Thermodynamic database implementation for hydrogeochemical numerical modeling with PHREEQC						
Time/Day Australia (AEST)	**Time/Day USA (EST)**	**Time/Day Europe (CEST)**	**Delivery**	**Subject**	**Main objective**	**Description**
8:00 AM (18 Sept)	6:00 PM (17 Sept)	12:00 AM (17 Sept)	Pre-recorded	Introduction to hydrogeochemistry processing in mine waters	To present and discuss basic concepts in hydrogeochemistry and its application for mining projects.	1) Hydrogeochemistry applied to mining. 2) Hydrogeochemical reactions. 3) Strategies for critical analysis of hydrochemical data
8:30 AM (18 Sept)	6:30 PM (17 Sept)	12:30 AM (18 Sept)	Pre-recorded	Numerical modeling	To present basic concepts for hydrogeochemistry modeling using PHREEQC	1) About PHREEQC 2) Applications 3) Simulation of aqueous system reactions 4) Scenarios prediction
9:25 AM (18 Sept)	7:25 PM (17 Sept)	1:25 AM (18 Sept)	Interval			
9:30 AM (18 Sept)	7:30 PM (17 Sept)	1:30 AM (18 Sept)	Pre-recorded	Thermodynamic concepts	To present the main thermodynamic concepts needed for modeling	1) Main definitions 2) First Law: energy conservation principle and the enthalpy concept 3) Second and Third Law: the entropy concept 4) Chemical Equilibrium and Gibbs Free Energy concept 5) Ideal versus Real: actvity and ionic strengh, fugacity and partial pressure
10:00 AM (18 Sept)	8:00 PM (17 Sept)	2:00 AM (18 Sept)	Pre-recorded	Thermodynamic parameters for modeling	To present and discuss the main parameters used in PHREEQC (input and output) and its particularities	1) Equilibrium constant, thermodynamic equilibrium and saturation index (SI) 2) Temperature Influence
10:30 AM (18 Sept)	8:30 PM (17 Sept)	2:30 AM (18 Sept)	Pre-recorded	Thermodynamic database	To show how to insert thermodynamic data in PHREEQC and some of the main existing database	1) PHREEQC Input 2) Database examples
10:55 AM (18 Sept)	8:55 PM (17 Sept)	2:55 AM (18 Sept)	Interval			
11:00 AM (18 Sept)	9:00 PM (17 Sept)	3:00 AM (18 Sept)	Live	Example and Q&A		Implementing a numerical model (PHREEQC) using kinetic data block - comparing scenarios
11:30 AM (18 Sept)	9:30 PM (17 Sept)	3:30 AM (18 Sept)	Live	Example and Q&A		Mining backfill simulation - Iron ore's case