

# SBC 19-BM Beamline Shutdown Procedure

This procedure should be performed for beamline 19-BM at the beginning of an APS maintenance or shutdown period of 2 weeks or longer duration.

	19-BM	ITEM																														
1.	$\rho$	Install the face shield on the SBC3 detector in the end station enclosure (D-hutch).																														
2.	$\rho$	Drive sample goniometer in the D-hutch to $\omega = -90^\circ$ , $\kappa = 0^\circ$ and $\phi = 0^\circ$ .																														
3.	$\rho$	Save and Print all current motor positions.																														
4.	$\rho$	Ensure that all D-hutch attenuators are OUT and close shutter to de-energize modules.																														
5.	$\rho$	Switch off Uniblitz shutter controller inside D-hutch.																														
6.	$\rho$	Drive in order: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Monochromator focus to 0.05 mm</td> <td>Final value:</td> <td>mm</td> </tr> <tr> <td>Monochromator energy to 12 keV</td> <td>Final value:</td> <td>keV</td> </tr> <tr> <td>Mirror focus to 0.05 mm (0 mm if power is going off)</td> <td>Final value:</td> <td>mm</td> </tr> <tr> <td>Mirror angle to <math>0^\circ</math></td> <td>Final value:</td> <td><math>^\circ</math></td> </tr> <tr> <td>Mirror height to 4 mm or limit</td> <td>Final value:</td> <td>mm</td> </tr> <tr> <td>Mirror lane to 0 mm</td> <td>Final value:</td> <td>mm</td> </tr> <tr> <td>Downstream support halfway to <math>0^\circ</math></td> <td></td> <td></td> </tr> <tr> <td>Goniometer (GO:Y) to 0 mm</td> <td>Final value:</td> <td>mm</td> </tr> <tr> <td>Guard slits support (GS:Y) to 0 mm or limit (-14 mm)</td> <td>Final value:</td> <td>mm</td> </tr> <tr> <td>Downstream support <math>0^\circ</math> or limit</td> <td>Final value:</td> <td><math>^\circ</math></td> </tr> </table> <p><i>Ensure that the bellows between the downstream support and the guard-slit box are not over stretched. Save and Print final motor positions.</i></p>	Monochromator focus to 0.05 mm	Final value:	mm	Monochromator energy to 12 keV	Final value:	keV	Mirror focus to 0.05 mm (0 mm if power is going off)	Final value:	mm	Mirror angle to $0^\circ$	Final value:	$^\circ$	Mirror height to 4 mm or limit	Final value:	mm	Mirror lane to 0 mm	Final value:	mm	Downstream support halfway to $0^\circ$			Goniometer (GO:Y) to 0 mm	Final value:	mm	Guard slits support (GS:Y) to 0 mm or limit (-14 mm)	Final value:	mm	Downstream support $0^\circ$ or limit	Final value:	$^\circ$
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7.	$\rho$	Ensure that SBC3 detector and electronics have been shutdown per <i>SBC CCD Detector Systems, Shutdown Procedure, SBC3 CCD Detector, SBC Beamline 19-BM</i> .																														
8.	$\rho$	Logoff bmesc computer inside D-hutch.																														
9.	$\rho$	Logoff Linux computers and beamline PC in operations area outside D-hutch.																														
10.	$\rho$	Logoff Linux computers in work areas BMWA and BMWB.																														
11.	$\rho$	Switch off NIM BIN, and power supplies for ion chamber (dial down to 0 kV), Amptek and Bicron detectors (BM-RACK #3 and inside D-hutch). Bicron power supply is separate from NIM BIN power but located in the NIM BIN.																														
12.	$\rho$	Valve off gas cylinders at cylinder head for nitrogen and helium in D-hutch.																														
13.	$\rho$	Ensure that nitrogen cold stream has been shutdown in an orderly manner.																														
14.	$\rho$	Ensure that sample-mounting robot has been shutdown in an orderly manner.																														
15.	$\rho$	Record readings from vacuum gauges in D-hutch: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Vacuum gauge 1</td> <td style="text-align: right;">torr</td> </tr> <tr> <td>Vacuum gauge 2</td> <td style="text-align: right;">torr</td> </tr> </table>	Vacuum gauge 1	torr	Vacuum gauge 2	torr																										
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16.	$\rho$	Close manual rough vacuum valve near shutter/attenuator assembly in D-hutch, and leave D-hutch door open.																														
17.	$\rho$	Switch off goniometer power supply in D-hutch.																														

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18.	$\rho$	Record pressure in mono tank and other beamline sections (BM-RACK #10).			
		IG1	torr	IG4	torr
		IG2	torr	IG6	torr
		IG3	torr		
		Close beamline gate valves (upstream to downstream) and put valve controllers in "lock" position; put utility vacuum valve D6 (D-hutch) in bypass mode and leave open.			
19.	$\rho$	Unplug rough vacuum scroll pump inside D-hutch and record hours of use:			
		Scroll pump hours of use			hrs
20.	$\rho$	Check / switch off microscope lights and fiber optic lights D-hutch.			
21.	$\rho$	Switch off "sky" camera in the D-hutch.			
22.	$\rho$	Switch off sample visualization monitors inside the D-hutch. <i>Leave the sample visualization computer and monitor running.</i>			
23.	$\rho$	Switch off sample visualization monitors outside D-hutch.			
24.	$\rho$	Switch off power to Neslab chiller in 19BM-C enclosure (C-hutch).			
25.	$\rho$	Switch off lights in all beamline enclosures.			

$\rho$  Randy Alkire

$\rho$  Norma Duke

$\rho$  Mike Molitsky

$\rho$  Frank Rotella

SIGNATURE(S): \_\_\_\_\_

DATE \_\_\_\_\_

TIME \_\_\_\_\_

REMARKS: \_\_\_\_\_

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