affecting approx. 5,000 customers; gas service suspended for 4,590 customers.
- Weld County projects running out of clean water.
- Fatalities: 6
- Evacuated: 12,118
- In Temporary Shelters: 484
- Square miles impacted: 2,270

**September 18, 2013**

- SEOC Activation Level 1; SEOC transitions to 8:00 a.m.–8:00 p.m. operations
- Nine counties and three agency/city EOCs fully or partially activated.
- CDOT closes portion of Hwy 194. BNSF Train stranded on compromised track near Messex.
- Larimer County reports most roads experienced damage.
- Power outages affecting 6,381 customers; gas service suspended for 4,590 customers.
- Recovery centers operating in Larimer, Boulder, and Weld Counties.
- Daylight only Temporary Flight Restriction over Boulder and Larimer counties.
- Larimer County has three wastewater treatment plants off line. Sedgwick County has reestablished water and waste facilities.
- EMAC: Wyoming - Five UH-60 aircraft
- Fatalities: 6
- Evacuated: 18,147
- In Temporary Shelters: 373
- Square miles impacted: 1,918

**September 19, 2013**

- SEOC Activation Level 1; SEOC transitions to 8:00 a.m.–8:00 p.m. operations
- Nine counties and three agency/city EOCs fully or partially activated. Demobilization planned.
- CDOT closes portion of SH 7.
- SAR operations continue in Boulder (three teams) and Larimer County (two teams).
- Hazardous Materials teams conducting operations in Big Thompson Canyon. Environmental Protection Agency (EPA) assisting.
- Approx. 5000 gallons of oil products reported leaked into South Platte River in Milliken area.
- Approx. 13, 500 gallons of oil products reported leaked in the Platteville area.
- Power outages affecting 5,881 customers; gas service suspended for 4,120 customers.
- Recovery centers operating in Larimer, Boulder, and Weld Counties.
- Daylight only Temporary Flight Restriction over Boulder and Larimer Counties.
- EMAC: Preliminary Damage Assessment (PDA)teams from South Dakota due on 09/29
- Fatalities: 7
- Evacuated: 5,350
- In Temporary Shelters: 368
- Square miles impacted: 1,918

**September 20, 2013**

- SEOC Activation Level 1; SEOC conducting 8:00 a.m.–8:00 p.m. operations
- Governor announces deadline of December 1, 2013 for rebuilding of transportation routes.
- Nine counties and three agency/city EOCs fully or partially activated. Demobilization planned.
- SAR operations continue in Boulder (three teams) and Larimer County (two teams).
- HazMat teams conducting operations in Big Thompson Canyon. EPA assisting.
- EPA assessing 5,000 gallon leak in South Platte River in Milliken Area.
- Approx. 13, 500 gallons of oil products reported leaked in the Platteville area.
- Power outages affecting 3,947 customers; gas service suspended for 4,210 customers.
- Spruce Spa dam being monitored for possible failure.
- EMAC: Preliminary Damage Assessment grant specialists from Florida planned.
- Fatalities: 7
- Evacuated: 5,950
- In Temporary Shelters: 141
- Square miles impacted: 1,918

**September 21, 2013**

- SEOC Activation Level 1; SEOC conducting 8:00 a.m.–5:00 p.m. operations
- Nine counties and three agency/city EOCs fully or partially activated. Some transition to virtual operations.
- CDOT reports 40 State roads closed and 50 State bridges closed.
- Boulder County transitions to a Type III Incident Management Teams (IMTs).
- Significant areas of Larimer County remain only reachable by air.
- State estimates that approx. 25,044 household's eligible for $7.6 million in SNAP replacement benefits.
- Business Recovery Centers planning developed for Boulder, Larimer, and Weld Counties.
- Rail traffic continues to be diverted throughout State. Eroded tracks interrupting Amtrak service.
- Power outages affecting 3,947 customers; gas service suspended for 4,210 customers.
- Fatalities: 7
- Evacuated: 5,950
- In Temporary Shelters: 204
- Square miles impacted: 1,918

**September 22, 2013**

- SEOC Activation Level 1
- Many County/city/agency EOCs transitioning to virtual operations.
- FEMA approves $16.7 million for Individual Assistance disaster grants and activates Transitional Sheltering Assistance.
- Emergency Support Function (ESF) #9 and SAR operations and teams demobilizing.
- CDPHE coordinating debris management plans with agency stakeholders.
- Cumulative spills of oil products estimated to be 26,000 gallons.
- Power outages affecting 4,301 customers; gas service suspended for 4,210 customers.
- Spruce Spa dam being monitored for possible failure.
- Fatalities: 7
- Evacuated: 5,958
- In Temporary Shelters: 206
- Square miles impacted: 1,533

**September 23, 2013**

- SEOC Activation transitions to Level 3.
- Vice President visits Greeley/Northern Colorado.
- Colorado Recovery website established.
- Colorado Oil and Gas Conservation Commission reports 1,500 wells shut in.
- EMAC: South Dakota – PDA Teams Arrive
- Power outages affecting 4,301 customers; gas service suspended for 4,210 customers
- Fatalities: 8
- Evacuated: 5,950
- In Temporary Shelters: 200
- Square miles impacted: 1,533

**September 24, 2013**

- SEOC Activation Level 3
- County EOCs transitioning to recovery support functions from ESFs.
- Highway 14 reopened.
- Boulder and Larimer Counties transitioned to Type II IMTs.
- American Red Cross operating four shelters statewide.
- EMAC: Wyoming – Dam inspectors requested.
- Approx. 100 power outages; gas service suspended for 1,925 customers
- Fatalities: 8
- Evacuated: 5,958
- In Temporary Shelters: 201
- Square miles impacted: 1,533

**September 25, 2013**

- SEOC Activation Level 3
- County EOCs transitioning to recovery support functions from ESFs.
- FEMA designates Recovery Manager located at JFO.
- CDOT reports approx. 150-200 miles of roadway damaged and 50-70 bridges.
- CDPHE produces multiple flood food related safety guidance documents and projects Crisis Counseling Program functional in near term.
- Evacuation order for Platte River Basin near Logan/Sedgwick lifted.

- Approx. 100 power outages; gas service suspended for 1,925 customers
- Fatalities: 8
- Evacuated: 5,958
- In Temporary Shelters: 98
- Square miles impacted: 1,533

**Colorado 2013 Black Forest Fire**

For the timeline of the 2013 Black Forest Fire refer to the El Paso County Black Forest Fire Administration Support After Action Report dated June 7, 2015.

# SUMMARY OF THE 2013 FLOODS RESPONSE ACTIONS

The information in this section provides an overview of the strengths and areas of improvement identified for the State of Colorado 2013 Floods. This information was obtained via conference calls, questionnaire data, and information contained in documents and reference material obtained from identified stakeholders. In assessing the information, the stakeholders and the consultant worked collaboratively to develop the recommendations for the identified areas for improvement.

The information contained in this section identifies the overall strengths and areas for improvement for the 2013 Floods. These are broad-based, State-level strengths and areas for improvement captured by the stakeholders identified in this AAR.

## STRENGTHS

The following information represents the overall strengths identified through information received in the questionnaire or through conference calls with key stakeholders.

1. In the Loveland EOC, there was a representative from the NWS and a representative from the Bureau of Reclamation, which was a tremendous help with the dam safety issues throughout the incident.
2. The Colorado Dam Safety Branch (DSB) Team was able to pull together through professional, technical competency, and dedication to assist one another and bounce ideas off each other.
3. The DSB Team was able to establish and maintain relationships with owners, local/state emergency management officials, and other agencies.
4. There was great coordination at the DSB SEOC state level in getting access to WebEOC (both virtually and in the centers).
5. The DSB management of volunteer consultant engineers and their ability to develop on-the-fly plans to get them actively involved was valuable.
6. Arrangements were made and went well for getting to inaccessible dams for inspection/forensics.
7. DSB knowledge of the area impacted benefited the response.
8. DSB's ability to prioritize tasks to make the most use of limited time benefited the response.
9. DSB's use of Google drive for coordination went well.
10. The SEOC Planning Section indicated communications with federal FEMA Region VIII went well.
11. There was better integration with the FEMA Incident Management Assistance Team (IMAT) than previous years.
12. The Public Utilities Commission (PUC) coordinated equipment delivery to the Rural Electric Association who had inadequate resources.
13. Cooperation and involvement of State agencies due to the catastrophic floods went well.
14. The floods provided an opportunity to engage stakeholders not normally part of the response matrix, including the State Office of Economic Development, in the planning and response process.
15. There was great partnership between FEMA IMAT, Federal Coordinating Officers (FCO), and State personnel to develop response solutions.
16. The development of the Flood Response Plan and its efforts to develop partnerships was beneficial to the response.

17. The Denver EOC activated in timely manner.
18. The Denver EOC sustained operations for ~1.5 days with required staffing levels.
19. The key decision makers for Kelly Road Dam were coordinating efforts should an evacuation have been required.
20. The ability to track resource requests and situational awareness using WebEOC was effective.
21. The ability to receive and process resource requests from other jurisdictions (via the State) to deploy Denver resources to assist in more hard hit areas such as Boulder and Larimer counties was helpful.

## AREAS FOR IMPROVEMENT

1. A few of the state agency field operations groups did not see how they fit into the large picture of the Incident Command System (ICS)/EOC interface during the incident. This includes, tracking of costs for time, equipment, materials, etc.
2. Some of the field personnel involved in the response were unsure of when the recovery phase started and how they fit into that role.
3. Local level organizations had challenges in making quick decisions for the response.
4. Upper management and local elected officials at the local level need a better understanding and knowledge of ICS, and how Denver Water fits into the larger State system.
5. A more thorough understanding at the local level on the damage assessment process, i.e. organizing of teams, how to fill out forms, etc., is needed.
6. Denver Water should consider developing a preparedness culture by tying the AAR into their strategic plan and educating all Denver Water employees on that purpose and plan.
7. Denver Water should consider pre-identifying the various team members to staff the EOC and ensure they have the proper training.
8. State-level training needs to be identified and conducted for utilities to share what the expectations are and how the utilities group fits into the overall SEOC organizational structure during events.
9. Integration of the Colorado Water/Wastewater Response Network (CoWARN) system into WebEOC is paramount for resources requests and mutual aid.
10. Some field personnel were unsure of how dams operate and their terminology used in Dam Safety.
11. Local emergency managers, response personnel, and County staff were not aware of the roles and capabilities of a FEMA Urban Search and Rescue (USAR) Task Force.
12. The rapid deployment of the FEMA Mobile Emergency Response Support (MERS) was delayed. Critical to the success of any large-scale emergency response is the ability to communicate both internally and externally. External communications in the Town of Lyons were limited to CO-TF1 satellite phones until the arrival of the MERS team.
13. The documentation of SAR operations on the maps was very problematic. If not for the capabilities of a civilian in Lyons, CO-TF1 would not have been able to accomplish sufficient mapping to adequately support the incident GIS product needs. The FEMA USAR IST GIS specialist was helpful but did not meet with CO-TF1 until four days into the event. A GIS specialist needs to be assigned to the Task Force or Division to support the mapping needs of the Task Force/Division as well as track situation status of the teams.
14. The disaster survivors at the incident frequently asked CO-TF1 personnel about recovery assistance and personnel were unable to answer many of the questions.

15. Demobilization procedures should address the need for debriefing and adequate rest to ensure the safety of responders prior to departure from the incident.
16. In the City of Loveland, response personnel were tasked with some communications with Estes Park and relaying information to Larimer County, which caused confusion with the IMT.
17. In the City of Loveland, response personnel were tasked with field response crews in the field but were working under Larimer County, which cause confusion.
18. Response personnel were sent to briefings at both the Larimer County and IMT sites. This caused too many taskmasters, which caused confusion among the responders.
19. The communications between the IMT and multiple local EOCs caused a lot of confusion.
20. There was not enough knowledge or information regarding the SEOC process and how to become integrated into it. This also includes a specific definition of Dam Safety Engineer (DSE) roles and responsibilities in these situations as well as the role and responsibilities of an emergency manager.
21. There was lack of enough relevant of an internal emergency response organization, notification of staff protocol, and the ability to get the big picture during the event.
22. As a whole, first responders tend to be territorial and not want to let go of their areas of responsibility. There is also a reluctance to rely/ask for help.
23. Pre-planning needs to improve. Should not concentrate on only one dam failure at a time. Inherently this also includes improving the availability of dam construction information, inundation flows, converting hardcopy information to digital. Familiarity with available resources (people and materials) for emergency response.
24. DSB coordination, face-time, and emergency situation training and exercises with emergency managers as well during non-emergencies.
25. DSB could have had a stronger presence in some of the critical areas.
26. There was delayed deployment of Dam Safety Engineers (DSE).
27. There needs to be a development of volunteer consultant database.
28. There was insufficient internal Colorado Emergency Management Division staff committed to working in the SEOC in some capacity. Even though it had been discussed, the pre-identification of staff for SEOC positions (so that adequate training could occur beforehand) never took place. One Office Manager would loan staff to an SEOC Section only to reassign them to another section the next day thus creating turmoil.
29. The SEOC is one of the primary functions of DHSEM, which can have an immediate impact upon a local jurisdiction and the affected population. However, the managerial support of the non-activated SEOC is marginal. This may have been due to the perception that the Center and staff were fine because of the spring 2013 wildfire activations and the 2012 wildfires (all resulting in Stafford Act declarations).
30. DHSEM leadership expected staff to work an 18–20 hour shift indefinitely. No second shift occurred. There was no plan until after week three to give staff some time off to recuperate or just to have a break.
31. Not clearly defined which agency was the ESF #13 lead. Under the State Emergency Operations Plan it is the Colorado State Patrol, however when the Division acquired the Colorado Information Analysis Center (the State Fusion Center) in 2012, they then filled the ESF #13 role from time to time. There is still an unresolved issue as to the role of ESF #13.
32. GIS support at the State-level was sporadic due to an incident inexperienced GIS analyst being assigned to the SEOC. They were unable to work in the chaotic atmosphere of the SEOC, thus decreasing their effectiveness. Once the FEMA IMAT arrived, most GIS product requests went through them.

33. There was no easily transferrable method for moving resource requests from a County board to the State resource board. The requests had to be manually retyped into the State resource board.
34. As the WebEOC entries began to accumulate, it was difficult to do a keyword search to locate a specific entry.
35. Continue to build depth of staffing capabilities with qualified personnel to manage the operations and SEOC for 24 hours a day.
36. Develop capabilities and resources to adequately staff SEOC for a large-scale event continuously.
37. Updating of Emergency Activation Plans (EAP) and understanding the ownership and maintenance responsibilities for Kelly Road Dam.
38. Expediting the receipt of damage assessment information from 911 into the EOC.
39. Need to make assurances that at least one Public Works wastewater engineer is on call. All engineers were in Steamboat for a conference when storms occurred.
40. Tracking of agency costs and resources for reimbursement needs improvement.

## RECOMMENDATIONS

1. Provide more training on damage assessment at the local level.
2. Provide more training for Denver Water employees to include ICS training for field operations, EOC training, EOC/ICS interface training, and damage assessment training.
3. Integrate the CoWARN system into the WebEOC platform.
4. Provide dam safety awareness level training for emergency management and all response personnel to better understand how dams operate, the terminology, EAPs, activations, etc.
5. Colorado Task Force 1 (CO-TF1) should conduct awareness training to the local response personnel.
6. Give strong consideration to rapidly deploying a MERS unit to support on-site incident communications.
7. GIS specialists (along with necessary equipment) should be assigned to Task Force/Divisions earlier in the event.
8. CO-TF1 personnel should be adequately informed to accurately answer questions on recovery assistance.
9. State ESF #9 Desk should distribute recovery assistance information to the field as soon as practical.
10. Provide training to CO-TF1 members on current FEMA media and social media policy.
11. Ensure adequate and timely information from IMTs that is approved for distribution.
12. CO-TF1 demobilization should not occur on the same day the task force is engaged in tactical operations.
13. DSB needs to increase awareness of their organization's capabilities. Resources are available, and DSB needs to know the process for garnering these. Division education – broaden EOC role to hydrography.
14. Foster relationship between emergency managers (local and state) and owners. Keep on hand current list of emergency managers. Need for local emergency management involvement/communication.
15. Develop method for internal emergency notification and guidelines for availability (e.g. phone on 24 hours, etc.).
16. Develop and keep a current WebEOC knowledge base.
17. Every DSE should keep a current dam owner contact list with them.
18. Increase and keep current understanding of emergency management functions and DSB's role.

19. Establish communication lines with U.S. Army Corps of Engineers, US Bureau of Reclamation, etc.
20. DSB develop emergency management response plan (ERP). Develop understanding of when and how to activate different support networks, procure resources, and emergency response training. Develop roles and responsibilities for emergency response activities and activate those as soon as possible.
21. Use understandable vocabulary for the public and news agencies.
22. Familiarize dam owners with their EAPs.
23. Provide real time monitoring. Radar overlay on basins. Compare to design event.
24. Emergency manager integration: WebEOC training and getting face time with local and State emergency managers. Could invite them to inspection of high hazard dams.
25. Update contacts in database for non-jurisdictional dams and work on capturing “illegal” or “non – rostered” dams.
26. Conduct regional exercises, discussion, and coordination for regional events.
27. Develop a permanent volunteer consultant database, certification, implementation process, etc.
28. Coordinate EAP training for dam owners, Emergency Managers, OEMs, and first responders in appropriate areas.
29. Vacant SEOC positions need to be filled, either with internal Division staff, other State agencies, or local jurisdiction staff during an activation.
30. On an annual basis, there should be a State leadership exercise (seminar or tabletop) to familiarize Department/Agency executive directors and key Governor Staff members to what goes on when the SEOC is activated.
31. Establish a policy that enforces the requirement for a formal lessons learned or AAR to take place within 90-180 days following a major incident. Many response lessons learned are being lost due to the lack of a formal AAR for the 2013 floods. A separate AAR for recovery operations can be written.
32. Conduct more training and drilling on resource ordering and tracking in EOC.
33. Update/complete inundation mapping for Denver dams.

# SUMMARY OF THE 2013 BLACK FOREST FIRE RESPONSE ACTIONS

The information in this section provides an overview of the strengths and areas of improvement identified for the State of Colorado 2013 Black Forest Fire. This information was obtained via conference calls, questionnaire data, and information from documents/reference material obtained from stakeholders identified. In assessing the information for identifying strengths, stakeholders, and the consultant worked collaboratively to develop the recommendations for the identified areas for improvement.

The information contained in this section identifies the overall strengths and areas for improvement for the 2013 Black Forest Fire. These are broad-based, State-level strengths and areas for improvement captured by the stakeholders identified in this AAR.

## STRENGTHS

1. Most of the Colorado State emergency management staff had prior experience with the 2012 Waldo Canyon and High Park wildfires, which led to a more manageable process in supporting local jurisdictions for the 2013 fires.
2. The newly approved State Resource Mobilization Plan was used.
3. PUC coordinated equipment delivery to REA, who had inadequate resources.
4. State was ready and willing to deploy assets quickly.
5. There were other fires during this time. There was successful interaction with federal partners managing these two incidents.
6. The activation of assets was anticipated and implemented.
7. Parcel maps allowed DATs quickly and accurately identify properties even when address identifiers were completely destroyed.
8. The institution of a 24-hour operation cycle helped the Assessor's Office complete assessments in record time compared to the Waldo Canyon Fire.
9. No department personnel were injured while conducting damage surveys (one person was injured during the Waldo Canyon Fire survey).
10. The local EM Director convened a financial working group between County, State, and Federal officials at the outset of the emergency to de-conflict and clarify guidance, significantly reducing the amount of paperwork needing re-accomplishment when the Department later sought reimbursement.
11. As Damage Assessment Teams deployed to the burn area, the Department provided "runners" to relay communications until Support Services could set up mobile cellular stations.

## AREAS FOR IMPROVEMENT

1. Some Departments need to improve upon their procedures for transitioning to 24-hour emergency operations and identifying on-call personnel, rotation schedules, or "Ready Packs" to help them quickly and smoothly start providing necessary support.
2. Accounting and finance requirements are dictated by the FEMA Federal Coordinating Officer (FCO). Guidance changes as FCOs are rotated, resulting in significant overhead to re-accomplish previous paperwork.
3. FEMA has very strict accounting and filing requirements for reimbursement of expenses. These require specific cross-tracking information on responders, vehicles, equipment, and consumables. Many responders submitted

forms with incomplete information, placing a greater burden on the local EM Department and making it more difficult to recoup covered expenses.

4. There was insufficient Division staff committed to working in the SEOC in some capacity. Even though it had been discussed, the pre-identification of staff for SEOC positions (so that adequate training could occur beforehand) never took place. This also relates to some staff being funded out of federal homeland security grants, which prohibits being involved in activations. One Office Manager would loan staff to an SEOC Section only to reassign them to another section the next day thus creating turmoil.
5. Division leadership expected staff to work an 18-20 hour shift indefinitely. No second shift occurred. There was no plan until after week three to give staff some time off to recuperate or just to have a break.
6. It was not clearly defined which agency was the ESF #13 lead. Under the State Emergency Operations Plan, the Colorado State Patrol is the lead, however when the Division acquired the Colorado Information Analysis Center (the State Fusion Center) in 2012, they then filled the ESF #13 seat from time to time. There is still an unresolved issue as to the role of ESF #13.
7. The specific role of the Colorado Information Analysis Center during a non-law enforcement event was unclear. (In 2012, this Center was involved in providing intelligence support to a series of large wildfires and it did not go well.)

## RECOMMENDATIONS

1. Work with local emergency managers to develop training to improve transition to elevated levels of fire response.
2. Develop incident command overhead structure (State Type III) prior to arrival of Federal ICS capabilities.
3. Provide address markers that are more resilient than mailboxes.
4. Develop a process whereby the Department can review all legal documents without impeding firefighting response. Since the documentation is fairly standardized with minor adjustments required based on the County's need, a legal review can occur prior to an event.
5. Change the County's overtime policy to include exempt employees during emergency. This needs to provide specific language for reimbursement (per FEMA).
6. Consider developing education materials/training for department contacts about what is reimbursable by FEMA/State and what format it needs to be in.
7. Ensure that on-call procedures are sufficiently flexible and meet the needs of all emergency responses.
8. Work closely with the El Paso Office of Emergency Management to ensure critical contact information of key personnel is available

# CONCLUSION

The 2013 Floods and Black Forest Fire provided a significant test of the State's capabilities in responding to a large scale event, and working with its whole community partners. This AAR is intended to provide a path forward for improving the State's overall preparedness, response, and recovery capabilities following an emergency.

While the flood's and fire's impact was damaging to several cities and counties along the Front Range, the State recognizes the need to plan for larger and even more significant disasters. The State will use the strengths and areas for improvement in this report to guide their future preparedness activities. The following key recommendations tie directly to the overall key areas for improvement identified in the Executive Summary:

- Develop a communication process outlining the methods and procedures for sharing information between key stakeholders. Once the procedure is developed, provide training to stakeholders.
- Develop and/or provide a mechanism where public information is obtained via social media and other accessible avenues.
- Review current EOC staffing to ensure personnel are assigned to the correct positions. Pre-identify staff to fill key EOC positions.
- Conduct regular training and exercises to assist staff in understanding the various roles and responsibilities of various agencies, as well as targeted training on specific response and recovery-related issues.

In recognition of the important of the findings within the report, the State has already addressed a number of the areas for improvement. Together with its whole community partners, the State is demonstrating its commitment to learning lessons from response and recovery operations as a result of the 2013 Floods and Black Forest Fire and better serving the residents of the State. For many victims, recovery will be measured in years. The State remains committed to working closely with them to meet their long-term needs and to achieve a full recovery.

# APPENDICES

## APPENDIX A: IMPROVEMENT PLAN

This improvement plan has been developed as a result of the actions taken during the 2013 Colorado Floods and the Black Forest Fire, both of which occurred in 2013.

| Area for Improvement | Corrective Action | Primary Responsible Agency/Department | Point of Contact | Timeframe |
|---|---|---|---|---|
| **Summary of Colorado 2013 Floods** | | | | |
| 1. A few of the state agency field operations groups did not see how they fit into the large picture of the Incident Command System (ICS)/EOC interface during the incident. This includes, tracking of costs for time, equipment, materials, etc. | Conduct appropriate training | DHSEM | Finance | Quarterly |
| 2. Some of the field personnel involved in the response were unsure of when the recovery phase started and how they fit into that role. | Better communications between DHSEM leadership and deployed field staff. | DHSEM | EM Director along with local Emergency Managers (EM) | Continuous |
| 3. Local level organizations had challenges in making quick decisions for the response. | Continue training and exercises to further reinforce processes and procedures | Local jurisdictions | Local EM and policy groups | Quarterly |
| 4. Upper management at the local level needs a better understanding and knowledge of ICS, and how Denver Water fits | Conduct training sessions and invite to observe exercises | Denver water | Denver Emergency Management | Semi - annually |

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| | into the larger State system. | | | | |
| 5. | A more thorough understanding at the local level on the damage assessment process, i.e. organizing of teams, how to fill out forms, etc., is needed. | Conduct training | DHSEM | Recovery Team | Annually |
| 6. | Denver Water should consider developing a preparedness culture by tying the AAR into their strategic plan and educating all Denver Water employees on that purpose and plan. | Conduct a series of trainings for mid and upper management that identifies the connection between preparedness and the linkage to agency strategic plans. | Denver Water | Denver EM | Annually |
| 7. | Denver Water should consider pre-identifying the various team members to staff the EOC and ensure they have the proper training. | Identify key EOC positions and obtain agency leadership buy – in for the need to fill. | Denver Water | Denver EM | Annually |
| 8. | State-level training needs to be identified and conducted for utilities to share what the expectations are and how the utilities group fits into the overall SEOC organizational structure during events. | Include utilities in local and regional TEPWs which will lead to inclusion in the State TEPW documents. | Denver Water | Denver EM | Annually |
| 9. | Integration of the CoWARN system into WebEOC is paramount | Continue training and participation in exercises | CoWARN, local, and DHSEM | Local Emergency Managers | Semi - annually |

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| for resource requests and requests for mutual aid. | | | | |
| 10. Some of the First Responder field personnel were unsure of how dams operate and the terminology used in Dam Safety. | Periodically conduct training and refresher training classes. | DNR | DSB | Annually |
| 11. Local emergency managers, response personnel, and County staff were not aware of the roles and capabilities of a FEMA Urban Search and Rescue (US&R) Task Force. | Continued participation of CO-Task Force 1 at annual EM Conference | CO-Task Force 1 | CO-Task Force 1 | Annually |
| 12. The rapid deployment of the FEMA Mobile Emergency Response Support (MERS) was delayed. Critical to the success of any large-scale emergency response is the ability to communicate both internally and externally. External communications in the Town of Lyons were limited to CO-TF1 satellite phones until the arrival of the MERS team. | Reevaluate deployment procedures | FEMA | Region VIII | Semi - annually |
| 13. The documentation of SAR operations on the maps was very problematic. If not for the capabilities of a civilian in | FEMA GIS needs to periodically meet with CO-Task Force 1 to get a better understanding of capabilities and needs | CO-Task Force 1 and FEMA | CO-Task Force 1 and FEMA Region VIII | Semi – annually to Annually |

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| Lyons, CO-TF1 would not have been able to accomplish sufficient mapping to adequately support the incident GIS product needs. The FEMA USAR IST GIS specialist was helpful but did not meet with CO-TF1 until four days into the event. A GIS specialist needs to be assigned to the Task Force or Division to support the mapping needs of the Task Force/Division as well as track situation status of the teams. | | | | |
| 14. The disaster survivors at the incident frequently asked CO-TF1 personnel about recovery assistance and personnel were unable to answer many of the questions. | Not the role of CO-Task Force 1 personnel, but the team should be able to direct survivors to an office or phone number. | DHSEM | Recovery Team | Annually |
| 15. Demobilization procedures should address the need for debriefing and adequate rest to ensure the safety of responders prior to departure from the incident. | Conduct training | DHSEM | Local EM | Annually |
| 16. In the City of Loveland, response personnel were tasked with some communications with | Agency administrator should periodically met with IMT to resolve issues during incident | Local jurisdiction | Local EM | Continuous |

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| Estes Park and relaying information to Larimer County, which caused confusion with the IMT. | | | | |
| 17. In the City of Loveland, response personnel were tasked with response crews in the field but were working under Larimer County, which cause confusion. | Agency administrator should periodically met with IMT to resolve issues during incident | Local jurisdiction | Local EM | Continuous |
| 18. Response personnel were sent to briefings at both the Larimer County and IMT sites. This caused too many taskmasters, which cause confusion among the responders. | Agency administrator should periodically met with IMT to resolve issues during incident | Local jurisdiction | Local EM | Continuous |
| 19. The communications between the IMT and multiple local EOCs caused a lot of confusion. | Agency administrator should periodically met with IMT to resolve issues during incident | Local jurisdiction | Local EM | Continuous |
| 20. There was not enough knowledge of the EOC process and how to become integrated into it. This also includes a specific definition of Dam Safety Engineer (DSE) roles and responsibilities in these situations as well as the role and responsibilities of an emergency manager. | Provide a DSE checklist that identifies roles and responsibilities to local Ems. This can be validated through training and exercises. | DNR | DSB | Annually |

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| 21. There was a lack of enough relevant information to an internal emergency response organization, notification of staff protocol, and the ability to get the big picture during the event. | Can be outlined during training and exercises | Local jurisdictions | Local EM | Continuous |
| 22. As a whole, field first responders tend to be territorial and not want to let go of their areas of responsibility. There is also a reluctance to rely on or ask for help. | Can be outlined during training and exercises | DNR | DSB | Annually |
| 23. Pre-planning needs to improve. Should not concentrate on only one dam failure at a time. Inherently this also includes improving the availability of dam construction information, inundation flows, converting hardcopy information to digital. Familiarity with available resources (people and materials) for emergency response. | Can be outlined during training and exercises | DNR | DSB | Annually |

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| 24. DSB coordination, face-time, and emergency situation training and exercises with emergency managers as well during non-emergencies. | Can be outlined during training and exercises | DNR | DSB | Annually |
| 25. DSB could have had a stronger presence in some of the critical areas. | Can be outlined during training and exercises | DNR | DSB | Annually |
| 26. There was delayed deployment of DSEs. | Can be outlined during training and exercises | DNR | DSB | Annually |
| 27. Develop a volunteer consultant database. | Can be outlined during training and exercises | DNR | DSB | Annually |
| 28. There was insufficient Colorado Emergency Management Division staff committed to working in the SEOC in some capacity. Even though it had been discussed, the pre-identification of staff for SEOC positions (so that adequate training could occur beforehand) never took place. One Office Manager would loan staff to an SEOC Section only to reassign them to another section the next day thus creating turmoil. | Pre – identification of internal staff for selected SEOC positions based upon activation levels. This may also result in the non-designation of staff in order to key day-to-day functions operating. Then reach out to other State or local agencies to fill remaining positions | DHSEM | DHSEM Leadership | Annually |
| 29. The SEOC is one of the primary functions of the Division, which can have an immediate impact upon a local jurisdiction | Can be reinforced during training and exercises | DHSEM | DHSEM Leadership | Continuous |

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| and the affected population. However, the managerial support of the non-activated SEOC is marginal. This may have been due to the perception that the Center and staff were fine because of the spring 2013 wildfire activations and the 2012 wildfires (all resulting in Stafford Act declarations). | | | | |
| 30. Division leadership expected staff to work an 18–20 hour shift indefinitely. No second shift occurred. There was no plan until after week three to give staff some time off to recuperate or just to have a break. | Establish official policy and procedures for work hours and length of tours during SEOC activations | DHSEM | DHSEM Leadership | Continuous |
| 31. Not clearly defined which agency was the ESF #13 lead. Under the State Emergency Operations Plan it is the Colorado State Patrol is the lead, however when the Division acquired the Colorado Information Analysis Center (the State Fusion Center) in 2012, they then filled the ESF #13 seat from time to time. There is still an | More clearly define through updates of the SEOP. | DHSEM | DHSEM Leadership | Continuous |

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| unresolved issue as to the role of ESF #13. | | | | |
| 32. GIS support at the State-level was sporadic due to an incident inexperienced GIS analyst being assigned to the SEOC. They were unable to work in the chaotic atmosphere of the SEOC, thus decreasing their effectiveness. Once the FEMA IMAT arrived, most GIS product requests went through them. | Identify consistent GIS support through the Office of Information technology during SEOC activations | DHSEM – Office of Information Technology | Governor's Office of Information Technology | Continuous |
| 33. There was no easily transferrable method for moving resource requests from a County board to the State resource board. Had to be retyped. | Create a process to correct this | DHSEM | DHSEM Operations | Annually |
| 34. As the WebEOC entries began to accumulate, it was difficult to do a keyword search to locate a specific entry. | Create a process to correct this | DHSEM | DHSEM Operations | Annually |
| 35. Continue to build depth of staffing capabilities with qualified personnel to manage the operations and SEOC for 24 hours a day. | Pre – identification of internal staff for selected SEOC positions based upon activation levels. This may also result in the non-designation of staff in order to key day-to-day functions operating. Then reach out to other State or local agencies to fill remaining positions | DHSEM | DHSEM Leadership | Annually |

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| 36. Develop capabilities and resources to adequately staff SEOC for a large-scale event continuously. | Pre – identification of internal staff for selected SEOC positions based upon activation levels. This may also result in the non-designation of staff in order to key day-to-day functions operating. Then reach out to other State or local agencies to fill remaining positions | DHSEM | DHSEM Leadership | Annually |
| 37. Updating of Emergency Activation Plans (EAP) and understanding the ownership and maintenance responsibilities for Kelly Road Dam. | For all dams, all EAPs should be reviewed | DNR | DSB | Annually or upon new EAP. Kelly Road Dam EAP is complete. |
| 38. Expediting the receipt of damage assessment information from 911 into the EOC. | Conduct a LEAN process | DHSEM | DHSEM Recovery Team | Annually |
| 39. Need to make assurances that at least one Public Works wastewater engineer is on call. All engineers were in Steamboat for a conference when storms occurred. | May not be a realistic expectation | Local floodplain managers | Local Emergency Managers | Continuous |
| 40. Tracking of agency costs and resources for reimbursement needs improvement. | Conduct appropriate training | DHSEM | Finance | Annually |
| | | | | |

| Summary of Colorado 2013 Black Forest Fire | | | | |
|---|---|---|---|---|
| 1. Some Departments need to improve upon their procedures for transitioning to 24-hour emergency operations and identifying on-call personnel, rotation schedules, or “Ready Packs” to help them quickly and smoothly start providing necessary support. | Conduct appropriate training | DHSEM and local EMs | DHSEM Training Team | Annually |
| 2. Accounting and finance requirements are dictated by FEMA Federal Coordinating Officer (FCO). Guidance changes as FCOs are rotated, resulting in significant overhead to re-accomplish previous paperwork. | Establish standardized guidance | FEMA | FEMA Region VIII and DHSEM Finance | Annually |
| 3. FEMA has very strict accounting and filing requirements for reimbursement of expenses. These require specific cross-tracking information on responders, vehicles, equipment, and consumables. Many responders submitted forms with incomplete information, placing a | Establish standardized guidance | FEMA | FEMA Region VIII and DHSEM Finance | Annually |

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| greater burden on the Department and making it more difficult to recoup covered expenses. | | | | |
| 4. There was insufficient Division staff committed to working in the SEOC in some capacity. Even though it had been discussed, the pre-identification of staff for SEOC positions (so that adequate training could occur beforehand) never took place. This also relates to some staff being funded out of federal homeland security grants, which prohibits being involved in activations. One Officer Manager would loan staff to an SEOC Section only to reassign them to another section the next day thus creating turmoil. | Pre – identification of internal staff for selected SEOC positions based upon activation levels. This may also result in the non-designation of staff in order to key day-to-day functions operating. Then reach out to other State or local agencies to fill remaining positions | DHSEM | DHSEM Leadership | Annually |
| 5. Division leadership was expected staff to work an 18-20 hour shift indefinitely. No second shift occurred. There was no plan until after week three to give staff some time off to recuperate or just to have a break. | Establish official policy and procedures for work hours and length of tours during SEOC activations | DHSEM | DHSEM Leadership | Continuous |

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|---|---|---|---|---|
| 6. It was not clearly defined which agency was the ESF #13 lead. Under the State Emergency Operations Plan, the Colorado State Patrol is the lead, however when the Division acquired the Colorado Information Analysis Center (the State Fusion Center) in 2012, they then filled the ESF #13 seat from time to time. There is still an unresolved issue as to the role of ESF #13. | Establish official policy and procedures for work hours and length of tours during SEOC activations | DHSEM and Colorado State Patrol | DHSEM Leadership | |
| 7. The specific role of the Colorado Information Analysis Center during a non-law enforcement event was unclear. (In 2012, this Center was involved in providing intelligence support to a series of large wildfires and it did not go well.) | Continue to refine role and responsibility of the CIAC during all types of events. | Colorado Department of Public Safety | DHSEM and Colorado State Patrol | |

# APPENDIX B: BY THE NUMBERS

The following table provides a snapshot of the effects of the 2013 Floods for the State of Colorado.

| Category | Number | Damage Estimates |
|---|---|---|
| Deaths[2] | 10 | N/A |
| Evacuated[3] | 18,147 | N/A |
| Damage Assessments (total)[4] | N/A | $1.7 billion |
| Homes Destroyed[5] | 1,852 | N/A |
| Homes Damaged[6] | 28,363 | $623.3 million |
| FEMA Public Assistance[7] Grants Obligated | N/A | $316.7 million |
| FEMA Individual Assistance Dollars Approved[8] | 16,558 | $61.9 million |
| Commercial Structures Destroyed[9] | 203 | N/A |
| Commercial Structures Damaged[10] | 765 | N/A |
| State Roads Closed, Damaged or Destroyed[11] | 200 miles/100 bridges | $400 million |
| Agriculture Damages[12] | 28,525 acres flooded | $3.4–5.5 million |
| Dams Damaged | 27 (including 9 dam failures) | $5.4 million |
| Stream Gauges Damaged | 23 | $539K |
| Economic Impact[13] | N/A | $555 million |

[2] www.coemergency.com/2014/09
[3] www.coemergency.com/2014/09
[4] www.coemergency.com/2014/09
[5] www.coemergency.com/2014/09
[6] www.coemergency.com/2014/09
[7] www.fema.gov/disaster/4145#tabs June 29, 2015
[8] www.fema.gov/disaster/4145 June 29, 2015
[9] www.coemergency.com/2014/09
[10] www.coemergency.com/2014/09
[11] Debra Perkins-Smith, CDOT DTD Regional Meeting 2013
[12] Colorado State University
[13] www.coemergency.com

* Dollar estimates are as of June, 2015

The following table provides a snapshot of the effects of the Black Forest Fire for the State of Colorado.

| Category | Number | Damage Estimates |
|---|---|---|
| Deaths[14] | 2 | N/A |
| Evacuation Area[15] | 94,000 acres | N/A |
| Estimated Insured Losses (total)[16] | N/A | $420.5 million ($426.3 in 2014 dollars) |
| Homes Destroyed[17] | 489 | N/A |
| Acres Burned[18] | 14,280 | N/A |

[14] El Paso County, Colorado Sheriff's Office Black Forest Fire AAR
[15] El Paso County, Colorado Sheriff's Office Black Forest Fire AAR
[16] Rocky Mountain Insurance Data Association
[17] El Paso County, Colorado Sheriff's Office Black Forest Fire AAR
[18] El Paso County, Colorado Sheriff's Office Black Forest Fire AAR

* Dollar estimates are as of June, 2015

# APPENDIX C: PARTICIPATING AGENCIES IN AAR

The following agencies provided key input used to develop the AAR.

| Agency |
|---|
| Boulder County EM |
| Colorado Department of Public Health and Environment |
| CO Task Force - 1 (SAR) |
| Denver City & County EM |
| Denver Water |
| Colorado Department. of Agriculture |
| Division of Fire Prevention and Control Director |
| Division of Homeland Security and Emergency Management - Logistics |
| Division of Homeland Security and Emergency Management - Operations |
| Division of Homeland Security and Emergency Management - PIO |
| Division of Homeland Security and Emergency Management - Planning |
| Division of Homeland Security and Emergency Management Communications |
| Division of Homeland Security and Emergency Management Director |
| Division of Homeland Security and Emergency Management - Recovery |
| Colorado Department of Military and Veterans Affairs |
| Colorado Department of Natural Resources Dam Safety |
| El Paso County EM |
| EM Director |
| Fort Collins EM |
| Jefferson County EM |
| Larimer County EM |
| Lincoln County EM |
| Loveland EM |
| National Weather Service |
| Public Utilities Commission |
| Weld County EM |

# APPENDIX D: QUESTIONNAIRE

The following represents the information included in the questionnaire that was provided to stakeholders to gather key data.

## State of Colorado 2013 Colorado Floods and Black Forest Fire
## After Action Report Questionnaire

1. Please provide an overview of your agency's roles and operations during the ***2013 Colorado Floods.*** Please focus on providing the following information if applicable:
    a. EOC activation/operations

    b. Field operations conducted

    c. Where your operations were primarily focused

    d. Liaison personnel provided to the Colorado SEOC

    e. Key operational highlights or key actions

f. Numbers of personnel deployed/activated

g. Timeline of information for each day

2. Please provide an overview of your agency's roles and operations during the ***2013 Black Forest Fire***. Please focus on providing the following information if applicable:

a. EOC activation/operations

b. Field operations conducted

c. Where your operations were primarily focused

d. Liaison personnel provided to the SEOC

e. Key operational highlights or key actions

f. Numbers of personnel deployed/activated

g. Timeline of information for each day

3. Identify five of your agency/department's successes during the ***2013 Colorado Floods***.

4. Identify five of your agency/department's successes during the ***2013 Black Forest Fire***.

5. Provide five of your agency/department's areas for improvement you identified during the ***2013 Colorado Floods***.

6. Provide five of your agency/department's areas for improvement you identified during the ***2013 Black Forest Fire***.

7. Identify three–five recommendations that are strategic in nature, actionable, and can be completed within the next year.

8. Did your agency/department observe any benefits or challenges to using the existing electronic emergency management information system during the 2013 Floods? During the Black Forest Fire? Was the system used between the SEOC and your department/agency WebEOC or as an alternative?

9. What recovery activities have been conducted in your jurisdiction to date? Include such things as damage assessment surveys, hazard mitigation efforts, public information efforts, etc.

10. Does your agency have a seat/place in the SEOC? If yes, when did your section/ESF activate in the SEOC?

During the 2013 Floods, were the operational periods for your department operations center (DOC) the same throughout the incident or did they change over time? Did the operational periods coincide with the SEOC? For the Black Forest Fire?

11. Were there any shortfalls in staffing the ESFs during the 2013 Floods? During the Black Forest Fire?

12. Was the National Incident Management System (NIMS) followed in the SEOC by operational period objectives and coordinated with the ESFs through planning and use of ICS forms during the 2013 Floods? During the Black Forest Fire?

13. During the 2013 Floods, did your department/agency establish a resource logistics and distribution process? During the Black Forest Fire? If yes, was it tied into the SEOC?

14. What resources were supplied to your department/agency from the SEOC during the 2013 Floods? During the Black Forest Fire?

15. Were there any challenges in either requesting or receiving those resources? If yes, what were the challenges/issues?

16. What does your agency/department feel went well or needs improvement in the State and Federal communications and operational processes during the 2013 Floods? During the Black Forest Fire?

17. What was the sequence of establishing your ESF for the Floods of 2013? For the Black Forest Fire? Were there triggers for automatic activation that were followed?

# APPENDIX E: DECLARATIONS AND PROCLAMATIONS

The following declarations and proclamations were issued following the 2013 Floods:

| Date | Title |
|---|---|
| August 13, 2013 | Local Disaster Declaration (Greeley Emergency Management Office) |
| September 12, 2013 | Order Declaring a Disaster in and for Adams County, Colorado |
| September 12, 2013 | City of Boulder Declaration of Local Disaster Emergency |
| September 12, 2013 | Local Disaster Emergency Declaration (Boulder County) |
| September 12, 2013 | Proclamation and Declaration of Emergency Pursuant to City Chapter § 4-10 and City Code § 8.7.103 pertaining to the September 2013 Flash Floods |
| September 12, 2013 | Disaster Emergency Declaration (City of Commerce City) |
| September 12, 2013 | Certificate of Authenticity (2013 Firestone, Disaster Declaration) |
| September 12, 2013 | Disaster Declaration Town of Frederick, Colorado |
| September 12, 2013 | Disaster/Emergency Declaration (Jefferson County) |
| September 12, 2013 | Declaration of Emergency for Larimer County Flood 2013 |
| September 12, 2013 | Loveland City Manager's Declaration of Local Disaster Pursuant to S.R.S. Section 24-33.5-709 |
| September 12, 2013 | Colorado - USACE Omaha District Update (UNCLASSIFIED) |
| September 13, 2013 | Disaster Declaration City of Dacono, Colorado |
| September 13, 2013 | Declaration of Disaster Emergency (City of Louisville) |
| September 13, 2013 | Notice of Emergency/Disaster Conditions Affecting the City and County of Denver, Acting by and through its Board of Water Commissioners |
| September 13, 2013 | Local Disaster Emergency Declaration (Eldorado Springs Local Improvement Districts I and II) |
| September 13, 2013 | City of Manitou Springs Disaster Declaration |
| September 13, 2013 | D 2013-026 Executive Order Declaring a Disaster Emergency Due to the Flooding in Adams, Arapahoe, Broomfield, Boulder, Denver, El Paso, Fremont, Jefferson, Larimer, Logan, Morgan, Pueblo, Washington, and Weld Counties (Front Range Flooding) |
| September 14, 2013 | Declared September 14, 2013 Summary |
| September 14, 2013 | Morgan County's Declaration of Local Disaster Pursuant to C.R.S. Section 24-33.5-709 |
| September 15, 2013 | Colorado; Amendment No. 1 to Notice of a Major Disaster Declaration |
| September 15, 2013 | City of Morgan, Colorado Disaster & Emergency Proclamation |
| September 15, 2013 | Amendment No. 1 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| September 15, 2013 | Declaration of Emergency for the 2013 Flood of South Platte River (Washington County) |

| Date | Title |
|---|---|
| September 16, 2013 | El Paso County Disaster Declaration Resolution Declaring Local Disaster |
| September 16, 2013 | Town of Johnstown, Colorado Resolution No. 2013-12 Declaration of a Disaster Emergency and Authorize the Mayor to sign and necessary and appropriate documents concerning this emergency. |
| September 16, 2013 | Town of Windsor Resolution No. 2013-51 |
| September 16, 2013 | Disaster Declaration Town of LaSalle, Colorado |
| September 18, 2013 | Declaration of Local Disaster Emergency |
| September 18, 2013 | Morgan County's Declaration of Local Disaster Pursuant to C.R.S. |
| September 19, 2013 | Amendment No. 2 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| September 19, 2013 | Logan County Disaster Declaration Resolution Declaring Local Disaster |
| September 19, 2013 | Local Disaster Emergency Declaration (Lyons Fire Protection District) |
| September 19, 2013 | Resolution No. 2013-003 – A Resolution Declaring an Emergency Flooding Disaster within District Boundaries. (Platte Valley Fire Protection District) |
| September 19, 2013 | Boulder County Declaration of Local Disaster Emergency Extension #1 |
| September 19, 2013 | D 2013-027 Executive Order Amending the Declaration of Disaster Emergency Due to the Flooding in Adams, Arapahoe, Broomfield, Boulder, Denver, El Paso, Fremont, Jefferson, Larimer, Logan, Morgan, Pueblo, Washington, and Weld Counties (Front Range Flooding) |
| September 19, 2013 | Sterling Disaster Declaration Resolution Declaring Local Disaster |
| September 20, 2013 | Amendment No. 3 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| September 21, 2013 | Declaration of Local Disaster Emergency Extension #1 |
| September 22, 2013 | Local Disaster Emergency Declaration (Coal Creek Canyon Fire Protection District) |
| September 23, 2013 | Local Disaster Emergency Declaration (Pine Brook Water District) |
| September 24, 2013 | Amendment No. 4 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| September 25, 2013 | Local Disaster Emergency Declaration (Boulder Mountain Fire Protection District) |
| September 26, 2013 | Local Disaster Emergency Declaration (Allenspark Fire Protection District) |
| September 26, 2013 | D 2013-028 Executive Order Making Available Additional Resources and Extending the Declaration of Disaster Emergency Due to the Flooding in Adams, Arapahoe, Broomfield, Boulder, Clear Creek, Denver, El Paso, Fremont, Jefferson, Larimer, Logan, Morgan, Pueblo, Sedgwick, Washington, and Weld Counties. |
| September 27, 2013 | Niwot Sanitation District Resolution No 2013-5 – A Resolution Declaring an Emergency Flooding Disaster within District Boundaries. |
| September 30, 2013 | Amendment No. 5 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| October 1, 2013 | Amendment No. 6 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| October 1, 2013 | Boulder County Declaration of Local Disaster Emergency Extension #3 |

| Date | Title |
|---|---|
| October 8, 2013 | D 2013-030 Executive Order Amending the Authorization of Disaster Emergency to include additional counties affected by the Historic Flooding of September, 2013 |
| October 15, 2013 | Amendment No. 7 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| October 17, 2013 | Governor's Request for Designation of Additional Counties and Extension of Deadlines |
| October 17, 2013 | Local Disaster Emergency Declaration (Pine Brook Water District) |
| October 21, 2013 | Amendment No. 8 to the FEMA Disaster Declaration for the State of Colorado (FEMA-4145-DR) |
| November 6, 2013 | D 2013-031 Executive Order Extending the Declaration of Disaster Emergency Due to Historic Flooding of September, 2013 |
| December 9, 2013 | D 2013-033 Executive Order Extending and Amending the Declaration of Disaster Emergency Due to Historic Flooding of September, 2013 |
| January 13, 2014 | D 2013-001 Executive Order Extending and Amending the Declaration of Disaster Emergency Due to Historic Flooding of September, 2013 |
| January 13, 2014 | D 2014-001 Executive Order Extending and Amending the Declaration of Disaster Emergency Due to Historic Flooding of September, 2013 |
| January 14, 2014 | Boulder County Declaration of Local Disaster Emergency Amendment/Extension #6 |
| February 5, 2014 | D 2013-002 Executive Order Extending the Declaration of Disaster Emergency Due to Historic Flooding of September, 2013 |
| May 14, 2014 | U.S. Small Business Administration Economic Injury Disaster Loan Declaration |
| June 25, 2014 | Local Disaster Emergency Declaration (Lyons Fire Protection District) |

The following declarations and proclamations were issued following the Black Forest Fire:

| Date | Title |
|---|---|
| June 22, 2013 – June 21, 2013 | Black Forest Fire Incident Period |
| July 26, 2013 | Major Disaster Declaration |

# APPENDIX F: ACRONYMS

| Acronym | Term |
|---|---|
| AAR | After Action Report |
| ADA | Americans with Disabilities Act |
| CDOT | Colorado Department of Transportation |
| CDPHE | Colorado Department of Public Health and Environment |
| CO | Colorado (State of) |
| DAT | Data Analysis Team |
| DSB | Dam Safety Branch |
| DSE | Dam Safety Engineer |
| EAP's | Emergency Activation Plans |
| EM | Emergency Manager |
| EMAC | Emergency Management Assistance Compact |
| EMS | Emergency Medical Service |
| EOC | Emergency Operations Center |
| EOP | Emergency Operations Plan |
| EPA | Environmental Protection Agency |
| ERP | Emergency Response Plan |
| ESF | Emergency Support Function |
| FCO | Federal Coordinating Officers |
| FEMA | Federal Emergency Management Agency |
| GIS | Geospatial Information Systems |
| IA | Individual Assistance |
| ICS | Incident Command System |
| IMAT | Incident Management Assistance Team |
| IMT | Incident Management Team |
| IST | Incident Support Team |
| JFO | Joint Field Office |
| JIC | Joint Information Center |
| LAC | Local Assistance Center |
| MERS | Mobile Emergency Response Support |
| MO | Missouri (State of) |

| Acronym | Term |
|---|---|
| NE | Nebraska (State of) |
| NOAA | National Oceanic and Atmospheric Administration |
| NV | Nevada (State of) |
| NWS | National Weather Service |
| OEM | Office of Emergency Management |
| PA | Public Assistance |
| PDA | Preliminary Damage Assessment |
| PIO | Public Information Officer |
| PSAP | Public Safety Answering Point |
| PUC | Public Utilities Commission |
| REA | Rural Electric Association |
| SAR | Search and Rescue |
| SBA | Small Business Administration |
| SEAC | State Emergency Activation Level |
| SEOC | State Emergency Operations Center |
| SH | State Highway |
| SOFR | Safety Officer |
| SNAP | Supplemental Nutrition Assistance Program |
| TF | Task Force |
| USAR | Urban Search and Rescue |
| UT | Utah (State of) |
| VHF | Very High Frequency |

# MAPS

For obtaining individual maps of the Colorado 2013 floods, see DHSEM CDPS, Office of Preparedness.

For obtaining individual maps of the Colorado 2013 Black Forest Fire, see the El Paso County Emergency Management Office.