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0		All	New issue applicable for the de-fuelled HIFAR Facility (DHF).

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SUBSECTION NO: 3.1.1 - RADIATION MONITORING INSTRUMENTATION

3.1.1.1 – BUILDING 15 INSTALLED AREA RADIATION MONITORS

1. APPLICABILITY

This Limiting Condition applies whenever people are inside the Reactor Building.

2. OBJECTIVE

The objective of this Limiting Condition is to provide adequate warning to operators of significant increases in radiation level within Building 15.

3. LIMITING CONDITION

3.1 At least two of the Building 15 installed area radiation monitors numbers located below the Polar Crane catwalk shall be operable.

4. SURVEILLANCE REQUIREMENTS

- 4.1 Functional testing of the area radiation monitors (including testing of alarm set points) shall be undertaken once every 3 months.
- 4.2 Observations of radiation level indications inside Building 15 shall be carried out on first entry when personnel are working inside Building 15.
- 4.3 Calibration on instruments associated with this LC shall be performed annually.

5. ACTIONS

- 5.1 If an installed area radiation monitor is not operable, it shall be repaired or replaced with an alternate monitor within 24 hours; otherwise, all work with the potential for radiation exposure (e.g. preliminary dismantling tasks) shall cease in the affected area.
- 5.2 The Facility Manager shall be informed immediately if four or more of the installed area radiation monitors become inoperable or go into alarm.

Informative Note: The Facility Manager may at any time call for the evacuation of Building 15 if he/she considers it unsafe to continue tasks within Building 15. If the Facility Manager has any doubt, advice should be obtained from qualified health physics personnel.

- 5.4 If more than four of the installed area radiation monitors become inoperable for more than 24 hours, and alternate monitors have not been installed, the Building 15 shall be evacuated, except for personnel involved in tasks to repair the area radiation monitors.

6. BASIS

This Limiting Condition is based on the need for effective coverage of radiation monitoring throughout Building 15.

7. REFERENCES

HIFAR OLC 4.3, Rev 3, Instrumentation, 2006 (superseded)

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3.1.1.2 - DETECTION OF TRITIUM

1. **APPLICABILITY**

These Limiting Conditions apply whenever people are inside the Reactor Building.

2. **OBJECTIVE**

The objective of these Limiting Conditions is to ensure that adequate instrumentation is operable to enable monitoring of radiation levels from tritium within Building 15.

3. **LIMITING CONDITIONS**

3.1 **When personnel are inside Building 15, a means of detecting tritium in the general Building 15 atmosphere shall be operable.**

3.2 **When personnel are in the D₂O Plant Room or Experimental Plant Room, a means of detecting tritium in those areas shall be operable.**

4. **SURVEILLANCE REQUIREMENTS**

4.1 All detection instruments associated with this LC shall be calibrated annually.

5. **ACTIONS**

5.1 If an adequate means of detecting tritium in the Building 15 atmosphere is not operable, the instrumentation shall be repaired or replaced with an alternate means of detection within 24 hours; otherwise, the Building 15 shall be evacuated. If a bubbler is used as an alternate means of detection, it shall be sampled at least every 6 hours when people are working inside Building 15.

5.2 If an adequate means of detecting tritium in the D₂O Plant Room or Experimental Plant Room is not operable while staff are working there, the work shall cease and the relevant plant room shall be evacuated until the instrumentation is repaired or replaced with an alternate means of detection.

6. **BASIS**

6.1 The Limiting Conditions are based on the need to identify tritium. Tritium is a beta emitter and hence does not readily activate the installed health physics monitors, which are mainly sensitive to gamma radiation.

6.2 The allocation of 24 hours to replace or repair the general Building 15 atmosphere tritium monitor and 6 hours to sample the bubbler (if used) is consistent with the low risk of a tritium release occurring in a location not monitored by the tritium monitor sampling the D₂O Plant room or the Experimental Plant Room. This latter monitor would detect any leaks developing in the most likely locations.

6.3 The dominant source of dose in the D₂O plant room is likely to be gamma from the core internals above. The condition to evacuate the DPR in the event of a tritium alarm or if tritium monitoring becomes unavailable, is one of good practice.

7. **REFERENCES**

HIFAR OLC 4.3, Rev 3, Instrumentation, 2006 (superseded)