

LIGHTNING DATA CENTER MINUTES
APRIL 8, 2011
ST. ANTHONY CENTRAL HOSPITAL, DENVER, CO

Monthly Quote: "A small leak can sink a great ship."-- B. Franklin

1. Meeting began at 11:45 PM and adjourned at 1:05 PM.
2. Members present: Clark, Yarnell, Elder, Claus, Gift, Cui-Gift, Nibbe, Wells, and Stewart. Clark moderated the meeting.
3. CORRECTION: In the March minutes, the tour of Coors Field was erroneously scheduled for June. The tour has been rescheduled for Friday, July 29 from 11 AM to Noon. There will not be a LDC meeting on the second Friday of July. This tour takes the place of that meeting. Please see the announcement in these minutes for details. Since the tour has been rescheduled, we will be meeting at St. Anthony Central in May and June.
4. Phil Yarnell presented the case of a young girl who was shocked while trying to extract a piece of toast from a toaster using a knife. Right away, she could not let go of the knife, but was able to do so shortly thereafter. She complains of headaches, a hollow feeling in her left arm, and fullness in her fingers. She says she has abnormal feelings in her left hand. She wore pants that had pocket zippers, and there is redness on the skin where the zippers were. She says her manual dexterity is down. Phil seems to think this may be neuropathy.
5. The 2011 International Conference on Lightning and Static Electricity will be held on September 6-8, 2011 at Oxford Spires Four Pillars Hotel in Oxford, UK. A call for papers is now open.
6. Phil presented an e-mail from the Internet titled "Unplug the Phone Charger". On Facebook, the incident is described as thus: "A few days ago, a person was recharging his mobile phone at home. Just at that time a call came in and he answered it with the charging instrument still connected to the outlet. After a few seconds electricity flowed into the cell phone unrestrained and the young man was thrown to the floor with a heavy thud. As you can see, the phone actually exploded. His parents rushed to the room only to find him unconscious, with a weak heartbeat and burnt fingers. He was rushed to the nearby hospital, but was pronounced dead on arrival." There was some discussion on how this may have happened. The most likely cause is a defective charger. A charger should not allow any AC current to leak through to the DC (phone) side. Photos are attached to the bottom of these minutes.

Facebook article:

http://www.facebook.com/note.php?note_id=281906186360&comments

7. Phil also called to our attention a brief newspaper article about x-ray images of lightning being captured for the first time. A National Geographic article states a 1500-pound camera (an x-ray detector surrounded by lead), takes 10 million images per second. Rockets were used to trigger the flashes. A bright ball of x-ray emissions was found at the head of the bolt, with little or no x-ray emissions on the trailing part of the bolt. Here's the link to the Nat Geo article:
<http://news.nationalgeographic.com/news/2010/12/101223-lightning-x-rays-camera-science-technology/>

8. Greg Stewart noted several lightning and aviation incidents. Two airliners were struck in the Boston area on February 18, with one reporting the smell of smoke in the cockpit. With emergency vehicles flanking the runway, the Jet Blue Airbus A320 was able to land safely. On the same evening, Flight 1328 with 90 people aboard, inbound from Baltimore, was also struck, but landed without incident. A NWS meteorologist said the intense storm was a result of "...a combination of almost record-breaking warmth ahead of a strong cold front."

Also mentioned was an incident on March 26, when an Airtran Boeing 717-200 was struck while climbing out of Atlanta with 94 passengers aboard. The strike caused an engine (BR715) to fail. The crew was able to restart the engine, level off at 12,000 feet and return to Atlanta for a safe landing. A follow-up comment on the report was offered: "As a B717 ex-pilot I confirm...this plane has FADEC (full authority digital engine control)...and it is possible that a lightning strike...[can affect]...systems during flight. In this plane, if both channels of the EEC (electronic engine controller/part of the FADEC) fail, the engine stops automatically." (Source: The Aviation Herald)

10. Greg presented the case of an Illinois 5th grader, struck by lightning while crossing the playground at an elementary school. A couple of days after being hospitalized, he was able to open his eyes and respond to light. A special meeting was called to review safety policies and the "...weather-related crisis plan." The school's policy was to hold students in buildings after school prompted by a severe weather alert from the National Weather Service. In this case the alert was issued post-incident. Greg commented that while one cannot prepare for something as unpredictable as lightning, a school assembly could be held to address basic safety guidelines (stressing personal responsibility when faced with potential danger, e.g.: "When thunder roars, go indoors", "If you see it, flee it", "If you hear it, clear it", etc.). CPR skills and use of a defibrillator could also be included as part of a student's education. By October 16, under care by a rehabilitation facility, despite wheelchair confinement, the student "...was able to eat and communicate a little." On November 23 he was able to return home. Outpatient speech and physical therapy would continue. Medical staff informed the student's mom that it could take up to two years for him to fully recover from his brain injury.

11. Our guest speaker was Scott Smoyer, a Project Manager with the National Lightning Protection Corporation (NLPC). The company installs lightning protection systems (LPS) for residential, government, industrial and commercial structures. They also manufacture key LPS components. Here in the Denver area, NLPC has installed systems at the Pepsi Center, Children's Hospital, the (now former) Qwest Building, and Coors Field. For the new St. Anthony West facility, project architect Earl Swensson Associates worked in consultation with design engineering company Cator, Ruma & Associates, which resulted in the decision to have NLPC install the same Franklin rod technology as utilized by St. Anthony Central. Here are some tidbits from Scott's presentation.

- Surge protection devices have been installed at all four service panels.
- In general, air terminals are installed in a grid 20 feet apart.
- Grounding plates and loops are buried to a depth of 18 inches.
- Structures 75 feet tall and higher require a grounding loop.
- Grounding plates are used when there is a risk of hitting underground cables, pipes, etc.
- Both aluminum and copper cables are used in grounding systems.
- Codes prohibit the direct contact of aluminum and copper cables, since the dissimilarity of the metals causes an ion exchange in the presence of moisture. Engineers devised a bi-metallic connector. One side will accept the copper cable and the other side accepts the aluminum cable. This avoids the open-air contact of the dissimilar metals.

Scott was asked what the safety record was for his company's employees. Nobody has ever been struck by lightning on the job. When storms develop, workers are called off the jobsite. Along those lines, Howard Wachtel was in Singapore staying at a 65-story hotel, with an open-air swimming pool on top of the building. A storm blew in, but people did not seem to care and continued to stay outside while the storm was in progress. In contrast, Phil said the club he belongs to will close down their ground-level pool when storms threaten, and will not allow people back out until 20 minutes after the last flash of lightning or sound of thunder.

12. Mary Claus told me after the meeting, of a television documentary, where a woman with multiple sclerosis (MS) was in a wheelchair in her kitchen, when she was struck by lightning in her hip. She was knocked out for her chair and was hospitalized. She made a miraculous recovery. The MS was gone and she was able to walk again.
13. These minutes do not represent official positions of LDC or its members. They simply reflect the comments made at the meeting.
14. Next meeting: Friday, May 13, 2011 at 11:45 AM in Main Auditorium at St. Anthony Central Hospital. Subject: TBA.

Respectfully Submitted,

Steven E. Clark, Consulting Meteorologist

In Case You Missed It...Lightning in the News

This is a monthly listing of news and videos about lightning and allied areas as reported in the media. A headline is listed, followed by a link to the article. Please note that some of the links are perishable, which means you'll need to go to the source for the article. Enjoy!

IMPORTANT INFO REGARDING THE COORS FIELD TOUR!

TICKET POLICY

- All private tours are designated for groups of 25 or more; therefore, your group is responsible for paying for at least 25 people. If your group is going to be less than 25 people, you must either pay for the minimum of 25, or reschedule your group on a public tour. Cost for the LDC tour tickets is \$6 for adults, \$5 for seniors (55+) and \$4 for children (3-12). In addition, public tours are at different times than our private/group tours. If you need to switch to a public tour, you will need to move your tour time as well. Please call for available public tour times.
- We ask that the majority of your tour tickets be purchased in advance. Our ticket office cannot print any tickets until payment is received. You may pay for some of your tickets on the day of your tour, but you must arrive early to do this as paying for a lot of tickets at this time could delay the start of your tour and require us to shorten it. The fewer tickets you need to buy on the day of your tour, the better. There are no refunds once tour tickets have been purchased which is why we recommend you purchase fewer tickets than you think you will need to accommodate any no-shows on the day of your tour.
- All guests three years of age and older must have a tour ticket to go on a tour. We do not require a minimum number of chaperones for kid's tours, but we do ask that the adults in your group be responsible for supervising the children.

SECURITY

- Due to heightened security in all public facilities, all bags brought into Coors Field for a tour will be subject to search. This search will include purses, bags, backpacks and fanny packs. To avoid any delays in starting your tour, we highly recommend that you and the members of your group not bring any bags on your tour.

TOUR INFORMATION

- The tour entrance and meeting spot is at Gate D of Coors Field, located at the intersection of 20th and Blake Streets. Your tickets should be picked up at the Coors Field ticket windows located between gates Gates C & D.
- Tours last 75-90 minutes. For security reasons, we are not permitted to exit any members of your group early.
- Our tours begin on time. Please plan on arriving at least 10-15 minutes early. If your group arrives late, your tour will be shortened to fit in the original time slot. For security reasons, any guests arriving 15 minutes after the start of your tour will **NOT** be able to join your group.

- This is an indoor and outdoor walking tour of Coors Field. Please wear comfortable shoes and clothing appropriate for the weather on the day of your tour. Our tours operate rain or shine. In the event of severe weather on the day of your tour, please call 303-312-2130. If your tour has been canceled, the message on this line will be changed to let you know.
- No eating, drinking, or smoking is allowed. We also ask that guests not use cell phones during their tour. Water in plastic bottles is permitted. Cameras are also permitted. For a complete list of restricted items, please go to http://colorado.rockies.mlb.com/col/ballpark/ballpark_guide.jsp#r.
- There is one restroom stop approximately 20 minutes into your tour. This is the only stop available as restrooms in the ballpark are locked when the Rockies are not playing.
- Tours for school-age children may view different areas of the ballpark than our adult/public tours. Please make the chaperones in your group aware of this before coming to the ballpark.

COORS FIELD TOUR PARKING

Please note that Coors Field's Main Parking Lot A is no longer available for tour guest parking. Due to heightened security, this lot is now open only during games.

All Tours begin at Gate D at the intersection of 20th & Blake Streets.

#1 - The RTD Lot – located at 22nd/Park Avenue and Wazee. Payment for these parking spaces is made to a moneybox with numbered slots for corresponding numbered parking spaces. On Rockies evening home game days, all cars must be moved from this lot by 3:00pm or they will be towed. Cost is \$3 per vehicle.

#2 - Meters on 21st Street between Blake and Market Streets - These are two-hour meters. On the day of a Rockies evening home game, the meters may have “no-parking” bags covering them. You may park at a bagged meter (on an evening game day only) as long as your car is moved by 3:00pm. If you receive a parking ticket in error, please call 303-312-2130. When not bagged, these meters cost \$.25 for 75 minutes.

#3 - Meters on Market Street between 20th and 21st Streets - These are two-hour meters. The meters cost \$.25 for 15 minutes.

#4 - Meters on Blake Street – These meters are located right next to the ballpark but are only 60-minute meters (tours last 75+ minutes). If your bus driver will be staying with your bus, they may park on Blake Street, but we ask that they not block access to our ticket windows. These meters cost \$.25 for 15 minutes.

For those wishing to use public transportation, there are plenty of bus routes, in addition to light rail lines, that will get you to reasonable proximity of Coors Field. To find the route best suited for you, visit rtd-denver.com and mouse over “RTD System Info”. A drop-down menu will appear. Click on “System Map”. The blue lines are bus routes. The light-rail routes are also visible. Then you can view the schedules to see route(s) are best for you.

