CSC - Central Detetctor Safety and Control Shift

Prepared for CSC

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Points of Discussion

- ## What are the Action Matrixes for CSC Operation?

- ## What is the Status of the CSC DCS?

- ## Overview

  - CSC has developed Action Matrixes that enumerate the different SAFE states of the sub-system durring 'Global' operation and 'Maintainance' periods

  - CSC has developed Operations Procedures Twiki pages that lay out the procedures for the CSC Shifter.

    - It is strait forward to split off from these the relavent procedures for a Central Safety Shifter

  - CSC has developed Shiter Training manuals.

Links to Relavant Documents

- CSCOperations - https://twiki.cern.ch/twiki/bin/view/CMS/CSCOperations – The home page for CSC Shifter Procedures

- CeoInformation - https://twiki.cern.ch/twiki/bin/view/CMS/CeoInformation - The page for CEO, CSC Expert Operator Procedures

- CSC Action Matrix

- Unattended Operation

- Shifter Training

- CSC-DCS Training

- Proposed cDCS Shifter Procedures for CSC DCS - https://twiki.cern.ch/twiki/bin/view/CMS/UnderConstuction -

CSC – Safe Operaton States

- The CSC can be seperated into two parts for safe operation
  - UXC based hardware
  - USC based hardware

- USC – Hardware in S1, S2, and S4
  - S1 – Wiener VME crates, CAEN HV system crates, UF custom crates
  - S2 – computers
  - S4 – CMS LV OPFCs and DCS computers

- Safe Operation States >> **USC55** (S1)

Cooling	Power		HV	FED	TF
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OFF	OFF	➜	OFF	OFF	OFF
OFF	ON	➜	OFF	OFF	OFF

    - HV racks must be off within 10 minutes
    - ME1/1 HV racks must be off within 10 minutes
    - FED racks must be off within 10 minutes
    - TF rack must be off within 10 minutes

ON	OFF	➜	OFF	OFF	OFF
ON	ON	➜	ON	ON	ON

CSC Safe Operation States – **S2**

- Safe Operation States >> **USC55** (S2)
  - Cooling Power ➔ Computers

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  - OFF   OFF ➔ OFF
  - OFF   ON ➔ OFF
    - The computers can be left ONwhen necessary if the room itself is cool
  - ON   OFF ➔ OFF
  - ON   ON ➔ ON

- Safe Operation States >> **USC55** (S4)
  - Cooling Power ➔ OPFC Computers
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  - OFF OFF ➔ OFF OFF
  - OFF ON ➔ OFF OFF
    - The computers can be left ONwhen necessary if the room itself is cool
  - ON OFF ➔ OFF OFF
  - ON ON ➔ ON ON

CSC Safe Operation States - UXC

- Safe Operation States >> UXC55 (cavern)

  – Water   Power   Gas   ➔   HV   LV

  - Disk & tower   LV from S4

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  – OFF   x   x   OFF   OFF
  - Maratons must be off within 2 min
  - Pcrates within 5 min
    – Note LV to chambers is turned off by pcrate turn off
  - HV must be off within 60 min

  – ON   OFF   OFF   OFF   OFF
  – ON   OFF   ON   OFF   OFF
  – ON   ON   OFF   OFF   ON
  – ON   ON   ON   ON   ON

DSS Alarm in any of these racks

Must Turn off these Amoires

Départs Armoires	Dest. Rack UXC55	Maraton	PCrate	PCrate	Maraton	PCrate	PCrate
EXD 2003	X4A51+X2J52	X4A51	X5R51	X3A51	X2J52	X5U51	X3J51
EXD 2004	X4A41	X4A41	X5R41				
EXD 2005	X2A41	X2A41	X1R41	X3A41			
EXD 2006	X4A31	X4A31	X5R31				
EXD 2007	X2J41	X2J42	X1U41				
EXD 2008	X4J41	X4J41	X3J41	X5U41			
EXD 2009	X2A33	X2A33	X1R31	X3A31			
EXD 2010	X2J31	X2J31	X1U31				
EXD 2011	X4J31	X4J31	X3J31	X5U31			
EXD 2012	X4S31	X4S31	X5L31				
EXD 2013	X2V31	X2V31	X1E31				
EXD 2014	X4V31	X4V31	X3V31	X5E31			
EXD 2015	X2S33	X2S33	X1L31	X3S31			
EXD 2016	X2V41	X2V42	X1E41				
EXD 2017	X4V41	X4V41	X3V41	X5E41			
EXD 2018	X2V52 & X4S51	X2V52	X5E51	X3V51	X4S51	X5L51	X3S51
EXD 2019	X4S41	X4S41	X5L41				
EXD 2020	X2S41	X2S41	X1L41	X3S41			

The LV distribution system for CSC, Maraton based, is supplied all power from S4 and is routed through racks in X2/4 to chambers and racks in X1/3/&5
Therefore power to the OPFC in S4F04 must be cut for any DSS Alarm in these UXC racks OR the gereral cavern

- An alarm in turbine for 1(2) Maraton Rack will switch off 1 breaker > 2 PFC modules > 2 Maratons
- An alarm in turbine for 1 or 2 pcrate racks will switch off 1 breaker > 2 PFC modules > 2 Maratons