For successful run, do the following (as needed): UPDATED 06/19/2014

1. **Change eluent:**
    a. Anions eluent is on the left.
        i. Perchlorate- 10 mM sodium carbonate, 20% acetonitrile.
        ii. Anions- 3.2 mM (678 mg/2L or 339 mg/L) sodium carbonate, 1.0 mM (168 mg/2L) sodium bicarbonate. Dissolves very quickly, usually within a few minutes with mixing.
    b. Cations eluent is on the right.
        i. Cations –1.7 mM Nitric Acid (0.113 mL/L of 70% HNO_3), 0.7 mM Dipicolinic Acid (117 mg/L). Requires 30 minutes to an hour to dissolve.

2. **Change column:**
    a. Columns are located in drawer to the right of the computer; please put them in the appropriate box.
    b. ALWAYS place white screws on the ends of the stored columns. This prevents them from drying out. This is VERY IMPORTANT to maintaining the longevity of the column.

3. **Change sample loops:**
    a. Sample loops are located in the "small IC parts" box in the drawer with the columns.
        i. General guidelines for sizes (please check your method)
            1. Perchlorate – 500 µL, Anions-100 µL for ppb and 10 µL for ppm (depends on standards). Nitric acid suppressor solution – 24 mL/2L.

4. **Prime the pumps after changing eluent and before equilibrating (ALL devices- see manual for instructions):**
    a. <u>If you do not know how to do this, have someone show you.</u>
    b. **Open valve**, go to Manual tab and increase the flow for Pump Anion to 5 mL/min. Run for at least 1 min or until no bubbles can be seen in line.
    c. Turn down flow to 0.5 mL/min **FIRST** and close valve **SECOND.** **<u>VERY IMPORTANT NOT TO RUN AT 5 mL/min THROUGH THE COLUMN, pressure is too high and will harm the column.</u>**

5. **Check other fluids and waste container:**
    a. Anion/Cation and Perchlorate wastes should NOT be mixed.
        i. Anion/Cation waste can be dumped down the drain with running water.
        ii. Perchlorate waste is hazardous and must be disposed of appropriately. Keep separate from Anion/Cation waste- **DO NOT MIX THE TWO.**
        iii. Move the waste tube from Perchlorate to Anion/Acid waste.
    b. MSM suppressor solution (Anions ONLY!)
        i. 200 mM Nitric Acid (12 mL HNO_3/L or MORE).

c. Milli-Q Water for suppressor rinse (Anions ONLY).
d. Milli-Q Water for sampling needle rinse (3 bottles located in autosampler tray).

6. **Load your method and start equilibration:**
   a. Step MSM manually once every 10 mins (3 times). This ensures that all the three chambers in the MSM are regenerated and equilibrated before starting the sample list (Anions ONLY).
   b. Let the IC equilibrate for at LEAST 15 more minutes before running (30 minutes more for better results). This would mean a total equilibration time of 45 minutes or more including the manual MSM stepping from the previous step.
   c. Equilibration baselines
      i. Cations: 730 µS/cm.
      ii. Anions: < 2 µS/cm (preferable < 1 µS/cm).
   d. After equilibration is done, make note of the pressure and baseline conductivity in the log book.
7. **Set up your sample table and start run.**
   a. **IMPORTANT: MAKE SURE "STOP HARDWARE WHEN SAMPLE TABLE IS FINISHED" BOX IS CHECKED.**
   b. An absolute minimum of 4 mL sample volume (preferably 5 mL) is required to perform anion/cation analysis.
   c. Check blank and standards before running your samples. Make sure the peak areas for your standards are in the appropriate range and the retention times for your analytes are correct. Make sure the blank does not have any peaks or contaminants. If these conditions are not satisfied, **DO NOT RUN YOUR SAMPLES.** Make a note of it and report it to the person in charge of the instrument (Varun Srinivasan, email: srinivasan@ecs.umass.edu).
8. **After run:**
   a. Remove samples.
   b. Deal with waste
      i. Anions/Cations – dump down drain while running water.
      ii. Perchlorate- hazardous waste, proper disposal method required, do not dump/flush down the drain!
   c. Make sure bench and drawers are tidy. Keep everything in good order. Report all error messages and issue in LOG BOOK.