



**B. The State's timeline for tracing testing of the thermometer used in this case to NIST (based on exhibits admitted into evidence)**

April 19, 2000 (State's exhibit "N")

NIST tests ICL's Standard Platinum Resistance Thermometer S/N 1085

April 10, 2002 (State's exhibit "P")

NIST tests ICL's Standard Platinum Resistance Thermometer S/N 1085

July 13, 2001 (State's exhibit "M")

ICL tests Guth Laboratories, Inc.'s Master digital Thermometer S/N 300905 using ICL's Standard Platinum Resistance Thermometer S/N 1085

January 18, 2002 (State's exhibit "L")

Guth Laboratories tests Bostec's Guth-Eutechnics Digital Thermometer, Guth S/N 082708 using Guth's Master digital thermometer S/N 300905

July 30, 2002 (State's exhibit "H")

Washington State Patrol tests its mercury- in -glass simulator thermometer #B951328 using digital reference thermometer #91800 (see stipulation)

August 15, 2002 (State's exhibit "J")

Bostec, Inc. tests the Washington State Patrol's Digital Reference Thermometer #091800 using Guth-Eutechnics Digital Thermometer S/N 082708

September 22, 2002

Simulator thermometer B951328 was used in the BAC DataMaster #949221 on the test of the defendant.

**C. Stipulated transcript of testimony in Randhawa v. Department of Licensing, II-19-02, 20 pages, C#RANDHYS229DB, DOL testimony of Sgt. Gullberg (see below for summary) and Rich Bosman, Bostec, Inc.**

## **D. Brief Synopsis of Testimony**

### **1. Dr. Barry Logan, State Toxicologist: (State's witness)**

Dr. Logan testified that he oversees the breath test section of the Washington State Patrol. He reviews and approves the methods that are developed within that program. He drafts, promulgates and adopts provisions of the Washington Administrative Code (WAC) for the conduct of the breath testing protocols in Washington. He testified to the process of amending the WAC and he described the process of writing WAC 448-13-035, which began in 2000 with the discovery that the mercury-in-glass thermometers were losing their accuracy over time. He described the new protocol to check the thermometers against an electronic digital reference thermometer. He testified that 448-13-035 contains the statement: "...shall use a reference thermometer traceable to the standard maintained by the National Institute of Standards and Testing (NIST)..." Dr. Logan testified he was not aware of the NIST definition of traceability when he adopted 448-13-035. He stated that the NIST definition goes beyond the standard required for the breath testing program in Washington. Dr. Logan testified that his definition in the State Registry was: "...the reference thermometer used in this program must be compared against a thermometer which has been checked either directly or indirectly against that absolute standard and thus be traced back to it."

### **2. Sgt. Ron Gullberg, WSP (State's witness)**

Sgt. Gullberg supervises the lab and provides supervision of breath test technicians. His duties are to apply the WAC protocols. He testified as to the certification on the testing of the mercury-in-glass thermometers and to the records received from Bostec, Inc. Through his testimony the State's exhibits as to traceability to NIST were admitted. In his testimony, provided through stipulation of the parties (see above, DOL transcript hearing, *Randhawa v DOL*), Sgt. Gullberg testified that when testing the thermometers at the WSP Crime Lab, only one reading per temperature test is taken on each thermometer, rather than multiple readings. He also testified that the digital reference thermometers which are used to test the Patrol's thermometers are sent to Bostec, Inc., for certification, rather than being certified at the Crime Lab.

### **3. Dr. Ashley Emery (defendant's witness)**

Dr. Emery testified as to his qualifications as a professor of mechanical engineering at the University of Washington. He gave testimony as to the science of metrology. He testified to the opinions of experts in the fields of metrology, mechanical engineering, thermometry, and bio-engineering as to what traceability means. He has no training in toxicology. He has seen the Washington breath testing instrument demonstrated and he has spoken with Sgt. Gullberg. He gave testimony as to the NIST definition of traceability. He testified that multiple

readings at each step and a statement of uncertainties at each step are necessary to establish the unbroken chain of traceability from the NIST test to the thermometer in question. It is Dr. Emery's opinion that testing without a statement of uncertainties and without multiple testing is meaningless for establishing traceability to NIST and for establishing the reliability and accuracy of the thermometer being used.

**4. Rich Bosman ( through stipulated record of *DOL v. Randhawa, supra*)**

Mr. Bosman testified that he is the President of Bostec, Inc. and that his company receives digital reference thermometers from the Washington State Patrol and when testing and certifying them, only one temperature reading is taken. Bostec, Inc. does not follow NIST's standards; Bostec simply compares the temperature of the WSP thermometers to a Bostec thermometer with one reading only.

### **III. LEGAL AUTHORITY**

#### **A. Statutory Provisions**

**RCW 46.61.506 (3)** provides that:

Analysis of the person's blood or breath to be considered valid under the provisions of this section or RCW 46.61.502 or 46.61.504 shall have been performed according to methods approved by the state toxicologist and by an individual possessing a valid permit issued by the state toxicologist for this purpose. The state toxicologist is directed to approve satisfactory techniques or methods, to supervise the examination of individuals to ascertain their qualifications and competence to conduct such analyses, and to issue permits which shall be subject to termination or revocation at the discretion of the state toxicologist.

#### **B. Washington Administrative Code provisions**

**WAC 448-13-010** provides in pertinent part that:

These rules have been written on currently accepted scientific principles and practices in the field of breath alcohol testing. They have been formulated to inform the public of the administrative aspects of the state's breath alcohol test program. Technical aspects of breath testing are constantly investigated, discussed, and debated in the scientific literature. The procedures used in the operation of this program may be updated to reflect the consensus in the relevant scientific community.

**WAC 448-13-030** provides in pertinent part that:

(1) 'Accuracy' means the proximity of a measured value to a reference value.

(7) 'Certified' when used in conjunction with breath test personnel means an operator, instructor, solution changer or technician possessing a valid permit.

(9) 'Certified test' means a test conducted in accordance with WAC 448-13-040 and 448-13-050. A test which meets these requirements as determined from the breath test document is a certified test.

**WAC 448-13-035** provides that:

Simulator thermometer certification. The ability of the simulator to provide a reference ethanol vapor concentration is a function of its temperature. The thermometers used in the simulators shall be certified on an annual basis to have an accuracy of within plus or minus 0.1 degree centigrade. Such certification shall be made by using a reference thermometer traceable to standards maintained by the National Institute of Standards and Testing (NIST), or its successor.

**WAC 448-13-040** provides in pertinent part that:

Prior to the start of the test the operator must verify that the thermometer, *certified per WAC 448-13-035*, indicates that the temperature of the simulator solution is thirty-four degrees centigrade plus or minus 0.3 degrees centigrade. (Emphasis added).

**WAC 448-13-060** outlines the requirements of a valid and certified test, and provides

that “A test shall be a valid test and so certified, if the requirements of WAC 448-13-040, 448-13-050 and 448-13-055 are met, and provides, in addition, specific criteria for precision and accuracy, as determined solely from the breath test document.

**WAC 448-13-080** governs the preparation and certification of the external standard simulator solution and requires a 34 degree, +/-0.2 d C solution to run the test.

### **C. NIST definitions and requirements (Defendant’s exhibit “E”)**

1. “**stated uncertainties**” - uncertainty of measurement that characterizes the dispersion of values that could reasonably be attributed to the measurement.
2. “**traceability**” — the property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties.

#### **3. Establishing traceability to NIST standards (Exhibit “E”)**

The NIST publication provides the following explanation of how a measurement of an instrument (thermometer) is traceable to NIST:

Merely having an instrument or artifact calibrated at NIST is not enough to make the measurement result traceable to reference standards developed and maintained by NIST. To establish traceability to such reference

standards, there must be an unbroken chain of comparisons and each provided measurement must be accompanied by a statement of uncertainty. The measurement system by which values are transferred must be clearly understood and under control. The dates and details of each link in the chain must also be provided.

#### **D. Relevant Case Law**

In *Seattle v. Allison*, 148 Wn. 2d 75 (2002), defendant Allison, charged with DUI, challenged the admission of BAC Verifier Datamaster II breath-alcohol test results. Allison argued that it was possible for the temperature reading of the simulator solution to be outside the range required by former WAC 448-13-040 (34 degrees +/- .2 degrees centigrade) due to a built-in variance of at least +/- 0.1 centigrade in the thermometers used. The court concluded that compliance with former WAC 448-03-040 required only that the breath test *ticket* reflect that the temperature was within the specified range and that the rule did not require that the operator ascertain the actual temperature of the solution. The court held that

The State Toxicologist has the delegated authority to designate proper methods for performing the analysis of a person's blood or breath. RCW 46.61.506 (3). In *Ford*, this court observed that 'the Legislature has mandated that the analysis of breath or blood is valid if it is performed 'according to methods approved by the state toxicologist'.' *Ford*, 110 Wn.2d at 833 (quoting RCW 46.61.506 (3)). 'When the protocols . . . and existing

Code provisions are followed, there is sufficient assurance of accuracy and reliability of the test results to allow for general admissibility of test results.' *Straka*, 116 Wn.2d at 870.

*Allison* at 78. The *Allison* decision pre-dated the amended WAC 448-03-040/035. *Allison*, fn. 2.

In *Department of Licensing v. Cannon*, 147 Wn. 2d 41, 50 P. 3d 627 (2002), the defendant/driver appealed from the suspension of her driving privileges by the Department of Licensing for a DUI with an alcohol concentration above the legal limit of .08. The Hearing Officer found that the requirements of WAC 448-13-040, 448-13-050 and 448-13-060 were met. The issue before the courts that addressed this case was the certification requirements of WAC 448-13-040 and -035. The court held in *Cannon* that the implied consent statute is subject to the evidence admissibility statute in RCW 46.61.506 and that under that statute, evidence of the driver's breath test

results is admissible only if the methods and procedures approved by the State Toxicologist were followed. *Cannon* at 634. The court stated that

The sole question in this case is whether WAC 448-13-040 requires the proponent of the breath test in an implied consent proceeding to produce evidence that the thermometer used in the test was certified as required by WAC 448-13-035.... WAC 448-03-040 does require the proponent of a breath test in an implied consent proceeding to produce evidence that the thermometer used in the test was certified as required by WAC 448-13-035.

*Cannon* at 58. Since the certification per 448-13-035 was not proven by the State in *Cannon*, the breath test result was suppressed.

In analyzing a statute or administrative rule, the *Cannon* court noted that under rules of statutory construction, a WAC provision is interpreted by ascertaining and giving effect to its underlying policy and intent. The court noted that

If an administrative rule or regulation is clear on its face, its meaning is to be derived from the plain language of the provision alone. Like a statute, an administrative rule or regulation is unclear if it can be reasonably interpreted in more than one way; however, it is not ambiguous simply because different interpretations are conceivable. This court is not 'obliged to discern any ambiguity by imagining a variety of alternative interpretations.' Rules and regulations are to be given a rational, sensible interpretation. An unambiguous rule or regulation is not subject to judicial construction. Administrative rules and regulations are interpreted as a whole, giving effect to all the language and harmonizing all provisions. This court will not add to or subtract from the clear language of a statute, rule or regulation even if it believes the Legislature, or in this case, the State Toxicologist, intended something else but did not adequately express it unless the addition or subtraction of language is imperatively required to make the statute rational. This court will avoid a literal reading of a provision it would result in unlikely, absurd, or strained consequences.

*Cannon* at 56-57.

In *Smith v. Department of Licensing*, 88 Wn. App. 875, 944 P.2d 1117 (1997), the defendant was charged with DUI and the defendant challenged a decision of the Department of Licensing (DOL), placing him on probation for DUI. The defendant claimed that the hearing officer erred in considering his BAC breath test results and he argued that those results are inadmissible absent a showing that the WAC provisions governing BAC's were followed. In the court's ruling, it differentiated between the WAC provisions relating to the use



and proper functioning of the BAC equipment and the group of requirements that relates to the periodic testing of the machine by a qualified technician and the simulator solution used in the machine. The court identified the former as WAC 448-13-040, -050, -055, -60-, -150 and identified the latter as WAC 448-13-110, -170, -080, and -160. The defendant contended that compliance with the WAC's governing the periodic testing of the machine was a foundational requirement for admission of breath test results.

The court found that the DOL had shown compliance with the WAC's relating to the administration of the breath test but was not required to prove compliance with the periodic testing WAC provisions. The court relied on the wording of WAC 448-13-060 and ruled

Smith's argument ignores the clear language of WAC 448-13-060. The WAC provides 'A test shall be a valid test...if the requirements of WAC 448-13-040, 448-13-050, 448-13-055, and the criteria in WAC 448-13-060 are met'. DOL produced evidence showing compliance with those requirements.

Smith further ignores the following language at the end of WAC 448-13-060: 'If these criteria are met, then these and no other factors are necessary to indicate the proper working order of the instrument...'. Given the plain language, proof of compliance with the additional WAC provisions is not a prerequisite to admission of the BAC test results.

*Smith* at 880. (see footnote<sup>1</sup>)

#### IV. ANALYSIS

The defendant in this case argues that the Washington State Patrol, which administers the breath alcohol testing program in this state, failed to follow the Washington Administrative Code in certifying the thermometers used in the simulator solution of the BAC machines. The relevant code provision states:

The thermometers used in the simulators shall be certified on an annual basis to have an accuracy of within plus or minus 0.1 degree centigrade. Such certification shall be made using a reference thermometer traceable to standards maintained by the National Institute of Standards and Testing (NIST), or its successor.

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Footnote- WAC 448-13- 040 did not include within it the requirements of 448-13-035 at the time of the *Smith* decision, although -040 now contains within it the requirement that the thermometer used must be certified per the requirements of -035.

WAC 448-13-035. The Washington State Toxicologist, Dr. Barry Logan, is responsible for drafting and promulgating the regulations governing the breath testing section. As stated above, Dr. Logan testified at the evidentiary hearing on this matter regarding his intent and interpretation of this WAC provision. He stated in the Washington State Register on 8/1/01 that

The language used in WAC 448-13-035 referencing “standards traceable to NIST” is vague. The concept of traceability to a reference standard is a common principle in measurement science. It describes the notion that there is an absolute standard for temperature, maintained by the National Institute for Standards and Testing (NIST), and that the reference thermometer used to certify the mercury in glass thermometers used in this program, must be compared against a thermometer which has been checked either directly or indirectly against that absolute standard, and can thus be “traced” to it.

Washington State Register, Defendant’s Exhibit “C”, page 2.

Dr. Logan’s interpretation of his own regulation is certainly relevant to this court’s inquiry. It is not necessarily controlling, however. The actual language of WAC 448-13-035 is not “standards traceable to NIST”, but rather “Such certification shall be made by using a reference thermometer traceable to standards maintained by the National Institute of Standards and Testing (NIST)...” The rule clearly requires that the NIST standards are the standards that will be used in the certification process of the WSP thermometers and there is nothing about this terminology that is “vague”. The Supreme Court has given us a detailed structure within which to analyze this issue:

In this State "[r]ules of statutory construction apply to administrative rules and regulations, particularly where ... they are adopted pursuant to express legislative authority." Under rules of statutory construction, this court interprets a WAC provision to ascertain and give effect to its underlying policy and intent. To determine that intent, the court looks first to the language of the provision. If an administrative rule or regulation is clear on its face, its meaning is to be derived from the plain language of the provision alone.

Like a statute, an administrative rule or regulation is unclear if it can be reasonably interpreted in more than one way; however, it is not ambiguous simply because different interpretations are conceivable. This court is not “obliged to discern any ambiguity by imagining a variety of alternative interpretations.” Rules and regulations are to be given a rational, sensible interpretation.

. . .  
An unambiguous rule or regulation is not subject to judicial construction. Administrative rules and regulations are interpreted as a whole, giving effect to all the language and harmonizing all provisions. This court will not add to or subtract from the clear language of a statute, rule, or regulation even if it believes the Legislature, or in this case, the State Toxicologist, intended something else but did not adequately express it unless the addition or subtraction of language is imperatively required to make the statute rational.

*State v. Cannon, supra* at 56-57. The court went on to say that it “will avoid a literal reading of a provision if it would result in unlikely, absurd, or strained consequences.” *State v. Cannon, supra* at 57. A literal reading of WAC 448-13-035 does none of these things. Rather, it clearly sets out, through the NIST protocols, the acceptable procedure for certifying the state’s reference thermometers.

In order to accept the State’s position in this matter, we must find that Dr. Logan, while citing to the NIST standards, did not intend to incorporate their clear meaning, and, perhaps more importantly, that Dr. Logan’s subjective intent as to the meaning of the regulation controls public interpretation of the code. The State argues that the WAC should be read to require only that the reference thermometers be compared in *some manner* to the thermometer that NIST maintains. The administrative rule simply does not say that. The WAC regulation -035 requires that certification of the simulator thermometer “shall be made by using a reference thermometer *traceable to standards maintained by the National Institute of Standards and Testing (NIST)*.” The definitions NIST has promulgated are clear and unambiguous, and NIST is the only entity that can authoritatively define what it means by the quoted phrase and the testimony of the witnesses in this case agrees that NIST has only one definition of “traceable to standards”. The NIST requirement is clear: an unbroken chain of comparisons and each provided measurement must be accompanied by a statement of uncertainties. See Defendant’s Exhibit “E”. Reviewing the exhibits and the evidence, there is no unbroken chain of comparisons from the thermometer used in this case to the NIST thermometer test, and in most of the steps outlined in the respective thermometer tests, there is no statement of uncertainties, both of which are clearly required by the NIST standards. In promulgating this rule, the toxicologist put the citizenry on notice that the “unbroken chain of comparison with stated uncertainties reported at each stage” would indeed be the protocol in this state. Again “[t]his court will not add to or subtract from the clear language of a statute, rule, or regulation even if it believes the Legislature, or in this case, the State Toxicologist, intended something else but did not adequately express it.” *Cannon, supra*, at 57.


It is apparent that the toxicologist misunderstood the definition of traceability when he drafted the WAC provision. That mistake cannot change the unambiguous meaning of the terms he used and promulgated as the controlling authority in Washington. We also believe it would be remarkably unwise to accept, as the State suggests, that the community in which this language is to be construed is one entirely comprised of toxicologists dealing with breath alcohol testing. The scientific community in general uses metrology on a regular basis and, as a whole, abides by certain understandings and protocols. Dr. Emery testified that metrological comparisons without stated uncertainties are scientifically meaningless. We find that testimony compelling. If the citizens of the State of Washington are to have any confidence in the breath-testing program, that program has to have some credence in the scientific community as a whole.


The State also argues that the thermometer was tested appropriately *after* the breath test in question in this case, and that *subsequent* certification satisfies the intent of the toxicologist. The wording of the regulation at issue will not allow this construction, however. WAC 448-13-040 requires that "*prior* to the start of the test the operator must verify that the thermometer, certified per WAC 448-13-035 indicates that the temperature of the simulator solution is..." It also states that the thermometer "shall be certified on an annual basis". We can only read this to mean that *prior* to any use of the BAC machines, and thereafter on a yearly basis, these thermometers must have been appropriately certified. This was not done prior to the breath test taken during this police investigation.


## V. CONCLUSION AND RULING

The State must prove that the thermometer used in this case was certified as required by WAC 448-13-035 in order to sustain a valid breath test. *Camron, supra*, at 60. There is no ambiguity here. "Traceable to standards maintained by NIST" is a phrase susceptible of only one definition, as defined by NIST. Reviewing the exhibits admitted in this hearing, it is clear that the State has failed to demonstrate the required traceability of the reference thermometers to standards maintained by NIST, as required by WAC 448-13-035. The evidence of Mr. Jagla's breath test and breath alcohol level is suppressed.

SIGNED THIS 17th DAY OF JUNE, 2003

  
Arthur Chapman, Judge  
Seattle Division

  
Judith Eiler, Judge  
South Division

  
Linda Jacke, Judge  
East Division