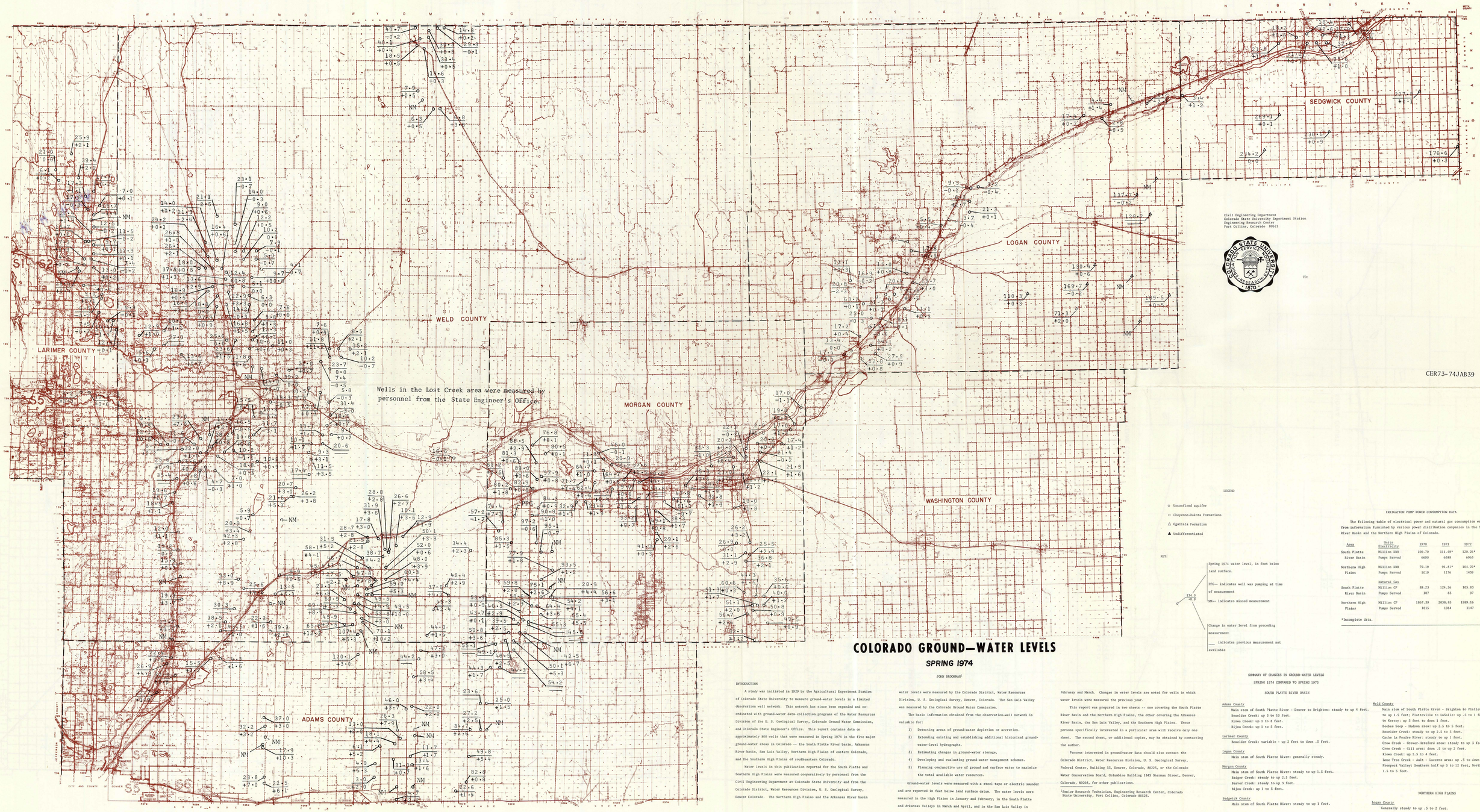

Civil Engineering Department
Colorado State University Experiment Station
Engineering Research Center
Fort Collins, Colorado 80521

TO:

CER73-74JAB39

LEGEND

- ○ Unconfined aquifer
- □ Cheyenne-Dakota Formations
- △ Ogallala Formation
- ▲ Undifferentiated

KEY:

134.0 +0.0

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COLORADO GROUND—WATER LEVELS

SPRING 1974

JOHN BROODMAN[1]

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, Colorado Ground Water Commission, and Colorado State Engineer's Office. This report contains data on approximately 800 wells that were measured in Spring 1974 in the five major ground-water areas in Colorado -- the South Platte River basin, Arkansas River basin, San Luis Valley, 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 and the Arkansas River basin water levels were measured by the Colorado District, Water Resources Division, U. S. Geological Survey, Denver, Colorado. The San Luis Valley was measured by the Colorado Ground Water Commission.

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) Estimating changes in ground-water storage.
4) Developing and evaluating ground-water management schemes.
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Persons interested in ground-water data should also contact the Colorado District, Water Resources Division, U. S. Geological Survey, Federal Center, Building 53, Denver, Colorado, 80225, or the Colorado Water Conservation Board, Columbine Building 1845 Sherman Street, Denver, Colorado, 80203, for other publications.

[1]Senior Research Technician, Engineering Research Center, Colorado State University, Fort Collins, Colorado 80523.

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		1970	1971	1972	1973
	Electricity				
South Platte River Basin	Million KWH	100.70	111.49*	120.26*	104.77
	Pumps Served	6690	6580	6963	6502
Northern High Plains	Million KWH	79.19	91.81*	104.29*	145.48
	Pumps Served	1019	1176	1439	2308
	Natural Gas				
South Platte River Basin	Million CF	89.23	124.26	105.83	
	Pumps Served	107	83	97	
Northern High Plains	Million CF	1867.39	2038.85	1989.16	1655.78
	Pumps Served	1015	1084	1147	1153

*Incomplete data.

SUMMARY OF CHANGES IN GROUND-WATER LEVELS
SPRING 1974 COMPARED TO SPRING 1973

SOUTH PLATTE RIVER BASIN

Adams County
Main stem of South Platte River - Denver to Brighton: steady to up 4 feet.
Boxelder Creek: up 3 to 10 feet.
Kiowa Creek: up 1 to 8 feet.
Bijou Creek: up 1 to 5 feet.

Larimer County
Boxelder Creek: variable - up 2 feet to down .5 feet.

Logan County
Main stem of South Platte River: generally steady.

Morgan County
Main stem of South Platte River: steady to up 1.5 feet.
Badger Creek: steady to up 2.5 feet.
Beaver Creek: steady to up 3 feet.
Bijou Creek: up 1 to 5 feet.

Sedgwick County
Main stem of South Platte River: steady to up 1 foot.

Weld County
Main stem of South Platte River - Brighton to Platteville: steady to up 1.5 feet; Platteville to LaSalle: up .5 to 1 foot; LaSalle to Kersey: up 3 feet to down 1 foot.
Beebee Seep - Hudson area: up 2.5 to 5 feet.
Boxelder Creek: steady to up 2.5 to 5 feet.
Cache La Poudre River: steady to up 1 foot.
Crow Creek - Grover-Hereford area: steady to up 3 feet.
Crow Creek - Gill area: down .5 to up 2 feet.
Kiowa Creek: up 1.5 to 4 feet.
Lone Tree Creek - Ault - Lucerne area: up .5 to down 2.5 feet.
Prospect Valley: Southern half up 5 to 12 feet, Northern half up 1.5 to 5 feet.

NORTHERN HIGH PLAINS

Logan County
Generally steady to up .5 to 2 feet.

Sedgwick County
Generally steady.

W. H. OLSON

1974

NORTHERN HIGH PLAINS

NORTHERN HIGH PLAINS

Cheyenne County

Steady, up 1 to down 2 feet.

Kiowa County

Steady to up ½ foot.

Kit Carson County

Wells in Burlington area steady to up 2.5 feet, wells in remainder of county variable but generally down .5 to 2.0 feet.

Lincoln County

No significant change.

Phillips County

Southern half - down .5 to 2.0 feet; Northern half - steady to up 1 foot.

Washington County

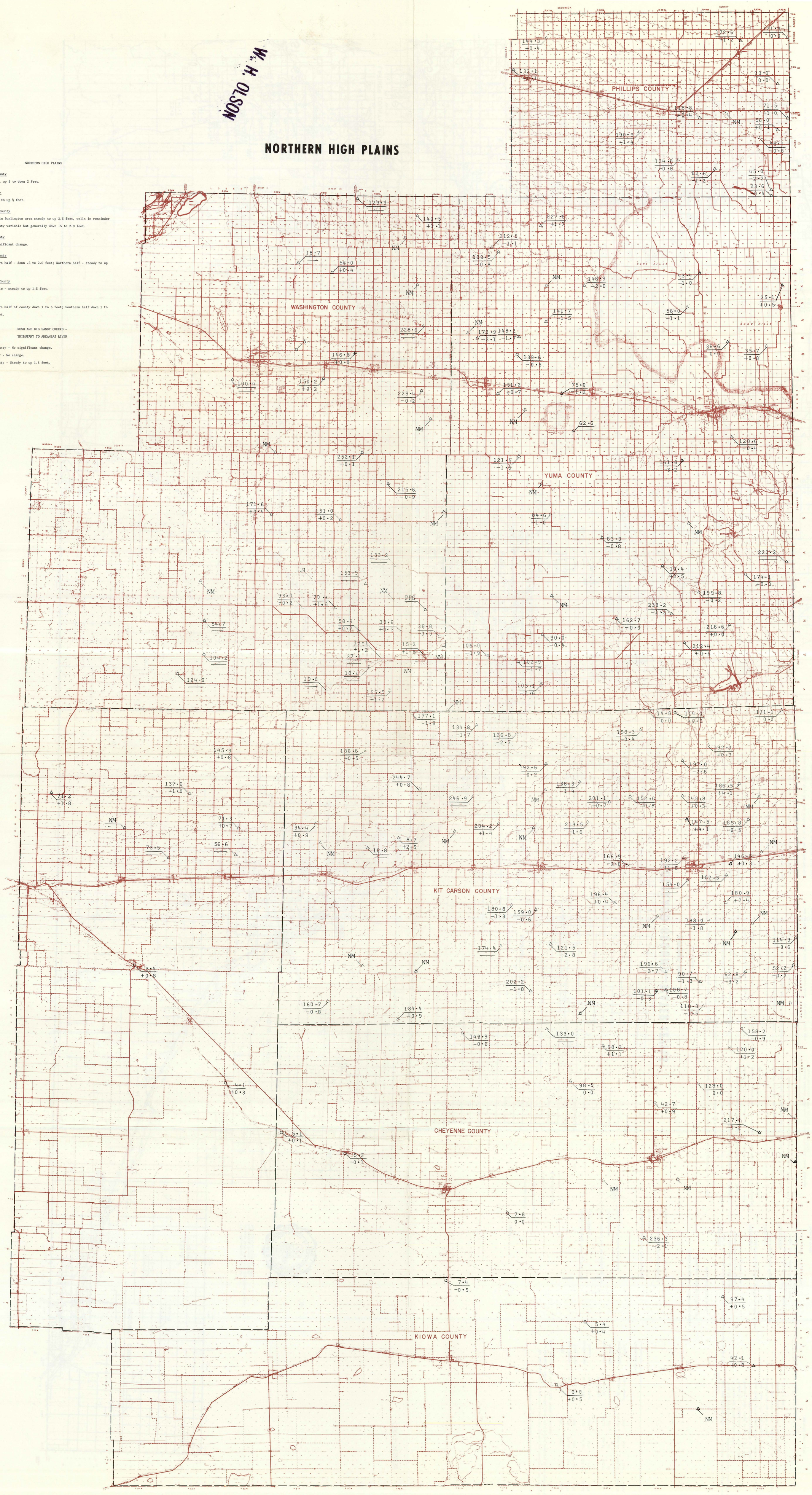
Variable - steady to up 1.5 feet.

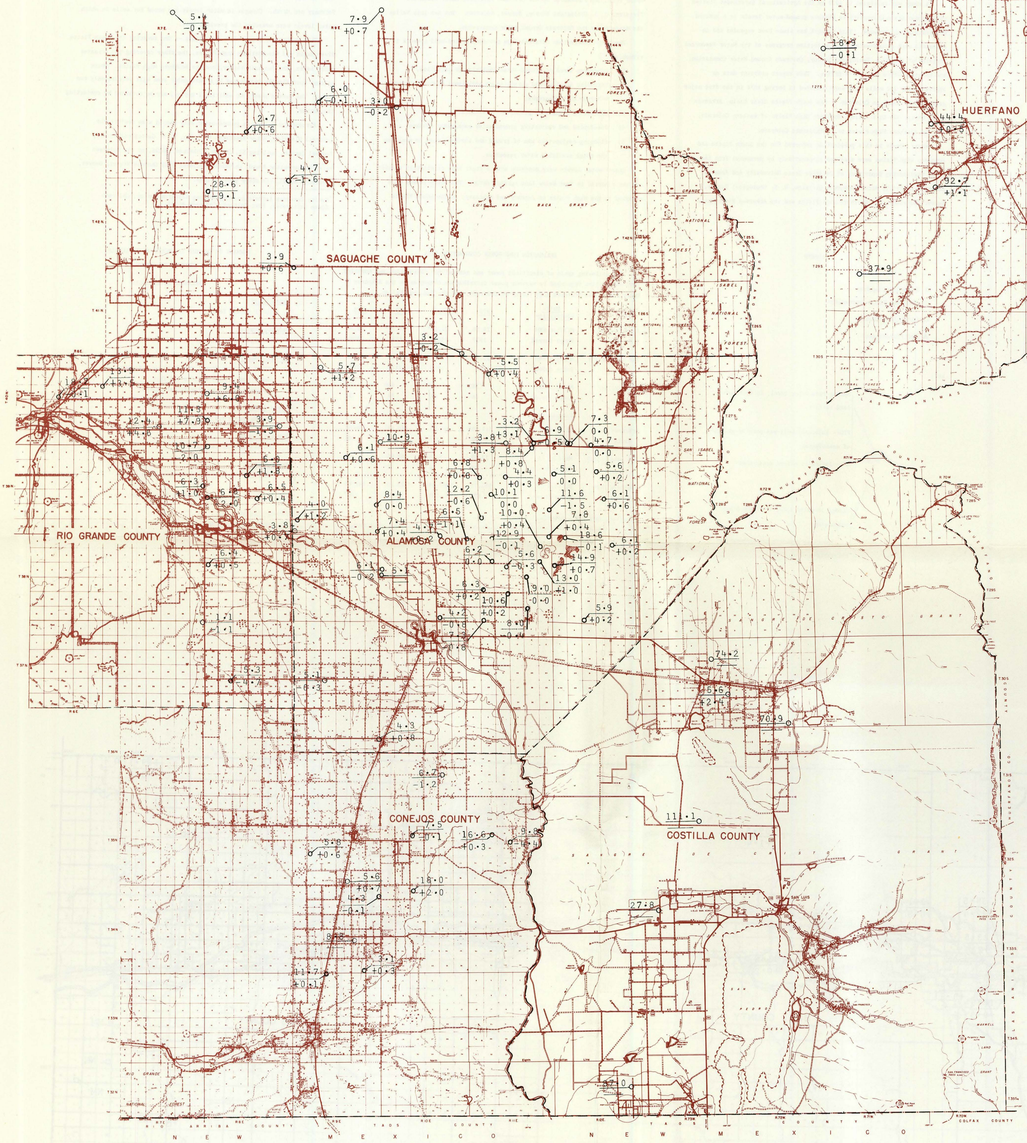
Yuma County

Northern half of county down 1 to 3 feet; Southern half down 1 to 2.5 feet.

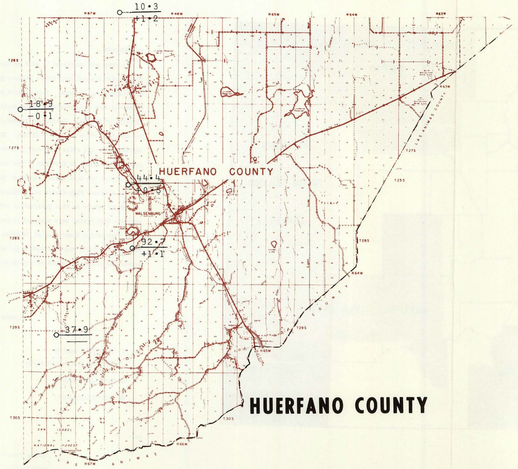
RUSH AND BIG SANDY CREEKS -
TRIBUTARY TO ARKANSAS RIVER

Cheyenne County - No significant change.
Kiowa County - No change.
Lincoln County - Steady to up 1.5 feet.

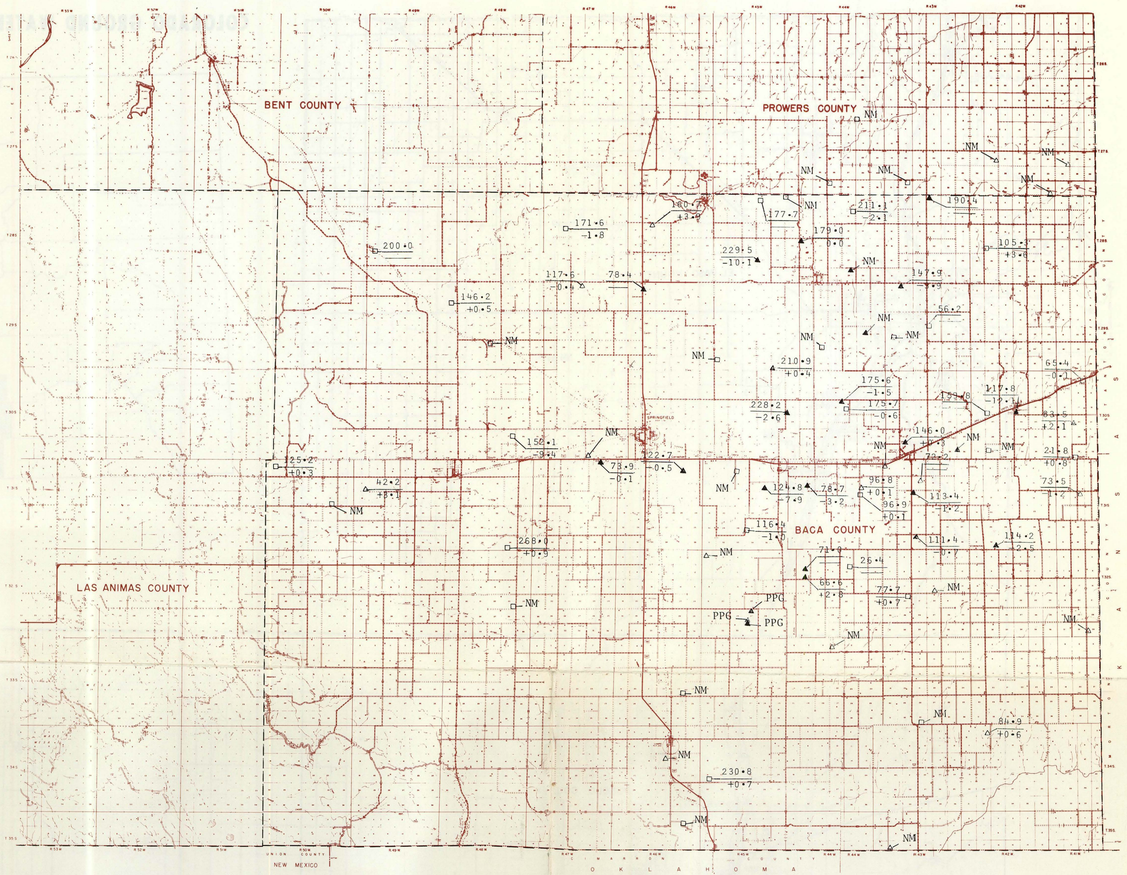




SAN LUIS VALLEY



HUERFANO COUNTY



SOUTHERN HIGH PLAINS

LEGEND

- ○ Unconfined aquifer
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SUMMARY OF CHANGES IN GROUND-WATER LEVELS

SPRING 1974 COMPARED TO SPRING 1973

SOUTHERN HIGH PLAINS

Baca County

No general area pattern to fluctuations. Wells in Cheyenne and Dakota formations up 2 to down 2 feet. Wells in the Ogallala formation steady to up 4 feet. Undifferentiated wells up 3 to down 12 feet.

SAN LUIS VALLEY

Alamosa County

Closed basin area: steady to up 1.2 feet.
Sump area: variable - down 1 to up 3 feet.

Conejos County

Up 2 to down 4 feet.

Costilla County

Insufficient data.

Rio Grande County

Closed basin area: up 4.5 to down 2 feet.
South of river: down 1 to 4 feet.

Saguache County

Steady to down 1.5 feet; one well down 9 feet.

ARKANSAS RIVER BASIN

Huerfano County

Steady to up 1 foot.

1974

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

COLORADO STATE UNIVERSITY · ROCKY MOUNTAIN SERVICE · RESEARCH · 1870

TO:

1974

ROBERT E. GLOVER
1936 So. Lincoln
DENVER, COLORADO 80210

CER73-74JAB39

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SPRING 1974

JOHN BROODMAS[1]

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COLORADO GROUND WATER LEVELS INCLUDED IN THIS REPORT

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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	1970	1971	1972	1973
	Electricity				
Arkansas River Basin	Million KWH	18.58	21.85*	24.79*	22.32
	Pumps Served	1937	1630	1781	1969
San Luis Valley	Million KWH	25.16	71.77	55.80	27.01
	Pumps Served	1907	1956	2122	2181
Grand Valley	Million KWH	.383	.429	.640	.396
	Pumps Served	56	64	74	54
	Natural Gas				
Arkansas River Basin	Million CF	311.405	428.81	399.98	225.84
	Pumps Served	239	233	232	239
San Luis Valley	Million CF	13.02	25.18	62.60	
	Pumps Served	31	35	39	
Southern High Plains	Million CF	983.73	1057.44	1118.05	641.63
	Pumps Served	571	551	594	607

*Complete data not available.

SUMMARY OF CHANGES IN GROUND-WATER LEVELS

SPRING 1974 COMPARED TO SPRING 1973

ARKANSAS RIVER BASIN

Bent County
Up .5 to 2.5 feet.

Crowley County
No significant change.

El Paso County
Black Squirrel Creek: steady to up 2.5 feet.
Jimmy Camp Creek: up 1 to 2.5 feet.
Fountain Creek: no significant change.

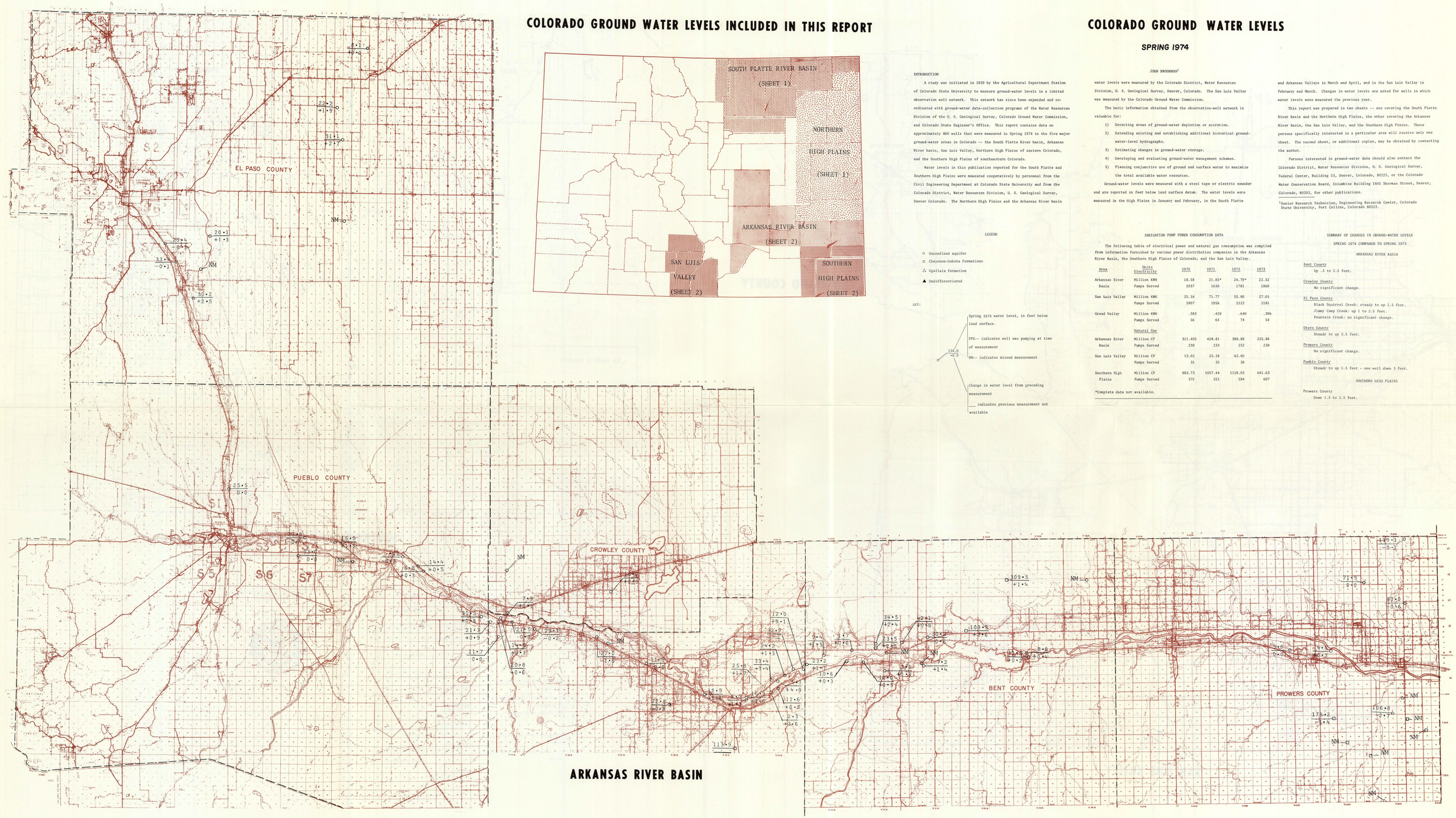
Otero County
Steady to up 3.5 feet.

Prowers County
No significant change.

Pueblo County
Steady to up 1.5 feet - one well down 3 feet.

SOUTHERN HIGH PLAINS

Prowers County
Down 1.5 to 2.5 feet.



ARKANSAS RIVER BASIN