



**THE SOCIETY FOR MINING, METALLURGY, AND EXPLORATION;
INLAND GEOLOGICAL SOCIETY; AND ASSOCIATION OF
ENVIRONMENTAL & ENGINEERING GEOLOGISTS REQUEST THE
HONOR OF YOUR COMPANY AT THE**

2018 Southern California Joint Societies Meeting

Thursday, the 10th of May 2018

Reception/Social Hour (cash bar) at 6:00 PM, Dinner at 7:00 PM

Program at 7:30 PM Old Spaghetti Factory, Riverside

\$30 (Students \$10)

Dinner

Salad, Bread, Pasta (Option of Mizithra Cheese and Browned Butter,
or Marinara Sauce), and Ice Cream Dessert

SPEAKERS: Robert Kistler and William Pennell

The History of U. S. Borax in the California Desert and Beyond

The evening program will feature a presentation by Bob Kistler and William Pennell. Bob and Bill had long careers with U. S. Borax. Bob started as a geologist at the Boron mine, served for many years as Chief Geologist and retired, after 37 years, as head the Exploration Department. Bill began as an Exploration Geologist searching for borate deposits in the Mojave Desert and 20 years later, retired as the Director of Exploration of Industrial Minerals for Rio Tinto, U. S. Borax's corporate owner. Both were involved with such discoveries as Quartz Hill Molybdenum (Bob) in southeastern Alaska and the Jadar Lithium/Borate (Bill) deposit in Serbia.

The History of U. S. Borax in the California Desert and Beyond

by Bob Kistler and Bill Pennell

From the early 1880's, shortly after the discovery of borate minerals in western Nevada's Teel's Marsh, U. S. Borax and its predecessor companies developed economic methods of extracting and processing ores, and transporting and marketing borate products, from the deserts of California. Through the 20th century, operations in and near Death Valley and the Mojave Desert mined the most common calcium borate (colemanite), sodium-calcium borate (ulexite) and sodium borate (borax and kernite) minerals from near surface deposits, (e.g., at Harmony in Death Valley) underground mines (e.g., Calico, Lila C, Ryan) and a large open pit (at Boron). Transportation evolved from hand carts and the iconic Twenty Mule Team, through steam-engine tractors and trains, to dedicated ocean-going vessels serving worldwide markets. Borates are used in a wide range of applications including fertilizers to food preservatives, specialty glassware to fiberglass, and from insecticides to household products. In the 21st century, "The Borax Company" continues to provide high-quality products serving its traditional global markets as well as the future's high-tech needs.

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SME-AEG-IGS Annual Joint Meeting

Old Spaghetti Factory, 3191 Mission Inn Ave.,

Riverside, CA 92507 (951) 787-4417

South of the intersection of I-215, CA-91, and CA-60 on CA-91, exit east on Mission Inn Ave. Restaurant is on the left. If you get to Santa Fe Ave., you have gone too far...

Field Geologist Directions: 33.980530, -117.367332 UTM

Zone 11: Easting 466069.9, Northing 3760058

Please R.S.V.P. to your Society by Tuesday, April 24th

R.S.V.P.: ironmtn2012@gmail.com