



# After-Action Data Collection & Assessment



## Audience Feedback & Recommendations




## • After-Action Audiences & # of Responses

- Staff – 7
  - Customers – 88 and counting
  - Commissioners – 5
  - Emergency and Key Community Contact – 5
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## Data Gathering Methods

- Staff – 2 in-person facilitated sessions
  - Customers – Questionnaire link via Email, Facebook, Paper
  - Commissioners – Questionnaire via Email
  - Emergency and Key Community Contacts – Questionnaire via Email
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# Staff Data

- Staff/Personnel:

- District Mgr.
- Clerk
- Clerk 2 (s)
- Field Staff
- DRC

- Facilitator:

- Sara Grigsby



CWD Incident Review and After Action Report

**Staff Debrief and Timeline of Extreme Weather Event from 1/11 to 1/25/2024**

Attending: Ana Linden, David Jacob, Alivia, Angela, Steve, Heather, Lynda

Facilitator: Sara Grigsby

The **overall purpose** of this meeting is to debrief the recent weather event and our response(s) to it.

**Desired Outcomes:**

By the end of this meeting we will have shared and documented:

1. Circumstances caused by this event, timeline, our responses/action taken and an evaluation of what went well and what needs improvement
2. Our individual reflection on what we each did well and what we'd do differently next time/improvements needed
3. An agreed upon draft list of specific changes to implement and resources needed to enable these changes



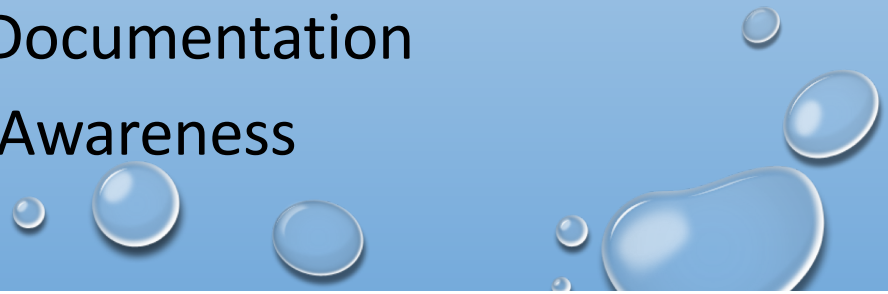


**After-Action Report**  
**Staff Recommendations and Planning for Weather Event dated January 11-25, 2024**  
**from Staff Debrief Meeting on January 25 and 30**

Evaluative Statements and Recommendations, & Planned Actions								General Liability	Communications	Property, Equipment & Field Tools	Vehicles	Staff Safety & Readiness	SOPs & Policy Documentation	Community Confidence, Service & Awareness	Infrastructure
Emergency Procedures for cold weather, proper truck engagement, installation of chains												X	X		
Organization of equipment										X					
Cell phones during no power were critical									X	X				X	
Land line to accept and send calls during outages									X					X	
New generator for CWD office propane 25 kw (\$8k) must be enough to reheat the pump and phones and heat in the office										X					X
Generators serviced each Fall										X					
A line to the tank										X					
Similar to IVR - software to send emails not just one phone number but if people have more than one plus email addresses as well									X					X	
<ul style="list-style-type: none"> <li>NOTE: we could have sent IVRs to email addresses and email to V-text is possible</li> </ul>															
Put CUSI on a portable computer - a laptop we can take home									X	X					
Remote CUSI also – iCloud?									X						



# Feedback & Recommendations CATEGORIES

- Communications Methods, Tools & Resources
  - Work Resources e.g. Property, Equipment, Field Tools, Vehicles
  - System Infrastructure
  - General Liability
  - Staff Safety and Readiness
  - Extreme Weather Event SOPs and Documentation
  - Community Confidence, Service & Awareness
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# A Sampling of Staff Debrief Recommendations

- Emergency **Procedures** for cold weather, proper truck engagement, installation of chains; **Organization** of equipment; **More** chlorine test kits
- **New generator** for CWD office propane 25 kw (\$8k) must be enough to reheat the pump and phones and heat in the office; **Generators serviced** each Fall; A line to the tank; **More fuel cans** – regular fuel – and get a variety of sizes/weights for different staff strength
- For all reservoirs, **Build a shelter** for staff, generators and to protect telemetry; For Res. 2 (Cabbage Hill) – **Rebuild inlet vault** – heat, telemetry; bring in power (PGE); add low flow fixed rate;
- Increase **System Knowledge** for staff, of PRV and parts and their purpose, of truck operations e.g. Hubs
- Top Doc – a **view of the whole system** right now/live; Develop intersection details; **Improve/update** the meter cards and valve book

## continued

- **Communication Plan.** Who to contact when. Proactive vs. reactive; including Board member roles; Plan for Customer/Public communications; what about social media as well. Have specific people assigned to the various communication roles; news outlets/interviews; Community Partners e.g. Reliance Connects, Fire Dept, School, MC, etc.
- Similar to IVR - **software** to send emails/texts not just one phone number but if people have more than one plus email addresses as well We could have sent IVRs to email addresses and email to V-text is possible
- A **laptop** we can take home w/ CWD software programs

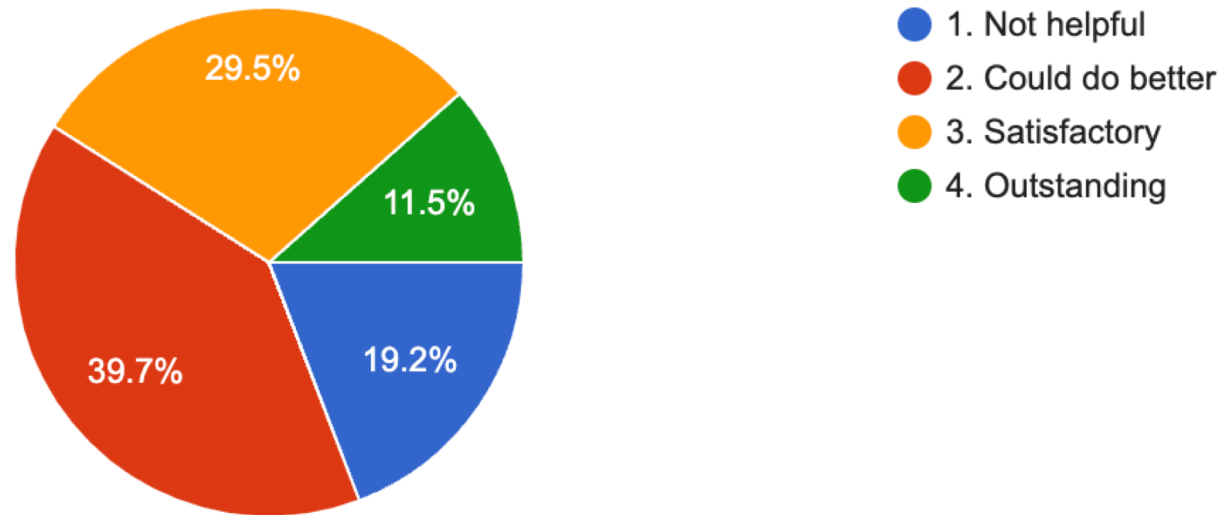
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- Evaluate our **vehicles** for use in bad weather and how best to use them in bad weather; Evaluate use of private vehicles and equipment from a **liability** perspective
- Better and more pairs of shoes to prevent falls – all **staff clothing** needs assessment for warmth and safety; **Weatherproof** the District Office from wind
- MC Roads has great equipment for **plowing** – work out an arrangement with them; **Thank everyone** who called or came by or offered information, e.g. MC Roads, Loren, Roel, Busto, Reliance Connects
- **Cell phones** during no power were critical; **Log-in to voicemail remotely** needed – Talk to Reliance Connects

# Customer Data

- 42% lost water
- 72% CWD/25% customer side
- 79% received some form of communication from CWD mostly via automated phone call or through Corbett Facebook
- Biggest Risks, Issues and Concerns
  - Lost Power 91%
  - Lost Water – 46%
  - Stuck at Home - 42%
  - Downed trees and power lines – 34%
  - Caring for animals – 30%
  - Caring for medically fragile – 15%
  - Lack of food and/or supplies – 8%

# Overall Rating from Customers on CWD Communications during Event





# CWD Communications

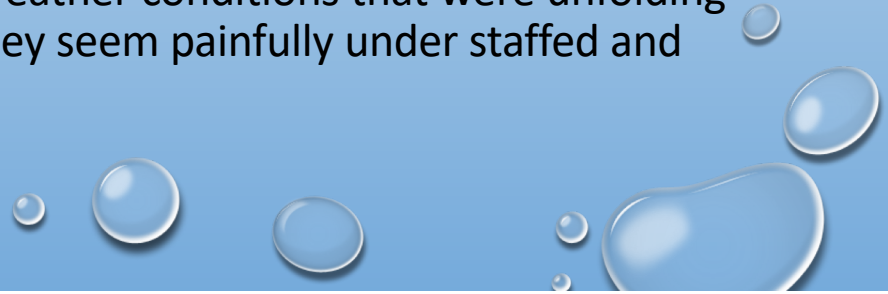
## Feedback & Recommendations

- When locals are **posting** about the topic before CWD, that's never a good look. It's a **small town and info travels fast**. As such, CWD should be upfront with best available information.
- It was **too little** too late.
- I felt like I was **well informed** throughout
- I received 2 automated phone calls. My friends on Facebook were much better informed based on the **water district's posts**.
- CWD is great at notifying people and making sure information is shared.
- Let **other people sign up for phone alerts**, not just the account holder.
- Use **mass text message** notifications. Capturing/understanding all the info from the robocall was impossible.
- Use **MC emergency phone alert system**
- Facebook is a posting not direct communication. **Emails and text messages would better** reach your customers with a median age of 41.6 years old.





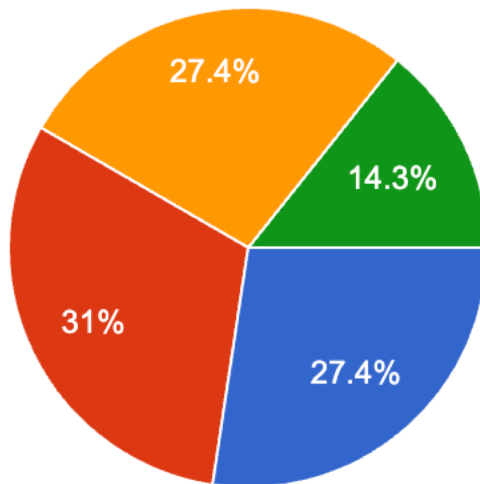
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- I have an underground stream on my land and **Corbett Water came and tested** the run off for Chlorine to insure there was not a water leak. They also checked the meter. Most appreciated.
  - **Uncoordinated**, reactive would be my candid opinion **but effort was underway and the situation was severe**
  - It was hard to tell if the boil notice etc. was for all of the addresses in Corbett, or specific to us. Clarification of that would have been helpful. Also, we lost water overnight so it went off and then was on again in the morning. **I couldn't tell if we lost pressure and needed to boil** or if it was okay to drink. It was cold and chaotic and I just drank it and/but boiling during the chaos of that storm would have added a layer of extra ---- I couldn't have dealt with.
  - In the midst of some crazy and dangerous weather event(s), **receiving even the most basic info from the CWD was appreciated**. I feel that the weather conditions that were unfolding were a challenge to everyone and especially CWD. They seem painfully under staffed and under supported.
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# Experience in Contacting CWD during Event

- Professional and helpful
- Was a very vague answer as to the situation, the cause, and the fix.
- I spoke to someone named Anna. She was polite and tried to be helpful but seemed as frustrated with the situation as we were.
- Quality was okay given the circumstances. Learn from it is the best you can do
- No response to anyone's Facebook posts. It's like they dropped off the earth
- When I contacted the manager, I did get a quick response which given the situation, was appreciated.
- It was a relief to get ahold of someone on the emergency line to help explain what was going on.
- I called to ask if we could begin drinking water, once turned back on. Got voicemail. Received person call 1-2 days later.
- These issues were not CWD problems, they were PGE problems.
- I feel like the Corbett Facebook group was part of the problem **and** the best source of information for me during the storm. I had limited cell reception and limited battery so I would turn on my phone, check the Facebook group and turn it off. In some instances this was really helpful (I wasn't alone and folks were available if I needed help) but in others it was chaotic.

# Overall Rating from Customers on CWD Response & Actions Taken during Event



- 1 Lowest Score of Overall Performance
- 2
- 3
- 4 Highest Score of Overall Performance

# A Sampling of Customer Recommendations

- **CWD staff needs better visibility of system, and they need the resources, tools and training necessary for adequate community outreach.**
- **Planning for an extreme event.** We were prepared for power outage but not for no water.
- I feel like this experience has taught the CWD team a lot and I am hopeful they will use what they've learned to make improvements and in areas they felt were challenging.
- **Clear communication** not the crap on Facebook threads
- Offer of assistance to **bring water to people.**
- CWD needs to improve their infrastructure and staffing to be able to handle instances like this. My primary concern is what **if there is a fire situation and the FD cannot access a water supply.**
- Maintain your mission w/ focus and **coordinate with other agencies** that also serve your customers/ratepayers.
- Keep doing what you're doing 👍
- **This failure has been coming on for years...it likely won't be the last.**
- Lines broke and you're losing water. That doesn't deserve high level marks. Looking big picture the infrastructure is aging and you don't know exactly where all lines, conditions or devices are located. That's a system wide problem to the future of our water system.

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- The **crew took heroic action** - comparable to PGE line crews up in the air in the freezing wind - but without the backup support.
- **Have an actual action plan** and communicate important info without withholding it for hours. A plan that is shared with the larger community about the process we can expect and what specific actions will be taken
- **Fix the crumbling infrastructure.**
- Need to **allocate budget** for staff to be available on-call, and onsite, in all important areas, this includes equipment availability and training if they're expected to travel on the clock. Need to ensure tools are in place to facilitate adequate staff communications as well as good visibility of systems. Is there a budget to support remotely accessible cameras at difficult to access locations? Are there flow monitoring options that could provide improved visibility of main line flow rates at increments along the line (for more promptly spotting and diagnosing line breaks). What kind of budget exists for this?
- **Hire staff that are certified** for the job for which they are working.
- Don't rely completely on telemetry and tech and have contingency for when they fail.

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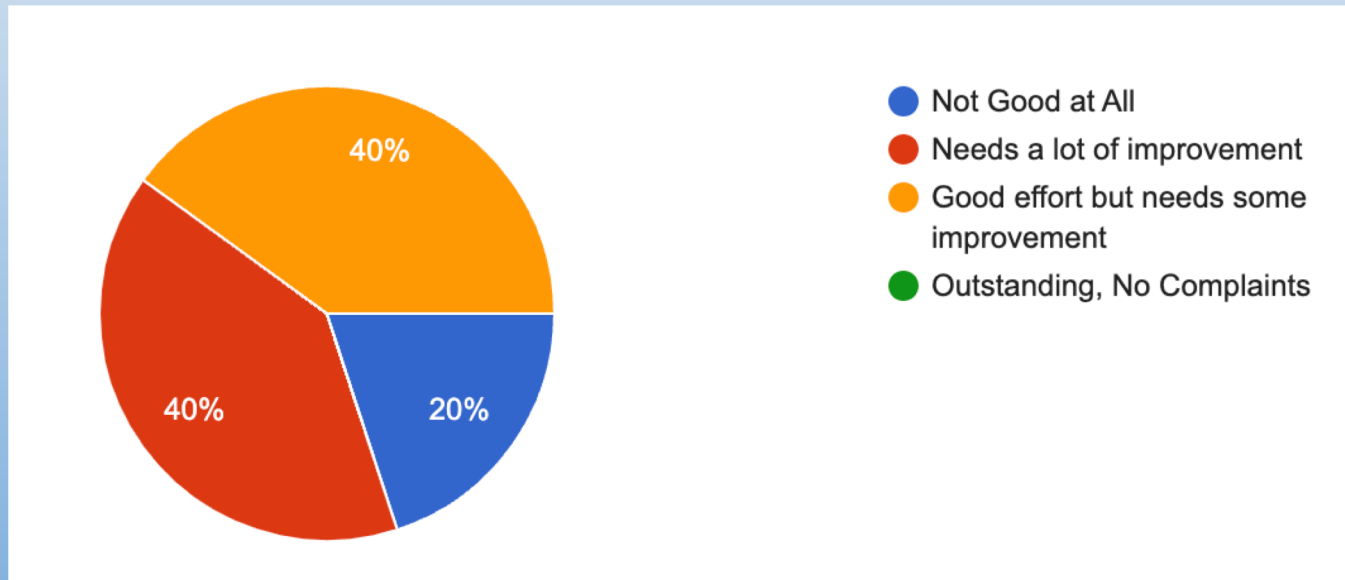
- Establish protocol for emergency communication to customers and don't reply on Community Posts & FB
- It seems as though some in Corbett would like some sort of communication 'phone-tree'. Having some sort of regular messages would help customers stop making up their own explanations and scapegoating.
- **Inform Fire RIGHT away if there is pressure/flow drop.** If a warning is sent out via phone msg, then do updates at least daily.
- Focus on bulletproof, reliable water delivery. I suspect this means **more investment (time, money, training) in outage response preparation - regular preventative maintenance of equipment, regular testing, backup / duplicate systems**
- It would be extremely helpful to have **a link of ways to prepare in the future**, like my parents kept telling me to fill the bathtub with water, which I did, in case we lost water and the toilets couldn't flush. It would also be helpful to know if I could have gotten any help turning my water off when I decided to leave the area in the window where it was possible. I was full of fear...

## Local Resources available to help during future Events

- Strong electronic communications skillset.
- I have background in process management.
- Heavy equipment operator that with lots of pipe installation experience. Willing to help out if not at work.
- We can check on neighbors or take supplies to people
- I do have capable vehicles and tools.
- I volunteer with Corbett Fire and am available in that capacity
- If I could help from the farm lmk.
- Been in construction for 35 years in every phase. Can drive in ice/snow and any weather conditions. Smart enough to know what living out here brings each year and have 100% of the equipment and knowledge to exist and survive. Handy with a chainsaw, know the basics of how a water system works and what a valve looks like.
- Emergency medical help if available
- I'm a digitally savvy Chief of Staff for a large software company. I'm skilled in operations at scale and communication at scale.
- We have an awd vehicle and chainsaws. I could do wellness checks or help clear roads

# CWD Commissioner Data

- The 5 CWD Commissioners first reviewed the staff debriefing documents before filling out their questionnaire.





# Commissioner Feedback – What Went Well?

- I think there was a sincere intent by the staff, and board members who were available to be present, help and try the best we could to minimize impact to customers and the water system. I also think that the After Action review which has been done by the staff and board is well beyond anything that has been done in the past. Developing SOP's will help us in minimizing impacts to customers in the future.
- Staff were heroes - effort throughout the event and cooperation amongst the team; They problem-solved like crazy e.g. when the trucks got stuck, they drove their own vehicles (and I realize this is a huge liability issue and shouldn't happen again but it show their determination); they got into work even with downed power lines and trees and no power in their own homes

# Commissioner Recommendations

## What Needs Improvement?

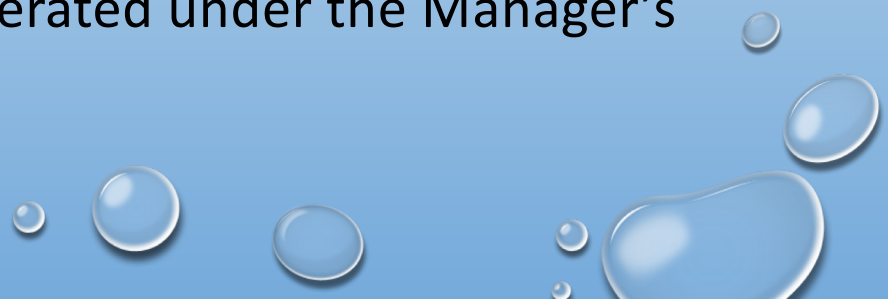
- I am not an expert so I can't give specific recommendations related to technology or water system infrastructure. I definitely recommend having an Incident Checklist that gets followed strictly, and I recommend this budgeting cycle focus on funding needed measures listed in the staff's Recommendations and other recommendations we get from these surveys. Communication with the board needs improvement.
- Communications and updated equipment. Will take many years to update everything. This storm was one of the 2 worst I have seen in my 25 years here. Though can expect more let's take a steady and thoughtful approach.

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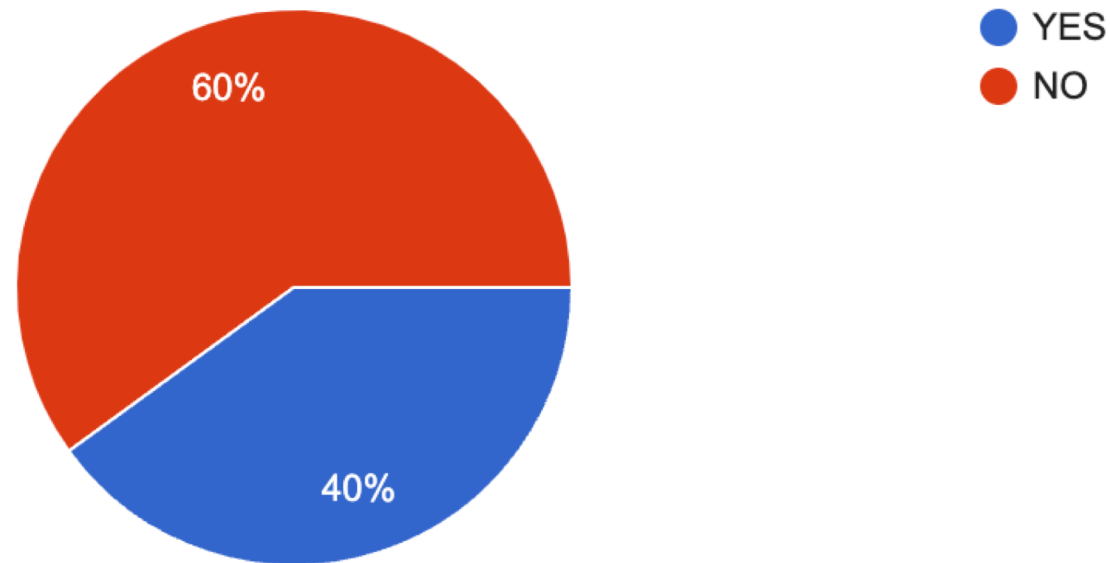
- Pre-planning and communication with other agencies
- Emergency Response Plan - how does the CWD's ERP address freezing temperatures, needs updated communication plan for boil notifications, update emergency contact list, identify protocols and procedures during an activated event and implement them.
- The entire system needs to be inventoried and mapped accurately. This is a very big lift but something that is critical for the operation of the system.
- Water knowledge - training, classes, hire if necessary, redundancy of personnel with water knowledge.



# The Role of Commissioners in Extreme Weather Events


- Should be on call to provide support as their expertise allows and they are available.
  - We need to be communicated with up front, proactively, as part of the Emergency and Key Contacts List. One of us should be part on the Incident Team for any Extreme Weather Event.
  - Support of staff and available for assistance
  - The Corbett Water Board should be there to advise and guide or enforce policies. The water system is operated under the Manager's directive.
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Did Commissioners feel well informed and appropriately involved in this Event?




# Why or why Not?

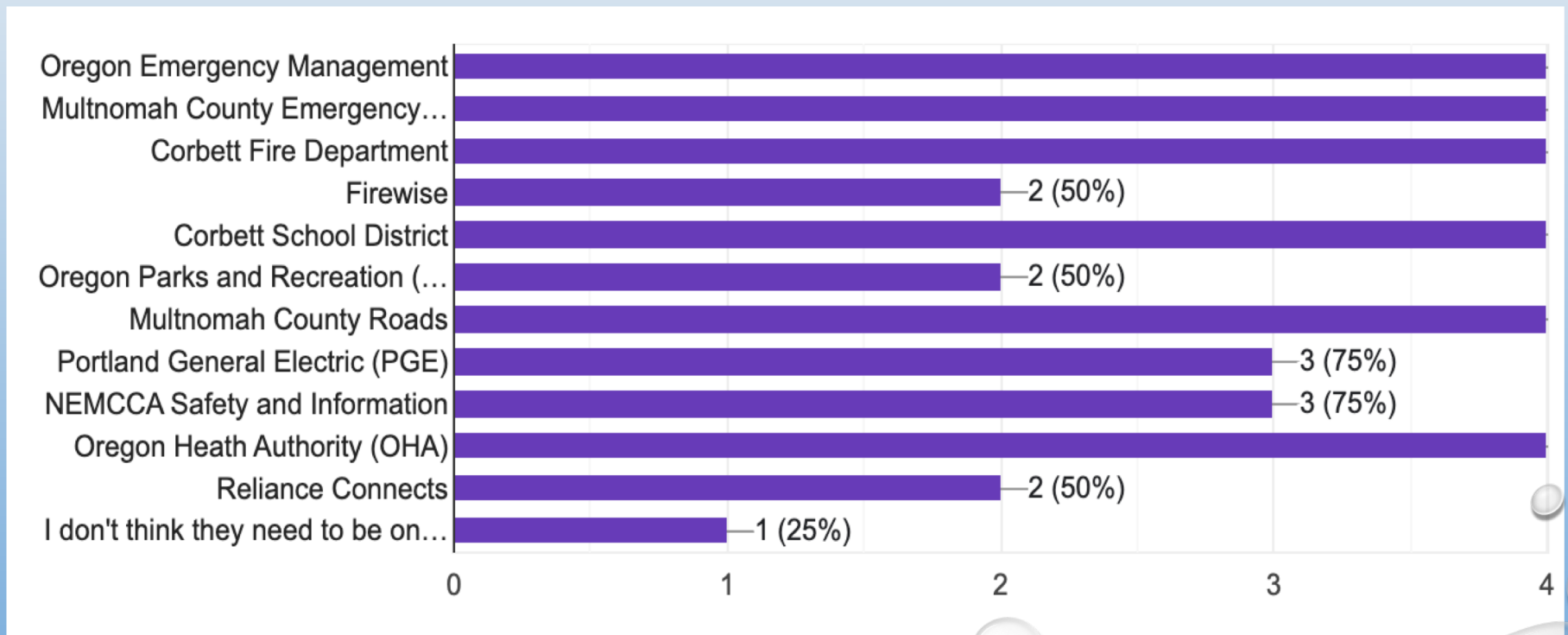
- I was participating in helping in the CWD response.
- I think a lot of my answer is due to the isolation caused by the storm and it makes me wonder about how other Boards in other Water District are communicated with and involved during an extreme weather event.
- Did not want to bother staff when I knew they were slammed
- I was in communication via phone call and text with the District Manager and 2 other Commissioners
- I would like communication or timely updates of current situations. Finding out about issues through social media or community members of situations at CWD is not acceptable.



# How would you like to be involved in future Extreme Weather Events?

- I can be involved in coordination with regional emergency networks. I am already currently involved with regional wildfire networks and made a handful of connections for winter storms over the course of this event.
  - Communication to the community
- 

# Who should be on Emergency Contact List?





# In Closing

- I do appreciate the staff continuing to be there and trying to do what they could do during this event. I think with a little preparedness, we will be able to handle future events much better.
- I thought staff and volunteers were heroic. Much thanks to agencies that helped us. The internet is often a cesspool of misinformation and that is why accurate communication is essential.
- I believe staff did a great job but were not as prepared as they could have been. Lots of lessons learned. I feel confident that if we experience the same, their response would look different.
- The CWD Board is ultimately responsible for what unfolded during the weather event, we placed Ana in a very difficult situation. I feel this weather event just shed light on the direction the board is taking the district.




# Emergency & Key Community Contacts Data

- Questionnaire Sent to 18 People or Organizations
  - Emergency Response Organizations
  - Volunteers in Key CWD Work
  - Key Community Organizations





# Key Contact Role in Extreme Weather Events

- County Emergency Management. We coordinate with our served cities' and other jurisdictions' emergency managers and coordinate requested emergency management support for unincorporated areas of the county, including Corbett.
  - Multnomah County Emergency Operations Center - Agriculture and Animals
  - Retired from emergency response role for a municipality.
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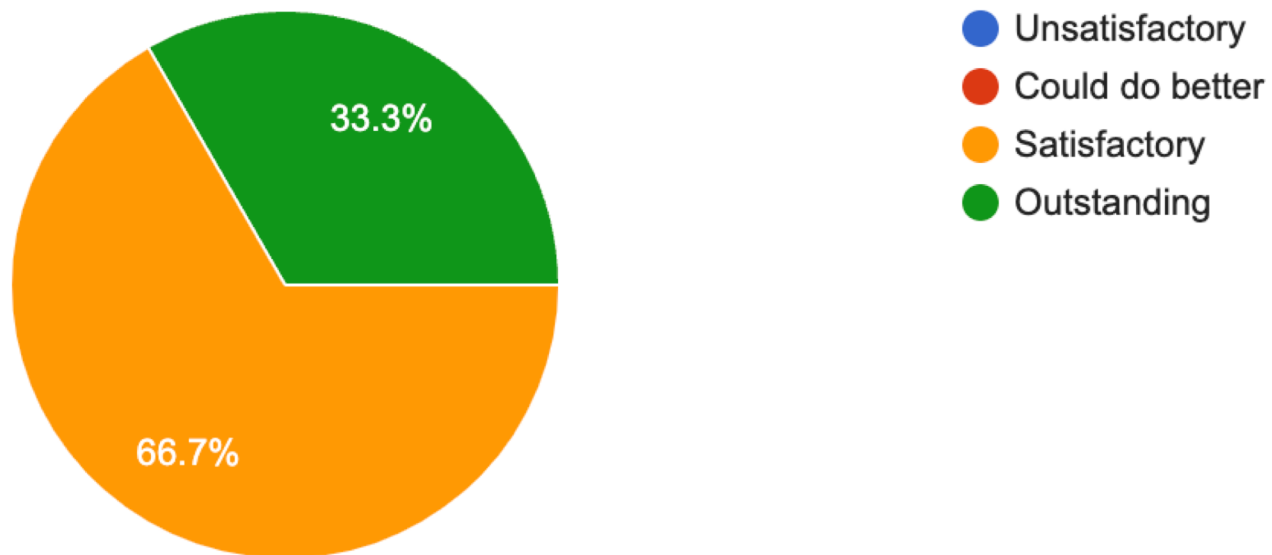
# Incident Response Team Information

- We manage the County's Emergency Operations Center and are organized with an Incident Commander, EOC Manager, Operations Section, Planning Section including a Situation Unit, and a Logistics Section. The County has Finance and HR staff who fill the roles of Admin/Finance.
- Multnomah County EOC - ESF-17
- 24-hour hotline for environmental emergencies of all sorts. On-call to respond.

# Manner of Involvement with CWD during Event

- Volunteer engineering assistance
- We coordinated with Corbett Water and with Corbett Fire Department on power outage and water related issues, including supporting the provision of a water tender and generator for the temporary distribution of water, supporting a daytime warming center at the FD, and with MCAS to identify households with livestock who needed support for watering their animals
- We were activated to address water access issues for animals and livestock in East Multnomah County areas where loss of power or freezing impacted delivery systems.
- Keeping the phone and internet systems up and running
- I provided a rapid slope stabilization cost estimate for submittal to FEMA
- Communications with Ana Linden and Heather McGivney

# Key Contacts Rating of Quality and Effectiveness of that Involvement



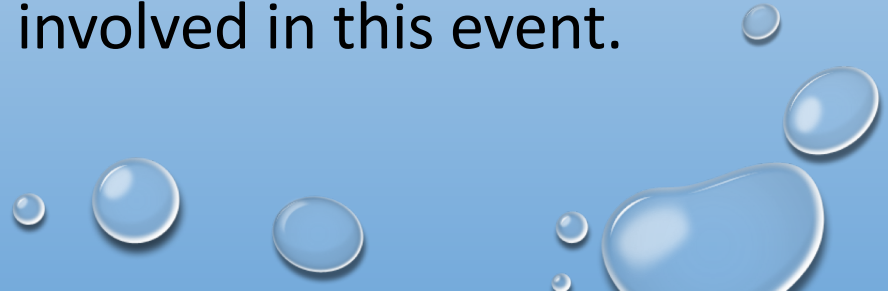
# Emergency and Key Contacts Feedback

## Explain your Rating

- I am not a CWD customer and was neither harmed or benefited by its response.
- There is **always room for improvement** and it would have been **good for MCEM to have been involved in any hot wash or after-action discussion** on the response operations to both give and receive feedback on what went well, what could have been better, and discussion on possible action items for improvement in future responses.
- Ana **was extremely helpful and responsive** to address the needs of a district member in need of water for livestock. Heather **developed a solution** by networking with City of Troutdale Public works for emergency water bags to use with the Multnomah County supplied water tank. The EOC put in the resource request and Heather **picked up the supplies**.
- Heather shared the survey to gather information about East County residents experiencing challenges to access water.



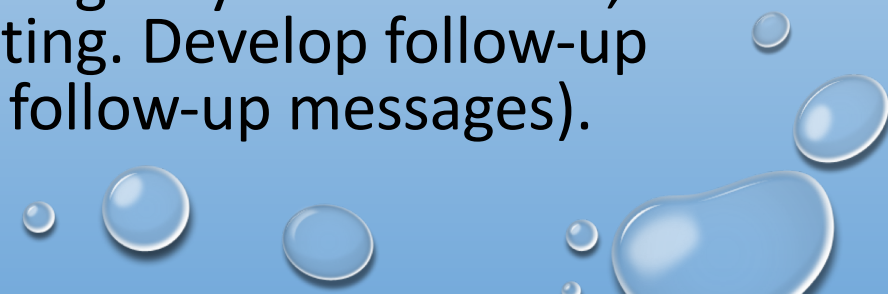
## Emergency & Key Contact Recommendations

- I recommend creating a **rapid response team** from local (Corbett) expertise.
  - We had good communication, overall, I think with CWD, but there is always room for improvement. I think it would be good to **discuss an SOP or guidance for engaging in similar emergency responses in the future**. I learned a lot about ORWARN during this event and about the different interactions I had with with people involved in this event.
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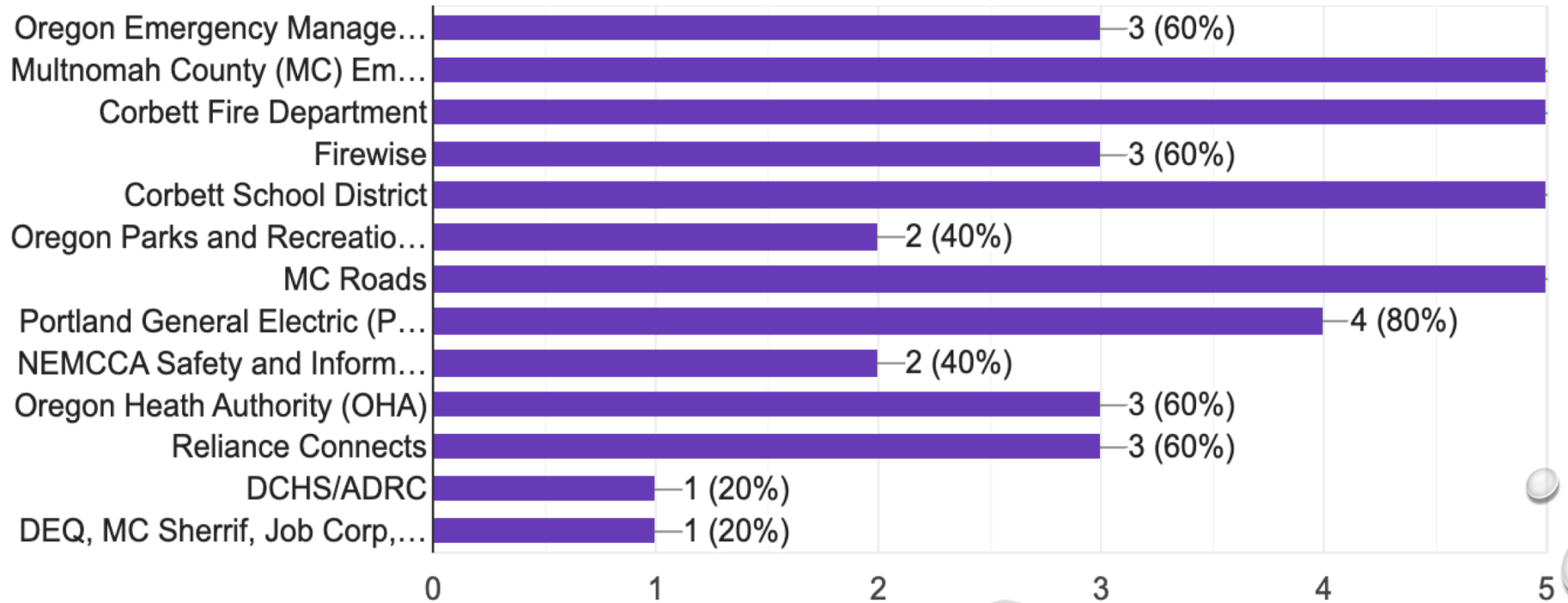
- We are **taking our lessons learned from recent events involving freezing temperatures or loss of power, and procuring equipment for Animal Control Officers** to address water drops for livestock. We would like to coordinate with your office for planning, and proactively at the onset of future events.
  - Expand **ERP, training and policies to reflect OSHA cold weather response requirements and advise**. Document daily assignments, communications, interagency coordination, and regulatory activities and reporting. Develop follow-up phone messaging (initial message, follow-up messages).
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continued

- Thank you for this initiative!
  - **We need** better vehicles, equipment, emergency sheltering at reservoirs, reliable generators and or heating devices in key placement, fuel storage, and more Utility Workers. We need Chain of Command training for all workers and emergency volunteers, CWD cell phones and radios, and battery pack chargers.
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# Who/What Organizations should be on the CWD Emergency Contact List?





Next up:

# After-Action Follow-up and Next Steps



# Changes Taken & Underway



## Corbett Water District Standard Operating Procedures (SOP) for Extreme Weather Events Incident Action Checklist

This Standard Operating Procedure (SOP) document applies to both extreme cold and extreme heat or wild fire events. The trigger for action on this SOP is extreme weather in the 7-day forecast.

### **Extreme cold weather triggers:**

- Forecasts including freezing rain
- Temperatures below **XX** degrees
- Extended temperatures below freezing

### **Extreme heat/fire triggers:**

- Indoor or outdoor work environments where heat index >80° degrees F (OSHA required)
- Forecasted fire weather or red-flag conditions
- Wildfire events
- Smoke events
- Forecasted Public Safety Power Shutdowns (PSPS)

# Changes and Purchases

- 2 light weight generators
- Another roll of heat tape and 2 more heaters
- 2 long Extension cords
- 2 sets of new snow chains (fitted to the trucks by the dealer)
- 2 insulated tarps for Larch Mountain reservoir
- And extra laptop for remote access when the power is out elsewhere
- We have installed a sump pump at the overflow
- Everyone is logged in to telemetry on their phones and laptops

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- Replaced the level transducer at larch and ordered a back up
- Replaced batteries at reservoirs
- The crew has done research on snow capabilities of the trucks and will continue to research alternative vehicles for the future.
- We are creating an EPA checklist/procedure
- We have found a generator repair tech who will service our diesel generator. We have a repair appointment planned
- We are changing the Friday off schedule so that at least one crew member is always here on a Friday.
- We changed our SOP for boil water notices and water loss warning auto dial phone messages. We've added the Fire Department to each and every one of the IVR phone notices that we send out for potential or actual water loss or pressure – once we have our database built we will also include the inter agency hydrant numbers.

# Next Steps

- Continue Processing Feedback from Event and Recommendation
- Apply Improvement Needs to our up-coming Budget
- Continue to codify, Classify, Standardize the Extreme Weather Event Risk Management Process and SOPs



# In Closing



We're dedicated

We've learned

We're improving &

We will Continue to Learn and Improve