DXC 800 WEEKLY AND MONTHLY MAINTENANCE

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PURPOSE

To provide instruction for performing weekly and monthly maintenance on the DXC800 analyzers.

BACKGROUND

Weekly and monthly maintenance is performed on the DXCs on weekends dependent on staffing and workload, but not less than once per week or per month. Maintenance may be performed more often if required.

INSTRUCTIONS

1. Pause loading to the DXC using the Preplink Instrument Loading screen.
2. Change instrument mode to Manual using the Preplink Instrument Mode screen.
3. Each instrument has a USB flash drive labeled for that instrument. It is kept in the behind the right-hand door of the DXC. Plug the USB flash drive into the USB port on top of the PC prior to archiving. Make sure that it is fully seated. Do not remove until all archives are completed.
4. Go to Utilities and select Backup/Restore. Choose System Parameters, then choose Backup and select OK at the first prompt to continue.
5. At the next prompt, disregard the note about erasing the flash drive. Select OK.
6. **DO NOT** remove the USB flash drive, even though the prompt says “Backup completed successfully. Please remove the external media and label it properly”. Select OK to continue.
7. Select Backup/Restore. Choose Alignment Data, then choose Backup and select OK at the prompt to continue.
8. At the next prompt, disregard the note about erasing the flash drive. Select OK. At the prompt “Backup completed successfully…”, **DO NOT** remove the USB flash drive. Select OK to continue.
9. To Archive Calibration data, select Rgt/Cal icon. Select F6, Options. From the dropdown, choose Archive Calibration, OK.
10. When the message comes up that Archive was completed successfully, choose OK. **DO NOT** remove USB flash drive.
11. Select the QC icon followed by <F8> Archive. Select option 1, Archive to External Media. Enter your Tech ID followed by <Enter>. Select OK at both prompts.

12. At the prompt “Backup completed successfully. Please remove the External Media and label it properly”,at this time, **DO REMOVE** the USB flash drive and store it behind the right-hand door of the instrument. Select OK to continue.

13. When Archiving QC Data, you must delete the old data from the hard drive each month, to avoid filling up the files. The only way to delete is at the end of the Archiving process. Save at least the LAST 2 MONTHS of QC data. Please ask for assistance if you have any questions.

14. Select OK at the prompt to Delete Control from Hard Disk.

15. **BE EXTREMELY CAUTIOUS** when entering the dates to be cleared, or you will delete **ALL** QC data!

16. In the FROM box, enter the date from the beginning of the year, or previous year – for example: 1/1/11.

17. In the TO box, enter the LAST DAY of the month PRIOR to the PREVIOUS month. For example: on 7/6/13, enter 5/31/13.

18. DOUBLE CHECK your dates, and press OK when ready.

Shutdown and Reboot the DXC instrument and PC:

19. Put Line connector into Manual Mode if not already done.

20. From Instrument Commands, select 4 Shutdown. At prompt, “Continue to Shutdown?” select OK.

21. Follow commands on screen and select SHUTDOWN when prompted.

22. When the screen goes black and says “Shutdown Complete. It is now safe to reboot your computer”, turn off the instrument using the green power switch behind the instrument door.

23. Turn off the PC by pressing (may need to hold it down) the power button.

24. After about 20 seconds, turn on the PC by pressing the power button on the CPU.

25. Turn on the instrument using the green power switch behind the instrument door.

26. A screen will appear that says “This may take up to 2 hours”. If performed properly, the Startup screen should appear in a few minutes. You can monitor progress from the Instrument Status screen. The DXC usually takes about 15 minutes to reboot. If there were problems with the shutdown, it may take the full 2 hours to get to the Startup screen.

27. When Startup is complete, the instrument will begin Homing itself.

28. Press STOP BUTTON and wait for DXC to reach STOPPED status. The alarm will sound on the connector if not already in Manual Mode.

29. Silence alarm and press pause/run to clear the error, after the instrument has been STOPPED.

30. Remove and clean all plastic covers DO NOT use anything other than mild soap and hot water.

31. Wipe all probes and mixers with one alcohol wipe each, including wash tower.

32. Unscrew wash tower captive screws and change the blue wiper. Check to insure it is seated flush and squarely to the cuvettes.

33. Return wash tower to position and replace all plastic covers.

34. From Instrument Command, HOME the DXC.

35. From utilities, choose maintenance, cup maintenance, and choose all Cup Chemistries.

36. Select Rinse, do not close Result window.

37. Add 1 ml HCL to TP and CREAT cups, 1ml 10% Cleaning Solution to ALB, BUN, GLUC and PHOS cups.

38. Wait 10 minutes, Press Close.

39. Choose Rinse, press Close, then Drain

40. Check stir bars at this time and clean or change as needed. Note: Be sure to back out GLUC and BUN electrodes prior to entering the cup with stir bar removal tool so as not to damage the face of these electrodes.

41. Open cover and remove BUN electrode.

42. Wash quad ring and face of the electrode with deionized water. Wipe parallel to the gap with a lintless tissue. Dry.

43. Apply a thin coat of silicone compound (Molycote) to the electrode face. Polish parallel to the gap with lintless tissue.

44. Wipe port with deionized water and lintless tissue. Dry.

45. Reinstall electrode with quad ring. Align key and keyway. Fingers tighten. Replug pin lead.

46. Select OK on the Maintenance window; Close.

47. Prime reagent 20 times back into all cups; Close, Cancel.

48. Closely inspect the syringes for dirty/leaking tips and/or plungers, and inspect the syringe barrels for signs of discoloration. Also, inspect the DXC for signs of other leaks, stir bar problems, or other issues. Take appropriate action if indicated.

49. Select Utilities, Maintenance, Cup Lamp Sensor Calibration.

50. Select ALL Chemistries. Press START. This process takes about 10 min and ends with a report with today's date and pass/fail results on the screen. When complete, Close and Exit.

51. **Clean ISE Flow cell cup and probes**
    Prepare a rack (Rack 999) and fill the 2 ml cups as follows:
    Cup 1: Leave empty (no cup)
    Cup 2: Saline
    Cup 3: Spectrum bleach
    Cup 4: 2ml serum (Please use either Synchron 1 or 2)

52. Prepare a rack (Rack 998) and fill the 2ml cups as follows:
    Cup 1: 4 drops of Clenz, diluted to 2 ml with saline
    Cup 2: Saline
    Ensure that there are at least 65 tests of CCWA on board.

53. From Utilities, select 2- Maintenance, 10-Clean Flow Cell, Cups & CC Probes/Mixers. Select CC Probes/Mixers in the left column. Disregard all others in this column. Under the first tab Enter Rack number 999, disregard Cup 1. Under the second tab Enter 998. Load Racks. Press Start. Do not close window while these racks are running (about 37 minutes). When maintenance complete, select Close,

Close. At this point, the Maintenance log is presented for tech to initial and date as maintenance completed. Enter Initials and Date, OK, Done, Exit.

54. Immediately after running Racks 998/999, Prime 20 times. (Do not let the instrument sit idle after running Racks 998/999 due to possible adverse effects.) Choose Utilities, Prime, F4 MC, ISE ALL, #primes=20, Start prime.

55. After this procedure, look at the ISE flow cell. If there is still a gray build up, a further cleaning procedure may be necessary. See as Needed Procedures for ISE flow cell cleaning. Change electrodes if needed only if the ISE is clean.

56. Open ISE, raise module.

57. From Utilities choose Maintenance, ISE Service, Electrode Maintenance/Drain, Continue.

58. Remove Chloride electrode and discard old tip, o-ring and quad ring.

59. Loosen captive screw at the top of the flow cell body. Lift flow cell up and forward. Using Texwipes and deionized water, swab the port. If deposits persist, a weak bleach solution (10%) followed by deionized water may be used to clean the port. Dry port with another Texwipe.

60. Replace with 1 new o-ring inside body and 1 new quad ring on face of the new tip.

61. Reseat and replug electrode. Press OK on Maintenance window. Watch for leaks as module primes.

62. Select Close. Prime ISE 20 times. Choose Utilities, Prime, F4- MC, ISE All, #primes=20, Start Prime.

63. Replace Alkaline Buffer and in-line filter, unless already done.

64. Remove straw. Hold cap over bottle so liquid will flow back into bottle.

65. Select Utilities, Prime MC, ALK Buffer. Prime 10 times, START. Discard reagent

66. Remove and replace in-line filter (line #30). Make sure arrow points in the direction of the reagent flow.

67. Select Rgt/Cal, MC Rgts, Load

68. Wand the barcode on the new bottle of alkaline buffer and place on the analyzer. Wipe straw and replace cap. Select Done.

69. Check damper level and adjust as needed.

70. Vacuum or replace all filters (4) in the doors in the front of the DXC 800.

71. Perform Weekly DXC Connector cleaning procedure for line connector. Record in Power Processor log book.

72. Restock and replace all reagents as needed.

73. Calibrate ALL MC chemistries and others as needed.

74. When calibrations and QC have been completed, return the DXC to Automation mode in Preplink.

75. Check off maintenance in DXC analyzer log.

76. Document maintenance for your shift on the log sheet in the maintenance book.

PROCEDURAL NOTES

- First determine what maintenance needs to be done and on what DXC800.
- Check for leaks, “dirty” syringe plungers
- Look for rusty material inside the syringes, dirty plungers and anything else out of the ordinary. Any of these findings could necessitate changing the plunger or the whole syringe.
- Check the ISE to make sure it doesn’t look dirty. A gray-green material in the upper part of the ISE flow cell may necessitate extra cleaning; flushing of the flow cell.

REFERENCE

Beckman Coulter, IFU Manual Unicel®DXC600/DXC800 2006

DOCUMENT APPROVAL **Purpose of Document / Reason for Change:**			
7/24/15- Changed cleaning for ISE & data archiving.			
☒ *No significant change to process in above revision. Per CAP, this revision does not require further Medical Director approval.*			
Committee Approval Date	☐ Date: ☒ N/A – revision of department-specific document which is used at only one facility	**Medical Director Approval** *(Electronic Signature)*	Katie Wilkinson, MD 9/25/15