STRATIGRAPHY AND TECTONIC DEVELOPMENT OF THE ALBUQUERQUE BASIN, CENTRAL RIO GRANDE RIFT

FIELD-TRIP GUIDEBOOK FOR THE GEOLOGICAL SOCIETY OF AMERICA ROCKY MOUNTAIN-SOUTH CENTRAL SECTION MEETING, ALBUQUERQUE, NM PRE-MEETINNG FIELD TRIP

MINI-PAPERS

Compiled and edited by

SEAN D. CONNELL New Mexico Bureau of Mines and Mineral Resources-Albuquerque Office 2808 Central Ave. SE, Albuquerque, NM 87106

> SPENCER G. LUCAS New Mexico Museum of Natural History and Science 1801 Mountain Rd. NW, Albuquerque, NM 87104

> DAVID W. LOVE New Mexico Bureau of Mines and Mineral Resources 801 Leroy Place, Socorro, NM 8701

> > Open-File Report 454B

Initial Release: April 27, 2001 Revised June 11, 2001

New Mexico Bureau of Mines and Mineral Resources New Mexico Institute of Mining and Technology 801 Leroy Place, Socorro, NM 87801

NMBMMR 454B

REVISIONS TO GUIDEBOOK AND MINI-PAPERS

This field-guide accompanied a pre-meeting field trip of the Geological Society of America Rocky Mountain and South-Central Section conference in Albuquerque, New Mexico. A limited quantity of guidebooks and minipaper compilations were produced for participants of this field trip. A number of typographical, grammatical, and editorial errors were found in this first version of the guidebook, mainly because of logistical constraints during preparation for the field trip. In the revised version, *released on June 11, 2001*, many errors have been corrected. Many photographs, figures, and maps, shown during the field trip but not included in the first version, are included in this revision. Numerous minor editorial changes and corrections have also been made to the guidebook minipapers.

The field-guide has been separated into two parts. Part A (open-file report 454A) contains the three-days of road logs and stop descriptions. Part B (open-file report 454B) contains a collection of mini-papers relevant to field-trip stops.

The contents of the road logs and mini-papers have been placed on open file in order to make them available to the public as soon as possible. Revision of these papers is likely because of the on-going nature of work in the region. The papers have not been edited or reviewed according to New Mexico Bureau of Mines and Mineral Resources standards. The contents of this report should not be considered final and complete until published by the New Mexico Bureau of Mines and Mineral Resources. Comments on papers in this open-file report are welcome and should be made to authors. The views and preliminary conclusions contained in this report are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the State of New Mexico or the U.S. Government.

ACKNOWLEDGEMENTS

This field trip was supported by the New Mexico Bureau of Mines and Mineral Resources (P.A. Scholle, Director) and the New Mexico Museum of Natural History and Science. Much of the data presented during this field trip are from numerous open-file reports released by the New Mexico Bureau of Mines and Mineral Resources during the course of cooperative geologic mapping with the U.S. Geological Survey (New Mexico Statemap Project, P.W. Bauer, Program Manager). We are particularly grateful to the Pueblos of Zia, Isleta, Sandia, San Felipe, Santo Domingo, Jemez, and Santa Ana for granting access during many of the stratigraphic and mapping studies discussed during the field trip. In particular, we thank Mr. Peter Pino for enabling access to study the stratigraphically significant localities along the Rincones de Zia. We also thank Mr. Gary Nolan, Mr. Jerry Burke, and Mr. Mackie McClure for allowing access to the LaFarge and SunCountry Redimix gravel quarries near Bernalillo, New Mexico. We also thank Ms. Leanne Duree of the Ball Ranch for allowing access through their lands on Tanos Arroyo.

We thank the New Mexico Geological Society for granting permission to reprint three papers from their 1999 Guidebook 50 entitled *Albuquerque Geology* (F.J. Pazzaglia and S.G. Lucas, eds). We especially thank V.J.S. Grauch for agreeing to present summaries of recent regional geophysical surveys of the Albuquerque Basin.

NMBMMR 454B

MINI-PAPER TABLE OF CONTENTS

Stratigraphy of the Albuquerque Basin, Rio Grande Rift, New Mexico: A Progress Report S.D. Connell
Summary of Blancan and Irvingtonian (Pliocene and early Pleistocene) Mammalian Biochronology of New Mexico
G.S. Morgan and S.G. Lucas
Miocene Mammalian Faunas and Biostratigraphy of the Zia Formation, Northern Albuquerque Basin, Sandoval
County, New Mexico
G.S. Morgan and S.G. Lucas
Pliocene Mammalian Biostratigraphy and Biochronology at Loma Colorada de Abajo, Sandoval County, New
Mexico
G.S. Morgan and S.G. Lucas
Plio-Pleistocene Mammalian Biostratigraphy and Biochronology at Tijeras Arroyo, Bernalillo County, New Mexico
G.S. Morgan and S.G. Lucas E-39
Lithostratigraphy and Pliocene Mammalian Biostratigraphy and Biochronology at Belen, Valencia County, New
Mexico
G.S. Morgan, S.G. Lucas, and D.W. Love
Pliocene Mammalian Biostratigraphy and Biochronology at Arroyo de la Parida, Socorro County, New Mexico
G.S. Morgan and S.G. Lucas
Stratigraphy of the Lower Santa Fe Group, Hagan Embayment, North-Central New Mexico: Preliminary Results
S.D. Connell and S,M. Cather
Stratigraphy of the Tuerto and Ancha Formations (Upper Santa Fe Group), Hagan and Santa Fe Embayments, North-Central New Mexico
D.J. Koning, S.D. Connell, F.J. Pazzaglia, and W.C. McIntosh
Stratigraphy of the Middle and Upper Pleistocene Fluvial Deposits of the Rio Grande (Post Santa Fe Group) and the
Geomorphic Development of the Rio Grande Valley, Northern Albuquerque Basin, North-Central New Mexico
S.D. Connell and D.W. Love
Preliminary Interpretation of Cenozoic Strata in the Tamara No. 1-Y Well, Sandoval County, North-Central New Mexico
S.D. Connell, D.J. Koning, and N.N. Derrick
Guide to the Geology of the Eastern Side of the Rio Grande Valley along Southbound I-25 from Rio Bravo
Boulevard to Bosque Farms, Bernalillo and Valencia Counties, New Mexico
D.W. Love, S.D. Connell, N. Dunbar, W.C. McIntosh, W.C. McKee, A.G. Mathis, P.B. Jackson-Paul, J. Sorrell,
and N. AbeitaL-89
Pliocene and Quaternary Stratigraphy, Soils, and Tectonic Geomorphology of the Northern Flank of the Sandia
Mountains, New Mexico: Implications for the Tectonic Evolution of the Albuquerque Basin
Reprinted with permission from NMGS Guidebook 50 (Pazzagila and Lucas, 1999)
S.D. Connell and W.G. WellsM
Discussion of New Gravity Maps for the Albuquerque Basin Area
Reprinted with permission from NMGS Guidebook 50 (Pazzagila and Lucas, 1999)
V.J.S. Grauch, C.L. Gillespie, and G.R. KellerN
Principal Features of High-Resolution Aeromagnetic Data Collected near Albuquerque, New Mexico
Reprinted with permission from NMGS Guidebook 50 (Pazzagila and Lucas, 1999)
V.J.S. Grauch