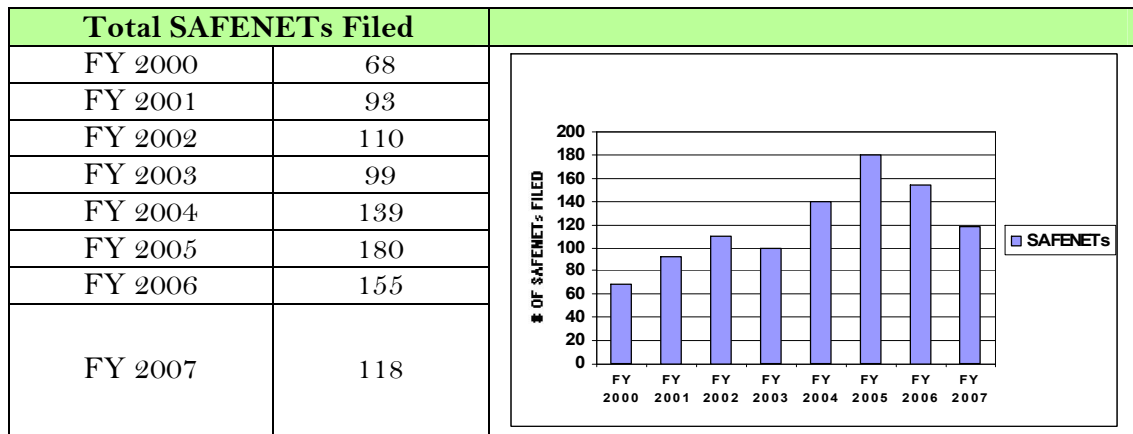# 2007 SAFENET REVIEW

INTRODUCTION

The SAFENET database was created and established during the 2000 fire season in response to a recommendation from Phase III of the Wildland Fire Safety Awareness Study. It serves as a method for reporting and resolving safety concerns encountered in wildland fire (wildfire, wildland fire use, and prescribed fire) and all hazard incidents. It provides a forum for front-line wildland firefighters to share their concerns and highlight issues they feel upper management and the general public should be made aware of. The SAFENET database is endorsed by the National Wildfire Coordinating Group (NWCG).

The following review summarizes the use of the SAFENET database for the FY 2007 fire season.

The SAFENET database has been in operation for eight years. FY 2007 saw a reduction in the number of submissions not seen since FY 2004 with a total of 118 SAFENETs filed during the time period of October 1, 2006 through September 30, 2007.   The following table and graph shows the annual number of SAFENETs filed since the establishment of the database in 2000.

| Total SAFENETs Filed	
FY 2000	68
FY 2001	93
FY 2002	110
FY 2003	99
FY 2004	139
FY 2005	180
FY 2006	155
FY 2007	118

The annual SAFENET Review is intended to analyze the submissions for the year to determine issues facing the field with regard to safety concerns. The review summarizes the concerns of the season and is compiled to provide a tool for managers to identify and address areas of concern.

What happens to a SAENET?
Upon submission, a SAFENET is forwarded to the national fire management safety program manager for the jurisdictional agency identified in the submission. In addition to the five land management agencies, a state representative is identified for SAFENET notification. These individuals determine the course of action for the submission, forwarding to the regional, state or local level for response.

The jurisdictional agency is responsible for researching the issue identified in the submission, taking appropriate action, and filing a corrective action outlining the agency's response. Below is a graph showing the number of SAFENETs filed for each jurisdictional agency. The graph identifies FY 2007 submissions as well as cumulative trend since the establishment of the database in 2000.

JURISDICTIONAL AGENCY YEARLY COMPARISON
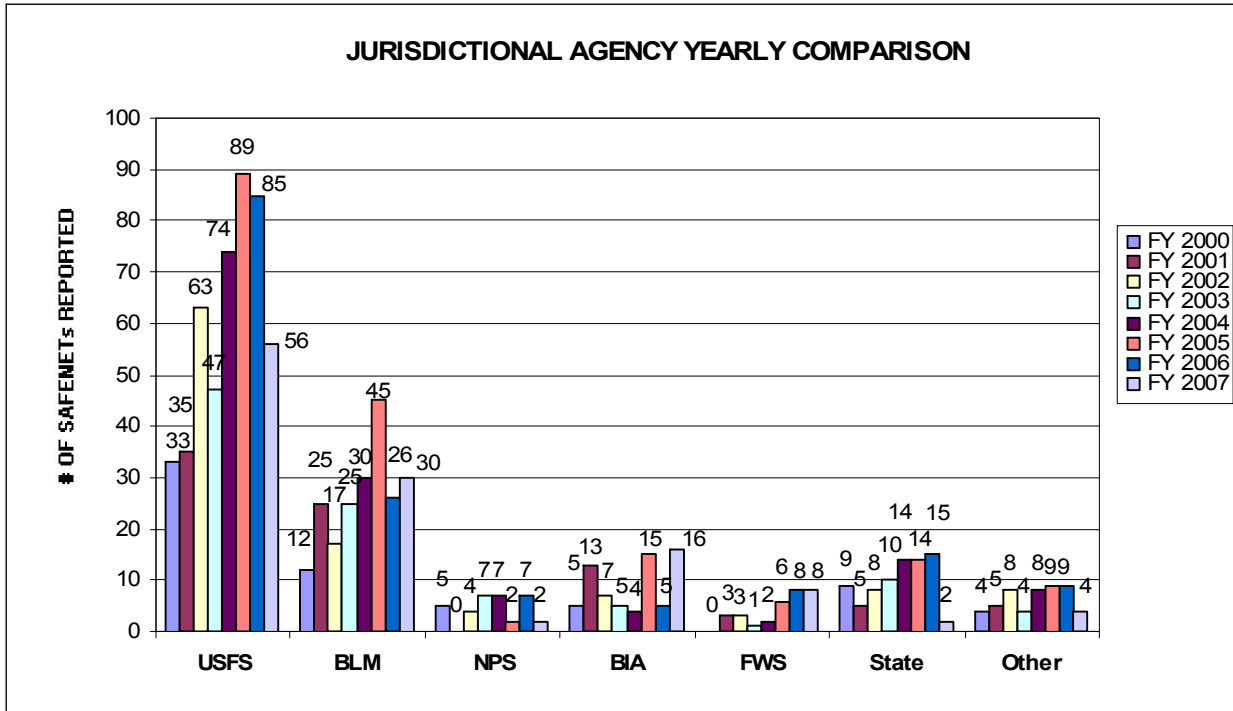
Based on the size of the agency and the amount of land encompassed by the US Forest Service (USFS), it is not a surprise to see they received 47% of the submissions. The Bureau of Land Management (BLM) received 25%, the Bureau of Indian Affairs (BIA) received 14%, the US Fish & Wildlife Service (FWS) received 7%, and the National Park Service (NPS) received 2%. In addition, states were the jurisdictional agency in 2% of SAFENET submissions and 3% of the submissions fell into the "Other" category, which includes FEMA, rural fire departments, and counties. The USFS in FY 2007 showed a significant decrease in the number of submissions down 33% from the previous year while the BIA saw its submissions increase to the largest number since SAFENET has been in operation.

In comparison, the following graph identifies the number of SAFENETs received based on the agency of the submitter.

REPORTING AGENCY YEARLY COMPARISON
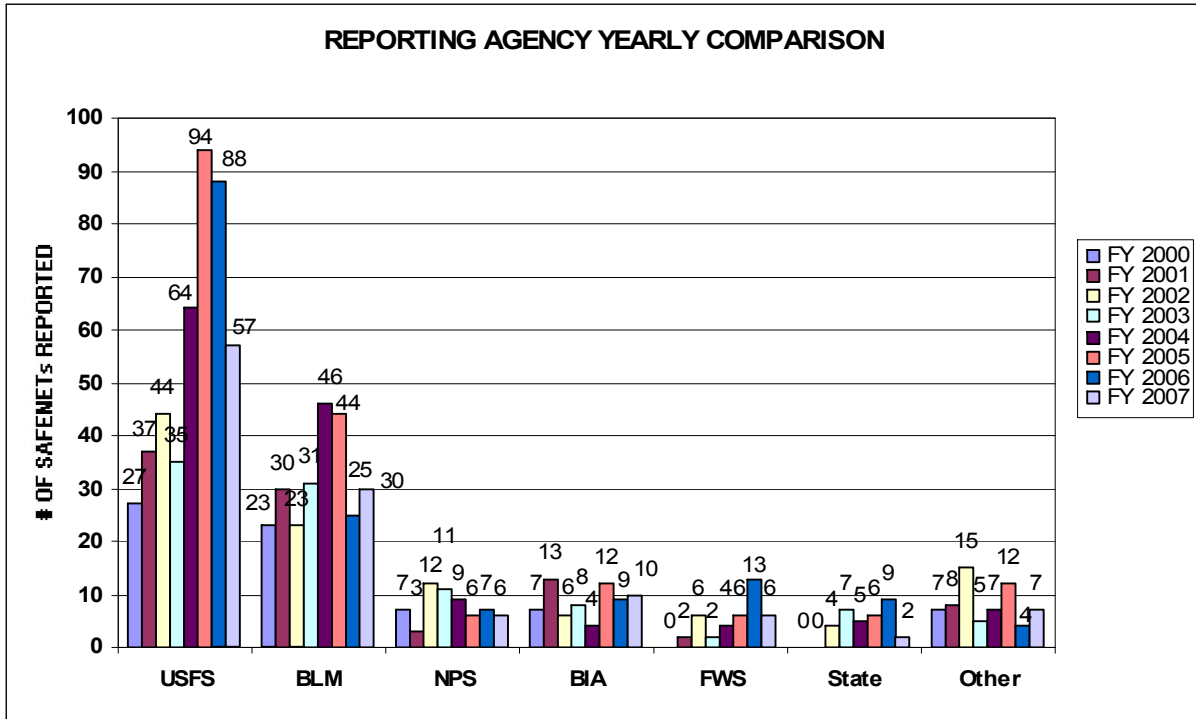
Forest Service and BLM employees continue to file the highest number of SAFENETs. The rest of the submissions are distributed amongst the other agencies and states, along with county and volunteer fire departments which make up the "Other" category.

CONTRIBUTING FACTORS

One of the key elements analyzed by managers is contributing factors. Managers want to know what caused or lead to a safety concern in the field. The SAFENET system allows the submitter to choose from six different elements that may be present, including communications, human factors, equipment, fire behavior, environmental, and other. Many submissions cite more than one contributing factor. The following chart identifies the contributing factors involved in the submissions for FY 2007 by percentage.

2007 SAFENET - CONTRIBUTING FACTORS

Environmental 6%
Other 6%
Fire Behavior 7%
Equipment 19%
Communications 37%
Human Factors 25%

Legend:
- Communications
- Human Factors
- Equipment
- Fire Behavior
- Environmental
- Other
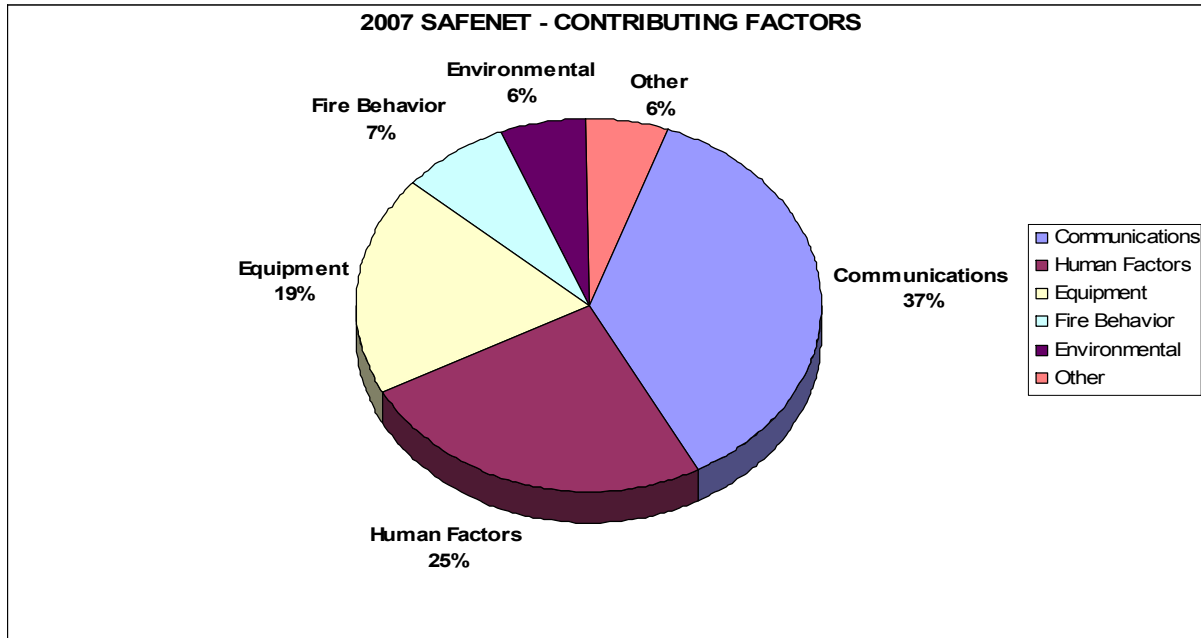
Communications – 37%
For the seventh time in eight seasons, Communications has been the leading contributing factor in SAFENET submissions. The majority of submissions in this category deal with communications equipment along with several submissions that refer to personal communication issues.

Communications Equipment
- Radio and/or repeater systems not functioning properly. This is the majority of communication problems. It divided equally between ground and air operations.
- Inability to clone or program radios.
- Phones systems in dispatch centers not functioning properly or dropping calls.
- Lack of frequencies available, use of different frequencies, and bleed over on frequencies.
- Lack of power backup at dispatch centers; relying on personnel cell phones.
- Use of wideband and narrow band equipment on the same incidents.

Personal Communications
- Loss of communications with personnel in the field or lack of sufficient field radios for operations.
- Lack of training for radio technical personnel.
- Lack of training on the use of new radios.
- Lack of backup communication systems/contingency plans other than personnel cell phones.
- Alleged non-response or lack of support of dispatchers to field personnel.

Many submissions in the personal communications category are based on the submitter's perception of another individual's attitude or actions and are therefore subjective.

<u>Human Factors – 25%</u>
Human factors were cited in a quarter of SAFENET submissions. This category consists of several elements including Decision Making, Leadership, Situational Awareness, Risk Assessment, Performance, and Fatigue. Many of these elements are overlapping in nature and are subjective based on the opinion of the SAFENET author. However, below are a few examples of submissions received that exhibit each of these elements.

Decision Making – 45
- Removal of repeaters for wilderness, political, or environmental issues.
- Residual fuel from an empty drip torch ran down cloths legs and ignited upon contact with ground fire.
- Crews driving trucks over the posted speed limit or tailgating each other at high speeds.

Leadership – 33
- Forbidding the use of "crew nets".
- Incident supervisors allowing non-incident personnel on the fireline without proper PPE.
- Waiting to replace dispatch center backup batteries until the next fiscal year.
- Fire Management plans not being approved in a timely manner.
- Using a fuels model that is not characteristic of the season or actual vegetation present.
- IC leaving a small fire to a fire crew so he could attend a Boy Scout meeting.
- Ordering firefighters to suppress a fire during a thunderstorm.
- Allowing non-qualified firefighters on fires or firefighters with expired red cards.
- Allowing crews to play a game called 4-4-40. Trying to drink 4 quarts of water in 4 minutes and hold it down for 40 minutes possibly resulting in water intoxication.
- Not familiarizing new crews with escape routes and safety zones during fire briefing.
- Better planning of ICP location and setup when potential burn-through situation is high.
- Allowing a crew to be dispatched to a fire not properly outfitted with no crew boss or local supervision and with only one radio for the entire crew.

Situational Awareness – 38
- Conducting a burnout without information on current weather conditions.
- Felling crews unaware of locations of other felling crews.
- Conducting a burnout operation while unaware of location of other resources.
- Multiple fire engines with lights and sirens active and coming from different directions failed to cautiously proceed through a busy intersection when reaching the intersection at the same time.
- Idaho Power Company personnel entering active fire area without authorization to check on poles.
- Escape routes and Safety zones not identified, planned, mapped, or communicated.

Risk Assessment – 28
- Conducting a prescribed burn without the necessary preparedness steps.
- Allowing citizens to gather close to a fast moving fire front.

Performance – 25
- Lack of labeling on biohazard materials returning from the field.
- Ignoring Safety Officer's instructions and ground crew hand signals to stay in place while a helicopter was taking off.
- Lack of coordination between radio technicians and phone utilities.
- Previous flagged escape route was not removed after crew left the incident.
- Unable to back a fire truck into a safety zone with a burn-over about to occur.
- Hand crew was not familiar in their role in medical evacuation operations and failed to assist in the location and evacuation of an injured party.
- Not informing other crew members about faulty equipment.
- Inexperience of bus driver caused breaks to overheat going down a steep grade.

Fatigue – 6
- Crew traveled 36 continuous hours to a fire assignment from home unit.
- Failure to meet 2:1 work/rest guidelines.

Equipment – 19%
The majority of submissions dealing with equipment are pertaining to radio and repeater issues. The majority of these are a duplicate of those listed in the "Communications" category. Other equipment submissions include:
- Personnel not wearing personal protective equipment (PPE).
- Leaking fuel cap.
- ATV riders not wearing motorcycle helmets.
- Primer pump bracket failure causing severing of rear fire engine break lines.
- Crew bus failed safety inspection at incident site having soft breaks and torn fan belts.
- Placing an equipment rack on a crew bus that exposed gas powered equipment to the high heat from the buses exhaust system.
- Failure of cotter pin on trailer hitch resulted in trailer to become detached from towing vehicle.

Fire Behavior – 7%
- Watch out situations ignored on fire showing intensified fire behavior. Threats to demobe crew if they did not comply with orders.
- Intensified fire behavior with "Buffelgrass", a non-native grass, caused crew member to withdraw form fireline.
- Unexpected change in wind direction causing retreat from fireline.

Environmental – 6%
- Rollover accident involving a 4-wheel ATV down a 25% slope while holding a drip torch during a prescribed burn.
- Accident involving a driver that had no previous trailer hauling experience.
- Ford F250 pickups pulling trailers experienced shaking after hitting bumps in the road.
- Exposure to excessive amounts of smoke at ICP.
- Driving an engine at a high rate of speed on dirt roads and in rocky terrain that resulted in a steel step being ripped off the side of an engine.

Other – 6%
- Using a non-carded helicopter for long-line, short haul, and troop transport on marijuana garden work.
- Approval of red cards even though firefighters have not past physical or completed pack test.
- Allowing firefighters to attend training classes that do not meet qualifications.
- Unable to perform burnout because a group of local ranchers refused to withdraw from fighting a fire.
- Automated process to close communication repair tickets occurred before repairs had been started.

TRENDS

The SAFENET program has been operational for eight years and allows managers to determine trends from the field regarding safety and related issues. This allows managers to focus on areas that continually raise concern. Below is a chart that compares Contributing Factors over the past eight seasons.

CONTRIBUTING FACTOR COMPARISON
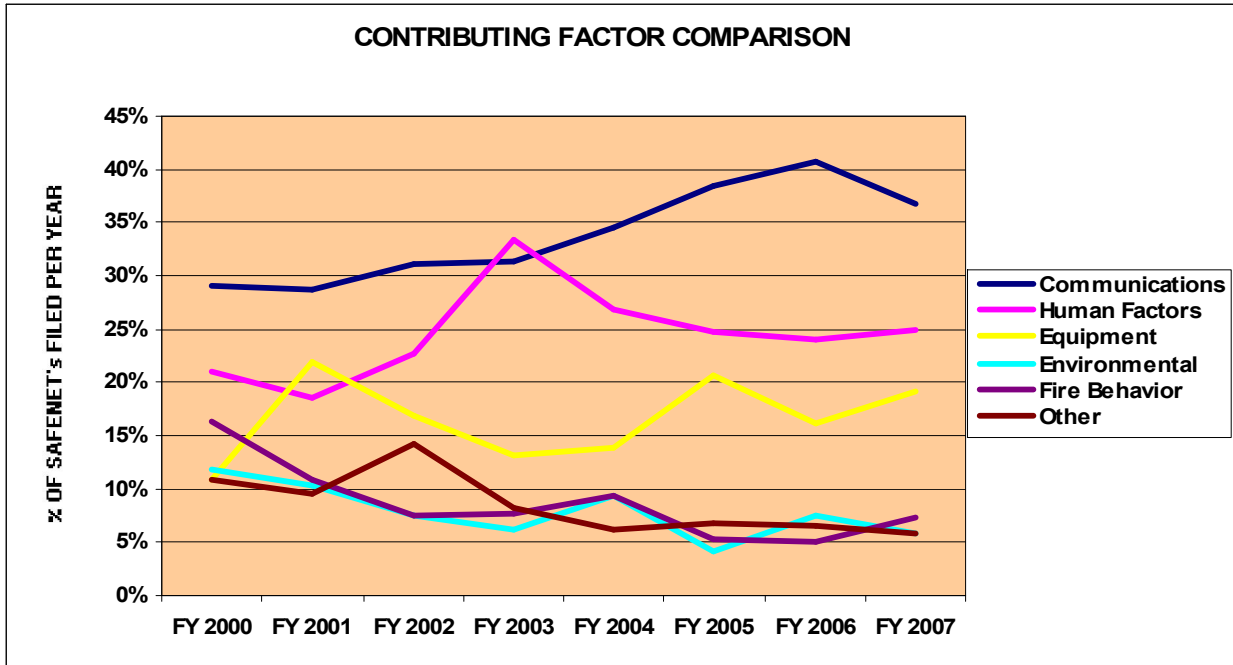
Communications (both equipment issues and personal communication issues) continues to be the most common Contributing Factor to wildfire safety related incidents that are filed through the SAFENET system. As a critical element of firefighting protocols (LCES), it is a major concern to the field when there is a breakdown in communications. This SAFENET report identifies issues and allows managers to focus efforts on concerns such as non-functioning repeaters and radios, cloning and programming issues, and lack of frequencies.
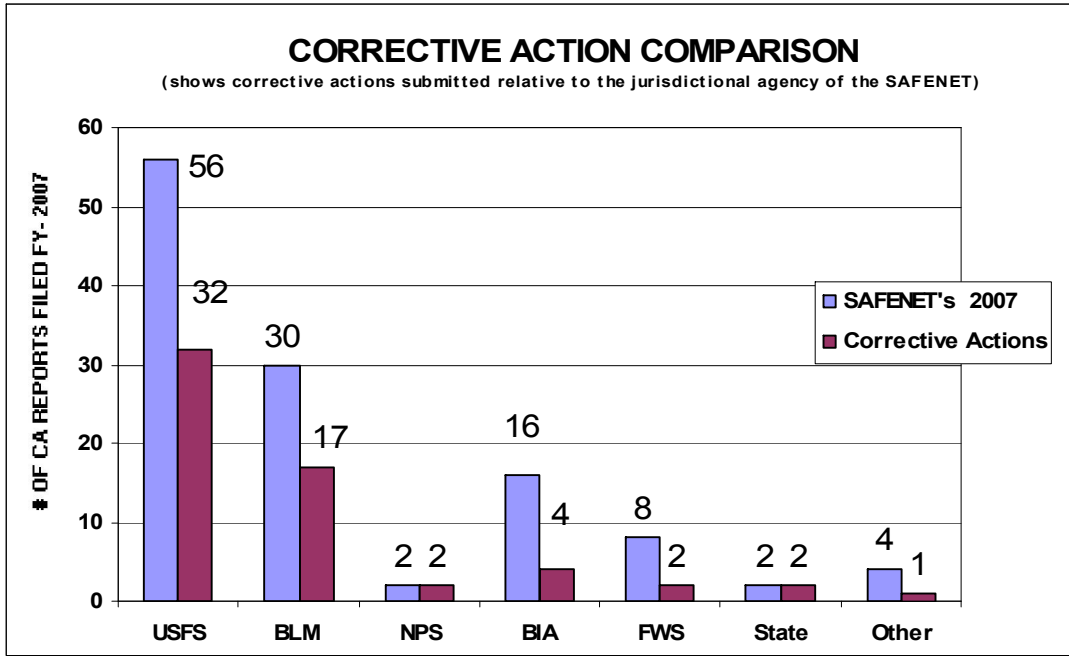
Human Factors is consistently the second most common Contributing Factor of SAFENETs filed. This is a difficult factor to address as it deals with the human element including differing perceptions, opinions, and communication styles. Many SAFENET submissions are based on the author's perception of the events or other individual's behavior which may be very different from other individuals involved in the event. Since these are not tangible elements, it is difficult for managers to recognize a specific causal factor and reduce the instance of events.

Another trend that can be ascertained pertains to the type of incident in which the majority of safety concerns occur. Not surprisingly, wildfire gathers the majority of submissions as this is where the majority of firefighters spend their time and is also the environment that is the most unpredictable and uncontrollable. This year the number of SAFENETs filed was distributed pretty even over all the management levels. The graphs below identify the comparison of these elements during the past eight seasons.

INCIDENT TYPE COMPARISON

MANAGEMENT LEVEL COMPARISON
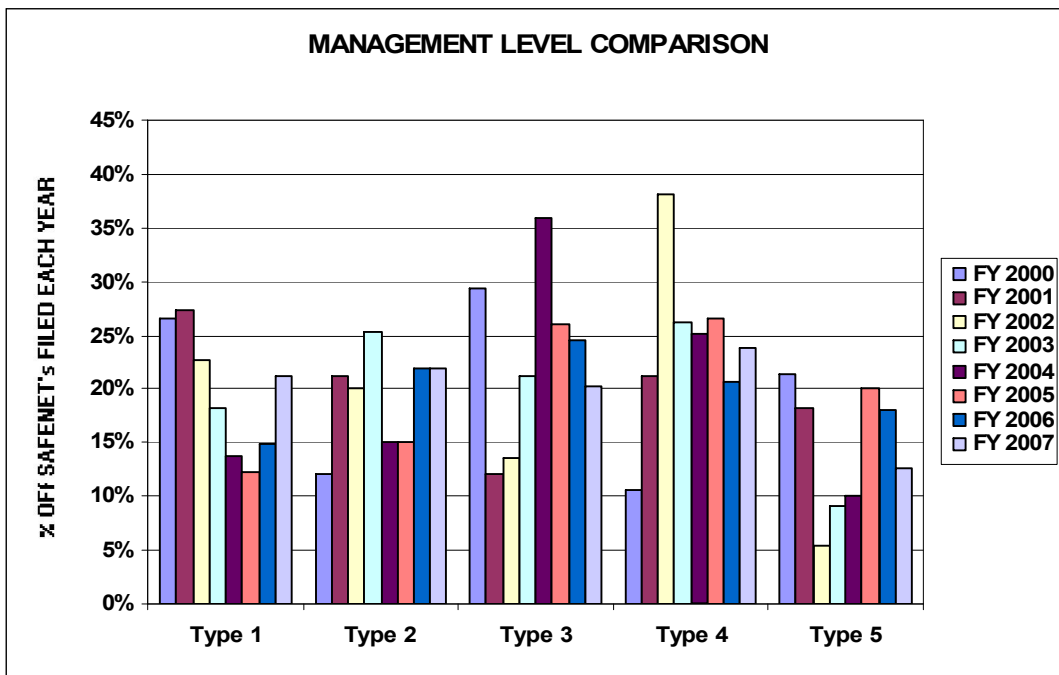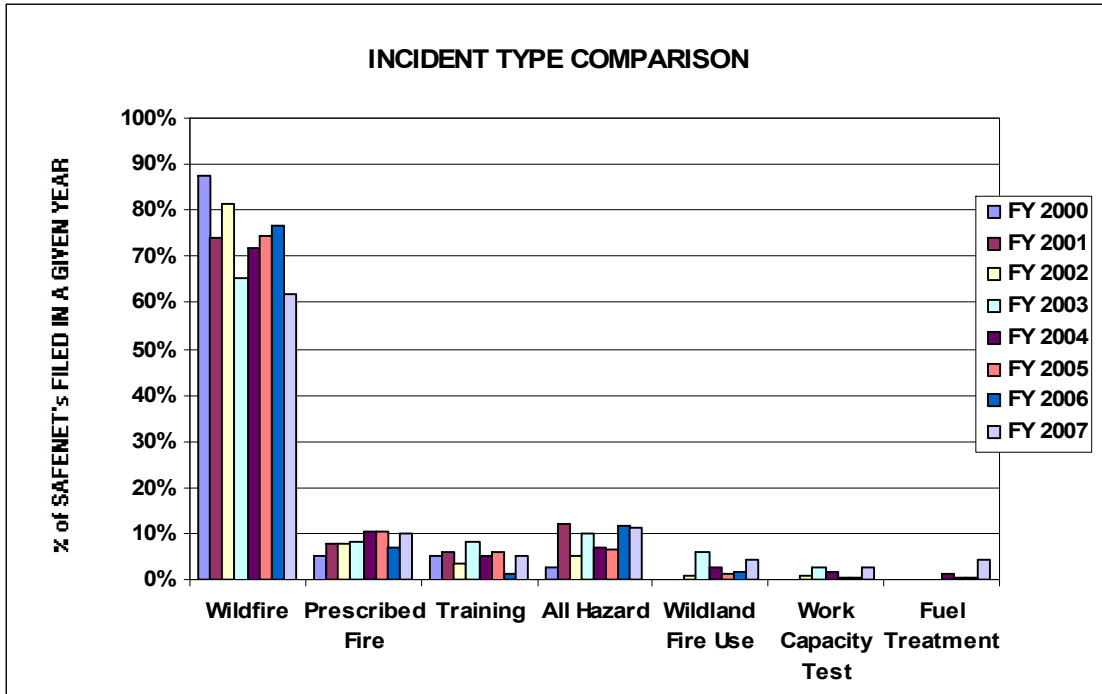
CORRECTIVE ACTIONS

As stated earlier, SAFENETs are forwarded to the jurisdictional agency listed in the submission and it is their responsibility to research the incident and provide a Corrective Action. The general public also has the capability to access SAFENETs and provide a Corrective Action if they feel it is necessary. Below is a chart that identifies the number of SAFENETs received by agency along with the number of Corrective Actions supplied.

CORRECTIVE ACTION COMPARISON
(shows corrective actions submitted relative to the jurisdictional agency of the SAFENET)

Chart: # OF CA REPORTS FILED FY- 2007

Legend: SAFENET's 2007 (light purple), Corrective Actions (dark red)

Agency	SAFENET's 2007	Corrective Actions
USFS	56	32
BLM	30	17
NPS	2	2
BIA	16	4
FWS	8	2
State	2	2
Other	4	1

As the graph indicates, the USFS received the majority of SAFNETs with 56 but, also had the highest number of Corrective Actions, responding to 57% of their submissions. The other agencies provided Corrective Actions as follows: State – 100%, NPS – 100%, BLM - 57%, FWS – 25%, BIA – 25%, and Other – 25%. Managers are encouraged to submit Corrective Actions for every SAFENET received, whether the incident is unfounded or not. Below are some statistics on Corrective Actions filed:

Corrective Action Responses – 60
Action Taken: 48

- Action due to SAFENET: 34
- Action taken prior SAFENET: 14

Unfounded: 12

Cumulatively, Corrective Actions were filed on 51% of SAFENET submissions. Managers took Corrective Action prior to SAFENET submission 29% of the time. This is due to the author being proactive and contacting their supervisor or other responsible individual. In 71% of the Corrective Actions, managers were unaware of an issue until brought to light through the SAFENET system.

The SAFENET system continues to provide valuable information related to safety related issues in the field. Along with other reporting systems, managers are able to gather information to identify areas of concern and focus energy to create a safer and more effective work environment. Wildland fire personnel are encouraged to continue fighting fire safely and report issues of safety concern.

Appendix A

For reference purposes, below is a list of incidents on which SAFENETs were filed for the FY 2007 season.

Wildland Fires

700 Road	Ahorn
Battle Creek Complex (2)	Besslen
Big Turnaround Complex (2)	Birdie
Border # 34	Boundary
Brush Fire One Buenos Aires (2)	Cascade Complex (5)
Castle Rock	Cow Creek
Duffy	East Zone Complex (2)
Eccles	Egley Complex
GW	Jocko Lakes (2)
Jungle	Lake
Madison Arm	Mae Anne
Marsh Creek	Mccook Trial
Moonlight	Mosquito
Neola North	Pioneer/Wintergreen
Pipe Line	Plateau
Promontory	Red Bridge
Red Hill	Richfield West
Rowland	Ruby
Salt Creek	San Antonio
Sawtooth	Scenic
Spencer Canyon	Tripod
Venning	Warm Springs Agency Complex (2)
West Fork	WSA Lightning Complex (5)

Wildland Fire Use

Krassel Complex/Tag	Lightning Rod

Prescribed Fire

Boyer Lake	Bridger Valley Rx
Chain of Craters	Lava's Edge
Post Rx Burn	Prairie Flats North Rx
Santa Fe	Spring Support
Sweede Grove Lake	

Fuel Treatment

None	

All Risk, Training, & Other Incidents

ABC Misc.	ABCD Misc.
COIDC Battery Replacement	Communication Problems (2)
Daily Operations	Deschutes NF
Fire Preparedness (2)	Greenville
Greenville Bench	Industrial
Initial Attack (2)	Initial Attack / Extended Attack
Initial Attack, Flight Following	IQCS Records Update
Large Fire Support	Local
Multiple Incidents (IA)	N/A (3)
None	Northern Rockies Region
NUIFC Phones	Ongoing (2)
Operation Alesia	Post
Power Outage	Qualifications
Radio Over internet Protocol	Repeater Removal
Roll Over	Seat
Severity (3)	Simulation
Slide – AZ-KNF-185	Smoke Report
Stuck in the Mud/No Commo	Training S212
UNK(2)	USFS – Region - Wide