

- (3) The reactor air cavity flow shall be periodically analyzed to minimize Argon-41 releases to the environment while maintaining a negative pressure within the reactor cavity to minimize radioactive hazards to reactor personnel.

3.4.4 Air Particulate Monitor

The reactor cell environment shall be monitored by at least one air particulate monitor, capable of audibly warning personnel of radioactive particulate airborne contamination in the cell atmosphere.

3.4.5 Liquid Effluents Discharge

- (1) The liquid effluents from the holding tanks shall be sampled and the radioactivity measured before release to the sanitary sewage system which is allowed in conformance with 10 CFR 20.1301.
- (2) Releases of radioactive liquid effluents from the holding tanks shall be in compliance with the limits specified in 10 CFR 20, Appendix B, Table 2, Column 2, as specified in 10 CFR 20.1302.

3.4.6 Solid Radioactive Waste Disposal

Solid radioactive waste disposal shall be accomplished in compliance with applicable regulations and under the control of the Radiation Control Office of the University of Florida.

3.4.7 Bases

The area radiation monitoring system, stack monitoring system and air particulate detector provide information to the operator indicating radiation and airborne contamination levels under the full range of operating conditions. Audible indicators and alarm lights indicate (via monitored parameters) when corrective operator action is required, and (in the case of the area radiation monitors) a warning light indicates situations recommending or requiring special operator attention and evaluation. Argon-41 discharges are limited to a monthly average which is less than the effluent concentration limit in 10 CFR 20, Appendix B, Table 2, and liquid and solid radioactive wastes are regulated and controlled to assure compliance with legal requirements.

3.5 Limitations on Experiments

Applicability: These specifications apply to all experiments or experimental devices installed in the reactor core or its experimental facilities.

Objectives: The objectives are to maintain operational safety and prevent damage to the reactor facility, reactor fuel, reactor core, and associated equipment; to prevent exceeding the reactor safety limits; and to minimize potential hazards from experimental devices.

Specifications:

(1) General

The reactor manager and the radiation control officer (or their duly appointed representative) shall review and approve in writing all proposed experiments prior to their performance. The reactor manager shall refer to the Reactor Safety Review Subcommittee (RSRS) the evaluation of the safety aspects of new experiments and all changes to the facility that may be necessitated by the requirements of the experiments and that may have safety significance. When experiments contain substances that irradiation in the reactor can convert into a material with significant

Amendment 16
Amendment 17
Amendment 19
Amendment 20

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- (d) primary coolant flow measuring system
 - (e) primary coolant temperature measuring system
- (9) Following maintenance or modification to the reactor safety system, a channel test and calibration of the affected channel shall be performed before the reactor safety system is considered operable.

4.2.3 Reactor Vent System Surveillance

- (1) The reactor vent system flow rates shall be measured annually at intervals not to exceed 14 months, as follows:
- (a) reactor cavity exhaust duct flow ($1 \text{ cfm} < \text{flow rate} < 400 \text{ cfm}$)
 - (b) stack flow rate $> 10,000 \text{ cfm}$
- (2) The following interlocks shall be tested as part of the weekly checkout:
- (a) core vent system damper closed if diluting fan is not operating
 - (b) reactor vent system shut off when the evacuation alarm is actuated

4.2.4 Radiation Monitoring Systems and Radioactive Effluents Surveillance

- (1) The area radiation monitor channels, the stack monitor, and the air particulate monitor shall be verified to be operable before each reactor startup, as required by the daily checkout. Calibration of radiation monitoring channels shall be performed quarterly at intervals not to exceed 4 months.
- (2) The Ar-41 concentration in the stack effluents shall be measured semiannually at intervals not to exceed 8 months.
- (3) Releases of liquid effluents from the holdup tanks shall be monitored before discharging to the sanitary sewage system to ensure compliance with 10 CFR 20 regulations.
- (4) The reactor shall be placed in a reactor shutdown condition whenever Specification 4.2.4(1) is not met.
- (5) The reactor vent system shall be immediately secured upon detection of failure of the stack monitoring system.

4.2.5 Surveillance of Experimental Limits

- (1) Surveillance to ensure that experiments meet the requirements of Section 3.5 shall be conducted before inserting each experiment into the reactor.
- (2) The reactivity worth of an experiment shall be determined at approximately 1 W power level or as appropriate within limiting conditions for operation, before continuing reactor operation with said experiment.