TABLE OF CONTENTS

Itinerary ix

OVERVIEW OF ORE DEPOSITS AND ACTIVE GEOTHERMAL SYSTEMS IN THE SONOMA AND CLEAR LAKE VOLCANIC FIELDS

The Geysers-Clear Lake area, California: thermal waters, mineralization, volcanism, and geothermal potential
J. M. Donnelly-Nolan, M. G. Burns, F. E. Goff, E. K. Peters, and J. M. Thompson 1

Thermal-volcanic evolution in the California Coast Ranges
Mian Liu 26

Epithermal precious-metal and mercury deposits in the Sonoma and Clear Lake volcanic fields, California
J. J. Rytuba 38

DAY ONE-Papers
Epithermal precious metals deposits of the Calistoga mining district Napa County, California,
D. A. Enderlin 52

Relation of hot-spring gold mineralization to silica-carbonate mercury mineralization in the Coast Ranges, California
W. J. Pickthorn 77

Silica carbonate alteration of serpentinite, implications for the association of precious metal and mercury mineralization in the Coast Ranges
R. L. Sherlock, M. Amelia V. Logan, and E. Craig Jowett 90

DAY ONE-Road Logs
The Sonoma volcanic field and associated gold and mercury deposits: road log
J. J. Rytuba, D. A. Enderlin and R. J. McLaughlin 117

DAY TWO-Papers
Geothermal setting of The Geysers steam field, northern California
R. O. Fournier 124

Preliminary report on $^{40}$Ar/$^{39}$Ar incremental heating experiments on feldspar samples from the felsite unit, Geysers Geothermal Field, California
G. B. Dalrymple 131

The geysers felsite and associated geothermal systems, alteration, mineralization, and hydrocarbon occurrences
J. B. Hulen and M. A. Walters 141

DAY TWO-Road Logs
The Geysers geothermal area and mercury deposits in the Clear Lake volcanic field: Road log
DAY THREE-Papers
The origin and significance of high-grade metamorphic xenoliths, Clear Lake Volcanics, California
Jim Stimac 171

Chemical and isotopic constituents in the hot springs along Sulphur Creek, Colusa County, California
J. M. Thompson 190

Gas geochemistry and guide for geothermal features in the Clear Lake Region, California
F. Goff and Cathy Janik 207

Gold and mercury deposits in the Sulphur Creek District, California

DAY THREE-Road Logs
Hot springs and deposits of mercury and gold in the Clear Lake volcanic field: Road log
J. J. Rytuba, J. M. Donnelly-Nolan, and R. J. McLaughlin 270

DAY FOUR-Papers
Regional geophysical setting of gold deposits in the Clear Lake region, California
A. Griscom, R. C. Jachens, P. F. Halvorson, and R. J. Blakely 289

Overview of the McLaughlin precious metal mine, Napa and Yolo Counties, Northern California

The genesis of the McLaughlin Mine sheeted vein complex, fluid inclusion and stable isotope evidence
R. L. Sherlock 330

DAY FOUR-Road Logs
McLaughlin gold and Knoxville mercury deposits: Road log
J. J. Rytuba, D. A. Enderlin, R. J. McLaughlin, and J. M. Donnelly-Nolan 350