AD / ELENA
Installation activities schedule
vs
Beam time in ring
Transfer Lines Status

- Open
- Closed
- Baking
- Baked

- Sect valve
- Installed SEM
- Defective SEM
- Missing SEM (15)
- Special missing SEM (2)

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Feb – July 2020 Activities (optimistic)

De-consignation

Access control OK

Survey availability TBC

BUT:
- Pending SEM’s availability / repair schedule (very tight…)
- Availability RF experts in May-June only
Alternative (less optimistic)

De-consignation

Access control OK

- More time for SEM’s availability / repair
- Optimized for RF experts availability

**BUT**: delay TL’s commissioning start by 2 months
Key points / margins

- SEM situation to be clarified rapidly: which SEM’s to extract, expected return date
- Schedule to be optimized with daily granularity when more info available (SEM’s repair/availability schedule, connections/IST timing, possible vacuum issues etc)
- Could some SEM’s be « omitted » provisionally?
- Could commissioning start with first available vac sectors (0-1, then 1, then 1-3, then 3-4)?
Back-up
Vac 0-1, 1, 1-3, 3-4

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Vac sectors 5, 6-5, 7

| Vac sector 7 (BASE) | Installation of vacuum equipment | TE-VSC | 172 days Mon 15/09/19 Tue 02/06/20
|---------------------|----------------------------------|--------|-------------------------------------
|                     | Pump down + leak detection       | TE-VSC | 2 days Mon 30/09/19 Tue 01/10/19
|                     | Bake-out preparation             | TE-VSC | 5 days Mon 14/10/19 Fri 18/10/19
|                     | Bake-out                         | TE-VSC | 2 wks Mon 04/11/19 Fri 15/11/19
|                     | Decablage                        | TE-VSC | 2 days Mon 02/12/19 Tue 03/12/19
|                     | Bake-out connections              | TE-VSC | 1 day Thu 14/05/20 Thu 14/05/20
|                     | Bake-out                         | TE-VSC | 2 wks Fri 15/05/20 Fri 29/05/20
|                     | Decablage                        | TE-VSC | 1 day Tue 02/06/20 Tue 02/06/20

| Vac sector 6-5 (LNE06) | Installation of vacuum equipment | TE-VSC | 274 days Mon 19/08/19 Mon 28/09/20
|------------------------|----------------------------------|--------|-------------------------------------
|                        | Pump down + leak detection       | TE-VSC | 2 days Mon 19/08/19 Tue 20/08/19
|                        | Bake-out insulation              | TE-VSC | 1 day Wed 04/09/19 Thu 05/09/19
|                        | Bake-out connections             | TE-VSC | 2 days Wed 09/09/20 Thu 10/09/20
|                        | Bake-out                         | TE-VSC | 2 wks Fri 11/09/20 Thu 24/09/20
|                        | Decablage                        | TE-VSC | 2 days Fri 25/09/20 Mon 28/09/20

| Vac sector 5 (LNE05) | Installation of vacuum equipment | TE-VSC | 209 days Tue 15/08/19 Mon 22/06/20
|---------------------|----------------------------------|--------|-------------------------------------
|                     | Pump down + leak detection       | TE-VSC | 2 days Tue 13/08/19 Wed 14/08/19
|                     | Bake-out insulation              | TE-VSC | 2 days Thu 15/08/19 Fri 16/08/19
|                     | Bake-out connections             | TE-VSC | 3 days Mon 01/06/20 Wed 03/06/20
|                     | Bake-out                         | TE-VSC | 2 days Thu 04/06/20 Fri 05/06/20
|                     | Decablage                        | TE-VSC | 1 day Mon 22/06/20 Mon 22/06/20

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### Cabling / connection campaign

<table>
<thead>
<tr>
<th>Description</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of AC cable trays</td>
<td></td>
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<tr>
<td>Installation of AC: power sockets for bake-out part 1</td>
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<tr>
<td>Installation of AC: power sockets for bake-out part 2</td>
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<tr>
<td>Installation of control cable trays</td>
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<tr>
<td>Installation of cables up to ALPHA zone</td>
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<tr>
<td>Installation of remaining cables</td>
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<tr>
<td>Electrical connections FG2 / ZONA / SEM sect 3-4</td>
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<tr>
<td>Electrical connections FG2 / ZONA / SEM sect 0-1</td>
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<td>Electrical connections FG2 / ZONA / SEM sect 7</td>
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<td>Electrical connections FG2 / ZONA / SEM sect 1-5</td>
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<tr>
<td>Electrical connections FG2 / ZONA / SEM sect 1</td>
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<tr>
<td>Electrical connections FG2 / ZONA / SEM sect 6-5</td>
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<tr>
<td>Electrical connections FG2 / ZONA / SEM sect 5</td>
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<tr>
<td>Commissioning ELENA TL's</td>
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<tr>
<td>Power converters tests</td>
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<td></td>
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<tr>
<td>WIC test</td>
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<tr>
<td>Power electronics commissioning</td>
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<tr>
<td>Control &amp; software commissioning</td>
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<tr>
<td>TLs Commissioning with beam</td>
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<tr>
<td>ELENA ring access control available</td>
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<td></td>
</tr>
<tr>
<td>ELENA ring beam possible with RF on</td>
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</tr>
</tbody>
</table>

**Duration:** 192 days

**Start:** Mon 12/08/19

**End:** Tue 26/05/20

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### Electrical connections FG2 / ZONA / SEM sect 3-4

- **Start:** Mon 13/04/20
- **End:** Mon 27/04/20

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### Electrical connections FG2 / ZONA / SEM sect 0-1

- **Start:** Mon 27/04/20
- **End:** Mon 11/05/20

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### Electrical connections FG2 / ZONA / SEM sect 7

- **Start:** Mon 27/04/20
- **End:** Mon 11/05/20

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### Electrical connections FG2 / ZONA / SEM sect 1-5

- **Start:** Tue 12/05/20
- **End:** Tue 26/05/20

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### Electrical connections FG2 / ZONA / SEM sect 1

- **Start:** Tue 12/05/20
- **End:** Tue 26/05/20

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### Electrical connections FG2 / ZONA / SEM sect 6-5

- **Start:** Mon 27/04/20
- **End:** Mon 11/05/20

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### Electrical connections FG2 / ZONA / SEM sect 5

- **Start:** Mon 13/04/20
- **End:** Mon 27/04/20

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### Commissioning ELENA TL's

- **Start:** Wed 27/05/20
- **End:** Wed 29/07/20

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### Power converters tests

- **Start:** Wed 27/05/20
- **End:** Wed 08/06/20

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### WIC test

- **Start:** Wed 27/05/20
- **End:** Wed 03/06/20

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### Power electronics commissioning

- **Start:** Wed 27/05/20
- **End:** Wed 17/06/20

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### Control & software commissioning

- **Start:** Thu 18/06/20
- **End:** Wed 08/07/20

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### TLs Commissioning with beam

- **Start:** Thu 09/07/20
- **End:** Thu 25/07/20

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### ELENA ring access control available

- **Start:** Mon 27/04/20
- **End:** Mon 27/04/20

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### ELENA ring beam possible with RF on

- **Start:** Thu 04/06/20
- **End:** Wed 05/08/20

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<table>
<thead>
<tr>
<th>Task</th>
<th>Code</th>
<th>Duration</th>
<th>Start Date</th>
<th>End Date</th>
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<tbody>
<tr>
<td>Flexible cooling pipes removal</td>
<td>EN-CV</td>
<td>1 day</td>
<td>Mon 31/08/20</td>
<td>Mon 31/08/20</td>
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<tr>
<td>Flexible cooling pipes removal</td>
<td>BE-BI,TE-MSC</td>
<td>1 day</td>
<td>Tue 01/09/20</td>
<td>Tue 01/09/20</td>
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<tr>
<td>Vacuum disconnections</td>
<td>TE-VSC</td>
<td>1 day</td>
<td>Wed 02/09/20</td>
<td>Wed 02/09/20</td>
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<tr>
<td>Magnets + supports removal (3)</td>
<td>EN-HE,TE-MSC</td>
<td>1 day</td>
<td>Thu 03/09/20</td>
<td>Thu 03/09/20</td>
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<tr>
<td>GEM + supports removal (2)</td>
<td>BE-BI,EN-HE</td>
<td>1 day</td>
<td>Fri 04/09/20</td>
<td>Fri 04/09/20</td>
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<tr>
<td>Emergency exit ladder installation</td>
<td>EN-EA</td>
<td>1 day</td>
<td>Mon 07/09/20</td>
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<tr>
<td>Tracing on the floor</td>
<td>EN-SMM</td>
<td>1 day</td>
<td>Tue 08/09/20</td>
<td>Tue 28/10/20</td>
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<tr>
<td>Floor drilling</td>
<td>EN-MME</td>
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<tr>
<td>Supports installation (1 +4)</td>
<td>EN-MME</td>
<td>1 day</td>
<td>Thu 10/09/20</td>
<td>Fri 11/09/20</td>
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<tr>
<td>Cable tray + cables pulling</td>
<td>EN-EL</td>
<td>3 days</td>
<td>Mon 14/09/20</td>
<td>Mon 16/09/20</td>
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<tr>
<td>Electrostatic elements + SEM installation</td>
<td>EN-HE,TE-VSC</td>
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<td>Thu 17/09/20</td>
<td>Fri 18/09/20</td>
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<tr>
<td>Alignment</td>
<td>EN-SMM</td>
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<td>Wed 23/09/20</td>
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<tr>
<td>Installation of vacuum equipment</td>
<td>TE-VSC</td>
<td>2 days</td>
<td>Thu 24/09/20</td>
<td>Fri 25/09/20</td>
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<tr>
<td>Pump down + leak detection</td>
<td>TE-VSC</td>
<td>2 days</td>
<td>Thu 28/09/20</td>
<td>Thu 29/09/20</td>
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<tr>
<td>Smoothing</td>
<td>EN-SMM</td>
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<td>Bake-out preparation</td>
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<td>Decablage</td>
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<td>Fri 23/10/20</td>
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<tr>
<td>Signal + power cables connections</td>
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<td>Bake-out</td>
<td>TE-VSC</td>
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<td>Thu 22/10/20</td>
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<td>HW commissioning</td>
<td>BE-BI,TE-ABT</td>
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<td>Wed 04/11/20</td>
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</tbody>
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