JLAB New Horizontal Electropolish

**Procedure for Mixing Electrolyte**

Ashley Mitchell March 2019

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The intent of this procedure is to minimize evaporative Hydrofluoric acid loss due to temperature increase during mixing of Electrolyte.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Prior to adding HF:

1. Contact the Technical Support Group (TSG) to:
   1. Empty the EP storage tank.
   2. Add 55 gallons of sulfuric acid to the EP storage tank.

5. Open the valve to turn on the acid chilled water supply to the electrolyte storage tank heat exchanger.

The day of adding HF:

1. Start LabView, enter “HF\_SPIKE” as the cavity name (any cavity shape is acceptable), click continue.
   1. “Error 10001” may pop-up because the wireless thermocouples are not connected. Click continue.
2. Insert 1 gallon of Hydrofluoric acid (48%) to pump in the back of the EP cabinet. On the front screen, go to Maintenance → Metering Pump → press START. In the back of the cabinet, flip the orange switch up to pump HF acid into the sump (electrolyte storage tank). Once the bottle is empty, turn off the switch and press stop on the metering pump.
   1. ACW (acid chilled water) should be flowing to the heat exchanger during this step.
3. Circulate the acid in the electrolyte storage tank with the Electropolish process pump by going to the Process Parameters screen and starting the EP process at Step 12.
4. Press START, turn up the pump around 20-25 PSI and let the pump run ~30 minutes, or until the sump temperature is less than 10⁰C.
5. STOP the process, turn the pump off and reopen the chiller valve (Factory Settings →Tank Temp Control → PID 1 Setting→ ON). Set point should be -1000.
6. Repeat steps 1-3 until 5 ½ bottles of HF have been added. Combine the remnants of the HF bottles into one bottle during the process, add this to the ½ bottle used at the end. Make sure to triple rinse the HF bottles, label, and dispose of properly.
7. Circulate, with the chilled water to the heat exchanger turned on, for another 30 minutes.
8. Drain acid from lines (Step 20).