Six Rivers PT Hike Fatality

Facilitated Learning Analysis

Firefighter William "Bill" Jaros always had a smile on his face. He is deeply missed by friends, coworkers, and family. He passed away on July 8, 2017 from cardiorespiratory arrest due to sudden death from an enlarged heart during moderate to severe exercise.

Dear Reader,

While Bill Jaros always had a smile on his face, Bill's coworkers and friends believed that it was important to inform the FLA Team that this crewmember was also going through significant personal challenges in his life. Due to these taxing circumstances in his personal life, Bill was experiencing a considerable amount of family and personal stress.

Once the FLA Team had interviewed Bill's coworkers and learned about the difficulties that Bill was experiencing in his personal life, after much discussion, the FLA Team realized that this FLA needed to share and address—in a thoughtful and respectful manner—Bill's pshycological health. (Whether or not this contributed to his eventual medical incident during the PT hike that day is unknown.)

Bill's family was briefed on this decision and they provided their support, as did Bill's coworkers, for this FLA's mental health focus.

That is why this FLA's "Key Discussion Points" section concentrates on "Stress and Stress Management." As is pointed out in this part of the FLA, it is critical for all wildland firefighters to be aware of the need to manage stress, both personal and professional. A series of discussion questions are provided here to help encourage discussion on this essential front. They include: *"How are you managing your stress level?"* and *"Are you checking in with crewmembers who appear stressed?"*

In addition, at this FLA's conclusion we present a special section "Resources to Help Firefighters" that provides contact information on a variety of resources that are available to help provide mental health support to firefighters.

This FLA is respectfully dedicated to the memory of William "Bill" Jaros.

The Six Rivers PT Hike Fatality FLA Team

C O N T E N T S

1. Summary……. 3
2. Background……. 3
3. Setting……. 3
4. Narrative – Chronology of Events……. 5
5. Summarized Incident Timeline……. 8
6. FLA Team Observations……. 9
7. Lessons Learned……. 10
8. Key Discussion Points……. 10
9. FLA Team Members……. 11
10. Resources to Help Firefighters……. 12

1. Summary

William "Bill" Jaros, 38, worked as a Fire Engine Operator (FEO) on a Type 3 Engine Crew on the Six Rivers National Forest.

On July 8, 2017 Bill became ill while on a physical training (PT) hike and collapsed. He was treated for heat-related illness on scene. He did not respond to the treatment and became unresponsive. He ceased breathing and did not have a pulse.

CPR was initiated by EMTs on scene and continued for more than an hour.

A CAL FIRE Helicopter was dispatched to the scene. Bill was hoisted into the helicopter and flown to the local airport, where he was pronounced deceased by the Air Ambulance on scene.

Photo of the hillside below where Bill's medical incident occurred.

2. Background

In order to give this FLA context and background, and realizing that there are other employees who have also experienced tough times and challenges, the FLA Team recognizes that Bill was in the midst of experiencing considerable family and personal stress—in addition to being employed in a fundamentally stressful profession.

The stress from Bill's personal life was bleeding over into his work life. He was struggling both mentally and physically. One coworker said: *"Bill was a guy who did everything to help others, but we couldn't help him."*

"The objective of PT
is to make you fire ready."

Crewmember

3. Setting

The crew was on a PT hike that was an approximate five-minute drive away from their Ranger District office. The hike was not on an "official" trail. However, because it was a location commonly used for physical training, the route was somewhat apparent.

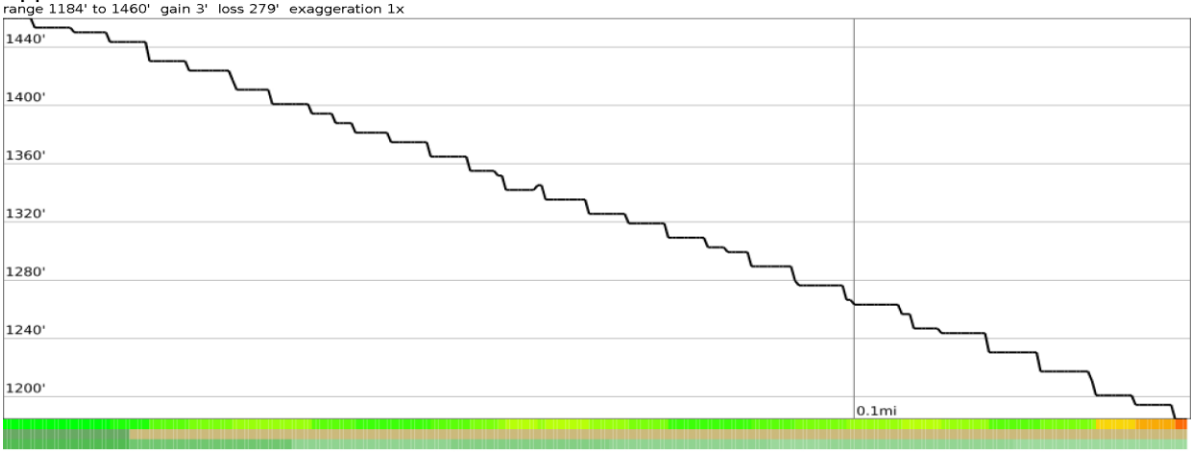
The weather that day was hot for the area, close to 90 degrees. The hillside in which the hike was located has 60 percent slopes in places (see graphs on next page). This area is rocky, full of brush, and there are many snags.

While the PT program at this District is rigorous, it is no different from any physical training program for wildland firefighters on any other District across the country. The program involved running, hiking, calisthenics, and weight lifting.

Bill had struggled with PT at times recently, but had no problem passing the arduous Pack Test required for his position.

Approximate Downhill Route

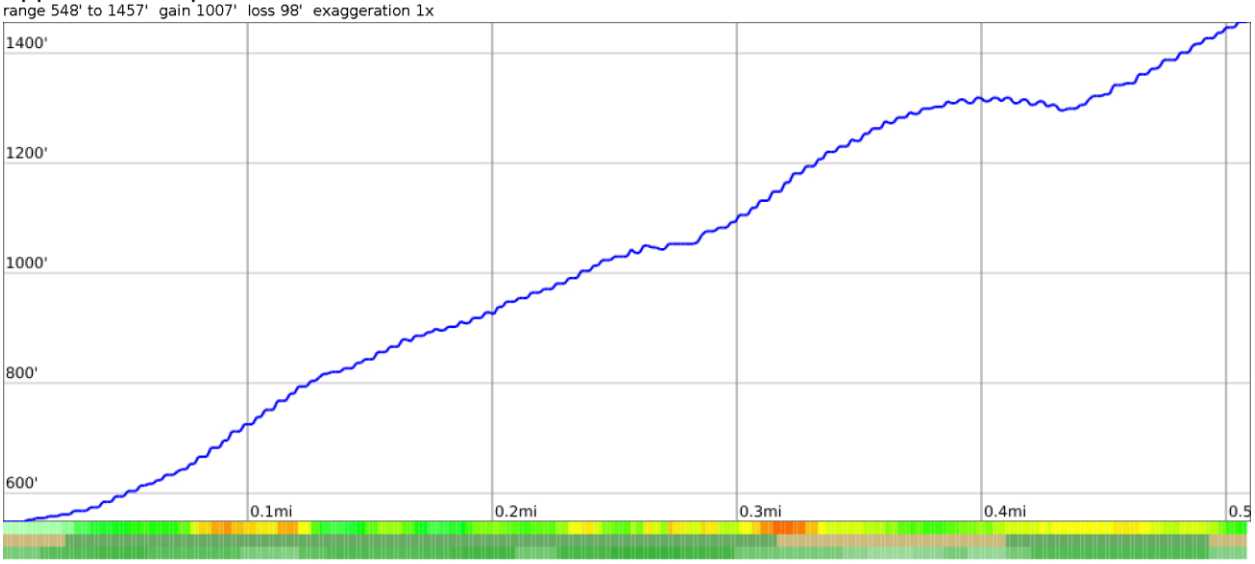
range 1184' to 1460' gain 3' loss 279' exaggeration 1x



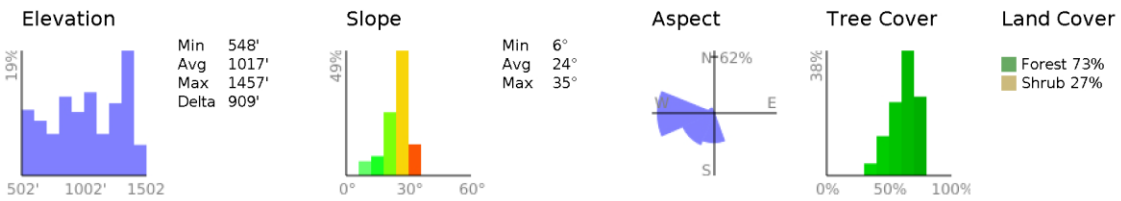
Slope Angle (top), Land Cover (middle), Tree Cover (bottom)

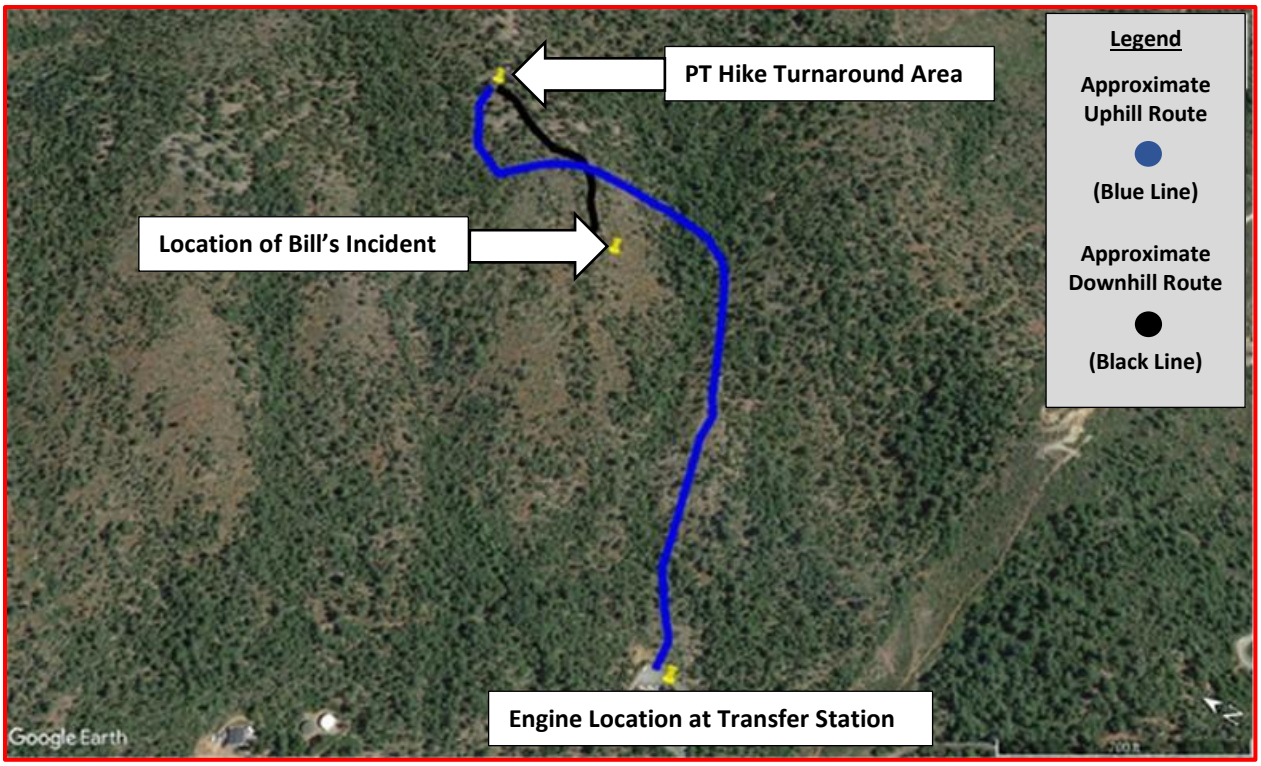
Approximate Uphill Route

range 548' to 1457' gain 1007' loss 98' exaggeration 1x



Slope Angle (top), Land Cover (middle), Tree Cover (bottom)





4. Narrative – Chronology of Events

The Engine Crew showed up for their duty day at or before 0930 on July 8. Bill was 10-15 minutes early that day, and was in good spirits. He had just returned from several days visiting family.

The crew performed engine checks, then headed out to their PT hike. They parked their engine at the local Transfer Station. They started their hike at approximately 1030, with the Engine Captain leading the hike, followed by the three crew members, and Bill assuming "sweep" at the rear of the crew.

The crewmembers were wearing their full line gear with hand tools, just as if they were on an actual fire assignment. As they proceeded, the crew took breaks to regroup and allow the slower hikers to catch up. The Engine Captain emphasized: *"Don't leave anyone behind! Make sure you push yourself but check on your buddies."*

Bill Leads the Crew Back Down the Hill

The crew didn't make it to the top of the ridge because they were scheduled to be at a "rafting race" event at 1300 to assist with Smokey Bear. They hiked up about an hour and decided to turn back at approximately 1120. Around this time, Bill mentioned to one of his coworkers: *"That was a hard one."*

The crew took a 5-10 minute break to regroup. Then the Engine Captain asked Bill to lead the crew back down the hill in reverse tool order.

The view down to the airport from near where Bill's medical incident occurred.

Bill took the lead. He started going down a different route than the crew had come up on. Next, the crew noticed Bill taking a sharp turn. They were concerned about following him, as he was headed through the brush. One of the crew members noticed that Bill was breathing hard. The Captain asked the EMT to go check on Bill and see how his heart rate and respirations were doing.

Engine Captain Activates EMS

The rest of the crew continued to hike down. The Engine Captain could see the engine. He told the other crew members to continue to the vehicle.

Bill stood up, said *"I'm good,"* and started to wobble down the hill.

The Engine Captain and EMT noticed Bill's breathing was heavy so they stopped to check his vitals again. The EMT noted a heart (pulse) rate of 180 beats per minute and respirations at 30 breaths per minute. (A "normal" pulse rate is 60 to 100; "normal" respirations for an adult are 12 to 20 breaths per minute.) He thought Bill was hyperventilating.

Next, the EMT made a makeshift shelter out of an emergency blanket to provide shade for Bill. Bill complained of weakness in his knees and said: *"I can't do this anymore!"*

Bill's speech was beginning to slur. Realizing the seriousness of the situation, the Engine Captain asked if he could take Bill's pack. At 1230, the Engine Captain made the decision to activate EMS and contacted Dispatch declaring: *"Emergency Traffic."*

Within five minutes of this call to Dispatch, an Air Ambulance was ordered. After the 9-Line[1] was read over the radio, the Duty Officer who was at the Ranger District office, contacted the Engine Captain over the radio to receive an assessment of what was occurring. The Duty Officer then drove to the Transfer Station where the crew's engine was parked.

The Assistant Forest Fire Staff was off duty. But because he happened to be in the local area, he also responded to the Transfer Station. After hearing the emergency radio traffic, a local Prevention Technician also responded to the Transfer Station.

Bill Seems to be Stabilizing; More Resources Arrive

The Engine Captain and EMT poured water on Bill to cool him. They noted that Bill's skin was clammy and that he had stopped sweating. Even so, his hair was wet with sweat, and his face's skin color had gone from flush to pale or gray. The Engine Captain asked the crew to bring up water, medical supplies, and oxygen.

At this point, the Engine Captain thought Bill was stable because his breathing had improved and his pulse was starting to slow down. The EMT placed ice packs in Bill's armpits. They kept him inside the shade that had been created for him. The Engine Captain relayed this information to Dispatch. The Prevention Technician hiked up the hill with two of the Engine Crewmembers, one was carrying the medical bag. The Prevention Technician was concerned that Bill was not doing well.

[1] The "9-Line" is the commonly used term for the Medical Incident Report located on pages 108-109 in the Incident Response Pocket Guide (IRPG).

> ***"What do you need? We will get it!"***
>
> **CAL FIRE Dispatcher**

The Duty Officer checked the road access west of the incident. When he heard that Bill was stable, he decided to remain at the vehicles.

Next, at 1239, the Gasquet Volunteer Fire Department arrived on scene at the Transfer Station to assist. They had a nurse with them who hiked up to Bill's location and started providing care. Bill was placed on oxygen. At one point, his pulse was 200.

At 1250, the first helicopter that was ordered declined to respond. The County Dispatchers immediately ordered another Air Ambulance from a neighboring county. The U.S. Forest Service Dispatchers coordinated with CAL FIRE and the County Dispatchers to order a CAL FIRE Helicopter to perform the hoist mission.

The Forest Service Dispatchers described feeling very frustrated with how long the helicopter response was taking.

The pink flagging indicates the location from which Bill was hoisted into the helicopter.

Bill Has a Seizure; Stops Breathing

At approximately 1315, Bill became disorientated and cried out: *"I am falling!"* Soon afterward, Bill had a seizure, vomited, and then stopped breathing.

Because he did not have a pulse, CPR was initiated by the Gasquet VFD and Bill's Engine crewmembers at 1320.

The Engine Captain had been serving as the Incident Commander. However, at approximately 1335, realizing how (personally and emotionally) close the Engine Captain was to the patient, the Prevention Technician took over as the Incident Commander. He had the Engine Captain continue to look for places for a helicopter or ambulance to get Bill off the hill.

Safety Concerns for Folks from Other Agencies Arriving to Assist

Another concern that began emerging was with the afternoon heat.

> ***"It was hot—even for me."***
>
> **Duty Officer**

Personnel who were arriving on the scene from other agencies did not have enough water. In addition, with the steep slope, snags, and rocky terrain, the Prevention Technician was concerned about their well-being and the possibility of one of them becoming ill or injured. They were also not necessarily on the same radio frequencies.

Once CPR began, the Duty Officer hiked up the hill, looking for alternative options for helicopter extraction, or a way to carry Bill off the hill. The Del Norte Ambulance (a private ambulance company) also arrived on scene at the Transfer Station. But they were unable to hike up the hill based on their policy of not leaving the road to retrieve victims.

Originally, the CAL FIRE Engine that responded went to the airport to secure the Landing Zone but they were requested to go to the Transfer Station to assist as needed.

Bill is Pronounced Deceased
CPR was performed on Bill for approximately 30 minutes prior to a Lucas Device™ (a chest compression system) being used, with an Automated External Defibrillator (AED). The AED announced: *"No Shock Advised."* Both the AED and Lucas Device were brought to the scene by the CAL FIRE Engine Crew.

At 1420, the CAL FIRE Helicopter arrived over the scene. A helicopter crewmember was lowered down with a litter basket. The flight crew member packaged Bill for departure. Bill was hoisted off of the hill by helicopter.

When the helicopter arrived at the airport, Bill was pronounced deceased by the awaiting Air Ambulance.

5. Summarized Incident Timeline

Time	Description of Events	Source
0930	Engines come on duty and start regular work shift at their fire station.	Captain
0930-1015	Engine check is completed and Engine Crew drives to local Transfer Station to start PT hike.	Captain
~1030	Crew starts to hike.	Captain
1120	Crew stops hiking and prepares to turn around and head back to engine.	Captain
~1130	Bill takes the lead and crew starts to descend toward the engine.	Captain
~1145	Bill takes sharp turn and begins to show signs of distress.	Captain
~1150	Bill is checked by EMT. He has a rapid pulse and respirations.	Captain
1223	Captain activates EMS.	Log
1226	Ground and Air Ambulances are ordered.	Log
1239	Gasquet Fire Rescue Arrives at Transfer Station.	Log
1249	Search and Rescue is ordered by Dispatch.	Log
1250	First helicopter ordered refuses the assignment.	Log
1314	CAL FIRE Crew ordered to assist with patient carry out.	Captain
1315	Bill becomes disoriented and cries out: *"I am falling!"*	Captain
1320	Bill has a seizure and stops breathing. CPR is initiated.	Captain
1335	Prevention Technician transitions as Incident Commander.	Log
1409	CAL FIRE Engine Crew on scene with AED and Lucas Device.	Log
1420	CAL FIRE Helicopter arrives over the scene and initiates a hoist operation.	Log
~1445	Helicopter lands at airport with Bill on board.	Log
1451	Bill is pronounced deceased at airport.	Log

The ~ mark in the "Time" column indicates an estimated time.

6. FLA Team Observations

Medical Response

While Bill presented with heat-related symptoms, the results of further medical testing revealed that his death was due to cardiorespiratory arrest—sudden death from an enlargement of his heart during moderate to severe exercising.

Even if they had known about Bill's enlarged heart condition, there is nothing that the firefighters on scene of this medical incident would have been able to do any differently.

The FLA Team consulted with a physician, who assured that Bill's crew acted and responded appropriately to how Bill was reacting. Additionally, the physician emphasized that, going forward, any patients that present with heat-related symptoms in the field be treated for heat-related illness. (That is why this FLA contains heat-related illness recommendations [below], even though an enlarged heart was the cause of Bill's death.)

Training

Firefighters were able to follow their medical incident training. They implemented their emergency response plan and utilized the 9-Line medical response.

Relying on Other Agencies for Medical Assistance

As is common across the U.S. Forest Service, the District relied on other agencies for medical assistance and advanced life support. These agencies can have policy limitations, such as the local private ambulance whose personnel could not leave the road to provide care. While this restriction was known by the Duty Officer, not all District personnel were aware of it.

There was a lot of communication confusion during this medical incident caused by the different agencies not having the same radio frequencies. This problem could possibly be overcome by developing a common tactical channel among cooperating agencies and partners.

Heat-Related Illness

Although classic teaching describes a heat stroke patient as "hot and dry" recent studies have shown that more than 50 percent of heat stroke patients are sweating heavily.

Typically, on the fireline we do not have medical thermometers. Therefore, the hallmark of heat stroke is altered mental status. You should suspect heat stroke if a firefighter is hot, fatigued, and shows some altered mental status, such as an inability to remember the day or the current situation. They may ask: *"Where am I?"* They may stagger or stumble.

Heat stroke is characterized by:

- ✓ Hot, often dry, skin.
- ✓ Body temperature above 105.8 degrees Fahrenheit.
- ✓ Mental confusion.
- ✓ Loss of consciousness, convulsions, or even coma.

Heat stroke is a medical emergency. Brain damage and death may result if treatment is delayed. Begin rapid cooling with ice or cold water and fan the victim to promote evaporation. For rapid cooling, partially submerge the victim's body in cool water.

Treat for shock if necessary. Provide oxygen if it is available. Whereas heat cramps and heat exhaustion may be treated locally, heat stroke patients should be medevacked off the line ASAP, by air if possible, as their condition may worsen suddenly.

You can prevent the serious consequences of heat disorders by improving your level of fitness and becoming acclimated to the heat. Maintaining a high level of aerobic fitness is one of the best ways to protect against heat stress.

The fit worker has a well-developed circulatory system and increased blood volume. Both are important to regulate body temperature. Fit workers start to sweat sooner, so they work with a lower heart rate and body temperature. They adjust to the heat twice as fast as the unfit worker.

References

- Interagency Standards for Fire and Fire Aviation Operations
- Fitness and Work Capacity – Second Edition
- http://www.faqs.org/health/Sick-V2/Heat-Disorders.htm

7. Lessons Learned

- The importance of having good emergency medical response plans and practicing implementing them through live exercise—including cooperators doing this—cannot be understated. Consider worst case scenarios and think about what you would do in this situation.
- Helicopters are not always available and can take a long time to arrive. Once they do arrive, they may not be able to perform the mission, or may need to reconfigure. Consider this during mission planning.
- Communications are critical during an incident. If during the off-season common frequencies can be acquired between cooperators, when an incident happens it can make operations go much smoother.
- It is a good practice to be knowledgeable about your own medical conditions and those of your crew members. Some crews carry sealed envelopes that contain medical history, medical conditions, and doctor information. They are only to be opened in case of emergency. These envelopes can be completely voluntary and can contain more personal information. Things like allergies to bees that need to be more widely known and disclosed for safety purposes would not be appropriate for these envelopes.
- It is critical to maintain total body health, including physical and psychological health, and practice proper nutrition.

8. Key Discussion Points

Stress and Stress Management

It became clear through the FLA Team's interviews with Bill's coworkers and friends that Bill was going through a lot of personal challenges. Due to circumstances in his personal life, Bill was experiencing a huge amount of stress. Whether or not this contributed to the incident that occurred is unknown.

However, it is important for all wildland firefighters to be aware of the need to manage stress, both personal and professional.

Questions to ask your crew include:

- How are you managing your stress level?
- Are you checking in with crewmembers who appear stressed?
- How would you want your crewmembers to help you if you were having problems?
- What is the supervisor's role in helping an employee?
- What are ways that a supervisor or work leader can help an employee?
- Are you getting the information you need to have this discussion with your peers and crew? Do you know where to find the information?
- How do you know when an employee is unable to do their job anymore, how do we handle this?
- What is the supervisor's responsibility when everything that they have tried to do to help an employee is still not working?
- How do you ensure your coworkers that you are doing all you can to provide assistance?

Additional Questions:

- Are you aware of your medical conditions?
- How could any medical conditions that you have possibly affect you at work?

9. FLA Team Members

Deb Bumpus, Team Leader
Deputy Forest Supervisor, Coronado National Forest

Peter Tolosano, Lead Facilitator
Retired Risk Management Officer, Pacific Southwest Region

Jeffrey Bradshaw
Safety and Occupational Health Manager, Pacific Southwest Region

Mike Noel
Deputy Forest Fire Staff, Mendocino National Forest

Joseph Domitrovich, Ph.D.
Exercise Physiologist, National Technology and Development Center

Jody Williams
Prevention Technician, Feather River Ranger District, Plumas National Forest

Anne Trapanese
Environmental Coordinator, High Cascades Ranger District, Rogue River-Siskiyou National Forest

10. Resources to Help Firefighters

Wildland Firefighter Foundation
2049 Airport Way
Boise, ID 83705
https://wffoundation.org

Employee Assistance Program (EAP)
1-800-222-0364
www.FOH4You.com
https://www.fs.fed.us/servicefirst/rt-sh-safety.shtml

Magellan Assist
https://www.magellanassist.com/cust/bh-industrylinks.aspx

National Fallen Firefighters Foundation
P.O. Drawer 498
Emmitsburg, MD 21727
(301) 447-1365-phone
(301) 447-1645-fax
www.firehero.org

Concerns of Police Survivors (COPS)
For immediate family and/or coworker support as well as information regarding federal and/or state benefits that may be immediately available in the event of a death of law enforcement personnel.
1-800-784-2677
www.nationalcops.org

The International Critical Incident Stress Foundation
A non-profit organization with critical incident management and support teams in all states with teams specialized in responses to line of duty deaths for law enforcement, rescue, and ambulance personnel. A 24-hour hotline is available that is routed to situation-appropriate personnel.
(410)750-9600
Emergency Support 24 hour Hotline: (410) 313-2473
Fax: (410)750-9601
info@icisf.org
www.icisf.org
3290 Pine Orchard Lane, Suite 106
Ellicott City, MD 21042

AARP Grief Programs
State-by-state listing of support groups for widows and widowers.
http://www.aarp.org/family/lifeafterloss/

Grief and Healing Page
The web address below is a grief-related website with a message board providing opportunities to give and receive help with other grieving men and women.
www.webhealing.com

NOVA
The National Organization of Victim Awareness provides Critical Incident Stress support.
www.trynova.org

Journey of Hearts
Provides resources and support for both new and long-term grief.
www.journeyofhearts.org

Virtual Memorials
This website provides space for and assistance with developing memorial pages for loved ones, including photographs and graphics.
http://www.virtual-memorials.com