



Duke Energy

Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672
(864) 885-3107 OFFICE
(864) 885-3564 FAX

W. R. McCollum, Jr.
Vice President

March 13, 2002

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

Subject: Duke Energy Corporation
Oconee Nuclear Station, Unit 3
Docket Nos. 50-287
Third Ten Year Inservice Test Program
Pump Specific Relief Request No. ON-SRP-HPI-02
Request For Additional Information

By letter of March 11, 2002, Duke Energy Corporation (Duke) submitted a request for relief pursuant to 10 CFR 50.55a(a)(3)(ii). That letter specifically requested temporary relief to allow use of a vibration sensor on the inboard bearing, which did not meet all provisions of the applicable Section of the ASME Code, due to malfunction of the primary vibration sensor on the outboard bearing. During a teleconference on March 12, 2002, the Staff provided verbal approval of this relief.

However, during that discussion, the Staff requested that additional supporting information be formally submitted.

Therefore, this letter includes an attachment which documents vibration data from the faulty instrument and the inboard bearing instrument which will be used while the relief is in effect. This attachment discusses the differences between the performance test data and data from diagnostic measurements and explains how the diagnostic data indicates an instrument sensor problem rather than a pump problem.

In addition, Duke is clarifying that it has committed to repair the faulty instrument during the next power reduction or shutdown that would accommodate access to the instrument, which is located inside containment. This is significant as it establishes the duration of the relief.

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If there are any questions or further information is needed
you may contact R. P. Todd at (864) 885-3418.

Very truly yours,


W. R. McCollum, Jr.
Site Vice President

Attachment

xc w/att: L. A. Reyes, Regional Administrator
U.S. Nuclear Regulatory Commission, Region II
Atlanta Federal Center
61 Forsyth St., SWW, Suite 23T85
Atlanta, GA 30303

L. N. Olshan, Project Manager, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

xc(w/o attch):

Scott Freeman
Acting NRC Senior Resident Inspector
Oconee Nuclear Station

Mr. Virgil Autrey
Division of Radioactive Waste Management
Bureau of Land and Waste Management
SC Dept. of Health & Environmental Control
2600 Bull St.
Columbia, SC 29201

Attachment

Description of Enhanced Vibration Monitoring used to Assess RC Makeup Pump Vibration Sensors

The vibration sensors on the Oconee Unit 3 SSF RC Make-up Pump consist of two accelerometers. The first sensor is located on the inboard bearing housing and is oriented horizontally, parallel to the direction of plunger travel. The second sensor is located on the outboard bearing housing and is oriented vertically, perpendicular to the direction of plunger travel.

During performance testing on 3/7/02, the vertical vibration sensor showed a dramatic increase in amplitude to 2.5 mils, which is in the required action range for the vertical sensor. At the same time the horizontal probe showed no increase in amplitude. Review of the data by Oconee Engineering and discussions with the pump manufacturer, APV Gaulin, concluded that the dramatic increase in amplitude on the vertical probe was not consistent with the data from the horizontal probe.

The performance vibration values limits for the SSF RC Make-up Pump are as follows:

	<u>Vertical Sensor</u>	<u>Horizontal Sensor</u>
Baseline in 1995:	0.71 mils	0.53 mils
Alert limit:	1.39 mils	1.04 mils
Required Action limit:	2.10 mils	1.57 mils
Last test value on 3/7/02:	2.52 mils	0.53 mils

Typically, the vibration data for the performance test is measured in mils, as required by the current code (ASME IWP 1986 edition) applicable to Oconee. A portable vibration sampling unit, CSI model 2120, is used to take a snapshot of the vibration. This unit does not have the capability to continuously sample data for trending. To filter out undesired low frequency noise, the vibration test equipment is set up to filter out all vibration of less than 2 Hz frequency. This is consistent with the methodology used to obtain the baseline data for the SSF RC Make-up pump.

To investigate this further, Oconee Engineering requested the acquisition of additional vibration data for analysis. Therefore the SSF RCMU pump was run on 3/8/02 for 1 – 2 hours while data was obtained from the two probes using a Bently Nevada ADRE data acquisition system. A data sample was taken every 5 seconds for the duration of pump operation. Attached are graphs of the two sensors for a representative portion of the test and a schematic diagram showing the layout of the pump and instruments.

As a result of the different equipment used in sampling the vibration for Engineering analysis versus the routine monitoring for quarterly performance testing, the vibration amplitudes on the attached graphs are not directly comparable to the vibration values obtained during pump performance testing.

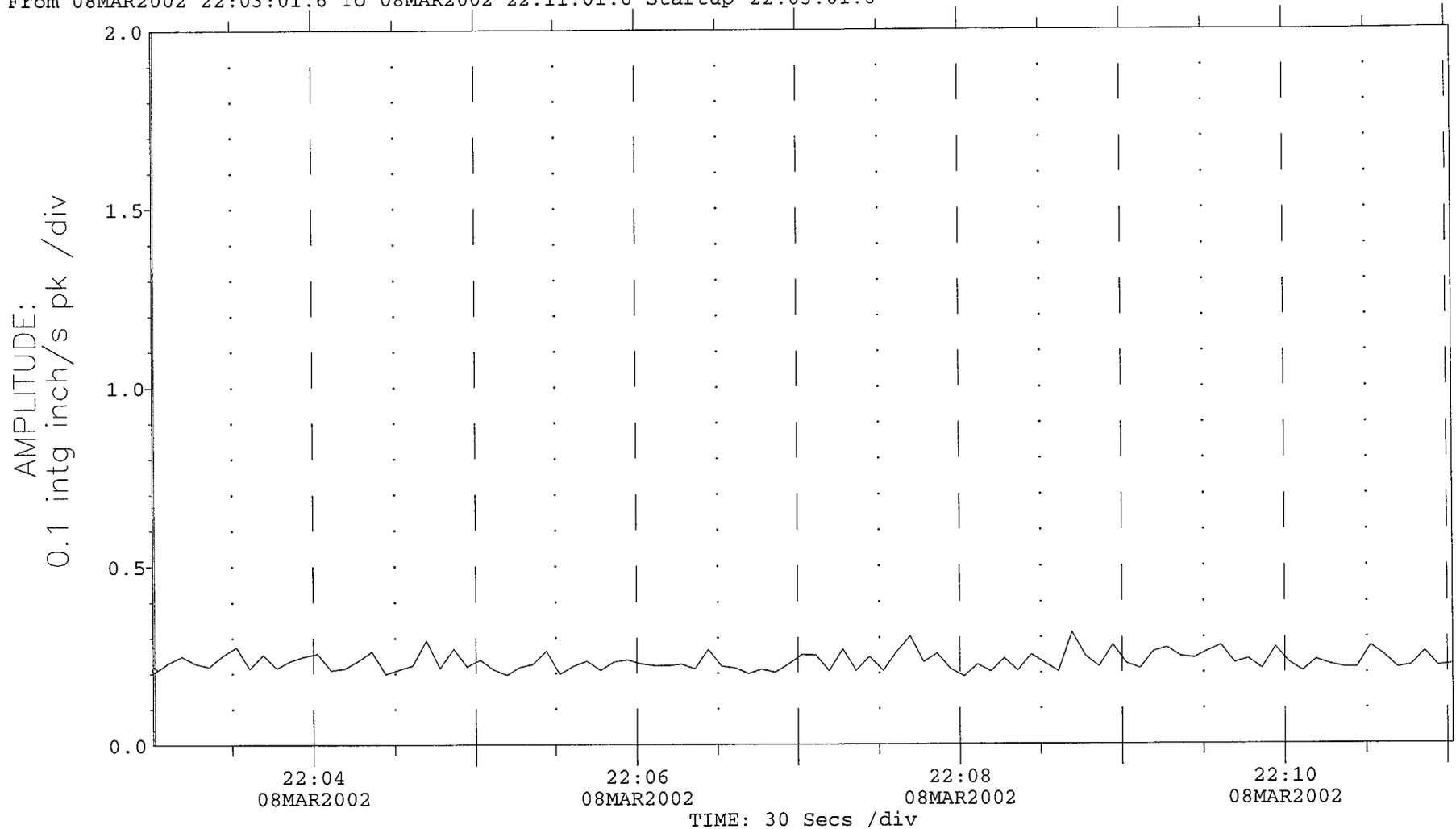
Note that the data presented in the graphs represents integrated raw vibration signals from the accelerometers. The data is presented in in/sec because the ADRE system does not have the capability to present vibration data from accelerometers in mils. There is no filtration applied to the low frequency (< 2 Hz) and therefore the amplitude of the numbers is high compared to the vibration amplitudes recorded for the performance test.

However, the attached graphs are useful in demonstrating that the vertical sensor is not functioning properly, thereby establishing a cause for the inconsistencies in vibration data from the two sensors. The vertical sensor showed erratic readings throughout the pump run, with values spiking to greater than 2 in/sec. The data clearly indicates how the horizontal probe is supplying a steady vibration signal, while it is not possible to get meaningful vibration data from the vertical probe due to the large fluctuations in amplitude.

TREND PLOT
COMPANY: Duke Energy
MACHINE TRAIN: RCMU Pump

PLOT NO. _____
PLANT: Oconee Nuclear Site
JOB REFERENCE: RCMU Pump Test

POINT: Horiz-IB Brg 3VT2 /90° Right DIRECT 0.203 intg inch/s pk
MACHINE: Machine 08MAR2002
From 08MAR2002 22:03:01.6 To 08MAR2002 22:11:01.6 Startup 22:03:01.0



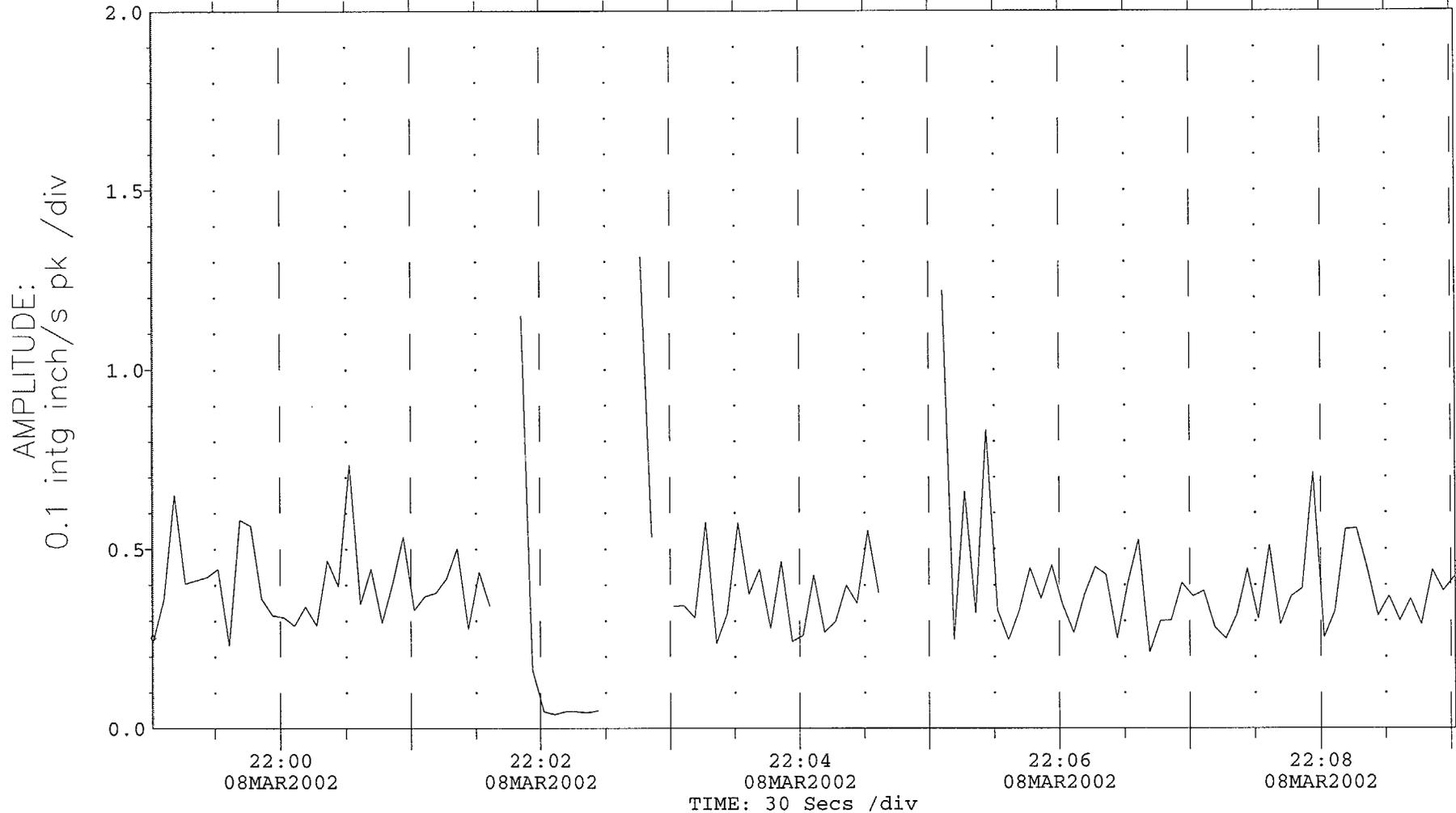
COMMENTS

This graph contains test data on the Oconee Unit 3 RCMU pump taken 3/8/02 using the ADRE data acquisition system. Vibration data presented is for the horizontal accelerometer mounted at the inboard pump bearing housing.

TREND PLOT
COMPANY: Duke Energy
MACHINE TRAIN: RCMU Pump

PLOT NO. _____
PLANT: Oconee Nuclear Site
JOB REFERENCE: RCMU Pump Test

POINT: Vert OB Brg 3VT1 $\angle 0^\circ$ DIRECT 0.245 intg inch/s pk
MACHINE: RCMU Pump 08MAR2002
From 08MAR2002 21:59:01.6 To 08MAR2002 22:09:01.6 Startup 21:59:01.0



COMMENTS

This graph contains test data on the Oconee Unit 3 RCMU pump taken 3/8/02 using the ADRE data acquisition system. Vibration data presented is for the vertical accelerometer mounted at the outboard pump bearing housing.
NOTE: Full range for the ADRE was set at 2 in/s amplitude. Missing data points correspond to vibration signal going over 2 in/s.

Ocone SSF RC Make-up Pump Sensor Location

