

UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

December 23, 2013

To Those on the Enclosed List

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH

NEAR-TERM TASK FORCE RECOMMENDATION 2.3, FLOODING

WALKDOWNS

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff issued a letter requesting additional information per Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (hereafter called the 50.54(f) letter). The 50.54(f) letter requested that licensees conduct flooding hazard walkdowns to verify the plant configuration with the current licensing basis. The licensees stated by letter that the flooding walkdowns would be performed in accordance with Nuclear Energy Institute 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," May 2012. Following the NRC staff's initial review of the walkdown reports, regulatory site audits were conducted at a sampling of plants. Based on the walkdown report reviews and site audits, the staff identified additional information necessary to allow the staff to complete its assessments.

Enclosed is a request for additional information (RAI) related to flooding walkdowns. The NRC staff requests that you respond no later than January 31, 2014. If you have any questions related to the enclosed RAI or the requested submission date, please contact your assigned plant Project Manager.

Sincerely

Robert J. Pascarelli, Chief Plant Licensing Branch II-1

Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

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Enclosures:

1. Request for Additional Information

2. Addressee List

cc w/encls: Listserv

REQUEST FOR ADDITIONAL INFORMATION

Flooding Walkdowns

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff issued a letter (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340) requesting additional information per Title 10 of the *Code of Federal Regulations*, Section 50.54(f) (hereafter called the 50.54(f) letter). The 50.54(f) letter requested that licensees conduct flooding hazard walkdowns to identify and address plant-specific degraded, nonconforming, or unanalyzed conditions through the corrective action program (CAP). All licensees stated by letter that the flooding walkdowns would be performed in accordance with Nuclear Energy Institute (NEI) 12-07, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features," May 2012 (ADAMS Accession No. ML12172A038). Following the NRC staff's initial review of the reports documenting the results of the licensees' walkdowns, regulatory site audits were conducted at a sample of plants. Based on the walkdown report reviews and site audits, the staff identified additional information necessary to allow the staff to complete its assessments.

Determination and documentation of available physical margin (APM)

Background:

The NRC staff observed that several licensees did not consistently determine and/or document available physical margin (APM) in a manner that met the expected interpretation of NEI 12-07 during audits associated with review of the NTTF Recommendation 2.3 report submittals. APM is defined in section 3.13 of NEI 12-07 and the process for obtaining and evaluating APM values is described in section 5.8 of NEI 12-07. Consistent with NEI 12-07, a numerical value for APM should be determined and documented for every applicable flood protection feature (e.g., wall, penetration, berm, door, etc.). This would normally be a numerical value reflecting the difference between the licensing basis flood height at the location of the feature and the point at which the function of the flood protection feature is compromised (e.g., the top of a barrier or the height of the first unsealed penetration in a barrier) such that the resulting flood can affect a structures, systems, and components important to safety. Next, in accordance with Section 5.8 of NEI 12-07, if the APM appears to be small and the consequences of flooding appear to be significant, the licensee should enter the condition into the CAP and appropriate action be taken. While NEI 12-07 does not require that a specific numerical threshold value for "small" APM be defined for each site, doing so establishes a consistent basis for determining what instances need to be entered into the CAP. If a numerical APM value cannot be determined for any flood protection feature, the licensee should perform an assessment of the ability of the barrier to withstand the licensing basis flood plus the contribution of the additional water corresponding to the pre-established small-margin threshold value. If the barrier can withstand this flood, the APM for the feature is "not small" and further evaluation in accordance with Section 5.8 of NEI 12-07 is not required. It is further noted that conclusions regarding "large" values of APM should be based on engineering evaluations or existing design documents.

Licensees should ensure that the process for APM determination and evaluation used during their flooding walkdowns is consistent with the guidance in NEI 12-07. The intent of this RAI is not to repeat the flooding walkdowns or perform an extensive revision of the walkdown record

forms and other paperwork. Instead the purpose is to verify or modify the process used to determine APM such that every site is aware of the margin at each of its flood protection features and take appropriate interim actions when the APM is small and the consequences are significant. Instances where numerical values for APM were not determined, or where the basis for the APM was found to be questionable, should be rectified by either the documentation of a specific value or an explanation of why a non-numerical value is appropriate.

Request:

Please provide the following:

- 1. Confirmation that the process for evaluating APM was reviewed;
- 2. Confirmation that the APM process is now or was always consistent with the guidance in NEI 12-07 and discussed in this RAI;
- 3. If changes are necessary, a general description of any process changes to establish this consistency;
- 4. As a result of the audits and subsequent interactions with industry during public meetings, NRC staff recognized that evaluation of APM for seals (e.g., flood doors, penetrations, flood gates, etc.) was challenging for some licensees. Generally, licensees were expected to use either Approach A or Approach B (described below) to determine the APM for seals:
 - a) If seal pressure ratings were known, the seal ratings were used to determine APM (similar to example 2 in Section 3.13 of NEI 12-07). A numerical value for APM was documented. No further action was performed if the APM value was greater than the pre-established small-margin threshold value. If the APM value was small, an assessment of "significant consequences" was performed and the guidance in NEI 12-07 Section 5.8 was followed.
 - b) If the seal pressure rating was not known, the APM for seals in a flood barrier is assumed to be greater than the pre-established small-margin threshold value if the following conditions were met: (1) the APM for the barrier in which the seal is located is greater than the small-margin threshold value and there is evidence that the seals were designed/procured, installed, and controlled as flooding seals in accordance with the flooding licensing basis. Note that in order to determine that the seal has been controlled as a flooding seal, it was only necessary to determine that the seal configuration has been governed by the plant's design control process since installation. In this case, the APM for the seal could have been documented as "not small".

As part of the RAI response, state if either Approach A or Approach B was used as part of the initial walkdowns or as part of actions taken in response to this RAI. No additional actions are necessary if either Approach A or B was used.

If neither Approach A or B was used to determine the APM values for seals (either as part of the walkdowns or as part of actions taken in response to this RAI), then perform the following two actions:

- Enter the condition into the CAP (note: it is acceptable to utilize a single CAP entry to capture this issue for multiple seals). CAP disposition of "undetermined" APM values for seals should consider the guidance provided in NEI 12-07, Section 5.8. The CAP disposition should confirm all seals can perform their intended safety function against floods up to the current licensing basis flood height. Disposition may occur as part of the Integrated Assessment. If an Integrated Assessment is not performed, determine whether there are significant consequences associated with exceeding the capacity of the seals and take interim action(s), if necessary, via the CAP processes. These actions do not need to be complete prior to the the RAI response.
- Report the APM as "undetermined" and provide the CAP reference in the RAI response.

List of Addressees

Arkansas Nuclear One, Units 1 and 2 Docket Nos. 50-313 and 50-368

Vice President, Operations Arkansas Nuclear One Entergy Operations, Inc. 1448 S.R. 333 Russellville, AR 72802

Beaver Valley Power Station, Units 1 and 2 Docket Nos. 50-334 and 50-412

Mr. Eric A. Larson, Site Vice President FirstEnergy Nuclear Operating Company Beaver Valley Power Station Mail Stop A-BV-SEB1 P.O. Box 4, Route 168 Shippingport, PA 15077

Browns Ferry Nuclear Plant, Units 1, 2, and 3 Docket Nos. 50-259, 50-260 and 50-296

Mr. Joseph W. Shea Vice President, Nuclear Licensing Tennessee Valley Authority 1101 Market Street, LP 3D-C Chattanooga, TN 37402-2801

Byron Station, Units 1 and 2/Braidwood Station, Units 1 and 2 Docket Nos. 50-454, 50-455, 50-456, and 50-457

Mr. Michael J. Pacilio, Senior Vice President Exelon Generation Company, LLC President and Chief Nuclear Office (CNO) - Exelon Nuclear 4300 Winfield Road Warrenville, IL 60555

Callaway Plant, Unit 1 Docket No. 50-483

Mr. Adam C. Heflin Senior Vice President and Chief Nuclear Officer Union Electric Company Ameren Missouri P.O. Box 620 Fulton, MO 65251

Calvert Cliffs Nuclear Power Plant, Units 1 and 2 Docket Nos. 50-317 and 50-318

Mr. George H. Gellrich, Vice President Calvert Cliffs Nuclear Power Plant, LLC. Calvert Cliffs Nuclear Power Plant 1650 Calvert Cliffs Parkway Lusby, MD 20657-4702

Catawba Nuclear Station, Units 1 and 2 Docket Nos. 50-413 and 50-414

Mr. Kelvin Henderson, Site Vice President Duke Energy Carolinas, LLC Catawba Nuclear Station, Units 1 & 2 4800 Concord Road York, SC 29745

Clinton Power Station, Unit No. 1 Docket No. 50-461

Mr. Michael J. Pacilio, Senior Vice President Exelon Generation Company, LLC President and Chief Nuclear Office (CNO) Exelon Nuclear 4300 Winfield Rd. Warrenville, IL 60555

Columbia Generating Station Docket No. 50-397

Mr. Mark E. Reddemann, Chief Executive Officer Energy Northwest MD 1023, North Power Plant Loop P.O. Box 968 Richland, WA 99352

Comanche Peak Nuclear Power Plant, Units 1 and 2 Docket Nos. 50-445 and 50-445

Mr. Rafael Flores Senior Vice President & Chief Nuclear Officer Attention: Regulatory Affairs Luminant Generation Company LLC P.O. Box 1002 Glen Rose, TX 76043

Cooper Nuclear Station Docket No. 50-298

Mr. Oscar A. Limpias, Vice President-Nuclear and Chief Nuclear Officer Nebraska Public Power District Cooper Nuclear Station 72676 648A Avenue P.O. Box 98 Brownville, NE 68321

<u>Davis-Besse Nuclear Power Station, Unit 1</u> Docket No. 50-346

Mr. Ray Lieb, Vice President FirstEnergy Nuclear Operating Company c/o Davis-Besse NPS 5501 N. State Route 2 Oak Harbor, OH 43449-9760

<u>Donald C. Cook Nuclear Plant, Units 1 and 2</u> <u>Docket Nos. 50-315 and 50-316</u>

Mr. Lawrence J. Weber Senior Vice President and Chief Nuclear Officer Indiana Michigan Power Company Nuclear Generation Group One Cook Place Bridgman, MI 49106

<u>Diablo Canyon Power Plant, Unit Nos. 1 and 2</u> <u>Docket Nos. 50-275 and 50-323</u>

Mr. Edward D. Halpin, Senior Vice President and Chief Nuclear Officer Pacific Gas and Electric Company P.O. Box 56 Mail Code 104/6 Avila Beach, CA 93424

Dresden Nuclear Power Station, Units 2 and 3 Docket Nos. 50-237 and 50-249

Mr. Michael J. Pacilio, Senior Vice President Exelon Generation Company, LLC President and Chief Nuclear Office Exelon Nuclear 4300 Winfield Road Warrenville, IL 60555

<u>Duane Arnold Energy Center</u> <u>Docket No. 50-331</u>

Mr. Rich Anderson, Site Vice President Next Era Energy Duane Arnold Energy Center 3277 DAEC Road Palo, IA 52324-9785

Edwin I. Hatch Nuclear Plant Units 1 and 2 Docket Nos. 50-321 and 50-366

Mr. C. R. Pierce, Regulatory Affairs Director Southern Nuclear Operating Co., Inc. P.O. Box 1295 / BIN B038 Birmingham, AL 35201-1295

Fermi, Unit 2 Docket No. 50-341

Mr. Joseph H. Plona, Senior VP and Chief Nuclear Officer Detroit Edison Company Fermi 2 - 210 NOC 6400 North Dixie Highway Newport, MI 48166

Fort Calhoun Station, Unit 1 Docket No. 50-285

Mr. Louis Cortopassi, Vice President and Chief Nuclear Officer Omaha Public Power District Fort Calhoun Station Mail Stop FC-2-4 9610 Power Lane Blair, NE 68008

Grand Gulf Nuclear Station, Unit 1 Docket No. 50-416

Vice President, Operations Entergy Operations, Inc. Grand Gulf Nuclear Station P.O. Box 756 Port Gibson, MS 39150

H. B. Robinson Steam Electric Plant, Unit No. 2 Docket No. 50-261

Mr. William R. Gideon, Vice President H.B. Robinson Steam Electric Plant Duke Energy Progress, Inc. 3581 West Entrance Road Hartsville, SC 29550

Indian Point Nuclear Generating Unit Nos. 2 and 3 Docket Nos. 50-247and 50-286

Vice President, Operations Entergy Nuclear Operations, Inc. Indian Point Energy Center 450 Broadway, GSB P.O. Box 249 Buchanan, NY 10511-0249

James A. FitzPatrick Nuclear Power Plant Docket No. 50-333

Mr. Chris Adner, Licensing Manager Entergy Nuclear Operations, Inc. James A. FitzPatrick Nuclear Power Plant P.O. Box 110 Lycoming, NY 13093

Joseph M. Farley Nuclear Plant, Units 1 and 2 Docket Nos. 50-348 and 50-364

Mr. C. R. Pierce, Regulatory Affairs Director Southern Nuclear Operating Co., Inc. P.O. Box 1295 / BIN 038 Birmingham, AL 35201-1295

LaSalle County Station, Units 1 and 2 Docket Nos. 50-373 and 50-374

Mr. Michael J. Pacilio, Senior Vice President Exelon Generation Company, LLC President and Chief Nuclear Office (CNO) Exelon Nuclear 4300 Winfield Road Warrenville, IL 60555

Limerick Generating Station, Units 1 and 2 Docket Nos. 50-352 and 50-353

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

Monticello Nuclear Generating Plant, Unit 1 Docket No. 50-263

Ms. Karen D. Fili, Site Vice President Northern States Power Company - Minnesota Monticello Nuclear Generating Plant 2807 West County Road 75 Monticello, MN 55362-9637

Nine Mile Point Nuclear Station, Units 1 and 2 Docket Nos. 50-220 and 50-410

Mr. Christopher Costanzo, Vice President Nine Mile Point Nuclear Station, LLC P. O. Box 63 Lycoming, NY 13093

North Anna Power Station, Units 1 and 2 Docket Nos. 50-338 and 50-339

Mr. David A. Heacock, President and Chief Nuclear Officer Virginia Electric & Power Company Innsbrook Technical Center 5000 Dominion Blvd. Glen Allen, VA 23060

Oconee Nuclear Station, Units 1, 2 and 3 Docket Nos. 50-236, 50-270 and 50-287

Mr. Scott Batson Vice President, Oconee Nuclear Station Duke Energy Carolinas, LLC 7800 Rochester Highway Seneca, SC 29672 Palisades Nuclear Plant Docket No. 50-355

Mr. Anthony J. Vitale, Vice President, Operations Entergy Nuclear Operations, Inc. Palisades Nuclear Plant 27780 Blue Star Memorial Highway Covert, MI 49043-9530

Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Docket Nos. 50-528, 50-529 and 50-530

Mr. Randall K. Edington
Executive Vice President Nuclear/CNO
Arizona Public Service Company
P.O. Box 52034, MS 7602
Phoenix, AZ 85072-2034

Peach Bottom Atomic Power Station, Units 2 and 3 Docket Nos. 50-277 and 50-278

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

Perry Nuclear Power Plant, Unit 1 Docket No. 50-440

Mr. Ernest J. Harkness, President and Chief Nuclear Officer FirstEnergy Nuclear Operating Company Perry Nuclear Power Plant 10 Center Road, A290 Perry, OH 44081

Pilgrim Nuclear Power Station Unit No. 1 Docket No. 50-293

Mr. John Dent, Jr., Vice President – Site VP Pilgrim Nuclear Power Station 600 Rocky Hill Road Plymouth, MA 02360-5508 Point Beach Nuclear Plant, Units 1 and 2 Docket Nos. 50-266 and 50-301

Mr. Larry Meyer, Site Vice President NextEra Energy Point Beach, LLC Point Beach Nuclear Plant, Units 1 & 2 6610 Nuclear Road Two Rivers, WI 54241-9516

Prairie Island Nuclear Generating Plant, Units 1 and 2 Docket Nos. 50-282 and 50-306

Mr. James E. Lynch, Site Vice President Northern States Power Company - Minnesota Prairie Island Nuclear Generating Plant 1717 Wakonade Drive East Welch, MN 55089-9642

R. E. Ginna Nuclear Power Plant Docket No. 50-244

Mr. Joseph E. Pacher, Vice President R.E. Ginna Nuclear Power Plant R.E. Ginna Nuclear Power Plant, LLC 1503 Lake Road Ontario, NY 14519

River Bend Station, Unit 1 Docket No. 50-458

Vice President, Operations Entergy Operations, Inc. River Bend Station 5485 U.S. Highway 61N St. Francisville, LA 70775

Seabrook Station, Unit No. 1 Docket No. 50-443

Mr. Kevin Walsh, Site Vice President c/o Michael Ossing Seabrook Station NextEra Energy Seabrook, LLC P.O Box 300 Seabrook, NH 03874

Sequoyah Nuclear Plant, Units 1 and 2 Docket Nos. 50-327 and 50-328

Mr. Joseph W. Shea Vice President, Corporate Nuclear Licensing Tennessee Valley Authority 3R Lookout Place 1101 Market Street Chattanooga, TN 37402-2801

Shearon Harris Nuclear Power Plant, Unit 1 Docket No. 50-400

Mr. Ernest J. Kapopoulos, Jr., Vice President Duke Energy Progress, Inc. Shearon Harris Nuclear Power Plant P.O. Box 165, Mail Zone 1 New Hill, NC 27562-0165

South Texas Project, Units 1 and 2 Docket Nos. 50-498 and 50-499

Mr. Dennis L. Koehl, President and CEO/CNO STP Nuclear Operating Company South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, TX 77483

St. Lucie Plant Units 1 and 2 Docket Nos. 50-335 and 50-289

Mr. Mano Nazar, Executive VP and Chief Nuclear Officer NextEra Energy P. O. Box 14000 700 Universe Boulevard Juno Beach, FL 33408-0420

Surry Power Station, Unit Nos. 1 and 2 Docket Nos. 50-280 and 50-281

Mr. David A. Heacock, President & Chief Nuclear Officer Virginia Electric & Power Company 5000 Dominion Blvd. Glen Allen, VA 23060

Susquehanna Steam Electric Station, Units 1 and 2 Docket Nos. 50-387 and 50-388

Mr. Timothy S. Rausch, Senior Vice President and Chief Nuclear Officer PPL Susquehanna, LLC 769 Salem Boulevard NUCSB3 Berwick, PA 18603-0467

Three Mile Island Nuclear Station, Unit 1 Docket No. 50-289

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

Turkey Point Units 3 and 4 Docket Nos. 50-250 and 50-251

Mr. Mano Nazar, Executive VP and Chief Nuclear Officer NextEra Energy P. O. Box 14000 Juno Beach, FL 33408-0420

Virgil C. Summer Nuclear Station, Unit 1 Docket No. 50-395

Mr. Thomas D. Gatlin, Vice President Nuclear Operations South Carolina Electric & Gas Company Virgil C. Summer Nuclear Station Post Office Box 88, Mail Code 800 Jenkinsville, SC 29065

Vogtle Electric Generating Plant, Units 1 and 2 Docket Nos. 50-424 and 50-425

Mr. C. R. Pierce, Regulatory Affairs Director Southern Nuclear Operating Co., Inc. P.O. Box 1295 / BIN 038 Birmingham, AL 35201-1295

Waterford Steam Electric Station, Unit 3 Docket No. 50-382

Vice President, Operations Entergy Operations, Inc. Waterford Steam Electric Station, Unit 3 17265 River Road Killona, LA 70057-0751

Watts Bar Nuclear Plant, Unit 1 Docket No. 50-390

Mr. Joseph W. Shea, Corporate Manager, Nuclear Licensing Tennessee Valley Authority 1101 Market Street, LP 3D-C Chattanooga, TN 37402-2801

William B. McGuire Nuclear Station, Units 1 and 2 Docket Nos. 50-369 and 50-370

Mr. Steven D. Capps, Vice President McGuire Site Duke Energy Carolinas, LLC McGuire Nuclear Station 12700 Hagers Ferry Road Huntersville, NC 28078-8985

Wolf Creek Generating Station, Unit 1 Docket No. 50-482

Mr. Matthew W. Sunseri President and Chief Executive Officer Wolf Creek Nuclear Operating Corporation P.O. Box 411 Burlington, KS 66839

December 23, 2013

To Those on the Enclosed List

SUBJECT:

REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH

NEAR-TERM TASK FORCE RECOMMENDATION 2.3, FLOODING

WALKDOWNS

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Sincerely,

/ra/ (G.E. Miller for)

Robert J. Pascarelli, Chief Plant Licensing Branch II-1 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Enclosures:

1. Request for Additional Information

2. Addressee List

cc w/encls: Listserv

DISTRIBUTION: See next page

DATE

ADAMS Accession No. ML13325A891

12/23/13

*via e-mail

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OFFICE	NRR/JLD/PMB	NRR/DORL/LPL4-1/LA	NRO/DSEA/RHMB/BC
NAME	RKuntz	JBurkhardt	SFlanders *
DATE	11/22/13	11/22/13	12/19/13
OFFICE	NRR/JLD/PMB/BC	NRR/DORL/LPLII-1/BC (GMiller for)	
NAME	LMR for MMitchell	RPascarelli	

OFFICIAL RECORD COPY

12/23/13

Letter to Selected Power Reactor Licensees from Robert J. Pascarelli dated December 23, 2013

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH

NEAR-TERM TASK FORCE RECOMMENDATION 2.3, FLOODING

WALKDOWNS

DISTRIBUTION:

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RidsNrrPMANO RidsNrrPMPerry RidsNrrPMBeaverValley RidsNrrPMPilgrim RidsNrrPMBraidwood RidsNrrPMPointBeach RidsNrrPMBrownsFerry RidsNrrPMPrairieIsland RidsNrrPMByron RidsNrrPMREGinna RidsNrrPMCallaway RidsNrrPMRiverBend RidsNrrPMCalvertCliffs RidsNrrPMRobinson RidsNrrPMCatawba RidsNrrPMSeabrook RidsNrrPMClinton RidsNrrPMSequoyah RidsNrrPMColumbia RidsNrrPMShearonHarris RidsNrrPMComanchePeak RidsNrrPMSouthTexas RidsNrrPMStLucie RidsNrrPMCooper RidsNrrPMSummer RidsNrrPMDavisBesse

RidsNrrPMDCCook
RidsNrrPMDiabloCanyon
RidsNrrPMDiabloCanyon
RidsNrrPMDresden
RidsNrrPMDuaneArnold
RidsNrrPMFarley
RidsNrrPMFermi2
RidsNrrPMFitzPatrick
RidsNrrPMFitzPatrick
RidsNrrPMWattsBar1

RidsNrrPMWolfCreek

RidsNrrPMFortCalhoun RidsNrrPMGrandGulf