

MEMORANDUM

Date: November 8, 2018
To: Distribution
From: Rolf Ent and Arne Freyberger for the Nuclear Physics Experiment
Scheduling Committee
Subject: Accelerator Schedule through May 2020

Schedule

Attached is the accelerator operations schedule through May 2020. It has also been posted at http://www.jlab.org/div_dept/physics_division/experiments/schedule.html. Access to the database format of the same schedule, as used by the beam accounting system, can be found at <https://cebaf.jlab.org/btm/schedule>.

The operations schedule is based on expected fiscal 2018, 2019 and 2020 funding, and, consequently, may be subject to further adjustments due to actual funding and the progress of repairs and maintenance tasks. For FY2019, the schedule has about twenty-one weeks of physics with accelerating gradients above one GeV/pass (“high-energy”) followed by nine weeks in summer 2019 with a gradient of about one GeV/pass (“low-energy”). Repair, maintenance and upgrade tasks for CEBAF have been prioritized and staged to support the shorter summer down this year and next year low-energy summer operation. Operations for physics are expected to cease May 6, 2020 to begin replacing one of the Central Helium Liquefiers “cold boxes”, an operation expected to take until late December 2020.

A major milestone was achieved during the winter/spring 2018 period – simultaneous four-hall operation for physics. Hall A completed two experiments using the tritium target in this period while Hall B performed its engineering run and started the Run Group A of experiments. Hall C, after calibrating the new Super-High Momentum Spectrometer (SHMS) and re-commissioning the already existing High Momentum Spectrometer (HMS), moved on to complete a prioritized set of commissioning experiments agreed upon by the collaboration. Hall D continued taking data in GlueX-I accumulating over 120 billion events just in winter/spring 2018 with photon polarization of up to 40%.

The present schedule has Hall A completing two other experiments in Fall 2018 that make use of the tritium target: E12-11-112 and E12-17-003. E12-11-112 will use the asymmetric $A=3$ nuclei to perform a precision test of the isospin dependence of the two nucleon short range correlations, and extend such measurements into a regime where three nucleon short range correlations may be observed. E12-17-003 will determine the unknown Λn interaction which is critically important to understanding charge symmetry breaking in the strangeness nuclear physics sector. Hall A will then begin installation to run the APEX experiment in spring 2019. Installation and running of PREX-II and CREX follow in summer and Fall 2019. Super Big Bite installation follows completion of CREX. Hall B will continue with Run Group A in Fall 2018 followed by Run Group B early 2019. Hall B’s Run Group K may be able to take data during the month period late Fall 2018 when Hall C requires special accelerating gradients in the machine to complete the running experiments. Run Group A is expected to get beam again late in spring 2019. The Hall B’s Heavy Photon Search (HPS) is scheduled to take data in summer 2019. Hall C will continue with the early set of commissioning experiments expecting to complete them by spring 2019. The program requires a couple of special accelerating gradients in the machine to be able to perform

various longitudinal – transverse virtual photon separations. Experiment A1n in Hall C, using a polarized Helium-3 target, will be installed and ready to take data by early November 2019. Experiment E12-06-121 will follow in March 2020. Hall D is expected to complete GlueX-I in fall 2018. Hall D would then run the first stage of the PRIMEX-eta (E12-10-011) experiment in spring 2019. After that, Hall D would be upgraded with the addition of a Detection of Internally Reflected Cherenkov (DIRC) counter and start running the GlueX-II experiment (E12-12-002) in the Fall 2019.

On the schedule, each Physics Advisory Committee (PAC) day is mapped into two floor days. This factor of two accounts for Accelerator and hall efficiency due to system failures (not experiment overhead). It also accounts for a total of up to 16 hours a week of scheduled beam studies, maintenance, and RF recovery. An additional 8 hours a week is allocated for beam tuning to support program changes, beam tuning to address beam quality issues and to restore beam operations for physics post beam studies/maintenance periods. The remaining 144 hours a week, 86 %, is scheduled as research.

The Jefferson Lab Nuclear Physics Experiment Scheduling Committee developed the schedule. Committee members are: Volker Burkert, Eugene Chudakov, Rolf Ent (Co-Chair), Arne Freyberger (Co-Chair), Javier Gomez, Cynthia Keppel, Robert McKeown, Matt Poelker, Patrizia Rossi and Mike Spata. The schedule has been reviewed and approved by the Director.

Supplementary Information

Accelerator

CEBAF achievements since the last memo include establishing low energy spread beam for the Hall-A hyper-nuclear experiment (E12-17-003). The measured energy spread sigma is maintained below $5e-5$ as per the user specification. Achieving this low energy spread requires establishing precise phasing of the cavities with respect to the beam arrival (sub $\frac{1}{4}$ degree of 1497 MHz phase). Continuous monitor of the energy spread is accomplished through a new synchrotron light monitor at a dispersive location in the Hall-A line. Fast feedback and the Master Oscillator modulator (MoMod) applications are now 100% functional and contribute to the ability to maintain the low energy spread.

The beam energy as measured by the 1st and 2nd Arcs has not agreed with the energy derived by the electron spin precession and the Hall-A 9th dipole measurements at the 0.25% level. A cross calibration was performed during facility development that consisted of sending beam through to Arc2 and Hall-A with the South linac off. This enabled Arc1, Arc2 and Hall-A string to measure the same beam. In addition Hall-A was able to gather some elastic scattering data with this same beam to provide absolute determination of the energy. This data is still being analyzed. Having proper energy calibration will enable the Wien filter angle to be set properly and minimize the amount of beam time spent performing spin dances in the future.

CEBAF 4-hall beam delivery is now routine: the hardware is working well and the new injector and separator configuration to enable 4-hall operations are well understood. This capability has some constraints that are described at the end of this section.

Each end-station has an Accelerator Physicists Experimental Liaison (APEL) that serves to aid the Nuclear Physicists in beam related issues during all phases of an experiment, proposals, commissioning, operating and analysis. The APELs with input from the end-station scientist, injector, and diagnostics have developed a beam parameter table for the 12 GeV era (JLAB-TN-022). Experiments requiring more stringent beam parameters should consult the APEL of the end-station in question. What is not in this document is that there are additional constraints that to be applied during the scheduling process. Most of these constraints derive from the new 4-hall system and are as follows:

- 4-hall operations requires at least one of the original halls (ABC) to receive 5th pass beam.
 - It is strongly preferred that the original halls be A or C. Coupling B-D while possible places in additional constraints of B & D currents.
 - Any of the original halls receiving 5th pass beam concurrently with Hall-D will receive beam with a 249.5 MHz repetition rate.
 - 499 MHz repetition rate is available when a hall is receiving pass 1-4 beam.
- Hall-D must be at 249.5 MHz repetition rate whenever an original hall is simultaneously receiving 5th pass beam.
- Hall-D can only receive 499 MHz beam when only two of the original halls are receiving beam on the lower passes (1-4).

The accelerator energy for the operations to date has been 1050 MeV/linac, 40 MeV/linac below design. The energy margin during the Fall2018 campaign is inadequate to support robust operation as there is

little or no margin in the North Linac. Beam physicists are exploring the option to run the Spring 2019 program with asymmetric linacs in order to gain some margin in the North Linac. A C100 cryomodule has been removed from CEBAF and is presently being refurbished in the SRF TestLab. The goal is to have this first refurbished C100 cryomodule installed in CEBAF in Aug/Sep 2019 and have it participate in the Fall2019 beam operations. When removed from CEBAF the C100 module was delivering 72 MeV of integrated gradient, if it returns as a C100 it will be 108 MeV capable (98 MeV operable, representing a gain of 26 MeV).

A plan for returning CEBAF back to the design energy, 1090 MeV/linac, has been developed and the first C75 module will be ready for installation in Summer2020. Beam delivery at 1090 MeV/linac is projected for Fall2021, after 4 C75 modules have been installed. The plan calls for an additional 4 C75s to increase the margin so that CEBAF can support robust beam delivery at these energies.

Hall A

Hall A completed two experiments using the tritium target during the fall 2017 and winter/spring 2018 period: E12-010-103 (“MARATHON”), a measurement of the neutron to proton structure function ratio which will enable knowledge of the elusive down to up quark ratio; and E12-14-011 which leverages the asymmetric A=3 nuclei ^3H and ^3He to verify predictions suggesting that high momentum distributions in nuclei are dominated by short distance correlated pairs of different type nucleons. A third experiment using the tritium target was started, and continues into the Fall 2018 run. This experiment, E12-11-112, will also use the asymmetric A=3 nuclei, in this case to perform a precision test of the isospin dependence of the two nucleon short range correlations, and extend such measurements into a regime where three nucleon short range correlations may be observed. Finally, tritium target running will end in Hall A with experiment E12-17-003, which will determine the unknown Λn interaction which is critically important to understanding charge symmetry breaking in the strangeness nuclear physics sector. On a best effort basis, Hall A will then begin installation to run in spring 2019 the APEX experiment, a search for a new gauge boson (A') with sub-GeV mass that couples to ordinary matter. Installation and running of PREX-II and CREX follow in summer and Fall 2019. These experiments will utilize parity violating electron scattering to measure the neutron radii of lead and calcium. These experiments have important implications for nuclear structure including three neutron forces, atomic parity violation, and astrophysics.

Hall B

During the spring run, RG-A accumulated a total of 125mCb charge. RG-A will continue data taking during the fall until November 25, 2018. This will be followed by a short run of RG-K at energies of 7.5 and 6.5 GeV until the holiday break, corresponding to a total of 18 calendar days. The 2019 spring run will have RG-B taking data on liquid deuterium target. It requires the (re)installation of the BAND detector. This run group covers seven individual experiments. The first part will cover 80 calendar days from January 30 until March 1. Following RG-B there will be a 4 weeks extension for RG-A in part to compensate for the lost beam time in the fall of 2018. During the summer 2019 the HPS experiment will

take data at 4.5 GeV beam energy for about 9 weeks, employing the improved silicon tracker to reach smaller scattering angles. RG-B will continue data taking in the fall of 2019, ending just before the holiday break. In January 2020, the BONUS12 experiment will be installed within the CLAS12 solenoid magnet. This requires first the removal of other detectors that are part of the standard equipment of the Central Detector. BONUS12 has assigned a run period of 80 days, starting February 12, and ending May 2, 2020.

Hall C

After calibrating the new SHMS and re-commissioning the existing HMS spectrometers, Hall C went on to complete E12-10-002, a measurement of hydrogen and deuterium structure functions at large parton momentum and a portion of E12-06-107, a search for the phenomenon of color transparency in protons traversing nuclei. Additionally, E12-10-008 took data on the nuclear dependence of electron scattering on new light nuclei and E12-10-003 took data investigating deuteron electro-disintegration. Hall C continued then with successful initial running of the first post-commissioning 12 GeV era experiments E12-09-017, aimed at confirming the potential for Jefferson Lab to study the proton's 3D momentum tomography. Hall C will continue the series of post-commissioning 12-GeV era experiments: E12-09-011, probing the possibility that kaons can be utilized to enable the tomography of strange quarks within the nucleon, E12-09-017, measuring the transverse momentum dependence of semi-inclusive pion production and, E12-09-002, a search for charge symmetry violating quark distributions via measurement of the π^+/π^- ratio in semi-inclusive deep-inelastic scattering. E12-16-007, a search for the LHCb charmed "pentaquark" using photoproduction of J/Ψ at threshold, follows. After a long installation period, Hall C expects to begin E12-06-110, measurement of the neutron spin asymmetry A_{1n} in the valence quark region, mid-fall 2019. Experiment E12-06-110, a measurement of the neutron spin asymmetry A_{1n} in the valence quark region, using a polarized Helium-3 target, will be installed in Hall C and ready to take data by early November 2019. Experiment E12-06-121, a precision measurement of the neutron spin structure functions g_2 and d_2 at high momentum transfers, will follow in March 2020 using the same target and Hall configuration.

Hall D

In the spring of 2018, the 2nd physics run of the GlueX-I (E12-06-102) experiment took place for 90 calendar days. The electron beam energy was 11.7 GeV. The conditions were similar to those of the 2017 spring run. The same 0.058mm thick radiator and the 5 mm collimator were used. Various systematic studies have been done. GlueX-I data taking has become 80% complete and is expected to be finished in the fall run of 2018. Two new detectors - CompCal and DIRC are under construction. The CompCal will be installed and tested in the beam in the Fall 2018 after the completion of GlueX-I. The DIRC detector will be installed before the Spring 2019. Two weeks of the Spring run are allocated for the DIRC commissioning. After that Hall D will run the PRIMEX-eta experiment till the end of the Spring run.

Additional Schedule Information

- On the schedule, daily status changes take place at the end of the owl shift (~ 7 AM) unless otherwise indicated.
- Operating one or more of Halls A, B and C at five passes together with Hall D at 5.5 passes requires a polarized gun laser frequency of 249.5 MHz for those halls. A laser frequency of 499 MHz can be used otherwise. For the same average beam current, the charge per micro-bunch when operating the laser at 249.5 MHz will be twice that of 499 MHz. For each hall, the energy, current, polarization column now also includes the laser frequency.
- There is one Note on the schedule,
 - **N1** – The seven PAC approved days of E12-10-009 at 2.2 GeV in Hall A have been scheduled as 37 “floor days” assuming a 50% efficiency (e.g. 1 PAC day = 2 beam days, as all other experiments) and a beam current of 30 uA instead of the 80 uA requested by the experiment. **Priority is to maintain 50 uA in Hall C at an acceptable beam trip rate.**
 - **N2** – Depending on how well the gradient maintenance and machine re-certification work goes, the research program may be able to re-start up to two weeks earlier.
 - **N3** – We expect to cease operations for physics and begin installation of the new Central Helium Liquefier cold-box on May 6, 2020 assuming there are no changes to the cryo installation schedule.

The Meaning of Priority on the Accelerator Schedule

Generally, the assignment of priority to a hall means that the identified hall will have the primary voice in decisions on beam quality and/or changes in operating conditions. We will do our best to deliver the beam conditions identified in the schedule for the priority hall. It will not, however, mean that the priority hall can demand changes in beam energy that would affect planned running in the other halls without the consent of the other halls. Of course, final authority for decisions about unplanned changes in machine operation will rest with the laboratory management.

The operation of more than one hall at Jefferson Lab substantively complicates the interaction between the experimenters and the accelerator operations group. It is in the interests of the entire physics community that the laboratory be as productive as possible. Therefore, we require that the run coordinators for all operating halls do their best to respond flexibly to the needs of experiments running in other halls. The run coordinators for all experiments either receiving beam or scheduled to receive beam that day should meet with the Program Deputy at 7:45 AM in the MCC on weekdays and at the Program Deputy’s discretion on weekends.

To provide some guidance and order to the process of resolving the differing requirements of the running halls, we have assigned a "priority hall" for each day beam delivery has been scheduled. We outline here the meaning of priority and its effect on accelerator operations.

The priority hall has the right to:

- require a re-tune of the accelerator to take place immediately when beam quality is not acceptable
- insist that energy changes occur as scheduled
- obtain hall access as desired
- request that beam delivery interruptions for experiment-related operations which temporarily

block normal beam delivery to all other halls take place as requested. Mott measurements of the beam polarization or pulsed operation for current monitor calibrations represent examples of such interruptions. Interruptions of this type require, at a minimum, 24 hours advance notification and coordination with the Program Deputy and the other halls.

These interruptions shall be limited by a sum rule - the total time lost to the non-priority hall(s) due to such requests shall not exceed 2.5 hours in any 24-hour period. It is, of course, highly preferred that these measurements be scheduled at the morning meeting of the run coordinators whenever possible, and coordinated between halls whenever possible.

When the priority hall has requested a re-tune, if the re-tune degrades a previously acceptable beam for one of the other, lower priority running halls, then the re-tune shall continue until the beam is acceptable to both the priority hall and the other running halls that had acceptable beam at the time the re-tune began.

Non-priority halls can:

- require that a retune of the accelerator take place within 2.5 hours of the desired time (it will nominally occur at the earliest convenient break in the priority hall's schedule)
- require access to the hall within 1 hour of the desired time (again, it will nominally occur at the earliest convenient break in the priority hall's schedule)
- request that beam delivery interruptions for experiment-related operations which temporarily block normal beam delivery to all other halls occur within 2.5 hours of the desired time. Interruptions of this type require, at a minimum, 24 hours advance notification and coordination with the Program Deputy and the other halls.

The ability of non-priority halls to request retunes and accesses shall be limited by a sum rule - the total time lost to the priority hall due to such requests shall not exceed 2.5 hours in any 24-hour period. (To facilitate more extended tuning associated with complex beam delivery, with the agreement of the run coordinators for all operating halls, the sum rule may be applied over a period as long as three days, so long as the average impact is less than 2.5 hours/day.) In the event that two non-priority halls are running, the 2.5 hours shall be split evenly between them in the absence of mutual agreement on a different split.

All Halls:

Can negotiate with other halls, and with the Accelerator and Physics Division for changes in scheduled energy changes (either direction).

Initial Tune-up of New Beams:

Normally one and one half shifts (12 hours) is set aside for tune-up whenever a new beam setup is being tuned (for unusual beam setups more time may be scheduled explicitly for tuning at the discretion of the scheduling committee). It is understood that beam tune-ups shall *always* be done in the order that the accelerator operations group believes will minimize the *total* time needed to tune *all* scheduled beams (i.e., the "priority hall" beam is not necessarily tuned first). In the event that obtaining the new beam setup requires more than the scheduled time, the Accelerator Program Deputy is authorized to spend up to one additional shift of tuning in an effort to deliver all scheduled beams instead of just the "priority

hall" beam.

Maintenance/Beam Studies. Accelerator Division may request up to sixteen hours per week. Users will be consulted in deciding how these sixteen hours per week are placed on the calendar, i.e. five shorter or three long blocks of time.

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	Date	Weekday	(GeV/pass)	Operations Status	Hall A Experiment	Hall A GeV/μA/Pol/MHz	Hall B Experiment	Hall B GeV/nA/Pol/MHz	Hall C Experiment	Hall C GeV/μA/Pol/MHz	Hall D Experiment	Hall D GeV/nA/Pol/MHz	Priority Hall	Pass A/B/C/D	Notes Notes
3	09/01/18	Saturday													
4	09/02/18	Sunday													
5	09/03/18	Monday													
6	09/04/18	Tuesday													
7	09/05/18	Wednesday													
8	09/06/18	Thursday													
9	09/07/18	Friday													
10	09/08/18	Saturday													
11	09/09/18	Sunday													
12	09/10/18	Monday													
13	09/11/18	Tuesday													
14	09/12/18	Wednesday													
15	09/13/18	Thursday													
16	09/14/18	Friday													
17	09/15/18	Saturday													
18	09/16/18	Sunday													
19	09/17/18	Monday													
20	09/18/18	Tuesday													
21	09/19/18	Wednesday	2.1	Restore											
22	09/20/18	Thursday	2.1	Restore											
23	09/21/18	Friday	2.1	Restore											
24	09/22/18	Saturday	2.1	Restore											
25	09/23/18	Sunday	2.1	Restore											
26	09/24/18	Monday	2.1	Restore											
27	09/25/18	Tuesday	2.1	Restore											
28	09/26/18	Wednesday	2.1	Physics	E12-11-112	10.6/20/-/250	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	5/5/5/5.5	
29	09/27/18	Thursday	2.1	Physics	E12-11-112	10.6/20/-/250	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	5/5/5/5.5	
30	09/28/18	Friday	2.1	Physics	Pass change	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
31	09/29/18	Saturday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
32	09/30/18	Sunday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
33	10/01/18	Monday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	C/D/B/A	2/5/5/5.5	
34	10/02/18	Tuesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	C/D/B/A	2/5/5/5.5	
35	10/03/18	Wednesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	C/D/B/A	2/5/5/5.5	
36	10/04/18	Thursday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	C/D/B/A	2/5/5/5.5	
37	10/05/18	Friday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	C/D/B/A	2/5/5/5.5	
38	10/06/18	Saturday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	A/C/D/B	2/5/5/5.5	
39	10/07/18	Sunday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	A/C/D/B	2/5/5/5.5	
40	10/08/18	Monday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	A/C/D/B	2/5/5/5.5	
41	10/09/18	Tuesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	A/C/D/B	2/5/5/5.5	
42	10/10/18	Wednesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	A/C/D/B	2/5/5/5.5	
43	10/11/18	Thursday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/70/-/250	E12-06-102	11.7/200/-/250	B/A/C/D	2/5/5/5.5	
44	10/12/18	Friday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/A/C/D	2/5/5/5.5	
45	10/13/18	Saturday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/A/C/D	2/5/5/5.5	
46	10/14/18	Sunday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/A/C/D	2/5/5/5.5	
47	10/15/18	Monday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/A/C/D	2/5/5/5.5	
48	10/16/18	Tuesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
49	10/17/18	Wednesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
50	10/18/18	Thursday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
51	10/19/18	Friday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/B/A/C	2/5/5/5.5	
52	10/20/18	Saturday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
53	10/21/18	Sunday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-011	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
54	10/22/18	Monday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
55	10/23/18	Tuesday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
56	10/24/18	Wednesday	2.1	Accelerator	INSTALL										
57	10/25/18	Thursday	2.1	Accelerator	INSTALL										
58	10/26/18	Friday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
59	10/27/18	Saturday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
60	10/28/18	Sunday	2.1	Physics	E12-11-112	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/D/A/C	2/5/5/5.5	
61	10/29/18	Monday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/D/A/C	2/5/5/5.5	
62	10/30/18	Tuesday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/D/A/C	2/5/5/5.5	
63	10/31/18	Wednesday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/D/A/C	2/5/5/5.5	
64	11/01/18	Thursday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/D/A/C	2/5/5/5.5	
65	11/02/18	Friday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/A/C/B	2/5/5/5.5	
66	11/03/18	Saturday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/A/C/B	2/5/5/5.5	
67	11/04/18	Sunday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/A/C/B	2/5/5/5.5	
68	11/05/18	Monday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/A/C/B	2/5/5/5.5	
69	11/06/18	Tuesday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-017	10.6/50/-/250	E12-06-102	11.7/200/-/250	D/A/C/B	2/5/5/5.5	
70	11/07/18	Wednesday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
71	11/08/18	Thursday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
72	11/09/18	Friday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
73	11/10/18	Saturday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
74	11/11/18	Sunday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	A/C/B/D	2/5/5/5.5	
75	11/12/18	Monday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
76	11/13/18	Tuesday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
77	11/14/18	Wednesday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
78	11/15/18	Thursday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
79	11/16/18	Friday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	C/B/D/A	2/5/5/5.5	
80	11/17/18	Saturday	2.1	Physics	E12-17-003	4.3/20/-/500	Run Group A	10.6/100/p/250	E12-09-002	10.6/50/-/250	E12-06-102	11.7/200/-/250	B/D/C/A	2/5/5/5.5	
81	11/1														

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
109	12/16/18	Sunday	1.61	Physics	INSTALL		Run Group K	6.5/100/p/500	E12-09-011	4.9/70/-/500	Install/Detector tests	9/200/-/250	B/D/C/A	-/4/3/5.5	
110	12/17/18	Monday	1.61	Physics	INSTALL		Run Group K	6.5/100/p/500	E12-09-011	4.9/70/-/500	Install/Detector tests	9/200/-/250	D/C/B/A	-/4/3/5.5	
111	12/18/18	Tuesday	1.61	Physics	INSTALL		Run Group K	6.5/100/p/500	E12-09-011	4.9/70/-/500	Install/Detector tests	9/200/-/250	D/C/B/A	-/4/3/5.5	
112	12/19/18	Wednesday	1.61	Physics	INSTALL		Run Group K	6.5/100/p/500	E12-09-011	4.9/70/-/500	Install/Detector tests	9/200/-/250	C/B/D/A	-/4/3/5.5	
113	12/20/18	Thursday			INSTALL										
114	12/21/18	Friday			INSTALL										
115	12/22/18	Saturday													
116	12/23/18	Sunday													
117	12/24/18	Monday													
118	12/25/18	Tuesday													
119	12/26/18	Wednesday													
120	12/27/18	Thursday													
121	12/28/18	Friday													
122	12/29/18	Saturday													
123	12/30/18	Sunday													
124	12/31/18	Monday													
125	01/01/19	Tuesday													
126	01/02/19	Wednesday			INSTALL										
127	01/03/19	Thursday			INSTALL										
128	01/04/19	Friday			INSTALL										
129	01/05/19	Saturday			INSTALL										
130	01/06/19	Sunday			INSTALL										
131	01/07/19	Monday			INSTALL										
132	01/08/19	Tuesday			INSTALL										
133	01/09/19	Wednesday			INSTALL										
134	01/10/19	Thursday			INSTALL										
135	01/11/19	Friday			INSTALL										
136	01/12/19	Saturday			INSTALL										
137	01/13/19	Sunday			INSTALL										
138	01/14/19	Monday			INSTALL										
139	01/15/19	Tuesday			INSTALL										
140	01/16/19	Wednesday			INSTALL										
141	01/17/19	Thursday			INSTALL										
142	01/18/19	Friday			INSTALL										
143	01/19/19	Saturday			INSTALL										
144	01/20/19	Sunday			INSTALL										
145	01/21/19	Monday			INSTALL										
146	01/22/19	Tuesday			INSTALL										
147	01/23/19	Wednesday	2.1	Restore	INSTALL										
148	01/24/19	Thursday	2.1	Restore	INSTALL										
149	01/25/19	Friday	2.1	Restore	INSTALL										
150	01/26/19	Saturday	2.1	Restore	INSTALL										
151	01/27/19	Sunday	2.1	Restore	INSTALL										
152	01/28/19	Monday	2.1	Restore	INSTALL										
153	01/29/19	Tuesday	2.1	Restore	INSTALL										
154	01/30/19	Wednesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	N1
155	01/31/19	Thursday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	The seven PAC approved days
156	02/01/19	Friday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	A/D/C/B	1/5/5/5.5	of E12-10-009 at 2.2 GeV in
157	02/02/19	Saturday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	A/D/C/B	1/5/5/5.5	Hall A have been scheduled at
158	02/03/19	Sunday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	B/A/D/C	1/5/5/5.5	50% efficiency and a beam
159	02/04/19	Monday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	B/A/D/C	1/5/5/5.5	current of 30 uA, instead of
160	02/05/19	Tuesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	C/B/A/D	1/5/5/5.5	the 80 uA requested.
161	02/06/19	Wednesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
162	02/07/19	Thursday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
163	02/08/19	Friday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
164	02/09/19	Saturday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	Priority is to maintain 50 uA
165	02/10/19	Sunday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	in Hall C at an acceptable
166	02/11/19	Monday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	trip rate.
167	02/12/19	Tuesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
168	02/13/19	Wednesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
169	02/14/19	Thursday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
170	02/15/19	Friday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
171	02/16/19	Saturday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
172	02/17/19	Sunday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	B/A/D/C	1/5/5/5.5	
173	02/18/19	Monday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	B/A/D/C	1/5/5/5.5	
174	02/19/19	Tuesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	B/A/D/C	1/5/5/5.5	
175	02/20/19	Wednesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-16-007	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	B/A/D/C	1/5/5/5.5	
176	02/21/19	Thursday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
177	02/22/19	Friday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
178	02/23/19	Saturday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
179	02/24/19	Sunday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	C/B/A/D	1/5/5/5.5	
180	02/25/19	Monday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
181	02/26/19	Tuesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
182	02/27/19	Wednesday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
183	02/28/19	Thursday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
184	03/01/19	Friday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
185	03/02/19	Saturday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
186	03/03/19	Sunday	2.1	Physics	E12-10-009	2.2/30/-/500 (N1)	Run Group B	10.6/100/p/250	E12-09-002	10.6/50/-/250 (N1)	E12-10-011	11.7/200/-/250	A/D/C/B	1/5/5/5.5	

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
217	04/03/19	wednesday	2.1	Physics	INSTALL	Run Group A	10.6/100/p/250	E12-09-011	6.4/70/-/500	E12-10-011	11.7/200/-/250	C/B/D/A	-/5/3/5.5	
218	04/04/19	Thursday	2.1	Physics	INSTALL	Run Group A	10.6/100/p/250	E12-09-011	6.4/70/-/500	E12-10-011	11.7/200/-/250	C/B/D/A	-/5/3/5.5	
219	04/05/19	Friday	2.1	Physics	INSTALL	Run Group A	10.6/100/p/250	E12-09-011	6.4/70/-/500	E12-10-011	11.7/200/-/250	D/C/B/A	-/5/3/5.5	
220	04/06/19	Saturday	2.1	Physics	INSTALL	Run Group A	10.6/100/p/250	E12-09-011	6.4/70/-/500	E12-10-011	11.7/200/-/250	D/C/B/A	-/5/3/5.5	
221	04/07/19	Sunday	2.1	Physics	INSTALL	Run Group A	10.6/100/p/250	E12-09-011	6.4/70/-/500	E12-10-011	11.7/200/-/250	D/C/B/A	-/5/3/5.5	
222	04/08/19	Monday			INSTALL									
223	04/09/19	Tuesday			INSTALL									
224	04/10/19	Wednesday			INSTALL									
225	04/11/19	Thursday			INSTALL									
226	04/12/19	Friday			INSTALL									
227	04/13/19	Saturday			INSTALL									
228	04/14/19	Sunday			INSTALL									
229	04/15/19	Monday			INSTALL									
230	04/16/19	Tuesday			INSTALL									
231	04/17/19	Wednesday			INSTALL									
232	04/18/19	Thursday			INSTALL									
233	04/19/19	Friday			INSTALL									
234	04/20/19	Saturday			INSTALL									
235	04/21/19	Sunday			INSTALL									
236	04/22/19	Monday			INSTALL									
237	04/23/19	Tuesday			INSTALL									
238	04/24/19	Wednesday			INSTALL									
239	04/25/19	Thursday			INSTALL									
240	04/26/19	Friday			INSTALL									
241	04/27/19	Saturday			INSTALL									
242	04/28/19	Sunday			INSTALL									
243	04/29/19	Monday			INSTALL									
244	04/30/19	Tuesday			INSTALL									
245	05/01/19	Wednesday			INSTALL									
246	05/02/19	Thursday			INSTALL									
247	05/03/19	Friday			INSTALL									
248	05/04/19	Saturday			INSTALL									
249	05/05/19	Sunday			INSTALL									
250	05/06/19	Monday			INSTALL									
251	05/07/19	Tuesday			INSTALL									
252	05/08/19	Wednesday			INSTALL									
253	05/09/19	Thursday			INSTALL									
254	05/10/19	Friday			INSTALL									
255	05/11/19	Saturday			INSTALL									
256	05/12/19	Sunday			INSTALL									
257	05/13/19	Monday			INSTALL									
258	05/14/19	Tuesday			INSTALL									
259	05/15/19	Wednesday			INSTALL									
260	05/16/19	Thursday			INSTALL									
261	05/17/19	Friday			INSTALL									
262	05/18/19	Saturday			INSTALL									
263	05/19/19	Sunday			INSTALL									
264	05/20/19	Monday			INSTALL									
265	05/21/19	Tuesday			INSTALL									
266	05/22/19	Wednesday			INSTALL									
267	05/23/19	Thursday			INSTALL									
268	05/24/19	Friday			INSTALL									
269	05/25/19	Saturday			INSTALL									
270	05/26/19	Sunday			INSTALL (11 WEEKS)									
271	05/27/19	Monday												
272	05/28/19	Tuesday												
273	05/29/19	Wednesday												
274	05/30/19	Thursday												
275	05/31/19	Friday												
276	06/01/19	Saturday												
277	06/02/19	Sunday												
278	06/03/19	Monday	0.9	Restore										
279	06/04/19	Tuesday	0.9	Restore										
280	06/05/19	Wednesday	0.9	Restore										
281	06/06/19	Thursday	0.9	Restore										
282	06/07/19	Friday	0.9	Restore										
283	06/08/19	Saturday	0.9	Restore										
284	06/09/19	Sunday	0.9	Restore										
285	06/10/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				B/A	1/5/-/-	
286	06/11/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				B/A	1/5/-/-	
287	06/12/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				A/B	1/5/-/-	
288	06/13/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				A/B	1/5/-/-	
289	06/14/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				A/B	1/5/-/-	
290	06/15/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				B/A	1/5/-/-	
291	06/16/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500				B/A	1/5/-/-	
292	06/17/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-06-101/-07-105	2.75/90/-/500		C/A/B	1/5/3/-	
293	06/18/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-07-105/-06-101	2.75/90/-/500		C/A/B	1/5/3/-	
294	06/19/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	Pass change	3.65/90/-/500		C/A/B	1/5/4/-	
295	06/20/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-06-101/-07-105	3.65/90/-/500		A/B/C	1/5/4/-	
296	06/21/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-07-105/-06-101	3.65/90/-/500		A/B/C	1/5/4/-	
297	06/22/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	Pass change	4.55/90/-/500		C/B/A	1/5/5/-	
298	06/23/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-06-101/-07-105	4.55/90/-/500		C/B/A	1/5/5/-	
299	06/24/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-07-105/-06-101	4.55/90/-/500		B/A/C	1/5/5/-	
300	06/25/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		B/A/C	1/5/5/-	
301	06/26/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		B/A/C	1/5/5/-	
302	06/27/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		B/A/C	1/5/5/-	
303	06/28/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		A/C/B	1/5/5/-	
304	06/29/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		A/C/B	1/5/5/-	
305	06/30/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		A/C/B	1/5/5/-	
306	07/01/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		A/C/B	1/5/5/-	
307	07/02/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		C/B/A	1/5/5/-	
308	07/03/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		C/B/A	1/5/5/-	
309	07/04/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		C/B/A	1/5/5/-	
310	07/05/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		C/B/A	1/5/5/-	
311	07/06/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		B/A/C	1/5/5/-	
312	07/07/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	E12-15-001	4.55/50/-/500		B/A/C	1/5/5/-	
313	07/08/19	Monday</												

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
325	07/20/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
326	07/21/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
327	07/22/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
328	07/23/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
329	07/24/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
330	07/25/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
331	07/26/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
332	07/27/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
333	07/28/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
334	07/29/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
335	07/30/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
336	07/31/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
337	08/01/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
338	08/02/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
339	08/03/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
340	08/04/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
341	08/05/19	Monday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
342	08/06/19	Tuesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
343	08/07/19	Wednesday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
344	08/08/19	Thursday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
345	08/09/19	Friday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
346	08/10/19	Saturday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				B/A	1/5/-/-	
347	08/11/19	Sunday	0.9	Physics	E12-11-101	0.95/70/p/500	E12-11-006	4.55/100/-/500	INSTALL				A/B	1/5/-/-	
348	08/12/19	Monday	off						INSTALL						
349	08/13/19	Tuesday							INSTALL						
350	08/14/19	Wednesday							INSTALL						
351	08/15/19	Thursday							INSTALL						
352	08/16/19	Friday							INSTALL						
353	08/17/19	Saturday							INSTALL						
354	08/18/19	Sunday							INSTALL						
355	08/19/19	Monday							INSTALL						
356	08/20/19	Tuesday							INSTALL						
357	08/21/19	Wednesday							INSTALL						
358	08/22/19	Thursday							INSTALL						
359	08/23/19	Friday							INSTALL						
360	08/24/19	Saturday							INSTALL						
361	08/25/19	Sunday							INSTALL						
362	08/26/19	Monday							INSTALL						
363	08/27/19	Tuesday							INSTALL						
364	08/28/19	Wednesday							INSTALL						
365	08/29/19	Thursday							INSTALL						
366	08/30/19	Friday							INSTALL						
367	08/31/19	Saturday							INSTALL						
368	09/01/19	Sunday							INSTALL						
369	09/02/19	Monday							INSTALL						
370	09/03/19	Tuesday							INSTALL						
371	09/04/19	Wednesday							INSTALL						
372	09/05/19	Thursday							INSTALL						
373	09/06/19	Friday							INSTALL						
374	09/07/19	Saturday							INSTALL						
375	09/08/19	Sunday							INSTALL						
376	09/09/19	Monday							INSTALL						
377	09/10/19	Tuesday							INSTALL						
378	09/11/19	Wednesday							INSTALL						
379	09/12/19	Thursday							INSTALL						
380	09/13/19	Friday							INSTALL						
381	09/14/19	Saturday							INSTALL						
382	09/15/19	Sunday							INSTALL						
383	09/16/19	Monday							INSTALL						
384	09/17/19	Tuesday							INSTALL						
385	09/18/19	Wednesday							INSTALL						
386	09/19/19	Thursday							INSTALL						
387	09/20/19	Friday							INSTALL						
388	09/21/19	Saturday							INSTALL						
389	09/22/19	Sunday							INSTALL						
390	09/23/19	Monday							INSTALL						
391	09/24/19	Tuesday							INSTALL						
392	09/25/19	Wednesday							INSTALL						
393	09/26/19	Thursday							INSTALL						
394	09/27/19	Friday							INSTALL						
395	09/28/19	Saturday							INSTALL						
396	09/29/19	Sunday							INSTALL						
397	09/30/19	Monday							INSTALL						
398	10/01/19	Tuesday							INSTALL						
399	10/02/19	Wednesday							INSTALL						
400	10/03/19	Thursday							INSTALL						
401	10/04/19	Friday							INSTALL						
402	10/05/19	Saturday							INSTALL						
403	10/06/19	Sunday							INSTALL						
404	10/07/19	Monday							INSTALL						
405	10/08/19	Tuesday							INSTALL						
406	10/09/19	Wednesday							INSTALL						
407	10/10/19	Thursday							INSTALL						
408	10/11/19	Friday							INSTALL						
409	10/12/19	Saturday							INSTALL						
410	10/13/19	Sunday							INSTALL						
411	10/14/19	Monday							INSTALL						
412	10/15/19	Tuesday							INSTALL						
413	10/16/19	Wednesday							INSTALL						
414	10/17/19	Thursday							INSTALL						
415	10/18/19	Friday							INSTALL						
416	10/19/19	Saturday							INSTALL						
417	10/20/19	Sunday							INSTALL						
418	10/21/19	Monday							INSTALL						
419	10/22/19	Tuesday							INSTALL						
420	10/23/19	Wednesday							INSTALL						
421	10/24/19	Thursday							INSTALL						
422	10/25/19	Friday	2.1	Restore					INSTALL						
423	10/26/19	Saturday	2.1	Restore					INSTALL						
424	10/27/19	Sunday	2.1	Restore					INSTALL						
425	10/28/19	Monday	2.1	Restore					INSTALL						
426	10/29/19	Tuesday	2.1	Restore					INSTALL						
427	10/30/19	Wednesday	2.1	Restore					INSTALL						
428	10/31/19	Thursday	2.1	Restore					INSTALL (116 days)						
429	11/01/19	Friday	2.1	Physics	E12-12-004	2.22/150/p/500	Run Group B	10.6/100/p/250	E12-06-110	10.6/30/p/250	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
430	11/02/19	Saturday	2.1	Physics	E12-12-004	2.22/150/p/500	Run Group B	10.6/100/p/250	E12-06-110	10.6/30/p/250	E12-12-002	11.7/200/-/250	D/C/B/A	1/5/5/5.5	
431	11/03/19	Sunday	2.1	Physics	E12-12-004	2.22/150/p/500	Run Group B	10.6/100/p/250	E12-06-110	10.6/30/p/250	E12-12-002	11.7/200/-/250	A/D/C/B	1/5/5/5.5	
432	11/04/19	Monday	2.1	Physics	E12-12-004	2.22/150/p/500	Run Group B	10.6/100/p/250	E12-06-110	10.6/30/p/250	E12-12-002	11.7/200/-/250	A/D/C/B	1/5/5/5.5	

