FORENSIC CHEMISTRY UNIT

BREATH ALCOHOL METHOD MANUAL

Issuing Authority: Frank Healy, 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.

The procedures to maintain this program are in compliance with Title 17, California Code of Regulations.

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 utilizes the Intoxilyzer 8000. Training topics for instruments include:

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

These topics are further outlined in the Breath Alcohol Instrument Operator 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 PS/2_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.

Breat
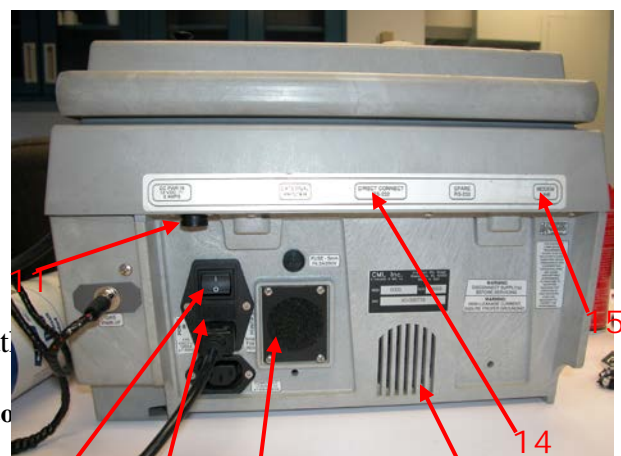
2.2 INSTRUMENT SPECIFICATIONS

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° +/- 0.2°)

- Breath hose (45°C +2°, -9°) regulated to $\pm$ 0.2°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.
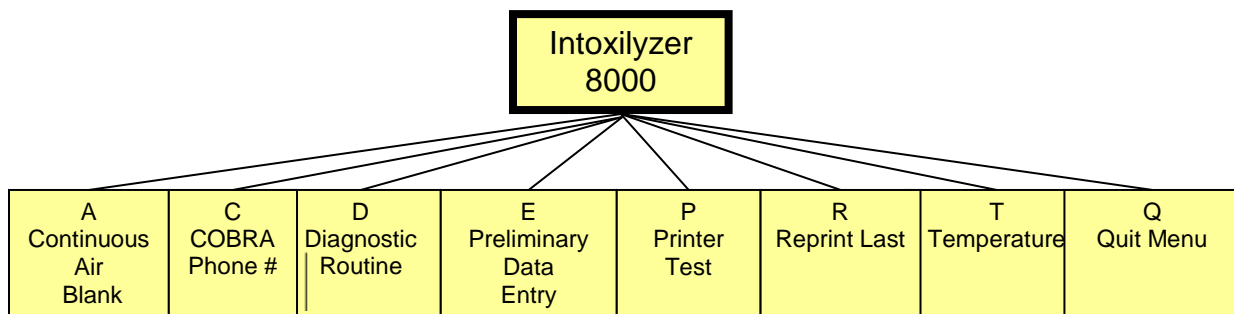
2.   Press the green START TEST button to start. If the instrument is in STANDBY MODE, a 60 second countdown will bring the instrument into READY MODE.

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.   The instrument will <u>automatically</u> perform a series of air blanks, a diagnostic check, and a calibration check.

7.   When the instrument displays **Please Blow,** remove the hose from the cradle and place a **new** mouthpiece onto the breath hose.

8.   Have the subject blow into the mouthpiece until out of breath.

9.   Remove and discard the mouthpiece. **Return breath hose to cradle**.

10.   **Air Blank**; leave the breath hose in the cradle.

11.   The instrument will complete a 1½ minute countdown.

12.   **Air Blank**; leave the breath hose in the cradle.

13.   When the instrument displays **Please Blow,** remove the hose from the cradle and place a **new** mouthpiece onto the breath hose.

14.   Have the subject blow into the mouthpiece until out of breath.

15.   Remove and discard mouthpiece. **Return breath hose to cradle.**

16.   If the two breath results do not agree within 0.02%, the instrument will <u>automatically</u> require a third breath test. Repeat steps 13 – 15.

17.   The instrument will <u>automatically</u> perform a series of air blanks, a diagnostic check, and a calibration check.

18.   When the LED prompt reads **Trombetta Adm Given?**, administer the admonishment and press the "y" key.

19.   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.

20.   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.

21.   Paperwork Distribution: One copy is provided to the subject; one copy is provided to the Court; one copy is retained for records.
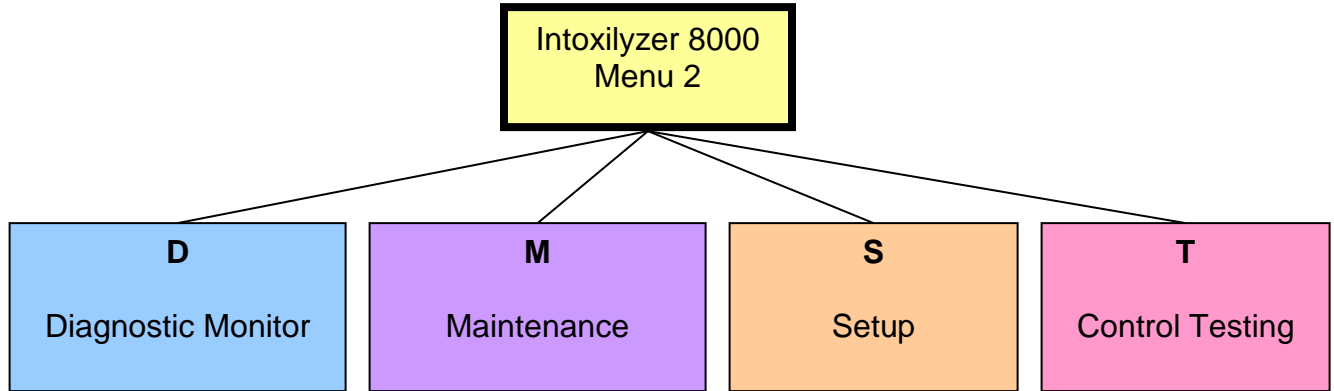
2.4 INTOXILYZER 8000 MENU OPTIONS

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

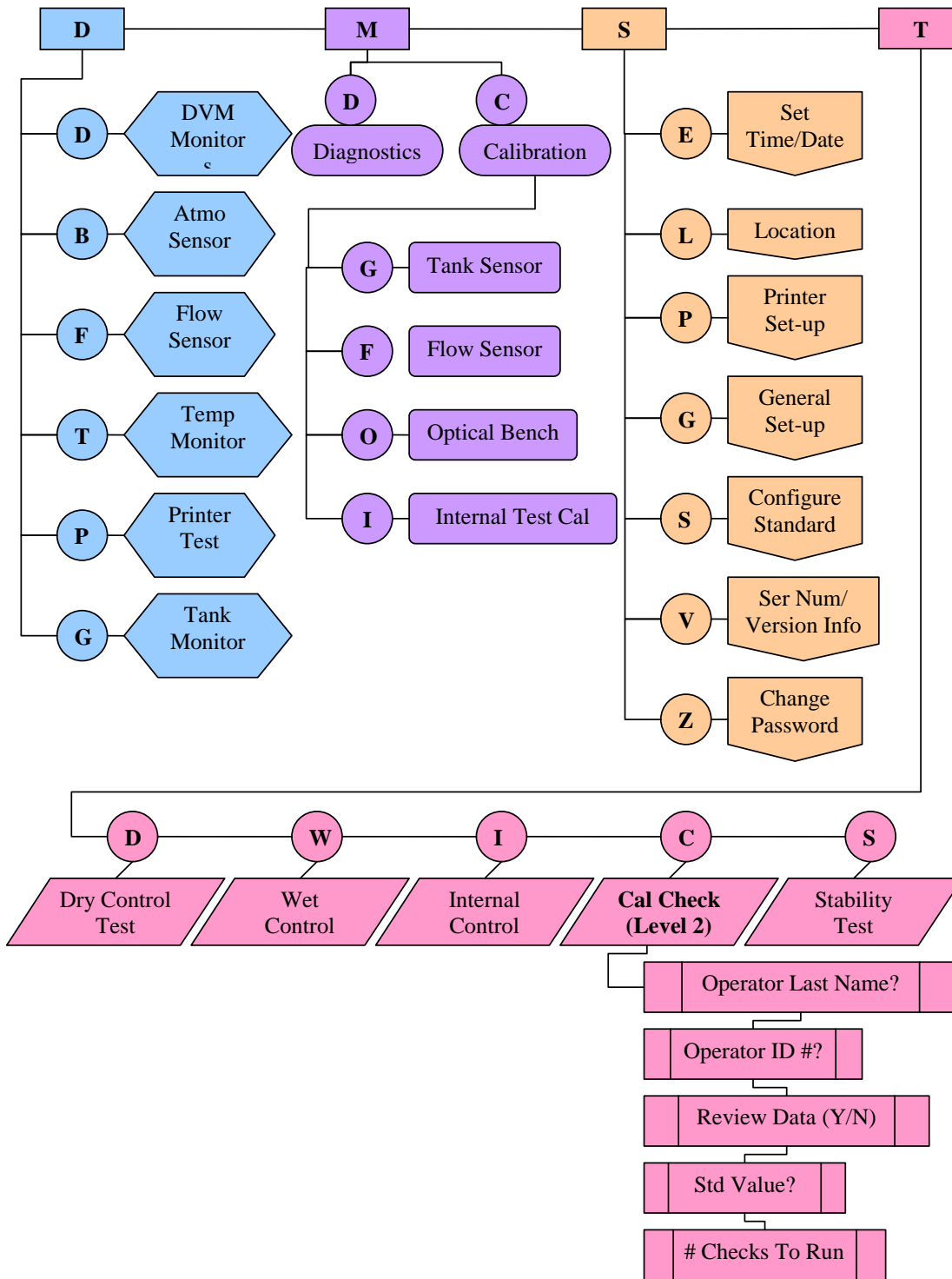| Intoxilyzer 8000							
A Continuous Air Blank	C COBRA Phone #	D Diagnostic Routine	E Preliminary Data Entry	P Printer Test	R Reprint Last	T Temperature	Q Quit Menu

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

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

Intoxilyzer 8000
Menu 2

D	M	S	T
Diagnostic Monitor	Maintenance	Setup	Control Testing

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Intoxilyzer 8000 Menu 2 Flowchart

D	**M**	**S**	**T**

D — DVM Monitors

M — **D** Diagnostics — **C** Calibration

S — **E** Set Time/Date

D Diagnostics:
- **D** DVM Monitors
- **B** Atmo Sensor
- **F** Flow Sensor
- **T** Temp Monitor
- **P** Printer Test
- **G** Tank Monitor

C Calibration:
- **G** Tank Sensor
- **F** Flow Sensor
- **O** Optical Bench
- **I** Internal Test Cal

S Set-up:
- **E** Set Time/Date
- **L** Location
- **P** Printer Set-up
- **G** General Set-up
- **S** Configure Standard
- **V** Ser Num/Version Info
- **Z** Change Password

T:
- **D** Dry Control Test
- **W** Wet Control
- **I** Internal Control
- **C** Cal Check (Level 2)
- **S** Stability Test

Cal Check (Level 2):
- Operator Last Name?
- Operator ID #?
- Review Data (Y/N)
- Std Value?
- # Checks To Run

Menu 2- D, Diagnostic Monitors: DBFTPG (the following are the approximate values that should be displayed)

D- DVM (Digital Volt Meter) Monitor: 3: > 8192   S: 0/1   C: 47.00 (+/- 0.2º)

9: > 8192   S: 0/1   B: 45.0 (+2º/-9º)

B- Atmospheric Monitor: P: 1020   CF (Correction Factor): 1.00

F- Flow Monitor (enter) Flow Sensor: R (Rate): 127   F: 0.000 L/s

T- Temperature Monitor: C: 47.00   A: 45.0   I: 0.0

B: 45.0   V: 0.0

V and I are for monitoring simulators.

P- Printer Test: A printer test is performed, printing various letter sizes, number sizes, and fonts.

G- Tank Monitor: P: tank psi, > 25 psi.

Menu 2- M, Maintenance: DC

D- Diagnostic: The following parameters are checked automatically. Instrument will indicate PASS/FAIL for each test.
Voltage/Current
RAM (Random Access Memory)
EEPROM (Electrically Erasable Programmable Read Only Memory)
Real Time Clock
DSP (Digital Sensor Processor)
Analytical Stability Test
Internal Printer Test
Modem Test
Temperature Regulation Test.

C- Calibration: **GFOI**

G-   Tank Sensor Cal: Cal Tank Sensor (Y/N)? N (Y, to calibrate tank regulator)

F-   Flow Sensor Cal: Cal Flow Sensor (Y/N)? Done at manufacturer.

O-   Optical Bench Cal: Optical Bench Cal (Y/N)? Done at manufacturer.

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 ADACABAWABA(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
                                Note: D = Dry Gas, W = Simulator Solution, I =
                                Internal Test done by manufacturer
                                Standard Value? 0.080 (NIST tank value)

U – Config Uncertainty: Uncertainty value? Enter current value

V- Ser Num/Version Info: Inst Ser #: 80-00_ _ _ _ (Instrument's serial#)
                                Core Ver: 8122._ _ (Instrument's current

software)

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/I)? 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 DEVICES

3.1 DRY GAS ETHANOL TANKS

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) or Ethanol Gas Standard (EGS). The value of each tank is approximately 0.080 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.

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 0.080%, 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 to 1250 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 +/- 0.010% of the tank's stated value per Title 17, the test will be aborted. Additional GEBS checks can be performed by trained laboratory personnel through menu 2 access.

3.2 LIQUID SIMULATOR CALIBRATING DEVICES, GUTH MODEL 34°C

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3.2.1   Simulators provide another method for evaluating the Intoxilyzer 8000's performance. Solutions 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.

3.2.2   Guth Simulators are provided with 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 lot number, 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 on the simulator. Verify that the paddle is turning. Wait at least 1 hour for the solution to be warmed to 34º C +/- 0.2º C. The "Heater" light will turn off when the solution has reached the required temperature and the display should read 34º 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

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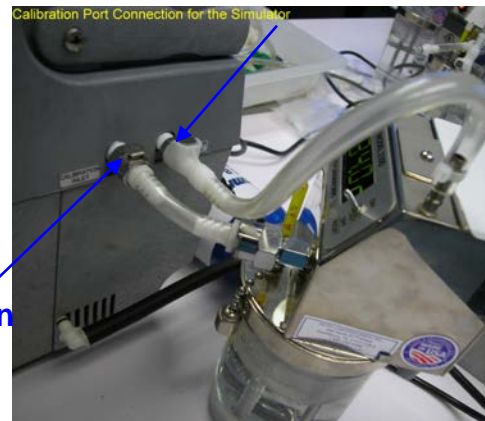
3.3.3   Breath Port Connection for the Simulator:

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
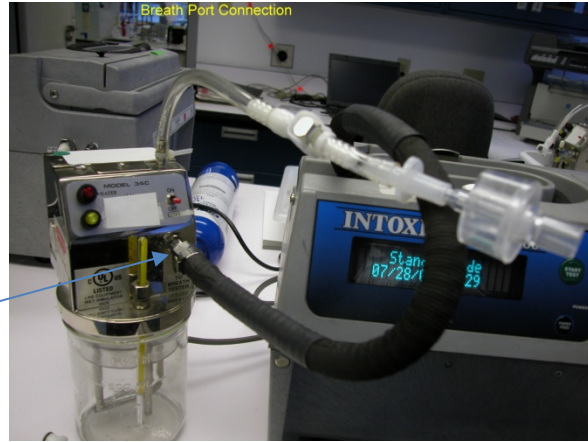
4.0   YEARLY QUALITY ASSURANCE and MAINTENANCE PROGRAM

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 and Subject Test with Alcohol
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/EGS Fail Check
4.2.15	Magnetic Strip Reader Check
4.2.16	Linearity check of NIST GEBS tanks
4.2.17	Uncertainty of Measurement determination
4.2.18	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	4 GEBS Tanks with NIST traceable gases at approximate values of 0.040%. 0.080%, 0.100%, and 0.200%.
4.3.2	2 Guth Model 34 C Simulators containing a measurable BAE Solution and a BAE solution with acetone in simulators warmed to 34º C
4.3.3	Dilute Ethanol Solution or Mouthwash
4.3.4	Cotton Mouth Swabs

4.3.5   Designated Acetone simulator warmed to 34 º C with ~300 µl of acetone added to any concentration of BAE solution

4.3.6   Police Radio

4.3.7   Various Tubing and Connectors (See, "How to Use the Guth Model 34 º C Simulators")

4.4 QUALITY ASSURANCE CHECKS ON THE INSTRUMENT

4.4.1   <u>Plug the instrument into a laboratory outlet and power on.</u> 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   <u>Date and Time Verification:</u> 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   <u>Diagnostic Check:</u> 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   <u>Invalid Sample Check (Mouth Alcohol):</u> 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."

4.4.5   <u>Deficient Sample Check:</u> 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."

4.4.6   <u>Abort Test Check:</u> 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 sequence; for the subject test result, ABT will print on the test strip along with the message "Sequence Aborted."

4.4.7   <u>Improper Sample Check:</u> 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."

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4.4.8   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."

4.4.9   RFI Detector Check: Start a "Subject Test.": Transmit a message with the police radio 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."

4.4.10   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, tare 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 at issue.

4.4.11   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."

4.4.12   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 $\pm$ 0.2°C,

4.4.13   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.

4.4.14   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 by the card/license information appearing on the instrument screen. Continue with the subject test to perform the Alcohol Free SubjectTest.

4.4.15   Subject Test with BAE solution: Start a subject test. Complete a subject test using a simulator solution with measurable alcohol. "Successfully Completed Test" should be printed on the test ticket.

4.4.16   Instrument Linearity Check: Check each of 3 levels of NIST-traceable gases 10 times, at levels of 0.040%, 0.100%, and 0.200%. Check the

GEBS NIST-traceable gas at the value of 0.080% 20 times. Record all values. Instrument readings must be within the established uncertainty of measurement

4.4.17 <u>Instrument Download and Instrument Clearing and Defragmentation:</u> 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 <u>Clean the particulates screen on the instrument prior to placing in use as well as dusting the instrument keyboard and breath hose area.</u> Using a damp swab, 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 <u>After testing is complete, initial and photocopy the test strips.</u> Complete the yearly quality of assurance certificate, uncertainty of measurement table, and add the information to the maintenance log. Submit the quality of assurance certificate, uncertainty of measurement table, 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 INTOXILYZER INSTRUMENTS

The uncertainty of measurement will be 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 uncertainty must be ± 0.01% per Title 17.

The measured uncertainty will be re-evaluated when the quantitation capability of an instrument is affected through repair.

The following formula will be used to establish the uncertainty:

Factors	Value (x)	Standard Uncertainty (u)	Distribution	Relative contribution
Instrument Accuracy[1]	0.003	$\frac{x}{\sqrt{3}} = 0.0017$	Rectangular	%
GEBS Accuracy[1]	0.002	$\frac{x}{\sqrt{3}} = 0.0011$	Rectangular	%
Repeatability[2]	x	x	Approximately Normal	%
Linearity[3]	y	y	Approximately Normal	%

[1] Reported by Manufacturer
[2] Maximum standard deviation over four levels from Annual QA (x)
[3] Maximum difference of the measured four levels from Annual QA from the certified value (y)

- $$U_c = \sqrt{u(Instrumentaccuracy)^2 + u(GEBSaccuracy)^2 + u(repeatability)^2 + u(linearity)^2}$$

Calculation of Expanded Uncertainty: $U = k * u_c$ Where U is the expanded uncertainty and k is the coverage factor. A coverage factor of 2 will be used to report uncertainty at the 95% confidence interval. The reported uncertainty will be 0.010g% to meet Title 17 guidelines if the determined value is ≤ 0.010g%.

5.0   DATA MANAGEMENT USING COBRA

5.1 ASSIGNING ACCESS TO COBRA V.4

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   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

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.   Uploads can be verified 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 U 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 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.
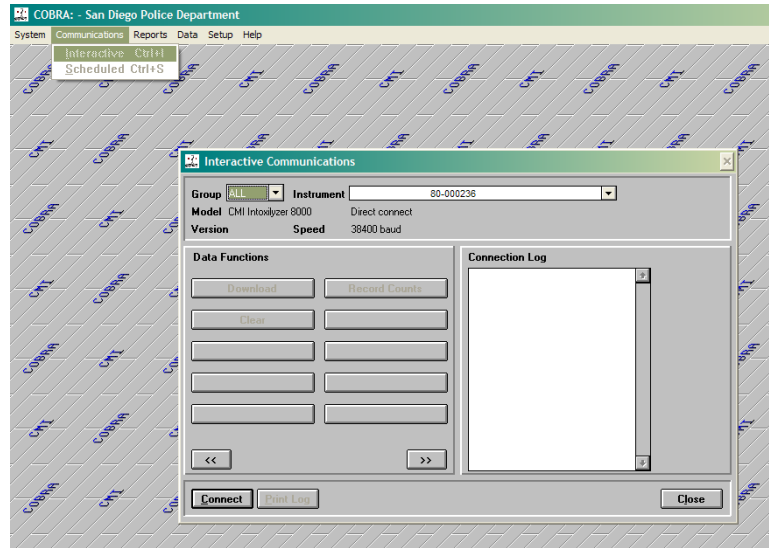
h.   Go to the Instrument section drop down menu, and select
       the instrument to be downloaded.

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.

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.
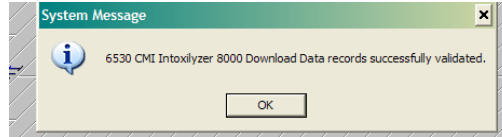
p.   If validation is not successful, Stop, and do not proceed further. Close down the system and try again. If the validation is still unsuccessful, seek assistance.

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 CHECKING RECORDS IN COBRA

5.4.1 Check for Successful Instrument Calibration.

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

Printed documents are not controlled
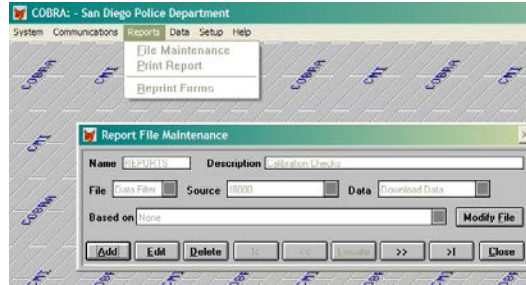
b.   A Report File Maintenance window will open. Click on Modify File for "ALLCAL" or "ALLSUB" files only.

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.EVT_DATE to enter the desired dates.
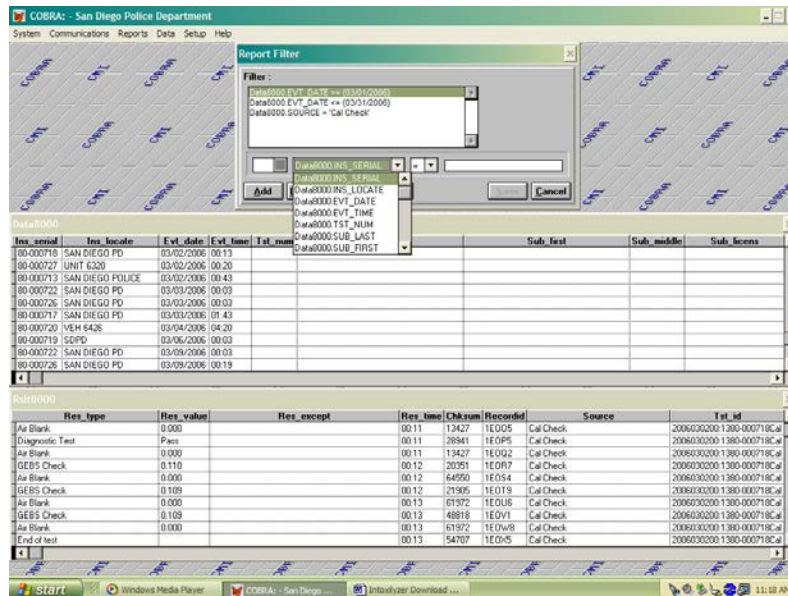
d.   Delete any unwanted filters by clicking on them and clicking Delete.

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 to check for successful accuracy testing for each instrument currently in use. Investigate any issues seen.

h. If necessary, fill out the instrument maintenance log accordingly.

i. Notify the Unit Supervisor if an instrument needs to be returned to the manufacturer.

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 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.

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5.7 PRINTING RECORDS

Calibration records can be printed for a period of time specified by someone in the chemistry unit.

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.
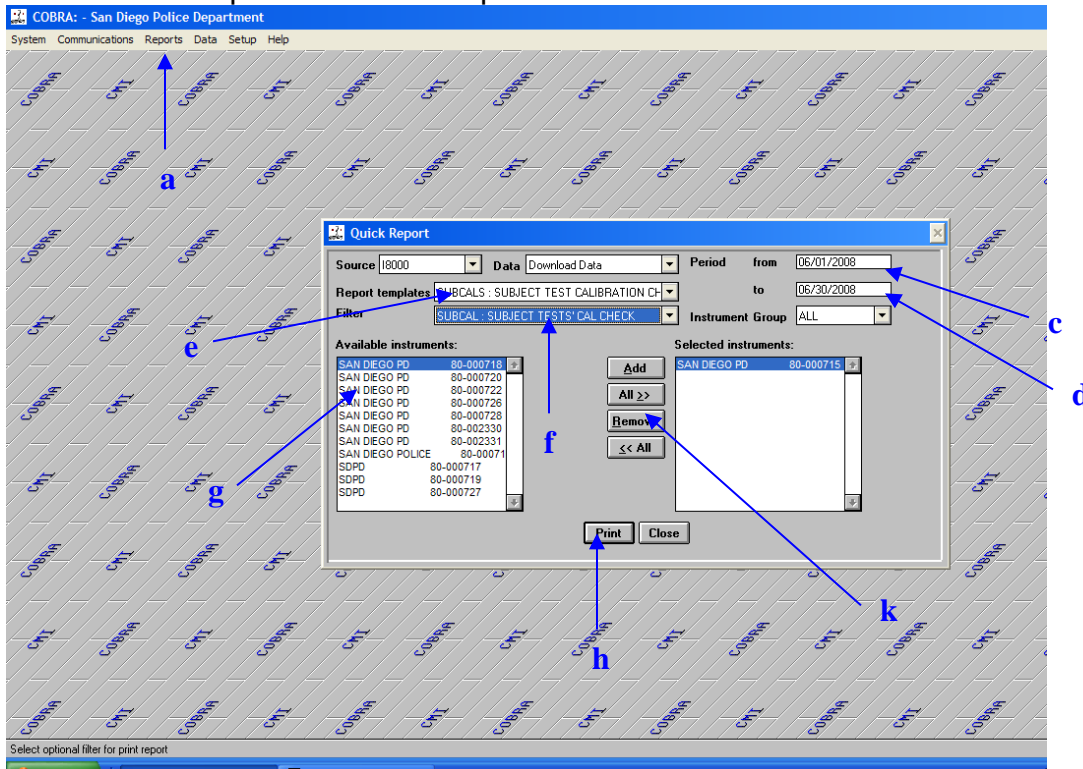
c.   Select the "Period from" box and type in the start date for the desired data. Example: 06/01/2008

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 SUBCALS: SUBJECT TESTS CALIBRATION CHECKS – this template is for all GEBS checks during subject tests.

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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. Choose SUBCAL – this chooses all subject tests GEBS checks data only and not any other values or information.

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 SUBCALS report will look as follows:

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

SUBJECT TEST CALIBRATION CHECK

80-002330	SAN DIEGO PD		Subject Test	Standard Value =	10.100
230008171	07/09/2908	12:32:02			
	GEBS Check		0.089	12:33	
	GEBS Check		0.100	12:38	

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.

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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.")

6.1.8   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.

6.1.9   Switch simulators and instruments.

6.1.10   If the optional breath port testing was also performed, the values must agree within the established uncertainty with the Cal Port testing results.

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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 binder.

7.0   MAINTENANCE LOG

Any maintenance or completed QA testing performed on an instrument must be recorded in the maintenance log. The thermal paper ink fades over time, and, some testing is not captured in the database, therefore, test results from the annual QA testing must be photocopied and filed along with the originals in the appropriate section of the instrument binder.

8.0 PAPERWORK DISTRIBUTION

8.1 PAPERWORK FOR MONTHLY DISSEMINATION

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   Maintenance Logs for each breath instrument serial number.
8.1.2   Yearly Quality Assurance Results.
8.1.3   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 if accessible.
8.2.2   Printout of the subject test calibration checks or PDOA log if prior to April 2017.
8.2.3   Copy of the Yearly Quality Assurance 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 three years.

10.0 CMI CONTACT INFORMATION

10.1 Phone Number: 1-866-CALL CMI
    Fax Number: 1-480-895-7350
    Address:
    316 East 9th Street
    Owensboro, Kentucky 42303
    Website: www.alcholtest.com

The ftp (file transfer protocol) account password is:
San Diego
o8w47qytbg
For the internet account of: ftp://ftp.mpdinc.com

10.2   Tom Settles, Technical Sales Manager.
        wtsettles@alcoholtest.com
        Phone Number: 270-685-6362   Cell: 270-314-5393

10.3   Becky Taylor, Software Testing.
        bjtaylor@alcoholtest.com
        Phone Number: 1-270-685-6548

11.0 REFERENCES

11.1   California Code of Regulation Title 17

11.2   Federal Register, Conforming Products List