

Contents

INTRODUCTION

Relief Map of Field Conference Area	6
An Introduction from the State Geologist	7
What Are the Challenges?	8
A New Mexican Perspective on Water	10

DAY ONE

Stop 1. White Rock Canyon

Why Study Geology?	Paul W. Bauer	13
The Value of Geologic Mapping to Decision Makers in New Mexico	Paul W. Bauer	15
Geography and Land Use Status of the Los Alamos Area—A Brief Overview	Dennis Erickson	17
A Geologic Overview of the Pajarito Plateau and Vicinity	David E. Broxton	18
Conceptual Hydrogeologic Model of the Los Alamos Area—A Brief Overview	William J. Stone	21
Runoff, Erosion, and Restoration Studies in Piñon-Juniper Woodlands of the Pajarito Plateau	Craig D. Allen	24
The Buckman Well Field	Amy C. Lewis	27

Stop 2. Los Alamos Canyon

Fire and Vegetation History of the Jemez Mountains	Craig D. Allen	29
The Cerro Grande Fire, Santa Fe National Forest, May 2000	Kevin Joseph	34
Impacts of the Cerro Grande Fire on Santa Clara Pueblo	Alvin Warren	37
Watershed Management on the Pajarito Plateau: Past, Present, and Future	Ken Mullen, Kelly Bitner, and Kevin Buckley	39
New Mexico 20 Communities Initiative —Protecting Communities in the Wild Land/Urban Interface	New Mexico Energy, Minerals and Natural Resources Department, Forestry Division	41
The Potential for Rainfall-Triggered Debris Flows Following the Cerro Grande Fire	Susan H. Cannon	43

Stop 3. Pueblo Canyon

Cerro Grande Ash as a Source of Elevated Radionuclides and Metals	Danny Katzman, Randall Ryti, and Steven Reneau	45
Runoff Following the Cerro Grande Fire	Bruce Gallaher, Kenneth Mullen, and Michael Alexander	48
Ground-Water Monitoring Program at Los Alamos National Laboratory	Charles L. Nylander	50
The Role of Risk Assessment in Ground-Water Protection	Diana J. Hollis	52
Independent Analysis of Exposures and Risks to the Public from the Cerro Grande Fire	John Parker	54

Stop 4. Santa Clara Pueblo

Santa Clara Pueblo and the Cerro Grande Fire—Burned Area Emergency Rehabilitation Projects and Fire Restoration Program	Jerome Jenkins	57
Acequia Communities on the Upper Rio Grande: Acequia de Chamita Case	José A. Rivera	59
What Decision Makers Should Know About Collapsible Soils in New Mexico	David W. Love	61

Stop 5. Otowi Bridge

The Rio Grande Compact in New Mexico and the San Juan–Chama Project	New Mexico Interstate Stream Commission	63
The San Ildefonso Pueblo Collector Well Pilot Project	Jack Frost and Estevan Lopez	65

DAY TWO

Stop 1. Nichols Reservoir		
The Santa Fe Municipal Watershed—An Introduction	<i>Amy C. Lewis</i>	69
Stop 2. Santa Fe Watershed		
Fire and Vegetation Relationships on the Santa Fe National Forest—Potential for Impact to the Santa Fe Municipal Watershed	<i>Regis H. Cassidy</i>	71
The Potential for Crown Fire in the Santa Fe Watershed	<i>Regis H. Cassidy</i>	75
Analysis of Management Alternatives for the Santa Fe Municipal Watershed	<i>James T. McCord and John Winchester</i>	77
Stop 3. Santa Fe River		
What Decision Makers Should Know About Arroyos in New Mexico	<i>David W. Love and Allen Gellis</i>	81
The TMDL Program in New Mexico—An Example from the Santa Fe River	<i>James H. Davis</i>	84
Stop 4. Audubon Center		
A Brief History of Water Planning in New Mexico,	<i>John W. Shomaker</i>	86
Statewide Water Planning—A Progress Report.	<i>Mary Helen Follingstad</i>	88
Water Planning in the Jemez y Sangre Water Planning Region	<i>Amy C. Lewis</i>	91
Regional Water and Wastewater Services.	<i>John W. Utton</i>	94
Stop 5. Cochiti Dam Crest		
Past Volcanism in Northern New Mexico—Key to Understanding Potential Future Activity	<i>Nelia W. Dunbar</i>	95
The Volcanic Foundation of Cochiti Dam, Sandoval County, New Mexico	<i>Gary A. Smith</i>	97
A Study of Plutonium and Uranium in Cochiti Reservoir Sediments	<i>Bruce Gallaheer</i>	99
What Decision Makers Should Know About Earthquakes and their Associated Ground Shaking Hazard in New Mexico	<i>Ivan G. Wong and David W. Love</i>	100
Hydrologic History of the Middle Rio Grande Basin	<i>Dan Scurlock and Peggy S. Johnson</i>	103
Stop 6. Cochiti Dam Outlet		
Downstream Effects of Dams on the Middle Rio Grande	<i>Drew C. Baird</i>	106
Santa Ana River Rehabilitation Project along the Middle Rio Grande	<i>Drew C. Baird</i>	108
The Upper Rio Grande Water Operations Model—A Management Tool	<i>Dick Kreiner</i>	110
Probabilistic Water Budget for the Middle Rio Grande	<i>Deborah L. Hathaway</i>	113
Upper Rio Grande Basin Water Operations Review and Environmental Impact Statement.	<i>Norman Gaume</i>	117

DAY THREE

Stop 1. Angostura		
The Middle Rio Grande Conservancy District	<i>Subhas K. Shah and Sterling Grogan</i>	123
Pueblo Concerns in the Rio Grande Basin	<i>Herbert A. Becker</i>	126
Consequences of Endangered Species on Water Management in the Middle Rio Grande: Status, Challenges, Potential Solutions.	<i>Jim Wilber</i>	128
Source-to-Sea Protection for the Rio Grande: Strategic Concepts for Re-watering a Thirsty Basin	<i>Steve Harris</i>	129
The Value of Water in the Middle Rio Grande.	<i>F. Lee Brown</i>	132
Stop 2. Placitas		
Water Planning on a Local Development Scale—The Placitas Area Microcosm.	<i>Robert M. Wessely</i>	133
Sandoval County Subdivision Regulations—A Development Plan for the Placitas Area	<i>John T. Romero</i>	136
Ground-Water Administration in the Middle Rio Grande Basin, New Mexico	<i>Peggy Barroll</i>	138
Geology of the Northern Sandia Mountains and Albuquerque Basin, Placitas, and Bernalillo Area, Sandoval County, New Mexico	<i>Sean D. Connell</i>	140
Geologic Limitations on Ground-Water Availability in the Placitas Area, Sandoval County, New Mexico.	<i>Peggy S. Johnson</i>	144
The Challenge of Sustainable Ground-Water Development.	<i>Peggy S. Johnson</i>	147