

# THE INCONVENIENT TRUTH ABOUT THE INTOXILYZER 8000 BREATH ALCOHOL TESTING INSTRUMENT

By Jon Saia

## ***Overview***

In 2007, the State of Ohio contracted with CMI, Inc., a Kentucky-based company, to purchase 700 Intoxilyzer 8000 (OH-5) breath alcohol testing instruments for use by law enforcement throughout the state. Rather than keep the funds in Ohio and purchase instruments from National Patent Analytical Systems, Inc. (NPAS), located in Mansfield, Ohio, the Ohio Department of Health chose to support the Kentucky-based company. NPAS is the manufacturer of the DataMaster series of instruments, currently used in 22 states and 5 countries.

The decision to purchase the Intoxilyzer 8000 (OH-5) for use in Ohio was not without controversy. Blood alcohol content (BAC) results as determined by the Intoxilyzer 8000 have been successfully challenged in several states and thousands of test results have been suppressed in Arizona and Florida. In Tennessee, the Intoxilyzer 8000 was not recommended for use by the task force in charge of evaluating breath alcohol testing instruments for use in that state. After initially agreeing to purchase the Intoxilyzer 8000, Minnesota recently decided to terminate that agreement and entered into a contract with NPAS to purchase the DataMaster "dmt" model (DataMaster Transportable) as the exclusive breath alcohol testing instrument for use in that state.

Although use of the instrument is being implemented by law enforcement in some of the less populated counties, the instruments are nowhere to be seen in the major metropolitan areas of Ohio such as Columbus, Cleveland and Cincinnati.

## ***The Instrument***

The Intoxilyzer 8000 utilizes infrared spectrometry (IR) technology, the most widely accepted evidential form of breath alcohol testing. IR is the same type of technology utilized by the Intoxilyzer 5000, the predecessor to the 8000, and all DataMaster breath alcohol testing instruments. The Intoxilyzer 8000 employs IR technology that is slightly different than the technology employed by the other instruments.

IR technology involves the absorption of electromagnetic radiation by alcohol. Alcohol can be detected and measured by determining the amount of wavelengths of the infrared spectrum absorbed by the distinctive molecular structure of alcohol. When an IR light passes through a chamber that contains alcohol, some of the light is absorbed. The amount of alcohol in the chamber can be measured by determining the amount of light that passes through the chamber when the air in the chamber contains alcohol and comparing it to the amount of light that passes through that same chamber after the air which contains alcohol is purged from the chamber.

Many factors must be taken into consideration when attempting to measure the amount of alcohol in an individual's blood (BAC) by using a sample of that individual's breath (BrAC). Some factors are taken into consideration by the breath testing instrument while others are not. In addition, the instrument must make many assumptions based upon general estimates or averages but can never really be 100% accurate. The estimates and assumptions utilized by the instrument give rise to many challenges regarding the accuracy of the instrument by many experts in the field of breath alcohol testing.

### ***The Selection of a BAC Instrument for Ohio***

Several years ago, after being awarded a grant from the National Highway Traffic Safety Administration (NHTSA), the State of Ohio began a search for a single type of breath alcohol testing instrument that would be used statewide. At that time, the Ohio Department of Health (ODH) authorized the use of only 3 types of instruments to be used for breath alcohol testing in Operating a Vehicle Impaired (OVI) cases: 1) Datamaster (including the DataMaster "K" model which includes a built in keyboard); 2) DataMaster cdm (compact DataMaster); and 3) Intoxilyzer 5000 series 66, 68 and 68 EN. Although not approved for use in OVI cases, the Intoxilyzer 8000 (OH-2) was previously approved for use in cases involving the operation of a watercraft impaired. The Ohio Department of Health approved the Intoxilyzer 8000 (OH-5) for use in OVI cases beginning in 2009.

A committee, comprised of approximately 25 individuals from various backgrounds, was formed to review several different instruments for use in Ohio. Interestingly, there was only one forensic scientist on the committee. Rather than have the committee compile the specifications, the specifications were compiled first and then given to the committee. The committee was forced to find an instrument that met all of the specifications. Even before the process of selecting an instrument began, it was a foregone conclusion that some version of the Intoxilyzer 8000 would be the instrument that Ohio would select. Although other instruments were considered, the Intoxilyzer 8000, with some minor modifications which brought us to the "OH-5" model, happened to fall squarely within the parameters of the specifications of ODH.

### ***Ohio Specifications***

The specifications for the instrument were compiled with certain concepts in mind. Some recommendations of the National Safety Council regarding acceptable practices for breath alcohol testing would be incorporated. IR, rather than fuel cell, technology would be required, thus, eliminating two of the four major manufacturers of breath alcohol testing instruments. The same type of instrument would be used by every law enforcement agency throughout the state. The instrument would include

the most recent technological advances in breath alcohol testing and the same software would be utilized in the operation of all instruments. It would be portable, permitting the use of the instrument at the location of the OVI stop and arrest. Dual testing (a second test confirming the results of the first test) capabilities would be required. Dry gas simulation checks (something new to Ohio), rather than the wet bath simulation checks currently used, would be required to insure that the instrument continues to accept a sample of air and determine whether there is alcohol in that sample. Simulation checks would be done before and after every subject test. Wet bath simulation checks would be used for "certification" purposes when the instrument is first placed into service and on an annual basis. A printer would be attached to the instrument. The instrument would include a magnetic card swipe function that is capable of importing information contained on the magnetic strips of both the subject's driver's license and the card used by the operator to gain access to the instrument. Finally, the instruments would be able to transmit all test results to a central database which would be hosted online at the website for the Ohio Department of Health and accessible to anyone.

Many breath alcohol testing instruments met all of the required specifications set forth by ODH, including all instruments previously approved for use in Ohio. What set the Intoxilyzer 8000 apart from the others was one very important aspect in breath alcohol testing: a handle.

### ***The Handle***

Portability of the instrument was stressed to the search committee. The instrument had to be easily transported from one location to another. Obviously, a handle would make the transportation much easier. The Intoxilyzer 8000 was the only breath alcohol testing instrument manufactured with a handle.

Both time and money were wasted by having the committee travel to various locations throughout the U.S. to conduct useless evaluations of various instruments which had no chance of being selected for use in Ohio. Not because there was not a better instrument on the market; but because none of those instruments had a handle.

Although all of the instruments already approved for use in Ohio, as well as several other instruments, met the specifications required for the new instrument, many, if not all, of the committee members selected the Intoxilyzer 8000 as the instrument of choice because it was equipped with a handle.

It became rather obvious that the instrument which would be purchased was selected prior to the formation of a committee to evaluate instruments. OVI defense practitioners never had a doubt which instrument would be chosen by the committee.

Interestingly enough, to date, the only place to which instruments that have already been placed in service have been transported is to the location where those instruments were initially placed in service. Quite comically, a representative from ODH recently used a dolly to transport the instrument from his vehicle to a conference room at a seminar in order to have the instrument available for demonstration purposes.

## ***The Contract***

In 2007, the state of Ohio entered into a contract with CMI, Inc., the manufacturer of the Intoxilyzer 8000, to purchase 700 instruments. An additional 30 instruments were purchased in 2010 for training purposes. The contract price is approximately \$9100 per instrument. Interestingly, Kansas entered into a contract with CMI for the purchase of the Intoxilyzer 8000 for approximately \$5000 per instrument. New Mexico paid just over \$7100 per instrument.

The terms of the Ohio contract with CMI included the largest quantity of breath alcohol testing instruments ever sold at one time and the highest price ever paid per instrument.

## ***Implementation of the Program***

The first instrument was placed into service in 2009, in Clermont County. The strategy was to first place the instrument in counties with high OVI conviction rates and attempt to avoid challenges to test results for as long as possible. In addition, problems with the instrument or with the implementation of the entire program could be corrected before the instrument became more widely used. One of many problems with the implementation of the instruments was the ability to transmit data from the location of the instrument to the central database. Many law enforcement agencies required technological upgrades to handle the amount of data being transmitted. The Ohio Department of Health is hoping to have the instrument utilized in all 88 Ohio Counties by the end of 2011.

## ***Issues Involving the 8000***

The Intoxilyzer 8000 does not come to Ohio without baggage. The instrument has run into a significant number of problems in Florida, Arizona and Minnesota and did not meet the requirements for use in Tennessee.

Studies conducted in Tennessee determined that the Intoxilyzer 8000 did not produce results which could satisfactorily be relied upon for the prosecution of DUI (OVI) offenses. The instrument was evaluated for accuracy, precision and performance. The task force given the responsibility to approve instruments for use in that state found that the "CMI Intoxilyzer 8000 did not yield satisfactory results" to accurately determine BAC levels.<sup>1</sup>

In Florida, although approved for use, results have been suppressed for numerous reasons. The primary reason is due to the inaccuracy of test results based upon flaws in the operational software.<sup>2</sup> In addition, tests have been suppressed due to CMI's failure to allow the inspection of the operational software (source code) of the instrument by the defense. Because CMI will not produce this information, the State could not produce the evidence for review and inspection by the defense through the discovery process and the results were suppressed. CMI has been held in contempt due to the

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<sup>1</sup> Tennessee Bureau of Investigation Forensic Services Division Minimum Standards and Specifications for the Scientific Appraisal of Breath Alcohol Instruments (2003)

<sup>2</sup> State of Florida v. James Briggs et al. 2006-CT-2638 (Florida, 2<sup>nd</sup> Judicial Circuit)

failure to allow the defense to inspect the source code.<sup>3</sup> A third basis for the suppression of test results is due to the State of Florida's failure to prove the reliability of the instrument.<sup>4</sup>

Several thousand breath test results from the Intoxilyzer 8000 have been suppressed in Arizona due to the acknowledgement by a CMI representative of software problems which affect the accuracy of the test result. A ruling by the trial court requiring CMI to turn over the source code to the defense was subsequently overturned by an appellate court.<sup>5</sup> But, the damage had already been done as the general reliability of the instrument became suspect and continues to be challenged.<sup>6</sup>

The State of Minnesota was forced to file suit against CMI.<sup>7</sup> The lawsuit was initiated due to the state being ordered, as part of the discovery process, to produce to the defense the source code for the Intoxilyzer 5000. CMI refused to turn over the source code to the state. Worrying that test results would be suppressed due to its failure to comply with the discovery order, the state sued CMI requesting that CMI be ordered to turn over the source code to the state. Although the lawsuit is still pending, Minnesota decided to not purchase any additional instruments from CMI, including the Intoxilyzer 8000. In August, 2010, Minnesota selected the DataMaster "dmt" as the exclusive instrument for future purchases.

Experts across the country point to the type of IR technology employed by the Intoxilyzer 8000 as one source of the problem with this instrument. CMI chose to utilize a type of IR technology that is different than that used in the Intoxilyzer 5000 and the DataMaster Instruments. This new technology involves the use of a pulsing lamp and pyro-electric detector which may be responsible for the high number of results which are not reliable. The Intoxilyzer 5000 and the DataMaster instruments use technology that involves a solid state infrared lamp and a cooled lead selenide detector which produces a signal approximately 4 times greater than the maximum useable signal achieved with pulse lamp technology. The newer technology utilized by the Intoxilyzer 8000 is slower and less sensitive, compromising precision and reliability. The instrument will often fail to detect mouth alcohol and other interferents which lead to unreliable results.

Flaws in the source code for the Intoxilyzer 8000 have long been suspected by many experts in the area of breath alcohol testing. These flaws, combined with the newer IR technology, lead to numerous unreliable test results. Studies have shown that the Intoxilyzer 8000 will post unreliable results due to the failure of the instrument to recognize when minimum breath volume requirements have not been met. Other studies have shown that the instrument fails to detect mouth alcohol as much as 25% of the

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<sup>3</sup> CMI, Inc. of Kentucky v. John Fabian et al. 2007 AP 10721 (Florida, 12<sup>th</sup> Judicial Circuit)

<sup>4</sup> State of Florida v. Robert Yount, Case No. 2009-CF-746-A-K (Florida, 16<sup>th</sup> Judicial Circuit)

<sup>5</sup> State of Arizona v. Judge Deborah Bernini, Case No. 2 CA-SA 2009-0062 (Arizona, Appellate Division 2)

<sup>6</sup> See: "Judge Rescinds Order for DUI Breath-Test Device Code" Tucson Citizen Morgue, Jan. 13, 2009

<sup>7</sup> In Re Minnesota Intoxilyzer 5000EN Source Code Litigation, Case No. 70-CR-09-19749 (Minn., District Court)

time. These studies are at the root of CMI's refusal to release the source code for independent evaluation.

It should be noted that for approximately \$350 and a signature on an agreement restricting the use of the source code, NPAS will readily turn over the source code for inspection for any DataMaster instrument.

A simple internet search will lead to hundreds of examples of flaws discovered by toxicologists, chemists, attorneys and others which can only be attributed to a flaw in the source code. Videos, some of which have originated from cameras within the law enforcement agency offices, demonstrate how easily results can be manipulated and maintenance records can be altered. Because of the problems revealed in Tennessee, Florida, Arizona and Minnesota, BAC results from the Intoxilyzer 8000 are being challenged in every state in which it is in service.

### ***Ohio's Assault on the 8000***

Although a full assault has not yet been launched on the Intoxilyzer 8000 in Ohio as of yet, test results have been successfully challenged and have been suppressed from being introduced into evidence for several reasons.

The instruments currently in service in Ohio have an unusually high number of "ambient fail" readings. Basically, the instrument has the ability to draw in air from the surrounding area of the instrument and analyzes that air to determine the presence of alcohol or any other contaminant which may affect the test result. If a small amount of alcohol or contaminant is detected, the instrument will compensate for that amount. If a larger amount is detected, the instrument will not allow the test to proceed due to an "ambient fail." For unknown reasons, the instruments in Ohio have an excessive number of "ambient fail" readings. One explanation, by a representative from the Ohio Department of Health assigned to investigate the matter, is that the error was caused by radio frequency interference from Blackberry phones. His conclusion is not accepted by most experts in the field. An acceptable answer has not yet been provided by the State. An inspection of the instruments operational software would most likely reveal the actual malfunction.

A second challenge relates to the fact that the individual that certified the first several instruments placed into service is no longer employed by the State. As for the instruments that were subsequently placed into service, those were certified for use by a limited number of individuals. It is very difficult for those few individuals to be at various courts throughout the state at the same time to testify as to the accuracy of the certification. Records maintained on the central database website should not be sufficient for admission into evidence because the accuracy of the documentation maintained by the central database cannot be accounted for as indicated in ODH's "Notice and Disclaimer of Liability."

The "disclaimer" appears on the website which hosts the central database. As indicated, the State cannot account for the "quality, accuracy, or completeness of the data" maintained on that site. In addition, the State acknowledges that the data "does not constitute scientific publication" and "may

contain errors or be incomplete." Despite this fact, hundreds of individuals throughout the State have already been convicted of OVI based upon these very same records.

Law enforcement officers administering the tests have not been properly trained in the operation of the instrument and the interpretation of test results. Although the instrument is relatively simple to run, officers have not received sufficient training regarding the procedure to follow when an error occurs. A review of test records revealed that despite error after error, officers continued to administer tests on an instrument proven to not be in proper working order without the instrument being first taken out of service and repaired.

The test result on the Intoxilyzer 8000 is a little more difficult to interpret than the result on other instruments. The Intoxilyzer 8000 has been programmed to administer two tests (dual testing) to each individual tested. Although new to Ohio, dual testing is common in most states and is recommended by almost every expert and the National Safety Council. All instruments approved for use in Ohio, are capable of dual testing and the settings can be modified to perform dual testing within a couple of seconds by anyone intelligent enough to read a manual. The Ohio Department of Health simply never required it until the Intoxilyzer 8000 became an approved instrument.

With dual testing, it is possible for an individual to test both over and under the legal limit. Although the instrument is programmed to print the result for the lower of the two tests as the final result, the higher of the two tests also appears on the printout. Some officers are ignoring the lower test in this situation, and placing the individual under an administrative license suspension based upon the higher test result. These same officers are then filing the "per se" OVI charge (testing at or over the legal limit) when that charge should not be filed.

Another issue that arises with dual testing is that the two test results must be within .02 grams of alcohol per 210 liters of a breath of one another. If the results are not within this tolerance level, the results are not valid. When the two tests are not within the required tolerance level, the final test result is invalid regardless of the BAC level of either test. Yet, some officers will treat the test result as valid if one or both test results are at or over the legal limit. This scenario also results in a license suspension and the filing of a "per se" OVI charge when neither is appropriate.

Situations where multiple tests are administered to an individual due to invalid test results or instrument error will also provide a challenge to test results. Some officers will continue to administer tests to an individual until the officer considers the test result valid. In some cases, the individual may be asked to submit to as many as eight tests. Rather than take the instrument out of service and correct the problem, the instrument will continue to be used.

Officers failing to turn over all test results to the prosecutor have been an issue in some cases. Some officers will only turn over to the prosecutor test results which indicate a valid test result. It is necessary to corroborate the test results maintained on the central database to insure that all test results, valid and invalid, are disclosed.

Finally, there is the attack upon the accuracy and reliability of the instrument. This has proven to be a very complex, difficult and expensive undertaking in other states and may be an even more complex, difficult and expensive undertaking in Ohio.

In Ohio, our Supreme Court has stated that the general reliability of a breath testing instrument cannot be challenged. The challenge must be specific to the test at issue. Defense counsel have had a difficult time overcoming the hurdles set forth by the Supreme Court of Ohio when attempting to challenge the accuracy of breath alcohol test results. Use of the Intoxilyzer 8000 should open the door for challenges to both the general reliability of the instrument as well as challenges to the specific test at issue.

Although not common knowledge, many experts, defense attorneys and even some prosecutors and judges, agree that there are valid concerns regarding the accuracy and reliability of the Intoxilyzer 8000. Demonstrations have proven the fallibility of the instrument. At many, if not most, demonstrations, the instrument has failed to work properly. A simple review of the test results maintained on the central database reveal many problems with the general reliability of this particular instrument. Evaluations in other states have also revealed many pitfalls with regard to error and accuracy of test results.

### ***Conclusion***

Defense attorneys throughout Ohio should be happy with the choice of instrument by ODH. Although a valiant attempt was made to bring breath alcohol testing in Ohio into 21<sup>st</sup> century, the attempt clearly failed. The Intoxilyzer 8000 (OH-5) is a huge step in the wrong direction. The general reliability of the instrument's ability to determine accurate BAC levels is certainly at issue. The failure to disclose the source code to the defense bar for independent analysis makes the instrument even more suspect. Finally, when requested by ODH representatives to address issues concerning problems related to the source code, CMI did not provide a direct response. Instead, the CMI representative simply indicated that Ohio need not worry about the issues surrounding the source code because in Ohio it is not up to the courts to determine the reliability of the instrument. Until it is decided that the determination of the reliability of breath testing instruments is within the purview of the court, many individuals will be wrongly convicted in Ohio.