

## **SAFENET: 2001 Review**

The philosophy of SAFENET is to give each and every firefighter, at all levels of the incident command system, an avenue to resolve safety issues as they occur. The first stage of resolution is open and honest communication. Often the issue can be immediately resolved. If not, personal and other's safety should be provided for first, then elevate the issue for resolution and appropriate information.

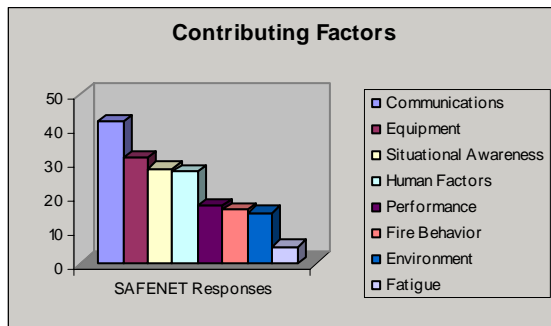
Individuals often will have different perspectives on a safety issue. In order for there to be resolution the other's viewpoint must be discussed and respected. If the issue still can't be resolved it must be raised to a higher level of management (e.g., Forest Fire Staff Officer, Incident Commander, and Geographic Area Coordinating Groups). Each agency has a representative who is able to bring national agency support to re-solving safety issues and concerns when so requested or warranted.

Many of the issues that were identified provide much needed prototypes and analogs to support training fire management leadership and decision-making skills. They include new lessons as well as lessons re-learned. SAFENET provides a critical link from experience to the ability to be prepared for encountering future situations. The most obvious opportunities for sharing these lessons are through programs like 6-Minutes for Safety and Safety Alerts. In some situations these "lessons learned" can be developed into case studies for training. SAFENET provides a source of tactical and strategic "lessons learned" to ensure operational safety. A few examples of lessons learned are included in this report (See **Lessons Learned**).

The process of sanitization for general use is critical to maintain the integrity of the experience. Lessons to be learned should focus on how fireline issues were resolved. Initially, different individual's perceptions on an incident may inhibit respectful interaction (honest, trust, and open). To operate safely in the fire environment, respectful interaction is critical. Interaction in a stressful environment, where decisions must be made in compressed time frames is difficult. It is valuable to know how the safety issue was resolved on scene. Sanitation does not imply non-resolution.

The following data was gathered from SAFENETs received between January 1<sup>st</sup> 2001 and November 1<sup>st</sup>, 2001. Out of the 93 SAFENETS many re-occurring issues were initially identified in the 2000 SAFENET Review.

## Contributing Factors



42	Communications
32	Equipment
28	Situational Awareness
27	Human Factors (other than listed)
17	Performance
16	Fire Behavior
15	Environmental
5	Fatigue

### Communications:

Communications has the greatest concern as a contributing factor. This includes all forms of communication where information is shared. Radios and repeaters (25) remain to be a continuing problem with effective communication systems. In one situation there was a conflict between 800 MHz radio systems and VHF radios systems. Shared frequencies, repeater inspection and maintenance, channel assignments, frequency use authorization, and radio coverage were stated as issues. All resulted in inhibiting the ability to get critical and timely information to those making safety related decisions (e.g., medivac, HazMat, fireline). Resources were also assigned to the fire scene without radios or other form of communication. In one situation there was a complete lack of flight following. There was a need identified for a pre-positioned, second Victor for potential intense initial attack activity.

Another aspect of communication - difficulties in resolving safety issues because of differences in perception - was noted. Often these concerns boarder on a performance factor, and noted in Performance. Re-occurring issues in communication also included; difficulty obtaining an Incident Action Plan (2), and numerous assignments without adequate briefings.

## Equipment:

4 SAFENETS addressed concerns with personal protective equipment availability and lack of use when available. In one case the firefighter was instructed not to carry their shelter prior to fire control.

A BEAR team had a concern with the lack of shelter training. Another crew was not familiar with the Fire Shelter Tab Safety Alert. Additionally, current fire shelter quality (in comparison to Storm King Technologies' shelter) was raised as an issue.

Other issues included the vent on Wildfire/Halprine drip torches, problems with the adjustable yellow-fly tent poles, and ATV helmet's affecting heat exhaustion/stroke.

The performance of Recal 2.5 Portable Radios (4) and EF Johnson Vehicle Radios (2) was raised as a concern. Additionally, new Duracell-ProCell batteries were found not to function.

Vehicle equipment issues included exceedence of GVW, rear leaf-spring wear (2), retread tire failure, and the exposure of air tank valves to damage.

## Situational Awareness:

Repeated issues were raised with individuals, e.g., information officers, media not being aware of the dynamic situation around them. Air drops were made without ground personnel aware. In one situation the crew supervisor took another fire position (DIVS) leaving new crew members to take care of themselves.

Categorized under situational awareness are a number of violations of the FIRE ORDERS and in these incidents solid LCES was sacrificed.

In three situations firing operations (burnouts) were conducted without proper notification of adjacent fireline personnel.

## Human Factors (Other)

It is worth noting that one SAFENET in this category was used to warn fire management employers of an individual who is believed to be falsifying their application. A concern was also raised over one Incident Commander how allowed non- red carded individuals to become involved with suppression operations.

Other SAFENETS that fell into this category were also linked strongly with communication and performance factors.

#### Performance:

At least fifteen SAFENETS were received with concerns on lack of suppression tactics adhering to safe practices; the FIRE ORDERS and LCES. The concerns raised were not only about the immediate fireline supervisor but the overall incident management teams approach to firefighter safety. Additionally, there were concerns raised on the proper logistical support (e.g., food and rest) on three incidents specifically.

Rose as an issue is the proper protocol for assignment refusal. The lack of respectful interaction has caused crews to be demobilized, from an active fire, with poor performance ratings. This is a re-occurring issue.

The individual performance of fire management officers (2), crew bosses (2), division supervisor (2), as related to firefighter safety and welfare was raised as issues. Other issues raised on individual performance were with the physical condition of contract bus drivers, lack of appropriate EMT care, and information officer control of public and media. One concern was raised with the qualifications of a Powersaw instructor.

The crew supervisor's acceptance of a different fire position, potentially leaving their crew unattended has previously been mentioned.

#### Fire Behavior:

Sixteen of the SAFENETS specifically stated that one contributing factor affecting firefighter safety was the "extreme" and "intense" fire behavior. Large amounts of critically-dry available fuels and strong winds are frequently stated as being present.

#### Environment:

The environmental factor that appears most often is exposure to fire-weakened trees where mop-up objectives have been assigned (4). Another environmental factor that was strongly stated was the fire suppression tactics used in the Southeast, resulting in a burned over tractor.

Some unusual environment factors were found, e.g., unexploded ammunition (2) and razor wire, on the fire scene – a reminder to be prepared for unexpected hazards in the fire environment.

#### Fatigue:

The fatigue issues centered on the lack of appropriate fire camp facilities to provide for adequate rest and the demands during intense initial and extended attack operations. Pre-planning appears to be a key in resolving both of these concerns in the future. The obstacle that fatigue presents to respectful interaction was identified.

Other SAFENETS were categorized here but do not appear to have a strong link to fatigue. Adequate rest appeared available in these SAFENETS.

## **Incident Name**

The following list of incidents is in alphabetical order and is highlighted to indicate incidents that were a prescribed fire or a complex. Otherwise the reader is to assume the incident is a wildland fire. This list is not intended to have captured all the situations involving SAFENET reporting. Many SAFENET concerns were received simply stating “heavy and intense initial attack and extended attack activity”. Consequently, they have not been identified by name. However, as is well known, the transitioning of fire suppression activities during the escalation of fire activity potentially can put firefighter safety at risk.

Other special situations occurred outside of the wildland, prescribed, and complex fire management environment. Those are addressed below the following listing.

More than one SAFENET received on a single incident is indicated by parentheses, (x). The appearance of a “\*” behind the incident name indicates there is at least one radio system SAFENET (e.g., Bear Playground \*) associated with the incident.

### Wildland Fire

#### **Prescribed Fire**

#### *Complex*

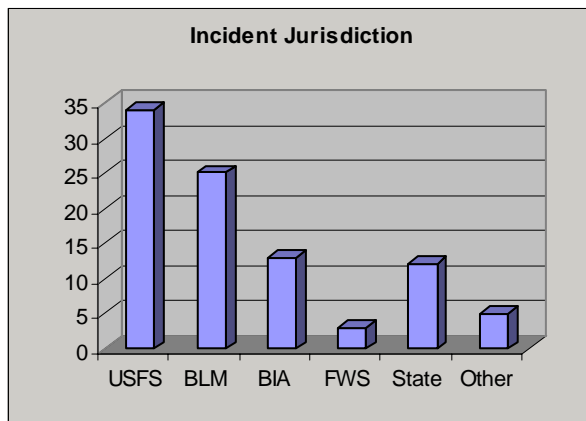
Agua Caliente	Hot Lakes (2)	<i>Olallie Complex</i>
Area 19-1	Hyampon	Ostler Pond
B-081	Icicle Creek	<b>Pot Creek</b>
B-104	Iles Mountain *	Saddle
Bear Playground *	Incident 224	Sandoval Cyn
BIKE	Indian Springs (3)	Sheep (2)
Bishop *	Kenai Lake	<b>Slvermoon #2</b>
Blount’s Pasture	Kite	Skunk Canyon *
Blue Complex	<i>Lakeview / Quartz * (6)</i>	<i>Sleepy 91</i>
Bohnstead Draw	Laney	Stateline
Bridge Timber *	Leroux	Tabor Creek *
Buck Lake	Mad Creek *	Thirtymile (2)
Deer Creek	Menefee *	Tommy Creek
Elk Mountain	Mollie	Treasure
Fish *	Morgan Mountain	Viejas *
Franklin Creek	Mt Leona (3)	Wilson *
Green Knoll (3)	<b>Navajo Ridge</b>	

Safety issues apart from an incident as listed above included;

- radio problems while on a wildlife survey flight
- driver backing too fast into a fire cache vehicle bay

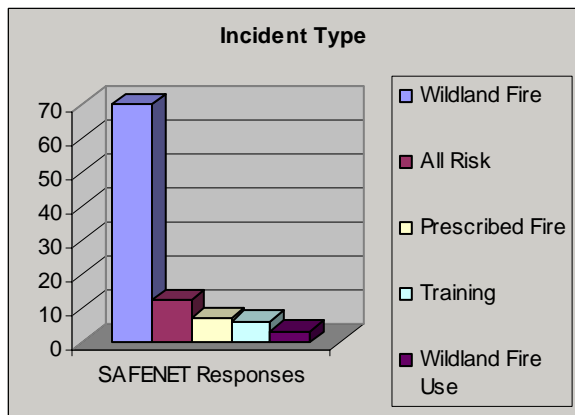
Other information in SAFENET:

### Incident Jurisdiction



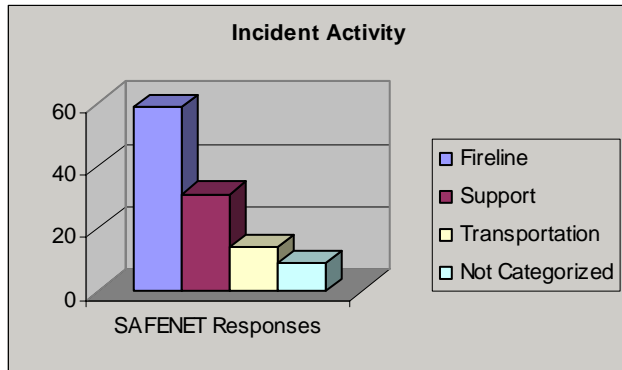
- 35 Forest Service
- 25 Bureau of Land Management
- 13 Bureau of Indian Affairs
- 3 Fish and Wildlife Service
- 12 States
- 5 Other (inc, unknown)

### Incident Type (see Incident Name above)



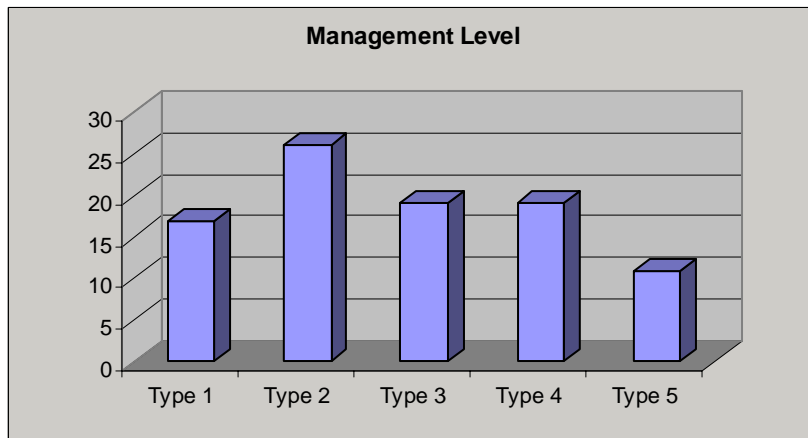
- 70 Wildland Fire
- 13 All Risk
- 7 Prescribed Fire
- 6 Training (inc. physical training)
- 3 Wildland Fire Use

**Incident Activity**



- 59 Fireline
- 31 Support
- 15 Transportation
- 9 Not Categorized

**Management Level**



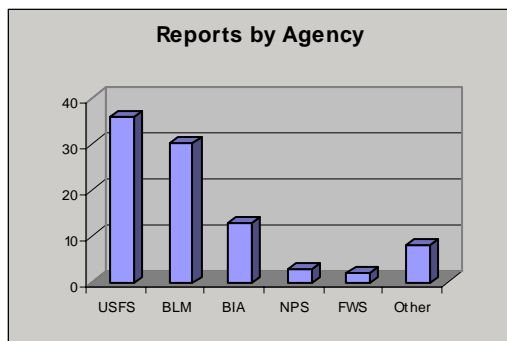
- 17 Type 1
- 26 Type 2
- 20 Type 3
- 19 Type 4
- 11 Type 5

## Position Title

The following list of position title identifies the users of the SAFENET program. Firefighters, crew supervisors, initial and extended attack incident commanders and fire management officers more frequently address firefighter safety issues through SAFENET than do other users.

Aviation Dispatcher	Fire Management Officer – Assistant
Baer Team (2)	Fire Management Officer – Zone
C-1 Superintendent (4)	Fire Management Officer/Engine Crew
Certifier - Powersaw	Helicopter/Helitack Crew Member (3)
Crew Boss (5)	Helispot Manager
Dispatcher	Initial Attack Dispatcher
District Fire Management Officer	Incident Commander – Type 4 (6)
Division Supervisor (4)	Incident Commander – Type 3
Engine Boss and Module leader (8)	Lead Dispatcher (4)
Engine Boss – Trainee	Plastic-sphere Dispenser Operator (2)
Engine Module (3)	Prescribed Fire Burn Boss
Fire Lookout	Radio Technician
Firefighter (8)	Safety Officer – Type 1
Firefighter/Tractor Operator	Strike Team Leader (2)
Fire Management Officer (3)	Task Force Leader

## Reports by Agencies



37	Forest Service
30	Bureau of Land Management
13	Bureau of Indian Affairs
3	National Park Service
2	Fish and Wildlife Service
8	Other (inc, states)



## Task

A single entry indicates at least one SAFENET was received for that particular task. If more than one SAFENET was received for a task it is so indicated by the number inside the parenthesis.

accident investigation (2)	highway driving
air operations	holding constructed fireline (2)
assisting fmo	hoselay and mop-up
aviation	initial and extended attack (8)
baer team	indirect line and burnout
burnout patrol (3)	line construction (10)
camp activities	line scout
coordinating resources	mop-up (7)
constructing helispot	presuppression check
crew member	pre-treating
demobilization	preparedness
direct attack – line construction	physical training (2)
dispatch	radio communications (3)
fire patrol (3)	rehabilitation
fire support (2)	slash/debris burn
flight to incident	sage grouse flight survey
fuel reduction	staging (2)
mapping – gps	structure protection (2)
helibase support/line patrol	suppression
helispot improvement and cargo activities	weather /fire behavior updates

## Lessons Learned:

Here is a representative selection of the safety issues raised that could be added as a general safety reminder. Many of these topics are of enough importance that they could supplement some dimension of training (e.g., 6-Minutes, Safety Alerts, Powersaws). They are lessons that were learned or re-learned.

- Crossing the power saw in front of the body increased the risk of chain contact. To combat fatigue the operator often rests their forearm on the thigh. The right-handed operator's position changes the distances they are familiar with on the right-knee. This places the saw chain seriously close to the left knee.
- PT activities pose a risk to firefighter's wellbeing. Although activities like running for times and riding bicycles provide an excellent physical workout, these activities may not be for all firefighters. If these activities are undertaken, personal protective gear for that activity should be worn (e.g., bicycle helmet).
- Many fire scenes have hazards not familiar to fire suppression operations. For example, ammunition, wire, toxics etc. Recently ammunition explosions occurred during prescribed fire in the vicinity of an abandoned hunting camp. Firefighters need to remain vigilant in looking for and recognizing uncommon hazards. Once they are located they should be flagged and the area recorded for future management activities.
- Mop-up standards must reflect values at risk – especially the risk of firefighters being assigned a standard to mop-up in an unstable post-fire forest. Alternatives, like monitoring fireline security (holding) while the fuels burnout on their own.

The following “lesson” is taken right from the SAFENET itself.

- “We were directed to pretreat some small areas of reprod which were adjacent to a unit we were planning to burn that day. We used 2 loads of water and were preparing to start on a third. I parked the engine at the side of the road. Then moved the gear shift to neutral and set the emergency brake and got out of the cab. On my way back to get the wheel chock I stopped to extend a 50 ft. section of hose w/ nozzle and told my crewperson to engage the PTO. Shortly after doing this the engine proceeded to roll forward. The truck went off the bank and landed on its? side in a cluster of small trees... “
- “The important message here is that although the selector had been moved to neutral position THE VEHICLE WAS STILL IN 6TH GEAR! Engaging the PTO pump caused the vehicle to move under its own power. It is important that all of our operators of fire engines and crew buggies with the Allison 6 speed transmission hear about this accident. I would strongly urge them to make sure the vehicle is actually in neutral before leaving the driver's seat, and by all means get a wheel chock under the tire before doing anything else.”

### **Corrective Actions:**

As previously stated, the ideal corrective action should occur at the moment firefighter safety becomes an issue. Many times it is resolved and the operational objectives are

safely and successfully met. A filing of a SAFENET still has value to others by sharing the unique situation and its solution. This value has been discussed above.

If there is not an on-site solution the SAFENET is tracked by the agency's FFAST representative to ensure closure. As further "supplemental" corrective actions take place they are attached to the appropriate SAFENET. These supplemental corrective actions themselves are lessons learned on conflict resolution.

The ultimate goal is to provide for firefighter safety first.

There were a total of 43 supplemental correction actions taken over the issues in 37 SAFENETS. In most cases the issue was resolved by local fire management staff. Examples of positive corrective actions include Blue, Navaho Ridge, Sheep, Stateline, Viejas, just to mention a few.