

# NEWS

## 2006

| Date & Time            | Type                | Description of event                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 28/11/2006<br>18:07:28 | <i>general ...</i>  | Finish unloading of 6LiD target material. --Jaakko                                                                                                                                                                                                                                                                                                                               |
| 24/11/2006<br>16:39:01 | <i>general ...</i>  | Platform pressurized air lost 9:00 this morning. Slow discharge of magnet. Finish TE-calibration. --Jaakko                                                                                                                                                                                                                                                                       |
| 23/11/2006<br>08:17:57 | <i>general ...</i>  | TE-calibration at 1.0 K and 2.5 T started. --Jaakko                                                                                                                                                                                                                                                                                                                              |
| 22/11/2006<br>08:48:09 | <i>refrigerator</i> | Start condensing 4He. --Jaakko                                                                                                                                                                                                                                                                                                                                                   |
| 21/11/2006<br>18:10:34 | <i>refrigerator</i> | Removing 3He/4He mixture. --Jaakko                                                                                                                                                                                                                                                                                                                                               |
| 20/11/2006<br>19:00:46 | <i>general ...</i>  | Run ended today at 16h30. Back to 2.5 T , polarization measurements gave UPS -46.5% CENTRAL 53.3% DWNS -46.23. Successful run for the target. See report on polarization measurements accuracy at <a href="http://wwwcompass.cern.ch/compass/weekly/2006/plot_061117/TWC%20Report.pdf">http://wwwcompass.cern.ch/compass/weekly/2006/plot_061117/TWC%20Report.pdf</a> ___Jacques |
| 16/11/2006<br>13:46:14 | <i>polarization</i> | MD ended at 8 AM 16/11/06. Polarizations are : UP -46.7% CENTRAL +53.9% DOWN -46.4% ~~~Jacques                                                                                                                                                                                                                                                                                   |
| 14/11/2006<br>12:57:05 | <i>polarization</i> | MD started at noon. Mesurement of polarizations at 12:17 was performed upstream -46 % central cell 52.25 % downstream - 46.06 %. Start to repolarize. ~~~Jacques                                                                                                                                                                                                                 |
| 11/11/2006<br>08:19:58 | <i>magnet</i>       | For the period starting 10/11 to MD 14/11, the rotation of the field is scheduled during the night shifts around 3 AM, to balance equally the data in both directions, considering we are starting the last week of running time. ~~~ Jacques                                                                                                                                    |
| 11/11/2006<br>08:16:19 | <i>general ...</i>  | During the evening of November 4th, a glitch in the general power mains triggered a discharge of the solenoid, polarization was lost. Repolarization started at once and went on until then of the long MD. 9/11 @ 0:09' : up -45.77 % central +53.23 % down -46.53 % ~~~Jacques                                                                                                 |
| 02/11/2006<br>01:40:40 | <i>general ...</i>  | Stop polarization with -48.8 %, +54.5 % and -49.2 %. Magnet to 1.0 T with positive solenoid current. --Jaakko                                                                                                                                                                                                                                                                    |
| 26/10/2006<br>00:25:28 | <i>magnet</i>       | Go to frozen spin mode in 1.0 T field with positive solenoid current.                                                                                                                                                                                                                                                                                                            |
| 26/10/2006<br>00:24:09 | <i>polarization</i> | Polarization stopped 25 Oct at 11:30 PM. Upstream -49.2% (gain of 0.4%), Central +55.0% (gain of 0.7%), Downstream -49.2% (no gain, no loss). -- Fabrice                                                                                                                                                                                                                         |
| 24/10/2006<br>21:00:07 | <i>polarization</i> | Today at 9:00 field back at +2.5 T to restart polarization. Polarizations -48.8 %, +54.3 % and -49.2 %. In ~1 week we lost 0.4% (Upstream) 0.5% (central) and 0.6% (Downstream) by relaxation at 1T. Fabrice                                                                                                                                                                     |

| <b>Date &amp; Time</b>         | <b>Type</b>         | <b>Description of event</b>                                                                                                                                                                                                                                                    |
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| <b>18/10/2006<br/>15:16:29</b> | <i>polarization</i> | Go to frozen spin mode in 1.0 T field with positive solenoid current. Polarizations were -49.2 %, +54.7 % and -49.9 %. --Jaakko                                                                                                                                                |
| <b>17/10/2006<br/>09:07:59</b> | <i>general ...</i>  | Field back at 2.5 T with positive solenoid current. Polarizations -48.6 %, +54.5 % and -48.9 %. Starting to polarize. --Jaakko, Shigeru and Yuri                                                                                                                               |
| <b>16/10/2006<br/>08:06:50</b> | <i>polarization</i> | Frozen spin mode at 1.0 T since last Friday October 13. Now coild #4 +55.0 % polarization. --Jaakko                                                                                                                                                                            |
| <b>11/10/2006<br/>09:43:31</b> | <i>general ...</i>  | Separate helium gas return from evaporator pumps and magnet. Pump back pressure drops from 1065 mbar to 1016 mbar. The gas from the magnet is returned to the liquefier as "pure" gas. It has 16 ppm oxygen impurity now. --Jaakko et al                                       |
| <b>09/10/2006<br/>11:25:30</b> | <i>general ...</i>  | Measure 35 ppm oxygen impurity in 4He gas returning to the liquefier with Teledyne 3000T. The oxygen impurity was 80 ppm at the evaporator pumps outlet with flow though the pumps 140 mmol/s. --Jaakko, Norihiro, Reiner and Stephano                                         |
| <b>05/10/2006<br/>11:24:09</b> | <i>refrigerator</i> | Air conditioner drive belt changed. Restart. --Jaakko                                                                                                                                                                                                                          |
| <b>05/10/2006<br/>10:58:33</b> | <i>general ...</i>  | The air conditioner in the pumping room had broken down last night 22:00. The door was kept open during the night. TCR was called. The air conditioning drive belt was cut. Now looking for a spare. Temporarily using air blowers for air circulation. --Kaori + Jaakko et al |
| <b>05/10/2006<br/>08:38:59</b> | <i>general ...</i>  | Go to frozen mode from 2.5 T to 1.0 T. Polarizations : -47.72 %, 54.89 %, -48.74 %. ---Kaori                                                                                                                                                                                   |
| <b>04/10/2006<br/>08:33:41</b> | <i>general ...</i>  | Start repolarizing. ---Kaori                                                                                                                                                                                                                                                   |
| <b>02/10/2006<br/>11:07:02</b> | <i>general ...</i>  | Go to frozen mode from 2.5 T to 1.0 T at the polarizations -47.08%, 54.78%, -47.02%. ---Kaori                                                                                                                                                                                  |
| <b>27/09/2006<br/>14:13:30</b> | <i>general ...</i>  | 14:10 Start polarizing.                                                                                                                                                                                                                                                        |
| <b>26/09/2006<br/>20:29:33</b> | <i>magnet</i>       | Magnet was filled with LHe. "rescue" procedure was installed to the magnet slow control system to avoid quench in case of slow control stuck. Magnet is ready to start polarizing. ---Kaori                                                                                    |
| <b>26/09/2006<br/>19:43:51</b> | <i>refrigerator</i> | 4He removed from mixing chamber. Now starting to condense 3He/4He mixture. --Jaakko                                                                                                                                                                                            |
| <b>25/09/2006<br/>17:23:30</b> | <i>general ...</i>  | Magnetic field lost at 16:25. TE-calibration at 1.0 K finished. Now removing 4He. --Jaakko                                                                                                                                                                                     |
| <b>24/09/2006<br/>17:35:24</b> | <i>general ...</i>  | ~16:15 pump #13 repaired. 17:30 restart TE calib. @ 1 K                                                                                                                                                                                                                        |
| <b>24/09/2006<br/>15:14:34</b> | <i>refrigerator</i> | 14:25 Pump #13 stopped again. Sometimes the fan seems not working, which caused the temperature of the motor went up to 60 degrees. TE calibration @ 1K terminated to change the fan of the pump #13. ---Kaori                                                                 |
| <b>24/09/2006<br/>08:15:44</b> | <i>general ...</i>  | ~3:30 Pump #13 stopped and cannot be started. Temperature went up to 2 K ~8:00 Pump #13 restarted by reseting relay in the interlock circuit. ---Kaori                                                                                                                         |

| <b>Date &amp; Time</b>         | <b>Type</b>         | <b>Description of event</b>                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <b>24/09/2006<br/>00:05:22</b> | <i>general ...</i>  | Start pump #4 & #1. TE calibration @ 1 K ---Kaori                                                                                                                                                                                                                                                                                                                                                                                |
| <b>22/09/2006<br/>17:47:21</b> | <i>general ...</i>  | TE calibration starts at 17:45 @ 1.6 (?) K after Yuri's EPR measurement test with zero polarization. ---Kaori                                                                                                                                                                                                                                                                                                                    |
| <b>21/09/2006<br/>22:02:50</b> | <i>refrigerator</i> | Dilution cryostat filled with 4He. Now at 1.05 K. --Jaakko                                                                                                                                                                                                                                                                                                                                                                       |
| <b>20/09/2006<br/>19:17:09</b> | <i>general ...</i>  | Magnetic field and polarization lost today 14:30. Now removing 3He/4He mixture. --Jaakko                                                                                                                                                                                                                                                                                                                                         |
| <b>15/09/2006<br/>12:33:38</b> | <i>polarization</i> | On 13/09/06 at 8:00 : end of frozen mode @ 1T (since 05/09). All field rotations during data taking time worked very fine. Polarization loss in Delta P = 107.6 of 1.3 to 106.3 (1.2% relative). Top up of polarization at -2.5T for 20 hours during MD. Polarization gain in Delta P of 0.96 (0.9% relative). Begin of frozen mode @ 1T on 14/09/06 at 17 H with UP: 53.1, MID: -52.7, DWN: 56.0 (delta P = 107.25).-----Günter |
| <b>22/08/2006<br/>14:54:10</b> | <i>polarization</i> | Target in frozen mode @ 1T since 19.08 midnight, when microwaves were stopped at Up=+53%, Middle=-51% and Down=56% Polarization. Field rotations worked fine. Measurements on coil #4 (Middle cell) return approx. -49.8% Polarization now.                                                                                                                                                                                      |
| <b>10/08/2006<br/>10:38:35</b> | <i>polarization</i> | 9:00 Polarization restarted; upstream (+), central (-), downstream (+)                                                                                                                                                                                                                                                                                                                                                           |
| <b>10/08/2006<br/>10:34:29</b> | <i>magnet</i>       | 8th of August: After all the script modifications, a serie of ramp up and down + field rotations was done. A quench ocured in the rotation from 2.5T to -2.5T (19:40) due to another kind of DCCT misreading. Script corrected. Liquid helium level in the magnet cryostat went to 42%. Refilling cryostat during the night.                                                                                                     |
| <b>10/08/2006<br/>10:29:21</b> | <i>magnet</i>       | 8th of August: magnet slow control modified to get rid of solenoid DCCT misreadings. Script to go from 1T to 2.5T also corrected to close relay RL12 during the procedure. Not implemented before and giving a slope of current <1A/s that could produce a quench under certain conditions.                                                                                                                                      |
| <b>10/08/2006<br/>10:18:16</b> | <i>magnet</i>       | 7th of August. Quench at ~19:00 during homogeneity improvement. Polarization lost. Liquid Helium level at 55%. Keep the night to refill magnet cryostat.                                                                                                                                                                                                                                                                         |
| <b>01/08/2006<br/>15:35:19</b> | <i>polarization</i> | 13:00 Start polarizing.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>31/07/2006<br/>23:25:47</b> | <i>general ...</i>  | 8:40 start 3He condensation in the mixing chamber. 21:44 first raming magnet up after the power cut. 23:00 3He condensation completed.                                                                                                                                                                                                                                                                                           |
| <b>30/07/2006<br/>18:22:54</b> | <i>refrigerator</i> | 6:00 Start cooling down the system by increasing LHe input after the buffer dewar was recovered. 14:00 Start filling Evaporator. 18:30 3He condensation will start very soon. ----Kaori                                                                                                                                                                                                                                          |
| <b>29/07/2006<br/>18:27:56</b> | <i>power</i>        | ~7:45 POWER CUT. 3He pumps and diffusion pump stopped. ~9:00 3He pumps restarted. ~9:45 POWER BACK. 10:15 3He pumps stopped except 2 pumps due to the lack of cooling water flow and compressed air. ~16:40 cooling water and compressed air came back. Diffusion pump restarted. LHe level in the buffer dewar is low. We are waiting the liquidfier come back to the normal operation.-----Kaori                               |

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| <b>28/07/2006<br/>10:27:19</b> | <i>magnet</i>       | Ignoring baseline taking caused quench this morning at 09:00. Now refilling the magnet. --Jaakko                                                                                                                                                                                                                                      |
| <b>27/07/2006<br/>08:21:50</b> | <i>magnet</i>       | Magnet ramped to 0 T last night 2:50 due to LHe filling problem. --Jaakko                                                                                                                                                                                                                                                             |
| <b>26/07/2006<br/>11:38:20</b> | <i>microwave</i>    | Restart polarizing 10:53. --Jaakko                                                                                                                                                                                                                                                                                                    |
| <b>26/07/2006<br/>10:39:38</b> | <i>general ...</i>  | Back to 2.5 T with +36 % up, -36 % middle and +41 % down polarizations. Field rotation DCCT +261 A -> -261 A was done at 02:05 last night and DCCT -261 A -> +261 A this morning at 10:07. --Jaakko                                                                                                                                   |
| <b>25/07/2006<br/>19:19:28</b> | <i>magnet</i>       | Now at 1.0 T in frozen spin mode. Coil #4 shows approximate polarization of -35 %. Mixing chamber at 0.07 - 0.08 K (TTH5 and TTH4). --Jaakko                                                                                                                                                                                          |
| <b>25/07/2006<br/>11:17:11</b> | <i>polarization</i> | +34 % up cell, -35 % middle cell and +38 % down cell deuteron polarization reached in 24 hours. --Jaakko                                                                                                                                                                                                                              |
| <b>24/07/2006<br/>12:16:18</b> | <i>general ...</i>  | Mixing chamber at 60 - 80 mK this morning after reducing amount of 3He. Further optimization possible in frozen spin mode. Started to polarize at 10:20. Now +14 %, -16 % and +13 % polarizations in up, middle and down cells. --Jaakko                                                                                              |
| <b>21/07/2006<br/>21:03:48</b> | <i>polarization</i> | LiD polarized to +23 % upstream, -21% middle and +24% downstream in 2.5 hours. Ramp down the magnet. --Jaakko                                                                                                                                                                                                                         |
| <b>20/07/2006<br/>22:07:04</b> | <i>general ...</i>  | The air conditioner of the pump room stopped around 11h30 and recovered around 14h. Oxygen deficiency detector in the pump room gave alarm showing 8% oxygen level around 19h30. In fact it was nominal oxygen level of 21% measured by another detector, so the detector will be changed. --Nori                                     |
| <b>20/07/2006<br/>13:04:29</b> | <i>refrigerator</i> | 19th of July, The root pump for 4He line was fixed. --Nori                                                                                                                                                                                                                                                                            |
| <b>16/07/2006<br/>23:51:26</b> | <i>general ...</i>  | 15th of July, 9h10, stopped TE calibration data taking at 1.4K and collected data of 1.5K by 22h35 today. start removeing 4He.                                                                                                                                                                                                        |
| <b>13/07/2006<br/>11:12:34</b> | <i>general ...</i>  | 35 hours of TE-calibration data collected at 1.10 K by 8:30 this morning. Switch off magnet for trim coil PSU mains power intervention. Go to next calibration temperature, about 1.35 K. --Jaakko                                                                                                                                    |
| <b>10/07/2006<br/>10:54:09</b> | <i>refrigerator</i> | Roots blowers stopped about 5:15 this morning. Replace broken contactor K23.2 and restart circulating 4He. --Jaakko                                                                                                                                                                                                                   |
| <b>06/07/2006<br/>16:34:54</b> | <i>refrigerator</i> | Dilution cryostat filled with 4He. Temperature about 1.12 K in mixing chamber. --Jaakko                                                                                                                                                                                                                                               |
| <b>30/06/2006<br/>16:22:11</b> | <i>refrigerator</i> | Now removing Helium-4. --Jaakko                                                                                                                                                                                                                                                                                                       |
| <b>30/06/2006<br/>14:55:23</b> | <i>polarization</i> | First attempt to polarize 6LiD was successful at noon. The three cells show a very clean signal, - polarization for upstream and downstream cells and + polarization for the central cell. This was done without 3He, T = 1.1 K. No TE available for the moment but this preliminary result looks very promising. Fabrice and Jacques |
| <b>27/06/2006<br/>17:47:15</b> | <i>refrigerator</i> | Temperatures: mixing chamber 115 K, evaporator 66 K and cavity 51 K. --Jaakko                                                                                                                                                                                                                                                         |

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| <b>27/06/2006<br/>17:44:28</b> | <i>general ...</i>  | Load 6LiD to three target cells. NMR coils, thermometers and heaters ok. Target holder isolation vacuum ok and cold indium joint looks fine. Pumping out air and helium mixture now. --Jaakko                                                                                                                                                |
| <b>24/06/2006<br/>20:04:48</b> | <i>general ...</i>  | Start precooling dilution cryostat with LHe. Magnet at 92 K. --Jaakko                                                                                                                                                                                                                                                                        |
| <b>24/06/2006<br/>10:38:19</b> | <i>refrigerator</i> | Mixing chamber at 268 K this morning. Open and clean target holder indium joint knife edge. Close, pump out air, leak check and start circulating helium in dilution cryostat. --Jaakko                                                                                                                                                      |
| <b>23/06/2006<br/>09:37:20</b> | <i>general ...</i>  | Dilution cryostat mixing chamber warmed to 258 K with nitrogen gas flow. Magnet moyenTT 80 K, cavity 175 K and evaporator 282 K. Dilution cryostat screens 230 - 280 K. --Jaakko                                                                                                                                                             |
| <b>20/06/2006<br/>17:15:54</b> | <i>refrigerator</i> | Mixing chamber now at 123 K (thermocouple is K type and not J type) and magnet 68 K moyenTT. --Jaakko                                                                                                                                                                                                                                        |
| <b>20/06/2006<br/>12:15:10</b> | <i>general ...</i>  | Unload D-butanol. Mixing chamber now at 165 K and magnet 65 K moyenTT. --Jaakko                                                                                                                                                                                                                                                              |
| <b>15/06/2006<br/>14:54:56</b> | <i>refrigerator</i> | About 65 mK in continuous operation reached and about 33 mK in single shot mode. 3He back in tanks. --Jaakko                                                                                                                                                                                                                                 |
| <b>15/06/2006<br/>09:27:41</b> | <i>polarization</i> | About 30 % D butanol polarization was reached last night in middle cell. Up- and downstream cells polarizable. --Jaakko                                                                                                                                                                                                                      |
| <b>14/06/2006<br/>18:13:59</b> | <i>NMR</i>          | Condense 3He/4He mixture. Start polarizing D butanol. Small NMR signals visible. --Jaakko                                                                                                                                                                                                                                                    |
| <b>12/06/2006<br/>16:21:38</b> | <i>refrigerator</i> | Open 4He roots pump. Coupling between motor and pump broken, to be replaced. --Jaakko                                                                                                                                                                                                                                                        |
| <b>09/06/2006<br/>14:40:54</b> | <i>refrigerator</i> | Removing 3He/4He mixture. --Jaakko                                                                                                                                                                                                                                                                                                           |
| <b>08/06/2006<br/>13:21:59</b> | <i>refrigerator</i> | 3He/4He mixture condensed. Minimum temperature 120 mK without still heater. --Jaakko                                                                                                                                                                                                                                                         |
| <b>02/06/2006<br/>15:01:01</b> | <i>refrigerator</i> | All roots running mixing chamber cooled to 1.15 K with 4He. Now removing helium from mixing chamber. --Jaakko                                                                                                                                                                                                                                |
| <b>01/06/2006<br/>18:17:50</b> | <i>magnet</i>       | Magnet was over filled with LHe giving rise to high recovery line pressure 1.15 atm (1.07 atm normal) and high flow. Automatic filling mode was interrupted. --Jaakko                                                                                                                                                                        |
| <b>01/06/2006<br/>18:06:04</b> | <i>general ...</i>  | Mixing chamber filled with LHe yesterday. Test microwaves to the three target cells with the speer resistors at about 1.5 K. --Jaakko                                                                                                                                                                                                        |
| <b>27/05/2006<br/>14:52:59</b> | <i>general ...</i>  | Fill three target cells partially with deuterated butanol for technical run. No leaks to target holder isolation vacuum. Cold indium joint is leak tight. NMR cables, thermometers and heaters are ok, possible problem with coil #9. Pump out air and helium mixture. Start to cool down from 113 K. Magnet empty at 10 K moyenTT. --Jaakko |