<table>
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<tr>
<th>Rev Number</th>
<th>Revision Date</th>
<th>Sections Affected</th>
<th>Description of Change</th>
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<td>000</td>
<td>10-17-2008</td>
<td>All</td>
<td>Initial Version</td>
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This document is intended to describe two things. First it will describe LCLS expectations for when each experiment will come on line. These dates are dependent on many external factors, including congressional budgets, actual costs, and schedule performance. Hence this document is dated. A year from now these dates may change. Second it will describe LCLS expectations for access to the hutches while beam is in the pipe that terminates in that hutch as well as when beam is in a pipe that passes completely through the hutch. In particular, it will focus on the early phase of operations at the LCLS and thus it will describe these issues for the AMO and SXR experiments.

The LCLS schedule currently calls for photons to be delivered to the NEH in July 2009. This requires an approved beam containment system (BCS) to be in place and an approved hutch protection system (HPS) to be in place. Only the experiment in hutch 1, the Atomic, Molecular and Optical Physics (AMO) experiment, will be in a position to accept beam at this time. In early calendar 2010, the Soft X-Ray (SXR) experiment will be installed and ready for beam in hutch 2 of the NEH. It is a LCLS Project goal to deliver beam to the Far Experimental Hall in early 2010. This will require at least one Far Hall hutch with an approved HPS and BCS. Commissioning of new hutches must also be commensurate with the LCLS down time schedule. Commissioning of the X-Ray Pump-Probe (XPP) experiment in hutch 3 is currently planned for July 2010. At this time, there is no monochromator for the XPP experiment in the scope of the LUSI Project. (This XPP monochromator may be added to the LUSI scope if funding permits, probably in the 2012 time frame.) Thus there is no side station currently in the scope of hutch 3. The XPP experiment will be rolled to the side and replaced with an empty beam pipe in order to deliver beam to experiments in the Far Experimental Hall (FEH). Commissioning of the Coherent X-Ray Imaging (CXI) experiment in hutch 5 is currently planned for early 2011, and commissioning of the X-Ray Correlation Spectroscopy (XCS) experiment in hutch 4 is planned for mid-2011. The LCLS has just added the construction of hutch 6 in the FEH to its scope. The schedule for adding an experiment to this hutch is undetermined at this time.

<table>
<thead>
<tr>
<th>Hutch</th>
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<tbody>
<tr>
<td>1</td>
<td>7/09</td>
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<tr>
<td>2</td>
<td>2/10</td>
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<tr>
<td>3</td>
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<td>5</td>
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<td>4</td>
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<tr>
<td>6</td>
<td>2011??</td>
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Table 1: Summary of expected LCLS hutch commissioning dates

The first phase of the AMO experiment will be situated entirely in hutch 1. This includes the Kirkpatrick-Baez optics chamber, the high field sample chamber, and the diagnostics chamber. There is an expectation that the AMO experiment will be extended through the wall into hutch 2 of the NEH sometime after 2010 (requiring modifications to the hutch access rules presented here). The second experiment at the LCLS will be the SXR Instrument. This experiment will have a sample chamber for non-monochromatic light in hutch 1; a grating monochromator located in hutch 1, and a KB optics chamber in hutch 2. The sample chamber for use with monochromatic light will be housed in hutch 2. Several sample chambers will be available to attach to the beam line.
in hutch 2. Thus, the SXR experiment will operate much like a SSRL VUV beam line, where the experimenter brings their own chamber. It will be necessary to develop a BCS system in hutch 2 that is compatible with the use of these various chambers. The SXR experiment is currently expected to be commissioned in February 2010.

LCLS intends to implement an HPS system for all hutches in phases.  
**Phase 1:** In phase 1, user experiments will take place only in hutch 1, and a simple set of access rules will be implemented. The door to hutch 1 will be interlocked to the stopper pair labeled S1. The door to hutch 2 will be interlocked to the stopper pair S2. Likewise the door to hutch 3 will be interlocked to stopper pair SH1. This fully agrees with the content of LCLS PRD 1.6-009-r2. In addition, we explicitly state that when beam is allowed into the AMO experiment in hutch 1, the remaining hutches will be taken off line and their stoppers will be disabled. If beam were to be allowed into hutch 2, no access to hutch 1 would be allowed. Access into hutch 1 will only be allowed when hutch 2 is taken off line.

This mode of operation will be used exclusively through the end of the first LCLS user run (currently scheduled for Sept-Dec 2009).  
**Phase 2:** By the start of the second user run, around March 2010, we will transition to phase 2 of hutch access. This mode will allow access into hutch 1 while beam is present in the other beam pipes traversing hutch 1. Likewise, access into hutch 2 will be allowed while beam is present in the other beam pipe traversing hutch 2. Access into hutch 1 will be interlocked to the S1 stopper pair, and access into hutch 2 will still be interlocked to the S2 stopper pair. Access to hutch 3 will be interlocked to the SH1 stopper pair. Similar logic will apply to hutches 4, 5, and eventually 6 in the FEH. The transition from phase 1 to phase 2 will be predicated on defining and implementing an acceptable standard of configuration control, which may include a vacuum interlock system.  
**Phase 3:** After initial operational tests with beam, we hope that radiation measurements will support a transition to phase 3 of hutch access. In this mode access will be allowed into either of the soft-X-ray hutches 1 and 2 with stoppers open and beam present in the sample chamber. Additional steps to ensure adequate configuration control and/or additional shielding may be required for phase 3. Access to the hard X-ray hutches 3-6 will remain as in phase 2.