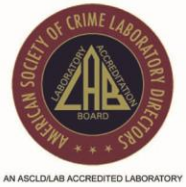




San Diego Police Department Crime Lab  
Forensic Chemistry Unit



# FORENSIC CHEMISTRY UNIT

## BREATH ALCOHOL METHOD MANUAL

Issuing Authority: John Simms, Quality Manager

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## 1.0 GENERAL

This section describes the breath alcohol analysis procedures as used by the San Diego Police Department, Forensic Science Section. The Forensic Chemistry Unit currently maintains the breath alcohol testing program that includes the use of Intoxilyzer 8000 instruments from CMI™. These instruments are capable of uploading data and test information to a host computer. This data is maintained in the laboratory and reviewed by laboratory personnel.

The procedures to maintain this program are in compliance with Title 17, California Code of Regulations. In addition, the Forensic Chemistry Unit provides the San Diego Police Department's (SDPD) handheld Alco Sensor IV training program. The staff in this section performs maintenance, calibration, and accuracy testing on these units.

### 1.1 BREATH TESTING LOCATIONS

The Intoxilyzer 8000 instruments are located in Room 138 of the SDPD headquarters building, in SDPD patrol vehicles, and can be located in the San Diego Police Department's mobile van, or SDPD substations. The breath alcohol testing procedures are the same for all instruments, irrespective of their location.

### 1.2 OPERATOR TRAINING

The breath alcohol instrument training program includes the Alco Sensor IV handheld device and the Intoxilyzer 8000.

Training topics for both instruments include:

- Theory of operation
- Precautionary Checklist
- Procedure of Operation
- Practical (Hands-On) Training
- Written and/or a practical examination

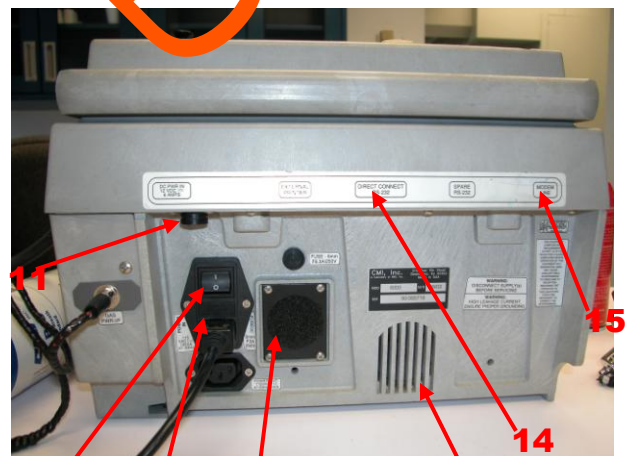
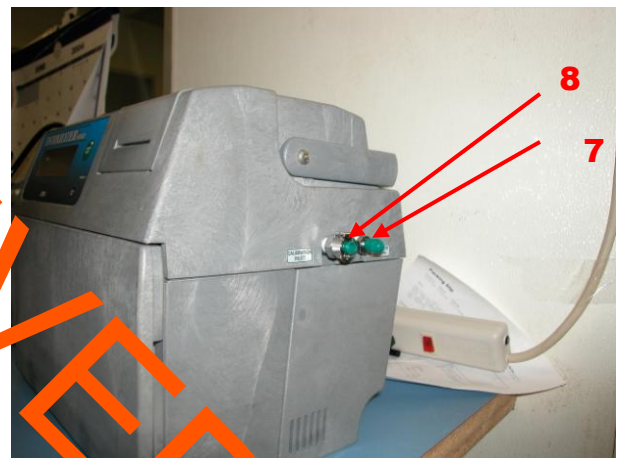
These topics are further outlined in the Breath Training Manual.

## 2.0 INTOXILYZER 8000 INSTRUMENT DESCRIPTION

## 2.1 GENERAL

The CMI, Inc. INTOXILYZER® 8000 is an infrared-based instrument; its features are shown in the following diagram.

1. Mouthpiece Storage Area. It keeps mouthpieces heated.
2. Breath Hose. It is coiled in the top recess of the instrument to allow easy access. The hose is flexible but non-kinking, non-collapsible and heated. It is heated to minimize the likelihood of condensation during a breath test.
3. Instrument Display. It is vacuum fluorescent and capable of displaying 2 x 20 characters.
4. Drop-down standard PC keyboard. It may be detached from main unit to enable data entry to be performed remotely from where the test is taking place.
5. Printer Unit. It uses thermal sensitive paper.
6. Start Button. This button is used to initiate an evidential breath test.
7. Simulator Return Port. A port located on the right side of the instrument for simulator use.
8. Calibration Inlet Port. A port located on the right side of the instrument for use in dry gas calibrations.
9. AC Power Socket. It is located on the back of the instrument for plug in to a power source. The power source is the 110V AC wall plug.
10. Power Switch. A toggle switch located on the back of the instrument, which turns the instrument on and off.
11. DC Power Socket. Located on the back of the instrument for plug-in to a power source. In vehicles, the power source is a 12V DC car battery.
12. Fan. The fan pulls air in, for instrument cooling.
13. Speaker. Instrument tones.
14. Direct Connect Port. This allows data download by direct computer connection.
15. Modem Port. This allows data download via phone line.



Other instrumental features and instructions, such as customized keyboard options and diagnostics are available in the Intoxilyzer 8000 Operators' Manual.

## 2.2 INSTRUMENT SPECIFICATIONS

Specifications set by CMI Inc.

- Sample Chamber Volume = 29 ml
- Minimum sample volume = 1.1 L
- Minimum Flow Rate = 0.15L/second
- BAC range 0.000 to 0.600 g/210L
- Accuracy  $\pm 3\%$  or  $\pm 0.003$  g/210L whichever is higher
- Precision: Std Deviation of 0.003 g/210L or better
- Operating temperature: 0 to 40°C
- Storage temperature: -10 to 60°C
- Humidity: 5 to 100% non-condensing
- AC or DC Power: conflict protected
- Digital temperature control of Cell ( $47^{\circ}\text{C} \pm 0.2^{\circ}$ )
- Breath hose ( $45^{\circ}\text{C} +2^{\circ}, -9^{\circ}$ ) regulated to  $\pm 0.2^{\circ}\text{C}$
- 1 Megabyte data storage
- Sample tested 4 times/second and 7 times for a level slope
- Purge threshold is 0.012%
- Ambient fail above 0.019%

## 2.3 SUBJECT TEST ADMINISTRATION INSTRUCTIONS

The following precautionary checklist outlines the steps taken to administer a proper subject test.

### ***INTOXILYZER 8000 PRECAUTIONARY CHECKLIST***

1. Continuously observe the subject for fifteen minutes before beginning the test. During this time, the subject must not ingest alcoholic beverages or other fluids, regurgitate, vomit, eat, or smoke.

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2. Press the green START TEST button to start. If the instrument is in STANDBY MODE, a 60 second countdown will bring the instrument into READY MODE.
3. When the display shows READY MODE, press the green START TEST button.
4. Use the Intoxilyzer's keyboard to enter the case information, or swipe the subject's driver's license when directed. The subject's name must be entered as LAST NAME, FIRST NAME, and MI. Review the data when it is displayed.
5. **15 Min Obs (y/n?)** Respond accordingly. Wait another 15 minutes if necessary.
6. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
7. **Diagnostic Check** – Instrument does this automatically.
8. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
9. The instrument will display **Reference** and then perform a GEBS check.
10. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
11. The instrument will again display **Reference** then prompt **Please Blow**. Place a **new** mouthpiece onto the breath hose.
12. Have the subject blow into the mouthpiece until he/she is out of breath.
13. Remove and discard the mouthpiece. Return breath hose to cradle.
14. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
15. The instrument will complete a 1½ minute countdown.
16. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
17. The instrument will again display **Reference** then prompt **Please Blow**. Place a **new** mouthpiece onto the breath hose.
18. Have the subject blow into the mouthpiece until out of breath.
19. Remove and discard mouthpiece. Return breath hose to cradle.
20. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.

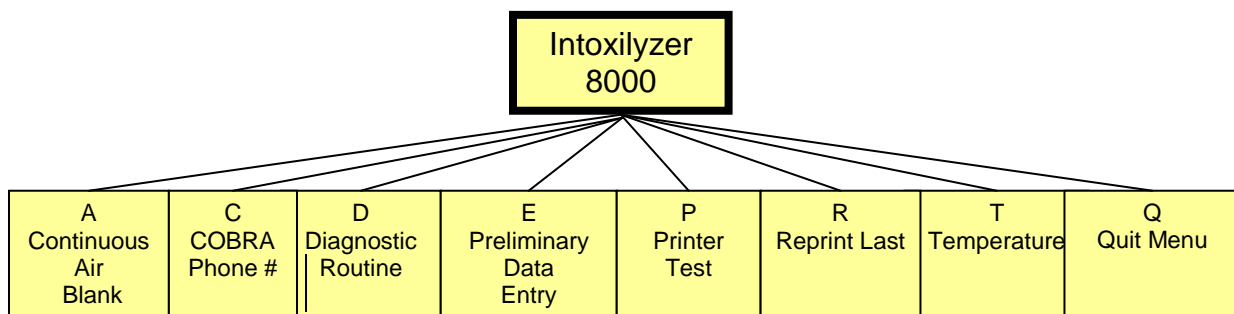


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21. If the two breath test results do not agree within 0.02%, the instrument will automatically require a third breath test. Repeat steps 17-20.
22. If the two breath results agree within 0.02%, the instrument will continue the sequence.
23. The instrument will display **Reference** and then perform a GEBS check.
24. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
25. **Diagnostic Check** – Instrument does this automatically.
26. **Air Blank**; leave the breath hose in the cradle. Verify the result is 0.00g%.
27. When the LED prompt reads **Trombetta Adm Given?**, administer the admonishment and press the “y” key.
28. The instrument will print the test results. Verify that “**Successfully Completed Test**” is printed. This message must print or the subject test is not successful and must be repeated.
29. Print at least two additional copies of the test results by pressing “F1” for each copy on the keyboard. Verify all information is correct, add observation time, and sign each copy.
30. Paperwork Distribution: One copy is provided to the subject; one copy is provided to the Court; one copy is retained for records.

#### 2.4 INTOXILYZER 8000 MENU OPTIONS

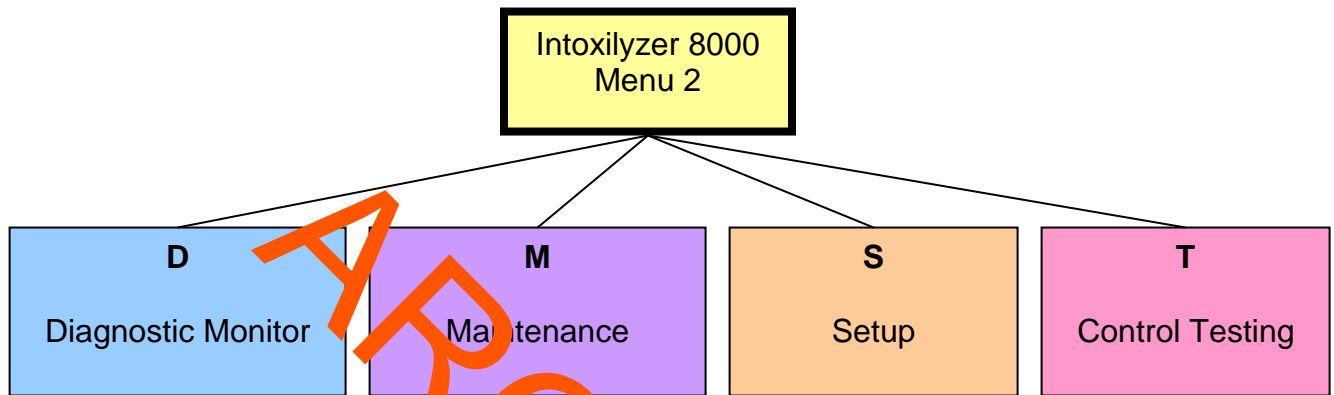
To access Menu 1 in the Intoxilyzer 8000, press the escape key twice. This menu is accessible by trained operators.



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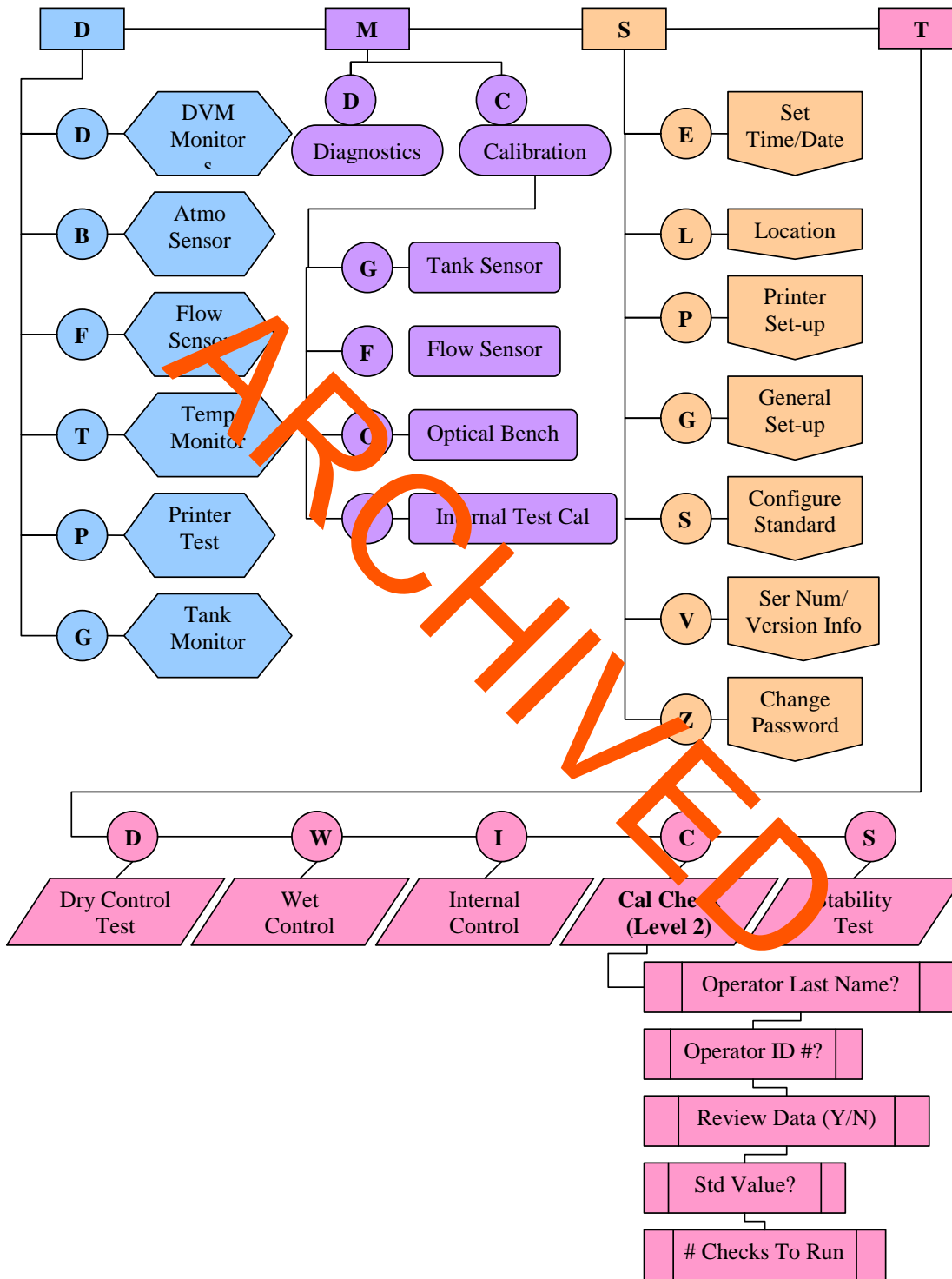
Menu 2 is password protected. Only laboratory personnel who have had Intoxilyzer 8000 instrument training have access.

To access Menu 2, press the escape key twice. Press the 2 key and then the enter key. Type in the current password and press the enter key.



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**Intoxilyzer 8000 Menu 2 Flowchart**





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I- Internal Test Cal: Cal ITP (Y/N)? Done at manufacturer, or in the lab.

**Menu 2- S, Setup: ELPGTSVZ**

**E- Set Time/Date:** Date: MM/DD/YYYY  
Time: HH:MM:SS  
DST Auto-Adjust (Y/N)? Y

**L- Set Location:** Enter Location: San Diego PD

**P- Printer Setup:** Inhib Printer (Y/N)? N  
Printer Copy Count: 1

**G- General Setup:** Display Volume? N  
Display Third Digit? Y  
Breath Three Digits? N  
Display Prelim Rslt? Y  
Autofill Op Data? N (Y, if used in patrol cars)  
Ask Arrest Beat? Y  
Disable on Memfull? Y  
Max Retries 5  
Retry Wait (min) 5  
Enable Data Stream? N

**T- Configure Start Test:** Data Entry Mode: Enabled  
Start Test Sequence AD(C)ABAWABA(WABA)CAD  
(WABA for our breath testing use)  
**Note:** A = Air, D = Diagnostic, C = Cal Check, B = Breath, W = Wait  
**Note:** The (WABA) is used when the first two Breath values do not come within 0.02% of each other.

**S- Configure Standard:** Select Std (D/W/I)? D (W, if a simulator solution is used)  
**Note:** D = Dry Gas, W = Simulator Solution, I = Internal Test done by manufacturer  
Standard Value? 0.100 (Breath Alcohol Equivalent of simulator solution, or NIST tank value)

**V- Ser Num/Version Info:** Inst Ser #: 80-00\_\_\_\_ (Instrument's serial#)  
Core Ver: 8122.13 (Instrument's current software)

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**Z- Change Password:** Enter Password: The current password will appear.  
Type in the new password.

**Menu 2- T, Control Testing: DWICS**

**D- Dry Control Test:** An instrument check using GEBS is performed.

**W- Wet Control Test:** An instrument check using a simulator with BAE solution is performed.

**I- Internal Control Test:** The instrument performs an internal check of the IR source.

**C- Calibration Check:** Operator Last Name?  
Operator ID?  
Review Data (Y/N)  
Standard Value?  
# Checks to Run  
This is a Menu 2 Cal Check, the information is retained in the data base, and a print out is obtained.

**S- Stability Test:** Select Std. (D/W)? Choose W, when Simulators are used for linearity checks. I, is used by the manufacturer.  
# Check to Run 2. (2 is the minimum number).  
This mode is used when linearity checks are done using simulator solutions. Stability Test information is not retained in the database. The printout must be photocopied for records.

### 3.0 ADDITIONAL INSTRUMENTS AND DEVICES

#### 3.1 DRY GAS ETHANOL CALIBRATING DEVICES

3.1.1 These devices are tanks of a compressed mixture of ethanol and nitrogen, and have been given the name Gaseous Ethanol Breath Standard (GEBS). The value of each tank is approximately 0.100 grams%. The tanks are received with certificates of analysis which are traceable to NIST (National Institute of Standards and Technology). A NIST traceable certificate is attached to each tank upon receipt.

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3.1.2 The expiration date of each tank is two years from the manufacture date. Upon receipt, each tank along with its certificate, will be numbered 1, 2, etc. In addition the receipt date and the receiver's initials will be placed on the tank. The tanks are stored in a cool dry place. The certificates are kept in a binder in the Forensic Chemistry Unit.

Note: If the tank value is not 0.100%, the value will need to be reset in the instrument. To do this, Go to "S" Setup under Menu 2, choose "S" Configure Standard, then "D" for dry gas. The Standard Value will be displayed. Change to appropriate value.

3.1.3 Regulators used for the Calibrating Devices (gas tanks) must be tared to each instrument prior to use. This is achieved through Menu 2 access. To do this, go to menu 2, scroll to M, Maintenance, then C, Calibration, and then G, Tank Sensor Cal. The answer to the prompt will be Y to tare tank regulator. The regulator is connected to the instrument and disconnected from the GEBS tank during the taring process.

3.1.4 Tanks contain approximately 1000 psi when they are full. When the tanks reach 25 psi, no further testing can be done. Prior to discard, each tank must be totally empty. Empty the tank by using the pin puncher. This device is screwed onto the tank to allow residual gas to escape by dropping the pin valve to the bottom of the tank. Once the tank is empty, it is marked, empty, with a piece of tape. The empty tanks are taken to the chemical storage room for vendor discard.

3.1.5 A dry gas GEBS control is run before and after each subject test. If the value of each GEBS check does not fall within  $\pm 0.01\%$  of the tank's stated value, "Not a Successful Test.", is printed on the test strip. Additional GEBS checks can be performed by trained laboratory personnel through menu 2 access.

### 3.2 LIQUID SIMULATOR CALIBRATING DEVICES, GUTH MODEL 34°C

3.2.1 Simulators provide another method for evaluating the Intoxilyzer 8000's performance. Solutions of known concentrations of ethanol and water (BAE-Breath Alcohol Equivalent) are mixed and heated in a simulator. These solutions can be used to test the performance of the Intoxilyzer 8000. The preparation of the BAE solutions is outlined in Solution Preparation.

3.2.2 Guth Simulators are provided with NIST traceable thermometers and calibration certificates.

### 3.3 USE OF A SIMULATOR WITH THE INTOXILYZER 8000

3.3.1 Fill the glass reservoir to the line with 500 ml of the BAE solution. Label the simulator with the BAE value, the analyst's initials and the current date. Screw on the top of the simulator. Plug the simulator cord into a 110 V outlet and turn

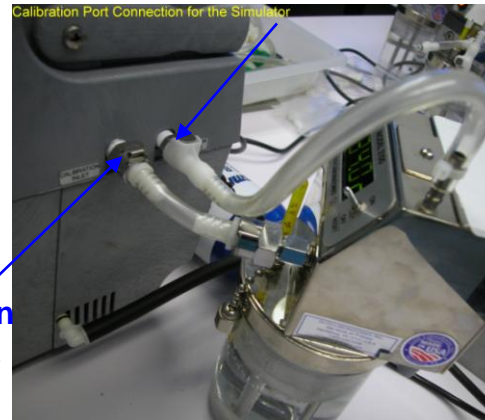
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on the simulator. Verify that the paddle is turning. Wait at least 1 hour for the solution to be warmed to 34° C +/- 0.2° C. The “Heater” light will turn off when the solution has reached the required temperature and the display should read 34° C.

### Simulator Return Port

#### 3.3.2 Calibration Port Connection for the Simulator:

Attach the tube from the simulator port that is labeled “To Breath Tester” to the “Calibration Inlet” port on the side of the Intoxilyzer. Attach the tube on the top of simulator to the “Simulator Return” port located on the side of the Intoxilyzer. This is important; because, if reversed, the instrument will flood.



Calibration  
Inlet Port

#### 3.3.3 Breath Port Connection for the Simulator:

Attach the breath hose to the front of the simulator into the port labeled “To the Breath Tester.” Attach a new mouthpiece to the tube on the top of the simulator. Blow through the mouthpiece to force a vapor sample from the simulator to the Intoxilyzer.



To the Breath Tester



## 4.0 YEARLY QUALITY ASSURANCE and MAINTENANCE PROGRAM

### 4.1 SCHEDULE FOR MAINTENANCE OF THE INTOXILYZER 8000

A full quality assurance check will be completed on every instrument yearly, when a new instrument goes into service, before an instrument previously out of service is placed back into use, and after any factory maintenance.

### 4.2 QUALITY ASSURANCE CHECKS PERFORMED

- 4.2.1 Initialization Check
- 4.2.2 Date and Time Verification
- 4.2.3 Periodic Determination of Accuracy (PDOA)/Accuracy Check
- 4.2.4 Invalid Sample Check (Mouth Alcohol)
- 4.2.5 Deficient Sample Check
- 4.2.6 Test Refusal Check
- 4.2.7 Improper Sample Check
- 4.2.8 Alcohol Free Subject Test
- 4.2.9 Interferent Check (Acetone)
- 4.2.10 Radio Frequency Interference Check (RFI)
- 4.2.11 Tank Pressure and Regulator Checks
- 4.2.12 Ambient Fail Check
- 4.2.13 Temperature and Cell Monitor Check
- 4.2.14 GEBS Fail Check
- 4.2.15 Magnetic Strip Reader Check and Alcohol Free Subject Test
- 4.2.16 Linearity check
- 4.2.17 Direct Connect Download and Clearing of Data

Any time an instrument is reported and verified to be not performing to expectations, steps will be taken by the laboratory to have the instrument repaired.

### 4.3 REAGENTS AND SUPPLIES

- 4.3.1 GEBS Tanks (Purchased from CMI)
- 4.3.2 3 Guth Model 34 C Simulators containing BAE Solutions “.05%”, “.08%”, or “.10”, and “.20”, in simulators and warmed to 34° C
- 4.3.3 Dilute Ethanol Solution
- 4.3.4 Cotton Mouth Swabs
- 4.3.5 Designated Acetone simulator warmed to 34 ° C with 300 µl of acetone added to any concentration of BAE solution

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- 4.3.6 Police Radio, or Cellular Phone
- 4.3.7 Various Tubing and Connectors (See, “How to Use the Guth Model 34 ° C Simulators”)

#### 4.4 QUALITY ASSURANCE CHECKS ON THE INSTRUMENT

- 4.4.1 Plug the instrument into a laboratory outlet and power on. The instrument must initialize by printing out an “Instrument Initialization” strip. If this does not occur, power off then on again looking for initialization. If the instrument still does not initialize, check instrument connections thoroughly before returning to the manufacturer.
- 4.4.2 Date and Time Verification: Ensure the instrument maintains date and time after powering off and then back on. If necessary, change the date and time through menu 1. Scroll to E, Prelim Data Entry, by using the arrow keys on the keyboard. Use the enter key, continuing until “Please Wait...Saving” appears on the screen.
- 4.4.3 Diagnostic Check: Once the instrument has warmed up, a Diagnostic Check is automatically initiated after the countdown, or accessed in menu 1 by scrolling to D, Diagnostic. All parameters must pass.
- 4.4.4 Calibration Check (PDOA): Go to menu 2 and scroll T, Control Testing and then C, Calibration Check. The instrument will ask for name and ID number. Verify that the standard value is correct. This value is printed on the GEBS tank label. Enter the information and 5 for the number of tank pulls. The GEBS dry gas standard that is attached to the instrument will automatically perform the tests. The GEBS results will be printed at the end of the 5 checks.
- 4.4.5 Invalid Sample Check (Mouth Alcohol): Start a subject test. When the instrument instructs “Please Blow Until Tone Stops/R,” attach a new mouthpiece swabbed with a solution containing alcohol, such as mouthwash, and blow. A tone will sound aborting the test. For the subject test result, XXX will print on the test strip along with the message, “Wait fifteen minutes; Repeat Test.”
- 4.4.6 Deficient Sample Check: Start a subject test. When the instrument instructs “Please Blow Until Tone Stops/R,” attach a new mouthpiece and blow softly, just to start the tone, without providing a full sample. Wait for the instrument to time out; this should take 3 minutes. For the subject test result, DEF will print on the test strip along with the message, “Deficient Sample.”
- 4.4.7 Abort Test Check: Start a subject test. When the instrument instructs “Please Blow Until Tone Stops/R,” Press the R key for a refusal during the subject test. The subject test will stop. For the subject test result, REF will print on the test strip, along with the message “Subject Test Refused.” When the green “Start Test” button is pushed during any part of the test

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- sequence; for the subject test result, ABT will print on the test strip along with the message "Sequence Aborted."
- 4.4.8 Improper Sample Check: Start a subject test. Blow into the mouthpiece at any time prior to the "Please Blow Until Tone Stops/R" prompt. A tone will sound from the instrument. For the subject test result IPS will print on the test strip along with the message "Improper Sample."
- 4.4.9 Interferent Check (Acetone): Use the acetone prepared simulator for this test. Start a Subject Test. When the instrument instructs "Please Blow Until Tone Stops/R", attach the breath hose to the front of the simulator and blow into the simulator by using the tubing on top of the simulator. The vapor from the simulator is blown into the instrument through the breath hose. Disconnect the breath hose from the front of simulator during air blanks. For the subject test result INT will print on the test strip along with the message "Interferent Detected Choose Another Test."
- 4.4.10 RFI Detector Check: Start a "Subject Test.": When the instrument instructs "Please Blow Until Tone Stops/R", transmit a message with the police radio or cellular phone within 5 ft. of the instrument's display screen. The subject test will stop. For the subject test result, RFI will print on the test strip along with the message "Radio Frequency Interferent Detected."
- 4.4.11 Tank Pressure and Regulator Reading Check: Check the reading of the gauge on the GEBS tank, then access menu 2, scroll to D, Diag Monitors and then G, Tank Monitor. If the readings do not agree within approximately 100 psi, turn the regulator to the instrument. To do this, go to menu 2, scroll to M, Maintenance, then C, Calibration, and then G, Tank Sensor Cal. Follow the instrument prompts. Compare the two readings again. If the readings still do not match, replace the regulator and/or check the tank on another instrument to determine if it is the tank regulator or the instrument tank sensor that is a issue.
- 4.4.12 Ambient Fail Check: Start a "Subject Test". Attach a new mouthpiece to the breath hose. When the Air Blank occurs, put the mouthpiece near a solution containing ethanol. For the subject test result, AMB will print on the test strip along with the message "Check Ambient Conditions; Repeat Test."
- 4.4.13 Instrument Temperature Check: When the instrument is in ready mode, access menu 1. Scroll to T, Temperature Monitor. The breath hose (B) temperature should be 36 - 47°C, with the ideal temperature at 45°C, and the cell temperature(C) should be 47°C ± 0.2°C,
- 4.4.14 Subject Test during a Failed GEBS Check: Start a subject test. Unhook the GEBS tank, or blow into the instrument when a calibration check is occurring during a subject test.
- 4.4.15 Magnetic Strip Reader Check and Alcohol Free Subject Test: Start a subject test. When the screen instructs "Swipe ID or Press Enter," swipe a California ID card or driver's license, with an intact magnetic strip. The instrument will emit 3 short tones indicating the ID has been read, followed

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- by the card/license information appearing on the instrument screen.  
Continue with the subject test to perform the Alcohol Free Subject Test.
- 4.4.16 Instrument Linearity Check: Check each of 3 levels of Nist-traceable gases 10 times, Record all values. Instrument readings must be within  $\pm 0.01\text{g}/210\text{L}$  of the determined BAE value. Check the GEBS Nist-traceable gas 20 times.
- 4.4.17 Instrument Download and Instrument Clearing and Defragmentation: Use the Direct Connect Method to download the instruments' data base, as listed on page 19 Section 5.3.1. This method also defrags the instruments' database.
- 4.4.18 Clean the particulates screen on the instrument prior to placing in use as well as dusting the instrument keyboard and breath hose area. Using a damp wash, gently wipe the particulate screen. Use canned air for dusting. Instruments must pass all parameters to be ready for field use once per year. Yearly quality assurance must also be done when an instrument is placed out of service. A new yearly date would initiate when the instrument is placed back in service so that the instrument only requires a quality assurance protocol once per year.
- 4.4.19 After testing is complete, initial and photocopy the test strips. Complete the maintenance log sheets. Submit maintenance log sheets and the test strips for technical and administrative review. File the photocopies along with the original test strips in the appropriate section of the Intoxilyzer 8000 maintenance book.

#### 4.5 UNCERTAINTY OF MEASUREMENT FOR INTOXYLIZER INSTRUMENTS

The uncertainty of measurement has been determined for each instrument that is used to collect evidentiary breath samples. The uncertainty of measurement is reported with each evidentiary breath strip. Analytical data and calculations used to determine the measured uncertainty will be maintained in an uncertainty binder in the Forensic Chemistry Unit.

The measured uncertainty will be re-established when the quantitation capability of an instrument is affected through repair or establishment of new calibration standards for GC analysis.

## 5.0 DATA MANAGEMENT USING COBRA

### 5.1 ASSIGNING ACCESS TO COBRA

- 5.1.1 The supervisor or a current user will need to perform the initial log in for the Cobra system.
- 5.1.2 Double click on the Cobra icon to access Cobra. Start Cobra by typing in a User ID and Password all in CAPS then click OK.
- 5.1.3 Click on Setup at the top of the screen. Scroll to Users. A user maintenance window will open. Click on Add. Ask the new user for a three letter user identity to use for log in. The log in process is case sensitive, use capital letters. Fill in the required information giving criminalists the Access Right of 9. Save the New User information and then close the screen when complete. The new user will automatically have a default password of 5 zeros, which will expire after 5 logins.
- 5.1.4 Close Cobra. Have the new user open Cobra and login with the chosen User ID and the default password of 5 zeros.
- 5.1.5 Return to Setup at the top of the screen. Scroll to Password. A window will open to change the password. Use the 5 zeros current password, and then enter the new desired password twice. Click on OK. The new password is now permanent.

### 5.2 INTOXILYZER CONTROL U DATA UPLOAD METHODS

#### 5.2.1 Control U Method

- 5.2.1.1 Weekly Upload of Instruments in Room 138 and Alcohol Room.
  - a. On the laptop computer in the laboratory, open Cobra Remote from the main screen. Cobra Remote should always be open. Ensure the phone line is attached to the laptop.
  - b. In Room 138, connect the phone line on the wall across from the Intoxilyzers, to the modem port on the back of the Intoxilyzer. In the laboratory, the phone line is attached to the cordless phone outlet. **Note:** The phone number used for uploading the data in Room 138, the alcohol room, or for any other location within a police building in the 619 area code, is 531-2198 (12198).
  - c. Press the Control (ctrl) key simultaneously with the "U" key on the Intoxilyzer keyboard. The instrument should automatically connect

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and upload records to the laptop computer located in the laboratory.

- d. When Comms Transfer Upload OK appears on the screen, press the Enter key on the keyboard to return to the Intoxilyzer's main screen. This message must appear for the instrument to remain in use in Room 138.
- e. Disconnect the modem line from the instrument, and repeat the process for the next instrument.
- f. When all instruments have been downloaded, return the phone line to the wall hook.
- g. Patrol cars with Intoxilyzers have phone cords already connected to each instrument. Officers or Forensic Chemistry personnel upload records via a modem port located at traffic division next to the Captain's parking space which connects to the laptop located in the laboratory. The same process is used as described above (Steps b – e). **Note:** The phone number utilized for this option is 916195312198 (916195312198). The phone number can be accessed under menu 1, C.
- h. Verify that uploaded data has been transferred by clicking on Reports in the top menu of Cobra. Scroll to Templates/Filters in the top of the menu and click to open. A Report file maintenance window will open. Click modify for the file named "ALLCAL" or "ALLSUB" only. Modify dates and instrument serial numbers as appropriate to view most current data.

## 5.2 INTOXILYZER DATA UPLOAD DIRECT CONNECT METHOD

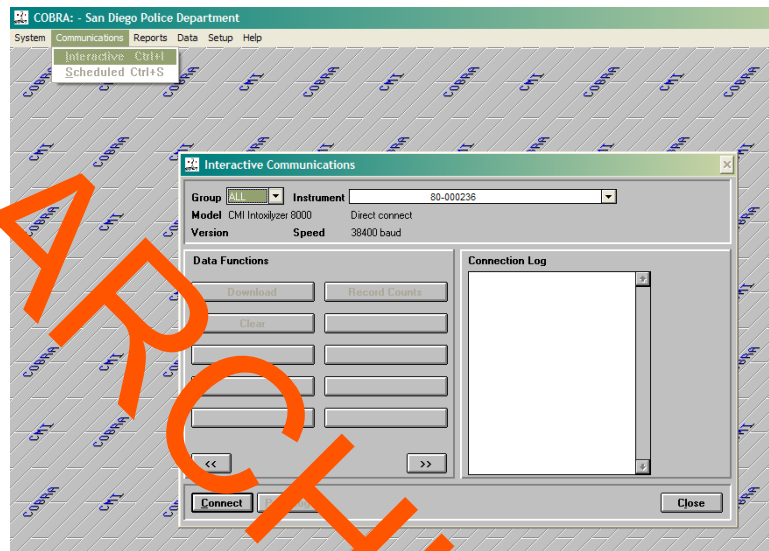
5.3.1 This method can be used in place of the Control LM Method

- a. Transport the laptop to the Instrument you plan to download.
- b. Open COBRA by double clicking the COBRA icon on the desktop.
- c. Log into COBRA using your login and password. Remember that this must be in CAPS.
- d. Plug the gray direct connect cable from the laptop into the instrument's RS-232 Direct Connect Port. (The plug

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closest to the right side when facing the instrument must be used.)

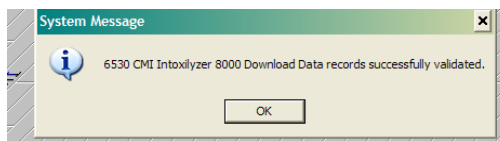
- e. Select Communications from the top menu.
- f. Scroll and select Interactive.
- g. An Interactive Communications window will open.



- h. Go to the Instrument section drop down menu, and select the instrument to be downloaded.
- i. Once the instrument is selected, click Connect in the lower left corner of the window.
- j. The Connection Log will say, "Successful sign-on."
- k. Click Download and wait for the Connection Log to say, "Download Complete."
- l. Disconnect by clicking Disconnect in the lower left corner and close the Interactive Communications window.
- m. Validate records, prior to proceeding to anything else. Select Data and Validate Data from the top menu.
- n. A Validate Data Window will open.

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- o. Click on Ok, and wait for a System Message that says, "CMI Data records successfully validated." Click on Ok, and Close the Validate Data window.



- p. If validation is not successful, Stop, and do not proceed further. Close down the system and try again. If the validation is still unsuccessful, seek assistance.
- q. If everything is successful, reconnect with the instrument following the above steps.
- r. When sign-on is successful, click on Clear. This will clear the data from the instrument memory.
- s. When this is complete, click on Disconnect, then Close the Interactive Communications window.
- t. Repeat these steps for all instruments to be downloaded.
- u. This same method is used to upload new instrument software. Follow steps a through j.
- v. Once signed onto the instrument scroll to Flash Update using the double arrows at the bottom of the Interactive Communications window.
- w. Click Flash Update. A window will open asking which version of software is to be loaded. Ensure the newest version is selected in the dropdown menu. And click Ok. Wait for message that says that the update was successful prior to disconnecting from the communications window.
- x. Repeat these steps for all instruments to be updated.

## 5.4 COBRA DATABASE BACK-UP PROCEDURE

### 5.4.1 Back-up of COBRA Database

On the laptop computer in the laboratory, open Cobra on the main screen if not already open. Sign on with your User ID and password. Under Data, scroll to Validate. When the Validate



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Data box appears, record the validation number, and press OK. When the System Message box appears with the Download Data Records Successfully Validated, check the validation number and press OK. When the Validate Data box appears again, press close.

- a. Once the weekly download is complete, select Help and About Cobra from the top menu.
- b. Click on Support and Yes that you want to create a support file.
- c. A window will pop-up that says, "Support file successfully created." Click OK.
- d. Close the Support Window by clicking OK.
- e. Exit Cobra, and close Cobra and Cobra remote.
- f. Connect the Travel drive (Flash drive) into the USB port. The Travel drive will automatically light-up when connected correctly.
- g. The Travel drive folder should automatically open. If not, locate the Travel drive by opening windows explorer.
- h. Right click on the Start Menu and open the Explore menu.
- i. Open the COBRA Laptop folder by clicking on it. Open the Data folder within the Cobra Laptop folder. Open the same folders on the Travel drive.
- j. Highlight, drag and drop the 4 data files from the COBRA laptop/data folder to the Data folder on the Travel drive, replacing the old files. A Confirm File Replace window will open. Ensure that data being replaced is from the COBRA laptop file to the travel drive. A screen appears with replacement file dates. Verify that the replacement dates are correct. Click Yes to replace all.
- k. Close all of the open windows.
- l. Safely remove the travel drive by clicking on the green device arrow in the right lower corner of the screen on the task bar. Just click the green arrow once. A window will pop up that says, "Safely Remove USB Mass Storage Device –

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Drive.” Place the mouse button over this to highlight it, and click on the correct device and wait for the window that says – “Safe to remove device.”

- m. Once this message appears, it is safe to remove the device. The light on the Travel drive will turn off when this happens. Pull the Travel drive out of the USB port.
- n. Take the Travel drive to a new computer to update the data files and attach the Travel drive to an available USB port. The Travel drive will light up when connected correctly.
- o. Close COBRA on the stand-alone computer.
- p. The Travel drive should again automatically open. If not open on the Travel drive by clicking on my computer on the desktop and then clicking on the Travel drive to open it.
- q. Drag and drop the data files from the Travel drive data backup folder to the Cobra Laptop data folder to replace the old data files with the new ones. A Confirm File Replace window will open. Ensure that data being replaced is from the Travel drive to the COBRA laptop file – the newest files replace the old. Click Yes to replace all.
- r. Once complete, confirm successful data transfer by opening COBRA on the new computer.
- s. Validate the records and check to make sure the records count is now the same as the laptop records count with the validation number.
- t. Close all folders.
- u. Safely remove the flash drive by clicking on the green device arrow in the right lower corner of the screen on the task bar. Place the mouse button over this to highlight it, and click on the correct device and wait for the window that says – “Safe to remove device.”
- v. Once this message appears, it is safe to remove the device. The Travel drive light will turn off when this happens. Pull the Travel drive out of the USB port.

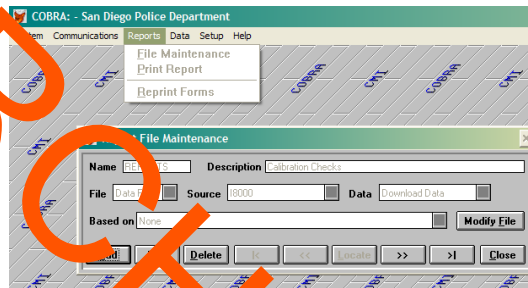
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- w. Repeat for all computers.
- x. Remove the Travel drive and place in safe location in the Breath room.

5.5 CHECKING RECORDS IN COBRA

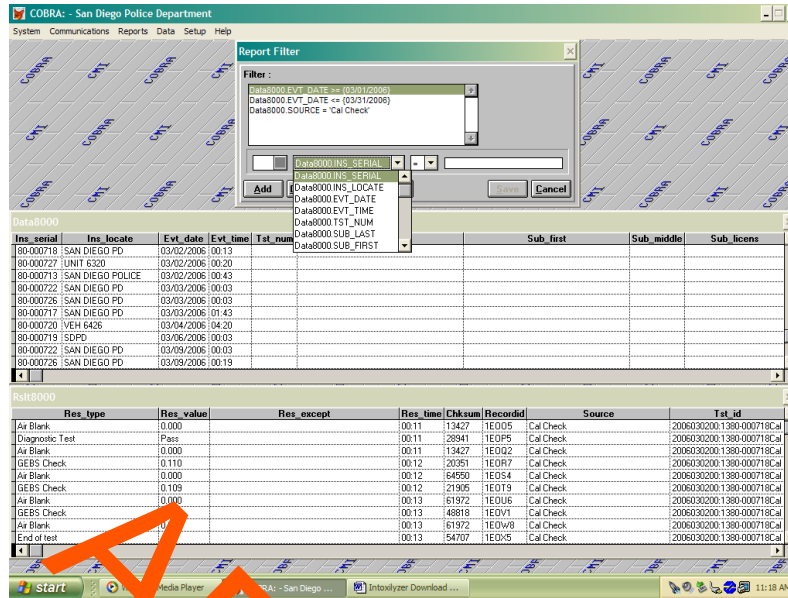
5.5.1 Check for Successful Instrument Calibration. This must be done on a weekly basis.

- a. Click on Reports from the top menu and scroll down and select Templates/Filters to review records.



- b. A Report File Maintenance window will open. Click on Modify File for "ALLCAL" or "ALLSUB" files only.
- c. A Report Filter window will open. Select the dates for the Calibration Data or Subject data to be viewed by clicking New. Select Data8000.EV \_DATE to enter the desired dates.

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- d. Delete any unwanted filters by clicking on them and clicking Delete.
- e. Select "Data8000.Source = Cal Check" for calibration checks and "Data8000.Source = Subject Test" for Subject Test viewing.
- f. Select a particular instrument by selecting "Data8000 INS\_SERIAL = " and type in entire serial number for an instrument.
- g. Scroll through the records and ensure that successful accuracy testing was successful for each instrument currently in use. Make sure the most recent calibration checks for each instrument were successful and investigate any issues seen.
- h. Fill out the instrument maintenance log accordingly.
- i. Notify the Unit Supervisor if any instruments need to be brought in for calibration or of any corrective actions taken.
- j. Any type of records search can be performed in this window by changing the filter parameters accordingly. Name searches require the correct spelling of the subject last name in capital letters. Date searches require the mm/dd/yyyy

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format. Instrument serial number information requires the full number, such as 80-000726.

- k. Close the maintenance window by clicking Save when done.

## 5.6 REPRINTING SINGLE RECORDS IN COBRA

### 5.6.1 Access Cobra on the computer.

- a. Click on Reports, then scroll and click on Reprint Inst Forms at the top of the window. A Reprint Forms window will open.
- b. Under Type, choose from the drop down menu for Cal Check, Control Test, Diagnostic, or Subject Test. For example, if Subject Test was chosen, click on Search at the bottom of the window. The Subject Test record search window is displayed next. Name searches require the correct spelling of the subject last name in capital letters. Date searches require the mm/dd/yyyy format. Instrument serial number information requires the full number, such as 80-000726. Lab ID number required the entire number, no partials. Fill in the subject last name, and the other requested information if it is available and press Enter on the keyboard. Click on Search at the bottom of the window. When the name and officer information are displayed in the Found box, click on OK. The Reprint Forms window is re-displayed. Check the box next to the type of Subject Test you want to print, either with the "Success" message or without.
- c. Click on Print at the bottom of the Reprint Forms display and then OK when printing is complete. Close the window when all records have been printed.

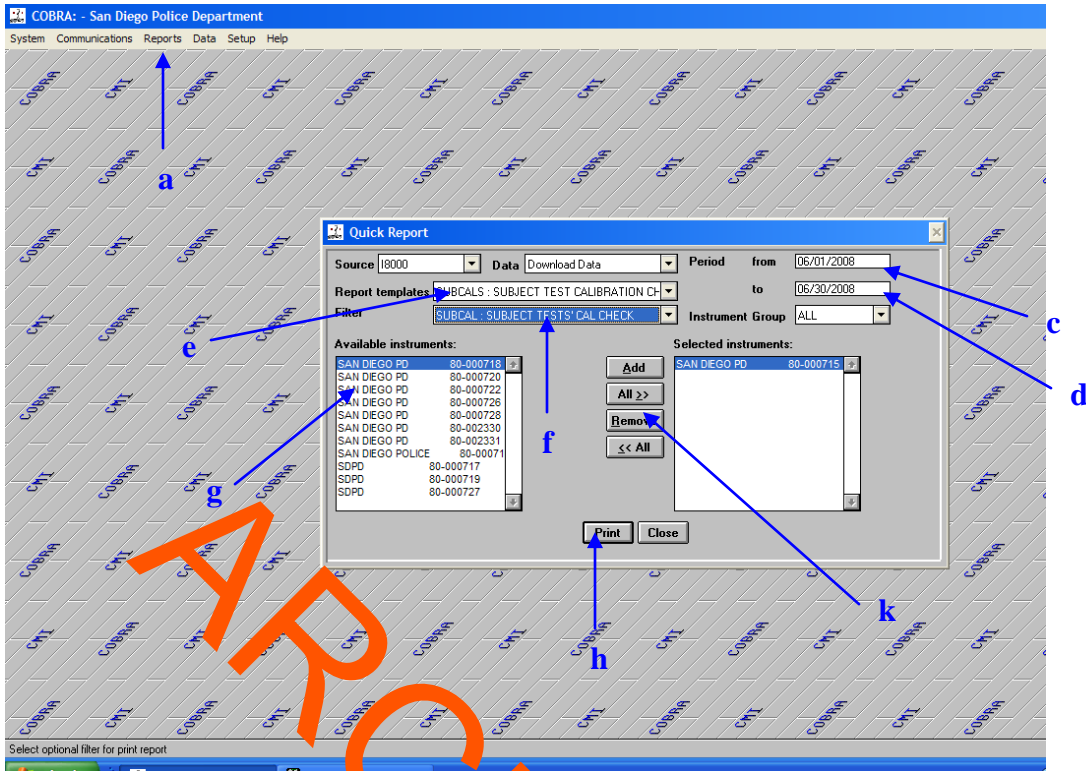
## 5.7 PRINTING RECORDS

Calibration checks are printed on a monthly basis and the records are sent to the City Attorney's Office and the South Bay District Attorney's Office.

### 5.8.1 Open COBRA on the computer.

- a. Click on Reports in the top menu of COBRA.
- b. Scroll down to Quick Reports and click to open it. The Quick Report window will open.

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- c. Select the “Period from” box and type in the start date for the desired data. Example: 06/01/2008
- d. Select the “Period to” box and type in the end date for the desired data. Example: 06/30/2008 (the entire month of June would be selected now.)
- e. Select the “Report Templates” drop down menu and scroll and click on the desired report type. There are two types: 1. CALCHKS: INTOX 8000 CALIBRATION CHECKS – this template is for Menu 2 calibration checks. 2. SUBCAL: SUBJECT TESTS CALIBRATION CHECKS – this template is for all GEBS checks during subject tests.
- f. Select the “Filter” drop down menu and choose the desired filter. This is how the data is selected. It is very important that these data filters never be changed under Templates/Filters in the Reports menu at the top of COBRA. There are two types: 1. CALCHK – this chooses only Menu 2 calibration checks data. 2. SUBCAL – this chooses all subject tests GEBS checks data only and not any other values or information. The CALCHK filter can only be used with the CALCHEKS report and the SUBCAL filter can only be used with the

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SUBCALs report. One of these two must be chosen. These are the only report types. If something else is chosen, COBRA will shut down.

- g. Next choose an instrument from the "Available Instruments:" window. This is done by highlighting the desired instrument and clicking "Add".
- h. Once the instrument has been selected, click the Print button at the bottom of the window. A window will pop up that asks you to select the print method. Choose "Printer" which is the default and then click Print.
- i. "Run Report" window will open saying how many records have been selected. Click "Ok".
- j. The Printer Menu will open. Select "Ok" to print to the printer attached to that computer. A window will open saying how many pages are printing from COBRA.

A CALCHKS report will look as follows:

86-000715 SAN DIEGO POLICE		INTOX 8600 CALIBRATION CHECKS		Standard Value = 0.100
86070008 02/17/08		Cal Check		
Air Blank	0.080	02:17		
Diagnostic Test	Pass	02:17		
Air Blank	0.080	02:17		
GEBS Check	0.181	02:18		
Air Blank	0.080	02:18		
GEBS Check	0.181	02:18		
Air Blank	0.080	02:18		
GEBS Check	0.181	02:18		
Air Blank	0.080	02:18		
GEBS Check	0.181	02:18		
Air Blank	0.080	02:18		
End of test		02:18		

The Menu 2 Calibration checks will print 1 per page in order for each instrument for the month.

A SUBCALs report will look as follows:

80-002330 SAN DIEGO PD		SUBJECT TEST CALIBRATION CHECK		Standard Value = 0.100
230008171 07/06/08 12:30:02		Subject Test		
GEBS Check	0.089	12:33		
GEBS Check	0.100	12:38		

There will be two GEBS checks per subject test id # and date for the time period selected.

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- k. For the next instrument, do not close the Quick Report window. Simply click on "Remove" to remove the current selected instrument. Do not worry; this will not affect the available instruments window. Then highlight the next instrument in the "Available instruments" window and click "Add". If you do not remove the first instrument, your report will reflect all instruments selected. Once you have selected the next instrument, click "Print" and repeat the printing process.

## 6.0 PROFICIENCY TESTING

The Collaborative Testing Services provides 2 levels of solution for breath testing once a year. This test is run by the analyst assigned to the alcohol program the month the samples are received.

### 6.1 DIRECTIONS FOR CONDUCTING YEARLY BREATH CTS TEST

- 6.1.1 Proficiency testing is done on the instruments in Room 138. Prior to testing, warm the CTS solutions in the simulators for at least one hour.
- 6.1.2 Put about a 1-inch thick book under each instrument so that you can more easily connect the simulator to the instrument.
- 6.1.3 Make a copy of the CTS paperwork. CTS provides two levels of solutions for testing.

#### Calibration Port

- 6.1.4 Connect the simulators to the instruments, according to the port labels. Be careful not to misconnect, or you will flood the instrument. (See "Calibration Port Set Up for the Simulator").
- 6.1.5 Access menu 2 on the instrument. Scroll to T, Control Testing, then S, for Stability Test. Choose W, Wet, for the standard type and 9 for the number of checks to run. Press enter to start the testing. The instrument automatically performs 9 checks.
- 6.1.6 Switch simulators and instruments.

#### Breath Port (Optional)

Wait at least one hour for the simulators to recover before the breath port testing.

- 6.1.7 Attach a short connector to each breath hose. Connect the attachment with the large snap end to the breath hose. The other end of the attachment fits into the front of the simulator. (See "Breath Port Set Up for the Simulator.")



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- 6.1.8 Access menu 2 on the instrument. Scroll to S, Setup, then G, General Setup. Use the enter key until "Breath Three Digits" appears. Change to 3 decimal places by pressing the Y key. Continue to use the enter key until "Please Wait...Saving" appears. Scroll to T, Configure Start Test. Press the enter key until "Start Test Sequence" appears. Press the up-arrow key to choose ABA. Use the enter key until "Please Wait...Saving" appears.
- 6.1.9 Use the escape key to go back to the "Ready Mode" screen.
- 6.1.10 Start a subject test. Blow through the top port of the simulator when "Please Blow Until Tone Stops/R" appears on the screen. Blow through the top of the simulator, using a new mouthpiece with each blow. You will have to start the test 9 times.
- 6.1.11 Switch simulators and instruments.
- 6.1.12 Return the instruments to their original settings.
- 6.1.13 If the optional breath port testing was also performed, the values must agree within 0.01% with the Cal Port testing results.

## 6.2 COMPLETING CTS PAPER WORK

Fill out the CTS sheets. Submit the paperwork to the unit supervisor and the QA manager. The results are scanned into a database and submitted to CTS electronically. The original paper work is returned to Forensic Chemistry for filing in the Breath Proficiency Test folder located in the blue envelope.

## 7.0 MAINTENANCE LOG

The test results performed from maintenance checks must be recorded in the maintenance log. The instrument database also records testing information, except for those tests done in Stability Mode. The thermal paper ink fades over time, and, some testing is not captured in the database, therefore, test results from the annual maintenance check must be photocopied and filed along with the originals in the appropriate section of the log.

## 8.0 DATA DISTRIBUTION

Data from the host lap top computer is transferred on a weekly basis to two stand alone computers, one in the Forensic Chemistry Unit and one in the clerical office.

## 8.1 PAPERWORK FOR MONTHLY DISSEMINATION

Data printouts and Maintenance Log photocopies are distributed to the City Attorney's Office and the South Bay District Attorney's Office on a monthly basis. The following lists the information sent:

- 8.1.1 Calibration (GEBS) Checks performed with each subject test, or through menu 2, to verify that each instrument in use has had a Cal Check every 10 days or 150 tests according to Title XVII for the instruments in use.
- 8.1.2 Maintenance Logs for each breath instrument serial number.
- 8.1.3 Yearly Quality Assurance Form.
- 8.1.4 Calibration Certificates.

## 8.2 PAPERWORK FOR BREATH ALCOHOL SAMPLE DEUCES TECUM REQUESTS

The following information is sent to the requesting agency when a discovery packet on a breath sample is requested:

- 8.2.1 Printout of the subject test
- 8.2.2 Printout of the subject test calibration checks or PDOA log if prior to 9/08.
- 8.2.3 Copy of the QC and Maintenance Log worksheets.
- 8.2.4 Most recent copy of the manufacturer's calibration certificate.

## 9.0 RECORD STORAGE

All Intoxilyzer 8000 Maintenance Logs and computer data will be stored for seven years. Intoxilyzer 5000 records will be kept until September 2015, except the Master Log and Room 138 Blood and Urine Collection Log which will be kept as long as storage space permits.

## 10.0 ALCO SENSOR (PAS) CALIBRATION PROCEDURE

### 10.1 INTRODUCTION

The Laboratory provides service for the Alco Sensor (PAS) IV Green Dot Handheld Breath Instrument. The requirements for service are a failed Accuracy Check or the absence of an Accuracy Check Record Sheet with a unit. The requestor takes the unit to the 6<sup>th</sup> floor laboratory office, attaches a numbered request slip to the unit case, and completes the Alco Sensor Logbook located on the receptionist's deck. The analyst annotates in the logbook and

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notifies the requestor when service is completed. The requestor must sign the logbook upon receipt of the unit from the laboratory. New units from the manufacturer can also be checked before they are used in the field.

## 10.2 REAGENTS, EQUIPMENT, AND SUPPLIES

- 10.2.1 Nist traceable gases at approximate values of 0.080%, 0.100%, and 0.200%.
- 10.2.2 Intoximeter Mouthpieces, #23-0000-00 for the Alco Sensor.
- 10.2.3 9 V Batteries; Duracell™ or Energizer™.
- 10.3.5 simulator.

## 10.4 CHANGING THE BATTERY

- 10.4.1 Remove the back panel on the unit to expose the battery.
- 10.4.2 If the unit has an Accuracy Check Record Sheet, check the date of the last battery change. Replace the 9V battery if response is slow. Record the battery change on the Accuracy Check Records Sheet in the “Comments” column.
- 10.4.3 If the unit is new or does not have an accuracy Check Record Sheet, provide one for the unit. Replace the 9V battery if necessary, and record the battery change in the “Comments” column along with the unit information such as the serial number and Division in the designated areas on the Accuracy Check Record Sheet.

## 10.5 LABORATORY LINEARITY CHECK PROCEDURE

The following procedure is performed on all instruments that were serviced by the laboratory prior to the instrument being returned to the field for use. It is also performed on any new instrument prior to its use in the field.

- 10.5.1 Record the temperature and solution results during the Calibration Check process.
- 10.5.2 Begin with the “0.200%” gas. Insert an Alco Sensor mouthpiece into the unit and attach the - tubing connected to the gas. Follow the prompts on the LED screen of the unit. When “TEST” appears, dispense the gas into the mouthpiece for 10 seconds, then manually close the sample chamber.
- 10.5.3 Do not eject the mouthpiece from the unit. View the result on the LED screen by pressing the “Recall” button if necessary.
- 10.5.4 If the “0.200%” result is  $\pm 0.010\%$  of the known value, proceed with the “0.100%” gas in the same manner.

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If the result is within the acceptable  $\pm 0.010\%$  of the known value, proceed with the 0.080% gas.

If the results are not within  $\pm 0.010\%$  of the known gas values, proceed with the Calibration Procedure.

## 10.6 PERFORMING THE GEBS ACCURACY CHECK

This procedure is performed by officers when checking the accuracy of the PAS units. A NIST-traceable gas of known value is used for this check.

1. Record the posted Gas value on the Accuracy Record Sheet.
2. Insert a mouthpiece in to the unit.
3. Record the temperature.
4. When "TEST" appears, attach the gas line to the mouthpiece and press the gas release button for 10 seconds.
5. After 10 seconds and while the gas is still flowing, press the "Manual" button to close the sample chamber on the unit.
6. Record the result on the Accuracy Record Sheet.
7. The acceptable result range is  $\pm 0.010\%$  of the known value of the gas. This range is posted.
8. Units that do not read within the acceptable accuracy of the known gas value are submitted to the laboratory for calibration.

## 10.7 CALIBRATION PROCEDURE

This procedure is utilized if the officer accuracy check fails or the laboratory linearity check fails.

- 10.7.1 The "0.10%" NIST-traceable gas is used for calibrating the units.
- 10.7.2 Remove the back panel on the unit to expose the calibration access holes.
- 10.7.3 Warm the unit on an Intoxilyzer or other warm surface to achieve the calibration temperature of  $23^{\circ}\text{C}$  -  $27^{\circ}\text{C}$ .
- 10.7.4 Record temperature of the PAS during the calibration process.
- 10.7.5 Insert an Alco Sensor mouthpiece into the unit and follow the prompts until the unit displays a blank reading of ".000".
- 10.7.6 While ".000" is being displayed, use the calibration tool or applicator stick to press the far right access hole #3 and hold the tool down until a three digit result appears. This result is the value of the previous gas calibration value.
- 10.7.7 Register the gas calibration value into the unit, by using the calibration tool to adjust the value up with access hole #1, or down with access hole #2.

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- 10.7.8 Press access hole #3 again with the calibration tool until “Cal” appears.
- 10.7.9 Attach the tubing connected to the 0.100% gas and dispense for 10 seconds into the PAS. Press the “Manual” button to close the sample chamber. The result on the LED screen will be the one just registered into the unit.
- 10.7.10 Proceed with the Linearity Check Procedure.
- 10.7.11 If the Calibration Check fails, repeat the calibration process by resetting the “.100” value. Change the value of the BAE reference solution and then return it to the current value. This resets the value.

## 10.8 RECORDS

- 10.8.1 Record all results on the Accuracy Check Record Sheet. If the unit was calibrated, write “Cal done” in the “Comments” column of the Record Sheet. If the calibration was checked, write “Cal check done” in the “Comments” column of the Record Sheet.
- 10.8.2 Use the request information on the unit case to notify the officer that the unit is ready for pick up in the laboratory office.
- 10.8.3 Return the unit to the sixth floor Laboratory Office.
- 10.8.4 Make appropriate comments in the Alco Sensor Logbook located at the receptionist’s desk.
- 10.8.5 Other than the Alco Sensor Logbook, the Laboratory does not keep records for the Alco Sensors. The only records available are the Accuracy Check Record Sheets kept with the Alco Sensor unit.

## 11.0 CMI CONTACT INFORMATION

Phone Number: 1-866-835-0690  
Fax Number: 1- 270-685-6268

The ftp (file transfer protocol) account password is:

[San Diego](#)  
[o8w47qybg](#)

For the internet account of: <ftp://ftp.mpdinc.com>

- 13.1 Brian Faulkner, COBRA Software Engineer.  
[bfaulkner@alcoholtest.com](mailto:bfaulkner@alcoholtest.com)
- 13.2 Toby Hall, Manager, Applications Engineering.  
[tshall@alcoholtest.com](mailto:tshall@alcoholtest.com)  
Phone Number: 1-270-685-6354  
Fax Number: 1-270-685-6278

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- 13.3 Tom Settles, Technical Sales Manager.  
[wtsettles@alcoholtest.com](mailto:wtsettles@alcoholtest.com)  
Phone Number: 270-685-6362 Cell: 270-314-5393
- 13.4 Becky Taylor, Software Testing.  
[bjtaylor@alcoholtest.com](mailto:bjtaylor@alcoholtest.com)  
Phone Number: 1-270-685-6548

## 12.0 REFERENCES

- 14.1 State of California, Department of Health Services; Handout titled "Forensic Alcohol Analysis and Breath Alcohol Analysis; Authorizing Legislation; Regulations Relating to Forensic Alcohol Analysis and Breath Alcohol Analysis; Uniform Standards for Withdrawal, Handling, and Preservation of Blood Samples for Forensic Alcohol Analysis", April 1986.
- 14.2 Federal Register, Vol. 49, No. 242, pages 48854-48872, December 14, 1984, and Vol. 64, No. 107, Pages 30077-30100, June 4, 1999. Vol.67, No. 192, pages 62091-62094, October 3, 2002.
- 14.3 American Medical Association: <http://www.ama-assn.org/ama/pub/article/3342-3623.html>.
- 14.4 Operator's Manual for the Intoxilyzer® 8000, Breath Analysis Instrument.
- 14.5 Table of Conversion Factors: Data from Harger, Nancy Birdwell, and Kitchell, J. Biol. Chem., 183, 1950: 197-213.
- 14.6 Alcohol Breath Test Simulator and Calibration Standard, Guth Laboratories, Inc., Product Information Data.
- 14.7 Gould's Penal Code Handbook of California, 2002 Edition.
- 14.8 Users manual for the Alco-Sensor IV® Breath Analysis Instrument.