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Tool Operation Instruction  
for

**CNW07 DNS SU-3200**

**REVISION**

Rev No.	DCN No.	Change Summary	Release Date	DCN Initiator	Document Owner
5	DCN3859	Updating Q-Time details. Adding in Load Port Utilization Instructions	August 2024	Z. Gardener	R. Schulz

Prior revision history, if applicable, is available from the Document Control Office.

## 1 PURPOSE AND SCOPE

The purpose of this MPS is to provide instructions on processing wafers through CNW07 for both Manufacturing and Development in NanoFab North (NFN) for all personnel associated with the operation of CNW07.

(Supplier: DNS, Model: SU-3200)

CNW07 is a single wafer tool for both front-side and backside etch/strip clean. The tool consists of 12 processing units. There are four towers with three chambers each for a total of 12 chambers.

- Chambers 3, 7, 11 are FEOL
- Chambers 4, 5, 8, 12 are BEOL.
- Chamber 6 is FEOL with set conversion days for BEOL.
- Chambers 1, 2, 9, 10 are empty (not being used for production).

## 2 DEFINITIONS

- 2.1 **BEOL** – Back end of line
- 2.2 **CRO** – Cleanroom Operator
- 2.3 **dH<sub>2</sub>O<sub>2</sub>** – dilute Hydrogen Peroxide
- 2.4 **dHCl** – dilute Hydrochloric Acid
- 2.5 **dHF or HF** – dilute Hydrofluoric Acid
- 2.6 **dNH<sub>4</sub>OH** – dilute Ammonium Hydroxide
- 2.7 **DNS** – Dainippon Screen Mfg. Co., Ltd.
- 2.8 **EMO** – Emergency Off
- 2.9 **FEOL** – Front end of line
- 2.10 **FOUP** – Front Opening Unified Pod
- 2.11 **H<sub>2</sub>O** – Water
- 2.12 **H<sub>2</sub>O<sub>2</sub>** – Hydrogen Peroxide
- 2.13 **HCl** – Hydrochloric Acid
- 2.14 **IPA** – Isopropyl Alcohol

- 2.15 **NH<sub>4</sub>OH** – Ammonium Hydroxide
- 2.16 **NFN** – Nano Fab North
- 2.17 **NFX** – Nano Fab eXtension
- 2.18 **NY CREATES** – New York Center for Research, Economic Advancement, Technology, Engineering and Science
- 2.19 **OPS** – Operations Department
- 2.20 **PPE** – Personal Protective Equipment
- 2.21 **SC-1** – Huang A (H<sub>2</sub>O<sub>2</sub>/NH<sub>4</sub>OH/H<sub>2</sub>O)
- 2.22 **SC-2** – Huang B (H<sub>2</sub>O<sub>2</sub>/HCl/H<sub>2</sub>O)
- 2.23 **SDS** – Safety Data Sheet

### 3 RESPONSIBILITIES

- 3.1 **Supervisors** shall provide their employees with all of the safety requirements of their jobs, including but not limited to: the hazards of the chemicals used, Personal Protective Equipment requirements and availability, the location and use of Safety Data Sheets, and all appropriate emergency procedures; and shall effectively implement daily Hazard Communication activities at the line level.

Operators shall process wafers through the SU-3200 and ensure that the tool is passing quals.

### 4 EQUIPMENT

The equipment used in support of CNW07 is summarized in the table below.

Equipment Name	CNSE Tool Hex ID
KLA/Tencor Surfscan SP3/SP5 – FM Tool	CTM06 (SP3), CGM10 (SP3), CGM20 (SP5)
KLA/Tencor Spectra – Thickness Tool	CNM02, CTM10, CGM11, CNM58
Rigaku TXRF – X-ray Element Analysis Tool	AXM02, CTM11, TNM03

## 5 SAFETY

**NOTE:** The following safety rules are to be followed when applicable to the specific operation being performed. Certain precautionary measures are highlighted in the procedures as **DANGER / WARNING / CAUTION** should be adhered to strictly.

**DANGER** is the signal word used to indicate an immediate hazardous situation that, if not avoided, will result in death or severe injury. This signal word is limited to the most extreme situations.

**WARNING** is the signal word used to indicate a potentially hazardous situation which, if not avoided, could result in death or severe injury.

**CAUTION** is the signal word used to indicate a potentially hazardous situation which, if not avoided, could result in moderate or minor injury. It may also be used to alert against unsafe practices.

### 5.1 General Safety

Follow all applicable information and requirements located in Environmental, Health, and Safety Documents located on the NY CREATES Intranet: <https://intranet.sunycnse.com>.

Additional safety information is located in Environmental, Health, and Safety Documents located on the NY CREATES Intranet (<http://intranet.sunycnse.com>).

An Emergency Off (EMO) button should be pressed in any dangerous situation in order to prevent injury to personnel or damage to the wet clean system. When an EMO button is pressed, the red System Power Failure Light on Power Distribution Box comes on. EMO buttons are at various places around the tool.

### 5.2 Mechanical Hazards and Controls

Do not remove any panels, enter into any enclosed areas, or use the tool if it appears disassembled in any fashion. Only authorized personnel are permitted to remove or open the covers of the Wet Clean System.

### 5.2.1 Mechanical Hazards that the Operators May Encounter:

- Pinch point hazard – keep hands clear. The corresponding label is shown in the picture below. The pinch point hazard is located on each access door including Elevating Modules and Liner Module



- Lifting hazard – do not lift or move this equipment without assistance. The corresponding label is shown in the picture below. The lifting hazard is located at filter fan unit.



### 5.2.2 In order to avoid injury from the previous dangers, the following precautions should be taken:

- 1) When the blue light turns on, or any alarm messages are displayed, contact the tool vendor and maintenance.
- 2) To ensure operator safety and prevent malfunctions, the tool is equipped with a variety of electrical and mechanical interlock functions. Interlocks are activated when the equipment is incorrectly operated or an error has occurred. For absolutely no reason should any attempt be made to override an interlock.
- 3) NEVER place any part of your body in the path of the transfer unit. If you do not enter any enclosed areas, nor override any interlocks, this should not be a concern.

## 5.3 Physical Hazards and Controls

### 5.3.1 Temperature Extremes

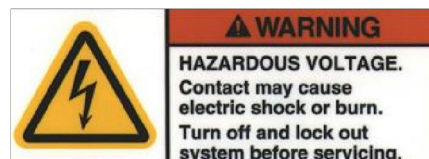
The **HOT SURFACE** warning label will indicate that component temperature in the area of the label is high enough to cause skin burns.

Care should be taken when handling components in these areas during and after equipment operation. Contact may cause serious burns. The ventilation slots of the electrical units should never be covered.

### 5.3.2 Electric Hazards

The tool uses high voltage which can present a danger to personnel. Any intervention in the electrical system may be hazardous. Do not open the casing of the Main Unit or Power Distribution Box while the system is in Operation. Do not make any modifications to, or breaks in the protective ground wiring inside or outside of the electrical units. Ensure that the electrical units do not come into contact with any liquids. A dangerous voltage still exists in the AC motor drivers for about 1 minute after the main power supply has been switched off. The signs and locations of different types of electric hazard are listed below:

- Hazardous voltage safety sign and location:



- Line voltage warning safety sign and locations:



- Hazardous voltage PC UPS sign and locations:



5.3.3 Materials Handling

Weight of FOUPs – FOUPs should not be carried. ALL transportation of FOUPs should be done via carts.

5.4 **Chemical Information**

Safety Data Sheets (SDSs) and chemical labels provide important information regarding the chemical hazards and precautions. Such information is available in the EHS office. For further detailed instructions on obtaining SDS information via the EHS SDS site, refer to the EHS documents located on the NY CREATES Intranet. If an electronic copy of an SDS is not available, a hard copy is available from the site Chemical Coordinator.

5.5 **Chemical Hazards and Controls**

The storage, transport and handing of the chemicals will be coordinated by NY CREATES Toxic Gas and Chemical team (as of this writing: Air Liquide). Operators shall not handle any of the chemicals. Operators should not be within the mini-environment, nor should they remove any covers or disable any interlocks which would expose them to chemical.

5.5.1 The chemical hazards associated with CNW07 may include the following:

- Toxic Fumes: Toxic fumes may be generated within the Main Unit or chemistry cabinets if there is an exhaust system failure or acid leak. The chemicals which are used for wafer processing are toxic and cause severe burns when inhaled, swallowed, or when they come into contact with the skin.
- Etching Agent: Only qualified personnel using safety equipment are allowed to override the door interlocks for maintenance work. Pressurized acid lines are located within the Main Unit and in each chemistry cabinet. The manual filling of chemical tanks must be carried out by qualified trained personnel using safety equipment.

5.6 **Personal Protective Equipment (PPE)**

Anytime a 10% IPA and 90% water solution is used, the following PPE is required:

Task	IPA Type	Required PPE
General Wipe down	10% IPA / 90% Water	Eye protection (goggles) and Nitrilite gloves

## 5.7 **Safety Education and Training Requirements**

Training documents are located on the NY CREATES Intranet (<https://intranet.sunycnse.com>). Safety education requirements for the Albany NanoTech Complex are clearly defined and documented on the NY CREATES Intranet.

Individual Safety Training needs for the Albany NanoTech Complex are defined by work area and tools set. It is the department manager's responsibility to ensure all employees are aware of and have received the required training for their work area / tool set. See your department manager or department safety representative to determine whether you need additional safety training to perform this process.

Departmental safety training is tracked by the department manager and department safety representative using the Safety Education Matrix. This matrix is a "For Reference Only" tool used at a department level in conjunction with Site Safety Bulletin 392 to defined required safety training by area and tool set.

Requirements for certification are documented in the Certification Checklist for this tool. All tool operators must complete the Certification Checklist. A certification test will be administered by the IBM Tool Owner to all operators. The test must be passed before an operator is certified. While in training, non-certified operators should be accompanied by a certified operator while operating the tool.

## 5.8 **Pre-Start Safety Inspection**

Ensure all enclosure doors are closed and locked. Do NOT operate any equipment with nonfunctioning, defeated, or broken shields, guards, interlocks, etc. DO NOT operate tool if tool appears disassembled in any way. Additionally, DO NOT operate if the Blue light is blinking. Contact Engineering and vendor.



## 6 TOOL MONITOR PROCEDURE

Monitor Type	Product ID	SP3 Recipe	Etch Rate	TXRF
Bare Si	mCNW07.C3SC1FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.C6SC1FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.C6SC2FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.C4SC1FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.C4SC2FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.C7SC1FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.C7SC2FM	mMEASP3PRE.1 mMEASP3PST.1	N/A	N/A
Bare Si	mCNW07.FEOLTXRF	N/A	N/A	mMEATXRFSW.2 mMEATXRFB3.1
Bare Si	mCNW07.FEOLC6TXRF	N/A	N/A	mMEATXRFSW.2 mMEATXRFB3.1
Bare Si	mCNW07.BEOLTXRF	N/A	N/A	mMEATXRFSW.2 mMEATXRFB3.1

Monitor Type	Product ID	SP3 Recipe	Etch Rate	TXRF
Oxide	mCNW07.C3HPFMEROX	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C4HFFMER	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C3HFFMER	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C3NSFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
Oxide	mCNW07.C6HFER	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C6HFHCLOX	N/A	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C6NSFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
Oxide	mCNW07.C6TEAHFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
Oxide	mCNW07.C41000HFER	N/A	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C4NSFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
Oxide	mCNW07.C7HFFMER	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C7NSFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
Oxide	mCNW07.C12HFCER	N/A	MEAF5Pre500AWETS.1 MEAF5Post500AWET.1	N/A
Oxide	mCNW07.C11TBFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
TEOS	mCNW07.C3IPAFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
TEOS	mCNW07.C6IPAFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A

Monitor Type	Product ID	SP3 Recipe	Etch Rate	TXRF
TEOS	mCNW07.C4IPAFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
TEOS	mCNW07.C7IPAFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
TEOS	mCNW07.C8FAV2FM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
TEOS	mCNW07.C8FAV1FM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
TEOS	mCNW07.C12HF CFM	mMEASP3OX50080PR.1 mMEASP3OX50080PS.1	N/A	N/A
Nitride	mCNW07.C3HPERNIT	N/A	MEAMLDSIN.1 MEAMLDSIN.1	N/A
Nitride	mCNW07.HPshortER	N/A	MEATHHTSiN121.3 MEATHHTSiN121.3	N/A
SacSiN	mCNW07. C12HFCSacNER	N/A	MEA200AsacSiN.1 MEA200AsacSiN.1	N/A
ALD Nitride	mCNW07.C6HFHCLNIT	N/A	MEAMLDSIN.1 MEAMLDSIN.1	N/A
Si-SiO <sub>2</sub> -aSi	mCNW07.C6TEAHER	N/A	mMEATHOxaSi1000A.2 mMEATHOxaSi1000A.2	N/A
Si-SiO <sub>2</sub> -aSi	mCNW07.C11TBER	N/A	mMEATHOxaSi1000A.2 mMEATHOxaSi1000A.2	N/A
Si-SiO <sub>2</sub> -TaN	mCNW07.C8FAV1ER	N/A	mMEAXRFTaN17pt.1 mMEAXRFTaN17pt.1	N/A
TEOS-TaN-Ta-Cu	mCNW07.C8FAV2ER	N/A	mMEACGM05CuMn1k.1 mMEACGM05CuMn1k.1	N/A

**\* For TXRF's, flip the wafer prior to running through the tool and flip back after it is run through the tool.**

## 6.1 Systems Checks

System checks to perform prior to running product (ETSS, tools statuses in MES, etc.):

- 1) Verify tool is in correct E10 Equipment state in SiView.
- 2) Verify tool is in correct automation state in SiView (i.e., Auto 1, Offline 1).
- 3) Verify tool communication state at tool (i.e., Offline, Online Local, or On-Line Remote).
- 4) Verify tool Load Port status (i.e., Auto or Manual).
- 5) Verify tool qualifications are current.

## 6.2 Procedure

### 6.2.1 Running a Job in Auto 1:

- 1) Setup the tool GEM status to be:
  - Enabled / Communicating
  - Host Online / Remote
  - Load Port status: Manual
- 2) From the Material Manager Main menu:
  - a) Select **Equipment**.
  - b) Select **Equipment Operation**.
  - c) Select **Equipment Information."**
- 3) Verify the equipment is in Auto 1 by choosing the Port tab to be manual mode.
- 4) From the Equipment Information Menu:
  - a) Enter the equipment ID.
  - b) Select **What's Next**.
  - c) Highlight the appropriate carrier.
  - d) Select **Action**.

- e) Highlight Lot ID.
- f) Select **Start Reserve**.
- g) Select carrier in the carrier assignment section of the window by using the carrier ID pick list and pressing the **Confirm** button.
- h) Return to the Equipment Information dialog window and refresh. The reserved carrier will appear in the reserved carrier column.
- i) Highlight the Lot and press the **Load** button. The Manual Loading dialog window will appear. Now manually load the carrier onto your selected Load Port.
- j) The Lot will start processing. When finished, highlight the Lot and press the **Unload** button.

**NOTE:** Do NOT unload carrier prior to unloading via SiView.

6.3 **NOTE:** Refer to SPC charts for appropriate qualification limits and corrective actions.

#### 6.4 **Coding the Tool Appropriately During Qualifications and Qualification Fails**

We will NOT code the tools down for timely daily routine qualifications. Use PRD - 1000.

If the initial qualification fails, uninhibit the tool and keep the chamber to SBY – 2000. A second qualification is then required ASAP per the SPC corrective actions prior to contacting maintenance.

If the second qualification fails, put the failing chamber/s unscheduled down UDT - 5000 in SiView, notify WETS Engineering Team and Supplier Maintenance Personnel.

All subsequent Maintenance Testing should be done in UDT - 5400.

When Maintenance Testing is good, the equipment is returned to production to make ready for product in SBY - 2000. Manufacturing is responsible to code the tool back to PRD or SBY.

#### 6.5 **Running Qualifications in Manual**

In case of running qualifications in manual mode, use the recipes to do the pre- and post- measurements.

Input the qual results into SPC chart after the qual.

Error recovery for CNW07 is to be performed by Wets Engineering or Vendor.

Process Engineering MUST be contacted to disposition all Lots that fail to complete a normal process. If ANY system or tool error occurs after OPERATION START, the Lot must have a "Claim Memo" associated with it. Engineering or Advanced Operator is responsible for verifying status of the Lot and ensuring the Lot is at the proper process step before moving on.

Incorrect recovery results in wafer loss.

FOUPs that contain manually recovered wafers must maintain slot integrity before being returned to production. If not, control center must remap and update slot / wafer ID.

#### 6.5.1 General

- Verify tool is down on SiView and notify Equip Maint/Vendor for recovery if necessary.
- Verify Lot status on SiView and compare with tool actual (FOUP physically on tool).
- Verify Lot recipe and number of wafers to be processed (i.e., split Lot) on SiView.

#### 6.5.2 If Lot did NOT process:

- 1) Place tool in Offline 1 on SiView.
- 2) Perform "Oper Start Cancel" and include "Claim Memo" stating why Lot did not process.
- 3) Perform unload and verify proper route location on SiView (i.e., now waiting for CNW01).
- 4) Physically remove Lot from tool and place in stocker.

#### 6.5.3 If Lot fully completed process:

- 1) Place tool in Offline 1 on SiView.
- 2) Place Lot on "Running Hold" through SiView and include comment in "Claim Memo."
- 3) Perform "Force Oper Complete" and then "unload."

- 4) Verify proper route location on SiView; release hold and include "Claim Memo."
- 5) Physically remove Lot from tool and place in stocker.

#### 6.5.4 If Lot partially processed:

- 1) Place tool in offline 1 on SiView.
- 2) Place Lot on "Running Hold" through SiView and include comment in "Claim Memo."
- 3) Perform "Force Oper Complete" and then "unload." [Place Lot on EDTO hold for tool owner / TECH review.](#)
- 4) Verify proper route location on SiView.
- 5) Using tool log, verify wafers processed, not processed, and tool Recipe.
- 6) Pass-down to OPS team.
- 7) Notify Lot Owner and WETS Engineering Team.
- 8) Remove Lot and place in a stocker.

#### 6.5.5 If Recipe is Rinse Dry, it is acceptable to rerun entire Lot:

- 1) Release hold and include "Claim Memo."
- 2) Place parent (wafers already processed) on Merge Hold and place a future on the child to merge with parent Lot.
- 3) Ensure Lots (parent and child) are at proper step in route.
- 4) Physically remove Lot from tool and place in stocker.

#### 6.5.6 Job Disposition

Process Engineering MUST be contacted to disposition any Product Lots which fail to complete normally. Incorrect recovery may result in skipped process steps or other possible misprocess risks. If ANY system or tool errors happen after the initial Start Lot Reservation is made on a tool, the Lot must be placed on hold and Process Engineering must verify that the operation completed correctly and that the Lot is at the correct operation before releasing the hold.

If a wafer is found to be cross-slotted in the FOUP, contact Control Center to resolve the issue.

### 6.5.7 Emergency Shutdown

In an emergency situation, the tool may be powered off using one of the many Emergency Stop (Emergency Machine Off) buttons located on the tool. If an emergency occurs, press the emergency machine off (EMO) button to remove all power from major parts and to shut-down the tool. The EMO button is a large, red push-button labeled "EMO." Use it in emergencies or for immediate tool shutdown.

### 6.6 **MPC6 BEOL Conversion Procedure and Details**

- MPC6 is a FEOL chamber primarily.
- There will be Lots showing up that require MPC6 to be in BEOL mode.
- For this, we will have to do FEOL/BEOL conversions.
- MPC6 will convert to BEOL mode and remain in that state for below mentioned timeframes only.
  - a) Tuesdays 7am to 7pm.
  - b) Fridays 7am to 7pm.
  - c) No more than two (2) conversions a week.
  - d) Exceptions will be made for P0s only.
  - e) If no Lots show up on Tuesday, next conversion will be on Friday only.
  - f) If no Lots show up on Friday, next conversion will be on Tuesday only.
  - g) There will be no changes to conversion schedules unless notified by IBM Engineering.
- Chamber coding:
  - a) When chamber is in FEOL mode, keep chamber 6 UP and chamber 6BEOL down.
  - b) When chamber is in BEOL mode, keep chamber 6BEOL UP and code chamber 6 down.

**NOTE:** Before coding MPC6BE UP, Cleanroom Operator (CRO) to notify IBM Engineering team and code MPC6 down.



- Whenever we have a Lot with Recipe: MPC6BEOLconvert operation name: WETBEOLTEAHDUMM.1, it will need MPC6 TEAH Recipe in BEOL mode and should be run based on points mentioned in step d).
- When ready to run, gate pass the Lot. DO NOT operate.
- Once all the BEOL TEAH Lots finish processing check with engineering team to confirm before coding chamber back to FEOL mode.
- Once all Lots finish processing, run TXRF beam 2 for Copper (Cu) in MPC6 as post qualification to convert back to FEOL.
- Once TXRF results come back clean, code chamber 6BEOL down and chamber 6 UP, meaning chamber is back in FEOL mode.

## 6.7 Load Port Utilization

CNW07 is a FAB critical tool with High WIP, which is mainly for MPC7, MPC6, and MPC4 including first lot cleans and monitor wafer cleans

Therefore, for WIP improvement, Engineer Team recommends:

- Dedicate Load Port 1 for MPC 7 WIP
- Dedicate Load Port 2 for MPC 4 WIP
- Dedicate Load Port 3 for either MPC7, MPC4 or MPC6 WIP
- Dedicate Load Port 4 for all other chambers or MPC7/MPC4/MPC6 if no other WIP

In general, DO NOT load same chamber jobs at the same time to help tool throughput.

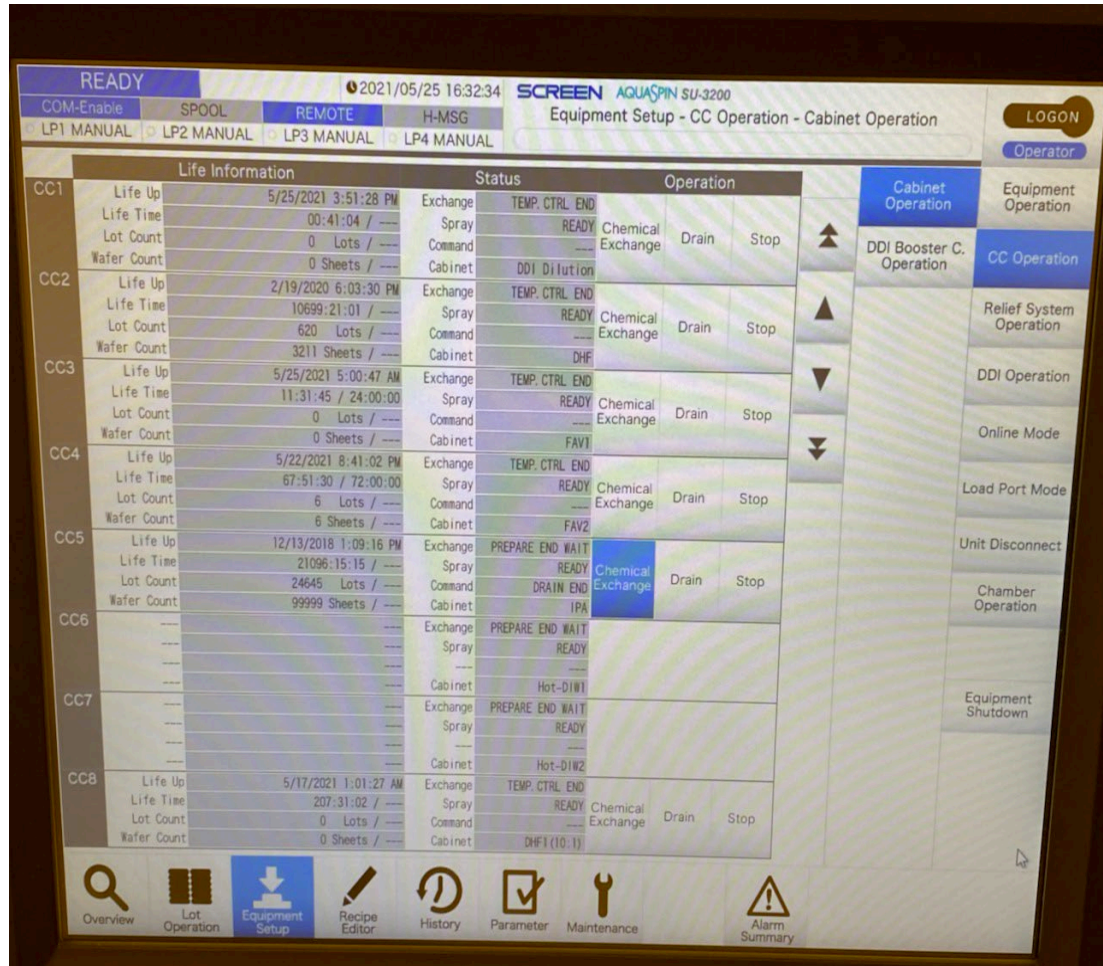
## 7 LIST OF CHEMICAL CABINETS AND CHEMISTRIES / CHAMBERS

Chemical Cabinet	Name	Chemical	Chamber
CC1	Dilution	49%HF	3,4,6,7
CC2	DHF	DHF	3,4,5,6,7,8,10,11,12
CC3	SC-FAV1	Etch J	8
CC4	SC-FAV2	AlaN	8
CC5	SC-IPA	IPA	3,4,5,6,7,8,10,11,12
CC6	Hot DIW	DIW	3,4,5,6,7,8,10,11,12
CC7	Hot DIW	DIW	3,4,5,6,7,8,10,11,12
CC8	EC-DHF1	HF/Citric	5
CC9	EC-DHF2	HF/Citric	12
CC10	EC-TEAH	TEAH	6
CC11	EC-TEAH+	TEAH+BTA	11, 12
CC12	EC-VC	Vendor clean cabinet	4,7,8,10,11
CC13	EC-H3PO4	H3PO4	3
CC14	EC-Seasoning	Quartron PL-1	3
CC15	Cooling Unit	-	3
CC25	SC-DDI	NH4OH	3,4,6,7
CC26	SC-DDI	H2O2	3,4,6,7
CC27	SC-DDI	HCl	3,4,6,7
CC29	Dilution	10:1 HF	5

NOTES:		
CC4	CSU D1 tank empty warning	Alan needs replacement
CC8	308 CSU2 tank empty	Citric needs replacement
CC9	309 CSU2 tank empty	Citric needs replacement
CC12	CSY tank empty	Vendor Clean needs replacement
CC14	CSU tank empty	PL-1 needs replacement
CC29	CSU tank empty	10:1 DHF needs replacement

## 8 PROCEDURE TO DO CHEMICAL EXCHANGE

- Go to Equipment set up on CNW07 monitor screen.
- Select the right CC – based on Section 7 and hit the chemical exchange button, as shown in picture below.



## 9 PREVENTIVE MAINTENANCE

### 9.1 Manufacturing Personnel

Manufacturing Personnel are not responsible for any Periodic Maintenance.

### 9.2 Maintenance Personnel

Maintenance Personnel will be responsible for all Periodic Maintenance Activity. Vendor Maintenance Personnel will be responsible for all Periodic Maintenance Activity.

### 9.3 Supplier / Contract Maintenance

Maintenance Personnel will be responsible for all Maintenance Activity, including response to all alarms and errors. In addition, Maintenance will be responsible for some corrective actions for SPC failures.

#### 9.4 **Calibrated Equipment**

No items used in association with this tool require Calibration.

**IMPORTANT:** FM is performed every 48 hours. TXRF is performed every 2 weeks. All times list can be superseded by agreement between engineering and the production manager with SiView MM being the master.

### 10 **RECORDS**

Operations must record all qualifications data into wSPC or an alternative designated by engineering. Any shift cross-over via email or file are considered process visual aids.

#### 10.1 **Process Visual Aid**

Any checklists are intended as a visual aid for tracking MPS quals and to facilitate communication during shift crossover. These checklists are NOT intended for data collection. The hardcopy checklist expires after 24 hours from the date indicated at the top of the form.

### 11 **APPROVED TOOLS FOR TOXIC METALLOID PROCESSING**

The tool/chamber below has been approved by the CRB as a run-path for toxic metalloid-containing wafers. Per **EHS-00052**, Sections 3.6.1 and 26, NY CREATES Cleanroom Operators have been designated as individuals trained and approved to load and unload FOUPs on tools approved by the CRB for toxic metalloid wafer processing. In the event of a wafer break, follow **EHS-00052**, Section 24.

#### 11.1 **List of Approved Tools / Chambers**

CNW07 MPC4

### 12 **Q-TIME**

For some product / monitor routes, there is a Q-Time between the wets tool and the next processing tool. A dummy step is implemented into the route to stop at the 1st step to make sure the downstream tool is available. This is to minimize process delay time after wets. [Q-Time lots will run on CNW07, then need MNF12 and CTF05.](#)

CNW07 QTime Logical Recipe / Recipe Details to look out for:

- CNW07 Logical Recipes:
  - QTCNW07\_MNF12.12HrQT\_6\_CD
  - QTCNW07\_CTF05.12HrQT\_6\_DC
  - Check\_CNW07\_MNF12.12HrsQTime
  
- CNW07 Equipment Recipe:
  - QTCNW07.12HrQT\_6.0
  - 12HrsQTime

In this case, the Lot appears in CNW07 queue with the dummy recipe 12HrsQTime with MNF12/CTF05 being the next downstream tool. Call the operators of MNF12/CTF05 to verify tool is up and has correct chamber available to run the MNF12/CTF05 step after CNW07 processing. In this example, after processing on CNW07, it needs run on MNF12/CTF05 within 12 hrs. If downstream tool isn't available please keep at dummy step till given the okay.

If MNF12/CTF05 CRO says the tool is up, a port ready, and chamber available then processing of the Lot on CNW07 can be started.

Once ready, Gate pass the dummy step by selecting the Lot from the **What's Next** list > click **Action** > click **Gate Pass**. This will move the Lot one step forward in the route to the correct wets operation. **If there is an error when Gate Passing, the CRO is to put the Lot on EDLO hold for the LO to update the route.**

After processing the wets step, notify CRO and deliver the Lot to the next step (MNF12 in this case) so it can be processed as the 12 hr timer starts when Lot finished processing on CNW07.

DO NOT use operation locate. Gate Pass is used to ensure the Lot goes to the correct step whereas operation locate leaves room for error when selecting the next step. This is important for Q-Time to function properly.