

# "Mechanical Integrity Testing (MIT) and Techniques in Gas and Liquids Storage Caverns"

## SMRI Technical Class Schedule

Sunday, 7 April 2019, New Orleans, Louisiana, USA

Class will be repeated at the Fall 2019 Conference in Berlin, Germany



TIME	INSTRUCTOR	TITLE	OBJECTIVES	PAGE
8:00 AM to 8:10 (10 min)	Peter Jordan, SMRI Interim Research Coordinator	<b>Class Introductions</b>	Present class organization, structure, topics & introduce lecturers	
8:10 AM to 8:46 (36 min)	Peter Jordan, Lonquist & Co, LLC	Basic Procedures for Borehole (Gas or Liquid Over Brine) MIT's, Pressure Observation Tests and Cavern Gas Tightness Tests	Survey of cavern MIT Methods	1
8:46 to 9:22 (36 min)	Brandon Lampe, WSP USA	How Heat Transfer Can Influence MIT Results	Case study and modeling of heat transfer and thermal effects.	25
9:22 to 9:58 (36 min)	Arnaud Réveillère, Geostock	Dealing with MIT Uncertainties	In-situ mass balance MITs; measurements and uncertainties; propagation of uncertainties; Geostock propagation approach and Monte-Carlo methods.	41
9:58 to 10:28 (30 min)	<b>BREAK: Coffee/tea, refreshments, and light snack</b>			
10:28 to 11:04 (36 min)	Heike Bernhardt, DEEP.KBB GmbH	Technical and Legal Regulations for Integrity Tests for Underground Gas Storage in Selected European Countries	Technical and regulatory requirements for MITs and associated aspects in selected European countries.	57
11:04 to 11:40 (36 min)	Joe Ratigan, Ratigan Engineering & Consulting LLC	Technical and Regulatory Requirements for Integrity Tests in North America	Regulatory requirements for MITs in North America	81
11:40 to 12:16 (36 min)	René Schneider, DEEP.KBB GmbH.	Wireline Logging for Mechanical Integrity Tests <i>(Paper late, will be Available Separately at class)</i>	Discuss logging methods and tools, selection among alternate types of tools, and limitations that affect MIT results.	103
12:16 PM to 1:16 (1 hour)	<b>LUNCH: Included with Class registration</b>			
1:16 PM to 1:52 (36 min)	Pierre Bérest, (Ecole Polytechnique LMS) and Benoît Brouard, (Brouard Consulting)	Possibilities and Limitations of MITs in Boreholes and Gas-Filled Caverns	Processes driving wellhead pressure evolution during a Nitrogen or light hydrocarbon MIT; analysis to cross-check test results.	105
1:52 PM to 2:28 (36 min)	Amer Abdel Haq, (UGS) Untergrundspeicher- und Geotechnologie-Systeme GmbH	Mechanical Integrity Tests for Oil Caverns: Principles and Case Study of Testing for Leak Detection	Case history of detection of the location of a casing leak.	127
2:28 to 2:58 (30 min)	<b>BREAK: Coffee/tea, refreshments, and light snack</b>			
2:58 to 3:34 (36 min)	Jay Wilson and Jeremy Murillo, Sabine Storage & Operations, Inc.	– Case History – Liquid Storage Cavern MIT with Large Diameter Wellbore	Case history of nitrogen interface MIT.	143
3:34 to 4:10 (36 min)	Nils Skaug, WSP USA	Gas-Filled Cavern MITs, North America	Typical U.S. gas cavern MIT: procedure, calculations, assumptions, mass balance and test accuracy. Temperature log analysis and advanced logging and analysis.	155
4:10 to 4:46 (36 min)	Grégoire Hevin, Storengy	Cavern / Well Testing Methods at Storengy	Development of MIT methods at Storengy	179
4:46 to 4:56 (10 min)	Peter Jordan, SMRI Interim Research Coordinator	<b>Concluding remarks</b>	Class synthesis, thanks, future SMRI technical classes, future research ideas	

