Proceeding No.: I.08-11-007
Exhibit No.:
Witness: Gerry Akin

DIRECT TESTIMONY OF

GERRY AKIN

SAN DIEGO GAS & ELECTRIC COMPANY

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA
May 18, 2009

SDGE

DIRECT TESTIMONY OF
GERRY AKIN
SAN DIEGO GAS & ELECTRIC COMPANY

Q: Please state your name and title

A: Gerry Akin. Until very recently, I was the Manager of the Transmission Engineering and Design group at SDG&E. My current title is Project Manager.

Q: What were your responsibilities as the Manager of the Transmission Engineering and Design group?

A: I supervised a group of engineers, designers and support staff who are responsible for the design and engineering of SDG&E's transmission lines. This includes overhead and underground lines operating at 69kV, 138kV, 230kV, and 500kV. We design the structures that support and carry the wires, as well as specify the wires and all the hardware used in the construction. In the performance of our work on the transmission lines, we also design distribution lines operating at 12kV that are located on transmission poles. I have a Bachelors of Science Degree from New Mexico State University in Electrical Engineering, and I am a registered professional engineer in the state of California. I have almost 32 years of experience at SDG&E, including experience in both transmission and distribution engineering.

Q: What is the purpose of your testimony in this proceeding?

A: I am here to testify regarding the sag characteristics of SDG&E's span conductors, the lack of fault activity in the subject span prior to the events of October 22, 2007 and also the unavailability of evidence relevant to an analysis by SDG&E regarding the start of the Guejito Fire on October 22, 2007.

Q: Are you aware that a post-fire survey conducted on November 2, 2007 determined that the vertical separation at the closest points between SDG&E's southern conductor and Cox's facilities between poles 196394 and 196387 was 3.1 feet?

A: Yes.

Q: What is the required clearance pursuant to General Order 95, Rule 38?

A: Six feet.

Q: Is it possible that since August 2001, when Cox installed its facilities at the subject span, SDG&E's southern conductor sagged 2.9 feet?

A: Not as a result of weather conditions or thermal loading. SDG&E's conductor could not have sagged 2.9 feet between August 2001 and November 2, 2007, absent a mechanical change to that span -- for example, slippage of the conductor at the pole attachment. I am not aware of any evidence of a mechanical change.

Q: Why couldn't SDG&E's south conductor have sagged 2.9 feet during that time absent a mechanical change?

A: The sag and length of a conductor increase when the temperature of the conductor increases; the conductor sag and length decrease when the temperature of the conductor decreases. The length and sag of the conductors in this span do not appreciably change as a function of age or as a result of repeated electrical loading cycles. The only factors that appreciably affect the sag and conductor length are electrical loading, ambient temperature and sunlight. Higher electrical loading, higher ambient temperatures and sunlight raise the temperature of the conductors, while wind, lower electrical loads, and lower ambient temperatures cool the conductors. In this span, neither the changes in the ambient conditions nor the varying electrical load cause the sag or length to vary much. Given the electrical loads calculated and verified by measurement, and applying the possible weather conditions for this geographical area, the potential sag for this particular conductor is not great enough to cause the southern conductor to sag 2.9 feet.

Q: Has any modeling been done to confirm your conclusion that the southern conductor could not have sagged 2.9 feet?

A: Yes. The conductor characteristics and attachment point information were uploaded into PLS-CADD and the span was modeled. The heat from the sun causes more sag than the conductor loading. We modeled the behavior of this conductor for conditions during the early morning hours of October 22, 2007 (when the Guejito Fire apparently started) and for conditions during daytime operation of SDG&E's facilities. The typical electrical load on this conductor is very small, only about 20 amperes. The effect of the 20 ampere load increases the conductor

temperature by only 1.1 degrees and changes the sag of the conductor by a small fraction of an inch. The sag of the conductor is actually greater during the daytime when the sun is present and the solar heating effects of the sun contribute to additional sag. The conductor sags only an additional 6.6 inches in the daytime versus the sag at night. So at night, with no sun to heat the conductor, the clearance is greater than that observed during the day with sunshine. Based on these calculations and my knowledge of conductor characteristics, the weather in this area and the history of loading conditions on these lines, I believe that there is no credible combination of weather conditions or load history that result in 2.9 feet of conductor sag.

Q: What kind of fault activity would you expect to occur if Cox's facilities contacted SDG&E's conductors?

A: A phase-to-ground fault, which occurs when an energized conductor comes in contact with the ground or in contact with a device that establishes an electrical path to ground. Two components of Cox's facilities are a steel cable and steel lashing wire, which are attached to the poles and grounded through the pole and attachment hardware. If that steel cable or the lashing wire wrapped around the fiber optic and the cable were to make contact with an energized electrical conductor, a phase-to-ground electrical fault would occur.

Q: Was there a history of phase-to-ground faults in the span between poles 196394 and 196387 prior to October 22, 2007?

A: No. SDG&E records going back to 2001 show that no phase-to-ground faults had occurred in that span before October 22, 2007.

Q: Have you reviewed the CPSD's report and supplemental testimony regarding the formal Guejito Fire investigation?

A: Yes.

Q: To your knowledge, is SDG&E able to provide testimony at this time responding to the CPSD's conclusions or testimony regarding the start of the Guejito Fire on October 22, 2007?

A: No.

Q: Why not?

A: Because SDG&E has not had an opportunity to review relevant physical evidence in the custody of Cal Fire and Cox Communications, which would include physical inspection of the evidence and possibly testing.

Q: What physical evidence?

A: SDG&E's south conductor and the Cox facilities at that span, including Cox's lashing wire, messenger and fiber optic cable, and the additional lashing wire found on the ground at the scene of the Guejito Fire.

Q: Is SDG&E able to access these items at this time?

A: No.

Q: Why not?

A: My understanding is that SDG&E's south conductor, portions of Cox's lashing wire and messenger, and the additional lashing wire found at the scene are currently under Cal Fire's control. I believe that Cox still has control of portions of the lashing wire, and Cox's fiber optic cable is still in service and is currently the subject of a draft protocol for its removal and review. The protocol is being developed by experts and consultants to SDG&E, Cox and other parties involved in the fire-related litigation.

QUALIFICATIONS

My name is Gerry Akin. My business address is 8330 Century Park Court, San Diego, California, 92123. I have been with San Diego Gas & Electric Company ("SDG&E") for almost 32 years, and I have experience in both transmission and distribution engineering. Until very recently, my title was Manager of the Transmission Engineering and Design group at SDG&E, and I supervised a group of engineers, designers and support staff who are responsible for the design and engineering of SDG&E's transmission lines. My current title is Project Manager. I have a Bachelors of Science Degree from New Mexico State University in Electrical Engineering, and I am a registered professional engineer in the state of California.