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February 19, 2015

VIA CERTIFIED MAIL

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Denny Barney, Steve Chucuri, Andy Kunasek, Clint L. Hickman, Steve Gallardo
301 W. Jefferson, 10th Floor
Phoenix AZ 85003

Maricopa County Sheriff Joseph M. Arpaio
Maricopa County Sheriff's Office
Legal Liaison Section, Compliance Division
550 West Jackson, Phoenix AZ 85003

VIA PROCESS SERVER

Joseph M. Arpaio
[REDACTED]

Marie Theresa Trombi
[REDACTED]

Robert Walter Kalinowski
[REDACTED]

Re: Notice of Claim of Austin and Logan Flake

This firm represents Austin and Logan Flake (the "Flakes") on their claim against County officials or employees including the Sheriff and his deputies named above, as well as the County and the County Board of Supervisors, for actions wrongfully taken against the Flakes as summarized herein. Nothing in this letter is intended to in any way limit the facts to be presented in this matter, or to limit the parties to be named, as we discover additional facts.

The Sheriff and his deputies constructed a conspiracy to wrongfully indict the Flakes and harm their reputations using false and misleading information that they perpetuated, thus causing our clients to suffer indescribable mental anguish and distress, and irreparable injury to their good



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Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 2 of 12

names and reputations and future prospects. This letter thus serves as a formal Notice of Claim pursuant to A.R.S. § 12-821.01 that the Flakes have claims as outlined herein against Maricopa County Sheriff Joseph M. Arpaio and Ava Arpaio, both individually and as the head of the Sheriff's office and its chief policymaker; the Maricopa County Sheriff's Office ("MCSO"); MCSO Detectives Marie Theresa Trombi and Robert Walter Kalinowski, both individually and in their official capacities, among other employees, contractors, or agents of the MCSO and/or the MCSO "Animal Crimes Investigation Unit"; Maricopa County and the Maricopa County Board of Supervisors in their official capacities; and the Maricopa County Attorney and his deputies.

The Flakes' claims arise out of the malicious investigation and prosecution of the Flakes without probable cause in CR2014-002799-003, -004, the "Green Acre" matter. Green Acre was a boarding facility where an air conditioning unit accidentally froze and failed during the night, causing the tragic deaths of more than 20 dogs. Sheriff's deputies knew from the outset that the air conditioning had gone out unexpectedly in the middle of the night, and originally dubbed the incident an accident. The critical proof of a felony—intent to harm the animals—was clearly missing. The Sheriff was undeterred by the facts, however, and after conducting a rigged investigation, sent his detective in to lie to the grand jury. When all of this was brought to prosecutors' attention, they were ethically obligated to dismiss the Indictment. The Flakes' legal claims include violations of 42 U.S.C. § 1983; malicious prosecution; conspiracy; abuse of process; negligence/gross negligence; defamation; false light invasion of privacy; and intentional and/or negligent infliction of emotional distress.

Factual Basis of the Claims

In June 2014, Logan Flake's parents, Jesse Todd and Maleisa Hughes (the "Hughes"), asked Austin and Logan Flake to housesit the Hughes's home in Gilbert while the Hughes visited Florida for a week. Austin and Logan are married and were twenty and twenty-one years old at the time, respectively. Austin Flake is the son of United States Senator Jeff Flake, and the Flakes were going to college in Provo, Utah. (Austin was attending Brigham Young University.) The asked the Flakes to take care not only of the home but of the Hughes' several children, and of the kennel that the Hughes operated out of their home – which had 35 dogs listed on its rosters as of June 12th, 2014. The Flakes arrived at the home on Friday, June 13th, and the Flakes "shadowed" the Hughes for two days (Friday and Saturday) while the Hughes showed them what to do. The Hughes instructed the Flakes to place the dogs that were being boarded at the home every night in an approximately 9 by 12 foot secure room attached to the laundry room, instead of letting them roam the property unattended. Many of the dogs were small dogs that were placed in cages on the



WILENCHIK & BARTNESS
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Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 3 of 12

shelves, and the larger dogs shared the floor. The room had a door with a window in it that was left partially open, and it was kept cool by an HVAC air conditioning unit which serviced that end of the home. (The other end of the home—which contained the bedroom in which the Flakes and the Hughes’s children slept that week—was serviced by a separate air conditioning unit.) The Flakes watched the Hughes place upwards of 25 to 30 dogs in the room overnight on Friday and Saturday night, without any problems. (The business’s ledgers reflect that 42 and 39 dogs were being boarded on the property on each of those two nights, respectively—but many slept in other areas of the home, including with the Hughes or Flakes.) The Flakes believe that the Hughes regularly placed this number of dogs in the room or more, without any problems, and that they had been doing so for more than a year and the summer prior. Before leaving for Florida on Sunday, June 15th, the Hughes instructed the Flakes to call them if they had any problems with the home, the children, the dogs or otherwise. The Hughes did not leave the Flakes with contact information for a veterinarian, whether for the dogs or for the boarding facility generally.

The Flakes placed between twenty and as many as twenty-eight dogs in the room every night, including the family pet “Patrick,” from Sunday through Wednesday night without incident—for a total of six days that they either placed or personally witnessed being placed 20 to upwards of 30 dogs in the room overnight. On the night of Thursday, June 19th, the Flakes placed around twenty-five dogs in the room, including Patrick. The air conditioning was on when they turned off the light at 11:00 PM. The room was cool, had sufficient air, and was in the same condition as every other night since the Flakes came to the facility. The window to the room was left partly open. The dogs had been fed and watered from a large tub of water earlier in the day, and had been roaming in the large backyard (and encouraged to empty their bowels) before they were put in the room. The Flakes went to sleep in their bedroom on the other side of the house, where they were babysitting the Hughes’ other children. Austin Flake woke up and checked on the dogs at 5:30 AM, just six and a half hours later. He discovered that nearly all of the dogs were dead or nearly dead, and that there was no air conditioning on in the sweltering room. He saw a hole in the wall in the back of the room that appeared to have been dug out and contained wires that were chewed-through and sparking. Mr. Flake shut down the electricity to stop the sparking wire and Mrs. Flake immediately contacted Todd Hughes and asked him what to do. Mr. Hughes said that he would contact the owners of the dogs about what had happened but did not tell the Flakes to contact the police or a veterinarian. Mr. Flake tried to cool the dogs down by taking them outside and administering water and ice to them, to help them or at least ease their suffering, but it was clear that most of the dogs had already stopped breathing and were dead. Of the dogs that weren’t already dead, others stopped breathing as Austin tried to remove them from the sweltering room. Four of the dogs appeared healthy, were walking, and did not appear to be in any pain.



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 4 of 12

However, four hours later one of those dogs unexpectedly laid down and died. Altogether, twenty-one dogs died. Believing that the air conditioning shut down because of the sparking wire, Mr. Flake reconnected the wire and then turned the electricity back on, and the air conditioning came back on. There was a large amount of feces, urine and vomit in the room, which the Flakes cleaned.

An electrical engineer with the assistance of an HVAC expert hired by the Maricopa County Sheriff's Office later concluded in a written report to the Sheriff's Office that it was "highly likely" that the air conditioning shut down because the evaporative coil froze, which he determined was caused by the Hughes's failure to clean or replace the air filter. The filter was impounded. An HVAC expert retained by the Flakes also concluded that the unit froze because of the dirty filter. Defendants' HVAC expert further reviewed the same electrical usage reports that were obtained by the MCSO, and they showed a **40% drop** in electrical usage that entire night (between 12 AM and 5:30 AM), as compared to every other night that week. Weather could not possibly explain the difference, and in fact that night was hotter than other nights that week. The Report also showed that the usage "flat lined" at 12:00, instead of cycling as it did on every other day at the house—ever. Defendants' expert concluded that the only possible cause for the drop in electrical usage was that the air conditioning unit shut down overnight. The Sheriff's Office apparently never showed the electrical usage report to their expert, and he never opined on it. Both experts determined that the "chewed-through" wire was not connected to the air conditioning, and that it did not cause the unit to shut down. (The air conditioning probably came back on when Austin reconnected the wire, because by that time in the afternoon—11 AM—the coil had thawed.)¹

As tragic as this accident was, it was always just that, a tragic accident—never a crime. There is only one series of laws governing crimes against animals, A.R.S. § 13-2910 *et seq.*, and they require that a person "intentionally, knowingly, or recklessly" inflict unnecessary physical injury on an animal. A mere accident, or negligence, is not sufficient. Rather, a person must have some level of actual intent to harm an animal, and at the minimum some **actual awareness** "of a substantial and unjustifiable risk" that he will cause unnecessary physical injury to an animal—which he must then choose to ignore, and let the animal be harmed or killed anyway, for it to

¹ Contrary to statements made by the dog owners to public media, the animals did not die merely because of the size of the room, nor has a competent expert witness ever come forward to support this. That is simply common sense, because many more animals had been put in the room previously on countless occasions, including several times in that same week, but the animals did not die—however they died on the one day that the air conditioning failed.



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 5 of 12

constitute a crime.²

There was never probable cause to believe that the Flakes intended for these animals to die, or that the Flakes had actual awareness that they were going to cause the animals to die and then decided to go ahead and do it anyway. The Flakes had no way of predicting that the air conditioning was going to shut down unexpectedly in the middle of the night, apparently due to lack of maintenance on the air filters by the homeowners. They were merely guests in the home, and had no knowledge whatsoever of whether the air filters were being cleaned. One of the animals that died in the room that day was the family pet, “Patrick”—and the Flakes would never have intended to harm their own family’s pet. If they had known of a substantial risk that Patrick or any other dog under their care would die, because the air conditioning was going to shut down in the middle of the night, then they would have done something about it.

If the accidental death of an animal were a crime, then someone could be prosecuted when their car hits an animal in the road—or even when their pet escapes and gets hit by a car in the road. In these situations, the person had no **intent** to harm the animal, or **actual awareness** that they were very likely going to harm it, which they then chose to ignore. That is the difference between a civil matter, and a crime. This was a horrible and tragic accident that has forever scarred the lives of these two fine young people, through a false indictment and publicity that was directly incited and fomented by the Maricopa County Sheriff, for his own benefit. It was never a crime, and there was never any basis to seek charges against them—let alone 21 felonies.

Investigation by the Sheriff’s Department

Even though the Green Acre residence is located in Gilbert, it is on an unincorporated island that is subject to the jurisdiction of the Maricopa County Sheriff’s Office.

² “Recklessly” is defined by law as meaning that “a person **is aware of and consciously disregards** a substantial and unjustifiable risk that the result will occur or that the circumstance exists. The risk must be of such nature and degree that disregard of such risk constitutes a gross deviation from the standard of conduct that a reasonable person would observe in the situation.” A.R.S. § 13-105(10)(c). “Acts and omissions amounting to no more than civil negligence are not ‘reckless.’” *In re William G.*, 192 Ariz. 208, 212, 963 P.2d 287, 291 (Ariz. Ct. App. 1997). Even acts amounting to “criminal negligence,” or where the person fails to perceive a “substantial” risk that is a “gross” deviation from applicable norms, do not amount to “reckless” acts unless the offender is actually aware of the risk and consciously chooses to disregard it. *Id.*; compare also A.R.S. § 13-105(10)(c) with A.R.S. § 13-105(10)(d).



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 6 of 12

Since at least 1998, Maricopa County Sheriff Joseph Arpaio has pursued a long string of “animal cruelty” investigations to enhance his public image, despite lacking credible evidence or even probable cause to initiate them. His artificial targets have ranged from, *inter alia*, a mailman to a K9 police officer to animal shelters. Arpaio freely confesses that the investigations are a “political goldmine,” and that he publicizes them heavily to obtain fundraising from animal-rights groups and sympathizers. He is notorious for pursuing cases for propaganda value, for publicity, and for political spite—but not for evidence.

On June 21st, 2014, MCSO deputies responded to calls about the deaths of the dogs at Green Acre. Jesse Hughes informed deputies at the scene that Logan Flake had told him that the dogs died during the night because the air conditioning failed on the dogs’ side of the home.³ Jesse speculated that the air conditioning failed because a dog chewed through the wire in the room. Logan Flake told deputies that the dog room was around 100 degrees when the dogs were discovered in the morning, even though the separate air conditioning unit on their side of the home had continued to work. Austin Flake told deputies that when he checked on the dogs before going to bed, the room was cool and the air conditioning was working, but that when he discovered the dogs in the morning the room was more than 100 degrees.

“It’s a horrible, tragic accident at this point,” MCSO Deputy Chris Bergstrom reported to the media. Which it was.

But it was at this point that Sheriff Arpaio and Lisa Allen – his longtime media advisor – decided to push the case further for media hype, given the nature of the case and the Defendants’ name. Unlike the thousands of serious criminal matters confronting county law enforcement on a daily basis – cases of rape, child molestation, assault, theft and burglary – this case had everything that Arpaio loves, and that real police work lacks. It had Pets—dead ones, and a lot of them. It had Publicity. And it even had a Politician. The one big “P” that it lacked? Probable cause. But never one to let the law get in his way, Arpaio prioritized this investigation over others—calling it “one of the most exhaustive professional investigations of anybody in this country,” with “over 17 people” working on the case, “around the clock.”

Arpaio was aware since day one that the Flakes told deputies that the air conditioning unit had shut down during the night. There was never any credible evidence to dispute that. But as Arpaio has demonstrated before, he is a master of coming up with excuses to conduct meritless

³ CR2014-002799 000004.



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 7 of 12

investigations that are unsupported by fact or law, and solely to create self-serving sensationalism and publicity. Take for example the 1998 case of Wayne Bates, a mailman who admitted to using his pepper spray on a dog that wouldn't stop barking at him. Arpaio had Bates arrested for "animal cruelty," immediately alerted the news media, and incited public outrage – even though Arpaio's own detectives and executive staff explicitly advised him that no crime had been committed, according to Arpaio's former Chief Deputy Brian Sands. Because there was no crime committed, County Attorney Rick Romley was ethically obligated to drop the case. Arpaio then had the idea to do a wasteful investigation to prove that Bates had used his pepper spray, using expensive chemical testing – an investigation that was absolutely pointless, since Bates already admitted to using the spray. Arpaio conducted this bizarre investigation only to keep publicity alive, and to "please the animal rights activists," according to Sands—and the case ultimately went nowhere. Bates later successfully sued the county for violations of his civil rights.

True to form, in this case Arpaio seized on trying to prove that the chewed-through cable was not what caused the air conditioning to shut down—something that was objectively a complete waste of time, just like the Bates case, because there was still no genuine dispute that the air conditioning shut down in the first place. Arpaio hired a costly HVAC expert to inspect the wire, and prove that it did not cause the shut-down. He was never interested in what actually did cause the shut-down—and when even his own HVAC expert concluded that the air conditioning "very likely" shut down because the evaporative coil froze due to dirty air filters, Arpaio ignored his conclusion. The expert put that right at the top of the first page of his report, on July 12th, 2014 (Exhibit "C" hereto). Arpaio and his deputies would later deliberately withhold this report from the grand jury as well, and falsely tell the grand jury that the HVAC investigator had concluded that the air conditioning was "working."

In addition, on July 16th—at the very end of their investigation—MCSO Detective Robert Kalinowski received a report from the Salt River Project detailing the electrical usage in the home on that night and the surrounding months. The report clearly showed a 40% drop-off in electrical usage starting at around mid-night that night, as compared to every single night during the entire previous week, and beyond. After receiving the SRP report, Detective Kalinowski did a supplemental investigation with SRP to determine whether there could be an alternate explanation for the drop in electrical usage other than the air conditioning unit shutting down, and asked SRP if there were any electrical outages reported in the area. SRP confirmed that there were no electrical outages in the area during the hours that the air conditioning unit had frozen and stopped running. He then wrote in his official report that the electrical usage for that morning was "consistent" with the previous days. In fact, it wasn't – a fact that is obvious to anybody who actually looks at the



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 8 of 12

SRP report data (see Exhibit “A,” attached)⁴. Detective Kalinowski’s conclusion was either gross incompetence, at the minimum—or calculated misconduct. Even SRP itself has unequivocally confirmed under sworn affidavit that the Report shows a 40% drop-off in electrical usage that entire morning as compared to every morning in the entire week prior. Further, the usage clearly stopped cycling at around mid-night, which is different from any other day at the property—ever. Tellingly, the MCSO appears to have suppressed or minimized the clear conclusion from the report, and likely never showed the SRP Report to their HVAC expert, or to any expert at all.

Arpaio—who pretends to be ignorant about the law, but in fact knows it well—knew that he had no criminal case and no probable cause, but wanted the case to be prosecuted anyway. However, he feared that the County Attorney would reject it. By law, he is required to send his cases to the County Attorney—so two days after his office received the SRP Report, and fearing that the County Attorney would reject the case, Arpaio approached Attorney General Tom Horne and asked Horne if his office would consider taking on the case. Arpaio was supporting Horne for re-election at the time, and looking for a friendly prosecutor who would take on his case in exchange for his political graces – in other words another “Andrew Thomas,” whom Arpaio unsuccessfully supported in a run for Attorney General in 2010, and who was later disbarred as a direct result of pursuing groundless political prosecutions on Arpaio’s behalf. In August, Horne failed to win re-election. So Arpaio came up another plan, using his favorite tool of all – the media.

In clear violation of his ethical duties as a law enforcement enforcer and the law,⁵ Arpaio publicly announced that he was “recommending” that felony charges be brought in the case, before the prosecutors had even reviewed the report from the investigation or the recommended charges—an unusual step. He did this to signal to the media that the charges had merit, and to whip up public frenzy against these two young innocent people. By putting public pressure on Montgomery, the Sheriff believed that he would force Montgomery to go to the grand jury. He knew that it would be difficult for Montgomery to drop the case because of the high publicity the Flake name would generate, and that Montgomery would be accused of dropping the case not because of the utter lack of evidence of a crime, but because of the Flake name. Unfortunately, the media played right

⁴ See also, <http://www.wb-law.com/wp-content/uploads/2014/12/SRP-Electrical-Usage.gif>.

⁵ Arizona law enforcement officers swear an oath that whatever “is confided to me in my official capacity will be kept secure unless revelation is necessary in the performance of my duty.” Arpaio has repeatedly and constantly violated this provision of the Code of Ethics by holding press conferences and publicly disclosing matters that are in no way necessary to the performance of his duties in this matter and in fact hindered them.



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 9 of 12

into Arpaio's hands—with many reporters and editorialists openly questioning whether the County Attorney was reluctant to prosecute a Senator's son.

The County Attorney's solution was to allow the Sheriff's Office to present the case to a grand jury, expecting them to present all the evidence, truthfully and accurately. Two witnesses testified before the grand jury – Detective Marie Trombi, who was Arpaio's lead investigator on the case, and an MCSO contract veterinarian named Bernard Mangone. They presented a case to the grand jury that the air conditioning never shut down and that the room in which the dogs were kept was constantly at over 100 degrees, even with the air conditioning on – i.e., that the Flakes intentionally put the dogs into a deadly sweatbox – which was completely inconsistent with all evidence, and is objectively absurd. When the prosecutor asked Trombi about the HVAC investigation, Trombi testified that the HVAC expert “did a complete systems check, all electrical on the house, the system check on the air conditioning,” and that the expert determined that the chewed-through wire did not connect to the air conditioning. When the prosecutor asked if the HVAC investigator had determined that “it [the air conditioning] was working,” Detective Trombi falsely testified that “it was working.” Trombi never told the grand jury that the HVAC investigator had actually concluded that the air conditioning “very likely” froze up and failed, nor did she discuss that the SRP records proved that the Flakes were telling the truth.

When the prosecutor asked Trombi about the SRP report, Trombi told the grand jury that “the SRP report shows that the air was working fine all night,” which is clearly false. None of the jurors were ever provided the actual records themselves. Later, Trombi again testified that the “air [in the dog room] was working all night,” with no explanation. Finally, after the prosecutor finished examining Detective Trombi, the grand jury itself had the opportunity to ask Detective Trombi questions, and the second question that they asked her was whether the SRP records showed that “the air was working and on until 5:30 that morning.” Trombi falsely answered “yes”—not once, but three times—after a grand juror repeatedly asked her:

GRAND JUROR: I'd like to clarify also. So the air was working and on until 5:30 that morning when he tried to fix it, Austin Flake tried to fix it, correct? That's what SRP said?

THE WITNESS: That's going by the SRP records, yes.

GRAND JUROR: That it was on?

THE WITNESS: It was on, all night.



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 10 of 12

GRAND JUROR: All night?

THE WITNESS: All night.

GRAND JUROR: Thank you.

Marie Trombi is the sister of Deputy Chief David Trombi, who is a close confidant of the Sheriff's and essentially oversees the Sheriff's "animal crimes" unit. David Trombi was also implicated in the case of Thomas Lovejoy, a Chandler police officer who was wrongfully arrested and prosecuted for "animal cruelty" in 2007. Lovejoy tragically forgot his K9 in the car after he returned home one night, and it died of heat stroke overnight. The trial judge found no evidence of intent to harm the animal, and Lovejoy was acquitted of any crime. Lovejoy sued the county for civil rights violations, and a federal district court judge determined that the case had been brought without any probable cause to suspect the commission of a crime, since there was never any evidence that Lovejoy intended to harm the animal. In other words, it was an accident – just like this case. Lovejoy's lawsuit was settled for \$775,000, after three years of litigation and hundreds of thousands of attorney's fees being incurred by the county.

The only other witness who testified before the grand jury was a contract veterinarian for the MCSO named Dr. Bernard Mangone, who has apparently assisted the Sheriff before. He is a member of a three-man veterinary group with no known forensic background of any significance. He testified that the MCSO told him "that the air conditioning was working," and based on that he groundlessly opined that the room must have felt "like 100 degrees" all the time, even with the air conditioning on. He is of course not an HVAC expert and formed his opinion based solely on the MCSO telling him that the air conditioning never shut down. Mangone also speculated that he was concerned that the dogs may not have been fed, because he did not find food in their stomachs—even though he noted in his actual written report that the dogs' bodies showed no actual signs of malnourishment whatsoever (i.e., the bodies were in "good flesh"). He also failed to mention—as any competent and unbiased veterinarian would⁶—that the dogs' stomachs were empty because they emptied their bowels while they were dying, which commonly happens during heat stroke, and would explain why the room was full of feces and vomit when they were discovered. Even on this minor point, the Sheriff's Office presented nothing but rigged investigation and misleading testimony.

⁶ See the report from Defendants' own veterinarian Dr. Melinda Merck, attached as Exhibit "B" hereto.



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 11 of 12

As a result of Trombi and Mangone's false and misleading testimony, the grand jury indicted the Flakes on 21 counts of felony animal cruelty. This firm, as the Flakes' defense counsel, filed a Motion to Dismiss and Remand the case, on the grounds that the MCSO's witnesses lied to the grand jury. After an investigation into the grand jury proceedings and the circumstances alleged in the Motion, the County Attorney's Office dismissed the case. "It's not a complex decision. It's rather straightforward and easy for us to make – if our goal is to ensure that we arrive at a just result," the County Attorney said. He also admitted that it was clear that the court would have remanded the case.

The Sheriff's Office and its detectives thus commenced and pursued this case utterly without probable cause, resulting in a false indictment, knowing they were violating the basic constitutional rights common to all defendants in the American legal system. They acted with knowing and deliberate indifference to the Flakes' basic civil rights—even going so far as to lie to the grand jury in order to get an indictment. Worse, they publicized the indictment frequently, widely and heavily. Austin and Logan's reputations have been forever marred by allegations of crimes that they did not commit, and by being indicted on felony charges, in a way that most of us cannot even comprehend—receiving threats, and being the subject of media and public scorn nationally, as well as having to retain counsel, despite the fact there was never any probable cause to accuse them of committing any crime, let alone felonies. The MCSO's wrongful investigation and pursuit of the Flakes has already affected and will continue to affect their prospects for education, employment, earning capacity and friendships—and will have substantial long-lasting consequences and damages that anyone can understand. In spite of a pattern and practice of conducting these reckless investigations, particularly after the Thomas Lovejoy fiasco, the Sheriff and his deputies have been allowed to continue to act in a consistent pattern of impunity and without serious consequence for these knowingly baseless investigations and clear violations of law.

III. Specific Settlement Amount

Pursuant to A.R.S. § 12-821.01, the specific amount for which this claim can be settled is \$4,000,000 for Austin Flake and \$4,000,000 for Logan Flake (\$8,000,000 total), representing reasonable compensation for irreparable and permanent harm to their reputations and economic loss; loss of educational opportunities; reduction in employment opportunities and advancement within their employment; reduced earning capacities throughout their lives; and even lost opportunities to serve in political or public office, as a result of the false indictment and local,



WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

Clerk of the Board of Supervisors, on behalf of
Maricopa County Board of Supervisors
Maricopa County Sheriff Joseph M. Arpaio
Joseph M. Arpaio
Marie Theresa Trombi
Robert Walter Kalinowski
February 19, 2015
Page 12 of 12

national and international harm to their reputations; in addition to punitive damages. Given the high-profile nature of the indictment and their names, the Flakes will never be able to erase or purge this indictment from the public record, or end the reporting and chatter on social media regarding the case. This offer for settlement will terminate and be inadmissible in evidence as a settlement offer upon the filing of a claim by the Flakes. The Flakes are receptive to early settlement of this matter without further public display, and additional discovery of the Sheriff's egregious disregard for civil rights and the law. For example, we have not yet brought to light the stalking of the Flake family by the Sheriff's office in Provo, Utah for several days during the 2014 Fourth of July holiday. Many additional facts will come to light through discovery that will shock the conscience of any juror or judge and demonstrate the malicious, reckless, intentional and egregious violation of the law and the public trust by the Sheriff's office for personal political gain and attempting to even the score with his political adversaries. We are confident that punitive damages under Section 1983 are clearly appropriate, as the statute is designed to accomplish. In addition, the Flakes have sustained and will continue to sustain emotional distress damages and adverse health effects into the future from the stress of groundless felony criminal investigations and indictments against them.

We urge you to give serious and prompt attention to this settlement offer before we file an action on behalf of the Flakes. We look forward to hearing back from you.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dennis I. Wilenchik', with a long, sweeping horizontal line extending to the right.

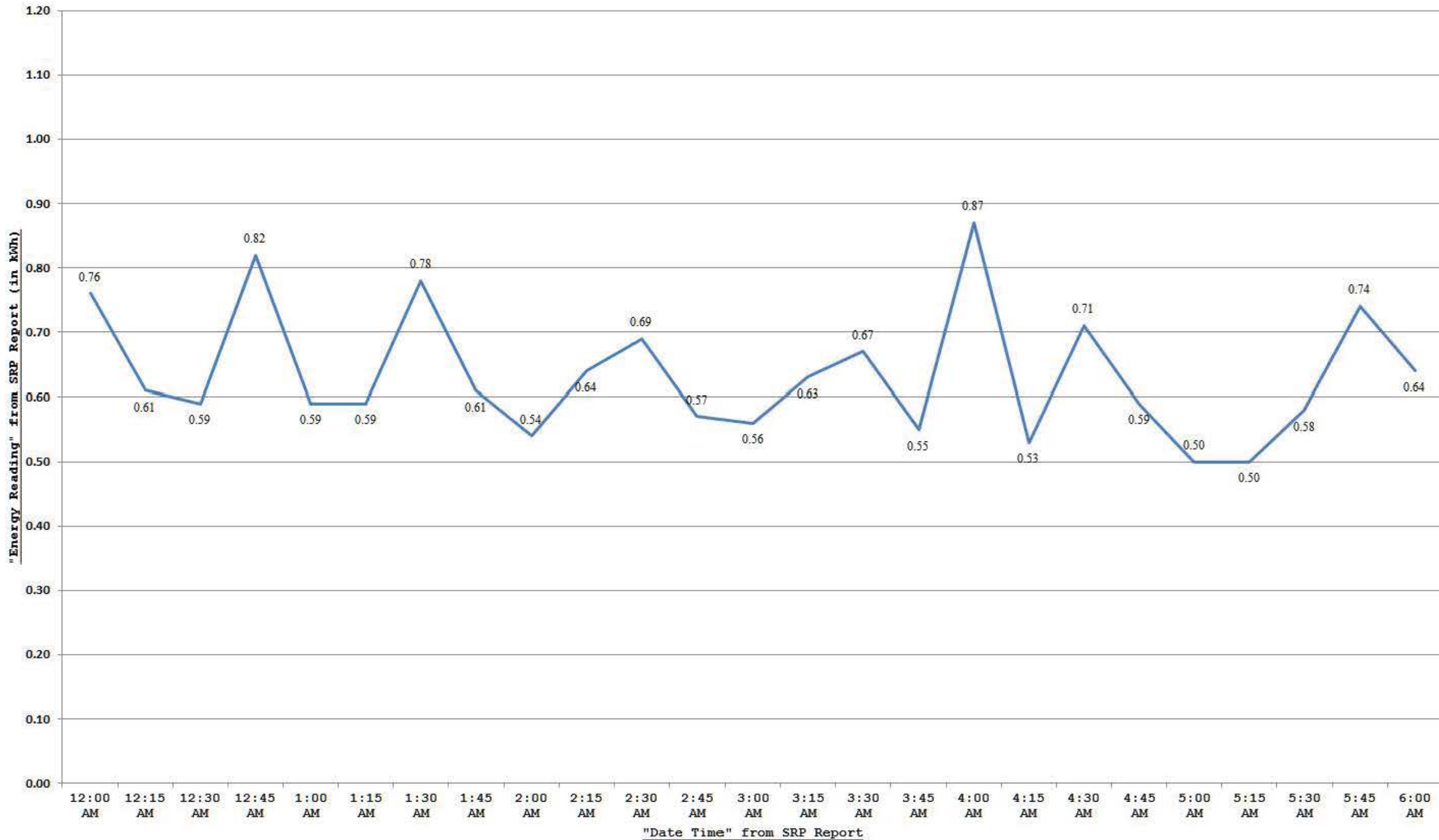
Dennis I. Wilenchik

Enclosures

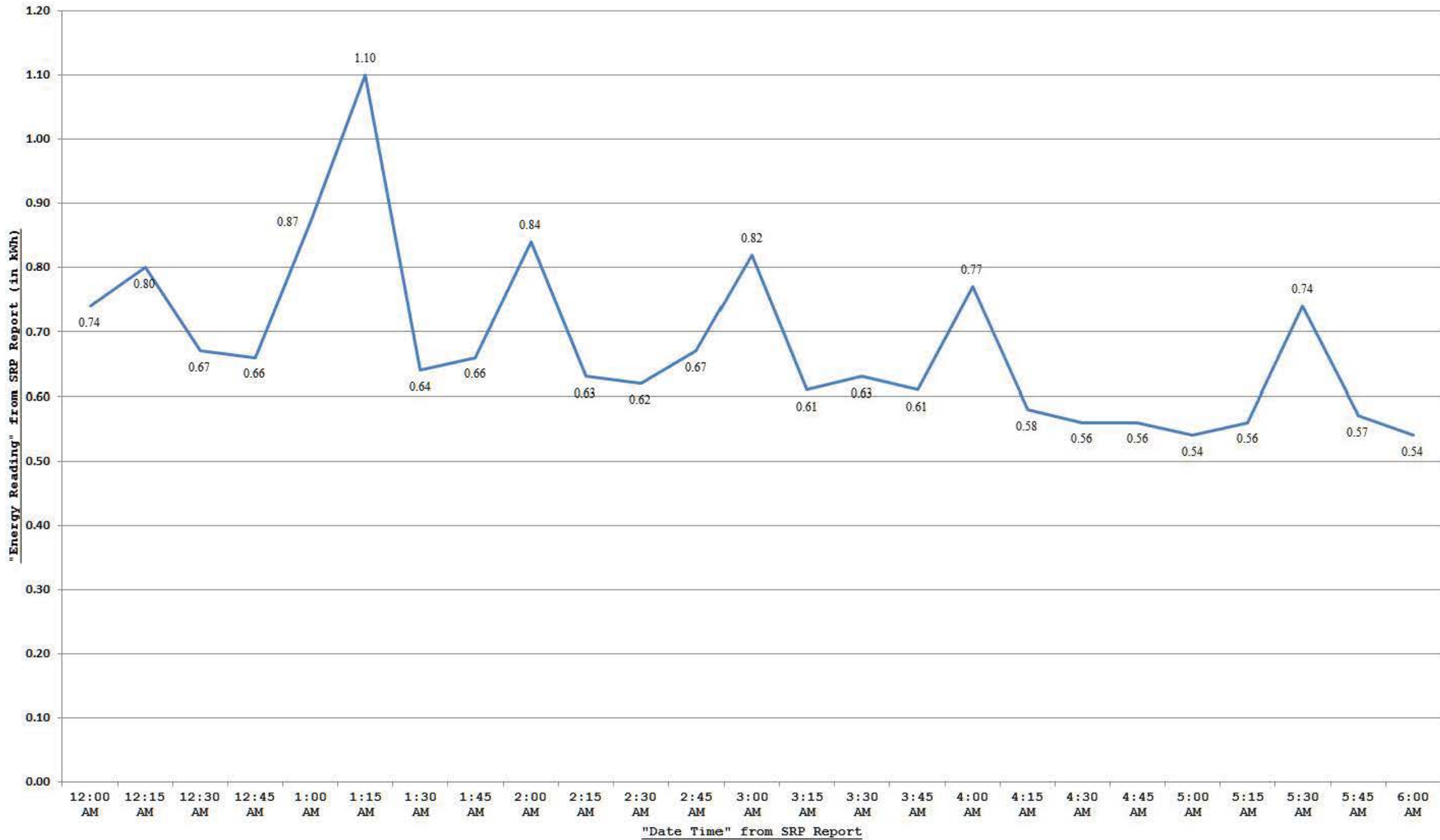
EXHIBIT A

WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

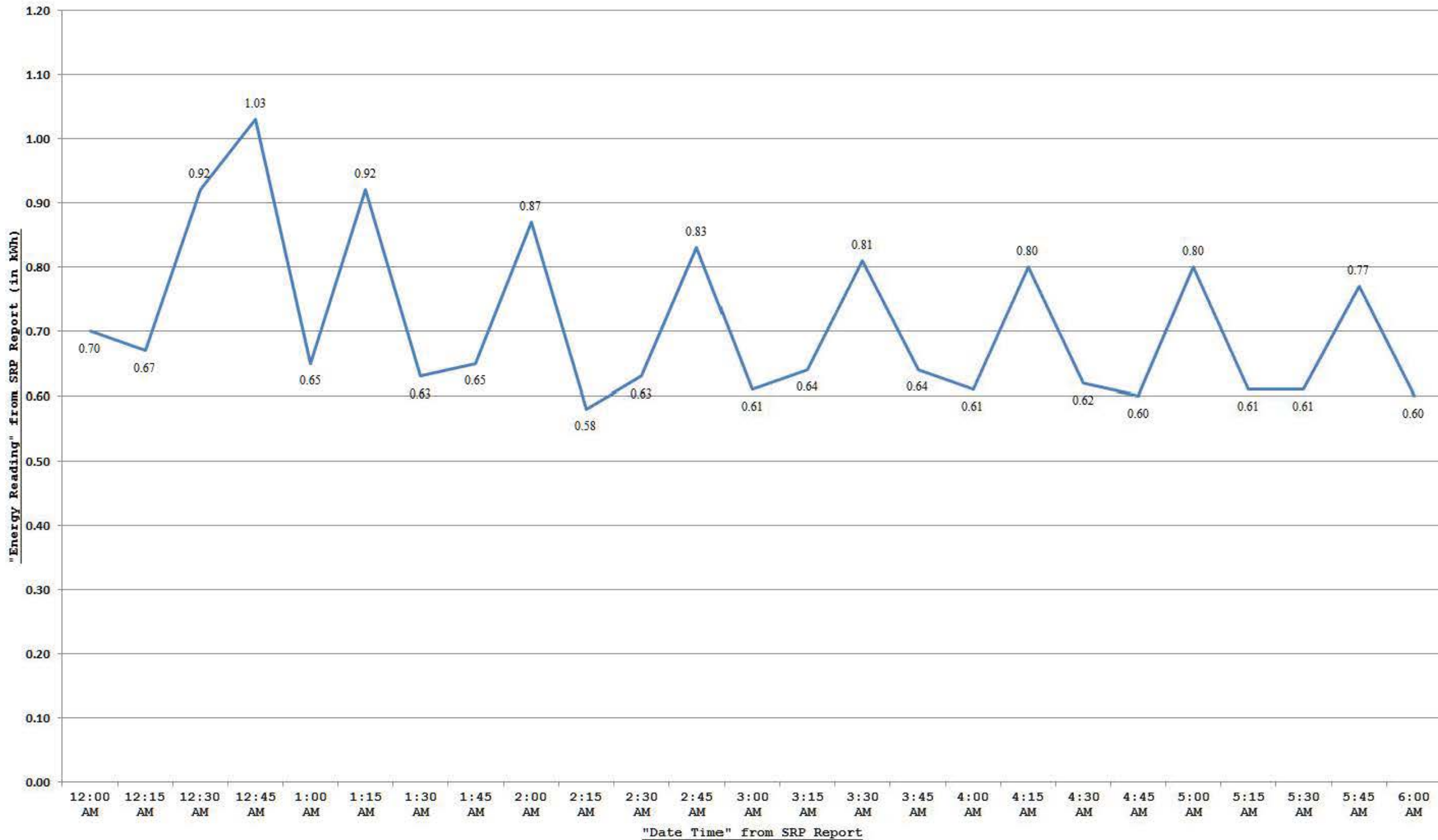
SRP Report "Energy Readings"
for June 15th, 2014



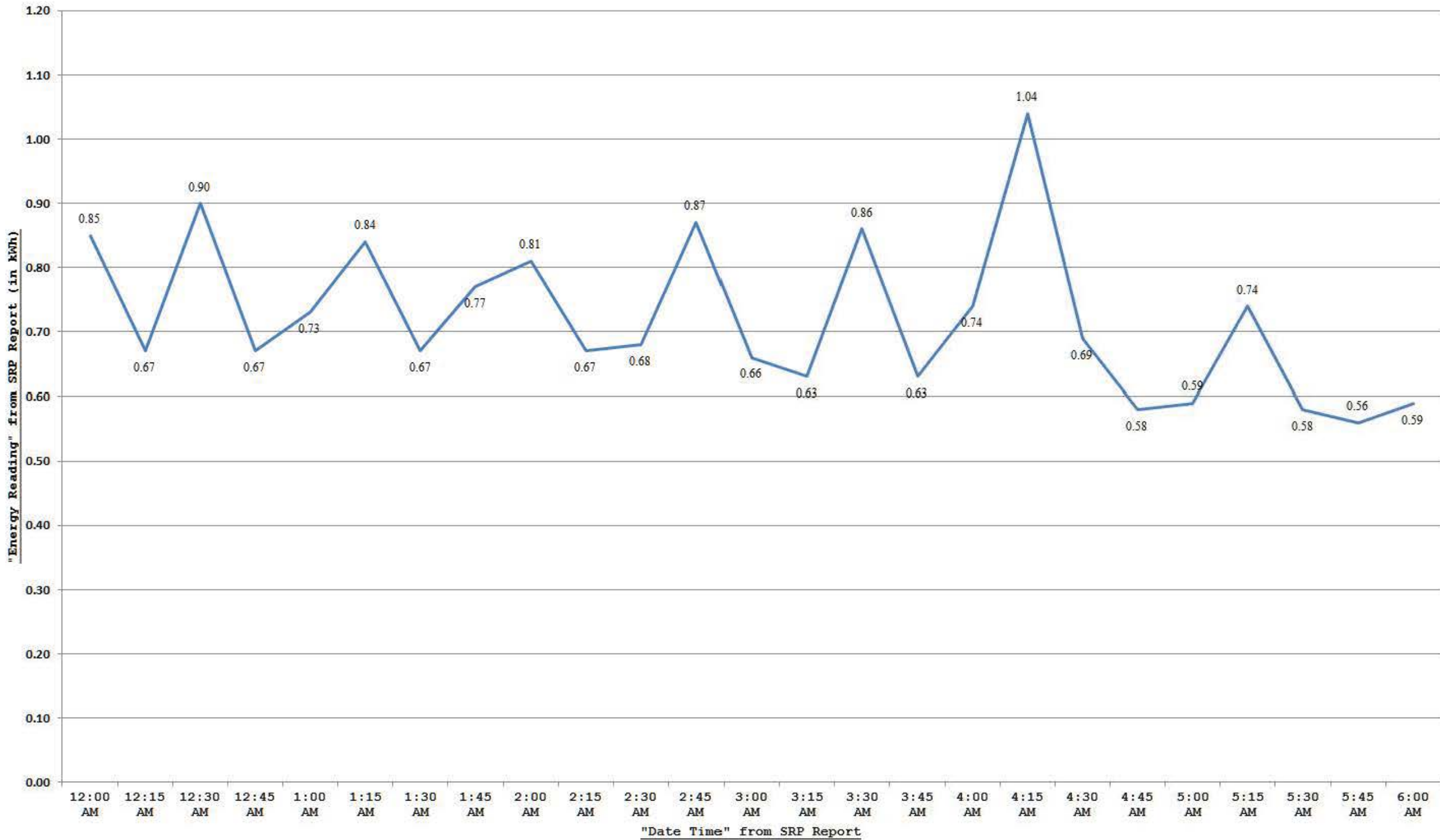
SRP Report "Energy Readings"
for June 16th, 2014



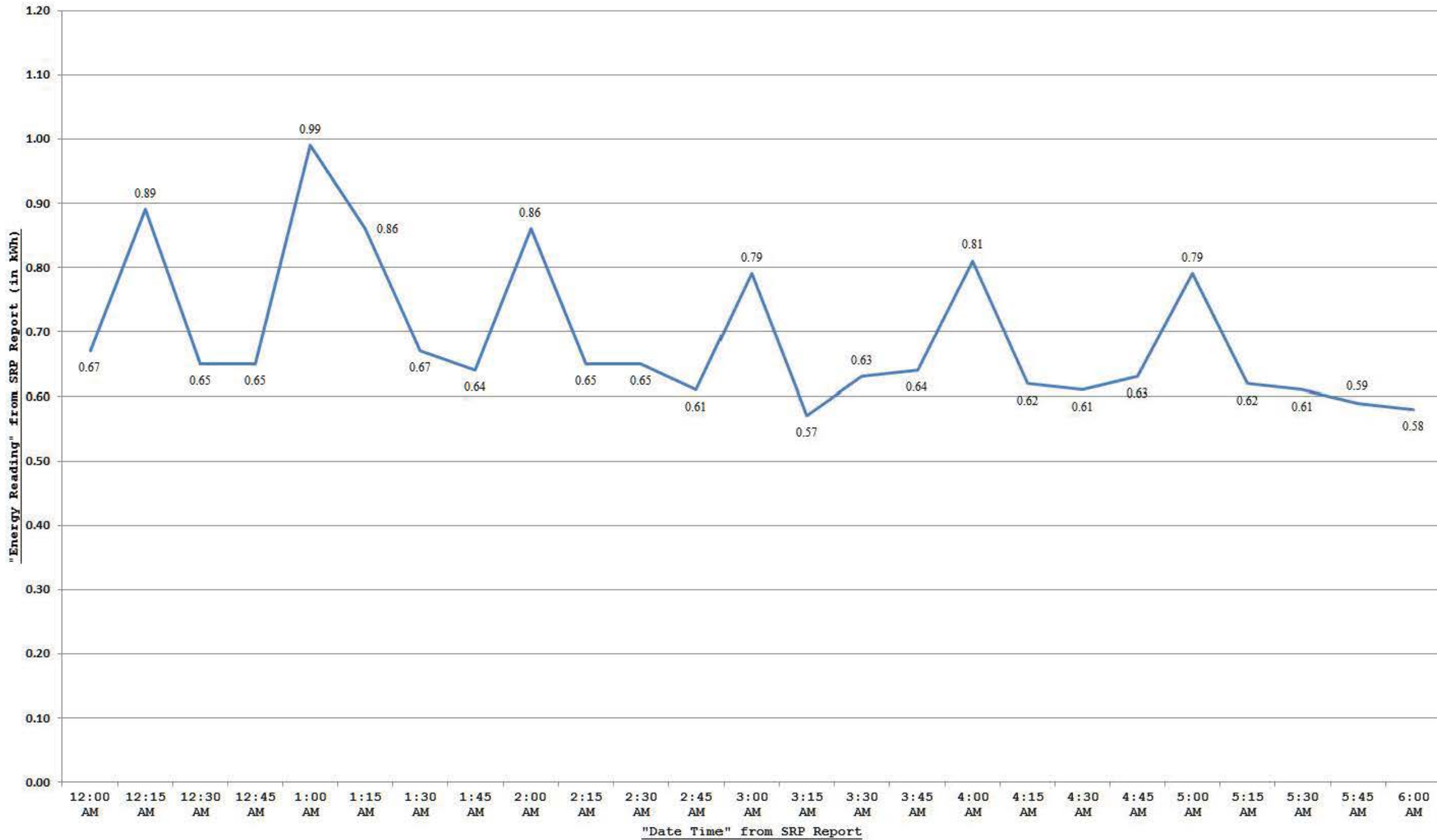
SRP Report "Energy Readings"
for June 17th, 2014



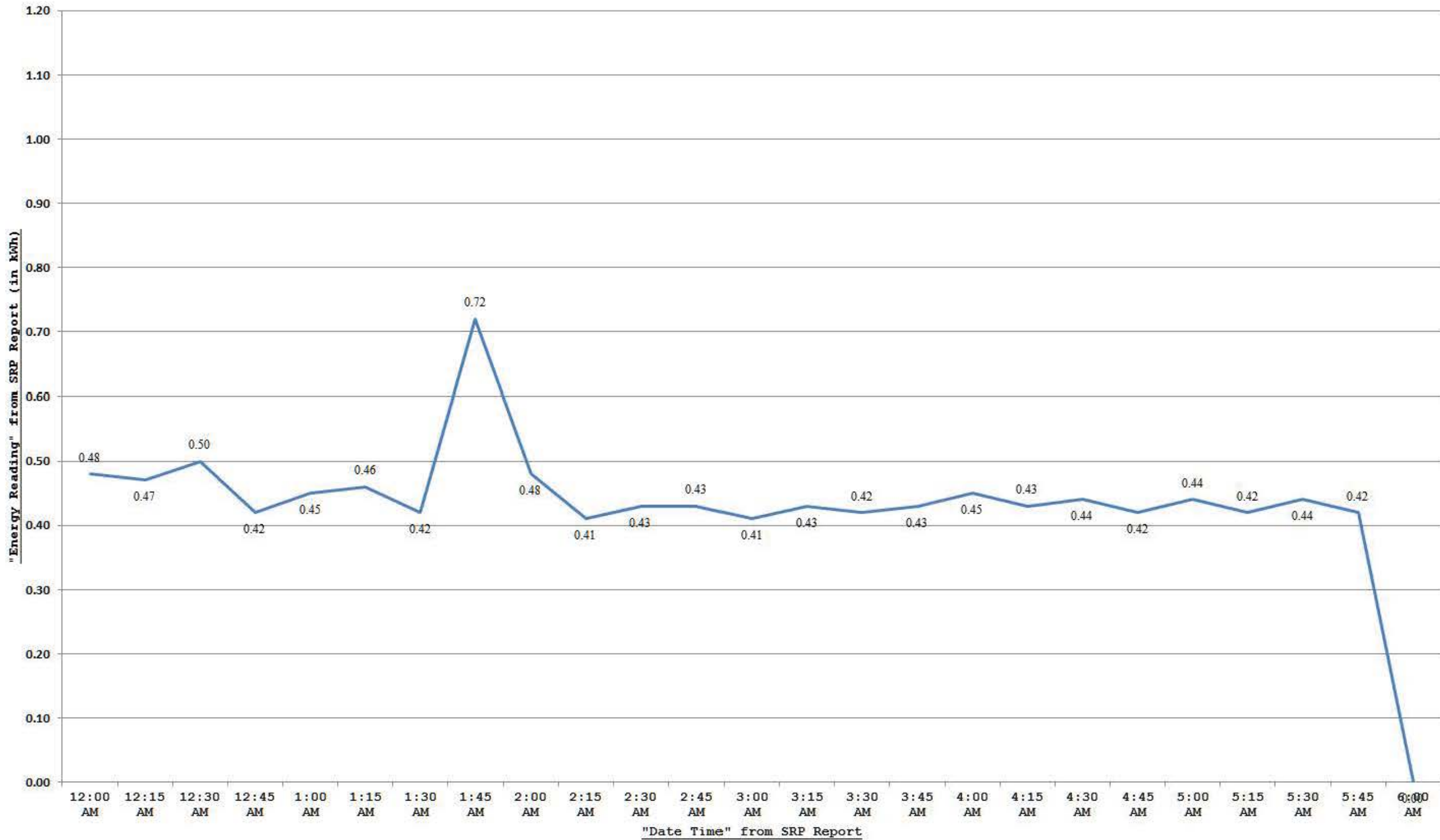
SRP Report "Energy Readings"
for June 18th, 2014



SRP Report "Energy Readings"
for June 19th, 2014



SRP Report "Energy Readings"
for June 20th, 2014



MARICOPA COUNTY SHERIFF'S OFFICE
SUPPLEMENTAL REPORT

Occurrence Type: Animal Cruelty
Occurrence Location: 15723 E Appleby Rd Gilbert, AZ 85298
Occurrence Date: 06/21/2014

DR #:14-014274

Occurrence Location: 3325 W Durango Phoenix, AZ

Occurrence Date / Time: 07/16/2014 at about 0847 hours

Investigator: Kalinowski S1800

Subject: Telephone contact with SRP employee Wyla Mckay

Narrative:

On 07/16/2014 at about 0847 hours I spoke with Wyla Mckay on the telephone about information within the SRP records I received.

In the records on 06/20/2014 at about 0600 hours until 06/20/2014 at about 1045 it shows a "0" in the energy reading column for 15723 E Appleby Rd. Prior to about 0600 and after about 1045 hours the energy reading appeared consistent with previous days during the same time.

I previously asked Wyla to check for power outages in the area. When I spoke with her on 07/16/2014 Wyla told me there were no outages in the area or at 15723 E Appleby Rd.

Nothing further.

AFFIDAVIT OF WAYNE WISDOM

STATE OF ARIZONA)
) ss.
County of Maricopa)

I, Wayne Wisdom, being first duly sworn upon my oath, depose and say:

1. I am the Director of Electric System Operations for Salt River Project ("SRP"), and I am authorized to make the statements herein on its behalf. I am a registered professional engineer in the State of Arizona.

2. I have reviewed the energy usage readings for the property located at 15723 E. Appleby Road, Gilbert, Arizona (meter #3288889), which is marked as CR 2014-002799 002253 - 002266 (the "SRP Report") and attached as Exhibit "A" hereto.

3. In the SRP Report for June 20th, 2014, the energy readings between 12:00 AM and 6:00 AM are not similar to the energy readings on previous days during the same time, or with following days during the same time. The energy readings between 12:00 AM and 6:00 AM on June 20th, 2014 are lower.

4. The energy usage between the hours of 12:00 AM and 6:00 AM on June 20th was 10.34 kilowatt-hours (kWh).

5. The energy usage between the same hours on June 19th was 16.61 kWh.

6. The energy usage between the same hours on June 18th was 17.17 kWh.

7. The energy usage between the same hours on June 17th was 17.10 kWh.

8. The energy usage between the same hours on June 16th was 16.25 kWh.

9. The energy usage between the same hours on June 15th was 15.10 kWh.

10. Based on the above, the average energy usage between 12:00 AM and 6:00 AM from June 15th to June 19th was 16.45 kWh, which is 6.11 kWh higher than energy usage between the same hours on June 20th.

11. The energy usage between the same hours on June 21st was 16.42 kWh.

12. The energy usage between the same hours on June 22nd was 19.81 kWh.

13. The energy usage between the same hours on June 23rd was 19.94 kWh.

14. The energy usage between the same hours on June 24th was 13.13 kWh.

15. The energy usage between the same hours on June 25th was 12.69 kWh.

16. Based on the above, the average energy usage between 12:00 AM and 6:00 AM from June 21st to June 25th was 16.40 kWh, which is 6.06 kWh higher than energy usage between the same hours on June 20th.

17. In addition, as reflected on Exhibit "A," the energy readings both prior to and after June 20th between 2:00 AM and 6:00 AM reflected cycling. However, the energy readings between 2:00 AM and 6:00 AM on June 20th were not cycling.

18. There is no record by SRP of a power outage in the area of 15723 E. Appleby Road on June 20th, 2014.

19. The above observations indicate a decrease in electrical usage between 12:00 AM and 6:00 AM on June 20th, as well as a change from cycling to non-cycling energy usage between 2:00 AM and 6:00 AM on June 20th, as compared with both the previous and following days that are shown on Exhibit "A."


20. The above observations indicate a change from cycling energy usage to non-cycling energy usage between 2:00 AM and 6:00 AM on June 20th, as compared with both the previous and following days that are shown on Exhibit "A."

I have read the foregoing Affidavit and the statements made therein are true and correct to the best of my knowledge, information, and belief.

FURTHER AFFLIANT SAYETH NAUGHT.


Wayne Wisdom

SUBSCRIBED AND SWORN to before me this 12 day of November, 2014 by




Notary Public

My Commission Expires:

3/27/2017



DECLARATION OF TOM STONE

I, Tom Stone, make this Declaration of my own knowledge, and I am competent to testify to the matters contained herein.

1. I am a professional licensed mechanical engineer who specializes in HVAC analysis.

2. I have reviewed the energy usage readings for the property located at 15723 E. Appleby Road, Gilbert, Arizona (meter #3288889), which is marked as CR 2014-002799 002253 - 002266 (the "SRP Report").

3. I have reviewed the "Engineering Examination and Analysis Report #1" that is marked as CR2014-002799 00654 – 00701 (the "EE Report"). The EE Report states that the HVAC unit which serviced the room in which the dogs were kept was a "2 ton Rheem HP model #RQMA-A024JK" (hereinafter referred to as the "AC Unit")(page 17 of the EE Report).

4. The SRP Report clearly indicates that the AC Unit was not "working and on" for several hours between 12:00 AM and 5:30 AM on the morning of June 20th.

5. The SRP Report shows that energy usage between 12 AM and 6 AM on June 20th was 6.11 kWh lower than average energy usage during the same hours on the previous five days (June 15th to June 19th). The usage between 12 AM and 6 AM on June 20th was also 6.06 kWh lower than the average energy usage during the same hours on the following five days (June 21st to June 25th).

6. The decrease in the amount of energy usage between 12:00 AM and 5:30 AM on the morning of June 20th as shown in the SRP Report is consistent with the energy that would have been used by the AC Unit during that same time period.

7. The SRP Report also shows that energy usage on the days previous to and following June 20th is very cyclical between the hours of 12 AM and 6 AM. The cycles

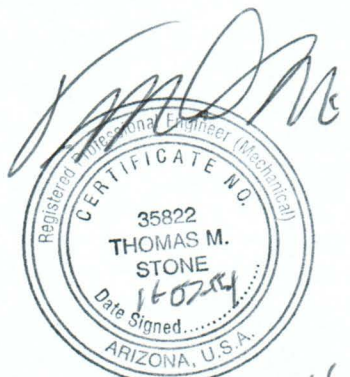
1 that I observed are clearly consistent with the AC Unit turning on and off between those
2 hours, on an hourly or semi-hourly basis.

3 8. The energy usage on June 20th between 12 AM and 6 AM is flat except for
4 one cycle that is less than an hour long and peaks at 1:45 AM. This is consistent with the
5 AC Unit running only one cycle between those hours and turning off at around 2:00 AM.

6 9. The SRP report clearly indicates that the AC Unit was not "on, all night"
7 between 12:00 AM and 5:30 AM on June 20th.

8 I declare under penalty of perjury under the laws of the State of Arizona that I
9 have read the above Declaration, am familiar with its contents, and know the same to be
10 true and correct of my own personal knowledge.

11
12 
13 Tom Stone



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1. I am a professional licensed mechanical engineer who specializes in HVAC analysis.

3. I have also reviewed the “Engineering Examination and Analysis Report #1” by George Hogge that is marked as CR2014-002799 00654 – 00701 (the “EE Report”).

4. I have also reviewed weather reports for the Gilbert area around the time of the incident on June 20th, 2014.

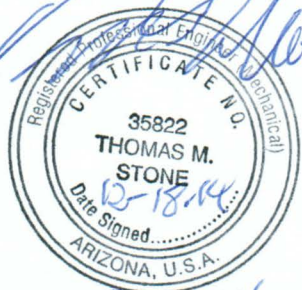
5. I have also reviewed energy usage readings for the Property, which are marked as CR 2014-002799 002253 - 002266 (the “SRP Report”). As I stated in my Declaration signed November 7, 2014, the SRP Report clearly indicates that the AC Unit was not “working and on” for several hours between 12:00 AM and 5:30 AM on the morning of June 20th. Electrical usage was not cycling, and the usage during those hours was around 40% lower than it was on average during same hours on the previous five days. Further, weather reports indicate that the ambient temperature on June 20th was hotter than the previous days.

6. Based on my inspection of the Property and analysis, the only possible

1 cause for the drop in electrical usage and the non-cycling electrical usage reflected in the
2 SRP Report is that the air conditioning unit which serviced the room in which the dogs
3 were kept froze up and shut down on the morning of June 20th, 2014.

4
5 7. The drop in usage begins at approximately midnight, and it is most likely
6 that the air conditioning stopped functioning at that time. There is a peak in usage
7 between approximately 1:30 and 2:00 AM; but given that this peak is around the baseline
8 of normal usage, this peak was more likely caused by another source of electricity in the
9 home such as the other air conditioning unit. It is certain that the air conditioning unit in
10 the "dog room" was not running after 2:00 AM, and it is most likely that it shut down at
11 around 12:00 AM.
12

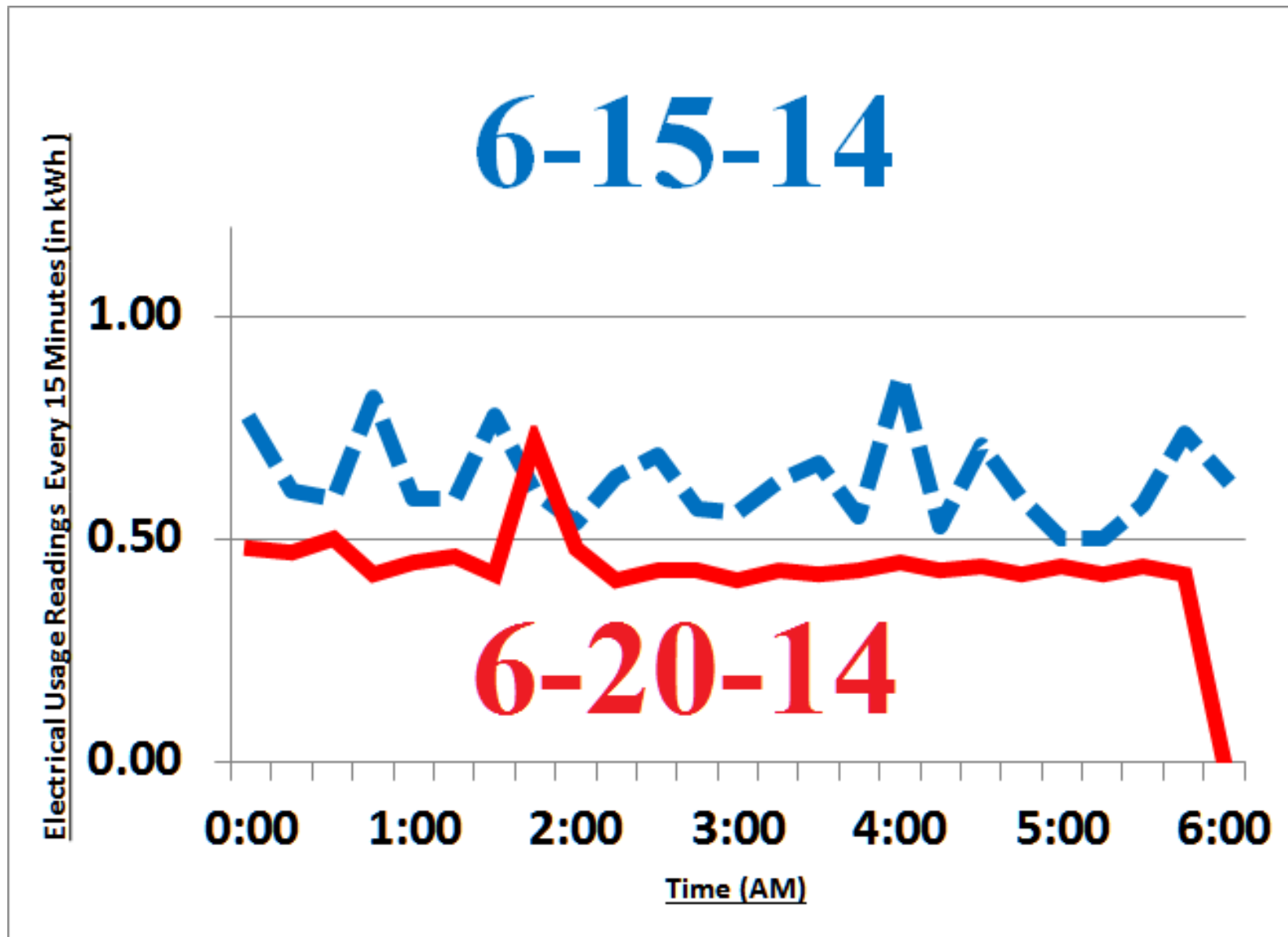
13 I declare under penalty of perjury under the laws of the State of Arizona that I
14 have read the above Declaration, am familiar with its contents, and know the same to be
15 true and correct of my own personal knowledge.
16



Handwritten signature of Tom Stone

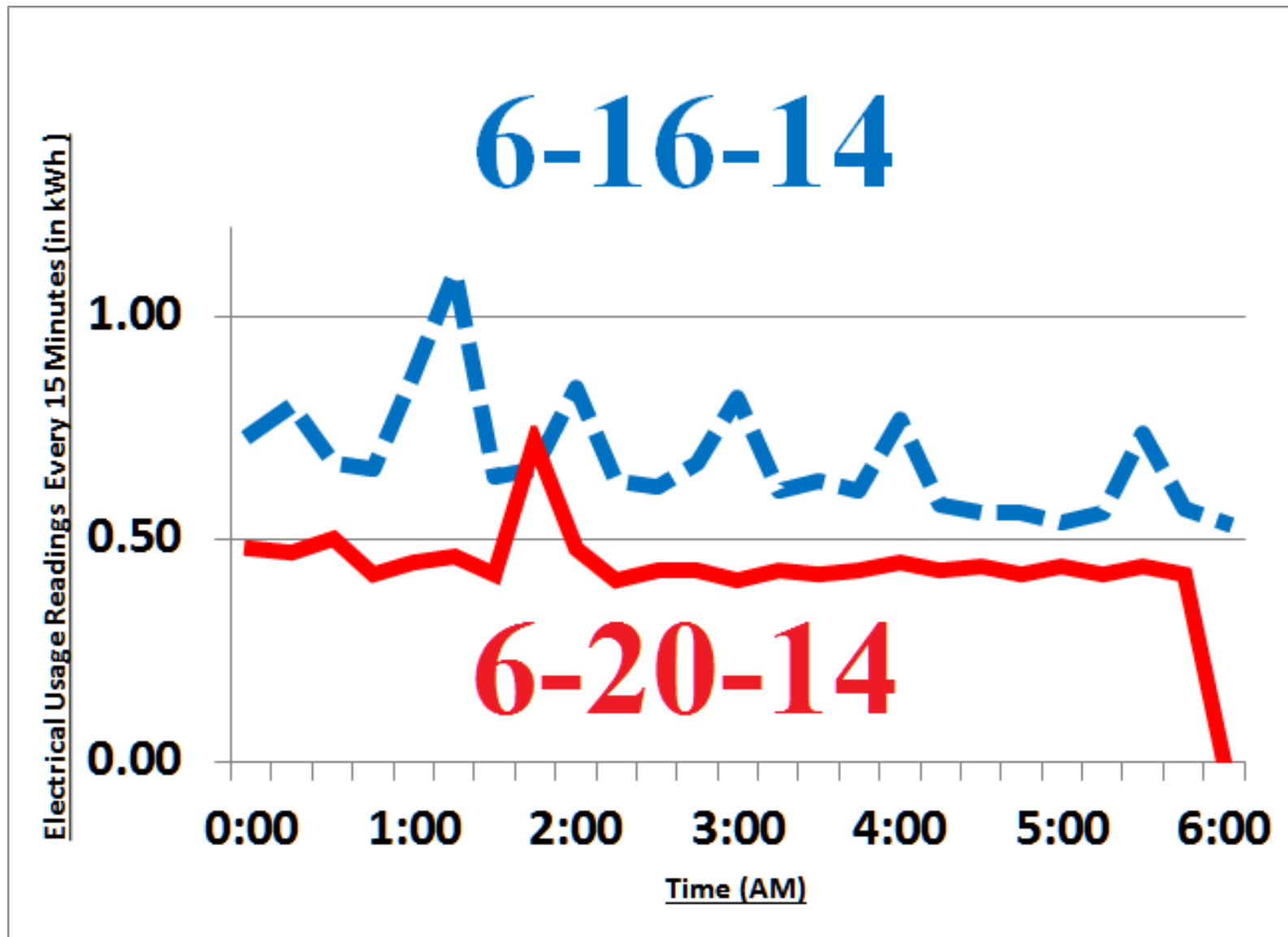
Tom Stone

12-18-14
Date



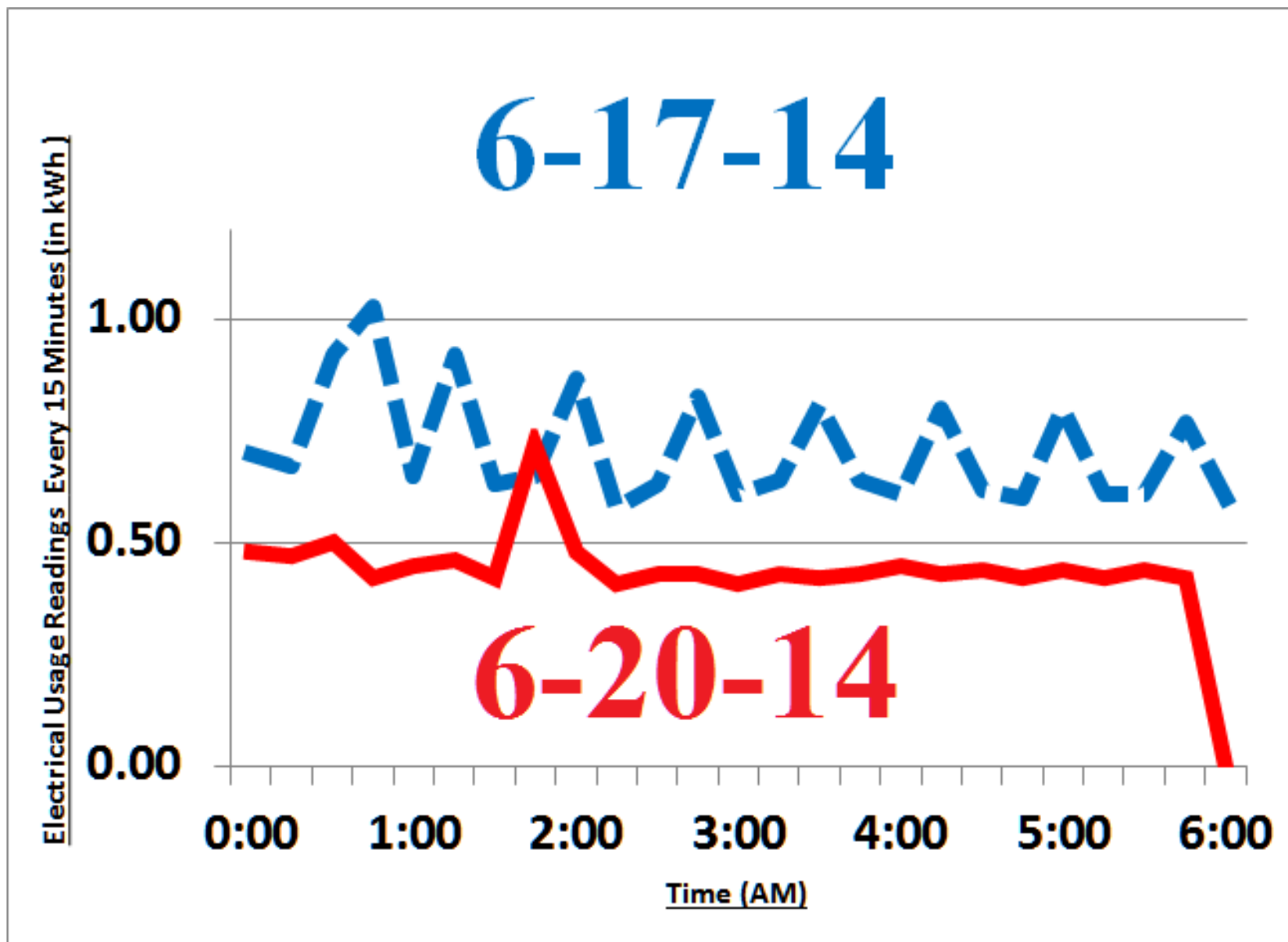
Prosecutor: So the SRP report shows that the air
was working fine all night?

Trombi: Yes.



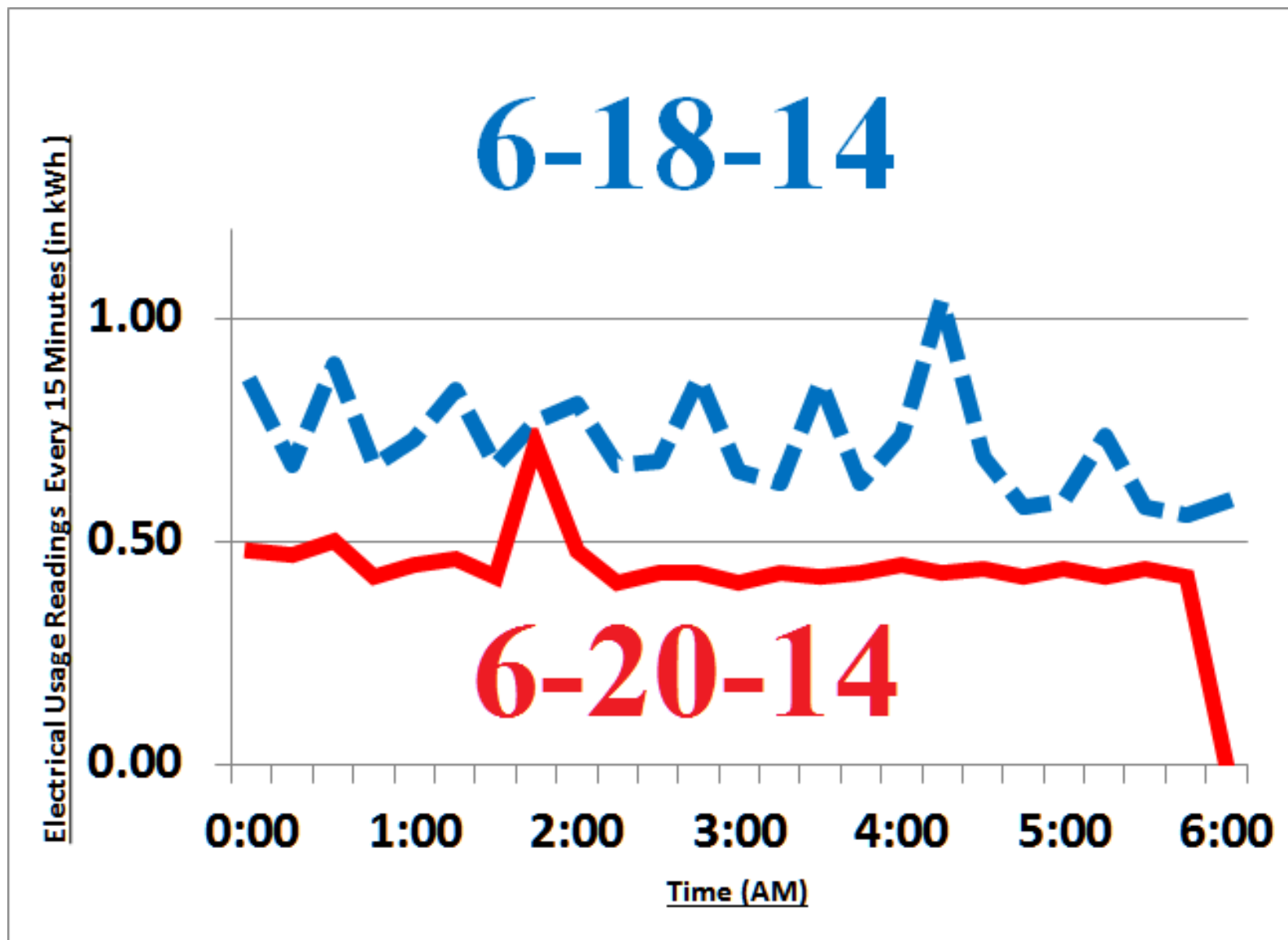
Prosecutor: In fact, that dog room,
that **air was working all night?**

Trombi: **Yes.**



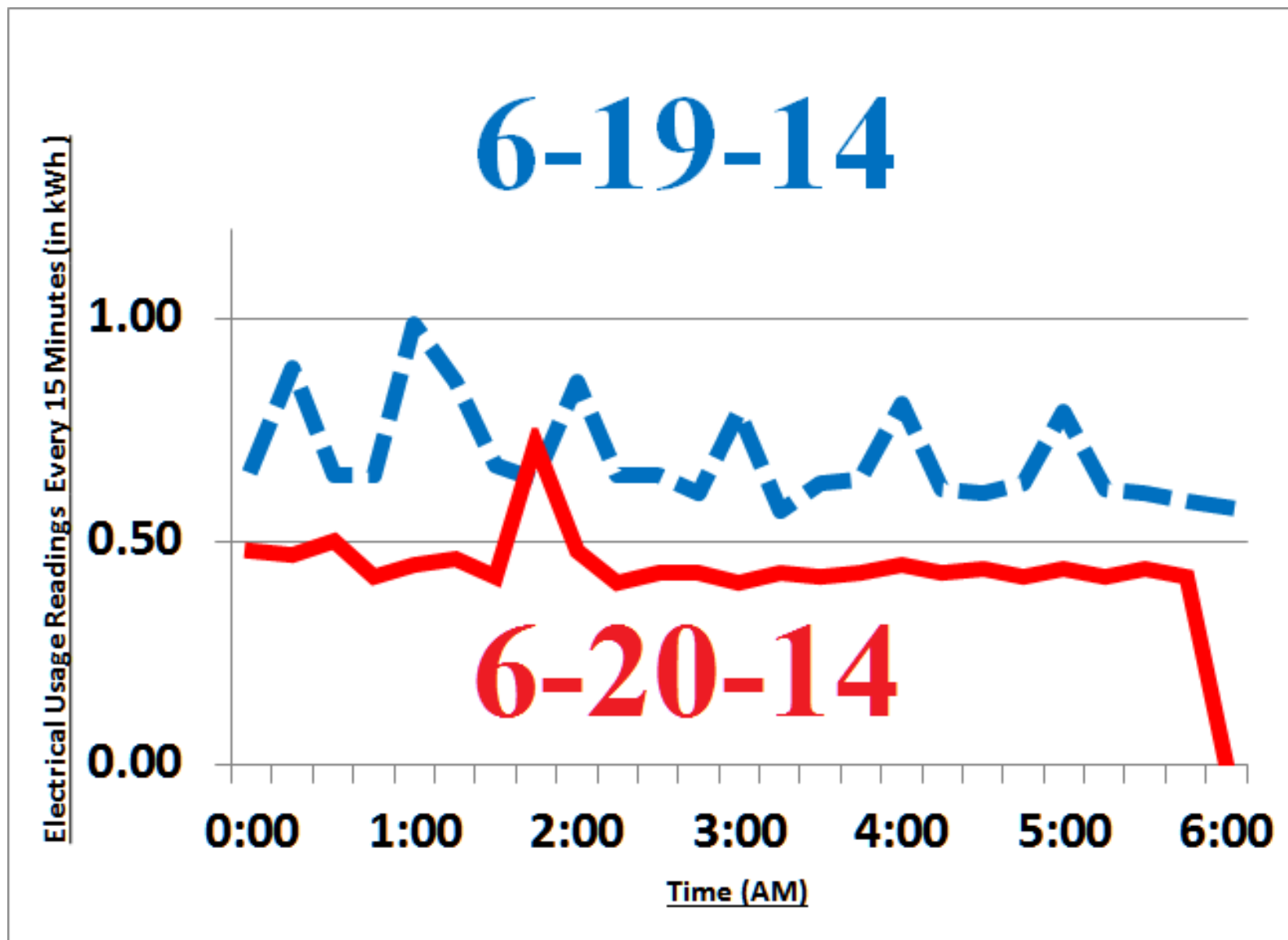
Prosecutor:...[I]t was working?

Trombi: It was working.

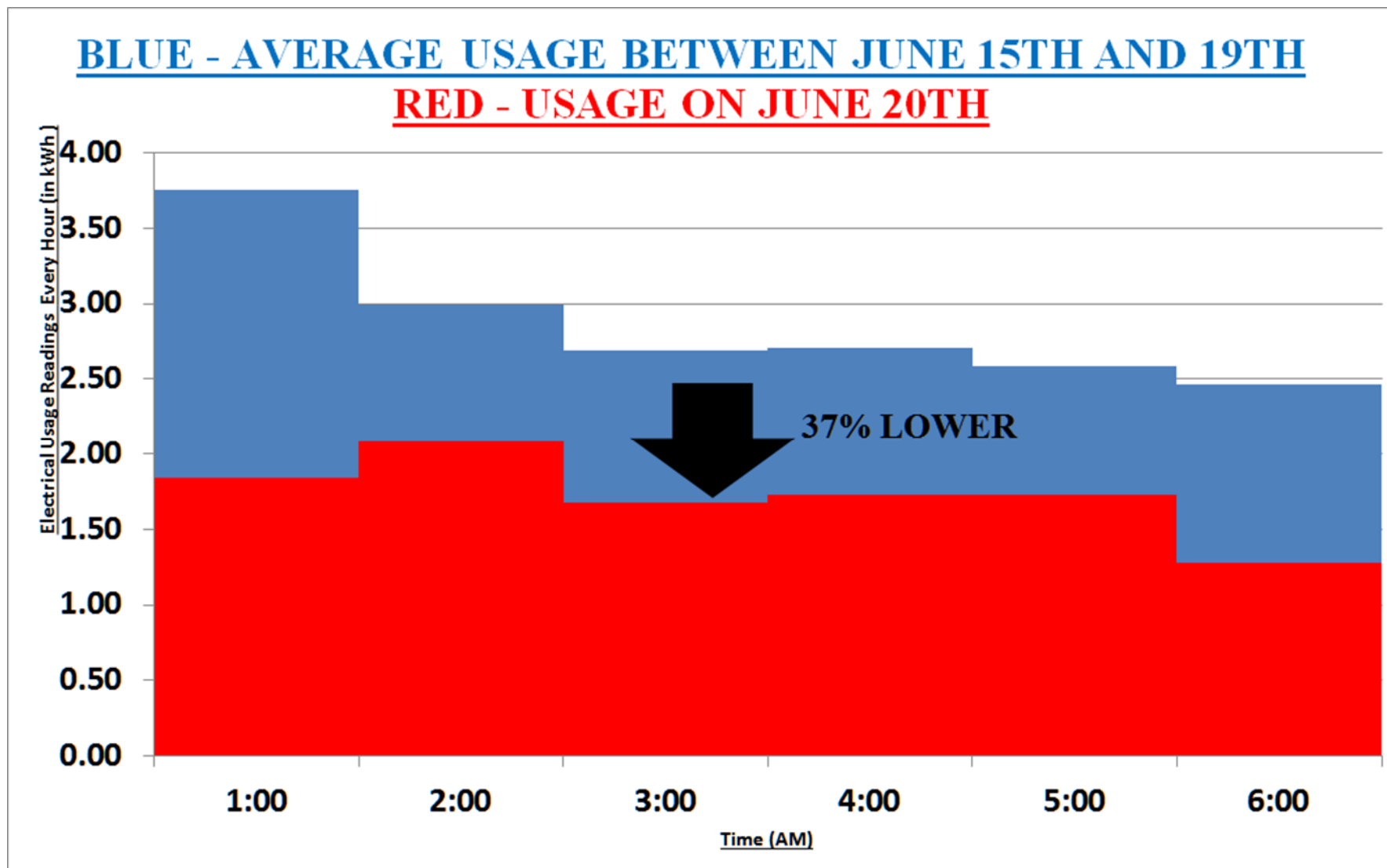


Grand Juror: So the air was **working and on until 5:30** that morning when he tried to fix it, Austin Flake tried to fix it, correct? **That's what SRP said?**

Det. Trombi: **That's going by the SRP records, yes.**



Grand Juror: That it was on?
Trombi: It was on, all night.



Grand Juror: All night?
Trombi: All night.

“The SRP Report clearly indicates that the AC Unit was **not** ‘on, all night’ between 12:00 AM and 5:30 AM on June 20th.”

—Declaration of Tom Stone

“[T]he HVAC system was neglected as to maintenance including the most basic requirement of **changing the filter**. A plugged air filter will cause a number of problems with an HVAC unit besides poor airflow and poor cooling, including the **very likely** condition of freezing up the indoor coil (evaporator coil) **which will block all the airflow and render the unit completely ineffective**.”

—Report by George Hogge, State’s Expert

EXHIBIT B

WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —

EXPERT CONSULTATION REPORT

Prepared by:

Dr. Melinda Merck

Veterinary Forensics Consulting, LLC

1101 West 34th St.

Suite 433

Austin, Texas 78705

Prepared for:

Dennis Wilenchik

The Wilenchik & Bartness Building

2810 North Third Street

Phoenix, Arizona 85004

Materials reviewed for the report:

- a) Dr. Mangone's Initial Summary
- b) Dr. Mangone's Final Summary
- c) Dr. Mangone's grand jury testimony transcript
- d) Necropsy photographs
- e) EFX report
- f) SRP Affidavit
- g) HVAC Expert Declaration – Tom Stone

Issues:

1. Dr. Mangone states that the cause of death was undetermined yet speculates on possible causes of heat stroke, hypoxia and hypercapnia. Heat stroke as a cause of death is often a diagnosis through the elimination of other causes and based on the alleged and/or known circumstances surrounding death. In heat stroke deaths of animals, it is common to find permanent rigidity of a portion of the leg or the entire leg, which can affect one or more legs of the animal. Dr. Mangone states that the bodies were frozen then thawed prior to necropsy being performed. In some of the necropsy photos it is obvious that at least some of the legs are stiff when the body was moved which is consistent with heat stroke findings. This is not due to rigor mortis which is the transient stiffening of the body muscles after death. Under high environmental temperatures rigor mortis will dissipate in 24 hours or less. It will dissipate faster with decomposition (significantly present according to Dr. Mangone) and with physical activity

such as can be seen during some stages of heat stroke. All of this supports that the leg stiffening seen on the necropsy photos is consistent with heat stroke as a cause of death.

2. Symptoms that can be associated with heat stroke include vomiting and/or diarrhea which may or may not be bloody. Though common, vomiting and diarrhea may not occur in every case of heat stroke. According to information provided by Mr. Dennis Wilenchik, the caretakers found a large amount of vomit and diarrhea on the floor when they entered the dogs' room on that Friday morning, June 20, 2014. In some of the necropsy photos dark red fluid can be seen around the mouth and on the forelegs which could be from vomiting but were not noted or described in Dr. Mangone's report. Evidence of diarrhea that could have been present around the anus or rear aspect of the body could not be assessed because no photos were taken of that area in the necropsied dogs. Dr. Mangone states that the 8 dogs necropsied later did not have food in the stomach or significant amounts of feces in the colon. Furthermore he speculates that this indicates the dogs were not fed or were underfed. He even goes on to suggest the caretakers intentionally withheld food to prevent soiling of the environment citing that the caretakers personal dog did have food in the stomach and some feces in the colon. There is no basis for those suggestions or statements. Dr. Mangone did not take into account the possibility of a *loss* of stomach and colon contents – i.e. through vomiting and diarrhea – which further supports the diagnosis of heat stroke. The fact that the buried dog still had food in the stomach and some feces could simply indicate that the dog did not have vomiting and diarrhea occur even with the heat stroke. It could also mean that the dog had a different or delayed gastric emptying time; or that the dog was fed at a later time than the other dogs. It does not indicate that it was the only dog to have received a meal in comparison to the other 8 dogs that were necropsied. In addition, Dr. Mangone states in his report that all of the dogs necropsied were 'in good flesh' indicating they were not showing physical signs of malnutrition.
3. There was no evidence of dehydration in the dogs that were necropsied. Dr. Mangone testified in grand jury that the presence of excess water inside the room would not have made a difference in the outcome. Furthermore, there is no evidence the dogs did *not* have access to water just prior to going into the room for the night.
4. Not all the dogs were necropsied – only 9 (one in the field). It would have been important to ascertain any grossly visible findings in *all* of the deceased dogs regardless of their decomposition state and the ability to collect viable samples for histopathology or toxicology. The necropsies would have been important to ascertain if other findings consistent with heat stroke were visible, evaluate gastrointestinal contents, and to determine if the individual dog had grossly visible evidence of any other condition that could have contributed to death. It was also noted in the necropsy photos that the dogs necropsied were not shaved to look for evidence of DIC (disseminated intravascular coagulation), i.e. evidence of small hemorrhages on the skin. These hemorrhages from DIC can be one of the findings associated with heat stroke.
5. Dr. Mangone cites the EFX report when addressing airflow and the possibility of decreased oxygen availability in the room. However, he fails to include the statements in the EFX report that it is *likely* the HVAC unit indoor coil would have frozen up due to the plugged air filter and

therefore have ceased operating. This would have resulted in rising environmental temperatures inside the room which provides more support to the diagnosis of heat stroke as the cause of death in the dogs.

6. In Dr. Mangone's grand jury testimony he suggests that a 'tipping point' occurred which caused the death of the large number of dogs due to heat stroke. Without foundation, he suggests there could have been another dog added versus the night before, or there could have been increased agitation such as two dogs getting into a fight (though he states later there was no evidence of dog fighting wounds on the bodies). This is speculation without evidence either of these occurred that night.
7. In grand jury, Dr. Mangone testified that the temperature in the room could have "felt like 100 degrees with those dogs panting" even if the HVAC system was working. This again is speculation and beyond the expertise of a veterinarian.
8. In his testimony, Dr. Mangone states the dogs would have been stressed *prior* to being placed in the room due to the number of dogs and their unfamiliarity with each other. This is pure speculation without foundation. Dr. Mangone has no knowledge of how the dogs interacted together on a daily basis nor their level of stress before being placed in that room. Dogs can also experience stress being placed alone into an individual cage or run. They are social animals and naturally form groups. They can have stress being isolated from other dogs. There is no way to know the presence or level of stress, if any, in these dogs prior to being placed in the room together.
9. The SRP Affidavit and the HVAC Expert Declaration by Tom Stone all support that the HVAC system stopped during the early hours of Friday, June 20, 2014.
10. According to information provided by Mr. Wilenchik from the caretakers, they entered the room where the dogs were to find approximately 20 dogs dead or near death and 4 dogs that appeared fine and walking. There was vomiting, diarrhea and urine all over the room and some of the dying dogs were vomiting, passing diarrhea and urinating. They started removing the dogs that were still breathing from the hot room to outside where it was cooler. Some of the dogs died while moving them out. They started putting water on the dogs that were still alive, then ice per the instructions of the owners of the boarding facility, in an effort to cool the dogs. They stayed with the dogs that were near death to comfort them and all but the 4 dogs that initially appeared fine died within an hour or so. Dr. Mangone testified that hosing a dog with water that is suffering from heat stroke was inappropriate. For the general non-veterinary population that would have been a reasonable reaction. In outdoor animal related events, such as fund raisers involving dog walking, it is common to see children's wading pools placed periodically filled with water for the dogs to get into and cool down. The reaction by the caretakers to use water on the dogs to help cool them was what one would expect a reasonable person to do to render immediate care to help the animal. In heat stroke, once a dog has collapsed the prognosis is guarded. It is unknown whether or not immediate veterinary care would have resulted in a different outcome for the dogs that appeared near death. The actions taken in such an

overwhelming situation by the caretakers of moving the bodies to cooler areas and efforts to cool their temperatures down on dogs that appeared close to dying were reasonable. In heat stroke cases, it is possible for the dog's body temperature to be internally high causing negative physiological changes and damage yet the dog appear normal externally (without clear symptoms of a problem or appear to recover), and then later collapse. This is consistent with what allegedly happened with the dog, Sonny, who appeared to the caretakers to be fine and then a few hours later collapsed and died.

Summary:

Based on the necropsy findings, photographs and the circumstances surrounding death of the dogs (i.e. SRP Affidavit, HVAC Expert Declaration, EFX report, Dr. Mangone's reports) the cause of death for these dogs was heat stroke. The reviewed documents support that the HVAC system was not operating during the early hours of June 20th which is consistent with the EFX statement that the HVAC system indoor coil would likely have frozen and stopped working. The difference in gastric contents and the presence of feces inside the colon between the necropsied dogs can be explained by the vomiting and diarrhea commonly associated with heat stroke. It cannot be stated that the difference is an indicator that only the 'family dog' was being fed. From Dr. Mangone's own report, all of the dogs were in 'good flesh' and showed no signs of malnutrition.

Based on the information provided by Mr. Wilenchik, the caretakers' actions upon findings the live, deceased, and near death dogs were reasonable and for those without veterinary medical training. They provided what they thought was appropriate first aid to alleviate suffering and then stayed with the dogs that were dying. With Sonny appearing to be what they thought was fine, there was no way for them to know he needed medical care. His delay of symptoms, collapse, and death are consistent with heat stroke.

This report was based on materials provided listed at the beginning. It would be helpful to review the standard photo log for the necropsy photographs, videos of the necropsy, histopathology reports and toxicology reports which have not been provided.



Dr. Melinda D. Merck

11/19/14

CURRICULUM VITAE

Melinda D. Merck, DVM

1101 West 34th St, Suite 433, Austin, Texas 78705
678-773-8014 catdvm@drmerck.com

EDUCATION

Michigan State University, 1984-1988
Doctor of Veterinary Medicine, Honors

Michigan State University, 1982-1984
Associates Degree of Veterinary Science

VETERINARY LICENSURE

State of Georgia, 1989
State of Florida, 1999

HONORS/AWARDS

Appreciation Award. May, 2010. Southern Association of Forensic Scientists.

Outstanding Investigation and Case Award. July, 2009. Organized Crime Drug Enforcement Task Force and Asset Forfeiture Program-Michael Vick Case: Bad Newz Kennels. U.S Department of Justice. Washington, D. C.

Public Service Award. Michael Vick Case-Bad Newz Kennels. United States Attorney's Office, April 2008

Award of Excellence, Dog Fighting Investigation. Michael Vick Case-Bad Newz Kennels. U.S. Office of Inspector General, April 2008

Angel Award, 3rd quarter 2007, ASPCA

Dog Writers Association Maxwell Award, Best General Reference Book (Forensic Investigation of Animal Cruelty: A Guide for Veterinary and Law Enforcement Professionals), 2007

Dog Writers Association Dogwise Award, Best Overall Book (Forensic Investigation of Animal Cruelty: A Guide for Veterinary and Law Enforcement Professionals), 2007

ASPCA, Grand Prize Winner of the Pet Protector Award, 2003 (Georgia Legal Professionals for Animals)

Spay Georgia, Veterinary Clinic of the Year, 2003

Cherokee County Humane Society, Golden Paw Award, 2002

Good Mews Animal Foundation, Service Recognition Award, 1997

Magna cum Laude, Doctor of Veterinary Medicine, Michigan State University, 1988

CURRENT EMPLOYMENT

Veterinary Forensics Consulting, LLC, Atlanta, Georgia
Owner, Consultant for Animal Cruelty Investigations 2006-Present

Research Associate Centre for Forensic Research. Simon Fraser University, Vancouver, British Columbia 2014-Present

Consultant for the Humane Society of the United States, Washington, D.C.
Veterinary Forensic Analysis and Expert Witness Testimony 2007-Present

Consultant for Dekalb County Animal Services, Decatur, Georgia
Veterinary Forensic Examinations and Expert Witness Testimony 2007-Present

Consultant for Gwinnett County Animal Services, Lawrenceville, Georgia
Veterinary Forensic Examinations and Expert Witness Testimony 2003-Present

EDITOR

Veterinary Record, UK. Guest reviewer, 2014-Present

Source Journal of Veterinary Science, Brazil, 2014-Present

Clinician's Brief, Editor of *Forensic Cases*, 2013-Present

Today's Veterinarian, Consulting Editor, 2012-Present

Journal of Forensic Sciences, American Academy of Forensic Sciences
Guest Reviewer, 2011-Present

MEDIA CONSULTING

Consultant for Entertainment Industries Council, 2012 to present

Consultant for writers of CBS "CSI" show, dog fighting episode 2007.

PROFESSIONAL OFFICES

North American Veterinary Community
Vice President 2014-present; Board Member 2010-2014

World Small Animal Veterinary Association, Animal Wellness and Welfare Committee
2013-present

International Veterinary Forensic Sciences Association
Board Member 2011-2014, Founding Chair of Board, 2008-2011

Georgia Legal Professionals for Animals
Vice President of Veterinary and Forensic Affairs, 2003-Present

PREVIOUS EMPLOYMENT

American Humane Association, Denver, Colorado
Trainer: Disaster Sheltering, Basic Emergency Response
May 2011-2012

ASPCA, New York, New York
Senior Director of Veterinary Forensic Sciences. 2006-2011
Consultant on national and international animal cruelty cases providing veterinary forensic examinations of animals, analysis of crime scenes, and expert witness testimony

University of Florida, Gainesville, Florida
Adjunct Assistant Professor, Veterinary Forensic Medicine, Small Animal Clinical Sciences, College of Veterinary Medicine. 2009-2011

Consultant for New York State Police, Albany, New York
Veterinary Forensic Examinations and Expert Witness Testimony 2009-2011

Consultant for Gwinnett County Solicitor's Office, Lawrenceville, Georgia
Veterinary Forensic Examinations and Expert Witness Testimony 2004-2009

Consultant for Fulton County District Attorney's Office, Atlanta, Georgia
Veterinary Forensic Examinations and Expert Witness Testimony 2002-2010

The Cat Clinic of Roswell
Roswell, Georgia
Owner, 1990-2006

The Cat Doctor
Atlanta, Georgia
Associate Veterinarian, 1989-1990

Brighton Animal Hospital
Brighton, Michigan
Associate Veterinarian, 1988-1989

CAREER STATEMENT

Since 2003 my career has focused on the development of veterinary forensic science. With this work I have worked extensively with shelter medicine experts to incorporate this new field into the shelter medicine training. Shelter medicine is a core discipline in the medical management of cruelty cases, especially the large scale cases which require the construction of temporary shelters. Most of my work in the field has been with large scale cruelty cases as well as disaster sheltering. I have worked with community shelters providing training which requires an understanding of shelter issues. I have worked with veterinary colleges to provide veterinary forensic science as part of the curriculum through their shelter medicine programs. Prior to working exclusively in forensic medicine, I owned The Cat Clinic of Roswell for over sixteen years which became one of the largest and most respected feline practices in Atlanta with a staff of nineteen. Throughout that time I worked with animal shelters and rescue groups around metro Atlanta offering veterinary services, forensic expertise, and assistance with shelter protocols and designs.

Prior to my work there was little information published on the subject except for a series of articles from Scotland identifying the Battered Pet Syndrome. Veterinary forensic science incorporates multiple disciplines of the forensic sciences and their application to legal cases involving animals. My focus has been on the development of animal crime scene investigation and processing procedures, recognition and documentation of physical signs associated with abuse, gross pathology and forensic necropsy techniques, the development of the new field of animal forensic osteology, and the identification of forensic testing for animals. I have collaborated with a variety of forensic scientists to apply their areas of expertise to animals through case work, research and training. I have also worked extensively with prosecutors and law enforcement to provide education and training in this new area. I have a deep commitment to education and the advancement of this field including facilitating research in veterinary forensic sciences. I have achieved these goals through several projects and endeavors:

- Consulting with veterinarians, investigators and prosecutors on animal cruelty cases nationally and internationally
- Providing lectures and workshops to the veterinary community, investigators and prosecutors on both a national and international level
- Providing guest lectures for existing veterinary and veterinary technician college courses
- Development of veterinary forensic medicine courses at University of Georgia College of Veterinary Medicine (2nd course to be offered in the U.S.) and University of Florida College of Veterinary Medicine (3rd course to be offered in the U.S.)
- Worked with veterinary pathologists at universities on establishing standard operating procedures for handling cruelty case submissions and forensic report writing and the development of forensic pathology residency programs
- Publication of the first veterinary textbook on Veterinary Forensics (used as course textbook at University of Georgia, University of Florida, Purdue University in the U.S. and for the veterinary forensic medicine course in Sao Paulo, Brazil) with the 2nd edition published in January 2013

- Development and Editor of the Forensic Case-Based articles for Clinician's Brief
- Written articles and chapters on veterinary forensic medicine, served as a reviewer for animal forensic related articles for the Journal of Forensic Sciences and Today's Veterinarian
- Formation of the International Veterinary Forensic Sciences Association which holds the only annual meeting devoted exclusively to this topic, serving as the founding Chair of the Board
- Development of the annual Animal CSI program for the North American Veterinary Conference (one of the largest international veterinary conferences in the world) including wet labs, Meet the Professor Luncheons, Master Classes, and evening feature programs
- Developed the first Animal CSI workshops on animal burial detection and exhumation
- Assisted with the proposal and development of the ASPCA Veterinary Forensic Sciences program at University of Florida which was designed to be a collaborative veterinary forensics program through the university's existing forensics programs and included the development of online Masters level courses
- Member of the Organizing Committee for Shelter Medicine Board Certification specialty, under ABVP (scheduled for final approval 2014), responsible for writing board questions
- Collaborated with the American Association of Forensic Sciences Past President, Dr. Joseph Bono, on the incorporation of veterinary forensic science into the American Academy of Forensic Sciences program, providing the first workshop on Veterinary Forensic Sciences, and acceptance of veterinarians into membership of AAFS
- Collaborated on a grant for University of Florida's Shelter Medicine Program to incorporate forensic training to shelter medicine residents (first program of its kind in the U.S.)
- Assisted the Dean of the Law School at University of Florida with a grant application to develop animal law program
- Working with college, veterinary, masters, and PhD students on research projects
- Developed the use of thermographic imaging (FLIR) on animal cruelty victims to detect occult blunt force trauma
- Documented the first conclusive findings of dog fighting and hanging on skeletal remains
- Development of the first dog fighting DNA database, Canine CODIS, at University of California, Davis
- Design and development of the first Mobile Animal CSI Units for the ASPCA
- Initiated a Safe Haven Program with the Wellington veterinary community and the Wellington RSPCA
- Trained in burial detection and excavation, forensic osteology, and blood stain pattern analysis after which I was accepted as a member of the International Association of Blood Stain Pattern Analysts
- I have conducted extensive field work coordinating, organizing and leading large forensic teams for animal investigations. These include participating in several high profile cases, many of which received international attention, including the Michael Vick dog fighting case (U.S. Federal case 2007), the multi-state dog fighting raid (U.S. Federal case 2009; 25 scenes processed in Missouri), 2nd largest cockfighting raid in Florida history (600 birds, 2010), the puppy torture case in Atlanta, Georgia (2006), the Sled Dog Killing case in Whistler, British Columbia (2011), and the Vancouver Cat Mutilations case (2012)

PUBLICATIONS

“Clinical Management of Large-Scale Cruelty Cases”. Population Management Section, Editors Brenda Griffin and Brian DiGangi. August’s Consultations in Feline Internal Medicine, Volume 7. Editor Susan Little. Saunders. (In press)

“Intro to Forensics in Reptiles and Amphibians”. Co-Author Doug Mader. Current Therapy in Reptile Medicine and Surgery. Editors Doug Mader and Stephen Divers. Elsevier. 2014.

Veterinary Forensics: Animal Cruelty Investigations, 2nd Edition. Editor and Contributing Author Melinda Merck. Wiley Publishing. 2013.

“Forensic Examination of the Deceased Victim”. Shelter Medicine. Wiley-Blackwell Publishing. Editors Lila Miller and Stephen Zawitowski. 2013.

“The Unsung Heroes: Altruism at its Finest”. Editorial. Clinician’s Brief. September 2012.

“The New Frontier of Veterinary Forensic Medicine”. Editorial. Clinicians Brief. August 2011.

“The Veterinarian’s Responsibility in Animal Cruelty Reporting and Animal Abandonment”. The Georgia Veterinarian, GVMA Winter 2008.

“Veterinary Forensics”. The NAVTA Journal. Winter 2007.

“Veterinary Forensics: The Key to Successful Animal Cruelty Prosecutions”. American Bar Association Journal. Fall 2007.

Veterinary Forensics: Animal Cruelty Investigations, First Edition. Editor and Author Melinda Merck. Blackwell Publishing. 2007.

“Reliable Indicators of Animal Abuse”. GVMA Bulletin. 2007.

Forensic Investigation of Animal Cruelty: A Guide for Veterinarians and Law Enforcement Professionals. Melinda Merck, Randall Lockwood, Leslie Sinclair. Humane Society Press. 2006.

“Reliable Indicators of Animal Abuse”, NAVC Clinician’s Brief. January 2004.

“Veterinary Forensic Investigation”, How to Prosecute Animal Cruelty from Start to Finish. Georgia Legal Professionals For Animals. 2003.

SERVICE ON A COMMITTEE OF A THESIS/DISSERTATION/OR MAJOR PROJECT

- Bell, Christopher. BS. Animal Forensics in Animal Fighting. Capstone project for Forensic Science degree. 2013-ongoing
- Zeimer, Gretchen. MA. The recognition and evidence collection in cases of sexual assault of animals. 2009-2011.

- Wenslow, Nanny. PhD. The use of mRNA in the determination of time of death or injury in horse. 2010-2011.

ONLINE CERTIFICATE COURSE TEACHING

04/14-present: VetFolio Forensic Courses – Veterinary Forensic Science and Medicine, and Animal CSI

- Presented by North American Veterinary Community, American Animal Hospital Association and VetStream (in the U.K.)
- Course coordinator for all courses
- Instructor for several lectures in VFSM 1, 2, 3 and ACSI 2

UNIVERSITY TEACHING

06/14 “Veterinary Forensics”. Guest Lecturer, Animal Law Course, Lewis and Clark Law School. Portland, Oregon.

04/14 “Exam of the Live and Deceased Victim”. Guest Lecturer, Shelter Medicine Course, Cornell University College of Veterinary Medicine, Ithaca, New York.

04/14 “Exam of the Live Victim” and “Advanced Veterinary Forensics”. Guest Lecturer, Veterinary Forensic Medicine Course, University of Georgia College of Veterinary Medicine. Athens, Georgia.

03/14 “Veterinary Forensics”. Guest Lecturer, Veterinary Technician Course, Wayne County College. Detroit, Michigan.

06/13 “Veterinary Forensics”. Guest Lecturer, Animal Law Course, Lewis and Clark Law School. Portland, Oregon.

04/13 “Exam of the Live and Deceased Victim”. Guest Lecturer, Shelter Medicine Course, Cornell University College of Veterinary Medicine, Ithaca, New York.

04/13 “Exam of the Live Victim” and “Advanced Veterinary Forensics”. Guest Lecturer, Veterinary Forensic Medicine Course, University of Georgia College of Veterinary Medicine. Athens, Georgia.

04/13 “Veterinary Forensics”. Guest Lecturer, Veterinary Technician Course, Wayne County College. Detroit, Michigan.

3/13 “Forensics in Animal Cases”. Guest Lecturer, Criminal Justice Course and Intro Into Forensic Science Course, Bryan College, Dayton, Tennessee.

12/12 “Veterinary Forensics”. Guest Lecturer, Veterinary Forensics Course, Tuft’s University College of Veterinary Medicine. Medford, Massachusetts.

- 05/12 "Exam of the Live and Deceased Victim". Guest Lecturer, Shelter Medicine Course, Cornell University College of Veterinary Medicine, Ithaca, New York.
- 04/12 "Exam of the Live Victim" and "Advanced Veterinary Forensics". Guest Lecturer, Veterinary Forensic Medicine Course, University of Georgia College of Veterinary Medicine. Athens, Georgia.
- 04/12 "Veterinary Forensics". Guest Lecturer, Veterinary Technician Course, Wayne County College. Detroit, Michigan.
- 03/12 "Veterinary Forensics". Guest Lecturer, Animal Law Course, Lewis and Clark Law School. Portland, Oregon.
- 05/11 "Exam of the Live and Deceased Victim". Guest Lecturer, Shelter Medicine Course, Cornell University College of Veterinary Medicine, Ithaca, New York.
- 04/11 "Exam of the Live Victim" and "Advanced Veterinary Forensics". Guest Lecturer, Veterinary Forensic Medicine Course, University of Georgia College of Veterinary Medicine. Athens, Georgia.
- 04/11 Veterinary Forensic Medicine Course. Primary. University of Florida, College of Veterinary Medicine. Gainesville, Florida.
- 03/11 "Veterinary Forensic Pathology", Guest Lecturer, Shelter Medicine Course, Colorado State University College of Veterinary Medicine, Ft Collins, Colorado.
- 05/10 "Veterinary Forensics", Guest Lecturer, Shelter Medicine Course, Cornell University College of Veterinary Medicine, Ithaca, New York.
- 04/10 Veterinary Forensic Medicine Course, Primary. University of Florida, College of Veterinary Medicine, Gainesville, Florida.
- 04/10 "Exam of the Live Victim" and "Advanced Veterinary Forensics". Guest Lecturer, Veterinary Forensic Medicine Course, University of Georgia College of Veterinary Medicine. Athens, Georgia.
- 04/09 "Forensic Pathology". Guest Lecturer, Veterinary Forensic Medicine Course. University of Georgia College of Veterinary Medicine. Athens, Georgia.
- 03/09 "Basic Veterinary Forensics". Guest Lecturer, Shelter Medicine Course. Cornell University College of Veterinary Medicine. Ithaca, New York.
- 12/08 "Basic Veterinary Forensics". Guest Lecturer, Shelter Medicine Course. University of Illinois College of Veterinary Medicine. Urbana, Illinois.

- 11/07 "Veterinary Forensics". Guest Lecturer, Shelter Medicine Course. University of Illinois, College of Veterinary Medicine. Urbana, Illinois.
- 02/07 "Veterinary Forensic Investigation of Animal Cruelty Cases". Guest Lecturer, Veterinary Forensics Course. Purdue University School of Veterinary Medicine. West Lafayette, Indiana.
- 11/06 "Veterinary Forensics". Guest Lecturer, Shelter Medicine Course. University of Illinois, College of Veterinary Medicine. Urbana, Illinois.

FUTURE CONFERENCES, WORKSHOPS, PRESENTATIONS AND UNIVERSITY TEACHING

- 06/15 "Veterinary Forensics and Animal CSI". Ontario SPCA Educational Conference. Toronto, Ontario.
- 05/15 "Recognition of Abuse: A Forensic Approach to Veterinary Medicine". World Small Animal Veterinary Association. Bangkok, Thailand.
- 04/15 "Veterinary Forensics". Latin American Veterinary Conference. Lima, Peru.
- 04/15 "Veterinary Forensics". Lecture series for the Voorjaarsdagen veterinary university. Netherlands.
- 02/15 "Veterinary Forensics" and "Animal Crime Scene Workshop". Florida Animal Control Association Annual Conference. Orlando, Florida.
- 01/15 "Findings of Abuse in Domestic Violence Cases". North American Veterinary Community Annual Conference. Orlando, Florida.

CONFERENCES, WORKSHOPS AND PRESENTATIONS (INVITED)

- 10/14 "Veterinary Forensics for the Live and Deceased Animal". **Keynote speaker.** American Board of Veterinary Practitioners. Nashville, Tennessee.
- 10/14 "Large Scale Cases: The Veterinarian's Role". **Keynote speaker.** American Board of Veterinary Practitioners. Nashville, Tennessee.
- 10/14 "What Really Happened? Forensic Case Analyses". American Board of Veterinary Practitioners. Nashville, Tennessee.
- 10/14 "Making the Case for Abuse". American Board of Veterinary Practitioners. Nashville, Tennessee.
- 10/14 "Body of Evidence: Forensic Analysis of Decomposed Bodies". American Board of Veterinary Practitioners. Nashville, Tennessee.
- 10/14 "Veterinary Forensics". North American Veterinary Community OnCampus for North Carolina State College of Veterinary Medicine. Raleigh-Durham, North Carolina.

- 05/14 "Working With Your Expert". Association of Prosecuting Attorney's 4th Annual National Animal Cruelty Prosecution Conference. Atlanta, Georgia.
- 03/14 "Veterinary Forensics in Pathology". Tuskegee Veterinary College Annual Conference. Tuskegee, Alabama.
- 03/14 "Making The Case: The Most Common Types of Cruelty". Tuskegee Veterinary College Annual Conference. Tuskegee, Alabama.
- 03/14 "Veterinary Forensics: What Veterinarians Need to Know". Tuskegee Veterinary College Annual Conference. Tuskegee, Alabama.
- 03/14 "The Whistler Sled Dog Case: Forensic Pathology Findings in Field Necropsies". Canadian Federation of Humane Societies National Animal Welfare Conference. Toronto, Canada.
- 01/14 "Veterinary Forensic Medicine". Michigan Veterinary Conference. Lansing, Michigan.
- 01/14 "Overfeeding as a Welfare Issue". North American Veterinary Community Conference. Orlando, Florida.
- 12/13 "Veterinary Forensics". NAVC OnCampus. Tuskegee University, College of Veterinary Medicine. Tuskegee, Alabama.
- 12/13 "Veterinary Forensics". NAVC OnCampus. Oklahoma State University, College of Veterinary Medicine. Stillwater, Oklahoma.
- 11/13 "Veterinary Forensic Medicine in the Live Animal". Animal Welfare Conference. Hong Kong, China.
- 10/13 "Veterinary Forensic Pathology". Annual Veterinary Pathology Conference. Curitiba City, Brazil.
- 10/13 Veterinary Forensics Workshop. Cruelty Law Enforcement Accreditation Course for Brazilian City Police. Curitiba City, Brazil.
- 10/13 "Blunt Force Trauma" and "Sexual Abuse of Animals". British Columbia SPCA officer training workshop. Vancouver, British Columbia.
- 09/13 "Evidence Collection in Animals", "Veterinary Forensics", and "Forensic Report Writing". Colorado Veterinary Medical Association Conference. Loveland, Colorado.
- 09/13 "Veterinary Forensics" and "Animal CSI". Washington Animal Control Association. Seattle, Washington.
- 08/13 "Handling Large Scale Cruelty Cases". 3 week course. Veterinary Information Network.

- 08/13 "Landing the Top Job: Demystifying the Search Committee Process". Panelist. American Society for Association Executives Annual Meeting & Exposition. Atlanta, Georgia.
- 07/13 "Forensic Science in Animal Cases". Oklahoma Court Reporters Association Conference. Tulsa, Oklahoma.
- 06/13 "Veterinary Forensics". Guest Lecturer, Animal Law Course, Lewis and Clark Law School. Portland, Oregon.
- 05/13 "The Whistler Sled Dogs Case". International Veterinary Forensic Sciences Association. Orlando, Florida.
- 05/13 "Veterinary Forensics". Webinar for Inspectors, ASAP Laboratory, Mulgrave, Victoria, Australia.
- 04/13 "Veterinary Forensics". Webinar for Veterinarians, ASAP Laboratory, Mulgrave, Victoria, Australia.
- 04/13 Veterinary Forensic Medicine Workshop. Cleveland Veterinary Medical Association. Cleveland, Ohio.
- 04/13 "Veterinary Forensics". St. George University School of Veterinary Medicine, Grenada, West Indies.
- 04/13 "Evidence Collection from Animals", "Veterinary Forensics", "Forensic Report Writing". British Small Animal Veterinary Association Conference. Birmingham, England.
- 03/13 "The Use of Veterinary Forensics in Animal Investigations". Animal Investigations and Prosecutions Workshop, Florida Sheriff's Association. Tallahassee, Florida.
- 02/13 "The Use of Veterinary Forensics in Animal Investigations". Shelter Medicine Club and Pathology Club, Ohio State University, College of Veterinary Medicine. Columbus, Ohio.
- 02/13 "Veterinary Forensics". NAVC OnCampus. Ohio State University, College of Veterinary Medicine. Columbus, Ohio.
- 01/13 "Veterinary Forensics". Oklahoma Veterinary Medical Association Conference. Tulsa, Oklahoma.
- 01/13 "Use of Animal Forensics in Cruelty Cases". Animal Cruelty Investigations Workshop. Oklahoma City, Oklahoma.
- 10/12 "Veterinary Forensic Medicine". Animal Law Conference, Association of Prosecuting Attorney's. Los Angeles, California.
- 10/12 "Veterinary Forensic Medicine". NAVC OnCampus, Mississippi State University, College of Veterinary Medicine, Starkville, Mississippi.

- 10/12 "Veterinary Forensic Medicine". NAVC OnCampus, Michigan State University, College of Veterinary Medicine, East Lansing, Michigan.
- 09/12 Forensic Necropsy Wet Lab; Lectures: "Examination of the Live and Deceased Victim", "The Role of the Technician in Forensics". International Veterinary and Emergency Critical Care Society Annual Conference. San Antonio, Texas.
- 09/12 "Veterinary Forensic Medicine". New Jersey Veterinary Medical Association. Newark, New Jersey.
- 06/12 Animal CSI Workshop. Prairie States Animal Conference. Bloomington, Illinois.
- 05/12 "Domestic Violence and Animal Cruelty". **Keynote speaker**. National Meeting of Royal New Zealand Society for the Prevention of Cruelty to Animals. Auckland, New Zealand.
- 05/12 Animal Forensics Workshop. National Meeting of Royal New Zealand Society for the Prevention of Cruelty to Animals. Auckland, New Zealand.
- 05/12 Animal Forensics Workshop. Wellington Royal New Zealand Society for the Prevention of Cruelty to Animals. Wellington, New Zealand.
- 05/12 "Veterinary Forensic Medicine". Wellington Veterinary Association. Wellington, New Zealand.
- 04/12 "Veterinary Forensic Medicine". Iowa State Shelter Medicine Club, University of Iowa, College of Veterinary Medicine. Ames, Iowa.
- 04/12 "Evidence Collection", "Animal CSI", and "Forensic Veterinary Medicine". Seattle King County Veterinary Medicine Association. Seattle, Washington.
- 02/12 "Evidence Collection in Animals" and "Veterinary Forensic Medicine". Midwest Veterinary Conference. Columbus, Ohio.
- 02/12 "Animal CSI and Veterinary Forensics". Walton County Animal Cruelty Conference. Ft. Walton, Florida.
- 01/12 "Veterinary Forensics". Shelter Medicine Conference, University of Georgia. Athens, Georgia.
- 01/12 "Scene Documentation and Forensic Analysis". North American Veterinary Conference. Orlando, Florida.
- 01/12 "Documentation of Abuse in the Victim". North American Veterinary Conference. Orlando, Florida.
- 01/12 "Developing an SOP for Handling Suspected Abuse Cases". North American Veterinary Conference. Orlando, Florida.

10/11 "Veterinary Forensics". Massachusetts Veterinary Medical Association. Boston, Massachusetts.

06/11 "Disaster Sheltering for Companion Animals". American Humane Association. Gainesville, Florida.

06/11 "Disaster Sheltering for Companion Animals". American Humane Association. Kentucky.

05/11 "Animal CSI". Florida Agriculture Intelligence Crimes Unit. Tavarres, Florida.

03/11 "Veterinary Forensics". Texas Unites Conference. Austin, Texas.

03/11 "Recognizing and Documenting Cruelty: Non-Accidental Injury". Oregon Veterinary Conference. Corvallis, Oregon.

03/11 "Veterinary Forensics: Examination of Living Victims". Oregon Veterinary Conference. Corvallis, Oregon.

03/11 "Veterinary Forensics: Examination of Deceased Victims". Oregon Veterinary Conference. Corvallis, Oregon.

03/11 "Evidence Collection at Crime Scene and the Clinic". Oregon Humane Society Victim to Verdict Conference. Portland, Oregon.

02/11 "Veterinary Forensic Pathology". Iowa State Shelter Medicine Club. Gainesville, Florida.

02/11 "Veterinary Forensic Pathology". University of Florida Shelter Medicine and Pathology Club. Gainesville, Florida.

10/10 "Animal C.S.I." Florida Division of the International Association for Identification. St. Petersburg, Florida.

10/10 "Veterinary Forensics". 2nd National Conference on Prosecuting Animal Cruelty and Fighting Cases. Association of Prosecuting Attorneys, Bureau of Justice Assistance, Animal Welfare Institute and Animal Legal Defense Fund. Denver, Colorado.

08/10 "Animal Evidence". Torts and Trials. American Bar Association. San Francisco, California.

08/10 "Veterinary Forensic Science". Brazilian Veterinary Medical Association. Sao Paulo, Brazil.

08/10 "Veterinary Forensic Science". Brazilian Police Department. Sao Paulo, Brazil.

07/10 "Veterinary Forensic Science". New England Animal Control. Durham, New Hampshire.

07/10 "The Role of the Veterinarian". Florida Medical Examiner's Conference. Orlando, Florida.

05/10 "Large Scale Raids: Managing the Animal Evidence". International Association of Veterinary Forensic Sciences. Orlando, Florida.

04/10 "Application of Veterinary Forensics". Harvard Law School. Animal Legal Defense Fund Conference.

03/10 "Veterinary Forensic Science in Animal Cruelty Cases". Texas Unites For Animals 2010 Lone Star Conference. Austin, Texas.

02/10 "Veterinary Forensic Science". NAVC OnCampus. Auburn University College of Veterinary Medicine. Auburn, Alabama.

02/10 "Examination of the Live Victim". Wetlab. University of Florida Shelter Medicine Program. Gainesville, Florida.

02/10 "Veterinary Forensic Science". Student Chapter of American Veterinary Medical Association. University of Florida College of Veterinary Medicine. Gainesville, Florida.

01/10 "Veterinary Forensics". 3rd Annual CSI Symposium. Norwich University. Northfield, Vermont.

11/09 "Veterinary Forensics". Georgia Veterinary Medical Association. Atlanta, Georgia.

11/09 "Animal CSI". Veterinary Medicine Conference. Saint-Hyacinth, Quebec, Canada.

10/09 "Veterinary Forensics". **Keynote speaker**. Southern Joint Forensics Conference. Orlando, Florida.

10/09 "Veterinary Forensics". Shelter Medicine Conference. University of Florida. Gainesville, Florida.

10/09 "Animal CSI and Use of Veterinary Forensics". Alberta SPCA. Edmonton, Alberta, Canada.

09/09 "Animal CSI". Humane Law Enforcement. ASPCA. Long Island City, New York.

09/09 "Animal CSI". University of Florida. Veterinary Technician Conference. Gainesville, Florida.

08/09 "Animal CSI". Louisiana Animal Control Association. Baton Rouge, Louisiana.

08/09 "Veterinary Forensics". "Forensic Necropsy Wet Lab". Pennsylvania Veterinary Association. Hershey, Pennsylvania.

08/09 "Animal CSI". Tampa SPCA. Tampa, Florida.

08/09 "Veterinary Forensics". Hershey Keystone Conference. Hershey, Pennsylvania.

05/09 "Veterinary Forensics". Australian Veterinary Association. Darwin, Australia.

05/09 "Animal CSI". Australian Royal Society for the Prevention of Cruelty to Animals. Melbourne, Victoria, Australia.

04/09 "Animal CSI". Animal Expo. Las Vegas, Nevada.

04/09 "Vet Forensics in Raids and Seizures". Animal Expo. Las Vegas, Nevada.

04/09 "Animal CSI: Using Forensics". Ireland SPCA. Dublin, Ireland.

03/09 "Animal CSI". Georgia Animal Control Association. Macon, Georgia.

03/09 "Veterinary Forensics". University of Wisconsin. Madison, Wisconsin.

02/09 "Veterinary Forensics". Minnesota Veterinary Association. St. Paul, Minnesota.

02/09 "Animal CSI". Animal Health and Welfare Manitoba Agriculture. Winnipeg, Manitoba, Canada.

02/09 Forensic Necropsy Lab. Western Veterinary Conference. Las Vegas, Nevada.

02/09 "Veterinary Forensics". American Academy of Forensic Science Annual Meeting. Denver, Colorado.

02/09 "Forensic Examination of the Live and Deceased Victim". Midwest Veterinary Conference. Columbus, Ohio.

02/09 Mock Trial: Puppy Mill. Midwest Veterinary Conference. Columbus, Ohio.

02/09 "Animal CSI". Music City Veterinary Conference, Tennessee Veterinary Medical Association. Nashville, Tennessee.

11/08 "Veterinary Forensics". North Carolina Veterinary Medical Association. Raleigh, North Carolina.

11/08 "Veterinary Forensics". Hawaii Veterinary Medical Association. Waikiki, Hawaii.

11/08 "Veterinary Forensics". Greater Atlanta Veterinary Medicine Association. Atlanta, Georgia.

11/08 "Cats and Cruelty". Cat Writers Association. Atlanta, Georgia.

10/08 "Veterinary Forensics: Animal CSI". Maine Veterinary Medical Association. Bangor, Maine.

09/08 "Using Veterinary Forensics in Animal Cruelty Investigations". French SPCA. Paris, France.

09/08 "Veterinary Forensics: Case Presentations". American Bar Association. Chicago, Illinois.

07/08 "Basic Veterinary Forensics". American Veterinary Medical Association Conference. New Orleans, Louisiana.

- 07/08 "Animal Cruelty: Recognition, Reporting, and Testifying". World Veterinary Congress. Vancouver, British Columbia, Canada.
- 07/08 "Veterinary Forensics: Animal CSI". World Veterinary Congress. Vancouver, British Columbia, Canada.
- 07/08 "Veterinary Forensics: Examination of the Live Victim". World Veterinary Congress. Vancouver, British Columbia, Canada.
- 07/08 "Veterinary Forensics: Examination of the Deceased Victim". World Veterinary Congress. Vancouver, British Columbia, Canada.
- 06/08 "Animal CSI". Southeastern Animal Control Association. Columbus, Georgia.
- 06/08 "Veterinary Forensics and Animal Cruelty Investigations". National Animal Care and Control Association. Spokane, Washington.
- 06/08 "Veterinary Forensics". Society of Animal Welfare Administrators. Kansas City, Missouri.
- 05/08 "Veterinary Forensics and Animal Cruelty Investigations". HSUS Animal Expo. Orlando, Florida.
- 04/08 "Veterinary Forensics and Animal Cruelty Investigations". Royal New Zealand SPCA. Christchurch, New Zealand.
- 04/08 "Veterinary Forensics and the Role of the Veterinarian". Christchurch Veterinary Association. Christchurch, New Zealand.
- 04/08 "Animal CSI". Colorado Animal Care and Control Association. Boulder, Colorado.
- 04/08 "Veterinary Forensics". Colorado Veterinary Medical Association. Boulder, Colorado.
- 03/08 "Recognition of Animal Cruelty and CSI". Student Chapter of the American Veterinary Medical Association National Meeting. Auburn University. Auburn, Alabama.
- 02/08 "Veterinary Forensics". University of Minnesota College of Veterinary Medicine. Minneapolis, Minnesota.
- 02/08 "Veterinary Forensics". University of Wisconsin College of Veterinary Medicine. Madison, Wisconsin.
- 02/08 "Veterinary Forensics". Michigan State University College of Veterinary Medicine. Lansing, Michigan.
- 02/08 "Veterinary Forensic Investigation of Animal Cruelty Cases". Midwest Veterinary Conference, Columbus, Ohio.

02/08 "Veterinary Forensics" Wet Lab. Midwest Veterinary Conference, Columbus, Ohio.

11/07 "Animal CSI". South Carolina Animal Control Conference. Myrtle Beach, South Carolina.

11/07 "Veterinary Forensics". On-line course for Veterinary Information Network.

10/07 "Veterinary Forensics: Animal CSI". Tennessee Animal Care and Control, Nashville, Tennessee.

10/07 "Veterinary Forensics: Making the Case". Massachusetts Veterinary Medical Association Veterinary Conference. Boston, Massachusetts.

10/07 "Veterinary Forensics and Animal Cruelty Investigations". Royal New Zealand SPCA. Sydney, Australia.

10/07 "Veterinary Forensics and Animal Cruelty Investigations". Royal New Zealand SPCA. Canberra, Australia.

10/07 "Veterinary Forensics and Animal Cruelty Investigations". Royal New Zealand SPCA. Auckland, New Zealand.

10/07 "Veterinary Forensics and Animal Cruelty Investigations". Royal New Zealand SPCA. Rotorua, New Zealand.

09/07 "CSI in Animal Cruelty Investigations". Kent County SPCA. Dover, Delaware.

09/07 "Veterinary Forensics: Animal CSI". American Humane Association. Washington, DC.

08/07 "Feline Cruelty". University of Florida. Gainesville, Florida.

08/07 "Recognition and Response to Animal Cruelty". University of Florida. Gainesville, Florida.

08/07 "CSI in Animal Cruelty Investigations". Georgia Legal Professionals for Animals. St. Simmons Island, Georgia.

05/07 "Veterinary Forensics: Animal Cruelty Investigations and the Role of the Veterinary Practitioner". Shelter Medicine Club, University of Georgia, College of Veterinary Medicine. Athens, Georgia.

05/07 "Veterinary Forensics: Making the Case for Animal Cruelty". Humane Society of the United States Animal Expo. Dallas, Texas.

04/07 "Veterinary Forensics: Recognition of Abuse and Examination of the Live Victim". Ohio State University, College of Veterinary Medicine. Columbus, Ohio.

04/07 "Veterinary Forensics: Recognition of Abuse and Examination of the Deceased Victim". Ohio

State University, College of Veterinary Medicine. Columbus, Ohio.

- 04/07 "Veterinary Forensics: Animal Cruelty Investigations and the Role of the Veterinary Practitioner". Ohio State University, College of Veterinary Medicine. Columbus, Ohio.
- 03/07 "Veterinary Forensics: Making the Case for Animal Cruelty". Student Chapter of the American Veterinary Medicine Association. Purdue University School of Veterinary Medicine. West Lafayette, Indiana.
- 02/07 "Veterinary Forensic Investigation of Animal Cruelty Cases". Western States Veterinary Conference. Las Vegas, Nevada.
- 02/07 "Veterinary Forensics" Wet Lab. Western States Veterinary Conference. Las Vegas, Nevada.
- 01/07 "Animal CSI: Animal Cruelty Investigations". Sheriff's Departments of Volusia, Flagler, and St. John's County; Flagler Beach High School. Flagler Beach, Florida.
- 12/06 "Veterinary Forensics". Continuing Education Seminar. University of Tennessee, College of Veterinary Medicine. Knoxville, Tennessee.
- 05/06 "CSI: The Veterinarian's Perspective". Animal Cruelty Investigation and Prosecution Seminar. Georgia State Bar Association, Institute of Continuing Legal Education. Atlanta, Georgia.
- 05/06 "Veterinary Forensics". Animal Cruelty Investigation and Prosecution. Georgia State Bar Association, Institute of Continuing Legal Education. Atlanta, Georgia.
- 04/06 "Veterinary Forensics: Crime Scene Analysis and Evidence Collection". Gwinnett County Animal Control. Lawrenceville, Georgia.
- 02/06 "Veterinary Forensic Investigation of Animal Cruelty". Midwest Veterinary Conference. Columbus, Ohio.
- 01/06 "Veterinary Forensics: Making the Case for Animal Cruelty". Student Chapter of American Veterinary Medical Association. University of Florida. Gainesville, Georgia.
- 11/05 "Veterinary Forensics". An on-line course for Veterinary Information Network.
- 04/05 "Veterinary Forensic Investigation of Animal Cruelty". Animal Expo. Sponsored by the Humane Society of the United States. Atlanta, Georgia.
- 04/05 "Veterinary Forensics: Key Points to Cases of Animal Cruelty". Animal Cruelty Investigation and Prosecution Seminar. Georgia State Bar Association, Institute of Continuing Legal Education. Atlanta, Georgia.
- 04/05 "Pearls of Feline Medicine". Student Chapter of American Association of Feline Practitioners. University of Georgia, College of Veterinary Medicine. Athens, Georgia.

- 02/05 "Veterinary Forensics". Seminar for the Faculty of University of Georgia, College of Veterinary Medicine. Athens, Georgia.
- 11/04 "Veterinary Forensics: Making the Case". Student Chapter of American Association of Feline Practitioners and Pathologists. University of Georgia College of Veterinary Medicine. Athens, Georgia.
- 09/04 "Veterinary Forensics: Animal CSI". American Humane Conference, Philadelphia, Pennsylvania.
- 04/04 "Veterinary Forensics: Animal CSI". Animal Cruelty Investigation and Prosecution. Georgia State Bar Association, Institute of Continuing Legal Education. Atlanta, Georgia.

CONFERENCES, WORKSHOPS AND PRESENTATIONS

- 01/14 "Expect the Unexpected: Unusual and Complex Cases of Animal Cruelty". Animal CSI Program. North American Veterinary Community Annual Conference. Orlando, Florida.
- 01/14 "What Would You Do? Solve the Case with Dr. Melinda Merck". Animal CSI Program. North American Veterinary Community Annual Conference. Orlando, Florida.
- 01/13 "Advanced Veterinary Forensics". 8 week online course. Co-presenter. Veterinary Information Network.
- 01/13 "Surviving Cross Examination in Animal Cruelty Cases". Masterclass. Co-presenter. North American Veterinary Conference. Orlando, Florida.
- 11/11 "Veterinary Forensics". 4 week online course. Co-presenter. Veterinary Information Network.
- 03/11 "Evidence Processing: What, When, Where, and Who". Blood Sports Investigations Conference. Maddie's Fund Shelter Medicine Program. University of Florida. Gainesville, Florida.
- 02/11 "Unveiling the Secrets of the Michael Vick Dogs". Animals as Evidence: Veterinary Forensic Sciences Workshop, Co-Chair. American Academy of Forensic Sciences. Chicago, Illinois.
- 01/11 "Body of Evidence: What Decomposed Bodies Can Tell Us". North American Veterinary Conference. Orlando, Florida.
- 01/11 "Supersized Hoarding Interventions: When One Agency Isn't Enough". North American Veterinary Conference. Orlando, Florida.
- 11/10 "Animal Crime Scene Workshop". Maples Center for Forensic Medicine. Gainesville, Florida.
- 03/10 "Forensic Necropsy Wet Lab". Veterinary Forensics Conference. Maddie's Fund Shelter Medicine Program. University of Florida. Gainesville, Florida.

- 03/10 "Veterinary Forensics". Veterinary Forensics Conference. Maddie's Fund Shelter Medicine Program. University of Florida. Gainesville, Florida.
- 01/10 "Large Scale Raids". North American Veterinary Conference. Orlando, Florida.
- 01/10 "Animal Crimes: Veterinary Forensics Report Writing". Meet the Professor Luncheon. North American Veterinary Conference. Orlando, Florida.
- 06/09 "Animal Crime Scene Workshop". Maples Center for Forensic Medicine. Gainesville, Florida.
- 01/08 "Making the Case for Neglect: Proving Cause, Intent and Timelines". The North American Veterinary Conference. Orlando, Florida.
- 01/08 "Making the Case for Non-Accidental Injury: Proving Cause, Sequence of Events, Time of Death". The North American Veterinary Conference. Orlando, Florida.
- 04/08 "Veterinary Forensic Pathology and Animal Cruelty". Veterinary Forensics Symposium. Maples Center for Forensic Medicine and ASPCA. Orlando, Florida.
- 10/08 "Animal Crime Scene Workshop". Maples Center for Forensic Medicine. Gainesville, Florida.
- 01/07 "Veterinary Forensic Science". Shelter Medicine Evening Program. The North American Veterinary Conference. Orlando, Florida.
- 01/07 "Veterinary Forensics Lab: Necropsy Examination and CSI". A Wet Lab. The North American Veterinary Conference. Orlando, Florida.
- 01/07 "From the Exam Room to the Court Room: Presenting Your Case". The North American Veterinary Conference. Orlando, Florida.
- 01/07 "Animal Cruelty: CSI and Examination of the Victim". The North American Veterinary Conference. Orlando, Florida.
- 01/05 "Mock Trial: Animal Cruelty". The North American Veterinary Conference, Orlando, Florida.
- 01/05 "Veterinary Forensics: Making the Case", Chairperson of half-day program. The North American Veterinary Conference. Orlando, Florida.
- 06/04 "Veterinary Forensic Investigation of Animal Cruelty". Fulton County Animal Services. Sponsored by Georgia Legal Professionals For Animals. Atlanta, Georgia.
- 01/04 "Veterinary Forensics: Animal CSI". The North American Veterinary Conference. Orlando, Florida.

01/04 "Veterinary Forensic Investigation: What Law Enforcement Needs to Know". The North Georgia Intelligence Meeting. Georgia Legal Professionals for Animals. Gainesville, Georgia.

04/03 "Veterinary Forensics: What Law Enforcement Needs to Know". For Douglas County Sheriff, Police and Animal Control Departments; Douglas County District Attorney's Office and Local Veterinarians. Georgia Legal Professionals for Animals. Douglasville, Georgia.

GRANTS

Grant: Other **Awarded:** 2008 **Period:** 2008-2013

Total: \$5million (historically largest ever awarded)

Project Title: Maddie's Fund Shelter Medicine Program, University of Florida College of Veterinary Medicine

Involvement: Joint Coordinator **Subject:** Development of unique shelter medicine program to include courses in disaster and forensic medicine. Provide annual veterinary forensic medicine conference. Provide for Shelter Medicine Residency program to include forensic medicine training. Develop and implement elective Veterinary Forensics Course at University of Florida College of Veterinary Medicine.

OTHER PROFESSIONAL TRAININGS

- Discovery and Recovery: Death Scene Investigations in the Natural Environment. North Carolina State University. Raleigh, North Carolina. May 2007.
- Illegal Animal Fighting Investigations. Humane Society University. Gwinnett County Sheriff's Department. Lawrenceville, Georgia. March 2008.
- Basic Forensic Science and Medicine. Virginia Institute of Forensic Science and Medicine. University of Virginia. Charlottesville, Virginia. March 2008.
- Veterinary Forensics Symposium. Maples Center for Forensic Medicine and ASPCA. Orlando, Florida. April 2008.
- Bloodstain Evidence. Bloodstain Institute. Herbert MacDonnel. Corning, NY. May 2008.
- Veterinary Forensic Science: Bite Mark Workshop. Gainesville, FL. September 2008.
- FEMA ICS Training. Summer 2008.
- Large Animal Technical Rescue. New York. Fall 2008.
- Animal CSI Program. North American Veterinary Conference. Orlando, Florida. January 2009.
- Veterinary Forensics Symposium. Maples Center for Forensic Medicine and ASPCA. Orlando, Florida. April 2009.
- Gunshot Reconstruction. Maples Center for Forensic Medicine. Orlando, Florida. October 2009.
- Animal CSI Program. North American Veterinary Conference. Orlando, Florida. January 2010.
- American Academy of Forensic Sciences. Forensic Anthropology Workshop, General Conference. Seattle, Washington. February 2010.
- Basic Ropes Disaster Training. University of Florida, Gainesville, Florida. March 2010.
- Forensic Photography. Maples Center for Forensic Medicine and ASPCA. Gainesville, Florida. March 2010.
- Disaster Training: SART, DART, VETS. Bushnell, Florida. April 2010.
- Veterinary Forensic Science Annual Conference. International Veterinary Forensic Sciences Association. Orlando, Florida. May 2010.

- Oiled-Bird Disaster Training. Sumter County, Florida. May 2010.
- Florida Agriculture Intelligence Crimes Unit Training, Tavarre, Florida. May 2010.
- Animal Blood Stain Pattern Analysis Workshop. Gainesville, Florida. November 2010.
- Animal CSI Program. North American Veterinary Conference. Orlando, Florida. January 2011.
- American Academy of Forensic Sciences. Chicago, Illinois. February 2011.
- Blood Sports Investigations. Gainesville, Florida. March 2011.
- Oregon Humane Society Victim to Verdict Conference. Portland, Oregon. March 2011.
- Veterinary Forensic Science Annual Conference. International Veterinary Forensic Sciences Association. Orlando, Florida. May 2011.
- American Academy of Forensic Sciences. Atlanta, Georgia. February 2012.
- Animal CSI Program. North American Veterinary Conference. Orlando, Florida. January 2012.
- Walton County Animal Cruelty Conference. Ft. Walton, Florida. February 2012.
- Animal Law Conference. Association of Prosecuting Attorney's. Los Angeles, California. October 2012.
- Animal CSI Program. North American Veterinary Community Annual Conference. Orlando, Florida. January 2013.
- Animal Investigations and Prosecutions Conference. Tallahassee, Florida. March 2013.
- Advanced Veterinary Forensics. Veterinary Information Network. March 2013.
- Veterinary Forensic Science Annual Conference. International Veterinary Forensic Sciences Association. Orlando, Florida. May 2013.
- Death Scene Check List. The Evidence Conference Educational Webinar Series. July 2013.
- Animal CSI Program. North American Veterinary Community Annual Conference. Orlando, Florida. January 2014.
- Animal Law Conference. Association of Prosecuting Attorney's. Atlanta, Georgia. May 2014.
- Veterinary Forensic Science Annual Conference. International Veterinary Forensic Sciences Association. Orlando, Florida. May 2014.

PROFESSIONAL MEMBERSHIPS

American Academy of Forensic Sciences, Fellow Member

International Veterinary Forensic Sciences Association, Full Member

International Association of Bloodstain Pattern Analysts, Provisional Member

American College of Forensic Examiners

Georgia Legal Professionals for Animals

American Veterinary Medical Association

Association of Shelter Veterinarians

British Small Animal Veterinary Association 2012-2013

Florida Agriculture Intelligence Crimes Unit 2010-2012

SERVICE

Association of Shelter Veterinarians

Organizing Committee member for development of Shelter Medicine Board Specialty under ABVP including writing board certification questions, 2012-present

North American Veterinary Conference
Program Chair: Animal CSI. 2009-Present
Ahimsa House, Inc. (Animal Shelter for Victims of Domestic Violence)
Advisory Council, Member, October 2008-Present
Good Mews Animal Foundation (No-Kill Cat Shelter)
Board of Directors, 1991-1994
VETS Disaster Response Team, University of Florida
Sumter Disaster Animal Response Team, 2009-2011
Volunteer Veterinarian:
Good Mews Animal Foundation
Cherokee County Animal Control
Cherokee County Humane Society
Fur Kids
Cats in the Cradle
Georgia SPCA

EXPERT WITNESS

Animal Cruelty Cases:

Montgomery, Alabama (Federal court)
Gwinnett County, Georgia (approximately 70 cases)
Cobb County, Georgia
Fulton County, Georgia (approximately 46 cases)
Henry County, Georgia
Walterboro, South Carolina
St. Bernard's Parish, Louisiana
Pima County, Arizona
Louisville, Kentucky
Fergus Falls, Minnesota
Orleans Parish, Louisiana (2 cases)
Luzerne County, Pennsylvania
Hickman County, Tennessee
Alachua County, Florida
Palm Beach County, Florida
Miami-Dade County, Florida
Washington County, Georgia
Dallas, Texas

EXHIBIT C

WILENCHIK & BARTNESS
— A PROFESSIONAL CORPORATION —



ENGINEERING FORENSICS EXPERTS LLC

George J. Hogge PE

3136 E. Leland Circle

Mesa, AZ 85213

Phone: (602) 721-4202 Fax: (480) 664-7589

www.efxforensics.com

ENGINEERING EXAMINATION and ANALYSIS
REPORT #1

File No: 4874-0701

Prepared for:
Maricopa County Sheriff's Office
Attn: Lt. David Toporek

Date of Incident: June 19, 2014
Location of Incident: 15723 E. Appleby Road, Gilbert, AZ 85298
MCSO Case: IR 14-014274

Dates of Examinations:
Scene Examination: July 9, 2014

CONTENTS:

(A) SUMMARY:
(B) ENCLOSURES:
(C) INSTRUCTIONS:
(D) BACKGROUND:
(E) SCENE EXAMINATION:
(F) ANALYSIS:
(G) CONCLUSION:
(H) COMMENTS:
(I) EVIDENCE CUSTODY & CONTROL
APPENDIX 1. TRIP CURVES FOR SQUARE D 15 AMP BREAKER
APPENDIX 2. TRIP CURVES FOR SQUARE D 200 AMP MAIN BREAKER
APPENDIX 3. CALCULATIONS FOR HVAC WITH 28 DOGS IN ROOM
APPENDIX 4. CALCULATIONS FOR HVAC WITH 20 DOGS IN ROOM.

The investigation activities and reporting have been conducted in accordance with the following standards among others:

- NFPA 921-2011 Edition "Guide for Fire and Explosion Investigations"
- ASTM E620-04 "Standard Practice for Reporting Opinions of Scientific or Technical Experts"
- ASTM E678-07 "Standard Practice for Evaluation of Scientific or Technical Data"
- ASTM E860-07 "Standard Practice for Examining And Preparing Items That Are Or May Become Involved In Criminal or Civil Litigation"
- ASTM E1020-96 (Reapproved 2006) "Standard Practice for Reporting Incidents that May Involve Criminal or Civil Litigation"
- ASTM E1188-05 "Standard Practice for Collection and Preservation of Information and Physical Items by a Technical Investigator"
- ASTM E2332-04 "Standard Practice for Investigation and Analysis of Physical Component Failures"

(A) SUMMARY:

The reported damage to the circuit caused by the dog chewing on the romex at the receptacle circuit could not have possibly caused any interruption of the west HVAC system operation.

The electrical systems of the home were found to be in serviceable condition with no anomalies.

The west HVAC system was inadequate and improperly configured for this type of utilization of the "dog room". This inadequate condition was exacerbated by the airflow limitations with the closed room and fact that the HVAC system was neglected as to maintenance including the most basic requirement of changing the filter.

A plugged return filter will cause a number of problems with an HVAC unit besides poor airflow and poor cooling, including the very likely condition of freezing up the indoor coil (evaporator coil) which will block all the airflow and render the unit completely ineffective.

Even if the west HVAC unit did not freeze up, clearly there would not be sufficient airflow to cool the animals and likely not enough turnover of the air to replenish the oxygen as needed.

(B) ENCLOSURES:

1. 31 color images of evidence examination (from digital photographs) with descriptions.

(C) INSTRUCTIONS:

Instructions were received from Lt. David Toporek representing Maricopa County Sheriff's Office for George J. Hogge PE, Principal Electrical Engineer to conduct the following Forensic Engineering Examinations and Activities:

- Forensic Engineering evaluation of the house electrical systems to confirm or negate any electrical or mechanical failure that could have contributed to or caused the HVAC system to fail on the residence.
- Forensic Engineering examination of the HVAC system(s) serving the home, focusing on the efficacy and functionality of the HVAC system serving the room that the dogs were found in.
- Survey and take samples of the insulation associated with the room the dogs had been found in.

- Collect and analyze the circuit conductor(s) that had reportedly been damaged by being chewed by a dog. Also to determine the effect of that event on the electrical system(s) including the HVAC circuit(s).
- Additional instructions were received to provide a written Engineering Report.

(D) BACKGROUND:

While it is not the scope or intent of this report to discuss the incident, some basic background information that was provided to EFX is important for the analysis:

- About 28 large dogs had been placed into a room at the southwest corner of the home with the doors closed.
- About 20 dogs were found deceased in the room on June 19, 2014.
- The business/home owner had reportedly claimed that a dog had chewed through one of the circuits in the room causing the HVAC (Heating, Ventilation, and Air Conditioning) system that served that room to fail.

(E) SCENE EXAMINATIONS:

An Electrical Engineering examination of the scene was conducted on July 9, 2014. Present were George J. Hogge PE, Principal Electrical Engineer of Engineering Forensics Experts LLC and Ron Ballard, HVAC Technical Consultant of Getty Engineering Services.

A number of photographs were taken in digital format during the scene examination. Select photographs are attached in this report, some of which have been cropped or rotated to fit. All photographs are stored by EFX in their original format.

The subject structure was a one story single family home of wood frame construction supported by a concrete slab on grade. The sloped roof was supported by typical wood trusses and finished with asphalt shingles. Figure 1 shows a rear view of the home looking northeast and Figure 2 shows a basic Plan View with dimensions. The rooms are shown in the area of interest on the west end of the home.



Figure 1. Rear view of house looking northeast.

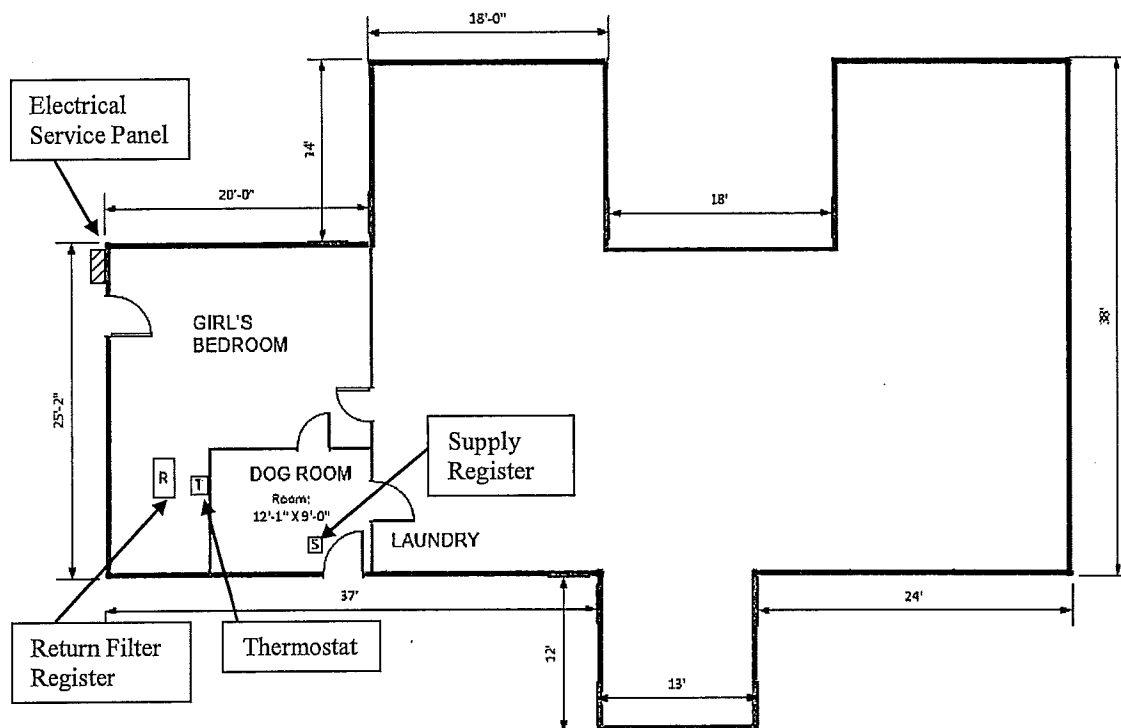


Figure 2. Plan view of house with dimensions for exterior and interior areas of interest. Not to scale.

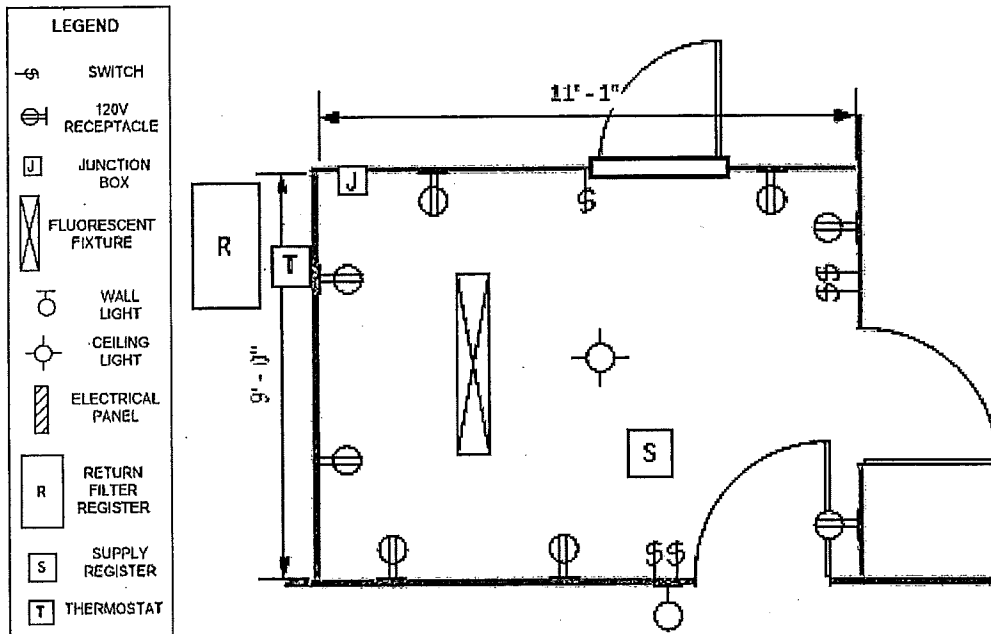


Figure 3. Plan view of "dog room" showing electrical and mechanical fixtures and devices. Not to scale. Red rectangle indicates sealed doorway into girl's bedroom.

Figure 3 shows an enlarged Plan View of the room where the dogs had been placed with the electrical and mechanical components of interest shown. For the purposes of this report, we will refer to this as the "dog room". The door to the north that led into the girl's bedroom had been completely and permanently sealed with caulking such that no air could pass, which is shown by a red rectangle in Figure 3. Note that there is one HVAC (Heating, Ventilation, and Air Conditioning) supply register in the ceiling in the dog room and that the return register and filter as well as the thermostat are in the closet of the girl's room to the west.

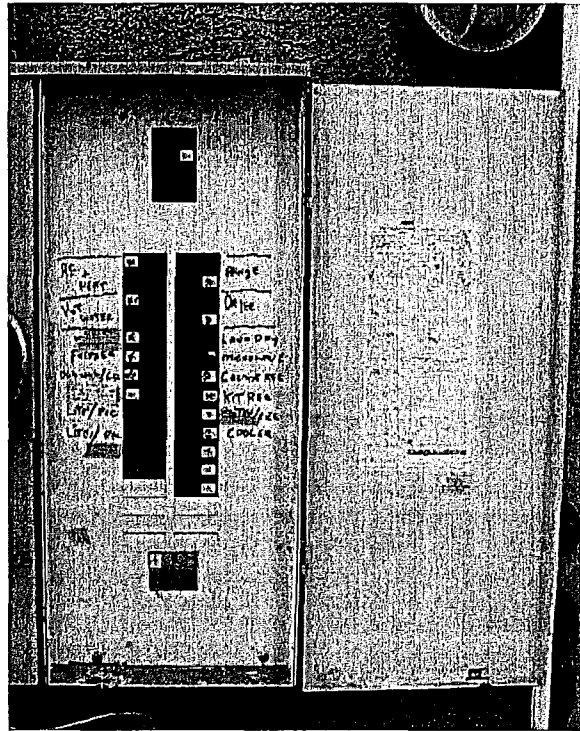
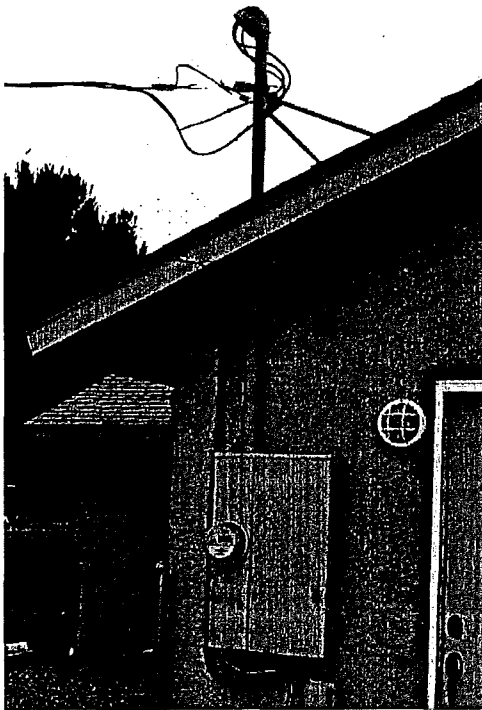


Figure 4. Electrical service.

Figure 5. View of circuit breaker panel.

Figures 4-6 show the electrical service panel on the north end of the west exterior wall. The electrical service panel was a typical modern combination metering and circuit breaker panel rated at 240/120 volts, 200 amps, with a 200 amp main circuit breaker. The main service panel was supplied via an SRP overhead lateral from a pole mounted transformer. There was nothing remarkable about the physical condition of the service panel. The panel contained a number of branch circuit breakers that are there to control and protect the branch circuits that extend into the house wiring systems. Apparently some circuits and breakers had been moved as the labeling was not complete nor correct. Otherwise, no remarkable deficiencies in code or workmanship were found.

The electrical wiring within the home was installed using copper Type NM Non Metallic Sheathed Cables, which are intended for and suitable for such use in a residential structure. For purposes of this report, the Type NM cables will be referred to by the trade jargon of “romex”. A typical romex cable will have an outer thermoplastic sheath surrounding a specific number of insulated “current carrying” conductors as well as one (1) non-insulated conductor that is intended to be used as a ground conductor only. The number of insulated conductors is typically stated in the sizing convention, for example 14/2 romex will have two (2) insulated #14 AWG conductors and a non-insulated ground conductor. The first run of romex that extends from the circuit breaker at the panel into the structure is typically referred to as the “home run” until it reaches the first device or load.

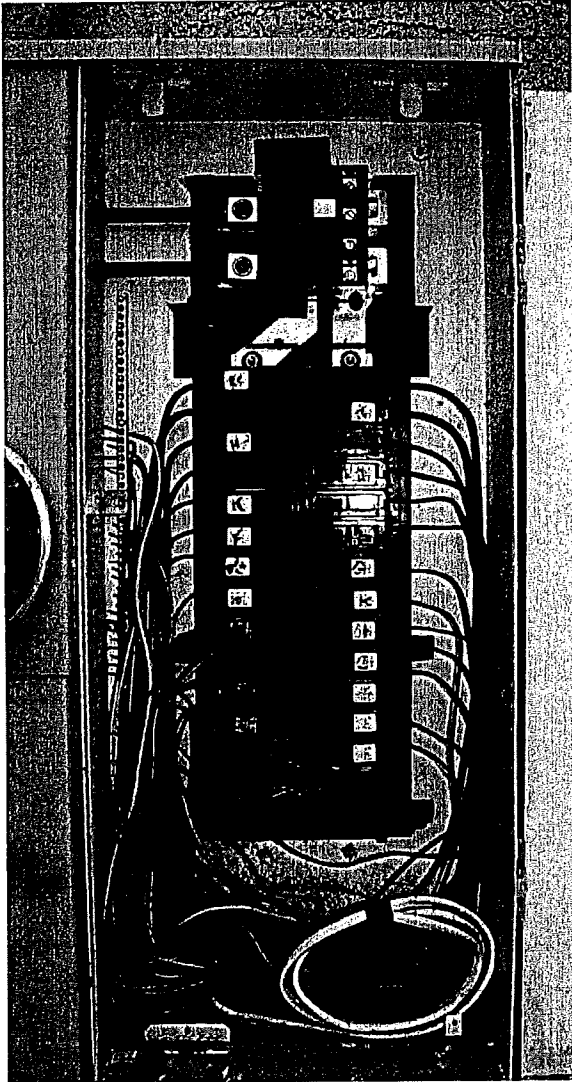


Figure 6. Interior view of circuit breaker panel showing home runs terminated to branch circuit breakers.

Figure 7 shows the south exterior door entering into the dog room and also shows the HVAC system that serves the west portion of the home. For purposes of this report, we will refer to this as the "west HVAC" unit. Figures 8-11 show the interior walls of the dog room, which was measured to be 9 feet by 12 feet and the ceiling was 8 feet, 3 inches from finish floor. The passage door shown in Figure 9 that led to the girl's bedroom had been sealed completely with caulk so no air could pass through at all. The passage door into the laundry room and the exit door to the south yard shown in Figure 10 both had sweeps and weather stripping such that the room was actually fairly tightly sealed.

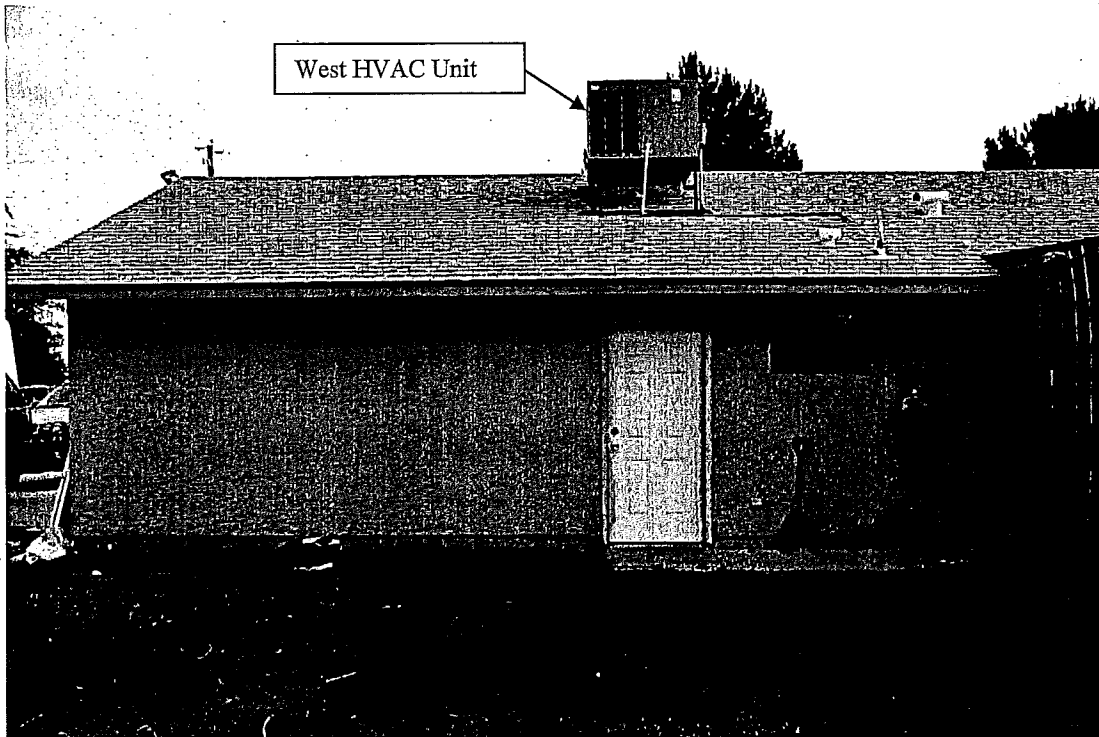


Figure 7. South entrance into room where dogs were found. Note west HVAC unit on roof above door.

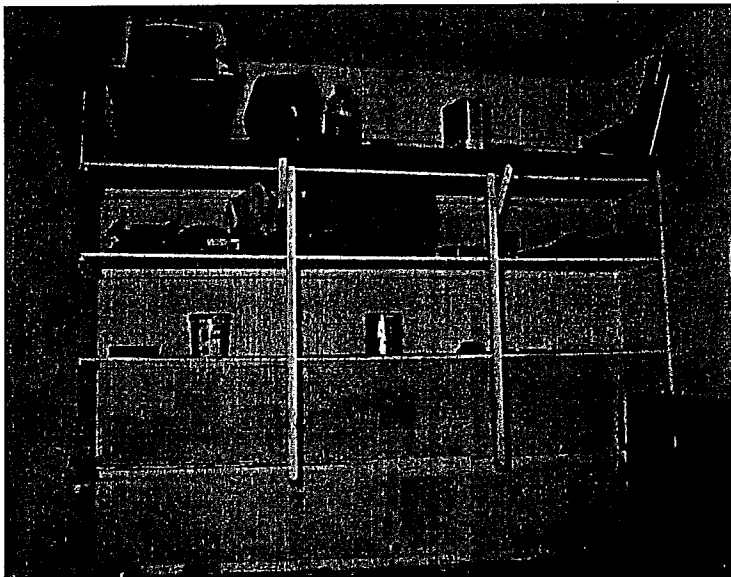


Figure 8. West wall of dog room.

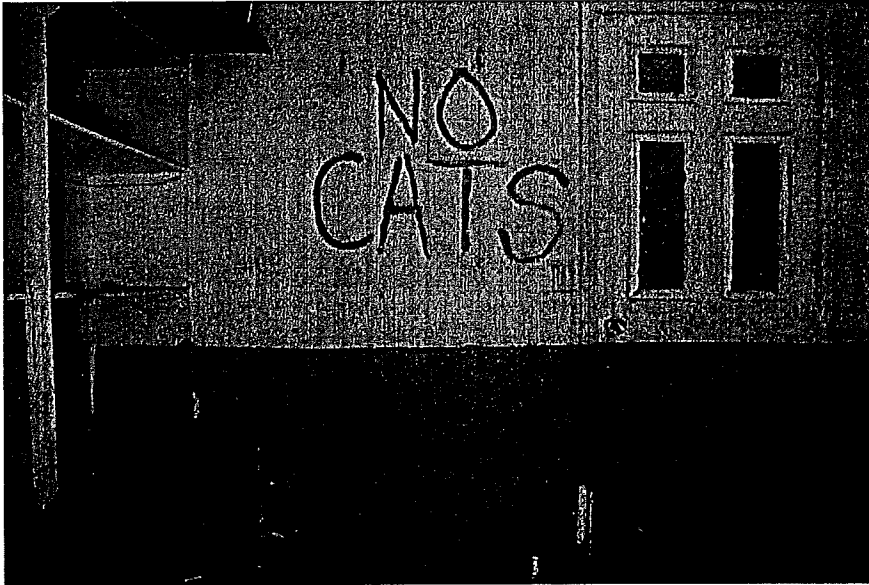


Figure 9. West end of north wall of dog room. Repaired romex at lower left.

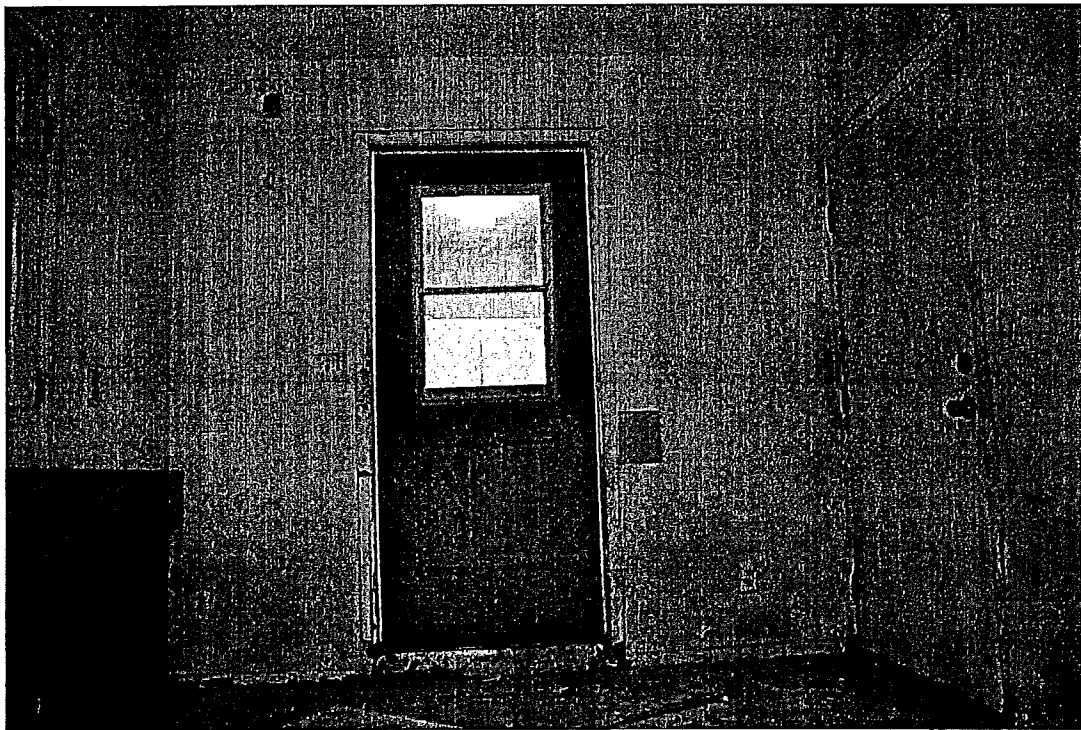


Figure 10. East end of room showing door into laundry (center) and door to south exit on right.

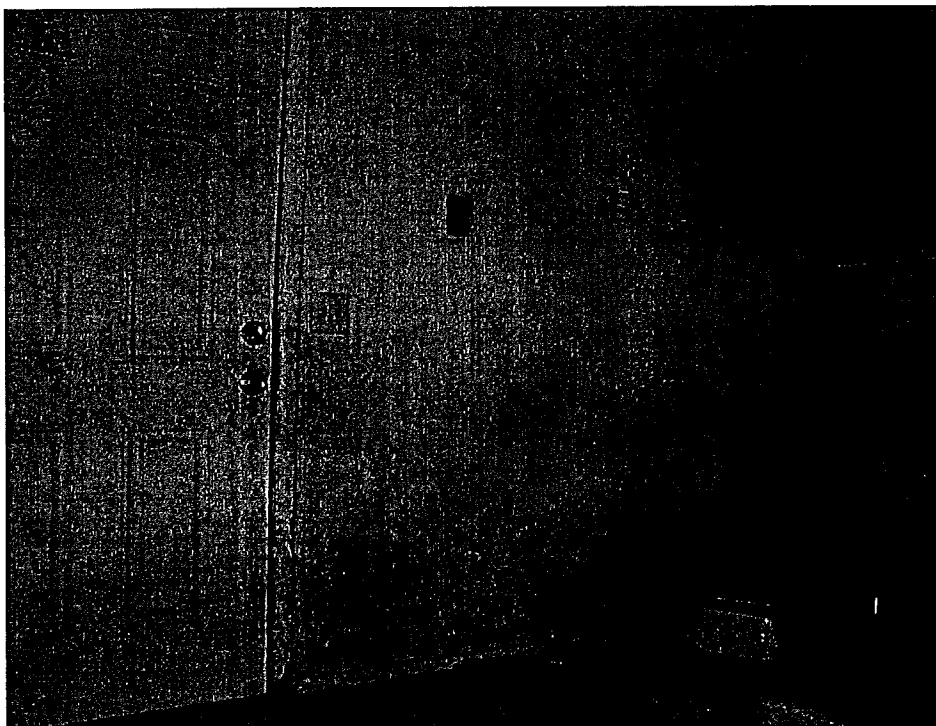


Figure 11. West end of south dog room wall.

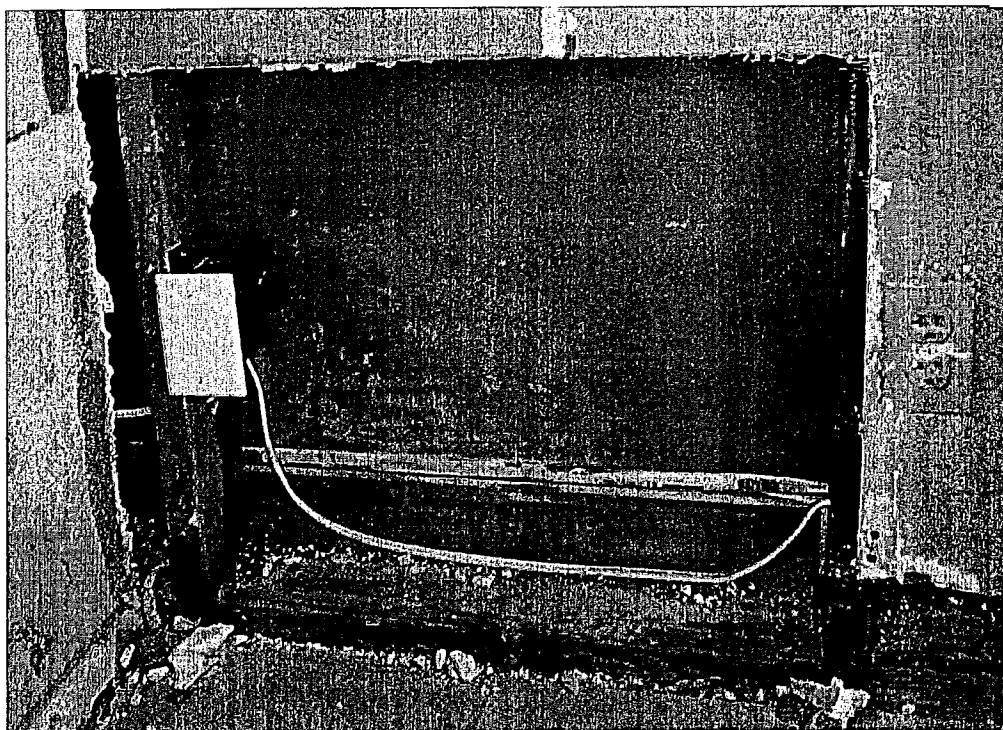


Figure 12. Repaired romex in west end of north dog room wall.

Figure 12 shows the location where the romex cable had reportedly been chewed on by a dog. It was apparent that this segment of cable had been replaced since the incident. A "new" segment of 14/2 romex had been extended from the receptacle in the wall to the east to a plastic junction box that had been installed to make a legal splice in. NEC (National Electrical Code) requires that all splices in any wiring must be accessible from the living space so this junction box was required to make such a splice. As shown in Figure 13, the splice was made using typical "wire nut" splice connectors that are suitable for the purpose.

This circuit was then traced to the source using a toner and it was determined and verified that the circuit was serviced via the 15 amp single pole circuit breaker in the #24 position in the panel as shown in Figure 14. This circuit was limited to receptacles and lighting in the southwest corner of the home.



Figure 13. Wire nuts in junction box.



Figure 14. Breaker 24 serves repaired circuit.

Figure 15 shows the remaining end of the original circuit romex at that location, which is a 14/2 cable. It is apparent that the wall was open such that the dog was able to access this cable as evidenced by the blue paint on the external sheathing and the blue paint on the interior backside of the drywall on the opposite side of that wall space. Figure 16 shows that this original segment extended around the corner into the west wall where it was terminated at another duplex receptacle which is a typical residential installation.

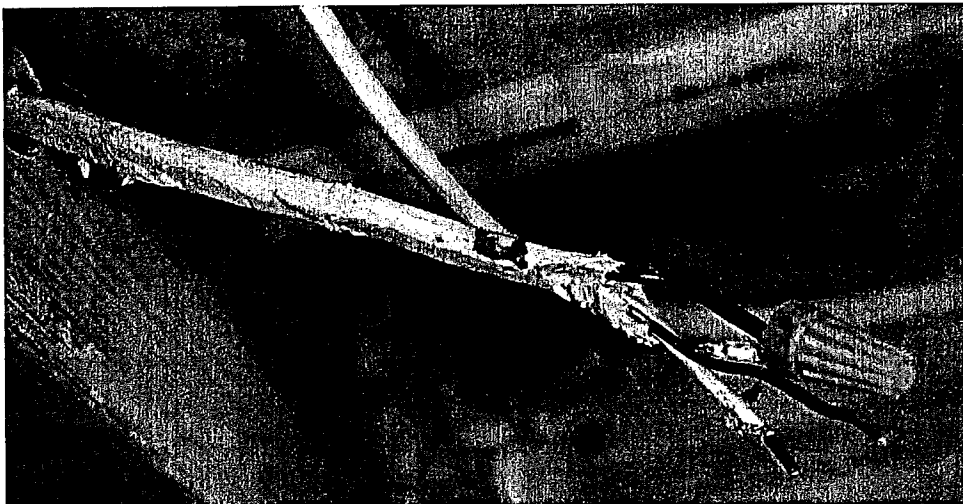


Figure 15. Remaining portion of original romex into area of damage.

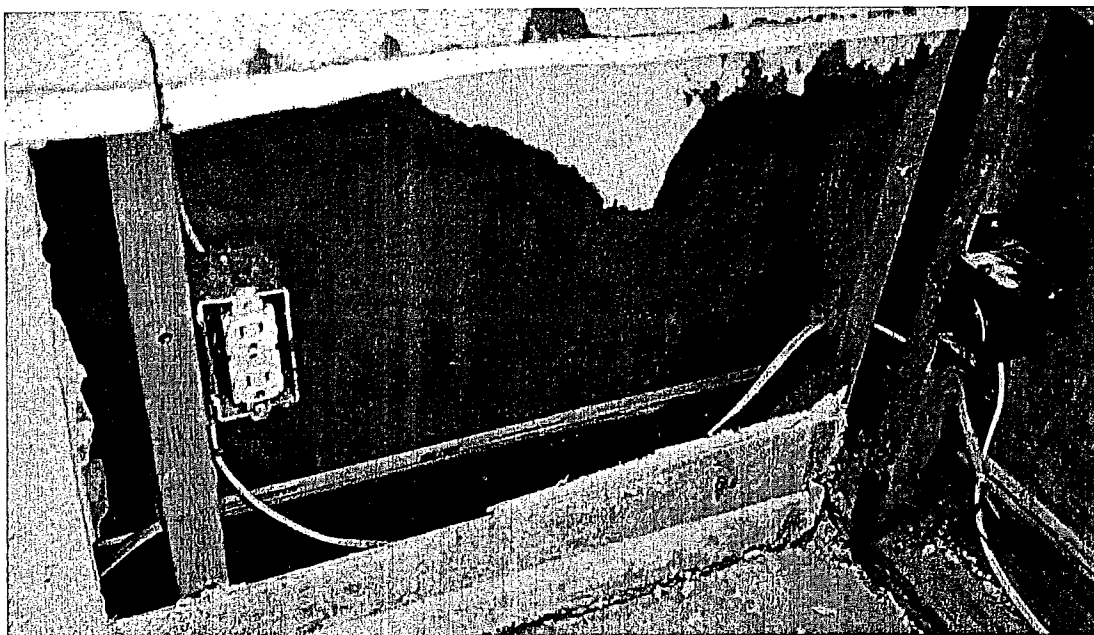


Figure 16. North end of west wall opened to show routing and termination of remaining portion of damaged romex segment.

The testing for a circuit breaker is prescribed by ANSI/NEMA AB4. The typical testing is done to a circuit breaker that has been removed from the system and placed in a specialized test apparatus that can be regulated to flow a prescribed current through the breaker at low voltage. The tripping of the breaker is based on current and not voltage. However, a specialized test based on the ANSI/NEMA protocol was utilized in order to test this system as configured to determine if the HVAC operation could have been affected by a dog chewing on the romex in the wall. The west HVAC was set to run continuously during this testing. The particular tests that were utilized were:

- ANSI/NEMA AB4, Article 5.5: Inverse Time Overcurrent Trip Test: This test is conducted by placing a load of 200 to 300% of the rated current on the breaker and would in this case simulate the current that could be expected if a dog chewed on the cable and caused a short circuit that traveled through the saliva and flesh of the dog's mouth. For this test, a load of about 32 amps was placed on the circuit of the 15 amp breaker as shown in Figure 17. Within less than 20 seconds, the 15 amp circuit breaker tripped (Figure 18) and the current flow ceased. The 200 amp main circuit breaker was unaffected (Figure 19) and the HVAC units continued to operate.
- ANSI/NEMA AB4, Article 5.6: Instantaneous Overcurrent Trip Test. This test is conducted by very quickly ramping the current to multiple times the rating of the breaker and would simulate the dog chewing the cable such that the energized conductor insulation was compromised and it came into direct contact with the neutral or ground, resulting in a direct fault (short circuit). For this test a heavy duty switch was connected to the hot and neutral conductors, then the circuit was energized and the switch was closed (turned on). The 15 am circuit breaker tripped instantaneously, while the 200 amp main breaker was unaffected. The HVAC units continued to operate.

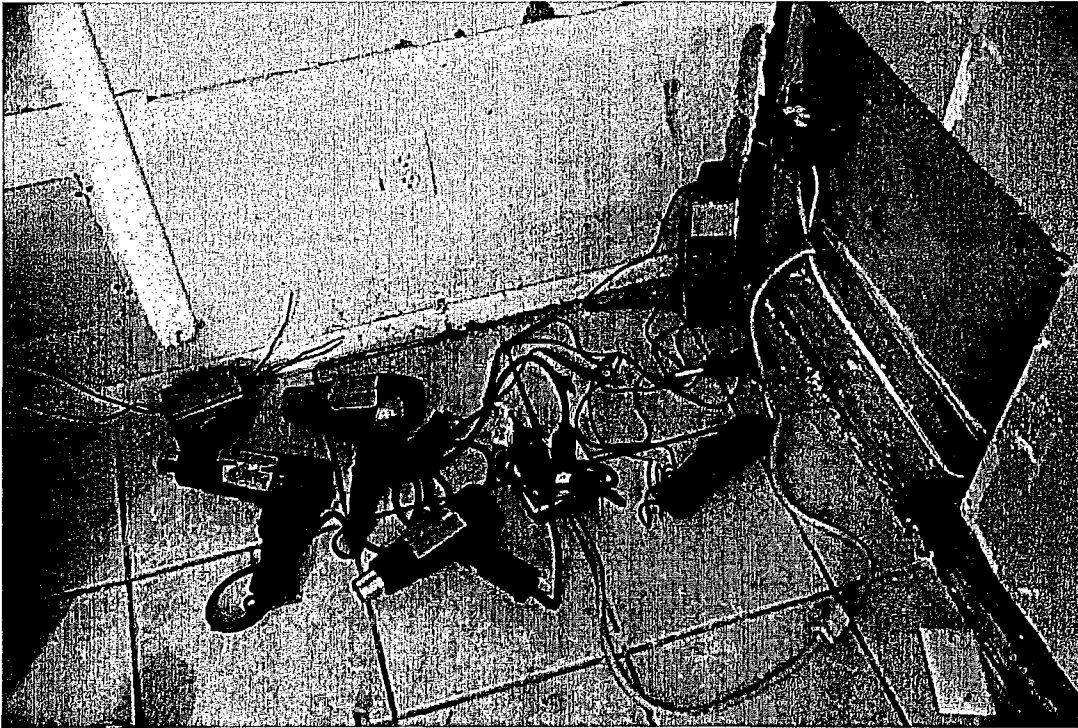


Figure 17. Test equipment utilized for testing circuit breaker coordination and tripping.

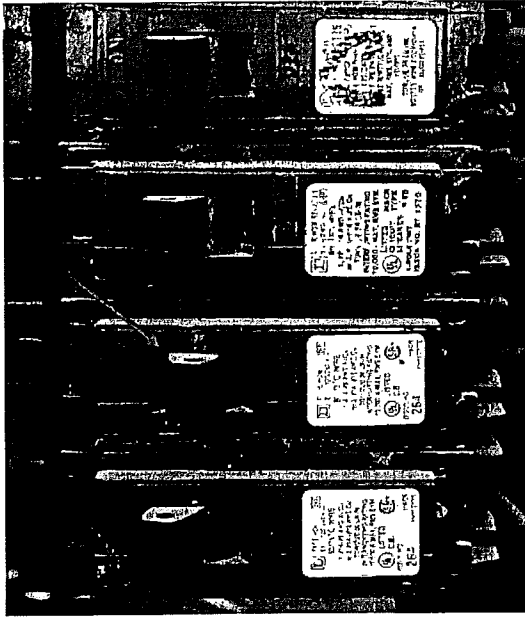


Figure 18. Breaker 24 tripped during tests.

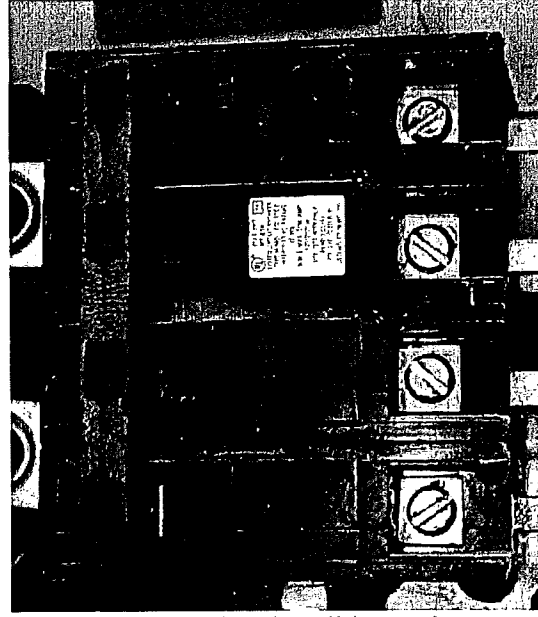


Figure 19. Main breaker did not trip.

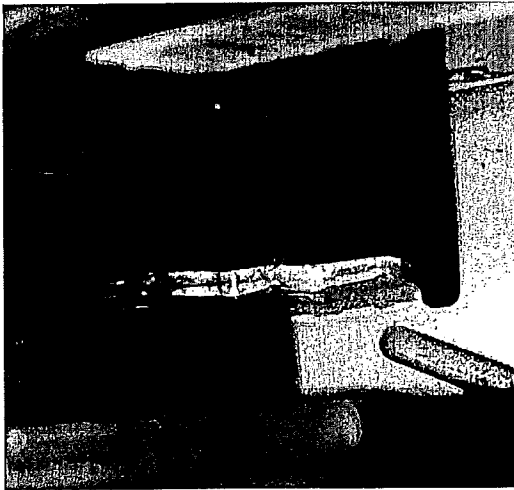


Figure 20. Bus stab at space 24.

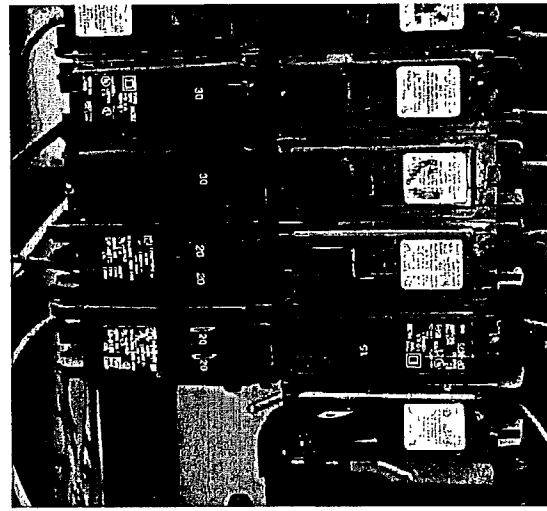
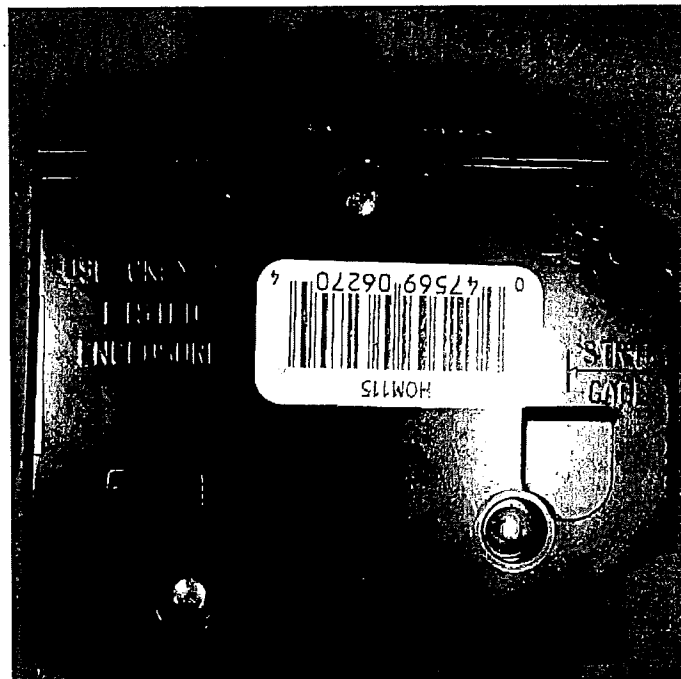
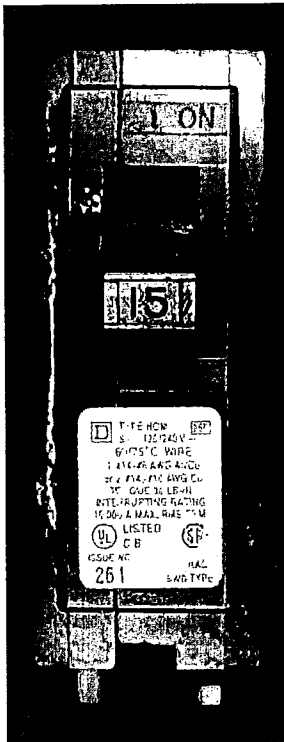


Figure 21. New circuit breaker installed at 24.

The 15 amp circuit breaker was then removed from space 24 and retained as evidence. Figure 20 shows the bus stab where the circuit breaker had been installed into the panel and the factory grease is still present, indicative of no heating or other anomaly of the circuit breaker. A new 15 amp single pole breaker was installed and terminated to the circuit as shown in Figure 21 so power could be restored to the circuit.

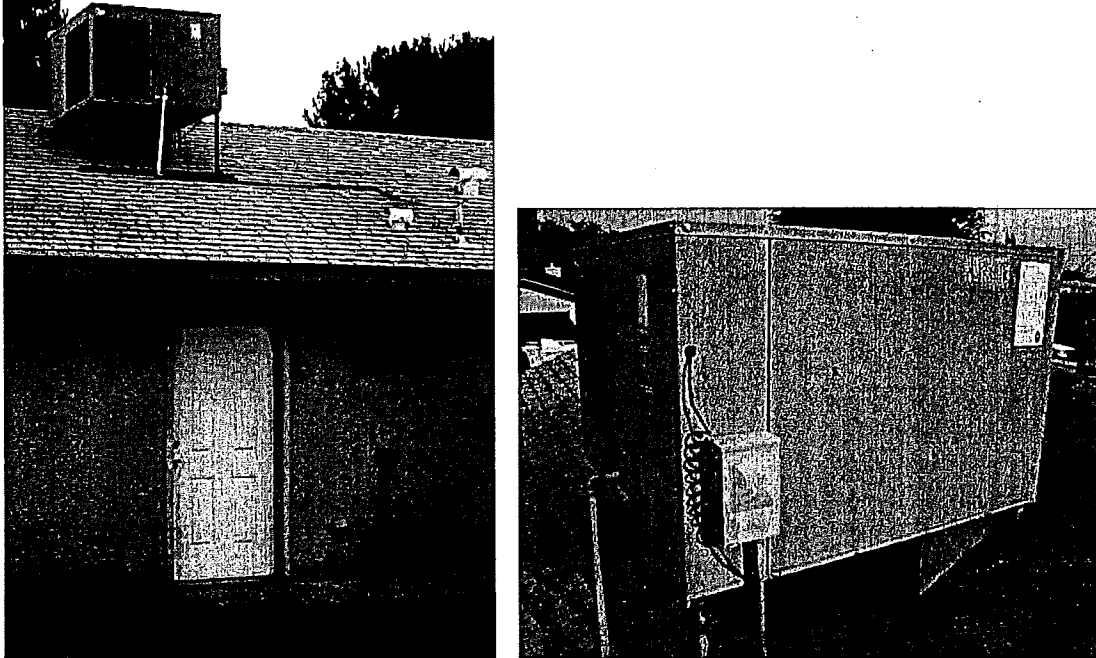
The 15 amp single pole circuit breaker from space 24 was then examined and there was nothing remarkable about the circuit breaker (Figures 22-23).



Figures 22-23. Front and side views of subject circuit breaker from space 24 in electrical service panel.

HVAC Examination and Testing:

HVAC Technical Consultant Ron Ballard inspected the HVAC system that served the west side of the house including the girl's bedroom with closet and the separate room where the dogs were kept, the "dog room". Figures 24-25 show the location of the package HVAC unit on the house.



Figures 24-25. West HVAC unit on roof over west bedroom and dog room.

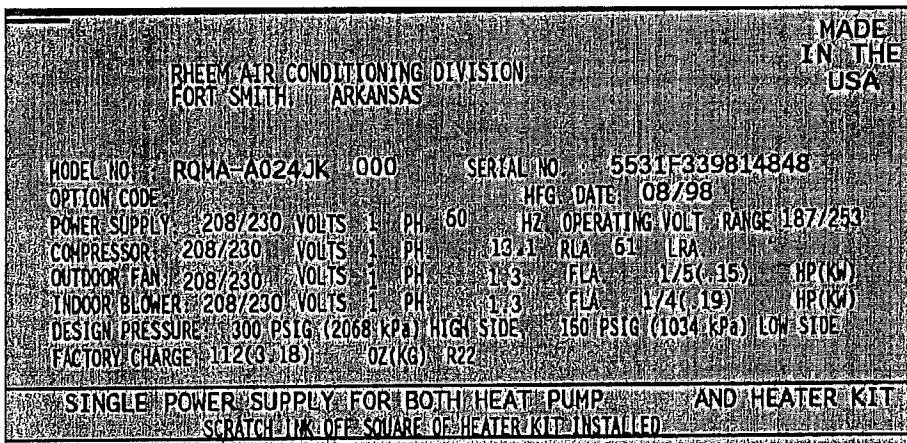


Figure 26. Manufacturing label on west HVAC unit.

Figures 25-26 were taken on the roof. The west HVAC unit is a 2 ton Rheem HP model #RQMA-A024JK, serial #5531F339814848. Unit was built in the 33rd week (approximately August) of 1998. Fuses in unit disconnect were rated for 30 amps and the

breaker in panel was also a 30 amp, 2 pole. The west HVAC unit was tested through the typical cooling cycles and operated normally, producing cool air.

The duct work associated with the west HVAC unit was surveyed in the attic. The unit had two 8" supply runs to the daughter's room and one 7" supply run to the dog room. The return was a single 14" run with a 16x25 inch filter in the daughter's bedroom. There was no return or passage from the dog room for air to exit.

The thermostat and the only return air register for the west HVAC were found in the closet of the girl's bedroom as shown in the Plan View of Figures 2 and 3 and in the Photos of Figures 27-28. Figure 28 shows filter in filter grill. It is extremely bowed up because air is not flowing easily through air filter. Figure 29 shows the return air filter on the ground and the filter was found to be extremely dirty.

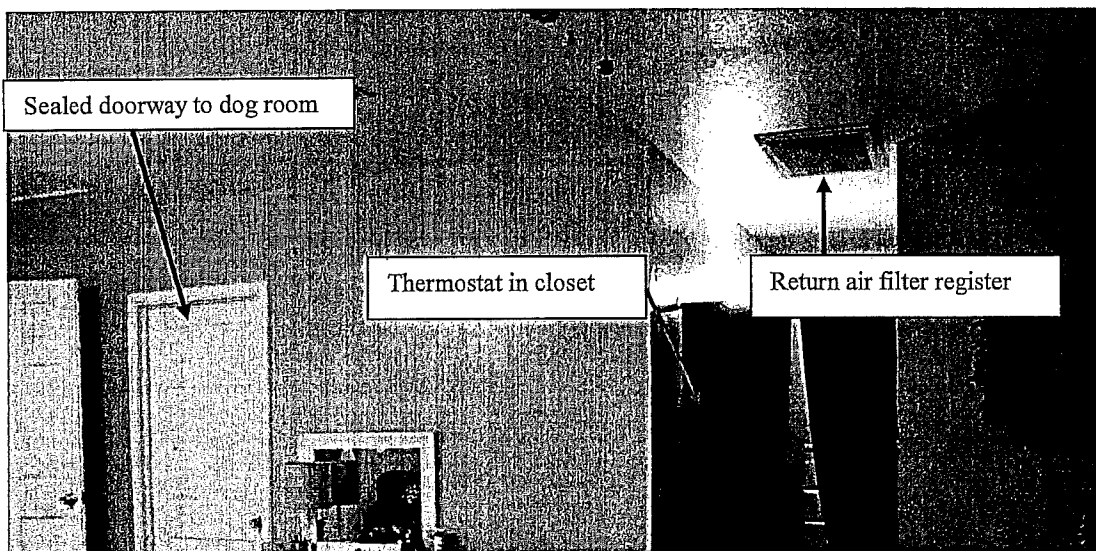
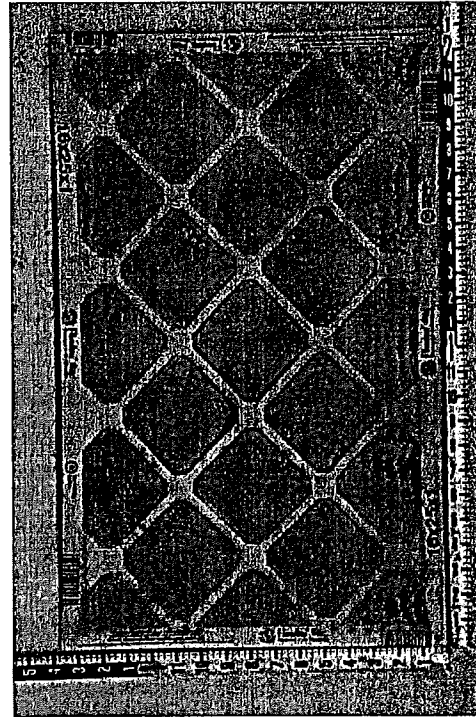
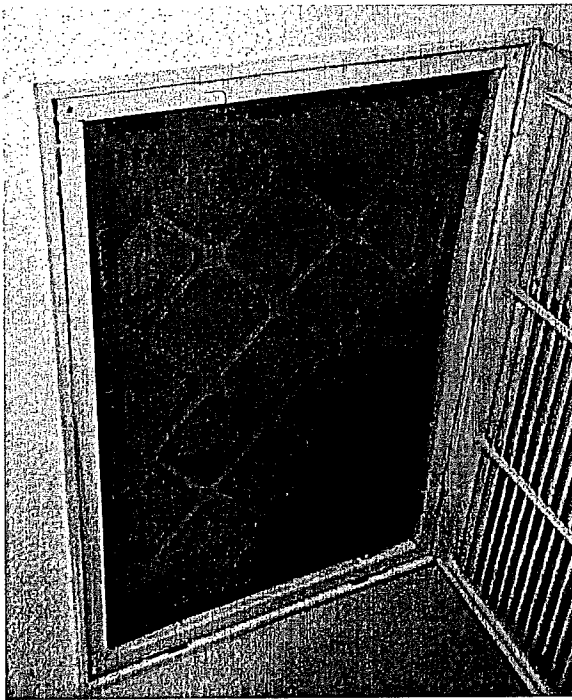


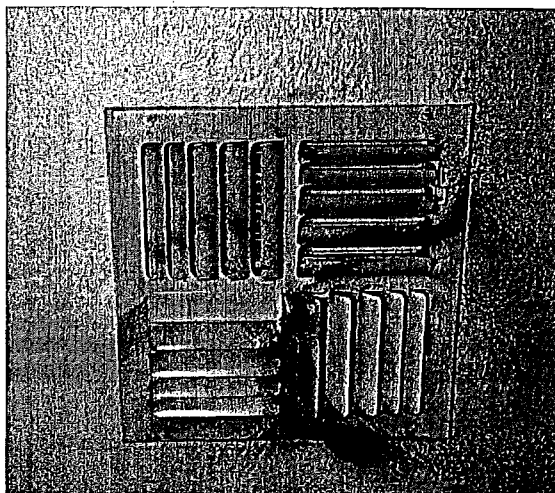
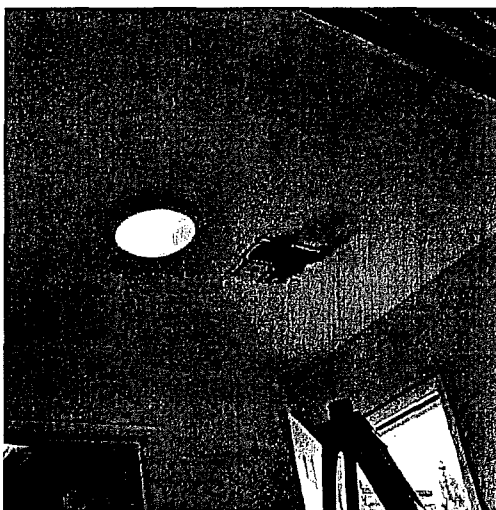
Figure 27. View of sealed dog room passage door and return air filter register from girl's room looking south.



Figures 28-29. Return air filter in register over closet in girl's room and on ground after removal.

At 7:45 am, Mr. Ballard was asked to take a temperature reading in the room where 2 dogs were being held. Temperature was measured at 79.5°F but at the time of the temperature reading, the dogs had been removed and the doors that lead to the laundry area and outside were open.

At this time, Mr. Ballard began setting up equipment to take air flow readings in the room that housed the dogs. The equipment utilized was a Fieldpiece HS36 multimeter with a Model AAV3 flow measurement attachment. There was no return register and only one 10"x10" ceiling mounted supply register in the room. Louvers faced 4 directions on the supply register as shown in Figures 27-28.



Figures 27-28. Single 10" by 10" supply register in dog room.

Two readings were taken from each quadrant of the register with the doors open, and that test was repeated with the doors closed. The readings were then averaged. As mentioned above, the doors created a fairly tight seal on the room when closed. It was remarkably difficult to open the exterior door (which opens inward) when the HVAC unit was blowing air into the room due to the tight seal of the room envelope.

Following is a chart with doors open:

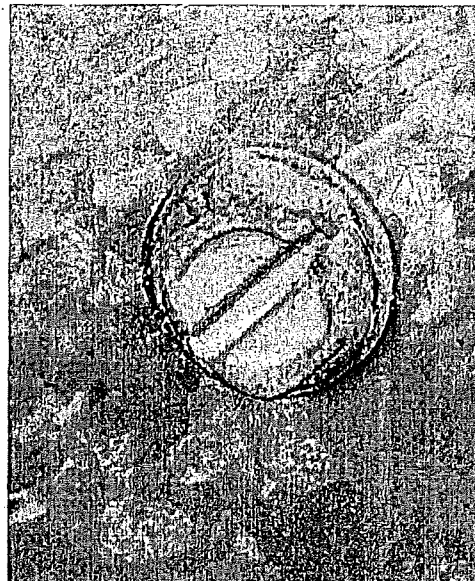
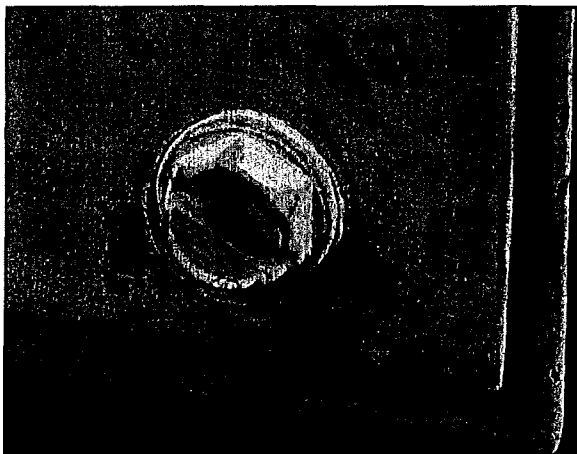
Register	Airflow Readings			
Quadrant	1	2	Total	Average
SE	545	545	1090	545
SW	465	485	950	475
NW	245	300	545	273
NE	165	299	464	232
			Average CFM Total	1525
			Average CFM	381
			Factor for register size (.83x.83)	0.689
			Calculated CFM	263

Following chart with doors closed:

Register	Airflow Readings			
Quadrant	1	2	Total	Average
SE	372	230	602	301
SW	252	200	452	226
NW	137	122	259	130
NE	29	42	71	36
			Average CFM Total	692
			Average CFM	173
			Factor for register size (.83x.83)	0.689
			Calculated CFM	119

As the charts show, there is a significant reduction of air flow into this room when the doors are closed. The CFM's (Cubic Feet per Minute) dropped from 262 CFM with doors open to 119 CFM with doors closed.

A closer inspection of the west HVAC unit on the roof found that the screws holding the panel for the controls showed no signs of having been opened for some time (Figures 29-30). The screws that held the panel cover inside unit had not been opened. One interior cover screw had 1/8 inch of dust on it. Figure 31 shows that there is a significant amount of dust on the interior wiring and components as well. This would indicate that no-one had serviced this unit in quite some time.



Figures 29-30. Mounting screws on west HVAC exterior and interior panel covers for accessing service bay area.

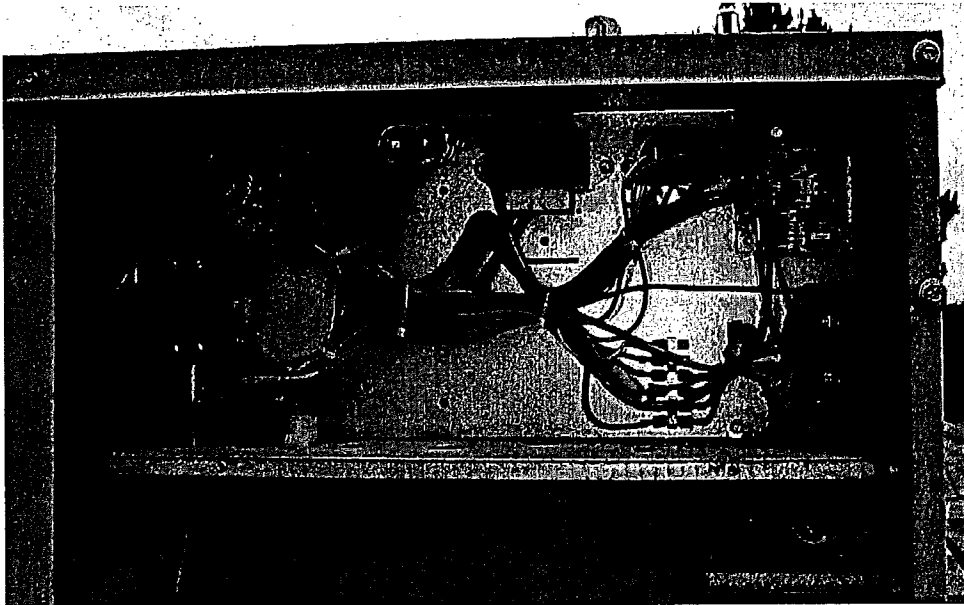


Figure 31 Service bay area inside west HVAC unit.

(F) ANALYSIS:

The electrical systems of the home were found to be in serviceable condition with no anomalies. The segment of romex cable that had reportedly been chewed through by a dog had been removed and replaced, therefore could not be analyzed, however the testing conducted by EFX was effective in determining the possibility of whether if a dog did chew through that cable and cause any faulting (short circuit), if that could cause any failure of the HVAC system.

The circuit breaker that served and protected the lighting and receptacle circuit which included this segment was a typical 15 amp single pole circuit breaker installed in the typical fashion within the main service panel. The circuit breaker that served and protected the west HVAC unit was a typical 2-pole 30 amp circuit breaker also installed within the service panel. As such, these circuit breakers are in parallel and the only possible way that a fault on the receptacle circuit could affect the HVAC is for it to have tripped the 200 amp main circuit breaker, which would have turned off the power to the entire house. This of course would have resulted in spoiling of food in the refrigerator, freezer, etc., as these circuit breakers do not reset themselves. The only scenario where the 200 amp breaker could possibly trip due to a downstream fault in the circuit would be if the 15 amp circuit breaker failed to clear that fault for a significant amount of time.

The testing conducted by EFX utilized the series system of the 15 amp receptacle circuit breaker with the 200 amp main breaker to comprehensively test for the unlikely event of tripping the 200 amp main due to any fault at this location in the circuit.

There was no evidence of any failure of the electrical system of the home that could cause or contribute to any failure of the HVAC system. There was no evidence of any electrical or mechanical failure of the HVAC system.

The chart in Figure 32 shows the calculated available fault current at the service panel and at the location of the damaged romex in the northwest corner of the dog room. The available source fault current (Isc) of 10,792 amps at the SRP transformer is from SRP literature and basically says that if you shorted out the wires at the transformer that is all the current you would get there. The impedance or resistance of the conductors as you travel downstream from the source will significantly reduce the amount of current that you can draw with a "bolted fault" or a dead short. The Isc or greatest possible fault current available at the main service panel is 4,641 amps (green highlight) and the Isc at the receptacle is 483 amps (yellow highlight). This tells us that the most current we could possibly get through the electrical system due to a fault at that location where the dog reportedly chewed through the wires would be 483 amps, which is 32 times the 15 amp rating and 2.4 times the 200 amp breaker rating. It is important to note that since the fault was at the romex, 483 amps is the greatest possible current that would flow through the 200 amp main which is in series upstream. The actual short circuit amperage for a dog chewing on the romex was likely much lower but we will use worst case possible for our calculations and analysis.

Locations	Length	Start Isc	Constant	# of cond	voltage	f factor	M	Isc @ end	Conductors used
	L	I	C	n	E				
SRP xfmr to SES	100	10792	5876	1	240	1.32543	0.43	4641	3-1/0 Aluminum
SES to damaged romex	50	4641	389	1	120	8.609654	0.104	483	14/2 copper romex

Note: Isc of 10792 amps for SRP xfmr secondaries from SRP Electric Service Specifications pg 1-31, Table 1.

Note: calculations and Constant factors per formulas and tables given in

Cooper Bussmann SHORT CIRCUIT CURRENT CALCULATIONS

Figure 32. Calculations for short circuit current available at service panel and subject romex segment.

Appendix 1 below shows the time-current curves for a 15 amp Square D circuit breaker. The red lines show the results of EFX testing at 200% of the rated current and we see that the circuit breaker tripping at less than 20 seconds is within the manufacturer's specified results (shaded area on chart). The green lines on the chart show that this breaker will trip within 1/60th of a second at 32 times the current or a direct short. This was shown to be functional on the 15 amp breaker, as there was not time to even start the stop watch timer before the breaker tripped for the short circuit test.

Appendix 2 below shows the time-current curves for a 200 amp Square D main circuit breaker. The red lines show the maximum Isc of 2.4 times the rating and it would take from 30 to over 300 seconds for that current to trip the main. From practical experience and "real world" observations of this Journeyman Electrician of 35 years, this does not happen, and would have melted the 14/2 romex, which didn't happen. Clearly, it is impossible that this 200 amp main tripped, therefore it is clearly impossible that any dog chewing on the 14/2 in that wall caused any failure of the HVAC system.

West HVAC System Analysis:

Adtek Accuload software was utilized to conduct minimum A/C load calculations and CFM's for the room. Appendix 3 below shows the results of those calculations with 28 dogs in the room (job #1005-1). Appendix 4 below shows the results of those calculations with 20 dogs in the room (job #1005-2).

Page 1 on the line that shows "room internal loads" has sensible and latent BTU gains. Page 2 on the line "dog room" shows summer calculated CFMs. At the bottom of each load calculation it shows the total cooling load in BTUs.

Essentially, the results demonstrate that with good airflow and a clean filter, the 2 ton unit is not adequate to cool the space. Obviously, with a totally plugged air filter and no return from the sealed room, that already inadequate condition is exacerbated significantly. It is very important to realize that in the configuration of this west HVAC system, there are 3 supply ducts from the same manifold, so if you block the airflow to one of those (by closing doors in a sealed room), the already inadequate airflow will be

diverted to the other 2 ducts. The other 2 supplies are also in the room with the return so that is the more natural flow.

A plugged return filter will cause a number of problems with an HVAC unit besides poor airflow and poor cooling, including the likely condition of freezing up the indoor coil (evaporator coil) which will block all the airflow and render the unit completely ineffective.

It is also important to consider the fact that the thermostat that controls the west HVAC was in the closet below the return air filter register. With the airflow blocked to the dog room, the unit would cool the space within the girl's room and satisfy the thermostat while having negligible cooling effect on the dog room.

Some very practical issues are that the heat given off by the dogs would result in significant heat gain within the room and with no airflow, 28 dogs would use the available oxygen rapidly. The room volume was less than 900 cubic feet of air. These animals also pant to cool themselves so they will significantly raise the humidity, making it much more likely that the indoor coil will freeze up even with adequate ventilation due to the plugged filter.

Even if the west HVAC unit did not freeze up, clearly there would not be sufficient airflow to cool the animals and likely not enough turnover of the air to replenish the oxygen as needed.

Recommendations:

The first remedy to the problem could be to have two 8" supply ducts to the dog room or one 10" run. You would need an air return in this room or an exhaust fan. A 2 ton unit cannot handle the heat load or CFMs for these two rooms. It would need to have at least a 2 ½ ton unit. The thermostat should be in the dog room as this has the greatest heat load. The second remedy would be to install a 1 ton ductless unit in the dog room and you would still need to have an exhaust fan in the room to replenish the oxygen. No matter which remedy is used it is imperative to keep the air filters clean.

(G) CONCLUSION:

The reported damage to the circuit caused by the dog chewing on the romex could not have possibly caused any interruption of the west HVAC system operation.

The west HVAC system was wholly inadequate for this type of utilization of the "dog room". This inadequate condition was exacerbated by the airflow limitations with the room and fact that the HVAC system was neglected as to maintenance including the basic requirement of changing the filter.

These conclusions were reached with reasonable scientific certainty based on:

1. Forensic Examinations of the scene and evidence at the scene.
2. Testing of the electrical system at the scene.
3. Testing of the HVAC system at the scene.
4. The undersigned investigator's education, training, and experience as a Journeyman Electrician and Registered Professional Electrical Engineer.

(H) COMMENTS:

The statements and conclusions contained herein are based on the information given to and gathered by Engineering Forensics Experts at the time of this report. If additional information becomes available we reserve the right to change our conclusions.

The evidence listed below will be held in secure storage at Engineering Forensics Experts LLC.

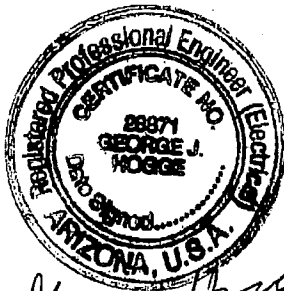
Thank you for the opportunity to be of service.

George J. Hogge P.E. 7/12/14

SIGNATURE

DATE

George J. Hogge PE
Principle Forensic Engineer



George J. Hogge

(I) EVIDENCE CUSTODY & CONTROL



ENGINEERING FORENSICS EXPERTS LLC

EFX File No: 4874-0701

Maricopa County Sheriff's Office

Attn: Lt. David Toporek

Date of Incident: June 19, 2014

Location of Incident: 15723 E. Appleby Road, Gilbert, AZ 85298

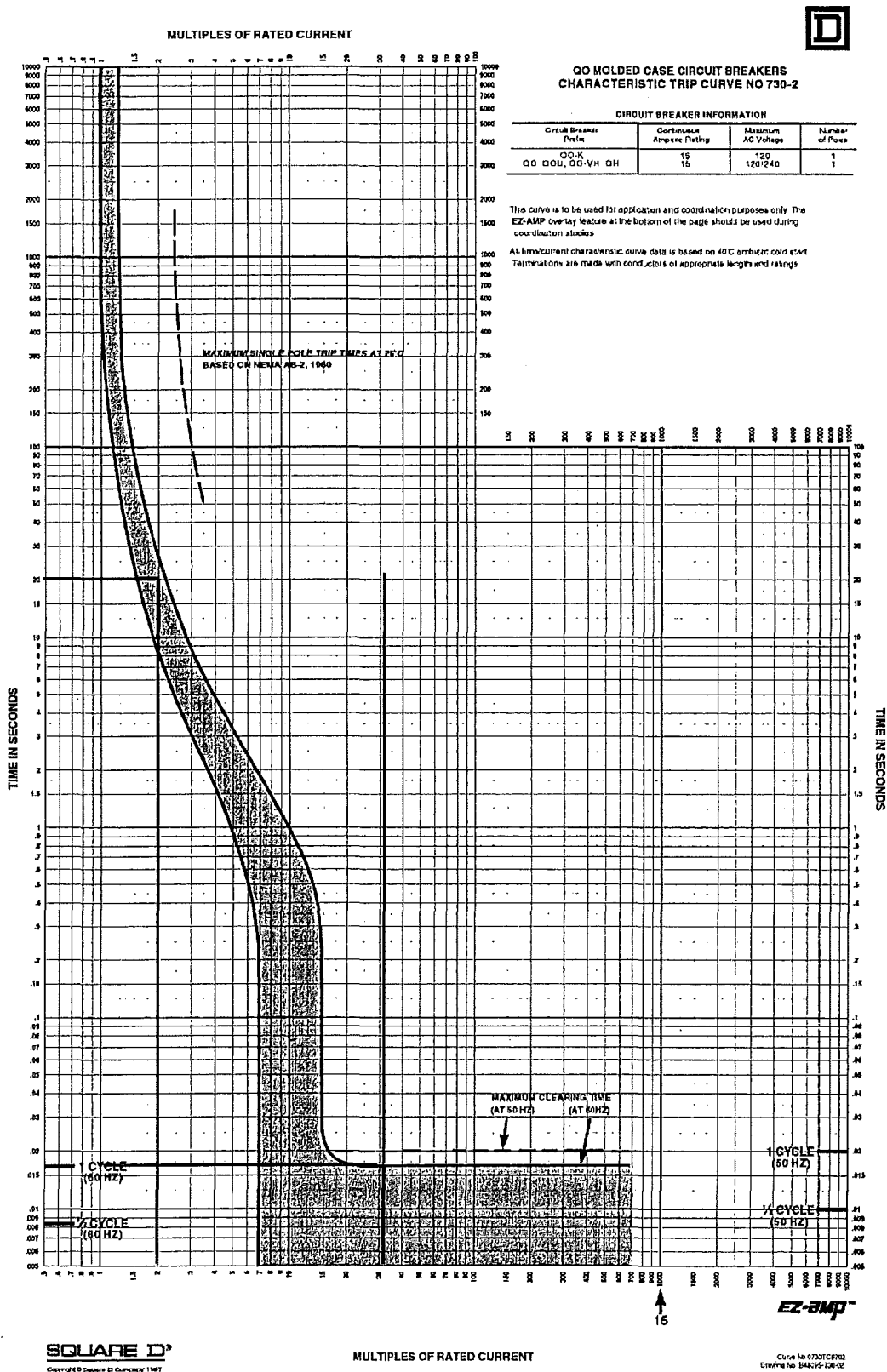
Date Evidence removed: July 9, 2014

#	Description	Location From
1	15 amp single pole circuit breaker	Service panel on west end of home, space 24

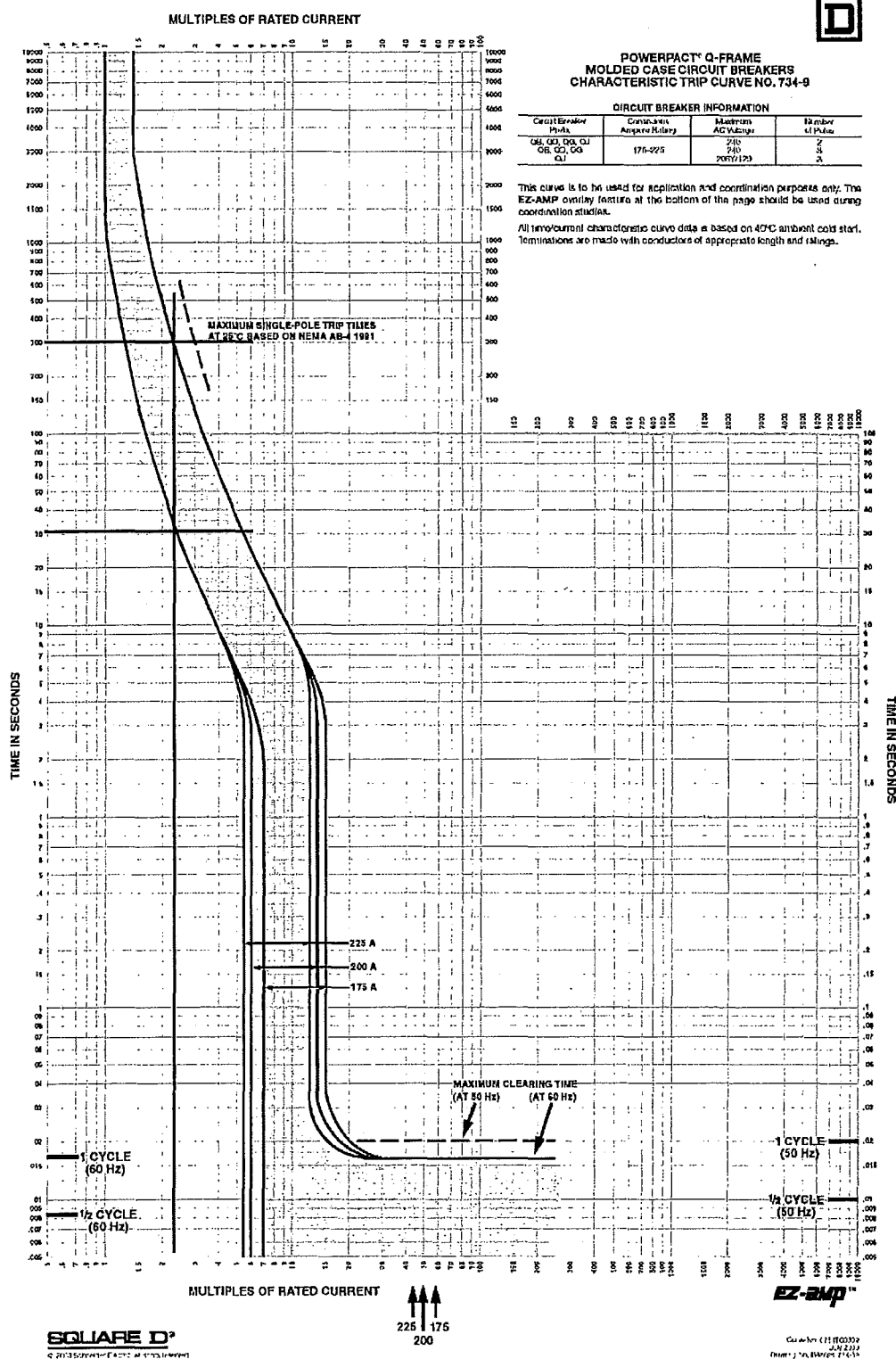
Note:

Numerous other evidence artifacts were collected and retained by MCSO and are not listed in this report.

APPENDIX 1. TRIP CURVES FOR 15 AMP SQ D CIRCUIT BREAKER



APPENDIX 2. TRIP CURVES FOR 200 AMP SQ D CIRCUIT BREAKER



APPENDIX 3. HVAC CALCULATIONS WITH 28 DOGS IN ROOM

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 602-228-7752 - ronnsue2010@hotmail.com
 Sales Consultant: Ron
 Job#: 1005-1
 Date: 07/11/2014

Green Acre Boarding MCSO IR 14-014274
 15723 E. Appleby
 Gilbert, AZ 85298

System I (Average Load Procedure)

Design Conditions

Location: Phoenix AP, Arizona Elevation: 1133 ft Daily Range: High
 Input Data: Outdoor Dry Bulb Indoor Dry Bulb Latitude: 33° N Design Grains: -8
 Summer: 108 75 Heated Area 454 Sq.Ft.
 Winter: 37 70 Cooled Area 454 Sq.Ft.

Heat/Loss Summary (July Heat Load Calculations)

	Gross Area	Loss	Sensible Gain	Latent Gain
Walls	474.25	863	846	0
Windows	48	2012	2746	0
Doors	42	776	966	0
Ceilings	453.75	734	1225	0
Skylights	0	0	0	0
Floors	62	2024	0	0
Room Internal Loads		0	6440	5040
Blower Load			1707	0
Hot Water Piping Load		0	0	0
Winter Humidification Load		0	0	0
Infiltration		1361	714	-107
Ventilation		0	0	0
Duct Loss/Gain EHLF=0.06 ESGF=0.13		466	1682	0
AED Excursion		n/a	0	n/a
Subtotal		8236	16326	4933
Total Heating		8236	Btuh	
Total Cooling		21259	Btuh	



Approved ACCA
 MJB Calculations

17 Linear ft. of Hydronic Baseboard

*Calculations are based on the ACCA Manual J 8th Edition and are approved by ACCA. All computed calculations are estimates based on building use, weather data, and inputted values such as R-Values, window types, duct loss, etc. Equipment selection should meet both the latent and sensible gain as well as building heat loss.

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Sales Consultant: Ron
Job#: 1005-1
Date: 07/11/2014

Green Acre Boarding MCSO IR 14-014274
15723 E. Appleby
Gilbert, AZ 85298

Equipment Selection

Design Conditions

Design Location: Phoenix AP, Arizona	Relative Humidity: 45%
Elevation: 1133 ft	Summer Outdoor Design: 108
Latitude: 33° N	Winter Outdoor Design: 37
Daily Range: High	Summer Indoor Design: 75
Design Grains -8	Winter Indoor Design: 70

Heating Equipment

Mfg:	Altitude Correction Factor: .04
Model:	Heating Input (btuh):
AHRI Ref #:	Heating Output (btuh):
Efficiency (AFUE):	Calculated HeatPump Output @ Design (btuh):

Cooling Equipment

Mfg: Rheem	Altitude Correction Factor: .03
Outdoor Unit Model: RQMA-A024JK	Rated Total Cooling (btuh): 24000
Coil:	Sensible Cooling (btuh): 18000
Furnace:	Latent Cooling (btuh): 6000
AHRI Ref #:	SEER - EER@95: 14 - 11.5
	Heat Pump HSPF: 9.5

Summary

<u>MJ8 Calculations</u>	<u>Status</u>	<u>Equipment Capacities</u>
Sensible Gain (btuh): 16326	Sufficient	Sensible Capacity (btuh): 18000
Latent Gain (btuh): 4933	Sufficient	Latent Capacity (btuh): 6000
Total Heat Gain (btuh): 21259	Sufficient	Total Capacity (btuh): 24000
Heat Loss (btuh): 8236	Not Sufficient	Heating Capacity (btuh):

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Green Acre Boarding MCSO IR 14-014274
15723 E. Appleby
Gilbert, AZ 85298

Sales Consultant: Ron
Job#: 1005-1
Date: 07/11/2014

System I CFM

Duct sizes and velocities based on settings selected in the setup screen.

Item Name	Return Velocity	*Duct sizes calculated using this CFM.		Winter Calculated CFM	Summer Calculated CFM	Winter System CFM	Summer System CFM
		RA Duct Size	Supply Velocity SA Duct Size				
System I	0		0	150	742	0	* 0
Closet	0		0	25	39	0	* 0
Daughters Bedroom	0		0	97	272	0	* 0
Dog Room	0		0	27	432	0	* 0

APPENDIX 4. HVAC CALCULATIONS WITH 20 DOGS IN ROOM

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 15723 E. Appleby
 Gilbert, AZ 85298

Sales Consultant: Ron
 Job#: 1005-2
 Date: 07/11/2014

System I (Average Load Procedure)

Design Conditions

Location: Phoenix AP, Arizona	Elevation: 1133 ft	Daily Range: High
Input Data: Outdoor Dry Bulb	Indoor Dry Bulb	Latitude: 33° N
Summer: 108	75	Design Grains: -8
Winter: 37	70	
	Heated Area	454 Sq.Ft.
	Cooled Area	454 Sq.Ft.

Heat/Loss Summary (July Heat Load Calculations)

	Gross Area	Loss	Sensible Gain	Latent Gain
Walls	474.25	863	846	0
Windows	48	2012	2746	0
Doors	42	776	966	0
Ceilings	453.75	734	1225	0
Skylights	0	0	0	0
Floors	62	2024	0	0
Room Internal Loads		0	4600	3600
Blower Load			1707	0
Hot Water Piping Load		0	0	0
Winter Humidification Load		0	0	0
Infiltration		1361	714	-107
Ventilation		0	0	0
Duct Loss/Gain EHLF=0.06 ESGF=0.13		466	1443	0
AED Excursion		n/a	0	n/a
Subtotal		8236	14247	3493
Total Heating		8236	Btuh	
Total Cooling		17740	Btuh	17 Linear ft. of Hydronic Baseboard



Approved ACCA
 Manual J Calculations

*Calculations are based on the ACCA Manual J 8th Edition and are approved by ACCA. All computed calculations are estimates based on building use, weather data, and inputted values such as R-Values, window types, duct loss, etc. Equipment selection should meet both the latent and sensible gain as well as building heat loss.

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Job#: 1005-2
Date: 07/11/2014

Green Acre Boarding MCSO IR 14-014274
15723 E. Appleby
Gilbert, AZ 85298

Equipment Selection

Design Conditions

Design Location: Phoenix AP, Arizona	Relative Humidity: 45%
Elevation: 1133 ft	Summer Outdoor Design: 108
Latitude: 33° N	Winter Outdoor Design: 37
Daily Range: High	Summer Indoor Design: 75
Design Grains -8	Winter Indoor Design: 70

Heating Equipment

Mfg:	Altitude Correction Factor: .04
Model:	Heating Input (btuh):
AHRI Ref #:	Heating Output (btuh):
Efficiency (AFUE):	Calculated HeatPump Output @ Design (btuh):

Cooling Equipment

Mfg: Rheem	Altitude Correction Factor: .03
Outdoor Unit Model: RQMA-A024JK	Rated Total Cooling (btuh): 24000
Coil:	Sensible Cooling (btuh): 18000
Furnace:	Latent Cooling (btuh): 6000
AHRI Ref #:	SEER - EER@95: 14 - 11.5
	Heat Pump HSPF: 9.5

Summary

<u>MJ8 Calculations</u>	<u>Status</u>	<u>Equipment Capacities</u>
Sensible Gain (btuh): 14247	Sufficient	Sensible Capacity (btuh): 18000
Latent Gain (btuh): 3493	Sufficient	Latent Capacity (btuh): 6000
Total Heat Gain (btuh): 17740	Sufficient	Total Capacity (btuh): 24000
Heat Loss (btuh): 8236	Not Sufficient	Heating Capacity (btuh):

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15723 E. Appleby
Gilbert, AZ 85298

Sales Consultant: Ron
Job#: 1005-2
Date: 07/11/2014

System I CFM

Duct sizes and velocities based on settings selected in the setup screen.

Item Name	Return Velocity	*Duct sizes calculated using this CFM.		Winter Calculated CFM	Summer Calculated CFM	Winter System CFM	Summer System CFM
		RA Duct Size	Supply Velocity SA Duct Size				
System I	0		0	150	648	0	* 0
Closet	0		0	25	39	0	* 0
Daughters Bedroom	0		0	97	277	0	* 0
Dog Room	0		0	27	332	0	* 0