POWERLINE ACCIDENT

BALLOON: ANew Mexico Sunrise@ N-9528A Cameron V-77 multicolored bulbous-gore envelope with parachute top and wired pyrometer, Kevlar cables, nylon uprights, super-double 15 million BTU burners with vapor pilot lights and two upright stainless steel 15-gallon tanks with no manifold, in a Cameron gondola. 140-hour envelope purchased August 2007, had 243 hours at time of accident. 430-hour 42" x 58" gondola purchased March 2004, 650 hours at time of accident. Ball instruments, 3 helmets in a bag, safari skids on downwind side, Cameron 2" wide, 50' long nylon tape drop line. Last annual inspection August 27, 2013.

PILOT: 185 lb. 59 y/o male business owner with 120 hours fixed wing (private) and 162 hours balloon (private + commercial) hours. Private balloon rating July 2004, commercial February 2011. Last BFR 4-30-2013; 8 hours in last 90 days.

CREW: 180 lb. 66 y/o male, crew chief and friend for 10 years.

DATE: Tuesday October 9, 2013

TIME: ~ 8:45 a.m.

LOCATION: 200 yards east of Meadowlark Lane on Sara Road, Rio Rancho, NM

WEATHER: Clear with northerly winds below 10 knots at launch, visibility 10 miles, 601F temperature, altimeter setting 30.12 inches Hg. The box was in effect that day.

POWERLINE DATA: 12,000 volt three-phase lines with neutral (ground) underneath, and two more lines under that (probably telephone and cable). Span is ~ 80 yards; western pole marked P7414-40T. Height of powerlines off the ground is estimated at about 40 feet.

FLIGHT DATA: Launched from AIBF site P-11 at ~ 7:30 a.m., wind 5-7 knots from the north, traveling south at ~200-400' AGL, looking for target on old launch field. Descended to ~65' AGL and ~ 7-10 knots, missed the target to the southwest, then ascended to ~ 1300-2000' AGL and traveled in a northwesterly direction over Corrales. Tried to land west of Loma Larga Road in Corrales but could not. Ascended again (wind was NNE at 15+ knots) and continued over the eastern part of Rio Rancho. Tried twice more to land, then continued SSW at ~50' AGL at ~5 knots. At this time, pilot remembers having ~10% fuel in one tank, and ~15-20% in the other.

Saw the powerpoles and powerlines on the south side of the blacktop Sara Road, and the pilot decided to land on a small open area south of the powerlines and north of a service road, wall and more houses. This area offered an uphill landing on sand and scrub bushes and weeds. Pilot estimated that he came over the houses to the north of Sara Road at ~15-20' and meant to come over the lines at ~5'. He burned over the road, cleared the northernmost (upwind) line, but suddenly the gondola contacted the southernmost of the three three-phase lines. The balloon tipped and pilot burned again, to try to lift off the powerlines, with the balloon coming back to almost upright. The southernmost line hung up on the helmet bag, which was outside the downwind eastern corner of the basket. Pilot told his crew chief A...don=t touch anything.@ Pilot estimates that the balloon was in the lines ~30 seconds before the electrical arcing occurred. Pilot believes that as the balloon straightened up, the northernmost and southernmost wires contacted both sides

(north and south) of the basket at the same time. Pilot thinks crew chief leaned over the basket to either see what was hanging them up, or to try to free the line. Then the arcing occurred, with a giant fireball ensuing, engulfing the gondola. The southernmost line freed itself from the helmet bag, the balloon rose a few feet, then settled to the ground 31' south of the southernmost powerline on an upslope.

About 15 seconds elapsed from the balloon going over the photographer's house to hitting the lines, 19-21 seconds from hitting the lines to electrical arc (about 21-23 seconds in the lines), and 13 more seconds from arc to hitting the ground. The balloon was standing essentially upright when people came to help. The gondola was burning (smoldering) in two places. Crew chief was lifted out of the basket with a severely burned arm and carried by bystanders down to the road.

The chase crew was about two blocks away when the accident occurred. A man in a house about 125' north of the powerlines took 97 photos of the accident, and a student in a school about 500 yards up the hill to the northwest took 8 photos. We have permission to see these photos.

ANALYSIS: This accident can be divided in to two parts: a) events just prior to going into the powerlines, and b) events while in the lines and somewhat after.

PRIOR

1. This flight was uneventful until just a few seconds before hitting the powerlines. Low fuel may have played a role in the desire to get on the ground. At what capacity of fuel should one be back on the ground?
2. The selected area for landing was quite small, with upwind powerlines about 40' tall (which the pilot saw) and only another 126' to a service road, brick wall and house. And wind speed was estimated at ~5 knots. Was the landing site poorly chosen?
3. Pilot indicates he had prepared to land three times before, but decided, for one reason or another, he could not make it. Did he have "get-down-itis?"
4. Clearing powerlines (or any obstruction) by 5 feet leaves very little space for misjudgement, micrometeorological events or unanticipated gremlins. How far above powerlines should one be while crossing them?
5. Many teach axioms like A@When in doubt, rip it out,@ or A@Fly under the powerlines,@ or A@Always be ascending when crossing over powerlines,@ or A@Never be descending while crossing over powerlines unless you have declared an emergency.@ Are there other axioms we can offer?

DURING

1. Once in the lines, A@don=t touch anything@ is a good policy. But there is much metal inside the gondola, so how do we not touch anything?
2. Some powerlines have automatic closures (resets). But never trust that this one does not. Assume the wires are HOT until PNM tells you they are not.
3. Someone call 911 immediately. NOW!
4. Tell bystanders and crew to stay away from the balloon at all costs. Will they?
5. Many pilots believe that the top wire is a static or ground wire. Never assume that

this is true.

6. Never assume that this is a Asmall@ powerline, or that it is a telephone or fiberoptic line. Always assume the wires are hot.
7. Turn off the propane and clear the lines. But then how do you fly the balloon if you need to? What would you do?
8. Everyone get down in the basket. Is this a wise maneuver?

OTHER:

1. Do not launch or land closer than 300 feet (some say 500 feet) from powerlines.
2. Be aware of the possibility of blowing BACK into the powerlines.
3. Quote from chapter 33 of *Balloon Safety Seminars*: "When going over powerlines, always be in a level or preferably ascending mode several hundred feet above. When descending within several hundred feet of even the smallest powerlines, descend "hot" until well *past and* below the lines and then land "hard." Once on the ground, be prepared to rip immediately if necessary."
4. Decreases of more than 20% in propane pressure during the course of a balloon flight can occur, indicating a corresponding reduction in propane flow rate through the burner(s). This is the Frank Bacon Theory.

TAKEAWAY PEARLS:

1. Never be descending over powerlines unless you have declared an emergency.
2. Never be only 5 feet above powerlines unless there is an overwhelming reason.
3. Keep all helmets, ropes, etc. inside the gondola.
4. Carry enough fuel so you can land with plenty to spare. After you have 50% of fuel gone, land very soon, especially if over a city. Many pilots at Balloon Fiesta look for a landing site as soon as they launch.