Status of the MPD Support System

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Power Frame Requirements

- Supports ECal, TOF and tracking systems.
- Allows re-install half-sectors.
- Total load of about 100 tons.
- Made of carbon composite.
- Max deformation less than 5 mm.
Power Frame

TSNIISIM Concept
Power Frame Production: 25 Carbon Composite Boxes

- **Step 1:** Steel ingot
- **Step 2:** Winding of carbon composite material
- **Step 3:** Carbon composite box

8260
Power Frame Production: Winding of the Inner Shell
Power Frame Production: Assembly of the Boxes
Power Frame Production: Assembly of the Boxes
Power Frame Production: Outer Shell and Windows

Expected mass: about 9 tons

Max load: 195 tons

Max expected bending: 1.32 mm
Power Frame Parts

- Power frame: 1
- TPC & TOF rails: 2
- TOF rails: 12
- Mounting brackets: 50
Power Frame in the MPD Magnet
ECal Containers (Baskets)

- ECal is organized into 25 sectors or 50 half-sectors.
- Each half-sector contains 48 modules.
- Fiberglass container (basket).
- Total half-sector weight is about 1.5 tons.

- Max deformation is less than 0.5 mm.
ECal Electronics Install System

- Replacement of electronics without calorimeter dismantle.
- SiPMs and WLS fibers match precision better than 0.5 mm.
- Heat isolation box as a support.
- 16 readout boards are located outside the box.
- 3 boxes per half-sector.
Baskets Production

Solid Base

Substrate

Side Wall
Baskets Production (Cont)

Lid (after modules and electronics installation)

Inner Walls

Triangle Boxes
Tools to Bake Baskets
Original Timeline (Contract №100-2064)

1. Engineering Documentation : 30/04/2020
2. Baskets Production              : 08/2020 → 10/2021
3. Power Frame Delivery          : 01/11/2020
4. Power Frame Installation      : 30/11/2020
5. Instructions & Manuals         : 08/2020

Delays should be expected !
– Only 30% of personnel work on site
– Problems with subcontractors
Conclusions

- Contractor will meet the technical requirements.
- Engineering documentation is on time (almost).
- Materials for frame and baskets production are OK.
- Unclear delays with production should be expected.
- Installation should be re-scheduled.