

COLORADO GROUND-WATER LEVELS SPRING 1972

INTRODUCTION

A study was initiated in 1929 by the Agricultural Experiment Station of Colorado State University to measure ground-water levels in a limited observation well network. This network has since been expanded and coordinated with ground-water data-collection programs of the Water Resources Division of the U. S. Geological Survey. This report contains data on 820 observation wells that were measured in Spring 1972 in the five major ground-water areas in Colorado -- the South Platte River basin, the Arkansas River basin, the San Luis Valley, the Northern High Plains of eastern Colorado, and the Southern High Plains of southeastern Colorado.

Water levels in this publication reported for the South Platte and Southern High Plains were measured cooperatively by personnel from the Civil Engineering Department at Colorado State University and from the Colorado District, Water Resources Division, U. S. Geological Survey, Denver, Colorado. The Northern High Plains, San Luis Valley, and the Ar-

kanas River basin water levels were measured by the Colorado District, Water Resources Division, U. S. Geological Survey, Denver, Colorado.

The basic information obtained from the observation-well network is valuable for:

- 1) Detecting areas of ground-water depletion or accretion.
- 2) Extending existing and establishing additional historical ground-water-level hydrographs.
- 3) Identifying changes in ground-water storage.
- 4) Developing and evaluating ground-water management schemes.
- 5) Planning conjunctive use of both ground and surface water to maximize the total available water resources.

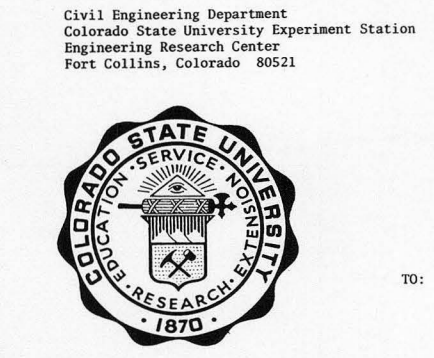
Ground-water levels were measured with a steel tape or electric sounder and are reported in feet below land surface datum. The water levels were measured in the High Plains in January and February, in the South Platte

and Arkansas Valleys in March and April, and in the San Luis Valley in January. Changes in water levels are noted for wells in which water levels were measured the previous year.

This report was prepared in two sheets -- one covering the South Platte River basin and the Northern High Plains, the other covering the Arkansas River basin, the San Luis Valley, and the Southern High Plains. Those persons specifically interested in a particular area will receive only one sheet. The second sheet, or additional copies, may be obtained free of charge by contacting the author.

Persons interested in ground-water data should also contact the Water Resources Division, U. S. Geological Survey, Federal Center, Building 25, Denver, Colorado, 80225, or the Colorado Water Conservation Board, Columbia Building, 1845 Sherman Street, Denver, Colorado, 80203, for other publications.

¹Senior Research Technician, Engineering Research Center, Colorado State University, Fort Collins, Colorado 80521



LEGEND

○ Unconfined aquifer
 ○ Cheyenne-Sabota Formations
 ○ Ogallala Formation
 ▲ Undifferentiated

KEY:

Spring 1972 water level, in feet below land surface.
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IRRIGATION PUMP POWER CONSUMPTION DATA

The following table of electrical power and natural gas consumption was compiled from information furnished by various power distribution companies in the South Platte River Basin and the Northern High Plains of Colorado.

Area	Units	1968	1969	1970	1971
South Platte River Basin	Million KWH	112.77	106.95	100.70	111.488
	Pumps Served	6681	6778	6400	6285
Northern High Plains	Million KWH	49.74	55.63	79.19	91.81
	Pumps Served	574	783	1019	1176
South Platte River Basin	Million CF	82.04	153.32	89.23	124.26
	Pumps Served	69	105	107	83
Northern High Plains	Million CF	1850.03	1816.81	1867.39	2038.85
	Pumps Served	812	929	1035	1084
Total for Colorado	Million KWH	215.15	205.10	224.01	297.35
	Million CF	3431.80	3090.22	3277.80	3674.54
	Pumps Served	12709	13301	15605	15401

SUMMARY OF CHANGES IN GROUND-WATER LEVELS
 SPRING 1972 COMPARED TO SPRING 1971

County	Water Level Change
Adams County	Main stem of South Platte River - Denver to Brighton: down 1 to 2 feet. Boulder Creek: down 2 feet. Kiowa Creek: steady to down 2 feet. Bijou Creek: down .5 to 3 feet.
Larimer County	Boulder Creek: variable - up 3 foot to down 3 feet.
Logan County	Main stem of South Platte River: generally steady.
Morgan County	Main stem of South Platte River: down .5 to 2.5 feet. Badger Creek: steady to down 1 foot. Beaver Creek: down 1 to 3 feet. Bijou Creek: down 1 to 3 feet.
Sedgwick County	Main stem of South Platte River: down .5 to 1.5 feet.
Washington County	Main stem of South Platte River - Brighton to Plattville: steady to down 1.5 feet; Plattville to Lakelle: down .5 to 1.5 feet. La Salle to Kersey: up 1 foot to down 1 foot. Beebe Deep - Hudson area: steady to down 1.5 feet. Boulder Creek: steady to down 2.5 feet. Cache La Poudre River: generally steady. Crow Creek - Grover-Herford area: steady to up 1 foot. Crow Creek - G11 area: generally steady. Kiowa Creek: down .5 to 2 feet. Long Tree Creek - Ault - Lucerne area: generally steady. Prospect Valley: Southern half down 1 to 7 feet, Northern half up .5 feet to down 1 foot.
Northern High Plains	Logan County: Generally steady. Sedgwick County: Generally steady.

NORTHERN HIGH PLAINS

Cheyenne County
Steady to down 2 feet, one well down 4 feet.

Kiowa County
No significant change.

Kit Carson County
Wells in Burlington area down 1 to 2.5 feet, wells in remainder of county variable but generally down .5 to 1.5 feet.

Lincoln County
No significant change.

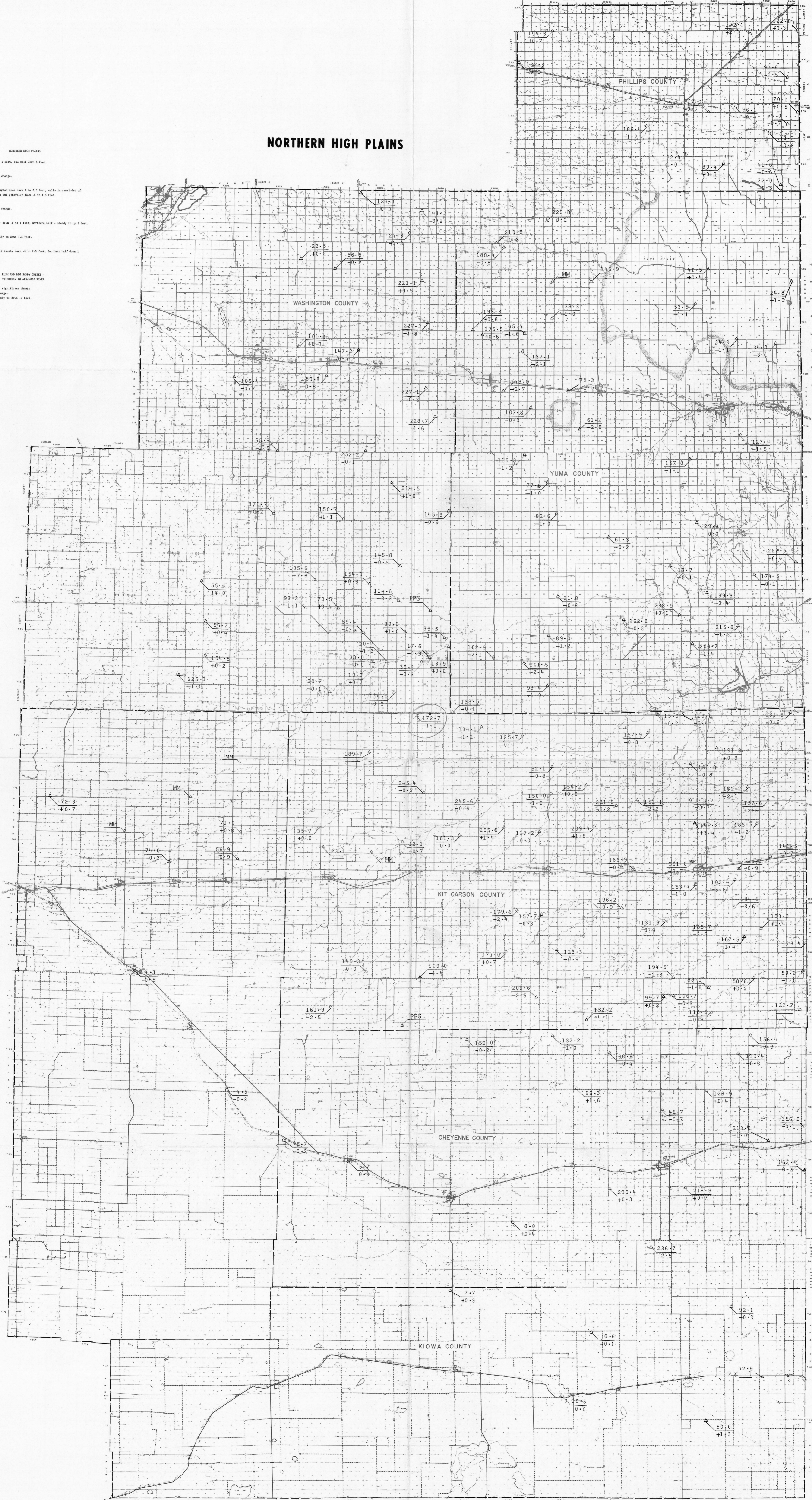
Phillips County
Southern half - down .5 to 1 foot; Northern half - steady to up 2 feet.

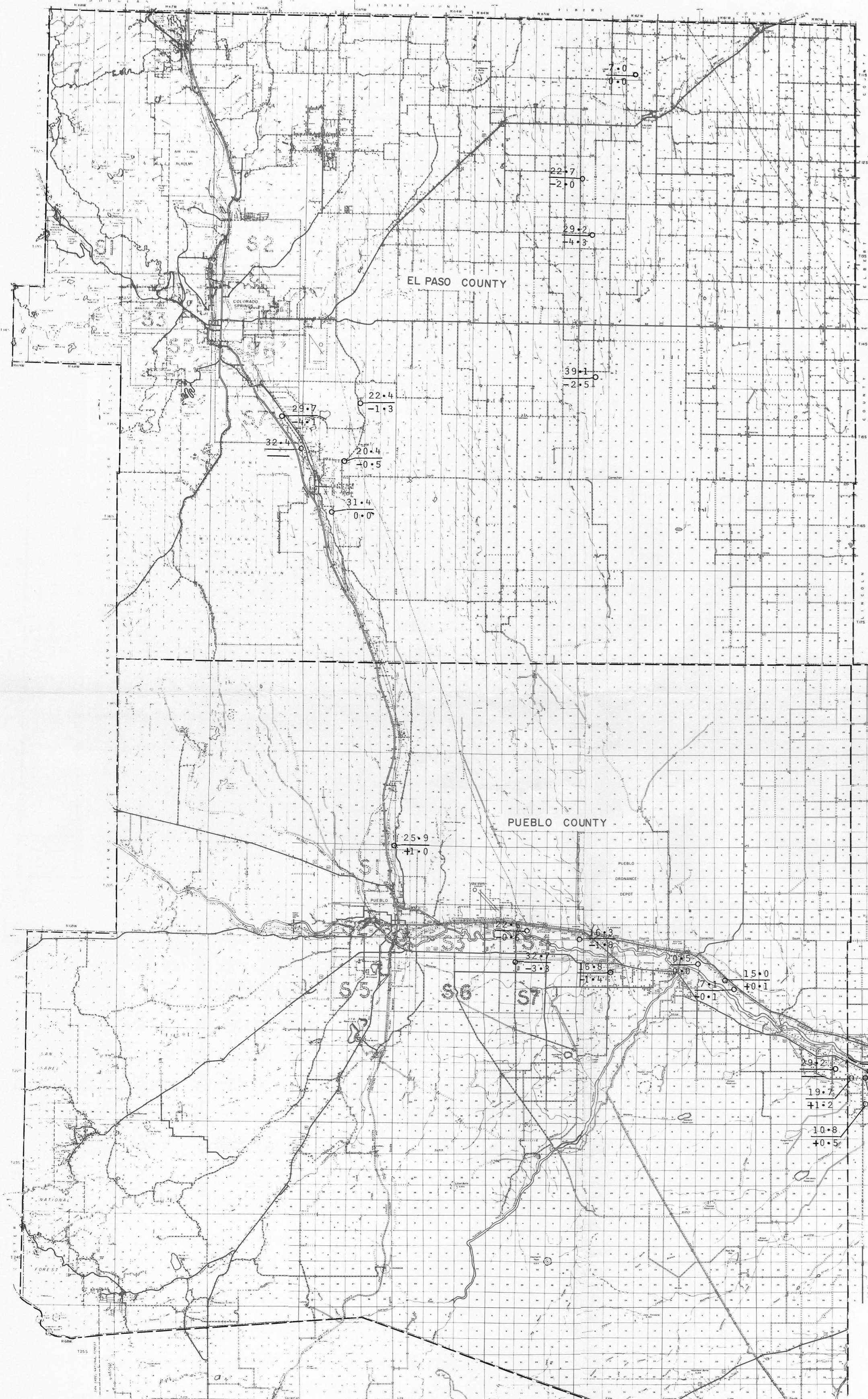
Washington County
Variable - steady to down 1.5 feet.

Yuma County
Northern half of county down .5 to 2.5 feet; Southern half down 1 to 1.5 feet.

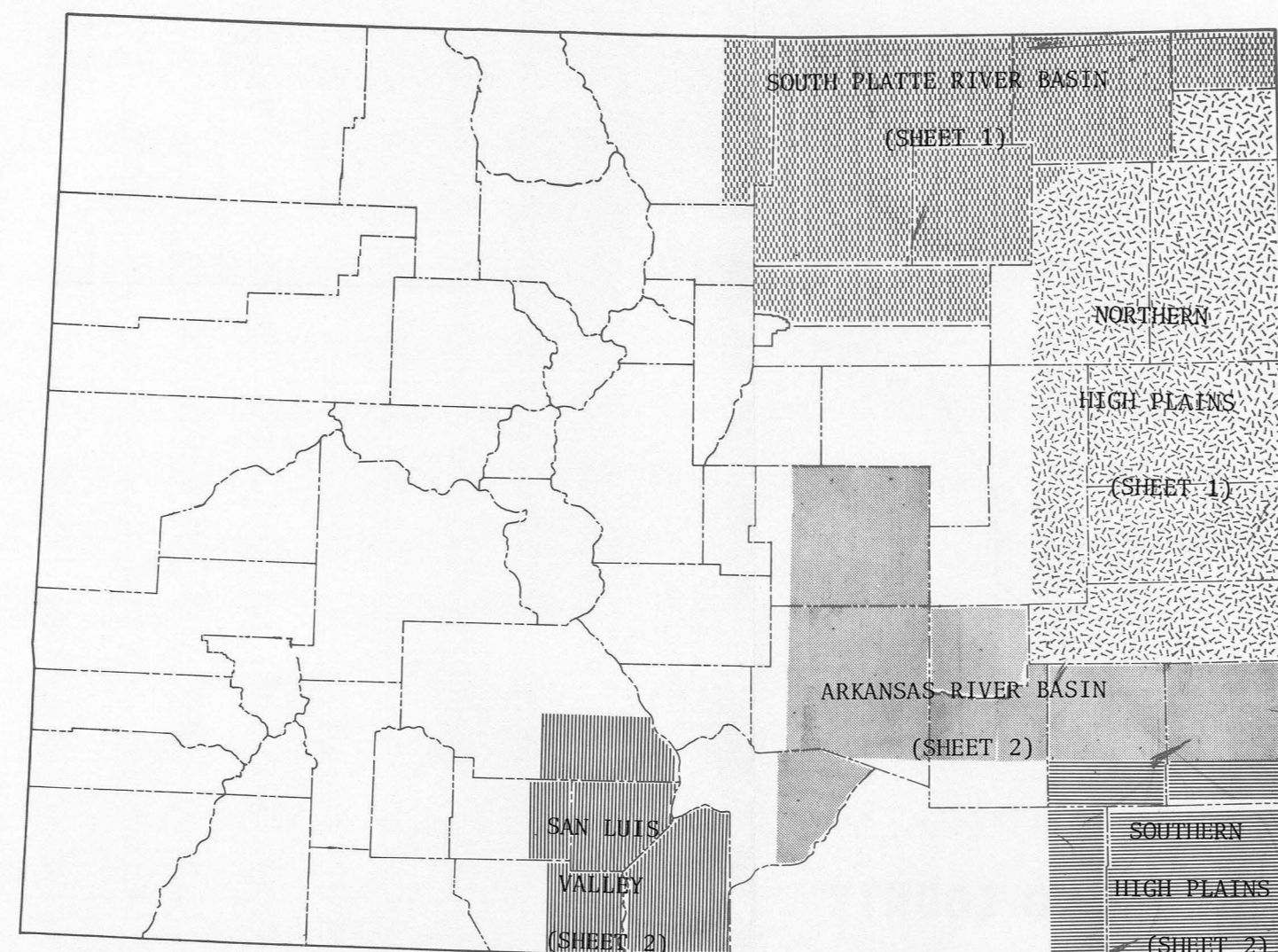
WELL AND WELL COUNTRY INDEX -
TERMINAL TO ARAKANSAS RIVER

Cheyenne County - No significant change.
Kiowa County - No change.
Lincoln County - Steady to down .5 feet.





COLORADO GROUND WATER LEVELS INCLUDED IN THIS REPORT



COLORADO GROUND WATER LEVELS

SPRING 1972

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JOHN BROODMAN¹ CSRT-722842

Kansas River Basin water levels were measured by the Colorado District, Water Resources Division, U. S. Geological Survey, Denver, Colorado.

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The following table of electrical power and natural gas consumption was compiled from information furnished by various power distribution companies in the Arkansas River Basin, the Southern High Plains of Colorado, and the San Luis Valley.

Area	Units	1968	1969	1970	1971
Arkansas River Basin	Million KWH	20.89	16.30	18.58	21.85*
	Pumps Served	1912	1913	1937	1830*
San Luis Valley	Million KWH	29.40	25.82	25.16	71.77
	Pumps Served	1872	1941	1907	1956
Grand Valley	Million KWH	.331	.385	.385	.429
	Pumps Served	58	74	56	64
Arkansas River Basin	Million CF	348.49	232.23	311.405	428.81
	Pumps Served	205	224	239	233
San Luis Valley	Million CF			13.02	25.18
	Pumps Served			31	35
Southern High Plains	Million CF	1151.24	887.86	983.73	1057.44
	Pumps Served	553	554	571	551
*Complete data not available					
Total for Colorado	Million KWH	213.13	205.10	224.01	297.35*
	Million CF	1431.80	3090.22	3277.80	3674.54
	Pumps Served	12709	13301	13603	13404*

**SUMMARY OF CHANGES IN GROUND WATER LEVELS
SPRING 1972 COMPARED TO SPRING 1971**

ARKANSAS RIVER BASIN

Bent County
Variable - from up 3 feet to down 2 feet.

Crowley County
No significant change.

El Paso County
Black Squirrel Creek: down 2 to 4 feet.
Jimmy Camp Creek: down .5 to 1 foot.
Fountain Creek: no significant change - one well erratic.

Ctoso County
Steady to up 1.5 feet.

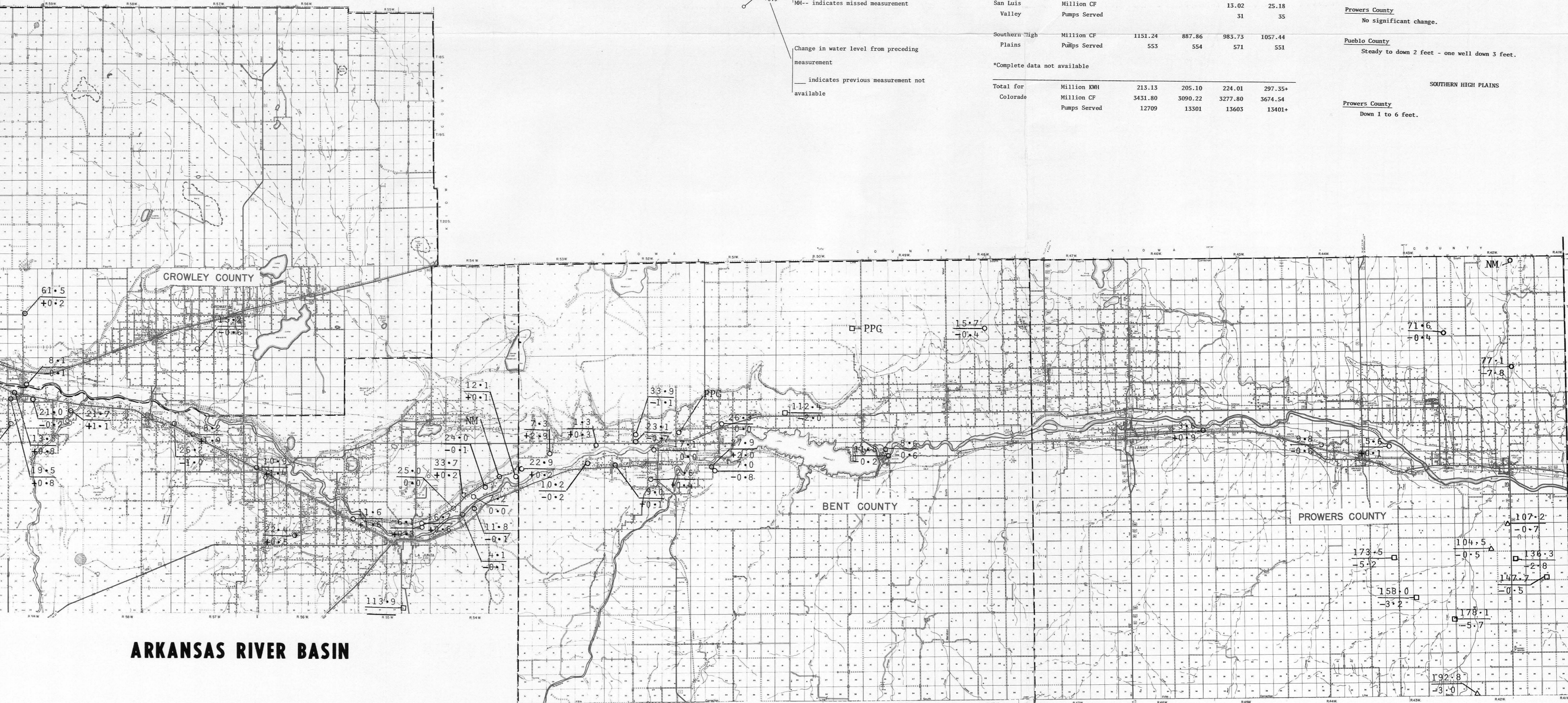
Prowers County
No significant change.

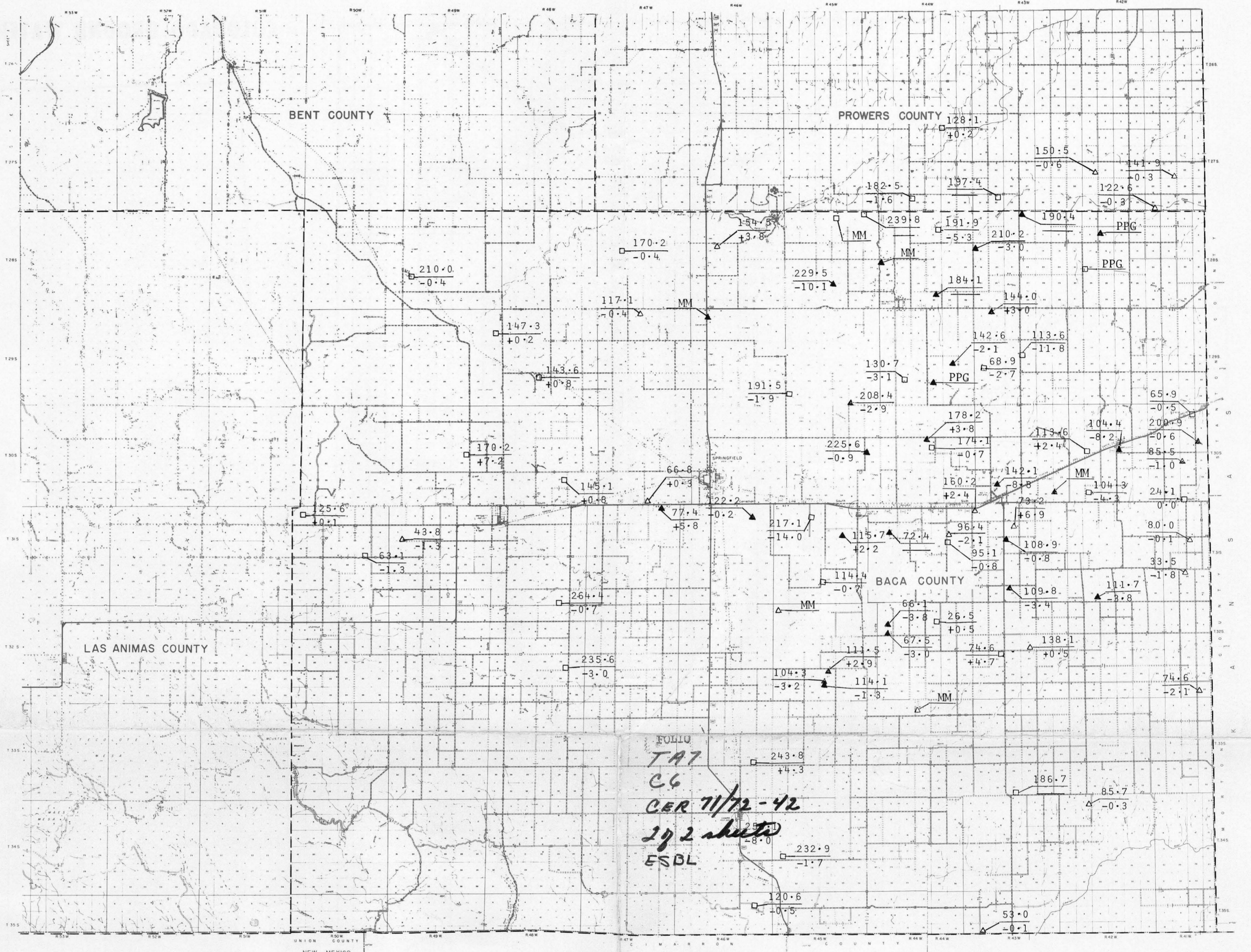
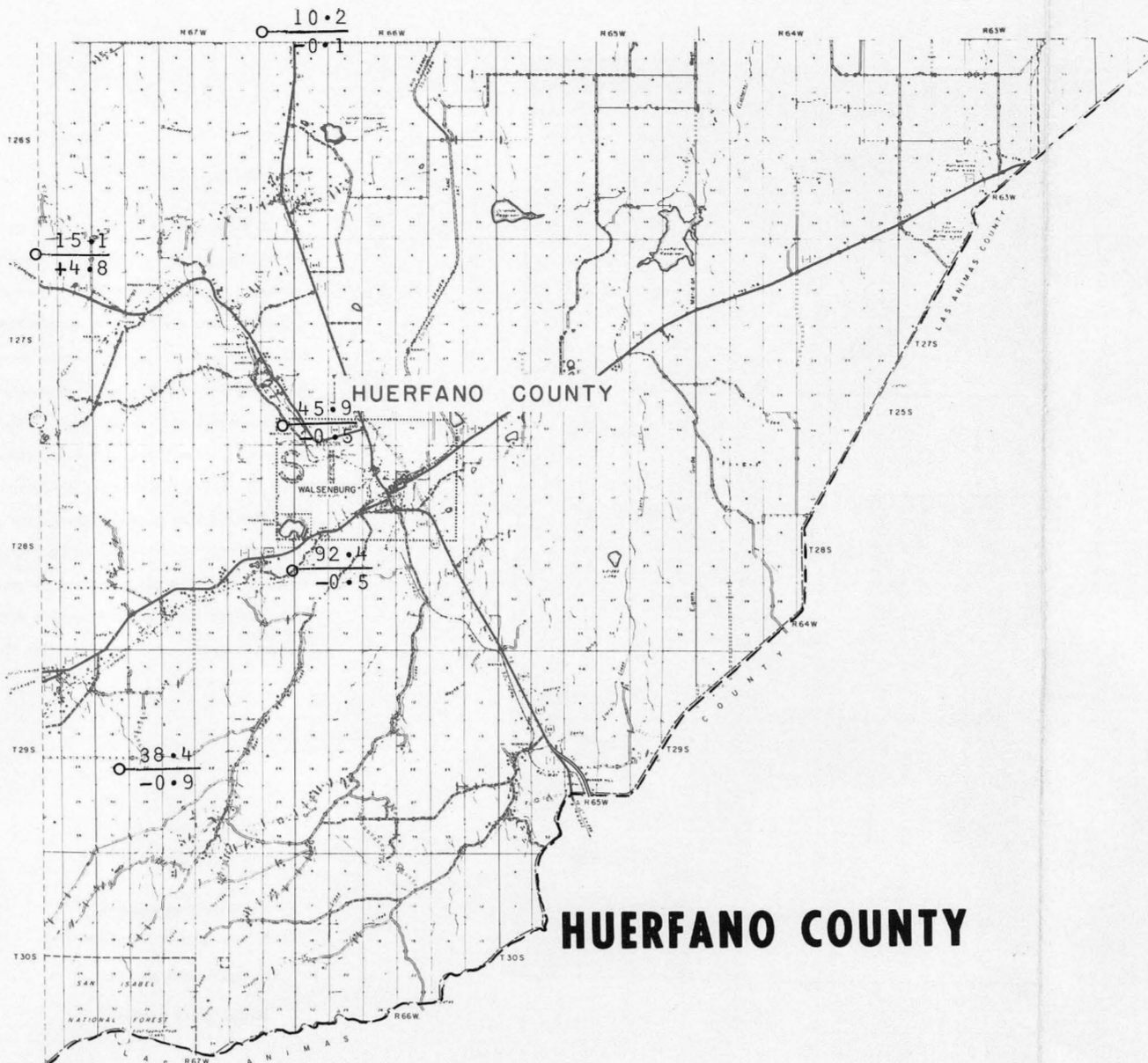
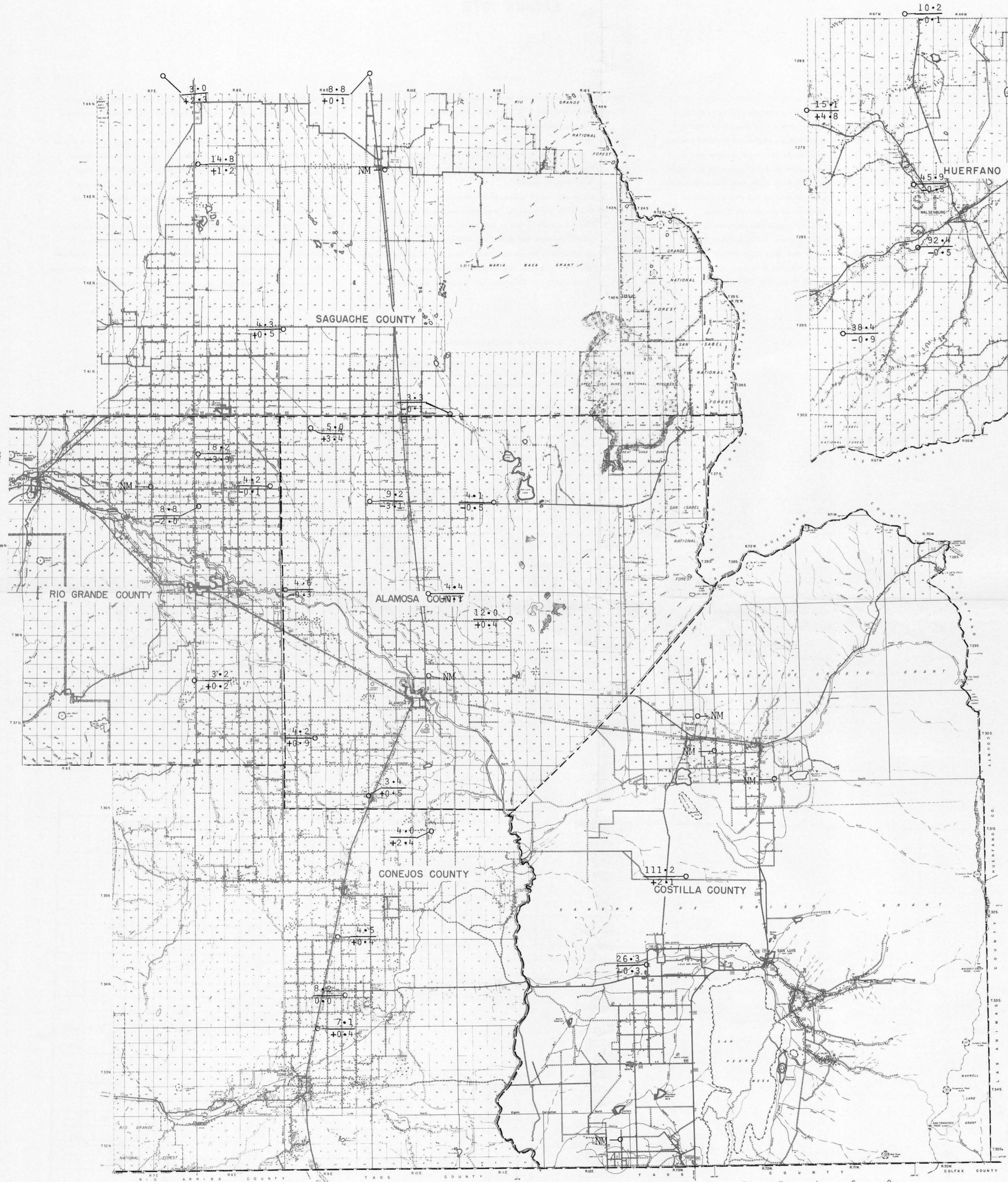
Pueblo County
Steady to down 2 feet - one well down 3 feet.

SOUTHERN HIGH PLAINS

Prowers County
Down 1 to 6 feet.

ARKANSAS RIVER BASIN





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CG
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2 of 2 sheets
ESDL

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SAN LUIS VALLEY

Bent County
No general area pattern to fluctuations. Wells in Chisos and Obispo Formations up to down 9 feet. Wells in the Ogallala Formation up to 1.5 feet to down 3 feet. Undifferentiated wells up to 2 feet to down 8 feet.

Las Animas County
Generally steady but variable in Northwestern corner from up 3 feet to down 2 feet.

Conejos County
Steady up to 2 feet.

Costilla County
Insufficient data.

Saguache County
Steady to down 2.5 feet.

Baca County
Steady up to 2 feet.

ARROYOS RIVER BASIN

Huerfano County
Down 2 feet; one well up 4.5 feet.

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ENGINEERING RESEARCH
JUL 13 '72
FOOTHILLS READING ROOM