Engineering Report for D. C. Cook Units 1 & 2 Turbine Trip without Reactor Trip Transient from the P-8 Setpoint Analysis

AEP-05-107 Revision 1 NP-Attachment

February 3, 2006

Westinghouse Electric Company LLC
P.O. Box 355
Pittsburgh, PA 15230-0355

Introduction

Westinghouse has performed an evaluation for the Reactor Protection System (RPS) modification to change the reactor trip on turbine trip interlock from permissive P-7 to permissive P-8 at D. C. Cook Units 1 and 2. This evaluation has been performed to determine the impact of a turbine trip without reactor trip on the potential actuation of a pressurizer Power Operated Relief Valve (PORV).

The Westinghouse design criterion is that turbine load rejections up to the maximum load rejection capability (i.e. the design basis) of the plant should not actuate a reactor trip if all control systems function properly as designed. However, after the Three Mile Island (TMI) incident, the Nuclear Regulatory Commission (NRC) expressed concern regarding implementation of any plant features which could increase the probability of a stuck-open pressurizer PORV. The NRC position is addressed in NUREG-0737, Item II-K.3.10 (Reference 6).

In order to satisfy the NRC position, a best estimate plant specific analysis was performed to demonstrate that the pressurizer PORVs would not lift following the change in the reactor trip on turbine trip protection interlock from the P-7 to P-8 permissive setpoint. The current P-8 setpoint is [ ]^{a,c} % of rated power (Reference 2, Item A11). If the PORVs are challenged on a turbine trip from the existing P-8 setpoint, then the P-8 setpoint will be reduced until the pressurizer PORVs are not challenged. Additionally, Control Systems Failure Mode Analyses were also performed to determine the effect of degraded control systems on the analyses results.

Key Assumptions and Inputs

A best estimate analytical study was performed to determine the transient plant response to a turbine trip without reactor trip transient. The analysis was performed using a LOFTRAN computer code (Reference 1) model of the D. C. Cook Units 1 and 2. The LOFTRAN computer code was previously used with best estimate methodology for the D. C. Cook Units 1 and 2 uprate. This computer model simulates the overall thermal-hydraulic and nuclear response of the NSSS as well as the various control and protection systems.

Since the object of this study was primarily to determine the peak in pressurizer pressure following the initiation of the transient, assumptions were made that would contribute to a conservatively high prediction of pressurizer pressure. These assumptions are as follows:

1. This detailed analysis was performed for Unit 2; however, it is also applicable to Unit 1. The results of steam dump capacity analyses performed for Units 1 and 2 (References 3 and 4, respectively) were compared, and Unit 2 provided the more limiting margin (to the overtemperture/overpower reactor trip setpoints) than Unit 1. Also, Unit 2 operates at a higher pressurizer pressure than Unit 1. Therefore, it was assumed that Unit 2 would provide higher pressurizer pressure responses than Unit 1.

2. The turbine was tripped from [ ]^{a,c} % of the full Nuclear Steam Supply System (NSSS) power, [ ]^{a,c} MWt (Reference 2, Item A1) after [ ]^{a,c} seconds of steady state conditions; this includes [ ]^{a,c} for conservatism on the current P-8 setpoint of [ ]^{a,c} % of power (Reference 2, Item A11). This [ ]^{a,c} conservatism is Westinghouse best estimate methodology.

3. The transient was analyzed for a range of the full power vessel average temperature (Tavg) from [ ]^{a,c} °F to [ ]^{a,c} °F (Reference 2, Item A4). Note that the [ ]^{a,c} Tavg will result in the smallest temperature error for the steam dump system, and therefore, the largest plant heat up. Also note that of the two steam pressures provided in Reference 2 ([ ]^{a,c} psia versus [ ]^{a,c} psia; Item A7), the [ ]^{a,c} steam pressure ([ ]^{a,c} psia) was modeled because a [ ]^{a,c} steam pressure provides a greater pressurizer pressure response.

4. Best estimate Beginning-Of-Life (BOL) reactivity parameters for Unit 2 from Cycle 15 were used. BOL reactivity parameters have lower differential rod worth and the least negative moderator temperature coefficient and thus, using BOL parameters in the analysis yield [ ]^{a,c} results, which bound the full cycle of operation.

5. Initial primary and secondary side conditions are at [ ]^{a,c} % of the rated power; these conditions, such as, Tavg and pressure, [ ]^{a,c} (i.e. best estimate analysis).

6. The [ ]^{a,c} overall heat transfer coefficients from fuel to coolant were used, consistent with BOL conditions (Same as in Reference 3).

7. The Rod control system was in the automatic mode of control; the turbine trip transient is a load decrease, therefore the rods are inserted to mitigate the transient.

8. The Pressurizer Pressure control system, Steam Dump control system (Turbine Trip Controller; Reference 2, Item B22) and Steam Generator (SG) Level control system were assumed operational and in the automatic mode of control. Steam dump to the atmosphere relief valves is not credited in the analysis. Since the analyses were best estimate, the parameter values including the control systems setpoints and PORV setpoints were assumed at [ ]^{a,c} conditions [ ]^{a,c}.

9. SG level control is modeled in the LOFTRAN code [ ]^{a,c}. The initial and nominal conditions were both specified [ ]^{a,c}. [.]^{a,c}

10. For the purposes of this analysis, it was assumed that all the pressurizer heaters (backup and proportional), were functioning properly, providing a total capacity of [ ]^{a,c} kW (Reference 2; Item D14, 15 and 16).

11. In order to develop the pressurizer spray capacity, it was assumed that the difference between Tavg and the cold leg temperature (Tcold) is linear with power level and the Reactor Coolant System (RCS) flow.

A majority of the fluid systems thermal-hydraulic input data was taken from the steam dump capacity analysis performed for the power uprate program (Reference 3). The nominal operating conditions (i.e. steam flow, steam pressure, Tavg, pressurizer level) and the settings (i.e. the gains and time constants) for the Steam Dump, Pressurizer Pressure, Pressurizer Level, and Rod control systems were taken from Reference 2. The Steam Generator Level control settings were taken from Reference 3. The initial operating conditions had to be developed based on the nominal operating conditions specified in Reference 2. In addition, the steam dump capacity for 6 steam dump valves had to be developed based on a proportional estimation using a capacity defined in Reference 5 for 9 steam dump valves.

Description of Analysis and Evaluations

A best estimate analysis for a turbine trip without reactor trip transient from the P-8 setpoint was performed to determine if the pressurizer PORVs are challenged. The turbine trip without a reactor trip transient was initialized from an initial power level of [ ]^{a,c} % ([ ]^{a,c} % power with [ ]^{a,c} power uncertainty) with all normal control systems assumed operational. This best estimate analysis addresses the NRC position in NUREG-0737, Item II.K.3.10 (Reference 6).

Additionally, a sensitivity study was performed to consider the effects of potential degraded control systems on the turbine trip without reactor trip transient.

The three control systems that primarily act to mitigate this transient are the Pressurizer Pressure control system, Rod control system, and Steam Dump control system. The degradations assumed for each control system are as follows:

Pressurizer Pressure Control System

- 50 % reduction in spray flow capacity (i.e. one spray valve fails to open).

As the plant responds to the transient, the pressurizer pressure is increasing, and only one spray valve is functioning to relieve this increase in pressure.

Rod Control System

- Failure of the power mismatch channel.

The purpose of the power mismatch channel is to provide a fast signal to the Rod control system during a rapid change in turbine load. If this signal is not present, then the rods are controlled by the Tavg error signal, which has a slower response and thus takes longer to begin to drive the rods into the core at maximum speed following the turbine trip.

Steam Dump Control System

- Failure of 1 Steam Dump Valve (1 of 3 total valves failed) in Bank 1
- Failure of 1 Steam Dump Valve (1 of 3 total valves failed) in Bank 2
- Failure of 1 Steam Dump Valve (1 of 3 total valves failed) in each of Banks 1 & 2

These degradations reduce the total steam dump capacity, thus increasing the plant heat up.

Acceptance Criteria and Results

The acceptance criterion for the turbine trip without a reactor trip transient from the P-8 setpoint is that the pressurizer PORVs are not challenged. The pressurizer PORV setpoint is 2350 psia (Reference 2, Item D17). Thus, if the pressurizer pressure is equal to or greater than 2350 psia, then the pressurizer PORVs would be challenged.

The best estimate analysis results for the turbine trip without the reactor trip transient from the P-8 setpoint are summarized in Tables 1 and 2. The analyses were performed at [ ]^{a,c} Tavg conditions (i.e. based on a full load Tavg of [ ]^{a,c} °F) with various RTD response times ([ ]^{a,c} seconds) in order to provide flexibility to the applications of this analysis in case the actual RTD response time ([ ]^{a,c} seconds; Reference 2, Item A10p) is changed as a result of the future RTD Bypass Elimination project for D. C. Cook Units 1 and 2.

Table 1

[		
		]^{a,c}

[

] ^{a,c} Although, the response times of [ ]^{a,c} seconds provide the same maximum pressurizer pressure, a response time of [ ]^{a,c} seconds (Case 3 from Table 1) was used in the best estimate analysis for [ ]^{a,c} Tavg conditions (i.e. based on a full load Tavg of [ ]^{a,c} °F). The results of this analysis are shown in Table 2.

Table 2

[		
		]^{a,c}

The "degraded" control system sensitivity analysis results for the turbine trip without the reactor trip transient from the P-8 setpoint are summarized in Table 3 for [ ]^{a,c} Tavg conditions. Note that these degraded control system analyses were performed using the [ ]^{a,c} RTD response time of [ ]^{a,c} seconds.

Table 3

[		
		]^{a,c}

Based on the results in Table 3, the PORVs would not be challenged with degradations assumed in the Pressurizer Pressure, Rod, and Steam Dump control systems.

Conclusions

The turbine trip without reactor trip transient analysis from the current P-8 setpoint of [ ][a,c] % power concluded that the pressurizer PORVs will not be challenged with best estimate simulation (i.e. all control systems performing as designed). Therefore, it is acceptable to change the reactor trip on turbine trip interlock from the P-7 to P-8 permissive setpoint.

Furthermore, the pressurizer PORVs will not be challenged during a turbine trip without reactor trip transient with degraded conditions in the Pressurizer Pressure control system (such as 50 % of nominal spray flow), the Rod control system (power mismatch failure) and the Steam Dump control system (failure of one steam dump valve in Bank 1, Bank 2 and Banks 1 and 2).

References

1. WCAP-7907-P-A, "LOFTRAN Code Description," April 1984.
2. AEP Correspondence DIT-B-03041-00 "Donald C. Cook Nuclear Plant Turbine Trip to Reactor Trip Permissive Change Analysis," T. E. Anderson, October 11, 2005.
3. Westinghouse Letter, AEP-03-41, "American Electric Power Donald C. Cook Nuclear Plant Unit 2 Steam Dump/Margin to Trip Analysis Revision to Address Cycle 14 Fuel Axial Offset Deviation (AOD)," W. R. Rice, May 21, 2003.
4. Westinghouse Letter, AEP-02-189, "American Electric Power Donald C. Cook Nuclear Plant Unit 1 Steam Dump/Margin to Trip Analysis," W. R. Rice, December 19, 2002.
5. Westinghouse Calculation Note, CN-SEE-02-35, Revision 1, "D. C. Cook Unit 2 NSSS/BOP Interface Evaluation for the 2.0% Power Uprate Program," M. F. McGuire, February, 2003.
6. NUREG-0737, "Clarification of TMI Action Plan Requirements," Item II.K.3.10, Proposed Anticipatory Trip Modification, October, 1980.

Attachment 1A to AEP:NRC:6331

DONALD C. COOK NUCLEAR PLANT UNIT 1 TECHNICAL SPECIFICATION PAGES
MARKED TO SHOW CHANGES

3.3.1-13

Table 3.3.1-1 (page 3 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
15. SG Water Level – Low (per SG)	1,2	2	$D^{(f)}$	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≥ 9.7%
Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)	1,2	2	$D^{(f)}$	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≤ 0.73E6 lb/hr steam flow at RTP
16. Turbine Trip					
a. Low Fluid Oil Pressure	$1^{(e)(h)}$	3	D	SR 3.3.1.13 SR 3.3.1.18	≥ 750 psig
b. Turbine Stop Valve Closure (per train)	$1^{(e)(h)}$	4	D	SR 3.3.1.13 SR 3.3.1.18	≥ 1% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	J	SR 3.3.1.6 SR 3.3.1.19	NA
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	$2^{(d)}, 3^{(a)}, 4^{(a)}, 5^{(a)}$	2	L	SR 3.3.1.14 SR 3.3.1.16	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	L	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	L	SR 3.3.1.14 SR 3.3.1.16	≤ 31% RTP
d. Power Range Neutron Flux, P-10	1,2	4	L	SR 3.3.1.14 SR 3.3.1.16	≥ 9% RTP and ≤ 11% RTP
e. Turbine First Stage Pressure, P-13	1	2	L	SR 3.3.1.1 SR 3.3.1.13 SR 3.3.1.16	≤ 37 psig

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

~~(e) Above the P-7 (Low Power Reactor Trips Block) interlock.~~

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) Interlock

Attachment 1B to AEP:NRC:6331

DONALD C. COOK NUCLEAR PLANT UNIT 2 TECHNICAL SPECIFICATION PAGES
MARKED TO SHOW CHANGES

3.3.1-13

Table 3.3.1-1 (page 3 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
15. SG Water Level – Low (per SG)	1,2	2	D(f)	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≥ 25.0%
Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)	1,2	2	D(f)	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≤ 1.56E6 lb/hr steam flow at RTP
16. Turbine Trip					
a. Low Fluid Oil Pressure	1(e)(h)	3	D	SR 3.3.1.13 SR 3.3.1.18	≥ 57 psig
b. Turbine Stop Valve Closure (per train)	1(e)(h)	4	D	SR 3.3.1.13 SR 3.3.1.18	≥ 1% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	J	SR 3.3.1.6 SR 3.3.1.19	NA
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d), 3(a), 4(a), 5(a)	2	L	SR 3.3.1.14 SR 3.3.1.16	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	L	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	L	SR 3.3.1.14 SR 3.3.1.16	≤ 31% RTP
d. Power Range Neutron Flux, P-10	1,2	4	L	SR 3.3.1.14 SR 3.3.1.16	≥ 9% RTP and ≤ 11% RTP
e. Turbine First Stage Pressure, P-13	1	2	L	SR 3.3.1.1 SR 3.3.1.13 SR 3.3.1.16	≤ 51 psig

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

~~(e) Above the P-7 (Low Power Reactor Trips Block) interlock.~~

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) Interlock.

Attachment 2A to AEP:NRC:6331

DONALD C. COOK NUCLEAR PLANT UNIT 1 TECHNICAL SPECIFICATION PAGES
WITH THE PROPOSED CHANGES INCORPORATED

3.3.1-13

Table 3.3.1-1 (page 3 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
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16. Turbine Trip					
a. Low Fluid Oil Pressure	1(h)	3	D	SR 3.3.1.13 SR 3.3.1.18	≥ 750 psig
b. Turbine Stop Valve Closure (per train)	1(h)	4	D	SR 3.3.1.13 SR 3.3.1.18	≥ 1% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	J	SR 3.3.1.6 SR 3.3.1.19	NA
18. Reactor Trip System Interlocks					
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b. Low Power Reactor Trips Block, P-7	1	1 per train	L	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	L	SR 3.3.1.14 SR 3.3.1.16	≤ 31% RTP
d. Power Range Neutron Flux, P-10	1,2	4	L	SR 3.3.1.14 SR 3.3.1.16	≥ 9% RTP and ≤ 11% RTP
e. Turbine First Stage Pressure, P-13	1	2	L	SR 3.3.1.1 SR 3.3.1.13 SR 3.3.1.16	≤ 37 psig

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

(f) Separate condition entry is allowed per SG for only 1 of the 4 total Reactor Trip System Instrumentation Function 15 channels inoperable on each SG (i.e., for only 1 of 2 SG Water Level – Low channels or 1 of 2 Steam Flow/Feedwater Flow Mismatch channels inoperable on each SG). Any combination of 2 or more inoperable Reactor Trip System Instrumentation Function 15 channels on any SG requires immediate entry into LCO 3.0.3.

(h) Above the P-8 (Power Range Neutron Flux) Interlock.

Attachment 2B to AEP:NRC:6331

DONALD C. COOK NUCLEAR PLANT UNIT 2 TECHNICAL SPECIFICATION PAGES
WITH THE PROPOSED CHANGES INCORPORATED

3.3.1-13

Table 3.3.1-1 (page 3 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
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Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)	1,2	2	D[f]	SR 3.3.1.1 SR 3.3.1.11 SR 3.3.1.13	≤ 1.56E6 lb/hr steam flow at RTP
16. Turbine Trip					
a. Low Fluid Oil Pressure	1[h]	3	D	SR 3.3.1.13 SR 3.3.1.18	≥ 57 psig
b. Turbine Stop Valve Closure (per train)	1[h]	4	D	SR 3.3.1.13 SR 3.3.1.18	≥ 1% open
17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	J	SR 3.3.1.6 SR 3.3.1.19	NA
18. Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2[d], 3[a], 4[a], 5[a]	2	L	SR 3.3.1.14 SR 3.3.1.16	≥ 6E-11 amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	L	SR 3.3.1.5	NA
c. Power Range Neutron Flux, P-8	1	4	L	SR 3.3.1.14 SR 3.3.1.16	≤ 31% RTP
d. Power Range Neutron Flux, P-10	1,2	4	L	SR 3.3.1.14 SR 3.3.1.16	≥ 9% RTP and ≤ 11% RTP
e. Turbine First Stage Pressure, P-13	1	2	L	SR 3.3.1.1 SR 3.3.1.13 SR 3.3.1.16	≤ 51 psig

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(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

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(h) Above the P-8 (Power Range Neutron Flux) Interlock.

Attachment 3 to AEP:NRC:6331

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Westinghouse Electric Company
Nuclear Services
P.O. Box 355
Pittsburgh, Pennsylvania 15230-0355
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Direct tel: (412) 374-4419
Direct fax: (412) 374-4011
e-mail: maurerbf@westinghouse.com

Our ref: CAW-06-2098

February 3, 2006

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: AEP-05-107, Rev. 1 P-Attachment, "Engineering Report for D. C. Cook Units 1 & 2 Turbine Trip without Reactor Trip Transient from the P-8 Setpoint Analysis," (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-06-2098 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 American Electric Power.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-06-2098, and should be addressed to B. F. Maurer, Acting Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

B. F. Maurer, Acting Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: B. Benney
L. Feizollahi

CAW-06-2098

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared B. F. Maurer, who, being by me duly sworn according to law, deposes and says that he is 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 his knowledge, information, and belief:

B. F. Maurer, Acting Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed
before me this 3rd day
of February, 2006

Sharon L. Fiori
Notary Public

Notarial Seal
Sharon L. Fiori, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires January 29, 2007
Member, Pennsylvania Association Of Notaries

(1) I am Acting Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, 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" 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 constitutes Westinghouse policy and provides 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.

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.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) 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.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in AEP-05-107, Rev. 1 P-Attachment, "Engineering Report for D. C. Cook Units 1 & 2 Turbine Trip without Reactor Trip Transient from the P-8 Setpoint Analysis," (Proprietary), dated January 31, 2006, being transmitted by the American Electric Power Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse for the Donald C. Cook Units 1 & 2 Engineering Report is for review and approval.

This information is part of that which will enable Westinghouse to:

(a) Assist the customer by providing an analysis to increase the turbine trip without reactor trip setpoints, as applicable for D. C. Cook Units 1 and 2.

(b) Show that there will be no additional challenges to the pressurizer PORVs as a result of the increase.

Further this information has substantial commercial value as follows:

(a) 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 analyses 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.

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Transmitted herewith are proprietary and/or non-proprietary versions of documents 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).

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