

10 CFR 50.55a

RS-24-041  
NMP1L3579

April 30, 2024

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Braidwood Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-72 and NPF-77  
NRC Docket Nos. STN 50-456 and STN 50-457

Byron Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-37 and NPF-66  
NRC Docket Nos. STN 50-454 and STN 50-455

Calvert Cliffs Nuclear Power Plant, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-53 and DPR-69  
NRC Docket Nos. 50-317 and 50-318

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Dresden Nuclear Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

James A. FitzPatrick Nuclear Power Plant  
Renewed Facility Operating License No. DPR-59  
NRC Docket No. 50-333

LaSalle County Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-11 and NPF-18  
NRC Docket Nos. 50-373 and 50-374

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Limerick Generating Station, Units 1 and 2  
Renewed Facility Operating License Nos. NPF-39 and NPF-85  
NRC Docket Nos. 50-352 and 50-353

Nine Mile Point Nuclear Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-63 and NPF-69  
NRC Docket Nos. 50-220 and 50-410

Peach Bottom Atomic Power Station, Units 2 and 3  
Renewed Facility Operating License Nos. DPR-44 and DPR-56  
NRC Docket Nos. 50-277 and 50-278

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

R.E. Ginna Nuclear Power Plant  
Facility Operating License No. DPR-18  
NRC Docket No. 50-244

Subject: Alternative Request to Utilize Code Case OMN-32, "Alternative Requirements for Range and Accuracy of Pressure, Flow, and Differential Pressure Instruments Used in Pump Tests"

In accordance with 10 CFR 50.55a, "Codes and standards," Constellation Energy Generation, LLC (CEG) requests NRC approval of a proposed alternative request associated with the use of ASME Code Case OMN-32, "Alternative Requirements for Range and Accuracy of Pressure, Flow, and Differential Pressure Instruments Used in Pump Tests." CEG requests NRC approval of this request by April 30, 2025.

There are no regulatory commitments contained in this letter.

If you have any questions concerning this submittal, please contact Ms. Wendi E. Para at (267) 533-5208.

Respectfully,



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David P. Helker  
Sr. Manager – Licensing  
Constellation Energy Generation, LLC

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Attachment: Alternative Request to Utilize Code Case OMN-32, "Alternative Requirements for Range and Accuracy of Pressure, Flow, and Differential Pressure Instruments Used in Pump Tests"

cc: Regional Administrator - NRC Region I  
Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Braidwood Station  
NRC Senior Resident Inspector - Byron Station  
NRC Senior Resident Inspector - Calvert Cliffs Nuclear Power Plant  
NRC Senior Resident Inspector - Clinton Power Station  
NRC Senior Resident Inspector - Dresden Nuclear Power Station  
NRC Senior Resident Inspector - James A. FitzPatrick Nuclear Power Plant  
NRC Senior Resident Inspector - LaSalle County Station  
NRC Senior Resident Inspector - Limerick Generating Station  
NRC Senior Resident Inspector - Nine Mile Point Nuclear Station  
NRC Senior Resident Inspector - Peach Bottom Atomic Power Station  
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station  
NRC Senior Resident Inspector - R.E. Ginna Nuclear Power Plant  
NRC Project Manager, NRR - Braidwood Station  
NRC Project Manager, NRR - Byron Station  
NRC Project Manager, NRR - Calvert Cliffs Nuclear Power Plant  
NRC Project Manager, NRR - Clinton Power Station  
NRC Project Manager, NRR - Dresden Nuclear Power Station  
NRC Project Manager, NRR - James A. FitzPatrick Nuclear Power Plant  
NRC Project Manager, NRR - LaSalle County Station  
NRC Project Manager, NRR - Limerick Generating Station  
NRC Project Manager, NRR - Nine Mile Point Nuclear Station  
NRC Project Manager, NRR - Peach Bottom Atomic Power Station  
NRC Project Manager, NRR - Quad Cities Nuclear Power Station  
NRC Project Manager, NRR - R.E. Ginna Nuclear Power Plant  
Illinois Emergency Management Agency - Division of Nuclear Safety  
Director, Bureau of Radiation Protection - PA Department of Environmental Resources  
S. Seaman - State of Maryland  
A. L. Peterson - NYSERDA

**Attachment**

**Alternative Request to Utilize Code Case OMN-32, “Alternative Requirements for Range and Accuracy of Pressure, Flow, and Differential Pressure Instruments Used in Pump Tests”**

**Request to Utilize OMN-32  
In Accordance with 10 CFR 50.55a(z)(1)**

**1. ASME Code Component(s) Affected**

All of the pumps in the Inservice Testing (IST) Program within the scope of ISTA-1100 and ISTB-1100 are covered by this Code Case.

Constellation Energy Generation, LLC (CEG) transmits a listing of the pumps in the IST Program to the NRC as part of the IST Program Plan interval update. The ADAMS accession number for the most recent IST Program interval update is provided for each of the plants identified in Table 2.1, below. CEG has verified no additional pumps have been added to the IST program at any applicable site since the most recent IST Program interval update.

**2. Applicable Code Edition and Addenda**

The applicable American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) Edition and Addenda, as appropriate, is provided for each of the plants identified in Table 2.1 below.

**Table 2.1:** List of applicable ASME OM Code Edition and Addenda, Interval, and IST Program Transmittal.

<b>Station</b>	<b>Code in Effect</b>	<b>Interval</b>	<b>Start of Interval</b>	<b>End of Interval</b>	<b>IST Program Transmittal</b>
Braidwood Station, Units 1 and 2	OM-2012 Edition	Fourth	7/29/2018	7/28/2028	ML21118A011
Byron Station, Units 1 and 2	OM-2004 Edition, 2006 Add.	Fourth	7/1/2016	6/30/2026	ML16203A108 <sup>1</sup>
Calvert Cliffs Nuclear Power Plant, Units 1 and 2	OM-2012 Edition	Fifth	7/1/2018	6/30/2028	ML18192B990
Clinton Power Station, Unit 1	OM-2012 Edition	Fourth	7/1/2020	6/30/2030	ML23352A033
Dresden Nuclear Power Station, Units 2 and 3	OM-2017 Edition	Sixth	11/1/2023	10/31/2033	ML23334A181
James A. FitzPatrick Nuclear Power Plant	OM-2004 Edition, 2006 Add.	Fifth	6/1/2018	9/30/2027	ML18218A533
LaSalle County Station, Units 1 and 2	OM-2004 Edition, 2006 Add.	Fourth	10/12/2017	10/11/2027	ML18200A080 ML18200A087

<sup>1</sup> The Inservice Testing Pump Table is provided in ML16203A108; however, it does not follow the Attachment 12, Inservice Testing Pump Table, cover page as expected. The Inservice Testing Pump Table was inadvertently inserted at the end of Attachment 14, Inservice Testing Valve Table, and starts on PDF page 238 of 247.

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**Table 2.1 (Continued)**

<b>Station</b>	<b>Code in Effect</b>	<b>Interval</b>	<b>Start of Interval</b>	<b>End of Interval</b>	<b>IST Program Transmittal</b>
Limerick Generating Station, Units 1 and 2	OM-2012 Edition	Fourth	1/8/2020	1/7/2030	ML20265A060 <sup>2</sup>
Nine Mile Point Nuclear Station, Unit 1	OM-2012 Edition	Fifth	1/1/2019	12/31/2028	ML19072A182
Nine Mile Point Nuclear Station, Unit 2	OM-2012 Edition	Fourth	1/1/2019	12/31/2028	ML19072A182
Peach Bottom Atomic Power Station, Units 2 and 3	OM-2012 Edition	Fifth	11/16/2018	8/14/2028	ML18337A196
Quad Cities Nuclear Power Station, Units 1 and 2	OM-2017 Edition	Sixth	8/18/2023	7/17/2033	ML23249A097
R.E. Ginna Nuclear Power Plant	OM-2012 Edition	Sixth	1/1/2020	12/31/2029	ML20036C593

CEG has reviewed the currently approved Alternative and Reliefs Requests for the sites listed in Table 2.1. The following impacts with OMN-32 are noted:

- Alternative Request Number RP-2 was authorized by the NRC for the fourth 10-year IST program interval at Byron Station, Units 1 and 2 by NRC letter dated February 26, 2016 (ADAMS Accession No. ML16022A135). The authorized Alternative Request allows the use of  $\pm 2$  percent instrument accuracy for determining suction pressure when performing Comprehensive Pump Testing of the two Essential Service Water makeup pumps (0SX02PA and 0SX02PB). If authorized by the NRC, OMN-32 specified instrument accuracy and ranges would apply to all pumps in the Byron Station IST program for the accuracy and range of flow, pressure, and differential pressure instruments used for Group A, Group B, Comprehensive, and Preservice pump tests with the exception of suction pressure instrumentation utilized for Comprehensive Pump Testing of the two Essential Service Water makeup pumps which will meet the requirements in accordance with Alternative Request RP-2.
- Alternative Request Number PRR-01 was authorized by the NRC for the fifth 10-year IST program interval at James A. FitzPatrick Nuclear Power Plant by NRC letter dated April 13, 2018 (ADAMS Accession No. ML18044A993). The authorized Alternative Request is applicable to Group A and B testing of the two core spray pumps (14P-1A and 14P-1B) and allows the use of a combined suction and discharge differential pressure of  $\pm 4.0$  percent. If authorized by the NRC, OMN-32 specified instrument accuracy and ranges would apply to all pumps in the James A. FitzPatrick Nuclear Power Plant IST program for the accuracy and range of flow, pressure, and differential pressure instruments used for Group A, Group B, Comprehensive, and Preservice pump tests with the exception of pressure instrumentation utilized for Group B testing of the two core spray pumps which will meet requirements in accordance with Alternative Request PRR-01.
- Alternative Request Number 90-PRR-1 was authorized by the NRC for the fourth 10-year IST program interval at Limerick Generating Station, Units 1 and 2 by NRC letter dated November 5, 2020 (ADAMS Accession No. ML20280A757). The authorized Alternative Request was applicable to the two main control room chilled water pumps (0AP162 &

<sup>2</sup> The referenced submittal is the latest one on the docket but was provided after the submittal for the IST Program Plan 10-year interval update.

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0BP162). Both pumps have been removed from the Limerick Generating Station IST Program as RISC-3 components (safety-related SSCs that perform low safety significant functions) under 10 CFR 50.69, Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors.

CEG has verified the currently approved Alternative and Reliefs Requests for all other sites listed in Table 2.1 are not impacted by the applicability of this Alternative Request.

### **3. Applicable Code Requirement**

ISTB-3510, *General*, paragraph (a), *Accuracy*, states that, “Instrument accuracy shall be within the limits of Table ISTB-3510-1. If a parameter is determined by analytical methods instead of measurement, then the determination shall meet the parameter accuracy requirement of Table ISTB-3510-1 (e.g., flow rate determination shall be accurate to within  $\pm 2\%$  of actual). For individual analog instruments, the required accuracy is percent of full-scale. For digital instruments, the required accuracy is over the calibrated range. For a combination of instruments, the required accuracy is loop accuracy.”

The applicable portions of ISTB-3510, *General*, paragraph (b), *Range*, state that, “(1) The full-scale range of each analog instrument shall be not greater than three times the reference value. (2) Digital instruments shall be selected such that the reference value does not exceed 90% of the calibrated range of the instrument.”

**NOTE:** ISTB-3510(b)(3) pertains to vibration instruments and is not covered by Code Case OMN-32 or included in this alternative request.

Table ISTB-3510-1, *Required Instrument Accuracy*, provides the Pressure, Flow Rate, Speed, Vibration and Differential Pressure instrument accuracy requirement for Group A, Group B, Comprehensive, and Preservice pump tests.

**NOTE:** Speed and Vibration listed in Table ISTB-3510-1 are not covered by Code Case OMN-32 or included in this alternative request.

Pump Periodic Verification Tests (PPVTs) are not covered by Code Case OMN-32 or included in this alternative request since instrument accuracies for PPVTs are not governed by Table ISTB-3510-1. However, OM Code Division 1, Mandatory Appendix V, Pump Periodic Verification Test Program, does not specify instrument accuracy or ranges but does require instrument accuracies to be accounted for in the test acceptance criteria. Therefore, alternate range and accuracy gages are permitted to be used for PPVTs as long as V-3000(f) is met.

Pump Baseline Testing, as introduced in the 2020 Edition, is not covered by Code Case OMN-32 or included in this alternative request.

### **4. Reason for Request**

Pursuant to 10 CFR 50.55a, *Codes and standards*, paragraph (z)(1), an alternative that provides an acceptable level of quality and safety is proposed to the requirement of the ASME OM Code ISTB-3510(a), ISTB-3510(b), and Table ISTB 3510-1 for the accuracy and range of flow, pressure, and differential pressure instruments used for Group A, Group B, Comprehensive, and Preservice pump tests.

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Code Case OMN-32, "Alternative Requirements for Range and Accuracy of Pressure, Flow, and Differential Pressure Instruments Used in Pump Tests," has determined the following requirements may be applied to instruments used to measure pump pressure, flow rate, and differential pressure in lieu of ISTB-3510(a), ISTB-3510(b), and Table ISTB 3510-1.

**1. Required Instrument Accuracy and Range<sup>3</sup>**

- (a) *Accuracy.* The analog or digital instrument(s) shall be calibrated within the limits specified in Table 1 for the respective test quantity. For an instrument loop, the required accuracy is instrument loop accuracy as defined in ISTA-2000.
- (b) *Range.* The analog or digital instrument(s) shall be designed and calibrated in the range for use at the expected reading (e.g., reference value) to be measured or recorded during the test.

**Table 1 Required Instrument Accuracy and Range<sup>3</sup>**

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Quantity	Group A and Group B Tests, % of Reading	Comprehensive and Preservice Tests % of Reading
Pressure	±6	±1½
Flow Rate	±6	±6
Differential pressure	±6	±1½

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**5. Proposed Alternative and Basis for Use**

**Proposed Alternative**

In lieu of compliance with ISTB-3510(a), ISTB-3510(b), and Table ISTB 3510-1, CEG proposes to implement Code Case OMN-32 on the basis that it provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a, "Codes and standards," paragraph (z)(1).

The proposed alternative testing instrument accuracy and range requirements may be applied to Group A, Group B, Comprehensive, and Preservice pump tests of all pumps in the IST Program within the scope of ISTA-1100 and ISTB-1100.

Instruments used for speed and vibration testing for Group A, Group B, Comprehensive, and Preservice pump tests shall continue to meet the instrument accuracy and range requirements in ISTB-3510(a), ISTB-3510(b), and Table ISTB 3510-1, in accordance with regulatory requirements.

Code Case OMN-32 was issued by ASME on September 11, 2023. CEG does not propose any deviations from the Code Case.

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<sup>3</sup> The title of the proposed Requirements and the corresponding Table were modified to state, "Required Instrument Accuracy and Range." The phrase "and Range" was added to more completely describe the alternate requirements proposed by Code Case OMN-32 and incorporate an unresolved NRC comment made during the Code Case review period. CEG considers this an administrative change.



**Basis for Use**

Code Case OMN-32 simplifies the analog or digital instrument selection criteria to allow use of any range and accuracy combination designed and calibrated for use at the expected reading and ensures the maximum difference between actual value and reading is within the limits derived from previous OM Code analog instrument range and accuracy requirements.

Using ISTB-3510(a) and ISTB-3510(b) for analog instruments, without applying Code Case OMN-32, the maximum full-scale range is three times the reference value (ISTB-3510(b)) and the required instrument accuracy is stated in Table ISTB-3510-1 (ISTB-3510(a)). Since the instrument range is a multiplier of the reference value (expected reading), the current code required accuracy at reference value is calculated by multiplying the required instrument accuracy in Table ISTB-3510-1 by three. The calculated reference value maximum error for analog instrument accuracy based on existing code requirements is shown in Tables 5.1 and 5.2.

**Table 5.1:** Calculated analog instrument maximum reference value error for Group A and Group B Tests

Quantity	Maximum Full Scale (ISTB-3510(b))	Group A and Group B Tests (ISTB-3510(a) and Table ISTB-3510-1)	Maximum Error at Reference Value (Reading)
Pressure	3 (times ref. value)	±2% full scale	3 x 2 = ±6% of ref. val.
Flow rate	3 (times ref. value)	±2% full scale	3 x 2 = ±6% of ref. val.
Differential pressure	3 (times ref. value)	±2% full scale	3 x 2 = ±6% of ref. val.

**Table 5.2:** Calculated analog instrument maximum reference value error for Comprehensive and Preservice Tests

Quantity	Maximum Full Scale (ISTB-3510(b))	Comprehensive and Preservice Tests (Ref. ISTB-3510(a) and Table ISTB-3510-1)	Maximum Error at Reference Value (Reading)
Pressure	3 (times ref. value)	±1½% full scale	±1½% of ref. val.
Flow rate	3 (times ref. value)	±2% full scale	±6% of ref. val.
Differential pressure	3 (times ref. value)	±1½% full scale	±1½% of ref. val.

The calculated analog instrument maximum reference value error above is the basis for the required instrument accuracy and range in Code Case OMN-32.

Using ISTB-3510(a) and ISTB-3510(b) for digital instruments, without applying Code Case OMN-32, there is no maximum calibrated range. ISTB-3510(b)(2) requires that the reference value does not exceed 90% of the calibrated range. When combining an unlimited maximum calibrated range for a digital instrument with the accuracy statement of ISTB-3510(a) which states in part, “for digital instrument, the required accuracy is over the calibrated range”, there is essentially no limit of the allowed accuracy at the reference value. Therefore, the use of Code Case OMN-32 for digital instruments is more prescriptive for accuracy and range.

Instrument accuracy at the reference value (expected reading) is the key parameter for selecting an instrument; whereas the instrument range is not the critical parameter provided the instrument is designed and intended to be used at the reference value. Therefore, the use of Code Case OMN-32 as an alternative is acceptable as it maintains the original intent of the OM Code because the maximum possible instrument error at the reference value is unchanged.

Implementation of Code Case OMN-32 will allow sites to utilize permanently installed plant instrumentation to support pump testing which will eliminate the need to install temporary instruments. This will reduce personnel dose and allow maintenance resources to focus on more risk significant activities. Additionally, implementation of Code Case OMN-32 will allow additional flexibility to utilize alternate instrumentation should an issue occur with the primary instrument.

**6. Duration of Proposed Alternative**

The proposed alternative is for the remainder of the current intervals provided in Table 2.1 above.

**7. Precedent**

None

**8. References**

None