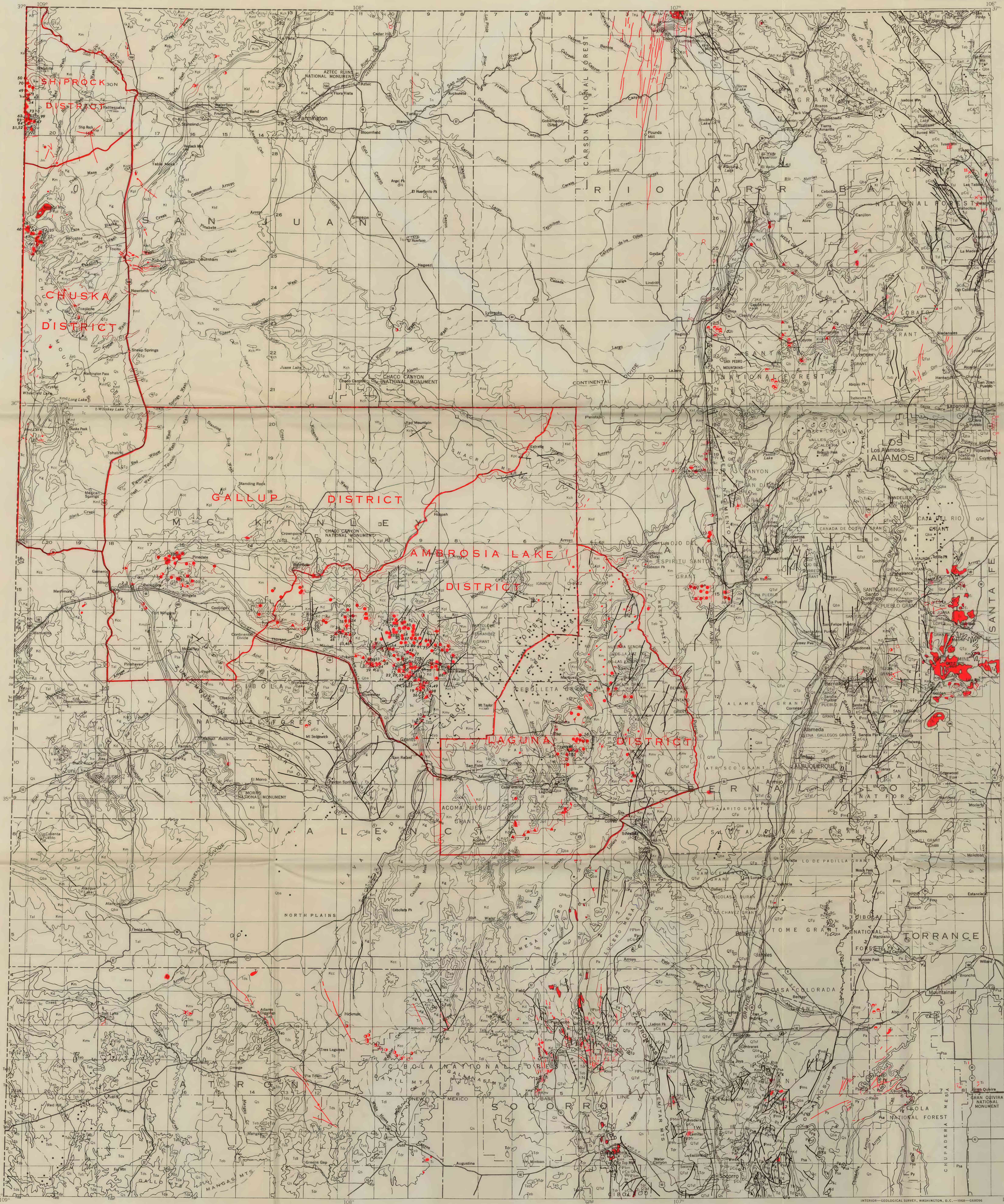
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED ON BEHALF OF THE
U.S. ATOMIC ENERGY COMMISSION

PROFESSIONAL PAPER 603
PLATE 1



Base from U.S. Geological Survey 1:500,000 map of New Mexico with some modification in base drainage

SCALE 1:500 000

10 0 10 20 30 40 50 MILES

10 0 10 20 30 40 50 KILOMETERS

DATUM IS MEAN SEA LEVEL

URANIUM DEPOSITS IN NORTHWESTERN NEW MEXICO

Uranium data compiled by L. S. Hilpert, 1964. Sources of geologic data are given on Preliminary geologic map of the northwestern part of New Mexico, by C. H. Dane and G. O. Bachman (U.S. Geol. Survey Misc. Geol. Inv. Map I–224, 1957). The formational descriptions are virtually as given by Dane and Bachman, except for deletion of lithologic details and changes made in some stratigraphic nomenclature to conform with present usage

EXPLANATION

QUATERNARY

Qs — Surficial deposits
Includes alluvial, bolson, pediment, eolian, landslide, spring, and morainal deposits

Qr — Rhyolite flows

Qb — Bandelier Tuff
Pleistocene age

Qba — Basalt and some andesite
May include some Pliocene flows

QTp — Pediment gravel

TERTIARY

QTsf, QTsu, Tsl — Santa Fe Group
Pleistocene (?) to Miocene age
QTsf, *undivided; in upper Rio Grande valley includes Oligocene(?) Espinaso Volcanics of Stearns (1943)*
QTsu, *upper part; in upper Rio Grande valley includes Tuerto Gravel of Stearns (1953)*
Tsl, *lower part, upper Rio Grande valley; Abiquiu Formation and Carson Conglomerate of Just (1937) west of the Rio Grande*

Tc — Chuska Sandstone
Pliocene (?) age

Tal — Alluvial and lacustrine deposits

Teb — Basalt flows and associated rocks
Includes Pleistocene flows

Ti — Intrusive rocks of varied composition

Tp — Potosi Volcanic Series as used by Larsen and Cross (1956)
Late and middle Tertiary age

Tpt — Popotosa Formation
Miocene age. Datil Formation included along Rio Grande valley

Td, Tda, Tdr, Tds, Tdl — Datil Formation
Late Tertiary age
Td, *undifferentiated; mapped with Eocene(?) Baca Formation in some areas*
Tda, *andesite facies*
Tdr, *rhyolite facies*
Tds, *sedimentary facies*
Tdl, *latite facies*

Ta — Purple andesite and latite tuff and breccia

Tov — Older volcanic rocks of Jemez Mountains
In Valles crater area Quaternary volcanics and Tertiary sedimentary rocks included

Tbb — Blanco Basin Formation (Oligocene)

Tsj — San Jose Formation (Eocene)

Tb — Baca Formation (Eocene)
Eocene (?) age

Tg — Galisteo Formation
Oligocene (?) and Eocene age

Ter — El Rito Formation of Smith (1938)
Pre-late Miocene age

Tn — Nacimiento Formation (Paleocene)
Animas Formation included north of San Juan River in San Juan County

TKa — Animas Formation
McDermott Member equivalent included at base in Rio Arriba County

CRETACEOUS

Koa — Ojo Alamo Sandstone

Kmc — McDermott Member of Animas Formation

Kkf — Kirtland Shale and Fruitland Formation
McDermott equivalent included in San Juan County

Kpc — Pictured Cliffs Sandstone

Kl — Lewis Shale

Kch, Kcl — Cliff House Sandstone
Kcl, *La Ventana Tongue on eastern side of San Juan basin*

Kmv — Mesaverde Group

Kmf — Menefee Formation

Kpl, Kph — Point Lookout Sandstone
Kph, *Hosta Tongue separated in the southern part of the San Juan basin from the main body of the Point Lookout Sandstone by the Satan Tongue of the Mancos Shale*

Kcc — Crevasse Canyon Formation

Kg — Gallup Sandstone

Km — Mancos Shale

Kmd — Lower part of Mancos Shale and Dakota Sandstone (Lower (?) and Upper Cretaceous)

Kd — Dakota Sandstone

Kr — Cretaceous rocks

JURASSIC

Jm, Jz, Jsr, Jsrl — Morrison Formation, Zuni Sandstone, and San Rafael Group (Upper Jurassic)
Jm, *Morrison Formation; also includes Todilto Limestone except in western San Juan, northwestern McKinley, and northern Valencia Counties*
Jz, *Zuni Sandstone; equivalents of Morrison Formation and upper part of San Rafael Group included in McKinley and Valencia Counties*
Jsr, *San Rafael Group*
Jsrl, *lower part of the San Rafael Group*

Jr — Jurassic rocks

TRIASSIC

Ŧw — Wingate Sandstone (Upper Triassic)

Ŧc — Chinle Formation
East of Rio Grande Upper Triassic Dockum Formation included; locally Middle(?) and Lower Triassic Moenkopi Formation included

PERMIAN

Pc — Cutler Formation

Psg — San Andres Limestone and Glorieta Sandstone

Psa — San Andres Limestone
Overlying Bernal Formation included east of Rio Grande

Pg — Glorieta Sandstone
De Chelly Sandstone Member of Cutler Formation included in San Juan County

Py — Yeso Formation

Pa — Abo Formation

Pr — Permian rocks

CARBONIFEROUS (PENNSYLVANIAN, MISSISSIPPIAN)

PPbm — Bursum Formation and Madera Limestone

Pms — Madera Limestone and Sandia Formation
Includes locally a basal limestone unit, in part Arroyo Penasco Formation of Mississippian age

Ps — Sandia Formation
Locally basal limestone (Mississippian?) included

Mkc — Kelly Limestone and Caloso Formation of Kelley and Silver (1952) south of lat 35° N.
Locally includes Arroyo Penasco Formation in San Pedro-Sierra Nacimiento area

PMr — Pennsylvanian and Mississippian rocks

PRE-CAMBRIAN

pCq — Quartzite, schist, slate, granite, rhyolite, and andesite

Contact
Dashed where approximate boundary between laterally gradational units

Fault

* Volcanic vent on Tertiary or Quaternary lava flow

SYMBOLS THAT SHOW THE MAP LOCATION OF A URANIUM DEPOSIT OR GROUP OF DEPOSITS AND RELATE THEM TO THE GEOLOGIC EXPLANATION

Age of host rock (period or era)	Lithologic type of host rock and sample grade cutoffs[1]						
	Sedimentary				Igneous		Metamorphic
	Sandstone	Limestone	Shale	Coal	Volcanic	Pegmatite	
Tertiary	○ ○°	----	◇ --	----	⊕ ⊕°	----	----
Cretaceous	◑ ◑°	----	◈ ◈°	◆ ◆°	----	----	----
Jurassic	● ●°	▲ ▲°	----	----	----	----	----
Triassic	◐ ◐°	----	-- ◈°	----	----	----	----
Permian	⊖ ⊖°	▽ ▽°	-- ◈°	----	----	----	----
Pennsylvanian	-- ⊖°	△ --	----	----	----	----	----
Precambrian	----	----	----	----	----	---×°	---#°

[1] Deposits yielding a sample analysis of 0.1 percent or more U_3O_8 are shown by a plain symbol. Deposits yielding an analysis between 0.02 and 0.1 percent U_3O_8, or identified by a uranium-bearing mineral, are shown by the same symbol with the superscript°. Chemical analyses were reported for most samples; only a few samples from deposits in the lower grade category were determined radiometrically.

LIST OF MINES AND MAP NUMBER

Deposits from which uranium ores were produced before January 1, 1965, have mine status. In the Ambrosia Lake district, for deposits having a map size larger than the identifying symbol, or are controlled and worked by more than one company, the symbol is centered over the working shaft rather than centered over the deposit.

Tertiary igneous rocks (⊕)
1. La Bajada

Tertiary sandstone (○)
1. Charley 2 (Jeter)
2. Hook Ranch (Jaralosa)
3. Red Basin 1

Cretaceous sandstone (◑)
1. Becenti
2. Christian 16 (U)
3. Diamond 2 (Largo 2)
4. Junior
5. Midnight 2
6. Section 5 (Westvaco)
7. Silver Spur 1
8. Silver Spur 5
9. Small Stake

Cretaceous shale (◈)
1. Butler Bros. 1
2. Hogback 3
3. Hogback 4
4. Section 3 (Santa Fe Christ)

Jurassic sandstone (●)
1. Alongo
2. Alta
3. Ann Lee (Section 28)
4. BB (Lewis Barton)*
5. BBB (Barton and Begay)*
6. Beacon Hill
7. Begay 1 and 2
8. Black Jack 1
9. Black Jack 2
10. Blue Peak (Garcia 1)
11. Bob Cat (Section 24)
12. Bucky (Jeep 6)
13. CD and S (Section 35)
14. Canyon View*
15. Carl Yazzie 1
16. Carrizo 1*
17. Castle T'sosie
18. Chaves (Cañoncito)
19. Chill Wills
20. Church Rock†
21. Cliffside (Section 36)
22. Collins
23. Cottonwood Butte*
24. Dennet Nezz
25. Dennet Nezz 2
26. Dennet Nezz 3
27. Dog Incline (Dog group, East Malpais)
28. Dysart 1
29. Dysart 2
30. Enos Johnson
31. Enos Johnson 1
32. Enos Johnson 2
33. Enos Johnson 3 (South Peak)
34. Evelyn
35. Foutz 1
36. Foutz 2
37. Foutz 3 YJ (Yellow Jacket)
38. Francis
39. Hogan
40. H. B. Roy 2
41. Horace Ben 1
42. Isabella
43. Jackpile
44. Joe Ben 1
45. Joe Ben 3
46. John Joe 1
47. Junction
48. Kee Tohe
49. King 2
50. King 6 (Troy Rose)
51. King Tutt
52. King Tutt 1
53. King Tutt Point*
54. Lone Star (Plot 9)
55. Lookout Point
56. M-6
57. Malpais
58. Marquez
59. Mary 1
60. Mesa Top 7 (Moe, Davenport Incline)
61. Mesa Top 18 (Holly)
62. Nelson Point
63. Paguate
64. Pat (Dakota)
65. Plot 7 (Lower Oak Springs)*
66. Poison Canyon
67. Rattlesnake 6*
68. Red Rocks*
69. Red Wash Point*
70. Rocky Flats
71. Rocky Flats 2
72. Rocky mine 2*
73. Salt Canyon
74. Sam Point*
75. Sandstone (Section 34)
76. Sandy
77. Section 8 (Centennial)
78. Section 10
79. Section 15
80. Section 17
81. Section 21 (Doris)
82. Section 22
83. Section 23
84. Section 24
85. Section 25
86. Section 29 (Kermac-United)
87. Section 30 (Kermac-Pacific)
88. Section 30 (San Mateo)
89. Section 32
90. Sections 32-33 (West Ranch)
91. Section 33 (Branson)
92. Section 36 (United Western)
93. Shadyside
94. Shadyside 2
95. Silver Bit 7
96. Silver Bit 15
97. Silver Bit 18
98. Taffy
99. Tent
100. Westwater 1
101. Windwhip
102. Woodrow

Jurassic limestone (▲)
1. Barbara J 1 (Barbara J claims 8, 9, 13)
2. Barbara J 3 (Barbara J claims 22 and 23)
3. Billy The Kid (Red Top 1)
4. Black Hawk-Bunney
5. Cedar 1 (Section 20)
6. Christmas Day
7. Crackpot
8. Dalco 1 (Barbara J 2) (Barbara J claims 9 and 10)
9. Double Jerry (Farris 1, Vallejo)
10. F-33 (Section 33)
11. Faith (Section 29)
12. Flat Top 4-Vilatie Hyde
13. Gay Eagle-Red Bluff 8 and 10
14. Glover
15. Hanosh (Section 26)
16. Haystack (Haystack Butte)(Section 19)
17. Haystack 2
18. La Jara
19. Last Chance
20. Lawrence Elkins
21. Lone Pine 3
22. Manol (Section 30)
23. Paisano
24. Red Bluff 3
25. Red Bluff 5
26. Red Bluff 7
27. Red Bluff 9
28. Red Point Lode
29. Rimrock
30. Section 9
31. Section 13 (Bibo)
32. Section 18
33. Section 18
34. Section 19
35. Section 19 (Greer, Warren, and McCormack)
36. Section 19 (Maddox and Teague)
37. Section 21
38. Section 23
39. Section 24
40. Section 25
41. Section 31
42. Section 32
43. Section 33 (Charlotte)
44. Section 36
45. T 2
46. T 10
47. Tom 13
48. Tom Elkins
49. UDC 5
50. Wasson (Box Canyon)
51. Whitecap
52. Zia

Permian sandstone (⊖)
1. Hillfoot 1
2. Red Bird
3. Red Head 2

Permian limestone (▽)
1. Lucky Don (Bonanza 1)
2. Little Davie

Pennsylvanian limestone (△)
1. Agua Torres
2. Marie

*In Shiprock district, but location uncertain and number not plotted.
†Also mined from deposit in Cretaceous sandstone.