

AP1000DCDFileNPEm Resource

From: Melton, Michael A [melto1ma@westinghouse.com]
Sent: Monday, November 01, 2010 2:53 PM
To: Buckberg, Perry
Subject: FW: NRC Concern with AO/111% Overspeed Trip
Attachments: Turbine Control OA-111 Percent Trip Issue 110110.doc

[Draft paper - For discussion at 3 PM.](#)

-Mike

Hearing Identifier: AP1000_DCD_Review
Email Number: 517

Mail Envelope Properties (61EA882EF664FC40AEFFD704C920596707CCBFC860)

Subject: FW: NRC Concern with AO/111% Overspeed Trip
Sent Date: 11/1/2010 2:53:13 PM
Received Date: 11/1/2010 2:54:35 PM
From: Melton, Michael A

Created By: melto1ma@westinghouse.com

Recipients:
"Buckberg, Perry" <Perry.Buckberg@nrc.gov>
Tracking Status: None

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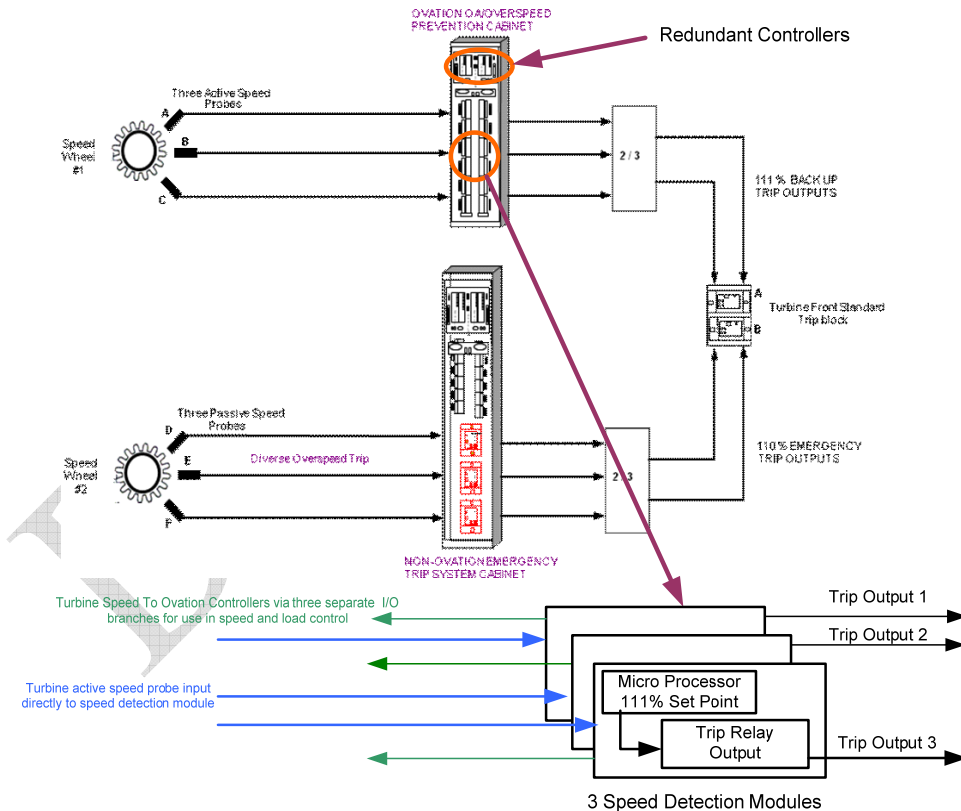
| Files | Size | Date & Time |
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| MESSAGE | 73 | 11/1/2010 2:54:35 PM |
| Turbine Control OA-111 Percent Trip Issue 110110.doc | | 5038144 |

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Priority: Standard
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The Operator Auto cabinet controllers performs the speed and load control functions of the turbine control system utilizing the speed detection module. The back up 111% Over speed Trip function is also contained in this drop and is accomplished by three speed modules located on three separate I/O branches. The speed modules receive their input via three active speed sensors. Each of these modules have an on board micro processor which converts the probe input to rpm. The Speed Module is designed to operate independently and **requires no intervention** by the Ovation Controller to trip the turbine. The turbine speed is a **setpoint** on the speed module – *not the Ovation Controllers*. When the module detects turbine speed equal to or greater than 111 %, the micro processor issues a trip command to the on board relay. When at least two out of three channels indicate a trip, the turbine will trip.

The turbine speed output of the speed detection module is also used by the redundant Ovation Controllers to conduct normal speed and load control functions.



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The Ovation controllers runs the control sheets from start to finish, any error which would occur will cause a switch to the redundant controller.

If the redundant controller fails or power is lost the turbine will trip. Redundant power supplies are provided which auctioneered power to the controllers and I/O modules. The design is fail- safe : de –energize to trip.

Once the three speed detection module set point of 111% has been down loaded by the controller there is no way the controllers can alter the set point during control operation. In order to change the set point in the speed modules, the controller must be taken out of service and a trained engineer with security access to a engineering work station must make the changes.

DRAFT FYI