Tuesday 31 January 1995

K. Reece

Minutes of meeting: BLIP/BIRC interlocks, Friday 27 January 1995

Present: J.Bullis, L.Mausner, K. Reece, D.Ryan, H.Schnakenberg.

An overview of the present BLIP facility was presented by L. Mausner;

1. water column of 34' is used for target cooling but is also the neutron shield.
2. the water column pipe has a surrounding casing (non-concentric) of approximately 2" larger diameter from the target to 10' below the BLIP house floor; the annulus is air for the 24'.
3. shielding outside these shafts is sand, (outer shield for last 10' is borax).
4. the water is cooled via a heat exchanger that has the secondary side a higher pressure and the secondary side running outside the BLIP house. The secondary side water is not actively monitored for activity, (HP frequent surveys).
5. items considered personnel safety (Radiation Safety Committee - RSC) are hard-wired to the interlock system. They may also have indicators to the computer monitoring system.
6. a target in the "hot-cell" may be more than 100Rem/hr but the dose rate outside the "transport pig" is usually less than 100mrem/hr.
7. the BLIP house itself is under negative pressure.
8. S&EP has documented the radiation external to the BLIP house to be less than 5mrem/hr at the wall and essentially zero 25' below at the road.
9. all RSC interlock sensors must be failsafe.

A discussion of the personnel safety interlocks followed, (present and proposed scenarios are referred to by number);

1. shaft water level [28/29 (proposed)] - remain redundant RSC interlocks.
2. inspection plug position [33/34 (proposed)] - remain redundant RSC interlocks.
3. radiation monitor for general area [37 (proposed)] - remain RSC interlock.
4. radiation monitor for airborne release [43 (proposed)] - change to FBI, NOT RSC.
5. radiation monitor for filter pit and hot cell [30/31 (old)] - change to FBI, NOT RSC (requires RWP and Procedures to open hot cell; also, a target failure does not raise the water radiation levels substantially).
6. shaft leak probe [30/31 (proposed)] - change to FBI, NOT RSC (already redundantly monitored - see #1 this section and addressed in procedures; target area will hold all the shaft water without leaking into the BLIP tunnel).
7. BLIP beam transport tube vacuum indication [35 (proposed)] - change to FBI, NOT RSC (addressed in procedures).

Around the base of the hot-cell during normal operation, radiation levels to 100mrem/hr have been documented by S&EP, (it is believed to be predominantly neutrons from the water shaft annulus 10' shield). This 10' section shield is presently being modelled but should probably be re-packed with 1' of steel at the base and 9' of sand.

Action Items:

1. S&EP documentation of radiation surveys external to the BLIP house.
2. S&EP documentation of radiation surveys in the BLIP house.
3. S&EP air monitoring procedures for BLIP house with alarm and interlock limits as a function of DAC for specifically identified isotopes.

cc: RSC file
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