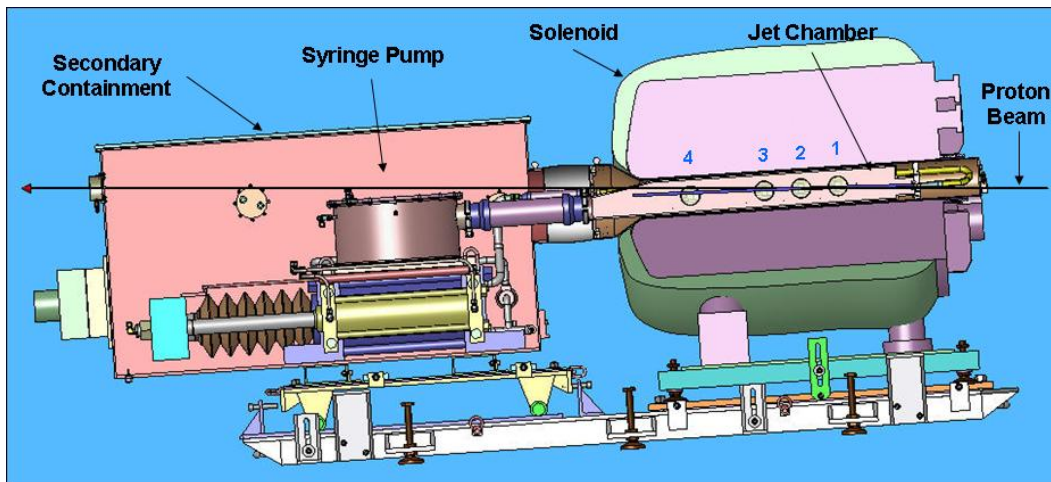


**Hg System Operation during the MERIT In-Beam Experiment**  
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The Mercury Intense Target (MERIT) experiment is a proof-of-principal experiment to determine the feasibility of using a free-stream Hg jet as a target for a Neutrino Factory or Muon Collider. High-speed optics are used to record the interaction of a 14- or 24-GeV proton beam with a 20m/s Hg jet inside a 15T solenoid magnet. After working throughout the summer to correct equipment problems and complete the installation, the in-beam physics run was scheduled for October 22 – November 12, 2007. ORNL was responsible for the design, fabrication, and development of the Hg delivery system. Operation of the Hg delivery system was performed by ORNL engineers during the first and last weeks of the experiment, with the middle week covered by personnel from Rutherford Appleton Laboratory.

A layout of the integrated Hg system with the solenoid is shown in Figure 1. In this image, the proton beam and jet travel from right to left. The optical viewports are shown in the image, and viewport #2 is located at the point of highest field intensity and is the intended location of the jet-beam interaction.



**Figure 1. MERIT equipment layout**

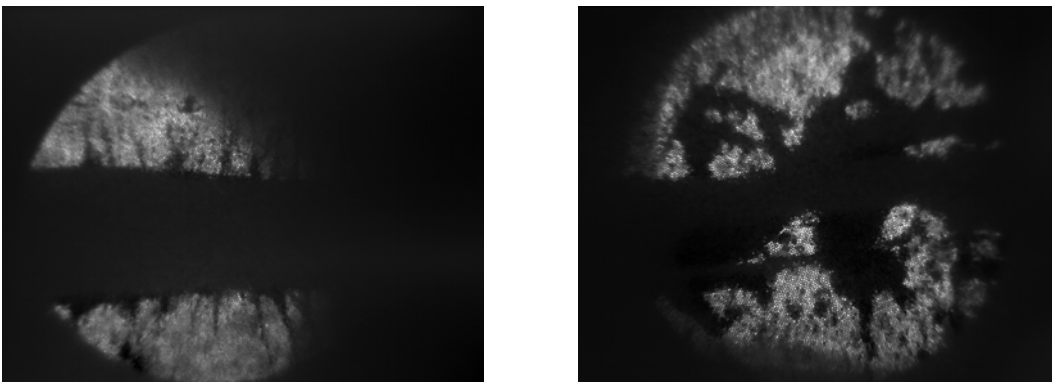
The equipment in its installed condition is shown in Figure 2, with the upstream end of the target snout visible in the magnet bore.



**Figure 2. Hg system mated with solenoid.**

The majority of the first week was spent steering the beam and calibrating various beam components. Timing of the various subsystems (Hg jet, optical diagnostics, magnet power supply, particle detectors, cryogenics) to the beam trigger pulse was tested and verified. Images of the jet in a magnetic field were recorded. Horizontal and vertical scans of the beam were performed in order to steer the beam onto the Hg target.

At approximately 8:30pm on October 26<sup>th</sup>, the first recorded images of a jet-field-beam interaction were completed. These are shown in Figure 2 and correspond to a 15m/s Hg jet inside a 5T magnetic field with a 14GeV proton beam; proton intensity was 10TP.



**Figure 2. First beam-jet interaction. The left image is from viewport #1 2ms after beam. The right image is from viewport #3 26ms after beam.**

During this pulse, the beam interacted with the jet in viewport #1. The "whiskers" of pending jet explosion can be seen in this image. By the time that portion of the jet had traveled to viewport #3 (300mm), the jet explosion was completed. This was the expected behavior in a low-intensity magnetic field.

Additional beam tuning occurred the following day to move the beam-jet interaction to viewport #2, which was the actual intended location. This effort concluded the first week and left the experiment in a condition ready to perform more involved physics testing during the remaining two weeks. Because multiple runs of low field (5T) intensity could be performed without actively cooling the magnet, the run plan was modified to conduct the low-field portion of the experiment early in the program and delay the higher field (15T) runs until the end.

The run plan for the experiment was developed with three goals in mind:

- to study the effect of varying beam charge intensities from 1 TP to 30 TP,
- to study the influence of solenoid field strength on jet dispersal by varying  $B_z$  from 0 T to 15 T, and
- to study possible cavitation effects by varying the PS spill structure (pump/probe).

Appendix A contains a listing of the runs performed during the MERIT experiment and shows how the various parameters were changed to meet the experimental goals.

During operation of the experiment, the Hg system operated as expected, with no major issues encountered. The Hg pressure sensor, which is located within the secondary containment box near the solenoid and thus was subject to the particle shower during each beam pulse, began having periods of intermittent inoperability during the first week of the experiment. This sensor has on-board electronics and was not expected to last for the duration of the experiment; the information it provided was required during the integrated systems test at MIT to observe possible magneto-hydrodynamic effects of the magnetic field on the Hg flow, but was not a critical piece of information required for the in-beam experiment since the flow had already been characterized.

There were some aspects of the control system user interface that could be improved upon, especially given that persons besides the system developer operated the Hg system. Should follow-on efforts be pursued, these changes will be incorporated. In general, remote control of the other sub-systems (cryogenics, optical diagnostics, and magnet power supplies) worked well during the experiment.

Appendix A. MERIT Run List





comment	Beam No	Flag 1 H	Flag1 V	Flag2 H	Flag2 V	Angle H	Angle V	Window H	Window V	# bunches	beam intensity TP	Field T	Jet m/s	action comment	
10:59 AM	3:59 PM	6001	0	0	0	0	0.00	0.00	0.00	0.00				No Beam--Fire Alarm in CCC	
11:22 AM	4:22 PM	6002	4.8	-10.1	0.7	-6.9	-2.56	2.00	-2.04	5.56	16	4	0	15	Beam received
11:48 AM	4:48 PM	6003	5.7	-9.1			-3.56	5.69	-2.23	3.55	16	10	5	15	
12:05 PM	5:05 PM	6004	5.2	-10.5	0.8	-7.26	-2.75	2.03	-2.22	5.80	16	10	5	15	
12:31 PM	5:31 PM	6005	5.3	-9.3	-0.1	-7.7	-3.38	1.00	-10.23	-4.70	16	10	5	15	
12:41 PM	5:41 PM	6006	4	-10.2	-1.7	-7.4	-3.56	1.75	-12.39	-2.15	16	10	5	15	
12:50 PM	5:50 PM	6007	2.7	-10.3	-4.4	-6.5	-4.44	2.38	-17.71	0.63	16	10	5	15	
1:08 PM	6:08 PM	6008	1	-9.9	-5.2	-8.2	-3.88	1.06	-16.83	-5.01	16	10	5	15	
1:19 PM	6:19 PM	6009	6.2	-9.8	2.4		-2.38	6.13	-4.73	18.38	16	10	5	15	
1:28 PM	6:28 PM	6010					0.00	0.00	0.00	0.00	16	10	5	15	
1:38 PM	6:38 PM	6011	8		4.5	-7.4	-2.19	-4.63	-2.06	-21.28	16	10	5	No	
	5:00 AM	6012	6.6	-9.2	1	-7.2	-3.50	1.25	-9.50	-3.45	1	9,25	0	0	Tune of 6004
	5:00 AM	6013	6.3	-9	0.4	-7.7	-3.69	0.81	-10.66	-5.26	1	0	0	0	Tune of 6005
	5:00 AM	6014	4.8	-9.1	-1.8	-7.4	-4.13	1.06	-14.18	-4.21	1	0	0	0	Tune of 6006 PD incomplete reshoot
10:37 AM	3:37 PM	6015	4.8	-9.1	-1.8	-7.4	-4.13	1.06	-14.18	-4.21	1	0	0	0	Tune of 6006
10:40 AM	3:40 PM	6016	3.3	-9.4	-3.7	-7.6	-4.38	1.13	-16.83	-4.23	1	0	0	0	Tune of 6007
10:43 AM	3:43 PM	6017	2	-9.2	-4.8	-7.6	-4.25	1.00	-17.55	-4.60	1	0	0	0	Tune of 6008
10:51 AM	3:51 PM	6018	7.6	-9	2.9	-7.4	-2.94	1.00	-5.91	-4.40	1	0	0	0	Tune of 6009
10:55 AM	3:55 PM	6019	9.4	-8.6	5.3	-7.4	-2.56	0.75	-2.39	-5.15	1	0	0	0	Tune 6010
11:27 AM	4:27 PM	6020	-2.6	-9.7	-11.2	-7.3	-5.38	1.50	-27.33	-2.80	1	0	0	0	Tune for left extreme
11:37 AM	4:37 PM	6021	-1.6	-9.5	-10.1	-7.3	-5.31	1.38	-26.04	-3.18	1	0	0	0	Now fill in
11:42 AM	4:42 PM	6022	-0.3	-9.5	-8.4	-7.4	-5.06	1.31	-23.59	-3.46	1	0	0	0	
11:49 AM	4:49 PM	6023	0.6	-9.5	-6.5	-7.4	-4.44	1.31	-19.81	-3.46	1	0	0	0	
12:01 PM	5:01 PM	6024	4	-9.7	-1.9	-7.6	-3.69	1.31	-12.96	-3.66	16	4	0	15	
12:12 PM	5:12 PM	6025									16	4	0	15	
12:19 PM	5:19 PM	6026	4	-9.9	-2.2	-7.6	-3.88	1.44	-13.83	-3.29	16	4	0	15	
12:26 PM	5:26 PM	6027	4	-9.9	-2.2	-7.6	-3.88	1.44	-13.83	-3.29	16	4	0	15	
12:28 PM	5:28 PM	6028	4	-9.9	-2.2	-7.6	-3.88	1.44	-13.83	-3.29	16	4	5	15	
12:34 PM	5:34 PM	6029	4	-9.9	-2.2	-7.6	-3.88	1.44	-13.83	-3.29	16	4	5	15	
12:40 PM	5:40 PM	6030	4	-9.9	-2.2	-7.6	-3.88	1.44	-13.83	-3.29	16	4	10	15	Target fillimentation observed
12:45 PM	12:45 PM	6031	4	-9.9	-2.2	-7.6	-3.88	1.44	-13.83	-3.29	16	4	10	15	Target fillimentation observed
30-Oct															
10:42 AM	10:42 AM	7001	3.7	-9.5	-2.8	-7.4	-4.06	1.31	-14.99	-3.46	16	4	0	0	Warm up shot for the day
10:52 AM	10:52 AM	7002	3.7	-9.5	-2.8	-7.4	-4.06	1.31	-14.99	-3.46	16	4	5	0	5T PD base Target empty
11:00 AM	11:00 AM	7003	3.7	-9.5	-2.8	-7.4	-4.06	1.31	-14.99	-3.46	16	4	10	0	10T PD Base Target Empty
11:15 AM	11:15 AM	7004	1.7	-9.8	-4.8	-7.6	-4.06	1.38	-16.99	-3.48	16	4	0	15	0T Hg In
11:35 AM	11:35 AM	7005	1.7	-9.8	-4.8	-7.6	-4.06	1.38	-16.99	-3.48	16	4	0	15	0T Hg In (repeat 7004)
11:43 AM	11:43 AM	7006	1.7	-9.8	-4.8	-7.6	-4.06	1.38	-16.99	-3.48	16	4	10	15	10T Hg In, 3mm shift left from 7003
12:29 PM	12:29 PM	7007					0.00	0.00	0.00	0.00	16	4	0	0	Extending horizontal scan. Images lost
12:33 PM	12:33 PM	7008	5.3	-9.1	0.1	-7.6	-3.25	0.94	-9.65	-4.79	16	4	0	0	Repeat of 7007
12:39 PM	12:39 PM	7009	7.6	-9.1	2.9	-7.6	-2.94	0.94	-5.91	-4.79	16	4	0	0	
12:42 PM	12:42 PM	7010	9.4	-9.1	5.6	-7.7	-2.38	0.88	-1.53	-5.08	16	4	0	0	
12:51 PM	12:51 PM	7011	11.2	-8.7	8	-7.6	-2.00	0.69	2.00	-5.54	16	4	0	0	
12:56 PM	12:56 PM	7012	13	-8.7	10.3	-7.6	-1.69	0.69	5.24	-5.54	16	4	0	0	
1:01 PM	1:01 PM	7013	14.4	-8.8	13	-7.6	-0.88	0.75	10.38	-5.35	16	4	0	0	
1:10 PM	1:10 PM	7014	14.4	-8.8	13	-7.6	-0.88	0.75	10.38	-5.35	16	4	0	0	
1:11 PM	1:11 PM	7015	16.4	-8.4	15.7	-7.9	-0.44	0.31	14.39	-6.96	16	4	0	0	End of extended horizontal scans
1:35 PM	1:35 PM	7016	5.3	-9.6	0.8		-2.81	6.00	-7.64	18.00	16	4	10	15	10 T Hg In
2:37 PM	2:37 PM	7017	5.3	-9.7	0.1	-7.6	-3.25	1.31	-9.65	-3.66	16	4	10	0	10T Hg Out
2:49 PM	2:49 PM	7018					0.00	0.00	0.00	0.00	16	1	0	0	Spot measurements,7017 settings
2:51 PM	2:51 PM	7019					0.00	0.00	0.00	0.00	16	0	0	0	Spot measurements
2:54 PM	2:54 PM	7020					0.00	0.00	0.00	0.00	16	0	0	0	Spot measurements
4:02 PM	4:02 PM	7021	1.2	-9.7	-4.5	-7.6	-3.56	1.31	-15.19	-3.66	16	4	0	0	0T Hg Out, 7006? settings
4:02 PM	4:02 PM	7022	4.7	-9.6	-0.6	-7.9	-3.31	1.06	-10.54	-4.71	16	4	0	0	0T Hg Out, 6013 settings
4:13 PM	4:13 PM	7023	5	-9.2	-0.2	-7.9	-3.25	0.81	-9.95	-5.46	16	4	10	15	10T Hg In, 7022 settings
4:22 PM	4:22 PM	7024	4.6	-9.5	-0.3	-7.9	-3.06	1.00	-9.49	-4.90	16	4	10	0	10T Hg Out, 7023 settings
4:26 PM	4:26 PM	7025	1.2	-9.7	-4.8	-7.4	-3.75	1.44	-16.05	-3.09	16	4	10	0	10T Hg Out, 7021 settings
31-Oct															
9:06 AM	9:06 AM	8001	9.6	-9.5	6.3	-7.7	-2.06	1.13	0.11	-4.33	16	4	0	0	0T Hg Out, 7010 settings (0 mm)
9:15 AM	9:15 AM	8002	9.4	-9.2	6.3	-7.9	-1.94	0.81	0.49	-5.46	16	4	0	15	0T Hg In, 8001 (7010) settings (0 mm)
9:23 AM	9:23 AM	8003	8.1	-9.2	4.1	-7.7	-2.50	0.94	-3.40	-4.89	16	4	0	15	0T, Hg In, 7009 settings (-5 mm)
9:27 AM	9:27 AM	8004	8.1	-9.2	4.1	-7.7	-2.50	0.94	-3.40	-4.89	16	4	0	0	0T, Hg Out, 8003 (7009) settings (-5 mm)
9:32 AM	9:32 AM	8005	5.5	-9.4	0.7	-7.1	-3.00	1.44	-8.30	-2.79	16	4	0	15	0T Hg In, 6013 settings (-10 mm)
9:35 AM	9:35 AM	8006	5.5	-9.4	0.7	-7.1	-3.00	1.44	-8.30	-2.79	16	4	0	0	0T Hg Out, 8005 (6013) settings (-10 mm)
9:45 AM	9:45 AM	8007	4.6	-9.4	-1.5	-7.3	-3.81	1.31	-12.94	-3.36	16	4	0	15	0T Hg In, 7001 settings (-15 mm)
9:48 AM	9:48 AM	8008	4.6	-9.4	-1.5	-7.3	-3.81	1.31	-12.94	-3.36	16	4	0	0	0T Hg Out, 8007 (7001) settings (-15 mm)
9:52 AM	9:52 AM	8009	4.6	-9.4	-1.5	-7.3	-3.81	1.31	-12.94	-3.36	16	4	0	15	0T Hg In, 8007 repeat (-15 mm)
9:58 AM	9:58 AM	8010	4.6	-9.4	-1.5	-7.3	-3.81	1.31	-12.94	-3.36	16	4	0	15	0T Hg In, 8007 repeat (-15 mm)
10:00 AM	10:00 AM	8011	4.6	-9.4	-1.5	-7.3	-3.81	1.31	-12.94	-3.36	16	4	0	0	0T Hg Out, 8008 repeat (-15)
10:08 AM	10:08 AM	8012	-0.4	-9.2	-5.8	-7.6	-3.38	1.00	-15.93	-4.60	16	4	0	15	0T Hg In, 6023 settings (-20 mm)
10:11 AM	10:11 AM	8013	-0.4	-9.2	-5.8	-7.6	-3.38	1.00	-15.93	-4.60	16	4	0	0	0T Hg Out, 8012 (6023) settings (-20 mm)
10:15 AM	10:15 AM	8014	-1.6	-9.5	-9	-7.1	-4.63	1.50	-22.88	-2.60	16	4	0	15	0T Hg In, settings (-25 mm)
10:19 AM	10:19 AM	8015	-1.6	-9.5	-9	-7.1	-4.63	1.50	-22.88	-2.60	16	4	0	0	0T Hg Out, 8014 ( ) settings (-25 mm)
10:55 AM	10:55 AM	8016	4	-9.2	-1.2	-7.9	-3.25	0.81	-10.95	-5.46	16	4	5	15	5T Hg In, -15 mm
11:00 AM	11:00 AM	8017	4	-9.2	-1.2	-7.9	-3.25	0.81	-10.95	-5.46	16	4	5	0	5T Hg Out, -15 mm
11:04 AM	11:04 AM	8018	4	-9.2	-1.2	-7.9	-3.25	0.81	-10.95	-5.46	16	4	5	15	5T Hg In, -15 mm
11:08 AM	11:08 AM	8019	4	-9.2	-1.2	-7.9	-3.25	0.81	-10.95	-5.46	16	4	5	0	5T Hg Out, -15 mm
11:14 AM	11:14 AM	8020					0.00	0.00	0.00	0.00	16	0	5	15	5T, Hg In, -15 mm <b>NO BEAM</b>
11:31 AM	11:31 AM	8021	3.9	-9.4	-0.4	-7.4	-2.69	1.25	-8.46	-3.65	16	4	5	15	5T, Hg In, -15 mm
11:36 AM	11:36 AM	8022	4.5	-9.4	-0.1	-7.4	-2.88	1.25	-8.73	-3.65	16	4	5	0	5T Hg Out, -15 mm
12:12 PM	12:12 PM	8023					0.00	0.00	0.00	0.00	1	0			Calibration shots for particle detectors

comment	Beam No	Flag1 H	Flag1 V	Flag2 H	Flag2 V	Angle H	Angle V	Window H	Window V	# bunches	beam intensity TP	Field T	Jet m/s	action comment	
12:15 PM	12:15 PM	8024				0.00	0.00	0.00	0.00	1	0			Calibration shots for particle detectors	
12:18 PM	12:18 PM	8025	2.6	-8.4	-3	-7.3	-3.50	0.69	-13.50	-5.24	1	0		Calibration shots for particle detectors	
12:22 PM	12:22 PM	8026	3	-9.4	-2.8	-7.1	-3.63	1.44	-13.68	-2.79	2				
12:25 PM	12:25 PM	8027					0.00	0.00	0.00	0.00	2				
12:27 PM	12:27 PM	8028					0.00	0.00	0.00	0.00	2				
1:02 PM	1:02 PM	8028A	4.5	-9.8	-0.6	-7.6	-3.19	1.38	-10.16	-3.48					
1:05 PM	1:05 PM	8028B	4.3	-9.7	-0.5	-7.6	-3.00	1.31	-9.50	-3.66					
1:22 PM	1:22 PM	8029	2.6	-9.5	-2.9	-7.3	-3.44	1.38	-13.21	-3.18	16	4	7	15	7T Hg In, Lost trigger for optics. Beam at --15 mm
1:28 PM	1:28 PM	8030	2.6	-9.4	-3.2	-7.3	-3.63	1.31	-14.08	-3.36	16	4	7	15	7T Hg In, Beam at --15 mm
1:32 PM	1:32 PM	8031	2.6	-9.4	-2.8	-7.1	-3.38	1.44	-12.93	-2.79	16	4	7	0	7T Hg Out, Beam at --15 mm
1:37 PM	1:37 PM	8032	2.5	-9.4	-2.9	-7.6	-3.38	1.13	-13.03	-4.23	16	4	7	15	7T Hg In, Beam at --15 mm
1:40 PM	1:40 PM	8033	2.5	-9.5	-3.2	-7.4	-3.56	1.31	-13.89	-3.46	16	4	7	0	7T Hg Out, Beam at --15 mm
2:25 PM	2:25 PM	8034								12+4	15+5	7	15	7T Hg In, Beam at --15 mm. dT = 2.23 mus	
2:34 PM	2:34 PM	8035	1	-9.8	-3.3	-7.4	-2.69	1.50	-11.36	-2.90	12+4	15+5	7	15	7T Hg In, Beam at --15 mm. dT = 2.23 mus
2:52 PM	2:52 PM	8036	0.4	NA	-3	-7.6	-2.13		-9.38		12+4	15+5	0	0	0T Hg Out, Beam at --15 mm. dT = 697 mus
2:57 PM	2:57 PM	8037					0.00	0.00	0.00	0.00	12+4	15+5	7	15	7T Hg In, Beam at --15 mm. dT = 697 mus
3:01 PM	3:01 PM	8038					0.00	0.00	0.00	0.00	0	0	7	0	7T Hg Out, Beam at --15 mm. <b>No beam</b>
3:06 PM	3:06 PM	8039					0.00	0.00	0.00	0.00	0	0	0	0	0T, Hg Out. Probe only
3:16 PM	3:16 PM	8040					0.00	0.00	0.00	0.00	0	0	0	0	0T Hg Out. Pump only
3:58 PM	3:58 PM	8041	0.7	-9.4	-3.7	-7.4	-2.75	1.25	-11.95	-3.65	12+4	15+5	7	15	7T Hg In, Beam at --15 mm (as 8048). dT = 697 mus
4:02 PM	4:02 PM	8042	0.7	-9.4	-3.7	-7.4	-2.75	1.25	-11.95	-3.65	12+4	15+5	7	0	7T Hg Out, Beam at --15 mm (as 8048) dT = 697 mus
4:07 PM	4:07 PM	8043	0.7	-9.4	-3.7	-7.4	-2.75	1.25	-11.95	-3.65	12+4	15+5	7	0	7T Hg Out, Beam at --15 mm (as 8048). dT = 2.23 mus
4:27 PM	4:27 PM	8044	0.7	-9.4	-3.7	-7.4	-2.75	1.25	-11.95	-3.65	12+4	15+5	7	15	7T Hg In, Beam at --15 mm. dT = 40 mus
5:21 PM	5:21 PM	8045								12+4	15+5	7	15	7T Hg In, Beam misaligned. dT = 40 mus	
5:26 PM	5:26 PM	8046 ?	?		-3.8	-7.6				12+4	15+5	0	0	0T Hg Out, Beam at --15 mm. dT = 40 mus	
5:32 PM	5:32 PM	8047 ?	?		-3.5	-7.6				12+4	15+5	7	0	7T Hg Out, Beam at --15 mm. dT = 40 mus. Lost secondary counter pc.	
2-Nov															
9:10 AM	9:10 AM	9001	2.15	-8.54	-4.4	-6.9	-4.09	1.03	-16.68	-3.83	1	0	0	0	No Field No Target
9:46 AM	9:46 AM	9002	3.3	-8.4	-3.2	-6.8	-4.06	1.00	-15.39	-3.80	1	0	0	0	No Field No Target
10:22 AM	10:22 AM	9003	3.7	-8.4	-2.2	-6.8	-3.69	1.00	-13.26	-3.80	1	0	5	15	Test All systems with Low Intensity
10:36 AM	10:36 AM	9004	2.6	-9.1	-2.7	-6.8	-3.31	1.44	-12.64	-2.49	16	4	5	15	No Splash observed
10:51 AM	10:51 AM	9005	2.2	-8.8	-3.9	-6.8	-3.81	1.25	-15.34	-3.05	16	4	5	15	Beam Tune of 9002
11:04 AM	11:04 AM	9006	1.9	-8.7	-4.1	-6.6	-3.75	1.31	-15.35	-2.66	16	4	5	15	Attempt to raise beam vertically
2:54 PM	2:54 PM	9008	2	-8.4	-3.7	-5.8	-3.56	1.63	-14.39	-0.92	16	4	5	15	No beam Inhibit on Splashes seen in V2 at 500 us
3:04 PM	3:04 PM	9009	2.5	-8.4	-4.3	-5.8	-4.25	1.63	-17.05	-0.92	12	3	5	15	Splash seen in V2
3:18 PM	3:18 PM	9010	2.5	-8.8	-4.1	-6.6	-4.13	1.38	-16.48	-2.48	8	2	5	15	Splash ? Now try 2.5TP
3:28 PM	3:28 PM	9011					0.00	0.00	0.00	0.00	10	3	5	15	Beam was swept - redo
3:34 PM	3:34 PM	9012	2.2	-8.7	-3.7	-6.3	-3.69	1.50	-14.76	-1.80	10	3	5	15	No Splash observed
3:44 PM	3:44 PM	9013					0.00	0.00	0.00	0.00	12	3	5	15	Quad problem - redo
3:49 PM	3:49 PM	9014	1.7	-9	-4.1	-6.3	-3.63	1.69	-14.98	-1.24	12	3	5	15	Splash seen in V2
4:40 PM	4:40 PM	9015	2.2	-8.4	-4.4	-6.3	-4.13	5.25	-16.78	15.75	16	6	7	15	Splash seen in V2
4:51 PM	4:51 PM	9016	1.9	-8.7	-3.9	-6.3	-3.63	1.50	-14.78	-1.80	16	4	7	15	Splash in V2
5:09 PM	5:09 PM	9017	2.5	-8.8	-3.7	-6.7	-3.88	1.31	-15.33	-2.76	12	3	7	15	No Splash observed
5:13 PM	5:13 PM	9018	4.3	-8.5	-2.3	-6.4	-4.13	1.31	-14.68	-2.46	12	4	7	15	Booster failure
5:18 PM	5:18 PM	9019	2	-8.9	-3.8	-6.45	-3.63	1.53	-14.68	-1.86	12	4	7	15	Splash observed in V3
5:36 PM	5:36 PM	9020	2.1	-9.3	-3.7	-6.7	-3.63	1.63	-14.58	-1.83	12	5	10	15	Large Splash observed in V3
3-Nov															
9:30 AM	9:30 AM	10001			-4.1	-7.3	-2.56	-4.56	-11.79	-20.99	16	4	0	15	Warm up shot for the day
9:41 AM	9:41 AM	10002	1.3	-9.2	-4.1	-7.1	-3.38	1.31	-14.23	-3.16	16	4	0	15	Beam position is good
9:52 AM	9:52 AM	10003	1.5	-9	-4.1	-6.8	-3.50	1.38	-14.60	-2.68	16	4	0	15	Splash not seen
10:00 AM	10:00 AM	10004	1.7	-8.8	-4.3	-7	-3.75	1.13	-15.55	-3.63	16	4	5	15	Splash seen in V3 t=6ms
10:14 AM	10:14 AM	10005	2	-8.7	-3.6	-6.4	-3.50		-14.10		16	4	5	15	Spash seen in V2
10:28 AM	10:28 AM	10006	1.9	-8.7	-4	-6	-3.69	1.69	-15.06	-0.94	16	4	10	15	
10:37 AM	10:37 AM	10007	1		-4.1	-6.5	-3.19		-13.66		16	10	5	15	Splash seen in V2 and V3
10:52 AM	10:52 AM	10008	1	-8.7	-4.3	-6.3	-3.31	1.50	-14.24	-1.80	16	15	5	15	
11:52 PM	11:52 PM	10009	0.2	-9.7	-5	-6.6	-3.25	1.94	-14.75	-0.79	4	6	5	15	Spash seen in V2 only 1/2 SMD Frame
12:11 PM	12:11 PM	10010	0.5	-9.4	-5.1	-6.8	-3.50	1.63	-15.60	-1.93	2+2	6	5	15	1.7 us separation
12:26 PM	12:26 PM	10011	0.6	-9.2	-5.1	-6.8	-3.56	1.50	-15.79	-2.30	2+2	6	5	15	Repeat of 10010
12:47 PM	12:47 PM	10012	0.6	-9.2	-5.1	-6.8	-3.56	1.50	-15.79	-2.30	4	6	5	15	Repeat of 10009
1:02 PM	1:02 PM	10013	0.5	-9.5	-5	-6.8	0.54	1.69	-3.37	-1.74	4	6	5	15	Another Repeat of 10009
1:04 PM	1:04 PM	10014	0	-9.2	-5.2	-6.3	-3.25	1.81	-14.95	-0.86	4	6	5	15	Repeat of 10009 with Target Out
1:05 PM	1:05 PM	10015	0.4	-9.2	-5.2	-6.3	0.00	1.81	-5.20	-0.86	2+2	6	5	15	Target In
1:17 PM	1:17 PM	10016	0.2	-9.1	-5.1	-6.1	-3.31	1.88	-15.04	-0.48	8	6	5	15	Target In 1/2 SMD Frame
1:25 PM	1:25 PM	10017	0.3	-9.2	-5.2	-6.5	-3.44	1.69	-15.51	-1.44	8	6	5	15	Target Out Full SMD frame
1:36 PM	1:36 PM	10018	0.3	-9.1	-5.2	-6.6	-3.44	1.56	-15.51	-1.91	4+4	6	5	15	Target In Full SMD Frame
1:43 PM	1:43 PM	10019	0.3	-9.4	-5.2	-6.5	-3.44	1.81	-15.51	-1.06	4+4	6	5	15	Target Out Full SMD frame
5-Nov															
9:59 AM	9:59 AM	11001	0.6	-9	-5.4	-6.8	-3.75	1.38	-16.65	-2.68	4	1	0	15	Warm up shot for the da0.6y-9
10:11 AM	10:11 AM	11002	1.2	-9.4	-5.1	-6.8	-3.94	1.63	-16.91	-1.93	16	6	5	15	Target In Full SMD Images
10:16 AM	10:16 AM	11003	-0.1	-9.5	-5.4	-6.6	-3.31	1.81	-15.34	-1.16	16	6	5	0	Target Out



comment	Beam No	Flag1 H	Flag1 V	Flag2 H	Flag2 V	Angle H	Angle V	Window H	Window V	# bunches	beam intensity TP	Field T	Jet m/s	action comment	
10:28 AM	10:28 AM	11004	1	-9.1	-4.4	-6.8	-3.38	1.44	-14.53	-2.49	4	6	5	15	Nice splash in V2
10:34 AM	10:34 AM	11005	0.7	-9.4	-4.4	-6.8	-3.19	1.63	-13.96	-1.93	4	6	5	15	
10:40 AM	10:40 AM	11006	0.6	-9.4	-4.8	-6.9	-3.38	1.56	-14.93	-2.21	4	6	5	15	
10:50 AM	10:50 AM	11007	0.6	-9	-4.7	-6.6	-3.31	1.50	-14.64	-2.10	4	6	5	15	Splash observed
10:56 AM	10:56 AM	11008	0.7	-9.2	-4.7	-6.2	-3.38	1.88	-14.83	-0.58	4	6	5	15	
11:04 AM	11:04 AM	11009	0.9	-8.6							4	6	0	15	Target Out; Beam Trigger out of sync
11:10 AM	11:10 AM	11010	0.6	-9.1	-4.8	-6.8	-3.38	1.44	-14.93	-2.49	4	6	5	15	Target In In sync Splash seen
		11011	0.5	-8.5	-4.5	-7.75	-3.13	0.47	-13.88	-6.34	4	6	0	0	
		11012	0.7	-8.5	-4.2	-6.6	-3.06	1.19	-13.39	-3.04	4	6	0	0	
		11013	1.5	-8.6	-4.2	-6.6	-3.56	1.25	-14.89	-2.85	4	6	0	0	
		11014	0.75	-8.6	-4.4	-6.6	-3.22	1.25	-14.06	-2.85	4	6	0	0	
		11015	0.75	-8.6	-4.4	-6.6	-3.22	1.25	-14.06	-2.85	4	6	0	0	
		11016									4	6	0	0	
		11017	1.4	-3.3	-3.8	-1.77	-3.25	0.96	-13.55	1.10	4	6	0	0	
12:40 PM	12:40 PM	11018	0.7	-9.2	-5.2	-6.6	-3.69	1.63	-16.26	-1.73	4	6	5	0	Target out
12:47 PM	12:47 PM	11019	-0.3	-9	-5		-2.94		-13.81		16	10	10	15	
12:58 PM	12:58 PM	11020	1	-9	-5	-6.6	-3.75	1.50	-16.25	-2.10	16	4	10	15	No splash observed in V2 or V3
2:42 PM	2:42 PM	11021	1.4	-8.8	-4.7	-6.3	-3.81	1.56	-16.14	-1.61	16	4	10	15	Splash observed in V2
2:52 PM	2:52 PM	11022	-0.3		-4.5	-6.1	-2.63		-12.38		16	15	10	15	PD Linearity Study
3:13 PM	3:13 PM	11023									1	0	0	0	
3:17 PM	3:17 PM	11024									1	0	0	0	
3:24 PM	3:24 PM	11025									2	1	0	0	
3:29 PM	3:29 PM	11026									2	1	0	0	
3:32 PM	3:32 PM	11027									3	1	0	0	
3:33 PM	3:33 PM	11028									3	1	0	0	
3:41 PM	3:41 PM	11029									5	1	0	0	
3:42 PM	3:42 PM	11030									7	2	0	0	
3:50 PM	3:50 PM	11031									8	2	0	0	
4:57 PM	4:57 PM	11032	-0.3	-9.8	-3.5		-2.00		0.94		16	20	10	15	
5:16 PM	5:16 PM	11033	0.5	-9.5	-5.2	-6.1	-3.56	2.13	-15.89	0.28	16	30	10	15	
6:17 PM	6:17 PM	11034									16	30	15	15	Hg Explosion initiates before V2
6-Nov															
10:34 AM	10:34 AM	12001	1	-9	-5	-6.5	-3.75	1.56	-16.25	-1.81	4	5	0	15	Hit seen in V2
10:44 AM	10:44 AM	12002													No beam from PS
10:54 AM	10:54 AM	12003	0.6	-8.5	-4.8	-5.8	-3.38	1.69	-14.93	-0.74	4	5	0	15	
11:08 AM	11:08 AM	12004	0.9	-8	-4.7	-5.5	-3.50	1.56	-15.20	-0.81	4	5	0	15	
11:39 AM	11:39 AM	12005	0.1		-4.8	-5.7	-3.06		-13.99		4	5	0	15	
11:39 AM	11:39 AM	12006	1.1	-7	-4.8	-3.2	-3.69	2.38	-15.86	3.93	4	4	0	15	
11:55 AM	11:55 AM	12007													No PS Beam
12:03 PM	12:03 PM	12008	5.2	-6.5	-1.2	-2.1	-4.00	2.75	-13.20	6.15	4	4	0	15	Full Hit in V1
12:13 PM	12:13 PM	12009	0.9	-6.8	-5.1	-2	-3.75	3.00	-16.35	7.00	4	4	5		Start Horizontal Scan Target Out
12:42 PM	12:42 PM	12010	0.8	-6.7							4	4	5	15	Target In No flag 2 Info
12:50 PM	12:50 PM	12011	1.1	-6.3	-5.2	-1.6	-3.94	2.94	-17.01	7.21	4	4	5	15	Target In Repeat of 12010
2:02 PM	2:02 PM	12012	6.2	-6.9	-1.9	-1	-5.06	3.69	-17.09	10.06	4	4	5	15	Target In
2:08 PM	2:08 PM	12013	6.4	-6.3	-1.6	-1	-5.00	3.31	-16.60	8.94	4	4	5	0	Target Out
2:34 PM	2:34 PM	12014	6	-5.7	-2.2	-1.7	-5.13	2.50	-17.58	5.80	4	4	0	0	Target Out
2:43 PM	2:43 PM	12015	5.8	-5.9	-2	-1.6	-4.88	2.69	-16.63	6.46	4	4	5	15	Target In
2:48 PM	2:48 PM	12016	5.9	-6.2							4	4	5	0	Target Out
3:09 PM	3:09 PM	12017	6.2	-5.9	-2.3	-1.77	-5.31	2.58	-18.24	5.97	1	0	0	0	
3:14 PM	3:14 PM	12018													No PS Beam
3:23 PM	3:23 PM	12019	5.3	-6.3	-3.7	-1.6	-5.63	2.94	-20.58	7.21	1	0	0	0	
3:43 PM	3:43 PM	12020	4.7	-6.2	-5.9	-1.6	-6.63	2.88	-25.78	7.03	1	0	0	0	
3:50 PM	3:50 PM	12021	3.4	-6.3	-6.6	-1.631	-6.25	2.92	-25.35	7.12	1	0	0	0	
3:57 PM	3:57 PM	12022	3.8	-6.3	-6.6	-1.4	-6.50	3.06	-26.10	7.79	1	0	0	0	
3:58 PM	3:58 PM	12023	2.59	-6.3	-7.7	-1.3	-6.43	3.13	-26.99	8.08	1	0	0	0	
4:00 PM	4:00 PM	12024	0.4	-5.9	-10.3	-1.4	-6.69	2.81	-30.36	7.04	1	0	0	0	
4:03 PM	4:03 PM	12025	-0.5	-6.48	-11.4	-1.4	-6.81	3.18	-31.84	8.13	1	0	0	0	
5:09 PM	5:09 PM	12026									8	2	0	0	
5:14 PM	5:14 PM	12027	1.4	-6.9	-4	-1.9	-3.38	3.13	-14.13	7.48	6	2	0	0	
5:27 PM	5:27 PM	12027	1.4	-8.5	-4.9	-6.6	-3.94	1.19	-16.71	-3.04	6	2	0	0	
5:28 PM	5:28 PM	12028	1.4	-8.5	-4.9	-6.6	-3.94	1.19	-16.71	-3.04	6	2	0	0	
5:56 PM	5:56 PM	12029									8	15	15	15	Harmonic 8
6:32 PM	6:32 PM	12030	0.3	-8.8	-4.5	-6.3	-3.00	1.56	-13.50	-1.61	8	2	0	0	
7:07 PM	7:07 PM	12031	-0.3	-8.8	-5.4	-6	-3.19	1.75	-14.96	-0.75	8	10	0	15	Haromonic 16
7:20 PM	7:20 PM	12032	0.1	-8.8	-5.2	-6	-3.31	1.75	-15.14	-0.75	8	10	15	15	Harmonic 16
8:24 PM	8:24 PM	12033	-6	-6.3							16	30	15	20	Harmonic 16
7-Nov	12:00 AM														
12:24 PM	12:24 PM	13001	3.5	-9.2	-0.5	-7.4	-2.50	1.13	-8.00	-4.03	2	3	0	15	Harmonic 8
12:39 PM	12:39 PM	13002	1.2	-10.5	-3.3	-9.8	-2.81	0.44	-11.74	-8.49	4	5	0	15	No Splash
12:48 PM	12:48 PM	13003	0.8	-8.1	-4.1	-5.6	-3.06	1.56	-13.29	-0.91	4	5	0	15	No Splash
1:05 PM	1:05 PM	13004	2	-9	-3.4	-4.5	-3.38	2.81	-13.53	3.94	4	8	0	15	Hit seen in V1
1:11 PM	1:11 PM	13005	0.7	-8.5	-3.4	-4	-2.56	2.81	-11.09	4.44	4	8	0	0	Target Empty
1:22 PM	1:22 PM	13006	0.2	-8.6	-3	-4	-2.00	2.88	-9.00	4.63	6+2	16	0	0	Target Empty
1:30 PM	1:30 PM	13007	0.8	-8.7	-3	-4.2	-2.38	2.81	-10.13	4.24	6+2	16	5	15	First of Pump/Probe 700us delay
1:40 PM	1:40 PM	13008	0.3	-8.8	-3.3	-4.3	-2.25	2.81	-10.05	4.14	6+2	16	5	15	
1:47 PM	1:47 PM	13009									6+2	16	5	15	
1:53 PM	1:53 PM	13010									6+2	16	5	15	
2:06 PM	2:06 PM	13011									6+2	16	5	15	
2:10 PM	2:10 PM	13012									6+2	16	5	0	Target Empty
2:13 PM	2:13 PM	13013	0.9	-8.7	-3.1	-3.5	-2.50	3.25	-10.60	6.25	6+2	16	5	15	
2:17 PM	2:17 PM	13014	0.7	-8.8	-3	-3.5	-2.31	3.31	-9.94	6.44	6+2	16	5	0	Target Empty
		test	0.1	-7.6	-5.1	-4	-3.25	2.25	-14.85	2.75					
3:40 PM	3:40 PM	13015	-0.3	-8	-4.7	-3.7	-2.75	2.69	-12.95	4.36	6+2	16	5	15	Signal/Background test
3:44 PM	3:44 PM	13016	-0.1		-4.7		-2.88		-13.33		6+2	16	5	0	Target Out
		test c	0.2	-7.9	-5.2	-3.7	-3.38	2.63	-15.33	4.18					

comment	Beam No	Flag1 H	Flag1 V	Flag2 H	Flag2 V	Angle H	Angle V	Window H	Window V	# bunches	beam intensity TP	Field T	Jet m/s	action comment
8-Nov		0.2	-11	-4.8	-9.4	-3.13	1.00	-14.18	-6.40					
9:39 AM	14001	-0.3	-10.2	-4.8	-9.5	-2.81	0.44	-13.24	-8.19	6	6	0	0	Harmonic 8 Warm up
10:03 AM	14002	0.4	-8.8	-4.9	-6.5	-3.31	1.44	-14.84	-2.19	6	6	0	0	Shots to test background
	14003													
	14004													
	14005													
	14006													
	14007													End of background test
12:20 PM	14008	0.2	-9.2	-4.7	-6.3	-3.06	1.81	-13.89	-0.86	6	6	5	15	
12:37 PM	14009	-0.3	-8.4	-4.6	-5.6	-2.69	1.75	-12.66	-0.35	6	6	5	15	
12:47 PM	14010	-0.1	-8.6	-5.2	-6.1	-3.19	1.56	-14.76	-1.41	6	6	5	15	
1:09 PM	14011	0	-9	-5.4	-6.1	-3.38	1.81	-15.53	-0.66	6	10	5	15	Target in
1:32 PM	14012	0	-9.2	-5.1	-6	-3.19	2.00	-14.66	0.00	6	10	5	0	Target out
1:50 PM	14013	2.9	-10.1	-1	-7.7	-2.44	1.50	-8.31	-3.20	6	10	5	0	Target out
2:02 PM	14014	2.6	-9.8	-0.7	-7.7	-2.06	1.31	-6.89	-3.76	6	10	5	15	Target In
2:43 PM	test g	3	-9.9	-1.1	-7.7	-2.56	1.38	-8.79	-3.58	6	10	0	0	
2:47 PM	test h	0.9	-9.3	-4	-7.4	-3.06	1.19	-13.19	-3.84	6	10	0	0	
2:53 PM	14015	0.4	-9.7	-4.4	-7.9	-3.00	1.13	-13.40	-4.53	6	10	5	15	Target in
3:04 PM	14016	0.6	-9.7	-3.9	-7.4	-2.81	1.44	-12.34	-3.09	6	10	5	0	Target out
3:57 PM	14017	0.9	-9.7	-4.1	-7.3	-3.13	1.50	-13.48	-2.80	6+2	16	5	15	Pump/Probe 700us delay
4:01 PM	14018	0.6	-9.7	-3.9	-7.4	-2.81	1.44	-12.34	-3.09	6_2	16	5	15	
4:07 PM	14019	0.7	-9.7	-4	-7.6	-2.94	1.31	-12.81	-3.66	6+2	0	5	15	
4:10 PM	14020									6+2	16	5	0	No PS Beam
4:14 PM	14021	0.9	-9.9	-3.6	-7.4	-2.81	1.56	-12.04	-2.71	6+2	16	5	0	
4:17 PM	14022	1	-10.3	-3.7	-7.4	-2.94	1.81	-12.51	-1.96	6+2	16	5	15	
4:20 PM	14023	1	-10.3	-3.7	-7.4	-2.94	1.81	-12.51	-1.96	6+2	16	5	0	
4:23 PM	14024	1	-10.3	-3.7	-7.4	-2.94	1.81	-12.51	-1.96	6+2	16	5	15	
4:25 PM	14025	1	-10.3	-3.7	-7.4	-2.94	1.81	-12.51	-1.96	6+2	16	5	0	End of 700us delay
5:19 PM	14026	1	-10.7	-4.4	-7.5	-3.38	2.00	-14.53	-1.50	6+2	16	5	15	Pump/Probe 350us delay
6:58 PM	14027	0.7	-10.5	-4	-7.5	-2.94	1.88	-12.81	-1.88	6+2	16	0	0	Beam Trigger came beginning of ramp
7:06 PM	14028	0.7	-10.2	-3.9	-7.3	-2.88	1.81	-12.53	-1.86	6+2	16	5	15	
7:17 PM	14029	0.9	-10.1	-4.3	-7.6	-3.25	1.56	-14.05	-2.91	6+2	16	5	15	
7:21 PM	14030	1.5	-10.1	-3.6	-7.7	-3.19	1.50	-13.16	-3.20	6+2	16	5	0	
7:23 PM	14031	0.7	-9.9	-4	-7.4	-2.94	1.56	-12.81	-2.71	6+2	16	5	15	
7:27 PM	14032	1.2	-10.1	-3.7	-7.7	-3.06	1.50	-12.89	-3.20	6+2	16	5	0	
7:32 PM	14033	0.6	-9.9	-4	-7.6	-2.88	1.44	-12.63	-3.29	6+2	16	5	15	
7:41 PM	14034	0.3	-10.2	-3.9	-7.9	-2.63	1.44	-11.78	-3.59	6+2	16	5	15	
7:43 PM	14035	0.1	-10.2	-4.3	-7.6	-2.75	1.63	-12.55	-2.73	6+2	16	5	0	
8:00 PM	14036	0.3	-9.9	-4.7	-7.4	-3.13	1.56	-14.08	-2.71	6+2	4	5	15	350us delay
8:13 PM	14037	1	-9.9	-4.1	-7.6	-3.19	1.44	-13.66	-3.29	8	4	5	15	No delay No SMD images
8:14 PM	14038									2	1	0	0	Beam Studies
9:30 PM	14039									2	1	0	0	
10:12 PM	14040									2	1	0	0	
10:22 PM	14041									2	1	0	0	
10:22 PM	14042									2	1	0	0	
11:05 PM	14043									2	1	0	0	
11:11 PM	14044									2	1	0	0	
11:18 PM	14045									2	1	0	0	End of Beam Studies
9-Nov														
9:37 AM	15001									8		5	15	No PS Beam
9:40 AM	test	0.3	-10.4	-3.5	-7.4	-2.38	1.88	-10.63	-1.78					Position test with LI
10:00 AM	15002	1	-9.9	-3.7	-7.9	-2.94	1.25	-12.51	-4.15	6+2	16	5	15	Good SMD images 350us delay
10:05 AM	15003	0.7	-10.1	-4	-7.7	-2.94	1.50	-12.81	-3.20	6+2	16	5	15	
10:10 AM	15004	0.6	-10.2	-4	-7.6	-2.88	1.63	-12.63	-2.73	6+2	16	5	15	
10:13 AM	15005	1	-10.2	-3.7	-7.7	-2.94	1.56	-12.51	-3.01	6+2	16	5	0	Target out
10:15 AM	15006	0.9	-9.9	-3.9	-7.6	-3.00	1.44	-12.90	-3.29	6+2	16	5	15	only 1/2 SMD Image
10:19 AM	15007	0.9	-9.9	-3.9	-7.6	-3.00	1.44	-12.90	-3.29	6+2	16	5	0	
10:22 AM	15008	0.9	-9.9	-3.9	-7.6	-3.00	1.44	-12.90	-3.29	6+2	16	5	15	SMD images incomplete
10:24 AM	15009	0.9	-9.9	-3.9	-7.6	-3.00	1.44	-12.90	-3.29	6+2	16	5	0	End of 350us delay series
11:16 AM	15010	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	40us delay series
11:22 AM	15011	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	
11:28 AM	15012	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	1/2 SMD images
11:30 AM	15013	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	0	
12:55 PM	15014	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	SMD Images black
12:59 PM	15015	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	0	
1:02 PM	15016	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	
1:04 PM	15017	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	0	Flag info lost
1:12 PM	15018	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	0.2 seconds into flattop
1:14 PM	15019	0.1	-10.3	-4.1	-7.3	-2.63	1.88	-11.98	-1.68	6+2	16	5	15	0.8 seconds before flattop
2:53 PM	15020	1.1	-10.4	-3.7	-7.7	-3.00	1.69	-12.70	-2.64	8	16	5	15	No delay trigger arrived on Hg upramp
3:00 PM	15021	0.7	-10.3	-3.4	-7.7	-2.56	1.63	-11.09	-2.83	8	16	5	15	
3:07 PM	15022	1.87	-10	-3.9	-8.1	-3.61	1.19	-14.72	-4.54	8	16	5	15	1/2 SMD images
3:15 PM	15023	1.1	-10.2	-3.9	-8.7	-3.13	0.94	-13.28	-5.89	8	16	5	15	No SMD images
3:25 PM	15024	1.29	-10.4	-3.7	-7.58	-3.12	1.76	-13.06	-2.29	8	16	5	0	
3:27 PM	15025	1.5	-10.48	-4.1	-7.4	-3.50	1.93	-14.60	-1.63	8	16	5	15	1/2 SMD images
3:32 PM	15026	-0.2	-11.4	-3.7	-7.6	-2.19	2.38	-10.26	-0.47	8	16	5	0	
3:37 PM	15027	0.8	-11	-3.4	-7.6	-2.63	2.13	-11.28	-1.23	8	16	5	15	1/2 SMD images
3:39 PM	15028	0.14	-11.6	-3.4	-8.2	-2.21	2.13	-10.04	-1.83	8	16	5	15	
5:02 PM	15029	0.43	-10.72	-3.72	-8	-2.59	1.70	-11.50	-2.90	8	6	5	15	
5:12 PM	15030	0.29	-9.7	-4.1	-8.1	-2.74	1.00	-12.33	-5.10	8	6	5	0	Target out
5:17 PM	15031	0	-10.7	-3.8	-7.7	-2.38	1.88	-10.93	-2.08	8	6	5	15	
5:19 PM	15032	0.8	-11.7	-3.8	-7.5	-2.88	2.63	-12.43	0.37	8	6	5	0	Target out
5:27 PM	15033	1.5	-11	-4	-7.7	-3.44	2.06	-14.31	-1.51	8	6	5	15	
5:29 PM	15034	1.6	-10.2	-3.9	-8	-3.44	1.38	-14.21	-3.88	8	6	5	0	Target out

comment	Beam No	Flag1 H	Flag1 V	Flag2 H	Flag2 V	Angle H	Angle V	Window H	Window V	# bunches	beam intensity TP	Field T	Jet m/s	action comment	
5:34 PM	5:34 PM	15035	1.15	-10.3	-3.8	-7.7	-3.09	1.63	-13.08	-2.83	8	6	5	15	
5:37 PM	5:37 PM	15036	1.3	-10.48	-3.8	-7.6	-3.19	1.80	-13.36	-2.20	8	6	5	0	Target out
5:49 PM	5:49 PM	15037	1.15	-10.34	-4.1	-7.7	-3.28	1.65	-13.94	-2.75	8	6	5	15	
6:43 PM	6:43 PM	15038	-0.14	-10.48	-3.72	-7.4	-2.24	1.93	-10.43	-1.63	8	10	5	15	
6:56 PM	6:56 PM	15039	0.14	-10.89	-4.13	-7.58	-2.67	2.07	-12.14	-1.37	8	8	5	15	
7:10 PM	7:10 PM	15040	2.01	-10.75	-1.1	-8.38	-1.94	1.48	-6.93	-3.94	8	8	5	15	
7:18 PM	7:18 PM	15041	2.73	-10.6	-1.2	-8.38	-2.46	1.39	-8.57	-4.22	8	6	5	15	
7:29 PM	7:29 PM	15042	3	-10.3	-0.5	-8.2	-2.19	1.31	-7.06	-4.26	8	6	5	15	
7:56 PM	7:56 PM	15043	2.87	-10.2	-1.2	-7.7	-2.54	1.56	-8.83	-3.01	16	6	5	15	
8:59 PM	8:59 PM	15044	2.87	-10.2	-1.2	-7.7	-2.54	1.56	-8.83	-3.01	4	12	5	15	
9:04 PM	9:04 PM	15045	2.87	-10.2	-0.69	-8.2	-2.23	1.25	-7.37	-4.45	4	12	5	15	
10-Nov															
9:30 AM	9:30 AM	16001	4	-10	-0.13	-7.7	-2.58	1.44	-7.87	-3.39	1	3	0	15	Warmup shot
9:33 AM	9:33 AM	16002	3.3	-10.4	-0.13	-7.7	-2.14	1.69	-6.56	-2.64	4	10	4	15	1/2 SMD images
9:55 AM	9:55 AM	16003	3.5	-10.2	0	-8.2	-2.19	1.25	-6.56	-4.45	4	12	4	15	1/2 SMD images
10:11 AM	10:11 AM	16004	3.3	-10	0.1	-8	-2.00	1.25	-5.90	-4.25	4	14	6	15	Weak Splash in V3
11:35 AM	11:35 AM	16005	3.4	-10.6	0	-7.9	-2.13	1.69	-6.38	-2.84	8	12	5	15	
11:42 AM	11:42 AM	16006	5.3	-10.7	2.4	-8.3	-1.81	1.50	-3.04	-3.80	8	12	5	15	
11:46 AM	11:46 AM	16007									8	12	5	15	Flag info lost
12:06 PM	12:06 PM	16008	5.9	-10.3	1.1	-7.5	-3.00	1.75	-7.90	-2.25	4+4	6+6	5	15	No SMD images
12:28 PM	12:28 PM	16009	2.18	-10.48	-0.5	-8.06	-1.68	1.51	-5.53	-3.52	4+4	6+6	5	15	40 us delay hit in V3
12:37 PM	12:37 PM	16010	3.3	-10.4	-0.1	-8	-2.13	1.50	-6.48	-3.50	4+4	6+6	5	15	350us delay hit in VP3
12:46 PM	12:46 PM	16011	2.6	-10.7	-0.8	-8	-2.13	1.69	-7.18	-2.94	4+4	6+6	5	15	700us weak splash
2:16 PM	2:16 PM	16012	0.59	-9.7	-0.14	-8.1	-0.46	1.00	-1.51	-5.10	4	14	5	15	No SMD images
2:29 PM	2:29 PM	16013	3	-9.1	0.14	-7.7	-1.79	0.88	-5.22	-5.08	4	14	10	15	No SMD images
2:42 PM	2:42 PM	16014	3	-9.4	-0.7	-7.1	-2.31	1.44	-7.64	-2.79	4	12	10	15	
3:34 PM	3:34 PM	16015	2.9	-9	-0.3	-6.6	-2.00	1.50	-6.30	-2.10	4	12	15	15	
3:43 PM	3:43 PM	16016	3.2	-9.1	-0.4	-7.7	-2.25	0.88	-7.15	-5.08	4	10	5	15	
11-Nov															
10:05 AM	10:05 AM	17001	2.7	-10.7	-0.9	-8	-2.25	1.69	-7.65	-2.94	16	6	5	15	
11:18 AM	11:18 AM	17002	2.5	-10.4	-0.5	-8	-1.88	1.50	-6.13	-3.50	16	8	5	15	Hit in VP2 focus poor
11:27 AM	11:27 AM	17003	2.7	-10.8	-0.8	-7.9	-2.19	1.81	-7.36	-2.46	16	6	5	15	
11:35 AM	11:35 AM	17004	2.7	-10.6	-0.8	-7.4	-2.19	2.00	-7.36	-1.40	16	6	5	15	
11:53 AM	11:53 AM	test	1.3	-10.3	-3.6	-7.6	-3.06	1.69	-12.79	-2.54					
11:59 AM	11:59 AM	17005	1.4	-10.6	-3.5	-7.7	-3.06	1.81	-12.69	-2.26	16	6	5	15	
12:24 PM	12:24 PM	17006	1.3	-9.9	-3.6	-7.5	-3.06	1.50	-12.79	-3.00	16	6	7	15	
12:37 PM	12:37 PM	17007	1.9	-10.3	-3.3	-7.7	-3.25	1.63	-13.05	-2.83	16	4	7	15	
2:26 PM	2:26 PM	17008	0	0	-3	-7.7	-1.88	-4.81	-8.63	-22.14	16	8	7	15	Flag1 info lost
2:39 PM	2:39 PM	17009	0.4	-10.3	-4.2	-7.7	-2.88	1.63	-12.83	-2.83	8+8	8	7	15	40us delay
2:47 PM	2:47 PM	17010	1.3	-10.3	-3.5	-7.7	-3.00	1.63	-12.50	-2.83	8+8	8	7	15	40us delay
3:11 PM	3:11 PM	17011	1	-10.6	-3.4	-7.4	-2.75	2.00	-11.65	-1.40	8+8	8	7	15	80us delay
3:16 PM	3:16 PM	17012	1.3	-10.2							8+8	8	7	15	20us delay
4:14 PM	4:14 PM	17013	1	-10.3	-3.8	-7.9	-3.00	1.50	-12.80	-3.40	8+8	8	7	15	60us delay
4:26 PM	4:26 PM	17014	1.3	-10.7	-3.2	-7.7	-2.81	1.88	-11.64	-2.08	8+8	8	7	15	10us delay booster problem
4:29 PM	4:29 PM	17015	1.15	-10.6	-3.6	-7.7	-2.97	1.81	-12.51	-2.26	8+8	8	7	15	10us repeat
4:40 PM	4:40 PM	17016	1.3	-10.4	-3.5	-7.7	-3.00	1.69	-12.50	-2.64	8+8	7	7	15	5.8us delay
4:52 PM	4:52 PM	17017	1.4	-10.6	-3.4	-7.9	-3.00	1.69	-12.40	-2.84	8+8	8	7	15	0us delay
5:56 PM	5:56 PM	17018	1.3	-10.2	-3.1	-7.9	-2.75	1.44	-11.35	-3.59	8+8	6	7	15	3.2us delay
6:18 PM	6:18 PM	17019	1.8	-9.9	-2.9	-7.9	-2.94	1.25	-11.71	-4.15	8+0	4	7	15	Pump only
6:26 PM	6:26 PM	17020	2.15	-10.3	-2.89	-7.9	-3.15	1.50	-12.34	-3.40	8+0	6	7	15	Pump only
6:36 PM	6:36 PM	17021	2.3	-10.3	-3.1	-7.9	-3.38	1.50	-13.23	-3.40	16	15	10	15	
7:44 PM	7:44 PM	17022	2.6	-10.6	-2.6	-7.4	-3.25	2.00	-12.35	-1.40	16	15	15	15	
8:40 PM	8:40 PM	17023	1.4	-10.7	-3.1	-6.9	-2.81	2.38	-11.54	0.22	16	29	15	15	
8:51 PM	8:51 PM	17024	1.2	-10.5	-3.7	-7.5	-3.06	1.88	-12.89	-1.88	16	29	10	20	