PVNGS Technical Requirements Manual (TRM)
Revision 57
Replacement Pages and Insertion Instructions

The following LDCRs are included in this change:

LDCR 10-R012 removes Unit 3 *Post-Accident Sampling System* (PASS) containment isolation valve (CIV) RDB UV-407 from the TRM *Component List* T7.0.300, *Containment Isolation Valves*. License Amendment 136 authorized abandonment of PASS, however, a number of the PASS valves remain physically connected. DMWO 2778159 removed the Unit 3 valve during the past Unit 3 outage.

LDCR 12-R001 removes overpressure protection valves AFB PSV-0106 and 0107 from CIVs AFB UV-034 and 35 from TRM *Component List* T7.0.300, *Containment Isolation Valves*. The valves were replaced by a pressure equalizing line from the valve bonnets to the process piping under DMWO 3588553.

LDCR 12-R005 updates the applicable industry standard edition date for Unit 1 (ASTM E185-79) and Units 2 and 3 (ASTM E185-82) in TRM Appendix TA, *Reactor Coolant System Pressure and Temperature Limits Report* (PTLR), Section TA6.2, *Evaluation of Surveillance Data Credibility*.

LDCR 12-R006 corrects the description of the responsible organizations for the Inservice Inspection (ISI) and Inservice Testing (IST) programs in TRM Section 5.0.500.8, *Inservice Inspection and Testing Programs*.

LDCR 12-R008 deletes the High Pressure Safety Injection (HPSI), Low Pressure Safety Injection (LPSI) and Containment Spray pump miniflow differential pressure test requirements from the TRM (Sections 5.0.500.8.e, 5.0.500.8.f and 5.0.500.8.g). The TRM requirements were redundant to Inservice Testing requirements defined in Technical Specification 5.5.8.

Instructions

Remove Page:	Insert New Page:
Cover Page	Cover Page
List of Effective Pages, Pages 1, 2, 3 and 4	List of Effective Pages, Pages 1, 2, 3 and 4
T5.0.500-11 through T5.0.500-18	T5.0.500-11 through T5.0.500-17
T7.0.300-1 T7.0.300-3	T7.0.300-1 T7.0.300-3
TRM Appendix TA	
TA-12	TA-12

Technical Requirements Manual

Revision 57
April 10, 2013

Stephenson, Carl J(Z05778)

Digitally signed by Stephenson, Carl J(Z05778)
DN: cn=Stephenson, Carl J(Z05778)
Reason: I attest to the accuracy and integrity of this document
Date: 2013.04.05 11:11:41 -07'00'

PALO VERDE UNITS 1, 2, 3

LIST OF EFFECTIVE PAGES

Page No.	Revision No.	Page No.	Revision No.
TOC page i	33	T3.3.103-1	51
TOC page ii	48	T3.3.103-2	54
TOC page iii	33	T3.3.103-3	13
TOC page iv	52	T3.3.103-4	13
T1.1.100-1	0	T3.3.104-1	46
T1.2.100-1	0	T3.3.104-2	0
T1.3.100-1	0	T3.3.105-1	46
T1.4.100-1	0	T3.3.105-2	48
T2.0.100-1	0	T3.3.105-3	48
T3.0.100-1	47	T3.3.106-1	46
T3.0.100-2	40	T3.3.106-2	14
T3.0.100-3	23	T3.3.107-1	56
T3.0.100-4	47	T3.3.107-2	46
T3.1.100-1	0	T3.3.108-1	0
T3.1.100-2	0	T3.3.108-2	0
T3.1.101-1	0	T3.3.200-1	46
T3.1.101-2	54	T3.3.200-2	31
T3.1.101-3	0	T3.3.201-1	0
T3.1.102-1	0	T3.4.100-1	28
T3.1.103-1	1	T3.4.101-1	0
T3.1.104-1	0	T3.4.101-2	0
T3.1.104-2	0	T3.4.101-3	0
T3.1.105-1	46	T3.4.101-4	0
T3.1.105-2	0	T3.4.102-1	0
T3.1.105-3	50	T3.4.102-2	0
T3.1.200-1	46	T3.4.103-1	53
T3.1.200-2	24	T3.4.104-1	28
T3.1.201-1	0	T3.4.104-2	55
T3.1.202-1	53	T3.4.200-1	52
T3.1.202-2	46	T3.4.201-1	46
T3.1.203-1	29	T3.4.202-1	46
T3.1.204-1	33	T3.4.203-1	46
T3.1.205-1	33	T3.4.204-1	46
T3.2.200-1	53	T3.5.200-1	46
T3.3.100-1	46	T3.5.200-2	0
T3.3.100-2	10	T3.5.200-3	0
T3.3.101-1	40	T3.5.201-1	16
T3.3.101-2	46	T3.5.201-2	47
T3.3.101-3	18	T3.5.202-1	46
T3.3.101-4	18	T3.5.202-2	39
T3.3.101-5	52	T3.5.202-3	47
T3.3.102-1	21	T3.5.202-4	0
T3.3.102-2	40	T3.5.203-1	46

LIST OF EFFECTIVE PAGES

Page No.	Revision No.	Page No.	Revision No.
T3.5.203-2	35	T3.9.200-2	29
T3.6.100-1	48	T3.9.201-1	46
T3.6.100-2	0	T3.10.200-1	40
T3.6.200-1	22	T3.10.201-1	0
T3.6.200-2	22	T3.10.201-2	0
T3.6.201-1	47	T3.10.202-1	40
T3.6.300-1	48	T3.10.202-2	0
T3.6.300-2	48	T3.11.100-1	40
T3.7.100-1	27	T3.11.100-2	38
T3.7.100-2	27	T3.11.100-3	38
T3.7.101-1	46	T3.11.100-4	38
T3.7.101-2	46	T3.11.100-5	38
T3.7.102-1	0	T3.11.100-6	38
T3.7.102-2	0	T3.11.100-7	38
T3.7.102-3	0	T3.11.100-8	38
T3.7.200-1	42	T3.11.100-9	38
T3.7.200-2	53	T3.11.101-1	40
T3.7.201-1	46	T3.11.101-2	46
T3.7.202-1	46	T3.11.101-3	46
T3.7.203-1	46	T3.11.101-4	39
T3.7.204-1	46	T3.11.101-5	46
T3.7.205-1	46	T3.11.102-1	46
T3.7.205-2	46	T3.11.102-2	4
T3.7.206-1	0	T3.11.102-3	4
T3.7.207-1	46	T3.11.102-4	4
T3.8.100-1	46	T3.11.102-5	18
T3.8.100-2	0	T3.11.103-1	46
T3.8.101-1	46	T3.11.103-2	49
T3.8.101-2	40	T3.11.104-1	44
T3.8.101-3	12	T3.11.104-2	4
T3.8.101-4	0	T3.11.104-3	4
T3.8.102-1	0	T3.11.104-4	18
T3.8.102-2	0	T3.11.105-1	46
T3.8.200-1	0	T3.11.105-2	4
T3.9.100-1	0	T3.11.105-3	18
T3.9.101-1	0	T3.11.106-1	40 CORRECTED
T3.9.102-1	0	T3.11.106-2	49
T3.9.102-2	0	T3.11.107-1	40 CORRECTED
T3.9.103-1	0	T3.11.107-2	4
T3.9.104-1	0	T3.11.107-3	4
T3.9.104-2	0	T4.0.100-1	0
T3.9.104-3	0	T5.0.100-1	0
T3.9.200-1	46	T5.0.200-1	0

LIST OF EFFECTIVE PAGES

Page No.	Revision No.	Page No.	Revision No.
T5.0.300-1	0	T6.0.100-22	53
T5.0.400-1	0	T6.0.100-23	53
T5.0.500-1	53	T6.0.100-24	53
T5.0.500-2	24	T6.0.100-25	53
T5.0.500-3	0	T6.0.100-26	53
T5.0.500-4	53	T6.0.100-27	53
T5.0.500-5	0	T6.0.100-28	53
T5.0.500-6	0	T6.0.100-29	53
T5.0.500-7	0	T6.0.100-30	53
T5.0.500-8	22	T6.0.100-31	53
T5.0.500-9	0	T6.0.100-32	53
T5.0.500-10	0	T6.0.100-33	53
T5.0.500-11	57	T6.0.100-34	53
T5.0.500-12	57	T6.0.100-35	53
T5.0.500-13	57	T6.0.100-36	53
T5.0.500-14	57	T6.0.100-37	53
T5.0.500-15	57	T7.0.100-1	52
T5.0.500-16	57	T7.0.100-2	52
T5.0.500-17	57	T7.0.100-3	0
T5.0.600-1	37	T7.0.200-1	52
T5.0.600-2	37	T7.0.200-2	52
T5.0.700-1	34	T7.0.200-3	0
T6.0.100-1	40	T7.0.300-1	57
T6.0.100-2	40	T7.0.300-2	41
T6.0.100-3	40	T7.0.300-3	57
T6.0.100-4	40	T7.0.300-4	43
T6.0.100-5	46	T7.0.300-5	32
T6.0.100-6	40	T7.0.300-6	32
T6.0.100-7	54	T7.0.300-7	32
T6.0.100-8	46	T7.0.300-8	32
T6.0.100-9	40	T7.0.400-1	0
T6.0.100-10	40	T7.0.400-2	0
T6.0.100-11	40	T7.0.400-3	0
T6.0.100-12	40	T7.0.400-4	51
T6.0.100-13	46	17.0.400-5	0
T6.0.100-14	46	T7.0.500-1	0
T6.0.100-15	53	TA-i	52
T6.0.100-16	53	TA-ii	52
T6.0.100-17	53	TA-iii	52
T6.0.100-18	53	TA-1	52
T6.0.100-19	53	TA-2	52
T6.0.100-20	53	TA-3	52
T6.0.100-21	53	TA-4	52

LIST OF EFFECTIVE PAGES

Page No.	Revision No.	Page No.	Revision No.
TA-5	52		
TA-6	52		
TA-7	52		
TA-8	52		
TA-9	52		
TA-10	52		
TA-11	52		
TA-12	57		
TA-13	52		
TA-14	52		
TA-15	52		
TA-16	52		

5.0.500 Programs and Manuals (continued)

5.0.500.7 Reactor Coolant Pump Flywheel Inspection Program

The purpose of the Reactor Coolant Pump Flywheel Inspection Program is to provide for the inspection of each reactor coolant pump flywheel. The PVNGS Program Engineering group is the program owner.

The program requirements are specified in ITS 5.5.7.

5.0.500.8 Inservice Inspection and Testing Programs

The purpose of the Inservice Inspection (ISI) and Inservice Testing (IST) Programs is to provide controls for ASME inspection and testing of ASME Code Class 1, 2 and 3 components. The PVNGS Engineering Programs group is the program owner for ISI and the PVNGS Component Programs group is the program owner for IST.

In addition to the program requirements specified in ITS 5.5.8, the following also applies:

a. Inservice inspection shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g).

b. Inservice Testing shall be performed in accordance with the ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda as required by 10 CFR 50.55a(f).

c. The testing frequency specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for the inservice inspection and testing activities required by the ASME Boiler and Pressure Vessel Code and applicable Addenda shall be applicable as specified in PVNGS ITS 5.5.8.a for ITS and TRM requirements.

d. The provisions of ITS SR 3.0.2 are applicable to ITS 5.5.8.a for performing inservice inspection and testing activities. The testing frequency specified in the ASME OM Code and applicable Addenda for the inservice testing activities required by the ASME OM Code and applicable Addenda shall be as specified in PVNGS ITS 5.5.8a for ITS and TRM requirements.

(continued)

5.0.500 Programs and Manuals (continued)

5.0.500.9 Steam Generator (SG) Tube Surveillance Program

The purpose of the Steam Generator Tube Surveillance Program is to provide controls for the Inservice Inspection of steam generator tubes to ensure that structural integrity of this portion of the RCS is maintained. The PVNGS System Engineering Group is the program owner.

The program requirements are specified in ITS 5.5.9.

5.0.500.10 Secondary Water Chemistry Program

The purpose of the Secondary Water Chemistry Program is to provide controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The PVNGS Chemistry group is the program owner.

Program requirements are specified in PVNGS TS 5.5.10.

5.0.500.11 Ventilation Filter Testing Program (VFTP)

The purpose of the Ventilation Filter Testing Program is to implement the required testing of the TS and TRM filter ventilation systems. The PVNGS Electrical Maintenance (HVAC) group is the program owner.

Program requirements for the Control Room Essential Filtration System (CREFS) and ESF Pump Room Exhaust Air Cleanup System (ESF PREACS) are specified in PVNGS TS 5.5.11 and as supplemented herein.

Program requirements for the Hydrogen Purge Cleanup system (HPCS) and the Fuel Building Essential Ventilation System (FBEVS) are contained herein.

The following requirements apply:

1. When testing pursuant to PVNGS TS SR 3.7.11.2, TS SR 3.7.13.2, TSR 3.6.100.2 and TSR 3.9.104.2, the CREFS, PREACS, HPCS and FBEVS shall be demonstrated OPERABLE at least once per 18 months or:

(continued)

(a) after any maintenance affecting the airflow distribution or integrity of the HEPA or charcoal adsorber filter banks, or

(b) following painting, fire, or a chemical release in any ventilation zone communicating with the system that has been evaluated to have the potential to adversely affect the integrity of the filters.

2. When testing the CREFS, PREACS, HPCS and FBEVS pursuant to PVNGS TS SR 3.7.11.2, TS SR 3.7.13.2, TSR 3.6.100.2 and TSR 3.9.104.2, perform the in-place testing activities in accordance with Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978 and the PVNGS VFTP. (In response to NRC Generic Letter 83-13).

3. After every 720 hours of charcoal adsorber operation and when testing the CREFS and PREACS pursuant to PVNGS TS 5.5.11.c, the HPCS pursuant to PVNGS TRM TSR 3.6.100.2, and the FBEVS pursuant to TRM TSR 3.9.104.2, verify within 31 days after a representative charcoal sample is removed, being obtained in accordance with the application of Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, as described in Section 1.8 of the UFSAR, that the methyl iodide penetration is less than or equal to the value specified below, when tested in accordance with ASTM D3803-1989, at a temperature of 30°C and relative humidity specified as follows:

	Penetration	RH
CREFS	≤2.5%	70%
ESF PREACS/FBEVS	≤2.5%	70%
HPCS	≤2.5%	70%

4. After each complete or partial replacement of a HEPA filter bank for the HPCS and FBEVS by verifying that the HEPA filter banks remove greater than or equal to 99.0% of the DOP when they are tested in-place in accordance with ANSI N510-1980. The system flowrates for the HPCS and FBEVS are as specified below +/- 10%:

HPCS	50 CFM
FBEVS	6000 CFM

(continued)

5.0.500 Programs and Manuals (continued)

5. After each complete or partial replacement of a charcoal adsorber bank for the HPCS and FBEVS by verifying that the charcoal adsorbers remove greater than or equal to 99.0% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1980. The system flowrates for the HPCS and FBEVS are as specified below +/- 10%:

HPCS	50 CFM
FBEVS	6000 CFM

6. For the HPCS and FBEVS, demonstrate at least once per 18 months that the pressure drop across the combined HEPA filters, the prefilters, and the charcoal adsorbers is as specified below when tested in accordance with Regulatory Guide 1.52, Revision 2 and ANSI N510-1980 at the system flowrate specified as follows +/- 10%:

Ventilation System	Delta P	Flowrate
HPCS	< 2.26 inches water gauge	50 CFM
FBEVS	≤ 5.2 inches water gauge	6000 CFM

7. For the system specified below, demonstrate at least once per 18 months that the heaters dissipate at least the following specified value when tested in accordance with ANSI N510-1980:

Ventilation System	Wattage
HPCS	0.5 kW

8. The provisions of TLCO 3.0.100.3 and TSR 3.0.100.3 are applicable to the requirements of T5.0.500.11.1 (a) and (b), T5.0.500.11.3, T5.0.500.11.4, T5.0.500.11.5, T5.0.500.11.6 and T5.0.500.11.7.

5.0.500.12 Explosive Gas and Storage Tank Radioactivity Monitoring Program

The purpose of the Explosive Gas and Storage Tank Radioactivity Monitoring Program is to provide control for potentially explosive gas mixtures contained in the Waste Gas Holdup System, and for the quantity of radioactivity contained in gas storage tanks and unprotected outdoor liquid storage tanks. The PVNGS Chemistry group is the program owner.

(continued)

5.0.500 Programs and Manuals (continued)

The program requirements are specified in ITS 5.5.12.

Refer to TRM specifications T3.10.200, T3.10.201 and T3.10.202 for specification requirements.

5.0.500.13 Diesel Fuel Oil Testing Program

The purpose of the Diesel Fuel Oil Testing Program is to ensure the acceptability of fuel oil prior to addition to storage tanks. The PVNGS Chemistry group is the program owner.

The program requirements are specified in ITS 5.5.13.

5.0.500.14 Technical Specifications (TS) Bases Control Program

The purpose of the Technical Specifications Bases Control Program is to provide a means for processing changes to the Bases of the PVNGS ITS. Nuclear Regulatory Affairs is the program owner.

Program requirements are specified in ITS 5.5.14.

5.0.500.15 Safety Function Determination Program (SFDP)

The purpose of the Safety function Determination Program is to ensure that a loss of safety function is detected and appropriate actions taken. The PVNGS Operations group is the program owner.

Program requirements are specified in ITS 5.5.15.

5.0.500.16 Containment Leakage Rate Testing Program

The purpose of the Containment Leakage Rate Testing Program is to implement the required containment leakage rate testing. The PVNGS Program Engineering group is the program owner.

In addition to the program requirements specified in ITS 5.5.16, the following also applies:

a. Demonstrate CONTAINMENT INTEGRITY after each closing of each penetration subject to Type B testing, except containment air locks, if opened following a Type A or B test, by leak rate testing in accordance with ITS 5.5.16.

(continued)

5.0.500 Programs and Manuals (continued)

b. Leakage rate acceptance criteria:

1. For the required 42 inch containment purge supply and exhaust isolation valves with resilient material seals measured leakage rate is less than or equal to 0.05 L_a when pressurized to P_a.

2. For 8 inch containment purge supply and exhaust isolation valves with resilient material seals measured leakage rate is less than or equal to 0.01 L_a when pressurized to P_a.

c. The provisions of TLCO 3.0.100.3 and TSR 3.0.100.3 are applicable to the requirements of T5.0.500.16 a and b.

5.0.500.17 Process Control Program (PCP)

The purpose of the Process Control Program is to contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste. The PVNGS Radiation Protection Group is the program owner.

Requirements for changes to the PCP are contained in the PVNGS QA Plan.

5.0.500.18 Technical Requirements Manual (TRM) Control Program

The purpose of the Technical Requirements Manual Control Program is to provide a means for establishing controls and processing changes to the TRM. Nuclear Regulatory Affairs is the program owner.

5.0.500.19 Configuration Risk Management Program (CRMP)

The Configuration Risk Management Program (CRMP) provides a proceduralized risk-informed assessment to manage the risk associated with equipment inoperability. The program applies to technical specification structures, systems, and components for

(continued)

5.0.500 Programs and Manuals (continued)

which a risk-informed Completion Time has been granted. The program shall include the following elements:

a. Provisions for the control and implementation of a Level 1 at-power internal events PRA-informed methodology. The assessment is to be capable of evaluating the applicable plant configuration.

b. Provisions for performing an assessment prior to entering the plant configuration described by the Limiting Conditions for Operation (LCO) Action Statement for preplanned activities.

c. Provisions for performing an assessment after entering the plant configuration described by the LCO Action Statement for unplanned entry into the LCO Action Statement.

d. Provisions for assessing the need for additional actions after the discovery of additional equipment-out-of service conditions while in the plant configuration described by the LCO Action Statement.

e. Provisions for considering other applicable risk-significant contributors such as Level 2 issues and external events, qualitatively or quantitatively.

(continued)

T7.0 COMPONENT LISTS

T7.0.300 CONTAINMENT ISOLATION VALVES

This list identifies the containment isolation valves that are subject to the testing requirements of TS 3.6.3, "Containment Isolation Valves." All manual vent, drain, and test valves within a Containment Penetration (i.e., between the Containment Isolation Valves) will be maintained locked and closed per the locked valve administrative program or surveilled closed per Technical Specification SR 3.6.3.3 or SR 3.6.3.4.

VALVE NO	ITS 3.6.3 Condition	PENETRATION	VALVES RECEIVING CONTAINMENT ISOLATION (CIAS)
RDA-UV 023	A	9	Containment radwaste sump pump to LRS holdup tank
RDB-UV 024	A	9	Containment radwaste sump pump to LRS holdup tank
RDB-UV 407 (Unit 1 only)	A	9	Containment radwaste sump post-accident sampling system
SGB-HV 200[a]	A	11	Downcomer feedwater chemical injection
SGB-HV 201[a]	A	12	Downcomer feedwater chemical injection
SIA-UV 708[a]	A	23	Containment recirc sump to post-accident sampling system
HCB-UV 044	A	25A	Containment air radioactivity monitor (inlet)
HCA-UV 045	A	25A	Containment air radioactivity monitor (inlet)
HCA-UV 046	A	25B	Containment air radioactivity monitor (outlet)
HCB-UV 047	A	25B	Containment air radioactivity monitor (outlet)
GAA-UV 002	A	29	Nitrogen to steam generator and reactor drain tank
GAA-UV 001	A	30	Nitrogen to SI tanks
HPA-UV 001	A	35	Containment to hydrogen recombiner
HPA-UV 003	A	35	Containment to hydrogen recombiner
HPA-UV 024	A	35	Hydrogen control system
HPB-UV 002	A	36	Containment to hydrogen recombiner
HPA-UV 005	A	38	Containment to hydrogen recombiner
HPB-UV 004	A	36	Hydrogen recombiner return to containment (inlet)
HPA-UV 023	A	38	Hydrogen control system
HPB-UV 006	A	39	Hydrogen recombiner return to containment (inlet)
CHA-UV 516	A	40	Letdown line from RC loop 2B to regenerative heat exchanger and letdown heat exchanger
CHB-UV 523	A	40	Letdown line from RC loop 2B to regenerative heat exchanger and letdown heat exchanger
CHB-UV 924	A	40	Letdown line to post-accident sampling system
SSB-UV 201	A	42A	Pressurizer liquid sample line

(continued)

a. Not Type C Tested

T7.0 COMPONENT LISTS

VALVE NO	ITS 3.6.3 Condition	PENETRATION	VALVES RECEIVING CONTAINMENT SPRAY (CSAS)
IAA-UV-002	A	31	Service air to reactor containment inst. air
NCB-UV-401	A	33	NC water to RCP motor bearing lube oil and air coolers
NCB-UV-403	A	34	NC water to RCP motor bearing lube oil and air coolers
NCA-UV-402	A	34	NC water to RCP motor bearing lube oil and air coolers
CHB-UV-505	A	43	RC pump seal bleedoff
CHA-UV-506	A	43	RC pump seal bleedoff

VALVE NO	ITS 3.6.3 Condition	PENETRATION	CONTAINMENT ISOLATION SAFETY/RELIEF VALVES
AFA-PSV-0108[a][b]	A	75	Overpressure protection for CIV AFC-UV-036
AFA-PSV-0109[a][b]	A	76	Overpressure protection for CIV AFA-UV-037
NCE-PSV-0617[c]	A	34	Overpressure protection for penetration 34
SIA-PSV 151[a]	A	23	Containment recirculation sump to containment spray, LPSI and HPSI headers 1A & 1B
SIB-PSV 140[a]	A	24	Containment recirculation sump to containment spray, LPSI and HPSI headers 2A & 2B
SIB-PSV 189[a] (Also covered by ITS 3.4.13)	A	26	From shutdown cooling RC Loop 2
SIA-PSV 179[a] (Also covered by ITS 3.4.13)	A	27	From shutdown cooling RC Loop 1
SIE-PSV 474	A	28	Safety injection drain relief

a. Not Type C Tested
b. Valve installation per DMWO 00741855
c. Valve installation per DMWO 00830780

Evaluation of Charpy energy versus temperature for the unirradiated and irradiated condition is presented in References 6, 7, and 8. Based on engineering judgment, the scatter in the data presented is small enough to permit the unambiguous determination of the 30 ft-lb temperature and the upper shelf energy of the PVNGS Units 1, 2, and 3 surveillance materials. Thus, the PVNGS surveillance program meets this criterion.

Criterion 3: When there are two or more sets of surveillance data from one reactor, the scatter of ΔRT_{NDT} values about a best-fit line drawn as described in Regulatory Position 2.1 normally should be less than 28°F for welds and 17°F for base metal. Even if the fluence range is large (two or more orders of magnitude), the scatter should not exceed twice those values. Even if the data fail this criterion for use in shift calculations, they may be credible for determining decrease in upper shelf energy if the upper shelf can be clearly determined, following the definition given in ASTM E 185-82.

The surveillance program for PVNGS is based on ASTM E185-79 for Unit 1 and ASTM E185-82 for Unit 2 & 3 which presents criteria for monitoring changes in the fracture toughness properties of reactor vessel beltline materials. References 6, 7, and 8 describe the post-irradiation evaluations of PVNGS surveillance materials.

The credibility results shown in Tables TA6-2, TA6-3 and TA6-4 for Units 1, 2, and 3, respectively, present the shift measurements available to date. Those values are compared to predictions based on a chemistry factor determined following Position 1.1 of Regulatory Guide 1.99. In all cases, the difference between the measured and predicted shift is less than 17°F for the surveillance plates and less than 28°F for the surveillance welds. Therefore, this criterion is met for the PVNGS Units 1, 2, and 3 surveillance program plate and weld materials.

(continued)