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KNIGHTON,G.W. PWR Project Directorate 7

SUBJECT: Forwards human engineering observation disposition criteria index for human engineering discrepancies & proposed corrective actions,per 850830 commitment re DCRDR.

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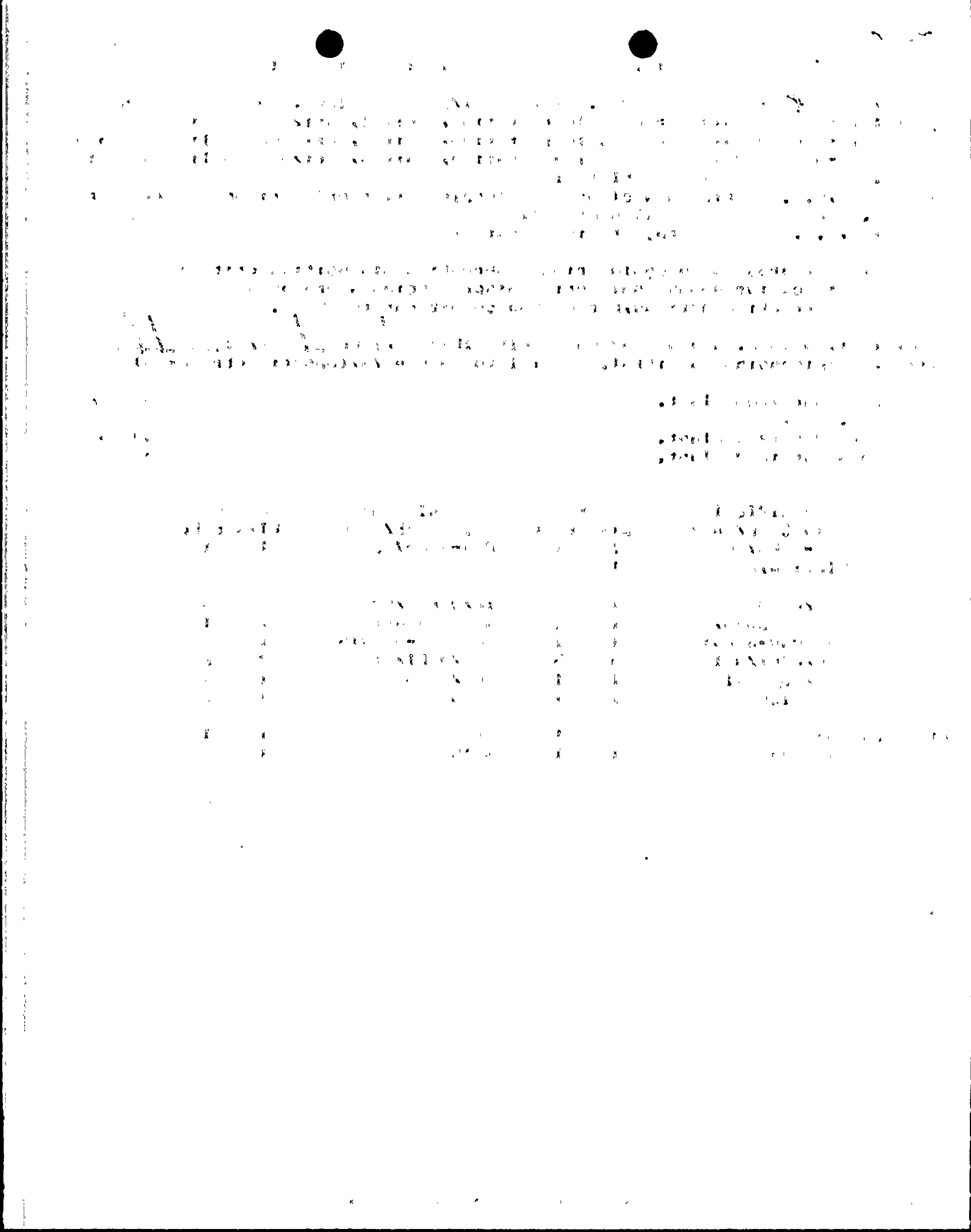

Arizona Nuclear Power Project
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November 27, 1985
ANPP 34121 EEVB/JKO

Director of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Project Director
PWR Project Directorate #7
Division of Pressurized Water Reactor Licensing - B
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 (License No. NPF-41)/529/530
Results of the Detailed Control Room
Design Review (DCRDR)
File: 85-056-026; G.1.01.10

Reference: Letter to G. W. Knighton, NRC, from E. E. Van Brunt, Jr., ANPP, dated August 30, 1985 (ANPP-33302); Subject: Detailed Control Room Design Review

Dear Mr. Knighton:

In the referenced letter Appendix BB, Section 3.0, Arizona Public Service Company (APS) committed to evaluate the observations which resulted from the PVNGS DCRDR task analysis and control room inventory. All the observations have been reviewed and categorized as either safety, reliability, reliability-enhancement, minor, or non-discrepancies. Attachment 1 indicates the Human Engineering Observation Disposition Criteria used to categorize the observations. Some observations were not considered discrepancies because these observations have a resolution already implemented.

Attachment 2 provides an index of the observations identified by the above referenced letter to the HED corrective actions identified in Attachment 3 to this letter. Attachment 3 lists only those observations that we categorized as Human Engineering Discrepancies (HED's) A, B or C and their respective proposed corrective actions. Category D HED's and non-discrepancy observations are not discussed in this letter but have been dispositioned by the results review committee.

The implementation schedules of the Category A and B HED's are to have the resolutions implemented prior to startup from the respective Unit's first refueling outage. The category C HED's will be evaluated as plant betterment items.

A003
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If you have any further questions, please contact Mr. W. F. Quinn of my staff.

Very truly yours,

EE Van Brunt Jr/WH

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

EEVB/WFQ/JKO/dlm

cc: E. Licitra (All w/a)
M. Ley
R. Ramirez
R. P. Zimmerman
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ATTACHMENT 1

HUMAN ENGINEERING OBSERVATION DISPOSITION CRITERIA

Category	Description	Implementation Criteria
A	Safety	Mandatory
B	Reliability (90% Availability Criterion)	Mandatory
C	Reliability (Enhancement)	Non-Mandatory
D	Minor	Non-Mandatory - Non-HED
Non Discrepancy	Non Discrepancy	Implementation Complete

Note: Category C will be reviewed as plant betterment items.

ATTACHMENT 2

INDEX FOR HED's

We are starting a 200 series for HED numbering.

HED NUMBER	8/30/85 SUBMITTAL REFERENCE
200	Appendix H - 1.1.10.00, 1.1.10.20.0.10, 1.1.20.0.5
201	Appendix H - 4.5.35.5.10.10, 4.5.35.10.10.10, 4.5.35.5.10.35, 4.5.35.10.10.35
202	Appendix H - 5 1 75 0 0 45, 5 1 75 0 0 50, 5 1 75 0 0 55, 5 1 75 0 0 60, 5 1 75 0 0 65, 5 1 75 0 0 70, 5 1 75 0 0 75, 5 1 75 0 0 80, 5 1 75 0 0 85, 5 1 75 0 0 90, 5 1 75 0 0 95, 5 1 75 0 0 100
203	Appendix H - 13 20 25 5 10 0, 13 20 25 5 15 0, 13 20 25 5 20 0, 13 20 25 5 25 0, 13 20 25 5 30 0
204	Table 3-2
205	Table 3-1 CB Item 177
206	Table 3-1 CB Item 158
207	Table 3-1 CB Item 81 and 79
208	Table 3-1 CB Item 157
209	Table 3-1 CB Item 126
210	Table 3-1 CB Item 55
211	Table 3-1 CB Item 156
212	Table 3-1 CB Item 33
213	Table 3-1 CB Item 152
214	Table 3-1 CB Item NA
215	Non-Discrepancy
216	Non-Discrepancy
217	Non-Discrepancy
218	Appendix I - 1.3.40.30.20.25, 1.3.40.30.5.25
219	Appendix J - 3.5.60.5.0.10

220 New - Event/Task 6.2.10.15.0.0

221 Appendix I - 11.3.20.15.40.10, 11.3.20.15.35.15, 11.3.20.15.40.30, 11.3.20.15.35.20

222 Table 3-3 Item 4

223 Non-Discrepancy

224 Appendix I - 4.2.30.5.10.15, 4.2.30.10.0.20

Some Non-Discrepancies were inadvertently assigned numbers

ATTACHMENT 3

Human Engineering Discrepancies and their Proposed Corrective Actions

Human Engineering Discrepancy Summary
Category A
(Safety; Mandatory Implementation)

HED No.	Discrepancy	Corrective Action
211	The Reactor Vessel Head and Plenum Level dual pen Recorder (SHA-TR-5) does not have engineering units.	Revise recorder to indicate engineering units that match the QSPDS engineering units. Also provide indication of Reactor Vessel Level on top half of recorder and Plenum Level on bottom half of recorder.
212	Incorrect label for handswitch SIA-HS-673.	Correct labels per design drawings.
220	While maintaining the Containment Temperature and Pressure critical safety function using the Containment Spray System, the operator task requires to monitor containment temperature to make sure it is constant or decreasing. Device RMW-UJR-5 monitors containment temperature but is not labeled as such. The scale of the device is from 0-100 with no engineering units.	Provide adequate scale and engineering units on recorder. The adequate range for containment temperature will also be provided.

Human Engineering Discrepancy Summary
Category B
(Reliability 90% Availability Criterion: Mandatory Implementation)

HED No.	Discrepancy	Corrective Action
205	13.8KV Bus 1-E-NAN-S01 (NAN-EI-S01A) Supply voltmeter Nameplate is incorrect.	Provide correct device nameplate per design documents.
206	SG2 Downcomer Feedwater Control Valve Position Indicator (SGN-ZI-1123) nameplate is missing.	Provide correct device nameplate per design document.
207	Nameplates for devices. SGA-HS-204, SGA-HS-211, SGB-HS-219 and SGB-HS-228 are incorrect.	Provide correct device nameplate per design document.
208	Nameplate for device SGN-ZI-122 is incorrect.	Provide correct device nameplate per design document.
209	Scale identification for RCN-TR-111X is omitted.	Provide correct device scale identification per design documents.
210	Standby Battery Charger AC Ammeter nameplate is not correct.	Provide correct nameplate per design document.
213	Nameplate is missing on device RCN-ZI-100.	Provide correct nameplate per design document.
214	No description is shown on the nameplates for instruments on the Radiation Monitoring System (RMS) Remote Indication and Control (RIC) Panel.	Provide nameplates to indicate instrument description on RIC Panel.
219	While maintaining the Pressure Control Critical Safety Function (CSF) using forced circulation RCP and SG, the operator task requires to verify CST and RMWT status in % units. The devices available provide tank status in FT. (Tech Spec's require that the tank levels be monitored in FT.)	Provide meter banding to indicate when tank is full.
222	While maintaining the Reactivity Control Critical Safety Function (CSF) using Chemical and Volume Control System (CVCS), the operator task requires to verify spent fuel pool level.	Provide local spent fuel pool level indication (i.e., marking on side of pool).

Human Engineering Discrepancy Summary
Category C
(Reliability: Non-Mandatory Implementation)

HED No.	Discrepancy	Corrective Action
200	While maintaining the Reactivity Control Critical Safety Function (CSF), the operator task requires the opening of Reactor Trip breakers SBA-C03, SBB-C03, SBC-C03 and SBD-C03 or deenergizing CEDM MG SFN-C02A and SFN-C02A by opening circuit breaker NGN-L03C4 and NGN-L10C4, respectively. These circuit breaker controls were not available to the operator in the control room.	Provide labels on Panel B01 to identify switchgear breakers that deenergize NGN-L03C4 and NGN-L10C4.
201	While maintaining the Heat Removal Critical Safety Function (CSF), the operator task is to verify in control room the train "A" essential cooling water system availability by (1) verifying discharge pressure and (2) surge tank level. These controls were not available to the operator in the control room.	Provide Surge Tank Level indicator.
202	While performing Containment Isolation, the control room operator task requires the verifying of several manual valves. These valves do not have controls or valve indication status in the control room.	Evaluate prior to first refueling outage, the best method to prevent operators from leaving valve CH-V-584 in open position either through a procedural change or physical indication in control room.
203	While performing the Recovery Actions for a Steam Generator Rupture, the operator task requires to monitor or sample. SG1 and SG2 Cold Leg Blowdown, Hot Leg Blowdown and Downcomer for activity. Monitoring indications are not available in control room other than on the Radiation Monitoring System (RMS) CRT.	Demonstrate RMS reliability is sufficient, otherwise provide indicators in the control room for SG Blowdown activity. (These indicators are to be separate from RMS).
204	Several Radiation Monitoring devices used while maintaining the Critical Safety Functions (CSF's) are located on a panel near the main control room.	Evaluate alternatives to improve Radiation Monitoring System (RMS) reliability to provide information to the operator to classify an emergency event in the necessary time-frame.

Human Engineering Discrepancy Summary
Category C
(Reliability: Non-Mandatory Implementation)

HED No.	Discrepancy	Corrective Action
218	While maintaining the Reactivity Control Critical Safety Function (CSF) using ECCS, the operator task requires monitoring auxiliary feedwater flow in gpm. Information in the control room is provided in LB/Hr.	Provide an additional label for downcomer auxiliary feedwater flow in gpm and provide training on application of new scale.
221	During the Heat Removal Critical Safety Function (CSF) using SG and ECCS, the operator task requires to verify main feedwater pump supplying feedwater. There are no devices labeled as main feedwater pump flow.	Provide an "ON-OFF" indication status for main feedwater pumps on main control board.
224	During the Heat Removal Critical Safety Function CSF using SG Natural Circulation, the operator task requires the monitoring and verification that Loop 2A/2B T-Cold temperature is between 350°F and 565°F. Instruments RCB-TI-112CB, RCC-TI-112CC, RCD-TI-112CD and RCA-TI-112CA have been provided in the control room to monitor Loop 2A/2B T-Cold, but have a range from 465-615°F. This is insufficient to cover the lower range expected.	Recorder RCA-TR-122 is provided on control boards to display temperatures between 50°F and 750°F. Additional investigation prior to first refueling outage to determine if "delta T" meters on panel RMN-B04, on QSPDS and panel RMN-B02 in the control room are sufficient for operators to perform required task.