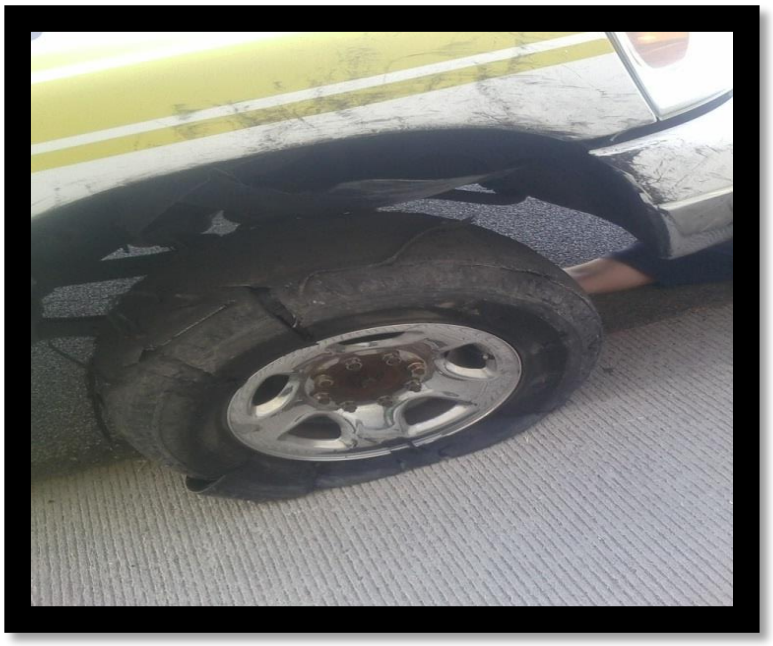
Departing Skunk Fire Vehicle
Accident Investigation Report
Bureau of Land Management (BLM),
Phoenix District Office and Yuma Field Office



06/05/2014

Assigned Investigator:

11-17-14

NAME *Date*
Bradley Eadelman
Safety and Health Officer
Tonto National Forest

Subject Matter Expert (SME)

11-12-14

NAME *Date*
Brad Ament
Fleet Manager Tonto
National Forest

Executive Summary:

At approximately 0645 on 06/05/2014 chase truck U3665 returning from the Skunk Fire was involved in a vehicle accident. U3665 had two BLM employees, public vehicle 9175 had one occupant and public vehicle 905 had one occupant; no injuries were reported at the scene and no persons required first aid or medical assistance at the incident. U3665 was traveling in lane 4 of the westbound 5 lane highway of US 60. U3665 was traveling at approximately 65 Miles Per Hour (MPH) when the Right Front (RF) tire separated on U3665. Once the tire separated U3665 swerved towards public vehicle 9175 in lane 5 of traffic, which was also heading west bound. The driver of U3665 was able to recover the vehicle prior to contacting the 9175 vehicle. 9175 vehicle swerved to the right contacting the guard rail and after contacting the guardrail 9175 swerved back towards U3665 making contact on the Right Rear (RR) of U3665. Currently not enough information exists to determine how vehicle 905 was involved.

Narrative: (Times are according to approximation and interview reports)

06/05/2014 0520 hrs – U3665 driver completes walk around and daily checks of the vehicle.

06/05/2014 0530 hrs – U3665 departs hotel with 2 BLM employees.

06/05/2014 0635 hrs – Driver notices a slight vibration in the steering wheel.

06/05/2014 0640 hrs – Driver notices vibration getting worse and comments that they will go to a tire shop as soon as they arrive in Phoenix.

06/05/2014 0641 hrs – RF tire separates and vehicle accident occurs (3 vehicles total).

06/05/2014 0642 hrs – U3665 Driver checks condition of passenger (BLM employee) and gets out of the vehicle and notices several people on their cell phones reporting the accident.

06/05/2014 0642 hrs – Driver calls supervisor to report accident and then calls 911 to verify accident was reported to emergency personnel.

06/05/2014 0643 hrs – Driver checks public vehicle occupants for injuries or if any are in need of medical assistance (no medical issues reported to driver on scene).

06/05/2014 0644 hrs – Off duty Arizona Department of Public Safety arrives on scene.

06/05/2014 0650 hrs – BLM employees remove separated tire and installs spare tire.

06/05/2014 0655 hrs – U3665 driver prepares to leave incident scene and completes walk around of vehicle inspecting remaining tires.

06/05/2014 0658 hrs – U3665 departs incident scene with 2 BLM employees.

06/05/2014 0710 hrs – U3665 driver notices the front end of the vehicle (vehicle steering) not responding correctly.

06/05/2014 0711 hrs – U3665 driver pulls to shoulder of US60 to inspect tires.

06/05/2014 0712 hrs – U3665 driver inspects tires and finds Left Front (LF) tire has a “bulge” in the tire.

06/05/2014 0713 hrs – U3665 driver calls supervisor to report possible tire issue.

06/05/2014 0714 hrs – U3665 driver calls for tow truck.

06/05/2014 0725 hrs – U3665 driver supervisor arrives and takes picture of LF tire.

06/05/2014 0730 hrs – Tow truck arrives and hooks up tow truck to the rear of U3665.

06/05/2014 0731 hrs – U3665 driver shows tow truck driver the possible LF tire issue and the tow truck driver states, "not to worry the tire should be fine to get it to the tire shop".

06/05/2014 0735 hrs – BLM employees (U3665 Supervisor, driver and passenger) head to District Office.

06/05/2014 0745 hrs – Tow truck company calls employees at the district office explaining LF tire failure and that they will get U3665 to the tire shop on a flat bad tow truck.

Investigation Process:

Phoenix District Office District Manager Mary D'Aversa requested the assistance of the Tonto National Forest Safety Officer Bradley Eadelman to complete an investigation to help develop lessons learned to share with BLM employees to reduce similar future incidents. Interviews were conducted and included representatives from both the Yuma Field Office and Phoenix District Offices. Documentation was reviewed and collected for both employee training and vehicle maintenance. Multiple pictures were collected from both on scene and 5 days following the event. A survey of 10 BLM and 10 Forest Service employees was also conducted to help determine the knowledge level of employees dealing with tires in land management agency vehicles.

Findings and Recommendations:

Finding: Remaining tires on U3665 showed to be above legal federal limits.

Discussion: Legal federal limits on light truck tires are to be kept above 2/32". All remaining tires showed to be between 3/32" and 6/32" of tread. Documented monthly checks showed tire pressures were recorded and "good" ratings were given. During interviews that were conducted the U3665 driver stated that he completed a walk around before driving the vehicle that day and the tires looked safe.

Recommendation: Develop inspection criteria that tires should not be used below 4/32" due to the normal use/abuse that land management agency vehicles are introduced to. Train employees on how to properly inspect and determine damage, wear, size and PSI on agency vehicles. Provide air pressure gauges and tire depth gauges for each vehicle. Tire tread depth "cards" can be picked up at Discount tire free of charge.

Finding: Tire failure cannot be determined. The remains of RF tire on U3665 did not have tread remaining to determine tread depth due to the separation of the tire removed all tread from the tire. Tread was not recovered from the accident scene or from the tow truck driver. Currently BFG does not have a safety recall for this tire/size.

Discussion: Upon the review of interviews, maintenance records and monthly maintenance checks showed that at least 4 people had looked at the tires on U3665 and did not annotate any safety issues or excessive wear with the tires within 1 to 45 days and 50 to 1981 miles of the accident. 3 of these people were BLM employees and one was a front end auto technician specialist at the local Yuma Dodge dealership. At 60120 miles recall N62 was completed at the dealership, which replaces the steering

linkage and requires a front tire alignment. 62101 miles were recorded on U3665 5 days after the accident. All records provided showed tires were in good legal condition according to the 4 individuals.

Recommendation: Anytime a vehicle goes into maintenance or repairs at an authorized facility, directly ask for a tire inspection and recommendations on tire replacement. Explain to the repair facility what kind of conditions that we expose our vehicles to as a land management agency and ask for their recommendation on tire replacement. If something "feels wrong" when driving, pull over and inspect the vehicle.

Conclusions and Observations:

All documentation provided showed that the employees involved had the current required BLM training and were utilizing the appropriate work/rest policy.

Tires may seem like a basic unimportant part of our daily lives, but they are actually a very complex and an important safety component. Out of all safety features on vehicle, tires take the most abuse and tend to be ignored on a daily basis. The knowledge of the general public on tire safety is minimal and since our land management agencies do not require further education or training on tires the survey conducted for this investigation is very close the general public's knowledge (Calrecycle, 2003).

Even though the tires were inspected on a regular basis by several individuals and the accident could have possibly been caused by premature tire failure, we still can learn from the investigation and survey that was conducted that our employees could benefit from further education and knowledge of general tire safety awareness. Learning the different safety aspects and requirements for tires could help prevent future accidents both at home and in the workplace especially with the routine abuse we continually require our tires to endure in the diverse lands we serve.

This accident could have resulted in serious injuries, but with the help of the involved BLM employees we were able to learn many things that could help prevent future accidents for BLM and FS employees both at work and at home.

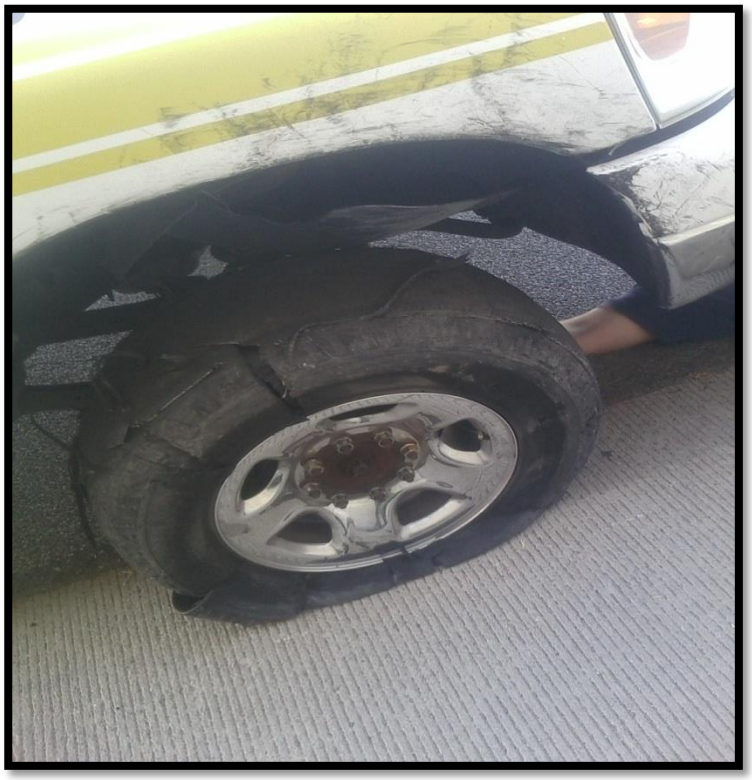
Lessons Learned Shared by Employees:

1. Pull over and check tires whenever the driver feels a change or something abnormal in the steering or steering wheel
2. Find a maintenance shop that you trust to help you determine needed maintenance on vehicles
3. Train employees on how to properly use a tread depth gauge and how to determine tread depth
4. Educate employees on how to properly determine tire size, tire pressure and signs of abnormal tire wear
5. Always keep 2 hands on the wheel (driver stated they would have not been able to recover without hitting the vehicle next to them if only one hand was on the wheel)
6. Register tires right after purchase for safety recalls on all vehicles with tire manufacturer (example: http://www.bfgoodrichtires.com/tire-registration/tire-registration.page)
7. Training on how to fill out accident reports (SF-91) and what to do after a vehicle accident (proper notification)
8. Further education on more advanced vehicle mechanical processes for employees assigned to government vehicles
9. Encourage employees who use vehicles to report maintenance issues to the person who is assigned the vehicle and/or the fleet representative
10. Add tire tread depth requirement to Monthly Vehicle Maintenance & Safety Inspection Checklist

Maps/Photos/Illustrations:

Lowest tread found on remaining tires.

Most tread found on remaining tire.



RF Tire at accident

Steering linkage replaced by dealer at 60120 Miles

LF tire prior to being towed and after vehicle accident.

Appendices:

APPENDIX A

BLM/FS TIRE SAFETY SURVEY

A survey of 20 land management employees was conducted several questions were asked and the below is a sample taken. 8 females and 12 male employees ranged from less than three years in a land management agency up to 25 years in a land management agency.

1. What are the legal tread depth limits of a light truck or car tire?

0 out of 20 were able to answer this question. The most common answer was I know it when I see it or it has something to do with Abraham Lincolns head on a penny.

2. A set of used tires were shown to employees and asked if they felt the tires were safe to drive on. The tires shown had at least 4/32" of tread.

12 employees stated that they would not feel safe taking that set of tires to the field. 8 of the employees stated they would take the vehicle to the field, but would recommend to the person who is assigned the vehicle that they replace the tires when they get back.

3. Can you tell me how to determine what size of tire should be on your vehicle?

9 employees said to check the owner's manual or the sticker inside the door. 11 employees said they did not know.

4. Can you tell me what proper tire pressure should be used on a tire?

6 employees said to check the owner's manual or the sticker inside the door and use the PSI listed. 8 said to read the sidewall and use the PSI listed. 6 employees said they think on the tire, but couldn't find it.

5. Do tires go bad due to age?

18 employees said yes, but 0 employees could tell me how to determine the age of tires. 2 employees said probably but they have no idea on what it might be.

Consumers' Knowledge and Behaviors Related to Tire Maintenance and Safety

The American Automobile Association (AAA) Foundation for Traffic Safety contracted with Roper Starch Worldwide to conduct a nationally representative survey (sample size = 1,070) on the public's knowledge of various tire safety and maintenance issues (Tire Safety Survey, 1999). The survey revealed that slightly less than half of all drivers (48 percent) are checking their tire

pressure at least once per month (the recommended frequency). Another problem revealed in the study was that 48 percent of motorists incorrectly consulted the tire sidewall to determine the proper tire pressure for their car, when in fact that number represents the maximum tire pressure.

Only 27 percent of the respondents checked the owner's manual for proper tire inflation information, and 18 percent used the tire information placard placed on the car by the manufacturer. (The information in the vehicle manual and the manufacturer placard supply the correct optimal tire pressure for the vehicle.) Significantly, the survey showed that a large majority of drivers (94 percent) said they check their tires for wear and tear. The study also revealed that 60 percent of the respondents had a flat tire within the last five years.

A more recent NHTSA study focused on tire pressure and tread depth (Thiriez and Subramanian, Tire Pressure Survey and Test Results, 2001). Data was collected from 11,530 vehicles at 336 gas stations. Nine percent of the passenger cars had at least one bald tire, and 27 percent of passenger cars and 33 percent of light trucks/SUVs had at least one significantly under-inflated tire. Of the vehicles with under-inflated tires, nearly 63 percent had at least one tire that was 30 percent or more below the recommended tire pressure. Under-inflated tires can lead to tire separations and blowouts, increases in fuel consumption, and reductions in the useful life of the tire. Largely due to this research, the NHTSA launched the campaign "Tire Safety: Everything Rides on It." (See page 12).

Corroborating prior research, a study conducted in February 2002 by FrederickPolls for the Rubber Manufacturer's Association (see Zielinski, www.rma.org) indicated that motorists are not doing a very good job of properly checking and maintaining their vehicle's tires. Motorists apparently don't fully appreciate the importance of proper tire pressure, and they are often uninformed about tire-related information for their vehicles.

Nearly half of all drivers said they believe that the proper tire pressure is set by the tire manufacturer, when in fact it is set by the vehicle manufacturer who prints it in the car's manual. The information is also printed on a placard attached to the vehicle. Sixty-six percent didn't know where to find the recommended tire pressure placard. The study concluded that only 11 percent of the respondents were properly checking their tires' pressure. ("Properly" meaning a driver checks the tire's pressure once a month, knows to use the vehicle manufacturer's recommended pressure, and checks the pressure when the tire is "cold.") In general, the survey found that a fair number of vehicle owners were not properly checking their tires' tread for wear, not rotating their tires at the suggested interval (every 8,000 miles) and not having their vehicle's wheels aligned on a periodic basis.

APPENDIX B

Vehicle Tire Information:

Tires were purchased on 03/08/2012 and installed at 45,101 vehicle miles
(Current miles 62101 – Miles at install 45101 = 17000)

RF Tire
Serial# 06-57681-01 42348
Constructed Date 0312 (Third week of 2012)

LF Tire
Serial# 06-57381-01 42348
Constructed Date 0412 (Fourth week of 2012)

Vehicle Mileage Information:

Mileage at start of detail – 60752
Mileage at investigation – 62101
Mileage at last alignment – 60120