1/4/2004 safety hearing on TT2A target experiment

Present (non-ordered): S.Gilardoni, G.Daems, J.Paul, B.Pichler, P.Cennini, G.Lindell, C.Hill, T.Otto, P.Carbonez, H.Kirk, A.Fabich

HK gave an introduction on the the mercury target test:
slides (see also for update on RI inventory)
It is a combined test of mercury, B-field and proton beam altogether (first ever). He presented as well simulations (MARS) on the residual contact dose and the inventory of radio-isotopes after irradiation. Assumed beam momentum was 24 GeV/c, whereas it is very likely to have a 20 GeV/c beam, what does not change much. The TT2A target experiment is currently preparing a proposal to be submitted to the INTC (within four months from now).

Activation of beam elements up-/downstream of the solenoid can be reduced by putting concrete blocks in place. Pierre C. mentioned, that the residual dose rate on the beam elements these days in TT2A is about 1-5 microSv/h. TO mentioned the need of a dump. For this issue the placement of the mercury target right upstream if nToF would make the nToF target serve as a dump. PC pointed out, that the nToF target is not a dump, and that for operation today, the nToF intensity is limited to 7*10^12 per three seconds. This is due to the cooling time needed. How is the layout of the interlock in the MCR to assure no exceed of this intensity? How can it be bridged? During beam tuning for TT2A , one must not put an intensity of more than 7*10^12/pulse directly to the nToF target.

T.Otto will make an estimate on the safety level induced from this RI inventory. For this he still needs a modification of the lists shown on the last two transparencies, where for each RI indicated the specific decay in terms of Curie should be shown as well.

T.Otto mentioned again as last November, that TT2A is not ventilated and that such an area can not be used by an experiment from 2006 on. Nevertheless, a double confinement (pressure tested) can possible make the use of an ventilated area unnecessary and still avoid environmental pollution (with mercury). A design has to be proposed, before SC can judge the situation. Additionally, if nToF runs in 2006, it will be asked a ventilation. TT2A target experiment would profit from this installation. To use the area upstream of dump D3 in TT2 is not recommended as an access would require stopping the SPS and AD complex.

Paolo C. told, that a beam period decreased by 200*2 hours for nToF in 2006 would be acceptable. As this is the worst case scenario a better situation can be assumed and it gets better for nToF. The impact of up to four beam windows on the nToF spot size has to be studied.

Waste management: Oak Ridge (ORNL) would provide and take back the mercury needed for the TT2A target experiment. The solenoid will be taken back by the US or given to JPARC/Japan. Case batteries used as power supply: not activated as placed in the ISR tunnel, they can be reused without problems, so could be sold/passed further. Currently two types of batteries are investigated at BNL, one of them of new technology running without a liquid. See meeting power

F.Haug will present the layout of the LN2 circuit tomorrow. Safety issues will be discussed in the near future with GL and BP. An ODH study will require about one man*week. SC/RP needs two man*weeks to study the radio-protection issues linked to the TT2A target test. During the runs of the test with beam, a person of SC/RP has to be present at all times (~one man*month).

To define a GLIMOS it is to early. To be done after approval by the INTC.

See also the minutes of the safety hearing 20.Nov.2004