



Date: 10/11/2025

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

10CFR Part 21 Initial Notification: P21-10112025-IN, Rev. 0

Subject: Potential Deviation related to Stryten (formally GNB) N&M Series Flooded Batteries Installed in 24VDC, 48VDC, 125VDC and 250VDC Station Battery Strings

In May 2025, Constellation Quad Cities Clean Energy Center experienced positive battery post separation from three cells in a safety related battery string at the post seal nut region. The first was identified while replacing a cell after trouble shooting abnormal fluctuations in DC bus voltage following isolation of the connected battery charger. After replacement and upon initiation of the subsequent service discharge test, an adjacent cell positive post separated, resulting in a localized fire near the post. The third cell failed while conducting maintenance to replace the battery string.

Immediately following the failures at Quad Cities, Paragon dispatched engineering resources to provide technical assistance to the station during battery string replacement and to perform an initial assessment of the condition. Shortly after receiving the failed cells, and in collaboration with Constellation and Stryten, Paragon began an extensive failure analysis of several cells/posts returned from the affected battery string. The current postulated cause of the post separation is due to a corrosion mechanism that is still under investigation.

More recently, in September 2025, Constellation Calvert Cliffs Clean Energy Center reported separation of a positive post from a cell upon initiation of a service test discharge resulting in electrical arcing at the cell post area.

Paragon has not yet identified a defect in the cell post design or manufacturing process which, if corrected, would prevent or mitigate this condition. The affected battery cells have been in service for 14 years and 11 years respectively. This phenomenon only affects the positive posts on the battery, and the area of the post where corrosion occurs is not visible during routine inspection. Based on review of the events, abnormally high individual cell float voltage was measured at some point prior to the failure at Quad Cities. While Paragon is not stipulating that high cell voltage is the primary indication of the corrosive effect in the positive post, this indication may allow sites to ensure cells are adequately evaluated for post integrity.

Out of an abundance of caution, and Pursuant to 10CFR Part 21 § 21.21(d)(3)(i), Paragon is providing initial notification of the potential defect associated with the subject flooded lead-acid batteries prior to discovery of the specific defect or failure to comply that is ongoing in our current failure analysis.

See attached list for Licensees utilizing the affected N&M series batteries.



Paragon Recommends:

1. During recommended monthly routine individual cell voltage measurements (per Manufacturers Instruction Manual and IEEE-450), if abnormally high float cell voltage is measured Paragon recommends the condition be evaluated in accordance with IEEE 450:2020 C.3.2 to determine cell post integrity.
2. Licensees should continue normal battery maintenance procedures contained in station instructions.
 - Ensure proper torque values are used during intercell connection checks.
 - During walkdown of the battery room, verify intercell cabling is properly supported, and proper alignment of intercell connector plates and cells to prevent unnecessary stress to the positive posts.

Date of Discovery: 10/9/2025

Reportability Determined: 10/9/2025

Paragon has entered this condition in our corrective action program and is standing by to assist affected Licensees with questions and concerns regarding this notification. Please contact Paragon at Batteries@Paragones.com or for emergent issues please call 865-888-6853.

Sincerely,

Richard Knott

Vice President Quality Assurance, Paragon Energy Solutions.



List of Potentially Affected Licensees

Paragon has supplied Class 1E and/or commercial grade batteries to the plants identified below. All installations are GNB/Stryten batteries/cells supplied under the Paragon Quality Assurance Program since 2005. It is recommended that plants also consider installations of M and N Series batteries that have been approved for service life extension beyond the 20 year qualified life recommendation.

Site	Battery/Cell Model
Ameren	
Callaway	NCN-13S, NCN-23S
Arizona Public Service (APS)	
Palo Verde	NCN-33, NCN-33S
Constellation	
Calvert Cliffs	NCN-15, NCN-21, NCN-21S, NCN-27
Dresden	2-MCX-5, NCN-21, NCN-21S, NCN-27
Fitzpatrick	NCN-35
Ginna	NCN-21
LaSalle	NCN-17, NCN-17S, NCN-27, NCN-27S, 2-MCX-5
Nine Mile Point	NCN-35, NCN-35S
Quad Cities	2-MCX-5, NCN-21, NCN-21S, 2-MCX-05, MCX-05
Dominion	
Millstone	NCN-11S, NCN-27, NCN-27S, NCN-35, NCN-35S, NCX-35
NextEra Energy	
Seabrook	NCN-35S
Duke	
Brunswick	NCX-9S, NCN-17, NCN-17S
Carolina Power & Light	NCN-17
Catawba	NCN-9, NCN-21, NCN-27
H.B. Robinson	NCN-15
McGuire	NCN-27
Entergy	
River Bend	NCN-29S, NCN-29S, NCX-35S
Florida Power & Light (FPL)	
Turkey Point	NCN-17, NCN-17S, NCN-25, NCN-25S, NCN-27, NCN-27S
Vistra	
Beaver Valley	NCX-29S, NCX-33S, NCX-35S
Comanche Peak	NCN-17, NCN-17S, NCN-27, NCN-27S
Davis Besse	NCN-21, NCN-21S
South Texas Nuclear Operating Company (STPNOC)	



Site	Battery/Cell Model
South Texas Project	NCN-17, NCN-17S, NCN-27
Bruce Power	
Bruce Power	MCX-09S, MCX-13S, NCN-27, NCN-27S, NCN35, NCN-35S
Siemens/Bruce Power	MCX-13, NCN-27
KHNP	
Hanbit	NCN-11S, NCN-33S
Kori	NCN-11S, NCX-17S, NCN-21S, NCN-25, NCX-27, NCX-31, NCX-31S, NCN-33S, NCX-35
OPG	
OPG	NCN-23

Note: The “S” suffix is an administrative designator only. The design and manufacturing of cells with or without the “S” is the same.