Brian Lusher

From: Mark_Strehlow@URSCorp.com
Sent: Friday, April 03, 2009 7:09 AM
To: Brian Lusher
Subject: MLGS NOx excursion justification text

Brian:

Is attached.

(See attached file: MLGS Justification for NOx excursions.doc)

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MLGS Justification for NOx excursions

MLGS is being developed in response to electric system needs for both quick start and rapid response power. When running these units will have the capability to change load at ramp rates up to and exceeding 25 MW per minute. NOx emissions from the gas turbine are controlled post-combustion via the use of ammonia injection and SCR catalyst downstream of the gas turbine. The ammonia injection rate operates in a narrow range - high enough to provide slightly more ammonia than is required based on the incoming NOx but not too high to produce ammonia slip in excess of permit limits. The ammonia injection system receives a variety of inputs to estimate the amount of ammonia required and produces a signal to the flow controller. The ammonia injection system's controller follows this signal to inject the appropriate amount of ammonia. However, the ammonia injection system's controller response time is slower than the response time of the gas turbine so a lag is created between the actual NOx incoming and the ammonia injection rate. In addition, there are lag times involved with the NOx CEM system that further delay the response of the ammonia control system. Therefore, the concentration of NOx in the stack is more difficult to achieve at ramp rates at and exceeding 25 MW per minute and requires the added margin allowed with a 3-hr averaging time rather than a 1-hour averaging time.