Index to NMGS guidebook papers on hydrology and related topics--40 years of water-resource information

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Index to NMGS guidebook papers on hydrology and related topics—40 years of water-resource information

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Introduction

Government agencies are the major source of hydrologic information in New Mexico. Reports and files of the U.S. Geological Survey—Water Resources Division, the New Mexico State Engineer's Office, the New Mexico Environmental Improvement Division, and the New Mexico Bureau of Mines and Mineral Resources are most commonly used. The purpose of this paper is to call attention to and index an often overlooked supplementary source of water-resource information: the articles on hydrology and related topics in the New Mexico Geological Society (NMGS) field conference guidebooks (Table 1).

Although the NMGS was founded in 1947, the first field conference was not held until 1950 (Northrop, 1969). The Society has been holding field conferences annually ever since. For each conference a guidebook is prepared, containing road logs, papers, photos, and maps on features of interest (geologic and otherwise) in the topic area. This has resulted in 40 guidebooks to date.

These guidebooks have become an invaluable source of information on the geology and mineral resources of New Mexico. However, it is less well known that they are also an excellent source of hydrologic information. C. V. Theis (of the Theis equation) was one of the founders of the society (Northrop, 1969) and hydrologists have always been active in the society. In fact, the guidebooks contain not only the latest but often the only published water-resource information about the area (for example, papers no. 59 and 60 in Table 2).

Previous indexing

The only specific effort to index NMGS guidebook articles for any purpose is that by Ash (1964). He covered the period 1950–1963 or guidebooks 1–14. His index includes an alphabetical list of all articles, notes, and abstracts appearing in guidebooks through 1963, an index by topic (including ground water), and a map of field-conference routes to that time.

Various bibliographies also cover NMGS articles. For example, most bibliographies of New Mexico geology prepared by the Bureau (Schilling and Schilling, 1956, 1961; Ray, 1966; Koehn and Koehn, 1973; Wright and Russell, 1977; Heljeson and Holts, 1981; Adkins–Heljeson and Holts, 1984; Love and others, 1987; Hjellming and others, 1988) include NMGS guidebook papers. So do bibliographies of ground-water studies compiled by the State Engineer's Office (Borton, 1972, 1978, 1980, 1983). The Water Resources Research Institute's bibliography on the Pecos River basin (Hernandez and Eaton, 1964) makes reference to NMGS guidebook 5. Bibliographies on geology and hydrology of selected areas of New Mexico, prepared by the USGS, also cite NMGS guidebook articles (for example, Wright, 1978, 1979a, b, 1980; Abeyta and Delaney, 1986).

TABLE 1—Distribution of NMGS water papers by guidebook.

Guidebook	Year	Area	No. of papers
1	1950	San Juan Basin	0
2	1951	San Juan Basin	1
3	1952	Rio Grande/Central NM	0
4	1953	Southwestern NM	0
5	1954	Southeastern NM	0
6	1955	South-central NM	1
7	1956	SE Sangre de Cristo Mountains	0
8	1957	SW San Juan Mountains	0
9	1958	Black Mesa Basin	1
10	1959	West-central NM	0
11	1960	Rio Chama	0
12	1961	Albuquerque	1
13	1962	Mogollon Rim	0
14	1963	Socorro	3
15	1964	Ruidoso	2
16	1965	Southwestern NM	1
17	1966	Taos–Raton–Spanish Peaks	1
18	1967	Defiance–Zuni–Mt. Taylor	2
19	1968	San Juan–San Miguel–La Plata	0
20	1969	Mexican Border	1
21	1970	Tyrone–Big Hatchet–Florida Mountains	1
22	1971	San Luis Basin	1
23	1972	East-central NM	2
24	1973	Monument Valley, AZ, UT, NM	0
25	1974	Ghost Ranch	3
26	1975	Las Cruces	5
27	1976	Vermejo Park	0
28	1977	San Juan Basin	2
29	1978	Southeastern AZ	3
30	1979	Santa Fe	3
31	1980	Trans-Pecos TX	2
32	1981	Western CO	0
33	1982	Albuquerque	4
34	1983	Socorro	6
35	1984	Rio Grande/Northern NM	5
36	1985	Santa Rosa–Tucumcari	3
37	1986	Truth or Consequences	1
38	1987	Northeastern NM	5
39	1988	Southwestern NM	2
40	1989	Southeastern Colorado Plateau	2

Distribution of papers

Different workers would no doubt select different bases for indexing. However, the four specific approaches used herein serve both chronologic and site-specific functions. It should be noted that this index does not include abstracts of technical papers presented at NMGS annual meetings that have sometimes been reprinted in guidebooks.

Distribution by guidebook

Table 1 gives simply the number of hydrology papers appearing in each guidebook, without reference to topic. It shows the general importance of hydrologic information through time and the availability of or interest in such information by area. More specifically, Table 1 shows there are more papers (64) than guidebooks (40). A number of guidebooks (13) lack any water paper. On the other hand, many guidebooks contain several; number 34 surpasses all others with 6 papers. Also, there has been a more or less steady increase with time in the number of water papers in a guidebook. Conferences that produced higher numbers of water papers seem to be those on areas in which there is either a university specializing in hydrology (Socorro) or a potential for geothermal resources (Las Cruces).

Table 2 is a complete list of papers arranged in order of appearance. It also assigns a reference number to each article that is used to identify papers in later tables.

TABLE 2—Complete list of NMGS water papers, in order of appearance. Reference numbers assigned here identify papers in subsequent tables.

No.	Reference
1.	Halpenny, L. C., 1951, Preliminary report on the groundwater resources of the Navajo and Hopi Indian Reservations, Arizona, New Mexico, and Utah: New Mexico Geological Society, Guidebook to 2nd Field Conference, pp. 147–154.
2.	Conover, C. S., Herrick, E. H., Wood, J. W., and Weir, J. E., Jr., 1955, The occurrence of ground-water in south-central New Mexico: New Mexico Geological Society, Guidebook to 6th Field Conference, pp. 108–120.
3.	Phoenix, D. A., 1958, Sandstone cylinders as possible guides to paleomovement of ground-water: New Mexico Geological Society, Guidebook to 9th Field Conference, pp. 194–196.
4.	Titus, F. B., Jr., 1961, Groundwater geology of the Rio Grande trough in north-central New Mexico, with sections on the Jemez caldera and the Lucero uplift: New Mexico Geological Society, Guidebook to 12th Field Conference, pp. 186–192.
5.	Hall, F. R., 1963, Springs in the vicinity of Socorro, New Mexico: New Mexico Geological Society, Guidebook to 14th Field Conference, pp. 160–178.
6.	Bushman, F. X., 1963, Ground-water in the Socorro Valley: New Mexico Geological Society, Guidebook to 14th Field Conference, pp. 155–159.
7.	Holmes, C. R., 1963, Tritium studies, Socorro springs: New Mexico Geological Society, Guidebook to 14th Field Conference, pp. 152–154.
8.	Cooper, J. B., 1964, Water supplies near Carrizozo, New Mexico: New Mexico Geological Society, Guidebook to 15th Field Conference, pp. 159–160.
9.	Hall, F. R., 1964, Chemistry of water of a section of the eastern flank of the Sacramento Mountains, Lincoln and Otero Counties, New Mexico: New Mexico Geological Society, Guidebook to 15th Field Conference, pp. 161–170.
10.	Trauger, F. D., and Doty, G. C., 1965, Ground water—its occurrence and relation to the economy and geology of southwestern New Mexico: New Mexico Geological Society, Guidebook to 16th Field Conference, pp. 215–227.
11.	Dinwiddie, G. A., and Cooper, J. B., 1966, Water-bearing characteristics of the rocks of eastern Colfax and western Union Counties, New Mexico: New Mexico Geological Society, Guidebook to 17th Field Conference, pp. 76–79.
12.	Edmonds, R. J., 1967, Ground water in the Window Rock–Lukachukai area, Navajo Indian Reservation, Arizona and New Mexico: New Mexico Geological Society, Guidebook to 18th Field Conference, pp. 86–91.
13.	Cooper, J. B., and West, S. W., 1967, Principal aquifers and uses of water between Laguna Pueblo and Gallup, Valencia and McKinley Counties, New Mexico: New Mexico Geological Society, Guidebook to 18th Field Conference, pp. 145–149.
14.	Cliett, T., 1969, Groundwater occurrence of the El Paso area and its related geology: New Mexico Geological Society, Guidebook to 20th Field Conference, pp. 209–214.
15.	Anonymous, 1970, Groundwater in southwestern New Mexico: New Mexico Geological Society, Guidebook to 21st Field Conference, pp. 155–156.
16.	Emery, P. A., 1971, Water resources of the San Luis Valley, Colorado: New Mexico Geological Society, Guidebook to 22nd Field Conference, pp. 129–132.
17.	Trauger, F. D., 1972, Groundwater in east-central New Mexico: New Mexico Geological Society, Guidebook to 23rd Field Conference, pp. 201–207.
18.	Kunkler, J. L., 1972, Saline groundwater in east-central New Mexico: New Mexico Geological Society, Guidebook to 23rd Field Conference, pp. 208–209.
19.	Trainer, F. W., 1974, Groundwater in the southwestern part of the Jemez Mountains volcanic region, New Mexico: New Mexico Geological Society, Guidebook to 25th Field Conference, pp. 337–345.
20.	Purtymun, W. D., and Johansen, S., 1974, General geohydrology of the Pajarito Plateau: New Mexico Geological Society, Guidebook to 25th Field Conference, pp. 347–349.
21.	Borton, R. L., 1974, General geology and ground water conditions in the Truchas–Espanola–Velarde area of Rio Arriba County, New Mexico: New Mexico Geological Society, Guidebook to 25th Field Conference, pp. 351–354.
22.	King, W. E., and Hawley, J. W., 1975, Geology and groundwater resources of the Las Cruces area, New Mexico: New Mexico Geological Society, Guidebook to 26th Field Conference, pp. 195–204.
23.	Stone, W. J., and Brown, D. R., 1975, Rainfall-runoff relationships for a small semiarid watershed, western flank San Andres Mountains: New Mexico Geological Society, Guidebook to 26th Field Conference, pp. 205–212.
24.	Trainer, F. W., 1975, Mixing of thermal and nonthermal waters in the margin of the Rio Grande Rift, Jemez Mountains, New Mexico: New Mexico Geological Society, Guidebook to 26th Field Conference, pp. 213–218.
25.	Hiss, W. L., Trainer, F. W., Black, B. A., and Posson, D. R., 1975, Chemical quality of groundwater in the northern part of the Albuquerque–Belen Basin, Bernalillo and Sandoval Counties, New Mexico: New Mexico Geological Society, Guidebook to 26th Field Conference, pp. 219–235.
26.	McLean, J. S., 1975, Saline ground water in the Tularosa Basin, New Mexico: New Mexico Geological Society, Guidebook to 26th Field Conference, pp. 237–238.
27.	Hiss, W. L., 1977, Uranium mine waste water—a potential source of groundwater in northwestern New Mexico: New Mexico Geological Society, Supplement to Guidebook to 28th Field Conference, pp. 49–53 (microfiche included with guidebook).
28.	Kelly, T. E., 1977, Geohydrology of the Westwater Canyon Member, Morrison Formation, of the southern San Juan Basin, New Mexico: New Mexico Geological Society, Guidebook to 28th Field Conference, pp. 285–290.
29.	Fleischhauer, H. L., Jr., 1978, Summary of the late Quaternary geology of Lake Animas, Hidalgo County, New Mexico: New Mexico Geological Society, Guidebook to 29th Field Conference, pp. 283–284.
30.	Smith, C., 1978, Geophysics, geology, and geothermal leasing status of the Lightning Dock KGRA, Animas Valley, New Mexico: New Mexico Geological Society, Guidebook to 29th Field Conference, pp. 343–348.
31.	Swanberg, C. A., 1978, Chemistry, origin and potential of geothermal resources in southwestern New Mexico and southeastern Arizona: New Mexico Geological Society, Guidebook to 29th Field Conference, pp. 349–351.
32.	Wilson, L., and Jenkins, D. N., 1979, Ground-water resources of Santa Fe County, New Mexico: New Mexico Geological Society, Guidebook to 30th Field Conference, pp. 293–298.

Continued on p. 10

TABLE 2—*Continued from p. 9*

No.	Reference
33.	Trainer, F. W., and Lyford, F. P., 1979, Geothermal hydrology in the Rio Grande rift, north-central New Mexico: New Mexico Geological Society, Guidebook to 30th Field Conference, pp. 299–306.
34.	Borton, R. L., 1979, Bibliography of studies dealing with ground water in Santa Fe County, 1886–1979: New Mexico Geological Society, Guidebook to 30th Field Conference, pp. 307–309.
35.	Goetz, L. K., 1980, Giant desiccation polygons in Wildhorse Flat, West Texas: New Mexico Geological Society, Guidebook to 31st Field Conference, pp. 285–287.
36.	Hiss, W. L., 1980, Movement of ground water in Permian Guadalupian aquifer systems, southeastern New Mexico and western Texas: New Mexico Geological Society, Guidebook to 31st Field Conference, pp. 289–294.
37.	Kelly, T. E., 1982, History of water use in the greater Albuquerque area: New Mexico Geological Society, Guidebook to 33rd Field Conference, pp. 351–355.
38.	McQuillan, D. M., 1982, Pollution of the Rio Grande valley-fill aquifer: New Mexico Geological Society, Guidebook to 33rd Field Conference, pp. 357–360.
39.	Jenkins, D. N., 1982, Geohydrology of the Madera Group, western Estancia Basin, New Mexico: New Mexico Geological Society, Guidebook to 33rd Field Conference, pp. 361–366.
40.	Longmire, P. A., and Brookins, D. G., 1982, Geochemical studies of discharge water from a uranium acid-leach process: New Mexico Geological Society, Guidebook to 33rd Field Conference, pp. 367–370.
41.	Neal, J. T., Smith, R. E., and Jones, B. F., 1983, Pleistocene Lake Trinity, an evaporite basin in the northern Jornada del Muerto, New Mexico: New Mexico Geological Society, Guidebook to 34th Field Conference, pp. 285–290.
42.	Anderholm, S. K., 1983, Hydrogeology of the Socorro and La Jencia Basins, Socorro County, New Mexico: New Mexico Geological Society, Guidebook to 34th Field Conference, pp. 303–310.
43.	Gross, G. W., and Wilcox, R., 1983, Groundwater circulation in the Socorro geothermal area: New Mexico Geological Society, Guidebook to 34th Field Conference, pp. 311–318.
44.	Jiracek, G. R., 1983, Hydrological investigations near Socorro, New Mexico using electrical resistivity: New Mexico Geological Society, Guidebook to 34th Field Conference, pp. 319–324.
45.	Simcox, A. C., 1983, The Rio Salado at flood: New Mexico Geological Society, Guidebook to 34th Field Conference, pp. 325–327.
46.	Heath, D. L., 1983, Flood and recharge relationships of the lower Rio Puerco, New Mexico: New Mexico Geological Society, Guidebook to 34th Field Conference, pp. 329–337.
47.	Coons, L. M., and Kelly, T. E., 1984, Regional hydrogeology and the effects of structural control on the flow of ground water in the Rio Grande trough, northern New Mexico: New Mexico Geological Society, Guidebook to 35th Field Conference, pp. 241–244.
48.	Summers, W. K., and Hargis, L. L., 1984, Hydrogeologic cross section through Sunshine Valley, Taos County, New Mexico: New Mexico Geological Society, Guidebook to 35th Field Conference, pp. 245–248.
49.	Trainer, F. W., 1984, Thermal mineral springs in Cañon de San Diego as a window into Valles caldera, New Mexico: New Mexico Geological Society, Guidebook to 35th Field Conference, pp. 249–255.
50.	White, A. F., Delany, J. M., Truesdell, A., Janik, K., Goff, F., and Crecraft, H., 1984, Fluid chemistry of the Baca geothermal field, Valles caldera, New Mexico: New Mexico Geological Society, Guidebook to 35th Field Conference, pp. 257–263.
51.	Grigsby, C. O., Goff, F., Trujillo, P. E., Counce, D. A., 1984, Geochemical behavior of a hot dry rock geothermal reservoir: New Mexico Geological Society, Guidebook to 35th Field Conference, pp. 265–270.
52.	Lazarus, J., 1985, Fracture-controlled ground-water distribution adjacent to Los Esteros Reservoir, Guadalupe County, New Mexico: New Mexico Geological Society, Guidebook to 36th Field Conference, pp. 325–329.
53.	Stone, W. J., and McGurk, B. E., 1985, Groundwater recharge on the Southern High Plains, east-central New Mexico: New Mexico Geological Society, Guidebook to 36th Field Conference, pp. 331–335.
54.	Graham, R. L., 1985, Engineering geology at two Canadian River dam sites: New Mexico Geological Society, Guidebook to 36th Field Conference, pp. 337–339.
55.	Rao, B. K., 1986, Ground-water resources in the Carrizozo area, New Mexico: New Mexico Geological Society, Guidebook to 37th Field Conference, pp. 315–317.
56.	Kilmer, L. C., 1987, Water-bearing characteristics of geologic formations in northeastern New Mexico–southeastern Colorado: New Mexico Geological Society, Guidebook to 38th Field Conference, pp. 275–279.
57.	Trauger, F. D., 1987, Climate of northeastern New Mexico: New Mexico Geological Society, Guidebook to 38th Field Conference, pp. 281–283.
58.	Trauger, F. D., and Kelly, T. E., 1987, Water resources of the Capulin topographic basin, Colfax and Union Counties, New Mexico: New Mexico Geological Society, Guidebook to 38th Field Conference, pp. 285–293.
59.	Trauger, F. D., and Churan, K. R., 1987, Geohydrology of the Roy–Solano area, Harding County, New Mexico: New Mexico Geological Society, Guidebook to 38th Field Conference, pp. 295–315.
60.	Kelly, H. T., 1987, Hydrologic coefficients for the Ogallala aquifer in the vicinity of Roy, Harding County, New Mexico: New Mexico Geological Society, Guidebook to 38th Field Conference, pp. 317–231.
61.	Witcher, J. C., 1988, Geothermal resources of southwestern New Mexico and southeastern Arizona: New Mexico Geological Society, Guidebook to 39th Field Conference, pp. 191–197.
62.	Persico, J. L., and Brookins, D. G., 1988, Selenium geochemistry at Bosque del Apache National Wildlife Refuge: New Mexico Geological Society, Guidebook to 39th Field Conference, pp. 211–216.
63.	White, W. D., and Kelly, T. E., 1989, The San Andres–Glorieta aquifer in west-central New Mexico: New Mexico Geological Society, Guidebook to 40th Field Conference, pp. 331–335.
64.	White, W. D., 1989, Geohydrologic and environmental indicators of a dewatered wetland—Ojo del Gallo, San Rafael, New Mexico: New Mexico Geological Society, Guidebook to 40th Field Conference, pp. 337–345.

Distribution by author

A table that groups papers by author is useful in helping readers locate a reference when an author is known but the title is uncertain. Table 3 is an alphabetical list of author's names, followed by the reference numbers of their papers as cited in Table 2. As might be expected, long-term society members or conference attendees have written the most papers (3–5 each).

TABLE 3—Distribution of NMGS water papers by author. Numbers listed refer to those assigned in Table 2.

Anderholm, 42	
Anonymous, 15	
Borton, 21, 34	
Bushman, 6	
Cliett, 14	
Conover, Herrick, Wood, and Weir, 2	
Coons and Kelly, 47	
Cooper, 8	
Cooper and West, 13	
Dinwiddie and Cooper, 11	
Edmonds, 12	
Emery, 16	
Fleischhauer, 29	
Goetz, 35	
Graham, 54	
Grigsby, Goff, Trujillo, and Counce, 51	
Gross and Wilcox, 43	
Hall, 5, 9	
Halpenny, 1	
Heath, 46	
Hiss, 27, 36	
Hiss, Trainer, Black, and Posson, 25	
Holmes, 7	
Jenkins, 39	
Jiracek, 44	
Kelly, H. T., 60	
Kelly, T. E., 28, 37	
Kilmer, 56	
King and Hawley, 22	
Kunkler, 18	
Lazarus, 52	
Longmire and Brookins, 40	
McLean, 26	
McQuillan, 38	
Neal, Smith, and Jones, 41	
Persico and Brookins, 62	
Phoenix, 3	
Purtymun and Johansen, 20	
Rao, 55	
Simcox, 45	
Smith, 30	
Stone and Brown, 23	
Stone and McGurk, 53	
Summers and Hargis, 48	
Swanberg, 31	
Titus, 4	
Trainer, 19, 24, 49	
Trainer and Lyford, 33	
Trauger, 17, 57	
Trauger and Churan, 59	
Trauger and Doty, 10	
Trauger and Kelly, 58	
White, 64	
White, Delany, Truesdell, Janik, Goff, and Crecraft, 50	
White and Kelly, 63	
Wilson and Jenkins, 32	
Witcher, 61	

Distribution by location

Figure 1 shows the location of study areas covered by the articles in Table 2. The maps provide approximate or general locations of study areas covered by the papers. Where study areas were not bounded by county lines, plotting locations was difficult, especially at this scale. Of the authors who didn't provide a map, most at least described general bounds of their study area. A few unfortunately did neither, so locations are only approximate. In all cases, the paper itself should be consulted to determine areal coverage.

Distribution by quadrants in New Mexico and by adjacent states is given in Table 4. Although some papers cover parts of more than one quadrant, no repetition is shown. In such cases, papers were indexed according to the quadrant in which most of the study area lies. Papers are fairly evenly divided among the southwest (19), northeast (18) and northwest (17) quadrants; the southeast is represented by the fewest papers (6). Three adjacent states are represented by 1 or 2 papers each; however, Utah, Oklahoma, and Chihuahua (Mexico) are not covered in any papers.

Table 5 lists the hydrology papers by county. In this table there is repetition, and papers are listed for all counties covered, even if only in part. Of the 33 counties in the state, only Chaves and Mora are not covered in a single guidebook hydrology paper. Eddy, Lea, and Roosevelt Counties are each represented by just one paper. All others are covered by two or more papers and some have many more: 14 for Socorro and 13 for Sandoval.

It should be noted that the guidebook papers do not always cover the area targeted by the field conference (for example, reference nos. 24, 25, and 55). Thus, Table 5 is more useful than Table 1 in locating information on a specific area.

TABLE 4—Distribution of NMGS water papers by location. Quadrants are as delineated on Figure 1. Numbers listed refer to those assigned in Table 2.

New Mexico				Adjacent states		
NW	NE	SW	SE	AZ	CO	TX
1	11	2	8	3	16	14
4	17	5	9	12		35
13	18	6	26			
19	20	7	36			
24	21	10	55			
25	32	15				
27	34	22				
28	39	23				
33	47	29				
37	48	30				
38	52	31				
40	53	41				
49	54	42				
50	56	43				
51	57	44				
63	58	45				
64	59	46				
	60	61				
		62				

TABLE 5—Distribution of NMGS water papers by New Mexico County. Numbers listed refer to those assigned in Table 2. Numbers not listed refer to areas outside New Mexico.

County	Reference No.	Total no.
Bernalillo	4, 25, 27, 33, 37, 38, 39, 46, 63	9
Catron	61, 63	2
Chaves		0
Cibola	13, 27, 28, 40, 46, 63, 64	7
Colfax	11, 56, 57, 58	4
Curry	17, 53	2
De Baca	17, 18	2
Doña Ana	2, 10, 22, 23, 24, 26, 31, 61	8
Eddy	36	1
Grant	10, 15, 31, 61	4
Guadalupe	17, 18, 52, 56	4
Harding	17, 56, 57, 59, 60	5
Hidalgo	10, 15, 29, 30, 31, 61	6
Lea	36	1
Lincoln	2, 8, 9, 26, 55	5
Los Alamos	20, 24	2
Luna	2, 10, 15, 31, 61	5
McKinley	1, 12, 13, 27, 28, 63	6
Mora		0
Otero	2, 9, 26, 31	4
Quay	17, 18, 53, 54	4
Rio Arriba	20, 21, 24, 28, 47	5
Roosevelt	17	1
Sandoval	4, 19, 20, 24, 25, 27, 28, 33, 46, 49, 50, 51, 63	13
San Juan	1, 12, 27, 28, 63	5
San Miguel	17, 18, 54	3
Santa Fe	4, 20, 32, 34, 39	5
Sierra	2, 10, 15, 24, 31, 41, 61	7
Socorro	2, 5, 6, 7, 24, 41, 42, 43, 44, 45, 46, 61, 62, 63	14
Taos	24, 33, 47, 48	4
Torrance	17, 18, 39, 63	4
Union	11, 56, 57, 58	4
Valencia	4, 46, 63	3

Distribution by topic

Table 6 shows the distribution of guidebook hydrology papers by subject. Topics chosen include hydrogeology/ground-water resources, geothermal resources, hydrochemistry, surface water, paleohydrology, and other. "Other" covers miscellaneous related topics as indicated on Table 6. Indexing was based on the main focus of the article, so there is no repetition. Nonetheless, most papers give more than one type of information.

As might be expected, more than half the papers (33) deal with hydrogeology/ground-water resources. The remainder are unevenly divided among the geothermal resources (11), hydrochemistry (6), surface water (3), paleohydrology (3), and other (8) categories.

Using the index

Cross checking the various tables presented should show what is available for the area or topic of interest. For example, Table 1 shows nothing is available for the Mogollon Rim region. Table 2 gives specific titles for all papers and Table 3 lists papers by author.

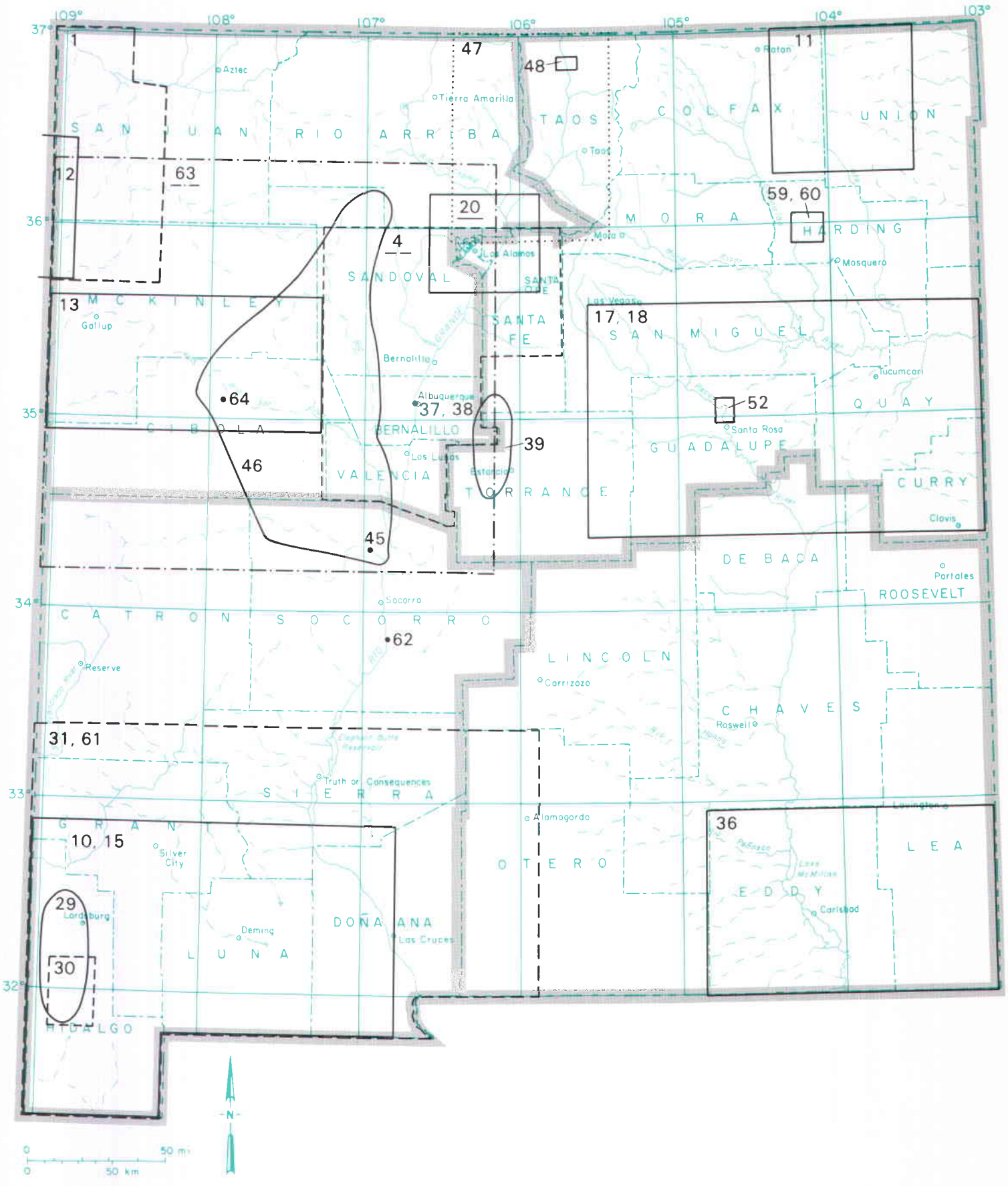

FIGURE 1—Location of study areas covered by the NMGS water papers. Numbers listed refer to those assigned in Table 2.

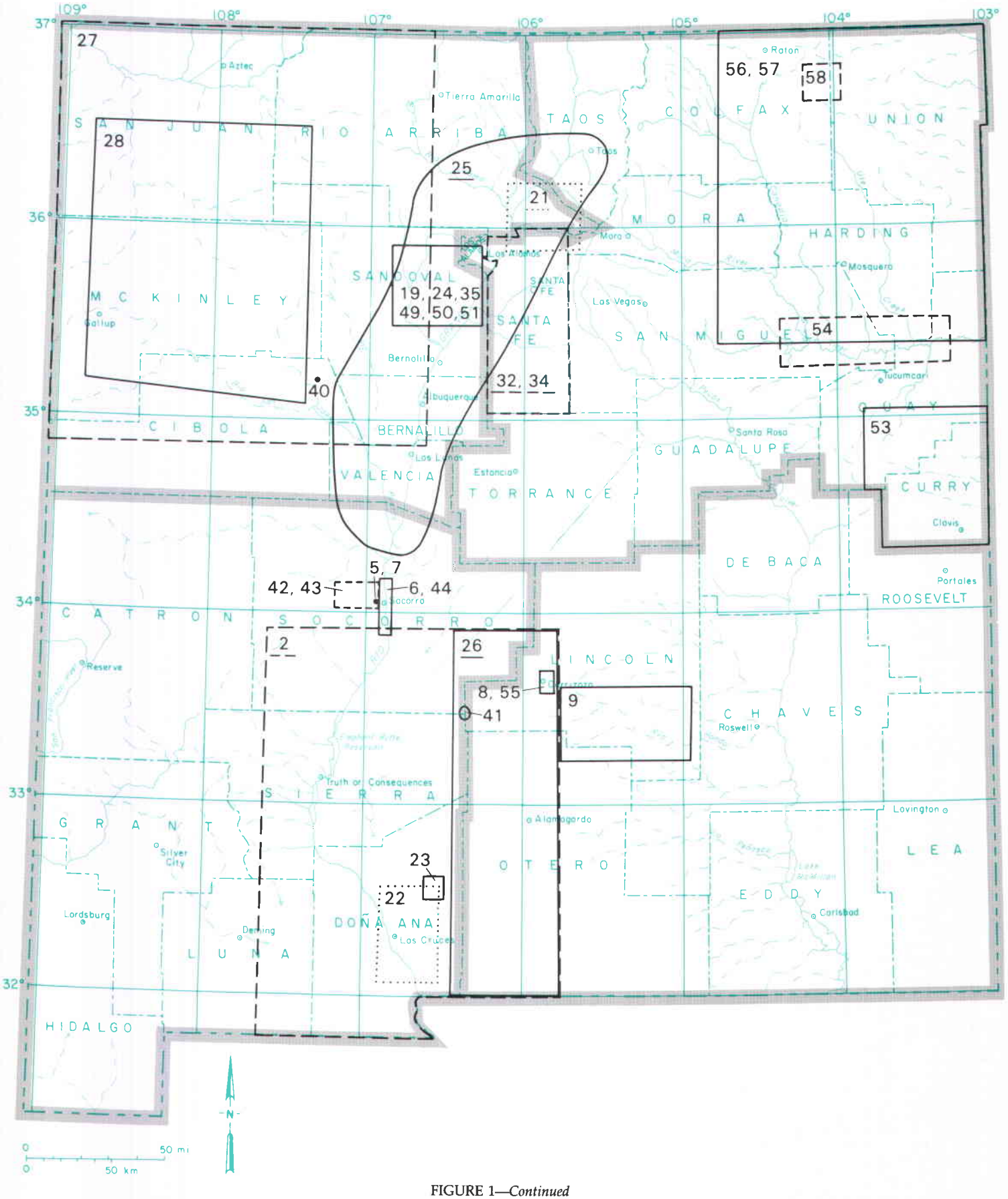

FIGURE 1—*Continued*

TABLE 6—Distribution of NMGS water papers by subject. Numbers listed refer to those assigned in Table 2.

Hydrogeology/ Ground-water resources			Geothermal resources	Hydro-chemistry	Surface water	Paleo-hydrology	Other
1	16	42	5	7	23	3	27 mine water
2	17	47	19	9	45	29	34 bibliography
4	18	48	24	25	46	41	35 desiccation
6	20	52	30	38			37 history
8	21	55	31	40			44 geophysics
10	22	56	33	62			53 recharge
11	26	58	43				54 engineering
12	28	59	49				57 climate
13	32	60	50				
14	36	63	51				
15	39	64	61				

Table 4 shows that the southeastern part of the state has received the least attention from NMGS authors. Table 5 shows that two papers cover Catron County, whereas Table 6 shows that one deals with geothermal resources and the other with hydrogeology/ ground-water resources. Similarly, these two tables can be used to show that no guidebook papers provide geothermal-resource information for Valencia County.

In conclusion, NMGS guidebook articles cover a wide range of localities and hydrologic topics. They are not only a useful supplement to conventional sources of information on water resources but often the sole source. It is hoped that this index will lead to increased recognition and use of this valuable resource spanning 40 years and still going strong.

ACKNOWLEDGMENTS—The paper benefited from comments by Jane Love. Lynne McNeil typed the manuscript and Rebecca Titus drafted the maps.

EDITOR'S NOTE—This index will be available free of charge as a pamphlet from the NMBMMR Publications Office, Socorro, NM.

References

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Adkins–Heljeson, D. M., and Holts, C. L., 1984, Bibliography of New Mexico geology and mineral technology 1976–1980: New Mexico Bureau of Mines and Mineral Resources, Bulletin 109, 173 pp.

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Tommy Lee Finnell
1923–1989

Tommy Finnell joined the U.S. Geological Survey in 1951 after receiving his M.A. in geology from the University of Wyoming that same year. From 1951 to 1971 he was involved both in the study of uranium deposits on the Colorado Plateau and in Wyoming and in areal mapping along the southern margin of the Colorado Plateau in Arizona, including a mineral-resource appraisal of the Mount Baldy Primitive Area. During this period he was temporarily assigned to the Kentucky–USGS Cooperative Mapping Project, for which he mapped the Manchester 7½′ quadrangle in the eastern Kentucky coal fields.

From 1971 to 1989 Tommy's geologic activities were concentrated in southwestern New Mexico, where he mapped the Twin Sisters, Reading Mountain, and Dorsey Ranch 7½′ quadrangles and the Cliff 15′ quadrangle as part of the Silver City 1° × 2° CUSMAP project. After temporary assignment as a team leader on the Environmental Impact Statement of an extensive coal-bearing region in west-central North Dakota (1976–1977), Tommy returned to geologic mapping in southwestern New Mexico. At the time of his death, after a lengthy illness, he had almost completed mapping of seven 7½′ quadrangles in the Luna–Aragon region on the northwestern margin of the Mogollon–Datil volcanic field. These maps are now in various stages of compilation and review.

Tommy will be remembered by his many friends for his well-prepared geologic maps and also for his gentle, dry humor. A storehouse of information on the geology of the Mogollon–Datil region of New Mexico and Arizona, he was always available for discussion of geologic problems. Tommy had an abiding interest in all aspects of the natural history and culture, as well as the geology, of the areas in which he worked.

—James C. Ratté

New Mexico Geological Society
Spring Meeting

The New Mexico Geological Society will hold its annual spring meeting on Friday, April 6, 1990 in Macey Center at the New Mexico Institute of Mining and Technology, Socorro, New Mexico. This meeting promotes the dissemination of results of recent research on the geology of New Mexico or adjacent areas. Sessions cover geophysics, petrology, structural geology, stratigraphy, sedimentology, paleontology, geochemistry, economic geology, hydrology, and environmental geology. Registration materials are available from Neil H. Whitehead, III, New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico 87801, (505) 835–5752.