



## E06-014 LEFT HRS Run Sheet

Date: 2/7/09	Author: Matthew Posik
Beam Energy: 5.9 GeV	Using Pol <sup>3</sup> He cell: Y/ <del>N</del> Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 0.60 angle: 45°	BigBite current (A): angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20076	16:12	16:15	BeO	14		25.3	Spot ++	
20077	16:15	16:17	BeO	14		26	Spot ++	
20078	16:22	16:23	BeO	14		25	Spot ++ 5.3 x 6.5 msc	
20079	16:37	16:47	Ref	14		—	Pressure curve 816 Tar	Buf ✓
20080	16:48	16:58	Ref	14		—	Pressure curve 816 Tar	Buf ✓
20081	16:59	17:00	Ref	14		—	Press. curve 816 Tar	unBuf ✓
20082	17:14	17:24	Ref	14	10	⌈	P. Curve 605 Tar	unBuf ✓
20083	17:25	—	Ref	14	good		P. Curve 605 Tar	unBuf
20084	17:35	17:45	Ref	14			Pres. = 0 Tar	unBuf ✓
20085	17:45	17:55	↓	↓			Pres = 0 Tar	unBuf ✓
20086	18:01	18:11	↓	↓			Pressure = 0 Tar	Buf ✓
20087	18:21	18:41	↓	↓			Pressure = 0 Tar	Buf

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

500  
T1, T2, T6

$$T1 = 1.02 \times 10^4 \text{ Hz} \rightarrow 20 = \text{ps1}$$

$$T2 = 5.8 \times 10^2 \text{ Hz} \rightarrow \text{ps2}$$

$$T6 = 1.449 \times 10^3 \text{ Hz} \rightarrow 3 \text{ ps6}$$

## E06-014 LEFT HRS Run Sheet

<b>Date:</b> 2/7/09	<b>Author:</b> Matthew Posik
<b>Beam Energy:</b> 5.9 GeV	<b>Using Pol <sup>3</sup>He cell:</b> Y/N, <u>Longitudinal</u> or Transverse ?
<b>Left HRS</b> momentum (GeV/c): 0.6 angle: 45°	<b>BigBite</b> current (A): angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20088			BeO	2			spot +t 2.6x3.3 MCC	
20089			BeO	2			spot +t 2.6x3.3 MCC	
20090			BeO	2			spot +t (3x4)	
20091			BeO	2			spot +t (5.3x6.6)	
20092	22:48	22:56	N2 REF	14		4%	Pressure curve P=6tor	Buf ✓
20093	22:58	23:08	N2 REF	14		3	Pres. = 0.6 Tor	Buf ✓
20094	23:12	23:22	↓	↓		4	Pres = 100 Tor	UNBuf ✓
20095	23:23	23:33	↓	↓			Pres = 100 Tor	UNBuf ✓
20096	23:34	23:44	↓	↓			Pres = 100 Tor	buf
20097	23:44		crashed				Pres = 100 Tor	buf
20098	00:00	00:14					Pres = 100 Tor	buf
20099	00:15	00:29					200 Tor	

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: Feb 08, 2009	Author: Yoomin
Beam Energy: 5.9 GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 0.6 angle: 45°	polarity: "+" or "-" ? Sieve slit: IN or OUT ? BigBite current (A): angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20100	00:29	00:42	N <sub>2</sub> ref	14			Ref. cell. pressure curve @ 402 Torr. Unbuff.	
20101	00:45	00:55	"	"		7%	@ 602 torr. unbuff.	
20102	01:05	01:18	<sup>3</sup> He ref	14	130k	3%	0 psig T3=150 T4=22 PS3=1 PS4=1	
20103	01:20	01:30	"	"		5%	15 psig. unbuff 174/26	
20104	01:32	01:43	"	"	156k	5%	45 psig	
20105	01:46	01:59	"	"	217k	6%	75 psig	
20106	02:01	02:12	"	"	192k		105 psig	
20107	02:14	02:26	"	"	265k	8%	135 psig T3=380 T4=27	
20108	02:46	02:49	pol <sup>3</sup> He	2μA			Reset TR-t 2.5x3.5 MCC T1=43k/T2=89/T3=84/T4:10/16/450	
20109	02:50		"	3μA			2.5x4.5 MCC 4.3k/98/78/11/490	
20110	02:58			2μA			5x5 MCC 4.3k/90/98/14/470	
20111							6x6 MCC 4.3k/92/85/11/472	

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: 2/8/09	Author: David Flay
Beam Energy: 5.9 GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 0.600 angle: 45°	polarity: "+" or "-" ? Sieve slit: IN or OUT ?
	BigBite current (A): angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20071	8:25	8:35	optics	5.3			prescales ok	ok
20072	8:40	8:50	optics	5.3	187959		prescales ok	ok
20073	9:00	9:10	optics	5.3	21332		prescales ok	ok
20074	9:45	9:55	optics	5.3	150718		prescales ok	ok
20075	10:05	10:08	optics	5.3	118644		prescales ok	ok

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: Feb 9, 2009	Author: Yoomh
Beam Energy: 5.9 GeV	Using Pol <sup>3</sup> He cell: <input checked="" type="checkbox"/> N, <u>Longitudinal</u> or Transverse ?
Left HRS momentum (GeV/c): 0.6 angle: 45°	polarity: "+" or "-" ? Sieve slit: IN or <u>OUT</u> ? BigBite current (A): 906 angle: never moved. Sieve slit: <input checked="" type="checkbox"/> or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20112	03:19		pol <sup>3</sup> He	14			check-out for <sup>T3=460 T4=28</sup> production	
20113	03:36		"	14				
20114	03:42		"	14			467 . 31	
20115	03:46	04:21	"	14	907k	9%	Production <sup>T3=468 / T4=28</sup>	✓
20116	04:22	05:02	"	14	900k	8%	}	
20117	05:03	05:40	"	14	903k	9%		✓
20118	05:41	06:16	"	14	900k	"		
20119	06:16	06:57	"	14	900k	"		
20120	06:58	07:40	"	"	900k	8		✓

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

## E06-014 LEFT HRS Run Sheet

Date: <u>2/8/09</u>	Author: <u>Matt Posik</u>
Beam Energy: <u>5.9</u> GeV	Using Pol <sup>3</sup> He cell: <input checked="" type="checkbox"/> N, <input checked="" type="checkbox"/> Longitudinal or Transverse ?
Left HRS momentum (GeV/c): <del>1.2</del> <u>1.2</u> angle: <u>45°</u>	polarity: "+" or "-" ? BigBite current (A): <u>706</u> Sieve slit: IN or <input checked="" type="checkbox"/> OUT ? angle: never moved. Sieve slit: IN or <input checked="" type="checkbox"/> OUT ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20121	8:08	8:25	He <sup>3</sup>	14	46K	2	Taken at 1.6 GeV	✓
20122	8:32	9:11	He <sup>3</sup>	14	192K	3	now 1.2 GeV	✓
20123	9:46	12:58	<sup>3</sup> He	14	1M	2	T3/T4 (62/25) PS3/PS4 (1/1)	✓
<del>20123</del>								
20124	13:18	14:08	He	14	169K	3	now at 1.6 GeV	✓
20125	14:25	14:54	He	14	95K	2		✓

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: Feb 09, 2009	Author:
Beam Energy: 1.2326 GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 1.2127 angle: 16°	polarity: "+" or "-" ? Sieve slit: IN or OUT ? BigBite current (A): 706553 angle: never moved. 45° Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
1164							Tests for beam spot	
1165	05:09	05:25	<sup>3</sup> He ref	14	1M	10	pressure curve 134 psig T3/PS3 = 28k/28 T4/PS4 = 150/15	
1166	05:29	05:38	<sup>3</sup> He ref.	"	540k	10	106 psig	
1167	05:41	05:52	"	"	800k	11	77 psig	
1169	05:57	06:08	"	"	870k	9	50 psig	
1170	07:06	07:18	"	"		10	16 psig	
1171	07:24	07:36	"	"		10	2 psig	
1172	7:49	8:02	N <sub>2</sub>	14			8 torr	
1173	8:09	8:20	N <sub>2</sub>	14	676k	8	106 torr	
1174				14			500k	✓
1175	8:15	8:25	N <sub>2</sub>	14	771k	8	207 torr	✓

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 More comments:

running on 1 DAQ mode.

L-HRS, BB have same run number.





## E06-014 LEFT HRS Run Sheet

Date: <i>02/09/09</i>	Author: <i>Glamazdin</i>
Beam Energy: _____ GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c) : _____ angle : _____	polarity: "+" or "-" ? Sieve slit: IN or OUT ?
	BigBite current (A) : _____ angle : never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
<i>1189</i>	<i>19:19</i>		<i>BeO</i>				<i>spot # 2.6x3.3 raster</i>	
<i>1190</i>			<i>He<sup>3</sup>PC</i>				<i>2.6x3.3</i>	
<i>1191</i>			<i>He<sup>3</sup>PC</i>				<i>2.6x3.3</i>	
<i>1202</i>	<i>22:42</i>	<i>22:36</i>	<i>He<sup>3</sup></i>	<i>4</i>	<i>170K</i>	<i>16</i>		<i>✓</i>
<i>1203</i>	<i>22:40</i>	<i>22:55</i>	<i>He<sup>3</sup></i>	<i>4.2</i>	<i>1M</i>	<i>6</i>		<i>✓</i>
<i>1204</i>	<i>22:56</i>	<i>23:11</i>	<i>He<sup>3</sup></i>	<i>4.3</i>	<i>1M</i>	<i>6</i>		<i>✓</i>
<i>1205</i>	<i>23:12</i>	<i>23:31</i>	<i>He<sup>3</sup></i>	<i>4.2</i>	<i>1M</i>	<i>6</i>		<i>✓</i>
<i>1206</i>	<i>23:31</i>	<i>23:47</i>	<i>He<sup>3</sup></i>	<i>4.3</i>	<i>1M</i>	<i>6</i>		
<i>1207</i>	<i>23:47</i>		<i>He<sup>3</sup></i>	<i>4.3</i>		<i>6</i>		

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: <u>02/00/09</u>	Author: <u>Navaphon Muangma</u>
Beam Energy: <del>1.232</del> <u>1.232</u> GeV	Using Pol <sup>3</sup> He cell: <u>Y/N</u> , <u>Longitudinal</u> or <u>Transverse</u> ?
Left HRS momentum (GeV/c): <u>1.21</u> angle: <u>16</u>	polarity: "+" or "-" ? <u>-</u> Sieve slit: IN or <u>OUT</u> ?
	BigBite current (A): <u>706</u> , angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu A$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
1208	0:07	0:24	<sup>3</sup> He	4	10 <sup>6</sup>	6.6%	T3/T4 9.44 E3/2.64E2 PS3/PS4 10/6	✓
1209	0:24	0:39	"	"	"	6.5%	—————	✓
1210	0:40	0:55	"	"	"	6.4%	—————	✓
1211	0:55	1:11	"	"	"	6.6%	—————	✓
1212	1:12	1:26	"	"	"	6.9%	—————	✓
1213	1:27	1:42	"	"	"	6.3%	—————	✓
1214	1:47	2:02	"	"	"	6.7%		✓
1215	2:03	2:18	"	"	"	6.4%		✓
<del>1216</del>	2:24	2:39	"	"	"	6.6%	beam half wave, plate out.	✓
1217	2:39	2:56	"	"	"	6%		✓
1218	2:56	3:11	"	"	"	6.6%		✓
1219	3:11	3:27	"	"	"			✓

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: 02/10/09	Author: Navaporn Muanyma
Beam Energy: 1.232 GeV	Using Pol <sup>3</sup> He cell: <input checked="" type="checkbox"/> N, <input checked="" type="checkbox"/> Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 1.21 angle: 16	polarity: "+" or "-" ? Sieve slit: IN or <input checked="" type="checkbox"/> OUT ?
	BigBite current (A): 206 angle: never moved. Sieve slit: IN or <input checked="" type="checkbox"/> OUT ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
1220	3:27	3:43	pol. <sup>3</sup> He	4	1M	6%	9E3/3E2 10/6	✓
1221	3:44	3:59		4	1M	6.4%		✓
1222	4:00						not good beam.	✓
1223	4:45			4.	1M.	6%	9E3/3E2 10/6 (bb trip)	✓
1224	5:01	5:16	"	4	"	6%	"—————"	✓
1225	5:17	5:31	"	"	"	6%	"—————"	✓
1227	5:46		"	"	"	6%	"—————"	✓

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More comments:

## E06-014 LEFT HRS Run Sheet

Date: <u>02/10/09</u>	Author: <u>Navaphon Muangma.</u>
Beam Energy: <u>1232</u> GeV	Using Pol <sup>3</sup> He cell: Y/N, <u>Longitudinal</u> or Transverse ?
Left HRS momentum (GeV/c): <u>1.0</u> angle: <u>16°</u>	polarity: "+" or "-" ? Sieve slit: IN or <u>OUT</u> ? BigBite current (A): <u>706</u> angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu A$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
1229	6:14	6:30	<sup>3</sup> He	4	1 M	6%	T3/T4: 5.1E3/2.7E2 PS3/PS4: 5/3 (change momentum)	/
1230	6:34		"	"	1 M	6%	" "	/

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 More comments:

# E06-014 ~~BIGBITE~~ Run Sheet

Date: 2/10/2009	Author: X. Zheng
Beam Energy: 1.232 $\frac{1}{2}$ OUT GeV	Using Pol $^3$ He cell: Y/N, <u>Longitudinal</u> or Transverse ?
Left HRS momentum (GeV/c): 0.870 angle: 46.2	polarity: (+) or "-" ? BigBite current (A): 710 angle: never moved. 45° Sieve slit: IN or <u>OUT</u> ?

DAQ mode: TWOARM\_FBADC.

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments T1-T8 PSI-8 (T1/T2/T6 rate, PSI/PS2/PS6... etc)	replay OK ?
1244	10:56	11:03	BeO/optics	2	92K	2	2.91E5/1.02E5/3.15E5, 65535/65535 T1 T2 T6 (1/65535/65535) - raster too SW	
1245	11:04	11:11	BeO/optics	2	91K	2	2.9E5/1.01E5/220/19/20/3.1E5/4.3E6/1K T1 T8 raster 2x2	
1246	11:24	11:26	BeO/optics	5	76K	-2(?)	4.27K/700/514/43/8.9/960/4.9E6 PS: 12/2/10/65535/1/2/65535/100/1K raster off	
1247	11:27	11:42	BeO/opt	5	774K	4	rates same PS6=1 (changed from 2)	raster off
1248	11:46	11:47	BeO/opt	5	66K	high?	PS2=1 now PS: 10/1/10/65535/1/1/65535/100	raster ON
1249	11:48	12:00	BeO/opt	5	705K	<0	PS: 10/1/10/65k/1/2/65k/100	"
1250	12:05	12/19	BeO/opt	1	686K	<0	2/1/1/65k/1/1/65k/100	raster off BB magnet off
							<del>17/13/19/8.5/8.4/115</del> rates: 1.4K/154/130/15/7.9/347/3.7E6/1K	
1251	12:39	13:24	ref H2 psi	15	2M	<0	PS=1/1/1/65k/1/1/65k/100 1.9K/280/280/63/21/340/4.5E6/1024	raster ON 4x BB magnet ON
1252	13:25	13:50	ref H2 same	15	530K	<0	same PS 1.9K/260/270/60/24/310/4.5M/1K	no beam last 10min.

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

Controlled Access

# E06-014 ~~LHRS~~ Run Sheet

Date: 2/10/2009	Author: X. Zheng
Beam Energy: 1.232 GeV <i>X/2 OUT</i>	Using Pol <sup>3</sup> He cell: Y/N, <u>Longitudinal</u> or Transverse ?
Left HRS momentum (GeV/c): 0.870 angle: 46.2	BigBite current (A): 710 angle: never moved. 45°
polarity: <u>(+)</u> or "-" ? Sieve slit: IN or <u>OUT</u> ?	Sieve slit: <u>my</u> IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments T1-8 PSI-8 (T3/T4 rate, PS3/PS4... etc)	replay OK ? <small>Chamber</small>	repla ↓
1253	14:23	14:24	BeO/optics	5	100k		PS: 50/10/2/65k/1/10/65k/100 17k/3.6k/520/35/15/4.5k/4.9M/k	BBHV not right	
1254	14:26	14:34	same	5	501k	16%	same		
1255	14:43	14:51	same	6	492k	17%	PS: 50/10/4/65k/1/10/65k/100	set BB HV.	
1256	15:00	15:06	same	7	420k	20%	PS: 40/10/4/65k/1/10/65k/100 <del>17k</del> 2.6k/5.5k/725/30/2/6.6k/4.7M/1kHz		
1257	15:11	15:15	same	4	280k		PS: 20/10/4/65k/1/5/65k/100 15k/3k/430/30/15/3.8k/4.9M/k		
1258	15:24	15:41	ref H <sub>2</sub> (110)	15	1M	14%	PS: 40/2/4/65k/1/2/65k/100 6.7k/1.2k/270/64/74/1.4k/4.5M/1.2k		
1259	15:41	16:13	ref H <sub>2</sub> (110)	15	254k	14%			

TWO ARM - FBADG  
TWO ARM - FB ↓

repla ↓  
✓  
✓  
✓  
✓  
✓

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

BB Cer TDC (PL)  
no peak in some channels.

## E06-014 LEFT HRS Run Sheet

Date: <u>2/10/2009</u>	Author: <u>O. Glamazhin</u>
Beam Energy: <u>1232</u> GeV <u>X/2 OUT</u>	Using Pol <sup>3</sup> He cell: Y/N/ <u>Longitudinal</u> or Transverse ?
Left HRS momentum (GeV/c): <u>0.870</u> angle: <u>46.22</u> polarity: "+" or "-" ? Sieve slit: IN or <u>OUT</u> ?	BigBite current (A): angle: never moved. Sieve slit: <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
<del>1259</del>				14.9				
1260	16:29	16:47	Ref H <sub>2</sub>	<del>14.9</del>	1 M	13%		✓
1261	16:48	17:08	Ref H <sub>2</sub>	14.9	1 M	14		✓
1262	17:09	17:26	Ref H <sub>2</sub>	15.0	1 M	13%		✓
1268	20:57	21:05	C					
1269	21:05	21:16	C					
1270	21:30	21:53	Ref H <sub>2</sub>	15	1 M	10	PS1=Y PS2/3/5/6=1 PS8=100	
1271	21:54	22:15	Ref H <sub>2</sub>	15	1 M	10		✓
1272	22:16	22:45	Ref H <sub>2</sub>	15	1 M	11		✓
1273	22:46	22:57	Ref H <sub>2</sub>	15	430k	11		✓
1274	23:09	01:11	empty			-7	BCM calibration PS1/2/3/4/5/6/7=00 PS8=10	

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## E06-014 LEFT HRS Run Sheet

Date: 2/11/2009	Author: Navaphon Muangma
Beam Energy: 1232 GeV <small>K/2 out</small>	Using Pol <sup>3</sup> He cell: Y/N, <u>Longitudinal</u> or Transverse ?
Left HRS momentum (GeV/c): 0.870 angle: 46.22°	polarity: "+" or "-" ? BigBite current (A): angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
			<del>empty</del>				<del>BCM calibration</del> <del>PS1/2/3/4/5/6/7/8/9/10</del> , PS8=10	
							test run 1276, 1278-1280	
1281	2:01		ret. H <sub>2</sub>	15		11%	BB optic	
							Note: run 1281-1294 are for BB. optics.	

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

## E06-014 LEFT HRS Run Sheet

Date: Feb 12. owl	Author: Yawei Zhang
Beam Energy: 5.8 GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or <u>Transverse?</u>
Left HRS momentum (GeV/c): angle: 45	polarity: "+" or "-" ? Sieve slit: IN or <u>OUT?</u>
	BigBite current (A): 710 angle: never moved. Sieve slit: IN or <u>OUT?</u>

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20139	03:00	03:10	BeD	2	209K	7	spot++ check <del>2x2.6 Mcc</del>	2x2.6 Mcc
20140	03:17	03:24	3He	2	37K	3	spot++ check <del>4x5.2 Mcc</del>	2x2.6 Mcc
20141	03:25	03:29	"	"	17K	"	spot++ check 4x5.2 Mcc	
20142	03:31		"	"		"	————— 6x7 Mcc	
20143			JUNK					
20144	04:01	05:38	3He	14	23M	9.	production T1~3K T3~180	✓
20145	05:39	07:17	3He	14	2M	9	— — — — —	✓
20146	07:37	08:46	"	15	<del>2M</del> 1.5M	10	T1~34K T3~520	✓

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

## E06-014 LEFT HRS Run Sheet

Date: 2/12/09	Author: Ge Jin
Beam Energy: 25.9 GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or Transverse ? Trans $^3\text{He}$
Left HRS momentum (GeV/c): 0.6 angle: 45	polarity: "+" or "-" ? Sieve slit: IN or OUT ?
	BigBite current (A): angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20148			Optics				check spot ++	
20150			$^3\text{He}$	2	53814		<del>area</del> raster 2x2	✓
20151	20:08	20:16	$^3\text{He}$	2	50447	3	raster 4x4	✓
20152	20:19	20:27	$^3\text{He}$	2	50489	2	6x6	✓
20153	20:38	20:47	$^3\text{He}$	2	58410		4x4	
20154	21:16	<del>21:24</del>	$^3\text{He}$	15	2M	10	production	✓
20155	22:55	<del>22:28</del> 23:46	$^3\text{He}$	15	1.4M	10		✓
20156	23:40	1:00	$^3\text{He}$	15				✓
20157	01:02			5				
20158	01:34		$^3\text{He}$	1				✓
20159	2:09	3:23	$^3\text{He}$	15	2.10 <sup>6</sup>	10	Production	✓
20160	3:24	4:33	$^3\text{He}$	15	2.10 <sup>6</sup>	10		✓

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

## E06-014 LEFT HRS Run Sheet

Date: 2/13/2009	Author: V. Nelyubin
Beam Energy: 5.891 GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or Transverse ? Trans. 55%
Left HRS momentum (GeV/c): 0.6 angle: $45^\circ$	polarity: "+" or "-" ? Sieve slit: IN or <u>OUT</u> ? BigBite current (A): 706 A angle: never moved. $45^\circ$ Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20161	4:39	5:51	$^3\text{He}$	15	$2 \cdot 10^6$	11	production	✓
20162	5:54		$^3\text{He}$				no data   unlc rebooting	
20164	6:10	7:26	$^3\text{He}$	15	$2 \cdot 10^6$	11	production	✓
20165	7:27	8:45	$^3\text{He}$	15	2M	10	production	✓
20166	8:50	10:12	$^3\text{He}$	15	2M	11	production	✓
20167	10:13	10:31	$^3\text{He}$	15	0.49	10	production   stopped for NMR	✓
20168	10:33	11:46	$^3\text{He}$	15	2.00	10	production	✓
20169	11:48	13:02	$^3\text{He}$	15	2.00	11	production	✓
20170	13:03	14:17	$^3\text{He}$	15	2.0	11	production	✓
20171	14:18	15:30	$^3\text{He}$	15	2.0	11	production	✓
20172	15:30	16:42	$^3\text{He}$	15	2.0	11	production	✓
20173	16:43	17:57	$^3\text{He}$	15	2M	10	production	✓

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

## E06-014 LEFT HRS Run Sheet

Date: Feb. 13, 2009	Author: C. chen
Beam Energy: 5.891 GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or Transverse? <u>55%</u>
Left HRS momentum (GeV/c): 0.6 angle: $45^\circ$	BigBite current (A): 706A Sieve slit: IN or <u>OUT</u> ? angle: never moved. $45^\circ$ Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK?
20174	17:58	18:17	$^3\text{He}$	15	508121	11	production (sweep NMR)	✓
20175	21:22	21:26	optics	2	50K	5	Beam position check (spot++)	✓
20176	21:30		$^3\text{He}$	2		2	T3=72, T4=14 trigger rates check	spot++
20177	21:45	21:50	$^3\text{He}$	2	23K	5	T3=72, T4=14, raster limit	spot++
20178	<del>21:51</del>	<del>21:51</del>	$^3\text{He}$	2	44805	4	raster 4.0x5.2 (raster check)	spot++
20179	21:51	21:54	$^3\text{He}$	2	15		raster 4.0x5.2	
20180	21:55	22:46	$^3\text{He}$	15	107758	9	production (ask access)	controlled ✓
20181	23:07	23:11	optics	2	50K	6	Beam position check	
20182	23:15	23:17	$^3\text{He}$	2	8975	5	raster 2x2 rates check	T3=17 T4=105
20183	23:24	0:59	$^3\text{He}$	15		8	production	✓

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

## E06-014 LEFT HRS Run Sheet

Date: 02/14/2009	Author: Navaphon Muangma.
Beam Energy: 5.891 GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or <u>Transverse</u> ? 55%
Left HRS momentum (GeV/c): 0.6 angle: 45°	BigBite current (A): 706 angle: never moved. 45°
polarity: "+" or <u>-</u> ? Sieve slit: IN or <u>OUT</u> ?	Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK?
20184	0:59	2:34	$^3\text{He}$	15	2M.	9%	production	✓
20185	2:40	3:40	"	"	"	8%	production.	✓
20186	3:40	4:35	"	"	4.2 M	8%	—	✓
20187	4:56	6:31	"	"	2 M.	8%	—	✓
20188	6:31	7:29	"	"	1.1 M	8%	—	✓
20189	7:31	7:40	"	"	158 K	9%	TEST during spm flip.	✓
20190	7:40	09:17	"	"		9%	production, spm flipped	✓
20191	09:17	10:35	"	"	<del>1.6</del> M	7%	production spin flipped	✓
20192	10:36	11:14	"	"	749 K	8%	production <del>sp</del>	✓
20193	11:16	12:20	"	"		5%	production	✓
20194	12:24		"	"			production	✓
20195	13:50	15:20	"	"	322 K	2%	"	✓

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



## E06-014 LEFT HRS Run Sheet

<b>Date:</b> 02/16/2009.	<b>Author:</b> Navaphon Muangma.
<b>Beam Energy:</b> GeV	<b>Using Pol <sup>3</sup>He cell:</b> Y/N, Longitudinal or Transverse ?
<b>Left HRS</b> momentum (GeV/c): 1.7 → 1.6 angle: polarity: "+" or "-" ? Sieve slit: IN or OUT ?	<b>BigBite</b> current (A): angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20210	0:26	0:34	MultiCarbon	2	18K	1.	router spot check, 2x2 raster.	—
20211	0:40	0:44	—	"	8K	1	—	—
20212	0:50		—	"			T1/T2/T3/T4/T5/T6/T7/T8 P3/P4/P8 3K/4K/14/10/2/1:3E5/1K 1/1/100.	
20213	0:58		—	"	11K		3K/9K/13/12/8/1:3E5/1K — 6x6 raster	
20214	1:04	1:08	—	"	8K	0:3	3K/300/13/3/3/3K/1K — 4x4 raster	
20215	1:12	03:34	polatin <sup>3</sup> He	15	0.5M	2.9%	production T3/T4 = 22/25 P3/P4 = 1/1.	✓
20216	03:38	5:48	"	"	441555	1.9%	production.	✓
20217	5:52	8:15	"	"	.5M	2%	— change momentum to 1.6 GeV.	✓

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



## E06-014 LEFT HRS Run Sheet

Date: 02/16/09	Author: GOLGE / DAY
Beam Energy: _____ GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): _____ angle: _____	polarity: "+" or "-" ? Sieve slit: IN or OUT ? BigBite current (A): _____ angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam ( $\mu$ A)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20218	8:14	9:20	3He	15	0.23M	6	Stop upon request from MCC	✓
20219	9:35	11:33	"	"	0.4M	2		✓
20220	11:46	11:59	A	1	27K	1	1 $\mu$ A beam P=1.6 GeV/c	✓
20221	12:02	14:24	"	15	0.5M	1	15 $\mu$ A beam	✓
20222	14:25	16:34	"	"	0.47M	1	"	✓
20223	16:42	17:40	"	"	0.21M	1	"	✓
20224	17:49	20:00	"	"	0.5M	1	target spin transverse -	✓
20225	20:02	21:42	"	"	0.38M	1	"	✓
20226	21:54	22:34	"	"	0.18M	1	"	

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

## E06-014 LEFT HRS Run Sheet

Date: 02/17/2009.	Author: Navaphon Muangma.
Beam Energy: 5.891 GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 1.6 angle: $45^\circ$	polarity: "+" or "-" ? Sieve slit: IN or <u>OUT</u> ?
	BigBite current (A): angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20227	16:15	16:46				0	BCM Calibration	
20228	16:53	17:00					"	
20229							coda failed	
20231	17:42	17:57					Beo optics run.	
20232	17:57	18:05					raster 6x6.	
20233	18:06	18:13					raster 5.5x6.0	
20235	19:16	19:25					check raster 1.5x2.0.	
20236	19:44	20:20	Ref Collim.	15	149K	1%	N. 10 psig; -12 psig offset; 22 psig actual	
20237	20:37	21:12	$^3\text{He}$	15	137K	1%	production	
20238	23:10	23:15	Optics	20	12K	1%	Optics test	
20239	23:21	03:04	$^3\text{He}$	15	807K	1%	production	
20240	3:19	06:15	$^3\text{He}$	15	793K	1%	"	

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



## E06-014 LEFT HRS Run Sheet

Date: 02/18/09	Author: GOLGE / DAY
Beam Energy: _____ GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): _____ angle: _____	polarity: "+" or "-" ? Sieve slit: IN or OUT ?
	BigBite current (A): _____ angle: never moved. Sieve slit: IN or OUT ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead % time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20243	8:42	9:18	<sup>3</sup> He	15	130K	2		X
20244	9:20	11:03	"	"	14M	1	halfway plate changed (N)	X
20245	11:14	12:58	"	"	.4M	1		X
20246	13:02	13:38	"	"	136K	1		✓

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

## E06-014 LEFT HRS Run Sheet

Date: 02/18/09	Author: Bo Zhao
Beam Energy: 5.9 GeV	Using Pol <sup>3</sup> He cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): 1.42 angle: 45°	polarity: "+" or "-" ? Sieve slit: IN or OUT ? BigBite current (A): 7/0 angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam (μA)	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)			replay OK ?
20247	16:47	16:56	BeO	2	25K	2	30/18	1/1		test run
20248	17:09		H <sub>2</sub>	2		1	16/12	1/1		test run
20251	17:47	18:20	H <sub>2</sub>	15	120 K	1	24/30	1/1	reference cell	✓
20252	18:45	19:15	H <sub>2</sub>	15	400 K	5	22/27	1/1	:	✓
20253	19:22	19:44	H <sub>2</sub>	15	400 K	7	78/30	1/1	:	✓
20254	19:44	19:54	H <sub>2</sub>	15	180 K	7	300/30	1/1	:	✓
20255	20:43	21:14	N <sub>2</sub>	5	153 K	2	52/24	1/1	:	✓
20256	21:07	21:40	N <sub>2</sub>	05	400 K	11	50/22	1/1	:	✓
20257	21:40	21:53	N <sub>2</sub>	05	400 K	11	560/23	1/1	:	✓
20258	21:44	22:00	N <sub>2</sub>	05	178 K	11	600/23	1/1	:	✓
20259	22:05	22:16	N <sub>2</sub>	5	400 K	11	750/22	1/1	:	✓
20260	22:16	22:26	H <sub>2</sub>	5	400 K	13	780/20	1/1	:	✓

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

## E06-014 LEFT HRS Run Sheet

Date: 02/18/09	Author: Bo. Zhao
Beam Energy: 5.9 GeV	Using Pol $^3\text{He}$ cell: Y/N, Longitudinal or Transverse ?
Left HRS momentum (GeV/c): angle: $45^\circ$	polarity: "+" or "-" ? Sieve slit: IN or OUT ? BigBite current (A): 710 angle: never moved. Sieve slit: IN or <u>OUT</u> ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20261	22:27	22:35	N <sub>2</sub>	5	390K	14	790/21 1/1	✓
20263	23:28	01:03	$^3\text{He}$	15	400K	1	35/30 1/1	✓
20264	01:04	02:37	$^3\text{He}$	15	373K	1	" No beam at end	✓
20265	02:53	04:26	"	"	400K	1	"	✓
20266	4:28	6:03	N	N	400K	1	~	✓
20267	6:03	6:38	N	N	127K	1	~	✓
20268	6:39	8:12	N	N	400K	1	~	✓
20269	8:13	10:07	N	N	500K	1	~	✓
20270	10:08	10:51	"	"	180K	2	ended run early to do NMR sweep of Target. 63.3%	✓
20271	10:52	12:40	"	"	500K	1		✓
20272	12:40	14:29	"	"	500K	2		✓
20273	14:30	15:08	"	"	175K	2	ended run early for NMR sweep 62.4%	✓

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

## E06-014 LEFT HRS Run Sheet

Date: 2/19/2009	Author: D. McNulty
Beam Energy: 5.892 GeV	Using Pol $^3\text{He}$ cell: <input checked="" type="radio"/> N, Longitudinal or <input type="radio"/> Transverse?
Left HRS momentum (GeV/c): 1.42 angle: $45^\circ$	polarity: "+" or <input checked="" type="radio"/> - ? Sieve slit: IN or <input checked="" type="radio"/> OUT?
	BigBite current (A): 710 angle: never moved. Sieve slit: IN or <input checked="" type="radio"/> OUT?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20274	15:16	17:06	$^3\text{He}$	15	5M	1		✓
20275	17:07	19:01	"	15	5M	2		✓
20276	19:02	20:02	"	15	2.8M	1	stop for target moving	✓
20278	23:17		Empty				Junk	
20279	23:24	23:34	Optics	15	47K	2	test run	
20280							-cooler dead	
? 20281	23:55		$^3\text{He}$	15		2	Junk No beam?	
→ Strange,			20281 became reused (at shift change; maybe confusion)					
20281	0:08		$^3\text{He}$	15		0		✓
20282	0:53	3:10	$^3\text{He}$	10		1		✓
20283	3:10	4:12	$^3\text{He}$	10		4	Stop to do NMR.	✓
20284	4:16	6:32	$^3\text{He}$	10	5M	2		✓

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

## E06-014 LEFT HRS Run Sheet

Date: 2/20/2009	Author: A. Michaels / flay
Beam Energy: 5.892 GeV	Using Pol $^3\text{He}$ cell: <input checked="" type="checkbox"/> N, Longitudinal or <input checked="" type="checkbox"/> Transverse?
Left HRS momentum (GeV/c): 1.42 angle: 45	polarity: "+" or "-" ? Sieve slit: IN or <input checked="" type="checkbox"/> OUT?
	BigBite current (A): 710 angle: never moved. Sieve slit: IN or <input checked="" type="checkbox"/> OUT?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20285	6:32	8:46	$^3\text{He}$	10	5M	1	29 28 1 1	✓
20286	8:55	9:33	$\text{N}_2$	5	2.44M	2	65 23 1 1	✓
20287	9:42	10:00	$^3\text{He}$	10	89173	1	40 24 1 1	✓
20288	10:05	12:06	$^3\text{He}$	10	5M	2	25 21 1 1	✓
20289	12:07	13:25	$^3\text{He}$	10	3.2M	2	39 24 1 1	✓
20290	13:25	14:27					Trot run	
20291	14:55	16:32	$^3\text{He}$	15	5M	2	<del>20 20</del>	✓
20292	16:		$^3\text{He}$	15			JUNK	
20293			$^3\text{He}$	15				
20294	16:43		$^3\text{He}$	15	200k	3	beam trip towards end.	✓
20295							junk	
20296							junk	

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



## E06-014 LEFT HRS Run Sheet

Date: <u>2/20</u>	Author: <u>David Flay</u>
Beam Energy: _____ GeV	Using Pol $^3\text{He}$ cell: <input checked="" type="checkbox"/> N, <input type="checkbox"/> Longitudinal or <input checked="" type="checkbox"/> Transverse ?
Left HRS momentum (GeV/c): <u>1.27</u> angle: <u>45</u>	BigBite current (A): _____ Sieve slit: IN or OUT ?
polarity: "+" or "-" ? _____ Sieve slit: IN or OUT ? _____	angle: never moved. Sieve slit: IN or <input checked="" type="checkbox"/> OUT ?

Run Number	start time	stop time	target	beam ( $\mu\text{A}$ )	# of events	dead time	comments (T3/T4 rate, PS3/PS4... etc)	replay OK ?
20286			$^3\text{He}$				junk	
20287	18:09	19:04	$^3\text{He}$	15	300k	3		✓
							Change Spin Polarization	
20288	19:10	19:30	$^3\text{He}$	15				✓
20299	19:32	21:05	$^3\text{He}$	15				✓
20300	21:05	22:47	$^3\text{He}$	15				✓
20301	21:47	23:50	$^3\text{He}$	15	300k			✓
<del>20302</del>	<del>18:50</del>	<del>20:00</del>	<del><math>^3\text{He}</math></del>	<del>15</del>	<del>500k</del>	<del>1</del>		
20302	00:05	1:30	$^3\text{He}$	15	42k	1		✓
20303	1:31	1:34	$^3\text{He}$	15	9k	1	Junk	
20304	1:40	2:24	$^3\text{He}$	15	<del>100k</del> 214k	1		✓
20305	2:40	4:18	$^3\text{He}$	15	500k	1		✓

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