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DE FOIA Resource

From: Wilson, George *MR*
Sent: Wednesday, August 24, 2011 6:59 PM
To: Li, Yong; Khanna, Meena
Subject: Fw:
Attachments: shakecast_report_nrc.pdf

Fyi

Sent from nrc blackberry

George Wilson

(b)(6) *MR*

EP.6

— Original Message —

From: Merzke, Daniel *DM* *Release*
To: Wilson, George
Cc: McGinty, Tim
Sent: Wed Aug 24 16:23:23 2011
Subject: FW:

George, I just left the Chairman's office. I was told he wanted a one-pager on the North Anna status, which I dutifully generated based on all the information I've been privy to. Unfortunately, it "didn't hit the mark." My understanding from John Monninger is that he's looking for technical details, specifically information about the design basis OBE, SSE, what numbers USGS saw, any calculations NRR has done, etc. I sent up the ShakeCast Version 6 to the Commission offices, so they have that information, and the fact that it appeared that the site exceeded their design basis SSE. Do you think this is something you or your folks can draft? I believe he's going to want to have somebody walk him through it, as well. I told John it's late, and there's no way we'd have it done tonight. Please let me know. Thanks.

Dan

— Original Message —

From: Wilson, George *MR*
Sent: Wednesday, August 24, 2011 1:53 PM
To: Wilson, George; Grobe, Jack; Boger, Bruce; Leeds, Eric; Ruland, William; McGinty, Tim; Lund, Louise; Pruet, Troy; Lubinski, John; Wiggins, Jim; Dapas, Marc; McCree, Victor; Croteau, Rick; Jones, William; Brown, Frederick; Gitter, Joseph; Howe, Allen; Evans, Michele; Holian, Brian; Skeen, David; Galloway, Melanie; Cheok, Michael; Nelson, Robert; Bahadur, Sher; Andersen, James; Dean, Bill; Virgilio, Martin; Borchardt, Bill; Weber, Michael; Johnson, Michael; Holahan, Gary; Merzke, Daniel
Cc: Li, Yong; Karas, Rebecca; Khanna, Meena; Munson, Clifford; Kammerer, Annie; Manoly, Kamal
Subject: RE:

Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 6
~~FOIA 2011-0357~~

P/51

This email contains an update of the ground motion estimate of the North Anna site based on the latest USGS data. The current best estimate of the PGA for the rock is 0.2g, which contains significant uncertainty. The SSE of the North Anna NPP is 0.12g.

It should be noted that the initial estimate from Version 1 of the ShakeCast report was based on very preliminary information. The present Version 6 is attached. As information has become available, the ground motion estimate, particularly the location and magnitude of earthquake has become better constrained. This is due to aftershock information and intensity information from the USGS "Did You Feel It?" system, which provides a level of "ground truthing". We just spoke to the USGS and they think that the numbers have stabilized, however we will provide further updates as we receive them.

The underlying data comes from something called a ShakeMap, which is the information that the USGS puts out to the public. North Anna is on hard rock which may further amplify the incoming motions. It appears that there are many indications that the SSE was exceeded.

Currently, the licensee is retrieving their seismic recording instrumentation. However, we do not yet know the type and quality of the recording data that will be available to the NRC. Information from the NPP will be used to evaluate the USGS estimates of ground motion and to compare with FSAR design basis. The data will also inform the staff if additional analysis is needed.

—Original Message—

From: Wilson, George

Sent: Wednesday, August 24, 2011 10:35 AM

To: Grobe, Jack; Boger, Bruce; Leeds, Eric; Ruland, William; McGinty, Tim; Lund, Louise; Pruett, Troy; Lubinski, John; Wiggins,

Jim; Dapas, Marc; McCree, Victor; Croteau, Rick; Jones, William; Brown, Frederick; Giitter, Joseph; Howe, Allen; Evans,

Michele; Holian, Brian; Skeen, David; Galloway, Melanie; Cheok, Michael; Nelson, Robert; Bahadur, Sher; Andersen, James;

Dean, Bill; Virgilio, Martin; Borchardt, Bill; Weber, Michael; Johnson, Michael; Holahan, Gary

Cc: Li, Yong; Karas, Rebecca; Khanna, Meena; Munson, Clifford; Kammerer, Annie; Manoly, Kamal

Subject: FW:

The following attachment includes the following

The latest shake cast report from the USGS - this shows that the peak ground motion was .16g The Design for North Anna is .12g The North Anna Spectral curve from Numark/FSAR and spectral curve from earthquake. You can see where the data from the earthquake exceeds design curve above 10hz.

The next pictures shows the same curve outlay from the IPEEE submittal.

Reg Guide 1.166 for the after earthquake guidance.

This info is still draft and preliminary.

—Original Message—

From: GEORGE.WILSON@NRC.GOV [mailto:george.wilson@nrc.gov]

Sent: Wednesday, August 24, 2011 9:44 AM

To: Wilson, George

Subject:



U.S.NRC

ShakeCast Report



Magnitude 5.8 - VIRGINIA

Version 6

Origin Time: 2011-08-23 17:51:04 GMT

Created: 2011-08-24 15:11:29 GMT

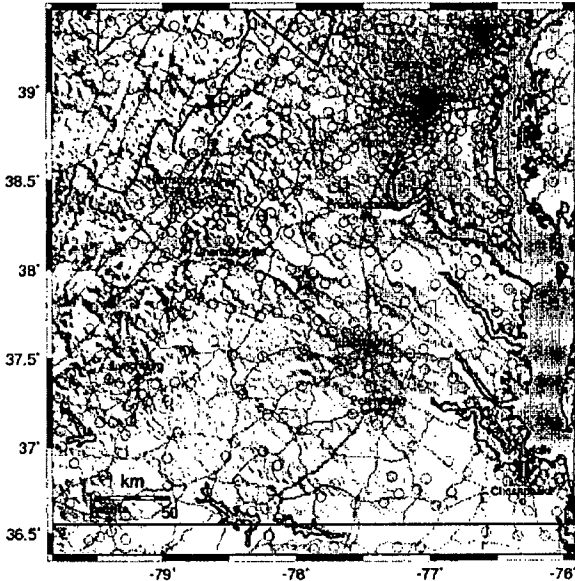
Latitude: 37.9360 Longitude: -77.9330

Depth: 6.0 km

These results are from an automated system and users should consider the preliminary nature of this information when making decisions relating to public safety. ShakeCast results are often updated as additional or more accurate earthquake information is reported or derived.

USGS ShakeMap : VIRGINIA

Tue Aug 23, 2011 17:51:04 GMT M 5.8 N37.94 W77.93 Depth: 6.0km ID 062311a



Map Version 8 Processed Wed Aug 24, 2011 08:50:09 AM MDT - NOT REVIEWED BY HUMAN

PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	minor	Very light	Light	Moderate	Moderate to heavy	Heavy	Very Heavy
PEAK ACC.(g)	<0.1	0.1-1.4	1.4-2.9	2.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-9.1	9.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X

U.S.NRC Nuclear ShakeCast

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ShakeCast Summary

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Number of facilities evaluated: 3

Peak Ground Acceleration (PGA): 1.81 - 62.44
 Peak Ground Velocity (PGV): 0.91 - 27.82
 Instrumental Intensity: III - VII
 Peak Spectral Acc. at 0.3 sec (PSA03): 1.23 - 63.39
 Peak Spectral Acc. at 1.0 sec (PSA10): 0.40 - 12.19
 Peak Spectral Acc. at 3.0 sec (PSA30): 0.28 - 1.28
 PGA Uncertainty in Std Deviation: 0.24 - 1.02
 Estimated V150 in m/s: 0 - 740

M 5.8 - VIRGINIA

ID: 062311a Version: 6
Origin Time: 2011-08-23 17:51:04
Location: -77.933, 37.936

PEAK INTENSITY	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
PEAK ACC.(g)	<0.1	0.1-1.4	1.4-2.9	2.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL.(cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-9.1	9.1-16	16-31	31-60	60-116	>116
INSTRUMENTAL INTENSITY	I	II	III	IV	V	VI	VII	VIII	IX

Recent significant earthquakes in the region

M4.5 VIRGINIA at 12/9/2003 20:59

FACILITY TYPE	FACILITY ID	FACILITY NAME	DIST	LATITUDE	LONGITUDE	DAMAGE LEVEL	MMI	PGA	PGV	PSA03	PSA10	PSA30
NUCLEAR	USA37	North Anna	18.08	38.0573	-77.7956	YELLOW	VI	19.9918	12.2568	26.0078	5.9443	0.5989
NUCLEAR	USA8	Calvert Cliffs	141.73	38.4319	-76.4424	GREEN	V	6.8436	6.7083	3.5967	1.4285	0.1501
NUCLEAR	USA56	Surry	139.06	37.1633	-76.6942	GREEN	V	6.1296	6.5473	3.5591	1.4118	0.1482

* - MMI level may extend beyond map boundary; some facilities may not appear on the map due to space restriction