

Enclosure Attachment 2 contains
PROPRIETARY information to be withheld
under 10 CFR 2.390

10 CFR 50.55a



John J. Cadogan, Jr
Vice President,
Nuclear Engineering

102-07125-JJC/DCE
October 22, 2015

**Palo Verde
Nuclear Generating Station**
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ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Reference:

1. APS letter number 102-07034, *Palo Verde Nuclear Generating Station Unit 3, Docket No. STN 50-530, American Society of Mechanical Engineers (ASME) Code, Section XI, Request for Approval of an Alternative to Flaw Removal - Relief Request 53*, dated April 17, 2015
2. NRC Letter *Palo Verde Nuclear Generating Station, Unit 3 - Relief Request 53, Alternative to ASME Code, Section XI Requirements*, dated September 15, 2015
3. APS letter number 102-05324, *Palo Verde Nuclear Generating Station Units 1, 2, 3, Docket Nos. STN 50-528/529/530, 10 CFR 50.55a(a)(3)(i) Alternative Repair Request for Reactor Coolant System Hot Leg Alloy 600 Small-Bore Nozzles (Relief Request 31, Revision 1)*

Dear Sirs:

Subject: **Palo Verde Nuclear Generating Station (PVNGS)
Unit 3
Docket No. 50-530
American Society of Mechanical Engineers (ASME) Code,
Section XI, Request for Approval of an Alternative to Flaw
Removal - Relief Request 54**

Pursuant to 10 CFR 50.55a(z)(1), Arizona Public Service Company (APS) requests NRC approval of Relief Request 54, which proposes an alternative to the ASME Code requirements of Section XI related to flaw indications identified in a Unit 3 reactor coolant pump 2A suction pressure instrument nozzle. Specifically, APS is proposing a half-nozzle repair and a flaw evaluation as an alternative to the ASME Section XI requirements for flaw removal of IWA-4421, and successive examinations of IWB-2420.

APS submitted Relief Request 53 (Reference 1) for use of the proposed alternatives through the current 19th operating fuel cycle. Relief Request 53 was verbally approved by the NRC staff in a teleconference on April 24, 2015, and in a written safety evaluation (Reference 2).

A member of the **STARS** (Strategic Teaming and Resource Sharing) Alliance
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AD47
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Attachment 2 transmitted herewith contain(s) **SUNSI**. When separated from **Attachment 2**, this transmittal document is decontrolled.

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The duration of Relief Request 54 is for the remainder of the current Unit 3 Inservice Inspection Program – Third Interval, ending on January 10, 2018. The duration is based on the attached analyses which demonstrate acceptability of the proposed alternative through the remainder of the Unit 3 licensed operating life.

The enclosure includes the relief request with attachments that provide the supporting evaluation. Attachment 1 provides a non-proprietary version of the supporting evaluation. Attachment 2 provides a proprietary version of the supporting evaluation.

An affidavit is provided in Attachment 1 of the Enclosure which supports the proprietary nature of the information included in the proprietary document provided in Attachment 2. The affidavit, signed by Westinghouse Electric Company (Westinghouse), the owner of the information, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.390. Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure.

Correspondence with respect to the copyright or proprietary aspects of the proprietary document or the supporting Westinghouse affidavit should be addressed to James Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3, Cranberry Township, Pennsylvania, 16066.

APS requests approval of this relief request prior to commencement of the next Unit 3 refueling outage, currently scheduled to begin October 8, 2016.

No new commitments are being made to the NRC by this letter. This letter credits the tracking of startup and shutdown times described in an existing regulatory commitment contained in Reference 3. The tracking ensures on-going validation of the assumptions of a supporting corrosion analysis described in the Enclosure to this letter.

Should you need further information regarding this submittal, please contact Michael D. Dilorenzo, Licensing Section Leader, at (623) 393-3495.

Sincerely,

Cadogan Jr, John
J(Z07696)

Digitally signed by Cadogan Jr, John
J(Z07696)
DN: cn=Cadogan Jr, John J(Z07696)
Date: 2015.10.22 15:42:30 -07'00'

JJC/DCE/ajf

Enclosure – Relief Request 54 Proposed Alternative in Accordance with 10 CFR
50.55a(z)(1)

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cc: M. L. Dapas NRC Region IV Regional Administrator
M. M. Watford NRC NRR Project Manager for PVNGS
L. J. Klos NRC NRR Project Manager
C. A. Peabody NRC Senior Resident Inspector for PVNGS

Enclosure

Relief Request 54 Proposed Alternative in Accordance with 10 CFR 50.55a(z)(1)

ATTACHMENTS

- Attachment 1 - *Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation, WCAP-18051-NP, Non-proprietary Version*
- Attachment 2 - *Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation, WCAP-18051-P, Proprietary Version*

Background Information

On April 7, 2015, during the Unit 3 refueling outage, evidence of leakage was found during post-shutdown boric acid walkdowns at the Palo Verde Nuclear Generating Station (PVNGS) Unit 3 reactor coolant pump (RCP) 2A suction pressure instrument nozzle. In response, on April 8, 2015, a visual examination of the nozzle was conducted in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Case N-722-1, *Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated With Alloy 600/82/182 Materials, Section XI, Division 1*. Arizona Public Service Company (APS) determined the indication to be reactor coolant system (RCS) pressure boundary leakage based on the results.

The RCP 2A suction instrument nozzle was an Alloy 600, 1-inch nominal pipe size, that contained an internal orifice designed to limit RCS leakage to within the capacity of the charging system in the event of a connected instrument line break. The nozzle extends through the approximate 3-inch thick RCP suction safe end pipe wall to connect to its associated instrument piping. A J-groove weld that connects the suction instrument nozzle to the safe end pipe wall inner surface provided the original RCS pressure boundary. The ASME Section III, Class 1 to Class 2 boundary break was originally located at the internal orifice within the suction instrument nozzle.

The RCP 2A suction instrument nozzle is one of twenty Unit 3 RCS cold leg instrument nozzles inspected in accordance with Table 1, Item B15.205, of ASME Code Case N-722-1. Subsequent to the visual examination performed on April 8, 2015, the scope was expanded to visually examine the remaining 19 RCS cold leg instrument nozzles in accordance with Note 7 of Code Case N-722-1, Table 1, *Examination Categories*. No additional leakage locations were identified.

An ASME Code-compliant half-nozzle repair was implemented to replace the original function of the J-groove weld on the interior of the safe end wall. The replacement half-nozzle consists of forged, primary water stress corrosion cracking (PWSCC) resistant Alloy 690 drilled round bar stock attached by an external J-groove weld. The half-nozzle repair effectively transfers the Class 1 RCS pressure boundary weld from the original internal J-groove weld in the RCP carbon steel safe end to the new external J-groove weld. The replacement half-nozzle assembly contains a bored orifice and integral 90 degree elbow that are equivalent to the original design. The inner portion of the original RCP 2A suction instrument nozzle and the J-groove weld (remnant nozzle and remnant weld) will remain in place. In summary, the repair relocated the RCS pressure boundary from the RCP 2A suction instrument nozzle remnant J-groove weld to a new exterior J-groove weld. Additionally, the ASME Class 1 to Class 2 boundary break was relocated from the remnant nozzle internal orifice to the replacement nozzle orifice.

The replacement half-nozzle and J-groove weld were constructed from Alloy 690 and 52M materials. As such, the visual examination requirements of Code Case N-722-1,

which applies to Alloy 600 materials, are not applicable to the half-nozzle repair. It will continue to be categorized as B-P in accordance with Section XI, Table IWB-2500-1, *Examination Categories*, with respect to the pressure test program.

The Enclosure includes the following attachments:

- Attachment 1 - *Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation, WCAP-18051-NP, Non-proprietary Version*
- Attachment 2 - *Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation, WCAP-18051-P, Proprietary Version*

APS submitted Relief Request 53 for use of the proposed alternatives through the current 19th operating fuel cycle (References 2 - 4). Relief Request 53 was verbally approved by the NRC staff in a teleconference on April 24, 2015, and in a written safety evaluation (References 5 and 6). Relief Request 53 did not address the successive examination requirements of Section XI, IWB-2420 since the approval would expire prior to the successive examinations being required.

1. ASME Code Components Affected

Components: RCP 2A Suction Pressure Instrument Nozzle

Code Class: Class 1

Examination Category: ASME Code Case N-722-1, Class 1 PWR Components Containing Alloy 600/82/182

Code Item Number: B15.205

Description: Reactor Coolant System Cold Leg Instrument Connection

Size: 1 inch Nominal Pipe Size at the RCP 2A Suction Pressure Instrument Nozzle J-groove Weld

Material: SB-166 Alloy 600 Nozzle and ERNiCr-3/ENiCrFe-3 Alloy 82/182 Butter and Weld

2. Applicable Code Edition and Addenda

PVNGS Unit No. 3, Inservice Inspection Program (ISI) – Third Interval, ending January 10, 2018: ASME B&PV, Section XI, 2001 Edition including Addenda through 2003 (Reference 1) as supplemented by 10 CFR 50.55a(g)(6)(ii)(E), *Reactor Coolant Pressure Boundary Visual Inspections*.

3. Applicable Code Requirements

Section XI, Article IWA-4000 provides requirements for repair/replacement activities

IWA-4421 states, in part:

Defects shall be removed or mitigated in accordance with the following requirements...

Section XI, Article IWB-2000 provides examination and inspection requirements for Class 1 components.

IWB-2420(b) states, in part:

If a component is accepted for continued service in accordance with IWB-3132.3 or IWB-3142.4, the areas containing flaws or relevant conditions shall be reexamined during the next three inspection periods listed in the schedule of the inspection program of IWB-2400...

The following Section XI articles are not applicable because they are exempted by Article IWB-1220(b)(1), as addressed by 10 CFR 50.55a(g)(6)(ii)(E)(2) and Code Case N-722-1 since the nominal pipe size of the nozzle is one inch or less:

Section XI, Article IWA-3000 provides standards for examination evaluation.

IWA-3100(a) states, in part:

Evaluation shall be made of flaws detected during an inservice examination as required by IWB-3000 for Class 1 pressure retaining components....

IWA-3300(b) states, in part:

Flaws shall be characterized in accordance with IWA-3310 through IWA-3390, as applicable.

Section XI, Article IWB-3000 provides acceptance standards for Class 1 components.

IWB-3420 states:

Each detected flaw or group of flaws shall be characterized by the rules of IWA-3300 to establish the dimensions of the flaws. These dimensions shall be used in conjunction with the acceptance standards of IWB-3500.

4. Reason for Request

APS conducted boric acid walkdowns inside the containment building at the beginning of the PVNGS Unit 3 18th Refueling Outage (3R18). These walkdowns revealed evidence of leakage in the annulus at the RCP 2A suction safe end pressure instrument nozzle (suction instrument nozzle). Subsequent examination confirmed reactor coolant as the source.

Visual examinations of the remaining Unit 3 RCS cold leg instrument nozzles were performed as required by Code Case N-722-1 with no evidence of additional RCS pressure boundary leakage identified.

Repair of the original RCP 2A instrument nozzle and J-groove weld would require removal of the RCP internals to access the internal surface of the reactor coolant piping in order to grind out the attachment weld and repair or replace the remaining nozzle. Such an activity would result in high radiation exposure to the personnel involved and present the additional risk of introducing foreign material into the RCS and reactor core.

Additionally, volumetric ultrasonic examination of the remnant J-groove weld was not feasible because of its configuration and the restrictive access associated with the small bore of the instrument nozzle internal orifice.

An ASME code-compliant half-nozzle design repair was implemented such that the original RCP 2A instrument nozzle and J-groove weld no longer perform a pressure boundary function. Details of the half-nozzle repair were provided previously in References 2, 3, and 4.

APS is proposing the completed ASME Code-compliant half-nozzle repair and a flaw evaluation as an alternative to the IWA-4421 requirements for flaw removal and IWB-2420 successive examination requirements.

5. Proposed Alternative and Basis for Use

APS is proposing an alternative in accordance with 10 CFR 50.55a(z)(1) that provides an acceptable level of quality and safety. The alternative consists of two main elements:

a. ASME Code-compliant Half-Nozzle Repair

The half-nozzle repair is an industry standard, ASME Code-compliant repair method that attaches a new PWSCC resistant Alloy 690 half-nozzle using an external Alloy 52M partial penetration J-groove weld. The repair relocated the RCS pressure boundary weld from the instrument nozzle J-groove weld on the interior wall of the RCP suction nozzle safe end to the new exterior J-groove weld on the exterior wall. The half-nozzle repair of the RCP 2A suction nozzle penetration will not remove the flaws in the remnant J-groove weld or remnant Alloy 600 nozzle material near this weld. The half-nozzle repair is shown in Figure 1-1, *RCP Instrumentation Nozzle Repair Schematic*, of Attachments 1 and 2 to this Enclosure.

b. Flaw Evaluation

The flaw evaluation postulated a maximum bounding flaw that propagates axially and circumferentially through the J-groove weld and butter into the carbon steel base material to a depth conservative with the remainder of the Unit 3 licensed operating life, which expires on November 25, 2047. The results of the evaluation were found to be acceptable and are summarized in Attachments 1 and 2 to this Enclosure (non-proprietary and proprietary versions, respectively).

- The evaluation demonstrates the acceptability of the half-nozzle repair for the flawed RCP suction safe end instrument nozzle at PVNGS Unit 3. A three-dimensional finite element model was used to evaluate ASME Section III stresses and generate transient stress inputs for the fracture mechanics

evaluation. The finite element model conservatively accounts for general corrosion of the nozzle bore for the half-nozzle repair.

The supporting corrosion analysis assumed percentages of time that the plant operates at lower and higher temperatures to calculate total annual corrosion over a 60 year period. The assumptions are verified to remain valid via an engineering study that is periodically updated. The PVNGS engineering study, 13-MS-B041, *Alloy Steel Corrosion Analysis Supporting Alloy 600/690 Nozzle Repair/Replacement*, is the result of an existing regulatory commitment documented in Reference 7 for a prior RCS hot leg half-nozzle repair. The study tracks shutdown and start-up conditions for half-nozzle repairs to other primary system components, including RCS hot leg instrument nozzles and the Unit 3 reactor vessel bottom mounted instrument nozzle number 3. This ongoing tracking ensures that the corrosion evaluation remains bounding, and therefore, the allowable bore diameter of the RCP suction safe end instrument penetration (RCS cold leg) is not exceeded. The study is updated with operating cycle information following each refueling outage and is current through the most recent refueling outages (1R18 completed November 2014, 2R18 completed May 2014, and 3R18 completed May 2015).

- Transient stresses and welding residual stresses were calculated using finite element methods and the stresses were used in the fracture mechanics evaluation. The fracture mechanics evaluation was performed in accordance with ASME Section XI and justified continued operation for the remaining life of the plant with a flawed attachment weld present in the RCP suction safe end.
- A loose parts evaluation was performed to evaluate the effect that a postulated loose weld fragment(s) of the instrument nozzle partial penetration weld might have on the RCS and connected systems, structures, and components (SSCs). The loose parts evaluation concluded that the postulated loose parts will have no adverse impact on the RCS and connected SSCs through the current planned end of plant life. It was determined that all impacted SSCs would continue to be capable of satisfying their design functions.

The above two elements, i.e., the nozzle repair and flaw evaluation, provide an acceptable level of quality and safety in accordance with 10 CFR 50.55a(z)(1).

6. Duration of Proposed Alternative

The duration of the request is for the remainder of the Unit 3 third inservice interval, which expires January 10, 2018, based on the flaw evaluations of the effects of the remnant J-groove weld flaw for the remainder of the PVNGS Unit 3 licensed operating life.

7. Precedents

Relief Request 31 (Reference 7) for small-bore hot leg nozzles for similar half-nozzle repairs provides a precedent for NRC approval of similar requests for Section XI alternatives.

8. References

1. ASME Boiler and Pressure Vessel Code, Section XI, *Rules for Inservice Inspection of Nuclear Power Plant Components, 2001 Edition, including Addenda through 2003*
2. APS letter number 102-07034, *Palo Verde Nuclear Generating Station Unit 3, Docket No. STN 50-530, American Society of Mechanical Engineers (ASME) Code, Section XI, Request for Approval of an Alternative to Flaw Removal - Relief Request 53*, dated April 17, 2015, ADAMS Accession No. ML 15111A429
3. APS letter number 102-07037, *Palo Verde Nuclear Generating Station Unit 3, Docket No. STN 50-530, Transmittal of Proprietary Documents for Relief Request 53*, dated April 17, 2015, ADAMS Accession No. ML 15111A289
4. APS letter number 102-07042, *Palo Verde Nuclear Generating Station Unit 3, Docket No. STN 50-530, APS Response to NRC Request for Additional Information (RAI) for Relief Request 53*, dated April 24, 2015, ADAMS Accession No. ML15114A431
5. NRC Memorandum to File, *Palo Verde Nuclear Generating Station, Unit 3- Summary of Telephone Conference on April 24, 2015, to Verbally Authorize Relief Request 53*, dated April 29, 2015, ADAMS Accession No. 15114A431, ML 15117A042
6. NRC Letter *Palo Verde Nuclear Generating Station, Unit 3 – Relief Request 53, Alternative to ASME Code, Section XI Requirements*, dated September 15, 2015, ADAMS Accession No. ML15117A042
7. NRC Letter *Palo Verde Nuclear Generating Station, Units 1, 2, and 3 - 10 CFR 50.55a(a)(3)(i) Alternative Repair Request for Reactor Coolant System Hot Leg Alloy 600 Small-Bore Nozzles (Relief Request 31, Revision 1)*, dated August 16, 2005, ADAMS Accession Number ML 052550368

9. Attachments

Attachment 1 - *Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation, WCAP-18051-NP, Non-proprietary Version*

Attachment 2 - *Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation, WCAP-18051-P, Proprietary Version*



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CAW-15-4303

October 8, 2015

**APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE**

**Subject: WCAP-18051-P, Revision 0, "Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation"
(Proprietary)**

The Application for Withholding Proprietary Information from Public Disclosure is submitted by Westinghouse Electric Company LLC (Westinghouse), pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-15-4303 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The Affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying Affidavit by Arizona Public Service (APS).

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference CAW-15-4303 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

A handwritten signature in black ink, appearing to read 'JA Gresham'.

James A. Gresham, Manager
Regulatory Compliance

CAW-15-4303

October 8, 2015

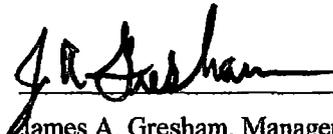
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

I, James A. Gresham, am authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of my knowledge, information, and belief.



James A. Gresham, Manager
Regulatory Compliance

- (1) I am Manager, Regulatory Compliance, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
 - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
 - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitute Westinghouse policy and provide the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

 - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
 - (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
 - (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
 - (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
 - (f) It contains patentable ideas, for which patent protection may be desirable.
- (iii) There are sound policy reasons behind the Westinghouse system which include the following:
- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
 - (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
 - (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
 - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
 - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
-
- (iv) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, is to be received in confidence by the Commission.
 - (v) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
 - (vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WCAP-18051-P, "Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation" (Proprietary), dated September 2015, for submittal to the Commission, being transmitted by APS letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with Westinghouse's request for NRC approval of WCAP-18051.

- (a) This information is part of that which will enable Westinghouse to:
- (i) Obtain NRC approval of WCAP-18051, "Palo Verde Nuclear Generating Station Unit 3 Reactor Coolant Pump 2A Suction Safe End Instrumentation Nozzle Half-Nozzle Repair Evaluation"
- (b) Further this information has substantial commercial value as follows:
- (i) Westinghouse plans to sell the use of similar information to its customers for the purpose of providing fracture mechanics technical justification and structural evaluation to support operation of reactor coolant pumps with instrument nozzles with half nozzle repair.
 - (ii) Westinghouse can sell support and defense of industry guidelines and acceptance criteria for plant-specific applications.
 - (iii) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and non-proprietary versions of a document furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the Affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

COPYRIGHT NOTICE

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.