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IN THE SUPREME COURT OF CALIFORNIA

THE PEOPLE OF THE STATE OF CALIFORNIA,

Plaintiff and Respondent,

v.

TERRY VANGELDER,

Defendant and Appellant.

Court of Appeal No. D059012

San Diego Sup. Ct. App. Div. No
CA221258

Superior Court No. M039138

SUPREME COURT
FILED

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PETITION FOR REVIEW

Deputy

Appeal From the Superior Court of California,
San Diego County, Case No. M039138
The Honorable Gregory W. Pollack, Judge

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PETITION FOR REVIEW

TO THE HONORABLE CHIEF JUSTICE AND THE
HONORABLE ASSOCIATE JUSTICES OF THE CALIFORNIA
SUPREME COURT:

In this drunk driving case the Fourth District Court of Appeal, Division One, held that the trial court erred in excluding expert testimony which criticized the reliability of breath test machines on the ground that such machines do not measure purely alveolar air. This testimony concerned the concept of partition ratio, and is prohibited by this Court's decision on *People v. Bransford*, 8 Cal. 4th 885 (1994). The Court of Appeal's holding is essentially an end run around *Bransford*, and re-opens the door that *Bransford* shut. This issue is of statewide importance and greatly impacts public safety.

Therefore, the People of California respectfully petition this Court to grant review, pursuant to Rule 8.500 of the California Rules of Court, of the above-entitled matter, following the issuance of a published opinion on June 30, 2011, by the Court of Appeal of the Fourth Appellate District, Division One, reversing the appellate division's affirmance of the

conviction. A copy of the Court of Appeal's opinion is attached. The People did not seek rehearing in the Court of Appeal.

ISSUE PRESENTED

In a prosecution under Vehicle Code section 23152(b) seeking to prove the defendant's blood alcohol level was .08% or above based upon grams of alcohol per 210 liters of breath, if an expert testifies that (1) the deep lung breath sample measured by breath testing devices is affected by physiological factors in the airway and (2) that sample is therefore unreliable, is that testimony inadmissible because it violates the prohibition against partition ratio testimony established in *People v. Bransford*, 8 Cal. 4th 885 (1994)?

REASONS TO GRANT REVIEW

Drunk driving is one of the most common crimes and often has serious consequences, so successful prosecution of such crimes is of high importance. Drunk driving prosecutions usually involve breath test results, which are used to prove that the defendant drove with a blood alcohol level of .08% or above, in violation of Vehicle Code section 23152(b). Under that statute, breath test results are based on grams of alcohol per 210 liters of breath. Pursuant to *People v. Bransford*, 8 Cal. 4th 885 (1994), evidence of the relationship between breath alcohol and blood alcohol levels, commonly referred to as "partition ratio," is inadmissible.

Breath test devices used in drunk driving cases measure the alcohol in breath exhaled through the mouth. The process of breathing involves air being drawn in through the mouth and brought down to the alveoli of the lungs, where oxygen is transferred into the blood and carbon dioxide is transferred out of the blood. If there is alcohol in the blood, alcohol is also transferred to the air. The air (breath) then travels back out, through the upper lungs, trachea, throat, and mouth. Along this journey the alcohol

content of the air is affected by temperature in the lungs and the airway, alcohol in the throat, the manner of breathing, and other factors.

Notwithstanding this journey, over sixty years of science and legal scholarship has shown that the amount of alcohol, as measured in the expired breath, is approximately 2100 times the amount of alcohol in the blood. California has codified this approximation in the Vehicle Code, and evidence that the 2100 to 1 correlation, commonly referred to as “partition ratio,” is only an approximation is not admissible.

In this case the defense attempted to introduce evidence that the concentration of alcohol in the air at the alveolar level is affected by temperature in the lungs and the airway, alcohol in the throat, the manner of breathing, and other factors as the breath leaves the body. The trial court sustained the prosecutor’s objection that this testimony related to prohibited partition ratio testimony, and the appellate division upheld this ruling. The defense petitioned the Fourth District Court of Appeal, Division One, for review, arguing that the “entire premise of the [breath] machine is that only alveolar (deep lung) air is measured by the machine,” and the prohibition against partition ratio evidence should apply only to evidence of processes at the alveolar level. Petitioner’s Petition for Transfer for Review in the Court of Appeal, Fourth Appellate District, Division One, page 1.

The Court of Appeal adopted the assumption that “such devices only measure alveolar (deep lung) air.” *People v. Vangelder*, 197 Cal. App. 4th 1, 2 (2011). According to the court, the defense expert sought not to testify about variations in hypothetical ratios at the alveolar level, but rather about “problems in obtaining pure data about blood alcohol from the intake of air” utilized in breath testing devices. *Id.* at 4. That is, a measurement of alcohol concentration in the air at the alveolar level is affected by the journey of the air from the mouth, the trachea to the lungs and back the

other way. Because the defense expert limited this testimony to the non-alveolar level, the defense argued, and the Court of Appeal agreed, that this was not partition ratio testimony.

The Court of Appeal opinion evinces a fundamental misunderstanding of what is meant by “partition ratio” testimony. The number used to correlate breath alcohol concentration to blood alcohol concentration has been empirically determined by comparing breath and blood samples taken at the same time and has been legislatively set despite known variations to that number. That number is 2100 to 1 and is known as the standard partition ratio. The breath samples tested when setting the standard partition ratio have never been pure alveolar samples (and as a practical matter could not be). Rather, they have always been essentially alveolar samples that have journeyed from the deep lung out of the body. Therefore, the partition ratios that have been measured, determined, scientifically agreed upon, and codified in law have always incorporated the effects that the Court of Appeal found not to involve partition ratio.

By authorizing evidence regarding the correlation between alcohol concentration in the breath and alcohol concentration in the blood, the Court of Appeal opinion completely subverts this Court’s opinion in *People v. Bransford*, 8 Cal. 4th 855 (1994).

STATEMENT OF THE CASE/CASE HISTORY

Sergeant Berg of the California Highway Patrol at approximately 2:45 a.m. observed Appellant traveling at over 125 miles per hour on Highway 15. (ESS at 87–88, 93.) Sergeant Berg was an experienced officer with over 26 years experience as a peace officer with the California Highway Patrol and over 500 arrests and 1000 investigations for driving under the influence. (ESS at 84–86.) The sergeant was able to pull Appellant over after about six and a half miles. (ESS at 93, 102, 115, 117

and 119.) The sergeant observed Appellant displayed objective symptoms of intoxication. Appellant had the odor of an alcoholic beverage coming from him and red, watery eyes. (ESS at 105–106.) When asked how much he had to drink that evening, Appellant responded that he had two glasses of wine that evening. (ESS at 107.) The sergeant decided to detain Appellant and have him evaluated by another officer for driving under the influence of alcohol. (ESS at 107, lines 11–21.)

Officer Guzman performed the DUI evaluation. Appellant told the officer he had three glasses of wine that evening and he started drinking at 8:00 p.m. and stopped drinking at 9:00 p.m. (ESS at 189.) Appellant took a preliminary alcohol screening (PAS) test which revealed his blood alcohol level was .095 and .086 at 3:09 a.m. and 3:11 a.m. respectively. (ESS at 199–200, 252.) Based upon Appellant’s performance on the field sobriety tests Appellant was arrested for driving under the influence of alcohol. (ESS at 205.)

Appellant submitted to a breath test which showed his breath alcohol level to be .088 and .087 at 3:37 a.m. and 3:39 a.m. respectively. (ESS at 207, 262–263; at 296.) Appellant also submitted a blood sample at 3:53 a.m. which tested at a blood alcohol level of .088 and .087. (ESS at 208, 296, 302.)

The People’s expert witness testified that she estimated Appellant’s blood alcohol level to be .09 at the time of driving based upon the test results, the body’s processing of alcohol, and the timing of the events. (ESS at 302–304.)

Appellant and his son testified that Appellant had three glasses of wine between 7:00 p.m. and 10:00 p.m., then went hiking and returned home where Appellant had one beer around 2:00-2:15 a.m. (ESS 388, 389, 393–394.)

Appellant objected to the admission of the PAS test result to the third decimal place. (ESS at 32.) The court found that such evidence while in conflict with California Code of Regulations, Title 17, based upon case law and the truth in evidence provisions of the California Constitution, Article I, section 28(d) (Proposition 8) the result was admissible to the third decimal point. (ESS at 51.)

Appellant's expert witness, Professor Hlastala, sought to testify about the inaccuracies of the breath test as it relates to the blood alcohol level and the court excluded his testimony on the basis that it was partition ratio evidence and irrelevant. (ESS at 351–57.) Professor Hlastala began testifying regarding the pathway and physical variables that occur inherent to breath tests as follows.

And we have, in the airway, a lot of mucus and water and that mucus lining in the airway plays an important role in protecting us from particles and things we inhale goes on to this mucus, then comes out to the mouth. And it mostly—it would get those things we swallow and goes into the digestive system. But if we have alcohol, there are little blood vessels that come along here, and these blood vessels, those are called “bronchial vessels.” And so they bring alcohol so there's a lot of alcohol if you have alcohol in your bloodstream. Now, what happens is if we inhale and we pick up alcohol from this mucus and by the time we pick it up here, and by the time we get down to this air sack, it's already filled up and saturated.

(ESS at 328, lines 3–18.)

The People objected at this point and a hearing pursuant to Evidence Code section 403 was conducted outside the jury's presence to determine if the expert's testimony concerned partition ratio. At the 403 hearing Professor Hlastala initially testified as to four factors which cause a breath test to not be scientifically accurate. These four factors were: breathing pattern, body temperature, hematocrit (or percent of red blood cells), and

breath temperature. (ESS at 349, line 16 through 350, line 2.) Professor Hlastala testified that these factors were not directly related to partition ratio because partition ratio applies to a state of equilibrium in a closed container which is not representative of how the human body processes alcohol. (ESS at 350, lines 5–25.) The court then inquired as to two additional factors, gender and medical conditions, and whether Professor Hlastala thought they were also factors which affected the scientific reliability of breath tests which could be added to the list previously discussed. (ESS at 355, line 17 through 355, line 9.) Professor Hlastala testified that these two factors also affect the scientific reliability of breath tests. (ESS at 355, line 17 through 355, line 9.) The court’s attempt to clarify Professor Hlastala’s opinion on partition ratios, was not particularly successful. Professor Hlastala responded to the court’s question by answering that he did not like the term “partition ratio” because he thought it did not accurately reflect the processes that were occurring. (ESS at 356, line 22 through 357, line 5.) Additionally Professor Hlastala acknowledged that the factors he mentioned as affecting the accuracy of the breath test result in people having different partition ratios than the standard partition ratio used by California law. (ESS at 357, lines 6–12.)

ARGUMENT

I

BACKGROUND

A. THE SCIENCE OF ALCOHOL TESTING

Breath machines are based on the chemical principal of Henry’s Law, which states the concentration of a volatile substance (alcohol) dissolved in a liquid (blood) is directly proportional to the vapor pressure of the substance in the air. Annot. 90 A.L.R. 4th 155, 160 (1991). It is this principle of direct proportionality between the amount of a substance in a

liquid and the amount of that same substance in the air above that liquid that is the basis for the breath machine conversion of blood alcohol result (alcohol substance in a liquid solution) based upon a breath alcohol sample (alcohol substance in the air). Defense of Drunk Driving Cases, Volume 2, section 18.01(2) (3d ed. 1996). Henry's Law assumes a state of equilibrium, where factors such as pressure and temperature are fixed, and under such conditions the direct proportionality can be numerically determined as a specific ratio known as Henry's coefficient. *Id.* Because the ratio can change depending upon factors such as pressure and temperature it is referred to as a coefficient, rather than a constant.

In the human body, alcohol in the blood diffuses into alveolar air space in the lungs and is exhaled in the breath. *People v. McNeal*, 46 Cal. 4th 1183 1190–91 (2009). “As the arterial blood passes through the lungs, some of the alcohol will become vaporized in the alveolar air and expelled in the breath.” *State v. Downie*, 117 N.J. 450, 459–60 (N.J. 1990). The lungs in a living human do not exist in a fixed state free of pressure, volume and temperature changes, so the application of Henry's law set ratio to the human body results in variability. With breath-alcohol testing a person gives a breath sample by providing a prolonged exhalation, and an analysis is conducted of the last portion of the breath under the theory that it approximates the alveolar air space where the gas exchange is occurring under principles of Henry's Law. Defense of Drunk Driving Cases, Volume 2, section 18.01(2) (3d ed. 1996).

This theory is put into practice using a “black box” method to empirically measure the variation associated in breath testing and determine whether an acceptable conversion of breath-alcohol, measured using standard breath testing procedures, to blood-alcohol can be made. This was done by conducting correlation studies wherein blood samples drawn from

an individual's arm were compared to breath samples taken from that individual at the same time. *People v. Ireland*, 33 Cal App. 4th 686 (1995); *see also State v. Hanks*, 172 Vt. 93, 95 (Vt. 2001) (“a conversion rate of 2100:1 as an assumed blood-breath ratio, which represents the relationship between the number of alcohol molecules in the bloodstream to the number present in the breath when both substances are tested simultaneously.”) Because the standard was set by looking at numerous individuals in various correlation studies, the amount of overall variance between the blood and breath alcohol results was known. However, because of the black box nature of this method an awareness of every factor affecting such variability and what particular contribution each factor made to the variability was not known or required. While some studies found average partition ratios were around 2300:1, the ratio chosen for the conversion was set at a much lower than average level, 2100:1, to give the benefit of the doubt to the subject in most instances. *State v. Downie*, 117 N.J. 450, 460 (N.J. 1990); *see also McNeal*, 4 Cal. 4th at 1192 (“Despite this recognized variability, most scientists agree that the 2,100-to-1 ratio roughly approximates or even underestimates the ratio of most people).

B. THE LAW OF DUI BREATH TESTING VIS-À-VIS PARTITION RATIO

In *Burg v Municipal Court*, 35 Cal. 3d. 257 (1983), the court upheld the first California statute to criminalize driving with a specified percentage of alcohol in the blood. *Bransford*, 8 Cal. 4th at 888. At that time Vehicle Code section 23152(b) defined the offense solely in terms of “grams of alcohol per 100 milliliters of blood” but allowed a conversion for alcohol in breath using the standard partition ratio, treating the amount of alcohol in 2,100 milliliters of breath as equivalent to the amount of alcohol in 1 milliliter of blood. *Id.* at 888–89. *See also* Cal. Code Regulation, Title 17,

section 1220.4 subd. (f). It was scientifically accepted at this time that many variables including body temperature, atmospheric pressure, the individual's hematocrit, and speed and depth of breathing pattern could affect the actual ratio of an individual's breath-alcohol concentration to blood-alcohol concentrations. *Bransford*, 8 Cal 4th at 889; *see also Ireland*, 33 Cal. App. 4th at 689. Accordingly, courts allowed defendants to attack the accuracy of the breath-test on the basis of this variability, first as it concerned a defendant's personal partition ratio, and later on the basis that the standard partition ratio is merely an approximation which differs among individuals. *Bransford*, 8 Cal. 4th at 889.

In 1990 the Legislature amended Vehicle Code section 23152(b), effective in 1991, by changing the type of prohibited alcohol level to include breath. While the offense was formerly defined solely in terms of "grams of alcohol per 100 milliliters of blood," the amendment now defined prohibited alcohol level in terms of "grams of alcohol per 100 milliliters of blood or grams of alcohol per 210 liters of breath." Thus the amendment criminalized the act of driving either with the specified blood-alcohol level or with the specified breath-alcohol level. *Id.* at 890. The legislative history of this amendment indicated the Legislature thought partition ratio evidence was unnecessarily complicated, expensive and time consuming for the courts, and that it did not promote but instead undermined successful enforcement of the legislative scheme. *Ireland*, 33 Cal. App. 4th at 689; *Bransford*, 8 Cal. 4th at 891. When the Legislature made this change it was aware of the complexities of converting breath-alcohol values to blood-alcohol values and did so only after considering the opinions of experts on the subject. *Ireland*, 33 Cal. App. 4th at 690, 693. In defining the per se DUI crime by using the standard partition ratio the Legislature necessarily accepted the variability that existed between breath-

alcohol and blood-alcohol values. In *Bransford* this Court ruled that such a legislative determination made any evidence as to the factors of that partition ratio variability is irrelevant. “Where scientific opinions conflict on a particular point, the Legislature is free to adopt the opinion it chooses, and the court will not substitute its judgment for that of the Legislature.” *Ireland*, 33 Cal. App. 4th at 693 (quoting, *State v. Brayman*, 110 Wn.2d 183, 193 (1988)).

In *Bransford* this Court held the trial court properly excluded evidence as to the variability of the partition ratio because it was irrelevant as to the per se DUI, because that crime was defined by the prohibited breath-alcohol level using the standard partition ratio. In contrast, the generic DUI, defined as driving under the influence of alcohol pursuant to Vehicle Code section 23152(a), is not defined by use of the standard partition ratio.

The generic DUI charge does carry a rebuttable presumption which allows the jury to presume the defendant is under the influence if they find the defendant has a blood-alcohol level of .08 or more. Vehicle Code section 23610; *see also* CALJIC No. 12.61; CALCRIM No. 2110. This presumption, unlike the per se DUI, is defined only in terms of a blood alcohol level and not a breath alcohol level. *McNeal*, 46 Cal. 4th at 1196–97. While the same conversion factor of 2,100 to 1 (the standard partition ratio) can be used to convert breath alcohol results to a blood-alcohol level, that conversion factor is not a part of the definition of the generic DUI offense presumption. *Id.* This Court in *McNeal* therefore held that evidence of partition ratio variability is relevant to rebut that presumption for the generic DUI charge, but it is irrelevant as to the per se DUI charge. *Id.* at 1196, *Bransford*, 8 Cal. 4th 885; *People v. Lepine*, 215 Cal. App. 3d 91 (1989).

II

THE TRIAL COURT PROPERLY EXERCISED ITS DISCRETION TO EXCLUDE APPELLANT'S EXPERT'S TESTIMONY BECAUSE IT WAS IRRELEVANT TO THE "PER SE DUI" CHARGE PURSUANT TO VEHICLE CODE SECTION 23152(B)

A. THE BREATH TEST RELIABILITY IS NOT BASED UPON MEASURING ONLY ALVEOLAR AIR AND ANY BRONCHIAL ALCOHOL EFFECT IS PART AND PARCEL OF THE PARTITION RATIO

The Court of Appeal decision sets up a straw man in the form of a faulty assumption, namely that the breath test machine is based upon the principle that it is required to measure *only* alveolar air. *Vangelder*, 197 Cal. App. 4th at 2. Based upon this invalid premise the court found that the defense expert's testimony raised the possibility that the sample taken by the breath machine was "defective or inaccurate" and held that excluding such testimony was error.

The statutes regarding breath-alcohol testing and the per se DUI charge affirmatively indicate that such a sample is not required to be pure alveolar air. Vehicle Code section 23152(b) does not even refer to alveolar air, let alone require the sample to be composed of only alveolar air. Vehicle Code section 23152(b) prohibits a person from having a breath alcohol level of .08 percent or more "per 210 liters of breath." Thus, the Vehicle Code only concerns itself with the general term of breath.

The manner of collecting breath alcohol samples and analysis of such is addressed in California Code of Regulations. Pursuant to California Code of Regulations, Title 17, section 1219, breath-alcohol samples are required to be taken in accordance with regulations adopted by the State Department of Health. California Code of Regulations, Title 17, section 1219.3, requires that breath samples "be expired breath which is **essentially**

alveolar in composition.” (Emphasis added.) The use of the word “essentially” indicates an acknowledgement that such a sample is not composed of only alveolar air.

Moreover, breath-alcohol samples have never been pure alveolar samples (and as a practical matter cannot be). It would be too invasive to insert a tube into a live arrested person’s lungs to attempt to extract pure alveolar air, and the alveolar space is extremely small. Defense of Drunk Driving Cases, Volume 2, section 18.01(2) (3d ed. 1996). Rather, the breath-alcohol samples from their inception have always been essentially alveolar samples that begin with an inhalation of outside air which travels down the airway to the deep lungs and back up the airway and out of the body through the mouth. Obviously that airway in humans has always had blood vessels next to it.

The defense expert’s premise that testing samples of essentially alveolar air, which are affected to some degree by expiration, produces unreliable results, is fallacious. The fallaciousness of the premise has been demonstrated by the accuracy and consistency of the breath-test results as an acceptable means of determining alcohol content when correlated with blood test results. If the breath test was fundamentally dependent upon the necessity of pure alveolar air, which the breath machines from their inception over sixty years ago have never provided, then the breath results would have obviously varied greatly from corresponding blood samples and the method would never have achieved acceptance, let alone the uniformity of application that it has.

Legally, partition ratio is not determined by a conversion of only alveolar air. The measure of breath tests has always been a sampling of breath achieved by an inhalation followed by an exhalation wherein a sample of the end of that exhalation is taken. This sample is then multiplied

by a conversion factor which is known as the partition ratio. The partition ratio used for forensic breath testing is related to, but not limited to Henry's law coefficient for alcohol in blood in a state of equilibrium. Nor is that partition ratio limited to only the true, actual ratio that is occurring only at the alveolar area of the lungs of a living human. Instead, in the context of DUI prosecution the term "partition ratio" means, as it has always meant, the conversion of the amount of alcohol from a sample of the end of an expired breath to a blood alcohol level. The partition ratio was empirically derived by comparing breath and blood samples taken at the same time, finding scientifically acceptable amounts of variability, adjusting to account for that variability and resulting in a legislatively determined partition ratio.

**B. THERE WAS NO COMPETENT EVIDENCE
ESTABLISHING BRONCHIAL ALCOHOL EFFECTS
BREATH TESTING RELIABILITY**

The defense expert testified that the content of the alveolar breath was affected by a person's physiology, including the presence of alcohol in bronchial vessels. When questioned how the effect from alcohol in bronchial vessels was distinct from partition ratio variability, the expert discussed the usual factors that concern partition ratio, namely, breathing pattern, body temperature, hematocrit, and breath temperature. (ESS at 349, line 16 through 350, line 2.) *See Lepine*, 215 Cal. App. 3d at 94 (the physical factors of temperature, mucus in the lungs, and an individual's hematocrit all affected the partition ratio.); *see also McNeal*, 46 Cal. 4th at 1191; 90 A.L.R. 4th at 160 (despite the standard 2,100 to 1 partition ratio, a host of factors, such as body temperature, sex, menstrual cycle, hematocrit levels, and medical conditions, may affect the ratio between blood-alcohol levels and breath-alcohol levels); *Bransford*, 8 Cal. 4th at 885; *see also State v. Brayman*, 751 P.2d 294, 297 (Wash. 1988).

The expert attempted to distinguish factors affecting alcohol concentration of air in the airway from factors affecting alcohol concentration in the alveoli. However, the issue of alcohol from blood vessels in the airway affecting the breath-alcohol sample is just another factor that has been accounted for by the legislatively-set standard partition ratio. Blood is always present in the living body and breath is always passing by bronchial blood vessels in the airway. When a person inhales and exhales as part of any breath test, air is being transported along this route. The method used to correlate breath alcohol concentration to blood alcohol concentration was empirically derived by comparing breath and blood samples taken at the same time. Based upon those empirical results, and after considering the opinions of experts on the subject, not only did the Legislature select the value of 2,100 to 1 for converting breath-alcohol values to blood-alcohol values as the standard partition ratio, but more importantly it defined the crime in terms of the prohibited breath-alcohol level. *Ireland*, 33 Cal. App. 4th at 690, 693.

If the Court agrees with Appellant that a breath sample is inaccurate because it involves air that can theoretically be affected by blood vessels in the airway, then the Court is not just calling into question Appellant's sample, but is calling into question the propriety of all breath-alcohol testing. This is despite the fact that over thirty-five years ago in *People v. Adams*, 59 Cal. App. 3d 559, 561 (1976) the court noted "[b]reath tests to determine blood alcohol concentration have long been recognized by decisional law as scientifically valid in this state and elsewhere."

Additionally, the evidence was properly excluded because there was insufficient competent evidence establishing the relevance of any effects of blood vessels in the airway on breath test validity. In *McNeal* the Court noted that for evidence of a person's personal partition ratio in a generic

DUI case to be admissible there was a requirement that such evidence has gained acceptance in the scientific community. *McNeal*, 46 Cal. 4th at 1202 citing *People v. Kelly*, 17 Cal. 3d 24, 30–32 (1976). Under the *Kelly* rule, the proponent of the evidence must establish (1) general acceptance in the particular field to which it belongs, (2) any witness testifying on general acceptance is properly qualified as an expert on the subject, and (3) correct scientific procedures were used in the particular case. *See Kelly*, 17 Cal. 3d 24. In the present case there was no evidence that the scientific community accepts the proposition that blood vessels in the airway have any effect on breath test results.

CONCLUSION

Accordingly, for the reasons stated above, Appellant respectfully requests that this Court grant review in the present case.

Dated: August 5, 2011

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CRIMINAL DIVISION

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CERTIFIED FOR PUBLICATION

Court of Appeal Fourth District
FILED

JUL 1 - 2011

COURT OF APPEAL, FOURTH APPELLATE DISTRICT
~~Stephen M. Kelly, Clerk~~
DEPUTY

DIVISION ONE

STATE OF CALIFORNIA

THE PEOPLE,

Plaintiff and Respondent,

v.

TERRY VANGELDER,

Defendant and Appellant.

D059012

(Super. Ct. No. CA221258)

APPEAL from a judgment of the San Diego superior court appellate division,
William S. Dato, Lorna Alksne, and George W. Clarke, Judges. Reversed with
directions.

Charles M. Sevilla, for Defendant and Appellant.

Jan I. Goldsmith, City Attorney, Tricia Pummill, Assistant City Attorney, and
Jonathan I. Lapin, Deputy City Attorney, for Plaintiff and Respondent.

Defendant and appellant Terry Vangelder appeals a judgment after jury trial,
finding him guilty of misdemeanor driving while impaired in violation of Vehicle Code

section¹ 23152, subdivision (b), ("per se" driving under the influence (DUI), driving with a blood-alcohol level of .08 or more), and a speeding infraction (§ 22348, subd. (b), over 100 miles per hour). The jury was unable to reach a verdict on an additional count charged under section 23152, subdivision (a), "generic DUI," and the trial court set that remaining DUI count for retrial, which was stayed pending his appeal to the appellate division of the superior court. The appellate division affirmed his convictions and denied his request for rehearing and certification for transfer. Defendant sought relief in this court, and we granted his petition to transfer the appeal and received supplemental briefing.

Defendant's appeal from the conviction is based on the trial court's ruling disallowing any expert testimony from defendant that would have presented a physiologist's scientific criticisms of the reliability of the data produced by breath test machines, which are based on the assumption that such devices only measure alveolar (deep lung breath) air. Defendant's offer of proof from his expert would have provided testimony that this assumption is not always justified, and that a series of physiological factors (e.g., individual breathing patterns, body temperature, blood hematocrit, and breath temperature) may affect the transmission of alcohol in gas form, from the bloodstream to the lower and upper portions of the lungs, to the trachea and mouth and back again, thereby making such breath measurements unreliable, and undermining, in

¹ All further statutory references are to the Vehicle Code unless noted.

turn, the application of the standardized partition ratio calculation for converting breath levels to blood-alcohol levels. (§ 23610, subd. (b).)²

In the challenged ruling, the trial court specified that no questions could be asked of this expert "which will solicit any testimony by him to be a fact that the breath sample that was measured here was not representative other than if it had contained mouth alcohol." The trial court found that the proposed testimony lacked foundation and was speculative, and did not materially differ from partition ratio evidence that had been determined to be inadmissible in per se DUI cases, pursuant to *People v. Bransford* (1994) 8 Cal.4th 885 (*Bransford*) (where charge is defined as driving with a blood-alcohol level of 0.08 percent or more). After this trial took place, the Supreme Court clarified that evidence about partition rate variability is admissible in impaired driving prosecutions on generic DUI charges. (*People v. McNeal* (2009) 46 Cal.4th 1183, 1188 (*McNeal*).

In his petition, defendant asserts that the trial court failed to recognize that his expert was not seeking to testify about partition ratio issues, but rather was making a different challenge to the reliability of breath test devices, and that this should be allowed for both generic and per se DUI counts. We granted the petition to address this issue,

² Section 23610 specifies the evidentiary effect of chemical tests in criminal proceedings or actions, by establishing certain presumptions, to be further described (fn. 5, *post*). In its subdivision (b), the partition ratio is standardized as follows: "Percent, by weight, of alcohol in the person's blood shall be based upon grams of alcohol per 100 milliliters of blood or grams of alcohol per 210 liters of breath." (See 2 Witkin Cal. Evidence (4th ed. 2000) Demonstrative, Experimental, and Scientific Evidence, § 54, pp. 65-67.)

recurring in many prosecutions, of whether it is error for the trial court to exclude expert testimony that would have demonstrated some unreliability in breath testing devices, based upon the asserted problems in obtaining pure data about blood alcohol from the intake of air utilized by those devices. Even though similar variable physiological factors admittedly affect the partition ratio, defendant's expert sought to testify that they also separately affect the amount of alcohol found in the alveolar air supposedly being tested.

The rules restricting admissibility of partition ratio evidence should now be considered to be well established, after *McNeal, supra*, 46 Cal.4th 1183, and *Bransford, supra*, 8 Cal.4th 885. The expert evidence offered by this defendant appears to be a different kind of scientific challenge to the data obtained by breath test machines, even before the partition ratio is applied to convert such breath test data to blood-alcohol content by weight. The standards for evaluating "the reliability and thus the relevance of scientific evidence" are set out in *People v. Kelly* (1976) 17 Cal.3d 24 and its progeny. In *People v. Williams* (2002) 28 Cal.4th 408, 414, the Supreme Court referred to those standards that are imposed on a party seeking to introduce evidence based on a new scientific technique, as requiring expert evidence to qualify the technique as "scientifically valid. [Citation.] Even for techniques thus established, the proponent must 'demonstrate that correct scientific procedures were used in the particular case.' " (*Ibid.*) The trial court acknowledged in this case that this expert testimony was "cut off at the pass," based on the trial court's evaluation that only partition ratio evidence was being offered.

As we will demonstrate, the trial court did not have a sufficient basis in the evidence to form that conclusion, and it prejudicially erred in excluding the proffered evidence about the quality of the sample taken by one or both of these types of breath testing devices: electrochromatograph/infrared (EC/IR) and/or preliminary alcohol screening (PAS). The evidence would have addressed breath testing devices and their results in a different manner, at a different stage of the process, than would partition ratio evidence. The superior court appellate division's order is reversed, for the issuance of its remittitur with directions to the trial court to vacate the count 2 conviction, while allowing the speeding count conviction to stand, and to allow further proceedings on count 2 and the remaining generic count, in accordance with the principles set forth in this opinion.

FACTUAL AND PROCEDURAL BACKGROUND

A. Arrest and Tests

On December 22, 2009, around 2:30 a.m., Sergeant Richard W. Berg of the California Highway Patrol (CHP) saw defendant driving over 125 miles per hour on Highway 163. Berg followed defendant's pickup truck for about five miles and eventually caught up with him, noticing that defendant slowed down to about 100 miles per hour when he caught up to other traffic, and was not weaving outside his lane. After about another mile and a half, Berg turned on his red lights and defendant rapidly decelerated and pulled over, and as directed, went down to a wider spot on the shoulder.

When defendant rolled down his right side window, he provided his license and registration and told Berg, "I know, I was just screwing around." He also told Berg that he did not know how fast he was going. Berg detected an odor of alcohol coming from the truck and noted his eyes were red and watery. Defendant admitted he had consumed two glasses of wine earlier that evening. Berg called for backup and turned the matter over to two other officers, Gerald Guzman and Jacob Sanchez, who arrived at 2:58 a.m.

Officer Guzman began his DUI evaluation, while Officer Sanchez provided scene security. Guzman gave Vangelder field sobriety tests (FST), including the horizontal gaze nystagmus test, the Romberg FST (close eyes, tilt head back, and estimate the passage of 30 seconds), the one-legged stand-and-count FST, and the "hand pat test" (measuring impairment of fine motor skills). Defendant exhibited little signs of any impairment on these tests, except for an occasional pause or sway. He told Guzman he had about three glasses of white zinfandel at dinner. Guzman thought he smelled like alcohol and his eyes were red and glassy, and he looked like a normal nice man.

At 3:09 a.m., Guzman gave defendant the PAS test, a hand-held breath test. Vangelder tested at a blood-alcohol content (BAC) of .095 and .086 on the PAS tests. Standard testing protocol required that defendant be observed for 15 minutes before the PAS test was administered, but Officer Guzman had waited only 9 or 10 minutes, reasoning that the sergeant had already stopped defendant earlier. (Cal. Code Regs., tit. 17, §§ 1220 et seq., 1220.4, subd. (f).)

Guzman believed defendant was under the influence, arrested him and transported him to county jail. At the jail, Vangelder did not need assistance walking and although he spoke slowly, he did not have any difficulty answering questions. He consented to a breath test on the EC/IR machine. The first breath test (taken at 3:37 a.m.) registered a level that was equivalent to a .08 BAC level, and the second (taken at 3:39 a.m.) produced the same result.

Vangelder next consented to a blood test, taken at 3:52 a.m. The first reading of his blood test showed a blood-alcohol level of .088 and the second showed a level of .087.

B. Charges and Prosecution Case

The city attorney filed a misdemeanor criminal complaint charging defendant in two DUI counts, driving under the influence of alcohol and driving with a blood-alcohol concentration of 0.08 or more, in violation of section 23152, subdivisions (a) and (b), respectively, as well as a count of speeding. Before trial, defendant filed motions in limine to exclude evidence of the PAS tests to establish blood-alcohol content (as unreliable), and to allow partition ratio evidence to be admitted regarding both blood and breath tests. The People's motions sought to exclude partition ratio evidence.³

At the three-day trial held in April-May 2009, the court addressed the motions in limine, deferring ruling on the PAS and partition ratio issues. The jury heard from the

³ This trial was conducted before the Supreme Court issued its opinion in July 2009, *McNeal, supra*, 46 Cal.4th 1183, clarifying that partition ratio evidence may be admissible on a generic DUI charge under section 23152, subdivision (a).

detaining and arresting officers, and from the People's expert, Marissa Ochoa, a criminologist at the city police lab. Ochoa testified about her expertise on the effect of alcohol on the human body, leading her to conclude that based on the results of the EC/IR breath tests and the blood tests, and normal bodily processing of alcohol, Vangelder's blood-alcohol level would have been .09 at the time of driving. This was based on a hypothetical question, asking her to assume that a healthy male weighing 200 pounds had consumed three glasses of wine with a hearty meal at 8:00 p.m.-9:00 p.m., was pulled over at 2:45 a.m., and had an EC/IR breath test result of .08 BAC at 3:37 a.m., and a similar blood test 15 minutes later. On cross-examination, Ochoa also admitted that a person drinking at that time would have had to have approximately 11 drinks in order to have a .08 blood-alcohol level 7 1/2 hours later, considering the absorption and elimination processes.

Ochoa's records showed that both the EC/IR breath test and the blood test analytical devices were in working order that night. The EC/IR breath test device has an operational range of error, plus or minus .01 from the known range, and its gas tank was replaced two days after this test was conducted.

The jury also heard testimony at trial from Officer Brandon Garland, the officer in charge of maintaining and calibrating PAS breath test devices for the police department. He testified about the requirements for successfully completing a PAS test, including a waiting period of 15 minutes to avoid mouth-alcohol contamination. His records showed that the PAS machine was recently tested successfully for accurate operation, within an

operational range of error, plus or minus .010 from the known range. It was sent out for servicing two weeks after this test was conducted.

C. Defense Case, Verdict and Appeal

At the conclusion of the prosecution's case, defendant called an expert on the effects of alcohol on the body, Dr. Michael P. Hlastala, who is a medical school professor with a doctorate in physiology. The prosecutor did not dispute his expertise in the field. Vangelder started to have his expert testify that even if breath tests are operating as designed, they do not give a scientifically accurate test. The expert stated that physiological factors in the human body have an influence with respect to the quality and nature of the breath expelled into the device, and these factors affect the absorption of alcohol from airway tissue, including bronchial blood vessels, into the sampled breath. On the objection of the prosecutor, the trial court held a hearing under Evidence Code section 403 regarding admissibility.⁴ As will be further described in the discussion portion of this opinion, the trial court ultimately refused to let the expert testify on this point, finding that only partition ratio evidence was actually involved, and it was irrelevant to the per se charge, and not required as to the generic charge. (But see fn. 3, *ante.*)

⁴ Evidence Code section 403, subdivision (a), places upon the proponent of the proffered evidence "the burden of producing evidence as to the existence of the preliminary fact, and the proffered evidence is inadmissible unless the court finds that there is evidence sufficient to sustain a finding of the existence of the preliminary fact, when: [¶] (1) The relevance of the proffered evidence depends on the existence of the preliminary fact"

Defendant called his 16-year-old son to testify that they had dinner together at a Mongolian barbecue around 8:00 p.m. or 9:00 p.m. that night, and defendant had two or three glasses of white zinfandel. They then went for a night hike and returned home around 2:00 a.m., where defendant had a beer and the son went to bed.

Defendant next testified to the same course of events over the evening, their return home and his having a beer. Around 2:00 a.m. he got hungry and went out again, driving his high performance vehicle on Interstate 15 and Highway 163. It was a moonlit night and traffic was very light, so he put on a burst of speed, over 100 miles an hour. When he saw the red lights of the police car, he reduced speed and pulled over, providing his license, registration, and proof of insurance. There was an odor of alcohol in the car because he left a backpack in it, and earlier, while he was out running, beer had leaked onto the backpack.

During deliberations, the jury sent out several notes, including one inquiring, "hypothetically," whether they were allowed to find a defendant guilty of driving with a blood-alcohol level above .08, but also not guilty for driving under the influence (generic DUI). Finally, the jury notified the judge that it could not reach a verdict on generic DUI, but it found defendant guilty of driving with 0.08 percent or more by weight of alcohol in his blood, in violation of section 23152, subdivision (b). The jury also found Vangelder guilty of speeding over 100 miles per hour.

After denying a motion for new trial, the court sentenced defendant as follows. The court suspended the imposition of sentence on the per se DUI for five years and

imposed fines and standard alcohol conditions. The fine and educational course (MADD) imposed for the per se DUI count were stayed pending appeal, although the fine on the speeding count was not stayed. The remaining generic DUI count was set for trial, but the trial date was continued pending appeal.

Appellant filed his notice of appeal to the appellate division of the superior court, and the matter was fully briefed. The appeal was denied and a request to transfer the case to this court was denied. This court granted defendant's application for certification for transfer of the case. (Cal. Rules of Court, rule 8.1005.) We allowed the parties to submit, and we have considered supplemental briefs on the issues presented.

DISCUSSION

Where, as here, a case is certified for transfer to settle important and recurring questions of law, this court has power to review any matter and make orders and judgments similar to that of the superior court in an appellate case. (Cal. Const., art. VI, § 11; Code Civ. Proc., § 911; *People v. Niebauer* (1989) 214 Cal.App.3d 1278, 1284.) "We, therefore, review the record and arguments before the [trial] court as if on direct appeal to this court." (*Ibid.*)

The question presented on review of this per se DUI conviction is whether the trial court prejudicially erred in refusing to allow scientific testimony to be presented that would have raised doubts about the reliability of the EC/IR and PAS breath testing devices, with respect to the physiological variables that can affect the sample of breath or air taken. Under section 23610, subdivision (c), the presumptions about chemical test

results, established by other subdivisions in the section, "shall not be construed as limiting the introduction of any other competent evidence bearing upon the question of whether the person ingested any alcoholic beverage or was under the influence of an alcoholic beverage at the time of the alleged offense." Defendant contends he can provide such other competent expert testimony, beyond the presumptions of section 23610, subdivisions (a) or (b).⁵

To determine whether the trial court correctly ruled that all of this proposed testimony was, in reality, impermissible partition ratio evidence under the standards of *Bransford, supra*, 8 Cal.4th 885 and *McNeal, supra*, 46 Cal.4th 1183, we set forth our standards of review and identify the different types of chemical tests taken in this case, for the purpose of assessing the sufficiency of the record support for the per se conviction, in light of the claims of prejudicial evidentiary error.

⁵ In pertinent part, section 23610, subdivisions (a)(3) and (b) provide: "Upon the trial of any criminal action, or preliminary proceeding in a criminal action, arising out of acts alleged to have been committed by any person while driving a vehicle while under the influence of an alcoholic beverage in violation of subdivision (a) of Section 23152 . . . , the amount of alcohol in the person's blood at the time of the test as shown by chemical analysis of that person's blood, breath, or urine shall give rise to the following presumptions affecting the burden of proof: [¶] . . . [¶] (3) If there was at that time 0.08 percent or more, by weight, of alcohol in the person's blood, it shall be presumed that the person was under the influence of an alcoholic beverage at the time of the alleged offense. [¶] (b) Percent, by weight, of alcohol in the person's blood shall be based upon grams of alcohol per 100 milliliters of blood or grams of alcohol per 210 liters of breath."

I

STANDARDS OF REVIEW; EVIDENTIARY ISSUES

"Broadly speaking, an appellate court applies the abuse of discretion standard of review to any ruling by a trial court on the admissibility of evidence." (*People v. Waidla* (2000) 22 Cal.4th 690, 718.) We examine the decision on admissibility that turned upon the relevance of the evidence in question. That "underlying determination as to relevance itself" was discretionary, but required to meet statutory standards: "Evidence is relevant if it has any tendency in reason to prove a disputed material fact." (Evid. Code, § 210; *Waidla, supra*, at p. 718.)

" 'As a general matter, the "[a]pplication of the ordinary rules of evidence . . . does not impermissibly infringe on a defendant's right to present a defense." [Citations.]' [Citation.]" (*McNeal, supra*, 46 Cal.4th 1183, 1203; *People v. Fudge* (1994) 7 Cal.4th 1075, 1102-1103.) Defendant asserts both federal and state constitutional prejudicial error in restricting his expert evidence. (See, e.g., *Chapman v. California* (1967) 386 U.S. 18, 24 [federal constitutional error harmless only if reviewing court finds it harmless beyond a reasonable doubt].) Where the trial court has rejected some evidence concerning a defense, but did not preclude the presentation of the defense, "any error is one of state law and is properly reviewed under *People v. Watson* [(1956) 46 Cal.2d 818, 836 (*Watson*)]." (*McNeal, supra*, at p. 1203.)

We are required to determine whether it is reasonably probable defendant would have achieved a more favorable result absent the exclusion of the proffered evidence

disputing the reliability of the breath test devices, with regard to the quality of the air sample the device took in, even before the application of any partition ratio to the breath data obtained from the devices. (*Watson, supra*, 46 Cal.2d at p. 836.) The ultimate issues before the jury, in deciding the effect of the three types of intoxication tests given, were (1) whether defendant was under the influence of alcohol when he was speeding down the highway (generic count), or (2) if his blood-alcohol, as partially proven by the breath sample, was of the given prohibited weight (per se count). We inquire into the fine distinctions between the proposed evidence that was offered, and the nature of partition ratio evidence, while acknowledging these two types of evidence are very similar in nature, but nonetheless different in function.

II

BACKGROUND: COMPARING PARTITION RATIO EVIDENCE TO PROFFERED TESTIMONY

Reliability of breath test results has repeatedly been challenged on the theory that partition ratio variability, from person to person, or relating to one person at different times, should be taken into greater account. (*McNeal, supra*, 46 Cal.4th 1183, 1194.) The purpose of the per se DUI definition is to avoid such arguments, by setting legal limits on permissible blood alcohol and defining how that limit is to be measured in a breath sample: "If the limit, measured as the statute sets out, is exceeded, the statute has been violated. Because section 23152(b) now defines the offense of per se DUI as the presence of a prohibited level of alcohol in either 100 milliliters of blood or 210 liters of

breath, a conversion from breath to blood-alcohol concentration is no longer required to establish guilt. Accordingly, evidence attacking the standard partition ratio is no longer relevant in a per se DUI prosecution because the Legislature has codified the 2,100-to-1 ratio as part of the offense." (*McNeal, supra*, at p. 1196, italics omitted; *Bransford, supra*, 8 Cal.4th at pp. 890-892.)

In a generic DUI prosecution, it is now permissible to bring in evidence about partition ratio variability, because it is relevant in such a case to rebut the presumption of intoxication in section 23610. (*McNeal, supra*, 46 Cal.4th 1183, 1200.) For a generic DUI prosecution "the central disputed fact" is whether the defendant was under the influence of alcohol while driving, and "[t]he chemical test result is circumstantial evidence that supports an inference regarding that disputed fact. Specifically, when a defendant's breath test result is equivalent to 0.08 percent or more of blood alcohol, section 23610 permits the jury to infer he was indeed under the influence of alcohol. The defendant is entitled to challenge this inference and can do so by, among other things, raising a reasonable doubt as to whether the test result was an accurate measure of his blood-alcohol level. Evidence casting doubt on the accuracy of the breath-to-blood conversion ratio is just as relevant as other evidence rebutting the presumption of intoxication from a breath test result, such as evidence that the defendant had a high tolerance for alcohol or performed well in field sobriety testing." (*McNeal, supra*, at p. 1200.)

Regarding the per se offense and its definitions, a defendant may not bring in partition ratio evidence to rebut the presumptions in section 23610, where there is solid evidence of a .08 BAC. Nevertheless, the Supreme Court holdings in *McNeal, supra*, 46 Cal.4th 1183 and *Bransford, supra*, 8 Cal.4th 885, seemed to leave the door open to new developments in the science of breath testing, by acknowledging that expert testimony in the area must meet the standards of *People v. Kelly, supra*, 17 Cal.3d 24, 30-32. "[T]he proffered evidence must still satisfy standards of competence and all other applicable evidentiary requirements," including a determination of "whether evidence [of the subject theory] . . . has gained sufficient acceptance in the scientific community to be admissible." (*McNeal, supra*, 46 Cal.4th at p. 1202.) Also, it must be timely offered. (*Ibid.*) Our issue is whether the expert should have been allowed to testify about his criticisms of the reliability of the breath test data, to rebut the presumption of intoxication in section 23610, when the validity of the data is considered, before any conversion to blood-alcohol content is made by utilizing the partition ratio calculation.

III

LIMITATIONS ON ISSUES PRESENTED

Here, both per se and generic DUI were charged, and at the time the expert witness testimony was offered, the question was whether it was competent and relevant to the ultimate issues in the case, under the standards of Evidence Code section 210: " 'Relevant evidence' means evidence . . . having any tendency in reason to prove or disprove any disputed fact that is of consequence to the determination of the action."

At the outset, we disagree with the People's assertion in its supplemental brief that since this appeal arises only from the per se conviction, that any evidence regarding both breath tests and partition ratio must be irrelevant to this appeal. The People argue that because there is a .08 blood test result from a sample taken from defendant approximately 1 hour and 15 minutes after the traffic stop was made, the per se conviction is fully supported, regardless of any breath test data. However, that argument disregards defendant's presentation of some evidence that he might have had a rising blood-alcohol level at the time that the blood test was taken, because of his 2:00 a.m. beer drinking, which might not have been fully processed by his body as of the time of the 2:45 a.m. traffic stop, thus raising some possibility that his blood-alcohol level was lower at the time of the traffic stop. Defendant states that he has no quarrel with the blood test accuracy as of the time it was taken, but he continues to challenge its reliability with respect to the earlier time of driving.

Further, it was not disputed that the PAS results were somewhat unreliable, because the officer did not wait the regulation amount of time before administering the tests (15 minutes), and there was therefore a possibility of mouth-alcohol contamination (as the trial court expressly recognized, and as the prosecutor admitted in closing argument). Moreover, defendant additionally challenges the admissibility of the PAS testimony, for two reasons: First, he thinks that partition ratio evidence should have been admissible regarding that portion of the breath test evidence, due to its preliminary character, and second, he claims that the trial court should not have allowed the full three

decimal point reading of the PAS tests to be admitted, on the grounds that such a detailed version of the data gave the jury a false sense of reliability of that information. We will address those issues only as necessary in part V, *post*.

The main issues presented, however, concern the reliability of the EC/IR tests, because the different alleged problems with the accuracy of the PAS breath test and the blood test, as described above, made the EC/IR tests particularly important in this case. It must be emphasized that defendant is not arguing that the EC/IR breath test device was malfunctioning, out of order, or incorrectly operated, but instead, he challenges the validity of its design, operation, and sampling method. We also emphasize that the prosecutor conceded the expert qualifications of this witness, and the court agreed. Nevertheless, the trial court seemed to assume that the .08 breath test result could not be rebutted in any fashion, for either of these DUI charges. We disagree with the People's reply argument that the court was merely commenting, in that respect, that the definition of the per se DUI crime was not rebuttable. Instead, the evidentiary support for both counts was at issue, and the .08 blood alcohol reading had to be fully supported either by the blood or the breath test results, and it is not clear on this record that it was. (See *People v. Warlick* (2008) 162 Cal.App.4th Supp. 1, 7 [statutory presumption does not preclude prosecution from introducing retrograde extrapolation evidence, where blood-alcohol test result is lower than 0.08 percent].)

We accordingly consider whether the court had an adequate basis to exclude the evidence, for the stated reasons of (1) lack of foundation or speculative nature, or (2)

because it actually addressed the prohibited topic of individualized or population-based partition ratio evidence. We next provide more scientific background, summarize the testimony, and apply accepted standards to determine its admissibility.

IV

PRESUMPTIONS; OTHER COMPETENT EVIDENCE; TYPES OF TESTS

For a "per se DUI" conviction, the prosecution no longer must prove "the accused driver was actually impaired at the time of the offense, but only that he drove with a blood-alcohol level at or exceeding [0.08] percent." (*McNeal, supra*, 46 Cal.4th 1183, 1193; *Burg v. Municipal Court* (1983) 35 Cal.3d 257, 265.) But if other chemical tests are not dispositive, and if the air sample taken by the EC/IR breath test device is defective or inaccurate, how can the blood-alcohol level be correctly calculated, even with the use of a standardized partition ratio?

A. Scientific Background

The basic science of breath testing devices is described as follows in an annotation: "[T]hese devices all operate on the basis of a principle called Henry's Law, which states that the concentration of a volatile substance dissolved in a liquid is directly proportional to the vapor pressure of the volatile substance above the liquid. . . . 'The trick is how to formulate the proper ratio of alcohol found in the breath to the alcohol found in the blood.' [¶] Breath testers apply Henry's Law to the question of whether a driver is intoxicated by measuring the amount of alcohol in a known amount of deep-lung (alveolar) breath, and calculating from that figure the amount of alcohol in the subject's

blood. *As blood flows through the deep lungs, the very function of which is to exchange gases between the blood and the atmosphere, alcohol in the blood will escape into the exhaled breath, where it may be measured by a breath tester. Theoretically, Henry's Law allows one to calculate the concentration of alcohol in the blood from the amount that escapes into the breath.* To precisely apply it, however, in the manner of a physicist in the laboratory, one would have to control the variable factors, such as temperature and atmospheric pressure, or account for them in the calculations." (90 A.L.R.4th 155, § 2, pp. 159-160, fns. omitted, italics added.)

To calculate blood-alcohol concentration, the standardized partition ratio is used. (90 A.L.R.4th 155, § 2, p. 160; § 23610, subd. (b).) "Despite the constancy of the legally presumed ratio, it has been shown, as might be expected, that a host of factors, such as body temperature, sex . . . hematocrit levels, and medical conditions, may affect the ratio between blood-alcohol levels and breath-alcohol levels. . . . In other words, the partition ratio is not in fact constant among the population at large. It has been said that the ratio is 'contrary to the laws of physics in its artificial rigidity.'" (90 A.L.R.4th 155, § 2, p. 160, fns. omitted.) Referring specifically to mechanical or design problems in breath test machines, the authors state: "As can readily be seen, a small error could conceivably turn a marginally legal reading into an illegal reading. Based on statements made by expert witnesses and agreed with by some of the courts represented in this annotation, that type of error is definitely possible, although perhaps very rare." (90 A.L.R.4th 155, § 2, p. 161.)

Other recognized concerns in interpreting chemical test results relate to the margin of error, plus or minus .01 for breath tests. (See *People v. Campos* (1982) 138 Cal.App.3d Supp. 1; 2 Witkin, Cal. Evidence, *supra*, Demonstrative, Experimental, and Scientific Evidence, § 54, pp. 65-67.) Additional identifiable defects in breath tests might include "margins of error arising from causes other than the partition ratio, asserted impurities in the chemicals used, susceptibility to radio frequency interference, and a host of other alleged defects and inaccuracies" (See 90 A.L.R.4th 155, § 1, pp. 158-159, fn. 1, annotation on partition ratio authorities, that expressly omits such other topics within its scope.)

B. Proffered Evidence

In the case before us, Dr. Hlastala raised concerns about physical variabilities that affect the delivery of breath to the deep lung area, from which breath test devices are taking a sample to measure alcohol content of the breath, that will then be converted to a blood-alcohol reading. Specifically, the expert initially described the way that the airways provide air to the lungs, explaining: "The concept is that this alcohol in this air, it's equal to what's down in here, hence related to whatever's in the blood. We know, now, that it's not quite that simple because alcohol is quite soluble, it goes into water quite easily. And we have, in the airway, a lot of mucus and water and that mucous lining in the airway plays an important role in protecting us from particles and things we inhale . . . but if we have alcohol, there are little blood vessels . . . called 'bronchial vessels.' And so they bring alcohol so there's a lot of alcohol if you have alcohol in your

bloodstream. Now, what happens is if we inhale and we pick up alcohol from this mucus and by the time we pick it up here, and by the time we get down to this air sac [alveolar], *it's already filled up and saturated.*" (Italics added.)

At that point, the prosecution objected and the sidebar was held. The court referred to *Bransford, supra*, 8 Cal.4th 885, and asked if the expert was talking about mouth alcohol. Defense counsel replied that mouth alcohol was only one example of a problem with breath testing, and the other problem being testified to was "the manner in which [a person] blows into the instrument." The court and counsel acknowledged that when a person with alcohol in the system breathes in and breathes out, the mucous membranes in the mouth and trachea are exuding alcohol, from the blood into all portions of the airway. From that information, the defense expert expressed a belief that the deep lung breath that is being measured does not properly reflect the blood-alcohol levels, due to its ability to pick up other alcohol from various parts of the physiology.

In colloquy, the trial court stated its belief that the .08 breath-alcohol level was not rebuttable on the per se count, even though it might be rebuttable on the generic count. The court tentatively concluded that this expert testimony was equivalent to partition ratio testimony, because the claim was that the breath testing devices were overstating the converted blood-alcohol level from a breath sample, but the court nevertheless agreed to hear the expert testify in more detail.

Defense counsel then elicited expert testimony that several physical factors will cause a breath test not to be scientifically accurate, including the pattern of breathing,

body temperature, or hematocrit, and that these factors were not directly related to partition ratio (blood-breath ratio). The expert stated that instead, those variables affect the breath value, "but they're not utilizing the concept of equilibrium process, which the partition ratio visits." By this, the expert meant that the human body is never in equilibrium in terms of alcohol, such as a partition ratio in a closed container would reflect, so that the breath tests might be inaccurate based on human physical variability and how the alcohol comes out of the mouth. Thus, he said "the factors in the human body influence how much alcohol comes out of the mouth to be measured," even where the machine is working accurately. The reason given was that a breath test is an indirect test, and it is relatively remote from the actual blood-alcohol content.

The expert continued to claim he was not talking about the partition ratio, and was not comparing breath alcohol to blood, but instead was talking about how valid the breath sample was, and how it would change under different circumstances. The court then inquired whether the expert believed that the breath sample of this defendant would be overstated or understated as far as blood-alcohol content was concerned, and the expert declined to give an opinion, stating that he could only identify a possibility one way or the other.

The court heard further argument, and decided that the per se driving offense basically criminalized having a certain breath level, or a blood level, and therefore, the physical variability identified was irrelevant, and also speculative. However, the court refused to strike the expert testimony already given before the jury, about how alcohol

came into the breath from the blood and the trachea and other sources. The final ruling proscribed any questions to the expert "which will solicit any testimony by him to be a fact that the breath sample that was measured here was not representative other than if it had contained mouth alcohol."

C. Analysis

Dr. Hlastala testified that the technology commonly employed to convert a reading of alcohol in the breath to a reading of blood alcohol has certain problems, which he is studying, regarding whether the breath getting down to the alveolar air sacs, and being measured, is "*already filled up and saturated*," by alcohol elsewhere in the airways. He referred to the variability in measurements of breath alcohol by the testing devices, rather than variations in the partition ratio in the population (generally or individually).

Although his challenges to the reliability of the breath testing device rely on some of the same variable factors as have been argued elsewhere about partition ratio (e.g., individual breathing patterns, body or breath temperature, and hematocrit), those variances are separately said to affect the ability of the device to read alcohol levels in a gaseous form, in the breath, before any conversion to blood-alcohol concentration is performed. It is not dispositive that similar variables must be considered, when different types of analyses are concerned. Here, there is evidence suggesting that conversion of the alveolar breath results into an equivalent blood-alcohol percentage was unreliable. (See *McNeal, supra*, 46 Cal.4th 1183, 1193-1194 at fn. 7 ["'A breath alcohol concentration shall be converted to an equivalent blood-alcohol concentration by a

calculation based on the relationship: the amount of alcohol in 2,100 milliliters of alveolar breath is equivalent to the amount of alcohol in 1 milliliter of blood.' "]; Cal. Code Regs., tit. 17, § 1220.4, subd. (f); § 23610, subd. (b).)

Although breath test results are admissible if a reliable foundation for them is laid, we think that such competent evidence of their potential inaccuracy, because of physical variabilities leading to poor data in sampling, should have been allowed to be considered, as going to the weight to be accorded the testing results. (See 90 A.L.R.4th 155, § 2, p. 164.) In light of the authorities described above, we conclude that the trial court was mistaken in stating that this expert testimony was completely irrelevant as an attempt to rebut the breath test result, for either the per se or generic DUI counts. Under section 23610, subdivision (c), this expert provided enough of a foundation to explain why he believes that the breath test samples were not representative, based upon the problems in obtaining the samples that were inherent within the identified variables of an individual's physiology. The expert was proposing that even a correctly operating breath test device would take in samples that were essentially inaccurate and nonrepresentative of breath-alcohol content, which was ultimately to be converted into a blood-alcohol reading through the use of the partition ratio. He did not have to indicate which way the potential inaccuracy would point, as a foundational matter, in order to cast doubt on this part of the testing method. Even a small error could possibly turn a marginally legal reading into an illegal reading. (See 90 A.L.R.4th 155, § 2, p. 161.)

When the court excluded this expert evidence, the error was not harmless because it was "reasonably probable that a result more favorable to [defendant] would have been reached" had such evidence been admitted. (*Watson, supra*, 46 Cal.2d 818, 836.) First, defendant performed well on the physical field sobriety tests. He was driving skillfully and pulled over as soon as the red lights went on. There were identifiable problems with the other two chemical tests given, the PAS test and the blood test, with reference to the timing of administration and the time of driving. Defendant gave a revised drinking history. The jury questioned whether it could convict on a per se count but not a generic count, showing they had some confusion. All of those factors point to probable prejudice in the exclusion of this expert testimony, since it could have shed light upon the accuracy of the EC/IR breath test results or the PAS tests, as they affected the proof of each DUI count charged.

V

REMAINING PAS ISSUES

Defendant makes two further evidentiary contentions with regard to the admission of the PAS breath tests results. He claims that the trial court incorrectly excluded all partition ratio evidence, which he seems to concede might have been correct regarding the per se count, as to the more sophisticated EC/IR breath tests, but which he continues to argue was incorrect as to the PAS. This is a somewhat surprising argument, in light of the care that defendant has taken to distinguish his proffered expert testimony about the unreliability of breath test devices, with respect to their sampling process, as opposed to

the eventual utilization of that data through the partition ratio formula. Nevertheless, defendant argues that the PAS results might have been given undue weight in this case, for two reasons.

First, he argues that the PAS is only a field test, and should be treated differently than any more sophisticated version of the breath tests. He relies on *People v. Wilson* (2003) 114 Cal.App.4th 953, 959-960, in which the court stated that the Legislature has treated the PAS as a field sobriety test, to be used by an officer as a further investigative tool, upon proper advisement. (§ 23612, subds. (h), (i).) Participation in a PAS test does not serve as a functional equivalent of the mandatory blood-alcohol level test required under section 23612, subdivision (a). (§ 23612, subd. (i); *Roze v. Department of Motor Vehicles* (2006) 141 Cal.App.4th 1176, 1189 (*Roze*).)

Because of its preliminary nature, the PAS breath procedure is subject to regulatory protections for its reliability. A trial court must require either a showing of compliance with California Code of Regulations, title 17, or independent proof of the three foundational requirements for test result reliability, which are described as follows: (1) the testing device was in proper working order, (2) the test was properly administered, and (3) the operator was competent and qualified. (*People v. Adams* (1976) 59 Cal.App.3d 559, 561 (*Adams*); *People v. Bury* (1996) 41 Cal.App.4th 1194, 1202; *People v. Williams* (2002) 28 Cal.4th 408, 412, 414, fn. 2 (*Williams*) [these title 17 regulations "apply to PAS tests that determine the concentration of alcohol in the blood but not those that determine only its presence," italics omitted].)

As further explained in *Williams, supra*, 28 Cal.4th 408, 414: "Essential to *Adams* [*supra*, 59 Cal.App.3d 559] was the principle that admissibility depends on the reliability and consequent relevance of the evidence, not the precise manner in which it was collected. *Compliance with regulations is sufficient to support admission, but not necessary. Noncompliance goes only to the weight of the evidence, not its admissibility.*" (*Williams, supra*, at p. 414; italics added.) In *Williams*, the court further acknowledged that " 'laxity in complying with the regulations may undermine the reliability of the test.' " (*Roze, supra*, 141 Cal.App.4th 1176, 1187, citing *Williams, supra*, at p. 418; original italics.)

Regarding the per se count, defendant can show no justification for adding an additional type of challenge to the PAS, by bringing in continued partition ratio challenges to those results, in light of the regulatory safeguards already in place. Rather, a clear distinction between determining the legal question of admissibility of such evidence, "as opposed to the factual question concerning the weight it warrants" (*Roze, supra*, 141 Cal.App.4th 1176, 1186-1187), has been established, so that noncompliance with the exact terms of the regulation does not conclusively show the results were unreliable, and an alternative foundational showing may be made. (*Williams, supra*, 28 Cal.4th at p. 417; *Adams, supra*, 59 Cal.App.3d at p. 567.)

Here, defendant was allowed to show that the regulatory requirements were not met, in terms of timing before the PAS was administered (less than a 15-minute observation). He can show no prejudice regarding the per se DUI count by the exclusion

of the partition ratio evidence in this respect. We need not express any opinion on how the trial court must distinguish, on remand, between the generic and per se counts regarding partition ratio evidence in the PAS context.

Moreover, to the extent defendant now argues the trial court erred by permitting the PAS results to be stated up to three decimal points, whereas the other chemical test results were stated in only two decimal points, we need not now decide whether that was error. The Supreme Court did not expressly forbid such detailed evidence in *Williams*, *supra*, 28 Cal.4th at page 411, and at page 418, footnote 8. (See also *People v. Wood* (1989) 207 Cal.App.3d Supp. 11, 17.) At any further proceedings, evidence about the reliability of the PAS test and the statement of its results, under the standards set forth in *Adams*, *supra*, 59 Cal.App.3d 559, and in the requirements of title 17, will remain subject to the trial court's discretionary determinations on foundational matters, including the decimal issue. At this time, we decide only that defendant's conviction of the per se DUI count must be reversed for prejudicial evidentiary error.

DISPOSITION

The order of the superior court appellate division affirming the convictions is reversed and the case is remanded for the appellate division to issue its remittitur and to direct the trial court to enter a different order to vacate the judgment of conviction of

count 2, while count 3 remains in effect, and to allow such further proceedings as may be conducted in accordance with the principles set forth in this opinion. (Cal. Rules of Court, rule 8.1018.)




HUFFMAN, J.

WE CONCUR:



BENKE, Acting P. J.



NARES, J.

**CERTIFICATE OF COMPLIANCE
[CRC 8.928]**

Pursuant to California Rules of Court, Rule 8.928, I, Jonathan I.

Lapin, certify that based on the word processing program used to prepare this brief, that the word count for this document is 4,668 words.

Dated: August 5, 2011

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By


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IN THE SUPREME COURT OF CALIFORNIA

DECLARATION OF
SERVICE BY MAIL

Court of Appeal No. D059012
San Diego Sup. Ct. App. No. CA221258
Case No. M039138
People v. Terry Vangelder

I, Cheryl Willis, declare that I am, and was at the time of service of the papers herein referred to, over the age of eighteen years and not a party to the action; and I am employed in the County of San Diego, California, in which county the within-mentioned mailing occurred. My business address is 1200 Third Avenue, Suite 700, San Diego, California, 92101-4103. I served the following document(s): **PETITION FOR REVIEW**, by placing a copy thereof in a separate envelope for each addressee named hereafter, addressed to each such addressee respectively as follows:

Charles M. Sevilla
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The Honorable Gregory W. Pollack
Judge of the Superior Court
220 West Broadway
San Diego, CA 92101

San Diego Superior Court
Clerk of the Appellate Division
220 West Broadway
San Diego, CA 92101

Court of Appeal State of California
Fourth Appellate District, Division One
750 B Street, Suite 300
San Diego, CA 92101-8196

Office of the Attorney General
110 West "A" Street, Suite 1100
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I then sealed each envelope and with the postage thereon fully prepaid, deposited each in the United States mail at San Diego, California on Aug 5, 2011.

I declare under penalty of perjury that the foregoing is true and correct. Executed on Aug 5, 2011, at San Diego, California.


Cheryl Willis