BAFFLE CASE STUDY

The following case study will demonstrate the importance of inspecting your engines and fixing or investigating abnormalities (sounds, sluggishness, vibrations, swaying, etc.).

Scenario

On July 22, 1996, several BLM Type 4 engines responded to a wildland fire reported near Bogus Creek in southeast Oregon. Fire behavior and size were unknown at the time. A lookout later reported it was putting up a pretty good column, but she could not see the base. Because of extreme fire weather and fuel conditions, multiple resources were dispatched.

While en route to the fire, the lead engine operator noticed that the road was slick from a thunderstorm that had passed through the area. The brief rainstorm had caused a thin layer of mud to accumulate on the road's surface. The information was relayed by radio to all engine operators responding to the Bogus Creek incident; the engine operators adjusted their speeds to compensate for the slick conditions.

Although the third engine operator had adjusted his speed for the conditions, the slick road caused the back of his engine to fishtail to the side of the narrow dirt road. The engine operator corrected for the slide. As the vehicle came back straight onto the road, the force of the water in the tank, unsupported by a baffle system, caused the engine operator to overcorrect slowly tipping the engine over in the roadway.

The engine operator later stated that he could feel the force of the water in the tank pushing the vehicle over on its side. Seatbelts were worn by all module members. No one was injured in the accident.

When the vehicle was later inspected, the baffle system for the stainless steel tank was not operational and all but one baffle was lying in the bottom of the tank.

The engine operator was very experienced with 11 seasons of fire experience and 7 as an engine operator of Type 4 engines. He stated later during the accident review that he had noticed for the last month and half that every time he took a corner or stopped quickly, he could feel a greater shift in water than was usual.

Things to Note

The speed of the engine when this accident happened was less than 20 mph and two other Type 4 engines had already gone through the same spot. The ground was relatively flat, and the road was not severely rutted.

Baffles within metal-welded tanks that were produced in the 1990s for BLM engines sometimes broke off in the tanks. In this case study, broken baffles existed prior to the incident. When the engine fishtailed, fewer baffles were available to absorb the water's force resulting in a complete failure of the baffle system and the engine rolling over.

An inspection of the tank may have prevented this accident. The engine operator should have let someone know about the odd feelings he had with the engine when stopping or turning for the last month and a half. If something just does not feel right, find out why or bring it to someone's attention.

- When and how is inspection of baffles required?
- Who is responsible for the proper function of baffle system on the engine?
- Were there any signs that the baffle system had failed before the accident?