

Aug 27, 2019

AECI Dell Power

Subject: August vibration service

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Most of the machines surveyed were found to be in good condition with the exception of the following:

**QualiTest®** uses a four step rating system for defects.

**Class I:** Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

**Class II:** Defect (s) present that may cause problem in long term (2-6 months.). Repair during normal maintenance scheduling. Continue to monitor.

**Class III:** Defect (s) present that may cause failure in short term (less than 2 months.). This should be addressed as soon as practical, with a high maintenance priority. Increase monitoring frequency.

**Class IV:** Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs

**Hi-Speed Industrial Service** tests and inspects industrial machinery and equipment and makes recommendations concerning maintenance and repairs based on its experience in the field of industrial repair and maintenance. The information contained herein is provided as an opinion only, not as a guaranty or warranty of the matters discussed herein.

This completes our assessment of your equipment for this survey. Thank you for your business and don't hesitate to call if you have any comments or questions.

Sincerely,

David W. Shook  
Senior Reliability Specialist

**Hi-Speed Industrial Service**  
[dshook@gohispeed.com](mailto:dshook@gohispeed.com)

## **Detailed Defects**

### **Boiler Feed Water Pump 2B**

This was recommended last month:

1x RPM vibration dominates several measurements in the Nelson Drive and the Pump outboard bearing housing. Shaft speed harmonics could indicate looseness and add to the vibrations. We recommend inspecting the couplings first for any damage or wear. All fasteners should also be checked for clamping torque, the structure for cracks or damaged grout, and have the alignment checked. **Rated a Class II Defect.**

This is the analysis from August after work on the unit:

The 1x RPM vibration has dropped significantly after the coupling damage was repaired/replaced to the best of our knowledge. A few harmonics still exist at low levels. Not Rated.

### **LP Recirculating Pump Unit 2 Motor**

Vibrations have dropped significantly this month after maintenance. No further action needed. Not Rated.

## **Observations**

### **LP Recirculating Pump Unit 1**

Unit data shows bearing defects are still present in the motor bearings. The motor will need to be changed at some time in the future. **Rated a Class II Defect.**

### **Vacuum Pump 1**

The unit pump vibrations have leveled off at around 0.4"/sec velocity peak. This unit seems to be an issue when both pumps are running; allowing the pump to cavitate, which will cause undue wear in the unit. **Rated a Class II Defect.**

### **Cooling Tower Fan Motors**

Vibration data for most of the cooling tower fan motors show a rotor bar vibration; for which the amplitude is low and not a concern to the continued health of the motor at this time. No actions are warranted **Rated a Class I Defect.**

### **STG Condensate Pump C**

Data still shows a clean 3x RPM vibration modulating the shaft speed fundamental of about the same amplitude. The 3x RPM vibration has increased over time, but has not changed much recently. Ensure the pump is running near optimal point in the curve. Inspect the pump coupling and shaft as time allows. **Rated a Class 1 Defect.**

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm  
Area: Coooling Tower  
Report Date: 27-Aug-19 14:26  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

No Collected Equipment...

Missed Equipment...

	EQUIPMENT ID	DESCRIPTION		
	-----	-----		
CTW1	Cooling Tower Fan 1	0 OUT OF	7	
CTW2	Cooling Tower Fan 2	0 OUT OF	7	
CTW3	Cooling Tower Fan 3	0 OUT OF	7	
CTW4	Cooling Tower Fan 4	0 OUT OF	7	
CTW5	Cooling Tower Fan 5	0 OUT OF	7	
CTW6	Cooling Tower Fan 6	0 OUT OF	7	
CTW7	Cooling Tower Fan 7	0 OUT OF	7	
CTW8	Cooling Tower Fan 8	0 OUT OF	7	
CTW9	Cooling Tower Fan 9	0 OUT OF	7	
CTW10	Cooling Tower Fan 10	0 OUT OF	7	
CTW11	Cooling Tower Fan 11	0 OUT OF	7	
CTW12	Cooling Tower Fan 12	0 OUT OF	7	
3CW-P-001	Circ Water Pump 1A	0 OUT OF	11	
3CW-P-002	Circ Water Pump 1B	0 OUT OF	11	
3CW-P-005	Aux Circ Water Pump	0 OUT OF	11	
LFAA1	LFAA 1A	0 OUT OF	11	
LFAA2	LFAA 1B	0 OUT OF	11	

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm  
Area: UNIT 1  
Report Date: 27-Aug-19 14:26  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

Collected Equipment...

EQUIPMENT ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
-----	-----	-----	-----
LP #1	LP recirc unit #1	14 OUT OF 14	22-Aug-19

1FD-P-001A	Boiler Feed Water 1A	18 OUT OF 18	22-Aug-19
CT1	CT Lube Oil Pump 1	4 OUT OF 7	22-Aug-19
SO1	CT Seal Oil 1	7 OUT OF 7	22-Aug-19
CTHYD !	CT Hyd Pump 1	9 OUT OF 11	22-Aug-19

Missed Equipment...

EQUIPMENT ID	DESCRIPTION	
1FD-P-001B	Boiler Feed Water 1B	0 OUT OF 18
CT2	CT Lube Oil Pump 2	0 OUT OF 7
SODC	CT Seal Oil DC	0 OUT OF 7
CTHYD !1	CT Hyd Pump 2	0 OUT OF 11

Monitored Point Total = 52 OUT OF 100

Monitored Equipment Total = 5 OUT OF 9

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm

Area: UNIT 2

Report Date: 27-Aug-19 14:27

Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

Collected Equipment...

EQUIPMENT ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
LP #2	LP recirc unit #2	14 OUT OF 14	22-Aug-19
2FD-P-002A	Boiler Feed Water 2A	18 OUT OF 18	02-Aug-19
2FD-P-002B	Boiler Feed Water 2B	18 OUT OF 18	22-Aug-19
CT2	CT Lube Oil Pump 2	5 OUT OF 7	22-Aug-19
SO1	CT Seal Oil 1	7 OUT OF 7	22-Aug-19
CTHYD !	CT Hyd Pump 1	9 OUT OF 11	22-Aug-19
ABF	Aux Boiler Fan	7 OUT OF 7	22-Aug-19

Missed Equipment...

EQUIPMENT ID	DESCRIPTION	
CT1	CT Lube Oil Pump 1	0 OUT OF 7
SODC	CT Seal Oil DC	0 OUT OF 7
CTHYD !1	CT Hyd Pump 2	0 OUT OF 11

Monitored Point Total = 78 OUT OF 107

Monitored Equipment Total = 7 OUT OF 10

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm

Area: UNIT STEAM TURBINE

Report Date: 27-Aug-19 14:27

Report Interval: 28-Jul-19 To 27-Aug-19

# PERIODIC VIBRATION TECHNOLOGY

## Collected Equipment...

EQUIPMENT ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
-----	-----	-----	-----
3CW-P-004	CCW Booster Pump 2	11 OUT OF 11	22-Aug-19
0CC-P-002	Closed Cooling Water 2	14 OUT OF 14	22-Aug-19
3CH-P-001A	Condensate Pump A	9 OUT OF 11	22-Aug-19
3CH-P-001C	Condensate PumpC	9 OUT OF 11	22-Aug-19
3AE-P-002	Vacuum Pump 2	14 OUT OF 14	22-Aug-19
3AE-P-001	Vacuum Pump 1	14 OUT OF 14	22-Aug-19
STG1	STG Lube Oil Pump 1	7 OUT OF 7	22-Aug-19
STGHyd1	STG Hyd Pump 1	11 OUT OF 11	22-Aug-19

## Missed Equipment...

EQUIPMENT ID	DESCRIPTION	
-----	-----	
3CW-P-003	CCW Booster Pump 1	0 OUT OF 11
0CC-P-001	Closed Cooling Water 1	0 OUT OF 14
3CH-P-001	Condensate Pump B	0 OUT OF 11
STG2	STG Lube Oil Pump 2	0 OUT OF 7
STGHyd2	STG Hyd Pump 2	0 OUT OF 14

Monitored Point Total = 89 OUT OF 150

Monitored Equipment Total = 8 OUT OF 13

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm

Area: WATER PUMPS AND VACUUM PUMPS

Report Date: 27-Aug-19 14:27

Report Interval: 28-Jul-19 To 27-Aug-19

# PERIODIC VIBRATION TECHNOLOGY

## Collected Equipment...

EQUIPMENT ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
-----	-----	-----	-----
OSW-P-001B	Service Water Pump 1B	14 OUT OF 14	22-Aug-19
ORW-P-001B	Deep Well Pump B	9 OUT OF 11	22-Aug-19

## Missed Equipment...

EQUIPMENT ID	DESCRIPTION	
-----	-----	
OSW-P-001A	Service Water Pump 1A	0 OUT OF 14
ORW-P-002A	Deep Well Pump A	0 OUT OF 11
ORW-P-001C	Deep Well Pump C	0 OUT OF 11
FW1	Fire Water Electric	0 OUT OF 14

Monitored Point Total = 23 OUT OF 75

Monitored Equipment Total = 2 OUT OF 6

Last Monitored Equipment List  
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Database: AECI Dell Power Plant.rbm  
Area: Chiller Module 1  
Report Date: 27-Aug-19 14:27  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

No Collected Equipment...

Missed Equipment...

EQUIPMENT ID	DESCRIPTION	
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TWP 101	Chiller Cooling Tower Pump 1	0 OUT OF 14
TWP 102	Chiller Cooling Tower Pump 2	0 OUT OF 14
CHWP 101	Chilled Water Pump 1	0 OUT OF 14
CHWP 102	Chilled Water Pump 2	0 OUT OF 14
Comp A	Chiller compressor Mtr. A	0 OUT OF 16
Comp Mtr B	Chiller compressor Mtr. B	0 OUT OF 15

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm  
Area: Chiller Module 2  
Report Date: 27-Aug-19 14:27  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

Collected Equipment...

EQUIPMENT ID	DESCRIPTION	NUMBER OF POINTS	LATEST DATE
-----	-----	-----	-----
TWP 201	Chiller Cooling Tower Pump 1	9 OUT OF 14	22-Aug-19
TWP 202	Chiller Cooling Tower Pump 2	9 OUT OF 14	22-Aug-19
CHWP 202	Chilled Water Pump 2	10 OUT OF 14	22-Aug-19
Comp Mtr B	Chiller compressor Mtr. B	14 OUT OF 15	22-Aug-19

Missed Equipment...

EQUIPMENT ID	DESCRIPTION	
-----	-----	
CHWP 201	Chilled Water Pump 1	0 OUT OF 14
Comp A	Chiller compressor Mtr. A	0 OUT OF 16

Monitored Point Total = 42 OUT OF 87

Monitored Equipment Total = 4 OUT OF 6

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm

Area: Chiller Module 3  
Report Date: 27-Aug-19 14:27  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

No Collected Equipment...

Missed Equipment...

	EQUIPMENT ID	DESCRIPTION	
	-----	-----	
CT 1	Chiller Cooling Tower Pump 1	0 OUT OF 14	
CT 2	Chiller Cooling Tower Pump 2	0 OUT OF 14	
CWP!	Chilled Water Pump 1	0 OUT OF 14	
CWP!1	Chilled Water Pump 2	0 OUT OF 14	
Comp Mtr A	Chiller compressor Mtr. A	0 OUT OF 15	
Comp Mtr B	Chiller compressor Mtr. B	0 OUT OF 15	

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm  
Area: Liquid Fuel NOX AND LP REC PUMP  
Report Date: 27-Aug-19 14:27  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

No Collected Equipment...

Missed Equipment...

	EQUIPMENT ID	DESCRIPTION	
	-----	-----	
LFAAComp	LFAA Comp	0 OUT OF 7	
LFAAPump	LFAA Pump	0 OUT OF 7	
NOX	NOX Water Skid	0 OUT OF 22	

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm  
Area: OLD BOILER DO NOT USE  
Report Date: 27-Aug-19 14:27  
Report Interval: 28-Jul-19 To 27-Aug-19

PERIODIC VIBRATION TECHNOLOGY

No Collected Equipment...

Missed Equipment...

	EQUIPMENT ID	DESCRIPTION		
	-----	-----		
1FD-P-001B	Boiler Feed Water 1B		0 OUT OF	7
2FD-P-002A	Boiler Feed Water 2A		0 OUT OF	7
2FD-P-002B	Boiler Feed Water 2B		0 OUT OF	7

Last Monitored Equipment List

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Database: AECI Dell Power Plant.rbm

The Entire Database

Report Date: 27-Aug-19 14:27

Report Interval: 28-Jul-19 To 27-Aug-19

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 \*\*\*\*\* OVERALL SUMMARY \*\*\*\*\*  
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#### PERIODIC VIBRATION TECHNOLOGY

Collected Equipment...

Monitored Point Total = 284 OUT OF 519

Monitored Equipment Total = 26 OUT OF 44