

NO. 92975-1

IN THE SUPREME COURT  
OF THE STATE OF WASHINGTON

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In re the Personal Restraint of Heidi Charlene Fero.

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Brief of Amicus Curiae The Innocence Network In Support Of  
Respondent Heidi Charlene Fero

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## **I. IDENTITY AND INTEREST OF AMICI**

The Innocence Network is an association of more than sixty organizations dedicated to providing pro bono legal and investigative services to convicted individuals seeking to prove their innocence. The sixty-nine current members of the Network represent hundreds of prisoners with innocence claims in all 50 states and the District of Columbia, as well as Canada, the United Kingdom, Ireland, Australia, New Zealand, and the Netherlands. Based on its experience exonerating innocent individuals and examining the causes of wrongful convictions, the Network has become keenly aware of the role that unreliable or improper scientific evidence has played in producing miscarriages of justice, particularly in cases such as the instant case where the prosecution is almost entirely dependent on expert opinions. The “science” underlying such convictions has been exposed as flawed, disputed, or outright false.

Examination of the post-conviction-DNA-based exonerations has demonstrated that flawed or inaccurate forensic science testimony has contributed to more than 50% of those wrongful convictions. Therefore, especially in science-dependent cases such as the present one, the Network is committed to ensuring, as an essential component of a fair and just determination of the facts, that the scientific underpinnings of expert testimony are fully examined.

## II. INTRODUCTION

The scientific underpinnings of the Shaken Baby Syndrome (“SBS”) hypothesis have been substantially discredited by scientific research, medical studies, and legal literature. The SBS hypothesis—which has *never* been validated by medical or evidence based studies and does not stand up to scrutiny—posits that the presence of three neurological symptoms—the so-called diagnostic triad—are, in the absence of an alternative explanation, exclusively caused by an adult violently abusing a child. Prosecutors rely on the presence of the diagnostic triad as conclusive evidence of child abuse. In many SBS cases, the defendant is an otherwise devoted and caring caregiver and there is no evidence of abuse other than the testimony of medical experts.

A significant debate has developed in the medical and legal community over the validity and reliability of the SBS diagnosis and its use to secure convictions. Supreme Court Justice Ginsburg herself has expressed “grave doubt” on the use of the SBS hypothesis to support a charge of abuse. *Cavazos v. Smith*, 565 U.S. 1, 132 S. Ct. 2, 181 L. Ed. 2d 311 (2011) (Ginsburg, J., dissenting). Given the grave consequences of “getting it wrong,” numerous courts have held that the developing research on SBS constitutes newly discovered evidence sufficient to

warrant a new trial. The Court of Appeals in the instant case made such a proper determination and this Court should uphold that decision.

### **III. STATEMENT OF THE CASE**

The Innocence Network accepts and adopts the statement of the issue, case, and facts as set forth in the Brief of Respondent Heidi Charlene Fero in support of her Personal Restraint Petition.

### **IV. ARGUMENT**

#### **A. There Is Heated Debate In The Medical Community Over The Validity Of SBS**

SBS refers to the scientifically dubious hypothesis that, in the absence of a major trauma, child abuse may be reliably diagnosed by the mere presence of a triad of symptoms: retinal hemorrhaging, subdural hematoma, and cerebral edema (brain swelling).<sup>1</sup> Keith A. Findley, et al., *Shaken Baby Syndrome, Abusive Head Trauma, and Actual Innocence: Getting It Right*, 12 Hous. J. Health L. & Pol'y 209, 219 (2012); Deborah Tuerkheimer, *The Next Innocence Project: Shaken Baby Syndrome and the Criminal Courts*, 87 Wash. U. L. Rev. 1, 11 (2009); Emily Bazelon, *Shaken-Baby Syndrome Faces New Questions in Court*, N.Y. Times, Feb.

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<sup>1</sup> SBS is also referred to as Abusive Head Trauma. In 2009, the American Academy of Pediatrics recommended that “pediatricians embrace the term ‘abusive head trauma’ to describe an inflicted injury to the head and its contents.” Press Release, American Academy of Pediatrics, *Abusive Head Trauma: A New Name For Shaken Baby Syndrome* (Apr. 27, 2009). Amicus Curiae use the term SBS as that term is consistent with the majority of the sources cited in this brief.

2, 2011 (<http://www.nytimes.com/2011/02/06/magazine/06baby-t.html?pagewanted=all>).

For decades, the so-called “diagnostic triad” was used “to establish beyond a reasonable doubt that the last person with the baby before deterioration occurred must have shaken the baby forcefully, causing fatal injury to the baby’s brain,” and “the medical consensus on this issue was overwhelming.” Ministry of the Attorney General, *Committee Report to the Attorney General: Shaken Baby Death Review*, at 8-9 (Mar. 4, 2011).<sup>2</sup> Currently, however, “[there] is a heated debate in the medical community as to whether a violent shaking of a baby alone can generate enough force to cause the triad of symptoms of traumatic brain injury, and as to whether these symptoms can sometimes be caused by a short accidental fall.” *Commonwealth v. Millien*, 474 Mass. 417, 418 (2016); *Gimenez v. Ochoa*, 821 F.3d 1136, 1145 (2016) (noting the “vigorous debate about [the] validity [of SBS] within the scientific community”); *People v. Ackley*, 497 Mich. 381, 391 (2015) (noting “the prominent controversy within the medical community regarding the reliability of SBS/AHT diagnoses”); *People v. Bailey*, 47 Misc. 3d 355, 373 (2014), *aff’d*, 144 A.D.3d 1562 (“The newly discovered evidence in this case thus shows that there has been a compelling and consequential shift in mainstream medical opinion

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<sup>2</sup> The report was commissioned by the Attorney General of Ontario, Canada.

since [2002] as to the causes of the types of trauma that [the child] exhibited.”); see also *Cavazos*, 565 U.S. at 13 (Ginsburg, J., dissenting) (“Doubt has increased in the medical community ‘over whether infants can be fatally injured through shaking alone.’”); quoting *State v. Edmunds*, 308 Wis. 2d 374, 385 (2008).

Research on SBS has developed along three separate fronts: alternative causes for the diagnostic triad, lucid intervals, and biomechanics. Each area of research is an independent challenge to SBS.

### **1. Numerous Other Medical Conditions Can Mimic SBS**

Researchers now recognize that numerous conditions can mimic SBS, including congenital malformations, metabolic or genetic disorders, hematological disorders, infectious diseases, autoimmune conditions, aneurysms, strokes, and chain reactions to cardiorespiratory arrest, hypoxia, resuscitation, and seizures. Denno, *supra*, at 348 (citing numerous research studies). One study reports that 46% of asymptomatic infants have subdural hemorrhages, a supposed hallmark of the SBS diagnostic triad, following a normal birth. Denno, *supra*, at 348-349; citing A.N. Guthkelch, *Problems of Infant Retino-Dural Hemorrhage with Minimal External Injury*, 12 Hous. J. Health L. & Policy 201, 206 (2012). This developing research calls into question the central premise of SBS:

that the diagnostic triad can *only* be caused by violent shaking. The Court of Appeals held that evidence of this research provides an independent challenge to the SBS hypothesis and the State does not contest this.

**2. Infants May Experience A Lucid Interval Of 24 To 72 Hours Between Suffering Head Trauma And The Onset Of Symptoms**

A corollary of the SBS hypothesis is that the onset of the diagnostic triad immediately follows the injury and, therefore, the last person with a child before the onset of symptoms is responsible for the abuse. Findley, *supra*, at 225-226; *but see* David Chadwick, MD, et al., *Shaken Baby Syndrome—A Forensic Pediatric Response*, 101 *Pediatrics* 321, 321 (1998) (“Infants simply do not suffer massive head injury, show no significant symptoms for days, then suddenly collapse and die.”).

Studies have shown that children suffering fatal head injury may be lucid for more than seventy-two hours between the time of injury and the onset of symptoms. Tuerkheimer, *supra*, at 18. Because a lucid interval makes it impossible to pinpoint exactly when an injury was inflicted, it is a fallacy to automatically presume that the caregiver who was last with the child before the onset of symptoms was responsible.

**3. Biomechanical Research Has Shown That The Shaking Of A Child By An Adult Cannot Generate Sufficient Force To Cause The Triad**

SBS further theorizes that the rapid acceleration and deceleration of shaking causes movement of the brain within the skull, resulting in the traumatic rupture of bridging veins, retinal blood vessels, and nerve fibers throughout the brain. Findley, *supra*, at 219; Deborah Denno, *Concocting Criminal Intent*, 105 Geo. L.J. 323, 338 (2017); citing John Caffey, *The Whiplash Shaken Infant Syndrome: Manual Shaking by the Extremities with Whiplash-Induced Intracranial and Intraocular Bleedings, Linked with Residual Permanent Brain Damage and Mental Retardation*, 54 Pediatrics 396, 401 (1974).

Studies in biomechanical research have shown that this premise is problematic because human beings simply are not capable of creating the levels of rotational acceleration necessary to cause traumatic brain injuries in infants by shaking alone. Goldsmith W, Plunkett J. *A Biomechanical Analysis of the Causes of Traumatic Brain Injury in Infants and Children*. Am. J. Forensic Med. Pathol. 25, 89-100 (2004); Prange MT, Coats B, Duhaime AC, Margulies SS. *Anthropomorphic simulations of falls, shakes, and inflicted impacts in infants*, 99 J. Neurosurg. 143 (2003). These studies demonstrate that shaking alone is unlikely to cause SBS. Findley, *supra*, at 228.

**B. The Debate Over The Validity Of The SBS Hypothesis Is Ongoing And Continues to Develop**

The medical community now acknowledges questions about the scientific validity of the SBS hypothesis. In 2003, however, SBS remained largely accepted. Challenges to SBS at that time were minimal and considered fringe opinions at most.

One year *prior* to the child's injury in this case, the American Academy of Pediatrics ("AAP") took the position that SBS was a "clearly definable medical condition" and a "serious ... form of child abuse." Committee on Child Abuse & Neglect, *Shaken Baby Syndrome: Rotational Cranial Injuries-Technical Report*, 108 Pediatrics 206, 206-208 (2001); *see also*, Chadwick, *supra*, at 321 (characterizing SBS as a "well-characterized clinical and pathological entity with diagnostic features in severe cases virtually unique to this type of injury..."). The AAP further asserted that in severe cases "the child usually becomes immediately unconscious and suffers rapidly escalating, life-threatening central nervous system destruction." Committee on Child Abuse & Neglect, *supra*, at 207.

It was not until 2009 that in the face of growing research questioning the validity of SBS the American Academy of Pediatrics acknowledged the growing debate over SBS:

Few pediatric diagnoses engender as much debate as [abusive head trauma] ...

Controversy is fueled because the mechanisms and resultant injuries of accidental and abusive head injury overlap, the abuse is rarely witnessed, an accurate history of trauma is rarely offered by the perpetrator, there is no single or simple test to determine the accuracy of the diagnosis, and the legal consequences of the diagnosis can be so significant.

Cindy Christian, Robert Block, and the Committee on Child Abuse and Neglect, *Abusive Head Trauma in Infants and Children*, Pediatrics, Vol. 123, at 1409-1410 (2009).

The AAP also dropped its assertion that the onset of the diagnostic triad occurs “immediately” after a traumatic event.

Norman Guthkelch—the British pediatric surgeon who published the initial research that laid the foundation for SBS—acknowledged *in 2012* that SBS remained an unproven hypothesis that needed to be “independently evaluated by scientists who are not involved in this controversy.” Guthkelch, *supra*, at 202-203. While Guthkelch did not expressly condemn the hypothesis, he did say that “it is wrong to fail to advise parents and courts [that] these are simply hypotheses, not proven medical or scientific facts.” *Id.* at 207. Also in *2012*, the AAP published its first systematic review of the “best available evidence” of SBS and concluded that even the highest quality studies are “fraught with circular reasoning,” and subject to “selection, informational, and confounding

bias.” Piteau S, Ward M, et al, *Clinical and Radiographic Characteristics Associated With Abusive and Nonabusive Head Trauma: A Systematic Review*. 130 Pediatrics 1 (2012).

To suggest—as the Petitioner does here—that the debate surrounding the SBS controversy was established (and discoverable) at the time of the Petitioner’s trial in 2003 grossly downplays the ongoing and evolving debate over SBS. The Court of Appeals was correct in holding that the paradigm shift in the medical community’s understanding of SBS constituted sufficient new material facts to warrant relief.

**C. Courts Have Reversed Convictions Based On New Evidence About the Scientific Validity of SBS**

Courts also have demonstrated an increasing willingness to set aside convictions based on new medical and scientific evidence challenging the validity of the SBS hypothesis. *Commonwealth v. Epps*, 474 Mass. 743, 770 (2016); *Prete v. Thompson*, 10 F. Supp. 3d 907, 954 (N.D. Ill., 2014) (noting “plenty” of new evidence involving “the medical approach to claimed shaken baby cases”).

When introduced in a criminal case, a diagnosis of SBS often serves as the sole basis for the prosecutor’s case and is used to simultaneously establish the requisite elements of a crime: (a) shaking was the act that causes harm; (b) the necessary force of the shaking established

intent; and (c) the timing of the injuries established the caretaker who was last with the child as the likely defendant. Denno, *supra*, at 328-329, 342; Findley, *supra*, at 226 (“In effect, SBS quickly became a criminal category of *res ipsa loquitor* cases, i.e. cases in which ‘the thing speaks for itself.’ This eliminated the need for any additional evidence, including motive or history of abuse, and resulted in quick, easy and virtually routine convictions of parents and caretakers based solely on the medical testimony of prosecution experts.”).

The legal community’s initial acceptance of SBS came, however, without any “real investigation or even question as to its scientific validity.” Denno, *supra*, at 341; quoting Ronald H. Uscinski, *Shaken Baby Syndrome: An Odyssey*, 46 *Neurologia Medico-Chirurgica* 57, 58 (2008). Just as the medical community has raised challenges to SBS, courts too have acknowledged the dispute and, more and more, permitted new evidence challenging SBS to be admitted in post-conviction hearings.

**1. In *Edmunds*, The Court Held That Significant Developments Regarding SBS Constituted Newly Discovered Evidence And Granted A New Trial**

The case of Audrey Edmunds is routinely cited as one of the first decisions where a conviction was overturned on appeal because of new evidence challenging the scientific validity of SBS. Tuerkheimer, *supra*, at 50 (describing *Edmunds* as “a remarkable opinion without judicial

precedent”). Even proponents of the SBS hypothesis acknowledged the 2008 decision in *Edmunds* is “the tipping point” for the controversy over SBS’s scientific validity. Joelle Moreno and Brian Holmgren, *Dissent into Confusion: The Supreme Court, Denialism, and the False “Scientific” Controversy over Shaken Baby Syndrome*, 2013 Utah L. Rev. 153, 174 (2013). The parallels between *Edmunds* and the instant case are compelling.

Edmunds was charged with first-degree reckless homicide in 1995 following the death of seven month old Natalie while in her care. *Edmunds*, 308 Wis. 2d at 378. At Edmunds’ trial, the state presented numerous medical expert witnesses who testified to a reasonable degree of medical certainty that the cause of the infant’s death was violent shaking or violent shaking combined with impact that caused a fatal head injury. *Id.* Edmunds presented one medical expert witness who **agreed** with the state’s witness that the infant was violently shaken but who opined that the injury occurred before the infant was brought to Edmunds’ home. *Id.* The state then presented a rebuttal witness who testified that the infant could not have had a lucid interval following the alleged violent shaking. *Id.* at 379. The jury convicted Edmunds of first-degree reckless homicide. *Id.*

Edmunds filed a post-conviction motion in 1997 in which she submitted a proffer of expert medical testimony questioning whether SBS

even existed. *Id.* at 379-380. The court denied the motion because it believed that Edmunds was attempting to assert another strategy than the one she pursued at trial: not who shook the infant but rather whether the infant had been shaken at all. *Id.* at 380. The court denied the motion. *Id.*

In **2006**—eleven years after she had been charged with the crime—Edmunds filed a motion for a new trial. *Id.* The court held that Edmunds satisfied the newly discovered evidence test by presenting evidence that “a significant and legitimate debate in the medical community has developed in the past ten years over whether infants can be fatally injured through shaking alone, whether an infant may suffer head trauma and yet experience a significant lucid interval prior to death, and whether other causes may mimic the symptoms traditionally viewed as indicating shaken baby or shaken impact syndrome.” *Id.* at 385-386. The *Edmunds* court rejected the state’s argument that Edmunds could have raised her arguments earlier:

Edmunds could not have been negligent in seeking this evidence, as the record demonstrates that the bulk of the medical research and literature supporting the defense position, and the emergence of the defense theory as a legitimate position in the medical community, only emerged in the ten years following her trial. The evidence is material to an issue in the case because the main issue at trial was the cause of Natalie’s injuries and the new medical testimony

presents an alternate theory for the source of those injuries. The evidence is not merely cumulative, in that it differs from the substance and quality of the defense evidence at trial.

*Id.* at 386.

Edmunds filed her motion for a new trial in 2006, three years *after* Fero's trial, and the Wisconsin Court of Appeals did not issue its unprecedented decision for another two years until 2008. *See also, Lutze v. Sherry*, 392 F. App'x 455, 459 (6th Cir. 2010) ("Crucially, all of the articles [challenging the scientific validity of SBS] date from 2003 or later."). Like Edmunds, Fero should not be faulted for not presenting evidence of the nascent scientific challenges to SBS as they were just beginning to gain traction within both the medical and legal communities.

**2. Since The *Edmunds* Decision, Courts And Judges, Including A Supreme Court Justice, Have Expressed Repeated Concerns About the Scientific Validity of SBS**

Courts since *Edmunds* have continued to find that challenges to the SBS hypothesis constitute newly discovered evidence.

In 2011, the United States Supreme Court noted the growing challenges to the SBS hypothesis. In *Cavazos*, Justice Ginsburg, writing for a three-justice minority, said that "what is *now* known about shaken baby syndrome (SBS) casts grave doubt" on the conviction of Shirley Ree

Smith. 565 U.S. at 11. Smith’s 7-week old grandson had died while Smith had been sleeping next to him. *Id.* at 2. When the coroner concluded that the cause of death was SBS, Smith told a social worker that when the infant had not responded to her touch while sleeping, she picked him up and gave him “a little shake, a jostle” to wake him. *Id.* at 3. The prosecution presented three medical experts, each of whom attested that the infant’s death was the result of SBS. *Id.* The jury found Smith guilty and she was sentenced to a term of 15-years to life in prison for the death of her own grandson. *Id.* at 5. After a series of appeals, the Ninth Circuit reversed the conviction after determining that there was no evidence supporting death by violent shaking other than the expert testimony on the SBS hypothesis. *Id.* at 6. Although the Supreme Court reversed the Ninth Circuit (because ultimately, the Court held it was the jury’s role to weigh the evidence), Ginsburg expressed skepticism about the medical evidence regarding the SBS hypothesis. *Id.* at 9-10. After citing six scientific journal articles that discredited the SBS hypothesis, Ginsburg stated:

In light of current information, it is unlikely that the prosecution’s experts would today testify as adamantly as they did in 1997 . . . . What is *now known* about SBS hypotheses seems to me worthy of considerable weight in the discretionary decision whether to take up this tragic case.

*Id.* at 14-15 (emphasis added).

Ginsburg went on to consider the nonmedical evidence of abuse. “There was no evidence whatever that Smith abused her grandchildren in the past or acted with any malicious intent on the night in question.” *Id.* at 15. “Instead, the evidence indicated that Smith was warm hearted, sensitive, and gentle.”<sup>3</sup> *Id.*

In January 2014, the U.S. District Court for the Northern District of Illinois held that changes in the “medical approach to claimed shaken baby cases” constituted new evidence. *Prete v. Thompson*, 10 F. Supp. 3d 907, 954 (N.D. Ill. 2014). Del Prete had been convicted of first degree murder *in 2005* for the death of a 3-month old in her care at a daycare facility. *Id.* at 910. By all accounts Del Prete was an active parent with her own children who appeared patient with children. *Id.*

Dr. Carole Jenny, the editor of the “definitive text” on child abuse, was among the experts who testified on behalf of the state. *Id.* at 936. On cross-examination, Jenny conceded that “that no one has marshalled a coherent argument to support shaking alone as a causal mechanism for abusive head injury, and that the only evidence basis for this proposition consists of perpetrator confessions.” *Id.* at 937. Jenny’s testimony referred to a chapter in her textbook written and edited by two prominent

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<sup>3</sup> California Governor Jerry Brown commuted Smith’s sentence in 2012. Emily Bazelon, *Jerry Brown Shows Mercy to Shirley Ree Smith*, *Slate* (Apr. 6, 2012) (available at [http://www.slate.com/articles/news\\_and\\_politics/crime/2012/04/jerry\\_brown\\_pardons\\_shirley\\_ree\\_smith\\_in\\_an\\_old\\_sad\\_shaken\\_baby\\_case\\_.html](http://www.slate.com/articles/news_and_politics/crime/2012/04/jerry_brown_pardons_shirley_ree_smith_in_an_old_sad_shaken_baby_case_.html)).

*advocates* of the SBS diagnosis *in 2010. Id.* The defense presented additional evidence “that the science of biomechanics is not yet able to establish an injury threshold in this area,” and the court held:

If true, this statement provides a newfound basis for skepticism about causation and mechanism testimony offered at Del Prete’s trial as well as similar testimony offered by respondent at the hearing before this Court.

*Id.* at 954.

While the Court said it was “unsure whether the causation testimony offered by Del Prete’s experts would be sufficient to carry the day in a trial in which she bore the burden of proof,” it was equally skeptical of the SBS hypothesis and said that “a claim of shaken baby syndrome is more an *article of faith* than a proposition of science.” *Id.* at 957, n.9-10 (emphasis added).

In July 2016, the Massachusetts Supreme Judicial Court (the Commonwealth’s highest appellate court) held that new scientific and medical findings regarding SBS constituted newly discovered evidence.

As the court held:

Since the defendant’s trial (in July 2007), several additional studies have been published that provide further support for the view that subdural hematomas, retinal hemorrhages, and other forms of significant head injury can result from accidental short falls. More research has also been conducted

that casts doubt on the view that shaking alone can cause serious head injury. And more articles have been published in medical and scholarly journals questioning the diagnostic significance of the symptoms previously thought indicative of shaken baby syndrome.

*Epps*, 474 Mass. at 764.

The court specifically referred to changes to the position of the American Academy of Pediatrics regarding SBS *in 2009* and studies published *since 2007* as *new* evidence. *Id.* at 765. Obviously Fero would not have had access to this information at the time of her trial in 2003.

## V. CONCLUSION

The “substance and the quality” of the evidence challenging the SBS hypothesis continues to change as more research demonstrates that the theory is not scientifically valid. Indeed, just last year, in 2016, the first scientific body charged with reviewing the evidence for medical diagnoses conducted a systematic review of SBS studies and concluded:

- There is *limited* scientific evidence that the diagnostic triad and therefore its components can be associated with traumatic shaking (low quality evidence); and
- There is *insufficient* scientific evidence on which to assess the diagnostic accuracy of the triad in identifying traumatic shaking (very low quality evidence).

SBU – Swedish Agency for Health Technology Assessment and Assessment of Social Services, *Traumatic shaking: The role of the triad in medical investigations of suspected traumatic shaking. A systematic review*, Report 255E (2016) (attached as Exhibit A).

Allowing defendants to rely on this new scientific evidence as it develops to set aside possibly flawed convictions—and not precluding them from doing so merely because earlier, incomplete, or less nuanced research may have existed at the time of their trial—is essential to ensuring a fair and just determination of the facts in science dependent cases. The Court of Appeals correctly decided that scientific research challenging the validity of the SBS hypothesis constitutes newly discovered evidence. Amicus Curiae the Innocence Network respectfully requests that its decision be affirmed.

RESPECTFULLY SUBMITTED this 20th day of April, 2017.

Davis Wright Tremaine LLP  
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By /s/ Taylor Ball  
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**CERTIFICATE OF SERVICE**

I, Heather Persun, hereby certify under penalty of perjury that I am over the age of eighteen (18), and am competent to testify to the facts contained herein. On the 20th day of April, 2017, I served the foregoing by sending a true and correct copy in the manner indicated below upon the attorneys of record herein, as follows:

Anne M. Crusier, WSBA No. 27944 via Electronic Mail  
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DATED this 20<sup>th</sup> day of April, 2017 at Seattle, Washington.

/s/ Heather Persun  
Heather Persun