

LEFT-ARM ONLY on this page:  $A_y$  and  $(e, e'd)$  Commissioning Run Sheet

|  |   |
|--|---|
| Date:  | Author:   |
| Beam Energy: GeV   | Using Pol $^3\text{He}$ cell: Y/N, Long. Tran. or Vertical ?                            |
| Left HRS momentum (GeV/c):<br>angle : $17^\circ$ never moved. Sieve plate: IN or OUT ? | BigBite current (A):<br>angle : never moved. polarity: positive Sieve slit: IN or OUT ? |

| Run Number      | start time      | stop time | target                 | beam ( $\mu\text{A}$ )                | # of events | dead time | comments<br>T3, T4 rates  | replay<br>OK ? |
|-----------------|-----------------|-----------|------------------------|---------------------------------------|-------------|-----------|---|----------------|
| <del>1304</del> | <del>4:57</del> |           | <del>BeO</del>         | <del>5 <math>\mu\text{A}</math></del> |             |           | <del>BPM A (-1.3, 1.5)<br/>BPM B (-0.8, 1.5)</del> Lost Be position | <del>X</del>   |
| 1305            | 5:03            | 5:07      | BeO                    | 5 $\mu\text{A}$                       | 1013103     |           | BPM A (-1.3, 1.5)<br>BPM B (-0.8, 1.5)                              |                |
| 1306            | 5:38            | 5:41      | BeO                    | 5 $\mu\text{A}$                       | 1013773     | 84.7%     | BPM A (1.25, 3.5)<br>BPM B (1.2, 3.5)                               |                |
| 1307            | 5:52            |           | BeO                    | 5 $\mu\text{A}$                       |             |           | BPM (0.68, -0.5)<br>BPM (0.18, -0.5) End of Run Failed              |                |
| 1308            | 6:14            | 6:19      | BeO                    | 5 $\mu\text{A}$                       | 1004478     | 1.0%      | BPM (-3.3, 3.5)<br>BPM (3.3, -0.5)                                  |                |
| 1309            | 6:26            | 6:31      | BeO                    | 5 $\mu\text{A}$                       | 1015373     | 83.6%     | BPM (3.2, 3.5)<br>BPM (2.78, 3.5)                                   |                |
| 1310            | 6:46            | 6:49      | BeO                    | 2 $\mu\text{A}$                       | 830373      | 6.4%      | 2x2mm Rust  |                |
| 1311            | 6:51            |           | BeO                    | 2 $\mu\text{A}$                       |             |           | 3x3mm End Run Early   |                |
| 1312            | 6:57            | 7:01      | BeO                    | 2 $\mu\text{A}$                       | 1009860     | 73%       | 4x4mm Rust  |                |
| 1313 - 1321     |                 |           | "REFERENCE CELL SCANS" |                                       |             |           | - see HALOQ entry #267800.  |                |
|                 |                 |           |                        |                                       |             |           |   |                |
|                 |                 |           |                        |                                       |             |           |   |                |

Please change to a new run sheet for a new setting or a new type of run on the run plan.  
More comments:

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|   |  |
|---|--|
| Date: <b>23rd April 2009</b>  | Author: <b>PETER MONAGHAN</b>  |
| Beam Energy: <b>No beam</b> GeV   | Using Pol $^3\text{He}$ cell: Y/N, Long. Tran. or Vertical ?         |
| Right HRS momentum (GeV/c):<br>angle : $17^\circ$ never moved. Sieve plate: IN or OUT ? | BigBite current (A):<br>angle : never moved. Sieve slit: IN or OUT ? |

| Run Number                                | start time | stop time | target | beam ( $\mu\text{A}$ ) | # of events | dead time | comments<br>T1, T2 rates                                      | replay<br>OK ? |
|---|------------|-----------|--------|------------------------|-------------|-----------|---|----------------|
| 20176                                     | 09:10      | 09:25     | —      | —                      |             |           | Cosmic tests on RIGHT HRS - ended to fix RHR5 DAQ             |                |
| 20177 - 20181 : DAQ tests by Bob Michaels |            |           |        |                        |             |           |   |                |
| 20182                                     | 10:16      | 11:58     |        |                        | 341K        |           | cosmic tests for RHR5 after Bob updated the DAQ →             | No VDC.        |
| 20183                                     | 11:59      | 12:01     |        |                        |             |           | cosmic tests; right VDC ON! Ended quickly for Bob to do tests |                |
| 20185                                     | 12:09      | 13:25     | —      | 0                      | 21.9K       |           | cosmic tests; right VDC on; $ps1=1$ .                         |                |
| 20186                                     | 14:06      | 18:42     | —      | 0                      | 20.0K       |           | neutron detector cosmic                                       |                |
| 20187                                     | 18:44      | 19:02     | —      | 0                      | 20.0K       |           | neutron detector cosmic                                       |                |
| 20187                                     |            |           |        |                        |             |           | RightHrs to check VDC   |                |
| 20192                                     |            |           |        |                        |             |           | cosmic.   |                |
| 20193                                     | 22:31      | 22:34     | —      |                        | 0.5h.       |           | DETECTOR CHECK  |                |
| 20194                                     | 22:38      | 22:46     |        |                        | 373         |           | DETECTOR CHECK  |                |

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|   |   |
|---|---|
| Date: 24 <sup>th</sup> April 2009   | Author: PETER MONAGHAN  |
| Beam Energy: 1.245 GeV  | Using Pol <sup>3</sup> He cell: (Y)/N, Long. Tran. or Vertical ?                  |
| Left HRS 1.20264<br>momentum (GeV/c):<br>angle : 17° never moved. Sieve plate: IN or OUT? | BigBite<br>current (A) : 518 A.<br>angle : never moved. Sieve slit: (IN) or OUT ? |

| Run Number | start time | stop time | target                     | beam ( $\mu A$ ) | # of events | dead time | comments<br>T3, T4 rates                             | replay<br>OK ? |
|------------|------------|-----------|----------------------------|------------------|-------------|-----------|--|----------------|
| 1322       | 08:34      | 08:36     | pol. He3                   | 2 $\mu A$        |             |           | beam raster checkout (6x6 MCC)<br>END RUN FAILED.    |                |
| 1323       | 08:57      | 09:04     | pol. He3                   | 2 $\mu A$        | 222K        |           | ps3=10. Raster check (6x6 MCC)<br>for pol. He3 cell. |                |
| 1324       | 09:08      | 09:11     | pol. He3                   | 2 $\mu A$        | 112K        |           | 8x8 (MCC units) raster check                         |                |
| 1325       | 09:15      | 09:17     | pol. He3                   | 2 $\mu A$        | 78K         |           | 10x10 (MCC units) raster<br>check beam centering     |                |
| 1326       | 09:20      | 09:21     | pol. He3                   | 2 $\mu A$        | 50K         |           | 9x9 (MCC units) raster<br>beam centering check       |                |
| 1327       | 09:24      | 09:29     | pol. He3                   | 2 $\mu A$        | 148K        |           | 6x9 (MCC units) raster check                         |                |
| 1328       | 09:31      | 09:36     | pol. He3                   | 2 $\mu A$        | 183K        |           | 6x11 (MCC units) raster check                        |                |
| 1329       | 09:45      | 09:49     | pol. He3                   | 2 $\mu A$        | 158K        |           | 6x9 (MCC units) (1.0, 2.0)<br>changed BPMB position  |                |
| 1330       | 09:57      | 09:59     | pol. He3                   | 2 $\mu A$        | 66K         |           | 9x9 (MCC units)<br>BPMB (-2.0, 2.0)                  |                |
| 1331       | 10:08      | 10:12     | pol. He3                   | 2 $\mu A$        | 503K        |           | 6x5 (MCC)<br>BPMB (-0.5, 2.2) same BPMB!             |                |
| 1332       | 10:41      | 10:50     | REF<br>CELL H <sub>2</sub> | 2 $\mu A$        | 729K        |           | Bigbite on; debug &<br>check out run. (6x5 MCC)      |                |
| 1333       | 10:51      | 11:01     | REF<br>CELL H <sub>2</sub> | 2 $\mu A$        | 135K        |           | Debug check; changed<br>ps3 = 10.                    |                |

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|--|--|
| Date: 04/24/09   | Author: PETER MONAGHAN   |
| Beam Energy: 1245 GeV  | Using Pol $^3\text{He}$ cell: <input checked="" type="checkbox"/> Y/N, Long. Tran. or Vertical ? |
| Right HRS momentum (GeV/c): 1.2064<br>angle : 17° never moved. | BigBite current (A) :<br>angle : never moved.  |
| polarity: "-"<br>Sieve plate: IN or <u>OUT</u> ?               | polarity: positive<br>Sieve slit: IN or OUT ?  |

| Run Number | start time | stop time | target                 | beam ( $\mu\text{A}$ ) | # of events | dead time | comments<br>T1, T2 rates                     | replay<br>OK ? |
|------------|------------|-----------|------------------------|------------------------|-------------|-----------|--|----------------|
| 20210      | 08:33      | 08:37     |                        | 2 $\mu\text{A}$        | 733K        |           | check of raster & BPM                        |                |
| 20211      | 10:08      | 10:13     | pt. $\text{He}^3$      | 2 $\mu\text{A}$        | 1M          |           | 6x5 MCC units raster;<br>212 check.          |                |
| 20212      | 10:41      | 10:50     | REF. cell $\text{H}_2$ | 2 $\mu\text{A}$        | 365K        |           | Debug & check out run.                       |                |
| 20213      | 10:51      | 11:01     | REF cell $\text{H}_2$  | 2 $\mu\text{A}$        | 375K        |           | Download updated RIGHT triggers; debug check |                |
|            |            |           |                        |                        |             |           |  |                |
|            |            |           |                        |                        |             |           |  |                |
|            | Go         | TO        | NEXT                   | PAGE                   |             |           |  |                |
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|  |  |
|--|--|
| Date: <u>24<sup>th</sup> April</u>   | Author: <u>PETER MONAGHAN</u>  |
| Beam Energy: <u>1.245</u> GeV  | Using Pol <sup>3</sup> He cell: Y/N, Long. Tran. or Vertical? <u>Vertical?</u>                               |
| Left HRS <u>1.20264</u><br>momentum (GeV/c):<br>angle: <u>17°</u> never moved. Sieve plate: IN or <u>OUT?</u> polarity: " <u>-</u> " | BigBite<br>current (A): <u>518</u> . polarity: positive<br>angle: never moved. Sieve slit: <u>IN</u> or OUT? |

| Run Number | start time | stop time | target    | beam ( $\mu$ A) | # of events | dead time | comments<br>T3, T4 rates                           | replay<br>OK? |
|------------|------------|-----------|-----------|-----------------|-------------|-----------|--|---------------|
| 1334       | 11:06      | 11:12     | pol. He3  | 2 $\mu$ A.      | 1M.         |           | check out using polarised He3<br>END-RUN FAILED    |               |
| 1335       | 11:44      | 11:49     | NO TARGET | MIXED CURRENTS  | 360         | ->        | Beam current calibration<br>MCC not ready          |               |
| 1336       | 12:22      | 12:25     | NO TARGET |                 | 200         |           | BEAM CURRENT CALIBRATION<br>MCC messed up!         |               |
| 1337       | 12:28      | 12:36     | NO TARGET |                 | 4.3K        |           | BEAM CURRENT CALIBRATION                           |               |
| 1338       | 12:37      | 12:58     | NO TARGET |                 | 93K         |           | BEAM CURRENT CALIBRATION<br>(PART I)               |               |
| 1339       | 13:12      | 13:46     | NO TARGET |                 | 25.6K       |           | BEAM CURRENT CALIBRATION<br>(PART II) BCM Log #148 |               |
|            |            |           |           |                 |             |           |  |               |
|            |            |           |           |                 |             |           |  |               |
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|   |  |
|---|--|
| Date: 24 <sup>th</sup> April 2004                                 | Author: PETER MONAGHAN   |
| Beam Energy: 1.245 GeV  | Using Pol <sup>3</sup> He cell: <input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N Long. Tran. or Vertical? <input checked="" type="checkbox"/> Long. Tran. |
| Right HRS 1.20264<br>momentum (GeV/c):<br>angle: 17° never moved. | BigBite 513 A.<br>current (A):<br>angle: never moved.  |
| polarity: "-"<br>Sieve plate: IN or <u>OUT</u> ?                  | polarity: positive<br>Sieve slit: <u>IN</u> or OUT?  |

| Run Number | start time | stop time | target          | beam ( $\mu$ A) | # of events | dead time | comments<br>T1, T2 rates                         | replay<br>OK? |
|------------|------------|-----------|-----------------|-----------------|-------------|-----------|--|---------------|
| 20214      | 11:06      | 11:12     | pol. He3<br>80% | 2 $\mu$ A       | 920K        |           | check out of polarized He3 running               |               |
| 20215      | 11:44      | 11:49     | NO TARGET       | MIXED CURRENTS  | 270         |           | Beam current / MCC NOT READY calibration         |               |
| 20216      | 12:22      | 12:25     | NO TARGET       |                 | 166         |           | BEAM CURRENT CALIBRATION MCC screwed up!         |               |
| 20217      | 12:28      | 12:36     | NO TARGET       |                 | 2.2K        |           | BEAM CURRENT CALIBRATION                         |               |
| 20218      | 12:37      | 12:58     | NO TARGET       |                 | 45K         |           | BEAM CURRENT CALIBRATION (PART I) : BCM Log      |               |
| 20219      | 13:12      | 13:46     | NO TARGET       |                 | 14K         |           | BEAM CURRENT CALIBRATION (PART II) BCM Log # 148 |               |
| 20220      | 15:23      | 15:29     | NO TARGET       | NO BEAM         | 315         |           | RHRS VDC check<br>→ slow event rate.             |               |
|            |            |           |                 |                 |             |           |  |               |
|            |            |           |                 |                 |             |           |  |               |
|            |            |           |                 |                 |             |           |  |               |
|            |            |           |                 |                 |             |           |  |               |

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|   |   |
|---|---|
| Date: April 25, 2009  | Author: Hassan Ibrahim  |
| Beam Energy: 1.245 GeV  | Using Pol $^3\text{He}$ cell: Y/N, Long. Tran. or Vertical ?        |
| Left HRS momentum (GeV/c): 1.1759<br>angle: 17° never moved. Sieve plate: IN or OUT ? | BigBite current (A):<br>angle: never moved. Sieve slit: IN or OUT ? |

| Run Number | start time | stop time | target         | beam ( $\mu\text{A}$ ) | # of events | dead time | comments<br>(T3, T4 rates (Hz)) | replay OK ? |
|------------|------------|-----------|----------------|------------------------|-------------|-----------|---------------------------------|-------------|
| 1379       | 3:37       |           | optics         | 2                      |             |           | 15k, 2499                       |             |
| 1380       | 3:49       | 3:54      | ~              | ~                      | 1M          |           | <del>13k, 376</del>             |             |
| 1381       | 3:56       |           | ~              | ~                      | 1M          |           | 14k, 1199                       |             |
| 1386       | 5:07       | 5:11      | H <sub>2</sub> | ~                      | 1M          |           | 3.5k                            |             |
| 1387       | 5:13       | 5:17      | ~              | ~                      | 1M          |           | 3.3k                            | No T3       |
| 1388       | 5:18       |           | ~              | ~                      |             |           | 3.4k                            | No T3       |
| 1389       | 5:25       |           | ~              | ~                      |             |           | 3.4k                            |             |
| 1391       | 5:49       | 5:53      | ~              | ~                      | 1M          |           | 3.4k                            |             |
| 1392       | 5:55       | 5:58      | ~              | ~                      | 1M          |           | 3.5k                            |             |
| 1393       | 5:59       |           | ~              | ~                      |             |           | 3.6k                            |             |
| 1394       | 6:04       |           | ~              | ~                      |             |           | PS1 = 50<br>T3 = 3.4k           |             |

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|   |   |
|---|---|
| Date: <i>Apr. 25, 2009</i>  | Author: <i>Hassan Ibrahim</i>   |
| Beam Energy: _____ GeV  | Using Pol $^3\text{He}$ cell: Y/N, Long. Tran. or Vertical ?  |
| Left HRS<br>momentum (GeV/c) : <i>1.2112</i> polarity: " - "<br>angle : $17^\circ$ never moved.      Sieve plate: IN or OUT ? | BigBite<br>current (A) : _____      polarity: positive<br>angle : never moved.      Sieve slit: IN or OUT ? |

| Run Number | start time | stop time | target         | beam ( $\mu\text{A}$ ) | # of events | dead time | comments<br>③, T4 rates (Hz) | replay<br>OK ? |
|------------|------------|-----------|----------------|------------------------|-------------|-----------|------------------------------|----------------|
| 1396       | 6:20       | 6:24      | H <sub>2</sub> | 2                      | 1M          |           | 3.5 k                        |                |
| 1397       | 6:25       |           | ~              | ~                      |             |           | 3.6 k                        |                |
| 1400       | 6:42       |           | ~              | ~                      | 1M          |           | 4.8 k                        |                |
| 1401       | 6:53       |           | ~              | ~                      | 1M          |           | 4.7 k                        |                |
| 1402       | 6:57       |           | ~              | ~                      |             |           | 4.7 k                        |                |
| 1405       | 7:08       |           | ~              | ~                      |             |           |                              |                |
| 1408       | 7:20       |           | ~              | ~                      | 1M          |           | 4.3 k                        |                |
| 1409       | 7:33       |           | ~              | ~                      | 1M          |           | 4.3 k                        |                |
| 1410       | 7:40       |           | ~              | ~                      | 1M          |           | 4.2 k                        |                |
| 1411       | 7:46       |           | ~              | ~                      |             |           | 4.3 k                        |                |
| 1412       | 7:54       |           | ~              | ~                      | 1M          |           |                              |                |
| 1413       | 7:59       |           | ~              | ~                      |             |           | 4.4 k                        |                |

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|  |   |
|--|---|
| Date: <i>April 25, 2009</i>  | Author: <i>Hassan Ibrahim</i>   |
| Beam Energy: <i>1.245</i> GeV  | Using Pol $^3\text{He}$ cell: Y/N, Long. Tran. or Vertical ?                              |
| Right HRS<br>momentum (GeV/c): <i>1.1759</i> polarity: " <i>-</i> "<br>angle: <i>17°</i> never moved. Sieve plate: IN or OUT ? | BigBite<br>current (A): polarity: positive<br>angle: never moved. Sieve slit: IN or OUT ? |

| Run Number | start time | stop time | target         | beam ( $\mu\text{A}$ ) | # of events | dead time | comments<br>(T1, T2 rates (Hz)) | replay<br>OK ? |
|------------|------------|-----------|----------------|------------------------|-------------|-----------|---------------------------------|----------------|
| 20264      | 3:36       |           | optics         | 2                      |             |           | 13k, 1170                       |                |
| 20265      | 3:46       | 3:54      | ~              | ~                      | 1M          |           | 14k, 180                        |                |
| 20266      | 3:55       |           | ~              | ~                      | 1M          |           | 12k, 360                        |                |
| 20267      | 5:05       | 5:12      | H <sub>2</sub> | ~                      | 1M          |           | 2.6k                            |                |
| 20268      | 5:13       | 5:21      | ~              | ~                      | 1M          |           | 2.5k                            |                |
| 20269      | 5:21       | 5:29      | ~              | ~                      | 1M          |           | 2.5k                            |                |
| 20270      | 5:30       |           |                |                        |             |           |                                 |                |
| 20272      | 5:46       | 5:54      | ~              | ~                      | 1M          |           | 2.6k                            |                |
| 20273      | 5:54       |           | ~              | ~                      |             |           | 2.6k                            |                |
| 20274      | 6:03       | 6:12      | ~              | ~                      |             |           | 2.5k                            |                |
|            |            |           |                |                        |             |           |                                 |                |

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