Court of Appeals No. 67456-1-I

Supreme Court No. 89290-3

COURT OF APPEALS, DIVISION ONE
STATE OF WASHINGTON

KING COUNTY DISTRICT COURT, WEST DIVISION, Judge Mark Chow, and KING COUNTY DISTRICT COURT, EAST DIVISION, Judge David Steiner, and KING COUNTY DISTRICT COURT, SOUTH DIVISION, Judge Darrell Phillipson,

BRETT R. BALLOW, and LESLIE P. FAUSTO,

Petitioners,

v.

STATE OF WASHINGTON,

Respondent.

PETITION FOR REVIEW
WASHINGTON STATE SUPREME COURT

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I. INTRODUCTION

> "Knowledge of the uncertainty associated with measurement results is essential to the interpretation of the results. Without quantitative assessments of uncertainty, it is impossible to decide...whether laws based on limits have been broken. Without information on uncertainty, there is a risk of misinterpretation of results. Incorrect decisions taken on such a basis may result in unnecessary expenditure in industry, incorrect prosecution in law, or adverse health or social consequences." – International Organization for Standardization (ISO)[1]

This case is about ensuring that jurors are provided with the information necessary to be able to understand what a breath test result means so that jurors can properly weigh and make reasoned determinations based on such results. No matter how good a breath test is, the result of such a test can never tell us what an individual's actual breath alcohol concentration (BrAC) is. Rather, as with all other scientific measurements, there is a range of values associated with every breath test result that can be attributed to an individual's true BrAC. The uncertainty associated with a result conveys the values that the science underlying the test indicate can actually and reasonably be attributed to the BrAC being measured based upon the results obtained. Absent this uncertainty, a result cannot be properly interpreted or weighed.

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[1] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, *Guidance for the use of repeatability, reproducibility and trueness estimates in measurement uncertainty estimation*, ISO/TS 21748, v (2004). See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg. 19; Trial Ex. 88.

The necessity of supplying such information has been recognized by our Courts in the context of DNA evidence. In that context, evidence of a DNA "match" must be accompanied by an appropriate estimate of the likelihood [i.e. uncertainty] that a conclusion isolating the defendant from other persons can be drawn. As one court has commented, *"[w]ithout the probability assessment [i.e. uncertainty], ...the jury does not know whether the [DNA] patterns are as common as pictures with two eyes, or as unique as the Mona Lisa."*[2]

Petitioners ask this Court to accept review of the Court of Appeals decision overruling the District Court. The Court of Appeals ruling is inconsistent with Supreme Court decisions relating to the admission of forensic evidence, the accepted interpretation of ER 702, and, more fundamentally, the relevant scientific principles. The District Court ruling was correct, and should be affirmed by this Court.

II. IDENTITY OF PETITIONERS

Petitioners are Brett Ballow and Leslie Fausto. The trial court consolidated their cases to address the uncertainty issue now before this Court. Judges David Steiner, Mark Chow, and Darrell Phillipson (ret.) presided over the hearing.

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[2] U.S v. Yee, 134 F.R.F.D 161, 181 (N.D. Ohio 1991).

III. COURT OF APPEALS DECISION

State of Washington v. King County District Court, et al, #67456-1-I; filed July 29, 2013. [Published][3]

IV. ISSUES PRESENTED FOR REVIEW

In accordance with RAP 13.4(b)(1) & (4), the following issues are raised.

1. The Court of Appeals decision that ER 702 does not require that BrAC results be accompanied by their uncertainty as determined by the Washington State Toxicology Lab Division (WTLD) when presented to a trier of fact in prosecutions for DUI conflicts with the Washington Supreme Court's Decisions in *State v. Cauthron* and *State v. Copeland* so that review should be granted under RAP 13.4(b)(1).

2. The Court of Appeals decision that ER 702 does not require that BrAC results be accompanied by their uncertainty as determined by the WTLD when presented to a trier of fact in prosecutions for DUI involves an issue of significant public which should be determined by the Washington Supreme Court so that review should be granted under RAP 13.4(b)(4).

V. STATEMENT OF THE CASE

1. Procedural history.

Ballow and Fausto were arrested for DUI[4] and submitted to BrAC tests. Due to a prior ruling by the King County District Court, known as "*Ahmach*,"[5] these tests were not admissible at trial. The King County

[3] See Appendix, Ex. 1.
[4] Driving Under the Influence; RCW 46.61.502.
[5] *State v. Ahmach, et al*, King County District Court Case No. C00627921. (January 30, 2008.) The issues involved in this ruling are not relevant to the present case.

Prosecutor's Office requested a hearing under local rule – LCrRLJ 8.2(2)[6] – for the court to lift the *Ahmach* ruling.

Within this hearing several defendants, including Ballow and Fausto, raised the issue herein; that, in accordance with ER 702 the State must include the uncertainty associated with BrAC results when offering those results as evidence in a DUI prosecution. The three judge panel lifted the *Ahmach* suppression order, but agreed with the defendants that the uncertainty associated with a BrAC result must accompany that result in order for the result to be admissible at trial.

The State sought a Writ of Review before the King County Superior Court. The Court reversed the district court decision. The Court of Appeals granted discretionary review, and affirmed the Superior Court decision. All findings of fact from the District Court panel have been unchallenged on appeal.[7]

2. District Court ruling on uncertainty.

The District Court heard five days of testimony from four experts (three of which were State's experts), received 93 exhibits, and issued a 31

[6] This local rule permits a party or judge to request a three judge panel to take testimony and issue a decision on an issue deemed an "issue of countywide significance."
[7] *State of Washington v. King County District Court, et al*, #67456-1-I; filed July 29, 2013, pg. 7.

page ruling.[8] The Court of Appeals noted that the District Court findings of fact are not in dispute. The District Court found that breath test results, like the results of any other scientific measurement, do not reveal the true value of the quantity being measured, in this case an individual's BrAC. Rather, the bias corrected mean of a breath test result represents the best estimate of an individual's BrAC while the uncertainty of those results, typically expressed as a confidence interval and centered on the bias corrected mean, conveys the range values that are actually and reasonably attributable to the true BrAC. Absent the uncertainty, an individual cannot properly interpret or weigh a breath test result.

Citing to several Supreme Court cases addressing admissibility of BrAC and DNA evidence under ER 702, and in particular *State v. Cauthron* and *State v. Copeland*, the District Court ruled that, like DNA, the result of a breath test must be accompanied by its associated uncertainty so that a jury can properly interpret and weigh the result.

3. <u>Superior Court ruling on Writ of Review.</u>

Judge Ronald Kessler of the King County Superior Court partially reversed the District Court decision.[9] While not disputing the scientific relevancy of a breath test result's uncertainty, the judge interpreted the

[8] See Appendix, Exhibit 2.
[9] See Appendix, Exhibit 3.

District Court ruling applying ER 702 in a blanket fashion as creating a new foundational requirement for admission of breath alcohol evidence. The Superior Court ruled that although trial courts could suppress breath test results under ER 702 on the basis of uncertainty this must be determined on a case-by-case basis.

4. Court of Appeals ruling affirming Superior Court.

The Court of Appeals granted review and affirmed the Superior Court ruling.

Petitioners seek review by this Court.

VI. ARGUMENT

> "The law's greatest dilemma in its heavy reliance on forensic evidence...concerns the question of whether—and to what extent—there is *science* in any given 'forensic science' discipline."[10]

In its 2009 report, the National Academy of Sciences[11] focused particular concern on the failure within forensic sciences to identify and report uncertainty in order to properly interpret forensic results.[12]

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[10] NATIONAL ACADEMY OF SCIENCES, *Strengthening Forensic Science in the United States: A Path Forward*, 87 (2009); See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg. 15; Trial Ex. 83.

[11] "Recognizing that significant improvements are needed in forensic science, Congress directed the National Academy of Sciences to undertake the study that led to this report." *Id.* at xix. See also, Commerce, and Related Agencies Appropriations Act of 2006, Pub. L. No. 109□108, 119 Stat. 2290 (2005).

[12] NATIONAL ACADEMY OF SCIENCES, *Strengthening Forensic Science in the United States: A Path Forward*, 116 – 122, 184 – 186 (2009).

According to the Academy, "[t]here is a critical need in most fields of forensic science to raise the standards for reporting and testifying about the results of investigations."[13]

> "As a general matter, laboratory reports generated as the result of a scientific analysis...should identify, as appropriate, the sources of uncertainty in the procedures and conclusions along with estimates of their scale (to indicate the level of confidence in the results)...*to allow the nonscientist reader to understand what has been done and permit informed, unbiased scrutiny of the conclusion.*"[14]

For example:

> "A key task for the...analyst applying a scientific method to conduct a particular analysis, is to identify as many sources of error as possible, to control or to eliminate as many as possible, and to estimate the magnitude of remaining errors *so that the conclusions drawn from the study are valid. Numerical data reported in a scientific paper include not just a single value (point estimate) but also a range of plausible values (e.g., a confidence interval, or interval of uncertainty).*" [15]

Likewise, "[f]orensic reports, and any courtroom testimony stemming from them, must include clear characterizations of the limitations of the analyses, including associated probabilities where possible."[16] In particular, "*[a]ll results for every forensic science method*

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[13] *Id.* at 185.
[14] *Id.* at 186 (emphasis added).
[15] *Id.* at 116 (emphasis added).
[16] *Id.* at 186.

should indicate the uncertainty in the measurements that are made..."[17] "Some forensic laboratory reports meet this standard of reporting, but most do not...*most reports do not discuss measurement uncertainties or confidence limits.*"[18] This is critical because:

> "As with all other scientific investigations, laboratory analyses conducted by forensic scientists are subject to measurement error. Such error reflects the intrinsic strengths and limitations of the particular scientific technique. For example, *methods for measuring the level of blood alcohol in an individual* or methods for measuring the heroin content of a sample *can do so only within a confidence interval of possible values...*"[19]

The Academy then chose forensic breath alcohol testing to serve as the paradigmatic illustration of the requirement of reporting uncertainty with all measured results:

> "Consider, for example, a case in which an instrument (e.g., a Breathalyzer such as Intoxilyzer) is used to measure the blood-alcohol level of an individual three times, and the three measurements are 0.08 percent, 0.09 percent, and 0.10 percent. The variability in the three measurements may arise from the internal components of the instrument, the different times and ways in which the measurements were taken, or a variety of other factors. *These measured results need to be reported, along with a confidence interval that has a high probability of containing the true blood-alcohol level* (e.g., the mean plus or minus two standard deviations). For this illustration, the average is 0.09 percent and the standard deviation is 0.01 percent;

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[17] *Id.* at 184 (emphasis added).
[18] *Id.* at 186 (emphasis added).
[19] *Id.* at 116 (emphasis added).

> therefore, a two-standard-deviation confidence interval (0.07 percent, 0.11 percent) has a high probability of containing the person's true blood-alcohol level. (Statistical models dictate the methods for generating such intervals in other circumstances so that they have a high probability of containing the true result.)" [20]

Thus, according to the National Academy of Sciences:

1. The scientifically appropriate manner of reporting breath test results is to include the uncertainty associated with the values measured; and

2. The reason including the uncertainty is important is that it enables the person relying upon the result to make a decision to draw scientifically valid conclusion from the values measured.

"In this age of science we must build legal foundations that are sound in science as well as in law."[21] When science is relied upon in the courtroom, "[t]he law should seek verdicts consistent with scientific reality"[22] This can only be achieved, however, "by requiring scientific evidence to conform to the standards and criteria to which scientists themselves adhere."[23] "If the citizens of the State of Washington are to have any confidence in the breath-testing program, that program has to

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[20] *Id.* at 116 – 117 (emphasis added).
[21] Justice Stephen Breyer in, *Reference Manual on Scientific Evidence* 4 – 8 (2nd ed. 2000).
[22] Black, *Evolving Legal Standards for the Admissibility of Scientific Evidence*, 239 Science 1508, 1512 (1988).
[23] Black, *Evolving Legal Standards for the Admissibility of Scientific Evidence*, 239 Science 1508, 1512 (1988).

have some credence *in the scientific community as a whole.*"[24] Unfortunately, the decision of the Court of Appeals departs from this standard.

1. The Court of Appeals decision that ER 702 does not require that BrAC results be accompanied by their uncertainty as determined by the WTLD when presented to a trier of fact in prosecutions for DUI conflicts with the Washington Supreme Court's Decisions in *State v. Cauthron* and *State v. Copeland* under RAP 13.4(b)(1).

In the cases of *State v. Cauthron*[25] and *State v. Copeland*[26] the Washington Supreme Court determined that testimony of a match in DNA samples, without the statistical background or probability estimates, was not helpful to the trier of fact and therefore not admissible under ER 702. Application of same principles to breath alcohol testing likewise dictate the conclusion that testimony of a BrAC result, without its uncertainty, is not helpful to the trier of fact and therefore not admissible under ER 702.[27] Because Division I decided contrary to this and hence contrary to State Supreme Court precedence, this Court should accept review.

In *Cauthron* and *Copeland*, the Court held that evidence of a DNA match was not admissible under ER 702 unless it was accompanied by the

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[24] *City of Seattle v. Clark-Munoz*, 152 Wn.2d 39, 47, 93 P.3d 141 (2004) (*quoting* Ruling by District Court Panel). [Emphasis added]
[25] 120 Wn.2d 879, 846 P.2d 502 (1993).
[26] 130 Wn.2d 244, 922 P.2d 1304 (1996).
[27] Interestingly, the State has argued before this Court that admission of BrAC evidence should be treated similarly to the criteria for admission of DNA evidence in criminal trials. See *City of Fircrest v. Jensen*, 158 Wn.2d 384, 397, 143 P.3d 776 (2006).

likelihood that such a match could occur strictly by chance. Although the Court found that DNA analysis passed muster under *Frye*,[28] it determined that absent this likelihood a jury could not determine the appropriate weight to give to such a result. Quoting a National Academy of Science's publication, "*DNA Technology in Forensic Science*," the Court in Cauthron explained that:

> To say that two patterns match, without providing any scientifically valid estimate (or, at least, an upper bound) of the frequency with which such matches might occur by chance, is meaningless.[29]

The issue was not that DNA results were incapable of identifying the source of an unknown sample. To the contrary, the odds considered in *Copeland* were on the order of one-in-a-million that a match might identify the wrong individual.[30] Rather, it was that a jury could not properly weigh and make a reasoned determination based on a DNA match unless they were informed of what a match meant. And by meaning, it meant the conclusions that the science behind the DNA match permitted the result to support. This is identical to the argument forwarded by Petitioners herein.

The general acceptability of forensic breath alcohol testing under

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[28] *Frye v. United States*, 293 F. 1013 (D.C. Circ. 1923).
[29] *State v. Cauthron*, 120 Wn.2d at 907.
[30] *State v. Copeland*, 130 Wn.2d at 253-254.

Frye has not been challenged herein.[31] Nor has the ability of a breath test result to reveal an individual's BrAC. Rather, as in the DNA cases, the issue presented is whether the uncertainty of a BrAC result is necessary for a jury to be able to understand what a BrAC result means so that it can properly weigh and make a reasoned determination based on it.

As in the DNA context, the meaning of a result refers to the conclusions, in this case BrAC values, that the science behind the result makes it capable of supporting. Measurement uncertainty is an unambiguous "statement characterizing the dispersion (range) of values that can actually and reasonably be attributed to [a] measurement" based upon the result(s) obtained.[32] The Trial Court found that:

> "Absent the reporting of uncertainty, there is a substantial possibility that even an expert would not make a meaningful analysis of a particular breath reading."[33]

Application of the principles enunciated in *Cauthron* and *Copeland* to BrAC results therefore dictates that such results are inadmissible under ER 702 unless they are accompanied by their uncertainty.

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[31] Through stipulation of the parties.

[32] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg. 3; Findings of Fact., (hereinafter "FF") I.C.3; and see Joint Committee for Guides in Metrology, *Evaluation of measurement data — Guide to the Expression of Uncertainty in Measurement (GUM)*, § 2.2.3 (2008); Trial Ex. 91; EURACHEM, *Quantifying Uncertainty in Analytical Measurement* CG-4, § 2.1.1 (2000); Trial Ex. 21.

[33] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; FF IV. I, pg. 3.

Division One rejected this claiming that in order to reach this result, the trial court would have to conclude that "BrAC results without confidence intervals are not generally accepted within the relevant scientific community."[34] This misstates the holding of the DNA cases. The Court in *Cauthron* made clear that presenting a DNA result without the associated likelihood violated *both Frye* and ER 702 finding that:

> "Testimony of a match in DNA samples, without the statistical background or probability estimates, is neither based on a generally accepted scientific theory *nor helpful to the trier of fact.*"[35]

Copeland later reiterates that, in this context

> "ER 702 has independent force and effect [and plays] a significant role in admissibility of scientific evidence aside from *Frye.*"[36]

Thus, the trial court having found that BrAC results unaccompanied by their associated uncertainty were unhelpful and hence inadmissible under ER 702, no resort to *Frye* was required.

Even if *Frye* were applied, Division One's restriction of the relevant scientific community to the "forensic toxicology community,"[37] misstates the standard and artificially limits the scientific community

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[34] See; Opinion of the Court of Appeals, p.8.
[35] *State v. Cauthron*, 120 Wn.2d at 907. [Emphasis added]
[36] *State v. Copeland*, 130 Wn.2d at 259-60. And see; *Ludvigsen v. City of Seattle,* 162 Wn.2d 660, 681, 174 P.3d 43 (2007)(MADSEN, J., concurring).
[37] See; Opinion of the Court of Appeals, p.8.

subject to consideration. In essence, Division One's ruling permits those engaged in breath testing to do whatever they please as long as they all act in unison. Such reasoning would permit almost any "scientific" sin as long as all in the particular community (i.e. forensic community) sinned alike. However;

> "It simply is not creditable to argue that general acceptance may be premised simply on the opinion of forensic scientists ... While views of forensic scientists have weight and must be considered, "members of the relevant scientific field will include those whose scientific background and training are sufficient to allow them to comprehend and understand the process and form a judgment about it" ... this formulation states the relevant scientific field."[38]

The appropriate community consists of those scientists familiar with the principles involved and capable of applying them.[39] In fact, acceptance by a community of unbiased experts outside the particular forensic discipline under consideration carries greater weight.[40] By ignoring the National Academy of Sciences and resting its decision on the premise that "BrAC results without confidence intervals are generally accepted in the *forensic toxicology community*,"[41] Division One interprets the pervasiveness of one of the primary failings of the forensic community

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[38] *US v. Porter*, 618 A.2d 629, 634 (D.C. 1992) (quoting trial court); *People v. McKown*, 924 N.E.2d 941, 953 (Ill. 2010).
[39] *People v. Williams*, 331 P.2d 251, 254 (Cal.App.Super. 1958).
[40] *US v. Baines*, 573 F.3d 979, 991 (10th Cir. 2009).
[41] See; Opinion of the Court of Appeals, p.8.

identified by the Report.

The 2009 Report of the National Academy of Sciences makes clear that uncertainty must be included when reporting breath test results.[42] Recognizing that a breath test is simply a scientific measurement, the trial court considered how such measurements are treated throughout the scientific community, concluding that:

> "It is well accepted in the scientific community that testing laboratories will use procedures for estimating uncertainty of measurement whenever possible...[and] that a statement on the estimated uncertainty of measurement is needed for [] test reports when it is relevant to the validity or application of the test result, or when the uncertainty affects compliance to a specific standard. A decision not to calculate uncertainty is not appropriate under generally accepted scientific principles."[43]

A breath test result alone does not establish a *per se* DUI offense, rather the State must prove beyond a reasonable doubt based on such a result that an individual's actual BrAC exceeded the *per se* threshold. See; *City of Seattle v. Gellein;*[44] *State v. Brayman*;[45] *State v. Franco;*[46] *State v. Keller;*[47] and RCW 46.61.502. Like any other scientific measurement,

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[42] This Report is not alone in making this assessment. The trial court relied on several other sources. See Appendix, Ex. 4.
[43] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg. 5, FF II, F and G.
[44] 112 Wn.2d 58, 62-63, 768 P.2d 470 (1989).
[45] 110 Wn.2d 183, 191-192, 751 P.2d 294 (1988).
[46] 96 Wn.2d 816, 828-829, 639 P.2d 1320 (1982).
[47] 36 Wn. App. 110, 113, 672 P.2d 412 (1983).

"[a]ll BAC measurements represent a range of values, any of which could represent the true value with a given level of confidence."[48] Accordingly, like any other scientific measurement, in the context of breath testing, "a statement of a measurement result is incomplete without a statement of the accompanying estimate of uncertainty, (i.e., the range of values within which the value of the measurand can be said to lie within a specified level of confidence)."[49]

Division I dismisses this, instead holding that as long as the State provides the fact–finder with all the information traditionally necessary to establish that a result is "accurate and reliable" under the law.[50] To establish that a result is "accurate and reliable," however, the State only produces evidence pertaining to the maintenance of the machine and the performance of the test.[51] This evidence fails to address any issue related to measurement uncertainty.

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[48] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg. 8, FF IV. E.

[49] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg. 8, FF IV. B. Nonetheless, Division I attempts to shift the burden to the defense to produce the uncertainty stating that: "Uncertainty calculations are readily available from the WTLD." Opinion of the Court of Appeals , pg. 4. While the uncertainty of BrAC results is currently available NOW, the only reason WTLD currently provides uncertainty is because of the efforts of Appellants and the decision of the Trial Court below. The Court of Appeals decision removes what little incentive there is for WTLD not to return to its prior misleading practices.

[50] See; Opinion of the Court of Appeals, p.5-6; 11.

[51] See RCW 46.61.506(3) and (4). And see, Opinion of the Court of Appeals, pg. 5, fn. 7.

Establishing "accuracy and reliability" without providing its uncertainty compounds the problem by misleading jurors. It creates greater confidence in the conclusions reached based upon a result than is justified by the science underlying the result itself. "While a breath-alcohol measurement has meaning without a confidence interval, a breath-alcohol measurement without a confidence interval is inherently misleading."[52]

"Testimony revealed that many BAC readings in excess of .08, when considered in light of the confidence interval, are likely to have actual readings less than .08."[53] In the hearing below, "[t]he top three officials of the WTLD were unable to accurately determine a true BAC

[52] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg 28. For example, in the hearing below Rod Gullberg was provided a breath test ticket with results exceeding the per se limit. The test and maintenance of the DataMaster complied with all statutory, administrative and Lab requirements. Accordingly, Gullberg testified, as he would to a jury, that "these are accurate and precise measurements and they are both equal to or greater than the .080" (RP 396) When subsequently asked, as if he were a member of a jury, whether he could therefore conclude that this individual's BrAC actually exceeded a .08 beyond a reasonable doubt, he responded, as a jury would likely respond, "yes based on these results here." (RP 397) Gullberg was then given the uncertainty associated with the result as determined by WTLD. Based on the uncertainty he recanted his earlier testimony. Even though these results were "accurate and reliable" under the law, Gullberg no longer believed that he could conclude that the individual's BrAC exceeded 0.08 because there was actually a 44% likelihood that the true value was less than the legal limit. (RP 398-404) Absent the uncertainty, even Gullberg could not properly weigh a breath test result.

[53] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg 9, FF., IV.I.1.

without an uncertainty calculation."[54]

In fact, "[i]t is impossible to determine the likelihood that the result of a breath test - which is close to a legal limit - actually exceeds the legal limit without determining the uncertainty of the test."[55] This point is critical because our DUI laws use four separate BrAC levels either determining guilt or enhancing punishment.

1. RCW 46.61.503 - .02 (per se level, drivers under 21)
2. RCW 46.25.090 - .04 (per se level, commercial drivers)
3. RCW 46.61.502/4 - .08 (per se level, adult drivers)
4. RCW 46.61.5055 - .15 (sentence enhancement)

This is particularly relevant given the U.S. Supreme Court's recent decision in *Alleyne v. United States*,[56] requiring that all facts necessary to increase a mandatory minimum sentence must also be proved beyond a reasonable doubt.

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[54] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg 9; FF., IV.I.2. According to State Toxicologist Fiona Couper, no juror could determine the uncertainty associated with a breath test result based upon the testimony required to establish its "accuracy and reliability." (RP 276)

[55] See; Order Suppressing Defendant's Breath-Alcohol Measurements in the Absence of a Measurement for Uncertainty; pg 8; .FF., IV.F.

[56] No. 11–9335, 2013 WL 2922116 (U.S. 2013).

2. The Court of Appeals decision that ER 702 does not require that BrAC results be accompanied by their uncertainty as determined by the WTLD when presented to a trier of fact in prosecutions for DUI involves an issue of significant public interest under RAP 13.4(b)(4).

In determining whether an issue involves a sufficient public interest, we consider the public or private nature of the question, the need for future guidance provided by an authoritative determination, and the likelihood of recurrence.[57]

It is clear that the ultimate issue of guilt or innocence in a prosecution for DUI may hinge on whether the trier-of-fact is presented with the uncertainty associated with a breath test result. It is clear that whether the factual truth can actually be determined by a jury may hinge on the same thing. Accordingly:

> "Thomas Bohan, [] past president of the American Academy of Forensic Sciences, hailed the King County Court opinion as a landmark decision, engendering a huge advance toward rationality in our justice system and a victory for both forensic science and the pursuit of truth."[58]

The issue presented herein is an issue of first impression in Washington and in many other jurisdictions around the country. Some of those jurisdictions are already looking to Washington for guidance. The

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[57] *In re Swanson*, 115 Wn.2d 21, 24-25, 804 P.2d 1 (1990).

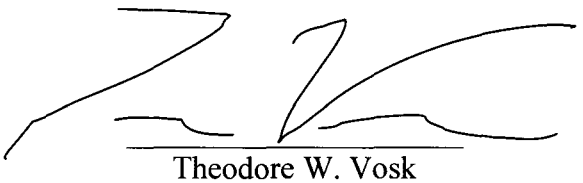
[58] Ted Vosk, *Trial by Numbers: Uncertainty in the Quest for Truth and Justice* 56 The NACDL Champion 48, 54 (Nov. 2010) (reprinted with permission in 40(3) The Voice for the Defense 31 (April 2011)).

trial court's decision below has been relied upon for guidance and cited as authority in some of those jurisdictions as well in treatises and scholarly articles on scientific evidence.[59] Washington is currently leading the way into the inevitable future of jurisprudential and forensic practice. To turn away from that course now would be to deviate from the path and practices that lead to the discovery of truth and doing of justice in the courtroom. For all of these reasons, the Court should accept review of this matter.

VII. CONCLUSION

For the reasons herein provided, Petitioners ask this Court to accept review of the case.

Respectfully submitted the 28th day of August, 2013.



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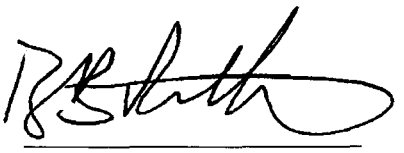

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[59] *People v. Jabrocki*, No. 08-5461-FD (79th Dist. Ct. Mason Co. MI – 5/6/11). Note: This case is not cited to be used as legal authority, but merely to establish the reliance of other courts on the trial court ruling in this case.
Giannelli & Imwinkelried, *Scientific Evidence*, §22.06[b] p.549, n.338, §22.06[f] p.570–571 (5th ed. 2012). Imwinkelried, *Forensic Metrology: The New Honesty about the Uncertainty of Measurements in Scientific Analysis*, UC DAVIS LEGAL STUDIES RESEARCH PAPER SERIES, Research Paper No. 317 (Dec. 2012)(available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2186247).

APPENDIX

EXHIBIT 1

IN THE COURT OF APPEALS OF THE STATE OF WASHINGTON

STATE OF WASHINGTON, Respondent, v. KING COUNTY DISTRICT COURT WEST DIVISION, Judge Mark Chow; KING COUNTY DISTRICT COURT, EAST DIVISION, Judge David Steiner; KING COUNTY DISTRICT COURT, SOUTH DIVISION, Judge Darrell Phillipson; BRETT R. BALLOW; and LESLIE P. FAUSTO, Petitioners.	No. 67456-1-I DIVISION ONE PUBLISHED OPINION FILED: July 29, 2013

APPELWICK, J. — The sole issue on appeal is whether, as a matter of law, every breath alcohol concentration test result is inadmissible in a criminal prosecution unless the State also introduces a statement of uncertainty for each test. Like every scientific measurement, breath test results have a margin of uncertainty. The Washington State Patrol's Toxicology Laboratory Division calculates this uncertainty in terms of a confidence interval. A panel of King County District Court judges ordered that breath tests are categorically inadmissible unless the State introduces a corresponding

confidence interval. On writ of review, the King County Superior Court reversed the district court's decision. We affirm.

FACTS

Brent Ballow and Leslie Fausto were arrested separately in King County for driving under the influence of intoxicating liquor (DUI), in violation of RCW 46.61.502 and RCW 46.61.506.[1] During their arrests, they each consented to a breath alcohol concentration (BrAC) test. Both defendants subsequently moved to suppress their BrAC test results under a countywide suppression order issued in State v. Ahmach, No. C00627921 (King County Dist. Court Jan. 30, 2008).

In Ahmach, a panel of three King County District Court judges entered a countywide suppression order on all BrAC test results, because the Washington State Patrol's Toxicology Laboratory Division (WTLD) was unable to produce reliable test results. Since Ahmach, the WTLD addressed testing irregularities and obtained breath test accreditation from the American Society of Crime Laboratory Directors Laboratory Accreditation Board. As a result, the State requested a hearing under LCrRLJ 8.2(2)[2] for the Ahmach panel to reconsider its decision. The State's motion was granted.

The cases were consolidated for a hearing before the same panel of judges who decided Ahmach. Ballow and Fausto asked the panel to decide whether the State must

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[1] The State charged Ballow and Fausto under the per se prong of the Washington DUI statute, RCW 46.61.502. A person is guilty under this prong if he or she "has, within two hours after driving, an alcohol concentration of 0.08 or higher as shown by analysis of the person's breath or blood made under RCW 46.61.506." RCW 46.61.502(1)(a).

[2] LCrRLJ 8.2(2) allows any judge or party to request that the presiding district court judge designate a motion as an "'issue of countywide significance.'" The presiding judge then assigns three judges to act as a panel to hear the motion. Id.

present a corresponding statement of uncertainty to admit BrAC test results at trial. The panel held a five day hearing in August 2010. It heard testimony from four experts: Washington State Toxicologist Dr. Fiona Couper, WTLD Quality Assurance Program Manager Jason Sklerov, former head of the Washington State Patrol breath test program Rod Gullberg, and University of Washington professor Dr. Ashley Emory.

In a September 20, 2010, ruling, the district court lifted the Ahmach suppression order. The court issued a separate order holding that breath test results must be presented by the State at trial with an accompanying uncertainty statement, presented as a confidence interval. The court also wrote that its order put "the State on notice that every discovery packet supplied to defendants must contain the confidence interval for any breath-alcohol measurement the State intends to offer into evidence in that case."[3] It explained that the breath test results are inadmissible if the State fails to present the uncertainty measurement in pretrial discovery or at trial.

Pursuant to RCW 7.16.040, the State sought and obtained a writ of review before the King County Superior Court. The State argued that the district court's decision improperly created a new foundational requirement for all King County DUI cases that was not mandated by statute, administrative rule, protocol, or the rules of evidence. The superior court reversed the district court's conclusion of law that uncertainty statements must be offered by the State as a judicially imposed minimum requirement

[3] The court also noted that by failing to turn over such evidence, "the State may subject itself to an appeal of the verdict upon the ground that it failed to provide exculpatory evidence," thereby violating Brady v. Maryland, 373 U.S. 83, 83 S. Ct. 1194, 10 L. Ed. 2d 215 (1963). The parties on appeal do not discuss the possibility of a Brady violation. But see State v. Thomas, 150 Wn.2d 821, 851, 83 P.3d 970 (2004) ("No Brady violation occurs if the defendant could have obtained the information himself through reasonable diligence.").

in addition to the statutory requirements of RCW 46.61.506. The superior court concluded that trial courts may not use ER 702 to impose a new foundational requirement. But, it further explained that trial courts retain their gatekeeping functions under ER 403 and 702, so they may decide to exclude otherwise admissible breath test results in individual cases. The superior court acknowledged that science evolves and evidence that once met the Frye[4] standard may still be challenged if the science is no longer accepted in the relevant scientific community. However, it explained, the fact that uncertainty analysis now exists does not debunk the science of breath testing and the DataMaster machine.[5]

The superior court also reversed the district court's holding that uncertainty calculations must be provided by the State in discovery. The court explained that a party's discovery obligation does not require that the party provide documents, but rather "'discoverable materials shall be made available for inspection and copying.'" (Quoting CrRLJ 4.7(a)(2)). Uncertainty calculations are readily available from the WTLD.[6] In fact, the WTLD performed uncertainty calculations over 600 times in 2010, mostly at the request of defense attorneys.

The criminal defendants (petitioners) filed a motion for discretionary review that this court granted.

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[4] Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923).

[5] The DataMaster is the breath test machine currently used in Washington. WAC 448-16-020(1).

[6] At the time of the district court hearing, the WTLD calculated the uncertainty of a particular BrAC test upon request. The WTLD now performs confidence interval calculations as a matter of course on every breath testing machine maintained by the WTLD. The WTLD is the only known state laboratory to provide this information.

DISCUSSION

In granting discretionary review, we characterized the sole issue on appeal as:

> In a DUI prosecution, where RCW 46.61.506(4) provides that the results of a "breath test performed by any instrument approved by the state toxicologist shall be admissible" at a criminal trial so long as the requirements of that statutory provision are met, do ER 702, City of Fircrest v. Jensen, 158 Wn.2d 384, 143 P.3d 776 (2006), City of Seattle v. Clark-Munoz, 152 Wn.2d 39, 93 P.3d 141 (2004), State v. Cauthron, 120 Wn.2d 879, 846 P.2d 502 (1993),[overruled in part by State v. Buckner, 133 Wn.2d 63, 941 P.2d 667 (1997),] and related authorities, mandate that the introduction into evidence of the results of an otherwise valid breath alcohol test must be coupled with the government's introduction into evidence of the Washington Toxicology Laboratory Division's calculated "confidence interval" applicable to that test?

Interpretation of an evidence rule is a question of law that we review de novo. State v. DeVincentis, 150 Wn.2d 11, 17, 74 P.3d 119 (2003).

Breath test admissibility begins with relevance under ER 401 and ER 402, neither of which are in dispute here. Next, as scientific evidence, breath test results must pass the Frye test. State v. Baity, 140 Wn.2d 1, 10, 991 P.2d 1151 (2000). Under Frye, a court must determine whether an expert's opinion is based on a theory generally accepted in the relevant scientific community. Cauthron, 120 Wn.2d at 886, 890 n.4. Under RCW 46.61.506(4)(a), breath tests are deemed admissible if the State produces prima facie evidence of eight statutory factors regarding the accuracy of the test.[7] The

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[7] The specific factors are:

> (i) The person who performed the test was authorized to perform such test by the state toxicologist;
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> (ii) The person being tested did not vomit or have anything to eat, drink, or smoke for at least fifteen minutes prior to administration of the test;
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> (iii) The person being tested did not have any foreign substances, not to include dental work, fixed or removable, in his or her mouth at the beginning of the fifteen-minute observation period;

Washington Supreme Court recognizes that the DataMaster produces scientifically accurate, reliable test results when the eight criteria of RCW 46.61.506(4)(a) are met, satisfying the Frye test.[8] State v. Ford, 110 Wn.2d 827, 833, 755 P.2d 806 (1988); see also State v. Straka, 116 Wn.2d 859, 870, 810 P.2d 888 (1991). Once the statutory foundational requirements are met, RCW 46.61.506(4)(c) specifies that all other challenges to the reliability or accuracy of the test "shall not preclude the admissibility of the test," but instead "may be considered by the trier of fact in determining what weight to give the test result." The Washington Supreme Court upheld the constitutionality of these foundational requirements in Jensen, 158 Wn.2d at 399. Not surprisingly, the petitioners do not contend that the statutory foundational requirements are not met. Nor is there an assertion that the BrAC tests fail the Frye test.

Evidence that is admissible under Frye must still pass the two-part test under ER 702: (1) whether the witness is qualified as an expert and (2) whether the expert testimony is helpful to the trier of fact.[9] State v. Copeland, 130 Wn.2d 244, 256, 922

> (iv) Prior to the start of the test, the temperature of any liquid simulator solution utilized as an external standard, as measured by a thermometer approved of by the state toxicologist was thirty-four degrees centigrade plus or minus 0.3 degrees centigrade;
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> (v) The internal standard test resulted in the message "verified";
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> (vi) The two breath samples agree to within plus or minus ten percent of their mean to be determined by the method approved by the state toxicologist;
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> (vii) The result of the test of the liquid simulator solution external standard or dry gas external standard result did lie between .072 to .088 inclusive; and
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> (viii) All blank tests gave results of .000.

RCW 46.61.506(4)(a).

[8] The district court even acknowledged that Ballow and Fausto were advocating a higher standard than the usual requirements of accuracy and reliability.

[9] ER 702 provides: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a

P.2d 1304 (1996). Evidence is helpful if it concerns matters beyond the common knowledge of a layperson and does not mislead the jury. State v. Thomas, 123 Wn. App. 771, 778, 98 P.3d 1258 (2004). Courts generally interpret possible helpfulness to the trier of fact broadly and favor admissibility in doubtful cases. Miller v. Likins, 109 Wn. App. 140, 148, 34 P.3d 835 (2001). Essentially, the trial court acts as a gatekeeper and can exclude otherwise admissible evidence if it fails to meet ER 702 standards. Jensen, 158 Wn.2d at 397.

The district court's order included nine pages of findings related to instrument bias, uncertainty calculations, and the WTLD's breath alcohol testing program. The findings are not challenged. For context, however, some of those findings are worth noting here. Every measurement is "uncertain," in that no instrument is infinitely precise or accurate. The concept of measurement uncertainty is similar to the concept of margin of error and expresses the idea that a true value of a measurement can never be known. Even the best instruments yield only an estimate of the true value. Uncertainty indicates a range in which the true value of a measurement is likely to occur. Though there are many methods of estimating uncertainty, the WTLD uses a confidence interval system developed by Gullberg. As an example, a confidence interval calculation for the statutory threshold of 0.15 under RCW 46.61.5055 might look like this: mean BrAC result: 0.1505 (the average of the two required breath test readings); confidence interval: 0.1387 - 0.1608, with a 99 percent confidence level that the true value lies somewhere in that range. A probability can then be calculated that

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witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

the true value of the test falls below the statutory threshold, in this example, between 0.1387 - 0.1499.

The district court concluded that measurement uncertainty is generally accepted within the scientific community. The State does not dispute that measurement uncertainty is recognized in all sciences and uncertainty measurements may be helpful to the trier of fact in some circumstances. Nor does the State challenge the district court's finding that testing laboratories should estimate measurement uncertainty whenever possible. As such, WTLD now performs confidence interval calculations on every breath testing machine it maintains and makes all such results available to the public.

However, the district court concluded that without this confidence interval, a breath alcohol measurement is incomplete and therefore inherently misleading and unhelpful to the trier of fact in every case. This conclusion is fatally flawed. To properly reach this result, the district court would have needed to conclude that BrAC results without confidence intervals <u>are not</u> generally accepted within the relevant scientific community. However, BrAC results without confidence intervals <u>are</u> generally accepted in the forensic toxicology community. In fact, measurement uncertainty reporting is almost nonexistent in the context of these cases. Indeed, the WTLD is unique in that regard. Neither Couper nor Gullberg knew of another breath test program in the country that offers a measurement of uncertainty. Sklerov likewise testified that there is little consensus in the forensic toxicology community on how to even calculate or report uncertainty measurements. At the time of the 2010 hearing, only two scientific

publications discussed calculating uncertainty for breath tests—both of which were written by Gullberg. The district court's findings reflect this testimony.

In essence, the district court implicitly concluded the BrAC test results without the accompanying confidence interval failed the Frye test in every case. But, when the court excludes evidence under ER 702, it must exercise that discretion on the facts of a particular case. Jensen, 158 Wn.2d at 398-99; State v. Willis, 151 Wn.2d 255, 262, 87 P.3d 1164 (2004) ("The admissibility of expert testimony is governed by ER 702 and requires a case by case inquiry."). Without a confidence interval, test results obtained in conformance with the WTLD and statutory quality assurance procedures remain the best estimate of the measurement's true value.

The petitioners nevertheless assert that a confidence interval is necessary to understand a BrAC test result, just like a probability estimate is necessary to understand a DNA (deoxyriboneucleic acid) match. They are wrong. In Cauthron, the Washington Supreme Court held that DNA typing under the restricted fragment length polymorphisms (RFLP) procedure was generally accepted in the scientific community and met the Frye test for admissibility. 120 Wn.2d at 899. Each individual, with the exception of identical twins, has a unique DNA structure, which is contained in every nucleated cell. Id. at 892. All scientists agree that if autorads (autoradiograph of a sample in RFLP testing) are distinguishable, then they do not come from the same individual. Id. at 893, 900. But, DNA "matches" cannot be interpreted without knowledge of how often a match might be expected to occur in the general population. Id. This is so, because RFLP does not test the whole DNA strand; but rather focuses on specific locations, so absolute identification is impossible. Id. As such, "'[t]o say that

two patterns match, without providing any scientifically valid estimate (or, at least, an upper bound) of the frequency with which such matches might occur by chance, is meaningless.'" Id. at 907 (quoting Committee on DNA Technology in Forensic Science, DNA Technology in Forensic Science 74 (National Academy Press (1992)). DNA match testimony without a population probability estimate is neither generally accepted in the relevant scientific community nor helpful to the trier of fact. Id. Therefore, the court held that evidence of a DNA "match" may not be introduced without a probability estimate. Id. This failure to satisfy Frye clearly distinguishes the rejected DNA testimony from the BrAC test results in this case.

Moreover, it is well supported in case law that if a scientific test is generally accepted by the relevant scientific community, lack of certainty goes to weight rather than admissibility. State v. Stenson, 132 Wn.2d 668, 717-18, 940 P.2d 1239 (1997) (uncertainty of presumptive phenol test for detecting human blood went to weight rather than admissibility); State v. Lord, 117 Wn.2d 829, 853, 822 P.2d 177 (1991). Similarly, unless errors rates are so serious as to be unhelpful to the trier of fact, error rates go to weight, not admissibility. Copeland, 130 Wn.2d at 270; see also Straka, 116 Wn.2d at 875. In State v. Keller, the court applied this principal to Breathalyzer tests. 36 Wn. App. 110, 113, 672 P.2d 412 (1983). In that case, the defendant argued there was insufficient evidence to support his DUI conviction, because the Breathalyzer machine had an inherent margin of error of .01 percent. Id. at 111-12. The court rejected this argument, holding that the margin of error went to the weight of the Breathalyzer evidence rather than admissibility. Id. at 113-14.

Nothing in RCW 46.61.506 prevents the trial court from exercising its discretion under ER 702 to exclude an unreliable, inaccurate, or erroneous BrAC test result on a case-by-case basis. However, by adopting a blanket exclusion, the district court implicitly imposed a new foundational requirement for BrAC tests admissibility, beyond that required by Frye or RCW 46.61.506(4). This was error. The burden is on defendants, not the State, to present uncertainty evidence challenging BrAC test results. We hold that the superior court properly reversed the district court's decision.

We affirm.

Appelwick, J.

WE CONCUR:

EXHIBIT 2

IN THE DISTRICT COURT OF KING COUNTY FOR THE STATE OF WASHINGTON

STATE OF WASHINGTON, Plaintiff, vs. FAUSTO, LESLIE PERPUSE, and BALLOW, BRETT RICHARD, Defendants.	Case No. C076949 and 9Y6231062 ORDER SUPPRESSING DEFENDANT'S BREATH-ALCOHOL MEASUREMENTS IN THE ABSENCE OF A MEASUREMENT FOR UNCERTAINTY

In the two Driving Under the Influence (DUI) cases herein, Defendants request suppression of their breath test results under E702, ER 403 and ER 901. Defendants argue that, because the Washington State Toxicology Laboratory Division[1] (WTLD) is reasonably able to produce a breath test reading with a corresponding measure of the reliability of the reading, their breath test readings should not be admitted without such a corresponding measurement. The State counters that issues of reliability are not foundational by statute, WTLD protocols or current forensic practices, and are not required by the rules of evidence. Testimony was taken August 2nd through August 6th, 2010. The State was represented by Ms. Margaret E. Nave and Mr. Moses Garcia. The defendants were represented by Mr. Ted Vosk, Ms. Andrea Roberts and Mr. Kevin Trombold.

For the reasons stated below, we hold that historic standards of justice - contained in the federal constitution, case authority and court rules - require that the State present breath test readings, both in pretrial discovery and at trial, showing their true value, rather than wrapped in such a way that a false picture is presented, either to the defendant or to the trier of fact.

[1] The WTLD was known as the Washington State Toxicology Laboratory at the time of the Ahmach decision. As a part of the office's reorganization, it is now known as the Washington State Toxicology Laboratory Division. To avoid confusion, this decision will refer to the lab, both historically and in the present, as the WTLD.

Findings of Fact

I. Definitions and Explanations

Because the subject matter of this opinion is so heavily steeped in scientific principals and procedures which are largely unknown to the Judiciary and the Bar, the Court is including in the Findings explanations and definitions of many of the principals involved.

A. Contributors to Uncertainty – no measurement is consistently accurate.

1. *Instrument bias*, otherwise known as systemic error, is the tendency of an instrument to consistently incorrectly report the true value of a measured item, the measurand. It is associated with the lack of accuracy of a measurement.
2. *Biological/Sampling*, is the single greatest contributor to uncertainty. The variables contributing to biological/sampling error include: breathing patterns; breath temperature; breath volume and breath flow rate.
3. *Traceability*, concerns the relating of a measurement result to stated references through an unbroken chain of comparisons, all with stated uncertainties.
4. *BAC Simulator*, the device associated with a breath test instrument, is used as a calibration device. Each simulator device and solution may introduce error through traceability, and through their temperature regulating systems, thermometers and attached tubing.
5. *Instrument/Analytical*, is the error associated directly with the BAC Datamaster, but also includes operator (trooper, officer or deputy) error. Instrument error includes errors related to optics (infrared spectrometry), electronics, software, tubing, and temperature.

B. Instrument Bias

1. All measuring instruments have bias associated with them.
2. Therefore, all values reported by an instrument are artificially elevated or depressed by instrument bias.

3. Methods of determining instrument bias are commonly used and accepted in the scientific community.
4. Generally accepted scientific protocols usually require calibration of instruments. This process compares the reference standard (a known) with the instrument measurement results, thus revealing the machine bias.
5. After the determination of instrument bias, corrections can be made using algebraic formulas.
6. If measurement results are not corrected for instrument bias, instrument bias results in greater error in any given measurement.
7. It is generally accepted in the scientific community that all reported instrument results will be corrected for bias. Yet, this practice is not generally followed in the forensic science community.

C. Measurement uncertainly – confidence intervals

1. Every measurement is "uncertain," in that no instrument is infinitely precise and accurate. No matter how good the instrument or the methodology, one can never know for sure the actual value of the thing being measured.
2. Bias is part of that uncertainty, as is the lack of precision of the instrument.
3. For any instrument there are an infinite number of values dispersed within a range around the value obtained by the instrument that are consistent with measured value, and that with varying degrees of credibility can be attributed to the true value of the thing being measured.
4. Even the best instruments yield only an estimate of the true value.
5. An uncertainty measurement is a qualitative statement characterizing the dispersion (range) of values that can be actually and reasonable attributed to the measurement.
6. This range of values associated with a measurement and the level of confidence associated with that range are known as measurement uncertainty. There are many methods calculating and showing uncertainty. One such method, now adopted by the WTLD is a confidence interval.

7. Because every measurement result actually represents a range of values, a measurement is more accurate if it is accompanied by a quantitative estimate of its uncertainty.

8. All important sources of uncertainty must be taken into account in an effort to increase the level of confidence to the highest level. Measurement uncertainty does not include mistakes, and assumes no errors.

D. Fitness for Purpose

An instrument is considered "fit for purpose," or a method is "fit for purpose," if it is appropriate for use in testing the specimen.

E. Quality Assurance

Quality assurance involves the practices and procedures used on an instrument to determine if it is operating in a proper manner. Quality assurance includes operating instructions, calibration and maintenance.

F. Quality Assurance Procedure

A procedure which checks the critical components within each breath test instrument on at least a yearly basis.

G. Measurement Uncertainty

Measurement uncertainty focuses on the test results. Measurement uncertainty assumes the fitness for purpose of the measuring device. Measurement uncertainty also assumes appropriate quality assurance practices for the processes. Measurement uncertainty defines how accurate the measurement actually is and aids in its interpretation.

II. Measurement Standards Adopted Within the Scientific and Forensic Communities

A. The International Organization for Standardization

There are several organizations that establish standards for laboratory work. The leading organization is The International Organization for Standardization (ISO). They do not accredit or inspect laboratories, merely set standards for the work. National organizations do the inspections necessary for certification or accreditation.

B. ISO 17025

ISO has created ISO 17025 – General Requirements for the Competence of Testing and Calibration Laboratories. This has been accepted by the Washington Toxicology Laboratory as the standard for their accreditation and work.

C. ASCLD/LAB

The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) uses ISO 17025 as the standard when doing accreditation reviews. The Washington Toxicology Laboratory Division (WTLD) received accreditation from ASCLD/LAB November 16, 2009 for its calibration program. No accreditation has been sought, nor is it available for the breath testing program.

D. NIST; EURACHEM; A2LA and NATA

There are other national and international organizations which establish standards for laboratories. Examples are National Institute for Standards and Testing (NIST), EURACHEM, American Association of Laboratory Analysts (A2LA), and National Association of Toxicology Analyst (NATA).

E. Standards

Each of the organizations mentioned above have established or adopted standards which require the assessment and reporting of uncertainty of measurement with a test result.

F. Uncertainty

It is well accepted in the scientific community that testing laboratories will use procedures for estimating uncertainty of measurement whenever possible.

G. Uncertainty and Test Reports

It is well accepted within the scientific community that a statement on the estimated uncertainty of measurement is needed for a test reports when it is relevant to the validity or application of the test result, or when the uncertainty affects compliance to a specific standard. A decision not to calculate uncertainty is not appropriate under generally accepted scientific principles.

H. Uncertainty is Essential to Proper Test Result Interpretation

Knowledge of the uncertainty associated with measurement results is essential to the proper interpretation of the results. Without quantitative assessment of uncertainty it is impossible to determine if statutory minimum limits have been exceeded. It is generally accepted within the scientific community that:

1. All results from every forensic test made should indicate the uncertainty in the measurements that are made.
2. Forensic reports, and any courtroom testimony stemming from them, must include the limitations of the analysis, including probabilities where possible.
3. Calculations of uncertainty can be done in many ways, including spreadsheet, tables or charts, calculators and manually. Calculations of uncertainty require an ability to calculate algebraic algorithms, but not advanced math skill.

I. WTLD Controls the Method of Determining Uncertainty

There are many methods of estimating the uncertainty which are recognized within the scientific community. WTLD uses a confidence interval system developed by Rod Gullberg. The particular method chosen to determine uncertainty lies entirely within the purview of the WTLD and any appropriate accrediting organization.

III. Bias or Systemic Error as Applied to the BAC Datamaster

A. Systemic Error

The field of forensic breath testing recognizes that there is some bias associated with every breath test instrument, and every breath test.

1. Bias does not automatically disqualify a machine or breath test. Rather, bias or systemic error must be determined and the results corrected for the bias.
2. Due to systemic error, the value reported by a Datamaster test is artificially high (or low) as compared with the true value of the breath test.
3. The failure to correct for bias leads to the reporting of a value known to be in error.

4. To correct the error, the bias value must be added to (or subtracted from) the indicated result.
5. The bias of a BAC Datamaster is determined at the time of the QAP. The results are not corrected for this unless a specific request is made by a defense attorney or defendant. This bias calculation is reported as a percentage on the QAP worksheet.
6. For a particular value, *Y*, indicated by a Datamaster, the bias corrected BAC is determined by the following algorithm:

$$BAC=\sqrt{\frac{Y}{(1+(bx0.01)}}$$

7. The Datamaster can be programmed to calculate the bias adjustment automatically and print out the corrected values. Those Datamasters used in Washington do not now do so.

B. Datamaster test protocol

The Datamaster test protocol requires an individual to provide two different test samples. Each is tested for alcohol content by the instrument, and a separate reading is produced for each.

1. Unless the two readings are identical, the mean (average) of the readings is more likely correct that either reading alone.
2. A bias corrected reading is always more accurate than an uncorrected reading.
3. The best estimate of an individual's true BAC reading is the bias corrected mean of the values reported by the Datamaster.
4. The bias corrected mean may, when compared to the actual readings, produce a substantially different result.
5. The bias corrected mean may produce results below the legal thresholds (.02, .04, .08, .15) even when the actual test readings are both above the minimum level. In this situation there is a greater than 50% chance that the actual BAC reading is below the legal threshold.

6. The QAP protocols allow the use of a Datamaster with positive or negative bias up to and including 5% in each direction.
7. Without correcting for bias, all values reported by the Datamaster are artificially skewed by an amount up to 5%.
8. The bias values obtained during the QAP are reported on the web, so that if an individual knew where to look, and how to do the calculations, the actual reading could be obtained.
9. The failure to correct for bias may result in erroneous conclusions regarding whether a particular reading is above or below a legal limit.

IV. Uncertainty as applied the BAC Datamaster

A. Every measurement made by every instrument has an error associated with it.

B. Given the inherent variability of measurement, a statement of a measurement result is incomplete without a statement of the accompanying estimate of uncertainty, (i.e., the range of values within which the value of the measurand can be said to lie within a specified level of confidence).

C. It is generally accepted in the scientific community that forensic reports, and testimony from them, must include a clear descriptor of the limitation of the analysis.

D. There is no known state laboratory that routinely publishes this information for breath tests at this time. There are very few accredited forensic laboratories. It is expected that those state laboratories wishing to gain or retain accreditation will have to include a clear descriptor of the limitation of any analysis in the future. This will include the WTLD.

E. All BAC measurements represent a range of values, any of which could represent the true value with a given level of confidence. Thus, no reliable result can be reported without an estimate of uncertainty.

F. It is impossible to determine the likelihood that the result of a breath test - which is close to a legal limit - actually exceeds the legal limit without determining the uncertainty of the test.

G. The uncertainty associated with BAC testing will vary from one machine to another and from one QAP to another.

H. The confidence interval of a Datamaster result can be calculated using algebra and a statistical table. This is likely beyond the capabilities of most defendants, jurors, attorneys and judges.

1. The web site for the WSP Breath test section sets forth the methodology for determining uncertainty with the Datamaster.

2. Upon request the WTLD will calculate the bias and uncertainty associated with a particular test. Absent a request, the WTLD makes no report or mention of bias or uncertainty.

I. Absent the reporting of uncertainty, there is a substantial possibility that even an expert would not make a meaningful analysis of a particular breath reading.

1. Testimony revealed that many BAC readings in excess of .08, when considered in light of the confidence interval, are likely to have actual readings less than .08.

2. The top three officials of the WTLD were unable to accurately determine a true BAC without an uncertainty calculation.

J. The WTLD uses a common spreadsheet program to correct for bias and calculate uncertainty. Most of the information necessary is available from the QAP process and available on the web. The mean of the breath tests can be determined from information in the Datamaster. At the time of the QAP the uncertainty range for all possible BAC readings could be calculated for each Datamaster.

V. Policies and Procedures of WTLD

A. The policies and procedures to be used by the WTLD for calibration, QAP, and operation of the instrument are determined by the Washington State Toxicologist, Dr. Fiona Couper, pursuant to the Revised Code of Washington (RCW) and the Washington Administrative Code (WAC).

B. The protocols for the QAP have been applied and tested over many years. They require rigorous science, and their use reduces the inherent uncertainty of the test readings. Appropriate application of all protocols, however, will not eliminate instrument bias or measurement uncertainty.

C. The WTLD, like most medical and pathology laboratories, does not calculate uncertainty unless requested. However, testing for BAC has critical minimum standards which establish per se violations. This separates this subject from most diagnostic biological testing.

D. ISO and other standard setting organizations have required that uncertainty be included in measurement reports, but have delayed implementation of this requirement due to the inability of many to comply.

E. The WTLD can comply, and does provide this information upon specific request.

F. From October 2009 to August 2010 the WTLD has performed approximately 650 such calculations. Yet, in the same time frame there have been approximately 25,000 to 30,000 BAC tests performed.

G. The WTLD is believed to be the only breath test program in the United States to measure uncertainty.

H. The WTLD is not required to meet ISO standards or be accredited. It does so voluntarily and as an indicator of the high standards this laboratory strives to attain.

Background

In the previous ruling of this Court, State v. Sanafim Ahmach, et al., C00627921,[2] (Ahmach), we suppressed the breath test results of Sanafim Ahmach and other similarly situated defendants. The bases for suppression were broad, but were all related directly to the inability, at the time, of the WTLD to produce a reliable work product. As stated in the Order Lifting BAC

[2] Pursuant to King County District Court (KCDC) local rule, LCrRLJ 8.2 (2), the Ahmach motion was declared a motion of countywide significance and heard by a three judge panel consisting of judges from different divisions of the KCDC. Those same three judges, Mark Chow, Darrell Phillipson and David Steiner, sat as a panel and heard evidence in these new cases.

Suppression under State v. Ahmach,[3] the WTLD has been reorganized and has received a high level of accreditation which reflects, among other things, very high quality assurance standards and rigorous scientific procedures. This court's previous ruling, however, pointed to one area which has received only partial effort from the WTLD, i.e., breath test machine bias. "Bias" is the tendency of a machine or device to measure consistently high or low.[4] Findings 48 through 51 of the Ahmach decision outlined the problem presented by machine bias.[5] "Bias" is but one of the reasons that all measurements are "uncertain.[6]"

Rod Gullberg, Research Analyst for the Washington State Patrol (and a driving force for quality control in the Washington State breath test program), defines "uncertainty' as "the degree to which a measurement result fails to exactly reproduce the quantitative and qualitative features of the property being measured (the measurand). All measurements possess uncertainty due to limitations in technology and methodology. Inaccuracy and imprecision are examples of uncertainty. No measurement is perfect. The important thing is that the uncertainty be known and minimized so the process is fit-for-purpose." Methodology and Quality Assurance in Forensic Breath Alcohol Analysis, R. G. Gullberg, Forensic Science Review, V. 12, Page 67 (2000).

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[3] The State requested that this Court enter two post-Ahmach orders; one clearly stating (if we were to decide) that the problems outlined in Ahmach had been corrected, and one ruling on the issue of uncertainty. While "instrument bias" was cited as a problem in Ahmach, instrument bias was tangential enough to Ahmach that this Court was able to accommodate – without defense objection – the State's request for two orders.

[4] "Bias" is also known as "systematic error."

[5] The findings related to machine bias were as follows:

> 48. All measuring machines have some bias, and Datamaster breath test machines have bias which is identified in the QAP process.
>
> 49. This bias is not determinable without testing; sometimes creating readings lower than actual and sometimes higher.
>
> 50. The bias of any particular machine can be determined from the information created during the QAP process by applying mathematical formulas and calculations. This information is not readily available to the public, though it is published on the web. Due to the complexity of the calculations and formula involved, few in the legal community are aware of this bias. The Breath Test Section of the Washington State Patrol does, however, provide this information to attorneys and defendants when requested.
>
> 51. The machine bias information could be easily made available to the defendants, attorneys and public by the State Toxicologist.

[6] "Uncertainty" as a concept is most closely related in the mind of the lay public to the concept of "margin of error." The term "margin of error," however, is a term most commonly used to express the margin of sampling error in a survey's results. The term "margin of error" is not used in the science of metrology, a science defined below.

As stated above, "bias" is only one of the components of uncertainty in a breath test measurement. Other contributors to measurement uncertainty include error created in collecting the biological sample and error created in the processes necessary to measure any substance, including instrument error and traceability error.[7]

Measurement uncertainty is a concept that is elemental in the science of "metrology." Metrology is defined by the International Bureau of Weights and Measures as "the science of measurement, embracing both experimental and theoretical determinations at any level of uncertainty in any field of science and technology."[8] Thus, breath-alcohol measurement is a metrological science which necessarily encompasses all aspects of the metrological field.

Like any scientific endeavor, metrology is not static, but is constantly in the process of refinement as new standards are proposed, reviewed and adopted. According to the International Organization for Standardization (ISO), "several factors combine to render a standard out of date: technological evolution, new methods and materials, new quality and safety requirements." About ISO; How are ISO standards developed? Exhibit 80. Thus, the measurement of uncertainty and its disclosure with any scientific measurement must be viewed as a step forward in the science of metrology.[9] Rather than indicating poor scientific procedures, a measurement for uncertainty presumes that all processes and procedures have been stringently followed.[10]

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[7] Estimating the measurement uncertainty in forensic breath-alcohol analysis, Rod G. Gullberg, Accreditation and Quality Assurance: Journal for Quality, Comparability and Reliability in Chemical Measurement, Volume 11, Number 11, 562-568, 563 (2006), (see also in this Order, Findings of Fact, section (I.) (A.)).

[8] Fundamentals of Dimensional Metrology, Ted Busch, Wilkie Bros Foundation, Delmar Publishers.

[9] As previously stated, Rod Gullberg has been advocating for the measurement of uncertainty for years. Clearly, the forensic community as a whole has not been receptive. In a 2005 article Gullberg stated that "Unfortunately, few jurisdictions are able to clearly document measurement uncertainty and traceability. Moreover, established case law in many jurisdictions supports minimal analytical quality control and documentation which, unfortunately, provides little incentive to improve performance." Estimating the measurement uncertainty in forensic breath-alcohol analysis, Rod G. Gullberg, 563, Id.

[10] As stated in JCGM, Evaluation of measurement date – guide to the expression of uncertainty in measurement, (GUM), "It is now widely recognized that, when all of the known or suspected components of error have been evaluated and the appropriate corrections have been applied, there still remains uncertainty about the correctness of

Properly understood, measurement for uncertainty may provide confidence in a result, rather than doubt.

At the root level, all metrological organizations recognize the importance of uncertainty in reporting measurements:

- When reporting the result of a measurement of a physical quantity, it is obligatory that some quantitative indication of the quality of the result be given so that those who use it can assess its reliability. Without such an indication, measurement results cannot be compared, either among themselves or with reference values given in a specification or standard. It is therefore necessary that there be a readily implemented, easily understood, and generally accepted procedure for characterizing the quality of a result of a measurement, that is, for evaluating and expressing its uncertainty. JCGM, Evaluation of measurement date – guide to the expression of uncertainty in measurement, (GUM), Introduction, section 0.1, 2008.
- Given the inherent variability of measurement, a statement of a measurement result is incomplete (perhaps even meaningless) without an accompanying statement of the estimated uncertainty of measurement (a parameter characterizing the range of values within which the value of the measurand can be said to lie within a specified level of confidence). G104-A2LA Guide for Estimation of Measurement Uncertainty In Testing, Introduction, P. 4, July 2002, Exhibit 13.
- Uncertainty of measurement is the most important single parameter that describes the quality of measurements. This is because uncertainty fundamentally affects the decisions

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the result, that is, a doubt about how well the result of the measurement represents the value of the quantity being measured." Introduction, Section 0.2, 2008.

that are based upon the measurement result. EURACHEM/CITAC Guide, Measurement uncertainty arising from sampling, Foreword, Page ii, First Edition, 2007, Exhibit 22.

- Knowledge of the uncertainty of measurement of testing results is fundamentally important for laboratories, their clients and all institutions using these results for comparative purposes. Competent laboratories know the performance of their testing methods and the uncertainty associated with the results. ILAC, Introducing the Concept of Uncertainty of Measurement in Testing in Association with the Application of the Standard ISO/IEC 17025, Preamble, P. 4, Exhibit 50.
- Every measurement made has error associated with it, and, without a quantitative statement of the error, a measurement lacks worth. Indeed, without such a statement it lacks creditability. National Association of Testing Authorities, Assessment of Uncertainties of Measurement for Calibration and Testing Laboratories, Introduction, P. 8, 2002, Exhibit 87.
- In general, the result of a measurement is only an approximation or estimate of the value of the specific quantity subject to measurement, that is, the measurand, and thus the result is complete only when accompanied by a quantitative statement of its uncertainty. NIST Technical Note 1297, 1994 Edition, Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results, Section 2.1, Exhibit 90.

Yet, not all professions which utilize the science of metrology account for and report uncertainty in their measurements. Forensic scientists, for the most part, are lagging behind the uncertainty curve. In a report prepared by the National Academy of Sciences in response to a Congressional request, the reporting committee stated that "few forensic science methods have

developed adequate measures of the accuracy of inferences made by forensic scientists. All results for every forensic science method should indicate uncertainty in the measurements that are made....[11]

The WTLD now stands in stark contrast to the lab with the problems delineated in Ahmach. No longer complacent about its duties and the processes required for those duties, the WTLD is now moving into a leadership role in the field of forensic toxicology. Under the direction of the new Washington State Toxicologist, Dr. Fiona J. Couper, the WTLD is one of the few labs with a breath-alcohol calibration program that is accredited under the stringent standards of ISO 17025. Further, Dr. Couper has allowed Rod Gullberg, Breath Test Section Research Analyst, to move forward with his pioneering work in the determination and documentation of uncertainty in the area of breath-alcohol testing. In his career with the Washington State Patrol and now with the WTLD, Rod Gullberg has championed rigorous science and full disclosure. Knowledgeable, precise and forward thinking, Gullberg has pushed for the determination, documentation and disclosure of uncertainty in breath-alcohol testing. Of equal or greater importance, Gullberg has developed a sound method for the determination of uncertainty in breath-alcohol measurements.

There are several accepted methods for determining and documenting uncertainty. Gullberg has chosen a method known as a "confidence interval." A "confidence interval" as "an interval this is symmetric about some sample statistic (e.g., the sample mean)....The limits of the confidence interval are functions of the desired confidence, the variability, and the sample size.[12]

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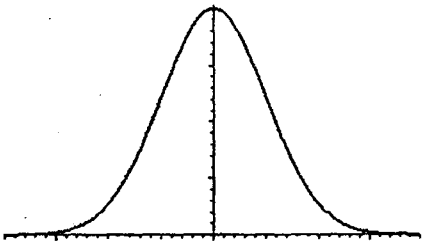
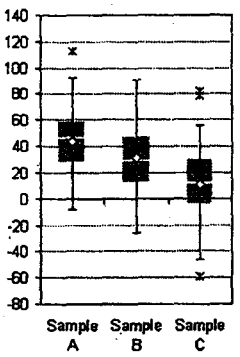
[11] National Research Council, Strengthening Forensic Science in the United States, A Path Forward, P. 184, 2009, Exhibit 83.

[12] Methodology and Quality Assurance in Forensic Breath Alcohol Analysis, R. G. Gullberg, Forensic Science Review, V. 12, Page 65 (2000).

A confidence interval may be shown graphically in many different ways. Two of the most common graphical representations are the bell curve:[13]



and the error bar:[14]



Of course, it is also possible to present a breath-alcohol confidence interval by stating the mean breath-alcohol reading along with the lower possible breath-alcohol reading and the higher possible breath-alcohol reading. The confidence interval is then made complete when a statement of a "level of confidence" is attached. For example, a confidence interval for an 0.085 mean breath-alcohol reading might appear as follows: .0733 - .0961, with a 99% level of confidence.[15]

Rod Gullberg has used, published and taught his confidence interval method for at least the last decade. His work has been recognized as far away as Sweden. Professor A.W. Jones, PhD, DSc, from the Department of Forensic Toxicology, University Hospital, Sweden, refers to

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[13] Representations of a confidence interval utilizing a bell curve will typically show the mean of two breath-alcohol measurements as the middle vertical bar; the lower horizontal line as the possible ranges of breath-alcohol (zero on the left and higher readings on the right) and the sides of the bell as the possible lower (left side) and higher (right side) mean breath-alcohol reading. The graph should also include a statement of the confidence interval, e.g., that there is 95% chance that the true mean breath-alcohol reading is within the area covered by the bell curve.

[14] Representations of a confidence interval utilizing an error bar or a "box and whiskers" graph (above) show the mean breath-alcohol reading as a dot or box in the middle of a bar and the possible lower and higher ranges of breath-alcohol are represented by the upper and lower arms of the line. The line on the left represents the possible ranges of breath-alcohol (zero on the bottom and higher readings on the top).

[15] This example appears in Exhibit 64.

Rod Gullberg in an paper titled Dealing with Uncertainty in Chemical Measurements.[16] Jones writes that his paper is not a "how to do it" text, "because for a proper understanding and interpretation a professional statistician (or Rod Gullberg, Washington State Patrol, Seattle, Wa) should be consulted." Id, at p. 7.

In his testimony, Gullberg stated that the breath test program could produce a spreadsheet for each breath test machine[17]showing the confidence interval for each mean breath test measurement possible. Thus, the WTLD could provide a spreadsheet with each breath test reading, allowing a defendant to determine the possible range of his or her breath test in a simple and easy manner.[18] For reasons which were never clearly articulated by any State witness, however, the WTLD does not currently provide defendants with a confidence interval for breath test measurements unless specifically requested.

Analysis

In Reese v. Stroh, 74 Wash.App. 550, (1994), Division 1 of the Court of Appeals documented three concerns related to scientific evidence.[19] First, the Court stated that:

> When a witness gives his personal opinion on the stand - even if he qualifies as an expert - the jurors may temper their acceptance of his testimony with a healthy skepticism born of their knowledge that all human beings are fallible. But the opposite may be true when the evidence is produced by a machine: like many laypersons, jurors tend to ascribe an inordinately high degree of certainty to proof derived from an apparently "scientific" mechanism, instrument, or procedure. Yet the aura of infallibility that often surrounds such evidence may well conceal the fact that it remains experimental and tentative.

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[16] International Association for Chemical Testing Newsletter, Dealing with Uncertainty in Chemical Measurements, A. W. Jones, V. 14, N. 1 2003.

[17] The spreadsheet (likely an Excel spreadsheet), would be produced at the time that the QAP is completed for each breath test machine each year.

[18] A confidence interval for all possible breath test measurements may be produced at the time of the QAP because Gullberg's method uses a predetermined formula for the instrument, traceability and biological sampling "errors." The only "unknown error" is each breath test machine's bias, known once the QAP is complete.

[19] While the court in Reese v. Stroh, Id, was discussing the Frye Standard, the court's concerns relating to scientific evidence directly apply to the issues here. Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

Id, at 558. Second, the Court stated that it was concerned about the inherent financial and resource "disadvantages a criminal defendant faces and the difficult task of defending against evidence derived from seemingly infallible scientific techniques." Id, at 558-559. Third, the Court stated that "a criminal defendant is constitutionally guaranteed the right to a fair trial, and the State must prove the defendant's guilt beyond a reasonable doubt. The prosecution should not be permitted to prove its case through the use of less than highly-reliable methodologies and techniques." Id. Overall, the Reese court was concerned about "black boxes,"[20] which they called "technologies that, because they are mechanical or mysterious, appear infallible to the average juror." Id, at 558. A BAC Datamaster is certainly a "black box," as that term is used in Reese. Further, a breath-alcohol measurement is a reading that will appear final and complete to the average person, unaware of the metrological requirement for a measurement of uncertainty.

Scientists, however, aware of the lack of uncertainty measurements in forensic science, are attempting to push the forensic community forward:

- As a general matter, laboratory reports generated as the result of a scientific analysis should be complete and thorough. They should describe, at a minimum, methods and materials, procedures, results, and conclusions, and they should identify, as appropriate, the sources of uncertainty in the procedures and conclusions along with estimates of their scale (to indicate the level of confidence in the results). National Research Council, Strengthening Forensic Science in the United States, A Path Forward, P. 186, 2009, Exhibit 83.
- It is generally agreed that the usefulness of measurement results, and thus much of the information that we provide as an institution, is to a large extent determined by the

[20] The Reese court cited two California cases for its use of the term "black box." People v. Stoll, 49 Cal.3d 1136, 783 P.2d 698, 265 Cal.Rptr. 111 (1989); People v. McDonald, 37 Cal.3d 351, 690 P.2d 709, 208 Cal.Rptr. 236 (1984).

quality of the statements of uncertainty that accompany them. For example, only if quantitative and thoroughly documented statements of uncertainty accompany the results of NIST calibrations can the users of our calibration services establish their level of traceability to the U. S. standard of measurement maintained at NIST. National Institute of Standards and Technology, Guidelines for Evaluation and Expressing the Uncertainty of NIST Measurement Results, Foreword (to the 1993 Edition) 1994.

- Knowledge of the uncertainty associated with measurement results is essential to the interpretation of the results....Without information on uncertainty, there is a risk of misinterpretation of the results. Incorrect decisions taken on such a basis may result in unnecessary expenditure in industry, incorrect prosecution in law, or adverse health or social consequences. ISO/TS 21748, Guidance for the use of repeatability, reproducibility and trueness estimates in measurement uncertainty estimation, First Edition, Introduction, 2004.
- No important measurement process is complete until the results have been clearly communicated to and understood by the appropriate decision maker. Forensic measurements are made for important reasons. People, often unfamiliar with analytical concepts, will be making important decisions based on these results. Part of the forensic toxicologist's responsibility is to communicate the best measurement estimate along with its uncertainty. Insufficient communication and interpretation of measurement results can introduce more uncertainty than the analytical process itself. The best instrumentation along with the most credible protocols ensuring the highest possible quality control will not compensate for the unclear and insufficient communication of measurement results and their significance. Rod Gullberg, Statistical Applications in

Forensic Toxicology, Medical-Legal Aspects of Alcohol, P. 457, 504 James Garriott Editor., 5th Ed. 2009.

In September of 2009, the WTLD advanced the cause of accuracy and thus, justice in the area of forensic breath-alcohol testing when it formally adopted Rod Gullberg's procedures for the determination of the confidence intervals in breath tests in Washington State.[21] Yet, as previously stated, at the same time the WTLD, inexplicably, decided not to report uncertainty in all breath-alcohol readings.[22] For those savvy enough to determine that it was available, the new policy provided that a breath-alcohol test confidence interval would be provided upon request as resourced permitted. Thus, breath-alcohol measurements would still be offered without a confidence interval, defendants would not be informed that a confidence interval was available, and the confidence interval would be provided only as resources permitted. While it appears likely that the WTLD is moving toward the point where it will provide confidence intervals in all breath-alcohol measurements, the WTLD has not yet set a time frame for the disclosure of uncertainty in all breath-alcohol measurements.

Limited Case Law Authority on Uncertainty

Only two other state courts have specifically considered the issue of uncertainty as it relates to breath-alcohol tests. In those two cases, the Nebraska Supreme Court and a Hawaiian appellate court determined that the State's failure to include an uncertainty measurement along with the breath test reading left the trier of fact without a critical fact. The Nebraska Supreme Court stated:

[21] This step forward may serve as a catalyst to move breath-alcohol testing on a national level toward more rigorous science.

[22] In fact, WTLD procedures do not even inform a defendant of the availability of an uncertainty measurement.

> While the Legislature has the acknowledged right to prescribe acceptable methods of testing for alcohol content in body fluids and perhaps even the right to prescribe that such evidence is admissible in a court of law, it is a judicial determination as to whether this evidence is sufficient to sustain a conviction, if the evidence is believed. The Legislature has selected a particular percent of alcohol to be a criminal offense if present in a person operating a motor vehicle. It is not unreasonable to require that the test, designed to show that percent, do so outside of any error or tolerance inherent in the testing process.

State v. Bjornsen, 201 Neb. 709, 271 N.W.2d 839, 840 (1978). The same reasoning was reflected in the decision of the Hawaiian appellate court:

> In both of the cases at bar, the State has failed to establish a critical fact. The State merely demonstrated that the reading of the breathalyzer machine was 0.10% for Defendant Boehmer and 0.11% for Defendant Gogo. The inherent margin of error could put both defendants' actual blood alcohol level below the level necessary for the presumption to arise. The failure of the prosecution to establish beyond a reasonable doubt that the actual weight of alcohol in defendants' blood was at least .10% required the trial judge to ignore the statutory presumption in its determination.

State v. Boehmer, 1 Haw.App. 44, 47 (1980). While these cases only stand for the proposition that breath tests close to a legal reference level may not be relied upon for a per se conviction, they also reflect that fact that the only two state courts to consider the question of uncertainty in breath test cases both determined that the issue was one of great importance.

Due Process and Discovery Requirements

The WTLD understandably believes that it should not have to defend its uncertainty procedures when it is leading the nation's forensic laboratories and breath test programs in that very area. Yet, in criminal justice, the actions of all participants are appropriately affected by every defendant's constitutional rights.

A good detective may be certain that an already identified suspect committed a crime, yet in the process of gathering evidence, he or she will let the evidence lead where it may. The same

detective will then testify truthfully and completely, letting the criminal justice system reach an independent conclusion as to guilt or innocence.

A prosecutor is a participant in a system of criminal justice which is, by design, adversarial. Yet, a good prosecutor will never let the desire to "win" overcome his or her sense of justice.

A trial court will follow precedent in when it rules on matters before the court, but precedent will never be allowed to overcome the determination of a good judge to do justice in each and every case.[23]

What was trustworthy and reliable yesterday may not be today. As concepts of justice advance through each generation of police, criminal justice practitioners,[24] attorneys and judges, we aim to provide better justice than was provided by those before us.[25] As concepts of science change, we also need to be ready to move forward with those new, better practices.[26]

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[23] Provided, of course, that the judge can articulate a basis distinguishing, in some manner, the precedent from the case at hand.

[24] Here, we do intend to refer to all of the dedicated scientists and administrators in the WTLD.

[25] We do this, of course, by standing on the shoulders of all previous criminal justice practitioners.

[26] As Judge Harry T. Edwards, stated:

> In my testimony before the Senate Judiciary Committee in March 2009, I suggested – contrary to the mischaracterization of my position in the Government's briefs – that "courts [would] take the findings of the committee regarding the scientific foundation of particular types of forensic science evidence into account when considering the admissibility of such evidence in a particular case." As I explained to the Senate Committee, because the Report presents "findings about the current status of the scientific foundation of particular areas of forensic science," it would be "no surprise if the report is cited authoritatively" by the courts in their assessment of particular cases.
>
> Why was that my prediction? Because it seemed quite obvious, at least to me, that if a particular forensic methodology or practice, once thought to be scientifically valid, has been revealed to lack validation or reliability, no prosecutor would offer evidence derived from that discipline without taking the new information into account and no judge would continue to admit such evidence without considering the new information regarding the scientific validity and reliability of its source. Nothing in Frye or Daubert commands unyielding adherence to past methodologies or practices once they are found wanting. As one state court in a Frye jurisdiction has aptly observed:
>
> > Science moves inexorably forward and hypotheses or methodologies once considered sacrosanct are modified or discarded. The judicial system, with its search for the closest approximation to the "truth," must accommodate this ever-changing scientific landscape.

Nor should the court allow an instrument or a machine to determine an element of a criminal offense - unless there are appropriate safeguards to ensure that the evidence provided by the machine is what it purports to be. It bears repeating that - these safeguards are foundational to our criminal justice system. As stated in Brady v. Maryland, 373 U.S. 83, 87, 83 S.Ct. 1194, 10 L.Ed.2d 215 (1963):

> Society wins not only when the guilty are convicted but when criminal trials are fair; our system of the administration of justice suffers when any accused is treated unfairly. An inscription on the walls of the Department of Justice states the proposition candidly for the federal domain: 'The United States wins its point whenever justice is done its citizens in the courts.'

When a witness is sworn in, he or she most often swears to "tell the truth, the whole truth, and nothing but the truth."[27] In other words, a witness may make a statement that is true, as far as it goes. Yet there is often more information known to the witness, which if provided, would tend to change the impact of the information already provided. Such is the case when the State presents a breath-alcohol reading without revealing the whole truth about it. That whole truth, of course, is that the reading is only a "best estimate"[28] of a defendant's breath-alcohol content. The true measurement is always the measurement coupled with its uncertainty.

The Fifth Amendment to the United States constitution requires that no person be "deprived of life, liberty, or property, without due process of law." Most, if not all of the criminal rules of

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> The Supreme Court made the same point in Daubert when it reminded us that "scientific conclusions are subject to perpetual revision." I really do not understand how any jurist could reasonably think otherwise.

The Honorable Harry T. Edwards, The National Academy of Sciences Report on Forensic Sciences: What it Means for the Bench and Bar, Page 5, May 6, 2010, (footnotes omitted). Judge Edwards was a participant in the panel which produced the report titled: National Research Council, Strengthening Forensic Science in the United States, A Path Forward, Id.

[27] ER 603 requires that a witness state an oath or affirmation before testifying and RCW 5.28.020 suggests that: "the person who swears holds up his hand, while the person administering the oath thus addresses him: "You do solemnly swear that the evidence you shall give in the issue (or matter) now pending between . . . . . and . . . . . shall be the truth, the whole truth, and nothing but the truth, so help you God."

[28] In argument, the State used the term "best estimate" many times when describing a breath-alcohol measurement which did not yet have a confidence interval attached to it.

procedure and rules of evidence are designed to ensure a defendant's right to a fair trial.[29] Fundamental to this is a defendant's right to discovery. "The Fifth Amendment to the United States requires that prosecutors make available evidence "favorable to an accused ... where the evidence is material either to guilt or to punishment." " State v. Boyd, 160 Wash.2d 424, 434, (2007), (quoting Brady v. Maryland, Id, at 87-88). The process and the result of discovery is a very important part of the criminal justice procedure. In a comment to proposed Rule CrR 4.7,[30] the Criminal Rules Task Force stated:

> "In order to provide *adequate information for informed pleas, expedite trials, minimize surprise, afford opportunity for effective cross-examination, and meet the requirements of due process*, discovery prior to trial should be as full and free as possible consistent with protections of persons, effective law enforcement, the adversary system, and national security."

State v. Yates, 111 Wash.2d 793, 797 (1988) (emphasis added) (quoting Criminal Rules Task Force, Washington Proposed Rules of Criminal Procedure 77). See also, State v. Boyd, Id.

In addition to the requirements of due process, a prosecutor must also provide a defendant with exculpatory evidence pursuant to court rule:

> Except as otherwise provided by protective orders, the prosecuting authority shall disclose to defendant's lawyer any material or information within his or her knowledge which tends to negate defendant's guilt as to the offense charged.

CrRLJ 4.7 (a) (3)[31].

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[29] A preliminary statement in the Rules of Criminal Procedure states that "these rules are intended to provide for the just determination of every criminal proceeding." The rules also state that they should be construed to secure "effective justice." CrRLJ 1.2. A preliminary statement in the rules of evidence states that they are designed "to the end that the truth may be ascertained and proceedings may be justly determined."

[30] The discovery rules for courts of general jurisdiction (CrR) and the discovery rules for courts of limited jurisdiction (CrRLJ) are substantially similar.

[31] Nor may a prosecutor argue that he or she has turned over all exculpatory evidence in the prosecutor's file and does not have the information. As stated in, In re Brennan, 117 Wash.App. 797, 804-805 (2003) :

> In the 1963 case of Brady v. Maryland,[Id.] the United States Supreme Court held that state prosecutors violate a defendant's right to due process when evidence favorable to a defendant is not disclosed. The prosecutor's good faith is unimportant. Further, a prosecutor has the duty to learn of evidence favorable to the defendant that is known to others acting on behalf of the government in a particular case, including the police.

When an individual suspected of Driving Under the Influence submits to a test to measure his or her breath-alcohol content, the breath test instrument will produce two separate readings[32] and the mean of the two samples constitutes his or her breath-alcohol level. Absent a high level of scientific knowledge, this has historically been the end of the line for breath test evidence. Now, however, the availability of a confidence interval for breath-alcohol measurements means that laypeople can understand the true possible value of a mean breath-alcohol measurement. For most people, that understanding will be a revelation. For example, the following mean breath test measurements were taken from Washington State BAC Datamaster breath test measurements:[33]

- Mean result: 0.1545; Confidence interval: 0.1371 - 0.1766
- Mean result: 0.875; Confidence interval: 0.0769 - 0.1007
- Mean result: 0.1505; Confidence interval: 0.1387 - 0.1608
- Mean result: 0.085; Confidence interval: 0.0731 - 0.0877

These confidence intervals represent a 99% level of confidence.

When breath-alcohol measurements are close to a reference level (e.g., 0.08),[34] the need for discovery of breath test measurement confidence intervals is obvious. Nonetheless, when one

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> The purpose of holding police and others assisting prosecutors so accountable is that "[e]xculpatory evidence cannot be kept out of the hands of the defense just because the prosecutor does not have it." Otherwise, prosecutors could instruct those assisting them not to give the prosecutor certain types of information, resulting in police and other investigating agencies acting as the final arbiters of justice. (Footnotes omitted.)

[32] A suspect provides two separate samples of his or her breath.

[33] These results are contained in Exhibit 64 and were obtained from DUI suspects in Washington State. The confidence intervals were determined by the WTLD using the method now adopted by the WTLD.

[34] The most important reference level in Washington State is the 0.80 level. But as noted in Ahmach, three other reference levels exist: 0.02, 0.04 and 0.15.)

(mean) breath-alcohol measurement may constitute the principle element in a criminal charge, it is hard to imagine a situation where a confidence level would not be important.[35]

Thus, we now place the State on notice that every discovery packet supplied to defendants must contain the confidence interval for any breath-alcohol measurement the State intends to offer into evidence in that case. Should the State fail to comply with this discovery order, then upon objection, such breath-alcohol measurement will not be admitted at trial.

Moreover, should the State fail to comply with this discovery order, upon appeal of any guilty verdict where one of the elements is a breath-alcohol reading above the legal limit, the State may subject itself to an appeal of the verdict upon the ground that it failed to provide exculpatory evidence to the defendant. Should the appellate court determine that the failure to disclose the confidence interval was "material either to guilt or punishment," the defendant's conviction would be reversed. United States v. Bagley, 473 U.S. 667, 105 S.Ct. 3375, 3379, 87 L.Ed.2d 481 (1985).

ER 702 and Confidence Intervals

As we stated in Ahmach:

> A breath test reading is not admissible absent expert testimony, either in person or by affidavit as allowed by CrRLJ 6.13(c). Pursuant to ER 702, however, an expert may only testify "if scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue." In a criminal prosecution, a post Frye analysis of the admissibility of expert testimony under ER 702 is a consequential activity with independent force and effect. "In this state ER 702 has a

[35] In hindsight (post-trial), it may be possible to determine how much weight a jury may have placed upon a breath-alcohol measurement relative to all other evidence. At the pretrial stage it is much more difficult to make that determination.

It is also worth noting that, with breath-alcohol readings which are not close to a reference level, jurors may actually find that the existence of a confidence level gives them more confidence in the final result – based upon the fact that so much effort has gone into ensuring that an accurate measurement is ultimately produced. This Court is not making such a determination. It is enough to understand that a jury may give less weight to a breath-alcohol measurement with a confidence interval.

significant role to play in admissibility of scientific evidence aside from Frye." State v. Copeland, 130 Wn.2d 244, 259-260 (1996).

Under Jensen, [City of Fircrest v. Jensen, 158 Wn.2d 384, (2006)] therefore, after the prosecution has met its prima facie burden for the admission of a BAC reading, a trial court must engage in a meaningful review of the admissibility of the BAC evidence involving, under ER 702, a two part test. State v. Cauthron, 120 Wn.2d 879, 890 (1993). As in Copland, [State v. Copeland, 130 Wn.2d 244 (1996)], the Cauthron court was concerned with the admissibility of DNA evidence:

> The 2-part test to be applied under ER 702 is whether: (1) the witness qualifies as an expert and (2) the expert testimony would be helpful to the trier of fact. Part 2 of this standard should be applied by the trial court to determine if the particularities of the DNA typing in a given case warrant closer scrutiny. If there is a precise problem identified by the defense which would render the test unreliable, then the testimony might not meet the requirements of ER 702 because it would not be helpful to the trier of fact.
>
> Cauthron, [State v. Cauthron, 120 Wn.2d 879, 890 (1993)].

Ahmach, p. 14. (Footnotes omitted.)

In Cauthron, Id, the court considered the admissibility of DNA typing. Before reaching their decision, the Cauthron court cited a report on DNA typing produced by the National Academy of Sciences.[36] Ultimately the court concluded that:

> The Committee's view supports the conclusions reached in the courts:
>
> To say that two patterns match, without providing any scientifically valid estimate (or, at least, an upper bound) of the frequency with which such matches might occur by chance, is meaningless.

Cauthron, Id, at 907, (quoting DNA Technology, at 74.)

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[36] The Cauthron court stated:

> "Cauthron appealed and we accepted certification from the Court of Appeals. After oral argument, but before the court issued its opinion, we requested additional briefing on the applicability of a National Academy of Sciences document: Committee on DNA Technology in Forensic Science, DNA Technology in Forensic Science (National Academy Press 1992) (hereinafter DNA Technology). A committee of eminent scientists and jurists (hereinafter Committee) exhaustively researched and analyzed the current status of forensic DNA typing."

Cauthron, Id, at 885.

Here, the State argues that it should be allowed to present breath-alcohol readings without also providing an accompanying estimate of uncertainty. While a breath-alcohol measurement has meaning without a confidence interval, a breath-alcohol measurement without a confidence interval is inherently misleading.

In State v. Stenson, 132 Wash.2d 668 (1997), the court was presented with a scientific process or procedure which produced a result. However, that result, it was determined, would not have been admissible without, for lack of a better word, a proviso.

In Stenson, a phenol test was administered on an apparent blood splatter to determine if it was, in fact, blood. A phenol test, however, is only a "presumptive" test for blood. So the Stenson court stated:

> Since the jury repeatedly heard that the phenol test was only presumptive for the presence of blood and did not confirm the stains were in fact human blood, the question was one of weight and not of admissibility. Lack of certainty in scientific tests (that are generally accepted by the scientific community) goes to the weight to be given the testimony, not to its admissibility. Lord, [State v. Lord, 117 Wash.2d 829, 854-55 (1991)]. Similarly, the credibility of experts offering conflicting testimony is for the trier of fact. State v. Benn, 120 Wash.2d 631, 662, 845 P.2d 289 (1993). *So long as a jury is clearly told that the phenol test is only a presumptive test and may indicate a substance other than human blood, it is admissible under ER 702.*

Id, at 717-18, (Emphasis supplied). Once a person is able to see a confidence interval along with a breath-alcohol measurement, it becomes clear that all breath-alcohol tests (without a confidence interval) are only presumptive tests. The presumption, or course, is that a breath-alcohol reading *is* the mean of two breath samples. This answer, however, is obviously incomplete.[37] As discussed above, a breath test reading is only a "best estimate" of an individual's breath-alcohol level. The determination of a confidence interval completes the evidence.

[37] Put another way, a breath-alcohol measurement without an uncertainty measurement does not tell the "whole truth." RCW 5.28.020.

Therefore, upon objection, a breath-alcohol measurement will not be admitted absent its uncertainty level, presented as a confidence interval.[38]

ER 403, ER 901 and Foundational Requirements

Defendants also argue for suppression of breath-alcohol measurements, absent a measurement for uncertainty, under ER 403, and in later supplemental briefing, under ER 901. While Defendant's make a compelling argument for suppression under ER 403[39] and ER 901,[40] case law supporting suppression under these court rules - in the area of scientific processes - is lacking. Courts have historically cited ER 702 when dealing with scientific processes. Arguably, ER 901 (a) (9) may provide a better fit when specifically considering a scientific/mechanical process which produces a result. Yet, the case cited by defendants[41] follows a line of cases dealing with the authentication of the processes used to determine whether a speed measuring device used in traffic infractions produces an accurate result. Again, while these cases are analogous on a logical level, they do not represent strong authority under the facts herein.

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[38] To be clear, the WTLD could decide that uncertainty should be shown by an alternate scientifically acceptable method. This decision is left to the WTLD or any witness presented by the State or a defendant. It is unlikely, however, that the WTLD will change course and use anything other than the Rod Gullberg developed confidence interval for breath-alcohol measurements.

[39] ER 403 states that:

> Although relevant, evidence may be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence.

[40] ER 901 states (in relevant part):

> (a) General Provision. The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims.
>
> ...
>
> (9) Process or System. Evidence describing a process or system used to produce a result and showing that the process or system produces an accurate result.

[41] State v. Bashaw, 169 Wn.2d 133 (2010).

The State, on the other hand, in addition to arguing that ER 702 and ER 403 do not apply, also argues that this panel should focus on the question of the basic foundational requirements of statute,[42] the protocols of the WTLD and the protocols of most, if not all, other state breath test programs. Yet, as stated in Jensen, Id, a trial court will consider the requirements and restrictions of ER 702 after the state has met its prima facie burden for the admissibility of evidence, i.e., after the State has met its foundational burden.

Remedy

Under the Due Process Clause, the Rules of Criminal Procedure and ER 702, absent a confidence interval, a breath-alcohol measurement will be suppressed. In juxtaposition, however, to the more common bases for suppression, an order of suppression related to the State's failure to provide a confidence interval with a breath-alcohol measurement will remain in effect only so long as the State fails to produce the confidence interval.[43] For Mr. Fausto and Ms. Ballow, the State may easily remedy the omission by providing the confidence interval for each defendant's mean breath-alcohol measurement.[44]

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[42] RCW 46.61.506 (1).

[43] For discovery violations, Division I of the Court of Appeals has stated that "significantly, exclusion of evidence as a sanction was expressly rejected by the Washington Judicial Council and the Washington Supreme Court." State v. Glasper, 12 Wash.App. 36, 38 (1974).
See also, CrRLJ (H) (7) (i), which states:

> If at any time during the course of the proceedings it is brought to the attention of the court that a party has failed to comply with an applicable discovery rule or an order issued pursuant thereto, the court may order such party to permit the discovery of material and information not previously disclosed, grant a continuance, or enter such other order as it deems just under the circumstances.

Most CrRLJ 3.6 motions will result in a suppression order which is final, unless appealed. In these common CrRLJ 3.6 motions, suppression occurs because the State cannot remedy the problem (or failed to provide testimony that would support probable cause to stop, detain or arrest the defendant).

[44] In all other cases, the State should provide confidence intervals in discovery. In cases where discovery is already complete, the State should provide confidence intervals as soon as it is able. Because of the sweeping nature of this ruling, should the State require more time, leave for more time should be requested of the trial court in each separate case. Absent approval of the trial court judge, the State should not adopt a policy of waiting until trail to remedy the absence of a confidence interval. Should the State mistakenly decide to follow such a course, the trial court would

Conclusion

The WTLD has greatly advanced the forensic science involved in breath-alcohol testing with the adoption of a procedure for the determination of uncertainty through the use of a confidence interval. Attaching a confidence interval to a breath-alcohol measurement is, at the same time, both impressive - in the increased reliability of all breath test readings - and stunning - when it is seen that, absent a confidence interval, a "final" breath-alcohol measurement is only a "best estimate" of a person's breath-alcohol level. Given the requirements of due process, the discovery rules and ER 702, therefore, the State must provide Defendants with a confidence interval for each Defendant's breath-alcohol measurement. Absent this information, a defendant's breath-alcohol measurement will be suppressed.

Dated this 21st day of September, 2010

Judge David Steiner

Judge Darrell Phillipson

Judge Mark Chow

have the power to grant such orders as it deems just, including the power grant the defendant a continuance and the power to impose sanctions.

EXHIBIT 3

**IN THE SUPERIOR COURT OF WASHINGTON
FOR KING COUNTY**

STATE OF WASHINGTON, Petitioner, v. KING COUNTY DISTRICT COURT, *et al.*, Respondents.	No. 10-2-36977-5 SEA DECISION ON WRIT OF REVIEW

Petitioner the State of Washington sought and obtained a writ of review from a decision of the King County District Court suppressing breath tests in driving while intoxicated cases in the specific prosecutions before the court and prospectively for all DUI prosecutions in which breath test results are offered for the *per se* prong unless the state produces, as part of the foundational requirements for the admissibility of a breath test, an "uncertainty calculation" which the State Toxicologist reports it is capable of providing. The District Court further ordered that the state shall provide uncertainty calculations in discovery, and that failure to do so will result in suppression of the breath test. The parties agreed that the writ of review should be granted as it meets the requirements set forth in *Seattle v. Holifield,* 179 Wn.2d 230, 239-46 (2010); suppression of breath tests prospectively is a departure from the accepted and usual

course of judicial proceedings, calling for the exercise of revisory jurisdiction by the Superior Court, *id.* at 244-45.

Following several days of hearings, the district court, convened pursuant to King County District Court LCrRLJ 8.2(2), issued an opinion. The facts set forth in the opinion, memorializing the testimony, will not be repeated in detail here. As framed by the parties, the Washington State Toxicology Laboratory Division has developed a method of calculating the "uncertainty" of a breath alcohol test. Defendants in the cases below and respondents herein maintain that because the Toxicology Laboratory can calculate uncertainty, it must do so in order for breath tests to be admitted to prove that a driver's breath alcohol level is or exceeds .08 alcohol concentration, RCW 46.61.502(1)(a) (2008). Breath alcohol is measured in accordance with methods approved by the state toxicologist, RCW 46.61.506 (2010). The state toxicologist has approved, as the measuring device, The DataMaster, WAC 448-16-020. The statutory foundational requirements for admissibility of a breath test for the *per se* prong of DUI are codified in RCW 46.61.506.

There can be no serious dispute that the DataMaster has effectively been held to meet the *Frye* standard in Washington, *see: State v. Ford,* 110 Wn.2d 827 (1988), but see: *id.* at 837 *et seq.,* Goodloe, J., dissenting. The court acknowledges that science may change and that a piece of scientific evidence that has met the *Frye* standard may still be challenged under *Frye* if it is no longer generally accepted in the scientific community because of scientific advances or further studies that debunk the original science. The fact, however, that certainty or uncertainty analysis now exists does not debunk the science of breath testing and the DataMaster method of analyzing a breath sample. The legislature has added criteria that must be met for the admissibility of DataMaster results in RCW 46.61.506(4). These criteria, plus in some circumstances those adopted by the State Toxicologist, *Seattle v. Clark-Muñoz,* 152 Wn.2d 39 (2004), are necessary to admit the result in order to prove what is referred to as the *per se* mode of proving the offense of DUI. Since the adoption by the State Toxicologist of the DataMaster, attempts to add foundational requirements via the courts have failed, *see: Smith v. Department of*

Licensing, 88 Wn.App. 875 (1997), *State v. Wittenbarger,* 124 Wn.2d 467 (1994), *State v. Peterson,* 100 Wn.2d 788 (1984), *see also: State v. Straka,* 115 wn.2d 859 (1991), *Ludvigsen v. Seattle,* 162 Wn.2d 660, 682 ¶ 45 (2007) (Madsen, J., concurring). Those foundational criteria may not be necessary for admissibility of a DataMaster breath test result for other crimes as long as there is some additional evidence to explain to the trier of fact what the reading, if believed, means relative to intoxication.

So, the legislature has set the minimum criteria necessary for the admissibility of a DataMaster result in a *per se* DUI case. We then turn to the court rules. We don't have a separation of powers issue to the extent that the legislature has sought to abrogate a procedural court rule, as might exist when dealing with the statute which appears to state that refusal to take a breath test is relevant evidence, RCW 46.61.517, or with RCW 10.58.090 in which the legislature has effectively overruled ER 609 analysis with respect to sex offense cases, and which is being reviewed by the Supreme Court, *State v. Scherner,* 153 Wn.App. 621 (2009), rev. granted, 168 Wn.2d 1036 (2010), presumably on the separation of powers question. But here, the legislature has not attempted to abrogate a procedural court rule. Indeed, then, the defense is correct that the court pursuant to ER 702 maintains its gatekeeper function, including that function regarding the admissibility of a breath test. Defense has cited to *State v. Guilliot,* 106 Wn.App. 355 (2001) which repeats the rule that scientific evidence is admissible if it is helpful to the trier of fact and does not mislead the jury to the prejudice of the opposing party. So the court acts as the *Frye* and ER 702 and 403 gatekeeper, *see, e.g., State v. Rosalez,* 159 Wn.App. 173 (2010).

The court below went too far in deciding that in these cases and, presumably, in all future cases, the so-called uncertainty statement is a foundational requirement in determining whether a DataMaster breath test result is admissible under the due process clause before the court even begins its gatekeeper function. *Fircrest v. Jensen,* 158 Wn.2d 384 (2006) is instructive. In that DUI prosecution, there were three basic challenges to the admissibility of the breath test: violation of Const., art. II, § 19; violation of the separation of powers doctrine; and violation of

the due process clause. A majority of the court held that there was no violation of art. II, § 19, albeit with different reasoning. The lead opinion, concurred in by four justices, decided that the DUI statute which sets forth foundational requirements did not violate the separation powers doctrine as it does not mandate admissibility; rather, it directs that a breath test is admissible if the foundation requirements are met, *id.* at 399, subject to the rules of evidence. The lead opinion also stated that admissibility of breath test results that meet the statutory foundational requirements do not violate the due process clause. Three justices concurred in the lead opinion's art. II, § 19 decision albeit adopting the dissent's reasoning on that issue, but failed to address the separation of powers and due process issues. Justice Sanders, with Justice J.M. Johnson, disagreed with the lead opinion on all three issues, but the lead opinion and the dissent agreed to the principle:

> The legislature has made clear its intention to make BAC test results fully admissible once the State has met its prima facie burden. No reason exists to not follow this intent. The act does not state such tests must be admitted if a prima facie burden is met; it states that such tests are admissible. The statute is permissive, not mandatory, and can be harmonized with the rules of evidence. There is nothing in the bill, either implicit or explicit, indicating a trial court could not use its discretion to exclude the test results under the rules of evidence.

Id., at 399.

Irrespective of this confused fractured decision, it is clear that a majority of the court believe that the statute does not trump the court rules, and that it is the legislature that determines the foundational requirements.

Once the state establishes to the trial judge that a breath test result meets the RCW 46.61.506 standard, then the trial judge, considering all of the proffered evidence including, if either party chooses, the uncertainty statement, may determine if the evidence should be excluded if its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury pursuant to ER 403, and if the evidence will assist the trier of fact to understand the evidence or to determine a fact in issue, ER 702. Because this is a preliminary question of fact, the trial court may choose to make this determination based upon

documentary evidence and argument, ER 1101(c)(1) and ER 104, or may choose to take live testimony.

The court below is reversed with respect to its specific conclusion of law that uncertainty statements must be offered by the prosecuting authority as a judicially-imposed minimum requirement in addition to the RCW 46.61.506 requirements. When raised by a party, in any individual case the trial court must, consistent with ER 403 and 702, engage in further analysis considering all of the proffered evidence from any party, whether the breath test result is admissible even if it meets that statutory and Washington Administrative Code prima facie test.

As to the lower court's ruling that uncertainty calculations must be provided in discovery, as petitioner stated in its petition, "[e]vidence was elicited at the hearing [below] that the Washington State Toxicology Laboratory Division (WSTLD) will perform an uncertainty calculation on any test at the request of any party. There is a notice on the Washington State Patrol Breath Test Website informing any one how to make such a request, and, in fact, the WSTLD has performed this calculation upon request over 600 times in 2010, mostly at the request of defense attorneys. The uncertainty of a breath test result can be easily obtained by a defense attorney, and can be used in cross-examination of the State's witnesses...," Petition for Writ of Review and Stay of Proceedings at 5[1]. A party's discovery obligation does not require that a party provide documents; rather, "discoverable materials shall be made available for inspection and copying," CrRLJ 4.7(a)(2). The point of the discovery rules is that the parties get access to discovery. Remedies for failure to provide discovery require a showing of prejudice; there can be no prejudice when the information sought is readily available with or without the other party's assistance. Whether or not uncertainty calculations are covered by the discovery rule or are available via investigation, the information is readily available. The prospective order of the court below mandating that uncertainty calculations be provided to every defendant, with the remedy that failure to provide same is suppression of the breath test is reversed

[1] The current web site, http://breathtest.wsp.wa.gov/, provides a method of calculating breath alcohol measurement uncertainty as opposed to WSTLD performing the calculation. This does not change the result; uncertainty is readily available.

The stay of proceedings is vacated effective thirty days from the filing of this decision.

DATED this 28th day of June, 2011.

RONALD KESSLER, Judge

King County Superior Court
King County Courthouse
516 Third Avenue
Seattle, Washington 98104
(206) 296-9113

King County Superior Court
Judicial Electronic Signature Page

Case Number:	10-2-36977-5
Case Title:	WA STATE OF VS KING COUNTY DISTRICT COURT WEST DIVISION ET AL
Document Title:	ORDER DECISION ON WRIT OF REVIEW
Signed by Judge:	Ronald Kessler
Date:	6/28/2011 10:29:26 AM

Judge Ronald Kessler

This document is signed in accordance with the provisions in GR 30.

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EXHIBIT 4

Exhibit 4

A sampling of the material relied upon by the trial court and included in its opinion are:[1]

Joint Committee for Guides in Metrology, Evaluation of measurement data — Guide to the expression of uncertainty in measurement (GUM):[2] "When reporting the result of a measurement of a physical quantity, it is obligatory that some quantitative indication of the quality of the result be given so that those who use it can assess its reliability. Without such an indication, measurement results cannot be compared, either among themselves or with reference values given in a specification or standard. It is therefore necessary that there be a readily implemented, easily understood, and generally accepted procedure for characterizing the quality of a result of a measurement, that is, for evaluating and expressing its *uncertainty.*"

The American Association for Laboratory Accreditation, Guide for Estimation of Measurement Uncertainty In Testing:[3] "Given the inherent variability of measurement, a statement of a measurement result is incomplete (perhaps even meaningless) without an accompanying statement of the estimated uncertainty of measurement (a parameter characterizing the range of values within which the value of the measurand can be said to lie within a specified level of confidence)."

EURACHEM:[4] "Uncertainty of measurement is the most important single parameter that describes the quality of measurements. This is because uncertainty fundamentally affects the decisions that are based upon the measurement result."

The International Laboratory Accreditation Cooperation:[5] "Knowledge of the uncertainty of measurement of testing results is fundamentally important for laboratories, their clients and all institutions using these results for comparative purposes. Competent laboratories know the performance of their testing methods and the uncertainty associated with the results."

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[1] Fausto, p. 13-14, 19-20.

[2] Ex. 91: JOINT COMMITTEE FOR GUIDES IN METROLOGY, *Evaluation of measurement data — Guide to the expression of uncertainty in measurement (GUM)*, § 0.1, § 7.1.4 (2008). The Joint Committee for Guides in Metrology (JCGM) is made up of the following member organizations: International Bureau of Weights and Measures (BIPM), International Organization for standardization (ISO), International Union of Pure and Applied Chemistry (IUPAC), International Federation of Clinical Chemistry and Laboratory Medicine (IFCC), International Organization of Legal Metrology (OIML), International Laboratory Accreditation Cooperation (ILAC), International Union of Pure and Applied Physics (IUPAP) and International Electrotechnical Commission (IEC).

[3] Ex. 13: THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION, *Guide for Estimation of Measurement Uncertainty in Testing*, p.4, G104-A2LA (2002).

[4] Ex. 22: EURACHEM, *Measurement uncertainty arising from sampling A guide to methods and approaches*, ii (2007).

[5] Ex. 50: INTERNATIONAL LABORATORY ACCREDITATION COOPERATION, *Introducing the Concept of Uncertainty of Measurement in Testing in Association with the Application of the Standard ISO/IEC 17025*, p.4, ILAC G-17 (2002).

National Association of Testing Authorities:[6] "Every measurement made has error associated with it, and, without a quantitative statement of the error, a measurement lacks worth. Indeed, without such a statement it lacks creditability. The parameter that quantifies the boundaries of the error of a measurement is called the uncertainty of measurement."

National Institute of Standards and Technology:[7] "In general, the result of a measurement is only an approximation or estimate of the value of the specific quantity subject to measurement, that is, the measurand, and thus the result is complete only when accompanied by a quantitative statement of its uncertainty."

International Organization for Standardization:[8] "Knowledge of the uncertainty associated with measurement results is essential to the interpretation of the results. Without quantitative assessments of uncertainty, it is impossible to decide...whether laws based on limits have been broken. Without information on uncertainty, there is a risk of misinterpretation of results. Incorrect decisions taken on such a basis may result in unnecessary expenditure in industry, incorrect prosecution in law, or adverse health or social consequences."

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[6] Ex. 87: NATIONAL ASSOCIATION OF TESTING AUTHORITIES, *Assessment of Uncertainties of Measurement for calibration & testing laboratories*, p.8 (2002).

[7] Ex. 90: National Institute of Standards and Technology, *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results*, § 2.1 NIST TN 1297 (1994).

[8] Ex. 88: INTERNATIONAL ORGANIZATION FOR STANDARDIZATION, *Guidance for the use of repeatability, reproducibility and trueness estimates in measurement uncertainty estimation*, ISO/TS 21748, v (2004).

CERTIFICATE OF SERVICE

I certify that on the 28th day of August, 2013, I caused a true and correct copy of this Petition for Review to be served on the following in the manner indicated below:

Clerk of the Court of Appeals:
(Original filed with Court)

Court of Appeals Division One	☐	U.S. Mail (Postage Pre-Paid)
One Union Square	☐	Delivery Service
600 University Square	☒	In-person Delivery
Seattle, WA 98104	☐	E-File

Counsel for Respondent:

King County Prosecuting Attorney	☐	U.S. Mail (Postage Pre-Paid)
King County Courthouse	☒	Delivery Service
Attn: Jacob Brown, Deputy Pros.	☐	In-person Delivery
516 Third Avenue, 5th Floor	☐	E-File
Seattle, WA 98104		

Co-Counsel for Petitioners:

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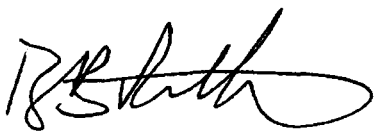
4040 lake Washington Blvd. #300	☐	In-person Delivery
Kirkland, WA 98030	☐	E-File

Scott E. Wonder	☐	U.S. Mail (Postage Pre-Paid)
Goddard Wetherall Wonder	☒	Delivery Service
155 108th Ave NE Ste 700	☐	In-person Delivery
Bellevue, WA 98004-5912	☐	E-File

I swear under penalty of perjury under the laws of the State of Washington the foregoing is true and correct.

Signed in SEATTLE, WA the 28th day of August, 2013.



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