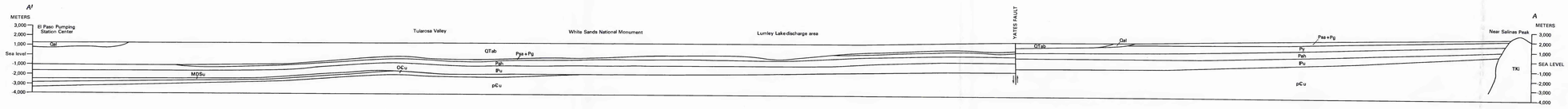
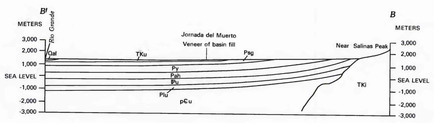
Prepared in cooperation with the States of
ARIZONA, CALIFORNIA, IDAHO, NEVADA, NEW MEXICO, TEXAS, AND UTAH

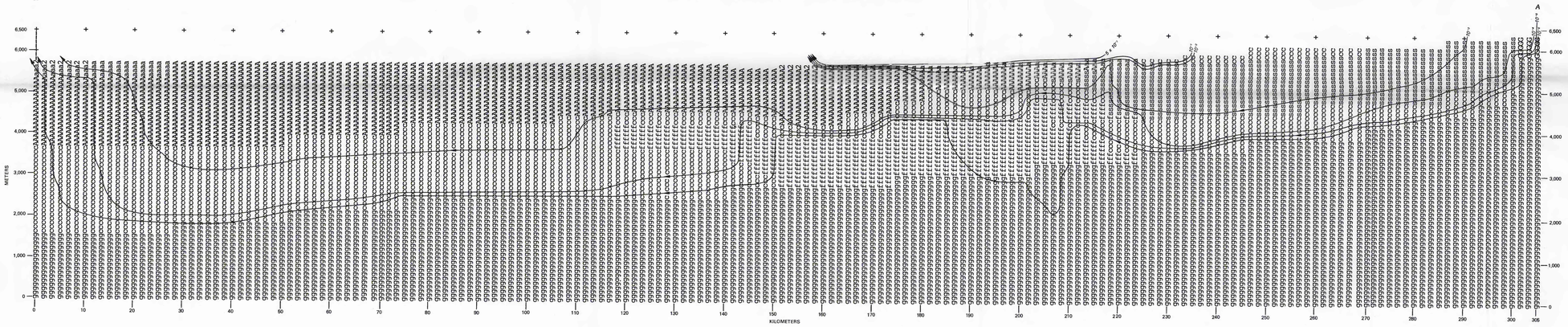
GEOLOGIC SECTION



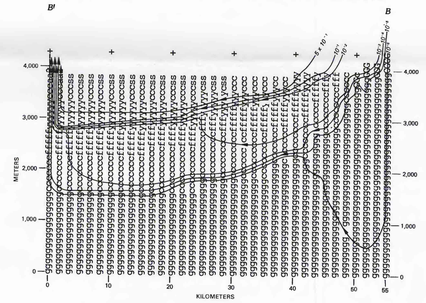
GEOLOGIC SECTION



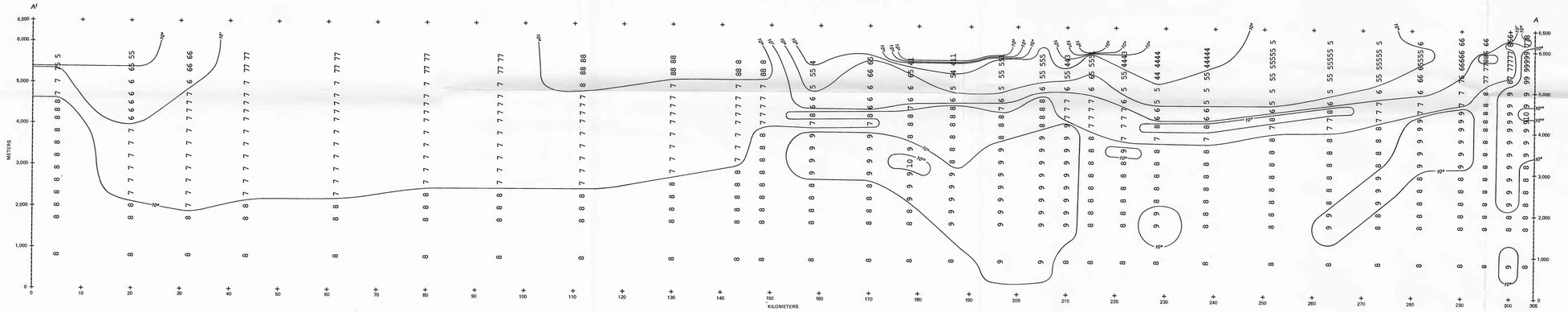
MODELED LITHOLOGY AND FLOW PATHS



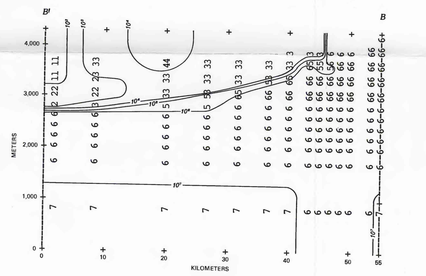
MODELED LITHOLOGY AND FLOW PATHS

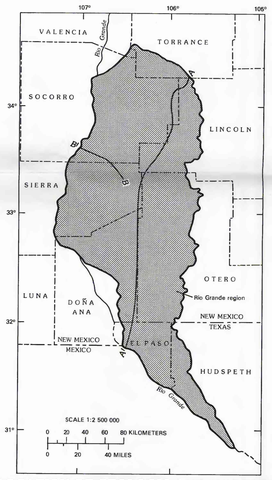


RELATIVE GROUND-WATER TRAVELTIMES



RELATIVE GROUND-WATER TRAVELTIMES





LOCATION OF GEOLOGIC AND MODELED HYDROGEOLOGIC SECTIONS

EXPLANATION

GEOLOGIC UNITS

- Qal — BASIN FILL (QUATERNARY)–Terrace, fan, eolian, and floodplain deposits, and a few thin basalt flows
- QTab — BASIN FILL (QUATERNARY AND TERTIARY)–Sand and gravel deposits grading to silt and clay deposits toward the center of the basin
- TKu — TERTIARY AND CRETACEOUS ROCKS, UNDIFFERENTIATED–Sandstone, shale, conglomerate, mudstone, and tuffaceous sediments
- TKi — RHYOLITE INTRUSIVES (TERTIARY AND CRETACEOUS)–Occur as stocks and laccoliths in Gallinas Peak vicinity
- Psa — SAN ANDRES LIMESTONE (PERMIAN)–Limestone
- Pg — GLORIETA SANDSTONE (PERMIAN)–Sandstone
- Psg — SAN ANDRES LIMESTONE AND GLORIETA SANDSTONE (PERMIAN), UNDIFFERENTIATED–Limestone and sandstone
- Py — YESO FORMATION (PERMIAN)–Sandstone and gypsum in the northern part of the Tularosa basin, grading southward into progressively more limestone
- Pah — ABO FORMATION AND HUECO LIMESTONE (PERMIAN)–Abo Formation, shale and limestone in northern Tularosa basin, interfingers southward with Hueco Limestone
- IPu — PENNSYLVANIAN ROCKS, UNDIFFERENTIATED–Sandstone and limestone in northern Tularosa basin, grading southward to shale and limestone
- MDSu — MISSISSIPPIAN, DEVONIAN, AND SILURIAN ROCKS, UNDIFFERENTIATED–Thin formations of dolomite, limestone, and sandstone
- OCu — ORDOVICIAN AND CAMBRIAN ROCKS, UNDIFFERENTIATED–Dolomite, limestone, and sandstone
- PIu — LOWER PALEOZOIC ROCKS, UNDIFFERENTIATED–Sedimentary rocks
- pCu — PRECAMBRIAN ROCKS, UNDIFFERENTIATED–Phyllite, quartzite, amphibolite, and schist, and lesser quartz monzonite, granite, syenogranite, rhyolite, diabase to diorite sills, shale, sandstone, siltstone, limestone, and talc
- GEOLOGIC CONTACT
- FAULT–Arrow shows relative direction of movement

HYDROGEOLOGIC UNITS / CORRESPONDING UNITS ON GEOLOGIC SECTIONS

a	COARSE-GRAINED BASIN FILL	Qal and QTab
A	FINE-GRAINED BASIN FILL	QTab and IPu in central part of section
c	CARBONATE ROCKS	Psa, MDSu, OCu, and Py, Pah, and IPu in southern part of section
f	FINE-GRAINED CLASTIC ROCKS	IPu
G	CRYSTALLINE ROCKS, UPPER PART OF SECTION	TKi
g	CRYSTALLINE ROCKS, LOWER PART OF SECTION	pCu and TKu
s	COARSE-GRAINED CLASTIC ROCKS	TKu, Psa, Pg, and Py, and Pah in northern Tularosa basin
y	GYPSUM	Py
2	DISCHARGE AREA	

—10*— DIRECTION OF GROUND-WATER FLOW–Number is dimensionless relative volume of flow in section below flow line

A'——A LINE OF SECTION

PLOT OF TRAVELTIME

—10*— RELATIVE TRAVELTIME–From points on line to discharge area; dimensionless. Areas of longest traveltimes originate in the recharge area. No isolated areas of shorter traveltime are surrounded by areas of longer traveltime. Some areas of longest traveltime are too small to portray at scale shown

7 EXPONENT OF TIME–A display of "7" indicates that the time is greater or equal to 1,000,000 years and less than 10,000,000 years. Time is from the point to discharge area. Traveltime is computed for each active node, but depending on scale and block dimensions, may not be displayed everytime

GEOLOGIC AND HYDROGEOLOGIC SECTIONS SHOWING GROUND-WATER FLOW PATHS AND RELATIVE TRAVELTIME, RIO GRANDE REGION, NEW MEXICO AND TEXAS