

## Donnie's Accident

My name is Donnie Johnson. I am the assistant manager of the Service Department for an electrical contractor. I've been an electrician for 28 years and I have a wonderful family. I told my wife once, just before we got married, that as long as I have these (hands) we will always have money. On Thursday, August 12th 2004, I almost lost all of this forever in an electrical explosion or "ARC BLAST". I had 3rd degree burns down to the muscle on both arms and hands and second degree burns to my face, head and neck.

I'm not offering 'arc flash' education or providing safety rules or guidelines, I am simply telling what could happen if you don't follow your safety procedures. This is about my personal experiences before, during and since the accident. Also how it affects you and those who care about and depend on you. My most severe injuries were totally preventable... if ... I had been following the safety procedures and wearing the proper PPE (Personal Protective Equipment). A lot of safety procedures were put in place because of accidents like mine.

All of this happened to me, because I wasn't wearing my safety gear.

I have sat through safety meetings before, thinking the whole time that the only reason for the meeting was to meet some company insurance requirement or the company just trying to cover itself in case an accident happened. Once this happened to me, I realized whether or not this was the case, the things they were saying could have protected me. Honestly, if I had been wearing the personal protection equipment that was provided for me, that I was trained to use and still in the PPE bag between the front seats of my van; my trip to the hospital would have probably been just for a check-up and a few, minor burns. Although my injuries were electrical in nature, whether you are a plumber, a carpenter or a mason there are safety procedures that could protect you from injury or save your life.

As a service electrician, my duties included general trouble shooting of electrical systems. Anything from Mrs. Smith's light switches to high-voltage work. It was the day before the first of four hurricanes that hit Florida in 2004, Thursday, August 12th. I was wiring a large, semi-trailer mounted generator to a giant frozen foods warehouse electrical system. I had the wiring in place and terminated. This is the point where I should have pulled out my fully stocked PPE bag. But I did not, due to having performed similar tests many times before and thinking "what could possibly happen as long as I am careful" and "all that gear is so hot and bulky". This was the first problem that led to the accident. The second problem was the meter I had been using for several months to check rotation was not actually a phase rotation meter but a motor rotation meter. I had never bothered to read the 'not to be used on live circuits' label on the bottom of the meter. I checked the electrical rotation on the 480volt generator. I went inside the electrical room to check the building electrical rotation. I had to get to the main buss of an energized 480volt/3,000amp switch gear in order to get an accurate reading. I proceeded to open the electrical cabinet panel that would give me direct access to the main buss. I connected the first of three meter leads with large alligator type clips to the "A" phase main buss in the gear, the second clip to the "B" phase, as I clipped or started to clip the third clip, the meter failed and



blew a puff of carbon into the electrical gear.

This is the equivalent of throwing a cup of water into the electrically energized gear.... The carbon set off a carbon arc between the three phases in the switch gear, shorting all three phases together and causing an explosion with an arc flash or blast. All of this happened in a split second. As I was being blown to the ground I actually saw a two to three foot, ball of white light or basically a ball of lightning.

The burn doctors and several arc flash experts have told me since that an arc flash explosion like this can be seven times as hot as the sun's surface for a split second. The doctors were amazed later that my eyes were not injured, that my hearing was not damaged, because of the loud explosion from the erupting heat and I didn't inhale heat or metals (which vaporize at these temperatures) burning my lungs then solidifying. I joked with them saying "I couldn't inhale because I was SCREAMING LIKE A LITTLE GIRL". Getting back to the accident.... I remember hearing some sizzling noise and seeing few glowing orange spots or slag, other than that it was pitch black. I could see daylight from around the exterior door of the room and I just started heading that way. I scrambled on my finger tips and toes and it felt as if something had a hold on my belt loop, like I couldn't move fast enough. There had been two maintenance men from this facility in the electric room with me but they were on the other side of the equipment. I called out their names but didn't hear a response. I found out later from them that they had gotten out just as the explosions started and that it had been a little longer than I had recalled from the actual explosion until I found my way out of the building. I remember standing up outside and realizing that I was hurt but I still didn't fathom how bad. I thought to myself that this kind of thing 'doesn't happen to me'. I looked up at the building and listened and realized that the power was off, thinking "oh NO, this is where all the frozen food in Tampa is stored before it gets to the grocery stores!" "Maybe I can jump the generator wiring directly to the switch gear to get them at least some power back on". Like I said I didn't realize how badly I was hurt and I'm sure shock had set in. Just then I turned around and saw several people from the warehouse management running towards me. I said something about the power and they said "forget the power, get him in the cooler". They kind of corralled around me and led me into the freezer warehouse. I was now starting to realize just how badly I had been injured. The odd thing was that I was still conscious, carrying on conversations and not in pain. I found out later that with burns as severe as mine, the small nerve endings are damaged and you do not 'feel' the pain. Finally looking at my arms and hands, I knew I couldn't even try to stick them in my pockets to reach my phone. I

also realized that the side of my head had been burnt. I asked one of the guys to fish my phone from my pocket, call my wife and hold it up to my good ear. After looking up at my ears, he gave me the blankest stare I have ever seen. He said "you have a good ear!" I could see fright in his eyes so I assured him that I was ok, to tell my wife I'd been in an accident but that I was up, walking, talking and that I would be transported to Tampa General Hospital. I remember actually telling the guy that was helping me to go throw my gloves and safety equipment into the electrical room so that it looked like I had at least made an attempt to follow safety procedures. Very Sad.

I continued talking and even trying to joke with the guys until the ambulance arrived. The paramedics came in and had me lie down on a pallet of boxes. They proceeded to cut my shirt away from my body and cut my jeans up each pant leg. They were discussing calling in a helicopter medi-vac. I thought, "Wow, I had never been in a helicopter before". Like I've said already... I was in shock. The paramedics decided to transport me by ground. As they moved me from the freezer into the ambulance at normal outside temperatures, it wasn't really pain but the heat overwhelmed me! I remember telling the medic "Man, You have to do something its 900 degrees!" I saw him flick a syringe a couple of times as he said "don't worry Mr. Johnson; we'll take care of you". After that I dimly remember the bumpy ride to the hospital.

My wife and one of the owners of my company were waiting at the emergency room drive through, checking each ambulance as they pulled up. My wife recognized my boots sitting near the stretcher in the in the ambulance, otherwise I was not recognizable. As they wheeled me into the hospital vaguely remember seeing my wife.

The doctors surrounded me they told my wife that if she needed to talk to me, she must to do it now because they needed to insert a breathing tube and further sedate me. Because of the swelling from the burns my wind pipe would soon swell shut. She called my name, I told her I love her and that I didn't understand what happened.

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I must tell you that from this point on I am relying on the journal my wife wrote and the experience of my family and friends. I personally don't remember anything else for about a month and half. After the breathing tube was inserted and I was sedated, the doctors had to make an incision the entire length of each arm in order to relieve the swelling. They told my wife that I should be out of the hospital in about two weeks.

And remember, all the while, Hurricane Charlie was barreling for Tampa! My company sent a crew over to secure my yard. The next day the area we live in was evacuated. I couldn't be there to provide help or 'be the man for my family'. Tampa general hospital had limited access for employees only since the bridges might flood. Over the next couple of days I became very swollen and was looking bad. My dad came to see me for the first time, and a usually unemotional man was visibly upset. On the fifth day the surgeons grafted skin from my right leg to my right arm. All went well and I was due to have the breathing tube removed within a day or two. My mother and step father came to Tampa to help my wife. The next day, my blood pressure dropped extremely low and my heart rate increased significantly. The doctors tested for infection. Test results would not be back for two days. My brother came to town as I was not looking good. While waiting for the test results and my health was deteriorating, all my wife could do was worry. The test results showed I had an E coli infection in my lungs. This would be the first of many infections. Your skin is your main protection from infection, and with the burns

on my arms, the grafting on my legs and the breathing tube, it was open season on me for every infection that came along. These infections slowed the healing process of my injuries to almost a stand still. I developed pneumonia and blood infections. A decision was made to graft my left arm as well because the burns were not healing as expected. My health continued to falter. The infections, wounds and the medicines also prevented me from receiving tube feeding, so my only source of nourishment was an IV drip.

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During this time several friends, co-workers and family members, some that I hadn't seen in years came to comfort and help my family. Meanwhile, their homes on the east coast of Florida were being damaged by hurricanes Francis and Jeanie. I was amazed when I learned about this later, that they were more concerned with my family and me than their own homes.

After several weeks of the doctors telling my wife "that they had never seen anything like the complications I was having" and "to go home and pray", she called a meeting with all of the medical departments that were involved with my case. She pleaded with them to find some answer to save me. They found that I was allergic to one of the medicines they were treating me with. The reaction was causing complete organ failure. They used two other drugs, not meant for this purpose, with my wife's permission to correct the reaction. There was only one other person who has had the reaction to this medicine, so this was a complete risk with no guarantee. Luckily it began to work.

When I entered the hospital I was a very fit 165lbs. When I awoke from the coma, after a month and a half, I weighed 115lbs. And was still not allowed to eat because of severe pancreatitis and fear of how my digestive system would react. My arms and legs were as small as my 9 year old son's and were thickly bandaged. The pain from the actual burns was over but the graft sites on my legs caused intense pain. All the guys I work with and supervisors came to visit whenever they could. I could see the introspection in the eyes of the electricians.

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The sedation drugs seemed to take weeks to completely wear off. Rehabilitation started almost immediately. I had to build the atrophied muscles in my legs back up in order to be able to walk. It would take over a year and a half of therapy to be able to use my hands and arms because of the scarring. During this time I had surgery on my hand to relieve scar bands and I almost lost my thumb. My wind pipe was also collapsing from scar tissue caused by the breathing tube being in for so long. A surgeon removed about a one inch section of my trachea. And following my prior medical experience, I developed an infection and it ruptured the stitches that held the re-section together. I had a tracheotomy, with a tube inserted to bypass the surgical site to allow it to heal. It remained in for two months. Then they performed another surgery to close the tracheotomy opening.

Once it became obvious that I would not be able to return to work as an electrician, my employer and my supervisor offered me the opportunity to become a project manager and help supervise the men I used to work side by side with. I started back to work in the office at the beginning of 2006.

As you can see this wasn't just my experience but all my family, friends and coworkers were effected as well. I am not able today to do the work that I did and loved or to use my hands to

the extent I once could. My hands and arms have no feeling, no sweat glands, no hair and no pores. The new skin is also very thin and highly susceptible to injury and skin cancer. Your arms are also a major source of cooling for your body. I must wear long sleeves or sun protection at all times. I'm not really able to enjoy sports or events in the sun. Being a native Floridian, this is very different than I used to live my life. BUT ... There are those who have suffered much greater injuries or death from very similar accidents. I am a very lucky and blessed man to even be alive! All of this because I took safety for granted. I didn't follow safety procedures or wear my personal protection equipment.

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When someone complains about the safety gear being hot, uncomfortable or too bulky, I pull up my sleeves and tell them "it's a hell of a lot more comfortable than living with this for the rest of your life... If you make it."

All I am asking you to do is to protect yourself and those working around you by following your safety procedures. Accidents at work not only affect you; think about the effects on your family, your friends, your finances, your company, your co-workers... your entire world. Most of these injuries can be prevented by following your safety rules. Most of these rules were put in place because of accidents like mine. Be safe; do it for yourself and for all the people close to you.