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102-00805-EEVB/TDS/KLMC
June 2, 1988

Mr. Dennis M. Crutchfield
Director, Division of Reactor Projects,
III, IV, V and Special Projects
Office of Nuclear Reactor Regulation
Mail Station P1-137
Washington, DC 20555

Subject: Palo Verde Nuclear Generating Station
Units 1, 2, and 3
Docket Nos. STN 50-528, 50-529 and 50-530
Response to Regulatory Effectiveness Review (RER)
File: 88-056-026

Reference: Letter from D. M. Crutchfield, NRC, to E. E. Van Brunt, Jr., ANPP, dated April 12, 1988; Subject: Palo Verde Nuclear Generating Station, Units 1, 2, and 3 - Regulatory Effectiveness Review (RER)

Dear Sir:

This letter is provided in response to the Regulatory Effectiveness Review (RER) conducted by the NRC's Office of Nuclear Regulatory Regulation at PVNGS Units 1, 2, and 3, from February 23 through March 2, 1988. The results and conclusions of the RER were transmitted in the referenced letter. ANPP's response to the identified concerns is contained in the attachment to this letter.

As discussed in the attached response, ANPP has initiated various actions to address the concerns identified during the inspection. However, the concerns regarding vital area barriers appear to represent a departure from previous Inspection and Enforcement interpretations of Part 73 requirements. Based upon the results of previous evaluations of the barriers, ANPP believes the existing barriers meet or exceed current regulatory requirements and no further actions are planned in this area.

*S001 1/1 Add: Region 4 4cr 1 Encl 1

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If you have any questions, contact Mr. Timothy Shriver, of my staff, at (602) 393-2521.

Very truly yours,

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/TDS/KLMC/kj

Attachment

cc: O. M. DeMichele (w/o attachment)
J. G. Haynes (w/o attachment)
J. B. Martin (w/ attachment)
T. J. Polich (w/ attachment)
E. A. Licitra (w/ attachment)
A. C. Gehr (w/ attachment)

RESPONSE TO REGULATORY EFFECTIVENESS REVIEW (RER)

2.2.1 Weaknesses in Perimeter Alarm Assessment Capability

Weaknesses in the perimeter alarm assessment system prevented high assurance assessment of an adversary penetrating into the protected area. With a probability of about 50 percent at preselected locations, RER team members were able to climb the protected area fence and run through the inner isolation zone, beyond the CCTV camera's field of view, before the intrusion alarm caused the camera picture to be displayed in the Central Alarm Station.

ANPP Response

ANPP has investigated means to improve camera switching time as performed via the security computer. Though some improvements were achieved, they were generally at the expense of other system functions, and not of sufficient magnitude to overcome human factor limitations of the operators to assess quickly moving targets of small size, seen only for fractions of a second.

Long term resolution of this concern will be the installation of an inner isolation zone fence of sufficient height to significantly delay the intruder in the isolation zone. This inner zone fence will effectively eliminate any concerns due to camera switching time and greatly enhance assessment and interdiction capability.

A Work Authorization for the purchase of the inner zone fence will be issued for review and approval for the appropriation of the necessary funds. Once this approval is received, the schedule for implementation will be finalized. ANPP estimates the installation of the fence will be completed by the second quarter of 1989.

Assessment by CCTV was complicated by several other factors including:

1. The existence of only a single monitor for automatic display of fixed cameras in alarmed zones. The camera display on the monitor might not be displayed long enough for an assessment since each subsequent alarm automatically called up its appropriate camera, displacing the previous camera picture.

ANPP RESPONSE

ANPP has reviewed this concern, and agrees that this may represent a means to delay or prevent adequate Intrusion Detection System (IDS) alarm assessment, for an intruder with some familiarity with installed security systems. ANPP is presently evaluating the most effective means to allow display of a fixed camera from a second alarming IDS zone. Options under review at this time include modification of the "manual select" CCTV monitor to display fixed camera image from the previous IDS alarm, or the installation of an additional CCTV monitor dedicated to display fixed camera image from the previous IDS alarm.

ANPP estimates that either option will be completed by October 1988.

2. Assessment at night was hampered by resolution problems on the three large assessment monitors (for fixed perimeter cameras, pan-tilt-zoom cameras, and manual call-up).

ANPP Response

ANPP has reviewed this concern, and plans to replace the existing large assessment monitors with high resolution monitors. In addition, ANPP intends to perform comprehensive CCTV system tuning with the assistance of the camera vendor.

ANPP estimates the installation of the high resolution monitors will be completed by October 1988. The comprehensive CCTV system tuning is scheduled for completion by August 1988.

3. The performance of the pan-tilt-zoom cameras was degraded at night because of glare from perimeter lights.

ANPP Response

CCTV system performance will be optimized for day and night conditions by performance of CCTV system tuning as discussed in item 2.

The CCTV system tuning is scheduled for completion by August 1988.

4. Assessment during bright daylight conditions was hampered in some locations by dark shadows.

ANPP Response

CCTV system performance will be optimized for day and night conditions by performance of CCTV system tuning as discussed in item 2.

The CCTV system tuning is scheduled for completion by August 1988.

5. Assessment by vehicle patrols dispatched by CAS was hampered by the time it could take the patrol vehicle to arrive on scene. In tests of this vehicle response capability, an RER team member was able to hide in buildings out of the area searched by the vehicle patrol officer before the vehicle arrived on scene.

ANPP Response

ANPP, as a temporary measure, has increased the vehicle patrols to one vehicle per unit. Long term resolution of this concern will be the installation of an inner isolation zone fence of sufficient height to significantly delay the intruder in the isolation zone. This inner isolation zone fence will afford greater time to

accurately assess an IDS alarm by use of the existing camera system, delay the intruder(s) allowing greater probability of interception before a vital area target can be reached, and allow the alarm station to gather more information regarding intruder number, arms, and direction of travel.

As discussed previously, ANPP estimates the installation of the fence will be completed by the second quarter of 1989.

2.2.2 Weaknesses in Vital Area Barriers at Condensate Storage Tanks

Removable, unlocked and unalarmed turbine deck grating covered previously unrecognized vital valve pits which contained drain valves for the Condensate Storage Tanks. The licensee voluntarily posted a security officer as a compensatory measure at these tanks pending completion of analysis of permanent corrective action.

ANPP Response

As an immediate measure, compensatory postings were established at all three units. Since that time, the grating covering these pits has been tack welded to prevent access. In addition, a Plant Change Request (PCR) has been initiated to install locked and alarmed barriers over these valve pits.

ANPP estimates the completion of the installation of the locked and alarmed barriers by first quarter of 1989.

2.2.3 Weakness in Vital Area Barriers at Spray Pond Pump Rooms

Undetected access to these pump rooms could be gained by way of the fan alcoves. Working unobserved in these alcoves, an adversary could utilize handheld tools potentially available within the protected area to cut 5/8 inch rebar and thin sheet metal ducting to gain access to the pump rooms.

ANPP Response

ANPP has evaluated the barriers at the spray pond fan alcoves and determined that these barriers are substantial barriers, and installed in accordance with the commitments made in the Plant Security Plan. These barriers have been reviewed by NRC Region V Inspection and Enforcement and found acceptable. No further changes to these barriers are planned.

2.2.4 Weakness in Vital Area Barriers at Auxiliary Buildings

At the 125' level of the auxiliary building, piping penetrates the barrier wall from the rad waste building. Hard foam insulation and rebar have been installed to block the openings around this piping.

An adversary utilizing handheld tools available within the protected area could cut the foam and 5/8 inch rebar and gain undetected access to the auxiliary building.

ANPP Response

ANPP has evaluated the barriers at the Radioactive Waste/Auxiliary Building interfaces on the 120' elevation, and determined that these barriers are substantial barriers, and installed in accordance with commitments made in the Plant Security Plan. These barriers have been reviewed by NRC Region V Inspection and Enforcement and found acceptable. No further changes to these barriers are planned.

2.2.5 Weakness in Armed Response to Security Contingencies

The site's armed response force strategy and tactics appeared focused on containing or attacking adversaries in vital areas rather than preventing or limiting adversary access to vital areas. This was demonstrated by licensee security personnel in an actual site security response drill and in discussions with response team leaders regarding actions which would be taken under several scenarios. This containment strategy would probably provide adversaries sufficient time to successfully sabotage safety systems to which access had been gained. It appeared that there had been insufficient dialogue about protection priorities between operations and security personnel so

that armed response strategy and tactics could be focused on protecting the most critical safety systems and components first. The importance of preventing or limiting adversary access to vital equipment was emphasized by the long delay (up to 45 minutes) before substantial elements of the Local Law Enforcement Agency could arrive on the scene. (Also see related item 2.3.4, Lack of Prompt Access to Response Weapons in Patrol Vehicles.)

ANPP Response

ANPP security contingency response strategy for perimeter intrusions remains, in both the Security Plan and procedures, the neutralization of an intruder(s) prior to penetration of vital areas. The success of this strategy, however, may be limited by time constraints which may prevent responding members of the security force from interposing themselves between the protected area isolation zone and any vital area target. In order to faclitate interdiction of an adversary prior to penetration of a target vital area, mobile (vehicle) patrols have been increased to one per unit, as an interim measure. The installation of an inner isolation zone fence, as discussed in response to item 2.2.1, would serve to greatly delay an intruder prior to entry to the protected area, improving the likelihood of success of present contingency response strategy. The addition of this inner isolation zone fence would also improve the ability to assess the intrusion, judge adversary strength and intent, and promote the most effective interdiction achievable.

As discussed previously, ANPP estimates the installation of the fence will be completed by the second quarter of 1989.

2.3.1 Weakness with the Intrusion Detection System at the Service Building Warehouse Vehicle Access Portal

The RER team demonstrated that the intrusion detection system at the Service Building Warehouse Vehicle Access Portal could be bypasssed. An RER team member climbed along the top of the sally port fence (which was perpendicular to the perimeter fence and microwave system), over the microwave beams, and into the protected area. This weakness was partially mitigated by being near and in the direct line of sight of a security officer in the Primary Personnel Access Portal.

ANPP Response

This weakness was immediately compensated for by posting a member of the security force at the affected zone. Since that time, a modification to the intrusion detection system covering the service building vehicle access portal has been effected to prevent successful defeat of this intrusion zone by the means identified by the RER team. A third, stacked microwave head has been added to this zone, providing intrusion detection capability beyond the top of the fence line.

2.3.2 Weakness in Vital Area Barriers on Roof of the Control, Auxiliary, and Diesel Buildings

The RER team believed that personnel roof hatches, located on the roofs of these buildings, could be exploited as a means to enter a vital area undetected. These hatches were constructed of two panels of thin sheet metal with insulation in between. Entry to these buildings could be gained by climbing to the roof, and cutting through the hatches with handheld tools potentially available within the protected area. This weakness was partially mitigated due to the probability of chance observation while gaining access to the roof areas and of being detected by interior vital area patrols.

ANPP Response

ANPP has evaluated the hatches in question on the roof of each unit's Control, Auxiliary, and Diesel Generator buildings, and determined that these hatches meet the criteria specified in 10CFR73.2 and the Physical Security Plan, and are installed in accordance with commitments made in the Plant Security Plan. No changes to these hatches are planned.

2.3.3 Weakness in Vital Area Barriers at Main Steam Support Structures (MSSS)

Piping alcoves located at the 100' level of the MSSS contain barriers constructed of rebar. An adversary utilizing handheld tools potentially available within the protected area could cut the 3/4 inch rebar and gain undetected access to the auxiliary building. This weakness was partially mitigated due to the location of the alcoves in a high traffic area.

ANPP Response

ANPP has evaluated the barriers at the 100' level of the Main Steam Support Structure pipe penetrations, and determined that these barriers are substantial barriers, and are installed in accordance with commitments made in the Plant Security Plan. No changes to these barriers are planned.

2.3.4 Lack of Prompt Access to Response Weapons in Patrol Vehicles

Although the patrol vehicles were equipped with response weapons (shotguns), they were stored unloaded in locked cases secured by a steel cable, inside a locked rear compartment of each vehicle. The patrol officer had to go to the rear of the vehicle, unlock the vehicle rear door, the compartment, the cable, the cases, and then load the shotguns before they could be used.

ANPP Response

ANPP is presently investigating available electromagnetic locking shotgun racks for installation in the designated mobile patrol vehicle. Use of these security racks would make a loaded weapon readily accessible to the patrol officer while positively controlling access to the weapon.

ANPP estimates the installation of the shotgun racks in the designated vehicles will be completed by September 1988.

2.4.1 Weakness with Alarm Station Duress Display

Duress messages were displayed on the alarm stations' CRTs, which could alert an adversary to the duress alert and increase the difficulty of an effective response.

ANPP Response

ANPP has investigated this concern, and determined that it is feasible to modify the alarm station duress alarms software to display the duress alarm only at the non-originating alarm station. This modification will be made accordingly.

ANPP estimates the modification will be completed by September 1988.

2.4.2 Weakness with Pat Down Searches

Pat down searches were not consistently thorough, and searched and unsearched personnel were allowed to commingle. The RER team observed some improvement after this was discussed with the licensee early during the RER.

ANPP Response

Personnel were promptly briefed regarding the necessity to perform good pat down searches, and the need to prevent mingling of searched/screened personnel with those requiring pat down searches. This is being reinforced through training and shift supervision. Operations Security is reviewing the feasibility of providing a designated area for personnel awaiting pat down search.

2.4.3 Excessive Tours of Duty in Alarm Stations

The RER team felt that 12 hour shifts for alarm station operators were excessive. Studies have suggested that long shifts could decrease the operators' alarm assessment capabilities.

ANPP Response

ANPP Security makes breaks available to CAS officers at a regular frequency, as well as upon request. ANPP's experience with the present CAS tour length has been excellent, and is believed to minimize the potential for turnover oversights, as well as post inconsistencies. At present, it is intended to continue with the present shift/tour policy.

2.4.4 Weakness in Vital Area Barriers at Condensate Storage and Refueling Water Tanks (CST) (RWT)

The CST and RWT were judged susceptible to attack by explosives. Consideration should be given to having response teams include these tanks as equipment deserving special attention.

ANPP Response

The feasibility or probability of the success of attempts to exercise explosive attack on the referenced targets will be greatly reduced following installation of the inner isolation zone fence discussed in item 2.2.1. Further, the significance of these targets for this type of attack will be stressed in a training bulletin to security force personnel.

As discussed previously, ANPP estimates the installation of the fence will be completed by the second quarter of 1989.