

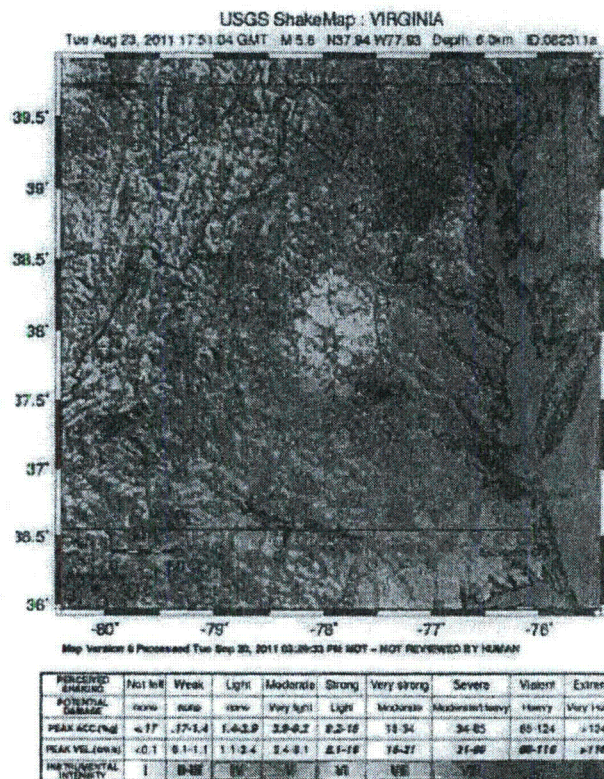
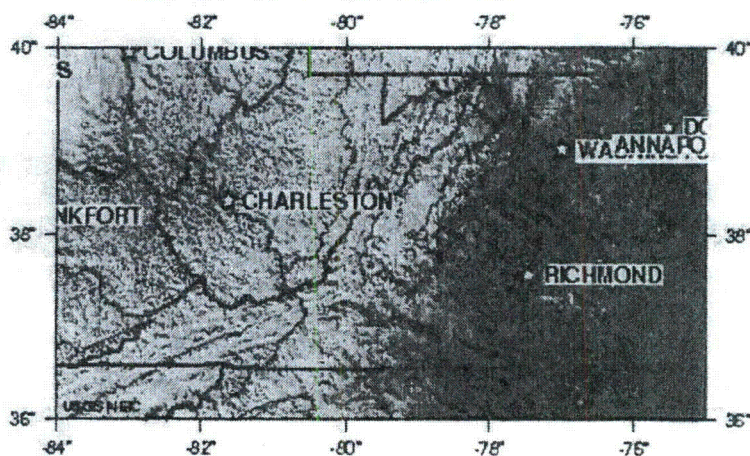
The Mineral, VA Earthquake of August 23, 2011

Presenter: Dr. William Leith, U.S. Geological Survey

Tuesday, December 13, 2011

10:00 A.M. to 12:00 P.M.

TWFN Auditorium



From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 8:33 AM
To: 'McGee, Jim (HSGAC)'
Subject: FW: Mineral, VA earthquake Seminar - slides 11-14
Attachments: NRC Virginia quake Leith Dec13 - slides 11-14.pptx

Slides 11 through 14 of 30.

From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 7:46 AM
To: 'McGee, Jim (HSGAC)'
Subject: Mineral, VA earthquake Seminar

Jim,

Attached is the poster from the RES Seminar on the Mineral Virginia earthquake. There is no DVD and the slide presentation is 31 MB in power point and 57 MB in Adobe. I'll try to break it up later today to send it to you.

I did not attend the seminar but heard it was pretty good. The presenter was William Leith from the USGS. His email is below. Also below is the email for Jon Ake at the NRC Office of Research. I don't know Jon, but most people in RES are willing to speak to anyone who calls with technical questions.

Larry

wleith@usgs.gov
Jon.Ake@nrc.gov

From: McGee, Jim (HSGAC) [mailto:Jim_McGee@hsgac.senate.gov]
Sent: Tuesday, October 02, 2012 3:35 PM
To: Criscione, Lawrence
Subject: RE: GI 199 and Mineral, VA earthquake

Thanks. I appreciate your help.

Jim McGee
Professional Staff/Investigations
Senate Committee on Homeland Security and Governmental Affairs
202-224-2627

From: Criscione, Lawrence [mailto:Lawrence.Criscione@nrc.gov]
Sent: Tuesday, October 02, 2012 3:34 PM
To: McGee, Jim (HSGAC)
Subject: RE: GI 199 and Mineral, VA earthquake

I've asked around but haven't heard back yet (it's only been a few hours). I may be able to get these presentations in the coming days.

Larry Criscione

From: McGee, Jim (HSGAC) [mailto:Jim_McGee@hsgac.senate.gov]
Sent: Tuesday, October 02, 2012 9:50 AM
To: Criscione, Lawrence
Subject: RE: GI 199 and Mineral, VA earthquake

Thanks. I couldn't get any of these links to work. I highlighted the topics that appear germane. Will try to track down those slides or DVD's, unless you have them.

Jim McGee
Professional Staff/Investigations
Senate Committee on Homeland Security and Governmental Affairs
202-224-2627

From: Criscione, Lawrence [<mailto:Lawrence.Criscione@nrc.gov>]
Sent: Monday, October 01, 2012 8:00 PM
To: McGee, Jim (HSGAC)
Subject: FW: GI 199 and Mineral, VA earthquake

Jim,

I meant to send this to you a couple of weeks ago, but accidentally sent it to Jon Ake, Marty Stutzke and Ben Beasley (I had "temporarily" put their names in the "To" line to copy down their email addresses).

Anyways, at the very bottom of this email is a list of RES seminars. You might find #99, #102 and #112 interesting pertaining to dam failures, earthquakes and paleofloods.

Larry Criscione

From: Criscione, Lawrence
Sent: Friday, September 21, 2012 2:38 PM
To: Ake, Jon; Beasley, Benjamin; Stutzke, Martin
Subject: GI 199 and Mineral, VA earthquake

Jim,

Below is a list of Seminars given to the Office of Research.

One of them was on the Mineral, VA Earthquake of August 23, 2011. It was given by Dr. Leith of the USGS. The NRC contact was Jon.Ake@nrc.gov, 301-251-7626. He could probably send you the seminar material.

Marty Stutzke (martin.stutzke@nrc.gov, 301-251-7614) was one of the chief scientists on GI 199 (the earthquake Generic Issue) if you have any questions about what was looked at and what the conclusions were. Ben Beasley (Benjamin.Beasley@nrc.gov, 301-251-7676) should be able to either tell you what the status of it is or direct you to a contact in the office assigned to implement it.

Larry

From: Perkins, Richard
Sent: Friday, September 21, 2012 2:19 PM
To: Criscione, Lawrence
Subject: RE: Info

I found this, but there are no slides available. It was recorded.

12/14/10

Success and Failure: A Paradoxical Relationship




Prof. Henry Petroski










Duke University









Nathan Siu















DRA



Here's a copy of the RES Seminar Table through 2009 (if you can read this)

Seminar #114	09/19/12	Long-Term Research Program Overview	Robert Tregoning, Ph.D. Michael B. Rubin, LTRP PM David W. Stroup, P.E. Jacob Philip, P.E	
Seminar #113	08/08/12	The NRC and Social Media - What We're Doing, Why We're Doing It, and How You Can Get Involved [View Poster]	Holly Harrington - Office of Public Affairs	No DVD available for this seminar
Seminar #112	07/10/12	Dam Failure, Nuclear Power Plant Flooding, and the Outlook for Generic Issue 204 View Slide 1 View Slide 2 View Slide 3	Richard Perkins & Jacob Philip RES/DRA	
Seminar #111	06/19/12	Training Range Environmental Evaluation and Characterization System (TRECS) Applications - [View Slide]	Billy E. Johnson, U.S. Army Corps of Engineers; Mark S. Dortch, MSD Inc., and Boris Faybishenko, Lawrence Berkeley National Laboratory Sponsored by Tom Nicholson, DRA/RES	No DVD available for this seminar
Seminar #110	06/07/12	ASR Degradation of Concrete affecting Nuclear Power Plant Structures - [View Slide] [Presentation 1][Presentation 2]	Jason Weiss, Purdue University; Kenneth Snyder, NIST; and Fahim Sadek, NIST Sponsored by Jacob Philip, ETB/DRA/RES	No DVD available for this seminar
Seminar #109	06/06/12	Live webcast of Zirconium Fire Experiment on PWR Spent Fuel Pool Complete Loss of Coolant Accident	Ghani Zigh, RES/DSA	No DVD available for this seminar
Seminar #108	6/4/2012	State-of-the-Art Reactor Consequence Analyses (SOARCA) RES Seminar - [View Slides]	Richard Chang, Jonathan Barr & Jason Schaperow (SOARCA Team)	
Seminar #107	5/21/2012	Health Physics Brown Bag 2012 Series: US Federal Agency Response to Fukushima Incident	Dr. Luis Benevides from NAVY, sponsored by Gladys Figueroa, RES/DSA/RPB	
Seminar #106	4/17/2012	Multi-Scale Assessment of Prediction Uncertainty in Coupled Reactive Transport Models Curtis Flyer Announcement	Gary P. Curtis(USGS) Ming Ye(FSU) Philip D. Meyer(PNNL) Steve Yabusaki(PNNL)	No DVD available for this seminar

Seminar #105	3/27/2012	Development of the Extremely Low Probability of Rupture (xLPR) Assessment Tool View Slides	Dave Rudland, RES/DE	
Seminar #104	2/13/12	The NRC's Simulator-based Human Performance Testing Program - Advancing Model Validity with Data	Amy D'Agostino & James Chang, RES/DRA	
Seminar #103	1/25/12	Computational Fluid Dynamics for Nuclear Safety Analysis	Christopher Boyd, RES/DSA	
Seminar #102	12/13/11	The Mineral, VA Earthquake of August 23, 2011 View poster View presentation	Dr. William Leith, U.S. Geological Survey / Jon Ake, RES/DE/SGSEB	No DVD available for this seminar
Seminar #101	11/01/11	Lessons Learned from Investigations of Oil and Chemical Industry Events View Presentation	Mark Griffin Board Member U.S. Chemical Safety and Hazard Investigation Board	
Seminar #100	10/05/11	Investigations of Zirconium Fires during Spent Fuel Pool Loss of Coolant Accidents	Ghani Zigh, RES/DSA	
Seminar #99	08/23/11	The Value of Paleoflood Information when Estimating Flood Risk [Slides] Background Info 1 Background Info 2	Dr. Timothy Cohn, U.S. Geological Survey Thomas Nicholson, DRA	
Seminar #98	07/11/11	Research Topics and Experiences on Safety Assessment Methods of Radioactive Materials (RAM) Containers German Federal Institute for Materials Research and Testing (BAM), Berlin, Germany	Dr. Frank Wille, "Requirements for Transport Packages after Interim Storage" Dr. Karsten Muller, "Recent Activities on Experimental Package and Component Testing at BAM" Mr. Gernar Eisenacher "Impact Limiter Modeling - An Approach for a Finite Element Material Model for Wood" Dr. Jose Pires, RES/DE/SGSEB	
Seminar #97	06/21/11	Assuring Durable Concrete: Chemical Degradation Processes and Modeling Service Life - View Slides	Dr. Kenneth A. Snyder, National Institute of Standards and Technology Jacob Philip, DRA/ETB	
Seminar #96	04/26/11	Chernobyl 25th Anniversary 1. Mike Weber's Introduction 2. Dr. Brian Sheron's Presentation 3. Dr. Frank Congel's Presentation 4. Dr. John Bolce's Presentation	Dr. Brian Sheron, RES Frank Congel, Former NRC Employee Dr. John Bolce, IEI	
Seminar #95	04/19/11	A Probabilistic Risk Assessment View of Consequential Steam Generator Tube Rupture View Slides	Selim Sancaktar, RES/DRA/PRAB	No DVD available for this seminar

Seminar #84	02/22/11	Radiation Epidemiology Past Studies and Future Opportunities [View Poster]	Dr. John Boice, Medicine at Vanderbilt University School of Medicine and Scientific Director of the International Epidemiology Institute (IEI) / Stephanie Bush- Goddard, RES/DSA/HEB	
Seminar #93	02/15/11	American Society of Mechanical Engineers [View Slides]	Rick Swayne, ASME Carol Moyer, RES/DE/CMB	
Seminar #92	01/20/11	Weather and Hydrologic Extremes in a Non-stationary Climate with Implications for Managing Critical Infrastructures and Key Resources Presentation Slides	Dr. Auroop Ganguly (ORNL) Joe Kenney (RES/DRA/ETB) Tom Nicholson (RES/DRA)	
Seminar #91	01/12/11	Field and Modeling Studies to Assess Radionuclide Transport in the Subsurface	Dr. Andy Ward, Senior Research Scientist, Pacific Northwest National Laboratory Tom Nicholson (RES/DRA)	
Seminar #90	12/14/10	Success and Failure: A Paradoxical Relationship	Prof. Henry Petroski Duke University Nathan Slu DRA	
Seminar #89	11/10/2010	Zirconium in the Nuclear Industry - [View Slides]	Patrick Raynaud DSA / FSTB	
Seminar #88	10/20/2010	ASME Codes and Standards: History, Content, Development, and Endorsement	Carol Moyer & Gary Stevens, RES/DE	No DVD available for this seminar
Seminar #87	09/23/2010	Seismic-related Generic Issue (GI-199) Safety/Risk Assessment Methods and Results - [Detail] [view Slides]	Marty Stutzke (RES/DRA) Jon Ake (RES/DE/SGSEB) Lauren Killian (RES/DRA/OEGIB)	
Seminar #86	07/23/2010	Risk and Uncertainty in Dam Safety [View Detail 1] [View Detail 2] [View Detail 3]	Professor Gregory B. Baecher University of Maryland, College Park/ Thomas Nicholson, RES/DRA	No DVD available for this seminar
Seminar #85	07/19/2010	The Evolution of Radiation Protection: From Erythema to Genetic Risks to Risks of Cancer [View Slides]	Charles Meinhold / Terry Brock, RES/DSA/HEB	
Seminar #84	07/12/2010	Advanced Control Room Human Factors [View Slides]	Jing Xing & Stephen Fliegen RES/ DRA/HFRB	No DVD available for this seminar
Seminar #83	06/17/2010	Severe Accident Response for Steam Generator Tubing [View Slides]	Saurin Majumdar, ANL	No DVD available for this seminar
Seminar #82	06/17/2010	Lean Six Sigma on Internal Contracting	Mary Muessle, PMDA	No DVD available for this seminar

Seminar #81	05/13/2010	Overview of the Electric, Power Research Institute Organizational and Program Structure and Its Relationship to the Industry's Materials Initiative	David Modeen / hosted by DE, David Rudland	
Seminar #80	04/29/2010	Lessons Learned in Detecting, Monitoring, Modeling, and Remediating Radioactive Groundwater Contamination at Brookhaven National Laboratory: [Handout]	Dr. William Gunther, Dr. Mike Hauptmann, and Dr. Terry Sullivan / hosted by DRA Thomas Nicholson	
Seminar #79	04/15/2010	Human-Rating of Space Systems - [View Slides]	Mr. Bryan O'Connor , Chief, Office of Safety and Mission Assurance, NASA	No DVD available for this seminar
Seminar #78	03/26/2010	Browns Ferry Seminar	Jack Lewis & Felix Gonzalez, DRA Dr.	
Seminar #77	03/25/2010	Fundamentals of Structural Dynamics - [View Slides]	Dr. Abhinav Gupta	No DVD available for this seminar
Seminar #76	02/23/2010	Recent United States Geological Survey (USGS) Research on Seismic Hazards and Ground Motions in the Eastern U.S.	Dr. Paul Spudich, USGS colleagues & Jon Ake, DE	
Seminar #75	01/21/2010	Improving the State-of-the-Art in Severe Accident Analysis [View Slides]	Richard Lee	No DVD available for this seminar
Seminar #74	01/05/2010	State of the Practice of Seismic Hazard Analysis: From the Good to the Bad	Dr. Norman Abrahamson	
Seminar #73	12/10/2009	Experimental Basis for Modification of Cladding Embrittlement Criteria	Michelle Flanagan	
Seminar #72	11/30/2009	Pressurized Thermal Shock	Mark Kirk	
Seminar #71	10/26/2009	Health Effects as a Function of Dose Rate Delivered [View Slides]	Dr. Jacquelyn Yanch, MIT	No DVD available for this seminar
Seminar #70	09/11/2009	THE COLLAPSE OF WORLD TRADE CENTER 7- THE FORGOTTEN BUILDING OF 9/11	Dr. Theresa McAllister , National Institute of Standards and Technology (NIST)	
Seminar #69	09/08/2009	Geophysical Surveys Supporting Analysis of Contaminant Transport through Fractures [View Slides]	Dr. John Williams, USGS [View Bio]	
Seminar #68	08/24/2009	Safety and Regulatory Perspectives on Protective Coatings for Nuclear Facilities [View Slides]	Bruce Lin, RES/DE/MEEB	
Seminar #67	07/21/2009	Performance of Engineered Covers for Waste Disposal with Implications for PA [View Slides]	Professor Craig Benson, University of Wisconsin [View Bio]	
Seminar #66	05/11/2009	The Spent Nuclear Fuel Burnup Credit Research	John Wagner, ORNL	
Seminar #65	05/07/2009	2009 William B. Joyner Memorial Lecture, entitled "Earthquakes, Seismic Hazard, and Performance-Based Design"	Dr. Robin McGuire	
Seminar #64	04/24/2009	Modeling Uranium Behavior during In-Situ Bioremediation	Steven Yabusaki, Pacific Northwest National Laboratory	No DVD available for this seminar
Seminar #63	04/22/2009	Screening Methods for Estimating Storm-Surge Levels and Severity	Dr. Donald Resio, US Army Corps of Engineers	
Seminar #62	03/25/2009	The Accident at Three Mile Island - 30th Anniversary A Look Back: Preserving the Institutional Memory March 25, 2009 [Details] - [Poster] - [View Presentations]	Brian Sheron, Edward Frederick, Harold Denton, Gary Holahan	Please Contact Amy Bonaccorso

Seminar #61	02/10/2009	Perspectives on HTGR Safety and Design Considerations [View Slides]	Dr. Kenneth Stroh (VP, Sentech Inc. and Retired Guest Scientist, LANL)	
Seminar #60	01/21/2009	Modeling of the Dynamics of the Nucleation and Growth of Cracks Initiated due to Stress in Materials	Dr. Appajosula Rao, Material Engineer, DE/CMB	

From: Criscione, Lawrence
Sent: Friday, September 21, 2012 3:09 PM
To: Perkins, Richard
Subject: RE: Info

It was really about how engineering lessons learned are forgotten over time, but the guy giving it used bridge design as his basis. It was in 2010 or 2011. I'm not certain it was a RES seminar. It was in the same auditorium as our seminars and I know I went to it with Kauffman so I assume it was a seminar. Do other offices do seminars?

From: Perkins, Richard
Sent: Friday, September 21, 2012 1:53 PM
To: Criscione, Lawrence
Subject: Info

Energy Daily did a front page story today on FERC standing up a new office. You should take a look at that if you haven't.

I just sent the info on paleofloods (previous e-mail). Let me know if you don't get it.

I don't recall the brief about bridge failure. Anything to help me find it? Didn't see it in the RES seminar list (or I didn't recognize it as bridge failure related).

Richard H. Perkins, P.E.
Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Division of Risk Analysis
Operating Experience and Generic Issues Branch
Phone - 301/251-7479

From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 8:34 AM
To: 'McGee, Jim (HSGAC)'
Subject: FW: Mineral, VA earthquake Seminar - last 16 slides
Attachments: NRC Virginia quake Leith Dec13 - slides 15-30.pptx

Slides 15 through 30 of 30.

From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 8:27 AM
To: 'McGee, Jim (HSGAC)'
Subject: FW: Mineral, VA earthquake Seminar - First 14 slides

Here's the first 14 slides of the presentation.

From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 7:46 AM
To: 'McGee, Jim (HSGAC)'
Subject: Mineral, VA earthquake Seminar

Jim,

Attached is the poster from the RES Seminar on the Mineral Virginia earthquake. There is no DVD and the slide presentation is 31 MB in power point and 57 MB in Adobe. I'll try to break it up later today to send it to you.

I did not attend the seminar but heard it was pretty good. The presenter was William Leith from the USGS. His email is below. Also below is the email for Jon Ake at the NRC Office of Research. I don't know Jon, but most people in RES are willing to speak to anyone who calls with technical questions.

Larry

wleith@usgs.gov
Jon.Ake@nrc.gov

From: McGee, Jim (HSGAC) [mailto:Jim_McGee@hsgac.senate.gov]
Sent: Tuesday, October 02, 2012 3:35 PM
To: Criscione, Lawrence
Subject: RE: GI 199 and Mineral, VA earthquake

Thanks. I appreciate your help.

Jim McGee
Professional Staff/Investigations
Senate Committee on Homeland Security and Governmental Affairs
202-224-2627

From: Criscione, Lawrence [mailto:Lawrence.Criscione@nrc.gov]
Sent: Tuesday, October 02, 2012 3:34 PM

To: McGee, Jim (HSGAC)
Subject: RE: GI 199 and Mineral, VA earthquake

I've asked around but haven't heard back yet (it's only been a few hours). I may be able to get these presentations in the coming days.

Larry Criscione

From: McGee, Jim (HSGAC) [mailto:Jim_McGee@hsgac.senate.gov]
Sent: Tuesday, October 02, 2012 9:50 AM
To: Criscione, Lawrence
Subject: RE: GI 199 and Mineral, VA earthquake

Thanks. I couldn't get any of these links to work. I highlighted the topics that appear germane. Will try to track down those slides or DVD's, unless you have them.

Jim McGee
Professional Staff/Investigations
Senate Committee on Homeland Security and Governmental Affairs
202-224-2627

From: Criscione, Lawrence [<mailto:Lawrence.Criscione@nrc.gov>]
Sent: Monday, October 01, 2012 8:00 PM
To: McGee, Jim (HSGAC)
Subject: FW: GI 199 and Mineral, VA earthquake

Jim,

I meant to send this to you a couple of weeks ago, but accidentally sent it to Jon Ake, Marty Stutzke and Ben Beasley (I had "temporarily" put their names in the "To" line to copy down their email addresses).

Anyways, at the very bottom of this email is a list of RES seminars. You might find #99, #102 and #112 interesting pertaining to dam failures, earthquakes and paleofloods.

Larry Criscione

From: Criscione, Lawrence
Sent: Friday, September 21, 2012 2:38 PM
To: Ake, Jon; Beasley, Benjamin; Stutzke, Martin
Subject: GI 199 and Mineral, VA earthquake

Jim,

Below is a list of Seminars given to the Office of Research.

One of them was on the Mineral, VA Earthquake of August 23, 2011. It was given by Dr. Leith of the USGS. The NRC contact was Jon.Ake@nrc.gov, 301-251-7626. He could probably send you the seminar material.

Marty Stutzke (martin.stutzke@nrc.gov, 301-251-7614) was one of the chief scientists on GI 199 (the earthquake Generic Issue) if you have any questions about what was looked at and what the conclusions were. Ben Beasley (Benjamin.Beasley@nrc.gov, 301-251-7676) should be able to either tell you what the status of it is or direct you to a contact in the office assigned to implement it.

Larry




From: Perkins, Richard
Sent: Friday, September 21, 2012 2:19 PM
To: Criscione, Lawrence
Subject: RE: Info










I found this, but there are no slides available. It was recorded.









12/14/10

Success and Failure: A Paradoxical Relationship
Prof. Henry Petroski
Duke University
Nathan Siu
DRA




Here's a copy of the RES Seminar Table through 2009 (if you can read this)

Seminar #114	09/19/12	Long-Term Research Program Overview	Robert Tregoning, Ph.D. Michael B. Rubin, LTRP PM David W. Stroup, P.E. Jacob Philip, P.E	
Seminar #113	08/08/12	The NRC and Social Media - What We're Doing, Why We're Doing It, and How You Can Get Involved [View Poster]	Holly Hamington - Office of Public Affairs	No DVD available for this seminar
Seminar #112	07/10/12	Dam Failure, Nuclear Power Plant Flooding, and the Outlook for Generic Issue 204 View Slide 1 View Slide 2 View Slide 3	Richard Perkins & Jacob Philip RES/DRA	
Seminar # 111	06/19/12	Training Range Environmental Evaluation and Characterization System (TREECS) Applications - [View Slide]	Billy E. Johnson, U.S. Army Corps of Engineers; Mark S. Dortch, MSD Inc., and Boris Faybishenko, Lawrence Berkeley National Laboratory Sponsored by Tom Nicholson, DRA/RES	No DVD available for this seminar
Seminar # 110	06/07/12	ASR Degradation of Concrete affecting Nuclear Power Plant Structures - [View Slide] [Presentation 1][Presentation 2]	Jason Weiss, Purdue University; Kenneth Snyder, NIST; and Fahim Sadek, NIST. Sponsored by Jacob Philip, ETB/DRA/RES	No DVD available for this seminar
Seminar # 109	06/06/12	Live webcast of Zirconium Fire Experiment on PWR Spent Fuel Pool Complete Loss of Coolant Accident	Ghani Zigh, RES/DSA	No DVD available for this seminar
Seminar #108	6/4/2012	State-of-the-Art Reactor Consequence Analyses (SOCRA) RES Seminar - [View Slides]	Richard Chang, Jonathan Barr & Jason Schaperow (SOARCA Team)	
Seminar #107	5/21/2012	Health Physics Brown Bag 2012 Series: US Federal Agency Response to Fukushima Incident	Dr. Luis Benevides from NAVY, sponsored by Gladys Figueroa, RES/DSA/RPB	

Seminar #106	4/17/2012	Multi-Scale Assessment of Prediction Uncertainty in Coupled Reactive Transport Models Curtis Fiver Announcement	Gary P. Curtis(USGS) Ming Ye(FSU) Philip D. Meyer(PNNL) Steve Yabusaki(PNNL)	No DVD available for this seminar
Seminar #105	3/27/2012	Development of the Extremely Low Probability of Rupture (xLPR) Assessment Tool View Slides	Dave Rudland, RES/DE	
Seminar #104	2/13/12	The NRC's Simulator-based Human Performance Testing Program - Advancing Model Validity with Data	Amy D'Agostino & James Chang, RES/DRA	
Seminar #103	1/25/12	Computational Fluid Dynamics for Nuclear Safety Analysis	Christopher Boyd RES/DSA	
Seminar #102	12/13/11	The Mineral, VA Earthquake of August 23, 2011 [view poster] [view presentation]	Dr. William Leith, U.S. Geological Survey / Jon Ake, RES/DE/SGSEB	No DVD available for this seminar
Seminar #101	11/01/11	Lessons Learned from Investigations of Oil and Chemical Industry Events [View Presentation]	Mark Griffon Board Member U.S. Chemical Safety and Hazard Investigation Board	
Seminar #100	10/05/11	Investigations of Zirconium Fires during Spent Fuel Pool Loss of Coolant Accidents	Ghani Zigh RES/DSA	
Seminar #99	08/23/11	The Value of Paleoflood Information when Estimating Flood Risk [Slides] [Background Info 1] [Background Info 2]	Dr. Timothy Cohn, U.S. Geological Survey Thomas Nicholson DRA	
Seminar #98	07/11/11	Research Topics and Experiences on Safety Assessment Methods of Radioactive Materials (RAM) Containers German Federal Institute for Materials Research and Testing (BAM), Berlin, Germany	Dr. Frank Wille, "Requirements for Transport Packages after Interim Storage" Dr. Karsten Muller, "Recent Activities on Experimental Package and Component Testing at BAM" Mr. Gernar Eisenacher "Impact Limiter Modeling - An Approach for a Finite Element Material Model for Wood" Dr. Jose Pires, RES/DE/SGSEB	
Seminar #97	06/21/11	Assuring Durable Concrete: Chemical Degradation Processes and Modeling Service Life - [View Slides]	Dr. Kenneth A. Snyder National Institute of Standards and Technology Jacob Philip, DRA/ETB	
Seminar #96	04/26/11	Chernobyl 25th Anniversary 1. Mike Weber's Introduction 2. Dr. Brian Sheron's Presentation 3. Dr. Frank Congel's Presentation 4. Dr. John Boice's Presentation	Dr. Brian Sheron, RES Frank Congel, Former NRC Employee Dr. John Boice, IEI	

Seminar #85	04/19/11	A Probabilistic Risk Assessment View of Consequential Steam Generator Tube Rupture [View Slides]	Selim Sancaktar, RES/DRA/PRAB	No DVD available for this seminar
Seminar #84	02/22/11	Radiation Epidemiology Past Studies and Future Opportunities [View Poster]	Dr. John Boice, Medicine at Vanderbilt University School of Medicine and Scientific Director of the International Epidemiology Institute (IEI) / Stephanie Bush- Goddard, RES/DSA/HEB	
Seminar #83	02/15/11	American Society of Mechanical Engineers [View Slides]	Rick Swayne, ASME Carol Moyer, RES/DE/CMB	
Seminar #82	01/20/11	Weather and Hydrologic Extremes in a Non-stationary Climate with Implications for Managing Critical Infrastructures and Key Resources Presentation Slides	Dr. Auroop Ganguly(ORNL) Joe Kanney (RES/DRA/ETB) Tom Nicholson (RES/DRA)	
Seminar #81	01/12/11	Field and Modeling Studies to Assess Radionuclide Transport in the Subsurface	Dr. Andy Ward, Senior Research Scientist, Pacific Northwest National Laboratory Tom Nicholson (RES/DRA)	
Seminar #80	12/14/10	Success and Failure: A Paradoxical Relationship	Prof. Henry Petroski Duke University Nathan Siu DRA	
Seminar #89	11/10/2010	Zirconium in the Nuclear Industry - [View Slides]	Patrick Raynaud DSA / PSTB	
Seminar #88	10/20/2010	ASME Codes and Standards: History, Content, Development, and Endorsement	Carol Moyer & Gary Stevens, RES/DE	No DVD available for this seminar
Seminar #87	09/23/2010	Seismic-related Generic Issue (GI-199) Safety/Risk Assessment Methods and Results - [Detail] [view Slides]	Marty Stutzke (RES/DRA) Jon Ake (RES/DE/SGSEB) Lauren Killian (RES/DRA/OEGIB)	
Seminar #86	07/23/2010	Risk and Uncertainty in Dam Safety [View Detail 1] [View Detail 2] [View Detail 3]	Professor Gregory B. Baecher University of Maryland, College Park/ Thomas Nicholson, RES/DRA	No DVD available for this seminar
Seminar #85	07/19/2010	The Evolution of Radiation Protection: From Erythema to Genetic Risks to Risks of Cancer [View Slides]	Charles Meinhold / Terry Brock, RES/DSA/HEB	
Seminar #84	07/12/2010	Advanced Control Room Human Factors [View Slides]	Jing Xing & Stephen Fiegen RES/ DRA/HFRB	No DVD available for this seminar

Seminar #83	06/17/2010	Severe Accident Response for Steam Generator Tubing [View Slides]	Saurin Majumdar, ANL	No DVD available for this seminar
Seminar #82	06/17/2010	Lean Six Sigma on Internal Contracting	Mary Muessle, PMDA	No DVD available for this seminar
Seminar #81	05/13/2010	Overview of the Electric, Power Research Institute Organizational and Program Structure and Its Relationship to the Industry's Materials Initiative	David Modeen / hosted by DE, David Rudland	DVD
Seminar #80	04/29/2010	Lessons Learned in Detecting, Monitoring, Modeling, and Remediating Radioactive Groundwater Contamination at Brookhaven National Laboratory; - [Handout]	Dr. William Gunther, Dr. Mike Hauptmann, and Dr. Terry Sullivan / hosted by DRA Thomas Nicholson	DVD
Seminar #79	04/15/2010	Human-Rating of Space Systems - [View Slides]	Mr. Bryan O'Connor, Chief, Office of Safety and Mission Assurance, NASA	No DVD available for this seminar
Seminar #78	03/26/2010	Browns Ferry Seminar	Jack Lewis & Felix Gonzalez, DRA Dr.	DVD
Seminar #77	03/25/2010	Fundamentals of Structural Dynamics - [View Slides]	Dr. Abhinav Gupta	No DVD available for this seminar
Seminar #76	02/23/2010	Recent United States Geological Survey (USGS) Research on Seismic Hazards and Ground Motions in the Eastern U.S.	Dr. Paul Spudich, USGS colleagues & Jon Ake, DE	DVD
Seminar #75	01/21/2010	Improving the State-of-the-Art in Severe Accident Analysis [View Slides]	Richard Lee	No DVD available for this seminar
Seminar #74	01/05/2010	State of the Practice of Seismic Hazard Analysis: From the Good to the Bad	Dr. Norman Abrahamson	DVD
Seminar #73	12/10/2009	Experimental Basis for Modification of Cladding Embrittlement Criteria	Michelle Flanagan	DVD
Seminar #72	11/30/2009	Pressurized Thermal Shock	Mark Kirk	DVD
Seminar #71	10/26/2009	Health Effects as a Function of Dose Rate Delivered [View Slides]	Dr. Jacquelyn Yanch, MIT	No DVD available for this seminar
Seminar #70	09/11/2009	THE COLLAPSE OF WORLD TRADE CENTER 7- THE FORGOTTEN BUILDING OF 9/11	Dr. Therese McAllister, National Institute of Standards and Technology (NIST)	DVD
Seminar #69	09/08/2009	Geophysical Surveys Supporting Analysis of Contaminant Transport through Fractures [View Slides]	Dr. John Williams, USGS [View Bio]	DVD
Seminar #68	08/24/2009	Safety and Regulatory Perspectives on Protective Coatings for Nuclear Facilities [View Slides]	Bruce Lin, RES/DE/MEEB	DVD
Seminar #67	07/21/2009	Performance of Engineered Covers for Waste Disposal with Implications for PA [View Slides]	Professor Craig Benson, University of Wisconsin [View Bio]	DVD
Seminar #66	05/11/2009	The Spent Nuclear Fuel Burnup Credit Research	John Wagner, ORNL	DVD
Seminar #65	05/07/2009	2009 William B. Joyner Memorial Lecture, entitled "Earthquakes, Seismic Hazard, and Performance-Based Design"	Dr. Robin McGuire	DVD
Seminar #64	04/24/2009	Modeling Uranium Behavior during In-Situ Bioremediation	Steven Yabusaki, Pacific Northwest National Laboratory	No DVD available for this seminar

Seminar #63	04/22/2009	Screening Methods for Estimating Storm-Surge Levels and Severity	Dr. Donald Resio US Army Corps of Engineers	
Seminar #62	03/25/2009	The Accident at Three Mile Island - 30th Anniversary A Look Back: Preserving the Institutional Memory March 25, 2009 [Details] - [Poster] - [View Presentations]	Brian Sharon Edward Frederick Harold Denton Gary Holahan	Please Contact Amy Bonaccorso
Seminar #61	02/10/2009	Perspectives on HTGR Safety and Design Considerations [View Slides]	Dr. Kenneth Stroh (VP, Sentech Inc. and Retired Guest Scientist, LANL)	
Seminar #60	01/21/2009	Modeling of the Dynamics of the Nucleation and Growth of Cracks Initiated due to Stress in Materials	Dr. Appajosula Rao, Material Engineer, DE/CMB	

From: Criscione, Lawrence
Sent: Friday, September 21, 2012 3:09 PM
To: Perkins, Richard
Subject: RE: Info

It was really about how engineering lessons learned are forgotten over time, but the guy giving it used bridge design as his basis. It was in 2010 or 2011. I'm not certain it was a RES seminar. It was in the same auditorium as our seminars and I know I went to it with Kauffman so I assume it was a seminar. Do other offices do seminars?

From: Perkins, Richard
Sent: Friday, September 21, 2012 1:53 PM
To: Criscione, Lawrence
Subject: Info

Energy Daily did a front page story today on FERC standing up a new office. You should take a look at that if you haven't.

I just sent the info on paleofloods (previous e-mail). Let me know if you don't get it.

I don't recall the brief about bridge failure. Anything to help me find it? Didn't see it in the RES seminar list (or I didn't recognize it as bridge failure related).

Richard H. Perkins, P.E.
Nuclear Regulatory Commission
Office of Nuclear Regulatory Research
Division of Risk Analysis
Operating Experience and Generic Issues Branch
Phone - 301/251-7479

Criscione, Lawrence

From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 1:00 PM
To: McGee, Jim (HSGAC)
Cc: Loveless, David
Subject: RE: RES Seminar on GI-204

I haven't looked at the Ft. Calhoun stuff yet, but will likely get to it tomorrow.

A good point of contact on Ft. Calhoun is Dave Loveless (817-200-1161, david.loveless@nrc.gov). He's a Senior Risk Analyst in Region IV (the region headquartered in Arlington, TX which regulates Ft. Calhoun). I haven't spoken to Dave on Ft. Calhoun, but I've heard through the grapevine he has some concerns regarding it.

From: McGee, Jim (HSGAC) [mailto:Jim_McGee@hsgac.senate.gov]
Sent: Wednesday, October 03, 2012 10:22 AM
To: Criscione, Lawrence
Subject: RE: RES Seminar on GI-204

Larry,

Thanks very much for these slides. I'm also looking for all written responses from Duke Energy or NEI re: the issues at Oconee, or the Generic screening study. Anything that sets out their side of the story. I do have the 2010 Duke response to the request for additional information with discussion of merits of sunny day analysis. But before getting underway, I want to be sure I've see any rebuttals from Duke or NEI rebuttal that may be relevant. Also see attached re: regional inspectors and Ft. Calhoun. I'd be interested in your thoughts.

Jim McGee
Professional Staff/Investigations
Senate Committee on Homeland Security and Governmental Affairs
202-224-2627

From: Criscione, Lawrence [<mailto:Lawrence.Criscione@nrc.gov>]
Sent: Wednesday, October 03, 2012 8:36 AM
To: McGee, Jim (HSGAC)
Subject: RES Seminar on GI-204

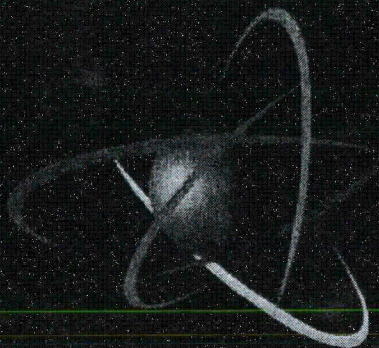
From: Criscione, Lawrence
Sent: Wednesday, October 03, 2012 8:18 AM
To: 'McGee, Jim (HSGAC)'
Subject: RE: GI 199 and Mineral, VA earthquake

Jim,

Attached are the slide shows from the RES seminar on GI-204. The presenters were Rich Perkins, Jake Philip and Christopher Cook. Their emails and phone numbers are below. I ordered the DVD but likely won't get it until Oct. 22.

Larry

Richard.Perkins@nrc.gov (301-251-7479)



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

RES Seminar

Geotechnical Response to Flooding:
Foundations and Slopes

Jacob Philip

, 301-251-7471

Office of Nuclear Regulatory Research

July 10, 2012

NRC Auditorium



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

Outline

- **Definitions**
- **Volume/Mass Relationships in Soils**
- **Soil Classification**
- **Soil Gradation**
- **Flooding /Inundation Effects:**
 - ✓ **Footings/Mat Foundations**
 - ✓ **Pile Foundations**
 - ✓ **Slopes: Dams/Embankments/Levees/River Banks**
 - ✓ **Underground Conduits/Tanks/Piping**
 - ✓ **Bearing Capacity**
- **Summary**

Definitions of Soil/Moisture Terminology

Unsaturated Soil

A soil layer is *unsaturated* if some of the pores between soil particles are filled with water.

Saturated Soil

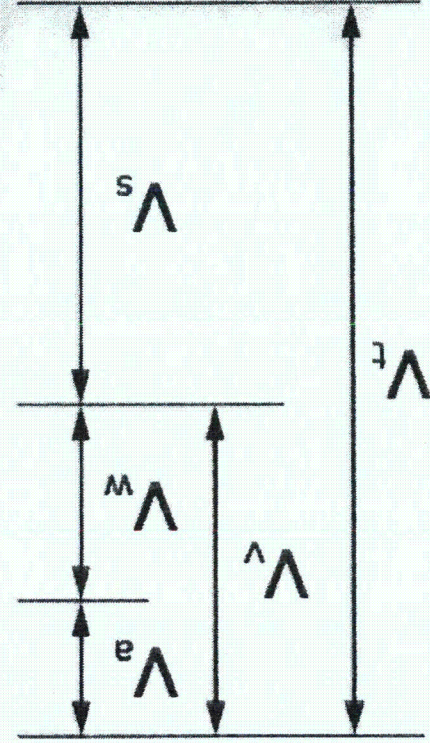
A soil layer is *saturated* if virtually all pores between soil particles are filled with water.

Inundation

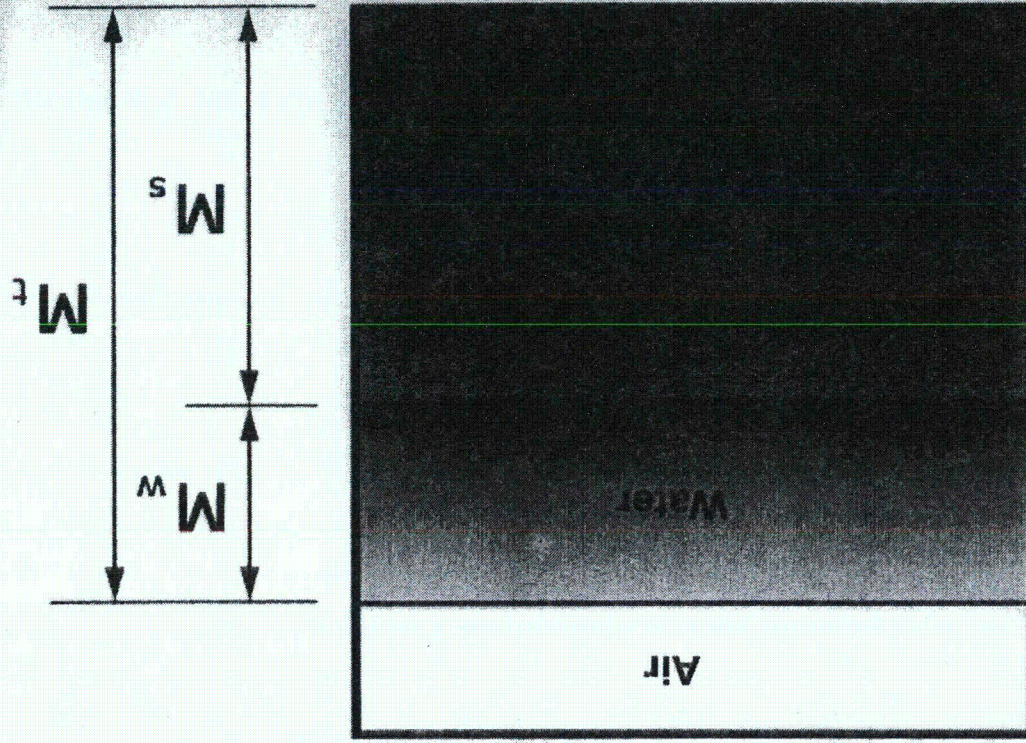
A condition in which water from any source completely covers a land surface.

Volume and Mass Relationships in Soils

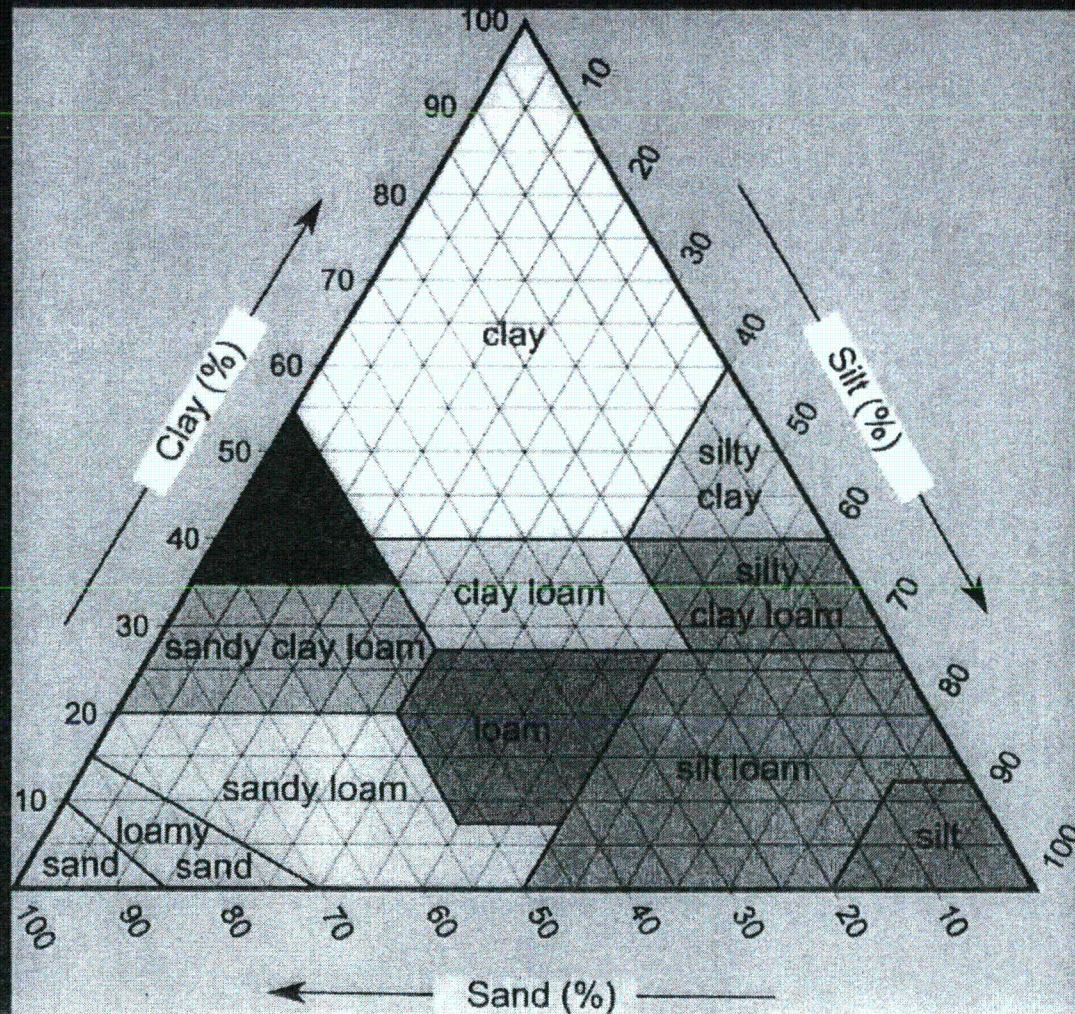
Volume Relationships



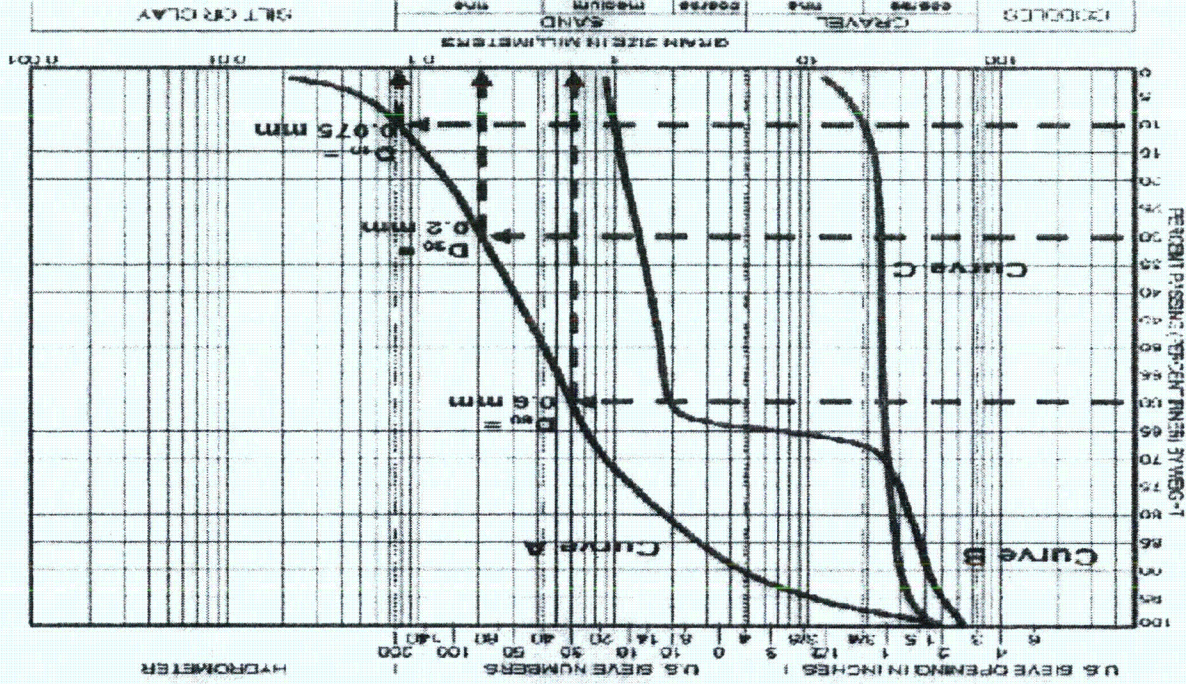
Mass Relationships



Soil Classification Chart



Soil Gradation Curves



Curve	T_{10} (mm)	T_{30} (mm)	T_{60} (mm)	C_u	C_c	Gradation
A	0.075	0.2	0.6	8.0	0.9	Well graded (1)
B	1	1.5	2	2.0	1.12	Poorly graded - Gap graded (2)
C	19	25	27	1.4	1.2	Poorly graded

(1) Soil does not meet C_u and C_c criteria for well-graded soil but GSD curve clearly indicates a well-graded soil

(2) The C_u and C_c parameters indicate a uniform (or poorly) graded material, but the GSD curve clearly indicates a gap graded soil

Note: For clarity only the D_{10} , D_{30} , and D_{60} sizes for Curve A are shown on the figure.

Consequences of Inundation

Volume of Soil Decreases Suddenly:

Soil Types: Loess

Weak Cemented Sands/Silts

Certain Residual Soils

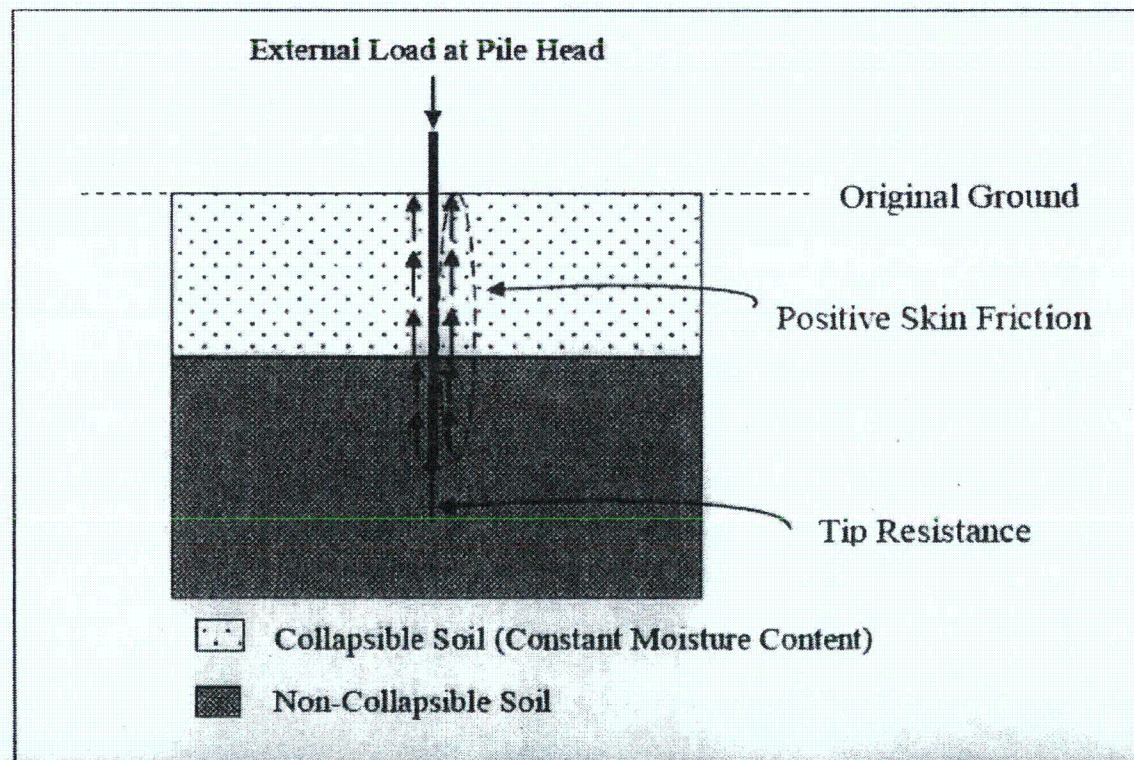
Compacted Soils/Fill

Granular Materials with Angular Particles

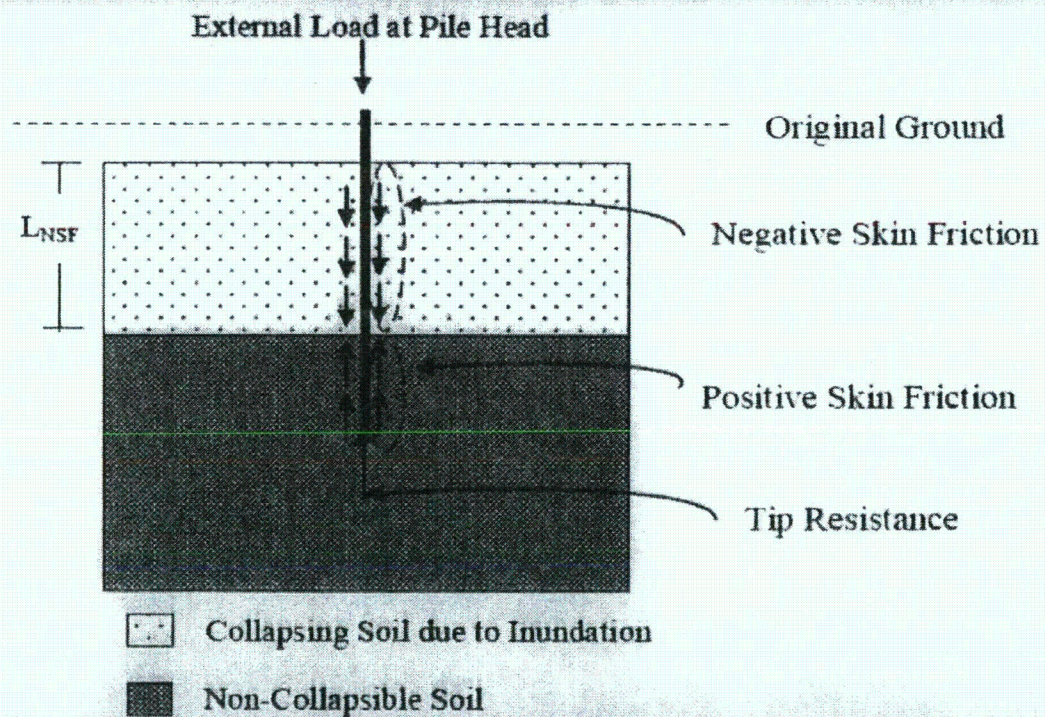
**Soils Compacted Dry of Optimum
Moisture Content**

➤ ***Inundation, Cause: Rainfall, Surface Runoff, Percolation of Rain Water, Poor Drainage, Flooding, Rise in Ground Water, Capillary Rise***

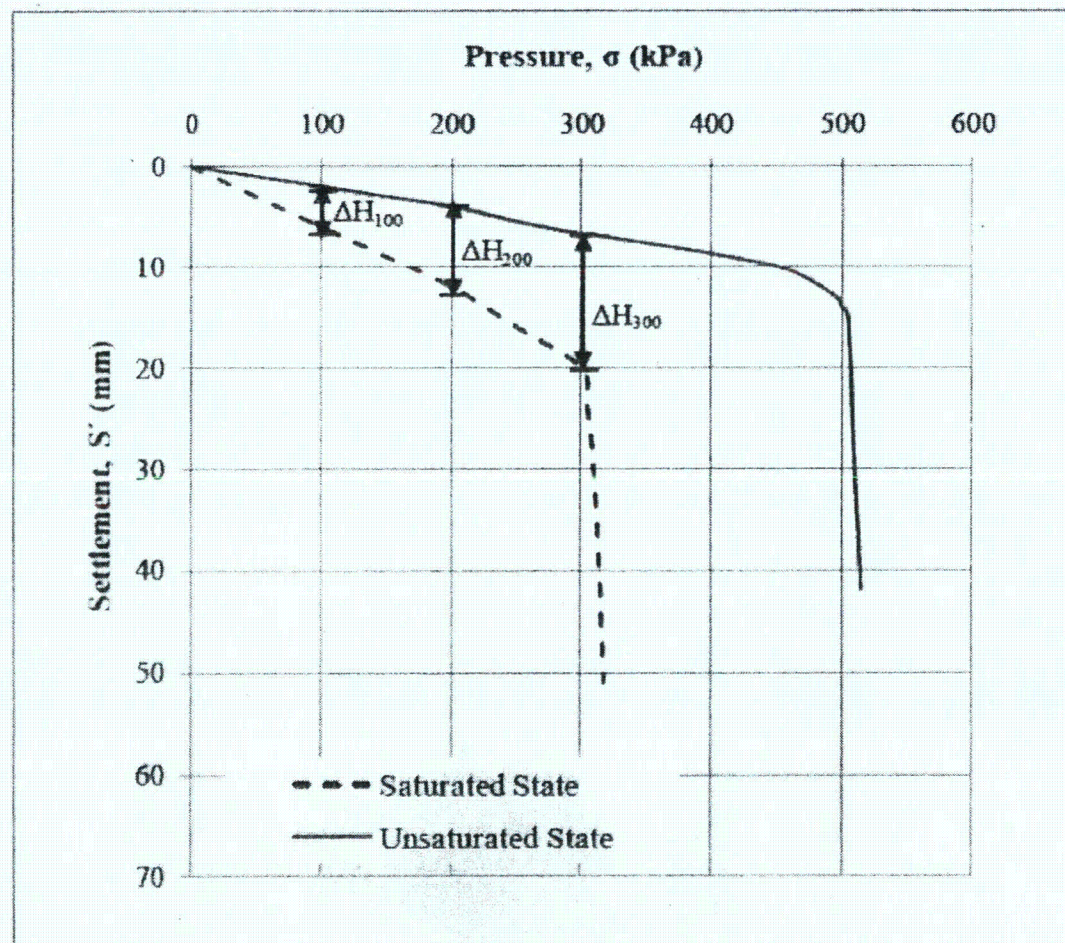
Load Transfer in Pile/Soil System: Constant Moisture Content



Load Transfer in Pile/Soil System: Inundation



Load-Settlement Curve of Foundation: Effect of Inundation



Bearing Capacity

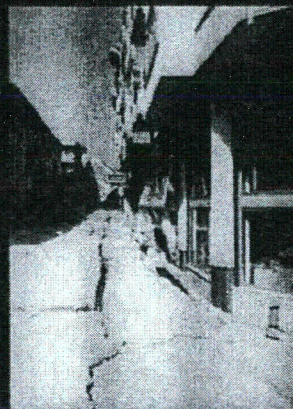
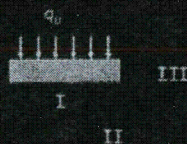


BEARING CAPACITY

TYPES OF SHEAR FAILURE

When uniform load q is applied, soil settles. If $q > q_f$, bearing capacity failure occurs.

(1) **General Shear Failure** : Zone I is pushed downwards, then II and III are pushed sideways then upwards. Failure takes place by sliding, tilting of foundation is possible.



BEARING CAPACITY

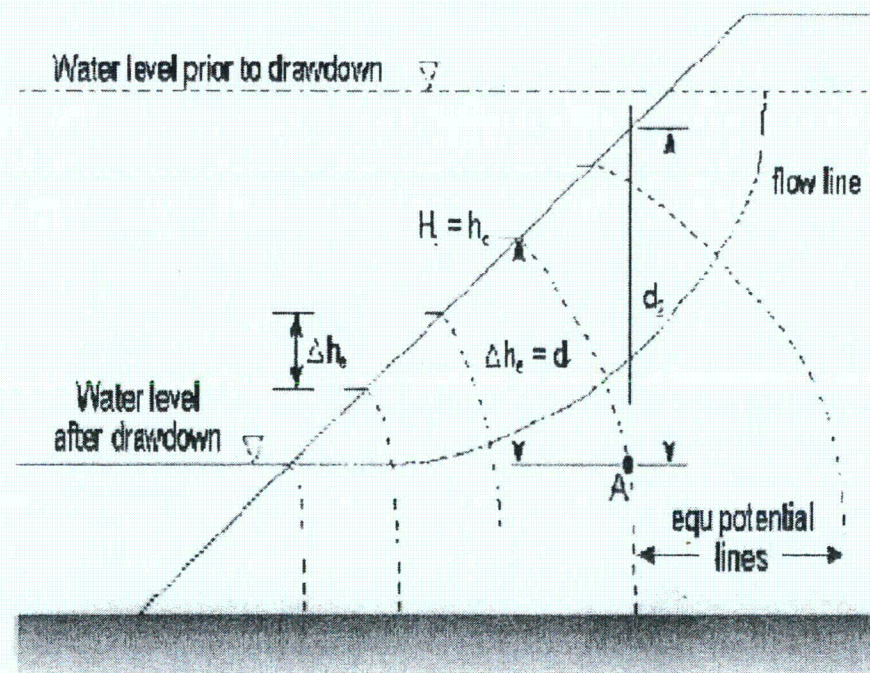
Safe Bearing Capacity is the value of gross pressure that can be applied without danger of shear failure.

Allowable Bearing Capacity (q_a) is the maximum (net) pressure which may be applied to the soil such that:

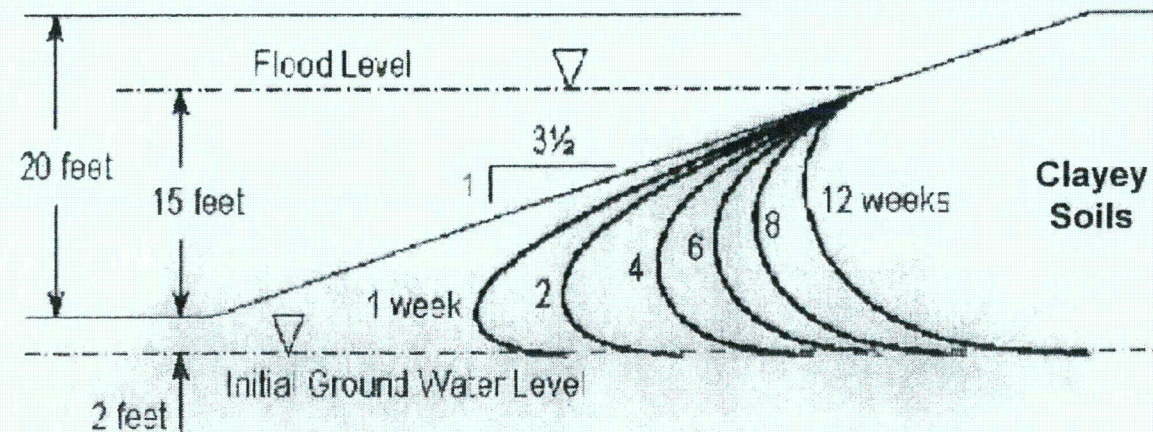
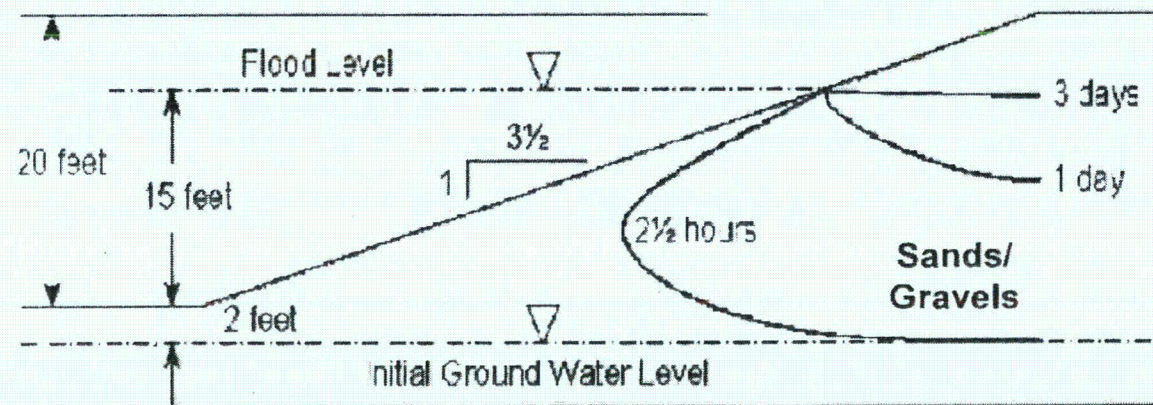
1. F.S. against shear failure of supporting soil is adequate (FS=2 or 3)
2. The total and differential settlements are within permissible limits.

Effects of Inundation on Soil Slopes

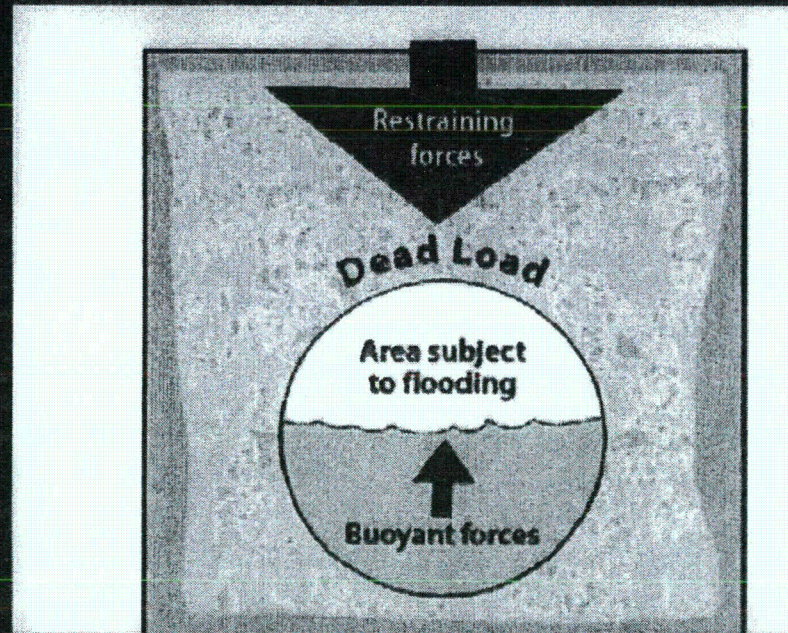
Slope Instability due to Drawdown Conditions:



Effects of Inundation on Soil Slopes (contd)



Effects of Inundation on Underground Structures: Pipes/Tanks/ Conduits



- Buried Structures float when its buoyancy exceeds its weight. These structures are supposed to remain in place when flooded, and needs to be restrained. Flotation can put excess stress on weak sections of the underground structure causing severe damage or failure.
- Buried structures are also subject to the same volume reduction in supporting soil bedding/natural soils.

SUMMARY: Effects of Inundation

Change in Soil Properties (Affects Performance of Structures)

Reduction in Soil Volume

Volume Reduction Possible in a Wide Range of Soils

Negative Skin Friction in Pile Foundations

Additional Settlements in Spread Footings/Mat Foundations

Loss of Bearing Capacity

Degradation of Stability of Slopes

Flotation/Settlement of Underground Structures

QUESTIONS???