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RECIP.NAME	**RECIPIENT AFFILIATION**
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SUBJECT: Forwards description of specific design changes to provide for control of single train of equipment to maintain hot standby condition & proceed into hot shutdown independent of circuit failure in control room per fire protection summary.

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August 28, 1981
ANPP-18781 - JMA/WFQ

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U.S. NUCLEAR REGULATORY COMMISSION

Mr. R. L. Tedesco
Assistant Director for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Palo Verde Nuclear Generating Station
(PVNGS) Units 1, 2 and 3
Docket Nos. STN-50-528/529/530
File: 81-056-026; G.1.10

Reference: Letter from J. Kerrigan, NRC, dated August 3, 1981,
subject: Fire Protection Meeting Summary (Item 3)

Dear Mr. Tedesco:

Attached please find a description of the specific design changes on PVNGS to provide for control of a single train of equipment to maintain a hot standby condition and proceed into a hot shutdown independent of circuit failures in the control room. This description addresses Item 3 of the reference letter.

If you have any further questions, please contact me.

Very truly yours,

E. E. Van Brunt

E. E. Van Brunt, Jr.
APS Vice President,
Nuclear Projects
ANPP Project Director

EEVBJr/WFQ/av
Attachment
cc: J. Kerrigan (w/a)
P. Hourihan (w/a)
A. C. Gehr (w/a)

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STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, Edwin E. Van Brunt, Jr., represent that I am Vice President Nuclear Projects of Arizona Public Service Company, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority so to do, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true.

Edwin E. Van Brunt
Edwin E. Van Brunt, Jr.

Sworn to before me this 28th day of AUGUST, 1981.

Connie Lou Armstrong
Notary Public

My Commission expires:
June 24, 1983

Attachment to ANPP-18781 - JMA/WFQ
August 28, 1981

Instrumentation

The existing design for display of parameters at the remote shutdown panel utilizes parallel 0-10 V signals from the instrument rack in the control room to the main control boards and the remote shutdown panel. Power to the main control board Model 270 indicator is from the same distribution panel feeder that powers the instrument rack. A separate feeder powers the Model 270 indicators at the remote shutdown panel.

A design change for one channel of the following indicated parameters will be implemented:

Pressurizer Pressure
Pressurizer Level
RCS Hot Leg Temperature
Steam Generator 1 and 2 Pressure
Steam Generator 1 and 2 Level

The design change will provide a power supply and set of signal conditioning electronics in or near the remote shutdown panel. The sensor cables will be rerouted from the sensors through a set of transfer switches to the new set of electronics or to the control room instrument racks. The transfer switches located on or near the remote shutdown panel will transfer power to the sensors from the control room instrument rack to the remote shutdown panel electronics.

Hardware required: 7 transfer switches for sensor signals
1 power on-off switch
1 power supply
4 signal converters
14 cables

Equipment Control

The existing design for equipment control utilizes parallel circuitry between the main control board and the remote point of control, i.e., switchgear or remote shutdown panel.

A design change for control of one train of devices to maintain hot standby condition and proceed into hot shutdown will be implemented as follows:

Device	Remote Point of Control
Atmospheric Dump Valves (2) Solenoids	Remote Shutdown Panel
Auxiliary Feedwater Control and Isolation Valves (4)	Remote Shutdown Panel
Auxiliary Feedwater Pump	ESF Switchgear
Diesel Generator	Diesel Generator Room
Essential Spray Pond Pump	ESF Switchgear

Device	Remote Point of Control
Essential Cooling Water Pump	ESF Switchgear
Essential Chiller/Chilled Water Circ Pump	ESF Switchgear
ESF Switchgear Equipment Room AHUs	Motor Control Center
Charging Pump	ESF Switchgear
Class IE Breakers:	ESF Switchgear
Preferred Source (Offsite) Breaker	
Diesel Generator Breaker	
Load Center Supply Breakers (6)	
Pressurizer Backup Heaters	Remote Shutdown Panel
Pressurizer Auxiliary Spray Valve	Remote Shutdown Panel
Letdown Isolation Valve	Remote Shutdown Panel
RCP Seal Controlled Bleed-off Isol. Valve	Remote Shutdown Panel

The design change will provide a disconnect switch for each device at its remote point of control. The disconnect switch will isolate any control room circuits which could, as a result of a fire, interfere with local control. Automatic control functions will not be disconnected unless faults in those circuits can interfere with control.

Hardware required:
- 12 Disconnect switches for remote shutdown panel controlled devices
- 16 Disconnect switches at local points of control
- 26 to 45 cables

Analog Control

The existing atmospheric dump valve modulating control utilizes common control cards in the control room instrument rack for both main control board manual control and remote shutdown panel manual control.

The design change will provide separate control cards in or near the remote shutdown panel for one atmospheric dump valve per steam generator. Valve position sensor and output control cables will be rerouted from the main steam support structure to the new set of electronics through a set of transfer switches, then to the control room instrument racks. This scheme is the same as that used for the instrument loops.

Hardware required:
- 2 transfer switches
- 2 control cards
- 2 signal converters
- 8 cables