

# **PUNITIVE DAMAGES EXPERTS**

**February 2011**

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## PUNITIVE DAMAGES

### § 1D-1. Purpose of punitive damages

Punitive damages may be awarded, in an appropriate case and subject to the provisions of this Chapter, to punish a defendant for egregiously wrongful acts and to deter the defendant and others from committing similar wrongful acts.

### § 1D-15. Standards for recovery of punitive damages

(a) Punitive damages may be awarded only if the claimant proves that the defendant is liable for compensatory damages and that one of the following aggravating factors was present and was related to the injury for which compensatory damages were awarded:

(1) Fraud.

(2) Malice.

(3) **Willful or wanton conduct.**<sup>1</sup>

(b) The claimant must prove the existence of an aggravating factor **by clear and convincing evidence**.

(c) Punitive damages shall not be awarded against a person solely on the basis of vicarious liability for the acts or omissions of another. Punitive damages may be awarded against a person only if that person participated in the conduct constituting the aggravating factor giving rise to the punitive damages, or if, in the case of a corporation, the officers, directors, or managers of the corporation participated in or condoned the conduct constituting the aggravating factor giving rise to punitive damages.

(d) Punitive damages shall not be awarded against a person solely for breach of contract.

### § 1D-26. Driving while impaired; exemption from cap

G.S. 1D-25(b) [PUNITIVE DAMAGES CAP] **shall not apply** to a claim for punitive damages for injury or harm arising from a defendant's operation of a motor vehicle if the

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<sup>1</sup> Ivey v. Rose, 94 N.C. App. 773, 776, 381 S.E.2d 476, 478 (1989) – “The act of driving while impaired is a *wanton* act. The driver's motive or intent in relation to the damages he causes as a result is wholly irrelevant.” *See also*, King v. Allred, 76 N.C. App. 427, 432, 333 S.E.2d 758, 761 (N.C. Ct. App. 1985) (driving while impaired is willful or wanton conduct). *But see* Howard v. Parker, 95 N.C. App. 361, 367, 382 S.E.2d 808, 811 (1989) (pre § 1D case - mere allegation of driving while impaired and proof of defendant's guilty plea to DWI insufficient to withstand motion for summary judgment on punitive damages).

actions of the defendant in operating the motor vehicle would give rise to an offense of **driving while impaired** under G.S. 20-138.1, 20-138.2, or 20-138.5.

## **EXPERT RULES**

### **ADMISSIBILITY**

#### **Rule 701. Opinion testimony by lay witness**

If the witness is not testifying as an expert, his testimony in the form of opinions or inferences is limited to those opinions or inferences which are (a) rationally based on the perception of the witness and (b) helpful to a clear understanding of his testimony or the determination of a fact in issue.

#### **Rule 702. Testimony by experts**

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

(a1) A witness, qualified under subsection (a) of this section and with proper foundation, may give expert testimony solely on the issue of impairment and not on the issue of specific alcohol concentration level relating to the following:

(1) The results of a Horizontal Gaze Nystagmus (HGN) Test when the test is administered by a person who has successfully completed training in HGN.

(2) Whether a person was under the influence of one or more impairing substances, and the category of such impairing substance or substances. A witness who has received training and holds a current certification as a Drug Recognition Expert, issued by the State Department of Health and Human Services, shall be qualified to give the testimony under this subdivision.

(b) In a medical malpractice action as defined in > G.S. 90-21.11, a person shall not give expert testimony on the appropriate standard of health care as defined in > G.S. 90-21.12 unless ...

...

(g) This section does not limit the power of the trial court to disqualify an expert witness on grounds other than the qualifications set forth in this section.

...

(i) A witness qualified as an expert in accident reconstruction who has performed a reconstruction of a crash, or has reviewed the report of investigation, with proper foundation may give an opinion as to the speed of a vehicle even if the witness did not observe the vehicle moving.

### **Rule 703. Bases of opinion testimony by experts**

The facts or data in the particular case upon which an expert bases an opinion or inference may be those perceived by or made known to him at or before the hearing. If of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject, the facts or data need not be admissible in evidence.

### **Rule 704. Opinion on ultimate issue**

Testimony in the form of an opinion or inference is not objectionable because it embraces an ultimate issue to be decided by the trier of fact.

### **Rule 705. Disclosure of facts or data underlying expert opinion**

The expert may testify in terms of opinion or inference and give his reasons therefor without prior disclosure of the underlying facts or data, unless an adverse party requests otherwise, in which event the expert will be required to disclose such underlying facts or data on direct examination or voir dire before stating the opinion. The expert may in any event be required to disclose the underlying facts or data on cross-examination. There shall be no requirement that expert testimony be in response to a hypothetical question.

### **Rule 706. Court appointed experts**

(a) Appointment.--The court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint any expert witnesses agreed upon by the parties, and may appoint witnesses of its own selection. An expert witness shall not be appointed by the court unless he consents to act. A witness so appointed shall be informed of his duties by the court in writing, a copy of which shall be filed with the clerk, or at a conference in which the parties shall have opportunity to participate. A witness so appointed shall advise the parties of his findings, if any; his deposition may be taken by any party; and he may be called to testify by the court or any party. He shall be subject to cross-examination by each party, including a party calling him as a witness.

(b) Compensation.--Expert witnesses so appointed are entitled to reasonable compensation in whatever sum the court may allow. The compensation thus fixed is payable from funds which may be provided by law in criminal cases and civil actions and proceedings involving just compensation for the taking of property. In other civil actions and proceedings the compensation shall be paid by the parties in such proportion and at such time as the court directs, and thereafter charged in like manner as other costs.

(c) Disclosure of appointment.--In the exercise of its discretion, the court may authorize disclosure to the jury of the fact that the court appointed the expert witness.

(d) Parties' experts of own selection.--Nothing in this rule limits the parties in calling expert witnesses of their own selection.

**Howerton v. Arai Helmet, Ltd., 358 N.C. 440, 597 S.E.2d 674 (2004)**

...

"[W]e now turn to North Carolina's established standard for admitting expert testimony and the specific issue of whether North Carolina has implicitly adopted the federal Daubert standard.

North Carolina Rule of Evidence 702 reads, in pertinent part:

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

It is well-established that trial courts must decide preliminary questions concerning the qualifications of experts to testify or the admissibility of expert testimony. N.C.G.S. § 8C-1, Rule 104(a) (2003). When making such determinations, trial courts are not bound by the rules of evidence. *Id.* In this capacity, trial courts are afforded "wide latitude of discretion when making a determination about the admissibility of expert testimony." State v. Bullard, 312 N.C. 129, 140, 322 S.E.2d 370, 376 (1984). Given such latitude, it follows that a trial court's ruling on the qualifications of an expert or the admissibility of an expert's opinion will not be reversed on appeal absent a showing of abuse of discretion. State v. Anderson, 322 N.C. 22, 28, 366 S.E.2d 459, 463, cert. denied, 488 U.S. 975, 109 S.Ct. 513, 102 L.Ed.2d 548 (1988); Bullard, 312 N.C. at 144, 322 S.E.2d at 378; State v. Moore, 245 N.C. 158, 164, 95 S.E.2d 548, 552 (1956) ("[T]his Court has uniformly held that the competency of a witness to testify as an expert is a question primarily addressed to the court, and his discretion is ordinarily conclusive, that is, unless there be no evidence to support the finding, or unless the judge abuse[s] his discretion.").

[3] The most recent North Carolina case from this Court to comprehensively address the admissibility of expert testimony under Rule 702 is State v. Goode, 341 N.C. 513, 461 S.E.2d 631 (1995), which set forth a three-step inquiry for evaluating the admissibility of expert testimony: (1) Is the expert's proffered method of proof sufficiently reliable as an area for expert testimony? *Id.* at 527-29, 461 S.E.2d at 639-40. (2) Is the witness testifying at trial qualified as an expert in that area of testimony? *Id.* at 529, 461 S.E.2d at 640. (3) Is the expert's testimony relevant? *Id.* at 529, 461 S.E.2d at 641.

In the first step of the Goode analysis, the trial court must determine whether the expert's method of proof is sufficiently reliable as an area for expert testimony. *Id.* at 527-29, 461 S.E.2d at 639-40. As discussed in Goode, the requirement of reliability is

nothing new to the law of scientific and technical evidence in North Carolina and, indeed, pre-dates the federal court's adoption of the Daubert standard. See *id.*; see also State v. Pennington, 327 N.C. 89, 98, 393 S.E.2d 847, 852 (1990) ("A new scientific method of proof is admissible at trial if the method is sufficiently reliable."); Bullard, 312 N.C. at 149-53, 322 S.E.2d at 381-84, (discussing factors relevant in determining whether scientific methods in their infancy are reliable); State v. Crowder, 285 N.C. 42, 53, 203 S.E.2d 38, 46 (1974) (expert testimony based on scientific tests "competent only when shown to be reliable"), vacated in part on other grounds, 428 U.S. 903, 96 S.Ct. 3205, 49 L.Ed.2d 1207 (1976).

Under Goode, to determine whether an expert's area of testimony is considered sufficiently reliable, "a court may look to testimony by an expert specifically relating to the reliability, may take judicial notice, or may use a combination of the two." 341 N.C. at 530, 461 S.E.2d at 641. Initially, the trial court should look to precedent for guidance in determining whether the theoretical or technical methodology underlying an expert's opinion is reliable. Although North Carolina does not exclusively adhere to the Frye "general acceptance" test, Pennington, 327 N.C. at 98, 393 S.E.2d at 852, when specific precedent justifies recognition of an established scientific theory or technique advanced by an expert, the trial court should favor its admissibility, provided the other requirements of admissibility are likewise satisfied...

Conversely, there are those scientific theories and techniques that have been recognized by this Court as inherently unreliable and thus generally inadmissible as evidence...

Where, however, the trial court is without precedential guidance or faced with novel scientific theories, unestablished techniques, or compelling new perspectives on otherwise settled theories or techniques, a different approach is required. Here, the trial court should generally focus on the following nonexclusive "indices of reliability" to determine whether the expert's proffered scientific or technical method of proof is sufficiently reliable: "the expert's use of established techniques, the expert's professional background in the field, the use of visual aids before the jury so that the jury is not asked 'to sacrifice its independence by accepting [the] scientific hypotheses on faith,' and independent research conducted by the expert." Pennington, 327 N.C. at 98, 393 S.E.2d at 852-53 (quoting Bullard, 312 N.C. at 150-51, 322 S.E.2d at 382), quoted in Goode, 341 N.C. at 528, 461 S.E.2d at 640.

Within this general framework, reliability is thus a preliminary, foundational inquiry into the basic methodological adequacy of an area of expert testimony. This assessment does not, however, go so far as to require the expert's testimony to be proven conclusively reliable or indisputably valid before it can be admitted into evidence. In this regard, we emphasize the fundamental distinction between the admissibility of evidence and its weight, the latter of which is a matter traditionally reserved for the jury. Queen City Coach Co. v. Lee, 218 N.C. 320, 323, 11 S.E.2d 341, 343 (1940) ("The competency, admissibility, and sufficiency of the evidence is a matter for the court to determine. The credibility, probative force, and weight is a matter for the jury. This principle is so well settled we do not think it necessary to cite authorities.").

**Therefore, once the trial court makes a preliminary determination that the scientific or technical area underlying a qualified expert's opinion is sufficiently reliable (and, of course, relevant), any lingering questions or controversy concerning the quality of the expert's conclusions go to the weight of the testimony rather than its admissibility.** See, e.g., Barnes, 333 N.C. at 680, 430 S.E.2d at 231 (holding that a forensic serologist's failure to conduct or provide for additional, independent testing of blood samples went to the weight of the evidence, not its admissibility); McLean v. McLean, 323 N.C. 543, 556, 374 S.E.2d 376, 384 (1988) (concluding that deficiencies in the expert's methodology were relevant in considering the expert's credibility and the weight to be given his testimony, but that they did not render his opinion inadmissible). Here, we agree with the United States Supreme Court that "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." Daubert, 509 U.S. at 596, 113 S.Ct. at 2798, 125 L.Ed.2d at 484; accord Hairston v. Alexander Tank & Equip. Co., 310 N.C. 227, 244, 311 S.E.2d 559, 571 (1984) ("It is the function of cross-examination to expose any weaknesses in [expert] testimony....").

In the second step of analysis under Goode, the trial court must determine whether the witness is qualified as an expert in the subject area about which that individual intends to testify. 341 N.C. at 529, 461 S.E.2d at 640. Under the North Carolina Rules of Evidence, a witness may qualify as an expert by reason of "knowledge, skill, experience, training, or education," where such qualification serves as the basis for the expert's proffered opinion. N.C.G.S. § 8C-1, Rule 702(a). As summarized in Goode,

"It is not necessary that an expert be experienced with the identical subject matter at issue or be a specialist, licensed, or even engaged in a specific profession." "It is enough that the expert witness 'because of his expertise is in a better position to have an opinion on the subject than is the trier of fact.' "

341 N.C. at 529, 461 S.E.2d at 640 (citations omitted). "Whether a witness has the requisite skill to qualify as an expert in a given area is chiefly a question of fact, the determination of which is ordinarily within the exclusive province of the trial court." State v. Goodwin, 320 N.C. 147, 150, 357 S.E.2d 639, 641 (1987).

As pertains to the sufficiency of an expert's qualifications, we discern no qualitative difference between credentials based on formal, academic training and those acquired through practical experience. In either instance, the trial court must be satisfied that the expert possesses "scientific, technical or other specialized knowledge [that] will assist the trier of fact to understand the evidence or to determine a fact in issue." N.C.G.S. § 8C-1, Rule 702(a); see 2 Kenneth S. Broun, Brandis & Broun on North Carolina Evidence § 184, at 44-45 (6th ed. 2004) ("[A] jury may be enlightened by the opinion of an experienced cellar-digger, or factory worker, or shoe merchant, or a person experienced in any other line of human activity. Such a person, when performing such a function, is as truly an 'expert' as is a learned specialist ...." (footnotes omitted)).

The third and final step under Goode concerns the relevancy of the expert's testimony. The trial court must always be satisfied that the expert's testimony is relevant. Goode, 341 N.C. at 529, 461 S.E.2d at 641. To this end, we defer to the traditional definition of relevancy set forth in the North Carolina Rules of Evidence: " 'Relevant evidence' means evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence." N.C.G.S. § 8C-1, Rule 401 (2003). As stated in Goode, "in judging relevancy, it should be noted that expert testimony is properly admissible when such testimony can assist the jury to draw certain inferences from facts because the expert is better qualified than the jury to draw such inferences." 341 N.C. at 529, 461 S.E.2d at 641.

We further note that, in addition to the foregoing principles of reliability under Rule 702, a trial court has inherent authority to limit the admissibility of all evidence, including expert testimony, under North Carolina Rule of Evidence 403, which provides that relevant evidence may nonetheless 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." N.C.G.S. § 8C-1, Rule 403 (2003); see State v. Mackey, 352 N.C. 650, 657, 535 S.E.2d 555, 559 (2000) ( "[U]nder Rule 403 even relevant [expert] evidence may properly be excluded by the trial court if its probative value is outweighed by the danger that it would confuse the issues before the court or mislead the jury." (citations omitted)); Newton v. New Hanover County Bd. of Educ., 342 N.C. 554, 565, 467 S.E.2d 58, 66 (1996) ("The expert's testimony, even if relevant, must also have probative value that is not substantially outweighed by the danger of unfair prejudice, confusion, or undue delay."). Whether to exclude expert testimony under Rule 403 is within the sound discretion of the trial court and will only be reversed on appeal for abuse of discretion. Anderson, 322 N.C. at 28, 366 S.E.2d at 463.

...

**Although our criticism of Daubert is largely anecdotal and by no means exhaustive, given the serious implications of these concerns, we believe that on balance the North Carolina law which has coalesced in Goode establishes a more workable framework for ruling on the admissibility of expert testimony under North Carolina Rule of Evidence 702. Long before Daubert was decided, North Carolina had in place a flexible system of assessing the foundational reliability of expert testimony, the practicability of which is evidenced by the case law. Within this system, our trial courts are already vested with broad discretion to limit the admissibility of expert testimony as necessitated by the demands of each case. Requiring a more complicated and demanding rule of law is unnecessary to assist North Carolina trial courts in a procedure which we do not perceive as in need of repair. We therefore expressly reject the federal Daubert standard upon which both the trial court and the Court of Appeals erroneously based their respective rulings. North Carolina is not, nor has it ever been, a Daubert jurisdiction.**

(emphasis added)



## EXPERT COSTS

### § 6-20. Costs allowed or not, in discretion of court

In actions where allowance of costs is not otherwise provided by the General Statutes, costs may be allowed in the discretion of the court. Costs awarded by the court are subject to the limitations on assessable or recoverable costs set forth in G.S. 7A-305(d), unless specifically provided for otherwise in the General Statutes.

### § 7A-305. Costs in civil actions

(a) In every civil action in the superior or district court, except for actions brought under Chapter 50B of the General Statutes, shall be assessed:

...

(d) The following expenses, when incurred, are assessable or recoverable, as the case may be. **The expenses set forth in this subsection are complete and exclusive and constitute a limit on the trial court's discretion to tax costs pursuant to G.S. 6-20:**

(1) Witness fees, as provided by law.

...

**(11) Reasonable and necessary fees of expert witnesses solely for actual time spent providing testimony at trial, deposition, or other proceedings.**

...

(e) Nothing in this section shall affect the liability of the respective parties for costs as provided by law.

### § 7A-314. Uniform fees for witnesses; experts; limit on number

(a) A witness under subpoena, bound over, or recognized, other than a salaried State, county, or municipal law-enforcement officer, or an out-of-state witness in a criminal case, whether to testify before the court, Judicial Standards Commission, jury of view, magistrate, clerk, referee, commissioner, appraiser, or arbitrator shall be entitled to receive five dollars (\$5.00) per day, or fraction thereof, during his attendance, which, except as to witnesses before the Judicial Standards Commission, must be certified to the clerk of superior court.

**(b) A witness entitled to the fee set forth in subsection (a) of this section, and a law-enforcement officer who qualifies as a witness, shall be entitled to receive reimbursement for travel expenses as follows:**

(1) A witness whose residence is outside the county of appearance but within 75 miles of the place of appearance shall be entitled to receive mileage reimbursement at the rate currently authorized for State employees, for each mile necessarily traveled from his place of residence to the place of appearance and return, each day.

(2) A witness whose residence is outside the county of appearance and more than 75 miles from the place of appearance shall be entitled to receive mileage reimbursement at the rate currently authorized State employees for one round-trip from his place of residence to the place of appearance. A witness required to appear more than one day shall be entitled to receive reimbursement for actual expenses incurred for lodging and meals not to exceed the maximum currently authorized for State employees, in lieu of daily mileage.

(c) A witness who resides in a state other than North Carolina and who appears for the purpose of testifying in a criminal action and proves his attendance may be compensated at the rate allowed to State officers and employees by subdivisions (1) and (2) of G.S. 138-6(a) for one round-trip from his place of residence to the place of appearance, and five dollars (\$5.00) for each day that he is required to travel and attend as a witness, upon order of the court based upon a finding that the person was a necessary witness. If such a witness is required to appear more than one day, he is also entitled to reimbursement for actual expenses incurred for lodging and meals, not to exceed the maximum currently authorized for State employees.

**(d) An expert witness, other than a salaried State, county, or municipal law-enforcement officer, shall receive such compensation and allowances as the court, or the Judicial Standards Commission, in its discretion, may authorize. A law-enforcement officer who appears as an expert witness shall receive reimbursement for travel expenses only, as provided in subsection (b) of this section.** Compensation of experts provided under G.S. 7A-454 shall be in accordance with rules established by the Office of Indigent Defense Services.

**(e) If more than two witnesses are subpoenaed, bound over, or recognized, to prove a single material fact,** the expense of the additional witnesses shall be borne by the party issuing or requesting the subpoena.

...

### **Expert Must be SUBPOENAED to Recover Costs**

**Greene v. Hoekstra**, 189 N.C.App. 179, 657 S.E.2d 415 (2008)

“We agree that **the cost of an expert witness cannot be taxed unless the witness has been subpoenaed.** *Vaden*, 187 N.C.App. at ---, 653 S.E.2d at 547; N.C. Gen.Stat. § 7A-314 (2005). We also agree that the North Carolina Rules of Civil Procedure require witness subpoenas to be served on the parties to the action. N.C. Gen.Stat. § 1A-1, Rule 45(b)(2) (rewritten effective 1 October 2003). However, plaintiffs' reliance on rewritten Rule 45 to oppose the order awarding expert witness fees against them is misplaced. The public policy underlying the rule allowing payment of witnesses is that a witness should be compensated for what he is obligated by the State to do. See *State v. Johnson*, 282 N.C. 1, 27, 191 S.E.2d 641, 659 (1972) (citing *State v. Means*, 175 N.C. 820, 822, 95 S.E. 912, 913 (1918)); N.C. Gen.Stat. § 7A-314. If a witness appears voluntarily, then he is entitled to no compensation. *Johnson*, 282 N.C. at 27, 191 S.E.2d at 659. Subject to the protections of Rule 45(c), the obligation to appear as a witness is perfected when the

subpoena is served on the witness. N.C. Gen.Stat. § 1A-1, Rule 45(e)(1). **Therefore the right to compensation depends on the subpoena being served on the witness, and is not dependent on service of a copy of the subpoena on the opposing party.** It follows therefore, in determining whether the trial court is barred by the lack of a subpoena from awarding the costs of an expert witness, that it is the service of the subpoena on the witness, not the service of the subpoena on the opposing party, which is dispositive. *Town of Chapel Hill v. Fox*, 120 N.C.App. 630, 632, 463 S.E.2d 421, 422 (1995).

#### **EXPERT'S TRIAL ATTENDANCE**

**Springs v. City of Charlotte**, COA09-839, 2011 WL 135645 (N.C. Ct. App. Jan. 18, 2011)

“Accordingly, under N.C. Gen. Stat. § 7A-305(d)(11), a trial court is **required** to include within an award of costs expert fees for **time spent** by the witness **actually testifying**. In addition, however, under N.C. Gen. Stat. § 7A-314(d), the trial court has **discretion** to award expert fees for an expert witness' **time in attendance at trial even when not testifying**. Further, the trial court has **discretion** to award **travel expenses** for experts as provided under N.C. Gen. Stat. § 7A-314(b).”

#### **EXPERT'S REVIEW AND CONSULTATION TIME FEES NOT RECOVERABLE**

Morgan v. Steiner, 173 N.C. App. 577, 584-85, 619 S.E.2d 516, 521-22 (2005)

There is no statutory authority for awarding costs for “case review, research, estimation of discounted present values, revision of report and consultation” and defendants have cited no common law authority for such an award. We reverse the trial court award of \$1,350.00 for expenses for Dr. Bays....There is no statutory or common law authority for the award for consulting with counsel and reviewing records...

#### **TRIAL EXHIBITS COSTS NOT RECOVERABLE**

Morgan v. Steiner, 173 N.C. App. 577, 584-85, 619 S.E.2d 516, 521-22 (2005)

The trial court also ordered plaintiff to pay defendants' trial exhibit fees in the amount of \$1,835.03. The trial court erred by ordering plaintiff to pay these costs.

Trial exhibit fees are not among the costs enumerated in § 7A-305(d). Furthermore, there was no common law authority for the assessment of **costs** for **trial exhibit** fees prior to 1983. [when 7A-305 was enacted]. We recognize that since 1983, some cases from this Court have allowed the award of costs for trial exhibits [citations omitted]...Other cases from this Court have not allowed the award of costs for trial exhibits. *See Charlotte Area*, 160 N.C.App. at 472, 586 S.E.2d at 786.

In *Charlotte Area*, this Court declined to follow *Smith, Lewis and Coffman* because the decisions were deemed inconsistent with *City of Charlotte v. McNeely*, 281 N.C. 684, 190 S.E.2d 179 (1972). In *McNeely*, our Supreme Court stated, “Costs in this state are entirely creatures of legislation, and without this they do not exist.” 281 N.C. at 691, 190 S.E.2d at 185 (quotation and citation omitted). We are bound to follow decisions of the Supreme Court until the Supreme Court rules otherwise. *Heatherly v. Industrial Health Council*, 130 N.C.App. 616, 621, 504 S.E.2d 102, 106 (1998).

Because there is neither a statutory basis for ordering plaintiff to pay trial exhibit fees nor a common law basis established prior to 1983 for ordering plaintiff to pay trial exhibit fees, we conclude that the trial court lacked discretion to tax plaintiff with the costs of defendants' trial exhibits.

## PHARMACOLOGY OF ALCOHOL

1. Common Facts about Alcohol (Ethanol)
  - a. Ethanol is beverage alcohol
  - b. Central Nervous System Depressant
    1. Ethanol must be present *in the brain* for impairment to occur.
    2. Brain communicates with body via electrical impulses.
    3. Ethanol reduces the electrical activity of the brain.
    4. The bigger you are, the more it may take (to create the desired effect).
2. Absorption/Equilibration/Elimination – The path of ethanol through the body.
  - a. Absorption
    1. The process of moving alcohol from the stomach and upper small intestine to the blood compartment.
      - a. The usual method for alcohol to enter the body is by ingestion of an alcoholic beverage (mouth into gastrointestinal tract.)
      - b. When the alcohol reaches the stomach, a vast majority of it is stored. Due to the poor capillary network covering the exterior stomach lining, only a very small portion of the alcohol will be absorbed through the stomach lining and into the bloodstream. The vast majority of the alcohol will be held in the stomach until the opening of the pyloric sphincter.
      - c. As the pyloric sphincter relaxes, it opens the passage from the stomach into the duodenum (upper small intestine).
      - d. As alcohol flows into the porous small intestine, the ethanol molecules pass through the porous intestinal lining into the surrounding capillary network.

2. The most significant effect on alcohol absorption is the quantity of food substances ingested with or immediately prior to consumption of an alcoholic beverage (slows absorption).
  3. As a general rule, complete absorption of all consumed ethanol normally occurs within ½ to 3 hours.
- b. Equilibration
  - c. Elimination
    1. The process of breaking down (liver metabolism) or excreting (lungs and kidneys) alcohol by the body.
      - a. Alcohol curve/elimination rate – In order to accumulate alcohol in the body, the rate of absorption must exceed the rate of elimination. When consuming ceases and absorption has been **completed**, the alcohol concentration will gradually fall as the alcohol is eliminated (primarily by the liver).
      - b. Metabolic processes (liver) account for about 90-95% of all consumed alcohol.
      - c. The remaining 5-10% of all consumed alcohol is eliminated through either excretion or evaporation.
    2. Many sources indicate that, after complete absorption is achieved, the general population's average rate of elimination generally is a linear elimination rate of between 0.015 and 0.018 Alcohol Concentration (AC) per hour. [see **Retrograde Extrapolation** below]
3. How Alcohol Appears in the Breath
    - a. The exchange of alcohol from blood to breath occurs in the alveoli of the lungs.
      1. The alveoli are minute sacs in the lungs, which are richly supplied on their outer membranes with capillary blood.
      2. The small size of an alcohol molecule allows the alcohol to evaporate through the membranes separating the blood flow from the alveoli, thus allowing alcohol to appear in the breath as an unchanged chemical.
        - a. This process occurs “deep” in the lung. This is why it is important for evidentiary breath test devices to obtain air from the “deep” lung. If a deep lung sample is not obtained, the sample will be diluted with breath from the upper respiratory tract, which contains a lesser amount of alcohol, and the resultant AC from “non-deep” lung would be lower than the person's actual body AC.

## **DRIVING WHILE IMPAIRED**

### **N.C.G.S. § 20-138.1. Impaired driving**

(a) Offense.--A person commits the offense of impaired driving if he drives **any vehicle** upon any highway, any street, or any public vehicular area within this State:

(1) While under the influence of an impairing substance; **or**

(2) After having consumed sufficient alcohol that he has, at any relevant time after the driving, an alcohol concentration of 0.08 or more. The results of a chemical analysis shall be deemed sufficient evidence to prove a person's alcohol concentration; **or**

(3) With any amount of a Schedule I controlled substance, as listed in G.S. 90-89, or its metabolites in his blood or urine.

(a1) A person who has submitted to a chemical analysis of a blood sample, pursuant to G.S. 20-139.1(d), may use the result in rebuttal as evidence that the person did not have, at a relevant time after driving, an alcohol concentration of 0.08 or more.

(b) Defense Precluded.--The fact that a person charged with violating this section is or has been **legally entitled to use alcohol or a drug is not a defense** to a charge under this section.

(b1) Defense Allowed.--Nothing in this section shall preclude a person from asserting that a chemical analysis result is inadmissible pursuant to G.S. 20-139.1(b2).

(c) Pleading.--In any prosecution for impaired driving, the pleading is sufficient if it states the time and place of the alleged offense in the usual form and charges that the defendant drove a vehicle on a highway or public vehicular area while subject to an impairing substance.

(d) Sentencing Hearing and Punishment.--Impaired driving as defined in this section is a misdemeanor. Upon conviction of a defendant of impaired driving, the presiding judge shall hold a sentencing hearing and impose punishment in accordance with G.S. 20-179.

(e) Exception.--Notwithstanding the definition of "vehicle" pursuant to G.S. 20-4.01(49), for purposes of this section the word "vehicle" does not include a horse.

### **N.C.G.S.A. § 20-4.01, Definitions**

(13) **Highway.** --The entire width between property or right-of-way lines of every way or place of whatever nature, when any part thereof is open to the use of the public as a matter of right for the purposes of vehicular traffic. The terms "highway" and "street" and their cognates are synonymous.

(14a) **Impairing Substance.** --Alcohol, controlled substance under Chapter 90 of the General Statutes, any other drug or psychoactive substance capable of impairing a person's physical or mental faculties, or any combination of these substances.

(32) **Public Vehicular Area.**--Any area within the State of North Carolina that meets one or more of the following requirements:

a. The area is used by the public for vehicular traffic at any time, including by way of illustration and not limitation any drive, driveway, road, roadway, street, alley, or parking lot upon the grounds and premises of any of the following:

1. Any public or private hospital, college, university, school, orphanage, church, or any of the institutions, parks or other facilities maintained and supported by the State of North Carolina or any of its subdivisions.

2. Any service station, drive-in theater, supermarket, store, restaurant, or office building, or any other business, residential, or municipal establishment providing parking space whether the business or establishment is open or closed.

3. Any property owned by the United States and subject to the jurisdiction of the State of North Carolina. (The inclusion of property owned by the United States in this definition shall not limit assimilation of North Carolina law when applicable under the provisions of Title 18, United States Code, section 13).

b. The area is a beach area used by the public for vehicular traffic.

c. The area is a road used by vehicular traffic within or leading to a gated or non-gated subdivision or community, whether or not the subdivision or community roads have been offered for dedication to the public.

d. The area is a portion of private property used by vehicular traffic and designated by the private property owner as a public vehicular area in accordance with G.S. 20-219.4

(46) **Street.** --A highway, as defined in subdivision (13). The terms "highway" and "street" and their cognates are synonymous.

(48b) **Under the Influence of an Impairing Substance.** --The state of a person having his physical or mental faculties, or both, appreciably impaired by an impairing substance.

## SCENE

### Speed of vehicles

Marshall v. Williams, 153 N.C. App. 128, 133-34, 574 S.E.2d 1, 4 (N.C. Ct. App. 2002)

“For a lay witness to testify as to his opinion of the speed of a vehicle, the trial court must determine, based on the facts and circumstances, that the witness had “a reasonable opportunity to observe the vehicle and judge its speed.” *McNeil v. Hicks*, 119 N.C.App. 579, 581, 459 S.E.2d 47, 48 (1995) (citations omitted). The trial court must also consider the “intelligence and experience” of the witness in determining whether there was a reasonable opportunity to judge the speed of the vehicle. *State v. Grice*, 131 N.C.App. 48, 57, 505 S.E.2d 166, 171 (1998).”

Shaw v. Sylvester, 253 N.C. 176, 179, 116 S.E.2d 351, 355 (1960).

“[O]ne who does not see a vehicle in motion is not permitted to give an opinion as to its speed. A witness who investigates but does not see a wreck may describe to the jury the signs, marks, and conditions he found at the scene, including damage to the vehicle involved. From these, however, he cannot give an opinion as to its speed. The jury is just as well qualified as the witness to determine what inferences the facts will permit or require. *Tyndall v. Harvey C. Hines Co.*, 226 N.C. 620, 39 S.E.2d 828.

The qualified expert, the nonobserver, may give an opinion in answer to a proper hypothetical question in matters involving science, art, skill and the like.”

## EXCEPT

N.C.G.S.A. EV Sec. 8C-1, Rule 702, Testimony by experts

...

(i) A witness **qualified as an expert in accident reconstruction** who has **performed a reconstruction** of a crash, **or** has **reviewed the report of investigation, with proper foundation** may give an opinion as to the speed of a vehicle even if the witness did not observe the vehicle moving.

### Investigating Officer

State v. Wells, 52 N.C.App. 311, 314, 278 S.E.2d 527, 529 (1981)

“Our State Supreme Court has held in several cases that while it is competent for an investigating officer to testify as to the condition and position of the vehicles and other physical facts observed by him at the scene of an accident, his testimony as to his conclusions from those facts is incompetent.”



Examples of **improper** conclusions by investigating officers include:

**Speed of vehicles** (unless officer qualified as accident reconstructionist per N.C.G.S 8C-1, Rule 702(i)

Shaw v. Sylvester, 253 N.C. 176, 179, 116 S.E.2d 351, 355 (1960).

**Point of impact / location of collision**

State v. Wells, 52 N.C. App. 311, 314, 278 S.E.2d 527, 529 (1981)

Seay v. Snyder, 181 N.C. App. 248, 638 S.E.2d 584, 590 (2007)

**Cause of wreck** (unless officer qualified as accident reconstructionist)

State v. Maready, 695 S.E.2d 771, 782 (2010) writ denied, review denied, 701 S.E.2d 247 (N.C. 2010) and review denied in part, dismissed in part, 701 S.E.2d 247 (N.C. 2010)

“We hold that the admission of the officers' opinion testimony concerning their purported accident reconstruction conclusions was error. Accident reconstruction opinion testimony may only be admitted by experts, who have proven to the trial court's satisfaction that they have a superior ability to form conclusions based upon the evidence gathered from the scene of the accident than does the jury. (citing *Hughes v. Vestal*, 264 N.C. 500, 503-07, 142 S.E.2d 361, 364-66; *Seay v. Snyder*, 181 N.C.App. 248, 257-58, 638 S.E.2d 584, 590-91.)”

**LEO's opinion re IMPAIRMENT:**

State v. Tedder, 169 N.C. App. 446, 450, 610 S.E.2d 774, 777 (N.C. Ct. App. 2005)

A law enforcement officer may express an opinion that a defendant is impaired, so long as that opinion is based on something more than an odor of alcohol. *State v. Rich*, 351 N.C. 386, 397-98, 527 S.E.2d 299, 305 (2000).

See “ALCOHOL INVESTIGATION” infra

**Foundational Question:**

Do you have an opinion satisfactory to yourself and based upon your investigation and observations of the defendant at the time of XXX that the defendant had consumed a sufficient quantity of some impairing substance so as to appreciably impair his mental and/or physical faculties?

And what is that opinion?

And do you have an opinion, based upon your satisfactory to yourself and based upon your investigation and observations of the defendant at the time of XXX as to what that impairing substance was?

And what was that impairing substance?

## **ACCIDENT RECONSTRUCTIONISTS**

An engineer qualified as an accident reconstructionist can, as a practical matter, testify about almost any aspect of the wreck, including point of impact; visibility issues; cause of the wreck; crush analysis of vehicles; speed of vehicles; driver error; road, sign and lighting issues; etc.

## **NCSHP COLLISION RECONSTRUCTION UNIT**

The North Carolina State Highway Patrol has a collision reconstruction unit that is divided into five (5) teams across the state. The team locations are Greenville, Fayetteville, Raleigh, Winston-Salem, and Conover. Each team is responsible for a designated geographical area, But performs work in all regions of the state. The unit supervisor, First Sergeant Ardeen Hunt, Jr., is located at Special Operations Section Headquarters in Cary. First Sgt. Hunt can be contacted at 919.319.1540 or by email at [ahunt@ncshp.org](mailto:ahunt@ncshp.org).

## **ALCOHOL INVESTIGATION**

State v. Tedder, 169 N.C. App. 446, 450, 610 S.E.2d 774, 777 (N.C. Ct. App. 2005)

A law enforcement officer may express an opinion that a defendant is impaired, so long as that opinion is based on something more than an odor of alcohol. *State v. Rich*, 351 N.C. 386, 397-98, 527 S.E.2d 299, 305 (2000).

## **PERSONAL CONTACT**

(Taken mostly from David Teddy's *DWI Playbook*)

### **A. Typical Investigation Cues: Driver Interview**

#### **1. Sight**

- a. Bloodshot eyes
- b. Soiled clothing
- c. Fumbling fingers
- d. Alcohol container
- e. Drugs or drug paraphernalia
- f. Bruises, bumps, scratches

#### **2. Hearing**

- a. Slurred speech
- b. Admission to drinking
- c. Inconsistent response
- d. Abusive language
- e. Unusual statements

#### **3. Smell**

- a. Alcoholic beverages
- b. Marijuana
- c. Cover-up odors/breath sprays
- d. Unusual odors

### **B. Interview Techniques: Divided Attention Questions**

#### **1. Questioning Techniques**

- a. Ask for two things at once (DL and registration)
- b. Ask interrupting questions
- c. Ask unusual questions

#### **2. Additional Techniques: Not NHTSA-approved**

- a. Alphabet Test
- b. Countdown Test (count backwards)
- c. Finger Count Test (1-2-3-4-4-3-2-1)

### **C. Ten (NHTSA) post-stop cues cited in *State v. Bonds*, 139 N. C. App. 627 (2000)**

- 1. Difficulty with motor vehicle controls
- 2. Difficulty exiting the vehicle
- 3. Fumbling with driver's license or registration.
- 4. Repeating questions or comments
- 5. Swaying, unsteady, or balance problems
- 6. Leaning on the vehicle or other object
- 7. Slurred speech
- 8. Slow to respond to officer/officer must repeat questions

9. Provide incorrect information or changes answers
10. Odor of alcoholic beverage coming from driver

**D. Driving While Impaired Report (DWIR) – See Appendix P. 1-2**

**PRE-ARREST SCREENING**

**A. Standardized Field Sobriety Tests**

**1. Three Tests Approved by NHTSA**

**a. Walk-and-Turn Test**

**i. Instructions**

1. Put your left foot on the line and put your right foot in the front of it with your right heel touching your left toe. Keep your hands at your side. (Demonstrate)
2. Do not start until I tell you to.
3. Do you understand the directions?
4. When I tell you to begin, take nine heel-to-toe steps on the line, turn around keeping one foot on the line, and return nine heel-to-toe steps. (Demonstrate heel-to-toe; three steps is sufficient.)
5. On the ninth step, keep the front foot on the line and turn by taking several small steps with the other foot. (Demonstrate turn.)
6. While walking, watch your feet at all times, keep arms at side, count steps out loud. Once you begin, do not stop until test is completed.
7. Do you understand the instructions?
8. You may begin the test.

**ii. Eight Clues to Walk-and-Turn**

1. Can't balance during instruction
2. Starts too soon
3. Stops while walking
4. Does not touch heel to toe
5. Steps off line
6. Uses arms to balance
7. Loses balance on turn or turns incorrectly
8. Takes wrong number of steps

**iii. Number of Clues Needed**

1. If two or more clues are present;
  - a. Then BAC will be .10 or more 68% of time.

**b. One-Leg Stand (OLS)**

**i. Instructions**

1. Put your left foot on the line and put your right foot in the front of it with your right heel touching your left toe. Keep your hands at your side. (Demonstrate)
2. Do not start until I tell you to.
3. Do you understand the directions?
4. When I tell you to begin, take nine heel-to-toe steps on the line, turn around keeping one foot on the line, and return nine heel-to-toe steps. (Demonstrate heel-to-toe; three steps is sufficient.)
5. On the ninth step, keep the front foot on the line and turn by taking several small steps with the other foot. (Demonstrate turn.)
6. While walking, watch your feet at all times, keep arms at side, count steps out loud. Once you begin, do not stop until test is completed.
7. Do you understand the instructions?
8. You may begin the test.

**ii. Eight Clues to Walk-and-Turn**

1. Can't balance during instruction
2. Starts too soon
3. Stops while walking
4. Does not touch heel to toe
5. Steps off line
6. Uses arms to balance
7. Loses balance on turn or turns incorrectly
8. Takes wrong number of steps

**iii. Number of Clues Needed**

1. If two or more clues are present then BAC will be .10 or more 68% of time.

**c. Horizontal gaze Nystagmus (HGN)**

**i. Instructions**

1. I am going to check your eyes. (Please remove your glasses.)
2. Put feet together, hands at the side.
3. Keep your head still and follow the stimulus with your eyes only.
4. Do not move your head.
5. Do you understand the instructions?

**ii. Nystagmus Defined:** Involuntary jerking that occurs as the eyes gazes toward the side.

**iii. Clues – For Each Eye**

1. Lack of Smooth Pursuit
2. Maximum Deviation
3. Onset of Nystagmus before 45 degrees

**iv. Number of Clues Needed = 4**

**v. Reliability:** According to NHTSA, HGN is the most reliable of all three SFSTs.

**vi. Admissibility:** Not admissible in N.C. unless scientific foundation is laid; see *State v. Helms*, 127 N. C. App. 375 (1997), and N. C. G.S. §8C-1, Rule 70(a1)

“(a1) A witness, qualified under subsection (a) of this section and with proper foundation, may give expert testimony solely on the issue of impairment and not on the issue of specific alcohol concentration level relating to the following:

- (1) The results of a Horizontal Gaze Nystagmus (HGN) Test when the test is administered by a person who has successfully completed training in HGN.
- (2)...

SFSTs only valid if administered properly

1. *State v. Homan*, 732 N.E. 2d 952 (Oh. 2000)
2. *U. S. v Horn*, 185 F. Supp. 2d 530 (D.Md. 2002); Officer not allowed to say driver “failed test.”
3. *NHTSA Manual, DWI Detection and Standardized Field Sobriety Testing*. “[I]t is necessary to emphasize this validation applies only when the tests are administered in the prescribed, standardized manner,” p. VIII-19, 2002 Edition, Participant Manual.
4. Officer Must Be Qualified to Administer Test; *State v. Streckfuss*, 614 S. E. 2d 323, 171 N. C. App. 81 (2005).
  - a. If officer not qualified, then no expert opinion.
  - b. Lay opinion okay, but less valuable to State; and officer is not allowed to testify that client “failed” the test.

**See Driving While Impaired Report – Appendix P. 1**

## PORTABLE BREATH TEST

### **Purpose** of Portable Breath Test

- A. To help corroborate personal contact evidence
- B. To confirm or dispel officer's impairment opinion
- C. Not substantive evidence of BAC

### **§ 20-16.3. Alcohol screening tests required of certain drivers; approval of test devices and manner of use by Department of Health and Human Services; use of test results or refusal**

(See Appendix P. 26-28 for complete text of statute)

(a) When Alcohol Screening Test May Be Required...

(b) Approval of Screening Devices and Manner of Use.--The Department of Health and Human Services is directed to **examine and approve devices suitable for use** by law-enforcement officers in making on-the-scene tests of drivers for alcohol concentration. For each alcohol screening device or class of devices approved, the Department must **adopt regulations governing the manner of use of the device**. For any alcohol screening device that tests the breath of a driver, the Department is directed to specify in its regulations the shortest feasible minimum waiting period that does not produce an unacceptably high number of false positive test results.

(c) **Tests Must Be Made with Approved Devices and in Approved Manner.**--No screening test for alcohol concentration is a valid one under this section unless the device used is one approved by the Department and the screening test is conducted in accordance with the applicable regulations of the Department as to the manner of its use.

(d) Use of Screening Test Results or Refusal by Officer.--The fact that a driver showed a **positive or negative result** on an alcohol screening test, **but not the actual alcohol concentration result**, or a driver's refusal to submit may be used by a law-enforcement officer, is admissible in a court, or may also be used by an administrative agency in determining if there are reasonable grounds for believing:

(1) That the driver has committed an implied-consent offense under G.S. 20-16.2; and

(2) That the driver had consumed alcohol and that the driver had in his or her body previously consumed alcohol, but not to prove a particular alcohol concentration. **Negative results** on the alcohol screening test may be used in factually appropriate cases by the officer, a court, or an administrative agency in determining whether a person's alleged impairment is caused by an impairing substance other than alcohol.

## 10A NCAC 41B.0501 SCREENING TESTS FOR ALCOHOL CONCENTRATION

(a) This Section governs the requirement of G.S. 20-16.3 that the Department examine devices suitable for use by law enforcement officers in making on-the-scene tests of drivers for alcohol concentration and that the Department approve these devices and their manner of use. In examining devices for making chemical analyses, the Department finds that at present only screening devices for testing the breath of drivers are suitable for on-the-scene use by law enforcement officers.

(b) This Section does not address or in any way restrict the use of screening tests for impairment other than those based on chemical analyses, including various psychophysical tests for impairment.

## 10A NCAC 41B.0502 APPROVAL: ALCOHOL SCREENING TEST DEVICES: USE

(a) Alcohol screening test devices that measure alcohol concentration through testing the breath of individuals are approved on the basis of results of evaluations by the Forensic Tests for Alcohol Branch. Devices shall meet the minimum requirements as set forth in the Department specifications for Alcohol Screening Test Devices. Evaluations are not limited in scope and may include any factors deemed appropriate to insure the accuracy, reliability, stability, cost, and ease of operation and durability of the device being evaluated. On the basis of evaluations to date, approved devices are listed in > 10A NCAC 41B .0503 of this Section.

(b) When the validity of an alcohol screening test of the breath of a driver administered by a law enforcement officer depends upon approval by the Department of the test device and its manner of use, **the test shall be administered as follows:**

(1) The officer shall determine that the driver has removed **all food, drink, tobacco products, chewing gum and other substances and objects from his mouth.** Dental devices or oral jewelry need not be removed.

(2) Unless the driver volunteers the information that he has consumed an alcoholic beverage within the **previous 15 minutes**, the officer shall administer a screening test as soon as feasible. **If a test made without observing a waiting period** results in an alcohol concentration reading of **.08 or more, the officer shall wait five minutes and administer an additional test.** If the results of the additional test show an alcohol concentration reading more than .02 under the first reading, the officer shall disregard the first reading.

(3) The officer may request that the driver submit to one or more additional screening tests.



(4) In administering any screening test, the officer shall use an alcohol screening test **device approved under 10A NCAC 41B .0503 of this Section in accordance with the operational instructions supplied by the Forensic Tests for Alcohol Branch and listed on the device.**

#### **10A NCAC 41B.0503 APPROVED ALCOHOL SCREENING TEST DEVICES: CALIBRATION**

(a) The following breath alcohol screening test devices are approved as to type and make:

(1) ALCO-SENSOR (with two-digit display), made by Intoximeters, Inc.

(2) **ALCO-SENSOR III** (with three-digit display), made by Intoximeters, Inc.

(3) ALCO-SENSOR IV, manufactured by Intoximeters, Inc.

(4) **ALCO-SENSOR FST**, manufactured by Intoximeters, Inc.

(5) S-D2, manufactured by CMI, Inc.

(6) S-D5, manufactured by CMI, Inc.

(b) The agency or operator shall verify **instrument calibration** of each alcohol screening test device at least once **during each 30 day period of use**. The verification shall be performed by **employment of an alcoholic breath simulator using simulator solution in accordance with the rules in this Section or an ethanol gas canister**.

(c) Alcoholic breath **simulators** used exclusively to verify instrument calibration of alcohol screening test devices shall have the **solution changed every 30 days or after 25 calibration tests, whichever occurs first**.

(d) Ethanol gas canisters used exclusively to verify instrument calibration of alcohol screening test devices shall not be utilized beyond the **expiration date on the canister**.

(e) Requirements of Paragraphs (b), (c), and (d) of this Rule shall be recorded on an **alcoholic breath simulator log or an ethanol gas canister log designed by the Forensic Tests for Alcohol Branch and maintained by the user agency**.

## OPERATION OF THE ALCO-SENSOR

### Alco-Sensor & Alco-Sensor III

1. Observe temperature strip to assure an operational temperature of the Alco-Sensor and III between 20°C and 36°C (68°F - 98°F). The device will operate at temperatures as low as 0°C but the response is sluggish and some accuracy is sacrificed. Once the unit is at operating temperature, it will function properly in ambient temperatures 0°C to 100°C.
  - If 888 is displayed (88 on an Alco-Sensor II), the 9-volt battery is weak and needs replacing. Factory literature indicates a life expectancy of 500+ tests for a 9-volt alkaline battery.
2. Attach mouthpiece, press “READ” button and hold down. Check to see if .00 (.000 on the Alco-Sensor II) is constant.
  - Alco-Sensors purchased after November 1981 has an automatic zeroing feature. When the “READ” button is depressed all the way down, the digital display should show -.00 with the minus sign flashing at least once or twice (when the “READ” button is held down for a 10-second period).
  - The “READ” button operates in two stages. First, it releases the spring loaded diaphragm/sampling valve which draws a 1cc sample of breath. Secondly, at the bottom of its travel (full depression of the button), it switches the Alco-Sensor “on” electronically.
3. Depress and lock the “SET” button.
  - The “SET” button cocks the valve when depressed all the way and also “shorts” the cell. This accelerates the destruction of any alcohol left on the cell so that the time delay between tests is minimized.
4. Instruct the person to give a sample (assure a minimum approximate 5 seconds continuous breath so that a deep lung sample may be collected).
5. Push “READ” button before exhalation ceases (allow a minimum of 3 seconds breath prior to pushing “READ” button).
6. Keep “READ” button depressed until reading stabilizes. Read maximum reading obtained.
  - An alcohol concentration reading takes between 15 to 60 seconds to develop in the standard fuel cell device. This reading will hold for a few moments before decreasing. During this period, the “READ” button can be released and reactivated without affecting the value. However, the “SET” button should not be depressed during this period, as it will destroy the accumulating reading.
7. Push “SET” button to accelerate elimination of reading (this purges and electronically cleans the cell surface).
8. USE EXTREME CAUTION AND CARE in removing the mouthpiece from the breath sampling port “Flipping or thumping” the mouthpiece to remove it from the port can cause breakage of the nipple from the port, rendering the Alco-Sensor unusable.

9. ALWAYS LEAVE “SET” BUTTON DEPRESSED WHILE NOT IN USE.

**Alco-Sensor FST**

1. Alco-Sensor FST is set to operate at temperatures of 0°C to 50°C (32°F to 122°F). The temperature is momentarily displayed after the device is turned on. The Alco-Sensor FST will function properly in climates where the instrument temperature can be maintained between 32°F to 122°F at the time of testing.
  - While the temperature is displayed, the battery strength indicator is also displays on the top of the screen. If the Alco-Sensor FST does not power on and/or “BAT” is displayed, the Alco-Sensor does not have sufficient battery power. The Aldo-Sensor will power off and/or disable. Replace batteries (2 AA).
2. Press and hold down the power “ON” button (Opposite the display) and hold for one second. The display will indicate “bln” (blank test) then .00. If “E11” appears, the blank check was not successful. The device will abort the test.
3. When “blo” is displayed, attach a mouthpiece, instruct the person to give a sample (assure a minimum of approximately 5 seconds continuous breath so that a deep lung sample may be collected). Having the subject slowly decrease their breath flow at the end of sample will help in successful sampling.
4. Dashes will appear in the display indicating the person is blowing; the device will automatically take a sample.
5. The results will be displayed for fifteen seconds before the device will power off.
  - To review the last result, while the device is off, momentarily press the “ON” button (front of the device) and simultaneously press the “OFF” button (button located under the display). When the display list “rcl” (recall last test), press the “OFF” button. The device will display the last test result performed.
6. Remove mouthpiece after each sample taken. Do not place mouthpiece on the device until the display indicates “blo”.

**See Driving While Impaired Report – Appendix P. 1**

## PROVING BrAC or BAC

A person's impairment can be proven several ways. A "per se" violation (G.S. 20-138.1 (2)) occurs if the person's breath test shows .08 grams of alcohol per 210 liters of breath, or if the person's blood test shows .08 grams of alcohol per 100 milliliters of blood. (G.S. 20-4.01(1b)).

### Individual Blood/Breath Ratio Irrelevant Per Se Violation

State v. Cothran, 120 N.C. App. 633, 635, 463 S.E.2d 423, 424-25 (N.C. Ct. App. 1995)

There is no dispute that the conversion factor (grams of alcohol per 210 liters of breath) used in section 20-4.01(0.2) is based on an assumed blood-breath ratio. *See State v. Brayman*, 110 Wash.2d 183, 751 P.2d 294, 297 (1988). In other words, the "assumption is that a [concentration of alcohol in breath] of .10 g/210L is equivalent to a [blood alcohol concentration] of .10%." 2 Richard E. Erwin, *Defense of Drunk Driving Cases* § 21.01 (3d ed. 1995) (hereinafter *Erwin*). It therefore follows that "[b]ecause blood-breath ratios vary both between individuals, and at different times in the same individual, a breath test based on a 2100:1 blood-breath ratio may not accurately represent a particular individual's blood alcohol level." *Brayman*, 751 P.2d at 297; *see Erwin* § 21.01 ("A number of physiological factors, that have no effect on a direct blood analysis, can materially affect a breath test."). Because, however, our legislature has adopted a breath alcohol per se offense as an alternative method of committing a driving while impaired offense, it is immaterial whether the defendant is in fact impaired or whether his blood alcohol content is in excess of that permitted in the statutes. *Cf. Dixon v. Peters*, 63 N.C.App. 592, 601, 306 S.E.2d 477, 483 (1983) (General Assembly may legislate an objective standard where it is a rational way to correct a perceived problem and serves a legitimate State function). Accordingly, Woodford's excluded testimony that the defendant's Intoxilyzer reading did not accurately reflect his blood alcohol level is not admissible and the trial court correctly excluded this evidence. N.C.G.S. § 8C-1, Rules 402, 403 (1992) (only evidence tending to prove a fact *in consequence* is relevant and admissible)

In addition to the "per se" violation, a person is "impaired" if that person is "under the influence of an impairing substance." This means that the person's physical or mental faculties, or both, is/are appreciably impaired by an impairing substance. G.S. 20-4.01(48b). Ordinarily, this is proven by lay witnesses who describe the person's behavior to prove impairment. However, experts are frequently used to explain the effect of alcohol on speech, vision, coordination, etc.

**Byrd v. Adams, 152 N.C.App. 460, 568 S.E.2d 640 (2002)**

Guy Crabtree's case

...

"In the case sub judice, when all inferences of fact are drawn in favor of plaintiff, defendant is unable to meet his burden of proving that plaintiff had no evidence establishing impairment to support the willful and wanton element of his punitive damages claim. Evidence was offered that defendant "fell asleep" while driving his vehicle, but did not wake up until after (1) having collided with the rear of plaintiff's vehicle, (2) having then crossed over the interstate median and the opposite lanes of travel, and (3) eventually having come to a stop in a tree. Also, defendant conceded that he had consumed two beers and taken three prescription drugs prior to the accident. Our statutes define an impairing substance as alcohol or "any other drug or psychoactive substance capable of impairing a person's physical or mental faculties ...." § 20-4.01(14a). Defendant offered no evidence that these prescription drugs (1) were not impairing substances and (2) to refute the implication that mixing alcohol and these drugs would not have impaired his ability to drive.

Finally, evidence was offered regarding the Alco-Sensor test defendant was given by Trooper Watkins, which indicated defendant's blood-alcohol level was not above the legal limit. In his deposition, Trooper Watkins testified that this test is not a legal screening device; it is used only "to detect if there's any alcohol concentration on a person's breath." Furthermore, the results of Alco-Sensor test, as well as Trooper's Watkins contemporaneous observations of defendant, took place approximately twenty-five minutes after the accident. Therefore, this test and Trooper Watkins' observations are not completely determinative as to whether defendant was impaired, especially in light of defendant not having undergone an actual legal test to determine his blood-alcohol level (such as an Intoxilyzer test) nor any other field sobriety tests. In the absence of such evidence, the remaining evidence presented to the court could have allowed a jury to possibly recognize and estimate defendant's alleged impairment because he had consumed alcohol and prescription drugs that may have caused him to "lose the normal control of his bodily or mental facilities to such an extent that there is an appreciable impairment of either or both of these faculties." State v. Harrington, 78 N.C.App. 39, 45, 336 S.E.2d 852, 855 (1985) (quoting State v. Carroll, 226 N.C. 237, 241, 37 S.E.2d 688, 691 (1946)). Taking this evidence with all inferences of fact drawn in plaintiff's favor, there is a genuine issue regarding plaintiff's punitive damages claim which must be resolved by a jury along with the issue of defendant's alleged impairment.

## **BREATH TESTS**

There are three scientific laws at the heart of breath test machines and the technology utilized by them.

### **BEER-LAMBERT LAW**

The Beer-Lambert Law applies to those breath-testing instruments, which utilize the principle of infrared absorption by ethyl alcohol. As infrared energy and a breath sample are introduced into the breath-test instrument, a measured amount of the infrared energy is absorbed. The energy absorbed is proportional to the amount of alcohol in the sample. The greater the amount of alcohol in the sample, the greater the absorption of infrared energy. This relationship exists regardless of the volume of the sample.

### **HENRY'S LAW**

Henry's Law states that at a constant temperature, the amount of a given gas dissolved in a given type and volume of liquid is directly proportional to the partial pressure of that gas in equilibrium with that liquid. As it relates to ethyl alcohol, this means that when air comes into contact with a solution containing ethyl alcohol, the air will contain the same amount of ethyl alcohol as the solution. When obtaining a breath sample, the Arkansas Regulations for Alcohol Testing require that a minimum of a twenty-minute observation period be conducted. The purpose of this observation period is to allow for any residual mouth alcohol to evaporate, so that upon obtaining a breath sample, any alcohol concentration shown will be from a deep lung sample, and not residual alcohol. This observation period is also a deprivation period. The subject to be tested is not to be allowed to take anything by mouth, and should be observed for any signs of wet-belching or regurgitation that could potentially re-contaminate the mouth. If this is observed, a new twenty-minute observation should be conducted.

## BOYLE'S LAW

For a fixed amount of gas kept at a fixed temperature,  $P$  (pressure) and  $V$  (volume) are inversely proportional (while one increases the other decreases). The law was named after chemist and physicist Robert Boyle, who published the original law in 1662.

### § 20-16.2. Implied consent to chemical analysis; mandatory revocation of license in event of refusal; right of driver to request analysis

(See Appendix P. 21-25 for full text of statute)

(a) Basis for Officer to Require Chemical Analysis; Notification of Rights.--**Any person who drives a vehicle on a highway or public vehicular area thereby gives consent to a chemical analysis if charged with an implied-consent offense.** Any law enforcement officer who has reasonable grounds to believe that the person charged has committed the implied-consent offense may obtain a chemical analysis of the person.

Before any type of chemical analysis is administered the person charged shall be taken before a **chemical analyst authorized to administer a test of a person's breath** or a law enforcement officer who is authorized to administer chemical analysis of the breath, **who shall inform the person orally and also give the person a notice in writing<sup>2</sup> that:**

- (1) You have been charged with an implied-consent offense. Under the implied-consent law, you can refuse any test, but your drivers license will be revoked for one year and could be revoked for a longer period of time under certain circumstances, and an officer can compel you to be tested under other laws.
- (2) Repealed by S.L. 2006-253, § 15, eff. Dec. 1, 2006.
- (3) The test results, or the fact of your refusal, will be admissible in evidence at trial.
- (4) Your driving privilege will be revoked immediately for at least 30 days if you refuse any test or the test result is 0.08 or more, 0.04 or more if you were driving a commercial vehicle, or 0.01 or more if you are under the age of 21.
- (5) After you are released, you may seek your own test in addition to this test.
- (6) You may call an attorney for advice and select a witness to view the testing procedures remaining after the witness arrives, but the testing may not be delayed for these purposes longer than 30 minutes from the time you are notified of these rights. You must take the test at the end of 30 minutes even if you have not contacted an attorney or your witness has not arrived.

(a1) Meaning of Terms.--Under this section, an 'implied-consent offense' is an offense involving impaired driving or an alcohol-related offense made subject to the procedures of this

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<sup>2</sup> See Appendix P. 3

section. A person is 'charged' with an offense if the person is arrested for it or if criminal process for the offense has been issued.

(b) **Unconscious Person May Be Tested.**--If a law enforcement officer has reasonable grounds to believe that a person has committed an implied-consent offense, and the person is unconscious or otherwise in a condition that makes the person incapable of refusal, the law enforcement officer may direct the taking of a blood sample or may direct the administration of any other chemical analysis that may be effectively performed. In this instance the notification of rights set out in subsection (a) and the request required by subsection (c) are not necessary.

(c) Request to Submit to Chemical Analysis.--**A law enforcement officer or chemical analyst shall designate the type of test or tests to be given and may request the person charged to submit to the type of chemical analysis designated.** If the person charged willfully refuses to submit to that chemical analysis, none may be given under the provisions of this section, but the refusal does not preclude testing under other applicable procedures of law.

...

(d1) **Consequences of Refusal in Case Involving Death or Critical Injury.**--If the refusal occurred in a case involving death or critical injury to another person, no limited driving privilege may be issued. The 12-month revocation begins only after all other periods of revocation have terminated unless the person's license is revoked under G.S. 20-28, 20-28.1, 20-19(d), or 20-19(e). If the revocation is based on those sections, the revocation under this subsection begins at the time and in the manner specified in subsection (d) for revocations under this section. However, the person's eligibility for a hearing to determine if the revocation under those sections should be rescinded is postponed for one year from the date on which the person would otherwise have been eligible for the hearing. If the person's driver's license is again revoked while the 12-month revocation under this subsection is in effect, that revocation, whether imposed by a court or by the Division, may only take effect after the period of revocation under this subsection has terminated.

...

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## **N.C.G.S. § 20-139.1. Procedures governing chemical analyses; admissibility; evidentiary provisions; controlled-drinking programs**

(See Appendix P. 21-25 for full text of statute)

(a) Chemical Analysis Admissible.--In any implied-consent offense under G.S. 20-16.2, **a person's alcohol concentration or the presence of any other impairing substance in the person's body as shown by a chemical analysis is admissible in evidence.** This section **does not limit the introduction of other competent evidence** as to a person's alcohol concentration or results of other tests showing the presence of an impairing substance, including other chemical tests.

(b) Approval of Valid Test Methods; Licensing Chemical Analysts.--**The results of a chemical analysis shall be deemed sufficient evidence to prove a person's alcohol concentration.** A chemical analysis of the breath administered pursuant to the implied-consent law is **admissible in any court or administrative hearing or proceeding if it meets both of the following requirements:**



**(1) It is performed in accordance with the rules of the Department of Health and Human Services.**

**(2) The person performing the analysis had, at the time of the analysis, a current permit issued by the Department of Health and Human Services authorizing the person to perform a test of the breath using the type of instrument employed.**

For purposes of establishing compliance with subdivision **(b)(1)** of this section, the **court or administrative agency shall take notice of the rules of the Department of Health and Human Services**. For purposes of establishing compliance with subdivision **(b)(2)** of this section, **the court or administrative agency shall take judicial notice of the list of permits issued to the person performing the analysis, the type of instrument on which the person is authorized to perform tests of the breath, and the date the permit was issued.**<sup>3</sup>...

**(b1) When Officer May Perform Chemical Analysis.--Any person possessing a current permit authorizing the person to perform chemical analysis may perform a chemical analysis.**

**(b2) Breath Analysis Results Preventive Maintenance**<sup>4</sup>.--The Department of Health and Human Services shall perform **preventive maintenance** on breath-testing instruments used for chemical analysis.<sup>5</sup> **A court or administrative agency shall take judicial notice of the preventive maintenance records of the Department.**<sup>6</sup> Notwithstanding the provisions of subsection (b), the results of a chemical analysis of a person's breath performed in accordance with this section are not admissible in evidence if:

- (1) The defendant objects to the introduction into evidence of the results...; and
- (2) The defendant demonstrates that...preventive maintenance procedures required by the regulations of the Department of Health and Human Services had not been performed within the time limits prescribed...

**(b3) Sequential Breath Tests Required.**--The methods governing the administration of chemical analyses of the breath shall require the testing of **at least duplicate sequential breath samples**. **The results of the chemical analysis of all breath samples are admissible if the test results from any two consecutively collected breath samples do not differ from each other by an alcohol concentration greater than 0.02. Only the lower of the two test results of the consecutively administered tests can be used to prove a particular alcohol concentration.** A person's refusal to give the sequential breath samples necessary to constitute a valid chemical analysis is a refusal under G.S. 20-16.2(c).

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<sup>3</sup> <http://publichealth.nc.gov/chronicdiseaseandinjury/fta/pdf/ncdhhsBrthAnal-091310.pdf>. You will need to save the document to your computer as a .pdf file and then run a word search within the document to locate your specific analyst.

<sup>4</sup> See Appendix P. 6

<sup>5</sup> Procedures set forth at 10A NCAC 41B.0323 for EC/IR II and 10A NCAC 41B.0321 for Intoxilyzer 5000

<sup>6</sup> <http://publichealth.nc.gov/chronicdiseaseandinjury/fta/history.htm>. Unfortunately, the State has decided not to make these searchable in any meaningful way, so you have to go through each page individually until you find your specific machine.

**A person's refusal to give the second or subsequent breath sample shall make the result of the first breath sample, or the result of the sample providing the lowest alcohol concentration if more than one breath sample is provided, admissible...**

(b4) Repealed by S.L. 2006-253, § 16, eff. Dec. 1, 2006.

(b5) Subsequent Tests Allowed.--A person may be requested, pursuant to G. S. 20-16.2, to submit to a chemical analysis of the person's blood or other bodily fluid or substance in addition to or in lieu of a chemical analysis of the breath, in the discretion of a law enforcement officer...

(b6) The Department of Health and Human Services shall post on a Web page a list of all persons who have a permit authorizing them to perform chemical analyses, the types of analyses that they can perform, the instruments that each person is authorized to operate, the effective dates of the permits<sup>7</sup>, and the records of preventive maintenance<sup>8</sup>. **A court or administrative agency shall take judicial notice of whether, at the time of the chemical analysis, the chemical analyst possessed a permit authorizing the chemical analyst to perform the chemical analysis administered and whether preventive maintenance had been performed on the breath-testing instrument in accordance with the Department's rules.**

...  
(d) Right to Additional Test.--Nothing in this section shall be construed to prohibit a person from obtaining or attempting to obtain an additional chemical analysis...

(d1) Right to Require Additional Tests.--**If a person refuses** to submit to any test or tests pursuant to this section, **any law enforcement officer with probable cause may, without a court order, compel the person to provide blood or urine samples for analysis if the officer reasonably believes that the delay necessary to obtain a court order, under the circumstances, would result in the dissipation of the percentage of alcohol in the person's blood or urine.**

...  
(e1) Use of Chemical Analyst's **Affidavit in District Court**.<sup>9</sup>--An affidavit by a chemical analyst sworn to and properly executed before an official authorized to administer oaths is admissible in evidence without further authentication and without the testimony of the analyst in any hearing or trial in the District Court Division of the General Court of Justice with respect to the following matters:

- (1) The alcohol concentration or concentrations or the presence or absence of an impairing substance of a person given a chemical analysis and who is involved in the hearing or trial.
- (2) The time of the collection of the blood, **breath**, or other bodily fluid or substance sample or samples for the chemical analysis.
- (3) The type of chemical analysis administered and the procedures followed.

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<sup>7</sup> <http://publichealth.nc.gov/chronicdiseaseandinjury/fta/pdf/ncdhhsBrthAnal-091310.pdf>. You will need to save the document to your computer as a .pdf file and then run a word search within the document to locate your specific analyst.

<sup>8</sup> <http://publichealth.nc.gov/chronicdiseaseandinjury/fta/history.htm>. Unfortunately, the State has decided not to make these searchable in any meaningful way, so you have to go through each page individually until you find your specific machine.

<sup>9</sup> See Appendix P. 4-5

(4) The type and status of any permit issued by the Department of Health and Human Services that the analyst held on the date the analyst performed the chemical analysis in question.

(5) If the chemical analysis is performed on a breath-testing instrument for which regulations adopted pursuant to subsection (b) require preventive maintenance, the date the most recent preventive maintenance procedures were performed on the breath-testing instrument used, as shown on the maintenance records for that instrument.

The Department of Health and Human Services shall develop a form for use by chemical analysts in making this affidavit.

(e2) Except as governed by subsection (c1), (c2), or (c3) of this section, **the State can only use the provisions of subsection (e1)** of this section if:

(1) The State notifies the defendant at least 15 business days before the proceeding at which the affidavit would be used of its intention to introduce the affidavit into evidence under this subsection and provides a copy of the affidavit to the defendant, and

(2) The defendant fails to file a written notification with the court, with a copy to the State, at least five business days before the proceeding at which the affidavit would be used that the defendant objects to the introduction of the affidavit into evidence.

The failure to file a timely objection as provided in this subsection shall be deemed a waiver of the right to object to the admissibility of the affidavit. Upon filing a timely objection, the admissibility of the report shall be determined and governed by the appropriate rules of evidence. The case shall be continued until the analyst can be present. The criminal case shall not be dismissed due to the failure of the analyst to appear, unless the analyst willfully fails to appear after being ordered to appear by the court. Nothing in subsection (e1) or subsection (e2) of this section precludes the right of any party to call any witness or to introduce any evidence supporting or contradicting the evidence contained in the affidavit.

(f) **Evidence of Refusal Admissible.**--If any person charged with an implied-consent offense refuses to submit to a chemical analysis or to perform field sobriety tests at the request of an officer, evidence of that refusal is admissible in any criminal, civil, or administrative action against the person.

...

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## BREATH TEST MACHINES

The Intoximeters **EC/IR II** is the breath testing machine in use in North Carolina and many other states today. The EC/IR II uses two methods of analysis – electrochemical oxidation and infrared – to quantify ethanol in a person's breath. The EC/IR II uses a fuel cell and electrochemical oxidation (EC) to measure ethanol. The fuel cell then works by creating electrical voltage due to the extra electrons caused by a chemical reaction resulting from mixing the alcohol in the defendant's breath with oxygen. The more alcohol present in the breath, then the more voltage created. A microprocessor in the EC/IR II then converts the calculation to a BrAC (breath alcohol) reading. The IR is employed only to monitor the breath sample to make sure that only deep lung air is being collected and is not contaminated by mouth alcohol, as the fuel cell cannot distinguish between mouth air and deep lung air. See Appendix P. 8-14 for more information about the EC/IR II from the manufacturer, Intoximeters.



## **10A N.C.A.C. 41B.0322 INTOXIMETERS: MODEL INTOX EC/IR II**

The operational procedures to be followed in using the Intoximeters, Model Intox EC/IR II are:

- (1) Insure instrument displays time and date;
- (2) Insure **observation period** requirements have been met;
- (3) Initiate breath test sequence;
- (4) Enter information as prompted;
- (5) Verify instrument accuracy;
- (6) When "PLEASE BLOW" appears, collect breath sample;
- (7) When "PLEASE BLOW" appears, collect breath sample; and
- (8) Print test record.

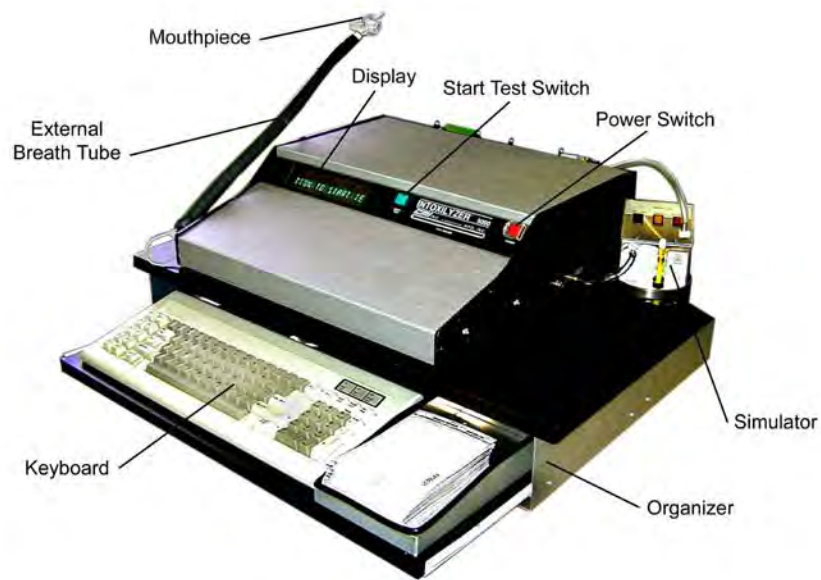
If the alcohol concentrations differ by more than .02, a third or fourth breath sample shall be collected when "PLEASE BLOW" appears. Subsequent tests shall be administered as soon as feasible by repeating steps (1) through (8), as applicable.

## **10A NCAC 41B.0101, DEFINITIONS**

- ...
- (6) "**Observation Period**" means a period during which a chemical analyst observes the person or persons to be tested to determine that the person or persons has not ingested alcohol or other fluids, regurgitated, vomited, eaten, or smoked in the 15 minutes immediately prior to the collection of a breath specimen. The chemical analyst may observe while conducting the operational procedures in using a breath-testing instrument. Dental devices or oral jewelry need not be removed;

## **INTOXILYZER: MODEL 5000**

This machine is in the process of being phased out, and it is likely that process is now complete. You are unlikely to see the 5000 in any of your newer cases, as the EC/IR II is the machine now being used in most, if not all, counties in the state. The technology utilized by the Intoxilyzer 5000 was basically to shine infrared energy (the source was a tungsten filament halogen light bulb back coated with a reflective element) through focused lenses, then through the defendant's breath sample, and then measure the loss of light from beginning to end. A very basic internal computer then calculated how much alcohol was present in the breath sample to absorb the lost quantity of light.



## INTOXILYZER 5000

Tarrant County Medical Examiner 4/2001

### BLOOD TESTS

State v. McDonald, 151 N.C. App. 236, 239, 565 S.E.2d 273, 275 (N.C. Ct. App. 2002)

Blood test evidence is admissible if the following can be shown: (1) compliance with conditions as to relevancy in point of time; (2) tracing and identification of the specimen; (3) accuracy of the analysis; and (4) qualification of the witness as an expert in the field. *Robinson v. Life & Casualty Ins. Co. of Tenn.*, 255 N.C. 669, 672, 122 S.E.2d 801, 803 (1961).

### **§ 20-16.2. Implied consent to chemical analysis; mandatory revocation of license in event of refusal; right of driver to request analysis**

(See Appendix P. 21-25 for full text of statute)

(a) Basis for Officer to Require Chemical Analysis; Notification of Rights.--**Any person who drives a vehicle on a highway or public vehicular area thereby gives consent to a chemical analysis if charged with an implied-consent offense.** Any law enforcement officer who has reasonable grounds to believe that the person charged has committed the implied-consent offense may obtain a chemical analysis of the person...

(a1) Meaning of Terms.--Under this section, an 'implied-consent offense' is an offense involving impaired driving or an alcohol-related offense made subject to the procedures of this section. A person is 'charged' with an offense if the person is arrested for it or if criminal process for the offense has been issued.

(b) **Unconscious Person May Be Tested.**--If a law enforcement officer has reasonable grounds to believe that a person has committed an implied-consent offense, and the person is unconscious or otherwise in a condition that makes the person incapable of refusal, the law enforcement officer may direct the taking of a blood sample or may direct the administration of any other chemical analysis that may be effectively performed. In this instance the notification of rights set out in subsection (a) and the request required by subsection (c) are not necessary.

(c) Request to Submit to Chemical Analysis.--**A law enforcement officer or chemical analyst shall designate the type of test or tests to be given and may request the person charged to submit to the type of chemical analysis designated.** If the person charged willfully refuses to submit to that chemical analysis, none may be given under the provisions of this section, but the refusal does not preclude testing under other applicable procedures of law.

...

(d1) **Consequences of Refusal in Case Involving Death or Critical Injury.**--If the refusal occurred in a case involving death or critical injury to another person, no limited driving privilege may be issued. The 12-month revocation begins only after all other periods of revocation have terminated unless the person's license is revoked under G.S. 20-28, 20-28.1, 20-19(d), or 20-19(e). If the revocation is based on those sections, the revocation under this subsection begins at the time and in the manner specified in subsection (d) for revocations under this section. However, the person's eligibility for a hearing to determine if the revocation under those sections should be rescinded is postponed for one year from the date on which the person would otherwise have been eligible for the hearing. If the person's driver's license is again revoked while the 12-month revocation under this subsection is in effect, that revocation, whether imposed by a court or by the Division, may only take effect after the period of revocation under this subsection has terminated.

...

**N.C.G.S. § 20-139.1. Procedures governing chemical analyses; admissibility; evidentiary provisions; controlled-drinking programs**

(See Appendix P. 21-25 for full text of statute)

(a) Chemical Analysis Admissible.--In any implied-consent offense under G.S. 20-16.2, a person's alcohol concentration or the presence of any other impairing substance in the person's body as shown by a chemical analysis is admissible in evidence. **This section does not limit the introduction of other competent evidence as to a person's alcohol concentration or results of other tests showing the presence of an impairing substance, including other chemical tests.**

...

(c) **Blood and Urine** for Chemical Analysis...--Notwithstanding any other provision of law, **when a blood or urine test is specified as the type of chemical analysis** by a law

enforcement officer, a physician, registered nurse, emergency medical technician, or other qualified person shall withdraw the blood sample<sup>10</sup> and obtain the urine sample, and no further authorization or approval is required...

(c1) **Admissibility.**--The results of a chemical analysis of blood<sup>11</sup> or urine reported by the North Carolina State Bureau of Investigation Laboratory, the Charlotte, North Carolina, Police Department Laboratory, or any other laboratory approved for chemical analysis by the Department of Health and Human Services, are admissible as evidence in all administrative hearings, and in any court, without further authentication and without the testimony of the analyst. The results shall be certified by the person who performed the analysis. The provisions of this subsection may be utilized in any administrative hearing, but can only be utilized in cases tried in the district and superior court divisions, or in an adjudicatory hearing in juvenile court, if:

(1) **The State** notifies the defendant at least 15 business days before the proceeding at which the evidence would be used of its intention to introduce the report into evidence under this subsection and provides a copy of the report to the defendant, and

(2) The defendant fails to file a written objection with the court, with a copy to the State, at least five business days before the proceeding at which the report would be used that the defendant objects to the introduction of the report into evidence.

If the defendant's attorney of record, or the defendant if that person has no attorney, fails to file a written objection as provided in this subsection, then the report may be admitted into evidence without the testimony of the analyst. Upon filing a timely objection, the admissibility of the report shall be determined and governed by the appropriate rules of evidence.

The report containing the results of any blood or urine test may be transmitted electronically or via facsimile. A copy of the affidavit sent electronically or via facsimile shall be admissible in any court or administrative hearing without further authentication. A copy of the report shall be sent to the charging officer, the clerk of superior court in the county in which the criminal charges are pending, the Division of Motor Vehicles, and the Department of Health and Human Services.

Nothing in this subsection precludes the right of any party to call any witness or to introduce any evidence supporting or contradicting the evidence contained in the report.

(c2) A chemical analysis of blood or urine, to be admissible under this section, shall be performed in accordance with rules or procedures adopted by the State Bureau of Investigation, or by another laboratory accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) for the submission, identification, analysis, and storage of forensic analyses.

(c3) **Procedure for Establishing Chain of Custody Without Calling Unnecessary Witnesses.** --

(1) For the purpose of establishing the chain of physical custody or control of blood or urine tested or analyzed to determine whether it contains alcohol, a controlled substance or its metabolite, or any impairing substance, a statement signed by each successive person in the chain of custody that the person

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<sup>10</sup> See Appendix P. 15

<sup>11</sup> See Appendix P. 16



delivered it to the other person indicated on or about the date stated is prima facie evidence that the person had custody and made the delivery as stated, without the necessity of a personal appearance in court by the person signing the statement.

(2) The statement shall contain a sufficient description of the material or its container so as to distinguish it as the particular item in question and shall state that the material was delivered in essentially the same condition as received. The statement may be placed on the same document as the report provided for in subsection (c1) of this section.

(3) The provisions of this subsection may be utilized in any administrative hearing, but can only be utilized in cases tried in the district and superior court divisions, or in an adjudicatory hearing in juvenile court, if:

a. The State notifies the defendant at least 15 business days before the proceeding at which the statement would be used of its intention to introduce the statement into evidence under this subsection and provides a copy of the statement to the defendant, and

b. The defendant fails to file a written notification with the court, with a copy to the State, at least five business days before the proceeding at which the statement would be used that the defendant objects to the introduction of the statement into evidence.

If the defendant's attorney of record, or the defendant if that person has no attorney, fails to file a written objection as provided in this subsection, then the statement may be admitted into evidence without the necessity of a personal appearance by the person signing the statement. Upon filing a timely objection, the admissibility of the report shall be determined and governed by the appropriate rules of evidence.

(4) Nothing in this subsection precludes the right of any party to call any witness or to introduce any evidence supporting or contradicting the evidence contained in the statement.

**(c4) The results of a blood or urine test are admissible to prove a person's alcohol concentration or the presence of controlled substances or metabolites or any other impairing substance if:**

(1) A law enforcement officer or chemical analyst requested a blood and/or urine sample from the person charged; and

(2) A chemical analysis of the person's blood was performed by a chemical analyst possessing a permit issued by the Department of Health and Human Services authorizing the chemical analyst to analyze blood or urine for alcohol or controlled substances, metabolites of a controlled substance, or any other impairing substance.

For purposes of establishing compliance with subdivision (2) of this subsection, **the court or administrative agency shall take judicial notice of the list of persons possessing permits, the type of instrument on which each person is authorized to perform tests of the blood and/or urine, and the date the permit was issued and the date it expires.**<sup>12</sup>

<sup>12</sup> <http://publichealth.nc.gov/chronicdiseaseandinjury/fta/pdf/bloodPermitHistory-101510.pdf>. You will need to save the document to your computer as a .pdf file and then run a word search within the document to locate your specific analyst.

(d) Right to Additional Test...

(d1) Right to Require Additional Tests.--**If a person refuses** to submit to any test or tests pursuant to this section, **any law enforcement officer with probable cause may, without a court order, compel the person to provide blood or urine samples for analysis if the officer reasonably believes that the delay necessary to obtain a court order, under the circumstances, would result in the dissipation of the percentage of alcohol in the person's blood or urine.**

(d2) Notwithstanding any other provision of law, **when a blood or urine sample is requested under subsection (d1) of this section by a law enforcement officer, a physician, registered nurse, emergency medical technician, or other qualified person shall withdraw the blood and obtain the urine sample, and no further authorization or approval is required.** If the person withdrawing the blood or collecting the urine requests written confirmation of the charging officer's request for the withdrawal of blood or obtaining urine, the officer shall furnish it before blood is withdrawn or urine obtained. A person requested to withdraw blood or collect urine pursuant to this subsection may refuse to do so only if it reasonably appears that the procedure cannot be performed without endangering the safety of the person collecting the sample or the safety of the person from whom the sample is being collected. If the officer requesting the blood or urine requests a written justification for the refusal, the medical provider who determined the sample could not be collected safely shall provide written justification at the time of the refusal.

...

(e1) **Use of Chemical Analyst's Affidavit in District Court.**--An affidavit by a chemical analyst sworn to and properly executed before an official authorized to administer oaths is admissible in evidence without further authentication and without the testimony of the analyst in any hearing or trial in the District Court Division of the General Court of Justice with respect to the following matters:

- (1) The alcohol concentration or concentrations or the presence or absence of an impairing substance of a person given a chemical analysis and who is involved in the hearing or trial.
- (2) The time of the collection of the **blood**, breath, or other bodily fluid or substance sample or samples for the chemical analysis.
- (3) The type of chemical analysis administered and the procedures followed.
- (4) The type and status of any permit issued by the Department of Health and Human Services that the analyst held on the date the analyst performed the chemical analysis in question.
- (5) If the chemical analysis is performed on a breath-testing instrument for which regulations adopted pursuant to subsection (b) require preventive maintenance, the date the most recent preventive maintenance procedures were performed on the breath-testing instrument used, as shown on the maintenance records for that instrument.

The Department of Health and Human Services shall develop a form for use by chemical analysts in making this affidavit.

(e2) Except as governed by subsection (c1), (c2), or (c3) of this section, **the State can only use the provisions of subsection (e1) of this section if:**

- (1) The State notifies the defendant at least 15 business days before the proceeding at which the affidavit would be used of its intention to introduce the

affidavit into evidence under this subsection and provides a copy of the affidavit to the defendant, and

(2) The defendant fails to file a written notification with the court, with a copy to the State, at least five business days before the proceeding at which the affidavit would be used that the defendant objects to the introduction of the affidavit into evidence.

...

**(f) Evidence of Refusal Admissible.**--If any person charged with an implied-consent offense refuses to submit to a chemical analysis or to perform field sobriety tests at the request of an officer, evidence of that refusal is admissible in any criminal, civil, or administrative action against the person.

...

### **10A N.C.A.C. 41B.0209 REPORTING OF ALCOHOL CONCENTRATIONS BY BLOOD ANALYSTS<sup>13</sup>**

When performing chemical analyses of blood under the authority of G.S. 20-139.1 and the provisions of these rules, blood analysts shall report alcohol concentrations based on grams of alcohol per 100 milliliters of whole blood.

#### **Chain of Custody**

Columbus County ex rel. Brooks v. Davis, 163 N.C. App. 64, 68, 592 S.E.2d 225, 228 (2004)

“To lay the foundation for Forbes's DNA sample, plaintiff presented witness testimony from the person who collected, sealed and mailed the sample to the laboratory. Plaintiff also presented an affidavit by the person who received the specimen at the laboratory for testing stating that the specimen did not appear to have been tampered with. We do not consider this to be sufficient evidence to establish the chain of custody. **In addition to these two affidavits, plaintiff should have also provided testimony or an affidavit from the individual who performed the DNA test to confirm that the specimen was transferred within the laboratory without being disturbed.** *Cf. State v. Britt*, 291 N.C. 528, 533, 231 S.E.2d 644, 648 (1977), *quoting Joyner v. Utterback*, 196 Iowa 1040, 195 N.W. 594 (1923) (“It is generally held that the party offering such specimen is required to establish, at least as far as practicable, a complete chain of evidence, tracing possession from the time the specimen is taken from the human body to the final custodian by whom it is analyzed.”) Thus, we conclude that the chain of custody was not properly established for Forbes's DNA sample.”

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<sup>13</sup> See Appendix P. 17

State v. Karbas, 28 N.C. App. 372, 375, 221 S.E.2d 98, 100-01 (1976)

Whether real evidence, the substance sought to be introduced, has passed through several hands to a qualified expert for analysis, there must be 'a chain of custody' method of identification. If one link in the chain is entirely missing, the substance cannot be introduced into evidence or made the basis for the test report of an expert. The evidence must not leave to conjecture who had it and what was done with it between the taking and the analysis.

### **Hospital Blood Test May = "Other Competent Evidence" in G.S. 20-139.1(a)**

State v. Drdak, 330 N.C. 587, 592-94, 411 S.E.2d 604, 607-08 (1992)

For the results of the blood test in the present case to be admissible, the State must produce evidence as to a proper foundation to sustain its admissibility. The State showed that the hospital's blood alcohol test was performed less than an hour after the defendant's car crashed into the tree, that an experienced phlebotomist withdrew the blood sample under routine procedure pursuant to the doctor's orders, and that a trained laboratory technician analyzed the blood sample using a Dupont Automatic Clinical Analyzer which was capable of testing either whole blood or serum. The result was 0.178 grams per milliliter of blood. The result was recorded and relayed to the attending physician by computer screen in order to assist him in his determination of appropriate treatment of the defendant. The results of the test were made a part of the medical records of the hospital in the defendant's case. This evidence meets the requirements necessary to provide a proper foundation for the admission of the blood alcohol test results. *Robinson v. Ins. Co.*, 255 N.C. 669, 122 S.E.2d 801 (1961). This Court has held such results admissible in other cases prior to the adoption of the implied consent statute. *E.g.*, *State v. Collins*, 247 N.C. 244, 100 S.E.2d 489 (1957); *State v. Moore*, 245 N.C. 158, 95 S.E.2d 548 (1956); *State v. Willard*, 241 N.C. 259, 84 S.E.2d 899 (1954).

The language allowing "other competent evidence" as to a suspect's blood alcohol level has been in the statute since it was first enacted and is a part of the amended statute which will take effect 1 January 1993.

First, the defendant argues that he was denied his physician-patient privilege. This argument has been resolved adversely to the defendant as set forth above. Second, by using the results of the blood alcohol test by the hospital, the State has avoided the necessity of a finding of probable cause by the arresting officer before a chemical test can be ordered as required by N.C.G.S. § 20-16.2(a). As discussed above, it is the holding of this Court that the obtaining of the blood alcohol test results in this case was not controlled by N.C.G.S. § 20-16.2(a) and did not have to comply with that statute because the test in question is "other competent evidence" as allowed by N.C.G.S. § 20-139.1. Third, the defendant argues that the destruction of the blood sample by the hospital prior to his arrest violated his right of confrontation under article I, section 23 of the North Carolina Constitution. The blood sample was not destroyed by the State, but by the hospital in the regular course of its hospital procedures. The State cannot be held responsible for the actions of the hospital in this respect. Unless a defendant can show bad faith on the part of the police, failure to preserve potentially useful evidence by the

State does not constitute a denial of due process. *See Arizona v. Youngblood*, 488 U.S. 51, 109 S.Ct. 333, 102 L.Ed.2d 281 (1988). The defendant has failed to show any such bad faith on the part of the State or police in this case.

### **Hospital Blood Tests May Qualify as Business Record Exception to Hearsay**

State v. Miller, 80 N.C. App. 425, 428, 342 S.E.2d 553, 555 (N.C. Ct. App. 1986)

**The results of defendant's blood test, even though hearsay, are nonetheless admissible if they fall within the business records exception to the hearsay rule.** Rule 803(6), N.C.Rules Evid. Records made in the usual course of business, made contemporaneously with the occurrences, acts and events, recorded by one authorized to make them and before litigation has arisen, are admissible upon proper identification and authentication. *Sims v. Charlotte Liberty Mutual Ins. Co.*, 257 N.C. 32, 35, 125 S.E.2d 326, 329 (1962). Business records are defined to include the records of hospitals. Rule 803(6) commentary, N.C.Rules Evid.

...

We hold the results of the blood test constitute a record made in the usual course of business, made contemporaneously with the events and recorded by one with authority to do so before litigation arose. Further, we hold the blood test results were properly identified and authenticated. Authentication is not undermined because the person who actually analyzed the blood in the stat laboratory was not present to testify as a witness. *State v. Grier*, 307 N.C. 628, 300 S.E.2d 351 (1983). Authentication of records of regularly conducted activity is "by the testimony of the custodian or *other qualified witness*, unless the source of information or the method or circumstances of preparation indicate lack of trustworthiness." Rule 803(6), N.C.Rules Evid. (emphasis added). "Other qualified witness" has been construed to mean a witness who is familiar with the business entries and the system under which they are made. *State v. Galloway*, 304 N.C. 485, 492, 284 S.E.2d 509, 514 (1981) (Where the ophthalmologist's technician testified regarding the ophthalmologist's medical records). Each, Ms. Dasher and Dr. Fogle, is a qualified witness. Their testimony sufficiently established the chain of custody. The possibility that blood samples were exchanged during the fifteen minutes in the laboratory is too remote to require exclusion of the evidence so obtained. Any weakness in the chain of custody goes to the weight of the evidence, not its admissibility. *Grier, supra*, 307 N.C. at 633, 300 S.E.2d at 354.

### **But Unreliable Hospital Records Will Not Be Admissible**

Johnson v. Charles Keck Logging, 121 N.C. App. 598, 601-02, 468 S.E.2d 420, 422-23 (1996)

**The Community Hospital blood alcohol test contains several discrepancies which affect the reliability of the test results.** The chain of custody from the time the blood was drawn from plaintiff until it was tested was never clearly established. The expert witness called to testify regarding plaintiff's alcohol blood test was "a management technologist" in the clinical laboratory at Community Hospital. Although the technologist analyzed the blood allegedly taken from plaintiff, he admitted he had not drawn blood in

years and that he “didn't know what happened to this particular blood. It was brought to me, and I tested it and reported out the results.” He discussed in general terms the hospital's procedure for collecting blood and how the tests are conducted. However, there was no testimony as to the identity of the phlebotomist who drew plaintiff's blood nor the specific manner in which plaintiff's blood was drawn. The technologist further stated alcohol swabs are not used to clean the area where the blood is drawn if the purpose for the blood is to test for blood alcohol levels; but if other blood tests are being conducted, alcohol swabs are used. In plaintiff's case, the technologist testified the physicians ordered several types of blood tests, including the blood alcohol analysis, and there was no testimony as to whether an alcohol or nonalcohol prep was used in drawing plaintiff's blood sample. While our Courts do not require the person who draws the blood to testify in every case in order to establish a proper foundation, (*See State v. Grier*, 307 N.C. 628, 632, 300 S.E.2d 351, 354, (1983) *appeal after remand*, 314 N.C. 59, 331 S.E.2d 669 (1985)) under these facts, other inconsistencies with these critical test results warranted a more thorough development of the chain of custody of plaintiff's blood sample.

Not only is there insufficient evidence to establish an adequate chain of custody of plaintiff's blood sample, but there are other disturbing discrepancies relating to the test. The date and time of the blood test were incorrectly marked as having been drawn on the Sunday afternoon before the accident occurred. The technologist blamed the inaccuracy on human error or a possible power failure in the laboratory. Further testimony revealed questions as to whether the machine was correctly calibrated when plaintiff's test was conducted. One expert testified a power failure could have affected the machine's calibration and incorrect calibration can affect the reliability of blood tests. Finally, there was testimony that an inadequate number of controls may have been run on this particular specimen which could affect the reliability of plaintiff's test results.

Under these facts, there is insufficient evidence to establish that this critical blood alcohol analysis was scientifically reliable or that it was correctly administered in “compliance with conditions as to relevancy in point of time, tracing and identification of specimen, [and] accuracy of analysis.” *Robinson*, 255 N.C. at 672, 122 S.E.2d at 803. We find the blood alcohol test from Community Hospital is incompetent evidence of plaintiff's intoxication and therefore, we reverse the case and remand it to the Industrial Commission for rehearing.

#### **Hospital Blood Issues:**

- Forensic Testing Protocols?
- Chain of Custody within hospital
- Testing of Serum, not whole blood

Conversion to whole blood- See Appendix P. 18 and 19

**State v. Mac Cardwell, 133 N.C. App. 496, 506-07, 516 S.E.2d 388, 396 (1999)**

“Defendant also challenges the reliability of the conversion ratio used to convert her plasma-alcohol concentration to its blood-alcohol concentration equivalent. The trial court received evidence that 1 to 1.18 is the generally accepted

conversion ratio in the forensic field and that numerous studies have found ratios between 1 to 1.15 and 1 to 1.21 to be accurate for the overwhelming majority of participants. The trial court's findings also reveal its consideration of the professional background of the expert employing the 1 to 1.18 ratio. Based on this evidence, the trial court found a conversion ratio of 1 to 1.18 to be reliable, and we see no abuse of discretion in this determination based on the evidence presented in this case. In any event, even using a conversion ratio of 1 to 1.21, the highest conversion ratio deemed reliable by Dr. Waggoner based on his review of numerous studies, Defendant's blood-alcohol concentration was above the legal limit.”

### **EXTRAPOLATION**

See Appendix P. 20

State v. Catoe, 78 N.C. App. 167, 170, 336 S.E.2d 691, 693 (N.C. Ct. App. 1985) writ allowed, stay allowed, 315 N.C. 186, 338 S.E.2d 107 (1985)

State v. Cooke, 270 N.C. 644, 651, 155 S.E.2d 165, 170 (1967)

State v. Taylor, 165 N.C. App. 750, 759, 600 S.E.2d 483, 490 (2004) (Judge Tyson’s dissent echo’s the criminal defense bar’s, as well as many scientist’s concerns about retrograde extrapolation in general, and more so about Paul Glover’s specific application of it in numerous DWI trials across the State).

State v. Taylor – Excerpts from Judge Tyson’s Dissent:

...

#### **I. Average Data**

The State tendered evidence of an average alcohol elimination rate data to prove defendant's actual alcohol elimination rate and establish his blood alcohol concentration at the time of the accident...

The trial court admitted, over defendant's specific objection, [Paul] Glover's testimony that "defendant's" elimination rate was 0.0165 and also that "defendant" had a 0.08 at the time of the accident. Glover relied on "an average extrapolation rate," pure hearsay, instead of defendant's actual elimination rate to reach his conclusions. Glover failed to establish any connection or common attributes to correlate the average extrapolation rate to defendant's actual rate to establish relevancy.

Recently, our Supreme Court clarified the test for admissibility of expert testimony:

The most recent North Carolina case from this Court to comprehensively address the admissibility of expert testimony under Rule 702 is State v. Goode, 341 N.C. 513, 461 S.E.2d 631 (1995), which set forth a three-step inquiry for evaluating the admissibility of expert testimony:

(1) Is the expert's proffered method of proof sufficiently reliable as an area for expert testimony? *Id.* at 527-29, 461 S.E.2d at 639-40. (2) Is the witness testifying at trial qualified as an expert in that area of testimony? *Id.* at 529, 461 S.E.2d at 640. (3) Is the expert's testimony relevant? *Id.* at 529, 461 S.E.2d at 641.

Howerton v. Arai Helmet, Ltd., 358 N.C. 440, 458, 597 S.E.2d 674, 686 (emphasis supplied). Defendant argues Glover laid no foundation for his testimony because he failed to show any relevance in using the average rate data as it applied to defendant. I agree. The use of average elimination data, instead of defendant's actual elimination rate, is hearsay, irrelevant, and inadmissible under our Supreme Court's holdings in Goode and Howerton.

Our Supreme Court has rejected average data as evidence to show how a specific action may have occurred or how an individual may have reacted or responded in an "actual set of circumstances." Hughes v. Vestal, 264 N.C. 500, 505, 142 S.E.2d 361, 365 (1965). In Hughes, our Supreme Court addressed the admission into evidence of a chart showing average stopping distances. The Court rejected the use of these charts at trial and held:

A formula, in which so many components are variables and in which there is only one constant (rate of speed), cannot by projection of a positive result (distance), based on speculative averages, be of sufficient accuracy and relevancy to rise of its own force to the dignity of evidence in an actual set of circumstances. This and its hearsay character have led to its rejection as evidence in a large majority of the jurisdictions where the question has been directly raised.

*Id.* The Court stated, "The factors involved in stopping automobiles are so many and varied that a fixed formula is of slight, if any, value in a given case." *Id.* The Court reiterated that numerous variables affect the outcome in specific situations, including the vehicle's weight, condition of tire tread, force of brakes, and types of roadways. > *Id.*

Similarly, Glover admitted that numerous variables exist to determine an individual's alcohol elimination rate, including, among other things, a person's: (1) gender; (2) height; (3) weight; (4) age; (5) elapsed time since eating; (6) "recent consumption" of alcohol; (7) type of alcohol consumed; and (8) "a person's experience with alcohol." Glover testified that an individual's elimination rate "could be different within a given individual on different days." Glover further testified that "the ideal way [to know defendant's elimination rate] would be to get multiple samples at the time of the event, the arrest or the crash ... [or] do a controlled experiment where you ... measured it." Glover neither identified nor correlated any similarities between defendant and those



out of court persons tested during the experiments that collectively led to the "average" elimination rate.

In Catoe, we recognized, "usual constraints of relevance continue to apply." 78 N.C.App. at 170, 336 S.E.2d at 693. Average data is hearsay, purely circumstantial, and irrelevant to defendant's alcohol elimination rate and blood alcohol concentration at the time of the accident. The State failed to prove the relevance of Glover's average data testimony. Glover had neither personal knowledge nor any foundation to testify that defendant's rate of eliminating alcohol from his body is 0.0165 per hour. See Howerton, 358 N.C. at 460-62, 597 S.E.2d at 688. Glover's opinion that defendant's blood alcohol concentration was 0.08 at the time of the accident was also without foundation. Defendant's breathalyzer test showed 0.05, well below the "0.08 or more" alcohol concentration required for conviction under the statute. N.C. Gen.Stat. § 20-138.1(a)(2) (2003).

Glover failed to show how another out of court individual's or the average of a group of other individuals' alcohol elimination rates were relevant to defendant's rate on the date of the accident. The trial court erred in admitting this testimony. See Howerton, 358 N.C. at 460-62, 597 S.E.2d at 688. Glover's use of a "conservative rate" does not cure the hearsay defect or establish relevancy. Glover also failed to lay a foundation by correlating the average rates to defendant's age, sex, height, weight, or any other physical characteristic to establish relevancy to be admitted into evidence. If Glover's testimony on average rates was the sole basis for the jury to return a guilty verdict on defendant's having a blood alcohol concentration of 0.08 or more, his conviction must be reversed.”

...

### III. Conclusion

The trial court erred in admitting Glover's testimony of defendant's extrapolation rate and blood alcohol concentration based on irrelevant average data. Average data alone is hearsay, not relevant, and insufficient to prove defendant's alcohol extrapolation rate and blood alcohol concentration level at the time of the accident. Without proving the relevance of this average data as it relates to defendant's actual elimination rate, Glover lacked a foundation to offer this portion of his testimony. Defendant was denied his right to confront and cross-examine these hearsay declarations, which formed the basis for Glover's average data and were introduced to prove the truth of the matters asserted.

## ALCOHOL EXPERTS LISTING

Doug Scott

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### Education

North Carolina State University, Raleigh, NC - Bachelor of Arts - Concentration in Criminal Justice

North Carolina State University, Raleigh, NC Administrative Officers Management Certificate Program

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### Awards

- 1991 Cary Police Officer of the Year
- 1992 North Carolina Drunk and Drugged Driving Prevention Award
- 1993 MADD Service Award, Wake County, NC
- 1994 North Carolina Drunk and Drugged Driving Prevention Award
- 1994 IACP National Chief's Challenge Highway Safety 2nd place award (project manager)
- 1995 IACP National Chief's Challenge Highway Safety 1st place award (project Manager)
- 1995 IACP Clayton Hall Award for Excellence in Highway Safety (project manager)
- 1999 MADD Outstanding Service Award, Wake County, NC

### Certifications (current and past)

- Drug Recognition Expert, IACP
- Drug Recognition Expert Instructor, IACP
- NHTSA Standardized Field Sobriety Testing
- NHTSA Standardized Field Sobriety Testing Instructor (current)
- North Carolina General Law Enforcement Instructor (current)
- North Carolina Specialized Law Enforcement Driving Instructor (current)
- Permit to Perform Chemical Analysis of the Breath, NC DHHS FTA
- RADAR Operator, NC DOJ
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- Advanced General Law Enforcement Certification (current)
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- Non-Violent Crisis Intervention Instructor, CPI (current)
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### Memberships (current and past)

- National Association of Drug Diversion Investigators
- American Society for Industrial Security
- North Carolina Trucking Association
- North Carolina Governor's Highway Safety Initiative Wake County Coordinator (1993-1998)
- Wake County DWI Task Force (past founding Chairman)
- NC Mothers Against Drunk Driving (past member)
- Wake County Highway Incident Management Committee (past member)
- North Carolina Passenger Safety Association (past member)
- North Carolina Operation Lifesaver Enforcement Committee (past member)

- Association of Professional Law Enforcement Emergency Vehicle Response Trainers (past member)

Doug Scott is a graduate of North Carolina State University. In 1998 he completed the North Carolina State University Law Enforcement Administrative Officers Management Program.

Doug began his career as a police officer in 1981 and has worked a variety of assignments including patrol, traffic, training, and drug investigations. He reached the rank of Lieutenant in 1994. During his career in law enforcement, Doug developed a nationally award winning traffic safety program and received many professional accolades for his tireless work to reduce impaired driving. In 2003, Doug retired from full-time law enforcement taking a position in corporate security. He remains actively involved in law enforcement as a company police officer and instructor.

Doug has specialized in the areas of substance abuse impairment and general traffic safety. He has evaluated thousands of individuals suspected of substance abuse in his law enforcement capacity and is a court-recognized expert in the area of alcohol and drug impairment detection and evaluation.

Since 1992, Doug has taught the IACP/NHTSA DWI Detection and Standardized Field Sobriety Tests curriculum to over a thousand law enforcement officers. In 1995, he became the first police officer in North Carolina certified as a Drug Recognition Expert (DRE) by the International Association of Chiefs of Police. In 1997, Doug attended DRE Instructor training at the Los Angeles Police Department and became the first certified DRE Instructor in North Carolina.

In 2000, the North Carolina Governor's Highway Safety Program appointed Doug to be the State Coordinator for the North Carolina Drug Recognition Expert Training Program. In this capacity, he developed and coordinated the elite DRE training program for area law enforcement officers.

Doug teaches courses on Drugs that Impair, Club and Rave Drugs, Drug Trends, Pharmaceutical Drug Abuse, Drug Facilitated Sexual Assault, and Reasonable Suspicion Training for Supervisors to law enforcement officers, teachers, and the general public. His diverse training and exposure in the area of drugs, drug and alcohol impaired driving, and chemical breath testing provide him with a unique perspective for course delivery. Doug receives rave reviews from class participants who enjoy his expertise, facilitation method, and sense of humor. He presents each class with a credible and unique expertise.

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11. **Edward F. Fitzgerald**, JD, Mesa, AZ; wrote book on Intoxication Test Evidence, 480-699-9334; 480-688-0831, general information on breath test principles and blood/urine testing. E-mail at: [Ed@Edwardffitzgerald.com](mailto:Ed@Edwardffitzgerald.com). [www.Edwardffitzgerald.com](http://www.Edwardffitzgerald.com).
12. **Dr. Michael Hlastala**, Ph.D., breath testing device expert, Professor of Lung Physiology and Biophysics and of Medicine, Seattle, Washington, (206) 543-3166; fax: (206) 685-8673; voice message (206)-685-8436; [mphlastala@comcast.net](mailto:mphlastala@comcast.net); home: (425) 742-7811 (425) 280-7319 (cell). Practicing since 1969, with over 350 published articles or books. [www.mphlastala.com](http://www.mphlastala.com).

13. **Dr. James Woodford**, Ph.D., Chemistry, Chattanooga, TN; jameswoodford@comcast.net or [Woodford@Mindspring.com](mailto:Woodford@Mindspring.com), 423-821-1146 or 423-432-2606 (cell); breath, blood, urine, drugs or alcohol. Also, attended my first SFST student course in 1994. [www.Mindspring.com/~woodford](http://www.Mindspring.com/~woodford).
14. **Harvey Cohen**, Ph.D, C.I.H., Cambridge Technical Associates, PO Box 920113, Needham, MA 02492, (781) 449-4335, fax# (781) 449-1539, Co-Author of Harvey M. Cohen & Joseph B. Green, APPREHENDING AND PROSECUTING THE DRUNK DRIVER (Matthew Bender 2002). [HarveyCohen@alum.mit.edu](mailto:HarveyCohen@alum.mit.edu).
15. **Dr. Robert Middleberg**, Pharm. D., Ph.D., 3701 Welsh Road, Willow Grove, PA, 215-657-4900; fax: 215-657-2972. Intoxilyzer 5000; pharmacology issues, toxicology. He currently directs the Forensic Toxicology unit of National Medical Services, as well as serving as a laboratory director. He previously served as the Director of Expert Services for NMS, and coordinated medico-legal issues for courts, attorneys, etc.
16. **Charles E. Smith**, DUI Consultant, Ex-cop (23 years) with Factory Maintenance and Repair Training by CMI (40 hours); over 30 years of O-T-J training; SFST Instructor; DRE Instructor; plus has been court qualified to do retrograde work as a toxicologist in Florida (from job training, not educational degrees). SFST Instructor Training in 1983, plus has taught DRE course; 772-286-5761 & 772-286-6732 (fax); [DUIexpt@bellsouth.net](mailto:DUIexpt@bellsouth.net).
17. **Francis Gengo**, Pharm.D, Ph.D., Pharmacology; Toxicology; 64 Dan Troy Dr., Williamsville, NY 14221-3550, (716) 634-0915. See web information at [www.Dent institute.com/document\\_26\\_4.php](http://www.Dent institute.com/document_26_4.php). Dr. Gengo currently serves as an Associate Professor of Pharmacy and Neurology and a Clinical Assistant Professor of Neurosurgery at the SUNYAB School of Medicine.
18. **Steven W. Rickard**, Accident Reconstruction Expert & Animation of Accidents, Prior PA State Trooper with over 30 years total experience; 1644 Whitley Drive, Harrisburg, PA 17111, (717) 540-3451 or 3457.
19. **William C. Fischer**, Endicott, NY, 607-785-5766; fax: 607-748-8404, Accident Reconstruction and Vehicle Fault Expert.



20. **David Sweeney**, Conway, SC; Pharmacokinetics, Pharmacology, Infrared Breath Testing (BAC Datamaster and basic issues for Intoxilyzer 5000); effects of EITHER alcohol or drugs--prescribed and non-prescribed (contraband) – 843-241-3108 (cell); 843-347-0352 (work); 843-365-7201 (home). E-mail: [Davenorm1945@aol.com](mailto:Davenorm1945@aol.com).
21. **Tony Corroto**, 17 years of police work with Atlanta PD – Master Instructor of Instructors in BOTH SFSTs and DREs – Oversaw breath test program & ran over 10,000 Intoxilyzer 5000 breath tests – Web site: [www.DUIexpertWitness.com](http://www.DUIexpertWitness.com); E-mail: [TCorroto@comcast.net](mailto:TCorroto@comcast.net); Phone: (404) 906-2153; Fax: (770) 693-9852.
22. **Lawrence Masten**, Ph.D in Toxicology, Board Certified in Toxicology; 873 West Bay Drive, 186, Largo, FL 33770, 727-595-6575; fax: 727-595-0785; toll free: 866-329-9262; [Lwtten@sprintmail.com](mailto:Lwtten@sprintmail.com). Handles collection, transport, storage, and analysis of legal and hospital blood for BACs & the interpretation of BACs and factors that affect BAC readings and/or blood/urine drug levels. 33 years experience.
23. **Dominick A. Labianca**, Ph.D., Department of Chemistry, Brooklyn College of The City University of New York, Brooklyn, NY 11210; 718-951-5458 or home: 516-489-3247. Expert in blood, urine, proper testing, conversion from serum to whole blood.
24. **Dr. Alfred E. Staubus**, Pharm.D., Ph.D., (614) 451-1406 (phone), (614) 451-1407 (fax) (Alcohol and drug issues; blood, breath or urine testing). E-mail: [Staubus.2@osu.edu](mailto:Staubus.2@osu.edu). 1015 Kenway Court, Columbus, OH 43220.
25. **Dr. David Schneider**, Pharm D., BA in Biology; Practicing Pharmacologist for 30+ years, Royal Oak, MI; 313-577-1579; fax: 810-545-2475.
26. **William Giguere**; B.S. in Zoology, with minors in chemistry and political science; grad studies in marine biology; masters in secondary education to teach biological and physical sciences; graduate studies in toxicology, pulmonary functioning and respiratory therapy and in alcohol studies; presently works at Park-Gilman Clinics, Inc. Burlingame, CA 94010; 650-259-7564 or fax: 650-259-7952.
27. **David (Dave) Fries** – Live Oak, FL; Intoxilyzer 5000, SFST Field Testing (Instructor) - 386-344-1770 cell; 386-658-3464 work;

386-658-2687 fax; [Fries@alltel.net](mailto:Fries@alltel.net). Ex-cop with extensive experience on the Intoxilyzer 5000.

28. **Kenneth Glaza**, K & R's Recording Studio, Inc., [www.knr.net](http://www.knr.net), V:(248)557-8276 F:(248)557-0441, forensic audio or video enhancement or filtering, plus other engineering services. See vita: [www.knr.net/vita2.htm](http://www.knr.net/vita2.htm).
29. **Bill Taylor** – Standardized and Non-Standardized Field Testing and Intoxilyzer 5000- 770-534-1501. E-mail: [Taylorbm@aol.com](mailto:Taylorbm@aol.com). Ex-cop (27+ years) who has trained in excess of 3000 instructors and students on SFSTs. Retired Police Captain, in charge of the DUI task force. Formerly headed up State of Georgia original training on NHTSA SFSTs & alcohol/drug training for 3 years, after retirement as cop in 1991.
30. **Dr. Terry Martinez**, Toxicologic Associates Inc., 6614 Clayton Road, #107 Richmond Heights, Mo 63117; Ph: (618)- 345-0786; (618) 367-8700; ext. 1404. Holds Ph.D. in Pharmacology. He is also an expert on methamphetamine manufacture cases.
31. **Jerry W. Bush**, MD, medical degree, University of Alabama; B.S. in Pharmacy, Auburn University (1st in Class); Board Certified in Internal Medicine; background in pharmaceutical research; certified independent medical examiner; presently in private medical practice south of Atlanta; P.O. Box 39, Williamson, GA 30292.
32. **Gil Snowden**, Brick, NJ; [Snowden@home.com](mailto:Snowden@home.com); Phone: 732-458-4014; fax: 732-458-3449; former New Jersey State Police Breath Test Coordinator/Instructor and DWI/SFST instructor, now expert for breath testing and SFSTs.
33. **Mike McDermott**, Forensic Audio & Tape Expert, Great Falls, VA; 703-757-0103; fax: 703-757-0262; E-mail: [Mike@mcdltd.com](mailto:Mike@mcdltd.com).
34. **Dr. David Benjamin**, Ph. D., [www.DoctorBenjamin.com](http://www.DoctorBenjamin.com); 77 Florence Street, Suite 107, Chestnut Hill, MA 02467, Telephone: 617-969-1393, Fax: 617-969-4285. Alcohol or drugs are within his realm of expertise.
35. **Joe Citron**, MD, JD (board-certified ophthalmologist for 30+ years), Atlanta, GA – HGN guru (from both medical standpoint and SFST training) and other SFSTs (certified); Intox 5000 (factory certified instructor); medical testimony such as symptoms that mimic alcohol impairment after traffic accident; medical degree, Albert

Einstein College of Medicine, NY; residency at Mayo Clinic, Rochester, MN - 404-261-2911 or 404-386-1100 or 404-784-5297. e-mail: [JoeCitron@aol.com](mailto:JoeCitron@aol.com).

36. **Dr. Richard Saferstein**, Ph.D., 20 Forrest Court, Mount Laurel, NJ 08054, (856) 234-7134 voice, (856) 778-4841 fax. Ph.D. in Chemistry. Noted author of books on Forensic Science. Former Chief Chemist for the State of New Jersey.
37. **Stan Alari**, Radar and Laser Expert, 412 North Pacific Coast Hwy #237, Laguna Beach CA 92651, 1- 877- SOX RADAR Cell: 562-682- 5372 Fax: 760- 406- 6222 [Stanley.Alari@verizon.net](mailto:Stanley.Alari@verizon.net). Stanley Alari & Associates. [www.StantherAdarman.com](http://www.StantherAdarman.com).
38. **Joseph William Huff**, Ph.D. in Physiology from Medical College of Georgia, Masters in Pharmacology from University of Georgia, B.S. in Chemistry with minors in Biology and Mathematics from West Georgia College, 118 Lyle Way, Carrollton, GA 30117, CEO, Materials and Surfaces, Ltd; Adjunct Professor, State University of West Georgia; 770-834-8611; fax: 770-832-1028; [JosephHuff@netzero.net](mailto:JosephHuff@netzero.net). Previously worked as Assistant Professor teaching Ophthalmology at the Bethesda Eye Institute.
39. **Dr. Spurgeon Cole**, Ph.D., Psychology (formerly with Clemson University); Expert in Psychophysical Testing protocol and devastating witness regarding the lack of scientific method in implementation of SFSTs and "Validation Studies"; 1040 McNutt Crossing, Bogart, GA 30622, (864) 710-1293 (cell), 706-208-8167 (home), [Cspurg@bellsouth.net](mailto:Cspurg@bellsouth.net).
40. **Dr. Ronald Nowaczyk**, Ph.D., received BA from Northwestern University, MA and Ph.D. Miami University (Ohio), Associate Vice Chancellor for Economic and Community Development, Head of Department, Professor of Psychology, Office of Economic and Community Development, 300 E. First Street, 301 Willis Building, East Carolina University, Greenville, NC 27858; Phone: (252) 328-6650 ext. 231, Fax: (252) 328-4356, email address: [Nowaczykr@mail.ecu.edu](mailto:Nowaczykr@mail.ecu.edu).
41. **Gil Sapis**, Forensic Science Consultant, undergrad degree in Microbiology and Biology, Colorado State University, Master of Science in Criminalistics, University of Illinois-Chicago; JD degree, Chicago-Kent College of Law; extensive publications and law review articles on breath testing deficiencies and SFST unreliability; has taken factory training on most breath testing devices, including EC-IR, DataMaster,

Intoximeter 3000. SFST trained. [GSapir@interaccess.com](mailto:GSapir@interaccess.com); P.O. Box 6950, Chicago, IL 60680; 312-458-0665.

42. **Ron Lloyd**, Villa Rica, GA; former Georgia State Trooper for 13 years; NHTSA SFST Instructor; DRE Instructor; Top Instructor in Georgia when he departed to be a private investigator and expert in DUI cases; Intoxilyzer 5000 operator trained (as a cop), but not a factory 'technician". (770) 463-8823 Business; (770) 463-8813 Fax; (404) 822-4003 cell; 12 North Alexander Creek Road, Newnan, GA 30263. E-mail: [DUIinv@aol.com](mailto:DUIinv@aol.com).
43. **James Johnson**, Polygraph Expert, Former Chief Polygrapher for U. S. Air Force (Europe), 11 Deerwood Drive, Litchfield, NH 03052-8004, 603-424-6365.
44. **Lonny E. Horowitz**, MD – Was an EMT prior to attending medical school; worked for 4 years during residency and internship in trauma units in NY and NJ area; can provide expert testimony about symptoms of traumatic head injury mimicking alcohol intoxication; also expert in diabetes, hypoglycemia and high protein diet issues for breath test interference defense. No training on breath testing devices, but can explain how ketone conversion to isopropyl alcohol may be misread by an infrared device as ethyl alcohol. 770-393-3438. Woodstock, GA location. [Dietmd@bariatrics.com](mailto:Dietmd@bariatrics.com).
45. **Forensic Gait Analysis Group**, Two podiatrists [Dr. Clark D. Miller and Dr. Paul N. Greenberg] provide medical and scientific review of DUI-DWI suspects regarding foot function and "gait" analysis. Use computer technology to quantitatively measure and analyze gait patterns for purposes of refuting police claims of impairment as shown through field sobriety testing procedures. 212-794-2060 (NY) or 973-379-4965 (NJ). [www.ForensicGait.com](http://www.ForensicGait.com) and E-mail at: [Forensic.Gait@verizon.net](mailto:Forensic.Gait@verizon.net).
46. **Ronald Henson**, Ph.D. Peoria, IL (309) 360-5614; website: [www.beron.us](http://www.beron.us) P.O. Box 10706, Peoria, IL 61612-0706. Ph.D. (Dissertation: Workplace Drug & Alcohol Testing), M.P.A., B.S. Ex-police officer and previously worked for State of Illinois as an Instructor for Breath, Blood, and Urine Alcohol Testing and SFSTs. Expert experience with the Intoximeter EC/IR, Intoximeter 3000, AlcoSensor Models III & RBT IV, Intoxilyzer 5000 & 4011s, BAC Verifier, BAC DataMaster, portable breath test devices, and related physiology and pharmacology principles associated with alcohol testing.

47. **Dr. Sarah Kerrigan**, Ph.D., Forensic Toxicologist. A Scotland Yard training toxicologist whose specialty is drugs that impair, Dr. Kerrigan received her BS in Chemistry/Analytical Chemistry and Toxicology and her Ph.D. in Chemistry in the field of drugs of abuse testing. Mailing Address: P.O. Box 7429, Houston TX 77248-7429; Office: 713 868 2440; Cell: 713 817 2229; E-mail: [Sarah.Kerrigan@Earthlink.net](mailto:Sarah.Kerrigan@Earthlink.net).
48. **Dr. Gerald P. Simpson**, Ph.D., 846 Woodlawn Dr, Thousand Oaks, CA 91360, home number is 805-495-3652.
49. **Jan Semenoff**, a factory certified instructor for the Intoxilyzer 5000, and a former Canadian police officer. E-mail: [Info@itd2.com](mailto:Info@itd2.com); Web site: [www.itd2.com](http://www.itd2.com); offers breath training course for Intoxilyzer 5000.
50. **J. Robert Zettl**, Forensic Toxicologist (Bachelor of Science in Bacteriology with minor in Physical Chemistry; Masters in Public Administration), (Intoxilyzer 5000, blood tests; urine tests) Littleton, CO, Voice/cell 720-363-9900; Fax 303-795-1654; Home 303-795-9271; Email: [JRZettl1@msn.com](mailto:JRZettl1@msn.com); formerly with State of Colorado Alcohol Program for over 25 years.
51. **Joann Samson**, Ph.D., Toxicologist/Physiologist, NHTSA Certified Instructor, Breath, Blood and Urine Expert, 17 Princeton Street, Concord, NH 03301, (603) 229-0073; Fax: (603) 224-6933, [JSamson1126@aol.com](mailto:JSamson1126@aol.com) [Former State Toxicologist].
52. **Thomas E. Workman**, Esq., - Patent Attorney with 30+ years in high-level computer software, firmware and hardware development; understands "Source Code" issues and can analyze code and can testify about flaws in programs running breath computers; [www.computers-forensic-expert.com](http://www.computers-forensic-expert.com). 41 Harrison Street, Taunton, MA 02780; 508-822-7777; Fax: 508-824-2420; E-mail: [Tom@computers-forensic-expert.com](mailto:Tom@computers-forensic-expert.com).
53. **Wanda Marley**, RN, BSN, CRNA, MS, PhD., Fort Collins, CO. Worked as emergency room and intensive care nurse, then certified registered nurse anesthetist (CRNA) in operating room for total of 16 years. Trained at Mayo Clinic in anesthesia, and got a masters degree at the University of Kansas, which stressed primarily pharmacology and toxicology. Taught physiology and pharmacology at Colorado State University for 7 years, after earning a doctoral degree there, in physiology. Worked for 19 months as Senior Scientist at Rocky

Mountain Instrumental Laboratory, then opened medical-legal consulting business. Testifies on DUI and DUID cases; particularly when the client has some medical problem or takes prescription meds which contribute some degree of psychomotor impairment. Website: [www.RockyMedleg.com](http://www.RockyMedleg.com); E-mail: [Medleg@cowisp.net](mailto:Medleg@cowisp.net); Phone: (970) 224-4587; Fax: (970) 224-1194.

54. **Gary Lage**, Ph.D, Toxicologist; can handle alcohol or drugs with blood tests, pharmacology issues; ToxLogics, Inc., 22 Bernard Street, Ewing, NJ 08628; (606) 883-9077; FAX: 609-883-9044; E-Mail: [GLage@comcast.net](mailto:GLage@comcast.net); Website: [www.rtctox.com/lage.htm](http://www.rtctox.com/lage.htm).
55. **John Woodward**, Utica Toxicology Services, 737 3rd Avenue, #E, Chula Vista, CA 91910, has been an expert for state in more than 2500 cases prior to moving over to independent lab work in criminal and civil cases. Phone: 619-420-8388; Fax: 619-420-4128; E-mail: [Utica@cts.com](mailto:Utica@cts.com).
56. **Barry S. Reiss**, Ph.D., 8006 Bellafiore Way, Boynton Beach, FL 33437, 561 733 7916 (Phone), 917 838 2095 (Mobile), E-mail: [BReiss@nycap.rr.com](mailto:BReiss@nycap.rr.com); pharmacology expert witness for civil, DUI, DWI, and federal pharmacy law. Licensed in Florida and New York. Twenty-five years of experience in providing pharmacology expert witness testimony. Author of three books on Pharmacology; former pharmacology professor.

Driver's Name: _____  DOB: _____ Approx. Wt.: _____ Gender: <input type="checkbox"/> M <input type="checkbox"/> F Minors in Vehicle: <input type="checkbox"/> Yes <input type="checkbox"/> No Blood / Breath Results: 0. / 0. Vehicle Crash: <input type="checkbox"/> Yes <input type="checkbox"/> No Injuries: <input type="checkbox"/> Yes <input type="checkbox"/> No Arrest Date: _____ Time: _____ <input type="checkbox"/> am <input type="checkbox"/> pm	<b>Driving While Impaired Report (DWIR)</b>  <b>Department of Health and Human Services, Forensic Tests for Alcohol Branch</b>	Agency: _____ Officer's Name: _____ Officer No.: _____ Case No.: _____ DRE Officer: _____ City / County: _____ Street / Highway: _____ Area No.: _____
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**Initial Observations:** What drew your attention to the vehicle (wide turns, weaving, violations of law, etc.). Unusual driver's actions, blank stare, etc:

**Phase I** Observation of Stop: Describe vehicle maneuvers during the stop, delays in stopping, unusual manner of parking, etc.:

**General Observation:** Observation of driver, condition of clothing, attitude, speech, ability to follow instruction, etc.:

**Phase II** Breath: Describe the odor of alcohol on driver's breath:


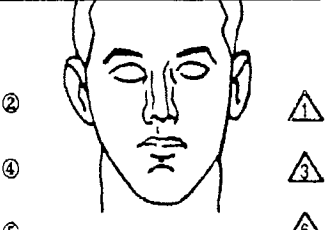
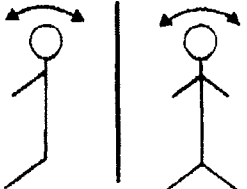
Statements: Any statement made by the driver from time of stop to arrest:

Observation Prior to Arrest: Describe any difficulty with motor skills, retrieving drivers license, getting out of vehicle, walking, standing, etc.:

Odors: Describe any significant odors other than alcohol:

**Phase III**

Psychophysical Tests		Time: _____ <input type="checkbox"/> am <input type="checkbox"/> pm	
Location Performed: _____			
<b>Horizontal Gaze Nystagmus (HGN)</b>		<b>Walk and Turn Test</b>	
<input type="checkbox"/> Glasses	<input type="checkbox"/> Contact Lenses	Instruction Stage	
Remove Glasses <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Hard <input type="checkbox"/> Soft	<input type="checkbox"/> Cannot Keep Balance <input type="checkbox"/> Starts Too Soon	
Tracking Equal?	<input type="checkbox"/> Yes <input type="checkbox"/> No	First 9 Steps      Second 9 steps	
Able to Follow Stimulus?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Stops Walking	
	Left Eye      Right Eye	Misses Heel to Toe	
Lack of Smooth Pursuit		Steps Off Line	
Maximum Deviation		Uses Arms To Balance	
Onset Prior 45°		Actual Steps Taken	
Vertical Nystagmus?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Improper Turn (Describe):	
Explain:		Cannot Do Test (Explain):	

<b>One Leg Stand</b>  Sways While Balancing: <input type="checkbox"/> L <input type="checkbox"/> R Uses Arms for Balance: <input type="checkbox"/> L <input type="checkbox"/> R Hopping: <input type="checkbox"/> L <input type="checkbox"/> R Puts Foot Down: <input type="checkbox"/> L <input type="checkbox"/> R Type of Footwear: _____	<b>Optional Tests</b> <b>Finger to Nose Test</b> Draw Lines Spots Touched 	<b>Romberg Balance</b>  Internal Clock Estimated _____ as 30 Seconds
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Alcohol Screening Test Device</b> (If test result is 0.08 or greater, wait 5 minutes and administer an additional test)			
Make / Model		Serial #	
<b>Test 1</b>		<b>Test 2</b>	
Time: _____ <input type="checkbox"/> am <input type="checkbox"/> pm	Result: 0.	Time: _____ <input type="checkbox"/> am <input type="checkbox"/> pm	Result: 0.

App 1

**Miranda Rights****Driver's Name:**

Miranda Rights Advised:	<input type="checkbox"/> Yes <input type="checkbox"/> No	Miranda Rights Waived:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Location:	Date:	Time:	<input type="checkbox"/> am <input type="checkbox"/> pm

**Questionnaire**

Were you operating a vehicle? <input type="checkbox"/> Yes <input type="checkbox"/> No		Were there any mechanical problems with that vehicle? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Describe:			
Where were you going?		Where were you coming from?	
What street or highway were you on?		What city are you in now?	
Without looking at a watch, what time is it now?		<input type="checkbox"/> am <input type="checkbox"/> pm	What is the date?
What is the day of the week?		Actual Time <input type="checkbox"/> am <input type="checkbox"/> pm	Actual Date Actual Day
When did you last eat?		<input type="checkbox"/> am <input type="checkbox"/> pm	
What did you eat?			
What time did you begin drinking?		<input type="checkbox"/> am <input type="checkbox"/> pm	Last drink? <input type="checkbox"/> am <input type="checkbox"/> pm
What did you drink?			
How many?	What size?	Where?	
Have you smoked Marijuana lately? <input type="checkbox"/> Yes <input type="checkbox"/> No		Used any other drug? <input type="checkbox"/> Yes <input type="checkbox"/> No	
On a scale of 0 to 10, with 0 being completely sober and 10 being completely drunk, where do you fit? (Check one.)			
<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10
In your opinion, should you have been operating a vehicle? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Do you have any physical defects? <input type="checkbox"/> Yes <input type="checkbox"/> No		If so, what?	
Are you sick? <input type="checkbox"/> Yes <input type="checkbox"/> No		If so, what's wrong?	
Do you limp? <input type="checkbox"/> Yes <input type="checkbox"/> No		Why do you limp?	
Have you been injured lately? <input type="checkbox"/> Yes <input type="checkbox"/> No		If so, what type of injury?	
Were you involved in a crash today? <input type="checkbox"/> Yes <input type="checkbox"/> No		When did the crash occur? <input type="checkbox"/> am <input type="checkbox"/> pm	
Did you get a bump on your head? <input type="checkbox"/> Yes <input type="checkbox"/> No		Have you had any alcoholic beverage(s) since the crash? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If so, what?		How many?	
When?		Where?	
Have you seen a doctor or dentist lately? <input type="checkbox"/> Yes <input type="checkbox"/> No		If so, who?	
What for?		When?	
When did you last go to sleep?		How much sleep did you have?	
Are you wearing false teeth? <input type="checkbox"/> Yes <input type="checkbox"/> No		Are you wearing oral jewelry? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Are you taking medication(s) of any kind? <input type="checkbox"/> Yes <input type="checkbox"/> No		Do you have a glass eye? <input type="checkbox"/> Yes <input type="checkbox"/> No	
If so, what kind?		How much taken?	
Last dose?		<input type="checkbox"/> am <input type="checkbox"/> pm	
Do you have epilepsy? <input type="checkbox"/> Yes <input type="checkbox"/> No		Do you have diabetes? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Do you take insulin? <input type="checkbox"/> Yes <input type="checkbox"/> No		If so last dose?	
Have you had any injections of any other drugs lately? <input type="checkbox"/> Yes <input type="checkbox"/> No		If so, what for?	
What kind of drug?		Last dose? <input type="checkbox"/> am <input type="checkbox"/> pm	

**Passengers**

	Name	Age	Relationship
1.			
2.			
3.			

**Witnesses**

	Name	Address	Phone
1.			
2.			
3.			

**Notes**

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App 2



North Carolina Department of Health and Human Services

**Rights of Person Requested to Submit to a Chemical  
Analysis to Determine Alcohol Concentration or  
Presence of an Impairing Substance Under N.C.G.S.20-16.2(a)**

*Last*

*First*

*MI*

*Driver License Number / State*

*Date of Birth*

*Citation Number*

☐ **Breath** ☐ **Blood** ☐ **Subsequent Test**

1. You have been charged with an implied-consent offense. Under the implied-consent law, you can refuse any test, but your drivers license will be revoked for one year and could be revoked for a longer period of time under certain circumstances, and an officer can compel you to be tested under other laws.
2. The test results, or the fact of your refusal, will be admissible in evidence at trial.
3. Your driving privilege will be revoked immediately for at least 30 days if you refuse any test or the test result is 0.08 or more, 0.04 or more if you were driving a commercial vehicle, or 0.01 or more if you are under the age of 21.
4. After you are released, you may seek your own test in addition to this test.
5. You may call an attorney for advice and select a witness to view the testing procedures remaining after the witness arrives, but the testing may not be delayed for these purposes longer than 30 minutes from the time you are notified of these rights. You must take the test at the end of 30 minutes even if you have not contacted an attorney or your witness has not arrived.

Date \_\_\_\_\_ Time \_\_\_\_\_ ☐ a.m. ☐ p.m. \_\_\_\_\_  
Signature of Person Charged

Did defendant call an attorney and/or witness? ☐ NO ☐ YES Time \_\_\_\_\_ ☐ a.m. ☐ p.m.

☐ Blood Sample Taken \_\_\_\_\_ ☐ a.m. ☐ p.m. on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

by \_\_\_\_\_, a person qualified to withdraw the blood sample pursuant to N.C.G.S. – 139.1

☐ Refused Test \_\_\_\_\_ ☐ a.m. ☐ p.m. \_\_\_\_\_  
Signature of Chemical Analyst Permit No.

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3<sup>RD</sup> – DMV COPY

4<sup>TH</sup> – DEFENDANT'S COPY  
5<sup>TH</sup> – ANALYST/OFFICER'S COPY

NOTE TO OFFICER: The officer should review and follow the instructions on Side Two of this form.

File No.

## STATE OF NORTH CAROLINA

County

In The General Court Of Justice  
District Court Division

## IN THE MATTER OF:

Name

Address

City

State

Zip

Race

Sex

Date Of Birth

Drivers License No.

State

Citation No.

## AFFIDAVIT AND REVOCATION REPORT OF

☐ LAW ENFORCEMENT OFFICER☐ CHEMICAL ANALYST☐ The charged offense is impaired supervision or instruction under G.S. 20-12.1. Accordingly, substitute "supervisor/instructor" wherever "driver" appears below.

G.S. 20-16.2, 20-16.5, 20-17.8, 20-19(c3), 20-139.1

The undersigned being first duly sworn says:

- ☐ 1. I am a law enforcement officer. On the \_\_\_\_\_ day of \_\_\_\_\_, at \_\_\_\_\_ (a.)(p.)m., a law enforcement officer had reasonable grounds to believe the above named person, hereinafter referred to as driver, operated a vehicle (☐ commercial motor vehicle) in the above named county upon \_\_\_\_\_ while committing an implied-consent offense in that \_\_\_\_\_ (Give Street, Highway, Or Public Vehicular Area)

(List Sufficient Facts To Establish Probable Cause)

- ☐ 2. The driver has a drivers license restriction: ☐ alcohol concentration. ☐ ignition interlock. ☐ conditional restoration (Restr: 9).
- ☐ 3. The driver violated a drivers license restriction by: ☐ refusing to be transported for testing. ☐ not having an operable ignition interlock on the vehicle being driven. ☐ failing to personally activate the ignition interlock on the vehicle being driven. ☐ the driver's alcohol concentration.
- ☐ 4. A law enforcement officer charged the driver with the implied-consent offense of: ☐ G.S. 20-138.1; ☐ Other Implied-Consent Offense: \_\_\_\_\_; ☐ and the driver has one or more pending offenses in the following county(ies) \_\_\_\_\_ for which the drivers license had been or is revoked under G.S. 20-16.5.
- ☐ 5. After the driver was charged, I took the driver before \_\_\_\_\_, a chemical analyst authorized to administer a test of the driver's breath.
- ☐ 6. I am a chemical analyst and possess a current permit issued by the Department of Health and Human Services authorizing me to conduct chemical analyses of the breath utilizing the Intox EC/IR II.
- ☐ 7. I informed the driver, orally and also gave notice in writing of the rights specified in G.S. 20-16.2(a). I completed informing the driver of the rights as indicated on the attached DHHS 4081.
- ☐ 8. I began observing the driver for the purpose of complying with the observation period requirements for a breath analysis in accordance with the methods approved by the Department of Health and Human Services at \_\_\_\_\_ (a.)(p.)m. on the \_\_\_\_\_ day of \_\_\_\_\_.
- ☐ 9. On the \_\_\_\_\_ day of \_\_\_\_\_, at \_\_\_\_\_ (a.)(p.)m., I requested the driver to submit to a chemical analysis of his/her breath or blood or urine. For blood or urine, I directed the taking of a blood or urine sample by a person qualified under G.S. 20-139.1.
- ☐ 10. The driver was unconscious or otherwise incapable of refusal and therefore the notification of rights and request to submit to a chemical analysis were not made. I directed the taking of a blood sample by a person qualified under G.S. 20-139.1.
- ☐ 11. The driver submitted to a chemical analysis of his/her breath. I administered the chemical analysis to the driver in accordance with the methods approved by the Department of Health and Human Services using an Intox EC/IR II, and it printed the results of the driver's chemical analysis on the attached test record, DHHS 4082, which is made part of this Affidavit. The most recent preventive maintenance was performed on this Intox EC/IR II on the \_\_\_\_\_ day of \_\_\_\_\_, as shown on the preventive maintenance record. I provided the driver with a copy of the attached test record before any trial or proceeding in which the results of the chemical analysis may be used.
- ☐ 12. The chemical analysis of the driver's breath indicated an alcohol concentration of 0.15 or more.
- ☐ 13. A sample of the driver's blood or urine was collected for a chemical analysis as indicated on the attached DHHS 4081.
- ☐ 14. The driver willfully refused to submit to a chemical analysis as indicated on the attached ☐ DHHS 4082. ☐ DHHS 4081. ☐ The willful refusal occurred in an implied-consent offense involving death or critical injury to another person.

## SWORN/AFFIRMED AND SUBSCRIBED TO BEFORE ME

Signature Of Chemical Analyst/Law Enforcement Officer

DHHS Permit No.

Date

Signature Of Official Authorized To Administer Oaths

Print Name Of Chemical Analyst/Law Enforcement Officer

☐ Magistrate☐ Deputy CSC☐ Assistant CSC☐ CSC☐ Notary

Date My Commission Expires

County Where Notarized

Agency Name

SEAL

App 4

## NOTES TO LAW ENFORCEMENT OFFICER/CHEMICAL ANALYST

### NOTE TO LAW ENFORCEMENT OFFICER WHO IS NOT GOING TO administer breath test or read the implied-consent rights:

1. Complete the identifying information at the top,
2. Check the "Law Enforcement Officer" block under "Affidavit and Revocation Report of" in the title section,
3. Review and check as appropriate for this case paragraphs 1-5, and
4. Swear or affirm before notary or magistrate, sign and file copies as indicated.

### NOTE TO LAW ENFORCEMENT OFFICER WHO CHARGES DRIVER AND IS CHEMICAL ANALYST who administers the breath test or reads the implied-consent rights for a blood test:

1. Complete the identifying information at the top,
2. Check both the "Law Enforcement Officer" and "Chemical Analyst" blocks under "Affidavit and Revocation Report of" in the title section,
3. Review and check as appropriate for this case paragraphs 1-14; and
4. Swear or affirm before notary or magistrate, sign and file copies as indicated.

### NOTE TO CHEMICAL ANALYST WHO IS NOT THE CHARGING OFFICER:

1. Complete the identifying information at the top,
2. Check the "Chemical Analyst" block under "Affidavit and Revocation Report of" in the title section,
3. Review and check as appropriate for this case paragraphs 6-14, and
4. Swear or affirm before notary or magistrate, sign and file copies as indicated.

## INSTRUCTIONS

1. This form should be used in District Court to prove alcohol concentration in implied-consent criminal cases.
2. This form should be used before the Magistrate for the pretrial civil revocation (CVR) when the driver is charged with DWI or another implied-consent offense and the driver
  - a. has an alcohol concentration of 0.08 or more;
  - b. has an alcohol concentration of 0.04 or more and was operating a commercial motor vehicle;
  - c. is under age 21 and has an alcohol concentration of 0.01 or more; or
  - d. refuses the breath test and/or a blood or urine test.
3. This form should be used to notify DMV of (i) an alcohol concentration of 0.15 or more or (ii) a refusal to submit to a breath test and/or a blood or urine test.
4. This form should be used to notify DMV of violations of the following drivers license restrictions\*:
  - a. \*9= the driver has a Conditional Restoration of his or her drivers license
  - b. 19= alcohol concentration (A/C) of 0.04
  - c. 20= A/C 0.04+ignition interlock
  - d. 21= A/C 0.00
  - e. 22= A/C 0.00+ignition interlock
  - f. 23= ignition interlock only

+ When a driver has violated a restriction and Paragraphs 2 and 3 on Side One are completed, ALL sections in these paragraphs that apply must be checked. For example, if the driver had a restriction 20 and violated both the alcohol concentration and the ignition interlock provisions, both the "alcohol concentration" and the "ignition interlock" blocks should be checked in Paragraph 2. The same applies to Paragraph 3.
5. File the original and copies of this form, with a copy of the test record ticket attached, as follows:
  - a. Original - To the Magistrate for the pretrial civil revocation (CVR).
  - b. Second copy - To the Court for the criminal case.
  - c. Yellow copy - To DMV for violation of any alcohol or ignition interlock restriction on drivers license, alcohol concentration of 0.15 or more, or for refusal to submit to a breath test and/or a blood or urine test. DMV's address is: DMV, Information Processing Services, 3120 Mail Service Center, Raleigh, NC 27699-3120.
  - d. Pink copy - To the Law Enforcement Officer/Chemical Analyst.

App 5

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
FORENSIC TESTS FOR ALCOHOL BRANCH

**PREVENTIVE MAINTENANCE RECORD  
INTOXIMETERS, MODEL INTOX EC/IR II**

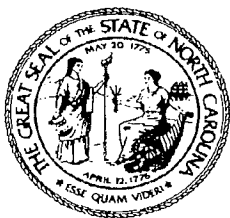
County \_\_\_\_\_ Instrument Location \_\_\_\_\_

Instrument Serial No. \_\_\_\_\_

The preventive maintenance procedures for the Intoximeters, Model Intox EC/IR II to be followed at least once every four months are:

1. Verify the ethanol gas canister displays pressure, or the alcoholic breath simulator thermometer shows 34 degrees, plus or minus .2 degree centigrade;
2. Verify instrument displays time and date;
3. Initiate breath test sequence;
4. Enter information as prompted;
5. Verify instrument accuracy;
6. When "PLEASE BLOW" appears, collect breath sample;
7. When "PLEASE BLOW" appears, collect breath sample;
8. Print test record;
9. Verify Diagnostic Program; and
10. Verify that the ethanol gas canister is being changed before expiration date, or the alcoholic breath simulator solution is being changed every four months or after 125 Alcoholic Breath Simulator tests, whichever occurs first.

I certify that on the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_ the forgoing preventive maintenance procedures were performed on the instrument indicated above, in accordance with current regulations of the N.C. Department of Health and Human Services, and the instrument is functioning properly.



\_\_\_\_\_  
Signature of Certifying Official

\_\_\_\_\_  
Certificate Number

A signed original of the preventive maintenance record shall be kept on file for at least three years.

## **OPERATIONAL PROCEDURES - INTOX EC/IR II**

The operational procedures to be followed in using the Intox EC/IR II are:

1. Insure instrument displays time and date;
  2. Insure observation period requirements have been met;
  3. Initiate breath test sequence;
  4. Enter information as prompted;
  5. Verify instrument accuracy;
  6. When "PLEASE BLOW" appears, collect breath sample;
  7. When "PLEASE BLOW" appears, collect breath sample;
  8. Print test record.
- 

If the alcohol concentrations differ by more than 0.02, a third or fourth breath sample shall be collected when "Please Blow" appears. Subsequent tests shall be administered as soon as feasible by repeating steps (1) through (8), as applicable.

**INTOX EC/IR II**  
**(Electrochemical-EC / Infrared-IR)**

**INTRODUCTION**

- The Intox EC/IR II is an automated breath testing instrument that detects and measures alcohol in a person's breath using an electrochemical fuel cell.
- The fuel cell works as an alcohol detector by creating electrical voltage. The more alcohol present, the more voltage produced.
- The electrical voltage produced determines the alcohol concentration in grams per 210 liters of breath.
- Infrared energy absorption is used to monitor the breath sample to insure a deep lung sample is collected and is not contaminated by mouth alcohol.
- Test results are displayed, then printed on a test record.

The Intox EC/IR II incorporates safeguards and two separate analytical systems to provide all the information to make a precise and accurate determination of breath alcohol concentration.

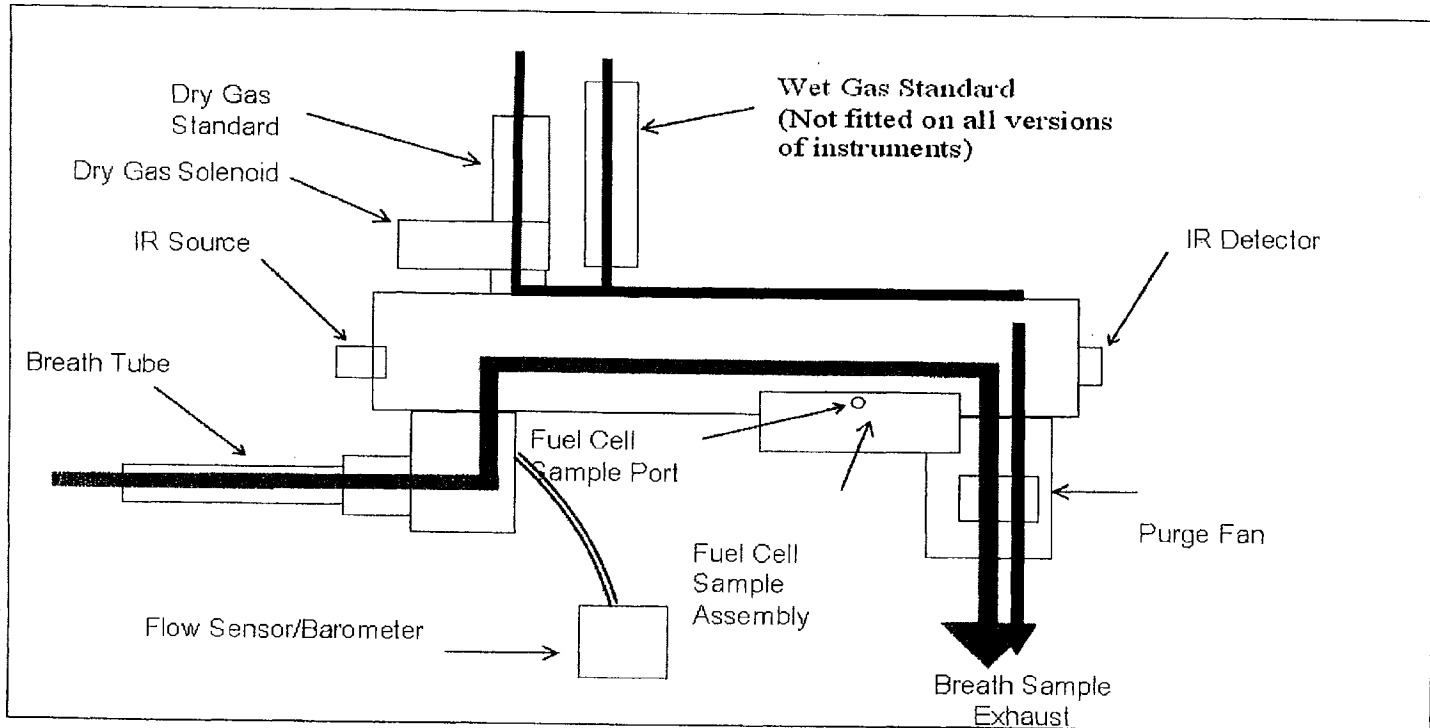
## General Operating Principles of the Intox EC/IR II

The Intox EC/IR II employs two distinct analytical techniques to measure alcohol concentration. The Intox EC/IR II uses a fuel cell, (i.e. an electrochemical sensor) and a miniaturized non-dispersive infrared molecular absorption (IR) bench. The instrument employs both of these techniques because each offers different advantages to the sampling process.

The fuel cell sensor is specific to alcohol. It is a linear sensing device and can be calibrated with simple one-point calibration ensuring stable calibration across the full range of its sensing capabilities. These features make this analytical device ideal for quantitating alcohol.

The infrared (IR) sensor is able to make continuous determinations of alcohol concentration thus allowing the Intox EC/IR II to monitor a breath sample in (near) real time as it is delivered into the Intox EC/IR II. This helps determine the correct moment in time to take a sample of the breath by the fuel cell for analysis and that the sample is not contaminated with mouth alcohol.

In combination these two analytical systems provide all the necessary information to make precise and accurate determinations of breath alcohol concentration as well as ensure that the instrument takes a high-quality sample. This sample is one made up of alveolar (deep lung) breath.



## History of the Fuel Cell

The roots of the fuel cell can be traced back to the 1800s to a Welsh born, Oxford educated barrister (lawyer), named **Sir William Robert Grove (1811 – 1896)** who practiced patent law and also studied chemistry. In 1839 he constructed the first working prototype of a device that would later be termed the **fuel cell**.

In his experiments he used two platinum electrodes, each enclosed in separate sealed bottles. One contained hydrogen and the other contained oxygen. Both electrodes were immersed in dilute sulfuric acid, which served as an electrolyte. A current began to flow between the two electrodes and water was formed in the gas bottles. In order to increase the voltage produced, **Grove** linked several of these devices in a series and produced what he referred to as a “gas battery”. The **fuel cell** made by **Grove** contained similar materials used today (phosphoric-acid fuel cell).

In the 1960s, a researcher in Austria experimented with this basic electrode/acid setup to detect the presence of specific substances. Alcohol was shown to be such a substance.

The further development of this form of the **fuel cell** was undertaken by **Intoximeters Inc.** in the United States in partnership with **Lion Laboratories Ltd.** in the United Kingdom. M. R. Forrester (Intoximeters), Karl Wolf, Sr. (Alcotek), Dr. Tom Jones (Lion) and Dr. Martin Wright (in the United Kingdom) applied the principles developed in Austria, and developed a **fuel cell** sensor and sampling system for breath alcohol analysis. This group designed and produced a small alcohol screening device in 1969. This instrument was developed into the Alco-Sensor range of instruments in the United States and the SD-2, SL-2 range of instruments in the United Kingdom.

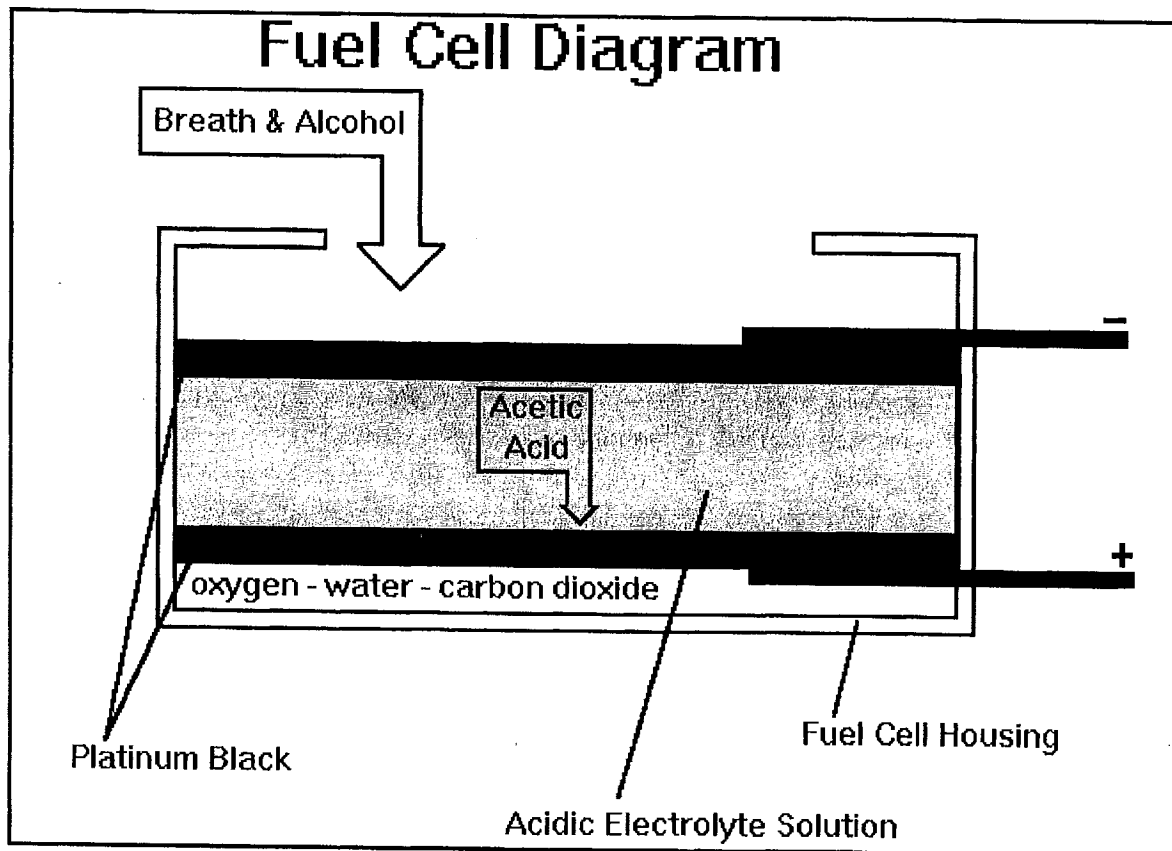
App 10



## Analysis System

### The Fuel Cell Sensor

In its simplest form, the alcohol fuel cell consists of a porous, chemically inert (un-reactive) disk coated on both sides with finely divided platinum (called platinum black). The porous disk is impregnated with an acidic electrolyte solution, with platinum wire electrical connections applied to the platinum black surfaces. The entire assembly mounts in a plastic case, which has a gas inlet that allows a fixed volume of breath to be introduced to the upper surface.



The reaction on the cell surface is basically this: alcohol is converted to acetic acid, and in the process, produces two free electrons per molecule of alcohol so converted. This reaction takes place on the upper surface of the fuel cell.  $H^+$  ions are freed in the process, and migrate to the lower surface of the cell, where they combine with atmospheric oxygen to form water, consuming one electron per  $H^+$  ion in the process. Thus, the upper surface has an excess of electrons, and the lower surface has a corresponding deficiency of electrons. If the two surfaces are connected electrically, a current flows through this external circuit to neutralize the charge. With suitable

amplification, this current is an indicator of the amount of alcohol consumed by the fuel cell.

In simpler terms, the fuel cell as an alcohol detector works by simply creating electrical voltage when alcohol is introduced onto the surface of the cell. The more alcohol present, the more voltage produced.

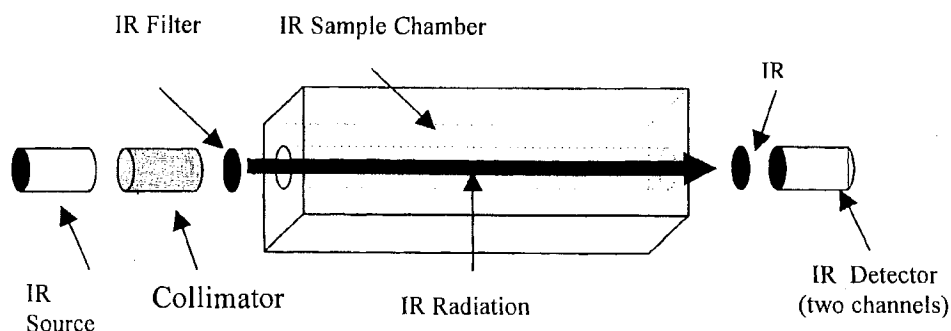
### **The Infrared Analysis System**

A basic principle of scientific analysis is that all organic molecules absorb infrared light. One can measure the infrared absorption of these by directing infrared light through the sample and measuring the incident light falling on a detecting device. The level of electrical signal produced by the detecting device provides a quantitative indication of the sample concentration. The instrument can process these signals to produce an output indicating the concentration of one or more of the constituents (component) being analyzed. Even in the gaseous state, these molecules exhibit absorption characteristics at specific wavelengths in the infrared spectrum. In the Intox EC/IR II, the detector contains two channels, one for carbon dioxide and one for ethanol that are selected by filtering the frequency of incident light reaching the detector. Thus with no ethanol or carbon dioxide present, both develop approximately the same output voltage. When ethanol is introduced into the sample, the radiation reaching the ethanol detector is reduced, but the carbon dioxide channel is unchanged. Similarly, the presence of carbon dioxide reduces the signal output from carbon dioxide detector.

The amount of the signal decrease in either the carbon dioxide or ethanol channels is directly proportional to the concentration of the gas of interest according to Beer-Lambert law, which defines the exponential relationship between concentration and signal strength.

#### **Infrared Filters**

The following illustration is a simplified diagram showing the infrared source, filters, and detectors. The two filters, monitor the alcohol concentration and carbon dioxide in the breath sample to insure a deep lung sample is obtained.



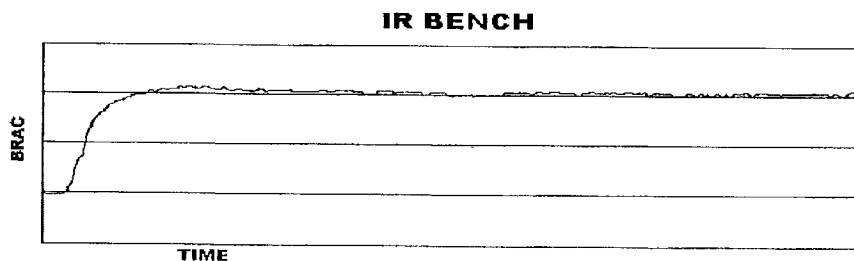
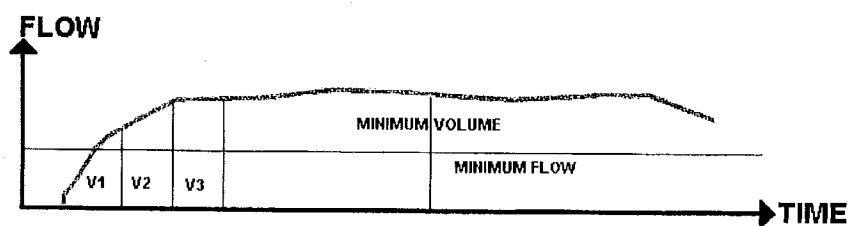
A<sub>22</sub> 12

### Infrared Chamber

The infrared chamber is constructed of nickel-plated aluminum. The chamber path length is 4 inches. The chamber is heated to a temperature of 39-40 degrees Centigrade to eliminate water condensation.

### Breath Sample Volume

The unique breath sensing system in the Intox EC/IR II requires that sampling take place at the end of an exhalation if enough breath has been given to reach deep lung breath. A pressure sensor monitors the flow rate of the breath through the instrument continuously, and the microprocessor accumulates an integral of the flow rate (Volume). Before reaching the required minimum volume, if there is any reduction or a temporary halt of flow rate the instrument will reset and request another sample. The subject will then be required to provide another breath sample **after the unit clears the delivered breath sample from the instrument**. After providing the minimum volume, the instrument does not initiate an automatic sample capture until a reduction in the breath flow signifies the approaching end of exhalation. At that instant, the instrument takes a breath sample.



### **Intox EC/IR II – Mouth Alcohol Detection**

The IR Sampling system of the Intox EC/IR II provides the “Mouth Alcohol” detection. IR sensors are suited for this purpose because they provide “real time” data on the value of alcohol in the IR chamber. The Ethanol and Carbon Dioxide IR sensors in the Intox EC/IR II are used for the mouth alcohol detection. The “Mouth Alcohol” detection calculation for the Intox EC/IR II occurs in two stages. A gross “Mouth Alcohol” check is made during the breath sample, and a more refined calculation is performed (after the fuel cell sample is captured) using both the Carbon Dioxide and Ethanol IR channel outputs.

Regardless of how alcohol is introduced into the mouth, residual alcohol diminishes below significant levels within fifteen minutes. To eliminate the possibility of mouth alcohol contaminating a breath sample, North Carolina’s breath test procedures require the additional safeguards of a 15 minute observation period and duplicate sequential breath samples which must be within .02. **During a subject test, if the Intox EC/IR II detects a “Mouth Alcohol” sample the chemical analyst shall conduct a new observation period.**

### **Intox EC/IR II – RFI Detection**

The Intox EC/IR II uses two strategies to address Radio Frequency Interference (RFI); immunity and detection.

**Immunity:** The Intox EC/IR II has been designed, tested and proven to be immune to RFI. The Intox EC/IR II is built with an electronically conductive, all Aluminum, case set that creates an effective RFI shield around all the internal electronics and sensors. This design protects the internal components from any possible RFI. The external breath tube assembly and electronic connections are RFI protected.

**Detection:** The Intox EC/IR II has an advanced method of RFI detection that monitors a critical sensor signal for any potential RFI interference that could possibly affect the sensor output. If any non-typical variation in the sensor output is detected the instrument will abort the test. This additional level of protection ensures that the Intox EC/IR II instrument is effectively immune to any possible RFI.

App 14

AFFIDAVIT OF PERSON QUALIFIED TO WITHDRAW BLOOD FOR CHEMICAL  
ANALYSIS PURSUANT TO G.S. 20-139.1(c)

The undersigned, being first duly sworn, deposes and says:

1. I am a (physician), (registered nurse), or (otherwise qualified person) to draw blood pursuant to G.S. 20-139.1(c) (circle one).
2. My education is as follows: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. I have received the following training: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. My experience in drawing blood is as follows (i.e. training received, number of times blood drawn): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. On \_\_\_\_\_ (date), I drew blood from \_\_\_\_\_ (defendant).  
This was done at \_\_\_\_\_ (location) at  
\_\_\_\_\_ (time). I drew this blood without using alcohol to prepare the  
location from where the blood was drawn.
6. Upon completion of my drawing the blood, I gave it to \_\_\_\_\_  
(person to whom drawn blood was given).

\_\_\_\_\_  
Name (printed)

\_\_\_\_\_  
Notary Public

\_\_\_\_\_  
Name (signed)

\_\_\_\_\_  
My Commission Expires

\_\_\_\_\_  
Date

App 15

**Completed Sample Affidavit, Blood Alcohol Test Results**

**AFFIDAVIT AND REVOCATION REPORT  
(BLOOD TEST)**

The undersigned being first duly sworn say:

1. I am a Chemical Analyst duly authorized to analyze a person's blood to determine the alcohol concentration or presence of an impairing substance therein.
2. At the time this analysis was made I possessed a current permit issued by the Department of Health and Human Services authorizing me to conduct such analysis. My Permit number is.
3. I analyzed the blood of the above-named person in accordance with methods approved by the Department of Health and Human Services and made the following determination(s):  
  
**The alcohol concentration is 0.16 grams of alcohol per 100 milliliters of whole blood.**
4. The disposition of this evidence is as follows: The unconsumed portion of blood will be retained for 60 days. If no further disposition is requested, the blood will be destroyed following that period.

**Completed Sample Affidavit, Blood Drug Test Results**

**AFFIDAVIT AND REVOCATION REPORT  
(BLOOD TEST)**

The undersigned being first duly sworn say:

1. I am a Chemical Analyst duly authorized to analyze a person's blood to determine the alcohol concentration or presence of an impairing substance therein.
2. At the time this analysis was made I possessed a current permit issued by the Department of Health and Human Services authorizing me to conduct such analysis. My Permit number is.
3. I analyzed the blood of the above-named person in accordance with methods approved by the Department of Health and Human Services and made the following determination(s):  
  
**Analysis confirmed the following substance:      Cocaine – Schedule II**
4. The disposition of this evidence is as follows: The unconsumed portion of blood will be retained for 60 days. If no further disposition is requested, the blood will be destroyed following that period.

App 16

**Conversion Medical Examiner's Whole Blood Alcohol  
value of an SBI value (When ME's results are reported  
as milligrams per dl or 100 ml)**

Date \_\_\_\_\_

Defendant \_\_\_\_\_

Case # \_\_\_\_\_

Medical Examiner value = \_\_\_\_\_ milligrams per deciliter of Whole blood

To convert move the decimal three places to the left.

Converted value = \_\_\_\_\_ milligrams per deciliter Whole Blood

Drop the third digit to comply with N.C.G.S.

Truncated value = \_\_\_\_\_ grams per 100 milliliters Whole Blood

**Example:**

213 mg/dl whole blood = 0.213 gm/dl or 0.213 gm/100 ml whole blood

30 mg/dl whole blood = 0.030 gm/dl or 0.030 gm/100 ml whole blood

**Note:**

100cc's = 1 deciliter = 100 milliliters

100 milligrams = 0.10 grams

**Forensic Tests for Alcohol  
(919) 707-5250**

App 17

# **Conversion of Plasma or Serum Alcohol to Whole Blood Alcohol (When hospital results are reported as milligrams)**

Date \_\_\_\_\_

Defendant \_\_\_\_\_

Case # \_\_\_\_\_

Hospital value = \_\_\_\_\_ milligrams per deciliter of plasma

Average Conversion factor (Plasma to Whole Blood) = 1.18

Plasma value divided by Conversion Factor = Whole Blood value

Converted value = \_\_\_\_\_ milligrams per deciliter Whole Blood

OR

\_\_\_\_\_ grams per 100 milliliters Whole Blood

Truncated value = \_\_\_\_\_ grams per 100 milliliters Whole Blood

## **Example:**

213 mg/dl (plasma) divided by 1.18 = 180 mg/dl (whole blood)

180 mg/dl whole blood = 0.180 gm/dl or 0.180 gm/100 ml

## **Note:**

100cc's = 1 deciliter = 100 milliliters

100 milligrams = 0.10 grams

Plasma value divided by Whole blood value = Conversion Factor. For these purposes Serum and Plasma are considered to be the same.

North Carolina citations: State v. Drdak , 330 N.C. 587 (1992), State v. Cardwell  
133 N.C. App. 496 (1999)

Forensic Tests for Alcohol  
(919) 707-5250

App 18



# **Conversion of Plasma or Serum Alcohol to Whole Blood Alcohol (Use when hospital results are reported as grams or percent)**

Date \_\_\_\_\_

Defendant \_\_\_\_\_

Case # \_\_\_\_\_

Hospital value = \_\_\_\_\_ grams per deciliter of plasma

Average Conversion factor (Plasma to Whole Blood) = 1.18

Plasma value divided by Conversion Factor = Whole Blood value

Converted value = \_\_\_\_\_ grams per deciliter Whole Blood

OR

\_\_\_\_\_ grams per 100 milliliters Whole Blood

Truncated value = \_\_\_\_\_ grams per 100 milliliters Whole Blood

**Example:**

0.213 g/dl (plasma) divided by 1.18 = 0.180 g/dl (whole blood)

0.180 g/dl whole blood = 0.180 gm/100 ml whole blood

**Note:**

100cc's = 1 deciliter = 100 milliliters

100 milligrams = 0.10 grams

Plasma value divided by Whole blood value = Conversion Factor. For these purposes Serum and Plasma are considered to be the same.

North Carolina citations: State v. Drdak , 330 N.C. 587 (1992), State v. Cardwell 133 N.C. App. 496 (1999)

Forensic Tests for Alcohol  
(919)-707-5250

App 19

# Retrograde Extrapolation of Alcohol Concentrations

Date \_\_\_\_\_

Defendant \_\_\_\_\_

Case # \_\_\_\_\_

Average elimination rate 0.0165 BrAC or BAC per hour

1. Determine the time elapsed from earlier event (crash, test, etc.) to later event.
2. Convert hours and minutes to decimals.
3. Multiply time lapse by average elimination rate of 0.0165 AC per hour.
4. The result will show the decrease in AC between the two time points.
5. Add this value to the later AC measurement to show the AC at the earlier time point.

Example: elapsed time = 1 hour and 30 minutes = 1.5 hours

1.5 hours multiplied by 0.0165 AC per hour = 0.0247 AC

original AC = 0.064 + 0.0247 = 0.088 = 0.08 truncated

Reported AC 0. \_\_\_\_\_

Time of earlier event \_\_\_\_\_ (crash, vehicle stop, test, blood draw)

Time of later event \_\_\_\_\_ (test)

Elapsed time \_\_\_\_\_ hours \_\_\_\_\_ minutes = \_\_\_\_\_ hours

\_\_\_\_\_ hours X 0.0165 AC = AC loss of 0. \_\_\_\_\_

Reported AC 0. \_\_\_\_\_ + AC loss of 0. \_\_\_\_\_ = Original AC 0. \_\_\_\_\_

Truncated value = 0. \_\_\_\_\_

North Carolina citations: State v. Catoe 78 N.C. App 167 (1985), State v. Davis 142 N.C. App 81 (2001), State v. Taylor 165 N.C. App 750 (2004), State v Wood 174 N.C. App 790 (2005), State v Fuller 176 N.C. App 104 (2006), State v. Teate 638 S.E. 2d 29 - N.C. App. Filed (12/19/06)

Forensic Tests for Alcohol  
(919) 707-5250

App 20

NC-STAT-AN - N.C.G.S.A. Sec. 20-139.1, Procedures governing chemical analyses; admissibility; evidentiary provisions; controlled-drinking programs

----- Excerpt from page 28482 follows -----  
WEST'S NORTH CAROLINA GENERAL STATUTES ANNOTATED  
CHAPTER 20. MOTOR VEHICLES  
ARTICLE 3. MOTOR VEHICLE ACT OF 1937  
PART 10. OPERATION OF VEHICLES AND RULES OF THE ROAD

Current through immediately effective legislation through Chapter 30 of the 2010 Regular Session.

§ 20-139.1. Procedures governing chemical analyses; admissibility; evidentiary provisions; controlled-drinking programs

(a) Chemical Analysis Admissible.--In any implied-consent offense under > G.S. 20-16.2, a person's alcohol concentration or the presence of any other impairing substance in the person's body as shown by a chemical analysis is admissible in evidence. This section does not limit the introduction of other competent evidence as to a person's alcohol concentration or results of other tests showing the presence of an impairing substance, including other chemical tests.

(b) Approval of Valid Test Methods; Licensing Chemical Analysts.--The results of a chemical analysis shall be deemed sufficient evidence to prove a person's alcohol concentration. A chemical analysis of the breath administered pursuant to the implied-consent law is admissible in any court or administrative hearing or proceeding if it meets both of the following requirements:

- (1) It is performed in accordance with the rules of the Department of Health and Human Services.
- (2) The person performing the analysis had, at the time of the analysis, a current permit issued by the Department of Health and Human Services authorizing the person to perform a test of the breath using the type of instrument employed.

For purposes of establishing compliance with subdivision (b)(1) of this section, the court or administrative agency shall take notice of the rules of the Department of Health and Human Services. For purposes of establishing compliance with subdivision (b)(2) of this section, the court or administrative agency shall take judicial notice of the list of permits issued to the person performing the analysis, the type of instrument on which the person is authorized to perform tests of the breath, and the date the permit was issued. The Department of Health and Human Services may ascertain the qualifications and competence of individuals to conduct particular chemical analyses and the methods for conducting chemical analyses. The Department may issue permits to conduct chemical analyses to individuals it finds qualified subject to periodic renewal, termination, and revocation of the permit in the Department's discretion.

----- Excerpt from page 28483 follows -----

(b1) When Officer May Perform Chemical Analysis.--Any person possessing a current permit authorizing the person to perform chemical analysis may perform a chemical analysis.

(b2) Breath Analysis Results Preventive Maintenance.--The Department of Health and Human Services shall perform preventive maintenance on breath-testing instruments used for chemical analysis. A court or administrative agency shall take judicial notice of the preventive maintenance records of the Department. Notwithstanding the provisions of subsection (b), the results of a chemical analysis of a person's breath performed in accordance with this section are not admissible in evidence if:

- (1) The defendant objects to the introduction into evidence of the results of the chemical analysis of the defendant's breath; and
- (2) The defendant demonstrates that, with respect to the instrument used to analyze the defendant's breath, preventive maintenance procedures required by the regulations of the Department of Health and Human Services had not been performed within the time limits prescribed by those regulations.

(b3) Sequential Breath Tests Required.--The methods governing the administration of chemical analyses of the breath shall require the testing of at least duplicate sequential breath samples. The results of the chemical analysis of all breath samples are admissible if the test results from any two consecutively collected breath samples do not differ from each other by an alcohol concentration greater than 0.02. Only the lower of the two test results of the consecutively administered tests can be used to prove a particular alcohol concentration. A person's refusal to give the sequential breath samples necessary to constitute a valid chemical analysis is a refusal under > G.S. 20-16.2(c).

A person's refusal to give the second or subsequent breath sample shall make the result of the first breath sample, or the result of the sample providing the lowest alcohol concentration if more than one breath sample is provided, admissible in any judicial or administrative hearing for any relevant purpose, including the establishment that a person had a particular alcohol concentration for conviction of an offense involving impaired driving.

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(b4) Repealed by S.L. 2006-253, § 16, eff. Dec. 1, 2006.

----- Excerpt from page 28484 follows -----

(b5) Subsequent Tests Allowed.--A person may be requested, pursuant to > G. S. 20-16.2, to submit to a chemical analysis of the person's blood or other bodily fluid or substance in addition to or in lieu of a chemical analysis of the breath, in the discretion of a law enforcement officer. If a subsequent chemical analysis is requested pursuant to this subsection, the person shall again be advised of the implied consent rights in accordance with > G.S. 20-16.2(a). A person's willful refusal to submit to a chemical analysis of the blood or other bodily fluid or substance is a willful refusal under > G.S. 20-16.2.

(b6) The Department of Health and Human Services shall post on a Web page a list of all persons who have a permit authorizing them to perform chemical analyses, the types of analyses that they can perform, the instruments that each person is authorized to operate, the effective dates of the permits, and the records of preventive maintenance. A court or administrative agency shall take judicial notice of whether, at the time of the chemical analysis, the chemical analyst possessed a permit authorizing the chemical analyst to perform the chemical analysis administered and whether preventive maintenance had been performed on the breath-testing instrument in accordance with the Department's rules.

(c) Blood and Urine for Chemical Analysis.--Notwithstanding any other provision of law, when a blood or urine test is specified as the type of chemical analysis by a law enforcement officer, a physician, registered nurse, emergency medical technician, or other qualified person shall withdraw the blood sample and obtain the urine sample, and no further authorization or approval is required. If the person withdrawing the blood or collecting the urine requests written confirmation of the law enforcement officer's request for the withdrawal of blood or collecting the urine, the officer shall furnish it before blood is withdrawn or urine collected. When blood is withdrawn or urine collected pursuant to a law enforcement officer's request, neither the person withdrawing the blood nor any hospital, laboratory, or other institution, person, firm, or corporation employing that person, or contracting for the service of withdrawing blood or collecting urine, may be held criminally or civilly liable by reason of withdrawing the blood or collecting the urine, except that there is no immunity from liability for negligent acts or omissions. A person requested to withdraw blood or collect urine pursuant to this subsection may refuse to do so only if it reasonably appears that the procedure cannot be performed without endangering the safety of the person collecting the sample or the safety of the person from whom the sample is being collected. If the officer requesting the blood or urine requests a written justification for the refusal, the medical provider who determined the sample could not be collected safely shall provide written justification at the time of the refusal.

----- Excerpt from page 28485 follows -----

(c1) Admissibility.--The results of a chemical analysis of blood or urine reported by the North Carolina State Bureau of Investigation Laboratory, the Charlotte, North Carolina, Police Department Laboratory, or any other laboratory approved for chemical analysis by the Department of Health and Human Services, are admissible as evidence in all administrative hearings, and in any court, without further authentication and without the testimony of the analyst. The results shall be certified by the person who performed the analysis. The provisions of this subsection may be utilized in any administrative hearing, but can only be utilized in cases tried in the district and superior court divisions, or in an adjudicatory hearing in juvenile court, if:

- (1) The State notifies the defendant at least 15 business days before the proceeding at which the evidence would be used of its intention to introduce the report into evidence under this subsection and provides a copy of the report to the defendant, and
- (2) The defendant fails to file a written objection with the court, with a copy to the State, at least five business days before the proceeding at which the report would be used that the defendant objects to the introduction of the report into evidence.

If the defendant's attorney of record, or the defendant if that person has no attorney, fails to file a written objection as provided in this subsection, then the report may be admitted into evidence without the testimony of the analyst. Upon filing a timely objection, the admissibility of the report shall be determined and governed by the appropriate rules of evidence.

The report containing the results of any blood or urine test may be transmitted electronically or via facsimile. A copy of the affidavit sent electronically or via facsimile shall be admissible in any court or administrative hearing without further authentication. A copy of the report shall be sent to the charging officer, the clerk of superior court in the county in which the criminal charges are pending, the Division of Motor Vehicles, and the Department of Health and Human Services.

Nothing in this subsection precludes the right of any party to call any witness or to introduce

any evidence supporting or contradicting the evidence contained in the report.

(c2) A chemical analysis of blood or urine, to be admissible under this section, shall be performed in accordance with rules or procedures adopted by the State Bureau of Investigation, or by another laboratory accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) for the submission, identification, analysis, and storage of forensic analyses.

(c3) Procedure for Establishing Chain of Custody Without Calling Unnecessary Witnesses. --

(1) For the purpose of establishing the chain of physical custody or control of blood or urine tested or analyzed to determine whether it contains alcohol, a controlled substance or its metabolite, or any impairing substance, a statement signed by each successive person in the chain of custody that the person delivered it to the other person indicated on or about the date stated is prima facie evidence that the person had custody and made the delivery as stated, without the necessity of a personal appearance in court by the person signing the statement.

----- Excerpt from page 28486 follows -----

(2) The statement shall contain a sufficient description of the material or its container so as to distinguish it as the particular item in question and shall state that the material was delivered in essentially the same condition as received. The statement may be placed on the same document as the report provided for in subsection (c1) of this section.

(3) The provisions of this subsection may be utilized in any administrative hearing, but can only be utilized in cases tried in the district and superior court divisions, or in an adjudicatory hearing in juvenile court, if:

a. The State notifies the defendant at least 15 business days before the proceeding at which the statement would be used of its intention to introduce the statement into evidence under this subsection and provides a copy of the statement to the defendant, and

b. The defendant fails to file a written notification with the court, with a copy to the State, at least five business days before the proceeding at which the statement would be used that the defendant objects to the introduction of the statement into evidence.

If the defendant's attorney of record, or the defendant if that person has no attorney, fails to file a written objection as provided in this subsection, then the statement may be admitted into evidence without the necessity of a personal appearance by the person signing the statement. Upon filing a timely objection, the admissibility of the report shall be determined and governed by the appropriate rules of evidence.

(4) Nothing in this subsection precludes the right of any party to call any witness or to introduce any evidence supporting or contradicting the evidence contained in the statement.

(c4) The results of a blood or urine test are admissible to prove a person's alcohol concentration or the presence of controlled substances or metabolites or any other impairing substance if:

(1) A law enforcement officer or chemical analyst requested a blood and/or urine sample from the person charged; and

(2) A chemical analysis of the person's blood was performed by a chemical analyst possessing a permit issued by the Department of Health and Human Services authorizing the chemical analyst to analyze blood or urine for alcohol or controlled substances, metabolites of a controlled substance, or any other impairing substance.

For purposes of establishing compliance with subdivision (2) of this subsection, the court or administrative agency shall take judicial notice of the list of persons possessing permits, the type of instrument on which each person is authorized to perform tests of the blood and/or urine, and the date the permit was issued and the date it expires.

----- Excerpt from page 28487 follows -----

(d) Right to Additional Test.--Nothing in this section shall be construed to prohibit a person from obtaining or attempting to obtain an additional chemical analysis. If the person is not released from custody after the initial appearance, the agency having custody of the person shall make reasonable efforts in a timely manner to assist the person in obtaining access to a telephone to arrange for any additional test and allow access to the person in accordance with the agreed procedure in > G.S. 20-38.5. The failure or inability of the person who submitted to a chemical analysis to obtain any additional test or to withdraw blood does not preclude the admission of evidence relating to the chemical analysis.

(d1) Right to Require Additional Tests.--If a person refuses to submit to any test or tests pursuant to this section, any law enforcement officer with probable cause may, without a court order, compel the person to provide blood or urine samples for analysis if the officer reasonably believes that the delay necessary to obtain a court order, under the circumstances, would result in the

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dissipation of the percentage of alcohol in the person's blood or urine.

(d2) Notwithstanding any other provision of law, when a blood or urine sample is requested under subsection (d1) of this section by a law enforcement officer, a physician, registered nurse, emergency medical technician, or other qualified person shall withdraw the blood and obtain the urine sample, and no further authorization or approval is required. If the person withdrawing the blood or collecting the urine requests written confirmation of the charging officer's request for the withdrawal of blood or obtaining urine, the officer shall furnish it before blood is withdrawn or urine obtained. A person requested to withdraw blood or collect urine pursuant to this subsection may refuse to do so only if it reasonably appears that the procedure cannot be performed without endangering the safety of the person collecting the sample or the safety of the person from whom the sample is being collected. If the officer requesting the blood or urine requests a written justification for the refusal, the medical provider who determined the sample could not be collected safely shall provide written justification at the time of the refusal.

(d3) When blood is withdrawn or urine collected pursuant to a law enforcement officer's request, neither the person withdrawing the blood nor any hospital, laboratory, or other institution, person, firm, or corporation employing that person, or contracting for the service of withdrawing blood, may be held criminally or civilly liable by reason of withdrawing that blood, except that there is no immunity from liability for negligent acts or omissions. The results of the analysis of blood or urine under this subsection shall be admissible if performed by the State Bureau of Investigation Laboratory or any other hospital or qualified laboratory.

(e) Recording Results of Chemical Analysis of Breath.--A person charged with an implied-consent offense who has not received, prior to a trial, a copy of the chemical analysis results the State intends to offer into evidence may request in writing a copy of the results. The failure to provide a copy prior to any trial shall be grounds for a continuance of the case but shall not be grounds to suppress the results of the chemical analysis or to dismiss the criminal charges.

----- Excerpt from page 28488 follows -----

(e1) Use of Chemical Analyst's Affidavit in District Court.--An affidavit by a chemical analyst sworn to and properly executed before an official authorized to administer oaths is admissible in evidence without further authentication and without the testimony of the analyst in any hearing or trial in the District Court Division of the General Court of Justice with respect to the following matters:

- (1) The alcohol concentration or concentrations or the presence or absence of an impairing substance of a person given a chemical analysis and who is involved in the hearing or trial.
- (2) The time of the collection of the blood, breath, or other bodily fluid or substance sample or samples for the chemical analysis.
- (3) The type of chemical analysis administered and the procedures followed.
- (4) The type and status of any permit issued by the Department of Health and Human Services that the analyst held on the date the analyst performed the chemical analysis in question.
- (5) If the chemical analysis is performed on a breath-testing instrument for which regulations adopted pursuant to subsection (b) require preventive maintenance, the date the most recent preventive maintenance procedures were performed on the breath-testing instrument used, as shown on the maintenance records for that instrument.

The Department of Health and Human Services shall develop a form for use by chemical analysts in making this affidavit.

(e2) Except as governed by subsection (c1), (c2), or (c3) of this section, the State can only use the provisions of subsection (e1) of this section if:

- (1) The State notifies the defendant at least 15 business days before the proceeding at which the affidavit would be used of its intention to introduce the affidavit into evidence under this subsection and provides a copy of the affidavit to the defendant, and
- (2) The defendant fails to file a written notification with the court, with a copy to the State, at least five business days before the proceeding at which the affidavit would be used that the defendant objects to the introduction of the affidavit into evidence.

The failure to file a timely objection as provided in this subsection shall be deemed a waiver of the right to object to the admissibility of the affidavit. Upon filing a timely objection, the admissibility of the report shall be determined and governed by the appropriate rules of evidence. The case shall be continued until the analyst can be present. The criminal case shall not be dismissed due to the failure of the analyst to appear, unless the analyst willfully fails to appear after being ordered to appear by the court. Nothing in subsection (e1) or subsection (e2) of this section precludes the right of any party to call any witness or to introduce any evidence supporting or contradicting the evidence contained in the affidavit.

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----- Excerpt from page 28489 follows -----

(f) Evidence of Refusal Admissible.--If any person charged with an implied-consent offense refuses to submit to a chemical analysis or to perform field sobriety tests at the request of an officer, evidence of that refusal is admissible in any criminal, civil, or administrative action against the person.

(g) Controlled-Drinking Programs.--The Department of Health and Human Services may adopt rules concerning the ingestion of controlled amounts of alcohol by individuals submitting to chemical testing as a part of scientific, experimental, educational, or demonstration programs. These regulations shall prescribe procedures consistent with controlling federal law governing the acquisition, transportation, possession, storage, administration, and disposition of alcohol intended for use in the programs. Any person in charge of a controlled-drinking program who acquires alcohol under these regulations must keep records accounting for the disposition of all alcohol acquired, and the records must at all reasonable times be available for inspection upon the request of any federal, State, or local law-enforcement officer with jurisdiction over the laws relating to control of alcohol. A controlled-drinking program exclusively using lawfully purchased alcoholic beverages in places in which they may be lawfully possessed, however, need not comply with the record-keeping requirements of the regulations authorized by this subsection. All acts pursuant to the regulations reasonably done in furtherance of bona fide objectives of a controlled-drinking program authorized by the regulations are lawful notwithstanding the provisions of any other general or local statute, regulation, or ordinance controlling alcohol.

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NC-STAT-AN - N.C.G.S.A. Sec. 20-16.2, Implied consent to chemical analysis; mandatory revocation of license in event of refusal; right of driver to request analysis

----- Excerpt from page 27354 follows -----

WEST'S NORTH CAROLINA GENERAL STATUTES ANNOTATED

CHAPTER 20. MOTOR VEHICLES

ARTICLE 2. UNIFORM DRIVER'S LICENSE ACT

Current through immediately effective legislation through Chapter 30 of the 2010 Regular Session.

§ 20-16.2. Implied consent to chemical analysis; mandatory revocation of license in event of refusal; right of driver to request analysis

(a) Basis for Officer to Require Chemical Analysis; Notification of Rights.--Any person who drives a vehicle on a highway or public vehicular area thereby gives consent to a chemical analysis if charged with an implied-consent offense. Any law enforcement officer who has reasonable grounds to believe that the person charged has committed the implied-consent offense may obtain a chemical analysis of the person.

Before any type of chemical analysis is administered the person charged shall be taken before a chemical analyst authorized to administer a test of a person's breath or a law enforcement officer who is authorized to administer chemical analysis of the breath, who shall inform the person orally and also give the person a notice in writing that:

- (1) You have been charged with an implied-consent offense. Under the implied-consent law, you can refuse any test, but your drivers license will be revoked for one year and could be revoked for a longer period of time under certain circumstances, and an officer can compel you to be tested under other laws.
- (2) Repealed by S.L. 2006-253, § 15, eff. Dec. 1, 2006.
- (3) The test results, or the fact of your refusal, will be admissible in evidence at trial.
- (4) Your driving privilege will be revoked immediately for at least 30 days if you refuse any test or the test result is 0.08 or more, 0.04 or more if you were driving a commercial vehicle, or 0.01 or more if you are under the age of 21.
- (5) After you are released, you may seek your own test in addition to this test.
- (6) You may call an attorney for advice and select a witness to view the testing procedures remaining after the witness arrives, but the testing may not be delayed for these purposes longer than 30 minutes from the time you are notified of these rights. You must take the test at the end of 30 minutes even if you have not contacted an attorney or your witness has not arrived.

----- Excerpt from page 27355 follows -----

(a1) Meaning of Terms.--Under this section, an 'implied-consent offense' is an offense involving impaired driving or an alcohol-related offense made subject to the procedures of this section. A person is 'charged' with an offense if the person is arrested for it or if criminal process for the offense has been issued.

(b) Unconscious Person May Be Tested.--If a law enforcement officer has reasonable grounds to believe that a person has committed an implied-consent offense, and the person is unconscious or otherwise in a condition that makes the person incapable of refusal, the law enforcement officer may direct the taking of a blood sample or may direct the administration of any other chemical analysis that may be effectively performed. In this instance the notification of rights set out in subsection (a) and the request required by subsection (c) are not necessary.

(c) Request to Submit to Chemical Analysis.--A law enforcement officer or chemical analyst shall designate the type of test or tests to be given and may request the person charged to submit to the type of chemical analysis designated. If the person charged willfully refuses to submit to that chemical analysis, none may be given under the provisions of this section, but the refusal does not preclude testing under other applicable procedures of law.

(c1) Procedure for Reporting Results and Refusal to Division.--Whenever a person refuses to submit to a chemical analysis, a person has an alcohol concentration of 0.15 or more, or a person's drivers license has an alcohol concentration restriction and the results of the chemical analysis establish a violation of the restriction, the law enforcement officer and the chemical analyst shall without unnecessary delay go before an official authorized to administer oaths and execute an affidavit(s) stating that:

- (1) The person was charged with an implied-consent offense or had an alcohol concentration restriction on the drivers license;
- (2) A law enforcement officer had reasonable grounds to believe that the person had committed an implied-consent offense or violated the alcohol concentration restriction on the drivers license;
- (3) Whether the implied-consent offense charged involved death or critical injury to another person, if the person willfully refused to submit to chemical analysis;

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- (4) The person was notified of the rights in subsection (a); and
- (5) The results of any tests given or that the person willfully refused to submit to a chemical analysis.

----- Excerpt from page 27356 follows -----

If the person's drivers license has an alcohol concentration restriction, pursuant to > G.S. 20-19(c3), and an officer has reasonable grounds to believe the person has violated a provision of that restriction other than violation of the alcohol concentration level, the officer and chemical analyst shall complete the applicable sections of the affidavit and indicate the restriction which was violated. The officer shall immediately mail the affidavit(s) to the Division. If the officer is also the chemical analyst who has notified the person of the rights under subsection (a), the officer may perform alone the duties of this subsection.

(d) Consequences of Refusal; Right to Hearing before Division; Issues.--Upon receipt of a properly executed affidavit required by subsection (c1), the Division shall expeditiously notify the person charged that the person's license to drive is revoked for 12 months, effective on the tenth calendar day after the mailing of the revocation order unless, before the effective date of the order, the person requests in writing a hearing before the Division. Except for the time referred to in > G.S. 20-16.5, if the person shows to the satisfaction of the Division that his or her license was surrendered to the court, and remained in the court's possession, then the Division shall credit the amount of time for which the license was in the possession of the court against the 12-month revocation period required by this subsection. If the person properly requests a hearing, the person retains his or her license, unless it is revoked under some other provision of law, until the hearing is held, the person withdraws the request, or the person fails to appear at a scheduled hearing. The hearing officer may subpoena any witnesses or documents that the hearing officer deems necessary. The person may request the hearing officer to subpoena the charging officer, the chemical analyst, or both to appear at the hearing if the person makes the request in writing at least three days before the hearing. The person may subpoena any other witness whom the person deems necessary, and the provisions of > G.S. 1A-1, Rule 45, apply to the issuance and service of all subpoenas issued under the authority of this section. The hearing officer is authorized to administer oaths to witnesses appearing at the hearing. The hearing shall be conducted in the county where the charge was brought, and shall be limited to consideration of whether:

- (1) The person was charged with an implied-consent offense or the driver had an alcohol concentration restriction on the drivers license pursuant to > G.S. 20-19;
- (2) A law enforcement officer had reasonable grounds to believe that the person had committed an implied-consent offense or violated the alcohol concentration restriction on the drivers license;

----- Excerpt from page 27357 follows -----

- (3) The implied-consent offense charged involved death or critical injury to another person, if this allegation is in the affidavit;
- (4) The person was notified of the person's rights as required by subsection (a); and
- (5) The person willfully refused to submit to a chemical analysis.

If the Division finds that the conditions specified in this subsection are met, it shall order the revocation sustained. If the Division finds that any of the conditions (1), (2), (4), or (5) is not met, it shall rescind the revocation. If it finds that condition (3) is alleged in the affidavit but is not met, it shall order the revocation sustained if that is the only condition that is not met; in this instance subsection (d1) does not apply to that revocation. If the revocation is sustained, the person shall surrender his or her license immediately upon notification by the Division.

(d1) Consequences of Refusal in Case Involving Death or Critical Injury.--If the refusal occurred in a case involving death or critical injury to another person, no limited driving privilege may be issued. The 12-month revocation begins only after all other periods of revocation have terminated unless the person's license is revoked under > G.S. 20-28, > 20-28.1, > 20-19(d), or > 20-19(e). If the revocation is based on those sections, the revocation under this subsection begins at the time and in the manner specified in subsection (d) for revocations under this section. However, the person's eligibility for a hearing to determine if the revocation under those sections should be rescinded is postponed for one year from the date on which the person would otherwise have been eligible for the hearing. If the person's driver's license is again revoked while the 12-month revocation under this subsection is in effect, that revocation, whether imposed by a court or by the Division, may only take effect after the period of revocation under this subsection has terminated.

(e) Right to Hearing in Superior Court.--If the revocation for a willful refusal is sustained after the hearing, the person whose license has been revoked has the right to file a petition in the superior court district or set of districts defined in > G.S. 7A-41.1, where the charges were made, within 30 days thereafter for a hearing on the record. The superior court review shall be limited to whether there is sufficient evidence in the record to support the Commissioner's findings of fact and whether the conclusions of law are supported by the findings of fact and whether the Commissioner committed an error of law in revoking the license.

----- Excerpt from page 27358 follows -----

(e1) Limited Driving Privilege after Six Months in Certain Instances.--A person whose driver's license has been revoked under this section may apply for and a judge authorized to do so by this subsection may issue a limited driving privilege if:

- (1) At the time of the refusal the person held either a valid drivers license or a license that had been expired for less than one year;
- (2) At the time of the refusal, the person had not within the preceding seven years been convicted of an offense involving impaired driving;
- (3) At the time of the refusal, the person had not in the preceding seven years willfully refused to submit to a chemical analysis under this section;
- (4) The implied consent offense charged did not involve death or critical injury to another person;
- (5) The underlying charge for which the defendant was requested to submit to a chemical analysis has been finally disposed of:
  - a. Other than by conviction; or
  - b. By a conviction of impaired driving under > G.S. 20-138.1, at a punishment level authorizing issuance of a limited driving privilege under > G. S. 20-179.3(b), and the defendant has complied with at least one of the mandatory conditions of probation listed for the punishment level under which the defendant was sentenced;
- (6) Subsequent to the refusal the person has had no unresolved pending charges for or additional convictions of an offense involving impaired driving;
- (7) The person's license has been revoked for at least six months for the refusal; and
- (8) The person has obtained a substance abuse assessment from a mental health facility and successfully completed any recommended training or treatment program.

Except as modified in this subsection, the provisions of > G.S. 20-179.3 relating to the procedure for application and conduct of the hearing and the restrictions required or authorized to be included in the limited driving privilege apply to applications under this subsection. If the case was finally disposed of in the district court, the hearing shall be conducted in the district court district as defined in > G.S. 7A-133 in which the refusal occurred by a district court judge. If the case was finally disposed of in the superior court, the hearing shall be conducted in the superior court district or set of districts as defined in > G.S. 7A-41.1 in which the refusal occurred by a superior court judge. A limited driving privilege issued under this section authorizes a person to drive if the person's license is revoked solely under this section or solely under this section and > G.S. 20-17(2). If the person's license is revoked for any other reason, the limited driving privilege is invalid.

----- Excerpt from page 27359 follows -----

(f) Notice to Other States as to Nonresidents.--When it has been finally determined under the procedures of this section that a nonresident's privilege to drive a motor vehicle in this State has been revoked, the Division shall give information in writing of the action taken to the motor vehicle administrator of the state of the person's residence and of any state in which the person has a license.

(g) Repealed by Session Laws 1973, c. 914.

(h) Repealed by Session Laws 1979, c. 423, s. 2.

(i) Right to Chemical Analysis before Arrest or Charge.--A person stopped or questioned by a law enforcement officer who is investigating whether the person may have committed an implied consent offense may request the administration of a chemical analysis before any arrest or other charge is made for the offense. Upon this request, the officer shall afford the person the opportunity to have a chemical analysis of his or her breath, if available, in accordance with the procedures required by > G.S. 20-139.1(b). The request constitutes the person's consent to be transported by the law enforcement officer to the place where the chemical analysis is to be administered. Before the chemical analysis is made, the person shall confirm the request in writing and shall be notified:

- (1) That the test results will be admissible in evidence and may be used against you in any implied consent offense that may arise;
- (2) Your driving privilege will be revoked immediately for at least 30 days if the test result is 0.08 or more, 0.04 or more if you were driving a commercial vehicle, or 0.01 or more if you are under the age of 21.
- (3) That if you fail to comply fully with the test procedures, the officer may charge you with any offense for which the officer has probable cause, and if you are charged with an implied consent offense, your refusal to submit to the testing required as a result of that charge would result in revocation of your driving privilege. The results of the chemical analysis are admissible in evidence in any proceeding in which they are relevant.

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