



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Docket No. 50-142

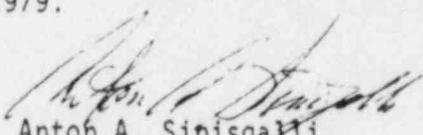
MEMORANDUM FOR: Robert A. Clark, Chief  
Reactor Safeguards Licensing Branch  
Division of Operating Reactors

FROM: Anton A. Sinisgalli  
Reactor Safeguards Licensing Branch  
Division of Operating Reactors

SUBJECT: SECURITY PLAN EVALUATION FOR THE  
UNIVERSITY OF CALIFORNIA, LOS ANGELES  
ARGONAUT REACTOR

The University of California, Los Angeles, (UCLA) submitted Amendment #3 to their security plan (submitted March 10, 1978), covering their 100 kw Argonaut nuclear reactor. The plan reflects: (1) changes in the access control afforded the control room; (2) certain modifications of the physical security afforded the alarm transmission from the UCLA Nuclear Energy Laboratory (NEL) to the UCLA Police Station; and (3) confirms the amount and location of SNM possessed under this license.

Attached is my evaluation of the UCLA's amended security plan with a recommendation that we accept it provided certain modifications are made which would effectively disengage the reactor control panel when the control room is not occupied by "A level" personnel. These modifications are summarized in Dr. Catton's letter to Mr. Case dated July 3, 1978. Our evaluation of these proposed modifications addressed safeguards ramifications only. It is further recommended that UCLA be advised that they must submit an amended security plan by December 1, 1978 incorporating the modifications proposed in Dr. Catton's letter and committing to full implementation prior to March 31, 1979.

  
Anton A. Sinisgalli  
Reactor Safeguards Licensing Branch  
Division of Operating Reactors

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Security Plan Evaluation  
for  
University of California  
Los Angeles  
Security Plan January 20, 1977  
Amendment #3 Submitted March 10, 1978

General

The amended security plan reflects: (1) changes in the access control afforded the control room of the University of California, Los Angeles (UCLA) 100 kw Argonaut nuclear reactor; (2) certain modifications of the physical security afforded the alarm transmission from the UCLA Nuclear Energy Laboratory (NEL) to the UCLA Police Station; and (3) confirms the amount and location of SNM possessed under this license.

Discussion

1. Reactor Console

On March 31, 1977 the Operating Reactors Safeguards Branch advised the Operating Reactors Branch No. 3, DOR that the security plan submitted by UCLA under letter dated January 20, 1977 was not acceptable and should be corrected. One item not yet resolved (the others have been corrected in subsequent revisions of UCLA's security plan), deals with the reactor console. UCLA contends that the reactor console is not considered essential equipment because the reactor controls have been tied to their intrusion detection system. While the level of protection afforded the reactor console had been increased; the function of the console has not changed. Consequently, it was the staff's contention that the console should continue to be identified as an essential component and protected accordingly.

In amendment No. 3 (March 10, 1978) to their security plan UCLA contends -- "The reactor console is considered semi-essential equipment. It is located in a controlled area (B-level) during university working hours but it becomes an A level area (but non-alarmed) during non-working hours. This is accomplished by an electric key control system." This represents an upgrade in the access control but does not alleviate the problem; the function of the console has not changed.

In a letter dated July 3, 1978 (Catton to Case) UCLA restated their position; they do not believe that the reactor console is vital equipment in the sense that its loss or damage would pose a threat to the health and safety of the general public. They further state "--we do believe that one more step on our part is in order. This would be to tie the control rod drive relays to the reactor high bay alarm system or to another switch inside the reactor high bay. Thus, unauthorized operation of the reactor would require entry into

[REDACTED]

the high bay, actuation of the central rod magnetic power switch (to be alarmed), and actuating the dump valve switch (alarmed)." (The dump valve switch alarm does not appear to be over a secured line thus it could be bypassed without entrance into the reactor high bay.) These modifications are proposed to be incorporated in ammendment No. 4, without committment as to when this would be accomplished. In principal (details have not been submitted for our review) these changes would effectively disengage the reactor console when the reactor high bay was secured, thus changing the function of the console.

## 2. Alarm Transmission from NEL to the UCLA Police Station

Amendment No. 3 to the UCLA Security Plan includes a new section, 1.d, which addresses the transmission of an alarm from the NEL to the UCLA Police Station. The silent alarm sends a signal via a private (previously referred to as an isolated) telephone line to the UCLA Police Station. All junction boxes both within and outside the alarmed areas of the NEL have microtamper switches tied to the tamper alarm circuits of the alarm system. The alarm lines enter into a telephone terminal board and are hidden spliced directly into a 200-pair telephone cable. The door to the terminal board is keyed to A level and has two magnetic switches tied into the radioactive storage alarm system tamper circuit.

## 3. Special Nuclear Material (SNM)

UCLA presently has in its possession 9.0 kg of SNM in the form of 93% enriched uranium (fuel plate, fuel scraps, and uranyl nitrate) and two Pu-Be neutron sources each containing 32 gm of Pu. This fuel is stored in three locations:

4.7 kg is stored in a "vault like" radioactive storage room. This room is located below ground level so that all outside walls are backed by earth fill. The inside walls are two-foot-thick concrete block, and the two steel doors provide the only access to the area. The inner door is a double-plated door and has two locks. One of the locks is keyed to "A level" and the other lock is a Sargent and Greenleaf combination pad lock which "meets the specifications outlined in NRC Regulatory Guide 5.12." The steel mesh outer door is keyed to "A level." The room is alarmed with a sonic transducer and the doors are equipped with magnetic switch alarms. The SNM is stored in "safes" within this room. Access to the safe containing the SNM requires (1) access to the room, (2) knowledge of the combination to the safe, and (3) a key to the "safe". Only two individuals have access to the storage room, but not the key to the safe. The Director and the Reactor Supervisor possess the only keys to the safe. Thus access to the safe requires the mutual consent of at least two distinct individuals. There is no requirement for both individuals to remain present nor any search procedures.

Of the SNM in the "exempt" form 3.6 kg is in the reactor (normally,

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but not 100% of the time, the individual fuel elements are maintained at a radiation level greater than 100 Rem/hr at three feet in air) and 0.7 kg in the radioactive storage pit (normally less than 100 Rem/hr at three feet in air).

#### Recommendations

- (1) The plan states that the reactor console is considered semi-essential equipment because: (1) the reactor controls have been tied to the intrusion detection system; and (2) it is located in a controlled area (B-level) during university working hours but it becomes an A level area (but non-alarmed) during non-working hours. While the level of protection afforded the reactor console has been increased; the function of the console has not been changed. Consequently, it should continue to be identified as an essential component. Disengagement of essential functions of the reactor console, as suggested by UCLA, from within the reactor high bay room may be an acceptable approach. UCLA should submit these proposed changes for our review and commit to a date when changes can be full implemented.
- (2) The safeguard provisions contained in the UCLA revised security plan do not decrease the level of protection provided. With the modification of the reactor console (discussed above) the level of protection provided by the plan is acceptable.

[REDACTED]