Service/News

Only starred items (*) are available from New Mexico Bureau of Mines & Mineral Resources

New publications

NMBMMR

***Circular 202**—Geochemistry of micas from Precambrian rocks of northern New Mexico, by J. L. Post and G. S. Austin, 1993, 20 pp. $2.50

Average concentrations of 10 minor elements were determined for 53 mica samples from eight mining districts, areas, and isolated mines in northern New Mexico. Minor-element composition of muscovites from the entire Petaca mining district is uniform, suggesting that all pegmatites in that district formed metasomatically during regional metamorphism. In five of the remaining seven areas muscovite composition is similar, hinting of similar emplacement. The exception is the Harding pegmatite, which appears to have formed by a syntectonic emplacement. Differing minor-element concentrations among the eight areas suggest that the sources were not interconnected. Minor-element geochemistry of micas may be useful in the study of the origin and sources of pegmatites.

***Bulletin 141**—Quality assessment of strippable coals in northwestern New Mexico: Fruitland, Menefee, and Crevasse Canyon Formation coals in San Juan Basin, and Moreno Hill Formation coals in Salt Lake field, by G. K. Hoffman, F. W. Campbell, and E. C. Beaumont, 1993, 84 pp. $12.00

During three years of drilling and sampling in the San Juan Basin, 524 coal core samples were collected from 149 drill sites located on approximate 2 mi centers in the Fruitland, Menefee, Crevasse Canyon, and Moreno Hill Formations. Significant aspects of chemical, quality, coal rank, thickness trends, stratigraphic-depositional features, and petrographic composition are presented in this report. The Fruitland coals tend to be the most economically viable because of their thickness, relative continuity, and overall quality, albeit having a high ash yield. The Menefee Formation coals do not have the same degree of bed continuity or thickness as the Fruitland coals, but the ash yield is lower and the rank is equivalent to that of the Fruitland coals in the Bisti and Star Lake fields. Of the Menefee Formation coal fields investigated, the San Mateo field has the best economic potential because of the thickness of the coals and the low sulfur and ash values. The Cleary–Gibson coals in the Gallup area have the greatest economic potential of the Crevasse Canyon fields examined. This coal-bearing sequence has both multiple coal beds and relatively thick coals. The Cleary–Gibson coals also have low ash and sulfur values, which enhance their economic potential. Of the remaining fields drilled, the upper coal member Menefee coals in the La Ventana field and the Crevasse Canyon coals in parts of the Crownpoint field may have economic potential. The La Ventana upper member coals are relatively thick and have a low ash yield. In the Crownpoint field the coals are thickest in the area northwest of the town of Crownpoint and near Borrego Pass.

***Geologic Map 68**—Geology of Lion Mountain and northern Arrowhead Well quadrangles, Socorro County, New Mexico, by G. R. Osburn, T. M. Laroche, and R. H. Weber, 1993, 11 pp. text, 1 sheet, scale 1:24,000 $5.00

The area covered on this map lies north of NM–60, almost midway between Magdalena and Datil. Physiographically it occupies the slope between the Gallinas Mountains to the east and the White Lake section of the Plains of San Agustin to the west. All rocks exposed within the map area are Tertiary volcanic or volcaniclastic rocks. Most of the volcanic rocks are regional ash-flow tuffs and lava flows from local vent areas. Eolian sand from the Pleistocene lake beds mantles extensive lacustrine, basin, and piedmont-slope deposits. Twenty lithologic units are mapped and described on the sheet, and relict shorelines of Lake San Agustin, identified in the southwest half of the area, are plotted in blue. Two cross sections illustrate regional structure. An 11-pp. text describes in detail each map unit, structural features in and around the study area, evidence of mineralization, and unusual wind-scoured rocks near the summit of Lion Mountain.

USGS

WATER-RESOURCES INVESTIGATIONS

WRI–90–4065—Isostatic residual gravity anomalies of New Mexico, by C. E. Heywood, 1992, 27 pp. $11.50

Other publications

Andreason, M. W. 1992, Coastal siliciclastic sabkas and related evaporative environments of the Permian Yates Formation, North Ward–Estes field, Ward County, Texas; AAPG Bulletin, v. 76, no. 11, pp. 1735–1759.

Beckstrom, J. A., and Boyer, D. G., 1993, Aquifer-protection considerations of coalbed methane development in the San Juan Basin: SPE Formation Evaluation, v. 8, no. 1, pp. 71–79.

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Benton, M. J., 1993, Late Triassic extinctions and the origin of the dinosaurs: Science, v. 260, no. 5109, pp. 769–770.

Drew, L. J., and Root, D. H., 1993, The evolution and use of discovery process models at the U.S. Geological Survey: AAPG Bulletin, V. 77, no. 3, pp. 467–478.

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Masters, C. D., 1993, U.S. Geological Survey petroleum resource assessment procedures: AAPG Bulletin, v. 77. no. 3, pp. 452–453. Adviser, special edition, 1992: U.S. Bureau of Land Management, 1992, 30 pp.

Rogers, R. R., Swisher, C. C., III, Sereno, P. C., Monetta, A. M., Forster, C. F., and Martinez, R. N., 1993, The Ischigualasto Tetrapod assemblage (Late Triassic, Argentina) and $^{40}Ar/^{39}Ar$ dating of dinosaur origins: Science, v. 260, no. 5109, pp. 794–797.

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Taylor, M. R., 1992, Lechuguilla—jewel of the underground: U. F. Windmer, publisher, 144 pp.

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Woo, K–S., Anderson, T. F., and Sandberg, P. A., 1993, Diagenesis of skeletal and nonskeletal components of Mid–Cretaceous Limestones: Journal of Sedimentary Petrology, v. 63, no. 1, pp. 18–32.

Zolensky, M. E., Rendell, H. M., Wilson, I., and Wells, G. L., 1992, The age of the meteorite recovery surfaces of Roosevelt County, New Mexico, USA: Meteoritics, v. 27, pp. 460–462.

Open-file reports

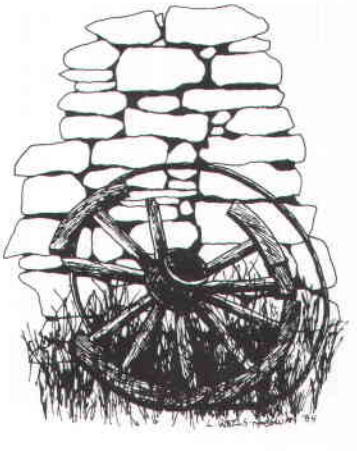
NMBMMR

***393**—Mobility of heavy metals in soils and tailings at the Hanover and Bullfrog Tailing sites, Silver City, New Mexico, by T. G. Baker, 1993, 127 pp. $25.40

***394**—The geology, leasing, and production history of the King Tutt Point Uranium–Vanadium mines, San Juan County, New Mexico, W. L. Chenoweth, 1993, 23 pp. $4.60

USGS

88–544—Vibration investigation of the museum building at White Sands National Monument, New Mexico, by K. W. King, D. L. Carver, and D. M. Worley, 1988, 19 pp. $3.00



Upcoming geologic meetings

Conference title	Dates	Location	Contact for more information
Rocky Mountain Association of Geologists 1993 Fall field trip	Sept. 24 & 25, 1993	Cortez, CO Bus leaves Denver the 23rd; returns 26th	Dennis C. Irwin 220 Cimarron Way Boulder, CO 80303 (303) 494–3815
American Water Resources Association annual meeting	Aug. 29–Sept. 3	Tucson, AZ	Herbert B. Osborn 2341 S. Lazy A Place Tucson, AZ 85713 (602) 883–4517
Rocky Mountain Section, American Association of Petroleum Geologists meeting	Sept. 12–15	Tulsa, OK	AAPG Box 979 Tulsa, OK 74101 (918) 584–2555
Denver Gem and Mineral Show	Sept. 16–19	Denver, CO	P.O. Box 621444 Littleton, CO 80162 (303) 233–2516

New U.S.G.S. map products

The U.S. Geological Survey National Mapping Division recently released maps showing new and currently available map-related digital data for New Mexico. These digital products are used primarily to generate new maps using computers. Digital elevation models (DEMs) are made by sampling elevations shown on common topographic maps at regular intervals (Map A, 7 or 15 meters). These DEMs can be used to make computer-drawn shaded relief maps. Several kinds of information commonly are printed on top of basic topographic maps and are called overlays. These overlays in digital form are called digital line graphs (DLGs). The DLG overlays available for parts of New Mexico (Maps B, C, D) include political boundaries, the public land survey system (PLSS: township, range, section lines), culture (human-made features), transportation (roads), hydrography (streams and lakes), hypsography (topographic features), and vegetation (types of ground cover). Some digital orthophoto quadrangle products with a ground resolution of about one meter are also available. Readers interested in obtaining more information may contact Sam Bardelson, Albuquerque Mapping Support District Office, U.S. Geological Survey, P.O. Box 355583, Albuquerque, NM 87176, (505) 265-7796. Readers interested in other digital geographic information may contact Mike Inglis, Resource Geographic Information Systems' Clearinghouse, Technology Application Center, University of New Mexico, Albuquerque, NM 87131, (505) 277-3622.

Cuffey and Lembcke

(*Continued from p. 32*)

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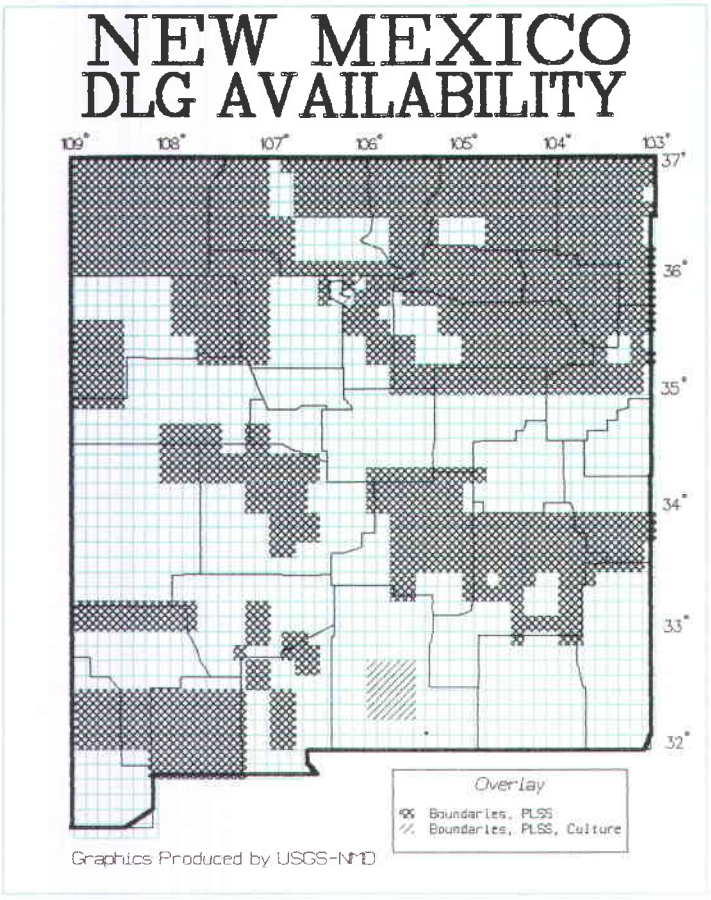
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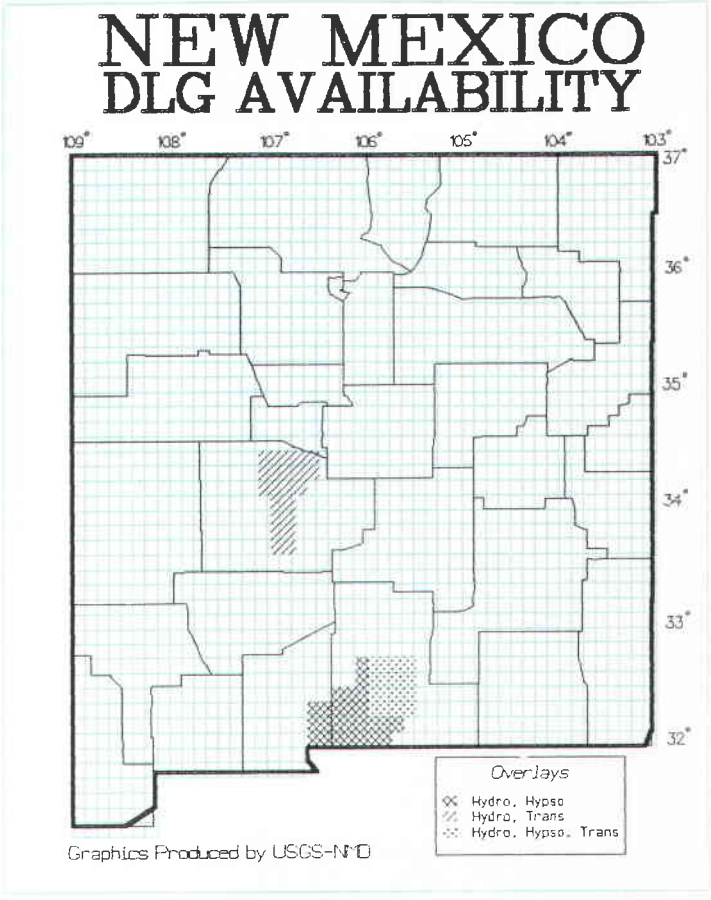
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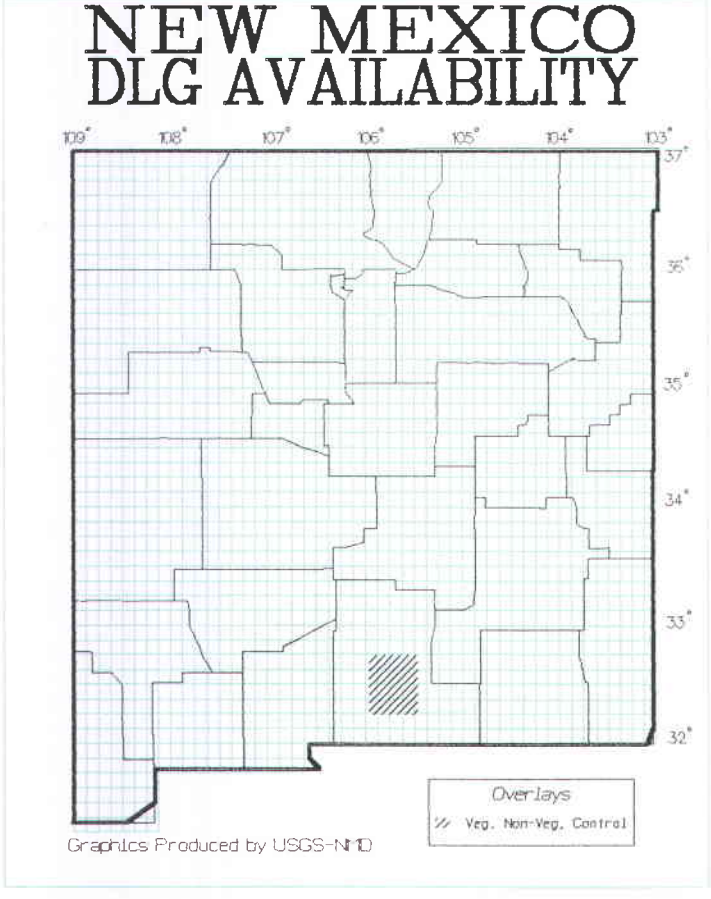
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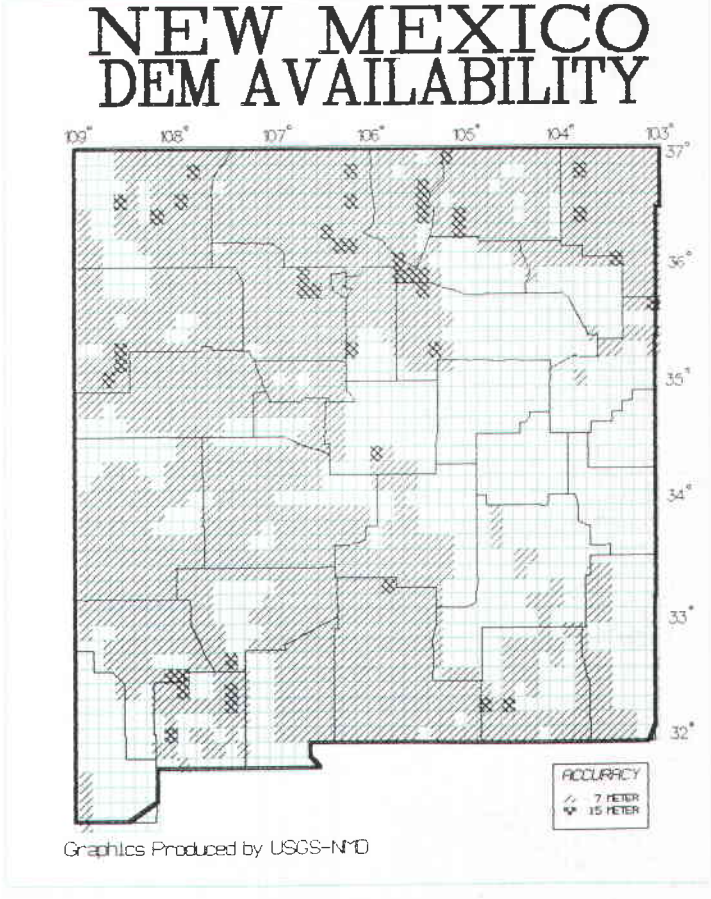
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Carlsbad region, Permian Basin, New Mexico and west Texas

New Mexico Geological Society
West Texas Geological Society
1993 Fall Field Conference

The New Mexico Geological Society will hold its Annual Fall Field Conference in the Carlsbad region on October 6 to 9, 1993. The conference, jointly sponsored by the West Texas Geological Society, will focus on the geologic evolution of the Pecos Valley–Guadalupe Mountains–Salt Basin area of southeastern New Mexico and western Texas. Tour arrangements are being made in cooperation with the Carlsbad Chamber of Commerce, and the new Carlsbad Area Convention Center (near the airport) has already been reserved for the field conference. Park Inn International on the National Parks Highway (US 62–180) near the Convention Center will be the conference headquarters.

The first day's field trip (Oct. 7) will be in the Delaware Basin, with major emphasis on the area's economic and environmental geology. The tour through the Pecos Valley lowlands between the Guadalupe Mountains and the Southern High Plains will include stops at outcrops of the Castile–Salado–Rustler–Dewey Lake sequence, examination of overlying Mesozoic and Cenozoic continental deposits, and discussion of associated evaporite-karst features. Stops are also planned at sulfur and potash production facilities, and for an overview of the Waste Isolation Pilot Project area.

The following days' tours of the Guadalupe Mountains–Northwestern shelf area will emphasize the classic Permian geologic framework of the region, including advances in sequence stratigraphy. The second day will cover the basin side of the Guadalupe Mountains, northern Salt Basin, and parts of Carlsbad Caverns and Guadalupe Mountains National Parks. The Northwestern shelf area between Carlsbad and Queen will be visited on the final day of the conference, including Dark and Last Chance Canyons, Sitting Bull Falls, and the Seven Rivers Hills. Supplemental road logs will expand these tours into the Algerita Escarpment–Cornudas Mountain area west of the Guadalupe Mountains. Optional, limited, pre- and post-conference tours (October 6 and 10) include visits to potash mines, WIPP site, and Carlsbad Caverns National Park.

The field conference guidebook will be published by the New Mexico Geological Society with Barry Kues as Managing Editor. Technical editors include Jim W. Adams (general geology, oil and gas resources), George Austin and Jim Barker (industrial minerals), and John Hawley and Dave Love (environmental geology).

New Mexico Bureau of Mines and Mineral Resources staff notes

The Bureau filled three positions: **Matthew Heizler**, Geochronologist; **Terry Telles**, Secretary–Receptionist; and **Sandra Swartz**, Chemical Technician. Anniversaries of our staff with five or more years of service from March through May were: **Judy Vaiza**, 19; **Marshall Reiter, Norma Meeks**, 18; **John Hawley**, 16; **Ruben Archuleta**, 14; **Gretchen Hoffman** and **Richard Chamberlin**, 13; **Debbie Goering**, 7 with New Mexico Tech.

George Austin, Jim Barker, Gretchen Hoffman, Virginia McLemore, and **Abe Gundiler** attended the annual meeting of the Society of Mining Engineers in Reno, Nevada. **Abe's** talk was "Thiosulfate leaching of gold from copper-bearing ores" (SME Preprint No. 93–281). **George, Jim, Ginger**, and **Abe** also attended several SME committee meetings. **Orin Anderson** attended the southwest section of American Association of Petroleum Geologists meeting in Fort Worth, Texas, and was a co-author with Spencer Lucas of a paper in the proceedings volume on Triassic Dockum Formation of west-Texas. The annual meeting of AAPG in New Orleans, Louisiana was attended by **Frank Kottlowski, Orin Anderson**, and **Ron Broadhead** (**Ron** also attended House of Delegates and Affiliated Society Presidents meetings). **Richard Chamberlin** and **Steve Haase** were general cochairpersons for the 1993 New Mexico Geological Society spring meeting in Macey Center; **Steven Ralser** was registration chairman; **Judy Vaiza** handled on-site registration with **Theresa Lopez**; **Norma Meeks** oversaw our exhibit; and **Lynne Hemenway** did the wordprocessing. New NMGS officers are President **Ron Broadhead**, Vice-President Robert Newcomer, Jr., Treasurer **Richard Chamberlin**, and Secretary David Schoderbek. **Ron Broadhead** was stratigraphy, sedimentology and geochronology session moderator and **Jim Barker** served as economic geology session moderator; talks were by **Charles Chapin, Orin Anderson, Gretchen Hoffman, George Austin, Jim Barker, Marshall Reiter, Shirley Wade, David Sivils, John Hawley**, and **Tanya Baker**. Also attending the NMGS meeting were **Nelia Dunbar, Glen Jones, Frank Kottlowski, Dave Love**, and **Neil Whitehead**. **George Austin** and **Jim Barker** gave a talk at the forum on the geology of industrial minerals titled "Geology and marketing of western perlite", **Frank Kottlowski** and **Gus Armstrong** were coauthors of a poster "Limestone of New Mexico and adjoining areas suitable for sulfur removal in coal-fired powerplants." **Jim Barker** and **Gretchen Hoffman** attended the Four Corners Geological Society meeting in Durango, Colorado; **Gretchen** presented a paper "Coal quality characteristics of the Fruitland and Menefee Formations in the San Juan Basin, northwest New Mexico." **Paul Bauer** gave an invited talk at UTEP (technical seminar series) titled "Proterozoic orogenesis in New Mexico"; **Steve Cather's** invited talk at SMU was titled "Neogene tectonics and sedimentation in the Rio Grande rift." **Charles Chapin** attended several meetings: USGS NAWQUA meeting in Albuquerque; American Association of State Geologists, Liaison Committee in Washington, DC; New Mexico Geochronology Research Laboratory Quaternary Dating field conference, Zuni–Bandera volcanic field (also with **Nelia Dunbar, Dave Love** and **Bill McIntosh**); gave a paper titled "Element mobility in a Rio Grande Rift Basin" at the National Western Mining Conference in Denver, Colorado. **Fang Luo** presented a talk titled "Vertical permeability determination from single-well test: Phase I—constant flow rate test" at the SPE 1993 Production Operation Symposium in Oklahoma City, Oklahoma. A poster session presented by **Ginger McLemore** at the Society of Economic Geologists meeting in Denver, Colorado was titled "Alteration and epithermal mineralization in the Steeple Rock mining district, Grant County, New Mexico and Greenlee County, Arizona".

Other meetings attended by NMBMMR staff members include Tucson Gem and Mineral Show and Albuquerque Gem and Mineral Show (**Bob Eveleth**); State GISAC meeting (**Glen Jones**); New Mexico Mining Association Environmental Committee meeting (**Frank Kottlowski**); subcommittee on New Mexico groundwater protection plan (**Lynn Brandvold**); Microsoft windows for workgroups (**Fang Luo**); New Mexico Mining Association Board of Directors meeting (**Frank Kottlowski**); Four Corners Regional Science Fair judges (**Ginger McLemore, Dave Love**, and **Chris McKee**); Water Quality Control Commission meeting (**Lynn Brandvold**); Weapons waste treatment technology support group (TTGS) meeting at Sandia National Laboratories (**Abe Gundiler**); BLM Rio Puerco project meetings (**Dave Love**).

Bauer

(*Continued from p. 42*)

and Mineral Resources produced the fine histograms from REFLEX and QUATTRO PRO. Open–File Report 389 was inspired by the recent publication of the Arizona Bureau of Geology and Mineral Technology's *Compilation of Radiometric Age Determinations in Arizona* by Reynolds, et al. (1986, Bulletin 197, 258 pp.).

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