ENCLOSURE 15

WESTINGHOUSE WCAP-17251-NP (NONPROPRIETARY), REVISION 0
MONTICELLO REPLACEMENT STEAM DRYER
FOUR-LINE ACOUSTIC SUBSCALE TESTING REPORT

68 pages follow

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Monticello Replacement Steam Dryer Four-Line Acoustic Subscale Testing Report

Westinghouse

WCAP-17251-NP
Revision 0

Monticello
Replacement Steam Dryer
Four-Line Acoustic Subscale Testing Report

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LIST OF ACRONYMS AND ABBREVIATIONS

A/D	analog to digital
CDI	Continuum Dynamics, Inc.
CLTP	current licensed thermal power
EPU	extended power uprate
MSL	main steam line
OEM	original equipment manufacturer
PSD	power spectral density
RMS	root mean squared
RPV	reactor pressure vessel
SRV	safety relief valve

TRADEMARKS

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1 EXECUTIVE SUMMARY

[

]a,b

2 BACKGROUND AND PURPOSE

[

]a,b

Table 2-1 [ ]a,b	

a,b

[

]a,b

3 PRE-TEST PREDICTIONS AND ASSUMPTIONS

[

]a,b

Table 3-1 [ ]a,b a,b

[

]a,b

4 TESTING METHODOLOGY

4.1 SUBSCALE TEST SYSTEM

[

]a

a

4.1-1

[

]a

4.2 INSTRUMENTATION AND DATA ACQUISITION

The instrumentation used in the test is summarized in Table 4.2-1.

Table 4.2-1 [ ]a

a

[

]a

4.3 PROCEDURAL OVERVIEW

[

]a

a

4.3-1

[

]a

[

]a

4.4 RAW DATA

[

]a,b

a,b

Figure 4.4-1 [ ]a,b

[

]a,b

a,b

Figure 4.4-2 [

]a,b

4.5 DATA PROCESSING

Data analysis was performed immediately following each test, using the standard signal processing techniques described below.

[

]a

a

4.5-1

[

]a

5 DESCRIPTION OF RESULTS

5.1 TEST LOG

[ ]a,b

Table 5.1-1 [ ]a,b

a,b

[ ]a,b

Table 5.1-2 [ ]a,b a,b

Table 5.1-2 [ ]a,b (cont.)

a,b

5.2 NATURAL FREQUENCY CALCULATIONS

[

]a,b

Table 5.2-1 [ ]a,b

a,b

5.3 EFFECT OF THE DRYER GEOMETRY

[

]a

a

Figure 5.3-1 [ ][a]

a

Figure 5.3-2 [ ][a]

[

]a,b

a,b

Figure 5.3-3 [ ][a]

a,b

Figure 5.3-4 [ ][a]

a,b

Figure 5.3-5 [ ][a]

a,b

Figure 5.3-6 [ ][a]

[

]a,b

5.4 RMS PRESSURE TRENDS

[ ]a,b

a,b

5.4-1

[

]a,b

a,b

[ ]

Figure 5.4-1 [ ][a,b]

a,b

[ ]

Figure 5.4-2 [ ][a,b]

a,b

Figure 5.4-3 [ ]a,b

a,b

Figure 5.4-4 [ ]a,b

[

]a,b

Table 5.4-1 [ ]a,b a,b

[

]a,b

a,b

[

]

Figure 5.4-5 [ ][a,b]

a,b

[

]

Figure 5.4-6 [ ][a,b]

a,b

Figure 5.4-7 [ ]a,b

a,b

Figure 5.4-8 [ ]a,b

[

]a,b

5.5 PSD COMPARISON – CLTP TO EPU

[

]a,b

a,b

Figure 5.5-1 [ ]a,b

[

]a,b

5.6 CLTP TO EPU SCALING SPECTRA

[

]a

a

[ ] 5.6-1

[

]a

a,b

[ ]

Figure 5.6-1 [ ][a,b]

a,b

Figure 5.6-2 [**]**[a,b]

a,b

Figure 5.6-3 [ ]a,b

a,b

Figure 5.6-4 [ ]a,b

6 CONCLUSIONS

6.1 EFFECT OF THE DRYER GEOMETRY

[

]a,b

6.2 CLTP-TO-EPU SCALING SPECTRA

[

]a,b

7 REFERENCES

[

]a

APPENDIX A
REPEATABILITY OF TEST DATA
CURRENT DRYER

Note that the frequencies presented in the following graphs are the subscale frequencies.

a,b

Figure A-1 [ ][a,b]

a,b

Figure A-2 [ ][a,b]

a,b

Figure A-3 [ ][a,b]

a,b

Figure A-4 [ ][a,b]

a,b

Figure A-5 [ ][a,b]

a,b

Figure A-6 [ ][a,b]

a,b

Figure A-7 [ ][a,b]

a,b

Figure A-8 | |[a,b]

a,b

Figure A-9 | |[a,b]

APPENDIX B
REPEATABILITY OF TEST DATA
REPLACEMENT DRYER

a,b

Figure B-1 [ ][a,b]

a,b

Figure B-2 [ ][a,b]

a,b

Figure B-3 | |[a,b]

a,b

Figure B-4 [ ][a,b]

a,b

Figure B-5 [ ][a,b]

a,b

Figure B-6 [ ][a,b]

a,b

Figure B-7 [ ][a,b]

a,b

Figure B-8 [ ][a,b]

a,b

Figure B-9 [ ][a,b]

a,b

Figure B-10 [ ][a,b]

a,b

Figure B-11 [ ][a,b]

a,b

Figure B-12 [ ][a,b]

a,b

Figure B-13 [ ][a,b]

a,b

Figure B-14 | |a,b

a,b

Figure B-15 [ ][a,b]

a,b

Figure B-16 [ ][a,b]

a,b

Figure B-17 [ ]a,b

a,b

Figure B-18 [ ][a,b]

a,b

Figure B-19 [ ][a,b]

a,b

Figure B-20 [ ][a,b]