Status of E-906/SeaQuest

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The SeaQuest status

(so far) unpolarized fixed-target Drell-Yan experiment:

- a 120 GeV proton beam extracted from the MI and
- a moving target table (liquid H and D, solid state nuclei)

significant increase in physics reach:

- unique access to sea quarks at high-x
- What is the structure of the nucleon?
- What is the structure of nucleonic matter?

commissioning run 03/07/2012 – 04/30/2013

waiting for beam ~ Mid August 2013
Beam Updates

- **sleevng the bermpipe:**
  - pipe out of 2205 stainless steel with 12" diameter
  - waiting on steam cleaning the pipe
  - next step: welding, availability of welders tbd

- **beam diagnostics:**
  - preparing for PCB fabrication
  - next step: system integration with read-out software
  - test of read-out electronics at MT3
Elevation View, X=0

4 J-blocks

8 F-blocks
Fit between longitudinal I-beams

5 J-blocks
Stabilized with angle iron and weld to I-beams

5 J-blocks

SECTION E-E
SCALE: 1:32
Target Updates

- two vacuum gauges on the Hydrogen system need to be replaced
- another cool down test of liquid H and D targets scheduled in July
Detector Updates

- Repair of interim D1
  - 2 of 3 planes repaired
  - Repair of last plane in progress

- New D1 in progress
  - Wire stringing

- PMT base update
  - Higher-rate capability for H1/H2 production almost complete
  - Installation in June

- New D3m wire chamber completed
  - Broken wires repaired
  - HV training ready for installation
## DAQ: Improved TDC for Run II

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>TDC bin width</td>
<td>~0.44 ns</td>
</tr>
<tr>
<td>minimum width of signal</td>
<td>4 ns</td>
</tr>
<tr>
<td>maximum number of hits in 64 ns</td>
<td>4</td>
</tr>
<tr>
<td><strong>adjustable</strong> time window (detector)</td>
<td>4ns – 2048ns</td>
</tr>
<tr>
<td>maximum number of hits per trigger</td>
<td>32 – 1024</td>
</tr>
<tr>
<td><strong>multiple</strong> events per IRQ</td>
<td>2 – 32</td>
</tr>
<tr>
<td><strong>Scalar buffer</strong></td>
<td>8 hits / channel</td>
</tr>
<tr>
<td><strong>Intrinsic zero suppression</strong> (multi-sampling)</td>
<td>tested</td>
</tr>
<tr>
<td><strong>Multiple hits elimination</strong></td>
<td>tested</td>
</tr>
<tr>
<td><strong>Leading edge or leading / trailing edge detection</strong></td>
<td>tested</td>
</tr>
<tr>
<td>Test with hodoscopes and proportional tubes</td>
<td></td>
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**Run II TDC working**
Trigger Updates

- **trigger road generation:**
  - realistic MC sample improved
  - trigger software suite progressing well
- **pulser test proceeds well:**
  - looking for any unwanted behavior from the trigger modules
- **remaining trigger hardware ordered**
- **installing final trigger configuration in June and July**