**In the TDR Executive Summary Section 1.10 is about Calibration**

**Calibration is TDR Chapter 6**

**Cryo Instrumentation is TDR Chapter 8**

**These three files have been posted on the Workshop INDICO page.**

**Guidance as to what to read :**

**For Calibration:**

Introduction to calibration strategy: 6.1 & 6.3.2 (total: 2.5p)

Intro in executive summary is also useful: 1.10 (total: 1p)

Cryostat penetrations for calibration: 6.3.1 (total: 1p)

Ionization Laser (Baseline): 6.3.2 (total: 12p; images: 3.5p)

Ionization laser (Expanded): Appendix 6.7.1 (total: 1p; images: 0.5p)

Laser Beam Location System: 6.3.3 (total: 2p; images: 0.75p)

PE Laser: 6.3.4 (total: 5p; images: 2p)

Pulsed Neutron Source system: 6.3.5 (total: 7p; images: 3p)

Pulsed Neutron source (alternative): 6.7.2 (total: 2p; images: 1p)

Radioactive source system: Appendix 6.7.3 (through 6.7.3.3) (total: 6.5p; images: 2p)

**For Cryo. Inst.:**

CFD Simulations & status on validation in ProtoDUNE: 8.1.3 (total: 4p; images: 1.5p)

Thermometers (all types): 8.2.1 (through 8.2.1.4.1) (total: 11.5p; images: 6p)\*

Purity Monitors: 8.2.2 (through 8.2.2.1) (total: 4p; images: 1.5p)

Level Meters: 8.2.3 (total: 1p; images: 0.5p)

Pressure meters: 8.2.4 (total: 1p; images: 0.5p)

Gas Analyzers: 8.2.5 (total: 2.5p; images: 1p)

Cameras: 8.2.6 (total: 4p; images: 2p)

ProtoDUNE-II plans: 8.2.8 (total: 0.5p)

**\*Regarding temperature monitoring there are quite a few changes w.r.t to the TDR.**

**The only available documentation at the moment are few talks:**

Temperature sensors on the APAs

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This is a new system, which substitutes the one in the TDR (vertical arrays behind the APAs).

Talk at the collaboration meeting:

   - <https://indico.fnal.gov/event/20144/contributions/55767/attachments/34947/42692/apa_tsensors_27012020.pdf>

Recent talk with latest design:

   - <https://indico.fnal.gov/event/23758/contributions/73758/attachments/46114/55432/apa_tsensors_12032020.pdf>

Dynamic T-Gradient monitor

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The design is different to the one in the TDR. It resolves many of the problems of the previous design

Talk at the CISC meeting in November 2019

- <https://indico.fnal.gov/event/22508/contributions/68011/attachments/42798/51675/DynamicTemperatureGradientMonitorRedesignUpdateNovember21.pdf>

Talk at the January collaboration meeting

- <https://indico.fnal.gov/event/20144/contributions/55768/attachments/34931/42676/IntegratedTemperatureGradientMonitor.pdf>