

SMRI Technical Class Schedule

“Engineering Calculations in Solution Mining”

Sunday, 17 June 2018, Salt Lake City, Utah, (FINAL as of 4 June 2018)



Same Class will be repeated SMRI Fall 2018 Belfast, Northern Ireland, UK Conference

TIME	INSTRUCTOR	TITLE	OBJECTIVES	PAGE
8:00 AM to 8:05	Leo Van Sambeek, SMRI	Class Introductions	Present class organization, structure, topics & introduce lecturers	
8:05 to 8:40 (35 min)	Kerry DeVries, RESPEC, for Lola Piché, RESPEC/North Rim Exploration Ltd	1) Salt and Caprock Properties	Calculating density, porosity, strength, stiffness, permeability, etc.	1
8:40 to 9:15 (35 min)	Eric Busch, Lonquist & Co., LLC	2) Technical Casing Objectives – Mill Specifications	Technical objectives of casings and understanding mill-specifications	15
9:15 to 9:50 (35 min)	Ken Roane, Sabine Storage & Operations, Inc.	3) Calculation of casing collapse and burst pressures and factors of safety	Cement pressures for different cements and methods of cementing large-diameter casings	39
BREAK (30 min.)	Coffee/tea, refreshments, and light snack			
10:20 to 11:20 (60 min)	Heike Bernhardt, Sebastian Boor, and Marc Wilkerling, DEEP.KBB GmbH	4) Hydraulics of leaching, dewatering, and product movement	Allowable flow rates, product density, fluid viscosity	53
11:20 to 12:00 (40 min)	Joe Ratigan, Ratigan Engineering & Consulting LLC	5) Solution-Mined Cavern Hanging Strings Maximum Velocity Criteria	A brief overview of hanging string dynamics and application to different flow configurations	87
LUNCH (60 min.)	LUNCH included with Class registration			
1:00 to 1:30 (30 min)	Leo Van Sambeek, SMRI	6) Solution chemistry and dissolution rate models	Solubility versus temperature and pressure, theory and application of lab-based dissolution rate models	97
1:30 to 2:00 (30 min)	Fritz Wilke, Atkins Global	7) Blanket Management: Calculations, Estimates and Principles	Theory and practice for blankets, volume calculations and thickness management	111
2:00 to 2:45 (45 min)	Pierre Bérest, Ecole Polytechnique	9) Cavern and Well Pressure Calculations	Pressure and stress gradients for rock, brine, products, nitrogen for MIT calculations and specifying minimum and maximum operating and test pressures	113
BREAK (30 min.)	Coffee/tea, refreshments, and light snack			
3:15 to 3:45 (30 min)	Scott Rouze, Enbridge	10) Calculating volumes of stored gas in domal caverns	Cavern parameters and equations involved for estimating gas stored, sources of uncertainty, and degrees of accuracy	131
3:45 to 4:45 (60 min)	Benoît Brouard, Brouard Consulting	11) Example calculations using SMRI's Toolbox	Repeating some of the above calculations using software specifically written for solution-mining and storage calculations	141
4:45 to 5:00	Leo Van Sambeek, SMRI	Concluding remarks	Class synthesis, thanks, future SMRI technical classes, future research ideas	