



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

March 9, 2012

Mr. Michael J. Pacilio  
President and Chief Nuclear Officer  
Exelon Nuclear  
4300 Winfield Road  
Warrenville, IL 60555

**SUBJECT: BYRON STATION, UNIT NOS. 1 AND 2, AND BRAIDWOOD STATION,  
UNITS 1 AND 2 - REQUEST FOR ADDITIONAL INFORMATION  
REGARDING MEASUREMENT UNCERTAINTY RECAPTURE POWER  
UPRATE (TAC NOS. ME6587, ME6588, ME6589, ME6590)**

Dear Mr. Pacilio:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated June 23, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111790030), as supplemented by letter dated August 25, 2011 (ADAMS Accession No. ML11255A332), Exelon Generation Company (the licensee) requested an amendment associated with a measurement uncertainty recapture power uprate, for the Braidwood Station, Units 1 and 2, and Byron Station, Unit Nos. 1 and 2.

Consistent with Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), an amendment to the license (including the technical specifications) must fully describe the changes requested, and following as far as applicable, the form prescribed for original applications. Section 50.34 of 10 CFR addresses the content of technical information required. This section stipulates that the submittal address the design and operating characteristics, unusual or novel design features, and principal safety considerations. The enclosed questions are a partial request for information. More questions are being developed in this area. However we are providing these for efficiency to contribute to overall expediency.

The NRC staff is reviewing your submittal and has determined that additional information is required to complete the review. The specific information requested is addressed in the enclosure to this letter. During a discussion with your staff on March 5, 2012, it was agreed that you would provide a response by March 30, 2012.

M. Pacilio

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The NRC staff considers that timely responses to requests for additional information help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-2020.

Sincerely,

A handwritten signature in black ink that reads "Brenda Mozafari". The signature is fluid and cursive, with the first name "Brenda" and last name "Mozafari" clearly distinguishable.

Brenda Mozafari, Project Manager  
Plant Licensing Branch III-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-456, STN 50-457,  
STN 50-454 and STN 50-455

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

BYRON STATION, UNIT NOS. 1 AND 2,

AND BRAIDWOOD STATION, UNITS 1 AND 2

DOCKET NOS. STN 50-454, STN 50-455,

STN 50-456 AND STN 50-457

In reviewing the Exelon Generation Company's (Exelon's) submittal dated June 23, 2011, related to measurement uncertainty recapture, for the Braidwood Station (Braidwood), Units 1 and 2 and Byron Station (Byron), Unit Nos. 1 and 2, the NRC staff has determined that the following information is needed in order to complete its review:

RAI 1:

Test fidelity, such as test versus planned plant configuration, test variations to address configuration differences, and potential effects of operation on flow profile and calibration, should be addressed on a plant-specific basis. Applicant requests must provide a comparison of the test and plant piping configurations with an evaluation of the effect of any differences that could affect the UFM calibration. Further, sufficient variations in test configurations must be tested to establish that test-to-plant differences have been bracketed in the determination of UFM calibration and uncertainty. The turbulent flow regimes that exist when the plant is near full power result in limited upstream flow profile perturbation from downstream piping. Consequently, the effects of downstream equipment need not be considered for normal CheckPlus operation provided changes in downstream piping, such as the entrance to an elbow, are located greater than two pipe diameters downstream of the chordal paths. However, if the CheckPlus is operated with one or more transducers out of service, the acceptable separation distance is likely a function of transducer to elbow orientation. In such cases, if separation distance is less than five pipe diameters, it should be addressed. Therefore the staff requests the licensee to provide downstream distances from the ultrasonic flow meter (UFM) to the next non-straight pipe component at the Alden labs test setup to verify their applicability to the in plant setup.

RAI 2:

Each applicant for a power uprate must conduct an in-depth evaluation of the UFM following installation at its plant that includes consideration of any differences between the test and in-plant results and must prepare a report that describes the results of the evaluation. This should address such items as calibration traceability, potential loss of calibration, cross-checks with other plant parameters during operation to ensure consistency between thermal power calculation based upon the LEFM and other plant parameters, and final commissioning testing. The process should be described in written documentation and a final commissioning test report should be available for NRC inspection. Therefore the NRC staff requests the licensee to

Enclosure

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provide a summary of the data comparing the LEFM Checkplus operating data to the Venturi data for the past 6 months to verify consistency between thermal power calculation based on LEFM and other plant parameters.

M. Pacilio

- 2 -

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Sincerely,

/RA/

Brenda Mozafari, Project Manager  
Plant Licensing Branch III-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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ADAMS Accession No. ML120590460

NRR-088

OFFICE	LPL3-2/PE	LPL3-2/PM	LPL3-2/LA	LPL3-2/BC	LPL3-2/PM
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