Sub OrganizeQueue()

1. Perserve Original Queue on separate sheet before sorting
2. Sort Original Queue based on rules:
   1. Priorirty: “LWR” > “High” > “Low”
   2. Date Received (Earliest > Latest)
   3. Aging duration (Longest > Shortest)
3. Volume Expansion:
   1. Calculate total liquid volume required based on total number of samples and ASTM D543 fluid volume to sample surface area ratio of: 10 ml/in2
   2. ASSUMPTION: ISO MPB and Impact cut samples will not be in the same work request as ISO 5A and 1BA bars
   3. Expands Queue with additional entries for the same work requests until number of samples fit into Parr vessels according to the ASTM D543 standard
   4. TBI: Account for smaller 1L vessels if 2L vessels are used up
   5. TBI (maybe): Vessel Consolidation
4. Copy Queue to new sheet “Organized Queue”

Sub calculate\_schedule()

1. Report currently occupied oven spaces on sheet “Calculated Schedule”
2. Sort “Calculated Schedule” by earliest ending date

Sub oven\_fill (date\_input As Date)

1. Fill any empty oven spaces on sheet “Ovens” with entries from “Organized Queue”, delete respective entries from sheet “Organized Queue”, and then add to schedule
   1. TBI: Add Weekend/Holiday (W/H) checks here (x4)
2. TBI: Resort sheets “Schedule”, “Organized Queue”
3. Update sheet “Ovens” with start/end times
4. TBI: W/H check

Sub report\_schedule (scheduleCount As Integer)

1. Count sheet “Calculated Schedule” entries with same earliest pull date
2. Report pull dates on sheet “Schedule” and delete entries from sheet “Ovens”
3. TBI: Add +24 hour downtime duration to remaining oven slots if a given oven slot has to be pulled
4. TBI: Add W/H check to this +24 hour downtime (maybe: modified)

Sub algorithm\_master()

1. Initialization step (uses NOW() as current starting date):
2. Run sub OrganizeQueue()
3. Run sub oven\_fill (date\_input = NOW())
4. Run sub calculate\_schedule
5. Run sub report\_scheulde (scheduleCount = 1)
6. Start algorithm loop (loop until sheet “Organized Queue” is empty):
7. Empty oven check:
8. If any ovens are empty, temperature can be changed (if needed) to temperature of highest priority entry on sheet “Organized Queue”
9. TBI: Add W/H check (x4)
10. Based on priority, fill oven with entries from sheet “Organized Queue” that match the same temperature as previously added entry
11. TBI: Add W/H check (x4)
12. Terminate loop if oven is full
13. Final empty oven check:
14. If all ovens are still empty by now, terminate algorithm
15. Main algorithm loop(loop until sheet “Organized Queue” is empty):
16. Run sub oven\_fill(date\_input = date of last action on sheet “Schedule”)
17. Run sub calculate\_schedule
18. Run sub report\_schedule(scheduleCount = total rows on sheet “Schedule”)