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General Conditions

- Calculation: The CMS HFdetector will be removed and placed in the garage during the extended year end technical stop (EYETS) 2016-2017. All PMT boxes will be removed. A question has been raised if these interventions should be done with or without removing the collars. From the results of this study and considering that the collars would not significantly impact on the time needed for the intervention, the removal of the collars was not considered ALARA. This study is a continuation of the calculations performed by I. Bergstrom and summarized in the EDMS note n.*****.
- CMS FLUKA versions: v.3.12.5.0 (prompt step), v.3.12.5.1 (decay step WITH collars), v.3.12.5.2 (decay step NO collars), and v.3.12.5.3 (decay step ONLY collars),

Input and Auxiliary files

- Prompt step: HF_prompt.inp
- Decay with collars step: HF_withCollars.inp
- Decay no collars step: HF_noCollars.inp
- Decay only collars: HF_onlyCollars.inp
- Transform component file (the same for ALL 3 different configurations):
HF_withCollars.components
- Transform with collars nuclide file: HF_withCollars.cpp
- Transform no collars nuclide file: HF_noCollars.cpp
- Transform only collar nuclide file: HF_onlyCollars.inp

- Routines: fieldi.f, lbqfin.f, lbqfld.f, magfld.f, mhcos.f, usrglo.f

- Magnetic field: cmssw501.fieldmap, LBQ-KEK.MAP

Luminosity Assumptions

Updated March 2016. Irradiation pattern (assuming 75% peak lumi and inelastic sigma = 75mb up to LS1 and 80mb afterwards):

Run	peak lumi / [cm ⁻² s ⁻¹]	integral lumi / [fb ⁻¹]	Inelastic x-section [mb]
2010-2012	8.0E33	30.0	75
	LS1		
2015	6.3E33	4.0	80
2016	1.4E34	40.0	80

Detector configuration

Closed configuration for prompt step:

Ambient Dose Equivalent Rates for HF during EYETS16/17

HF lowered on the cavern floor and isolated from all other detector elements (equivalent of being placed in

the garage). Collar shielding in place.

HF lowered on the cavern floor and isolated from all other detector elements (equivalent of being placed in

the garage). Collar shielding REMOVED.

Only half collar shielding. All other detector elements

Results

- Results of the simulations may be found here:
- A presentation given to CMS maybe found here:
- The EDMS note

-- AnnaCimmino - 2016-12-12

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