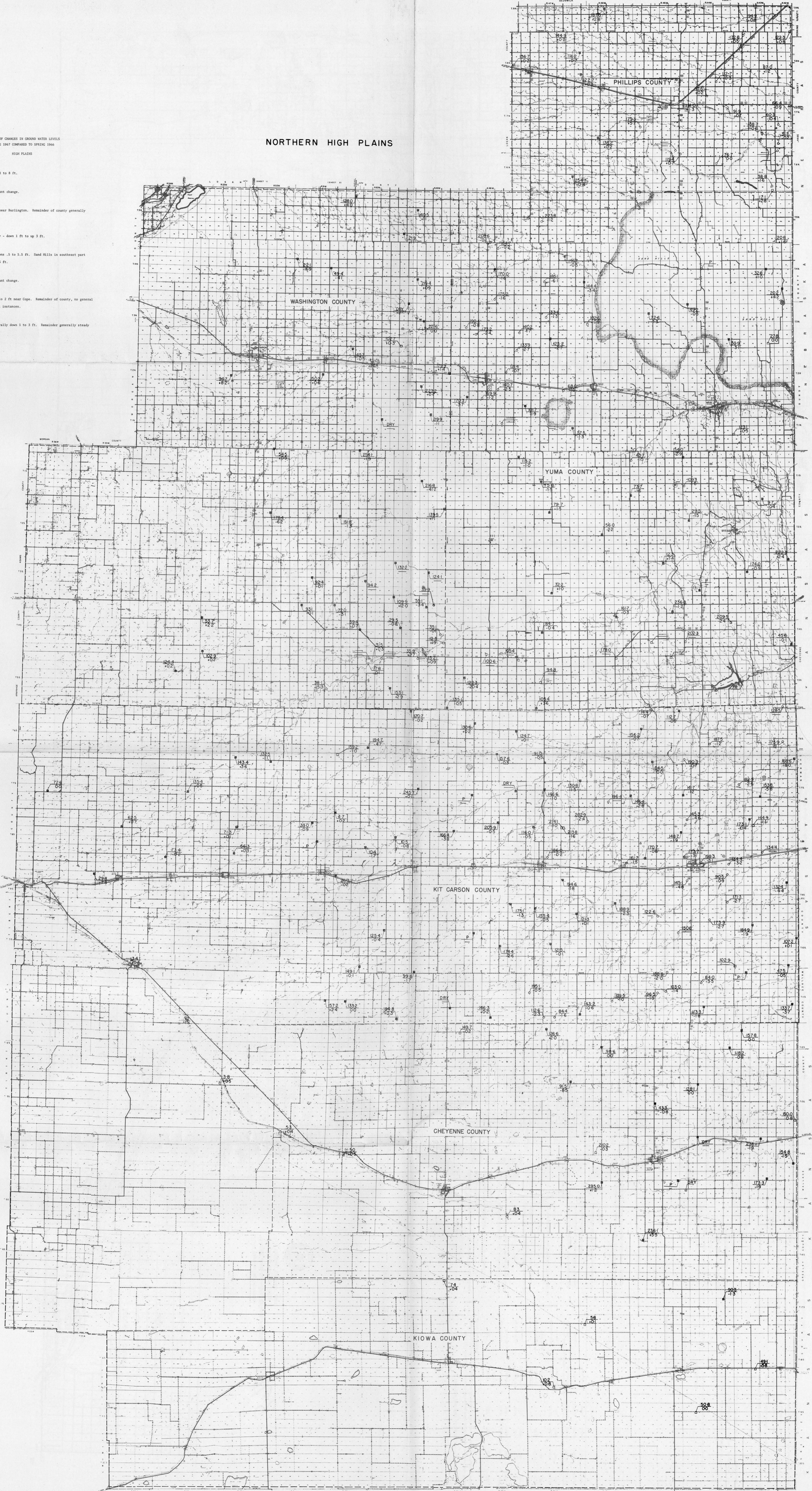




SUMMARY OF CHANGES IN GROUND WATER LEVELS  
SPRING 1967 COMPARED TO SPRING 1966  
HIGH PLAINS

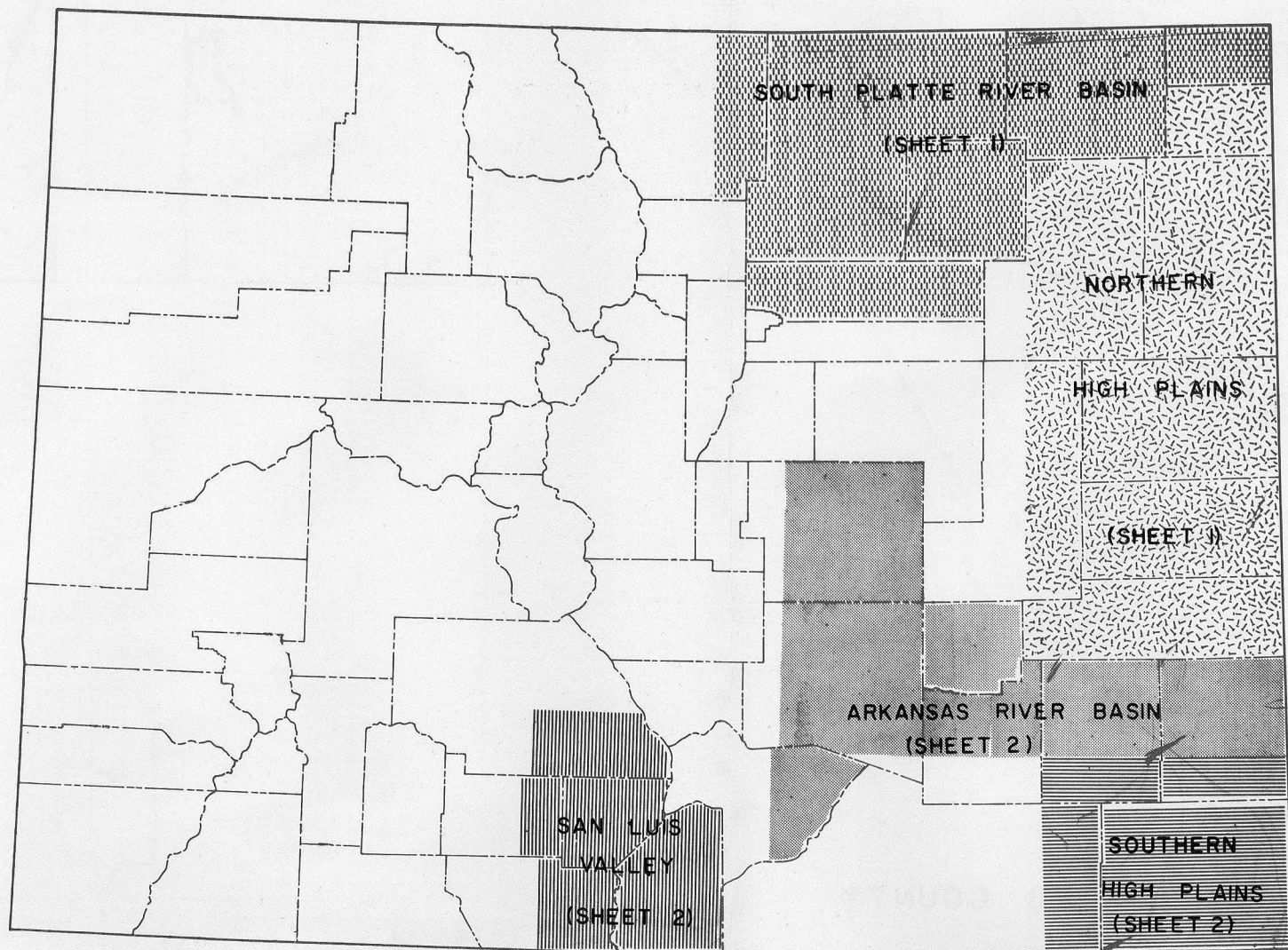
NORTHERN HIGH PLAINS

- Cheyenne County**  
Generally down 1 to 8 ft.
- Elmore County**  
Little significant change.
- Kit Carson County**  
Down 1 to 3 ft near Burlington. Remainder of county generally down 1 to 2 ft.
- Lincoln County**  
Generally steady - down 1 ft to up 3 ft.
- Phillips County**  
Local fluctuations .3 to 5.5 ft. Sand Hills in southeast part of county up 1.5 to 2.5 ft.
- Sedgwick County**  
Little significant change.
- Washington County**  
Generally up 1 to 2 ft near Cope. Remainder of county, no general change except for local instances.
- Yuma County**  
Yuma area generally down 1 to 3 ft. Remainder generally steady down 2 to up 2 ft.



1968

COLORADO GROUND WATER AREAS INCLUDED IN THIS REPORT



COLORADO GROUND-WATER LEVELS

SPRING 1968

John Brookman<sup>1</sup>

INTRODUCTION

Colorado State University Agricultural Experiment Station began monitoring ground water levels in a limited observation well network in 1929. This network has been gradually expanded as development of Colorado's ground water resources has continued, until it presently encompasses annual measurement of ground water levels in approximately 700 observation wells. These wells are selected to give representative coverage of the four major ground water areas in Colorado—the South Platte River Basin, the Arkansas River Basin, the San Luis Valley, and the High Plains of Eastern and Southeastern Colorado. The authors acknowledge the cooperation of the Water Resources Branch, U. S. Geological Survey, Denver, Colorado, for providing water level data for an additional 175 wells measured annually, and for several hundred wells measured during biennial mass measurements.

The basic information obtained from the observation well network provides valuable data which is actively used for:

- 1) Detecting areas of critical ground water depletion or accretion;
- 2) Extending existing and establishing additional historical ground water level hydrographs;
- 3) Estimating changes in ground water storage for specific areas;

4) Ground water research and ground water resources evaluation studies;

5) Better understanding of operating characteristics and more effective management of Colorado's ground water as an integral part of the total water resources available.

Ground water level measurements are made with a steel tape or an electric sounder twice each year in most areas—after pumping has stopped in the fall, and before pumping begins in the spring when water levels have recovered. Due to the long pumping season, water levels in the High Plains are measured only once annually—usually in January. Only the spring water level measurements (in feet below local land surface) are reported, since these measurements more nearly represent static water level conditions. For wells in which the water level was measured the previous year, changes in water level from the previous year are also noted.

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 senior author.

Further information concerning ground water level fluctuations in Colorado is available in the following literature:

1. Duke, H. R., "Colorado Ground Water Levels, Spring 1967," Colorado State University Experiment Station, Fort Collins, Colorado. C866-6788954.
2. Duke, H. R. and A. V. Sandaras, "Colorado Ground Water Levels, Spring 1966," Colorado State University Experiment Station, Fort Collins, Colorado. C866-6788953.
3. Duke, H. R. and M. M. Skinner, "Colorado Ground Water Levels, Spring 1965," Colorado State University Experiment Station, Fort Collins, Colorado. C866-6788952.
4. Skinner, M. M. and J. L. Thomas, "Colorado Ground Water Levels, Spring 1964," Colorado State University Experiment Station, Fort Collins, Colorado. C866-6788951.
5. Cole, W. E., "Water Table Fluctuations in Eastern Colorado," Bulletin 5005, Colorado State University Experiment Station, Fort Collins, Colorado, August 1958.

<sup>1</sup>Research Technician, Engineering Research Center, Colorado State University, Fort Collins, Colorado.

LEGEND

- Observation well measured annually by Colorado State University Experiment Station.
- Observation well measured annually by U. S. Geological Survey, Denver, Colorado.
- ⊠ Observation well measured biennially by U. S. Geological Survey, Denver, Colorado. Water level changes shown are for two years.

KEY:

- Spring 1968 water level, in feet below local land surface. — 1968 water level not available.
- P—indicates well was pumping at time observed was in area.
- Change in ground water level compared with preceding spring measurement ( - indicates decline, + indicates rise).
- — indicates previous spring measurement not available.

Map scale: Approximately 5 miles per inch. Base map was assembled from General Highway Maps prepared by Colorado Department of Highways.

IRRIGATION PUMP POWER CONSUMPTION DATA

Based upon information furnished by various power distribution companies, the following compilation is presented of electrical power and natural gas consumed by irrigation pumping plants in Colorado.

Area	Units	1964	1965	1966	1967
Arkansas River Basin	Million kWh	31.48	17.51	15.04	18.65
	Pumps served	1844	1947	1963	1903
San Luis Valley	Million kWh	52.75	12.63	27.63	41.56
	Pumps served	1772	1741	1747	1978
Grand Valley*	Million kWh	.154	.416	.452	.363
	Pumps served	64	58	56	75
Arkansas River Basin	Million cf			116.25	228.13
	Pumps served			125	164
Southern High Plains	Million cf	1067.96	702.88	1037.84	2165.06
	Pumps served	370	488	500	534
* Majority of pumps operating from surface supplies.					
Total for Colorado	Million kWh	212.99	122.52	175.90	156.44
	Million cf	1746.25	1527.53	1969.78	3275.28
	Pumps served	10828	11424	11793	12390

SUMMARY OF CHANGES IN GROUND WATER LEVELS

SPRING 1967 COMPARED TO SPRING 1966

ARKANSAS RIVER BASIN

**Bent County**  
Generally up .2 to 3 ft in the western half of the county - down 1 to 4 ft in the eastern half.

**Crowley County**

No significant change.

**El Paso County**

Black Squirrel Creek: No significant change.  
Jimmy Camp Creek: No significant change.  
Fountain Creek: Steady to up 4 ft.

**Hartman County**

Steady to up 4.5 ft.

**Deer Creek County**

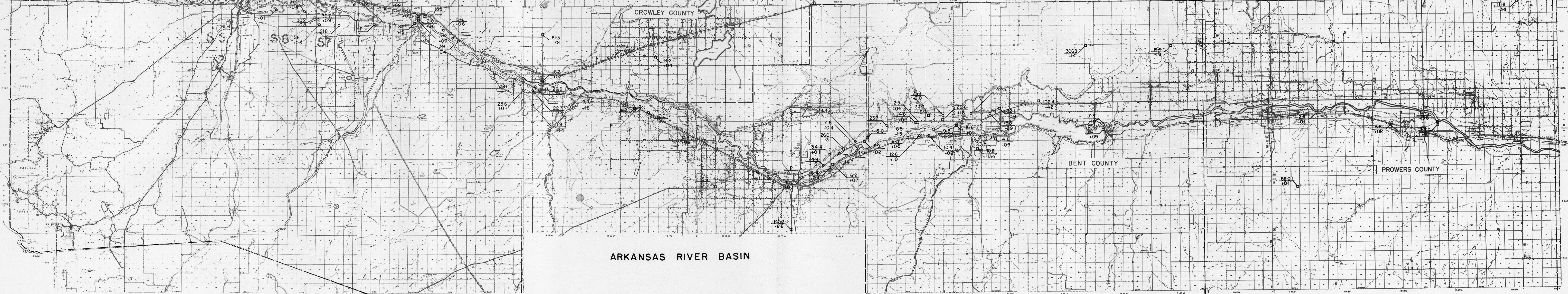
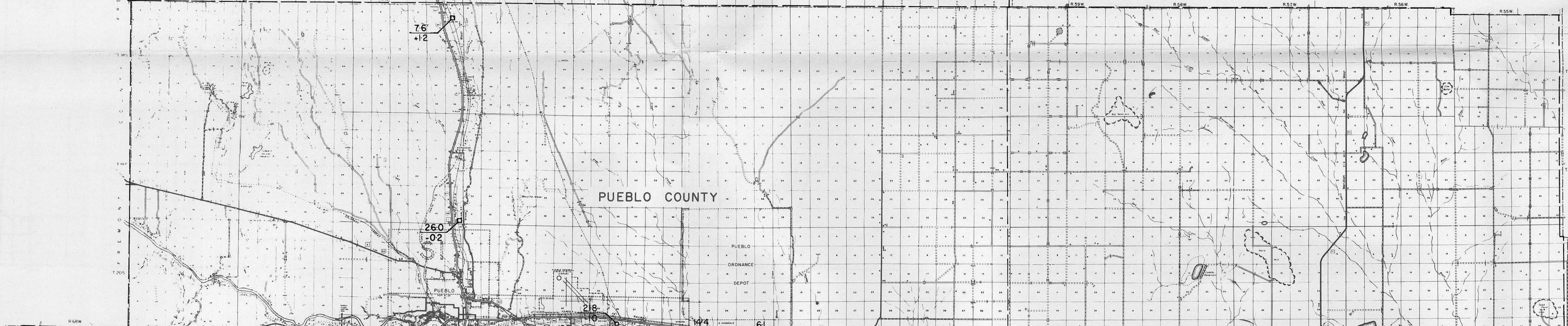
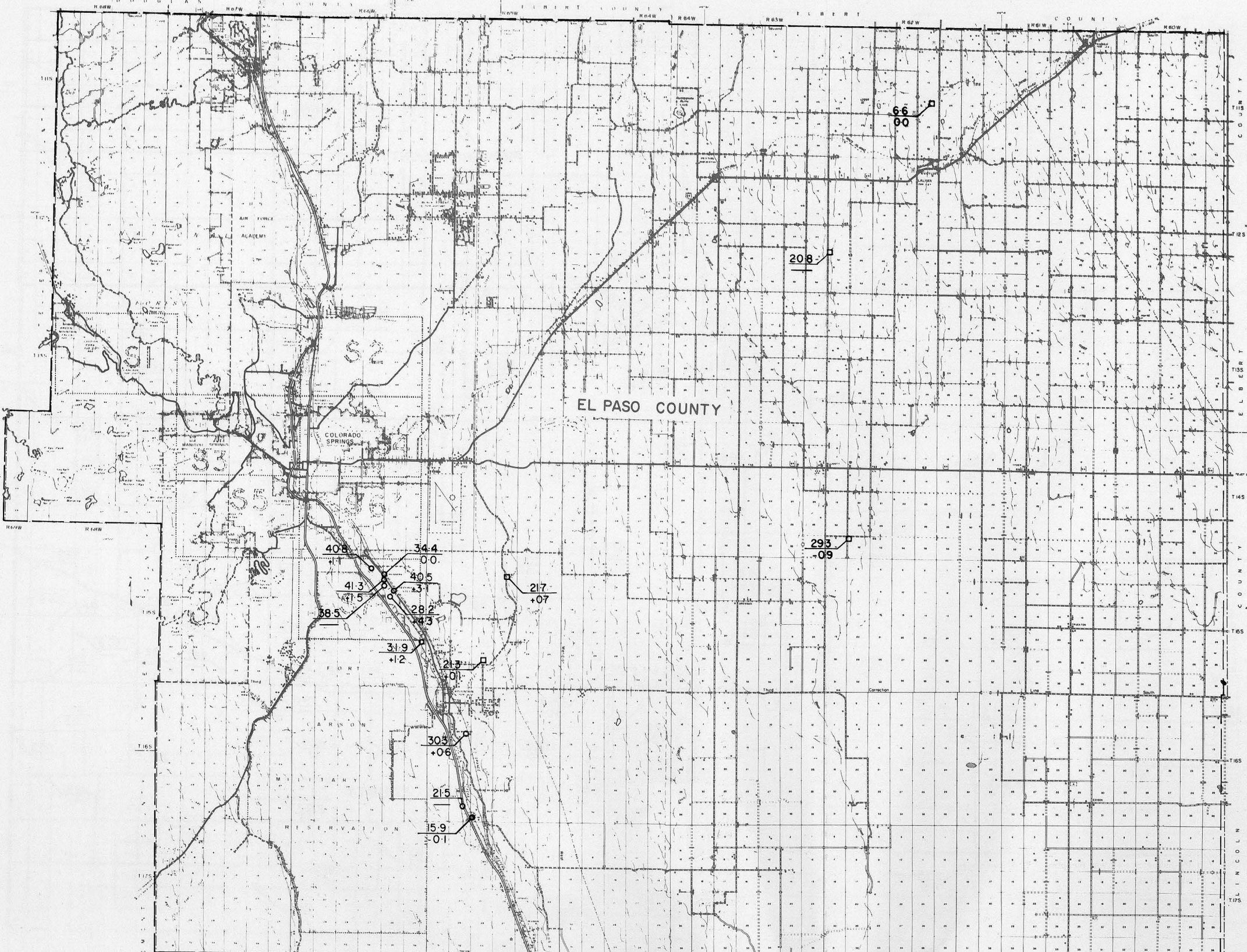
Steady except for local fluctuations

**Powers County**

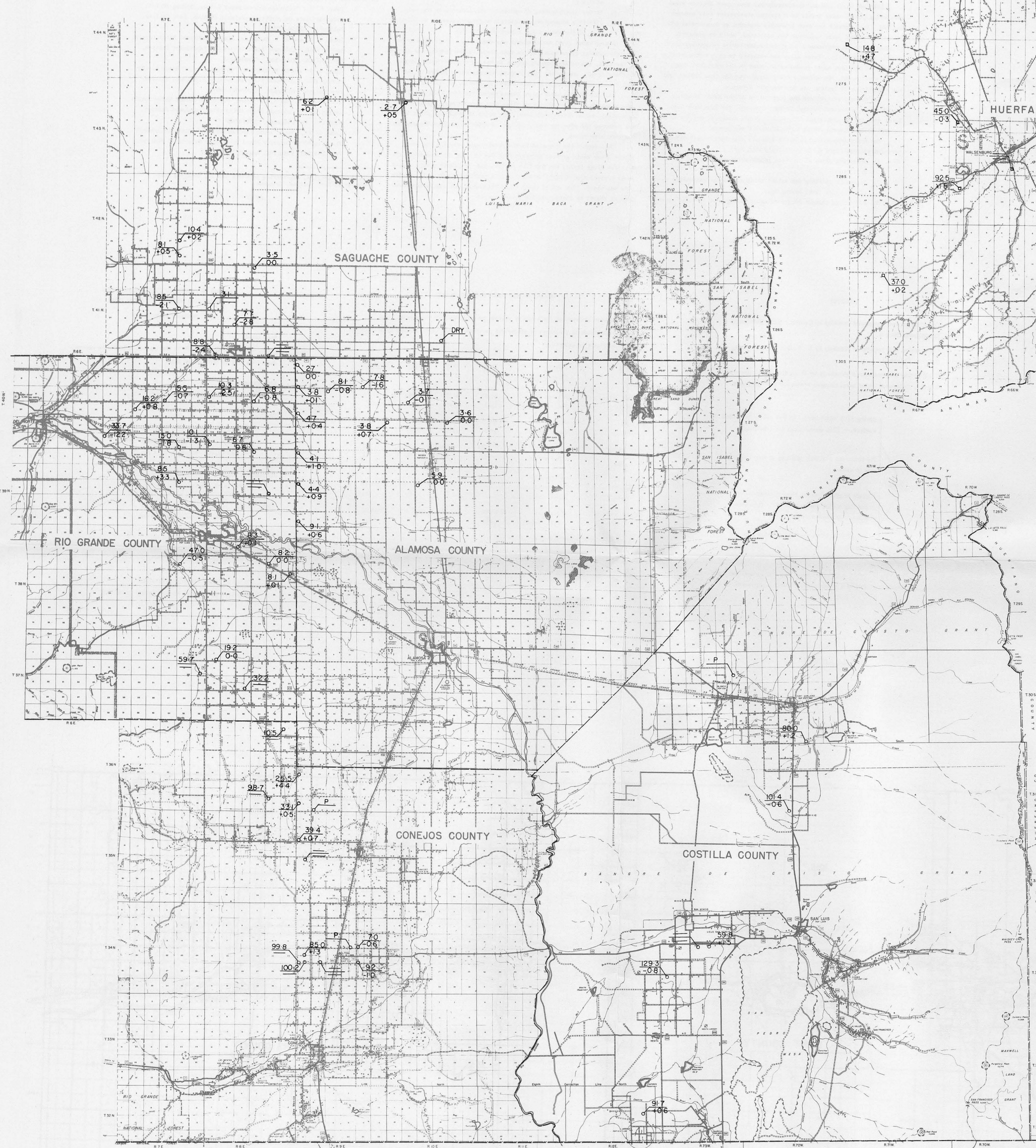
Generally steady - one well down 13 ft.

**Pueblo County**

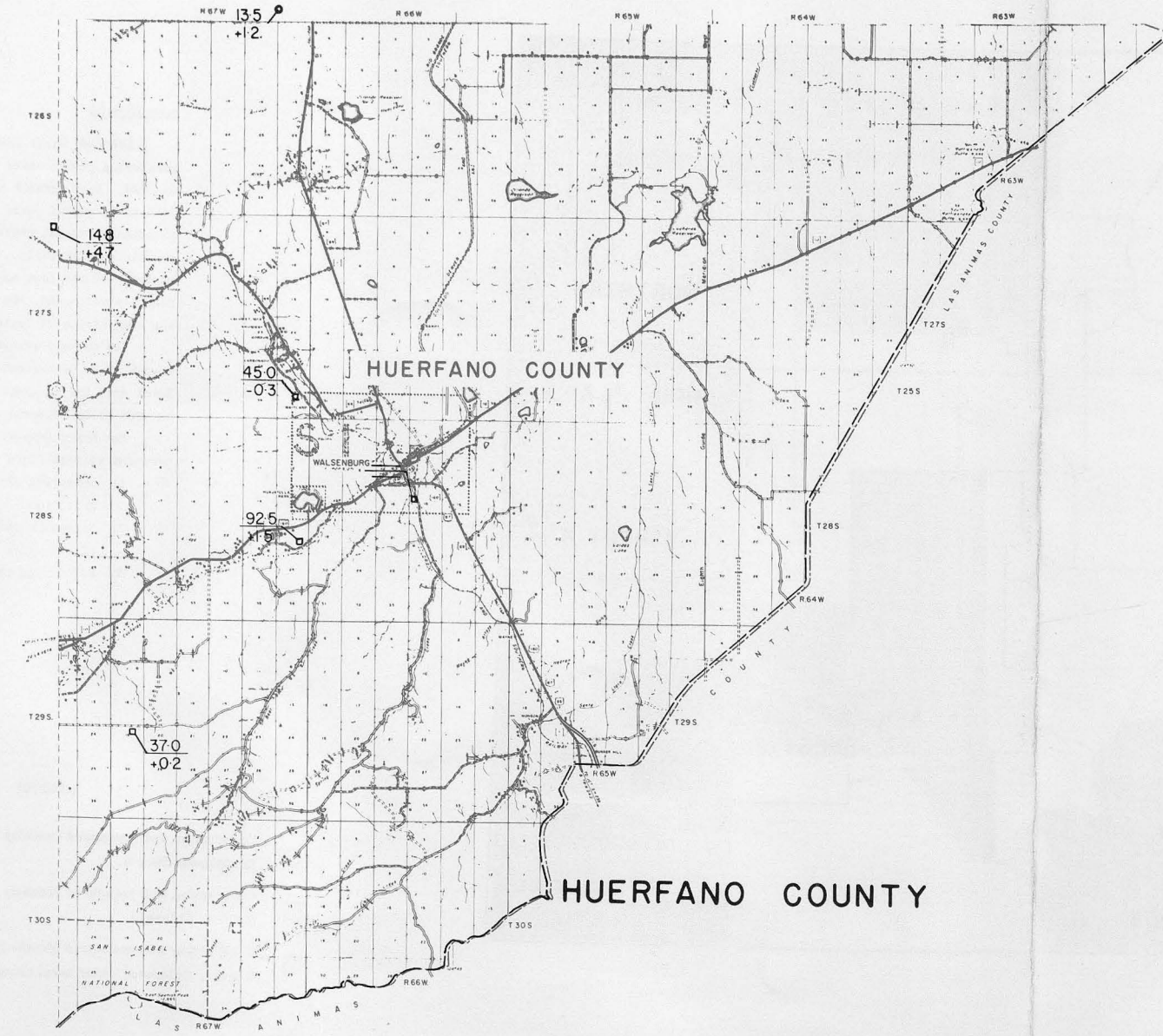
Fountain Creek: Steady to up 1 ft.  
Main stem of Arkansas River: Steady to up 1 ft.



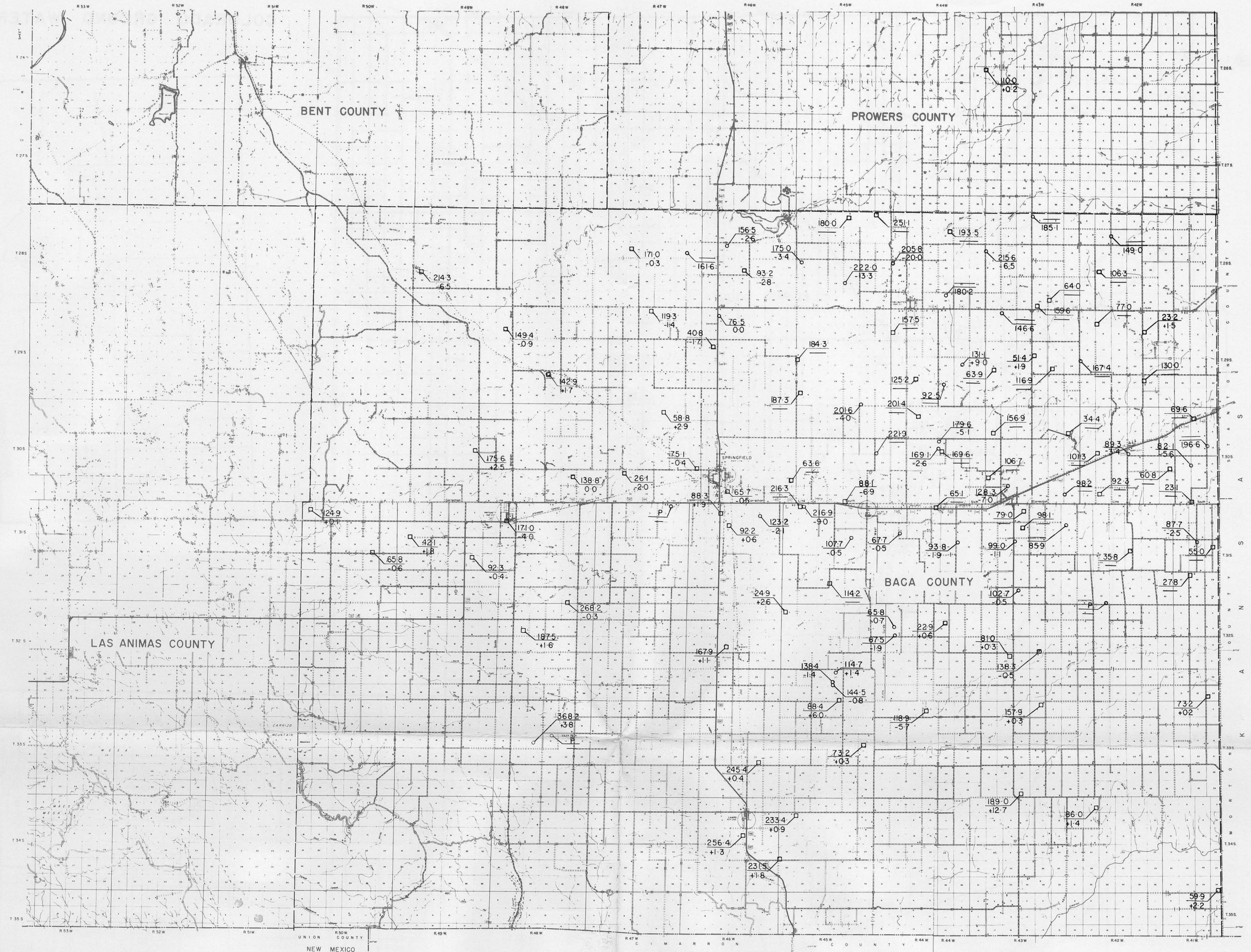
ARKANSAS RIVER BASIN



SAN LUIS VALLEY



HUERFANO COUNTY



SOUTHERN HIGH PLAINS

TA 7  
 CG  
 CER  
 6/1/68-2  
 Sheet 1

SUMMARY OF CHANGES IN GROUND WATER LEVELS  
 SPRING 1967 COMPARED TO SPRING 1966

- |  |  |
|--|--|
| <p><b>SAN LUIS VALLEY</b></p> <p><u>Alamosa County</u><br/>         No significant change, water table very near surface.</p> <p><u>Conejos County</u><br/>         Someo area: Steady to up 1 ft.<br/>         La Jara area: Steady to up 4 ft.</p> <p><u>Costilla County</u><br/>         Fort Garland-Blanca areas: No significant change.<br/>         San Acacio-Jarosa area: Steady to up 1 ft.</p> <p><u>Rio Grande County</u><br/>         South of Monte Vista: No significant change.<br/>         Zinner area: No significant change.<br/>         North of Monte Vista: Steady to down 2.5 ft.</p> <p><u>Saguache County</u><br/>         Center area: Steady to down 2.5 ft.<br/>         Muffat area: No significant change.</p> | <p><b>SOUTHERN HIGH PLAINS</b></p> <p><u>Baca County</u><br/>         No general area pattern to fluctuation, wells down 1 to 13 ft., up 1 to 12 ft.</p> |
|--|--|

Civil Engineering Department  
 Colorado State University Experiment Station  
 Engineering Research Center  
 Fort Collins, Colorado 80521



TO:

1968