

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

November 1, 2013

To Those on the Enclosed List

## SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH NEAR-TERM TASK FORCE RECOMMENDATION 2.3, SEISMIC 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 seismic hazard walkdowns to verify the plant configuration with the current licensing basis. The licensees stated by letter that the seismic walkdowns would be performed in accordance with Electric Power Research Institute EPRI-1025286, "Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic." 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 seismic walkdowns. The NRC staff requests that you respond no later than 30 days from the date of this letter. If you have any questions related to the enclosed RAI or the requested submission date, please contact your assigned plant Project Manager.

Sincerely,

all

Robert H. Beall, Chief Plant Licensing Branch I-1 Division of Operating Reactor Licensing Office of Nuclear Reactor Regulation

Enclosures:

- 1. Request for Additional Information
- 2. Addressee List

cc w/encls: Listserv

## **REQUEST FOR ADDITIONAL INFORMATION**

## Seismic 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 seismic hazard walkdowns to verify the plant configuration with the current licensing basis (CLB). The licensees stated by letter that the seismic walkdowns would be performed in accordance with Electric Power Research Institute EPRI-1025286, "Seismic Walkdown Guidance for Resolution of Fukushima Near-Term Task Force Recommendation 2.3: Seismic" (walkdown guidance). 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.

# 1. Conduct of the walkdowns, determination of potentially adverse seismic conditions (PASCs), dispositioning of issues, and reporting

As a result of the audits and walkdown report reviews, the NRC staff noted that licensees' interpretations of the seismic walkdown guidance varied, which resulted in meaningful differences in the process used to disposition identified issues and in the documentation that was provided to the NRC staff. In particular, the application of engineering judgment in determining what constituted a potentially adverse seismic condition (PASC), the threshold for conducting licensing basis evaluations (LBEs), and determining what information was to be reported to the NRC staff varied.

The NRC staff intended that conditions initially marked No (N) or Unknown (U) in the field by the seismic walkdown engineers (SWEs) for which an analysis or calculation was performed would be considered as PASCs and that an analysis or calculation constituted an LBE. The walkdown guidance allows for analysis as part of engineering judgment; however, the intent was to allow for only simple analyses that could be readily performed in support of engineering judgment. Further, the walkdown activities were intended to allow for transparency in the licensee's process to demonstrate that PASCs were appropriately identified, that they were addressed in an appropriate manner, and the basis documented such that the current condition of the plant was clearly consistent with the CLB with regard to seismic capability.

During the audits, the NRC staff identified examples of field observations that were deemed not to be PASCs. However, the basis for the determination was not clearly recorded. In some cases, the field checklists were amplified by noting that the basis was engineering judgment. During site audit discussions, the staff was able to trace the basis for the engineering judgments and found that in many cases they were appropriate. It is expected that these situations would not be included in the walkdown report.

There were other situations that a PASC and LBE were not reported; however, the NRC staff found during the audit that a calculation, analysis (more than just simple), or evaluation was conducted but informally. An example is a confirmatory calculation performed to demonstrate that six anchor bolts out of eight was not a seismically adverse condition. Another example

would be an analysis to demonstrate that an existing, slightly short weld was as seismically sound as the prescribed weld length in the plant design documentation. The staff expected these types of conditions and evaluations to be captured in the licensee's normal plant processes (e.g., condition report or corrective action program (CAP)), and also reported in the walkdown report, since they were potentially adverse seismic conditions that required more than applying judgment or simple analysis to address.

The NRC staff also found that the process that was used to deal with a field observation that was deemed to be a PASC was also not completely described or captured in the report. In many cases, the licensee reported that an LBE was not performed. However, during the audits, it was clear that an LBE (or an equivalent determination method) was performed and used in determining whether a PASC should be entered into the CAP. The staff expects that these conditions would be reported in the walkdown report.

On the whole, through the audits, the NRC staff found that it was able to conclude that the intent of the guidance was met when the licensee's overall process was completely explained, the information was updated to reflect the actual process, and results were updated. The self-assessments conducted by the licensees of the audited plants also identified the lapse in the description of the process used by the licensee to identify a PASC and disposition it.

Therefore, in order to clarify the process that was followed, please provide a description of the overall process used by the licensee (and its contractors) to evaluate observations identified in the field by the SWEs. The process should include how a field observation was determined to be a PASC or not and how the bases for determinations were recorded. Once a determination was made that an observation was a PASC, describe the process for creating a condition report (or other tracking mechanism), performing the LBE (or other determination method), and the resultant action, such as entering it into the CAP, or documenting the result and basis.

Also, in order to confirm that the reported information supports concluding that the plant meets the CLB, please follow one of the following three acceptable alternatives:

- (a) Provide a supplement to the table or text from the original walkdown report, if needed, to include similar conditions as the above examples and situations and for conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination. The supplement should include a short description of each condition, how it was dispositioned and the basis for the disposition, as follows: 1) for each condition that was entered into the CAP, provide the CAP reference number, initiation date, and (if known) the planned completion date, or 2) for all other conditions, provide the result of the LBE (or other determination method), the basis for the result, and how (or where) the result was captured in the plant's documentation or existing plant process.
- (b) Following the plant's standard procedures, confirm that a new CAP entry has been made to verify if appropriate actions were taken when reporting and dispositioning identified PASCs (including conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination). The eventual CAP closeout, including the process followed and

actions taken, should be in sufficient detail to enable NRC resident inspectors to follow up.

(c) If no new conditions are identified for addition to the supplement or the CAP entry mentioned above is deemed not necessary, provide a statement of confirmation that all potentially seismic adverse conditions (including conditions for which a calculation, analysis (if more than a simple analysis), or evaluation was used for a determination) identified during the walkdowns and walk-bys were addressed and included in the report to the NRC.

## 2. Conduct of the Peer Review Process

As a result of the walkdown report reviews, the NRC staff noted that some descriptions of the peer reviewers and the peer review process that was followed were varied and, in some cases, unclear. In some cases, the staff could not confirm details of the process, such as if the entire process was reviewed by the peer review team, who were the peer reviewers, what was the role of each peer reviewer, and how the reviews affected the work, if at all, described in the walkdown guidance.

Therefore, in order to clarify the peer review process that was actually used, please confirm whether the following information on the peer review process was provided in the original submittal, and if not, provide the following.

- (a) Confirmation that the activities described in the walkdown guidance on page 6-1 were assessed as part of the peer review process.
- (b) A complete summary of the peer review process and activities. Details should include confirmation that any individual involved in performing any given walkdown activity was not a peer reviewer for that same activity. If there were cases in which peer reviewers reviewed their own work, please justify how this is in accordance with the objectives of the peer review efforts.

Also, if there are differences from the original submittal, please provide a description of the above information. If there are differences in the review areas or the manner in which the peer reviews were conducted, describe the actual process that was used.

## 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

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

Brunswick Steam Electric Plant, Units 1 and 2 Docket Nos. 50-325 and 50-324

Mr. George T. Hamrick, Vice President Brunswick Steam Electric Plant Duke Energy Progress, Inc. P.O. Box 10429 Southport, NC 28461

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

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 Davis-Besse Nuclear Power Station, Unit 1 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

### Diablo Canyon Power Plant, Unit Nos. 1 and 2 Docket Nos. 50-275 and 50-323

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

Duane Arnold Energy Center Docket No. 50-331

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

Hope Creek Generating Station Docket No. 50-354

Mr. Thomas Joyce, President and Chief Nuclear Officer PSEG Nuclear LLC - N09 P. O. Box 236, Hancocks Bridge, NJ 08038 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 Mr. David A. Heacock, President and Chief Nuclear Officer Dominion Nuclear Connecticut, Inc. Innsbrook Technical Center 5000 Dominion Boulevard Glen Allen, VA 23060

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

#### Oyster Creek Nuclear Generating Station Docket No. 50-219

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

#### 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

Quad Cities Nuclear Power Station, Units 1 and 2 Docket Nos. 50-254 and 50-265

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

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

#### Salem Nuclear Generating Station, Units 1 and 2 Docket Nos. 50-272 and 50-311

Mr. Thomas Joyce President and Chief Nuclear Officer PSEG Nuclear LLC-N09 P. O. Box 236 Hancocks Bridge, NJ 08038

### 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 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

#### Vermont Yankee Nuclear Power Station Docket No. 50-271

Christopher J. Wamser, Site Vice President Entergy Nuclear Operations, Inc. Vermont Yankee Nuclear Power Station 320 Governor Hunt Road Vernon, VT 05354 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 Mr. Matthew W. Sunseri President and Chief Executive Officer Wolf Creek Nuclear Operating Corporation P.O. Box 411 Burlington, KS 66839

## To Those on the Enclosed List

#### SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH NEAR-TERM TASK FORCE RECOMMENDATION 2.3. SEISMIC WALKDOWNS

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Sincerely,

/ra/

Robert H. Beall, Chief Plant Licensing Branch I-1 **Division of Operating Reactor Licensing** Office of Nuclear Reactor Regulation

Enclosures:

- 1. Request for Additional Information
- 2. Addressee List

cc w/encls: Listserv

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OFFICE	NRR/JLD/PMB/BC	NRR/DORL/LPL1-1/BC	
NAME	MMitchell (GEMiller for)	RBeall	
DATE	11/1/13	11/1/13	

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Letter to Selected Power Reactor Licensees from R. Beall dated November 1, 2013

## SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ASSOCIATED WITH NEAR-TERM TASK FORCE RECOMMENDATION 2.3, SEISMIC WALKDOWNS

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RidsNrrPMLaSalle Resource RidsNrrPMLimerick Resource RidsNrrPMMcGuire Resource RidsNrrPMMillstone Resource RidsNrrPMNineMilePoint Resource RidsNrrPMNorthAnna Resource RidsNrrPMOconee Resource RidsNrrPMOysterCreek Resource RidsNrrPMPalisades Resource RidsNrrPMPaloVerde Resource RidsNrrPMPeachBottom Resource RidsNrrPMPerry Resource RidsNrrPMPilgrim Resource RidsNrrPMPointBeach Resource RidsNrrPMPrairieIsland Resource RidsNrrPMQuadCities Resource RidsNrrPMRiverBend Resource RidsNrrPMSalem Resource RidsNrrPMShearonHarris Resource RidsNrrPMSouthTexas Resource RidsNrrPMSummer Resource RidsNrrPMStLucie Resource RidsNrrPMSurry Resource RidsNrrPMSusquehanna Resource RidsNrrPMThreeMileIsland Resource RidsNrrPMTurkevPoint Resource RidsNrrPMVermontYankee Resource RidsNrrPMVogtle Resource RidsNrrPMWattsBar1 Resource RidsNrrPMWolfCreek Resource RidsNrrPMREGinna Resource RidsNrrPMRobinson Resource RidsNrrPMWaterford Resource RidsNrrPMMonticello Resource