

# TEXAS DEPARTMENT OF PUBLIC SAFETY

## Breath Alcohol Laboratory

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Tuesday, October 18, 2011

The Honorable Patricia R. Lykos  
Harris County District Attorney  
1201 Franklin, Suite 600  
Houston, Texas 77002

The Honorable Patricia R. Lykos:

Included with this letter is a copy of the report concerning the Ambient Temperature Study conducted on the Houston Police Department Breath Alcohol Testing (BAT) van.

The report is self-explanatory and I have included the conclusion section of that report below.

*“The accuracy of subject breath alcohol results produced by four Intoxilyzer 5000-68 EN instruments, three of which had been reportedly exposed to high ambient temperatures in Houston Police Department Breath Alcohol Testing (BAT) vans, were tested. The results clearly indicated that even after exposure to high ambient temperatures, once the ambient temperature had cooled to normal levels, the instruments correctly analyzed all alcohol concentrations over the range of 0.000 to 0.400 g/210 Liters of breath. If anything, exposure of Intoxilyzers to high ambient temperatures may cause slightly lower subject results when the instruments are returned to normal operating temperatures. No subject results could be obtained when the Intoxilyzers were operated at high ambient temperatures (96°F to 108°F) because the sample chambers exceeded their maximum allowable temperature which caused the instruments to fail the diagnostic test (circuitry check).”*

If you have any questions please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink that reads "Ronald D. Oliver".

Ronald D. Oliver  
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## **A Report of the Intoxilyzer 5000-68 EN BAT Van Ambient Temperature Study**

Ronald D. Oliver, Forensic Scientist-Technical Supervisor, DPS Houston  
Paul A. Calderon, Forensic Scientist-Technical Supervisor, DPS Austin

### **INTRODUCTION**

Breath alcohol analyzers, such as the Intoxilyzer 5000-68 EN, when properly used in a site approved by a Technical Supervisor who is certified by the Department of Public Safety (DPS), may be used to test persons under arrest for Driving While Intoxicated (DWI) and that evidence is admissible in both criminal and civil trials. Breath alcohol analyzer testing sites are approved by certified Technical Supervisors to meet security and technical suitability requirements. Most of the approximately 400 evidential testing sites are located in permanent structures such as jails or other appropriate facilities; however, 13 mobile testing sites are currently approved.

The Houston Police Department (HPD) designed and purchased several, specially modified vans, known as Breath Alcohol Testing (BAT) vans, for use in the investigation of alcohol related traffic crimes. The vehicles are fully equipped with an Intoxilyzer 5000-68 EN and related equipment. Prior to being placed into service, the vehicles were inspected by certified Technical Supervisors and deemed suitable for security and technical testing needs. Recently, assertions have been made in open court calling into question the technical suitability of the BAT vans due to high ambient temperatures which allegedly may have affected the accuracy of the test results.

A search of the scientific literature revealed no peer reviewed scientific journal articles concerning the accuracy of subject test results produced by Intoxilyzer 5000-68 EN instruments after repeated exposure to high ambient temperatures. Therefore, the Harris County District Attorney's Office requested the DPS Crime Laboratory Service Breath Alcohol Laboratory to investigate the accuracy of subject test results produced by instrumentation subjected to high ambient temperatures.

### **METHOD**

Three Intoxilyzer 5000-68 EN instruments, serial numbers 68-012454, 68-013716 and 68-013717, previously reported to have been exposed to high ambient temperatures in the HPD BAT vans, were tested for accuracy. One new Intoxilyzer 5000-68 EN, serial number 68-013992 was tested as a control. All tests were conducted between August and September 2011 at the DPS Headquarters in Austin, Texas in one of the HPD BAT vans.

With the Intoxilyzer instruments and associated equipment turned on, the interior of the BAT van was allowed to reach a high ambient temperature by turning off the air conditioning (AC) systems. The AC units were then turned on and the ambient temperature cooled down to the normal testing range, approximately 68°F to 80°F.



The Intoxilyzers were then tested in the standard subject testing mode. The standard subject testing mode begins with an instrument diagnostic test, also called a circuitry check. Test information is then entered by the operator via a keyboard. The testing sequence begins automatically after data entry. The testing sequence consists of an air blank, subject analysis, air blank, reference check (calibration check), air blank, subject analysis and air blank.

To insure that the performance of the Intoxilyzer was tested over a wide range of values, alcohol concentrations were analyzed at 0.000, 0.040, 0.080, and 0.400 g/210 Liters. The 0.000 result was produced by having an alcohol free researcher provide a breath sample by blowing through the breath sample tube into the instrument exactly as would a person under arrest for DWI. The four alcohol concentrations were provided in the same manner by a researcher who blew through a reference sample device into the breath sample tube and into the instrument. A reference sample device is also known as an alcohol breath simulator. The four alcohol solutions had been tested and confirmed as traceable to National Institute of Standards and Technology (NIST) standards.

## **RESULTS AND DISCUSSION**

All four Intoxilyzer 5000-68 EN instruments were subjected to the procedure described above. The Intoxilyzer 5000-68EN sample chamber is thermostatically controlled with a heating tape and designed to operate from 44°C to 50°C (111.2°F to 122°F). Excessive ambient temperatures may create a situation where the sample chamber temperature exceeds the operating range. Prior to initiating a subject analysis, the Intoxilyzer 5000-68 EN conducts a series of diagnostic tests. If the sample chamber is outside the temperature range of 44°C to 50°C (111.2°F to 122°F) the instrument will fail the diagnostic test (circuitry check) and the test will not proceed.

With the Intoxilyzer instruments and associated equipment turned on and all air conditioning units in the BAT van turned off, the interior of the BAT van reached ambient temperatures between 96°F to 108°F. This was sufficient to cause the sample chambers inside the Intoxilyzers to exceed their maximum allowable temperature. No subject results could be obtained when the Intoxilyzers were overheated because the Intoxilyzers failed the diagnostic test (circuitry check) that is automatically conducted as a part of every subject test.

When the ambient temperature was reduced to a normal range, the results clearly indicated that even after exposure to high ambient temperatures, the instruments correctly analyzed all alcohol concentrations over the range of 0.000 to 0.400 g/210 Liters. There was no difference in the performance of the three Intoxilyzers that had been removed from the BAT vans and the control Intoxilyzer. If anything, the Intoxilyzers produced a slightly lower than expected result and this would be to the benefit of any individual charged with an offense.

## **CONCLUSIONS**

The accuracy of subject breath alcohol results produced by four Intoxilyzer 5000-68 EN instruments, three of which had been reportedly exposed to high ambient temperatures in Houston Police Department Breath Alcohol Testing (BAT) vans, were tested. The results clearly indicated that even after exposure to high ambient temperatures, once the ambient temperature had cooled to normal levels, the instruments correctly analyzed all alcohol concentrations over the range of 0.000 to 0.400 g/210 Liters of breath. If anything, exposure of Intoxilyzers to high ambient temperatures may cause slightly lower subject results when the instruments are returned to normal operating temperatures. No subject results could be obtained when the Intoxilyzers were operated at high ambient temperatures (96°F to 108°F) because the sample chambers exceeded their maximum allowable temperature which caused the instruments to fail the diagnostic test (circuitry check).