GC SAMPLE PREPARATION:

- **Sample Components to Avoid Completely:**
  The following should never be injected: metals, strong acids or bases, salts, oligomeric and polymeric material. These classes of compounds are unsuitable for gas chromatography, and can damage the GC column.
- **Solvents:**
  Hexane, acetone, and methanol are the recommended solvents for sample preparation. Other acceptable options are benzene, ethers, and methylene chloride. Do not dissolve samples in water, DMSO, or DMF.

TURNING ON THE INSTRUMENT:

- Turn the Nitrogen (80 psi on regulator), compressed air (60 psi) and hydrogen (40 psi) gas tanks on. **Note:** If the gas in any of the tanks fall below 300 psi, the cylinder should be replaced.
- Turn on the Gas chromatograph. The power button is on the front left side of the instrument.
- Make sure the computer controlling the instrument is turned on and open the **Star Workstation** software.

Figure 1. System Control Toolbar

METHOD DEVELOPING AND EDITING:

- Left click on the left most **System Control** icon on the tool bar. A **Configuration Communication** panel will automatically open; left click on the **Cancel** button.
- Under the **File** tab click on **Activate a Method**. Select the desired method and left click on the **Open** button. If a method is not already developed begin by opening **MP Default** and proceed to **Save Method** as desired method name.

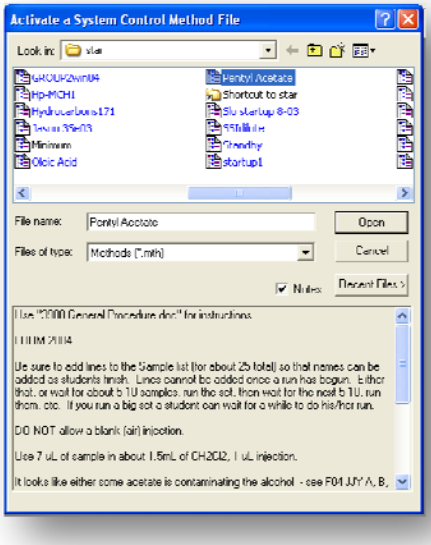

Figure 2. Activate Method File

- Methods can be **Viewed/Edited** by left clicking on the method name and selecting this option from the toolbar.
- Once the **Method Builder** window opens, a number of settings can be altered. Particular attention should be paid to the tabs under the **3800 GC Control** heading.
- Proceed to alter **Autosampler**, **Sample Delivery**, **Injector**, **Flow/Pressure**, **Column Oven** etc… by toggling between these tabs from the left window menu. MP Default Method contains some standard settings that can be used as a beginning template for method development.

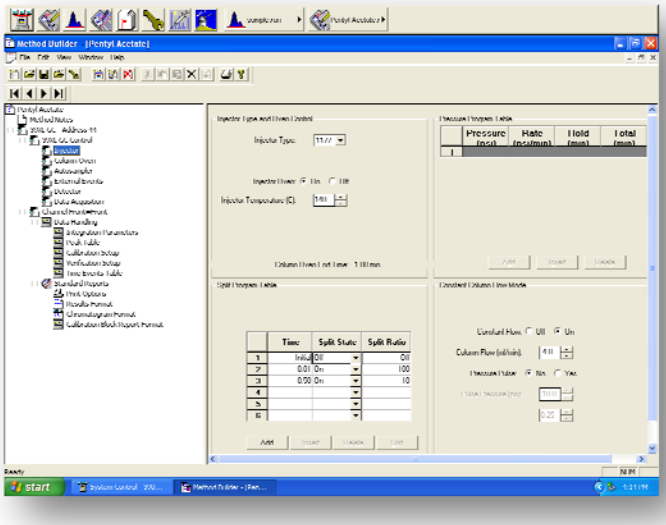

Figure 3. Method Builder

SAMPLE LIST AND SEQUENCE DEVELOPING:

- Double left click on the **39XL** icon and wait until all green lights appear on the top of the **System Control** window.
- From the **File** Menu, select **Open Sample List** option. Select the **Data** folder and the appropriate subfolder destination for your data.
- Save the sample list file using the appropriate title and section number (**CHE XXX XQ YEAR**)

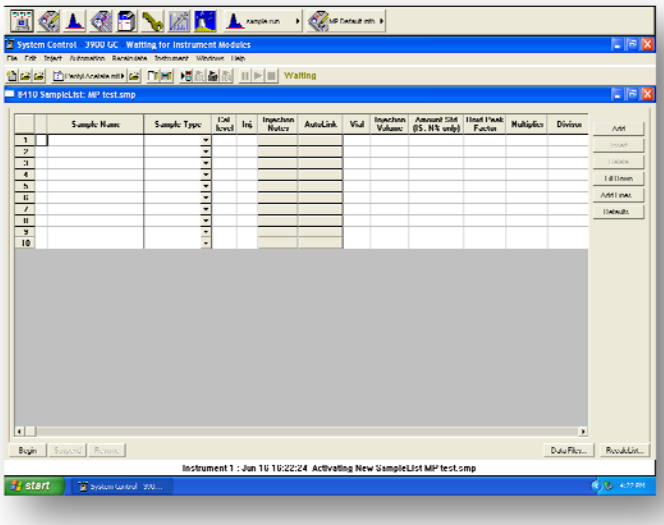

Figure 4. Sample List

- Load the sample tray and fill out the sample list with **Sample Name**, **Type**, and **Vial #** (Note: Line item 1 will default to Vial 2, be sure to correct to the appropriate vial number).
- Left click on the **Begin** button at the bottom of the window.
- It is also possible to run multiple samples with different methods of analysis. In order to do so, under the **File** tab open a **Sequence List**, set the folder destination analogously to the **Sample List** and fill the **Action**, **Method**, and **Sample List** information.

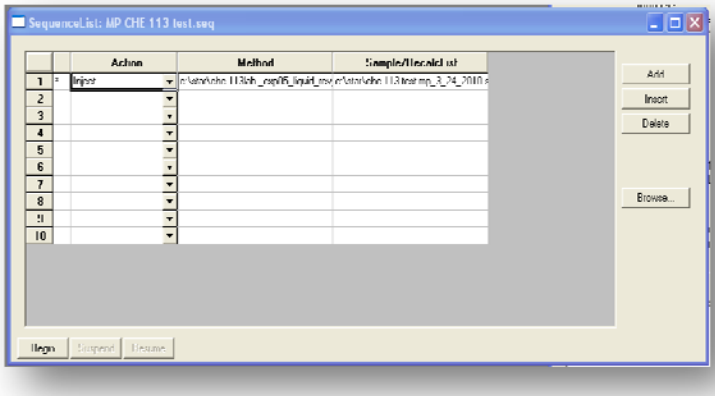

Figure 5. Sequence List

ANALYSIS:

- Once the chromatogram has been collected it is possible to print or reprocess the data at any time.
- The file name for last chromatogram collected will be displayed in the toolbar. Click on the icon and chose either **View Chromatogram** or **Print Standard Report**.
- Up to six chromatograms can be viewed at one time. To do so, left click on the chromatogram and choose **Add to List** option, left click on the files to open.
- Alternatively printing and reprocessing can be done from the **Interactive Graphics** menu. Select the **Results** tab and click on **Reintegration** option. Reports can be obtained by selecting the appropriate option in the **File** tab.

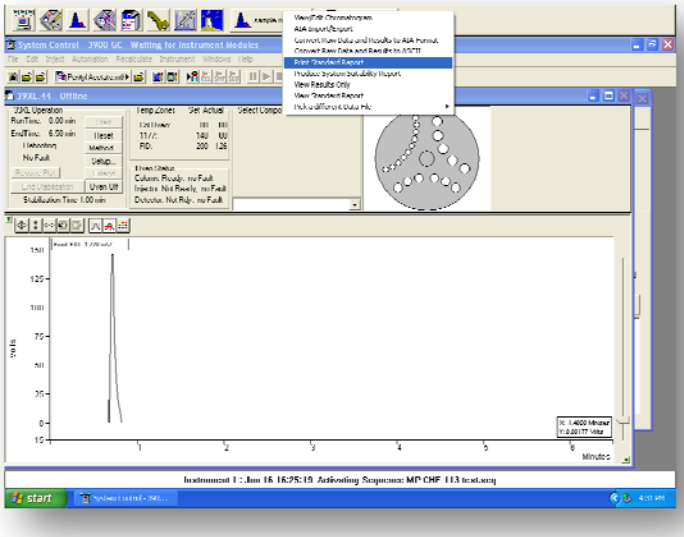

Figure 8. Interactive Graphics.

SHUTTING DOWN THE INSTRUMENT:

- Proceed to activate the **Cool Off Method**. This will turn down gas flows and turn off the detector.
- Once the instrument has been cooled for about 30 minutes, proceed to turn off the GC with the main switch on top of the instrument, and close all three gas tanks: H_2, Air and N_2.