

King, Mark

From: King, Mark  
Sent: Thursday, September 08, 2011 5:02 PM  
To: Hall, Randy  
Cc: Thorp, John  
Subject: FW: New OpE Forum Posting - Earthquake at Mineral, VA Affects North Anna - may be a good item to show the GAO and how we handle this communication internally

Randy,  
FYI the new internal OpE COMM on NORTH ANNA earthquake/Alert was issued today and I have pasted it below, so you can see how widely this info is disseminated internally within the NRC. It may be good item to show the GAO - this type of internal information if you get a chance and how we communicate it internally.

NOTE: All previous OpE COMMs can be viewed at this link:

<http://nrr10.nrc.gov/forum/forum.cfm?selectedForum=03&forumId=AllComm>

FYI,  
Mark

**Information Security Reminder**

Information Security Reminder: OpE COMMs contain preliminary information in the interest of timely internal communication of operating experience. OpE COMMs may be pre-decisional and may contain sensitive information. They are not intended for distribution outside the agency.

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**Robert Bernardo** (9/7/2011 11:01:02 am)

Revised on 9/8/2011 4:07:07 pm

**North Anna - Alert Declared Due to an Earthquake in the Area and a Loss of Off Site Power**

**Event Description:**

On Tuesday, August 23, 2011, at 13:51:04 (17:51:04 UTC), a magnitude 5.8 earthquake occurred. The epicenter of the earthquake was located at Mineral, Virginia (37.944°N, 77.942°W), at a depth of 3.7 miles. This location is approximately 12 miles South-South East (154°) from Louisa, VA, where the North Anna Nuclear Station is located.

The North Anna station experienced a loss of offsite power due to trips of the three Reserve Station Service Transformers (RSST's) (See attached for pictures of the North Anna Electrical Distribution System). The loss of offsite power resulted in trips of both Turbine Generators leading to automatic trips of both Reactors on negative rate. All control rods inserted into the core, and decay heat removal was established via the steam dumps to atmosphere. No personnel injuries were reported. All four EDGs started and loaded onto their respective busses.

Both resident inspectors were on site. One resident was in the control room observing Unit 1 testing of the Turbine Drive AFW pump (TDAFWP). The other responded to the Emergency Operations Facility (EOF).

The 2H EDG experienced a significant cooling leak on a gasket. The Station Black Out (SBO) diesel (referred to as Alternate AC (AAC) EDG) was started and aligned to power the 2H bus. (See attached for pictures of the North Anna Electrical Distribution System). All three RSST's were unavailable. On Unit 1, the Motor Drive AFW (MDAFWP) started and aligned for Steam Generator Feed. The TDAFW pump was being tested on Unit 2, the MDAFW started and aligned normally and was feeding all S/G's.

Spent Fuel Pool (SFP) cooling was lost for about 90 minutes but no significant heat up was noted. North Anna has a common SFP for both units.

The licensee declared an ALERT ([EN47181](#)) at 14:02. The NRC entered monitoring mode at 14:22 ([PNO-II-11-005](#)). In addition to the ALERT at North Anna, a number of plants declared a Notice of Unusual Event (NOUE) due to seismic activity at the site.

Plants declaring NOUEs:

Calvert Cliffs Nuclear Power Plant ([EN47184](#))  
DC Cook ([EN47194](#))  
Hope Creek Generating Station ([EN47192](#))  
Limerick Generating Station ([EN47185](#))  
Oyster Creek Nuclear Generating Station ([EN47188](#))  
Palisades ([EN47187](#))  
Peach Bottom Atomic Power Station ([EN47183](#))  
Salem Nuclear Generating Station ([EN47191](#))  
Shearon Harris Nuclear Plant ([EN47193](#))  
Surry Power Station ([EN47189](#))  
Susquehanna Power Station ([EN47186](#))  
Three Mile Island Nuclear Station ([EN47190](#))

These plants continued to operate while plant personnel examined their sites. No damage from the earthquake was noted. With the exception of North Anna, all NOUEs were terminated by 0027 on 8/24/2011.

On the evening on August 23, the licensee restored one of the 500 kV off site power lines to the site. The licensee was able to restore off site power to both units via the Reserve Station Service Transformers, thus allowing them to secure all EDGs. A reactor coolant pump was started on each unit, and both units were placed in cold shutdown, unit 1 first, followed by unit 2.

The Lake Anna Dam was inspected with no damage noted (see [www.lakeannavirginia.org](http://www.lakeannavirginia.org) for a Lake Anna Civic Association (LACA) tour of the dam and spillway.)

At 1116 EDT on 8/24/2011, North Anna downgraded their Alert to a Notification of Unusual Event (NOUE) based on equipment alignments and safety equipment inspection results. At 1140 EDT, the NRC (Region 2) exited Monitoring Mode based on their clear understanding of the event and licensee priorities at North Anna. Region 2 updated the preliminary notification ([PNO-II-11-005A](#)).

At 1315 EDT, North Anna notified the NRC Operations Center that they exited their NOUE. The basis was that all plant walkdowns and inspections were completed and the condition no longer exists for the NOUE declaration. See [EN47181](#).

Unit 1 has three sets of 12 metal "scratch plates" within the concrete dome that measure ground shaking on three planes--vertically, north to south, and east to west. The plates are etched by a diamond stylus to create a record of ground movement. The scratch plates have been sent to Engdahl Enterprises in California for analysis. The full analysis of the scratch plates is expected by Friday, September 9, 2011.

On August 26, 2011 at 1340 hours, initial reviews of the data determined that the seismic activity potentially exceeded the Design Basis Earthquake magnitude value above 5 Hz. This was reported via [EN47201](#).

The current best estimate of the Peak Ground Acceleration (PGA) for the North Anna Power Station based on US Geological Survey data and data from the licensee indicated the safe shutdown earthquake ground motion designed limits may have been exceeded for some frequencies. The North Anna Power Station has two Safe Shutdown Earthquake (SSE) ground motion design limits, one for structures, systems, and components (SSCs) located on top of rock of 0.12 g, and the other is for SSCs located on top of soil, of 0.18 g. The site also has two corresponding Operating Basis Earthquake (OBE) ground motion spectra, of 0.06 g for rock and 0.09 g for soil.

## **NRC Response:**

In accordance with Management Directive (MD) 8.3, "NRC Incident Investigation Program," deterministic and conditional risk criteria were used to evaluate the level of NRC response for this operational event. The MD 8.3 evaluation (**NON-PUBLIC**) is available in ADAMS ([ML112410546](#)). This issue meets the deterministic criteria of MD 8.3 in that the ground movement of the earthquake could have exceeded the design bases of the facility. The Conditional Core Damage Probability (CCDP) for the event was estimated to be  $1.1\text{E-}4$ , which is in the region of an Augmented Inspection Team (AIT). Because a deterministic criteria was met and the level of risk involved, an AIT was deemed appropriate in this case.

A charter was developed (**NON-PUBLIC**, [ML11243A021](#)), and the AIT arrived on site on August 30, 2011.

As of September 6, 2011, the licensee reports that no significant equipment damage to safety related systems (including class I structures) has been identified through site walk-downs nor has equipment degradation been detected through plant performance and surveillance testing following the earthquake. The AIT team activities continue, with an expected completion date of September 18. This COMM will be updated with any significant developments as the AIT progresses.

The NRC reported the earthquake and loss of off site power at North Anna to the International Atomic Energy Agency (IAEA) via the Nuclear Events Web-based System ([NEWS](#)). The provisional rating for this event has been determined to be a Level 0 in accordance with the International Nuclear and Radiological Event Scale ([INES](#)) User's Manual 2008 Edition. The NRC's participation in the INES is described in Information Notice 2009-27. A brochure describing the INES is available at [www.iaea.org](http://www.iaea.org).

On August 30 and September 1, NRC staff briefed the commissioners on this event. The presentation (which is **NON-PUBLIC**) is available in ADAMS ([ML112420551](#)).

On September 8, Dominion representatives briefed the NRC staff on Overview of the 8/23 Earthquake Response and Restart Readiness Demonstration Plan. A link will be provided to the presentation once it is posted in ADAMS. Dominion reported that:

- \* OBE and DBE criteria were exceeded; However, CAV calculations indicate that significant damage would not be expected.
- \* Extensive actions are underway to inspect, evaluate, test and repair, if necessary, SSCs to ensure they are capable of performing their required design basis functions. Results are confirming the CAV expectations.
- \* To date, no safety related SSCs have been identified that require repair.
- \* Long term actions are planned to improved plant seismic monitoring capability and to re-evaluate plant OBE and DBE criteria in conjunction with the resolution to GI-199.

## **Generic Issue 199:**

While reviewing new reactor applications and updating seismic hazard information from the U.S. Geological Survey, the staff identified that the estimated seismic hazard levels at some current central and eastern U.S. (CEUS) nuclear sites may be higher than seismic hazard values used in design and previous evaluations. Generic Issue 199 (GI 199) was opened to assess the implications of updated seismic data and methods on operating plants. For the Safety/Risk Assessment, RES evaluated the effects of new seismic hazard data and methods on U.S. nuclear plants, and collaborated with the Electric Power Research Institute to assure a sound technical approach. The Safety/Risk Assessment Panel Report recommended that further actions be taken to address GI-199 outside the GI Program. The issue was transferred to NRR for Regulatory Office Implementation. Information Notice 2010-018, "Generic Issue 199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants"" was issued to inform stakeholders of the issuance of the GI-199 Safety/Risk Assessment Report. It stated that the NRC will follow the appropriate regulatory process to request operating plants and ISFSIs to provide specific information relating to their facilities to enable the NRC

staff to complete the Regulatory Assessment where candidate backfits are identified and evaluated. NRR is developing a Generic Letter to request needed data from power reactor licensees. On September 1, 2011, the Proposed Generic Communication: Seismic Risk Evaluations for Operating Reactors federal register notice was published. The Nuclear Regulatory Commission staff is seeking public comments on a draft Generic Letter that would require U.S. nuclear power plants to re-examine their sites' seismic risk and provide that information to the NRC. Comments on the draft letter will be accepted until October 31, 2011. The draft Generic Letter is available in ADAMS (ML111710783). The staff expects to hold a public meeting on the draft letter in mid-October to gather comments; meeting details will be announced separately in the next several weeks. See the NRC news release for more details.

For the latest status of GI-199, see the internal RES website.

On August 30 and September 1, NRC staff briefed the commissioners on the status of GI 199. The presentation (which is **NON-PUBLIC**) is available in ADAMS (ML112420564).

### **Earthquake Related Information:**

**OpE COMMS** on earthquake events:

The Great East Japan Earthquake

Impacts of December, 2006 Taiwanese Earthquake on Maanshan Nuclear Power Station (MNPS)

Seismic Event in Japan Impacts Kashiwazaki-Kariwa Nuclear Power Plant

Earthquake Magnitude 8.3 at Kuril Islands

Earthquake During Refueling Outage of Chashma Unit 1

Safe Shutdown of Kalpakkam-2 Reactor Following Tsunami Strike

### **NRC Information related to Earthquakes:**

Individual Plant Examinations: Perspectives on Reactor Safety and Plant Performance, NUREG-1560 (Vol. 1) (Vol. 2) (Vol. 3)

Perspectives Gained From the Individual Plant Examination of External Events (IPEEE) Program," NUREG-1742

Fact Sheet on Seismic Issues for Nuclear Power Plants

For the Record: NRC Clarifies Earthquake Measurements and Design Criteria

Reg Guide 1.12, "Nuclear Power Plant Instrumentation for Earthquakes"

Reg Guide 1.166, "Pre-Earthquake Planning and Immediate Nuclear Power Plant Operator Post Earthquake Actions".

Reg Guide 1.167, "Restart of a Nuclear Power Plant Shut Down by a Seismic Event"

During the 2011 Regulatory Information Conference, Session T13 discussed the seismic analysis activities for operating reactors in California, the central and eastern United States, and Japan. The session provided presentations on the analysis of seismic studies being completed in the vicinity of Diablo Canyon Power Plant, Units 1 and 2, near San Luis Obispo, California, and NRC and industry activities related to GI-199. The session also provided a presentation on nuclear power plants affected by the Chuetsu-oki earthquake in Japan. LINKs for the various presentations are provided on the RIC website.



## Other Information Sources:

The Electric Power Research Institute (EPRI) has developed guidelines that will enable licensees to quickly identify and assess earthquake effects on nuclear power plants. These guidelines are available as downloads (no cost) from EPRI.com.

[EPRI NP-5930 "A Criterion for Determining Exceedance of the Operating Basis Earthquake"](#)

[EPRI NP-6695 "Guidelines for Nuclear Plant Response in an Earthquake"](#)

[EPRI TR-100082 "Standardization of the Cumulative Absolute Velocity"](#)

[The Relationship Between Richter Magnitude and Modified Mercalli Intensity](#)

[The Modified Mercalli Intensity Scale](#)

[Modified Mercalli Intensity Scale](#)

***This COMM has been posted to the following communities: All Communications, Auxiliary Feedwater, ECCS, Electrical Power Systems, Emergency Diesel Generators, Emergency Preparedness, Flood Protection & Missiles, Inspection Programs, Natural Phenomena, New Reactors, Physical Security, SIT/AIT, Spent Fuel Storage & Load Handling, Structural***

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**From:** Bernardo, Robert

**Sent:** Thursday, September 08, 2011 4:08 PM

**To:** Csontos, Aladar; Rosebrook, Andrew; Barto, Andrew; Bolger, Allyce; Hull, Amy; Johnson, Andrew; Wang, Alan; Malliakos, Asimios; McMurtry, Anthony; Patel, Amar; Garmoe, Alex; Masters, Anthony; Howe, Allen; Blamey, Alan; Barrett, Andy; Lising, Jason; Minarik, Anthony; Dahbur, Alan; Erickson, Alice; Burritt, Arthur; Hiser, Allen; Klett, Audrey; Zoulis, Antonios; Issa, Alfred; Ulses, Anthony; Barker, Allan; Rao, Ami; Bielen, Andrew; Boland, Anne; Billoch, Araceli; Gody, Tony; Howell, Art; Keim, Andrea; Matos-Marin, Alfredo; Sabisch, Andrew; Ziedonis, Adam; Alen, Alejandro; Belen, Aixa; Calero, Alicia; Ferkile, Andrea; Foli, Adakou; Istar, Ata; Johnson, Andrea; Kammerer, Annie; Rezai, Ali; Roundtree, Amy; Sengupta, Abhijit; Sheikh, Abdul; Tardiff, Al; Turilin, Andrey; Tsirigotis, Alexander; True, Andrea; Wong, Albert; Boger, Bruce; Bickett, Brice; Clarke, Brent; Purnell, Blake; Rini, Brett; Alferink, Beth; Watson, Bruce; Desai, Binoy; Rice, Blake; Haagensen, Brian; Lehman, Bryce; Westreich, Barry; Welling, Blake; Holian, Brian; Beasley, Benjamin; Rogers, Billy; White, Bernard; Fuller, Brian; Singal, Balwant; Tharakan, Binesh; Vaidya, Bhalchandra; Bartlett, Bruce; Mozafari, Brenda; Brady, Bennett; Yip, Brian; Smith, Brian; Parks, Benjamin; Wagner, Brian; Tindell, Brian; Baxter, Brad; Cecere, Bethany; Jose, Benny; Jones, Bruce; Casto, Chuck; Bickett, Carey; Julian, Caudle; Nove, Carol; Abbott, Coleman; Cowdrey, Christian; Cauffman, Christopher; Khan, Cheryl; Pederson, Cynthia; Antonescu, Christina; Tilton, Caroline; Moulton, Charles; Cahill, Christopher; Erlanger, Craig; Miller, Chris; Ng, Ching; Norton, Charles; Young, Cale; Clemons-Webb, Candace; Fong, CJ; Phillips, Charles; Rosselle, Chuck; Sanders, Carleen; Williams, Christopher; Douth, Clifford; Ashley, Clinton; Douglas, Christopher; Pineda, Christine; Henderson, Christopher; Lally, Christopher; Roquecruz, Carla; Kontz, Craig; Moore, Carl; Ogle, Chuck; Smith, Chelsea; Welch, Christopher; Schulten, Carl; Newport, Christopher; Fairbanks, Carolyn; Gratton, Christopher; Lamb, Christopher; Crisden, Cherie; Li, Chang; Dempsey, Douglas; Dube, Donald; Holman, David; Johnson, Don; Powers, Dale; Seymour, Deborah; Allen, Don; Everhart, Dave; Spitzberg, Blair; Tifft, Doug; Caron, Dana; Erb, Delson; Graves, Chris; Johnson, Dante; Murdock, Darrell; Dodson, Douglas; Edwards, Denise; Hills, David; Jackson, Donald; Tharp, Doug; White, Duane; Huyck, Doug; Marksberry, Don; Strickland, Duane; Shum, David; Spindler, David; Allston, Dennis; Copeland, Douglas; Mills, Daniel; Roberts, Darrell; Santos, Daniel; Allsopp, David; Cunanan, Davida; Mas, Delza; Rahn, David; Schroeder, Daniel; Werkheiser, David; Barss, Dan; Brittner, Donald; Kern, David; Silk, David; Williams, Donna; Tarantino, David; Norkin, Donald; Algama, Don; Dority, Dayna; Fleury, David; Murray, Demetrius; Reinert, Dustin; Halverson, Derek; Simpkins, Douglas; Saenz, Diego; Stroup, David; Tang, David; Hoang, Dan; Pickett, Douglas; Andrukat, Dennis; Hudson, Daniel; Rich, Daniel; Chyu, Doris; Frumkin, Daniel; Garmon, David; Merzke, Daniel; Melendez-Colon, Daneira; Passehl, Dave; Terao, David; Wright, Donna; Brown, Eva; Ruesch, Eric; Goldfeiz, Eliezer; Burket, Elise; Knutson, Ed; Michel, Eric; Collins, Elmo; Huang, Eugene; Stutzcage, Edward; Gray, Harold; Gettys, Evelyn; Roach, Edward; Benner, Eric; Cunningham, Liza; Patterson, Eric; Stamm, Eric; Wong, Emma; DiPaolo, Eugene; Keighley, Elizabeth; Schrader, Eric; Chelliah, Erulappa; Coffman, Ellery; Riggs, Eric; Smith, Edward; Cobey, Eugene; Robinson, Edward; Heher, Elaine; Thomas, Eric; Torres, Edgardo; Brown, Frederick; Saba, Farideh; Arner, Frank;

Bower, Fred; Ferrante, Fernando; Sullivan, Frederick; Hutto, Andy; Newman, Garrett; Pick, Greg; Simonds, George; Wilson, George; Miller, Geoffrey; Smith, George; Larkin, Grant; Gardner, George; Figueroa, Gladys; Kolcum, Gregory; McCoy, Gerald; Purciarello, Gerard; Hunegs, Gordon; Ottenberg, Geoffrey; Armstrong, Garry; Curran, Gordon; Shear, Gary; Demoss, Gary; Hausman, George; Tutak, Greg; Bedi, Gurjendra; Bowman, Gregory; Dentel, Glenn; MacDonald, George; Bagchi, Goutam; Kulesa, Gloria; Miller, Ed; Matharu, Gurcharan; Thomas, George; Thomas, George; Warnick, Greg; Waig, Gerald; Clayton, Brent; HGA@nrc.gov; Scott, Harold; Gonzalez, Hipolito; Gepford, Heather; Chernoff, Harold; Graves, Herman; Jones, Heather; Le, Hien; Christensen, Harold; Crouch, Howard; Prokofiev, Iouri; Jung, Ian; Tift, Jennifer; Clark, Jeff; Circle, Jeff; Ciocco, Jeff; Dion, Jeanne; Grobe, Jack; Gavula, James; Hickey, James; Kulp, Jeffrey; Lennartz, Jay; McHugh, James; Pires, Jose; Steckel, James; Ambrosini, Josephine; Brady, Joseph; Baptist, James; Biernik, James; Giessner, John; Hickman, John; Hamman, Joyce; McKirgan, John; Green, Joseph; Lane, John; Nance, James; Paige, Jason; Poole, Justin; Shepherd, James; Tsao, John; Tomlinson, Joyce; Draper, Jason; Fuller, Justin; Hanna, John; Hughey, John; Hamman, Jeffrey; Orr, Dan; Donoghue, Joseph; Greives, Jonathan; Hernandez, Jorge; Josey, Jeffrey; Marshall, Jane; Neurauter, James; Rivera-Ortiz, Joel; Thorp, John; Whitten, Jack; Drake, James; Quichocho, Jessie; Rogge, John; Stang, John; Caruso, John; Cassidy, John; Glitter, Joseph; Ibarra, Jose; Kramer, John; Lamb, John; ODriscoll, James; Schoppy, Joseph; Bartley, Jonathan; Bashore, Joseph; Nadel, Jared; Thompson, Jon; Wallo, Jon; Zimmerman, Jacob; Blake, Jerome; Corujo-Sandin, Jorge; McHale, John; Patel, Jigar; Shea, James; Wood, Jeffery; Cameron, Jamnes; Dixon-Herrity, Jennifer; Dixon, John; Marble, Julie; Ashcraft, Joseph; DAntonio, Joseph; Giantelli, Joseph; Lilliendahl, Jon; McGhee, James; Pelchat, John; Trapp, James; Calle, Joselito; Adams, James; Boska, John; Bartleman, John; Burke, John; DeBoer, Joseph; Reynoso, John; Segala, John; Bream, Jeffrey; Cherubini, John; Hall, Randy; Hawkins, Justin; Larsen, James; Walsh, J; Dodson, Jim; Jandovitz, John; Kim, James; Kaizer, Joshua; Wiebe, Joel; Wallace, Jay; Adams, John; Heinly, Justin; Johnson, Jonathan; Polickoski, James; Wiggins, Jim; Kauffman, John; Andersen, James; Clifford, James; Ayala, Juan; Cushing, Jack; Dozier, Jerry; DeMarshall, Joseph; Gall, Jennifer; Huang, John; Heisserer, Jamie; Heath, Jermaine; Kent, Jonathan; Kellum, Jim; Laughlin, Jeff; Lehning, John; Ortega-Luciano, Jonathan; Patel, Jay; Rady, Jeff; Robles, Jesse; Willis, Joseph; Wilson, Joshua; Zeiler, John; Quinones-Navarro, Joylynn; Conway, Kimberly; Gray, Kathy; Kavanagh, Kerri; Mangan, Kevin; Miller, Kenn; Young, Keith; Cronk, Kevin; Feintuch, Karl; O'Donohue, Kathleen; Korth, Kelly; Lian, Jocelyn; Nietmann, Kevin; Stoedter, Karla; Dunham, Katrina; Ellis, Kevin; Hoffman, Keith; Roche, Kevin; Cotton, Karen; Kolaczyk, Kenneth; Mattern, Kevin; West, Steven; Diederich, Karl; Kern, Ludwig; Fields, Leslie; Betancourt, Luis; Haeg, Lucas; Wilkins, Lynnea; Pressley, Lundy; Micewski, Laura; Suggs, LaDonna; Klos, John; Gibson, Lauren; Kozak, Laura; Jarriel, Lisamarie; Scholl, Larry; Wheeler, Larry; James, Lois; Willoughby, Leonard; Casey, Lauren; Miller, Lee; Plisco, Loren; Criscione, Lawrence; Doerflein, Lawrence; Castelli, Lisa; Pitts, Leonard; Cain, Loyd; Ramadan, Liliana; Raghavan, Rags; Boggi, Michael; Hiser, Matthew; Jimenez, Manuel; Galloway, Melanie; Pohida, Marie; Satorius, Mark; Barillas, Martha; Cheok, Michael; Hay, Michael; Learn, Matthew; Magyar, Michael; Concepcion, Milton; Ralph, Melissa; Thadani, Mohan; Tobin, Margaret; Orenak, Michael; Sykes, Marvin; Flanagan, Michelle; Hamm, Matthew; Resner, Mark; Schweg, Mark; Tonacci, Mark; Balazik, Michael; King, Michael; Weber, Michael; Donithan, Michael; Evans, Michele; Vaaler, Marlayna; Chernoff, Margaret; Levine, Michael; Case, Michael; Maley, Michael; Marshfield, Mark; Ross-Lee, MaryJane; Virgilio, Martin; Halter, Mandy; Benson, Michael; Banks, Mark; Brown, Michael; Chawla, Mahesh; Chambers, Michael; Dapas, Marc; Scott, Michael; Panicker, Mathew; Thorpe, Kavanaugh, Meghan; Lintz, Mark; Phillips, Monte; Patel, Manan; Bloodgood, Michael; Grylak, Magdalena; Reisifard, Mehdi; Gutierrez, Mauricio; Sheikh, Mina; Young, Matt; Ash, Melissa; Cervera, Margaret; Freeman, Scott; Ferdas, Marc; King, Mark; Lesser, Mark; Wegner, Mary; Zeitler, Michael; Bensi, Michelle; Markley, Michael; Abid, Mohammed; Banerjee, Maitri; Davis, Marlene; Fernandez, Mario; Franovich, Mike; Gray, Mel; Junge, Michael; Jardaneh, Mahmoud; Kotzalas, Margie; Kowal, Mark; Lombard, Mark; Mahoney, Michael; McConnell, Matthew; Orr, Michael; Shannon, Mel; Hernandez, Nicholas; Valos, Nicholas; Chokshi, Niles; Karlovich, Nicholas; DiFrancesco, Nicholas; Mamish, Nader; Salgado, Nancy; Staples, Necota; Lafferty, Nathan; Floyd, Niklas; Morgan, Nadiyah; Perry, Neil; Rivera-Feliciano, Nilda; Sieller, Nicole; Coleman, Nicole; Kalyanam, Kaly; Merriweather, Norman; Ayegbusi, Odunayo; Chopra, Om; Tabatabai, Omid; Smith, Otis; Yee, On; Klein, Paul; Presby, Peter; Pieringer, Paul; Wagner, Paige; OBryan, Phil; Chung, Pong; Higgins, Patrick; Kaufman, Paul; Milano, Patrick; Patel, Pravin; Boyle, Patrick; Krohn, Paul; Alter, Peter; Bamford, Peter; Cardona-Morales, Pedro; Coco, Paul; Elkmann, Paul; Fillion, Paul; Heher, Patrick; Kang, Peter; McKenna, Philip; Snyder, Pete; Smagacz, Phillip; Zurawski, Paul; Niebaum, Phillip; VanDoorn, Peter; Appignani, Peter; Hiland, Patrick; Loudon, Patrick; Wilson, Peter; Lee, Pete; Finney, Patrick; Milligan, Patricia; Saverot, Pierre; Wen, Peter; Yarsky, Peter; Edwards, Rhex; Jervey, Richard; Montgomery, Richard; Nelson, Robert; Cohen, Ronald; Elliott, Robert; Patel, Raju; Reeves, Rosemary; Sydnor, Russell; Eul, Ryan; Hagar, Bob; Johnson, Clay; Taylor, Ryan; Alexander, Ryan; Baker, Randal; Branch, Richard; Telson, Ross; Architzel, Ralph; Carroll, Robert; Cureton, Ronald; Hickok, Roy; Kahler, Robert; Lantz, Ryan; Martin, Robert; Rodriguez, Ricardo; Spitzberg, Roberta; Krsek, Robert; Rolph, Ronald; Beall, Robert; Costello, Ralph; Davis, Robert; Perkins, Richard; Bernardo, Robert; Conte, Richard; Caniano, Roy; Craffey, Ryan; Kumana, Rayomand; Powell, Raymond; Pascarelli, Robert; Reyes, Rogerio; Stattel, Richard; Wolfgang, Robert; Caldwell, Robert; Lorson, Raymond; Mathew, Roy; Wild, Robert; Clagg, Rodney; Franovich, Rani; Moore, Randy; Monk, Robert; Nimitz, Ronald; Pedersen, Roger; Woodward, Robert; Berryman, Robert; Ng, Raymond; Nolan, Ryan; Pelton, Rick; Hardies, Robert; Correia, Richard;

Grover, Ravinder; McIntyre, Richard; Moore, Ross; McKinley, Raymond; Egli, Richard; Li, Rui; Scheirer, Richard; Azua, Ray; Guzman, Richard; Jenkins, Ronaldo; Deese, Rick; Haskell, Russell; LaVera, Ronald; Musser, Randy; Sigmon, Rebecca; Sun, Robert; Taylor, Robert; Vettori, Robert; Richards, Stuart; Reynolds, Steven; Walker, Shakur; Sun, Summer; McCarver, Sammy; Meighan, Sean; Rich, Sarah; Sloan, Scott; Cochrum, Steven; Ibarrola, Sherlyn; Weerakkody, Sunil; Bussey, Scott; LaVie, Steve; Iyer, Shri; Gardocki, Stanley; Pannier, Stephen; Smith, Stephen; Vaughn, Stephen; Min, Seung; Schroer, Suzanne; Hansell, Samuel; Lewis, Shani; Lopas, Sarah; Rosenberg, Stacey; Bernal, Sara; Galbreath, Stephanie; Shaeffer, Scott; Schneider, Max; Smith, Stacy; Bailey, Stewart; Malik, Shah; Shah, Swetha; Lingam, Siva; Rutenkroger, Scott; Sanchez, Steven; Bakhsh, Sarah; Jones, Steve; Kennedy, Silas; Sandal, Shane; Lee, Samuel; Barr, Steve; Downey, Steven; Graves, Samuel; Makor, Shiatin; Crane, Samantha; Craig, Seth; Darbali, Samir; Haq, Salman; Miranda, Samuel; Mazumdar, Subinoy; Peng, Shie-Jeng; Ray, Sheila; Sakai, Stacie; Som, Swagata; Sanders, Serita; Sancaktar, Selim; Bazian, Samuel; Beltz, Terry; Kendzia, Thomas; Moslak, Thomas; Reed, Timothy; Briley, Thomas; Hartman, Thomas; Kolb, Timothy; Setzer, Thomas; Burton, Thomas; Chandler, Timothy; Hedigan, Tom; Walker, Tracy; Collins, Travis; Boyce, Tom (RES); Fish, Todd; Farina, Thomas; Herrity, Thomas; Kobetz, Timothy; McGinty, Tim; Orf, Tracy; Wengert, Thomas; Harriman, Thomas; OHara, Timothy; Tate, Travis; Ziev, Tracey; Morgan, Thomas; Fredette, Thomas; Hipschman, Thomas; Lupold, Timothy; Tjader, Theodore; Pruett, Troy; Blount, Tom; Barry, Terrence; Inverso, Tara; Koshy, Thomas; Morrissey, Thomas; Nazario, Tomy; Martinez-Navedo, Tania; Wilson, Timothy; Kalikian, Roger; Perin, Vanice; Cusumano, Victor; Gaddy, Vincent; Goel, Vijay; McCree, Victor; Sreenivas, V; Cook, William; Jones, William; Lyon, Warren; Sifre, Wayne; Walker, Wayne; Ruland, William; Raymond, William; Schmidt, Wayne; Lewis, Russ; Jessup, William; Schaup, William; Shaw, William; Deschaine, Wesley; Orders, William; Diaz-Castillo, Yamir; Chang, James; Wong, Yuken; Wang, Zeechung; Hollcraft, Zachary; Falevits, Zelig; Gran, Zachary; Li, Zhian; Xi, Zuhao

**Cc:** Pohida, Marie; Wilson, George; McConnell, Matthew; Cook, Christopher

**Subject:** New OpE Forum Posting - Earthquake at Mineral, VA Affects North Anna

This e-mail is being sent to notify recipients of a new posting on the @Operating Experience Community Forum. Recipients are expected to review the posting for applicability to their areas of regulatory responsibility and consider appropriate actions. However, information contained in the posting is not tasking; therefore, no specific action or written response is required.

***Information Security Reminder: OpE COMMs contain preliminary information in the interest of timely internal communication of operating experience. OpE COMMs may be pre-decisional and may contain sensitive/proprietary information. They are not intended for distribution outside the agency.***

The posting may be reviewed at:

**<http://nrr10.nrc.gov/forum/forumtopic.cfm?selectedForum=03&forumId=AllComm&topicId=3476>**

It is being provided to the following groups and individuals: ***All Communications, Auxiliary Feedwater, ECCS, Electrical Power Systems, Emergency Diesel Generators, Emergency Preparedness, Flood Protection & Missiles, Inspection Programs, Natural Phenomena, New Reactors, Physical Security, SIT/AIT, Spent Fuel Storage & Load Handling, and Structural COMM Groups. George Wilson (Dike & Dam Officer), Mathew McConnell (Grid Issues), Marie Pohida (Shutdown Risk / SFP cooling concerns) and Christopher Cook (NRO Geoscience and Geotechnical Engineering Branch 2 Chief)***

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Thank You for reviewing and using Operating Experience.

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