HYDROLOGIC DATA FOR THE SOUTH-CENTRAL AREA, NEBRASKA

By P. A. Bartz and J. M. Peckenpaugh

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DONALD PAUL HODEL, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information
write to:

District Chief, WRD
U.S. Geological Survey
406 Federal Building
100 Centennial Mall, North
Lincoln, Nebraska 68508

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FOREWARD

Personnel of the U.S. Geological Survey Nebraska District Office and personnel of the Nebraska Natural Resources Commission collected, compiled, tabulated, verified, organized, and assembled the data presented in this report. In addition to the authors, the following individuals contributed significantly to the report:

U.S. Geological Survey	Nebraska Natural Resources Commission
R. A. Adams	D. D. Adelman
J. C. Beard	H. A. Harms
J. T. Dugan	R. A. Hiergesell
K. M. Espejo	R. A. Kern
D. E. Schild	A. D. Schreiber
	W. J. Schroeder

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FACTORS FOR CONVERTING INCH-POUND UNITS
TO INTERNATIONAL SYSTEM UNITS

Multiply	By	To obtain
acre	4,047.	square meter
acre-foot	1,233.	cubic meter
foot	0.3048	meter
cubic foot per second	0.0283	cubic meter per second
inch	25.4	millimeter
square mile	2.590	square kilometer

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ABSTRACT

This report contains much of the hydrologic data used in the South-Central hydrogeology study, which covers an area of approximately 5,600 square miles in south-central Nebraska. Data pertain to the ground-water, surface-water, climate, land-use, and pumpage and precipitation at water-use sites in the study area.

Ground-water data include water-level elevations from three mass measurements of wells and water-quality information from 68 water-quality sampling sites. Surface-water data include average annual streamflows and average October through December streamflows at U.S. Geological Survey gaging stations, canal diversions, and seepage from canals and reservoirs.

Climatic data include monthly precipitation records for eight weather stations and evaporation data from four reservoirs. Land-use data were compiled for agricultural land uses, by county, from 1940 through 1981. Water-use site data include water levels at each of 18 sites, soil information for those sites with complete precipitation and pumpage records, and precipitation and ground-water pumpage information for each site.

INTRODUCTION

This report contains unpublished hydrologic data and a summary of published hydrologic data used in the South-Central hydrogeology study. The study was a cooperative effort of the Nebraska Natural Resources Commission, the Lower Republican Natural Resources District (NRD), and the U.S. Geological Survey. The Tri-Basin NRD, the Central Nebraska Public Power and Irrigation District (CNPPID), and the Central Platte NRD also provided services and data.

The study area of over 5,600 square miles includes all or parts of 14 counties in south-central Nebraska (fig. 1). Although the original area of interest included only the Tri-Basin NRD, that part of the Lower Republican NRD north of the Republican River in Furnas, Harlan, Franklin, and Webster Counties, and that part of the Central Platte NRD south of the Platte River, the study area was expanded in each direction in order to facilitate development of a numerical ground-water model.

The results of the hydrogeologic study will be published as an interpretive report. It will include a numerical ground-water model that will be suitable for assessing the probable effects of various ground- and surface-water management alternatives.

Included in this report are data on ground water, surface water, climate, land use, and water-use sites within the study area. The ground-water data consist of water-level altitudes from mass measurements of water levels during the spring of 1981, the fall of 1981, and the spring of 1982. Also included are the locations of 68 wells from which water-quality samples were collected. Surface-water data include average annual streamflow and average October through December streamflow at U.S. Geological Survey stream-gaging sites, location of four low-flow investigations, location of canals and surface-water irrigated areas, canal diversions, and seepage from canals and reservoirs. The climatic data consist of several climatic parameters for 39 weather stations and evaporation data from four reservoirs. Precipitation data are provided for the eight CNPPID's weather stations. Climatic data for the other 31 weather stations are available in National Oceanic and Atmospheric Administration publications. The land-use data consist of agricultural land-use by county and year. Data for the water-use sites consist of water-level measurements at each site, soil information for sites with complete records, and precipitation and ground-water pumpage at the sites.

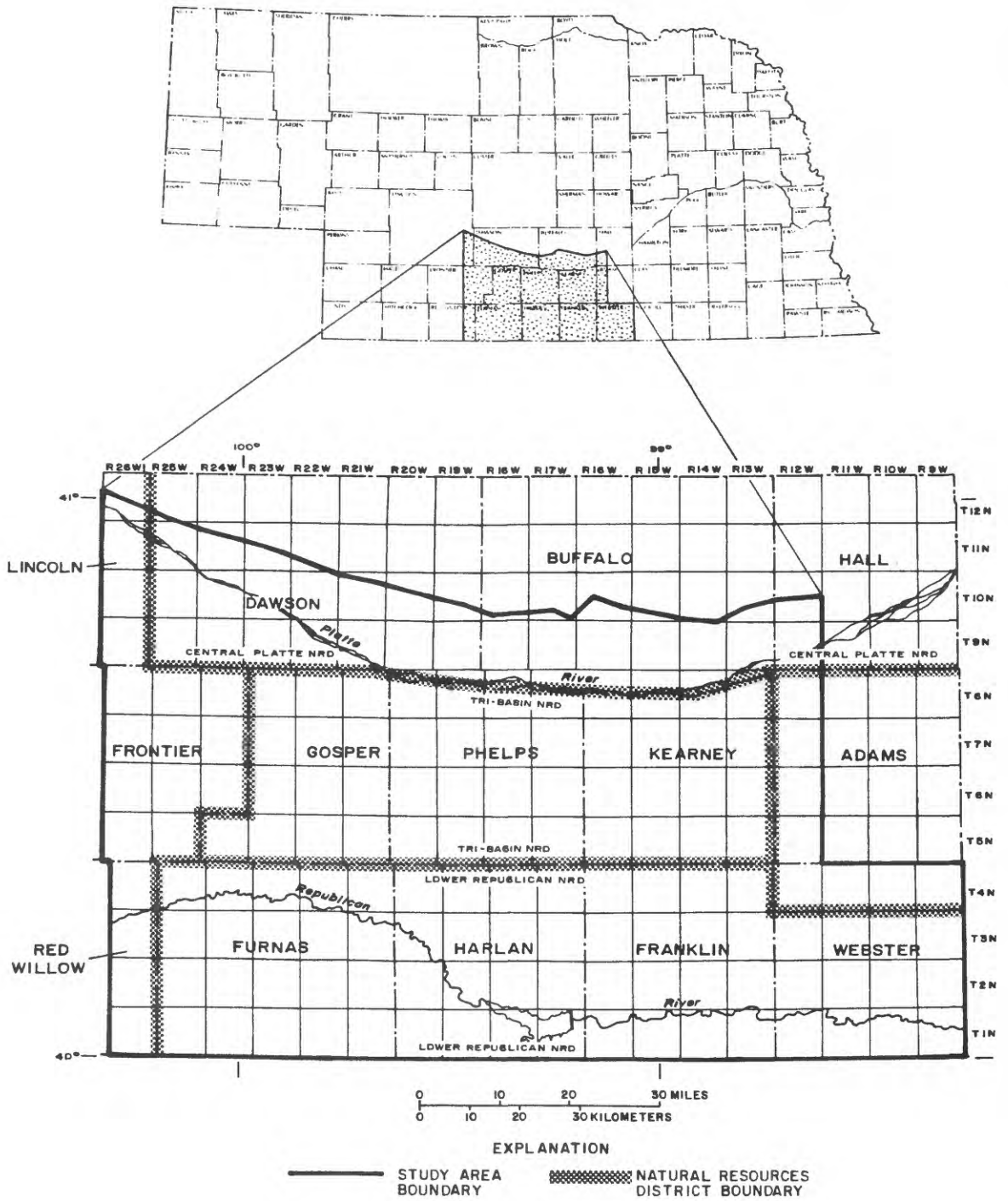

Figure 1.--Location of the study area.

WELL-NUMBERING SYSTEM AND ALTITUDE CONTROL

Well numbers are based on the land subdivisions within the U.S. Bureau of Land Management's survey of Nebraska. The numeral preceding N (north) indicates the township, the numeral preceding W (west) indicates the range, and the numeral preceding the terminal letters indicates the section in which the well is located. The terminal letters denote, respectively, the quarter section, the quarter-quarter section, the quarter-quarter-quarter section, and the quarter-quarter-quarter-quarter section. They are assigned in counterclockwise direction beginning with "A" in the northeast corner of each subdivision. If two or more wells are located in the same section, they are distinguished by adding a seqential digit to the well number. Thus, the second well inventoried in SW 1/4 SW 1/4 SE 1/4 NW 1/4, sec. 24, T. 5 N., R. 18 W., would be assigned the number 5N-18W-24BDCC2. An example is shown in figure 2.

Altitudes (land-surface datum) for most wells were determined from 7-1/2 minute series topographic maps (scale 1:24,000), with 5- or 10-foot contour intervals, which were available for the entire study area. Altitudes for some wells, particularly long-term observation wells, were obtained by instrument survey.

GROUND-WATER DATA

Ground-water data were collected for use in developing and compiling the numerical ground-water model. In addition to the data presented here, data on ground-water pumpage for the E-65 canal and for municipal, rural-domestic, and irrigation use were compiled and estimated. These data will be discussed in the interpretive report.

Mass Water-Level Measurements

Mass water-level measurements were made in the spring of 1981, the fall of 1981, and the spring of 1982 by the U.S. Geological Survey and cooperating agencies. Selected existing observation wells and a large number of additional wells were measured to provide an even distribution across all parts of the study area. Figure 3 shows the location of 1,191 wells that were measured at least once, and table 1 lists the water-level altitudes in feet above sea level. Water-level altitudes were determined by use of a chalked steel tape. Additional information on the water levels in observation wells are available in the U.S. Geological Survey's files and in a report on water levels by Johnson and Pederson (1982).

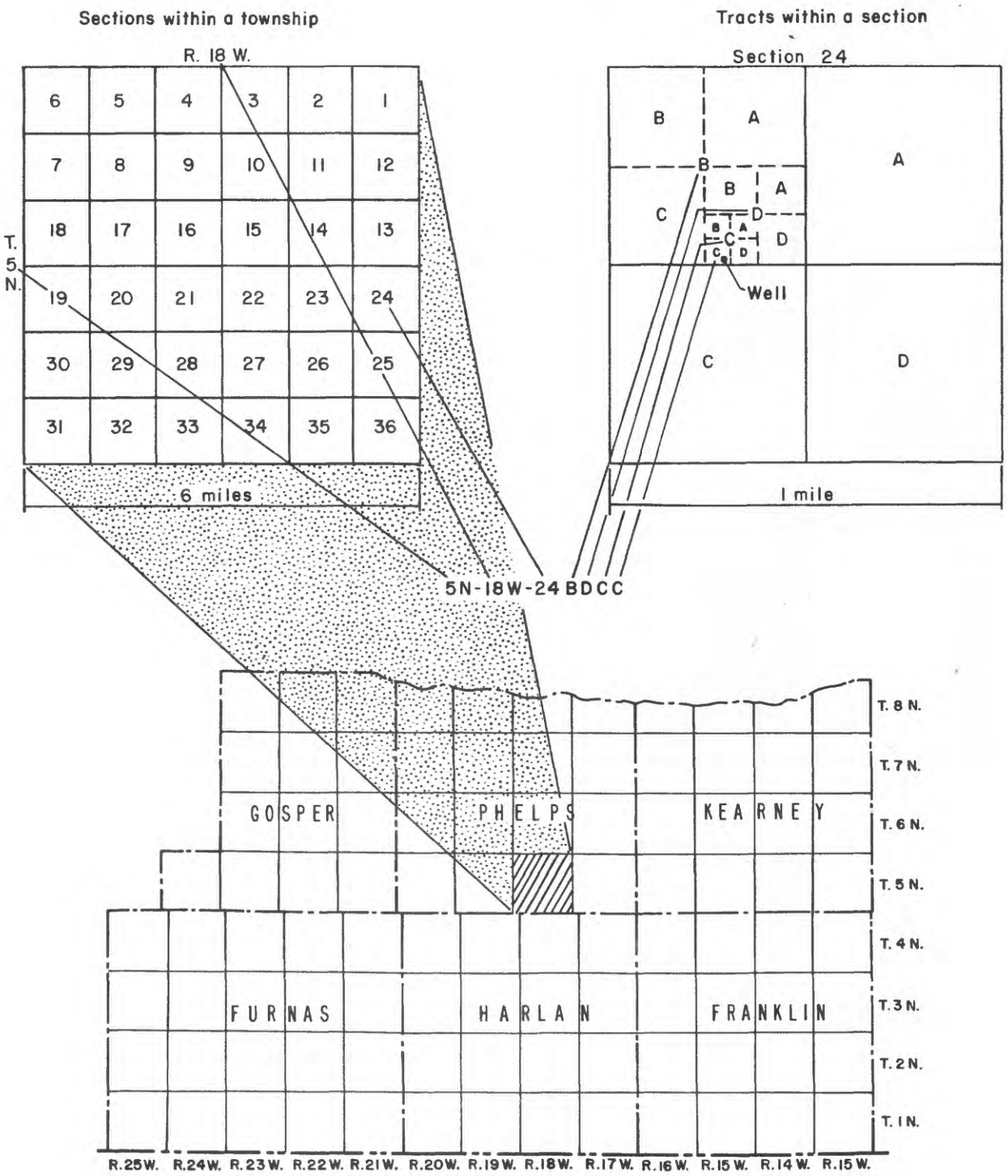

Figure 2.--Well numbering system.

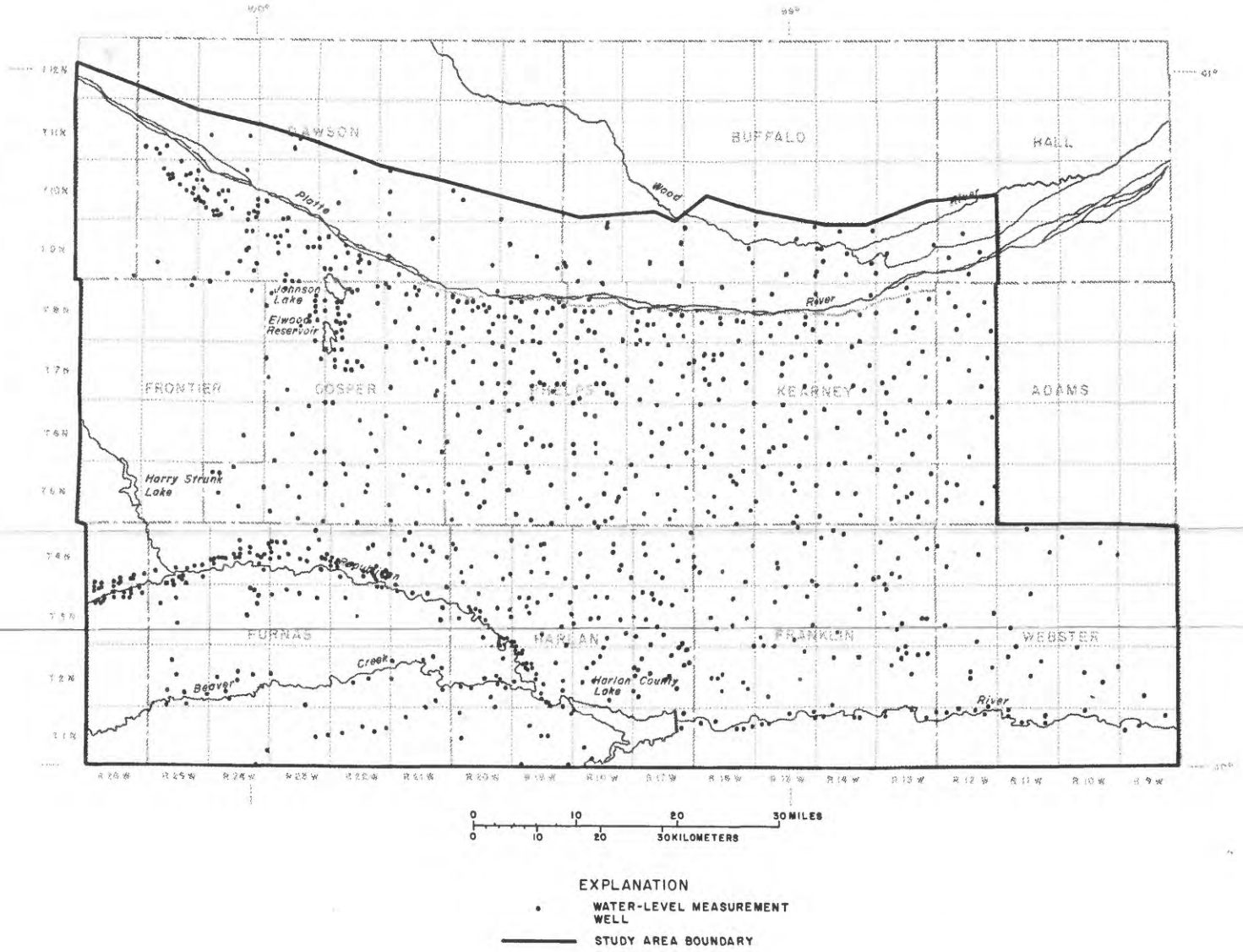

Figure 3.--Location of wells where mass water-level measurements were made, spring and fall 1981 and spring 1982.

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area

[M.A. is measuring agency: 1 - U.S. Geological Survey and Nebraska Natural Resources Commission (South-Central study group); 2 - Tri-Basin Natural Resources District (NRD); 3 - Lower Republican NRD; 5 - Harlan County Extension Service; 6 - Franklin County Extension Service; 7 - NRD's outside study area; 9 - Furnas County Extension Service; 10 - South-Central Study Group's second measurements; 11 - Central Nebraska Public Power and Irrigation District; 12 - U.S. Bureau of Reclamation, Cambridge-Frenchman Division. Blanks indicate the wells were not measured during a particular time period]

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Adams	5N12W 7DDBB	2046	7	1952.5	32381	1952.3	111281	1953.1	32682
	5N12W 8DD	2044	7	1940.2	50581				
	5N12W13AC	1952	7	1884.3	32381	1885.0	111281	1885.9	32682
	5N12W19DABB	2071	7	1947.4	32381	1946.7	111281	1948.2	32682
	5N12W23CCAB	2000	7	1888.4	32381				
	6N12W12DBB	2015	7	1907.7	32381	1907.8	111281	1908.7	32682
	6N12W33AAA	1970	7	1937.9	32381	1937.8	111281	1938.5	32682
	7N12W 8BCC	2037	7	1982.4	32381	1981.7	111381	1982.3	32682
	7N12W11ADC	2065	7	1940.0	32381	1939.0	111381	1940.1	32682
	7N12W15CBC	2045	7	1945.0	32381	1944.5	111381	1945.6	32682
	7N12W26BBD	2035	7	1918.5	32381	1917.8	111381	1918.6	32682
	7N12W32CBD	2043	7	1959.2	32381	1958.7	111381	1959.7	32682
	8N12W 5CCC	2007	7	1999.0	32381	1999.0	111381	2000.7	32682
	8N12W 5CCD	2009	7	1998.3	32381	1998.3	111381	1999.9	32682
	8N12W11DCC	2060	7	1970.2	32381				
	8N12W17ADC	2060	7	1992.1	32381	1991.2	111381	1991.8	32682
	8N12W22BB	2070	7	1976.8	32381	1975.6	111381	1976.4	32682
	8N12W22BBC	2070	7	1979.6	32381	1975.6	111381	1976.4	32682
	8N12W25CCA	2043	7	1948.5	32381	1947.7	111381	1948.2	33082
	8N12W29ADD	2065	7	1984.7	32381	1983.5	111381	1984.3	32682
Buffalo	8N13W 1BAAA	2017	1	2010.7	32581	2010.6	100781		
	8N13W 4ADDD	2035	1	2028.9	32581	2028.5	100781		
	8N14W 6CCCC	2091	1	2087.0	32481	2086.8	100781		
	8N14W 7CCCA	2093	1	2089.5	32481	2088.4	100781		
	8N14W12BAAA	2056	7	2053.1	10581	2052.9	100781		
	8N15W 7CC	2133	7	2126.7	50681	2126.5	100781	2126.4	51782
	8N15W 8AAB	2122	1	2106.9	32481	2113.2	100781	2113.4	51782
	8N16W 3CBB	2165	1	2153.6	32381	2153.1	100781	2153.2	51782
	8N17W 2ADD	2198	1	2184.3	32481	2184.2	100781		
	8N18W 3ABBA	2245	1	2230.8	32581	2230.7	100781	2231.9	51782
	8N18W 9CAD	2245	1	2238.4	32581	2237.6	100781	2238.5	51782
	9N13W13AA	2014	7	1995.1	10781	1999.9	100881	2002.3	51782
	9N13W13AB	2022	7	1999.7	50681	1999.9	100881	2002.3	51782
	9N13W17CCCC	2052	1	2030.6	32581	2029.6	100881	2032.1	51882
	9N13W19BB	2053	7	2036.6	50681	2035.6	100881	2037.6	51782
	9N13W24DDDB	2006	1	2003.2	32581	2002.9	100781		
	9N14W 1DC	2060	7	2033.5	10581	2033.2	100781	2033.6	30282
	9N14W 4CD	2087	7	2060.2	50781	2059.3	100881	2060.4	51882
	9N14W18CABB	2099	1	2069.0	32481	2067.1	100881	2069.1	51882
	9N14W18DBBA	2095	1	2064.9	32481				
	9N14W19DDBB	2102	1	2069.0	32481	2067.5	100881	2070.9	51882
	9N14W22BBBB	2080	1	2055.9	32481	2054.4	100881		
	9N14W25BAAA	2061	1	2043.9	32581	2043.4	100881	2046.0	51882
	9N14W25DDD	2049	1	2043.7	32581	2043.2	100781		
	9N14W30CCCA	2098	1	2077.5	32481	2076.2	100881	2078.3	51882
	9N14W31BBCB	2098	1	2077.7	32481	2076.5	100881	2078.6	51882
	9N14W34BBCB	2077	1	2061.7	32481	2060.7	100881	2062.9	51882
	9N15W 1AD	2144	7	2074.9	50681	2071.9	100881	2074.7	51882
	9N15W 6BB	2195	7	2110.9	50681	2110.9	100881		
	9N15W11CB	2117	7	2077.6	50681	2063.4	100881	2077.3	51882

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Buffalo	9N15W34BB	2120	7	2092.2	32481	2091.2	100781		
	9N15W34BBCA	2120	1	2092.8	32481	2091.2	100781		
	9N16W 6BC	2241	7	2147.4	50681	2145.0	100781	2147.7	51782
	9N16W13CAAA	2162	1	2115.9	32381				
	9N16W13DB	2151	7	2107.0	50681	2110.3	100881	2112.6	51782
	9N16W24DD	2193	7	2108.5	50681	2104.7	100881	2110.4	51782
	9N17W12DD	2324	7	2185.3	50681	2185.1	100781	2185.1	51782
	9N17W21DD	2351	7	2214.6	50781	2214.3	100781	2214.8	51782
	9N17W24DDD	2349	1	2200.7	32481	2200.4	100781	2199.9	51782
	9N17W31CDDD	2237	1	2221.6	32581	2225.6	100781	2222.5	51782
	9N18W 2AB	2400	7	2244.2	50681	2245.9	100781	2247.2	51782
	9N18W 2AC		11			2267.0	100181	2267.0	32482
	9N18W21DDDD	2267	1	2241.0	32581	2241.2	100781	2242.0	51782
	9N18W30ABBA	2276	1	2259.5	32581				
	9N18W30AB	2275	7	2259.9	50681	2259.8	100781	2261.1	51782
	9N18W30AB		11			2257.0	100181	2258.0	32482
	9N18W33CB		11			2247.0	100181	2246.0	32482
	10N13W 6BABB	2148	7	2051.9	50781				
	10N13W21CC	2047	7	2011.5	50781				
	10N13W24BC	2014	7	1982.6	50781				
	10N13W24DD	2009	7	1974.7	50781				
	10N14W13ADDA	2100	7	2059.4	50781				
	10N14W36AA	2070	7	2027.7	50781	2024.6	100881	2027.6	51882
	10N15W 2AACA	2185	7	2109.3	50681				
	10N15W16ABC	2223	7	2106.5	50681				
	10N16W 5DC	2262	7	2137.2	10581				
	10N17W13BBAB	2300	7	2011.4	50681				
	10N18W31BA	2425	7	2283.5	50681				
Dawson	8N20W 1CD		11			2302.0	100181	2301.0	32482
	9N19W18AA	2313	7	2304.1	52081				
	9N19W22BA	2312	7	2282.6	52081				
	9N19W25BD		11			2259.0	100181	2260.0	32482
	9N20W25BB	2320	7	2311.0	52081				
	9N21W 7AAD	2391	7	2383.7	52081				
	9N21W12CB	2370	7	2357.0	52081				
	9N21W19AA	2397	7	2389.8	52081				
	9N21W19AA		11			2380.0	100181	2380.0	32482
	9N21W31CCBB	2427	1	2409.6	32681	2409.4	100781	2410.8	32482
	9N21W31DD	2388	7	2383.3	52081				
	9N21W31DD		11			2382.0	100181	2384.0	32482
	9N21W32AA		11			2370.0	100181	2370.0	32482
	9N22W 7ADDD		11	2427.0	40181	2426.0	100181	2427.0	32482
	9N22W 7CBBC		11	2442.0	40181	2442.0	100181	2443.0	32482
	9N22W16ACBA	2419	1	2412.2	32581				
	9N22W16DDDD		11	2416.0	40181	2415.0	100181	2415.0	32482
	9N22W18BCCC	2476	1	2454.7	32681	2454.3	100781	2455.4	32482
	9N22W18CBB		11	2459.0	40181	2461.0	100181	2460.0	32482
	9N22W20AC		11			2456.0	100181	2456.0	32482
	9N22W22DDDD	2420	1	2413.0	32581	2412.0	100781	2413.1	32482
	9N22W23BCCB	2405	1	2404.0	32581				
	9N22W23CB		11			2403.0	100181	2403.0	32482
	9N22W26AAAA		11	2397.0	40181	2397.0	100181	2400.0	32482
	9N22W28ACD		11	2461.0	40181	2461.0	100181	2462.0	32482
	9N22W29CBAD	2648	1	2509.1	32681	2510.0	100781	2509.9	32482
	9N22W30DBBA	2655	1	2520.9	32681				
	9N22W35BBBA		11	2436.0	40181	2435.0	100181	2437.0	32482
	9N23W 2DCC	2464	1	2449.9	32681	2449.5	100881		
	9N23W 4DD		11	2470.0	40181	2471.0	100181		
	9N23W 7ADAA		11	2498.0	40181	2499.0	100181	2498.0	32482

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Dawson	9N23W 8ADCC	2520	1	2494.1	32681				
	9N23W 9BCDD	2511	1	2489.4	32681	2489.8	100781	2489.9	32482
	9N23W 9CCCC		11	2499.0	40181	2500.0	100181	2500.0	32582
	9N23W13AC		11	2457.0	40181	2457.0	100181	2458.0	32682
	9N23W14DAAA		11	2512.0	40181	2513.0	100181	2513.0	32582
	9N23W15BC		11			2490.0	100181		
	9N23W21BBB	2684	1	2534.0	32681				
	9N23W33AA		11			2486.0	100181		
	9N24W 1DC		11			2509.0	100181	2509.0	32682
	9N24W 2DDD		11			2523.0	100181		
	9N24W13CB	2690	1	2540.4	32581	2539.7	100881	2540.9	50582
	9N24W14DDAA		11	2542.0	40181	2540.0	100181	2537.0	32682
	9N24W23CDCC	2775	1	2542.2	32581				
	9N24W25AAAA	2720	1	2538.9	32581	2535.9	100781	2539.8	32482
	9N24W25DDB	2708	1	2534.1	32581				
	9N24W34BB	2780	1	2538.6	32581				
	9N25W28BABB	2806	1	2548.3	32581	2547.4	100781	2549.0	32682
	9N25W36DDBB	2787	1	2530.5	32581				
	10N19W 9DBD	2398	7	2314.9	52981				
	10N20W17CC	2384	7	2366.0	52081				
	10N20W21CB	2386	7	2356.5	52081				
	10N20W36DAA	2368	7	2318.8	52081				
	10N21W 6DDA	2441	7	2429.0	52081				
	10N21W18DDD	2421	7	2404.4	10581	2407.6	100881	2406.6	30382
	10N21W31AA	2400	7	2393.0	52081				
	10N22W10ABB	2454	7	2440.6	52981				
	10N22W29AA		11			2427.0	100181	2428.0	32482
	10N23W19CCBC	2492	1	2479.4	32381				
	10N23W29BB		11			2472.0	100181	2472.0	32482
	10N23W29BBB	2480	1	2472.7	32381	2471.8	100881		
	10N23W30BCBC	2495	1	2482.5	32481				
	10N23W30CCCC	2493	1	2483.2	32681				
	10N23W33DACC	2470	1	2458.6	32781				
	10N23W34CBBC		11	2456.0	40181	2456.0	100181	2457.0	32482
	10N24W 2DDA		11			2521.0	100181		
	10N24W 7BBB	2542	1	2528.5	32481	2528.2	100881		
	10N24W 7DCCC		11	2537.0	40181	2537.0	100181	2537.0	32582
	10N24W15CC		11			2519.0	100181	2519.0	32482
	10N24W15CCC	2525	1	2518.1	32481	2518.3	100781	2518.9	32482
	10N24W16DCCC	2540	1	2523.1	32481				
	10N24W18DACC	2545	1	2537.1	32481				
	10N24W18DDDD		11	2542.0	40181	2543.0	100181	2542.0	32582
	10N24W19CBC		11	2568.0	40181	2569.0	100181	2573.0	32682
	10N24W21BC		11			2534.0	100181	2533.0	32482
	10N24W21DD		11	2528.0	40181	2531.0	100181	2529.0	32582
	10N24W27DBCB	2555	1	2530.0	32481				
	10N24W29DDDD	2598	1	2564.1	32481	2566.7	100781	2562.8	32482
	10N24W30AB		11	2565.0	40181	2567.0	100181	2563.0	32582
	10N24W30BAAA		11	2564.0	40181	2569.0	100181	2564.0	32682
	10N24W30DAB		11	2567.0	40181	2571.0	100181	2567.0	32582
	10N24W32ABA		11	2572.0	40181	2574.0	100181	2573.0	32682
	10N24W32AD		11			2570.0	100181	2567.0	32682
	10N24W32ADCA		11	2575.0	40181	2576.0	100181	2574.0	32682
	10N24W33BC		11	2567.0	40181	2573.0	100181	2570.0	32682

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Dawson	10N24W33BDB		11	2569.0	40181	2572.0	100181	2568.0	32682
	10N24W36ABB		11	2496.0	40181				
	10N24W36ADC	2496	1	2485.3	32681	2484.7	100781	2485.3	32482
	10N24W36BB		11			2496.0	100181	2496.0	32482
	10N24W36CCCC		11	2509.0	40181	2508.0	100181	2508.0	32482
	10N25W 2BADD	2572	1	2548.6	32481	2550.0	100781	2548.5	32482
	10N25W 4DDCC	2622	1	2575.3	32481				
	10N25W10CAA		11			2575.0	100181		
	10N25W10CAB		11			2578.0	100181		
	10N25W10CABA		11			2586.0	100181	2585.0	32482
	10N25W10CABB		11			2586.0	100181	2579.0	32482
	10N25W10CAC		11	2578.0	40181				
	10N25W10CAC		11	2579.0	40181				
	10N25W10CADA		11			2587.0	100181	2580.0	32482
	10N25W10CADB		11			2581.0	100181	2575.0	32482
	10N25W12BC		11			2550.0	100181	2551.0	32482
	10N25W12BCCC	2560	1	2551.0	32481				
	10N25W13AAAA		11	2544.0	40181	2545.0	100181	2546.0	32582
	10N25W13DCCD	2580	1	2554.1	32481				
	10N25W14CABA		11	2568.0	40181				
	10N25W14CABA		11	2568.0	40181				
	10N25W23AAAA		11	2567.0	40181	2569.0	100181	2564.0	32482
	10N25W24ABBC	2593	1	2552.7	32481	2557.2	100781	2553.7	32482
	10N25W24DDAA		11	2568.0	40181	2566.0	100181	2572.0	32482
	11N22W28CA	2480	7	2455.2	52981				
	11N23W10DAB	2550	7	2523.0	52981				
	11N23W23CC		11			2494.0	100181	2494.0	32582
	11N23W27DB	2511	7	2492.9	52981				
	11N24W 4AB	2592	7	2557.7	52981				
	11N24W20CA		11			2532.0	100181	2532.0	32582
	11N24W24CB		11			2523.0	100181	2522.0	32582
	11N25W19CCBC	2595	1	2586.3	32481	2586.9	100781		
	11N25W27CBCB	2562	1	2554.1	32481	2554.7	100781	2553.8	32482
	11N25W30DDA		11	2584.0	40181	2585.0	100181	2583.0	32482
	11N25W31CBB		11	2604.0	40181				
	11N25W33BBBC		11	2573.0	40181	2573.0	100181	2572.0	32682
	11N25W33BDCC	2590	1	2574.0	32481				
	12N23W 5ACA	2665	7	2553.5	52981				
	12N23W30BBA	2607	7	2559.8	52981				
	12N24W18CAA	2662	7	2584.7	52981				
	12N25W17CCC	2712	7	2589.5	52981				
	12N25W19BB		11			2704.0	100181	2707.0	32682
Franklin	1N13W 3ACAC	1761	10	1748.4	51381	1748.6	100881	1749.1	32282
	1N13W 5BCCC	1774	10	1766.6	51381	1766.7	100881	1766.6	32382
	1N13W 5CBCC	1775	10	1767.8	51381	1766.7	100881	1766.6	32382
	1N13W12BBBB	1752	10	1746.6	51481				
	1N14W 2CCCC	1792	1	1783.8	32581				
	1N14W 2CDDD	1790	10	1779.7	51381	1779.7	100881	1777.8	32382
	1N14W 6BCBC	1815	6	1808.3	40881				
	1N14W 6BCCB	1815	10	1809.6	51381				
	1N14W 6CCDD	1809	10	1800.7	51381				
	1N14W 6CCD	1805	10	1799.7	51381				
	1N14W 6DDAC	1800	10	1794.4	51381	1794.5	100881	1794.9	32382
	1N15W 3DBBB	1828	1	1819.1	32581	1819.9	100881	1821.1	32382

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Franklin	1N15W 7CBCC	1859	6	1835.4	40881				
	1N15W 8BDD	1835	10	1820.7	51481				
	1N15W 8CBBB	1838	10	1826.2	51481				
	1N16W 7ACD	1880	10	1868.5	51481	1870.0	100881	1868.6	32482
	1N16W 9BCB	1868	10	1855.3	51481	1855.6	100881	1855.7	32482
	1N16W10DD	1858	1	1847.5	32581				
	1N16W11CCCC	1851	10	1838.6	51481				
	1N16W14ABAA	1887	1	1847.2	32581	1846.5	100581		
	2N13W 1CBD	2005	3	1864.0	32481	1864.0	101981	1864.2	31982
	2N13W 2CDBB	1930	3	1859.3	32481	1858.6	101981	1859.4	32082
	2N13W 3BCC	1870	3	1862.7	32481	1862.7	101981	1862.3	31682
	2N13W 4AAAD	1880	6	1866.3	40881				
	2N13W 4BADC	1890	3	1871.5	32481	1871.5	101981	1871.9	31682
	2N13W 8DCAB	2030	3	1880.3	32481	1880.4	101981	1880.8	31782
	2N13W 9ABD	1880	3	1860.5	32481	1860.3	101981	1860.5	31782
	2N13W15DBDB	1835	1	1822.4	32481	1822.9	100881	1823.2	32282
	2N14W 4CCBC	2074	3	1929.7	32481	1929.8	101981	1930.2	31882
	2N14W11BAAB	2069	1	1914.4	32481	1910.1	100881	1915.5	32382
	2N14W32DABB	1842	1	1835.3	32581	1835.5	100881	1835.7	32382
	2N15W 1BCBC	2112	1	1937.8	32581				
	2N15W23ABAB	2005	1	1909.8	32481	1910.2	100881	1910.3	32382
	2N15W29DBCC	1985	6	1908.9	41581	1939.4	100881	1939.5	32482
	2N16W16DBDD	2096	1	1970.5	32581				
	2N16W20ABA	2010	1	1973.6	32581	1973.6	100881	1974.7	32582
	2N16W21BABB	2082	6	1965.3	40881				
	2N16W23DABB	2042	1	1943.0	32581				
	2N16W25BBAD	2025	1	1929.8	32581	1930.0	100881	1930.7	32482
	2N16W28ACAA	2020	6	1930.4	40881				
	3N13W 5BBAC	2110	6	1921.3	40281				
	3N13W18DADB	2091	1	1913.4	32481				
	3N13W21DCA	2015	3	1884.4	32481	1886.8	101981	1884.6	31882
	3N13W23AD	2032	1	1886.6	32581				
	3N13W24BBDD	2040	1	1863.9	32581				
	3N13W28BDBB	1923	6	1883.0	40881				
	3N14W14ABC	2100	1	1932.6	32481	1930.9	100681		
	3N14W28CABB	2080	1	1937.0	32481				
	3N15W 1CCCC	2122	1	1967.8	32481				
	3N15W 8ADDD	2170	1	1978.6	32581	1977.8	101981	1978.7	32482
	3N15W24DADD	2110	6	1951.4	32781				
	3N15W31ABBB	2161	1	1962.1	32481				
	3N15W31DCAA	2125	1	1955.6	32581				
	3N15W32DACD	2158	6	1960.7	41581				
	3N15W35BBCC	2125	1	1954.4	32481	1954.4	100881	1954.8	32382
	3N16W10ABDD	2207	1	2004.5	32581	2004.3	101981	2004.2	32482
	3N16W20ABBB	2237	1	2012.6	32681				
	3N16W22DACC	2192	3	1989.2	32481	1988.0	101981	1990.0	31782
	3N16W24BBD	2192	10	1981.0	51381				
	3N16W28BBBA	2222	6	2002.8	41581				
	3N16W36DACC	2160	1	1966.1	32481	1973.2	100881	1973.4	32482
	4N13W 7DD	2113	1	1963.9	32381				
	4N13W11BD	2045	1	1946.3	32481				
	4N13W13BCD	2061	1	1941.9	32481	1938.0	100681	1939.5	50482
	4N13W21BADC	2115	1	1940.4	32381				
	4N13W29DACC	2050	6	1928.7	40281				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Franklin	4N13W31ABCB	2112	3	1930.0	32581	1930.3	101981		
	4N13W31BBCD	2110	3	1926.1	32581	1932.4	101981	1932.6	31882
	4N13W31DDAD	2115	3	1927.3	32581	1927.5	101981	1927.5	31682
	4N13W33BAAA	2112	6	1925.1	40281				
	4N14W 3CCBC	2166	1	1989.1	32381				
	4N14W 4BCBC	2178	1	2005.2	32381	2002.1	101981	2003.1	32382
	4N14W 7AAA	2168	1	2007.7	32381				
	4N14W23CCDA	2135	1	1959.7	32381	1958.7	100681	1959.8	50482
	4N14W31BCCC	2130	1	1972.5	32381				
	4N14W31CCDD	2129	1	1968.7	32381				
	4N14W35CACB	2123	1	1939.9	32381	1940.2	100881	1941.2	32382
	4N15W 2BBDB	2163	6	2031.1	40781				
	4N15W11DD	2128	1	2012.7	32381	2012.9	101981	2013.6	32382
	4N15W21CBDD	2169	6	2003.9	40681				
	4N15W21CCDD	2167	6	2007.1	40681				
	4N15W33DDDD	2174	1	1979.2	32481	1978.6	101981	1979.6	32382
	4N16W12DDCC	2220	1	2045.0	32481	2045.6	101981	2039.1	32382
	4N16W18CCCC	2245	1	2047.2	32381				
	4N16W28DABB	2225	6	2032.1	41581				
	4N16W30DBBB	2225	10	2041.5	51381				
	4N16W36BCCD	2228	1	2007.4	32481	2007.3	101981	2093.4	32382
Frontier	6N24W23BCB	2502	7	2319.6	11281				
	8N24W 6ABAB	2744	1	2512.6	32581	2510.4	100781	2513.4	32682
	8N24W11AB	2712	1	2515.4	32581	2514.2	100881		
	8N25W 2DACC	2765	1	2528.1	32581				
Furnas	1N21W 3BAAA	2055	10	2040.8	50681				
	1N21W 5CDDA	2115	10	2098.6	50681	2065.4	100981	2069.5	32582
	1N22W10CCDA	2142	10	2109.9	50681	2108.9	102181	2110.0	32582
	1N22W12CDDD	2100	10	2083.2	50681				
	1N22W14BADD	2115	10	2103.3	50681				
	1N22W17CABB	2160	10	2146.9	50681				
	1N23W13DDAA	2177	10	2145.6	50681	2144.0	102181	2145.5	32582
	1N23W14DCDD	2192	10	2154.8	50681				
	1N23W30BCBC	2235	10	2194.3	51281	2193.2	102181	2194.4	32582
	1N24W35DADA	2260	10	2218.6	51281				
	1N25W36DCDC	2315	10	2283.7	51281				
	1N25W36DDCC	2312	3	2279.7	32581	2280.4	100881	2283.7	31882
	2N21W 7BCDB	2122	10	2085.4	50581				
	2N21W10BBDC	2070	10	2045.1	50581				
	2N21W11BBBA	2130	10	2045.0	50581	2045.3	100981	2045.5	32582
	2N21W12CCCC	2065	10	2025.4	50581				
	2N21W15DADC	2070	10	2039.2	50581				
	2N21W19BBBC	2125	10	2080.9	50581	2080.3	100981	2081.7	32582
	2N21W24AAA	2040	9	2000.2	42881			2001.4	41682
	2N21W24CCDD	2031	10	2010.6	50681				
	2N21W35ABCC	2040	10	2019.8	50681				
	2N22W21CABB	2170	10	2117.8	50581	2118.3	102181	2118.7	32582
	2N22W22ABA	2131	9	2107.2	41581			2109.1	41682
	2N23W18CCAA	2240	10	2199.4	51281	2199.0	102081	2199.6	32582
	2N23W34DCBD	2349	10	2246.5	50481				
	2N24W14DCCB	2320	10	2237.4	51281				
	2N24W15CBBC	2372	10	2247.5	51281				
	2N24W20BBCC	2380	10	2294.6	50681				
	2N24W21ADDA	2355	10	2242.9	51281	2242.5	102081	2242.9	32582

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Furnas	2N24W24CCDA	2225	10	2205.7	50781				
	2N24W27DDCD	2245	10	2230.9	51281				
	2N24W29DAB	2281	9	2247.3	41581			2246.9	41682
	2N24W30CCBC	2288	10	2257.6	50681	2257.2	102081	2257.5	32582
	2N24W33BDBC	2273	10	2236.1	50681				
	2N25W 9DBBB	2521	10	2307.1	50581				
	2N25W16DDDD	2462	10	2299.6	50581	2299.3	102081		
	2N25W18BD	2525	10	2335.5	50581	2332.1	102081	2336.5	32582
	2N25W27DBDD	2310	10	2286.6	51281				
	2N25W28CBB	2328	9	2299.3	41581			2301.6	41682
	2N25W28CBBA	2324	10	2292.6	51281			2301.6	41682
	2N25W31BDBD	2351	10	2318.1	50581				
	2N25W31DDBC	2330	10	2308.8	51281				
	2N25W33CCCB	2350	10	2296.5	51281	2294.9	102081	2296.1	32582
	2N25W34DDAD	2340	10	2306.5	51281				
	3N21W 1BAA	2154	9	2062.7	41581			2064.2	41682
	3N21W 3DCBC	2070	1	2060.5	32581				
	3N21W 4CBCB	2080	10	2070.9	50681				
	3N21W 6CAAA	2190	1	2178.5	32581				
	3N21W13BBBA	2050	10	2044.6	50581				
	3N21W23ADAC	2210	10	2045.7	50581	2026.2	100981	2026.4	32682
	3N22W 2AAAD	2100	10	2093.6	50581				
	3N22W 2BA	2111	12	2098.3	30681				
	3N22W 8BACD	2315	10	2184.2	50581	2184.1	102081	2184.2	32582
	3N22W16DCCC	2365	10	2180.8	50581	2181.1	102081		
	3N23W 4DDDD	2283	10	2189.4	50481	2188.8	101681	2190.0	31782
	3N23W 5DBBB	2335	3	2186.8	32581	2191.5	101681	2192.3	31782
	3N23W 7BBAD	2392	3	2201.2	32581	2199.1	101681	2201.2	31682
	3N23W 7BBAD	2390	10	2196.9	50681	2199.1	101681	2201.2	31682
	3N23W11ACDB	2320	10	2184.4	50481				
	3N24W 2BCD	2348	3	2222.0	32581	2214.0	101681	2222.8	32582
	3N24W 2BDCC	2330	10	2191.3	50681	2195.7	102081		
	3N24W 2CAAA	2350	1	2342.4	32581				
	3N24W 2CAAB	2352	10	2206.6	50681				
	3N24W11AAAB	2355	10	2212.0	50681				
	3N24W14AAAB	2365	10	2206.1	50681				
	3N24W22AABD	2422	10	2229.2	50681				
	3N25W 4ABBD	2255	10	2250.8	50581				
	3N25W 9DAAB	2411	10	2265.8	50581				
	3N25W17BAC	2410	9	2271.6	41581			2271.9	41982
	3N25W22CCCC	2371	10	2288.0	50581	2286.2	102081	2286.6	32582
	4N21W 5DBDB	2265	1	2169.7	32581				
	4N21W 8BCDD	2258	1	2156.0	32581				
	4N21W15ADBB	2284	1	2143.1	32581				
	4N21W15DAAA	2259	1	2140.6	32581				
	4N21W16AAAB	2235	1	2150.3	32581				
	4N21W16CCCC	2168	1	2099.6	32581	2099.4	100981	2102.9	32682
	4N21W22CABB	2225	1	2084.6	32581				
	4N21W24ABAD	2200	1	2123.4	32581	2123.1	100981	2124.4	32682
	4N21W31CCAD	2103	1	2086.0	32581				
	4N22W13DCBD	2170	1	2123.2	32681				
	4N22W14BBB	2297	9	2132.0	41581			2138.0	41682
	4N22W15ACBB	2265	1	2120.3	32681	2119.7	102181	2121.6	32682
	4N22W19BCBC	2167	12	2145.5	30681				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Furnas	4N22W19CADD	2133	12	2125.7	30681				
	4N22W19CBBC	2144	12	2131.0	30681				
	4N22W19CCBC	2135	12	2128.7	30681				
	4N22W19DBBC	2154	12	2138.7	30681				
	4N22W19DCCC	2135	12	2124.9	30681				
	4N22W20CDDC	2144	12	2131.6	30681				
	4N22W25CAAC	2134	12	2112.9	30681				
	4N22W25CABC	2130	12	2113.3	30681				
	4N22W25CADC	2125	12	2110.8	30681				
	4N22W25CBCD	2123	12	2111.5	30681				
	4N22W25DCCC	2106	12	2096.7	30681				
	4N22W26BAAC	2156	12	2118.4	30681				
	4N22W26BCB	2141	12	2118.0	30681				
	4N22W26BCBA	2181	12	2120.4	30681				
	4N22W26CCDC	2118	12	2101.7	30681				
	4N22W26DADC	2116	12	2110.5	30681				
	4N22W26DDDB	2112	12	2101.5	30681				
	4N22W27CBBB	2135	12	2117.5	30681				
	4N22W27DBCC	2131	12	2113.4	30681				
	4N22W27DDAA	2123	12	2102.7	30681				
	4N22W29AAAA	2137	12	2127.8	30681				
	4N22W29ADAA	2136	12	2123.9	30681				
	4N22W31AAD	2127	1	2118.6	32681				
	4N22W34BBAA	2123	12	2107.7	30681				
	4N22W34BBAB	2121	1	2106.9	32681				
	4N22W35AAAA	2111	12	2098.8	30681				
	4N22W35BDBB	2104	12	2100.8	30681				
	4N22W36BA	2107	12	2093.7	30681				
	4N23W 2CAAA	2295	1	2195.5	32581				
	4N23W 7CC	2217	12	2198.6	30681				
	4N23W 7DC	2205	12	2193.7	30681				
	4N23W 8CDAA	2217	12	2182.0	30681				
	4N23W11DBAD	2280	1	2173.6	32581	2172.7	102081	2174.1	32582
	4N23W15DABC	2190	12	2165.9	30681				
	4N23W18CCB	2193	12	2184.6	30681				
	4N23W19ADAA	2176	12	2170.0	30681				
	4N23W19BCC	2188	12	2176.8	30681				
	4N23W20AAB	2188	9	2162.8	41581			2163.9	41682
	4N23W20AABC	2190	1	2163.9	32581			2163.9	41682
	4N23W21ADDA	2179	12	2149.0	30681				
	4N23W22DBDD	2158	12	2139.1	30681				
	4N23W24ABBB	2168	1	2151.4	32581				
	4N23W24BADD	2161	12	2151.3	30681				
	4N23W24BCAC	2152	12	2139.2	30681				
	4N23W24BDDA	2147	12	2141.7	30681				
	4N23W25AAAA	2137	12	2128.1	30681				
	4N23W26ADD	2150	1	2132.3	32581				
	4N24W 9DADD	2280	1	2212.2	32581	2212.5	102081	2213.2	32582
	4N24W13AAAB	2211	12	2196.4	30681				
	4N24W13DAAA	2199	12	2191.1	30681				
	4N24W14CBBB	2218	12	2201.0	30681				
	4N24W14CCCC	2213	12	2194.2	30681				
	4N24W15CBCB	2216	12	2201.1	30681				
	4N24W15CCCC	2212	12	2197.5	30681				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Furnas	4N24W19CBDA	2235	12	2221.6	30681				
	4N24W19DABC	2225	12	2217.3	30681				
	4N24W19DCBC	2223	12	2217.0	30681				
	4N24W20ACCC	2216	12	2210.5	30681				
	4N24W20BCCC	2225	12	2213.0	30681				
	4N24W20BDDD	2218	12	2211.3	30681				
	4N24W21ACDB	2205	1	2199.2	32581				
	4N24W21ADAA	2203	12	2194.6	30681				
	4N24W21BDAA	2210	12	2199.8	30681				
	4N24W23AADD	2202	12	2186.5	30681				
	4N24W23DDDD	2194	12	2187.4	30681				
	4N24W24BAAA	2189	12	2186.0	30681				
	4N24W24BACC	2201	12	2184.4	30681				
	4N24W25CAD	2200	1	2174.5	32581				
	4N25W20BCCC	2273	1	2258.2	32581				
	4N25W25BADD	2230	12	2226.0	30681				
	4N25W26ACAC	2237	12	2227.1	30681				
	4N25W27DAAB	2245	12	2235.0	30681				
	4N25W28DABA	2248	1	2242.1	32581				
	4N25W30DDAC	2268	12	2259.4	30681				
	4N25W31BBCB	2275	12	2267.3	30681				
	4N25W33CCCC	2258	12	2255.0	30681				
	4N25W33CDDD	2255	12	2251.6	30681				
	4N25W34ACBB	2243	12	2227.4	30681				
	4N25W34BDCC	2256	12	2241.6	30681				
	4N25W34BDDD	2254	12	2238.4	30681				
	4N25W34DCDD	2263	12	2248.8	30681				
	4N25W36BDDD	2265	12	2230.7	30681				
	4N25W 7BBBA	2300	1	2282.1	32581				
Gosper	5N21W 8AADA	2402	2	2262.8	32581	2262.6	100881	2240.8	32982
	5N21W14CABD	2365	2	2250.6	32581	2249.6	100881	2251.9	32982
	5N21W15BD	2320	1	2268.6	32581				
	5N21W30BABA	2287	2	2199.3	32481	2193.4	100881	2200.1	32982
	5N21W31DBBC	2266	1	2175.6	32581				
	5N21W34CCAB	2300	1	2174.6	32581				
	5N21W35CDCD	2300	2	2197.5	32581	2197.6	100881	2198.4	32982
	5N22W 2BCAA	2405	1	2276.0	32681				
	5N22W 5AABB	2450	1	2286.6	32681				
	5N22W 9BBBB	2400	2	2271.0	32481	2266.2	100881	2271.6	32982
	5N22W11CCDD	2383	2	2230.8	32481	2230.8	100881	2232.7	32982
	5N22W14CCBA	2365	1	2214.4	32681				
	5N22W18BBAA	2362	1	2254.6	32681				
	5N22W29AABC	2325	2	2219.9	32481	2218.9	100881	2220.7	32982
	5N22W31CBCD	2345	1	2197.5	32681				
	5N22W34CBDD	2305	1	2186.9	32681				
	5N22W34CDDC	2340	2	2176.2	32481	2164.6	100881	2168.9	32982
	5N23W11AABA	2370	2	2272.2	32481	2270.1	100881	2272.9	32982
	5N23W16ACBB	2380	2	2266.2	32481	2266.5	101381	2266.8	32982
	5N23W22ACAD	2322	1	2246.1	32681	2246.5	100881	2246.8	32482
	5N23W30DDBA	2250	2	2201.2	32481	2200.8	101081	2201.6	33182
	5N23W34ACBC	2300	2	2202.8	32481	2202.8	101381	2203.2	33182
	5N24W 3BCCB	2360	2	2288.0	32481	2286.9	101081	2288.0	33182
	5N24W 8ABDB	2420	1	2268.3	32681				
	5N24W 8BBBB	2460	2	2298.5	32481	2295.7	101081	2300.8	33182

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum 1/ (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Gosper	5N24W13ADDD	2345	2	2248.9	32481	2243.5	101081	2250.2	33182
	5N24W20ABAB	2380	1	2296.2	32681				
	5N24W27ABCD	2393	2	2259.7	32481	2259.4	101081	2260.6	33182
	6N21W 7BBBC	2500	1	2348.9	32581	2347.9	101381	2351.1	33182
	6N21W 7BBCC	2500	2	2349.1	32581	2347.9	101381	2351.1	33182
	6N21W16BCCB	2559	1	2329.5	32581	2327.3	100881	2331.0	32682
	6N21W22DCBB	2500	2	2297.3	32581	2295.4	100881	2299.7	32982
	6N21W25DD	2473	1	2283.9	32581				
	6N22W 6ABAA	2440	1	2378.5	32581				
	6N22W10CDAA	2482	2	2356.7	32581	2357.0	101381	2357.9	40182
	6N22W23ABBA	2458	1	2332.2	32681				
	6N22W25CBCB	2424	2	2291.6	32581	2291.9	101381	2292.7	40182
	6N22W30CCBB	2345	1	2294.6	32681	2294.1	101381	2295.3	33082
	6N22W30CCBC	2345	2	2295.0	32481	2294.1	101381	2295.3	33082
	6N23W 2ACCB	2510	2	2368.0	32381	2366.2	101381	2368.9	33082
	6N23W 5CADD	2540	2	2366.0	32381	2363.2	101081	2364.7	33082
	6N23W 7BBBB	2531	2	2366.6	32381	2366.2	101081	2366.5	33082
	6N23W18BBB	2470	1	2344.7	32681				
	6N23W19BCBB	2476	2	2328.1	32381	2327.6	101081	2328.6	33082
	6N23W21AADD	2485	1	2322.9	32681	2324.2	101381	2326.3	33082
	6N23W21AADD	2488	2	2326.1	32381	2324.2	101381	2326.3	33082
	6N23W25CCDA	2430	1	2300.8	32681				
	6N23W32CCAA	2355	2	2291.7	32481	2289.4	101081	2290.9	40182
	7N20W 6ABBB	2477	1	2379.5	32581				
	7N21W 3DD	2530	1	2391.5	32481				
	7N21W 6BCCC	2467	1	2414.4	32681	2414.1	100881		
	7N21W10CCCC	2543	1	2386.3	32681	2387.1	100881	2389.1	32482
	7N21W11CBCC	2504	1	2382.1	32481				
	7N21W11DD		11			2380.0	100681	2381.0	31582
	7N21W25CC		11	2347.0	32581	2344.0	100681	2349.0	31582
	7N21W30ACBC	2560	2	2364.7	32581	2363.1	101381	2367.4	40182
	7N21W36BB		11	2344.0	32581	2340.0	100681	2346.0	31582
	7N22W 5DCBB		11	2456.0	32381	2456.0	100681	2459.0	31582
	7N22W 6DDCC		11	2462.0	32381	2463.0	100681	2467.0	31582
	7N22W 7DDCD	2662	1	2433.1	32681				
	7N22W 9CCCC		11	2440.0	32381	2439.0	100681	2443.0	31582
	7N22W10CCDC	2622	1	2416.2	32681				
	7N22W15ACCB	2622	1	2416.8	32681	2416.3	100881	2419.2	32682
	7N22W16CDAB	2642	1	2423.2	32681				
	7N22W17DDAB	2634	1	2428.2	32681				
	7N22W18AD		11			2441.0	100681	2442.0	31582
	7N22W26CBAA	2620	2	2389.4	32581	2387.7	101381	2390.6	40182
	7N22W31CCDA	2525	1	2376.7	32581				
	7N23W 1DDCA		11	2369.0	32381	2367.0	100681	2372.0	31582
	7N23W 7CBDD	2625	1	2427.6	32681	2426.6	100781	2428.3	32482
	7N23W12DBCC	2590	1	2468.3	32681	2487.9	100881	2491.3	32482
	7N23W19CA	2592	2	2400.7	32381	2400.6	101081	2401.9	33082
	7N23W28CDAB	2580	2	2383.4	32381	2381.9	101081	2380.9	33082
	8N21W 3CCDC	2371	1	2347.6	32481				
	8N21W 4DA		11			2356.0	100181	2356.0	32482
	8N21W 6CBD	2425	1	2400.2	32681				
	8N21W 9BCBB	2397	1	2369.4	32481				
	8N21W10BBCC	2371	1	2356.0	32481	2357.1	100881	2357.8	32482
	8N21W12BCBB		11	2341.0	32481	2341.0	100681	2341.0	31582

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Gosper	8N21W16CADB	2478	1	2366.9	32481				
	8N21W26DDBB	2505	1	2386.3	32681	2386.0	100881	2387.3	32482
	8N21W27CBA	2583	1	2383.0	32681				
	8N21W30AAAA		11	2405.0	32581	2405.0	100681	2406.0	31582
	8N21W33DD		11			2389.0	100681	2392.0	31582
	8N22W 1ADDC	2430	1	2406.6	32681				
	8N22W 2DAAB		11	2453.0	40181	2456.0	100181		
	8N22W 4DDDA		11	2521.0	40181	2523.0	100181	2521.0	32482
	8N22W 8BCCC		11	2546.0	40181				
	8N22W 8CCCC		11	2526.0	40181	2429.0	100181		
	8N22W 8CDDD		11	2526.0	40181				
	8N22W 9BAAA	2625	1	2536.6	32581				
	8N22W14AADD	2605	2	2464.4	32381	2466.1	101081	2465.5	33082
	8N22W17CBBC		11	2506.0	40181	2510.0	100181	2508.0	32482
	8N22W20BC		11			2499.0	100681	2501.0	31582
	8N22W21CBBA	2522	2	2467.0	32381	2468.1	101081	2468.7	33082
	8N22W29ABBA		11	2487.0	32381	2488.0	100681	2490.0	31582
	8N22W29BA		11			2537.0	100681	2541.0	31582
	8N22W29BBB		11	2497.0	32381	2497.0	100681	2500.0	31582
	8N22W29CDDD		11	2533.0	32381				
	8N22W31AA		11			2555.0	100681	2561.0	31582
	8N22W31DDDD		11	2473.0	32381	2478.0	100681	2482.0	31582
	8N22W32DBBB		11	2469.0	32381	2469.0	100681	2472.0	31582
	8N23W 3BA		11			2550.0	100181	2560.0	32482
	8N23W 4ABAA	2630	2	2545.7	32381	2546.6	101081	2547.3	33082
	8N23W 4BBB		11	2534.0	40181	2532.0	100181		
	8N23W 4CCC		11	2520.0	40181	2522.0	100181		
	8N23W 7AC		11			2596.0	100681	2595.0	31582
	8N23W12CBBB		11	2523.0	32381	2523.0	100681	2524.0	31582
	8N23W13AAAB		11	2516.0	32381	2515.0	100681	2516.0	31582
	8N23W13BCCC		11	2509.0	32381	2510.0	100681	2512.0	31582
	8N23W13CCCC		11	2502.0	32381				
	8N23W13DDDD		11	2506.0	32381	2509.0	100681	2509.0	31582
	8N23W14AAAA		11	2516.0	32381	2516.0	100681	2518.0	31582
	8N23W18CABB	2663	2	2514.6	32381	2512.9	101081	2516.4	33082
	8N23W23CAA	2700	1	2493.1	32681				
	8N23W24CC		11			2503.0	100681	2504.0	31582
	8N23W25CCCB		11	2488.0	32381	2489.0	100681	2491.0	31582
	8N23W26BAA	2694	1	2503.5	32681				
	8N23W27ACDC	2685	2	2497.6	32381	2497.7	101081	2501.1	33082
	8N23W27CCD	2700	1	2497.3	32681				
	8N23W36CCCC		11	2485.0	32381	2484.0	100681	2488.0	31582
Hall	9N 9W14AAB	1915	7	1847.5	10581				
	9N10W 6BBBB	1923	7	1918.3	10581				
	9N10W23AB	1971	7	1880.1	52281				
	9N11W 7CC	1965	7	1958.1	11981				
	9N11W 8BC	1957	7	1949.8	52181				
	9N11W10CCCC	1946	7	1942.4	11981				
	9N11W21BB	1958	7	1947.7	52281				
	9N12W 1DC	1964	7	1956.0	52181				
	9N12W 9BA	2002	7	1978.0	52181				
	9N12W14CCCC	1982	1	1973.8	32581				
	9N12W20BCCC	2003	1	1996.4	32581				
	9N12W33AADD	1991	1	1986.4	32581				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Harlan	1N17W 2ADDD	1931	10	1896.6	51481	1899.6	100781	1896.3	32482
	1N17W14ABAA	1887	1	1870.8	32581	1872.1	100881	1871.3	32482
	1N18W 6BBD	1956	10	1939.3	50681				
	1N18W20CCA	2080	10	1981.1	50781	1980.7	100981	1982.5	32482
	1N18W29DDC	1970	10	1941.2	50681				
	1N19W 1ADAD	1978	10	1937.1	50681	1936.5	100981	1939.6	32482
	1N19W 8DAC	2201	10	2038.5	50781	2038.4	100981	2039.9	32482
	1N19W15DBD	2140	10	2027.9	50481				
	1N19W16DADA	2167	1	2033.3	32481				
	1N19W32CCBB	2024	10	1998.2	50681				
	1N19W34DDD	2005	10	1974.7	50481				
	1N19W36ACCA	1988	3	1958.2	32381	1956.0	101681	1958.5	31682
	1N19W36ACCC	1991	10	1955.9	50481	1956.0	101681	1958.5	31682
	1N20W 5BCCB	2165	10	2076.8	50581	2077.8	100981	2078.5	32482
	1N20W 5BCCC	2188	10	2077.3	50581	2077.8	100981	2078.5	32482
	1N20W17CCCD	2175	10	2111.5	50681	2111.8	100981	2112.1	32482
	2N17W 1BB	2030	3	1992.6	32481				
	2N17W 2BAAA	2035	1	2002.8	32581	2002.9	100881	2003.1	32582
	2N17W 2BAAB	2040	3	2007.3	32481	2002.9	100881	2003.1	32582
	2N17W 3DBDD	2135	1	2013.6	32581				
	2N17W 7AACB	2120	1	2021.0	32581				
	2N17W12CAAA	1997	1	1982.2	32581				
	2N17W12CBCB	2220	1	2184.9	32581				
	2N17W15CDAA	2102	5	1993.3	32381	2046.2	101681	2047.0	31782
	2N17W17DBBB	2111	1	2008.5	32581				
	2N17W18BABD	2117	1	2013.8	32581				
	2N17W18BBAA	2136	1	2013.7	32581	2013.8	100881	2014.3	32482
	2N17W18CCA	2112	1	2012.6	32581				
	2N17W18CCAA	2115	1	2011.4	32581	2013.8	100881	2014.3	32482
	2N17W22BABB	2105	1	1990.0	32581	1989.9	100881	1990.9	32582
	2N17W26BBAA	2067	1	1977.7	32581				
	2N17W30BCBC	2085	1	1985.8	32581				
	2N17W30CDDA	2058	5	1954.4	32381	1954.8	101681	1955.1	31782
	2N18W 3BBBB	2135	3	2041.9	40281	2041.3	101581	2042.2	31782
	2N18W 4DD	2136	1	2032.4	32581				
	2N18W 8CDDC	2125	5	2022.7	31381	2021.9	101681	2023.9	41282
	2N18W 9BCCC	2120	1	2028.8	32281	2028.4	100581		
	2N18W19ADDA	2075	1	1995.3	32481	1995.8	100981	1997.4	32382
	2N18W21BBCC	2091	1	2002.1	32581				
	2N18W27AACA	2072	1	1991.5	32581				
	2N18W34AB	2072	1	1990.5	32581	1990.5	100881	1990.4	32482
	2N19W 5BCBB	2030	12	2011.3	30681				
	2N19W 5BCCC	2019	12	2010.5	30681				
	2N19W 6ADCD	2005	12	2000.1	30681				
	2N19W 6BAAD	2004	12	1999.7	30681				
	2N19W 8BDCC	1992	12	1983.3	30681				
	2N19W 8BDD	1993	1	1979.7	32481				
	2N19W 8BDDD	1998	12	1984.0	30681				
	2N19W 8CDDD	1992	12	1984.1	30681				
	2N19W 9CBBB	2021	12	2006.3	30681				
	2N19W 9CCBC	2011	12	1986.7	30681				
	2N19W11BDDB	2130	1	2022.1	32481				
	2N19W16CAAD	1998	12	1981.4	30681				
	2N19W16CDDD	1994	12	1973.7	30681				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Harlan	2N19W17ABBA	1993	12	1980.8	30681				
	2N19W19BD	2010	5	1976.6	31381				
	2N19W19DDDA	1978	5	1961.0	31381				
	2N19W22BCDC	1994	12	1970.4	30681				
	2N19W24BBCC	2093	1	2006.9	32381	2006.5	100981	2006.5	32382
	2N19W26AADD	2001	12	1964.5	30681				
	2N19W28DAAA	1970	12	1958.5	30681				
	2N19W28DDDA	1969	12	1958.2	30681				
	2N19W34ACCB	1968	1	1952.7	32481	1952.4	100981	1953.3	32482
	2N19W34DBAA	1975	1	1954.3	32481				
	2N19W35DDAA	1958	10	1943.3	50781				
	2N20W12BBAD	2011	10	1989.6	50681				
	2N20W14DCBD	1995	10	1973.5	50781	1974.1	100981	1976.4	32482
	2N20W14DDCC	1994	10	1974.5	50681				
	2N20W15CDDC	2011	10	1979.7	50781				
	2N20W19DAAA	2016	10	1998.3	50581	2000.5	100981	2001.1	32482
	2N20W19DAAB	2017	10	1998.7	50581	2000.5	100981	2001.1	32482
	2N20W19DADD	2018	10	1999.7	50581	2000.5	100981	2001.1	32482
	2N20W23ACD	2000	5	1971.1	31381	1973.3	101581	1975.1	41282
	2N20W24BCBC	1997	10	1976.0	50481				
	2N20W25BAAB	2011	10	1974.1	50481				
	2N20W26CBCC	2043	10	1995.1	50581				
	2N20W28BBBA	2022	10	1993.9	50781				
	2N20W35CDD	2070	10	2051.3	50781	2051.0	100981	2052.7	32482
	3N17W 18BDD	2225	1	2025.3	32481				
	3N17W 5DDBA	2230	1	2056.1	32481				
	3N17W 6DAA	2218	3	2064.7	32581	2060.5	101581	2064.5	31882
	3N17W 7BBBB	2260	3	2064.6	32581	2064.2	101581	2064.7	31982
	3N17W 8AADD	2215	1	2056.1	32681	2054.8	101081	2055.5	32582
	3N17W 9DBDB	2205	1	2056.4	32681				
	3N17W10DDB	2212	5	2048.3	31381	2047.3	101581	2047.7	31782
	3N17W19BBBB	2158	1	2053.9	32481	2053.5	101081	2054.0	32582
	3N17W20BADD	2150	1	2049.6	32681				
	3N17W21CD	2068	1	2037.6	32681				
	3N17W27CCBB	2087	1	2032.9	32581	2033.0	100881	2033.3	32582
	3N17W30CCAD	2205	1	2027.9	32681				
	3N17W32DBAD	2180	1	2022.5	32581				
	3N17W35DABD	2075	3	2028.9	32381	2029.0	101681	2029.2	31882
	3N18W 6BABB	2232	1	2086.7	32481				
	3N18W 9BBAA	2225	1	2078.1	32381	2082.1	101081	2083.0	32582
	3N18W10BAAB	2290	1	2079.8	32481				
	3N18W12AADA	2263	1	2066.1	32481				
	3N18W19CB	2192	3	2064.3	31381	2061.3	101581	2064.4	31782
	3N18W20ABAD	2177	1	2068.0	32681				
	3N18W21BAAA	2203	1	2059.2	32681				
	3N18W23ABAC	2205	1	2056.4	32481	2055.8	101081	2056.8	32582
	3N18W25CABB	2195	1	2039.6	32681				
	3N18W28CACB	2178	1	2045.0	32681				
	3N18W34BAAB	2181	5	2045.1	31381	2043.6	101581	2044.7	41282
	3N19W 3DDBA	2255	1	2093.3	32481				
	3N19W 7AABB	2201	1	2090.4	32481				
	3N19W 8ABD	2197	1	2085.1	32481	2084.4	101081	2086.4	32382
	3N19W 9ACC	2215	1	2090.2	32481				
	3N19W12DABA	2256	1	2072.3	32481	2077.9	101081	2080.4	32382

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum 1/ (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Harlan	3N19W13DDAB	2211	1	2075.3	32481				
	3N19W17ABB	2213	5	2083.3	31381				
	3N19W17DBAA	2195	1	2078.5	32481				
	3N19W23DDBA	2166	1	2063.5	32481				
	3N19W28ADDC	2145	3	2060.5	31381	2060.0	101581	2061.2	31882
	3N19W31BCDA	2043	12	2017.4	30681				
	3N19W31CBBA	2019	1	2011.7	32481				
	3N19W31CBCC	2015	12	2000.4	30681				
	3N19W31CBDD	2016	12	2007.8	30681				
	3N19W31CDAA	2038	12	2020.7	30681				
	3N19W31CDAD	2022	12	2010.2	30681				
	3N19W36CAAB	2169	1	2048.6	32481				
	3N20W 4DACB	2162	1	2056.6	32581	2055.5	101081	2057.6	32382
	3N20W13AABA	2150	5	2077.4	31381	2077.6	101581	2078.9	41282
	3N20W14ABBA	2163	5	2061.2	31381				
	3N20W16ADDA	2058	12	2034.0	30681				
	3N20W16BADD	2041	12	2034.3	30681				
	3N20W16BBCB	2044	12	2034.9	30681				
	3N20W16DDDD	2037	12	2029.3	30681				
	3N20W17AAAB	2047	12	2036.4	30681				
	3N20W19AABD	2050	5	2031.4	31381	2031.0	101581	2032.2	41282
	3N20W22BADA	2038	12	2024.7	30681				
	3N20W24AAAA	2100	1	2061.7	32481				
	3N20W25CCCC	2022	12	2007.8	30681				
	3N20W26DDDD	2037	12	2014.3	30681				
	3N20W34BBAA	2022	10	2012.3	50781				
	3N20W35AAAA	2015	12	2006.6	30681				
	3N20W35AABB	2020	12	2011.6	30681	1997.5	101581	1998.7	41282
	3N20W35AADA	2013	12	2005.7	30681				
	3N20W35ADDA	2009	12	2005.1	30681				
	3N20W35CCBB	2020	5	1997.8	31381	1997.5	101581	1998.7	41282
	3N20W35DABA	2011	12	2003.5	30681				
	3N20W36ADAA	2031	12	2017.2	30681				
	3N20W36BAAB	2028	12	2010.4	30681				
	3N20W36BBAD	2020	12	2007.8	30681				
	3N20W36BDCC	2010	12	1999.1	30681				
	4N17W 1DBAC	2260	1	2089.9	32481	2089.6	101081	2090.0	32682
	4N17W 8CBCC	2292	5	2088.8	32381				
	4N17W10DDDB	2255	1	2078.3	32681	2077.6	101081	2078.1	32682
	4N17W17CD	2303	1	2075.7	32381	2072.8	101081	2071.8	32682
	4N17W23CAAB	2285	1	2062.5	32381				
	4N17W25AADD	2235	1	2050.4	32681	2049.3	101081	2050.0	32682
	4N17W28CBAA	2305	1	2071.7	32681				
	4N17W28DDCD	2292	1	2056.6	32681	2054.8	101081	2055.9	32582
	4N18W 4ABA	2332	5	2125.9	32381	2125.6	101581	2125.6	41282
	4N18W 4ABAD	2332	1	2125.9	32481	2125.6	101581	2125.6	41282
	4N18W11CCBB	2302	1	2099.1	32381				
	4N18W15ADDD	2285	1	2100.5	32381	2099.4	100781	2101.0	50382
	4N18W18DD	2362	1	2122.7	32481				
	4N18W23DD	2220	1	2095.9	32481				
	4N18W26ACBA	2253	1	2089.4	32481				
	4N18W29CDDD	2271	1	2098.4	32481	2101.5	101081	2101.9	32382
	4N18W36AABA	2282	5	2079.3	32381				
	4N19W 8DCCC	2326	1	2144.8	32581				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Harlan	4N19W 9DDAA	2342	3	2143.5	31381	2143.2	101581	2144.2	31882
	4N19W10CBDA	2348	1	2135.1	32481				
	4N19W22BBDD	2320	1	2122.7	32481				
	4N19W27DBBD	2291	3	2106.6	31381	2104.8	101981	2106.5	31882
	4N19W29ADDD	2269	1	2111.8	32481				
	4N19W36BAB	2253	3	2103.4	31381	2101.0	101581	2104.1	31882
	4N20W 7CCAA	2253	1	2154.7	32581	2154.5	100981	2155.2	32682
	4N20W12ADAA	2313	1	2157.1	32481	2145.0	101581		
	4N20W12ADAD	2313	3	2145.9	31381	2145.0	101581		
	4N20W14DCC	2205	1	2130.7	32481				
	4N20W18ABBC	2172	10	2151.8	51181				
	4N20W21CCCC	2235	3	2100.0	31381	2099.4	101581	2103.1	32082
	4N20W25DDB	2257	5	2097.3	31381				
	4N20W29CBBB	2222	3	2069.8	31381	2067.1	101581	2070.9	32182
	4N20W32BDCC	2190	1	2067.4	32581				
	4N20W36BBAA	2211	3	2088.5	31381	2088.6	101581	2089.8	31982
Kearney	5N13W 1CDBB	2055	2	1958.8	31781	1957.6	100681	1959.0	32382
	5N13W 4BCBA	2112	1	1982.1	32581				
	5N13W 6BCBB	2135	1	2001.4	32581				
	5N13W 8DCDD	2105	2	1983.9	31781	1982.8	100681	1984.7	32382
	5N13W15CD	2106	1	1976.1	32581				
	5N13W21AAAA	2102	1	1977.0	32581	1976.0	100781		
	5N13W21BCCC	2103	1	1978.8	32581	1978.7	100781		
	5N13W23ADCC	2092	1	1979.2	32581				
	5N13W32BD	2115	1	1972.1	32381				
	5N13W34AAAD	2110	2	1963.5	31781	1962.9	100681	1965.0	32482
	5N14W 7CBCC	2180	2	2056.3	31781	2055.2	100681	2057.7	32482
	5N14W15DACC	2175	2	2013.8	31781	2013.2	100681	2016.2	32482
	5N14W16CBCB	2187	1	2036.3	32581	2036.3	100681		
	5N14W26CDBB	2146	2	1993.7	31781	1992.1	100681	1996.8	32482
	5N14W30CCDD	2191	2	2023.6	31781	2022.4	100681	2023.8	32482
	5N15W 2BAAA		11	2090.0	32381	2090.0	100681	2093.0	31582
	5N15W 4DC	2215	1	2100.6	32581	2100.4	100681	2103.6	32382
	5N15W 6AAAA		11	2133.0	32381	2133.0	100681	2136.0	31582
	5N15W10DD	2183	1	2071.9	32581				
	5N15W15ADDD	2188	2	2062.7	31781	2061.1	100681	2064.9	32282
	5N15W19CBBA	2183	2	2074.2	31781	2073.5	100681	2076.6	32282
	5N15W26CC	2175	2	2037.3	31781	2035.7	100681	2037.1	32282
	5N15W32DDBB	2172	2	2039.6	31781	2039.2	100581	2040.5	32282
	5N15W34DAAA	2163	1	2037.0	32781	2036.4	100681		
	5N16W 2ADDD		11	2148.0	32381	2148.0	100681	2147.0	31582
	5N16W 3DCDC	2214	1	2153.6	32581				
	5N16W 5BB		11	2177.0	32381	2176.0	100681	2178.0	31582
	5N16W11CBA	2209	2	2135.4	31781	2140.2	100581		
	5N16W11CBBB	2207	1	2139.2	32581	2140.2	100581		
	5N16W16CCCC	2190	2	2106.4	31781	2106.7	100581	2109.1	32282
	5N16W22DCDD		11	2083.0	32381	2083.0	100681	2085.0	31582
	5N16W25AC	2189	1	2070.8	32581				
	5N16W28CCBC		11	2086.0	32381	2086.0	100681	2088.0	31582
	5N16W29BDDA	2205	1	2092.5	32681				
	5N16W35CBDD	2212	2	2065.4	31781	2065.0	100581	2066.7	32282
	6N13W 1CCBB	2055	2	1971.9	31881	1971.5	100581	1973.0	32382
	6N13W 6DDBB	2065	2	2020.9	31881	2020.3	100581	2021.7	32382
	6N13W 7DADD	2095	1	2014.7	32581				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Kearney	6N13W16ACCD	2080	2	1994.6	31881	1993.6	100581	1995.4	32382
	6N13W16CCBC	2085	1	1997.4	32581	1995.5	100681		
	6N13W24BD	2040	1	1963.9	32581				
	6N13W27DCBB	2055	2	1973.3	31881	1972.7	100681	1974.4	32382
	6N14W 2CD	2085	1	2048.7	32381				
	6N14W 6ABDD	2156	1	2100.7	32381	2100.4	100681	2102.4	32482
	6N14W16BBCC	2145	2	2061.2	31881	2060.7	100581	2063.1	32482
	6N14W25CDCC	2143	2	2019.1	31881	2019.0	100681	2021.8	32382
	6N14W32CCAA	2198	1	2050.0	32581				
	6N14W33DACB	2185	2	2040.9	31781	2040.5	100681	2042.8	32482
	6N15W 1CBCC	2172	1	2124.6	32381	2124.1	100781		
	6N15W 4AAAA		11	2148.0	32381	2149.0	100681	2148.0	31582
	6N15W 8CDCC		11	2164.0	32381	2166.0	100681	2164.0	31582
	6N15W10DBBC	2184	1	2141.2	32481				
	6N15W24BBCB	2196	1	2114.0	32381	2113.6	100681	2115.9	32482
	6N15W28AAAA		11	2129.0	32381	2129.0	100681	2131.0	31582
	6N15W29AADC	2222	1	2146.8	32581	2147.4	100681	2148.7	32482
	6N15W29DBBA	2209	1	2143.7	32581				
	6N16W 8DD		11	2198.0	32481	2200.0	100681	2198.0	31582
	6N16W10CCCC		11	2192.0	32481	2194.0	100681	2192.0	31582
	6N16W14AD		11	2180.0	32381	2182.0	100681		
	6N16W14ADDB	2218	1	2180.4	32581	2182.0	100781		
	6N16W20CCCC		11	2195.0	32481	2199.0	100681	2196.0	31582
	6N16W26AAAA		11	2170.0	32381	2171.0	100681	2171.0	31582
	6N16W29DA		11	2185.0	32481	2185.0	100681	2186.0	31582
	7N13W 2DCBB	2075	1	2010.9	32481				
	7N13W10CCAD	2079	2	2016.5	31681	2015.0	100581	2016.6	32482
	7N13W19DCBB	2104	1	2040.6	32481	2039.6	100781		
	7N13W20AACC	2088	1	2029.5	32481				
	7N13W23A	2055	2	1994.2	31881	1992.6	100581	1994.6	32382
	7N13W29CCBC	2095	2	2028.3	31881	2027.4	100581	2028.7	32382
	7N13W34CBAC	2071	1	1999.6	32481	1998.3	100681	1999.7	32482
	7N14W 3ACBB	2097	2	2074.7	31681	2074.2	100581	2073.9	32482
	7N14W 7DDDD		11	2094.0	32481	2095.0	100681	2095.0	31582
	7N14W12CDCC	2107	1	2055.7	32481	2056.0	100681		
	7N14W20BAAB	2150	1	2089.6	32481	2084.7	100781		
	7N14W26ADCC	2116	1	2055.2	32481				
	7N14W27AB	2123	2	2067.0	31681	2066.7	100581	2067.5	32482
	7N15W 7AAAB		11	2139.0	32481	2138.0	100681	2140.0	31582
	7N15W 9DD		11			2130.0	100681	2131.0	31582
	7N15W10ACBC	2133	1	2120.2	32481	2118.9	100781	2121.6	50482
	7N15W12BBBB		11	2109.0	32481	2108.0	100681	2109.0	31582
	7N15W21AABB	2172	1	2137.9	32481	2137.2	100681	2138.0	32482
	7N15W26AAAA		11	2120.0	32481	2121.0	100681	2120.0	31582
	7N15W31CCBB	2210	1	2167.1	32481				
	7N16W 4DDDD		11	2163.0	32481	2163.0	100681	2164.0	31582
	7N16W 7CC		11	2184.0	32481	2184.0	100681	2185.0	31582
	7N16W 8BB		11	2176.0	32481	2175.0	100681	2176.0	31582
	7N16W 9BB		11	2169.0	32481	2168.0	100681	2170.0	31582
	7N16W 9BCCC	2178	1	2174.3	32481	2173.8	100781	2175.2	50482
	7N16W14AAAA		11	2157.0	32481	2156.0	100681	2157.0	31582
	7N16W17BCBC		11	2182.0	32481	2181.0	100681	2183.0	31582
	7N16W20BCDD	2220	1	2200.6	32481				
	7N16W20DCCB	2242	1	2189.7	32481				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Kearney	7N16W21ADDD		11	2178.0	32481	2177.0	100681	2178.0	31582
	7N16W24CCAA	2205	1	2167.2	32481				
	7N16W31DC		11	2205.0	32481	2207.0	100681	2205.0	31582
	7N16W33ACCB	2220	1	2190.5	32481	2090.5	100981	2090.3	32482
	8N13W10CCCB	2036	1	2030.1	32581				
	8N13W12CBBD	2022	1	2014.0	32581				
	8N13W14CBCC	2035	2	2018.0	31681	2018.0	100581	2018.7	32382
	8N13W18CCCB	2058	1	2050.0	32581				
	8N13W27ACAA	2045	1	2021.0	32581				
	8N13W29D	2060	2	2039.9	31681	2039.3	100581	2039.6	32382
	8N14W19DDDD		11	2084.0	32481	2084.0	100681	2085.0	31582
	8N14W21CCCD	2083	1	2078.6	32581	2077.4	100681	2079.4	32482
	8N14W23BABA	2067	1	2062.1	32581	2061.4	100781	2063.4	50482
	8N14W31CD	2127	1	2091.8	32481	2121.2	100681	2121.9	32482
	8N14W35CD	2085	1	2070.1	32481				
	8N15W19DDCC	2131	1	2124.8	32381	2124.4	100681	2122.4	32482
	8N15W21AA		11			2359.0	100181		
	8N15W21DCCD	2119	1	2113.0	32381	2112.2	100781		
	8N15W24BBCB		11	2097.0	32481	2096.0	100681	2097.0	31582
	8N15W24CCCC	2104	1	2097.9	32581	2097.1	100781		
	8N15W25ACCD	2104	1	2094.6	32581				
	8N15W32AACB	2130	1	2124.2	32481				
	8N15W35BD	2115	1	2107.3	32481				
	8N16W17CCDB	2167	1	2162.7	32481				
	8N16W18DCBB	2171	1	2165.3	32481				
	8N16W21DA		11			2372.0	100181		
	8N16W23DCBB	2146	1	2140.1	32381				
	8N16W24CCCB		11	2138.0	32481	2137.0	100681	2139.0	31582
	8N16W28AAAA	2159	1	2150.5	32381	2152.5	100781	2151.7	50482
	8N16W29BBBB		11	2166.0	32481	2167.0	100681	2168.0	31582
	8N16W35DD	2168	1	2151.5	32481				
Lincoln	9N26W36ADDA	2787	7	2555.2	10881				
	13N26W24BAC	2790	7	2698.5	30581				
Phelps	5N17W 7ABDD	2282	2	2189.9	32081				
	5N17W13BADD	2218	2	2150.8	32081				
	5N17W16DCDC	2262	2	2136.4	32081				
	5N17W29CDCB	2280	2	2122.3	32081				
	5N18W20ACC	2383	2	2151.2	32081				
	5N18W24BDBA	2305	2	2143.5	32081				
	5N18W34CCBB	2345	2	2128.2	32081				
	5N19W11DCDD	2405	2	2179.0	31981				
	5N19W18DBBB	2406	2	2207.8	31981				
	5N19W29DCCC	2378	2	2182.8	31981				
	5N19W35DDCD	2361	2	2147.5	31981				
	5N20W18CBBB	2360	2	2253.0	31981				
	5N20W27ADBB	2340	2	2218.2	31981				
	5N20W30BBCB	2440	2	2244.9	31981				
	6N19W31DDAA	2425	2	2226.0	31981				
	6N20W15DDBB	2457	2	2280.7	31981				
	6N20W19CCAA	2482	2	2298.8	31981				
	6N20W25ABAA	2445	2	2254.6	31981				
	5N17W 3ABDD	2238	1	2192.4	32381	2192.2	100881	2194.8	32482
	5N17W18BCBC	2320	1	2159.4	32281	2161.0	100881	2156.6	32382
	5N17W26CAB	2285	1	2107.1	32481				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum 1/ (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Phelps	5N17W34ADDB	2238	1	2102.0	32681				
	5N17W34CCDC		11	2104.0	32381	2103.0	100681	2104.0	31582
	5N18W 2CCO	2327	1	2196.9	32381	2192.7	100781		
	5N18W 6DD		11	2192.0	32481	2193.0	100681	2195.0	31582
	5N18W15DDDD	2318	1	2148.7	32381				
	5N18W21CDCD	2382	1	2142.3	32381				
	5N18W24BDCC	2301	1	2145.8	32381	2143.0	100781	2144.2	32682
	5N18W30BACD	2372	1	2152.8	32681				
	5N18W35AO	2289	1	2125.8	32481				
	5N18W35CBBC		11	2122.0	32381	2121.0	100681	2123.0	31582
	5N19W 4ACC	2422	1	2201.0	32381	2198.8	100881	2203.0	32382
	5N19W 4DBDC	2415	1	2192.2	32381	2190.0	100881	2194.3	32382
	5N19W33ADD	2355	1	2167.3	32481				
	5N20W 2ADBC	2428	1	2235.8	32681				
	5N20W 7DDCC	2418	1	2250.1	32581				
	5N20W 9CBD	2295	1	2248.4	32681				
	5N20W11BCDD	2445	1	2232.2	32681	2237.2	100881	2238.0	32382
	5N20W16DCC	2271	1	2239.5	32581				
	5N20W23CBDA	2375	1	2213.1	32581				
	5N20W32BCCC	2309	1	2201.3	32581				
	6N17W 4AB		11	2227.0	32481	2229.0	100681	2227.0	31582
	6N17W 8CCCC		11	2239.0	32481	2242.0	100681	2239.0	31582
	6N17W12CCCC		11	2214.0	32481	2215.0	100681	2214.0	31582
	6N17W15AD	2254	1	2221.7	32381	2220.7	100781		
	6N17W16CC		11	2227.0	32481	2230.0	100681	2229.0	31582
	6N17W22CDB	2241	1	2215.7	32381				
	6N17W25DCCC	2237	1	2197.7	32381	2198.4	100881	2199.1	32482
	6N17W31CDDD	2292	1	2206.3	32481				
	6N17W33BB		11	2210.0	32481	2210.0	100681	2211.0	31582
	6N18W 9BBAC	2332	1	2281.0	32481				
	6N18W10BBCC	2322	1	2281.5	32481				
	6N18W19DDDD		11	2242.0	32481	2238.0	100681	2243.0	31582
	6N18W22CCAC	2312	1	2237.3	32481				
	6N18W27CC		11	2220.0	32481	2218.0	100681	2222.0	31582
	6N18W30DDDD	2335	1	2226.8	32681				
	6N18W35DCBA	2313	1	2207.7	32481	2205.3	100881	2208.6	32382
	6N19W 2AAAA		11	2310.0	32581	2313.0	100681	2312.0	31582
	6N19W 5AB		11	2314.0	32581	2312.0	100681	2315.0	31582
	6N19W 6DCAA	2410	1	2316.4	32481				
	6N19W16BCBB	2376	1	2287.3	32581				
	6N19W21DCCC	2376	1	2255.2	32581	2252.3	100781		
	6N19W22BC		11	2273.0	32581	2263.0	100681	2268.0	31582
	6N19W26ABAA	2368	1	2253.3	32681				
	6N19W26BB		11	2247.0	32581	2243.0	100681	2248.0	31582
	6N20W 3ACDO	2437	1	2315.5	32481				
	6N20W 8ABCB	2494	1	2310.5	32481	2274.6	100881	2310.5	32382
	6N20W26DCCC	2449	1	2242.7	32381				
	7N17W 3ABDD	2212	1	2195.0	32381	2194.8	100981	2195.6	32482
	7N17W 5AB		11	2208.0	32481	2208.0	100681	2208.0	31582
	7N17W 6AACC	2230	1	2214.1	32481				
	7N17W12DDCD	2197	1	2187.9	32381				
	7N17W16AAAA		11	2205.0	32481	2203.0	100681	2205.0	31582
	7N17W19CBCC	2267	1	2239.6	32481				
	7N17W21CB		11	2218.0	32481	2217.0	100681	2218.0	31582

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Phelps	7N17W24BCAA		11	2201.0	32481	2201.0	100681	2201.0	31582
	7N17W31DAAD	2260	1	2235.3	32481				
	7N17W35ABAA	2246	1	2209.1	32381				
	7N18W 3DD	2290	1	2254.1	32481				
	7N18W 8CC		11	2284.0	32481	2287.0	100681	2286.0	31582
	7N18W11CBCC		11	2253.0	32481	2252.0	100681	2253.0	31582
	7N18W13BBCB		11	2244.0	32481	2242.0	100681	2244.0	31582
	7N18W16BC		11	2276.0	32481	2278.0	100681	2277.0	31582
	7N18W17CDBC		11	2282.0	32481	2283.0	100681	2284.0	31582
	7N18W22CDCC		11	2268.0	32481	2270.0	100681	2270.0	31582
	7N18W23CCCC		11	2260.0	32481	2262.0	100681	2263.0	31582
	7N18W26CDCD		11	2260.0	32481	2260.0	100681	2260.0	31582
	7N18W31DDDD		11	2304.0	32481	2307.0	100681	2304.0	31582
	7N18W32ACCC	2330	1	2303.4	32481				
	7N18W35ABAD	2282	1	2258.5	32381	2260.0	100781		
	7N18W36CC		11	2257.0	32481	2256.0	100681	2258.0	31582
	7N19W 3AABB	2342	1	2302.8	32581				
	7N19W 5CACC	2365	1	2337.1	32681				
	7N19W12BB		11	2300.0	32581	2301.0	100681	2301.0	31582
	7N19W12CD		11	2299.0	32581	2302.0	100681	2301.0	31582
	7N19W15CCC	2348	1	2329.5	32581				
	7N19W18AAAA		11	2341.0	32581	2341.0	100681	2343.0	31582
	7N19W19DDDD		11	2333.0	32581	2332.0	100681	2335.0	31582
	7N19W22DDCC		11	2325.0	32581	2330.0	100681	2328.0	31582
	7N19W24CDCD		11	2318.0	32581	2322.0	100681	2319.0	31582
	7N19W25AAAB		11	2312.0	32581	2315.0	100681	2313.0	31582
	7N19W26BB		11	2325.0	32581	2329.0	100681	2327.0	31582
	7N19W26DD		11			2328.0	100681	2321.0	31582
	7N19W27BBCB		0	2325.0	32581	2324.0	100681	2325.0	31582
	7N19W31BABB		11	2325.0	32581	2323.0	100681	2326.0	31582
	7N19W33DAAD	2380	1	2314.0	32581				
	7N20W 1AD		11	2343.0	32581	2343.0	100681	2344.0	31582
	7N20W 16BBB		11	2347.0	32581				
	7N20W 4BC		11	2369.0	32581	2367.0	100681	2371.0	31582
	7N20W 5CC		11			2418.0	100681	2419.0	31582
	7N20W10CC		11	2365.0	32581	2365.0	100681	2367.0	31582
	7N20W13BABB		11	2349.0	32581	2350.0	100681	2350.0	31582
	7N20W20CC		11	2359.0	32581	2361.0	100681	2362.0	31582
	7N20W25ABBB	2435	1	2344.9	32681				
	7N20W27AAAB	2465	1	2344.0	32481				
	7N20W35DDDA		11	2325.0	32581	2323.0	100681	2326.0	31582
	8N17W15DDDD	2193	1	2186.6	32481				
	8N17W17DDBA	2205	1	2197.1	32481				
	8N17W18DCCC	2214	1	2205.5	32481				
	8N17W19DDCD	2221	1	2210.5	32481	2209.9	100981	2211.2	32382
	8N17W23BCBB	2194	1	2185.9	32481				
	8N17W24BCAC	2187	1	2178.4	32481	2177.3	100881		
	8N17W26ADBB	2192	1	2182.1	32481	2182.1	100981	2183.2	32482
	8N17W28BBDD	2212	1	2202.8	32481				
	8N17W29AD	2220	1	2207.8	32481				
	8N17W30DDBB	2250	1	2213.3	32481				
	8N17W32CCBC		11	2212.0	32481	2212.0	100681	2211.0	31582
	8N17W34BD	2208	1	2196.6	32381				
	8N17W36BD	2205	1	2183.5	32381				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Phelps	8N18W14CDDD	2236	1	2229.7	32481	2229.2	100981	2230.7	32382
	8N18W16CCCC	2252	1	2244.6	32581	2244.2	100881	2245.3	50582
	8N18W16DDCC	2246	1	2239.6	32581	2244.2	100881	2245.3	50582
	8N18W17CCBC	2258	1	2250.0	32581				
	8N18W20DACC	2280	1	2245.2	32581	2245.2	100981	2245.7	32382
	8N18W28CADC	2270	1	2248.2	32581				
	8N18W28DDDD		11	2244.0	32481	2245.0	100681	2246.0	31582
	8N18W32CABB	2312	1	2266.8	32581				
	8N18W36DD	2245	1	2228.8	32481				
	8N19W13AAAA		11	2257.0	32481	2256.0	100681	2257.0	31582
	8N19W13ABBB		11	2261.0	32481	2260.0	100681	2261.0	31582
	8N19W13AD		11			2259.0	100681		
	8N19W13BCCB		11	2265.0	32481	2266.0	100681	2266.0	31582
	8N19W14CDDD		11	2270.0	32481	2270.0	100681	2271.0	31582
	8N19W15CD		11	2278.0	32481	2278.0	100681	2279.0	31582
	8N19W17AAAA		11	2285.0	32481	2284.0	100681	2286.0	31582
	8N19W18AAAA		11	2292.0	32481	2291.0	100681	2292.0	31582
	8N19W19BC		11	2311.0	32481	2309.0	100681	2311.0	31582
	8N19W20DBBB	2334	1	2301.1	32581				
	8N19W20DDCB	2341	1	2307.9	32581				
	8N19W25ABDC	2298	1	2267.2	32581				
	8N19W27BC		11	2297.0	32581	2299.0	100681	2297.0	31582
	8N19W29CCCC		11	2343.0	32481	2346.0	100681	2344.0	31582
	8N19W33CCCC		11	2316.0	32581				
	8N19W34CC		11			2314.0	100681	2317.0	31582
	8N19W36BBBB		11	2282.0	32581	2282.0	100681	2282.0	31582
	8N20W 8CBBC		11	2331.0	32481	2332.0	100681	2332.0	31582
	8N20W 8CDDD	2338	1	2330.4	32581	2331.8	100881		
	8N20W 9CDDD		11	2321.0	32481	2321.0	100681	2321.0	31582
	8N20W14BC		11	2314.0	32481	2313.0	100681	2314.0	31582
	8N20W14CD		11	2316.0	32481	2317.0	100681	2316.0	31582
	8N20W14DB		11			2308.0	100681	2308.0	31582
	8N20W15CCCB		11	2328.0	32481	2329.0	100681	2328.0	31582
	8N20W15DABB		11	2318.0	32481	2319.0	100681	2319.0	31582
	8N20W16AAAA		11	2317.0	32481	2317.0	100681	2317.0	31582
	8N20W17CCCD		11	2372.0	32481	2372.0	100681	2372.0	31582
	8N20W24ACCA	2348	1	2313.6	32581				
	8N20W25BBBB		11	2338.0	32481	2337.0	100681	2337.0	31582
	8N20W26DC		11			2373.0	100681	2371.0	31582
	8N20W28CABC	2340	1	2266.5	32781				
	8N20W31AA		11	2369.0	32581	2368.0	100681	2368.0	31582
Red Willow	3N26W 1ACCC	2277	12	2265.5	30681				
	3N26W 2DCAC	2294	12	2280.6	30681				
	3N26W 3ABBB	2294	12	2286.9	30681				
	3N26W 3BBCB	2299	12	2291.6	30681				
	3N26W 3DDAD	2291	12	2286.0	30681				
	3N26W 4ADDA	2299	12	2290.7	30681				
	3N26W 5ABDA	2334	12	2302.7	30681				
	3N26W 5ADCB	2308	12	2300.4	30681				
	3N26W 5BBBC	2351	12	2314.6	30681				
	3N26W 5BCCC	2345	12	2308.1	30681				
	3N26W 5CBCC	2323	12	2307.2	30681				
	3N26W 5DBBA	2307	12	2303.4	30681				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum[1/] (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Red Willow	3N26W 6BBCB	2356	12	2327.8	30681				
	3N26W 7BBBB	2329	12	2315.1	30681				
	3N26W 8CDDA	2318	12	2308.2	30681				
	3N26W 8DDBD	2314	12	2306.2	30681				
	3N26W 8DDCA	2319	12	2307.3	30681				
	3N26W 9AAAA	2301	12	2293.8	30681				
	3N26W 9ADAD	2306	12	2297.2	30681				
	3N26W 9BCCC	2319	12	2303.1	30681				
	3N26W 9CBCC	2319	12	2304.9	30681				
	3N26W10ADDD	2318	12	2292.4	30681				
	3N26W10BCCC	2307	12	2298.7	30681				
	3N26W11ABAC	2311	12	2274.0	30681				
	3N26W11ACCC	2330	12	2283.7	30681				
	3N26W11BBBB	2293	12	2287.3	30681				
	3N26W12AACA	2319	12	2275.9	30681				
	3N26W17ABAA	2336	12	2306.7	30681				
	3N26W17BAAA	2335	12	2309.1	30681				
	3N26W17BABB	2330	12	2310.3	30681				
	4N26W34CCCC	2306	12	2292.2	30681				
	4N26W34DBCA	2309	12	2293.2	30681				
	4N26W34DCBD	2302	12	2287.2	30681				
	4N26W35ADAB	2289	12	2276.9	30681				
	4N26W35ADDC	2285	12	2276.3	30681				
	4N26W35DBAD	2286	12	2277.3	30681				
Webster	1N 9W 8DCDA	1637	10	1630.4	51481				
	1N 9W11BABB	1658	1	1633.9	32681	1640.8	100781	1641.9	32282
	1N 9W18BDC	1660	10	1643.8	51481				
	1N10W 4DBBB	1665	1	1658.6	32681	1659.0	100781	1661.1	32282
	1N11W 5BCBC	1710	10	1698.6	51481	1694.4	100781	1694.7	32282
	1N11W 5CCBC	1705	1	1694.2	32681	1694.4	100781	1694.7	32282
	1N11W 9CABC	1705	1	1695.4	32681				
	1N11W11AB	1686	7	1676.7	50481	1673.5	100581	1676.3	50382
	1N11W11ACCD	1685	10	1677.2	51481				
	1N12W 2DBDD	1720	10	1711.2	51481	1710.9	100881	1711.3	32282
	1N12W 3ADBD	1722	10	1714.1	51481				
	1N12W 4BCAB	1740	10	1732.1	51481				
	1N12W 5CBBB	1735	10	1728.7	51481	1728.4	100881	1731.0	32282
	1N12W 6BCCB	1747	10	1738.1	51481				
	2N 9W33BBAA	1755	1	1683.9	32681	1678.3	100781	1679.3	32282
	2N10W 5AACC	1892	3	1779.5	32481	1779.6	101981	1779.9	32182
	2N10W13ADBB	1827	3	1711.1	32481	1711.3	101981	1712.4	31882
	2N10W16DCBC	1760	1	1739.8	32681	1740.9	100781	1741.2	32282
	2N10W23CCAA	1835	3	1713.0	32481	1713.2	101981	1713.8	31782
	2N11W 5AAAA	1920	1	1819.5	32581	1812.5	100781	1813.0	32282
	2N11W 8BBBB	1910	1	1814.0	32581				
	2N11W11CBD	1835	1	1802.2	32581				
	2N11W22BBAC	1890	1	1796.5	32581	1786.9	100781	1786.9	32282
	2N12W13ABBB	1940	1	1820.6	32581	1820.5	100781	1820.6	32282
	2N12W15CA	1965	3	1841.3	32481	1841.0	101981	1841.1	31682
	2N12W22BA	1945	3	1835.8	32481				
	2N12W36CCCC	1720	10	1709.7	51481				
	3N 9W24DCC	1910	7	1826.8	50481	1829.2	100681	1830.5	50482
	3N11W 3CD	2000	7	1821.5	50481	1841.4	100681	1841.7	50482
	3N11W29BD	1921	1	1820.1	32581				

Table 1.--Water-level altitudes, spring and fall 1981 and spring 1982, for observation wells in the study area--Continued

County name	Well number	Land surface datum 1/ (feet)	M.A.	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date	Water-level altitude (feet)	Date
Webster	3N12W13DACB	2028	1	1835.1	32581	1835.2	100781	1835.7	32282
	3N12W19DDDC	2030	1	1848.1	32581	1852.8	100781	1853.2	32382
	3N12W35CBBB	2008	1	1842.5	32581	1842.3	100781		
	4N 9W12DCDD	1880	3	1819.6	32381	1820.2	111281	1820.9	32682
	4N10W 7ACBB	1970	3	1899.8	32381	1901.5	111281	1903.2	32682
	4N10W11CCD	2000	7	1918.6	50481				
	4N10W24AACA	1960	3	1908.6	32381	1909.5	111281	1908.4	32682
	4N11W 1AABB	1951	10	1846.6	51381				
	4N11W 1ABBB	1928	10	1845.1	51281				
	4N11W 3CBB	1965	7	1872.5	50581				
	4N11W13CDBB	2010	3	1920.3	32381	1910.8	111281	1911.0	32682
	4N12W18BBDD	2030	3	1935.6	32381	1934.4	111281	1935.1	32682
	4N12W18BBDD	2030	7	1935.1	32381	1934.4	111281	1935.1	32682
	4N12W23BBAA	2005	1	1900.0	32481				
	4N12W29BBD	2035	1	1913.6	32481				

1/ Land surface datum was not obtained for observation wells measured by the Central Nebraska Public Power and Irrigation District.

Water-level measurements in table 1 are listed by county and by well location within the county. The first column is the county name; the second column is the well number, as described in figure 2; and the third column is land-surface datum of the wells. The fourth column contains numbers representing the agencies that made each measurement. The fifth column is the spring 1981 water-level altitude. The sixth column is a 5- or 6-digit number representing the month, day, and year of the measurement. For example, 32381 is March 23, 1981. Columns seven and eight are the fall 1981 water-level measurements and dates, and columns nine and ten are the spring 1982 water-level measurements and dates.

Water Quality

Water-quality samples were collected from 68 irrigation wells in the study area. In August 1980, 38 wells were sampled, and in July 1981, 30 wells were sampled. Eight of the wells sampled in 1980 had been sampled previously in the 1960's and 1970's. The wells sampled in 1980 and 1981 were chosen to obtain representative data on the water quality of the aquifer through the study area. Figure 4 shows the location of the water-quality sampling sites.

Samples were collected from irrigation wells, in order to provide a representative sample from the aquifer. If at the time of collection a well was not pumping, it was started and pumped for several minutes to clear the well casing, so that water was obtained directly from the aquifer.

Samples were collected according to U.S. Geological Survey procedures. Water temperature, pH, and specific conductance were measured at the time of collection. Other constituents, or properties, were either analyzed for or computed by the U.S. Geological Survey Central Laboratory in Arvada, Colo. These constituents were calcium, magnesium, sodium, chloride, sulfate, fluoride, silica, boron, iron, manganese, nitrite plus nitrate as nitrogen, alkalinity, pH, and specific conductance. Hardness, noncarbonate hardness, percent sodium, and sodium-adsorption ratio were computed from measured analytical results. The results of the analyses of the 68 wells sampled in 1980 and 1981, along with results for analyses of samples of these wells from previous years are published in U.S. Geological Survey Water-Resources Data for Nebraska, Part 2, Water Quality Records, water years 1969-72 and in U.S. Geological Survey Water-Resources Data - Nebraska, water years 1979-81.

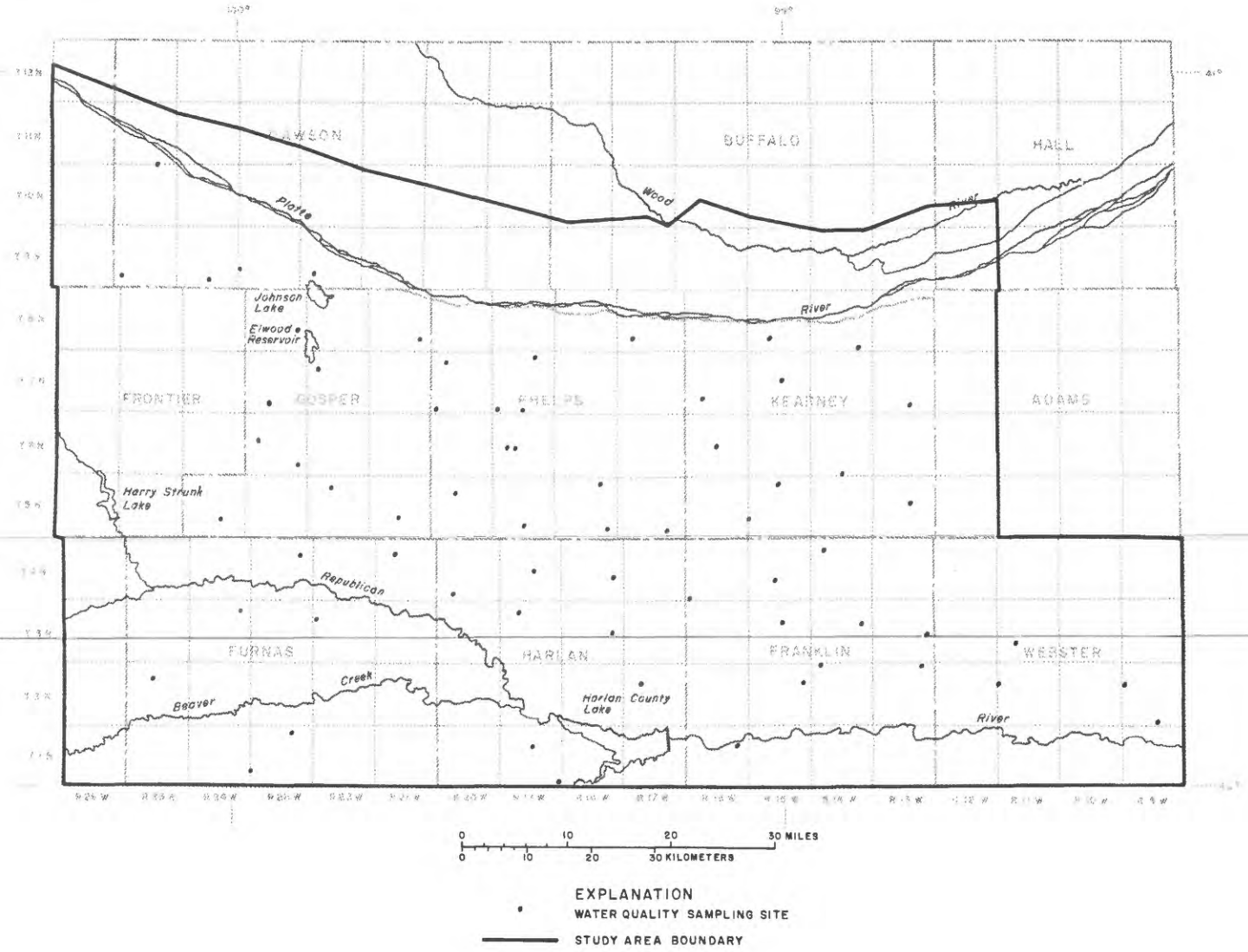

Figure 4.--Location of water-quality sampling sites.

SURFACE-WATER DATA

Surface-water data collected and compiled for this study consist of items needed to develop and calibrate the ground-water model.

Average Annual Streamflows and Average October through December Streamflows

The average annual streamflows and average October through December streamflows were computed for U.S. Geological Survey gaging stations within and near the study area (fig. 5) for their periods of record. The average flows for each month were determined by totaling the flows for each month and dividing by the number of years of record. The average October through December flows are the averages for these 3 months for the period of record. For unregulated streams, the average October through December flows are considered to approximate the base flows or the component of streamflow attributable to ground-water discharge.

Streamflow data in table 2 were computed from records published in U.S. Geological Survey reports (1958), (1962-65), (1964), (1966-75), and (1976-83).

Low-Flow Measurements

Low-flow measurements were made to determine the contribution of ground-water seepage to streamflow. Location of measured stream reaches are shown in figure 5. The measurements along the Platte River were conducted during October 1982. Along the Republican River and its tributaries, measurements were made April 28 to May 1, 1980, from beyond the western boundary of the study area to the city of Arapahoe; measurements were made on October 20 and 21, 1980, from below Harlan County Lake to a point immediately east of the study area; and measurements were made on October 19 and 20, 1981, from beyond the western boundary of the study area to a point just below Harlan County Lake. All low-flow measurements were published in U.S. Geological Survey Water-Resources Data - Nebraska, water years 1980 through 1983.

Canals and Surface-Water Irrigated Areas

The location of the major irrigation canals within the study area and the areas to which these canals provide surface water for irrigation are shown in figures 6 and 7, respectively. Eight major canals divert water from the Platte River to provide irrigation for substantial acreages within the study area. These canals, in downstream order of diversion from the Platte River, are: Tri-County Supply, Thirtymile, Gothenburg, Sixmile, Cozad, Orchard and Alfalfa, Dawson County, Elm Creek, and Kearney. The Elm Creek Canal was abandoned in 1963.

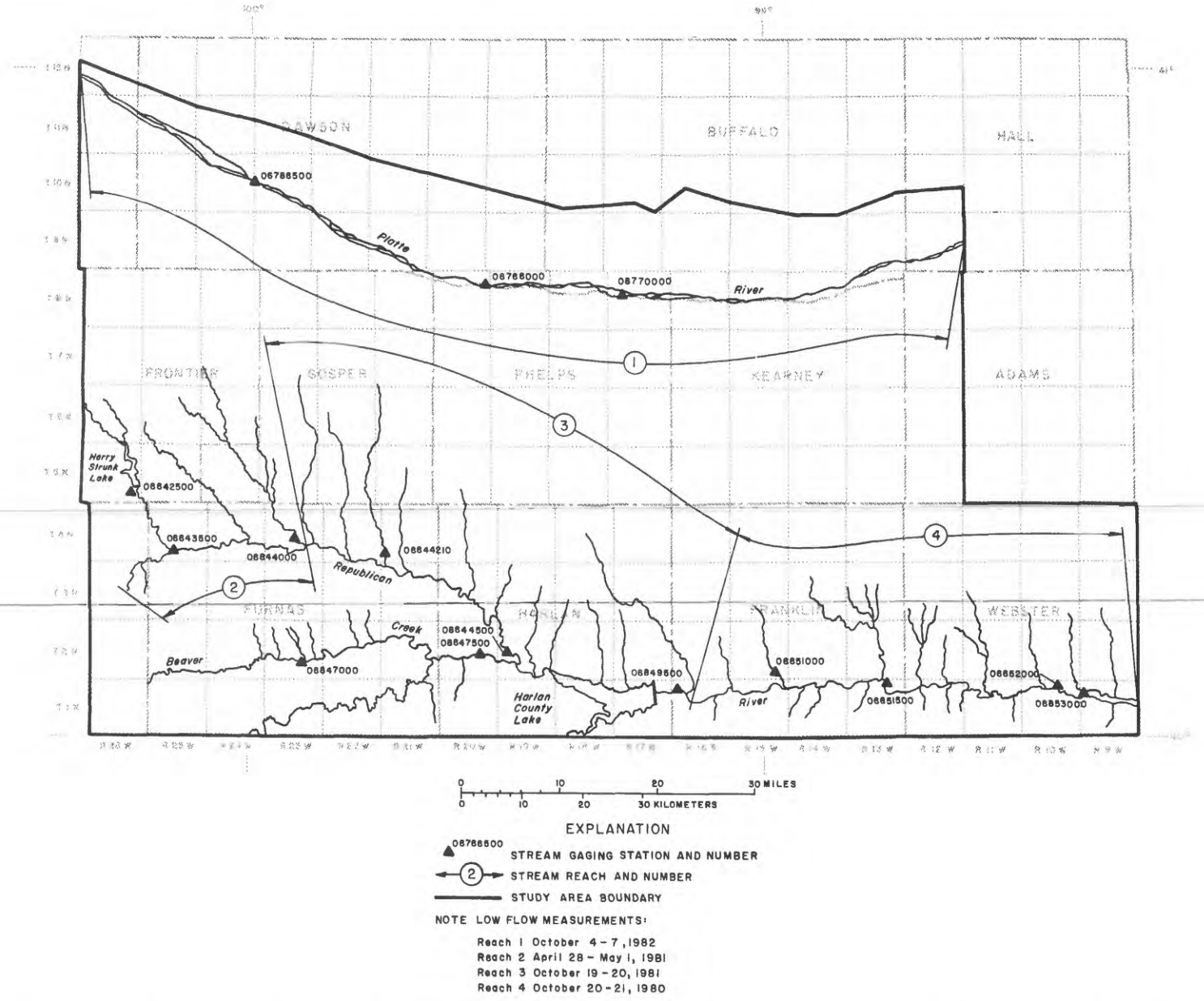

Figure 5.--Location of stream-gaging stations and stream reaches where low-flow measurements were made.

Table 2.--Average annual streamflow and average October through December streamflow for gaging stations in or near the study area

[Ft^3/s, cubic feet per second]

Station No. (06-)	Station name	No. of years of record	Average annual flow (ft^3/s)	Average monthly flow, in cubic feet per second			Average flow Oct.-Dec. (ft^3/s)
				Oct.	Nov.	Dec.	
7660.00	Platte River at Brady[1]	31	603	126	143	171	147
7665.00	Platte River near Cozad	30	520	146	209	235	197
7680.00	Platte River near Overton	39	1,383	787	1,046	1,187	1,007
7700.00	Platte River near Odessa	32	1,286	670	892	1,059	874
7705.00	Platte River nr. Grand Island[1]	36	1,271	512	792	874	726
8370.00	Republican River at McCook[1]	21	180	91.9	110	104	102
8380.00	Red Willow Creek at Red Willow[1]	32	29.5	13.0	14.9	15.4	14.4
8425.00	Medicine Cr. bl. Harry Strunk Lake[2]	24	63.9	5.37	4.55	6.63	5.52
8435.00	Republican River at Cambridge	27	312	76.9	147	144	123
8440.00	Muddy Creek at Arapahoe[3]	19	14.9	4.89	6.00	5.80	5.56
8442.10	Turkey Creek at Edison[3]	3	5.21	1.88	2.76	2.69	2.44
8445.00	Republican River near Orleans[2]	26	303	94.4	145	147	129
8465.00	Beaver Cr. at Cedar Bluffs, KS[1,3]	27	18.8	.15	.15	.21	.17
8470.00	Beaver Creek near Beaver City[3]	33	24.4	.76	.85	1.12	.91
8475.00	Sappa Creek near Stamford[3]	27	59.9	2.93	2.76	2.61	2.85
8485.00	Prairie Dog Cr. nr. Woodruff, KS[1,2]	30	35.7	2.20	3.05	3.09	2.78
8495.00	Republican R. bl. Harlan County Dam[2]	21	264	14.2	10.0	12.2	12.1
8510.00	Center Creek at Franklin[3]	15	7.61	5.18	5.85	5.52	5.52
8515.00	Thompson Creek at Riverton[3]	15	30.1	20.7	21.8	20.6	21.0
8520.00	Elm Creek at Amboy[3]	8	21.1	15.6	15.9	15.1	15.6
8530.00	Republican R. nr. Guide Rock	24	339	79.1	102	106	95.5
8535.00	Republican River nr. Hardy[1]	39	574	147	179	185	171

[1] Station outside study area.

[2] Average flow for this station fluctuated because of upstream reservoir operation.

[3] Stream unregulated.

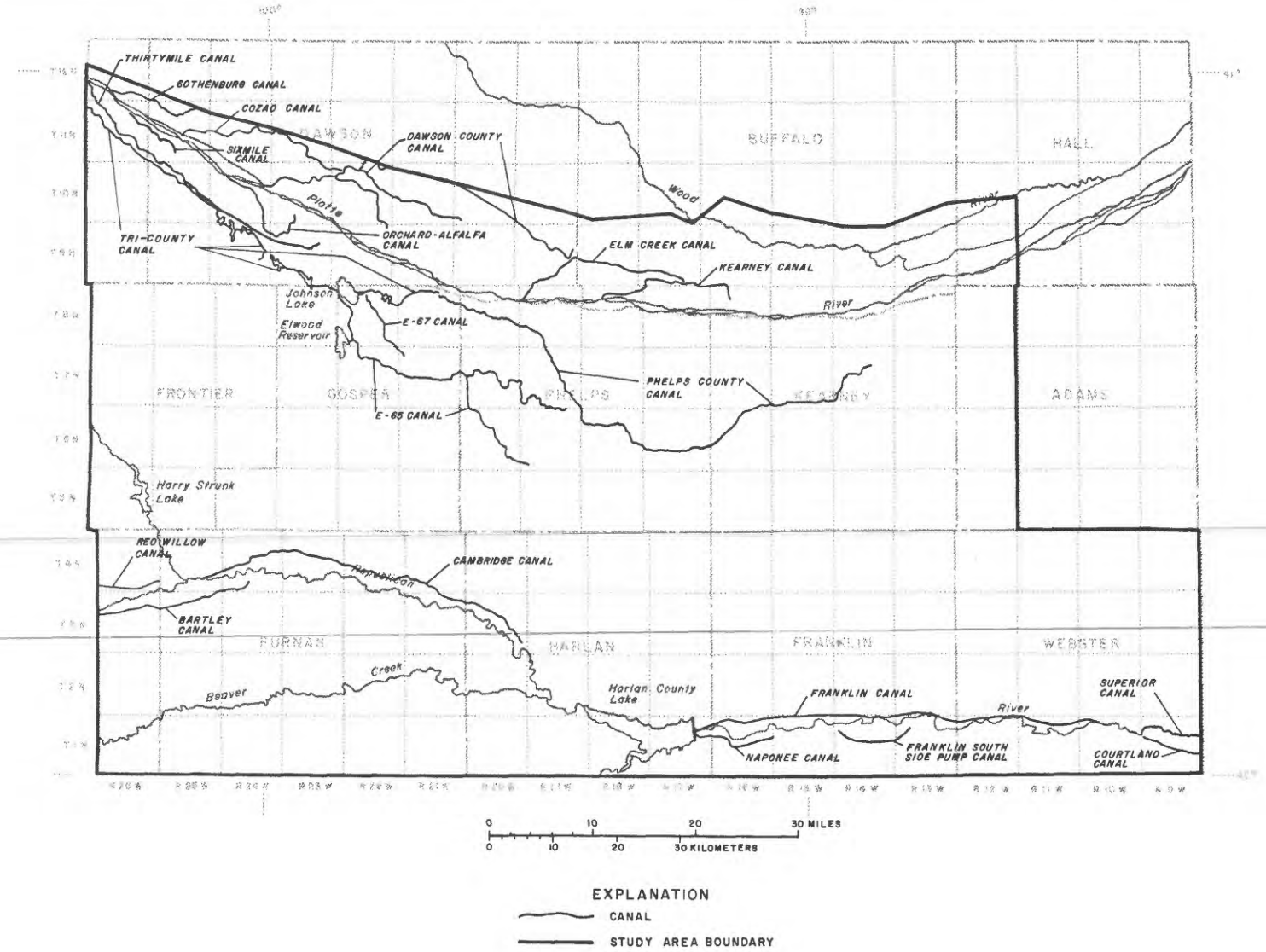

Figure 6.--Location of major irrigation canals.

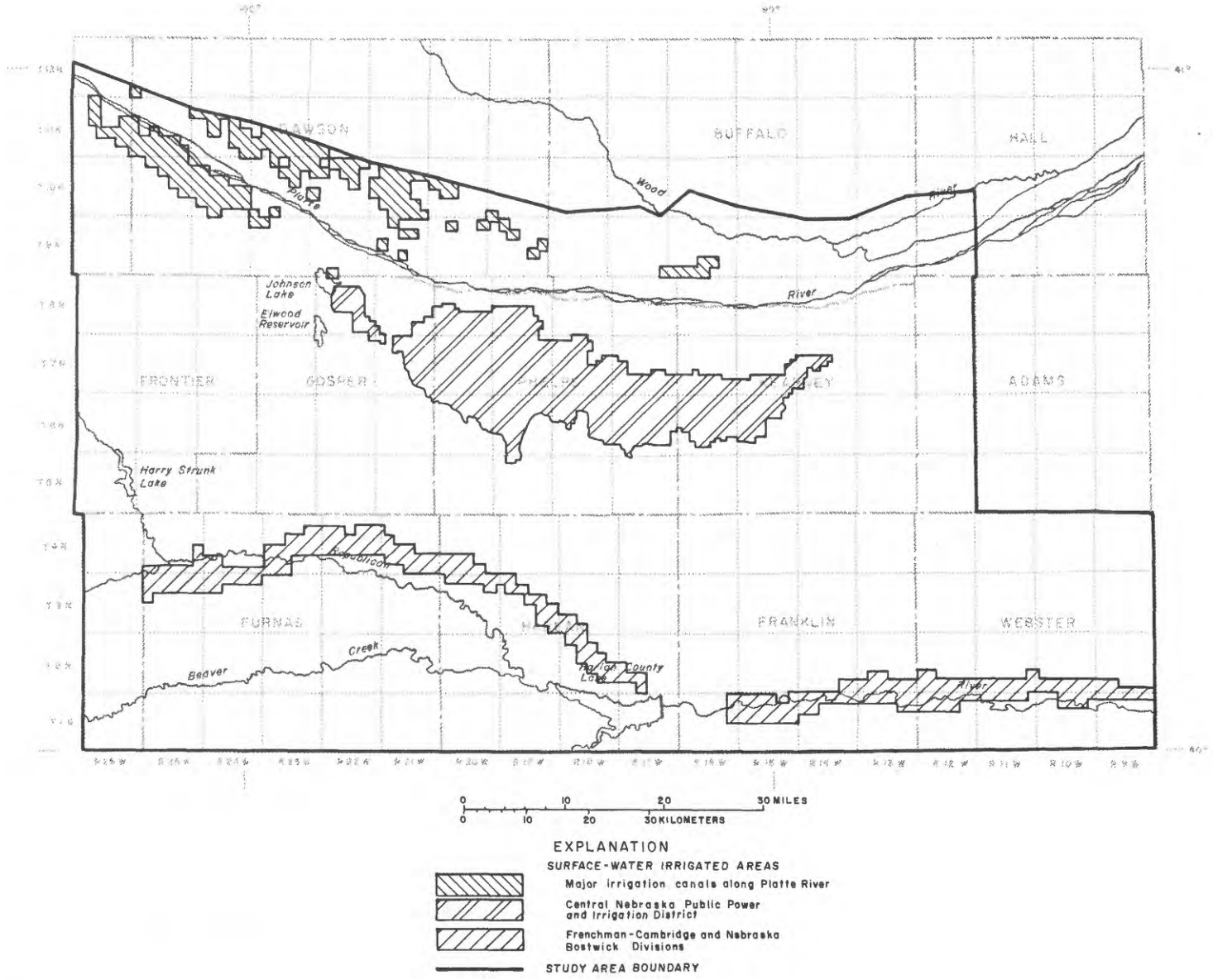

Figure 7.--Location of surface-water irrigated areas.

The Tri-County Canal diverts water from the Platte River east of North Platte, Nebr., about 18 miles west of the study area. This is the supply canal for the Central Nebraska Public Power and Irrigation District's (CNPPID) irrigation system. The CNPPID provides electrical power and irrigation water through a system of dams, lakes or reservoirs, and canals. Lake McConaughy, west of the study area on the North Platte River, is the largest reservoir in the CNPPID system. Within the study area, Johnson Lake and Elwood Reservoir are the largest reservoirs in the CNPPID system. Surface water is supplied for irrigation in the study area by the Tri-County Supply Canal and its branches, Phelps, E-65, and E-67 canals.

The U.S. Bureau of Reclamation operates the Frenchman-Cambridge and Nebraska-Bostwick Divisions along the Republican River. Three canals (Red Willow, Bartley, and Cambridge) in the Frenchman-Cambridge Division provide irrigation water for land in Furnas and Harlan Counties. Hugh Butler Lake, west of the study area, provides water for the Red Willow Canal. Bartley Canal obtains water diverted from the Republican River west of the study area. Cambridge Canal obtains water diverted from the Republican River, much of which is derived from Harry Strunk Lake and is delivered to the Republican River via Medicine Creek.

Five canals in the Nebraska-Bostwick Division use water from Harlan County Lake or the Republican River to irrigate land in the study area. These canals, in downstream order of their diversion, are: Franklin and Naponee Canals from Harlan County Lake, Franklin South Side Pump from the Republican River, and Superior and Courtland Canals from the Republican River west of Guide Rock, Nebr. The Naponee, Franklin South Side Pump, and Courtland Canals irrigate land south of the Republican River; while Franklin and Superior Canals irrigate land on the north side of the Republican River.

Canal Diversions

Diversions, in acre-feet, for 1940 through 1981 for eight major irrigation canals that divert water from the Platte River within or near the study area are listed in table 3. The values in this table are the irrigation and nonirrigation season diversions. The primary irrigation period is usually June through August; thus, this period is referred to as the irrigation season. The nonirrigation season refers to the remainder of the year. Irrigation can occur during the nonirrigation season, but the amount of irrigation usually is minimal.

Tri-County Supply Canal was not included in table 3; seasonal diversions for this canal are listed in table 4. Five diversions occur along the Tri-County Supply Canal west of Central Nebraska Public Power and Irrigation District. Thirtymile Canal siphon, diverts water into Thirtymile Canal; whereas, water from the other diversions is used for irrigation. Diversions from the Tri-County Supply Canal began in 1961. Seasonal diversions for CNPPID land in Gosper, Phelps, and Kearney Counties are listed in table 5 for Phelps, E-65, and E-67 Canals from 1940 to 1981.

Table 3.--Annual diversions, in acre-feet, from the Platte River for canals in the study area[1/]
[I is irrigation season (June through August); N is nonirrigation season (September through May)]

Year	Gothenburg		Cozad		Dawson Co.		Elm Creek		Kearney		Thirtymile		Sixmile		Orchard-Alfalfa	
	I	N	I	N	I	N	I	N	I	N	I	N	I	N	I	N
1940	4,300	33,200	2,720	28,510	25,000	60,640	2,380	9,140	2,520	9,040	6,890	45,820	320	2,520	1,360	11,710
1941	14,210	23,570	13,290	13,040	25,890	20,450	3,100	4,210	4,600	6,280	23,150	21,020	1,100	420	5,300	6,740
1942	14,470	6,600	13,350	5,800	20,770	16,210	3,030	3,220	5,070	9,700	21,330	19,960	620	960	4,910	3,550
1943	25,340	9,310	21,690	2,870	44,100	6,590	5,570	1,240	5,340	10,600	27,640	17,710	1,210	100	7,670	730
1944	22,230	15,750	17,190	820	35,320	15,910	5,490	2,200	3,090	5,370	24,310	13,120	1,150	0	5,990	640
1945	16,580	5,880	12,940	1,830	35,860	14,760	5,030	800	510	0	23,950	15,230	910	0	6,210	1,820
1946	29,250	13,360	16,270	7,450	52,620	19,670	6,340	2,770	9,390	5,660	28,940	24,680	1,740	820	6,240	3,570
1947	9,720	8,520	11,540	420	27,350	10,680	2,610	420	3,210	11,120	17,500	7,100	1,020	370	2,030	1,300
1948	18,890	19,200	14,000	5,760	41,880	18,300	7,580	2,730	7,730	4,890	16,650	22,800	970	620	2,210	2,800
1949	26,280	6,850	19,420	3,350	41,200	11,070	6,640	2,340	9,550	7,480	26,110	14,910	1,200	500	5,640	0
1950	27,230	6,480	16,090	1,610	41,110	5,780	3,770	1,060	3,730	11,150	17,360	6,340	830	190	4,330	960
1951	20,130	4,330	14,000	3,750	31,900	10,930	7,860	1,700	4,530	6,230	17,260	7,040	40	40	3,540	1,530
1952	41,600	5,720	23,900	720	46,280	2,730	7,530	2,350	6,310	11,240	33,710	4,040	820	0	8,160	370
1953	44,210	12,200	26,070	2,750	53,520	10,940	9,670	1,740	6,410	5,650	36,030	7,840	710	10	8,230	1,220
1954	33,600	17,070	18,000	6,250	38,170	17,740	7,510	2,930	2,590	3,410	28,990	15,440	1,050	20	6,850	2,260
1955	28,120	12,350	21,700	2,910	39,850	15,710	7,710	4,470	2,990	1,420	34,610	6,530	860	200	8,210	1,520
1956	27,880	24,040	22,000	4,750	44,110	23,280	7,470	520	2,850	5,340	32,210	5,860	1,180	0	7,540	1,640
1957	27,960	6,690	21,240	1,080	42,730	14,390	4,700	2,050	2,980	4,530	27,800	8,130	700	580	5,570	1,400
1958	14,680	4,750	14,140	1,610	31,240	8,350	3,970	1,110	2,980	3,540	20,140	4,260	320	30	2,450	900
1959	25,930	5,560	22,120	6,830	46,290	15,380	5,700	1,280	4,510	6,340	25,310	9,330	670	0	5,410	1,100
1960	25,050	4,700	19,840	1,840	36,540	8,680	4,130	9,310	4,350	0	21,950	4,640	1,200	110	3,930	770

Table 3.--Annual diversions, in acre-feet, from the Platte River for canals in the study area[1]/--Continued

Year	Gothenburg		Cozad		Dawson Co.		Elm Creek		Kearney		Thirtymile		Sixmile		Orchard-Alfalfa	
	I	N	I	N	I	N	I	N	I	N	I	N	I	N	I	N
1961	24,810	5,280	19,230	2,360	41,600	13,010	6,410	1,420	3,370	6,680	26,130	3,310	1,050	0	4,710	650
1962	9,820	5,500	8,410	3,950	11,980	11,910	3,340	820	1,940	11,130	14,660	6,410	520	150	3,690	1,080
1963	28,130	4,260	25,510	3,090	47,030	12,010	2/		5,480	2,720	24,310	4,810	1,040	60	5,900	1,970
1964	25,270	3,940	19,740	1,510	40,770	5,210			5,310	9,990	26,870	4,100	760	0	6,470	530
1965	15,870	5,750	14,020	3,780	25,860	12,490			3,760	6,130	22,800	8,670	570	170	5,150	670
1966	24,830	4,780	22,400	1,430	39,700	5,610			4,790	4,460	26,100	3,330	2,070	0	8,140	1,290
1967	17,900	9,350	15,770	7,060	28,630	12,330			3,350	7,420	23,780	9,010	850	0	5,610	2,350
1968	29,920	7,150	23,900	5,080	47,720	12,080			4,680	7,680	28,470	3,570	2,290	290	7,310	2,650
1969	30,450	6,690	23,900	4,060	44,260	9,050			890	2,470	27,450	4,240	2,060	60	6,290	1,320
1970	29,020	5,360	25,730	1,710	43,490	12,130			6,880	6,280	32,660	6,580	900	10	9,040	600
1971	29,130	7,870	31,960	900	47,570	9,170			5,990	4,270	35,980	4,360	2,220	1,260	8,860	600
1972	34,040	7,770	28,180	3,180	53,400	14,840			5,860	3,570	36,760	5,920	2,210	390	8,630	1,890
1973	35,140	7,750	28,820	2,450	50,110	10,050			4,660	2,560	36,220	6,980	2,060	0	9,540	810
1974	38,740	6,020	28,190	3,420	52,940	10,230			6,200	6,260	38,120	10,600	2,620	0	9,370	2,080
1975	42,820	11,210	28,090	1,300	58,340	12,710			7,330	7,910	33,950	6,450	2,510	20	8,530	1,420
1976	46,270	12,990	36,360	2,460	63,490	13,920			6,140	7,380	36,150	5,770	1,930	20	9,810	2,130
1977	41,520	6,930	28,640	1,560	55,140	12,440			6,090	7,600	34,350	4,790	2,330	140	8,540	1,420
1978	41,850	6,960	29,470	1,630	53,900	5,810			7,310	5,720	37,580	4,790	1,720	0	8,720	870
1979	41,330	11,440	28,500	3,160	48,060	11,490			4,520	4,000	28,890	9,830	2,010	10	7,410	1,220
1980	44,980	8,330	35,280	1,730	60,970	13,880			5,770	2,590	45,450	8,490	2,700	460	9,390	1,670
1981	29,830	11,380	23,070	7,110	51,780	15,210			4,980	4,250	29,410	9,650	1,240	20	7,250	2,290

1/ Canals other than Tri-County Supply Canal.
2/ Canal abandoned in 1963.

Source: Nebraska Department of Water Resources

Table 4.--Seasonal diversions, in acre-feet, from Tri-County Supply Canal[1/]

[I is irrigation season (June through August); N is nonirrigation season (September through May)]

Year	19-Mile section		Thirtymile Canal Siphon		17-Mile section		3-Mile section		9-Mile section	
	I	N	I	N	I	N	I	N	I	N
1960	[2/]		714							
1961	1561	119	930		1605	513	129		296	16
1962	774	173	373		1504	160	121		211	31
1963	1408	6	895		2786	191	322		393	21
1964	1346	75	301		2988	247	422	10	107	17
1965	899	130	797		2138	163	337		117	
1966	1136	96	845		2935	362	213	10	337	24
1967	1566	256	653		1878	449	231	149	190	44
1968	1699	191	1196		2323	224	337	53	157	4
1969	1551	157	448		2443	307	310	29	412	4
1970	1612	190	553		2447	439	216	78	436	14
1971	1715	125	924		2940	363	330	27	396	47
1972	1646	298	1769	22	3175	397	311	56	350	106
1973	1576	303	1041		2883	573	452	36	196	65
1974	1795	270	2725		3034	292	606	171	267	5
1975	1685	336	1000		2135	543	174	75	446	117
1976	1781	112	3037	450	3094	392	313	102	655	133
1977	1791	231	1838	643	2840	93	206	9	668	23
1978	1934	406	1200		2210	583	327	59	394	192
1979	1335	357	974		1413	132	231	57	144	28
1980	2587	77	1917	75	2864	69	675	4	250	7
1981	637	257	409	50	1183	87	559	41	159	

1/ Diversions from Tri-County Supply Canal are: 19-mile section from Jeffrey Return to the Platte River to the Thirtymile turnout; Thirtymile Canal Siphon (a diversion to Thirtymile Canal); 17-mile section from Thirtymile turnout to E-65 Canal turnout; 3-mile section from E-65 Canal turnout to E-67 Canal turnout; and 9-mile section from E-67 Canal turnout to Phelps Canal turnout and Johnson No. 2 Return to Platte River.

2/ Blanks represent no diversions during this time period. Prior to 1960, diversion records were not kept for these five sections. Diversions from the Tri-County Canal for irrigation started in the late 1940's.

Table 5.--Seasonal diversions, in acre-feet, for Tri-County Supply, Phelps, E-65, and E-67 Canals

[I is irrigation season (June through August); N is nonirrigation season (September through May)]

Year	Tri-County Supply		Phelps		E-65		E-67	
	I	N	I	N	I	N	I	N
1940				37,930				
1941								
1942			48,690	61,840	25,840	41,890		
1943			66,520	44,170	38,760	33,870		
1944			70,590	24,310	46,520	21,730		
1945			48,950	33,670	43,830	23,880		
1946			69,580	39,430	49,550	28,090		
1947			60,470	40,750	45,530	27,170		
1948			81,880	66,190	52,370	37,480		
1949			76,500	36,220	49,230	25,830		
1950			74,280	39,850	47,580	32,660		
1951			71,850	33,780	39,320	32,990		
1952			95,500	50,930	55,540	39,450		
1953			111,500	66,900	53,570	52,380		
1954			109,200	57,730	52,860	44,560	5,700	3,610
1955			119,500	78,130	49,200	46,290	7,360	4,350
1956			139,500	91,480	54,300	50,270	8,910	4,660
1957			108,300	45,250	50,700	38,500	8,750	2,720
1958			113,900	45,480	55,660	33,650	6,890	2,630
1959			140,800	45,040	55,730	36,360	10,100	1,860
1960			120,500	48,710	47,680	31,760	7,690	3,110
1961	3,590	648	139,200	48,400	52,440	35,090	6,940	2,210
1962	2,610	364	85,300	42,660	49,390	33,970	5,180	1,440
1963	4,910	218	157,400	46,880	54,160	30,360	8,350	1,640
1964	4,860	349	123,400	59,080	55,190	39,860	9,470	2,430
1965	3,490	293	102,700	38,610	45,210		6,630	1,620
1966	4,620	492	129,800	54,690	54,730	37,360	8,750	2,540
1967	3,860	898	96,240	60,880	34,810	41,690	5,120	2,680
1968	4,520	472	141,900	47,440	50,330	41,050	7,670	2,930
1969	4,720	497	127,100	23,870	49,560	23,980	7,720	2,250
1970	4,710	721	152,100	27,260	55,860	27,560	10,570	2,720
1971	5,380	562	162,500	22,440	54,410	25,200	11,660	2,510
1972	5,480	857	151,500	15,980	55,170	30,170	11,710	3,630
1973	5,110	977	150,900	15,750	55,100	22,020	11,270	2,750
1974	5,700	738	145,100	27,310	52,960	25,660	11,370	2,690
1975	4,440	1,070	138,000	23,810	50,330	23,050	11,170	2,300
1976	5,840	739	168,500	26,150	52,900	20,450	13,030	3,720
1977	5,500	356	143,600	17,990	54,270	8,570	11,970	2,480
1978	4,860	1,240	152,200	29,120	52,240	17,620	11,360	3,340
1979	3,120	574	98,150	22,920	48,220	15,290	8,440	3,580
1980	6,380	157	159,200	23,810	51,120	13,260	14,310	2,250
1981	2,540	385	111,300	23,150	49,560	14,240	10,250	2,350

Source of information: Central Nebraska Public Power and Irrigation District.

Seasonal diversions for eight U.S. Bureau of Reclamation canals along the Republican River from the starting year of the canal through 1981 are listed in table 6.

Canal Seepage

Seepage to the ground-water system from canals and laterals in the study area occurs at various rates. Table 7 lists seepage, in acre-feet, from eight U.S. Bureau of Reclamation canals along the Republican River and from CNPPID's Tri-County Supply Canal. Values were provided by the above agencies for each year the canals have been in operation. Seepage for Phelps, E-65, and E-67 Canals was estimated by CNPPID personnel to be 65 percent of their total diversions. No seepage measurements are available for the other major irrigation canals that divert water from the Platte River; however, seepage for those canals was estimated to be 50 percent of their total diversions (Peckenpaugh and Dugan, 1983).

Lake and Reservoir Seepage

Seepage to the ground-water system from four lakes and reservoirs in the study area are listed in table 8 for the years they have been in operation through 1981. Seepage values were obtained by utilizing the following data: (1) Measured inflow into the system (gaged streamflow); (2) measured outflow from the system (irrigation diversion and gaged streamflow); (3) estimation of unmeasured inflow to the system (runoff into the system from ungaged streams); and (4) estimation of net evaporation from the system (pan evaporation times 0.7 equals lake evaporation, and lake evaporation minus precipitation equals net evaporation.)

CLIMATIC DATA

Various types of climatic data were necessary so that water-use data could be developed for the South-Central ground-water model.

Weather Station Data

Climatic data from 31 weather stations under the administration of the National Oceanic and Atmospheric Administration (NOAA) and 8 weather stations under the administration of CNPPID in or near the study area were used in model development. Locations of NOAA and CNPPID weather stations in the study area are shown in figure 8. The identification number and location of all weather stations in and near the study area are listed in table 9. Data compiled for the 31 NOAA stations is not included in this report but can be obtained from NOAA publications. Data used include the percent of possible sunshine (SS) for the North Platte weather station, which is outside the study area; the monthly precipitation in inches (PP); the average monthly temperature (TT); and the average high and low temperatures for the warmest month of the year (MM).

Table 6.--Seasonal diversions, in acre-feet, for U.S. Bureau of Reclamation canals along Republican River

[I is irrigation season (June through August); N is nonirrigation season (September through May)]

Year	Red Willow		Bartley		Cambridge		Naponee	
	I	N	I	N	I	N	I	N
1951					5,040	4,310		
1952					3,820	2,830		
1953					11,420	4,920		
1954			40	1,480	17,760	5,100		
1955			8,760	2,670	23,980	8,560	11,200	501
1956			7,600	1,890	25,710	8,190	1,790	250
1957			7,540	1,020	19,220	2,210	1,940	
1958			6,680	1,870	16,640	3,740	407	
1959			9,200	1,260	27,930	2,870	3,170	50
1960			9,740	2,020	22,530	4,640	2,170	125
1961			8,930	1,930	22,980	4,210	2,960	315
1962			5,880	2,710	13,930	4,500	1,880	276
1963	2,500	18	9,840	1,340	27,280	4,450	3,030	128
1964	4,840	838	9,500	1,800	26,670	3,790	3,450	313
1965	5,000	1,150	7,670	1,450	17,740	3,400	2,240	172
1966	3,890	1,940	5,150	2,560	17,420	5,320	2,080	202
1967	4,950	1,740	6,500	2,540	15,160	6,540	2,250	92
1968	7,990	1,090	11,870	1,120	24,720	3,420	2,150	43
1969	6,320	1,360	8,760	1,070	24,960	1,330	2,220	
1970	7,490	1,610	10,960	1,390	32,560	4,310	3,510	
1971	8,480	897	11,310	921	30,870	3,800	3,690	
1972	9,100	1,110	11,800	999	30,370	3,300	3,350	
1973	10,010	669	12,060	764	30,350	2,020	2,810	54
1974	10,220	1,240	13,340	1,370	35,980	3,020	3,820	
1975	8,570	1,440	9,640	1,910	30,950	2,250	3,390	
1976	10,980	1,060	13,850	1,080	46,620	3,280	4,650	
1977	7,340	205	10,160	219	30,460	729	2,920	
1978	8,920	558	11,800	533	33,230	1,480	2,910	80
1979	5,000	780	5,730	826	19,920	2,850	2,220	
1980	6,920	553	9,310	532	31,240	1,340	3,990	12
1981	4,270	865	6,980	878	9,030	1,480	1,680	

Table 6.--Seasonal diversions, in acre-feet, for U.S. Bureau of Reclamation along Republican River--Continued

Year	Franklin		Franklin Pump		Superior		Courtland	
	I	N	I	N	I	N	I	N
1951								
1952					5,550	1,410	6,510	833
1953			1,970	325	7,380	2,760	1,470	
1954	6,340	1,580	2,430	108	6,750	2,860	10,180	3,420
1955	8,580	2,910	2,810	1,010	10,770	4,330	15,160	5,820
1956	15,570	5,680	2,930	775	10,160	3,030	19,000	8,010
1957	11,810	1,340	1,800		9,820	675	1,470	58
1958	11,310	2,500	858		7,910	504	382	52
1959	22,310	3,540	2,800	307	14,450	3,000	2,410	42
1960	18,120	4,480	2,240	433	11,030	2,090	1,790	
1961	21,080	3,720	2,120	198	11,270	2,170	1,340	123
1962	15,310	4,460	403		9,380	1,750	733	3
1963	24,330	4,160	3,230		12,740	2,420	1,890	27
1964	24,000	4,470	3,020	408	12,400	2,300	2,010	158
1965	19,060	1,660	1,750		11,770	764	1,390	22
1966	21,140	6,950	2,660	55	11,300	3,090	1,120	466
1967	18,580	5,830	2,470	135	10,720	2,090	1,530	159
1968	22,290	1,880	2,150	75	13,180	815	2,680	
1969	19,960	1,600	1,810		9,280	982	1,020	
1970	30,240	2,540	4,250		15,530	1,070	3,040	18
1971	31,750	2,650	4,280	32	15,060	1,440	2,100	22
1972	25,630	2,610	2,820		11,290	1,480	1,520	
1973	27,420	3,860	3,360	127	12,160	1,550	1,570	32
1974	28,730	2,020	4,050		13,600	1,290	2,680	13
1975	28,590	1,020	3,450		12,850	1,730	1,750	32
1976	33,060	1,600	3,990	110	19,410	789	3,210	51
1977	21,660		3,090		11,050	143	1,370	
1978	25,310	2,040	2,690	16	14,310	868	2,030	94
1979	17,200		2,140		10,520	15	1,320	
1980	29,390	339	3,650	14	15,440		2,520	
1981	15,960		1,080		8,580		629	

Source of data: U.S. Bureau of Reclamation, unpublished records.

Table 7.--Canal seepage, in acre-feet, for eight U.S. Bureau of Reclamation canals and Tri-County Supply Canal

Year	Bartley	Franklin	Superior	Court-land	Naponee	Franklin South-Side Pump	Cam-bridge	Red Willow	Tri-County Supply
1940									
1941									
1942									176141
1943									216779
1944									252607
1945									275080
1946									257792
1947									289764
1948									295955
1949									293854
1950									145894
1951							5597		129383
1952			1303	6615			2921		111920
1953			2948	638		186	4815		136074
1954	768	4920	3125	6643		345	9969		91029
1955	3057	5009	4158	3687	229	394	8266		107997
1956	2169	7526	4639	3963	444	396	12172		105140
1957	4428	3480	2961	31	243	141	7564		118741
1958	1694	5268	4509		34	217	5036		161562
1959	1971	7923	5091	210	568	374	5192		158635
1960	2441	7250	4735	235	629	639	776		151058
1961	1998	8259	5317	159	678	388	7360		135336
1962	2724	7848	5431	46	947	174	6652		147096
1963	2041	9763	6533	41	790	627	7593	1067	149807
1964	2107	10208	5926	73	1063	405	7511	2037	131053
1965	2056	8518	4927	113	898	335	7616	1570	139936
1966	2166	10691	5871	104	824	472	9037	2689	152976
1967	2161	9761	3870	193	986	488	7480	1875	136688
1968	1655	9306	4342	366	845	241	8376	1379	170102
1969	2015	9278	4326	71	592	293	6830	2233	249781
1970	2484	14103	5355	279	1163	1016	9534	2816	175107
1971	2059	16906	5528	135	1128	1382	9907	2483	180498
1972	2413	15386	5826	157	1010	653	10360	3232	140686
1973	1928	15885	5989	199	950	752	8248	3045	131487
1974	2520	13581	4828	125	1035	801	9216	2448	132690
1975	2421	14117	5759	140	923	1306	7235	2539	111391
1976	2115	11569	5875	254	1129	893	10865	2748	140013
1977	2594	9314	3840		830	741	9306	2215	167857
1978	1934	12319	6281	151	1088	771	9439	1861	167650
1979	1802	6885	4350	36	723	569	8305	2421	249493
1980	1585	11205	6048	26	1113	919	8624	1216	260673
1981	1914	8439	3843	58	590	383	8147	1590	168771

Source of data: U.S. Bureau of Reclamation, unpublished records.

Table 8.--Seepage losses, in acre-feet, for lakes and reservoirs in the study area

Year	Johnson Lake	Harry Strunk Lake	Harlan County Lake	Elwood Reservoir
1940				
1941				
1942	87836			
1943	8551			
1944	41671			
1945	41671			
1946	41671			
1947	41671			
1948	41671			
1949	41671			
1950	72655	22348		
1951	119380	15278		
1952	48495	10047	319600	
1953	47240	7813	40509	
1954	71917	3530	33333	
1955	48102	0	11624	
1956	37850	3527	27645	
1957	52067	2126	27859	
1958	24909	5064	25166	
1959	6407	5936	37256	
1960	23317	4049	12358	
1961	17032	7358	15894	
1962	63232	6279	14844	
1963	5577	2939	28289	
1964	17555	4398	31559	
1965	19198	11489	0	
1966	7900	9889	22933	
1967	9242	6780	37	
1968	2105	3309	25508	
1969	0	11495	6627	
1970	19880	4082	29406	
1971	3216	10180	32443	
1972	23077	6793	39655	
1973	60960	8417	28982	
1974	41430	5420	62746	
1975	39530	12094	42772	
1976	47212	7049	57396	
1977	26989	14222	31206	
1978	141143	1859	47928	32984
1979	139737	12850	19240	34137
1980	22581	6200	34707	26002
1981	27374	12850	29244	23602

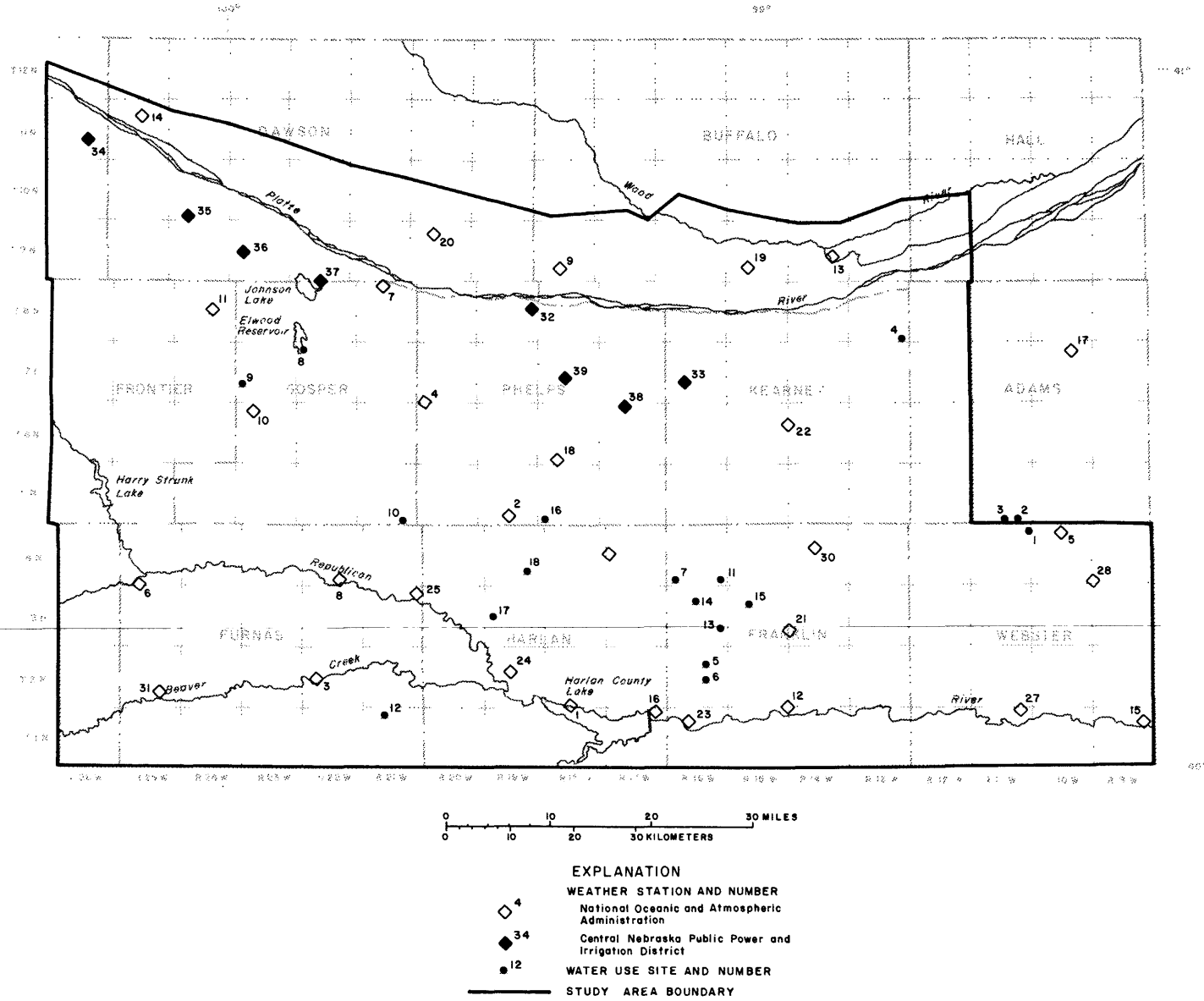

Figure 8.--Location of weather stations and water-use sites.

Table 9.--Weather stations and their locations in and near the study area

[CNPP&ID is Central Nebraska Public Power and Irrigation District]

Weather station	Identification number	Location
Alma	1	2N-18W-33D
Atlanta	2	5N-19W-20DCCC
Beaver City	3	2N-22W-17C
Bertrand	4	6N-20W-6
Blue Hill	5	4N-10W-19
Cambridge	6	3N-25W-5B
Canaday	7	8N-21W-9AA
Edison	8	4N-22W-27D
Elm Creek	9	9N-18W-28C
Elwood	10	6N-23W-16DD
Eustis	11	8N-24W-11A
Franklin	12	2N-14W-31C
Gibbon	13	9N-14W-24C
Gothenburg	14	11N-25W-10CC
Guide Rock	15	1N-9W-9DA
Harlan County Lake	16	1N-17W-2AD
Hastings	17	7N-10W-12DDD
Holdrege	18	5N-18W-10ACC
Kearney	19	9N-16W-36CCC
Lexington	20	9N-20W-16BC
Macon	21	3N-14W-30BC
Minden	22	6N-14W-7CB
Naponee	23	1N-16W-9CA
Orleans	24	2N-19W-18DDD
Oxford	25	3N-21W-1DDC
Ragan	26	4N-17W-18ACB
Red Cloud	27	2N-11W-36BBC
Rosemont	28	4N-9W-32CCB
Superior[1]/	29	1N-6W-8DB
Upland	30	4N-14W-16ADB
Wilsonville	31	2N-25W-26BD
CNPPID 2E	32	8N-19W-13CA
CNPPID No. 3	33	7N-16W-28BC
CNPPID No. 17	34	11N-26W-26BB
CNPPID No. 21	35	10N-24W-32AD
CNPPID No. 22	36	9N-23W-20BD
CNPPID No. 23	37	8N-22W-4BD
CNPPID No. 35	38	6N-17W-3BB
CNPPID No. 36	39	7N-18W-20DD

1/ Not shown on figure 8.

Only monthly precipitation data for the years 1931 through 1981 were compiled for the eight CNPPID weather stations (table 10). Missing records were generated from the monthly data of two to three adjacent weather stations using multiple regression techniques.

Net Reservoir Evaporation

Net reservoir evaporation was computed by subtracting precipitation from evaporation for Medicine Creek and Harlan County Lake weather stations and Kingsley Dam weather station, which is west of the study area on Lake McConaughy. Net evaporation is listed for the irrigation and non-irrigation seasons for each weather station in table 11.

AGRICULTURAL LAND USE

Agricultural land uses were identified for 11 categories, by county, from 1940 through 1980 (table 12). This information was published in annual reports of the Nebraska Department of Agriculture (1940-81). The last column of table 12 contains the total land area for each county. All values are in units of 1,000 acres; that is, 43.5 equals 43,500 acres. Buffalo County data were used for Hall County, and Dawson County data were used for Lincoln County, because Hall and Lincoln Counties have small areas in the study area. A more detailed discussion of agricultural land uses in the study area will be presented in the interpretive report.

WATER-USE SITES

Water-use data were collected over a 3-year period at 18 sites in the study area (fig. 8). Additional sites were added the second year and sites with poor responses were eliminated. Farmers with flowmeters on their irrigation systems were asked to keep records of pumpage for the period April through October. They were supplied with rain gages and asked to record precipitation amounts at their irrigation sites.

Water-use sites were visited twice each year in the spring before the irrigation season and in the fall after the irrigation season. During these visits, the types of irrigation systems were identified (pivot or gated pipe) and static ground-water levels were measured. The types of crops and acres planted were recorded. Fields with reuse pits were identified along with the field location of the study sites. Soil associations were also identified using U.S. Department of Agriculture, Soil Conservation Service county soil surveys.

Water-level measurements for 18 water-use sites (wells) are listed in table 13. Location of each well by township, range, and section; land surface datum; and water-level altitudes for spring and fall 1981, 1982, and 1983 are given.

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
					Tri-County No. 2E							
1931	.09	.71	1.90	1.80	2.25	1.40	4.01	2.32	3.05	1.24	1.95	.26
1932	1.15	.81	.85	1.10	3.57	5.56	4.54	1.57	2.50	1.26	.76	.42
1933	.02	.15	1.48	5.01	3.26	.60	3.36	3.34	2.96	.01	.37	1.49
1934	.13	.90	.26	.33	.80	2.03	2.69	1.89	2.17	1.14	1.19	.51
1935	.50	.42	.26	2.16	7.44	3.52	1.67	4.78	1.67	.72	.90	.03
1936	.34	.49	.12	1.12	5.09	1.61	1.12	1.12	1.75	.29	.07	.69
1937	.86	.21	1.18	.85	3.14	5.47	3.84	1.12	3.97	1.13	.08	.24
1938	.22	.40	.88	2.58	5.81	2.53	3.07	1.55	3.42	.20	.08	.11
1939	.63	.69	.76	2.14	3.29	4.97	2.15	1.60	.23	.24	.07	.65
1940	.79	.48	.90	1.17	.55	1.45	2.85	.92	1.25	1.47	.65	.84
1941	.71	.46	.30	4.15	3.60	5.28	1.93	.68	4.25	.77	.41	.61
1942	.18	.65	2.07	2.82	2.91	10.19	1.21	2.58	6.48	.28	.30	.46
1943	.10	.27	.59	2.24	.98	3.96	5.03	2.12	1.52	.41	.23	.08
1944	1.06	.66	1.50	7.37	3.47	2.80	4.01	2.01	.20	.78	.96	.18
1945	.57	.25	.20	2.58	3.70	4.78	1.32	2.45	4.25	.25	.01	.73
1946	.25	.12	2.63	.22	3.33	2.77	4.09	2.03	7.22	6.92	1.69	.07
1947	.59	.22	.86	2.45	1.51	8.04	3.81	1.03	2.20	.57	1.76	.88
1948	.48	.81	.75	.56	2.16	5.05	2.88	1.09	1.88	.61	1.55	.48
1949	.92	.21	2.62	2.52	4.25	7.76	2.24	2.13	2.40	1.76	.08	.17
1950	.30	.76	1.05	1.52	8.21	1.59	6.78	3.78	1.19	.63	.56	.16
1951	.48	.51	.77	1.58	4.79	6.42	2.58	3.38	3.46	1.63	.23	.34
1952	.34	1.22	.85	3.45	5.57	2.00	3.31	3.09	.59	.07	.47	.76
1953	.13	.92	1.00	1.50	3.59	2.74	2.38	2.40	1.37	1.32	1.28	1.08
1954	.14	.60	.48	.91	3.63	2.29	.73	3.02	.75	1.67	.00	.09
1955	.76	.83	.31	.47	2.85	6.09	1.13	.45	3.18	.29	.05	.33
1956	.40	.19	.14	1.55	1.27	3.03	.94	2.08	.72	1.30	.15	.27
1957	.06	.11	1.30	2.59	4.25	5.42	1.11	1.84	3.12	1.97	.32	.37
1958	.11	1.54	1.94	2.47	2.54	2.76	6.90	1.98	.12	.02	.59	.14
1959	.51	.40	2.66	1.36	3.23	2.17	5.90	3.86	2.50	1.63	.01	.05
1960	1.60	1.35	1.29	1.87	3.25	7.57	2.86	.76	1.20	1.73	.45	.35
1961	.02	.20	1.46	1.84	6.91	1.75	1.00	3.20	1.60	.47	.75	.81
1962	.07	.63	2.18	4.63	4.60	4.26	9.48	1.91	1.40	.97	.10	.82
1963	.38	.08	1.04	1.45	.76	2.21	1.27	2.09	3.68	.28	.28	.22
1964	.05	.92	1.24	3.01	.17	4.51	2.72	2.70	.71	.05	.14	.05
1965	.73	.71	.74	1.34	7.94	3.50	5.12	3.27	7.33	3.60	.01	.51
1966	.28	.97	1.15	.77	.20	3.39	2.53	3.25	1.32	.90	.03	.70
1967	.43	.20	.00	.64	5.37	11.18	3.51	1.05	3.54	.95	.24	.34
1968	.09	.55	.26	1.92	1.77	2.11	3.08	4.32	.89	4.16	.31	.89
1969	.56	.91	.28	.86	3.68	4.16	4.17	2.86	3.79	3.36	.22	.56
1970	.05	.19	.74	2.45	2.57	2.79	1.28	2.95	1.82	.92	.31	.04
1971	.25	1.69	.74	1.66	3.17	2.66	2.78	.95	1.17	1.61	2.33	.17
1972	.16	.09	.65	2.03	3.66	2.84	1.81	3.34	.95	.85	1.80	1.04
1973	.65	.20	4.18	2.26	1.67	.80	5.20	1.60	6.22	.79	1.77	1.10
1974	.32	.06	.58	1.07	1.02	4.32	2.02	.72	.00	1.51	.51	.83
1975	.18	.40	.97	2.67	.74	7.54	.89	1.45	.67	.13	2.92	.41
1976	.49	.20	1.22	.91	3.11	1.60	7.12	1.08	1.77	.68	.08	.01
1977	.28	.12	4.49	4.21	6.29	3.19	2.08	3.97	1.12	.83	.65	.59
1978	.20	.95	.30	4.49	3.51	.34	3.04	1.37	.67	.89	1.08	.33
1979	.67	.01	4.81	2.32	2.39	5.12	4.11	3.22	.84	1.58	1.13	.52
1980	.62	.79	3.23	1.93	2.24	1.34	1.23	3.31	1.44	.97	.13	.08
1981	.00	.16	1.59	2.17	4.96	2.08	6.38	3.56	1.48	.53	2.02	1.08

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
					Tri-County No. 3							
1931	.08	.75	1.67	1.65	2.54	1.30	2.63	2.96	3.71	1.22	2.92	.36
1932	1.09	.92	.60	1.09	2.40	5.43	3.76	1.88	2.37	1.30	.40	.43
1933	.01	.11	1.35	5.54	3.99	.51	2.72	3.40	3.09	.03	.64	1.75
1934	.10	1.16	.15	.38	.84	2.34	1.59	1.34	2.00	.98	1.63	.54
1935	.22	.51	.24	1.61	7.46	3.55	1.02	4.97	1.52	.76	.91	.03
1936	.34	.48	.21	2.50	5.37	1.63	.59	1.31	1.49	.38	.02	.77
1937	.85	.15	1.38	.75	3.57	5.00	2.97	1.43	2.31	1.43	.08	.08
1938	.29	.47	.87	3.21	5.27	3.22	2.74	1.91	2.40	.25	.03	.07
1939	.56	.62	.90	1.92	3.42	4.88	1.93	2.11	.22	.16	.02	.84
1940	.79	.51	1.49	1.43	1.06	1.29	1.95	1.25	.94	1.55	.97	.63
1941	.85	.50	.38	3.96	2.67	6.66	2.11	.93	3.24	.78	.56	.78
1942	.31	.68	2.08	3.00	2.79	10.04	1.81	2.49	5.51	.15	.38	.76
1943	.09	.20	.62	3.06	1.27	3.77	4.90	1.85	.61	.39	.20	.08
1944	1.32	.65	1.80	7.31	4.25	2.69	3.76	2.37	.87	1.30	1.41	.15
1945	.55	.30	.40	2.63	3.77	6.39	1.99	2.27	3.77	.35	.02	.84
1946	.30	.05	2.11	.12	3.96	4.07	2.31	1.75	7.14	5.12	2.32	.00
1947	.71	.26	.92	2.48	1.98	8.13	3.51	.00	2.06	.74	1.14	.82
1948	.46	.86	.92	.60	2.76	5.30	2.98	1.49	1.76	.44	1.55	.87
1949	.94	.38	2.90	2.34	5.88	6.32	1.70	1.09	1.10	1.10	.06	.15
1950	.42	.88	1.20	.17	10.18	.55	3.75	3.24	3.40	.87	.58	.15
1951	.50	.95	1.06	3.14	4.39	6.50	3.41	3.24	3.31	1.72	.19	.38
1952	.22	1.25	1.03	1.23	4.12	2.00	2.68	1.48	.70	.06	.74	.93
1953	.31	.79	1.22	2.12	.92	2.56	2.33	2.09	.60	1.33	1.95	1.25
1954	.17	.74	.51	.80	3.92	1.03	1.15	5.99	.95	2.05	.00	.20
1955	.96	1.01	.56	.53	3.80	5.56	1.31	2.11	4.50	.44	.10	.56
1956	.58	.39	.43	1.57	1.06	3.62	2.29	1.68	.86	1.15	.20	.24
1957	.15	.15	1.81	3.63	5.00	7.36	1.38	4.88	5.06	2.43	.48	.42
1958	.31	1.90	2.50	2.56	3.24	2.81	5.45	2.42	.21	.01	.57	.15
1959	.56	.58	3.98	2.00	3.73	1.18	5.48	3.77	3.26	1.88	.01	.04
1960	1.71	1.74	1.35	3.25	4.76	7.73	2.30	1.21	1.67	1.40	.31	.29
1961	.01	.28	1.89	1.74	6.31	1.89	1.45	5.89	2.14	.60	.89	.99
1962	.10	1.18	2.10	.45	3.66	4.29	6.61	4.25	1.50	1.30	.05	.79
1963	.53	.07	1.45	1.39	.34	2.28	2.19	2.28	4.15	.53	.11	.25
1964	.05	1.09	1.57	1.90	.17	5.68	3.50	2.90	1.61	.16	.09	.02
1965	.86	.98	1.24	1.70	8.07	3.84	4.91	2.50	6.53	2.45	.01	.49
1966	.33	.99	.73	.97	.12	4.97	3.20	1.33	.88	.84	.01	.81
1967	.36	.13	.01	.66	4.73	13.87	2.37	.71	1.78	.35	.27	.38
1968	.13	.63	.22	2.97	2.88	3.65	3.26	3.69	1.40	3.42	.44	1.26
1969	.74	1.10	.29	.88	3.57	6.05	2.15	4.00	3.56	2.20	.15	.64
1970	.05	.21	.76	2.36	3.55	1.63	1.51	3.54	4.07	1.02	.42	.04
1971	.59	1.97	1.12	1.96	3.29	1.20	4.61	1.63	.90	2.16	2.08	.27
1972	.14	.19	.57	1.72	5.87	1.92	3.51	5.30	1.82	.75	1.97	1.41
1973	.61	.26	4.58	2.17	2.81	1.30	3.96	.89	9.68	1.84	2.04	1.33
1974	.34	.05	.46	1.77	2.70	3.12	1.41	1.29	.55	1.69	.46	.96
1975	.29	.45	.89	2.28	1.50	7.55	2.23	2.24	1.36	.19	3.16	.35
1976	.46	.34	1.44	3.85	4.20	2.59	2.21	.15	3.82	.66	.10	.01
1977	.38	.13	4.18	5.20	1.42	2.94	2.78	5.33	1.46	1.34	.68	.42
1978	.21	.99	.42	5.27	2.69	.15	3.44	3.24	.48	.83	1.20	.53
1979	.63	.08	4.64	3.30	1.64	4.03	4.34	2.67	1.00	2.05	1.14	.42
1980	.69	.67	3.31	1.61	1.62	2.50	2.39	3.54	1.46	.95	.02	.13
1981	.01	.19	1.44	2.19	5.33	1.85	6.16	4.18	1.69	.83	2.36	1.05

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						Tri-County No. 17						
1931	0.04	1.72	2.44	1.34	0.55	3.63	0.93	1.94	1.30	0.79	1.53	0.41
1932	1.20	0.91	0.81	1.83	2.33	4.40	3.24	1.07	0.23	0.54	0.17	0.53
1933	0.22	0.20	1.52	3.75	4.73	0.91	1.27	2.02	3.16	0.0	0.08	1.16
1934	0.04	1.06	0.38	0.42	0.21	2.52	0.95	2.30	4.32	0.57	0.70	0.72
1935	0.15	0.50	0.77	3.79	8.34	4.48	0.20	5.75	1.08	0.19	0.85	0.05
1936	0.38	0.33	0.35	1.54	7.56	2.67	0.24	0.71	1.12	0.26	0.02	0.46
1937	0.64	0.24	2.10	0.91	2.56	6.46	1.07	3.86	1.28	1.45	0.09	0.15
1938	0.16	0.26	0.84	2.11	4.07	1.68	1.28	2.08	2.48	0.07	0.07	0.20
1939	0.80	0.14	0.64	1.66	2.19	4.37	1.35	1.93	0.19	0.12	0.0	0.66
1940	0.33	0.38	1.25	0.69	0.35	5.72	1.61	1.49	1.71	2.20	0.45	0.68
1941	0.93	0.29	0.52	3.17	2.91	2.17	4.41	1.61	5.70	1.26	0.34	0.53
1942	0.30	0.85	1.64	2.57	3.38	7.91	1.01	2.75	5.08	0.28	0.29	0.22
1943	0.0	0.05	0.80	3.50	0.78	3.51	0.90	1.19	1.53	0.63	0.29	0.0
1944	1.64	0.59	1.05	6.19	2.01	2.97	3.24	2.38	0.04	0.02	1.05	0.21
1945	.00	.00	.00	.85	2.40	3.10	2.48	3.30	1.92	.18	.00	.18
1946	.00	.00	1.51	.14	4.32	3.88	1.88	2.54	3.34	6.11	1.01	.19
1947	.23	.44	.58	2.12	2.20	10.71	3.05	2.59	2.44	.32	1.29	.47
1948	.00	.15	.52	.98	.90	6.79	5.07	1.39	.82	.42	.49	.32
1949	.37	.06	1.32	1.80	4.58	6.19	2.31	3.38	1.51	.34	.22	.48
1950	.10	.43	.19	1.88	6.10	1.73	6.14	4.35	2.20	.36	.38	.00
1951	.07	.12	.32	3.24	8.21	6.57	3.30	4.49	3.00	1.30	.04	.40
1952	.03	.45	.62	.95	2.65	.75	.34	3.66	.42	.16	.47	.49
1953	.00	.34	1.10	.43	3.64	1.71	1.45	1.70	.00	1.44	1.27	.05
1954	.04	.12	.36	.73	2.20	2.66	.06	4.54	2.27	1.97	.09	.00
1955	.20	.29	.04	.60	1.48	3.94	.74	.43	1.81	.15	.15	.31
1956	.08	.12	.08	1.26	1.05	.50	1.92	2.50	.43	1.87	.32	.17
1957	.07	.14	.59	2.54	7.16	3.64	1.73	4.32	4.31	1.59	.75	.42
1958	.06	1.11	2.65	2.19	2.48	2.56	6.08	1.20	2.14	.37	.16	.20
1959	.24	.56	1.22	1.50	6.47	3.81	2.83	6.62	1.91	2.84	.00	.34
1960	1.36	.74	1.17	.92	3.47	5.26	.36	3.01	1.22	1.17	.38	.64
1961	.00	.14	.90	1.54	5.64	3.08	1.30	1.98	2.84	.34	.70	.69
1962	.06	.70	.55	.27	5.47	8.50	5.29	1.41	2.14	.59	.03	.56
1963	.28	.10	.32	1.44	2.50	3.31	2.56	2.85	5.11	.59	.53	.24
1964	.11	1.44	1.86	4.73	.99	5.29	1.68	2.25	1.84	.16	.01	.17
1965	.72	.60	.24	.94	4.97	6.47	3.87	4.52	4.94	1.37	.02	.83
1966	.55	.12	1.18	1.05	.43	5.39	2.82	3.97	1.97	.18	.09	.51
1967	.29	.05	.09	.73	3.51	7.85	3.82	.96	1.60	.69	.24	.19
1968	.08	.28	.72	3.46	.81	3.25	1.41	5.03	1.11	1.22	.26	.46
1969	.69	.45	.12	.20	3.05	4.19	3.62	.84	2.44	3.52	.15	.20
1970	.19	.21	.40	1.23	1.56	2.68	2.01	1.34	1.23	1.13	.98	.03
1971	.35	1.22	.83	4.36	3.34	2.44	3.69	1.25	1.84	2.64	1.52	.08
1972	.10	.06	.58	1.25	3.55	2.68	1.42	2.70	1.73	.64	1.60	.46
1973	.62	.09	2.93	2.16	3.86	1.18	6.45	.63	5.86	.87	1.29	1.17
1974	.41	.08	.86	1.01	1.60	4.23	1.83	1.12	.15	.78	.06	.24
1975	.24	.23	1.73	1.73	2.00	8.62	1.92	.48	.75	.05	1.79	.00
1976	.92	.02	.94	4.71	2.67	1.62	3.30	1.20	1.58	.94	.09	.00
1977	.21	.10	5.38	6.25	9.15	1.62	1.51	3.56	1.15	.94	.35	.40
1978	.52	1.69	.82	3.02	3.93	.75	4.19	3.73	.00	.50	.80	.20
1979	.90	.04	2.38	1.45	2.91	3.76	.00	.76	.89	1.09	.82	.24
1980	.44	.54	2.31	1.30	.60	1.60	.68	3.25	.11	.79	.14	.10
1981	.42	.14	2.44	1.75	4.81	3.92	6.92	1.99	.00	1.43	.00	.00

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
					Tri-County No. 21							
1931	0.0	1.23	3.13	1.32	1.84	3.40	1.77	2.67	2.04	1.11	2.12	.25
1932	.68	.71	.38	1.84	2.23	7.23	5.03	.63	1.72	1.01	.09	.45
1933	.08	.07	1.64	8.82	4.13	.58	2.83	4.92	2.27	.00	.10	1.81
1934	.04	.63	.28	.54	.79	2.10	.63	2.31	1.94	1.04	1.78	.41
1935	.06	.42	.63	1.31	7.86	4.68	.12	3.96	2.90	.72	1.15	.18
1936	.33	.10	0.0	.81	8.05	1.20	.73	.88	1.13	.08	0.0	.55
1937	.32	.15	2.33	.65	1.17	5.26	1.19	3.61	.67	2.09	.02	.17
1938	.28	.14	1.54	2.44	6.23	2.42	2.06	2.07	2.21	.30	0.0	.08
1939	.53	.20	1.00	1.62	2.83	5.93	.55	2.21	.36	0.0	.00	.62
1940	.69	.22	1.90	.37	1.50	1.28	1.89	1.58	1.95	1.22	.72	.40
1941	1.03	.23	.35	4.52	6.05	8.18	3.88	.79	3.94	.71	.52	.58
1942	.10	.94	1.48	4.40	2.92	7.74	1.05	3.67	5.29	.49	.31	.59
1943	.08	.24	.22	4.58	1.19	4.05	3.71	2.83	.95	.26	.22	.06
1944	1.69	.78	1.70	6.26	2.88	4.55	5.47	2.18	.02	.39	1.69	.06
1945	.00	.00	.15	.78	4.68	4.31	1.89	2.46	2.71	.18	.06	.03
1946	.00	.04	1.39	.11	3.54	2.11	1.72	2.31	3.64	9.68	.70	.00
1947	.00	.38	.30	1.93	2.32	6.88	4.05	.58	1.88	.00	1.16	.38
1948	.00	.18	.27	.11	1.34	10.46	5.95	2.57	.66	.60	.63	.23
1949	.09	.04	1.28	.81	4.96	3.18	2.35	4.41	2.02	.19	.22	.21
1950	.00	.60	.28	1.56	6.28	1.97	5.41	2.30	1.65	.00	.23	.04
1951	.08	.08	.45	2.19	7.60	5.60	3.55	4.67	3.34	1.10	.00	.15
1952	.02	.35	.28	.96	2.42	.42	3.15	3.05	.21	.00	.19	.99
1953	.02	.22	.69	1.90	3.00	1.50	1.35	1.90	.00	.00	.25	.03
1954	.01	.00	.41	.40	2.46	1.83	.59	3.83	1.32	1.88	.05	.00
1955	.14	.00	.02	.60	1.33	2.69	.22	.41	2.64	.10	.14	.31
1956	.06	.12	.06	.89	1.50	.54	1.71	1.74	.63	1.32	.21	.21
1957	.09	.14	1.08	2.63	6.17	5.63	1.33	3.88	2.54	1.82	.45	.42
1958	.06	1.10	2.48	2.42	3.21	3.06	6.26	1.20	1.25	.40	.14	.17
1959	.30	.56	1.16	1.46	4.41	4.24	1.31	2.96	1.36	3.12	.00	.36
1960	1.48	.66	1.10	1.47	4.33	6.13	.43	3.19	3.03	1.42	.34	.65
1961	.00	.13	.86	1.51	5.63	2.68	2.12	2.02	3.22	.36	.71	.70
1962	.06	.73	.56	.30	6.02	8.91	6.46	1.49	2.00	.53	.03	.52
1963	.30	.11	.46	1.17	2.12	4.47	1.92	2.62	5.35	.21	.60	.24
1964	.09	1.53	1.58	4.69	1.30	4.88	3.02	2.01	2.20	.18	.02	.17
1965	1.02	.66	.25	1.16	5.89	4.64	4.87	3.04	4.87	1.61	.02	.83
1966	.54	.11	.56	.97	.60	4.10	2.35	4.56	1.98	.33	.08	.51
1967	.30	.05	.06	.99	3.91	6.36	3.79	.84	1.85	.95	.36	.21
1968	.08	.28	.67	3.67	.92	2.87	2.35	4.42	1.66	1.31	.14	.47
1969	.88	.52	.12	.35	2.70	4.61	5.53	.81	3.04	3.18	.15	.24
1970	.19	.21	.33	1.20	1.13	4.85	1.31	1.91	1.58	.74	.55	.04
1971	.36	1.21	.85	3.81	2.89	4.29	3.15	2.29	1.76	1.29	1.77	.08
1972	.10	.04	.54	1.34	3.35	2.53	2.81	2.30	1.27	.59	1.60	.55
1973	.63	.09	2.99	1.87	3.30	1.53	4.02	1.07	4.74	.95	1.31	1.25
1974	.43	.07	.89	1.07	2.52	3.52	1.11	1.31	.25	1.02	.07	.26
1975	.22	.23	1.72	1.95	2.65	8.73	3.23	.78	.69	.08	1.40	.00
1976	.83	.02	1.04	3.99	2.12	1.48	2.46	.24	2.07	.97	.11	.00
1977	.28	.08	6.30	4.72	7.90	1.15	1.72	2.99	.33	.92	.56	.53
1978	.52	1.65	.84	3.32	3.19	.90	5.25	6.29	.40	1.20	.99	.21
1979	.93	.03	2.48	1.74	1.93	3.48	4.73	1.34	.42	.82	.90	.32
1980	.49	.52	2.60	1.23	2.38	1.04	.89	2.73	.18	.51	.17	.21
1981	.62	.07	1.55	1.62	4.38	7.44	2.94	1.37	.00	1.93	.00	.00

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						Tri-County No. 22						
1931	0.0	1.23	3.13	1.32	1.84	3.40	1.77	2.67	2.04	1.11	2.12	.25
1932	.68	.71	.38	1.84	2.23	7.23	5.03	.63	1.72	1.01	.09	.45
1933	.08	.07	1.64	8.82	4.13	.58	2.83	4.92	2.27	.00	.10	1.81
1934	.04	.63	.28	.54	.79	2.10	.63	2.31	1.94	1.04	1.78	.41
1935	.06	.42	.63	1.31	7.86	4.68	.12	3.96	2.90	.72	1.15	.18
1936	.33	.10	0.0	.81	8.05	1.20	.73	.88	1.13	.08	0.0	.55
1937	.32	.15	2.33	.65	1.17	5.26	1.19	3.61	.67	2.09	.02	.17
1938	.28	.14	1.54	2.44	6.23	2.42	2.06	2.07	2.21	.30	0.0	.08
1939	.53	.20	1.00	1.62	2.83	5.93	.55	2.21	.36	0.0	.00	.62
1940	.69	.22	1.90	.37	1.50	1.28	1.89	1.58	1.95	1.22	.72	.40
1941	1.03	.23	.35	4.52	6.05	8.18	3.88	.79	3.94	.71	.52	.58
1942	.10	.94	1.48	4.40	2.92	7.74	1.05	3.67	5.29	.49	.31	.59
1943	.08	.24	.22	4.58	1.19	4.05	3.71	2.83	.95	.26	.22	.06
1944	1.69	.78	1.70	6.26	2.88	4.55	5.47	2.18	.02	.39	1.69	.06
1945	.00	.00	.30	.69	3.90	4.48	1.90	2.63	2.39	.14	.03	.08
1946	.00	.09	1.49	.14	4.53	3.60	2.02	1.56	3.64	9.68	.80	.00
1947	.00	.40	.31	2.53	2.80	6.80	2.56	.93	1.67	.00	1.37	.41
1948	.00	.20	.28	.18	1.46	10.81	3.63	2.53	.62	1.20	.19	.23
1949	.12	.04	1.05	.85	5.63	4.27	1.54	3.44	.00	.85	.21	.23
1950	.00	.66	.31	1.61	5.13	1.62	3.53	2.45	1.18	1.15	.31	.07
1951	.10	.07	.35	1.77	5.04	5.30	3.66	4.63	2.92	1.27	.00	.15
1952	.01	.27	.35	1.74	3.60	.32	1.91	2.96	.22	.00	.09	1.02
1953	.01	.20	.59	1.99	3.66	1.67	1.22	1.80	.24	1.45	1.24	.40
1954	.02	.38	.29	1.01	2.78	1.75	1.44	4.83	.27	2.22	.00	.03
1955	.24	.37	.07	.49	2.26	3.93	.39	1.09	2.84	.09	.04	.13
1956	.15	.11	.06	.80	1.39	2.07	1.50	2.01	.76	1.15	.26	.20
1957	.07	.07	.49	2.60	5.58	4.30	.79	2.38	2.73	2.56	.23	.21
1958	.00	.54	1.04	2.85	2.97	2.58	5.02	3.87	.47	.09	.21	.14
1959	.43	.30	2.14	1.96	2.56	2.98	3.83	.69	1.46	2.67	.00	.02
1960	.93	1.12	.54	1.73	3.63	4.60	2.43	1.64	4.05	.91	.65	.29
1961	.00	.02	1.14	.70	5.46	1.92	2.52	2.50	2.44	.49	.52	.36
1962	.02	.27	3.20	.40	6.11	5.84	4.45	2.30	1.53	.62	.03	.51
1963	.11	.08	.62	1.13	1.48	6.42	1.52	2.89	5.57	.17	.43	.12
1964	.00	.13	1.11	4.29	.80	4.49	2.40	1.41	.99	.16	.07	.11
1965	.92	.73	.57	1.14	7.42	3.55	3.38	3.07	4.64	1.54	.03	.76
1966	.31	.61	.31	.35	.12	3.71	2.07	1.94	2.22	.67	.04	.73
1967	.63	.06	.02	1.45	4.64	7.04	3.58	1.49	1.50	.47	.24	.19
1968	.04	.35	.55	2.28	.93	2.80	4.11	3.64	1.82	.94	.11	.12
1969	.48	1.27	1.07	.54	3.68	4.66	4.18	1.01	3.58	3.69	.21	.13
1970	.21	.08	.90	.43	1.72	4.37	2.11	.30	2.06	.58	.32	.02
1971	.22	1.27	.39	3.47	1.60	4.31	3.11	1.75	1.73	1.65	1.90	.08
1972	.10	.09	.39	.98	1.58	2.26	1.81	3.33	1.06	.50	.96	.53
1973	.64	.31	3.15	1.88	2.93	1.05	3.84	.59	4.49	.82	.55	1.17
1974	.38	.05	.23	1.52	1.72	5.28	.00	1.28	.51	.46	.56	.43
1975	.14	.30	1.12	2.90	2.52	8.98	4.36	2.88	.60	.11	2.06	.39
1976	1.08	.03	.57	2.83	3.32	1.23	2.08	.28	1.87	.68	.15	.00
1977	.34	.00	.85	4.53	8.72	2.25	2.74	3.06	.88	.43	.50	.23
1978	.52	1.73	.84	3.60	3.19	.48	5.08	3.00	.27	.99	.80	.00
1979	.75	.06	3.36	2.67	2.89	3.31	7.20	1.35	.64	.11	.60	.45
1980	.47	.40	3.30	1.11	2.63	.00	.00	3.50	2.00	.76	.02	.12
1981	.01	.24	1.00	2.23	4.61	6.23	2.69	1.26	.00	2.66	.00	.00

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						Tri-County No. 23						
1931	.02	1.23	3.11	1.25	1.33	2.74	2.53	2.25	1.87	1.18	2.02	.01
1932	.98	.64	.37	1.02	2.66	5.64	4.68	1.91	1.65	1.04	.04	.61
1933	.01	.12	1.24	4.61	3.62	.72	2.71	4.57	2.27	.02	.11	.96
1934	.01	.77	.24	.31	.50	1.45	1.13	3.55	2.20	.88	1.56	.57
1935	.04	.40	.20	.81	9.12	3.31	.94	6.15	1.96	.50	.96	.00
1936	.87	.33	.00	1.02	6.30	1.79	.88	1.56	1.18	.06	.00	1.08
1937	1.37	.32	1.14	.58	1.57	3.94	1.33	2.76	1.07	1.54	.01	.51
1938	.00	.19	1.68	2.14	6.05	2.46	3.47	1.87	2.03	.15	.12	.14
1939	.29	.20	1.05	2.06	3.54	5.90	1.39	1.80	.59	.05	.00	.64
1940	.10	.26	1.17	.77	.84	1.46	5.73	1.70	1.42	1.30	.63	.71
1941	.89	.27	.25	3.43	4.51	4.40	2.82	1.11	3.22	.80	.48	.50
1942	.63	.79	2.30	3.31	3.91	8.12	1.93	2.75	4.27	.25	.42	.63
1943	.17	.09	.51	3.44	1.05	3.58	3.56	2.23	1.69	.42	.34	.00
1944	.99	.51	2.20	6.47	3.00	2.31	4.61	1.95	.41	.46	1.60	.16
1945	.19	.05	.13	.91	3.56	5.25	2.75	2.37	3.36	.16	.01	.12
1946	.05	.02	2.18	.07	5.46	2.88	3.31	1.86	3.73	8.93	2.21	.11
1947	.36	.29	.46	2.11	1.87	8.00	3.37	.32	1.91	.20	1.35	.66
1948	.11	.29	.30	.29	1.91	3.89	4.29	2.16	.93	.99	1.09	.28
1949	.13	.08	1.29	1.07	4.62	3.38	2.17	2.68	3.26	.71	.28	.27
1950	.25	.75	.74	1.40	4.22	1.27	5.64	3.40	1.28	.88	.34	.07
1951	.10	.05	.44	1.84	5.42	5.49	3.05	4.61	3.02	1.19	.41	.17
1952	.15	.63	.70	.98	4.71	1.20	2.86	2.12	.39	.13	.16	.30
1953	.04	.34	.64	1.67	3.55	2.96	1.53	1.01	2.32	1.22	1.17	.43
1954	.04	.38	.33	1.82	4.14	2.29	.97	3.88	.33	2.20	.00	.05
1955	.29	.38	.09	.52	1.71	2.57	.49	1.26	2.48	.12	.03	.17
1956	.17	.12	.07	.75	2.43	2.23	1.32	1.73	.44	1.39	.11	.25
1957	.07	.07	.59	2.43	5.16	4.24	.45	2.24	3.02	1.91	.23	.26
1958	.02	.49	1.09	2.41	2.36	2.71	4.98	2.59	.22	.07	.17	.15
1959	.43	.25	1.95	1.47	3.47	1.78	2.11	3.60	2.09	2.41	.00	.03
1960	1.06	1.03	.57	2.27	3.19	3.83	1.90	1.40	.91	1.89	.44	.34
1961	.00	.02	.81	.81	6.57	2.28	1.29	3.23	1.83	.21	.57	.71
1962	.03	.42	2.86	.37	5.39	5.79	3.42	2.10	1.46	.76	.02	.59
1963	.10	.08	.70	.97	1.46	4.14	1.23	3.54	3.62	.14	.74	.11
1964	.02	.57	1.08	3.65	.67	3.11	2.51	1.71	1.02	.06	.08	.09
1965	.84	.73	.67	1.22	7.51	4.36	4.60	4.15	5.34	2.49	.02	.68
1966	.42	.62	.26	.50	.15	4.29	3.34	1.83	1.87	.70	.03	.74
1967	.70	.07	.02	1.00	4.99	9.86	5.21	1.83	1.98	.66	.22	.25
1968	.05	.34	.39	2.05	1.44	2.09	5.81	3.96	1.26	1.02	.17	.31
1969	.55	1.28	1.20	1.06	3.39	4.67	1.92	1.03	3.25	3.23	.20	.46
1970	.23	.09	.88	.68	2.17	4.56	2.75	.17	2.18	.47	.29	.02
1971	.27	1.33	.56	3.35	2.76	1.47	4.25	1.17	1.84	2.18	2.00	.12
1972	.10	.11	.41	1.36	2.04	3.02	1.99	3.67	1.38	.66	1.12	.56
1973	.65	.33	3.49	1.69	3.06	1.18	5.09	.64	5.44	.93	.61	1.31
1974	.46	.06	.68	1.21	1.26	3.68	.00	2.41	.96	.40	.94	.48
1975	.19	.33	.88	2.89	2.72	8.42	3.88	2.42	.58	.10	2.05	.38
1976	1.17	.04	.58	3.08	1.95	1.33	3.13	.54	1.92	.85	.16	.00
1977	.36	.00	2.19	3.56	5.91	1.49	2.26	4.50	1.34	.43	.60	.24
1978	.52	1.77	.86	4.14	3.03	.33	4.09	2.83	.20	1.38	.79	.08
1979	.75	.07	3.18	2.48	3.78	4.18	5.60	2.23	1.12	1.64	.58	.47
1980	.48	.36	3.64	1.17	2.58	.00	.00	2.62	1.18	.95	.11	.87
1981	.00	.01	1.54	2.32	6.53	5.90	3.92	1.23	1.10	1.51	.00	.00

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
					Tri-County No. 35							
1931	.08	.78	1.76	1.59	2.49	1.56	2.78	3.04	3.74	1.26	2.84	.33
1932	1.10	.94	.65	1.12	2.53	5.39	3.70	1.80	2.60	1.30	.38	.42
1933	.01	.15	1.40	5.51	3.81	.48	2.54	3.71	2.97	.03	.60	1.75
1934	.10	1.15	.16	.38	.79	2.45	1.75	1.37	2.05	.95	1.60	.54
1935	.22	.49	.27	1.48	7.29	3.59	1.09	4.83	1.55	.84	.95	.04
1936	.33	.46	.21	2.18	5.35	1.53	.63	1.20	1.47	.42	.02	.84
1937	.90	.18	1.42	.71	3.52	5.04	2.97	1.33	2.53	1.39	.08	.09
1938	.28	.47	.82	2.99	5.40	3.30	2.60	1.84	2.63	.26	.04	.08
1939	.59	.65	.87	1.89	3.53	4.97	2.04	1.97	.21	.14	.02	.79
1940	.78	.51	1.45	1.39	.90	1.38	2.03	1.21	1.01	1.58	1.06	.69
1941	.88	.49	.39	3.85	2.85	6.30	2.07	.98	3.11	.79	.56	.80
1942	.30	.67	2.02	3.20	2.77	10.24	1.59	2.47	5.55	.20	.39	.74
1943	.09	.22	.62	3.27	1.17	3.93	4.86	1.92	.65	.37	.19	.09
1944	1.34	.66	1.85	7.36	3.97	2.55	3.54	2.49	.70	1.28	1.40	.17
1945	.55	.31	.40	2.67	3.89	6.05	1.88	2.32	3.75	.31	.02	.83
1946	.07	.23	1.65	.00	3.23	3.54	1.86	1.90	7.04	6.79	1.37	.00
1947	.07	.28	.92	2.53	2.76	8.91	4.24	.43	2.01	.57	1.75	.82
1948	.51	.82	.91	.54	2.67	5.67	2.93	1.31	1.70	.52	1.58	.81
1949	.95	.40	2.80	2.00	5.12	4.68	1.15	1.10	1.18	1.53	.06	.16
1950	.40	.94	1.21	1.56	6.83	1.43	4.05	2.23	3.05	.42	.57	.17
1951	.51	.90	1.07	3.06	3.39	6.43	3.35	6.49	3.61	1.64	.19	.38
1952	.23	1.22	1.03	3.43	7.59	2.81	3.52	2.32	.62	.06	.71	.91
1953	.28	.85	1.15	1.84	4.42	1.99	1.79	1.52	.74	1.38	1.98	1.34
1954	.18	.86	.51	.93	4.25	1.18	1.65	6.76	.19	1.98	.00	.19
1955	.99	1.03	.55	.51	4.33	6.92	.88	2.03	3.56	.44	.13	.58
1956	.59	.39	.37	1.54	1.11	3.12	1.30	2.05	.74	1.16	.21	.24
1957	.15	.17	1.73	3.17	5.56	5.55	2.18	6.09	3.85	2.00	.46	.40
1958	.29	1.97	2.49	2.70	3.99	2.82	4.17	3.30	.21	.01	.61	.16
1959	.61	.56	3.82	1.10	2.85	1.75	4.76	2.65	2.68	1.87	.01	.05
1960	1.74	1.70	1.32	2.01	3.45	7.58	.85	.75	1.98	1.39	.31	.35
1961	.01	.28	1.90	1.69	7.62	1.86	1.93	4.56	1.63	.64	.95	1.00
1962	.10	1.13	2.15	.46	4.31	4.15	6.23	3.01	2.69	1.42	.08	.77
1963	.55	.06	1.42	1.30	.36	1.84	2.36	1.84	4.67	.51	.11	.26
1964	.05	1.09	1.60	1.59	.12	6.06	3.62	3.45	1.59	.14	.10	.02
1965	.79	.92	1.17	.86	7.16	3.59	4.20	2.75	6.84	2.71	.02	.50
1966	.35	1.01	.75	.99	.18	3.66	2.64	1.81	.96	.89	.02	.87
1967	.44	.16	.01	.77	5.50	10.73	3.68	.42	1.87	1.03	.28	.41
1968	.13	.64	.23	1.88	3.14	2.18	4.16	3.33	1.00	3.87	.44	1.23
1969	.76	1.11	.31	.85	3.14	4.24	3.52	3.09	2.79	4.41	.18	.64
1970	.07	.20	.82	2.35	2.57	2.74	1.31	3.21	3.46	1.01	.39	.05
1971	.57	1.90	1.06	2.25	2.92	.91	5.36	1.82	.81	2.20	2.17	.29
1972	.14	.19	.59	1.68	5.89	.78	1.42	4.70	1.54	.75	2.02	1.32
1973	.64	.27	4.64	2.06	2.72	.70	2.93	3.05	8.41	1.73	2.01	1.24
1974	.35	.05	.47	1.85	1.82	3.61	1.29	1.06	.46	1.63	.49	.97
1975	.28	.47	.90	2.07	1.86	6.68	1.90	1.93	1.56	.18	3.17	.35
1976	.47	.30	1.35	3.99	3.19	2.34	2.43	.87	2.69	.72	.10	.01
1977	.36	.13	4.12	5.25	5.13	1.51	1.97	4.28	1.44	1.22	.69	.44
1978	.22	1.01	.44	4.95	3.55	.44	4.77	1.68	.00	.82	1.21	.49
1979	.65	.07	4.58	3.43	2.07	6.11	4.27	1.71	.98	1.97	1.16	.45
1980	.80	.63	3.23	1.53	2.35	1.81	3.41	3.64	1.54	.89	.03	.12
1981	.00	.18	1.40	2.23	5.15	1.88	6.40	4.12	1.70	.79	2.33	1.02

Table 10.-Monthly precipitation, in inches, for the Central Nebraska Public Power and Irrigation District's weather stations--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
						Tri-County No. 36						
1931	.09	.74	2.06	1.43	2.36	1.60	3.23	2.91	3.44	1.38	2.66	.26
1932	1.27	.92	.73	1.15	2.65	5.81	3.78	1.72	2.56	1.36	.36	.47
1933	.01	.17	1.38	5.61	3.64	.51	2.67	3.91	2.86	.02	.49	1.63
1934	.14	.97	.24	.37	.81	2.19	1.85	1.70	2.26	.98	1.32	.55
1935	.25	.42	.29	.99	7.46	3.65	1.18	4.57	1.56	.80	.81	.04
1936	.35	.46	.15	2.12	5.39	1.42	.71	.99	1.48	.35	.03	.86
1937	.91	.23	1.35	.62	3.15	5.06	2.90	1.03	2.74	1.17	.05	.29
1938	.24	.41	.96	2.90	5.64	2.77	2.92	1.75	2.86	.23	.05	.14
1939	.66	.75	.91	1.74	3.59	5.16	1.86	1.65	.21	.14	.03	.69
1940	.72	.52	1.12	1.25	.68	1.49	2.33	.96	1.05	1.68	.89	.78
1941	.84	.42	.37	3.73	3.35	5.51	1.78	.96	3.39	.79	.41	.73
1942	.21	.66	2.08	3.56	3.11	10.85	1.57	2.61	5.81	.24	.37	.65
1943	.13	.28	.60	3.83	1.07	4.24	4.92	2.08	1.19	.36	.20	.09
1944	1.16	.72	1.78	7.42	3.61	2.50	3.37	2.09	.30	1.06	1.35	.22
1945	.58	.34	.35	2.57	3.47	5.46	1.36	2.31	4.07	.37	.01	.70
1946	.06	.25	2.10	.00	3.06	3.47	2.09	3.46	3.63	5.12	1.69	.00
1947	.09	.25	.97	2.62	1.75	7.74	3.12	.91	2.18	.53	1.76	.91
1948	.58	.77	.85	.43	2.44	5.69	3.25	1.23	1.87	.57	1.56	.62
1949	.97	.31	2.78	1.83	5.08	5.73	1.57	1.58	3.23	1.68	.09	.21
1950	.36	.80	1.10	1.57	7.12	1.27	3.46	2.90	1.60	.46	.44	.20
1951	.53	.70	.92	2.69	4.45	5.35	3.38	3.33	4.13	1.76	.19	.38
1952	.24	1.18	1.04	3.33	5.19	1.66	2.98	2.07	.58	.07	.66	.82
1953	.15	.94	.99	1.68	4.08	1.77	2.18	1.52	1.32	1.53	1.89	1.30
1954	.16	.82	.50	1.01	4.21	2.48	1.81	4.89	.77	1.89	.00	.14
1955	1.01	1.03	.44	.53	5.08	4.91	2.06	.46	3.57	.48	.12	.48
1956	.51	.30	.21	1.40	.67	2.38	1.06	1.52	.64	1.33	.17	.26
1957	.12	.16	1.72	2.37	4.75	5.71	1.98	5.29	3.26	2.00	.38	.39
1958	.20	1.93	2.21	2.75	2.73	2.62	4.23	2.71	.45	.03	.60	.15
1959	.61	.47	3.20	1.10	3.20	2.64	4.92	2.36	2.38	1.87	.01	.05
1960	1.70	1.53	1.28	1.75	2.57	6.60	2.35	.60	1.11	1.57	.33	.41
1961	.01	.21	1.72	1.53	7.70	1.65	1.23	4.22	1.53	.56	.90	.90
1962	.08	.89	2.19	.47	3.34	3.92	6.08	2.54	2.76	1.22	.09	.80
1963	.51	.08	1.27	1.26	.81	2.31	3.18	3.45	3.08	.42	.21	.24
1964	.05	1.12	1.48	1.42	.22	3.09	2.88	1.85	1.89	.09	.10	.03
1965	.84	.78	.88	1.52	5.86	5.18	3.90	2.62	6.44	3.33	.02	.53
1966	.36	.95	.89	.94	.20	4.04	3.16	3.13	1.38	1.02	.03	.88
1967	.53	.20	.01	.65	4.62	8.21	2.72	.44	1.82	1.05	.26	.42
1968	.11	.57	.29	1.94	2.51	1.83	2.66	3.70	.74	4.16	.38	1.15
1969	.72	1.13	.33	1.00	3.84	4.60	4.57	6.17	4.48	4.24	.23	.66
1970	.09	.21	.89	1.95	2.24	3.10	1.52	3.79	3.58	.95	.34	.05
1971	.50	1.67	1.00	2.84	3.36	1.80	3.91	2.73	.20	2.08	2.45	.27
1972	.19	.16	.60	1.73	4.98	3.45	3.01	2.95	1.97	.85	2.01	1.19
1973	.69	.26	4.44	1.86	3.06	1.06	2.72	3.68	7.38	1.10	1.86	1.10
1974	.35	.06	.53	1.74	2.33	3.05	2.33	2.16	.51	1.46	.43	.91
1975	.24	.46	.99	1.87	1.68	7.55	2.06	2.09	1.02	.17	3.06	.38
1976	.53	.21	1.15	4.41	2.99	2.17	2.49	1.71	2.65	.83	.08	.01
1977	.31	.15	4.27	5.15	3.15	1.74	1.52	4.12	.60	1.08	.68	.55
1978	.26	1.00	.41	4.78	3.65	.54	3.41	2.05	.12	.89	1.19	.48
1979	.70	.02	4.47	4.05	2.47	4.60	3.85	2.67	.71	1.64	1.14	.53
1980	.78	.79	3.32	1.45	2.77	1.81	2.41	2.82	1.58	.94	.13	.10
1981	.01	.19	1.57	2.29	4.68	1.91	6.23	3.74	1.48	.58	2.09	1.04

Table 11.--Net evaporation from reservoirs in the study area

Harlan County Lake Weather Station

Year	May to September				October to April			
	Evaporation (inches)	Precipitation (inches)	Net evaporation (inches)	(feet)	Evaporation (inches)	Precipitation (inches)	Net evaporation (inches)	(feet)
[1]1949	40.85	14.16	26.69	2.22	[2]44.22	17.96		
[1]1950	34.15	18.33	15.82	1.32	42.36	19.51	22.85	1.90
[1]1951	29.28	19.47	9.81	.82	[3]33.88	23.02		
[1]1952	40.71	6.33	34.38	2.87	[2]45.00	7.98		
1953	61.63	9.11	52.52	4.38	76.44	11.32	65.12	5.43
1954	52.78	14.16	38.62	3.22	66.62	17.29	49.33	4.11
1955	60.32	15.30	45.02	3.75	75.03	15.65	59.38	4.95
1956	58.08	9.82	48.26	4.02	74.10	11.74	62.36	5.20
1957	45.42	19.06	26.36	2.20	55.77	23.91	31.86	2.66
1958	44.81	15.85	28.96	2.41	56.11	18.64	37.47	3.12
1959	48.00	12.44	35.56	2.96	59.58	17.08	42.50	3.54
1960	41.47	15.20	26.27	2.19	53.62	18.60	35.02	2.92
1961	39.45	18.03	21.42	1.79	50.88	19.67	31.21	2.60
1962	43.21	20.86	22.35	1.86	54.76	22.32	32.44	2.70
1963	50.36	15.31	35.05	2.92	64.50	17.03	47.47	3.96
1964	52.94	12.46	40.48	3.37	66.20	13.37	52.83	4.40
1965	41.45	28.11	13.34	1.11	52.58	30.98	21.60	1.80
1966	47.59	11.00	36.59	3.05	59.64	13.37	46.27	3.86
1967	39.09	18.37	20.72	1.73	51.80	21.46	30.34	2.53
1968	48.76	15.30	33.46	2.79	61.08	20.34	40.74	3.40
1969	40.12	19.00	21.12	1.76	51.40	24.66	26.74	2.23
1970	56.51	12.85	43.66	3.64	67.40	16.31	51.09	4.26
1971	48.01	15.38	32.63	2.72	61.51	19.54	41.97	3.50
1972	41.33	18.72	22.61	1.88	51.35	21.51	29.84	2.49
1973	51.60	22.60	29.00	2.42	61.93	26.86	35.07	2.92
1974	48.86	10.83	38.03	3.17	61.09	16.18	44.91	3.74
1975	45.60	18.30	27.30	2.28	58.99	19.56	39.43	3.29
1976	49.98	12.46	37.52	3.13	60.10	17.05	43.05	3.59
1977	43.03	17.44	25.59	2.13	54.04	21.75	32.29	2.69
1978	46.38	19.52	26.86	2.24	58.61	22.89	35.72	2.98
1979	41.07	17.45	23.62	1.97	54.56	22.33	32.23	2.69
1980	45.88	9.98	35.90	2.99	58.90	13.21	45.69	3.81
1981	36.75	22.85	13.90	1.16	47.39	26.15	21.24	1.77

[1]Kingsley Dam Weather Station was used.
[2]Plus April
[3]Plus October

Table 11.--Net evaporation from reservoirs in the study area--Continued
Kingsley Dam Weather Station

Year	May to September				October to April			
	Evaporation (inches)	Precipitation (inches)	Net evaporation (inches)	(feet)	Evaporation (inches)	Precipitation (inches)	Net evaporation (inches)	(feet)
1939	53.61	8.95	44.66	3.72	64.52	10.74	53.78	4.48
1940	49.78	9.56	40.22	3.35	59.51	11.73	47.78	3.98
1941	41.05	12.80	28.25	2.35	50.46	16.20	34.26	2.86
1942	34.28	10.77	23.51	1.96	45.95	17.22	28.73	2.39
1943	38.99	8.25	30.74	2.56	49.26	10.71	38.55	3.21
1944	47.98	11.36	36.62	3.05	59.65	13.85	45.80	3.82
1945	[1]30.37	[1]16.75	[1]13.62	[1]1.14	[1]39.32	[1]18.79	[1]20.53	[1]1.71
1946	47.26	16.23	31.03	2.59	59.66	19.27	40.39	3.37
1947	44.10	10.90	33.20	2.77	54.59	13.33	41.26	3.44
1948	44.61	7.57	37.04	3.09	55.49	8.82	46.67	3.89
1949	40.85	14.16	26.69	2.22	50.91	17.96	32.95	2.75
1950	34.15	18.33	15.82	1.32	42.36	19.51	22.85	1.90
1951	29.28	19.47	9.81	.82	38.86	23.02	15.84	1.32
1952	40.71	6.33	34.38	2.87	51.69	7.98	43.71	3.64

[1]North Platte

Table 11.--Net evaporation from reservoirs in the study area--Continued
Medicine Creek Weather Station

Year	May to September				October to April			
	Evaporation (inches)	Precipitation (inches)	Net evaporation (inches)	(feet)	Evaporation (inches)	Precipitation (inches)	Net evaporation (inches)	(feet)
1952	52.95	10.90	42.05	3.50	65.92	12.87	53.05	4.42
1953	55.48	12.32	43.16	3.60	68.72	15.41	53.31	4.44
1954	56.70	10.80	45.90	3.83	70.25	11.80	58.45	4.87
1955	63.55	10.71	52.84	4.40	79.91	11.64	68.27	5.69
1956	57.58	7.05	50.53	4.21	73.31	9.45	63.86	5.32
1957	43.02	18.11	24.91	2.08	50.31	23.51	26.80	2.23
1958	44.91	11.24	33.67	2.81	56.21	13.28	42.93	3.58
1959	49.09	10.95	38.14	3.18	60.88	15.43	45.45	3.79
1960	47.80	12.97	34.83	2.90	61.17	16.12	45.05	3.75
1961	44.50	15.49	29.01	2.42	57.08	18.54	38.54	3.21
1962	43.76	19.53	24.23	2.02	55.38	20.72	34.66	2.89
1963	51.81	17.36	34.45	2.87	64.83	18.92	45.91	3.83
1964	53.95	9.60	44.35	3.70	66.62	13.06	53.56	4.46
1965	44.51	23.68	20.83	1.74	57.25	26.65	30.60	2.55
1966	47.15	16.84	30.31	2.53	59.08	18.80	40.28	3.36
1967	40.08	21.14	18.94	1.58	53.45	22.62	30.83	2.57
1968	50.55	10.69	39.86	3.32	63.20	13.06	50.14	4.18
1969	40.32	19.29	21.03	1.75	50.09	24.71	25.38	2.12
1970	50.43	12.53	37.90	3.16	62.14	14.15	47.99	4.00
1971	44.71	13.86	30.85	2.57	58.78	20.23	38.55	3.21
1972	44.06	10.78	33.28	2.77	54.03	12.92	41.11	3.43
1973	44.45	18.16	26.29	2.19	54.61	21.00	33.61	2.80
1974	49.74	12.35	37.39	3.12	61.81	14.75	47.06	3.92
1975	45.79	17.82	27.97	2.33	57.69	20.22	37.47	3.12
1976	49.10	12.78	36.32	3.03	60.51	17.69	42.82	3.57
1977	43.74	18.80	24.94	2.08	54.42	23.05	31.37	2.61
1978	49.89	10.34	39.55	3.30	62.41	13.59	48.82	4.07
1979	40.98	18.05	22.93	1.91	52.56	22.41	30.15	2.51
1980	48.09	11.42	36.67	3.06	61.56	13.69	47.87	3.99
1981	39.39	18.99	20.40	1.70	51.08	22.87	28.21	2.35

Table 12.--Agricultural land use in and near the study area, 1940-81

[In thousand acres]

ADAMS COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	42.3	0.0	21.3	0.0	100.8	17.0	9.8	0.9	1.0	0.0	63.9	359.7
41	58.1	0.0	18.5	0.0	124.5	37.5	4.8	2.3	1.0	0.0	64.0	359.7
42	66.8	0.0	10.2	0.0	138.3	28.6	4.0	2.2	1.3	0.0	64.1	359.7
43	87.8	0.0	8.8	0.0	147.8	1.6	3.2	2.2	1.7	0.0	64.2	359.7
44	105.7	0.0	13.4	0.0	68.6	6.8	7.0	2.4	2.1	0.0	64.3	359.7
45	94.0	0.0	9.7	0.0	147.4	4.5	5.8	2.8	2.7	0.0	64.4	359.7
46	88.6	0.0	10.7	0.0	150.7	5.0	6.3	2.3	2.9	0.0	64.5	359.7
47	84.2	0.0	7.2	0.0	150.4	5.0	5.0	2.8	3.8	0.0	64.6	359.7
48	91.1	3.4	12.3	0.0	109.8	11.7	5.2	2.7	4.4	0.4	64.7	359.7
49	84.2	4.0	10.0	0.0	125.1	14.6	10.0	3.1	8.8	0.4	64.8	359.7
50	76.6	4.8	19.0	0.0	139.8	19.2	9.1	3.3	8.2	0.6	64.9	359.7
51	88.1	5.5	12.7	0.0	130.9	17.4	11.2	3.3	10.3	0.5	65.0	359.7
52	88.5	5.8	6.8	0.0	149.1	18.2	12.9	3.4	11.8	0.7	65.1	359.7
53	92.3	8.1	11.7	0.0	128.8	27.9	13.4	2.8	11.8	1.5	65.2	359.7
54	79.2	13.6	25.0	0.0	106.8	39.4	18.9	3.9	17.2	1.0	65.4	359.7
55	69.7	16.4	37.9	0.0	95.4	37.0	19.7	3.1	17.3	2.3	65.6	359.7
56	60.8	22.7	38.9	5.5	93.8	36.0	19.3	2.5	16.8	3.2	65.7	359.7
57	52.5	32.3	63.8	10.8	87.4	59.1	18.1	3.0	17.3	2.9	65.8	359.7
58	58.6	33.7	64.5	12.6	89.5	51.1	15.1	2.5	14.4	2.6	66.0	359.7
59	72.6	41.4	54.5	7.8	87.5	40.5	11.0	3.7	10.6	1.0	66.2	359.7
60	68.3	44.1	71.4	8.7	86.0	38.5	10.1	4.3	9.8	1.3	66.4	359.7
61	56.4	38.6	50.0	8.7	88.1	36.5	10.7	4.2	10.4	1.1	66.6	359.7
62	43.7	28.4	68.9	18.4	72.6	55.6	11.8	3.6	11.4	1.3	66.8	359.7
63	45.6	32.0	75.9	20.1	78.4	55.4	11.4	2.7	10.8	1.7	67.0	359.7
64	40.6	34.1	65.0	18.5	80.4	69.5	10.7	3.2	10.2	1.6	67.1	359.7
65	37.2	32.1	68.1	22.2	81.1	66.0	12.3	2.2	11.2	1.9	67.2	359.7
66	50.6	44.3	60.9	20.0	81.5	66.5	11.1	1.6	10.2	1.9	67.3	359.7
67	64.4	58.8	65.9	17.3	87.9	50.0	9.9	1.8	9.4	1.8	67.4	359.7
68	72.8	66.4	49.8	12.5	80.4	70.0	10.0	1.5	9.3	1.7	67.6	359.7
69	76.9	68.8	45.6	9.2	76.6	70.0	9.7	2.0	8.9	1.1	67.7	359.7
70	85.0	76.1	42.0	7.0	72.8	69.0	8.9	1.7	8.2	1.2	67.7	359.7
71	84.9	79.8	52.4	8.1	62.5	72.0	7.8	2.1	7.0	1.5	67.7	359.7
72	83.1	77.4	40.6	6.9	59.0	59.9	8.0	2.0	5.6	0.8	67.7	359.7
73	101.8	85.5	58.2	5.4	61.1	31.3	7.0	2.5	6.2	0.7	67.7	359.7
74	112.4	94.7	55.9	6.1	67.9	23.0	6.5	2.2	5.8	0.8	67.7	359.7
75	111.0	98.7	52.7	7.4	61.0	24.2	7.8	3.0	5.8	0.9	67.7	359.7
76	119.3	109.6	42.5	5.8	57.1	28.2	7.4	2.5	5.6	1.1	67.7	359.7
77	141.9	131.5	40.2	7.1	58.5	36.4	8.1	2.4	6.2	1.5	67.7	359.7
78	131.1	122.9	34.2	5.6	46.7	44.3	7.8	2.3	6.2	1.3	67.7	359.7
79	153.8	145.2	37.7	4.9	44.2	51.2	6.4	2.6	5.4	1.0	67.7	359.7
80	160.7	154.8	43.9	6.5	50.0	22.8	6.6	3.4	5.5	1.2	67.7	359.7
81	157.6	154.3	51.4	10.1	49.6	14.9	6.2	2.8	5.3	0.8	67.7	359.7

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

BUFFALO COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	86.1	4.0	40.9	0.0	60.0	23.9	4.4	0	9.0	0.0	175	613.2
41	122.1	3.6	33.9	0.0	93.0	30.6	5.3	0	10.4	0.0	175	613.2
42	141.4	4.3	15.6	0.0	124.0	13.6	3.0	0	12.3	0.0	175	613.2
43	166.0	2.1	13.0	0.0	116.0	2.7	4.0	0	13.4	0.0	175	613.2
44	204.9	1.4	15.1	0.0	67.0	4.2	4.7	0	13.9	0.0	176	613.2
45	193.0	3.0	11.0	0.0	98.0	6.4	4.4	0	16.3	0.0	177	613.2
46	180.0	3.9	7.0	0.0	103.0	7.5	4.0	0	19.7	0.0	178	613.2
47	163.8	4.8	5.2	0.0	105.0	8.6	4.0	0	24.7	0.0	179	613.2
48	153.9	44.2	3.1	0.0	108.0	9.7	4.0	0	29.1	1.3	180	613.2
49	165.5	45.9	3.5	0.0	81.0	11.1	4.0	0	34.4	0.9	181	613.2
50	165.5	46.0	4.5	0.0	101.0	13.6	4.0	0	34.3	1.2	182	613.2
51	164.8	49.5	3.2	0.0	88.0	15.4	4.0	0	38.8	0.8	183	613.2
52	169.1	47.7	0.9	0.0	95.0	14.1	4.0	0	46.1	0.9	184	613.2
53	183.9	50.8	3.1	0.0	73.0	17.0	4.0	0	55.2	5.5	185	613.2
54	171.0	51.2	10.0	0.0	73.0	20.9	4.0	0	61.8	6.9	186	613.2
55	140.5	55.7	21.5	0.0	60.0	21.2	3.9	0	55.6	3.3	187	613.2
56	134.8	71.9	24.2	4.1	57.0	25.0	3.8	0	47.8	5.3	188	613.2
57	114.6	78.2	46.4	8.8	55.0	30.0	3.7	0	48.8	2.7	189	613.2
58	120.7	82.6	34.3	7.4	62.0	35.0	3.6	0	47.3	2.5	190	613.2
59	148.0	90.3	28.0	4.2	49.0	37.8	3.5	0	46.3	3.4	191	613.2
60	148.6	93.3	34.4	5.6	56.0	38.2	3.4	0	46.3	3.7	192	613.2
61	114.0	79.2	30.0	1.4	57.0	43.0	3.3	0	47.9	3.8	193	613.2
62	116.2	70.1	26.8	4.7	42.0	48.0	3.2	0	50.3	4.1	194	613.2
63	117.5	82.6	29.5	6.0	45.0	52.0	3.1	0	48.3	6.2	195	613.2
64	108.6	84.8	37.4	8.1	42.0	58.5	2.5	0	48.3	9.1	196	613.2
65	82.4	66.8	42.6	10.1	32.0	56.5	2.4	0	46.3	8.3	197	613.2
66	103.8	82.8	41.2	8.9	35.0	57.0	1.6	0	47.0	8.8	198	613.2
67	113.3	93.2	38.7	8.1	44.0	50.0	1.7	0	47.5	10.4	199	613.2
68	114.0	94.7	30.0	6.9	36.0	60.5	1.8	0	47.0	10.2	199	613.2
69	122.6	99.4	23.4	4.4	35.0	58.0	1.9	0	48.5	7.4	199	613.2
70	138.2	109.1	20.8	3.9	31.0	57.0	2.0	0	46.0	11.0	199	613.2
71	142.7	115.8	19.3	3.5	28.0	13.2	2.1	0	45.5	8.6	198	613.2
72	136.1	111.2	15.9	2.6	23.0	19.0	2.2	0	45.0	11.0	197	613.2
73	161.9	131.9	20.1	3.6	27.0	18.3	2.5	0	49.0	12.2	196	613.2
74	166.9	132.6	18.1	3.3	34.0	16.0	2.7	0	43.0	9.0	195	613.2
75	170.3	143.1	19.7	3.4	28.0	15.0	3.0	0	41.6	9.1	194	613.2
76	184.3	161.9	16.7	2.2	27.0	18.1	3.3	0	40.9	9.9	193	613.2
77	184.4	162.2	13.6	2.1	29.0	12.0	4.3	0	40.8	10.3	192	613.2
78	181.6	163.0	11.4	1.7	24.0	18.4	3.5	0	35.0	8.8	192	613.2
79	189.7	173.5	16.3	2.5	25.0	14.8	4.7	0	35.0	8.1	192	613.2
80	215.0	198.1	15.0	3.2	15.5	11.6	3.4	0	44.2	15.3	192	613.2
81	212.4	194.3	27.6	7.0	23.9	7.5	2.9	0	44.3	14.7	192	613.2

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

DAWSON COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	103.2	4.5	37.1	0.0	39.0	35.5	46.3	8.4	43.5	0.0	218.6	632.1
41	117.3	3.9	20.5	0.0	70.2	17.4	53.5	11.7	49.9	0.0	220.5	632.1
42	133.6	4.9	16.4	0.0	79.6	10.0	61.5	12.3	58.0	0.0	222.5	632.1
43	160.2	2.7	12.7	0.0	77.9	2.2	55.5	12.3	50.5	0.0	224.4	632.1
44	167.1	1.5	16.2	0.0	58.5	3.3	61.7	16.4	54.6	0.0	226.3	632.1
45	160.3	2.5	14.7	0.0	64.6	5.7	70.9	17.2	62.1	0.0	228.2	632.1
46	132.0	1.7	12.3	0.0	74.9	8.9	80.1	12.4	65.3	0.0	230.2	632.1
47	119.7	4.4	11.1	0.0	70.3	6.3	78.6	11.3	76.7	0.0	232.0	632.1
48	123.5	73.1	12.1	0.0	68.0	6.7	73.7	12.2	71.6	10.4	234.0	632.1
49	134.6	80.7	9.2	0.0	52.9	16.3	59.6	12.9	72.5	7.4	235.9	632.1
50	147.9	82.5	6.0	0.0	56.0	16.3	5.7	13.1	76.8	7.4	237.9	632.1
51	150.2	89.1	9.4	0.0	51.9	14.6	79.2	13.8	77.8	8.1	239.8	632.1
52	155.5	89.1	3.8	0.0	46.4	14.0	83.5	13.2	79.3	8.3	241.7	632.1
53	159.9	92.9	4.6	0.0	35.6	13.4	91.2	10.6	88.3	15.4	243.6	632.1
54	143.3	100.2	5.5	0.0	24.7	17.8	107.6	12.6	105.3	16.0	245.6	632.1
55	135.8	108.5	7.9	0.0	29.6	17.0	101.6	11.8	98.4	20.6	247.5	632.1
56	126.3	107.0	10.3	3.9	28.4	21.2	91.2	7.1	87.0	31.3	249.4	632.1
57	132.1	122.1	18.0	4.8	25.5	24.8	93.5	8.8	89.8	25.7	251.3	632.1
58	129.4	115.5	17.1	8.2	30.1	31.0	91.4	10.2	88.9	47.9	253.3	632.1
59	151.0	132.1	13.5	4.1	26.1	17.5	88.1	10.2	86.4	30.2	255.2	632.1
60	151.2	133.3	16.5	5.3	23.3	14.6	87.8	12.3	86.1	25.1	257.1	632.1
61	122.9	109.8	13.4	4.0	21.8	15.5	85.8	11.2	84.3	25.6	259.0	632.1
62	105.7	81.5	19.4	5.1	19.8	23.3	89.5	10.0	88.0	19.9	261.0	632.1
63	111.5	103.5	15.5	5.4	18.3	16.2	89.1	7.9	88.1	23.1	262.9	632.1
64	107.6	100.6	15.4	3.8	18.2	35.6	91.8	8.5	91.2	26.8	264.8	632.1
65	108.0	101.0	18.8	6.5	16.3	40.0	105.2	10.8	103.3	10.3	266.7	632.1
66	119.1	114.5	13.9	3.7	14.9	37.5	96.2	13.2	94.9	11.4	268.7	632.1
67	124.8	113.9	8.7	3.6	17.2	30.0	100.7	10.6	98.7	12.8	270.6	632.1
68	124.4	113.5	7.6	2.5	11.9	44.6	93.1	7.6	92.3	9.9	272.5	632.1
69	124.8	112.9	5.1	1.2	11.7	38.0	92.4	9.1	91.4	10.6	272.5	632.1
70	123.0	113.2	4.8	1.3	11.0	41.0	94.9	8.4	94.0	13.0	272.5	632.1
71	132.2	123.8	4.6	1.3	10.8	24.0	95.1	7.0	93.0	13.0	272.5	632.1
72	134.8	126.4	3.3	0.9	9.0	26.7	92.5	5.4	91.0	16.0	272.5	632.1
73	154.4	145.8	5.4	1.7	9.8	20.1	100.0	6.4	98.0	14.0	272.5	632.1
74	169.4	155.1	3.6	1.3	11.9	18.0	104.8	4.7	102.7	24.0	272.5	632.1
75	161.5	155.9	4.3	1.6	9.5	20.7	99.2	6.0	97.0	22.0	272.5	632.1
76	162.1	157.7	4.7	1.8	10.2	19.5	104.3	6.1	101.0	26.5	272.5	632.1
77	174.3	170.0	4.0	1.2	6.5	24.3	87.9	5.6	84.3	13.7	272.5	632.1
78	175.1	171.1	3.5	0.9	6.4	29.0	72.7	4.8	69.0	10.0	272.5	632.1
79	189.3	184.8	3.9	0.8	3.9	35.7	82.9	6.1	81.1	25.1	272.5	632.1
80	196.4	194.3	3.1	0.6	8.2	6.3	81.6	2.4	78.2	28.3	272.5	632.1
81	198.8	197.5	7.8	2.3	6.1	7.8	71.5	4.5	70.0	26.6	272.5	632.1

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

FRANKLIN COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	44.0	0.0	39.1	0.0	55.0	20.2	2.0	0.7	0.5	0.0	125.6	371.6
41	56.9	0.0	24.3	0.0	78.4	14.8	3.4	1.6	0.9	0.0	126.9	371.6
42	69.8	0.0	11.6	0.0	66.4	14.4	4.4	2.3	1.4	0.0	129.2	371.6
43	89.1	0.0	12.1	0.0	72.0	2.2	4.9	3.7	1.6	0.0	129.2	371.6
44	109.2	0.0	13.9	0.0	23.8	6.4	6.3	4.9	2.2	0.0	130.9	371.6
45	95.1	0.0	14.3	0.0	67.5	6.5	4.5	4.1	2.4	0.0	132.1	371.6
46	87.4	0.0	15.4	0.0	64.9	10.0	7.6	3.5	2.6	0.0	133.3	371.6
47	75.9	0.0	14.3	0.0	72.0	9.5	5.2	5.2	3.5	0.0	134.6	371.6
48	63.3	1.5	18.4	0.0	68.6	13.6	0.0	4.4	5.1	0.4	135.9	371.6
49	62.1	1.9	16.7	0.0	68.9	23.9	2.1	5.1	7.2	0.1	137.2	371.6
50	63.5	2.6	19.6	0.0	69.6	23.6	17.9	6.8	8.1	0.3	138.5	371.6
51	64.8	3.7	13.9	0.0	62.4	21.5	13.4	6.3	11.1	0.4	139.8	371.6
52	70.9	3.1	8.6	0.0	71.5	21.2	15.7	7.2	13.4	0.4	141.1	371.6
53	66.4	3.8	16.8	0.0	51.3	27.1	16.4	5.8	12.3	0.7	142.4	371.6
54	55.8	6.1	30.8	0.0	51.6	34.3	20.9	7.2	17.2	1.0	143.7	371.6
55	35.8	9.8	39.4	0.0	44.4	30.0	19.6	5.8	17.1	1.5	144.9	371.6
56	37.4	11.5	28.2	1.7	47.6	36.0	13.3	3.8	10.6	1.7	146.2	371.6
57	28.2	14.9	50.8	3.6	39.4	44.4	13.7	6.6	12.2	1.7	147.5	371.6
58	32.3	15.5	40.1	4.6	47.2	43.4	13.7	6.9	11.2	1.2	148.8	371.6
59	39.7	20.3	33.8	2.5	44.1	34.0	9.9	5.4	8.9	1.4	150.1	371.6
60	38.5	22.7	37.5	2.7	45.9	38.5	11.5	7.7	10.0	1.5	151.4	371.6
61	29.7	19.5	30.5	2.2	48.2	38.3	13.0	7.3	11.7	2.0	152.7	371.6
62	27.2	16.1	34.5	2.8	38.9	44.4	14.1	8.0	12.5	2.6	154.0	371.6
63	29.4	20.4	40.0	3.6	42.0	42.5	12.5	5.2	11.6	2.3	155.3	371.6
64	27.1	20.6	36.4	4.4	41.6	43.5	11.7	4.8	10.0	2.2	156.6	371.6
65	22.4	18.7	35.5	4.7	38.3	44.0	9.6	5.1	8.5	1.5	157.8	371.6
66	26.7	22.4	35.3	4.2	38.2	46.5	9.0	4.7	8.1	2.0	159.1	371.6
67	33.8	27.1	35.7	4.5	45.9	35.5	8.7	4.7	7.7	1.8	160.4	371.6
68	36.6	29.3	29.6	4.1	42.1	46.0	8.0	3.9	7.6	2.0	161.7	371.6
69	39.0	30.8	26.7	3.4	39.4	48.0	7.7	3.9	7.2	1.6	163.0	371.6
70	39.4	31.0	27.3	2.8	36.3	45.0	9.8	3.5	9.2	1.5	163.0	371.6
71	40.5	34.2	33.1	2.9	32.9	45.0	7.3	3.6	6.0	1.3	163.0	371.6
72	39.0	32.4	28.8	2.8	30.2	38.9	7.7	3.7	6.7	1.2	163.0	371.6
73	45.9	39.6	41.8	3.8	34.4	29.3	8.7	3.8	7.6	1.1	163.0	371.6
74	47.9	40.9	41.2	3.8	37.1	25.0	7.5	3.2	6.5	0.9	163.0	371.6
75	52.6	49.2	40.5	4.2	30.2	27.3	6.7	3.8	6.2	1.2	163.0	371.6
76	61.2	57.3	40.1	4.7	31.8	25.9	7.6	3.3	6.6	1.1	163.0	371.6
77	63.8	59.7	36.6	6.1	33.3	30.5	7.7	2.4	6.9	2.2	163.0	371.6
78	62.9	60.1	29.8	4.3	28.5	35.0	6.7	3.8	5.8	1.5	163.0	371.6
79	62.5	60.9	32.6	4.0	33.3	39.6	6.0	3.0	4.6	1.3	163.0	371.6
80	64.0	62.7	42.4	8.2	32.3	15.3	6.7	3.3	5.3	1.3	163.0	371.6
81	59.4	58.3	46.3	6.5	32.2	17.5	6.1	2.9	4.7	1.3	163.0	371.6

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

FRONTIER COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	85.9	0.3	48.1	0.0	45.5	42.4	4.1	10.0	3.2	0.1	323.5	620.2
41	95.6	0.5	37.7	0.0	69.1	40.4	2.6	10.0	1.9	0.2	331.8	620.2
42	107.9	0.4	24.3	0.0	79.0	30.4	2.9	10.0	1.9	1.2	331.8	620.2
43	124.3	0.3	21.2	0.0	86.0	15.6	3.3	10.0	2.4	0.1	331.8	620.2
44	116.5	0.7	25.0	0.0	66.9	22.0	4.3	10.0	3.3	0.1	331.8	620.2
45	107.8	0.3	22.4	0.0	81.2	31.9	5.5	10.0	4.3	0.1	331.8	620.2
46	83.4	0.3	21.2	0.0	100.1	42.7	5.7	10.0	4.6	0.1	331.8	620.2
47	77.9	0.3	23.1	0.0	104.0	44.2	4.9	10.0	4.0	0.1	331.8	620.2
48	63.4	0.3	26.8	0.0	99.4	56.0	5.7	10.0	4.2	0.2	331.8	620.2
49	76.2	0.8	24.4	0.0	86.8	54.4	10.9	10.0	8.3	0.2	331.8	620.2
50	77.6	2.5	24.0	0.0	89.0	65.3	8.8	10.0	5.0	0.2	331.8	620.2
51	85.5	0.4	23.1	0.0	71.5	65.1	11.4	10.0	5.7	0.1	331.8	620.2
52	69.7	0.3	18.1	0.0	87.8	64.1	15.7	10.0	7.7	0.2	331.8	620.2
53	73.9	0.3	21.9	0.0	73.6	70.0	18.3	10.0	5.2	0.3	331.8	620.2
54	53.4	1.1	29.2	0.0	56.5	65.9	22.0	10.0	5.4	0.5	331.8	620.2
55	42.6	2.8	28.1	0.0	59.4	63.0	17.4	10.0	2.2	1.4	331.8	620.2
56	41.7	4.0	27.3	0.3	64.0	65.6	13.8	10.0	2.2	1.2	331.8	620.2
57	46.1	7.0	34.8	0.6	56.8	74.0	16.5	10.0	2.2	1.1	331.8	620.2
58	47.9	8.0	22.5	0.3	69.7	67.8	15.8	10.0	2.2	1.1	331.8	620.2
59	62.8	8.7	27.4	0.3	62.0	65.0	12.7	10.0	2.1	1.3	331.8	620.2
60	51.1	9.0	41.2	0.9	59.4	63.2	11.0	10.0	1.8	1.3	331.8	620.2
61	28.7	7.6	41.6	0.8	65.4	67.8	11.7	10.0	2.7	1.3	331.8	620.2
62	30.1	6.9	49.4	0.8	51.1	72.1	12.8	10.0	3.3	1.5	331.8	620.2
63	28.8	9.7	57.0	1.5	62.0	72.1	11.7	10.0	3.3	1.4	331.8	620.2
64	25.8	11.8	56.1	2.1	60.8	73.0	13.9	10.0	3.3	1.8	331.8	620.2
65	14.4	8.6	51.8	2.1	64.2	80.1	12.4	10.0	3.3	1.7	331.8	620.2
66	15.3	10.2	51.1	1.9	62.1	77.3	11.9	10.0	3.3	1.9	331.8	620.2
67	26.0	12.3	42.6	2.4	76.7	72.5	12.1	10.0	3.1	1.9	331.8	620.2
68	27.9	14.7	37.5	1.8	66.5	74.5	11.5	10.0	3.2	1.6	331.8	620.2
69	32.7	18.9	32.2	0.6	62.6	75.0	12.5	10.0	3.6	1.7	331.8	620.2
70	40.3	21.5	31.5	0.8	58.6	76.0	12.7	10.0	3.9	1.8	331.8	620.2
71	49.8	31.5	30.3	0.8	55.8	74.0	11.7	10.0	2.9	1.8	331.8	620.2
72	50.0	39.3	24.4	0.8	56.1	57.0	11.8	10.0	3.0	2.2	331.8	620.2
73	46.4	35.2	36.2	2.4	64.7	59.1	13.9	10.0	5.1	2.0	331.8	620.2
74	50.9	38.8	26.8	1.8	61.0	57.1	11.3	10.0	3.3	1.9	331.8	620.2
75	56.5	45.9	24.0	2.5	67.5	58.9	15.6	10.0	7.4	2.5	331.8	620.2
76	57.6	49.3	20.0	2.1	63.0	57.4	16.3	10.0	7.0	2.3	331.8	620.2
77	60.5	53.9	21.4	2.4	61.7	50.6	15.2	10.0	6.2	2.7	331.8	620.2
78	65.3	56.9	17.0	1.8	51.8	50.6	14.7	10.0	6.2	2.7	331.8	620.2
79	63.6	57.9	27.5	2.7	32.1	62.0	15.1	5.9	9.2	4.5	331.8	620.2
80	64.7	57.2	22.9	4.5	60.4	58.5	14.0	5.0	9.4	4.7	331.8	620.2
81	57.7	55.9	34.7	7.1	60.9	55.5	13.6	6.4	9.6	4.8	331.8	620.2

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

FURNAS COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	75.0	0.0	43.4	0.0	61.7	43.8	7.1	0.2	4.1	0.0	153.7	467.6
41	85.7	0.0	28.0	0.0	86.1	28.5	7.7	0.2	5.0	0.0	154.5	467.6
42	94.6	0.0	18.9	0.0	89.9	26.4	9.6	0.2	6.8	0.0	155.3	467.6
43	121.3	0.0	16.0	0.0	85.9	12.9	9.1	0.2	6.5	0.0	156.1	467.6
44	110.0	0.0	18.0	0.0	64.6	20.9	8.9	0.5	6.7	0.0	156.9	467.6
45	111.7	0.0	13.8	0.0	78.6	35.4	8.8	0.2	7.7	0.0	157.7	467.6
46	89.5	0.0	12.6	0.0	81.6	52.9	7.6	0.2	6.5	0.0	158.5	467.6
47	81.7	0.0	15.7	0.0	95.7	51.0	8.3	0.2	7.2	0.0	159.4	467.6
48	73.2	1.5	18.0	0.0	94.8	57.9	9.3	0.5	7.4	0.4	160.2	467.6
49	68.1	2.9	14.8	0.0	85.5	75.6	10.7	0.6	8.3	0.3	161.0	467.6
50	71.8	3.1	18.1	0.0	88.8	72.0	13.2	0.6	8.9	0.3	161.8	467.6
51	80.0	4.1	17.3	0.0	66.4	73.4	12.4	0.7	9.3	0.5	162.6	467.6
52	85.0	4.6	12.8	0.0	85.3	72.1	13.8	1.1	10.5	0.4	163.4	467.6
53	82.1	5.2	13.5	0.0	77.2	78.0	16.4	1.0	12.3	0.7	164.2	467.6
54	80.0	7.3	22.5	0.0	63.5	70.0	19.7	1.0	16.0	1.6	165.0	467.6
55	40.1	12.4	27.0	0.0	66.5	65.6	20.1	0.9	18.3	2.6	165.8	467.6
56	45.6	10.6	29.0	1.4	71.7	70.0	17.6	0.3	15.0	3.4	166.6	467.6
57	34.9	13.4	53.7	2.6	58.7	77.0	19.3	0.6	16.0	3.1	167.4	467.6
58	50.4	16.2	34.5	2.0	75.4	72.0	17.7	0.6	15.4	1.3	168.2	467.6
59	57.2	17.5	37.9	1.5	65.9	66.2	12.4	1.5	11.9	2.0	169.8	467.6
60	41.0	19.1	48.5	1.2	68.8	66.0	13.6	1.0	11.9	2.0	170.6	467.6
61	39.9	20.4	45.0	1.2	68.0	71.2	13.9	1.0	12.4	2.3	171.5	467.6
62	38.3	18.5	49.7	1.4	64.7	75.6	15.6	1.3	14.1	2.6	172.3	467.6
63	36.3	19.5	56.1	2.5	61.7	73.2	14.7	0.8	13.2	3.0	173.1	467.6
64	29.8	21.0	55.8	2.9	51.6	86.0	15.7	1.2	14.2	3.6	173.9	467.6
65	19.3	15.4	53.4	3.0	65.7	86.8	15.9	1.4	14.0	2.8	174.7	467.6
66	21.1	15.9	55.3	2.4	62.0	91.0	16.1	1.2	14.8	3.3	175.5	467.6
67	29.0	19.9	51.6	2.1	75.8	77.0	15.9	1.5	14.5	3.6	176.3	467.6
68	31.7	22.4	45.6	2.2	69.5	85.0	16.5	1.0	14.4	3.9	177.1	467.6
69	34.6	22.0	42.1	1.1	65.0	86.0	16.7	0.9	14.5	3.4	177.1	467.6
70	37.7	25.2	39.3	0.7	62.4	80.0	16.2	0.9	13.6	2.6	177.1	467.6
71	38.6	27.9	50.8	1.4	53.2	85.0	15.7	1.2	12.5	2.6	177.1	467.6
72	37.7	28.1	45.3	1.1	55.7	74.4	14.9	1.2	11.8	2.0	177.1	467.6
73	43.0	32.5	52.8	1.1	65.9	73.4	15.3	1.2	12.1	2.1	177.1	467.6
74	44.0	31.4	47.2	1.7	69.8	73.0	12.5	1.3	10.8	2.1	177.1	467.6
75	39.9	33.3	45.0	2.2	72.7	77.4	15.7	1.5	11.5	2.4	177.1	467.6
76	47.9	39.9	36.4	1.6	82.6	79.3	14.7	1.6	11.0	2.3	177.1	467.6
77	47.0	38.9	42.5	2.3	81.8	80.1	16.3	1.5	12.7	2.5	177.1	467.6
78	44.6	39.0	39.2	3.0	72.4	81.0	14.5	1.0	10.7	2.2	177.1	467.6
79	47.1	41.7	45.9	2.8	65.2	81.8	14.1	0.9	9.9	1.6	177.1	467.6
80	49.8	40.2	48.0	6.8	78.5	82.8	15.1	0.9	12.5	3.1	177.1	467.6
81	45.1	37.6	62.0	5.9	83.8	89.0	13.6	1.4	12.4	2.5	177.1	467.6

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

GOSPER COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	41.3	0.0	24.6	0.0	26.1	20.8	4.0	0.8	0.5	0.0	111.1	298.5
41	56.4	0.0	18.7	0.0	40.0	18.0	3.0	1.0	0.7	0.0	112.1	298.5
42	63.6	0.0	11.6	0.0	45.4	13.6	2.7	1.3	0.7	0.0	113.1	298.5
43	75.6	0.0	8.3	0.0	48.0	1.9	3.7	1.5	0.4	0.0	114.0	298.5
44	79.8	0.1	10.2	0.0	31.6	4.2	7.6	2.4	0.8	0.0	115.0	298.5
45	81.0	0.1	9.3	0.0	42.0	9.2	4.1	2.3	0.9	0.0	116.0	298.5
46	61.8	0.0	9.7	0.0	53.8	16.1	5.9	1.9	1.4	0.0	116.9	298.5
47	56.5	0.1	10.1	0.0	55.7	14.3	3.8	2.6	2.0	0.0	117.9	298.5
48	45.8	5.4	11.5	0.0	58.2	18.0	4.0	2.0	1.9	0.6	118.9	298.5
49	44.9	5.6	12.1	0.0	50.3	28.3	6.9	2.4	2.3	0.8	119.9	298.5
50	48.5	6.4	12.7	0.0	50.7	27.7	8.0	4.4	3.6	1.0	120.8	298.5
51	55.7	6.6	9.4	0.0	44.2	31.1	7.9	4.0	3.8	1.2	121.8	298.5
52	55.7	7.3	6.1	0.0	48.1	32.2	8.8	5.6	5.3	1.1	122.8	298.5
53	55.0	6.4	8.4	0.0	38.9	34.3	9.7	5.9	6.4	1.9	123.8	298.5
54	47.9	9.0	14.0	0.0	33.4	36.7	13.3	5.0	9.7	2.3	124.7	298.5
55	31.5	12.2	17.1	0.0	35.8	32.0	13.5	4.0	11.4	3.1	125.6	298.5
56	28.6	11.0	21.9	1.3	35.2	32.9	11.0	1.1	9.0	2.8	126.6	298.5
57	26.8	15.8	36.5	1.9	30.4	36.0	13.4	3.0	10.7	2.8	127.6	298.5
58	33.8	15.7	22.9	1.5	37.1	36.7	11.9	3.0	10.1	2.6	128.6	298.5
59	38.3	18.0	26.9	1.1	33.5	33.0	9.8	2.8	8.9	2.0	129.6	298.5
60	34.9	19.7	35.3	1.8	32.3	32.2	10.6	4.6	9.2	2.1	130.5	298.5
61	27.2	16.8	26.8	1.6	34.5	36.3	10.2	3.5	9.0	2.0	131.5	298.5
62	20.5	14.6	29.9	2.8	31.9	37.7	11.0	3.2	9.4	2.4	132.5	298.5
63	20.9	17.1	34.3	2.6	32.2	35.1	10.6	2.6	9.1	2.7	133.5	298.5
64	23.5	18.0	34.3	2.4	33.3	41.5	11.2	2.9	9.2	2.5	134.4	298.5
65	17.9	15.4	28.0	2.2	30.2	41.4	10.4	2.9	7.9	2.4	135.4	298.5
66	22.4	17.9	26.2	2.0	28.8	44.0	10.4	2.4	8.6	3.0	136.4	298.5
67	20.8	19.5	28.2	2.8	35.4	37.5	10.1	2.8	8.3	3.0	137.4	298.5
68	26.7	21.1	21.8	1.7	32.4	42.5	9.6	1.7	7.8	3.6	138.3	298.5
69	31.4	25.1	20.8	1.7	27.0	39.0	11.1	1.9	9.1	4.4	139.0	298.5
70	35.8	27.6	19.0	1.3	26.8	36.0	9.2	2.0	7.6	4.3	139.0	298.5
71	36.3	30.2	25.7	1.0	21.1	36.0	9.4	1.7	7.0	3.0	139.0	298.5
72	39.4	33.6	19.9	0.9	20.9	30.8	8.8	1.7	6.4	3.2	139.0	298.5
73	46.0	36.9	28.6	1.1	22.5	26.3	8.3	1.8	5.7	2.4	139.0	298.5
74	46.6	40.9	22.4	1.6	24.7	26.0	8.4	1.4	6.6	3.2	139.0	298.5
75	48.5	43.9	18.6	1.9	25.7	26.8	8.9	1.9	6.0	3.3	139.0	298.5
76	44.7	41.2	18.9	1.6	26.6	27.0	8.1	1.5	5.6	3.0	139.0	298.5
77	57.6	54.5	22.1	2.8	24.5	27.5	7.6	1.5	5.0	2.3	139.0	298.5
78	56.5	54.6	16.3	1.7	18.5	28.0	7.6	1.6	4.6	2.2	139.0	298.5
79	57.6	55.2	21.9	1.2	12.5	28.6	7.3	1.7	4.8	2.6	139.0	298.5
80	58.8	57.6	22.8	6.7	23.8	18.9	7.5	1.5	5.3	3.4	139.0	298.5
81	54.9	53.3	32.5	6.3	22.4	15.5	7.8	2.2	5.8	3.7	139.0	298.5

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

HARLAN COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	51.4	0.0	32.2	0.0	52.6	31.5	4.0	0.2	1.4	0.0	112.4	369
41	65.8	0.0	17.9	0.0	74.9	26.9	4.7	0.3	2.0	0.0	112.6	369
42	76.6	0.0	11.9	0.0	73.5	22.3	6.0	0.2	3.1	0.0	112.9	369
43	98.5	0.0	9.9	0.0	84.4	7.1	7.6	0.5	3.3	0.0	113.1	369
44	110.0	0.0	12.1	0.0	23.7	14.0	9.8	0.6	3.4	0.0	113.4	369
45	93.7	0.0	9.6	0.0	80.9	17.4	7.0	1.0	4.0	0.0	113.6	369
46	81.9	0.0	8.6	0.0	73.6	33.1	7.4	0.9	4.3	0.0	113.9	369
47	70.9	0.0	8.7	0.0	84.9	26.2	6.2	0.9	4.2	0.0	114.1	369
48	61.1	2.8	9.4	0.0	80.6	37.7	6.6	0.9	5.1	0.3	114.3	369
49	57.0	2.8	9.1	0.0	83.5	49.1	9.1	1.1	5.1	0.1	114.6	369
50	62.4	2.5	11.2	0.0	84.5	50.3	9.0	2.6	6.0	0.3	114.8	369
51	66.9	3.5	8.4	0.0	73.1	52.0	8.6	2.5	6.3	0.4	115.1	369
52	61.7	2.8	3.9	0.0	77.1	48.4	10.5	3.6	7.4	0.5	115.3	369
53	62.5	1.6	5.4	0.0	64.4	56.8	12.6	4.0	9.6	0.6	115.6	369
54	60.1	3.9	10.0	0.0	67.3	57.9	15.9	3.1	12.5	0.5	115.8	369
55	33.7	6.7	17.6	0.0	55.9	51.0	14.9	2.5	13.1	1.6	116.1	369
56	45.6	7.8	20.8	0.7	58.8	52.1	12.2	1.8	10.3	1.9	116.3	369
57	26.9	9.3	41.4	0.7	51.1	57.5	12.3	2.4	11.2	1.6	116.5	369
58	37.6	9.3	26.3	0.8	59.8	57.0	11.6	2.3	10.7	0.9	116.8	369
59	43.9	12.1	29.4	0.6	56.4	55.8	10.4	2.6	9.7	1.3	117.0	369
60	32.8	12.7	42.2	1.2	57.9	56.4	11.0	4.3	10.2	1.3	117.3	369
61	27.4	12.4	37.5	1.0	59.0	55.8	11.1	4.3	10.2	1.4	117.5	369
62	25.5	10.1	43.6	1.7	51.7	59.5	11.5	3.9	10.3	1.3	117.8	369
63	24.1	13.5	51.2	2.0	52.4	59.7	11.0	2.0	10.2	2.0	118.0	369
64	22.1	15.9	46.5	2.3	51.2	65.0	10.8	3.1	9.9	1.9	118.2	369
65	15.9	12.8	40.3	2.5	50.1	63.5	13.7	2.5	11.4	1.4	118.3	369
66	21.2	15.4	43.2	2.8	45.4	65.0	14.5	2.4	11.6	1.7	118.7	369
67	25.2	19.3	38.7	2.4	59.8	53.5	13.3	2.4	11.2	1.7	119.0	369
68	32.0	25.2	37.2	1.7	52.0	57.0	12.2	2.0	10.1	2.0	119.2	369
69	35.6	29.8	32.4	2.0	46.0	55.0	13.0	1.7	10.5	2.0	119.7	369
70	36.8	31.9	34.5	1.1	43.1	55.0	11.0	1.8	9.0	2.0	119.7	369
71	37.2	33.3	47.1	2.0	40.6	46.0	10.8	1.9	9.0	1.7	119.7	369
72	39.2	34.8	39.1	1.5	36.3	41.1	8.6	1.6	7.2	1.0	119.7	369
73	44.8	37.7	44.5	1.0	41.2	37.4	9.4	1.9	7.7	1.4	119.7	369
74	48.0	41.2	44.3	0.8	44.4	36.0	8.4	1.8	7.6	1.3	119.7	369
75	46.1	42.5	42.8	1.2	43.1	38.8	8.4	2.0	6.8	1.3	119.7	369
76	49.5	46.3	43.7	2.0	48.3	36.4	8.0	1.7	6.5	2.0	119.7	369
77	58.1	54.4	36.9	3.0	43.4	40.2	10.9	1.7	8.8	1.8	119.7	369
78	56.9	54.9	31.3	2.9	40.4	44.0	8.7	1.5	6.6	1.2	119.7	369
79	55.9	53.9	37.1	2.4	41.7	47.8	9.4	2.6	7.8	1.6	119.7	369
80	58.3	57.1	43.9	13.8	43.6	33.6	9.6	2.4	8.2	1.3	119.7	369
81	52.5	51.5	50.8	8.1	42.2	38.3	10.0	3.0	8.8	1.2	119.7	369

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

KEARNEY COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	51.6	0.0	22.2	0.0	94.5	30.5	4.1	0.8	1.4	0.0	66.2	328.5
41	56.6	0.0	14.2	0.0	100.5	27.8	4.0	2.1	1.7	0.0	66.4	328.5
42	66.9	0.0	8.2	0.0	107.6	22.6	5.2	2.2	2.5	0.0	66.6	328.5
43	84.3	0.0	6.9	0.0	118.0	1.0	6.1	2.4	2.6	0.0	66.8	328.5
44	115.8	0.0	8.7	0.0	83.8	6.2	9.7	2.5	3.9	0.0	67.0	328.5
45	96.1	0.3	5.7	0.0	105.9	4.2	7.3	2.4	5.0	0.0	67.3	328.5
46	89.5	0.7	4.6	0.0	108.6	7.6	9.1	1.4	5.9	0.0	67.5	328.5
47	89.8	1.4	4.2	0.0	106.4	6.8	9.1	2.3	7.4	0.0	67.7	328.5
48	76.6	20.8	5.0	0.0	109.6	13.9	8.9	2.9	7.9	3.4	67.8	328.5
49	74.1	22.6	4.6	0.0	104.1	24.5	10.8	3.4	9.3	3.4	68.2	328.5
50	72.7	22.4	9.2	0.0	107.5	26.0	11.8	3.5	10.6	3.6	68.4	328.5
51	82.1	26.0	5.7	0.0	100.0	22.5	12.6	3.0	11.8	3.7	68.6	328.5
52	86.5	26.6	2.9	0.0	111.1	19.3	15.1	3.1	13.2	5.0	68.8	328.5
53	90.4	30.7	7.6	0.0	88.7	26.2	17.2	2.9	15.3	6.7	69.0	328.5
54	76.7	33.0	19.4	0.0	82.1	36.9	20.6	2.8	18.3	7.7	69.3	328.5
55	71.3	35.6	27.7	0.0	70.5	38.3	19.7	2.6	17.6	7.9	69.5	328.5
56	72.0	41.5	18.6	6.2	73.5	45.3	17.5	2.0	15.8	8.6	69.7	328.5
57	63.0	48.9	43.1	12.8	63.5	54.2	16.8	2.5	16.3	8.5	69.9	328.5
58	69.0	50.0	39.5	15.3	69.5	47.7	13.9	2.1	13.2	6.5	70.3	328.5
59	84.2	61.6	29.4	6.8	68.1	43.0	11.1	1.7	10.6	5.0	70.5	328.5
60	83.4	63.0	34.2	7.7	67.7	42.0	11.5	2.4	11.1	5.4	70.7	328.5
61	65.5	50.5	22.0	4.2	70.6	38.5	11.5	2.4	11.0	5.1	70.9	328.5
62	58.6	44.8	33.4	9.3	60.9	54.0	12.8	2.5	12.0	5.5	71.1	328.5
63	62.6	52.3	35.2	8.8	61.4	48.9	12.9	1.6	12.7	6.3	71.3	328.5
64	56.9	50.3	30.0	8.2	63.0	68.0	12.9	1.6	12.7	6.3	71.5	328.5
65	58.0	53.6	31.0	8.4	62.5	53.5	13.4	2.5	11.5	5.9	71.7	328.5
66	68.2	62.2	29.8	7.1	60.5	51.5	15.3	1.1	12.8	6.1	72.0	328.5
67	76.9	71.6	29.3	4.8	65.8	45.0	12.2	1.0	11.2	6.7	72.2	328.5
68	84.8	79.1	22.5	2.7	60.8	58.0	11.6	0.4	11.1	4.6	72.5	328.5
69	86.9	79.7	20.8	2.4	56.7	53.0	12.1	0.6	11.5	3.6	72.8	328.5
70	97.4	88.7	21.4	2.2	52.5	51.0	11.9	0.5	11.3	3.8	72.8	328.5
71	105.0	97.3	29.6	2.0	43.6	47.0	10.6	0.6	10.0	4.0	72.8	328.5
72	108.8	100.9	22.5	1.2	40.3	30.5	10.0	0.7	9.5	3.0	72.8	328.5
73	130.0	114.3	32.8	1.5	40.4	28.7	11.3	0.9	11.0	2.5	72.8	328.5
74	131.2	114.0	33.2	3.0	45.4	23.0	11.4	0.7	10.8	3.0	72.8	328.5
75	131.0	119.1	26.2	3.9	38.3	27.2	11.3	0.6	10.7	2.5	72.8	328.5
76	144.6	133.2	24.6	2.5	42.3	33.8	11.5	0.7	10.9	3.0	72.8	328.5
77	159.2	148.1	23.0	3.2	35.1	36.4	12.7	0.7	11.8	3.7	72.8	328.5
78	151.3	146.5	18.8	1.8	28.4	39.0	12.1	0.6	11.6	3.0	72.8	328.5
79	167.0	161.0	22.2	1.4	32.9	43.0	9.9	1.0	9.1	2.2	72.8	328.5
80	175.4	170.9	27.3	2.7	33.0	26.7	10.0	2.0	9.3	1.9	72.8	328.5
81	171.1	167.1	31.9	2.5	14.2	16.4	8.9	2.1	8.5	1.8	72.8	328.5

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

PHELPS COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	58.5	0.2	19.8	0.0	59.9	35.1	3.9	1.1	1.6	0.0	72.0	351.6
41	77.7	0.1	13.9	0.0	79.4	36.8	3.0	2.9	1.7	0.0	72.1	351.6
42	84.0	0.1	9.3	0.0	97.6	29.6	3.1	2.1	1.9	0.0	72.1	351.6
43	109.2	0.1	7.8	0.0	105.4	0.9	2.9	2.6	1.7	0.0	72.1	351.6
44	134.6	0.1	9.3	0.0	57.5	2.9	5.0	2.7	2.1	0.0	72.1	351.6
45	118.5	0.7	7.5	0.0	93.6	3.5	3.9	2.8	2.5	0.0	72.2	351.6
46	111.5	1.1	6.4	0.0	102.1	7.1	6.8	1.9	4.2	0.0	72.2	351.6
47	113.9	2.1	6.0	0.0	93.8	6.3	5.9	2.1	4.1	0.0	72.2	351.6
48	95.0	33.3	6.2	0.0	96.2	11.4	6.4	2.3	5.7	3.4	72.2	351.6
49	93.3	35.3	5.6	0.0	88.0	24.5	9.6	2.7	7.3	4.6	72.3	351.6
50	87.3	36.3	8.4	0.0	98.1	28.3	11.0	3.0	8.9	5.1	72.3	351.6
51	95.8	39.8	6.0	0.0	92.5	29.8	11.8	2.8	9.9	5.9	72.3	351.6
52	96.3	39.6	3.3	0.0	96.7	33.2	13.9	2.8	11.9	7.1	72.3	351.6
53	102.6	41.4	5.6	0.0	80.3	35.8	15.5	2.9	13.7	8.9	72.4	351.6
54	93.2	45.1	14.4	0.0	77.0	43.8	18.9	2.7	17.4	11.1	72.4	351.6
55	80.3	47.6	17.2	0.0	66.0	24.5	19.7	2.7	17.9	11.5	72.4	351.6
56	73.1	45.5	17.1	5.1	62.0	46.4	19.7	1.2	17.8	13.0	72.4	351.6
57	79.0	61.1	33.4	7.1	56.8	52.1	18.4	1.5	17.5	11.8	72.5	351.6
58	90.4	62.0	29.3	10.1	61.0	50.3	15.3	1.8	14.1	8.4	72.5	351.6
59	101.8	72.5	25.4	7.0	57.9	44.8	12.6	1.1	11.9	7.9	72.5	351.6
60	95.9	72.6	30.1	6.9	56.3	44.0	12.9	2.2	11.7	7.3	72.5	351.6
61	86.4	69.8	22.0	5.6	56.4	47.0	12.6	1.7	11.7	7.7	72.6	351.6
62	76.2	59.6	32.2	10.9	52.3	51.3	16.3	1.8	15.4	9.8	72.6	351.6
63	77.7	65.8	31.3	10.1	48.7	50.6	15.3	1.0	14.5	9.8	72.6	351.6
64	76.8	68.7	33.9	12.9	51.2	59.5	19.0	0.9	18.4	10.3	72.6	351.6
65	69.9	63.6	34.9	13.1	47.4	57.0	13.9	1.3	12.7	7.6	72.6	351.6
66	88.2	81.7	27.9	8.7	44.5	57.5	16.0	0.9	14.7	9.6	72.6	351.6
67	85.1	79.2	26.4	10.6	47.9	48.0	15.4	1.3	14.1	9.2	72.7	351.6
68	94.2	87.6	20.7	4.6	42.8	53.0	16.4	0.8	15.4	9.0	72.7	351.6
69	95.6	87.2	15.3	2.5	41.0	52.0	13.6	0.7	12.5	7.5	72.7	351.6
70	101.5	91.2	12.6	1.2	37.8	48.0	15.5	0.7	14.4	8.9	72.7	351.6
71	128.7	118.4	19.9	1.7	28.3	45.0	13.3	0.9	12.5	8.3	72.7	351.6
72	128.1	117.8	19.9	1.1	25.3	38.3	12.3	0.8	11.7	7.2	72.7	351.6
73	140.4	126.2	25.3	2.4	25.6	26.7	13.3	0.9	12.5	5.9	72.7	351.6
74	155.1	135.4	22.1	2.0	25.6	22.0	14.4	0.7	13.8	5.9	72.7	351.6
75	157.7	143.1	17.3	2.5	18.2	22.7	14.0	0.7	13.0	5.9	72.7	351.6
76	158.8	150.7	25.0	2.3	18.4	24.8	12.7	0.7	11.4	4.6	72.7	351.6
77	181.8	173.7	21.8	4.3	19.7	30.9	14.0	0.7	12.5	6.2	72.7	351.6
78	174.1	171.5	14.2	2.0	15.3	37.0	12.0	0.9	10.5	4.3	72.7	351.6
79	192.2	189.6	16.2	2.4	14.7	43.1	11.2	0.8	10.4	5.2	72.7	351.6
80	204.0	201.9	19.8	3.7	15.4	13.1	11.0	1.0	10.4	4.8	72.7	351.6
81	203.8	201.9	23.7	4.6	14.2	12.1	10.1	1.9	9.6	4.2	72.7	351.6

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

RED WILLOW COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	68.4	3.7	35.8	0.0	61.3	45.9	3.0	0	2.7	1.0	166.7	460.7
41	71.2	4.3	26.5	0.0	90.5	45.9	1.2	0	2.4	1.0	179.3	460.7
42	82.0	3.2	15.2	0.0	84.3	30.5	0.9	0	3.0	1.0	179.3	460.7
43	90.4	4.0	13.9	0.0	97.3	10.8	0.9	0	8.0	0.8	179.3	460.7
44	80.0	4.3	15.8	0.0	76.4	24.0	2.5	0	3.4	0.8	179.3	460.7
45	80.1	4.5	14.1	0.0	90.4	40.4	3.1	0	8.7	0.8	179.3	460.7
46	61.7	3.6	12.8	0.0	107.2	55.4	2.4	0	4.0	0.8	179.3	460.7
47	58.8	4.0	12.5	0.0	103.8	60.6	2.8	0	4.4	0.6	179.3	460.7
48	50.4	3.6	14.2	0.0	102.3	64.7	2.8	0	4.1	0.4	179.3	460.7
49	49.3	3.8	12.8	0.0	94.1	62.0	4.2	0	5.0	0.6	179.3	460.7
50	52.1	3.5	14.5	0.0	93.3	72.4	4.0	0	5.9	1.0	179.3	460.7
51	54.7	4.8	13.8	0.0	80.6	73.2	3.3	0	8.5	0.6	179.3	460.7
52	54.2	4.5	10.8	0.0	94.0	70.8	8.3	0	9.2	0.6	179.3	460.7
53	59.5	4.0	17.3	0.0	74.5	77.0	2.1	0	10.5	1.4	179.3	460.7
54	59.0	4.6	21.2	0.0	66.1	79.0	6.6	0	12.9	1.5	179.3	460.7
55	31.7	7.2	18.6	0.0	72.0	77.5	3.5	0	12.0	2.1	179.3	460.7
56	37.1	8.8	25.7	0.4	72.4	87.2	0.8	0	10.8	3.2	179.3	460.7
57	51.6	10.5	30.3	0.4	65.9	83.5	0.8	0	11.4	2.5	179.3	460.7
58	53.9	10.9	22.6	0.5	77.5	79.1	0.8	0	9.9	1.2	179.3	460.7
59	53.4	13.7	31.2	1.0	61.6	79.1	0.9	0	7.4	1.5	179.3	460.7
60	41.9	14.3	37.7	1.5	74.3	76.0	0.9	0	6.9	1.2	179.3	460.7
61	45.7	13.0	24.1	2.7	74.4	77.9	0.7	0	6.7	1.4	179.3	460.7
62	34.7	15.8	44.7	2.8	63.2	82.2	3.5	0	6.8	1.0	179.3	460.7
63	30.9	18.5	48.7	3.6	61.3	82.2	3.5	0	6.2	1.5	179.3	460.7
64	26.2	16.8	49.1	6.6	65.1	81.2	3.5	0	6.6	1.8	179.3	460.7
65	21.6	16.0	43.6	7.9	63.3	78.0	3.5	0	7.2	2.3	179.3	460.7
66	27.5	20.9	41.2	3.8	59.5	83.0	3.5	0	7.5	2.2	179.3	460.7
67	36.9	24.4	33.4	2.7	70.8	82.5	0.5	0	7.5	2.7	179.3	460.7
68	32.4	25.9	30.7	1.8	67.2	87.0	3.9	0	6.8	2.8	179.3	460.7
69	33.6	27.9	28.4	1.3	63.6	86.0	6.4	0	7.5	2.6	179.3	460.7
70	34.5	27.9	32.5	1.8	58.3	82.0	6.4	0	7.9	3.0	179.3	460.7
71	44.3	37.5	37.3	1.4	57.9	86.0	5.5	0	7.0	2.7	179.3	460.7
72	41.8	33.8	26.1	1.3	62.8	68.0	2.3	0	6.9	3.1	179.3	460.7
73	43.9	38.6	28.3	0.8	76.9	68.2	4.1	0	7.0	2.6	179.3	460.7
74	50.9	45.5	26.6	0.9	74.9	70.5	2.7	0	7.0	2.6	179.3	460.7
75	49.2	44.3	21.4	1.2	81.1	72.1	3.0	0	7.4	2.9	179.3	460.7
76	51.5	45.3	17.3	0.9	80.2	77.3	3.0	0	8.9	2.9	179.3	460.7
77	53.2	47.4	18.1	1.1	84.9	69.2	2.5	0	10.2	2.5	179.3	460.7
78	58.2	50.5	17.3	1.0	75.4	69.2	2.5	0	9.0	2.5	179.3	460.7
79	53.4	46.9	29.4	2.9	55.4	97.8	2.6	0	11.5	4.1	186.7	460.7
80	57.6	46.6	19.4	2.8	80.1	75.8	2.6	0	13.5	3.6	186.7	460.7
81	50.5	45.2	31.4	5.7	76.1	75.9	1.7	0	13.5	3.5	186.7	460.7

Table 12.--Agricultural land use in and near the study area, 1940-81--Continued

WEBSTER COUNTY

Year	Row crop	Irrigated row crop	Sorghum	Irrigated sorghum	Small grain	Fallow	Tame hay	Wild hay	Alfalfa	Irrigated alfalfa	Range	Land area[1]
40	37.7	0.0	39.2	0.0	61.4	23.4	2.8	0.5	0.3	0.0	105.3	368.9
41	61.8	0.0	26.8	0.0	71.8	21.8	2.6	2.2	0.6	0.0	106.6	368.9
42	77.4	0.0	14.6	0.0	85.1	15.9	3.5	2.3	1.3	0.0	108.0	368.9
43	100.6	0.0	16.1	0.0	80.9	2.2	5.0	2.9	1.5	0.0	109.3	368.9
44	113.3	0.0	25.3	0.0	28.3	8.5	11.6	4.5	2.2	0.0	110.7	368.9
45	100.6	0.0	19.4	0.0	66.1	7.2	7.0	4.6	3.1	0.0	112.0	368.9
46	96.0	0.0	17.1	0.0	60.5	10.2	11.4	4.9	3.8	0.0	113.3	368.9
47	92.6	0.0	14.2	0.0	68.6	11.7	7.3	4.8	4.8	0.0	114.7	368.9
48	87.9	0.9	17.9	0.0	37.7	16.5	8.9	5.5	6.6	0.1	116.0	368.9
49	84.2	0.7	18.2	0.0	60.8	23.5	12.9	6.3	9.7	0.1	117.4	368.9
50	78.3	0.9	19.6	0.0	67.7	22.6	13.7	6.6	10.8	0.1	118.7	368.9
51	75.9	1.2	15.7	0.0	61.6	20.5	14.4	6.0	13.3	0.1	120.0	368.9
52	77.5	1.4	13.3	0.0	69.3	22.7	17.9	8.4	15.9	0.1	121.4	368.9
53	78.7	1.4	20.4	0.0	51.2	25.8	20.9	6.7	17.9	0.3	122.7	368.9
54	63.7	2.0	34.1	0.0	52.7	29.2	25.4	7.4	23.6	0.2	124.1	368.9
55	33.7	3.1	38.9	0.0	40.7	24.5	24.1	6.1	22.2	0.5	125.4	368.9
56	36.4	4.7	34.1	0.7	42.8	30.5	19.3	5.8	17.3	0.6	126.7	368.9
57	26.9	5.9	55.2	1.3	35.3	43.0	19.2	7.6	17.6	0.6	128.1	368.9
58	31.0	7.0	44.8	3.0	48.2	41.1	18.0	7.9	16.6	0.8	129.4	368.9
59	34.5	8.6	47.1	0.9	46.5	32.5	15.7	6.1	14.6	0.5	130.8	368.9
60	28.8	8.0	53.3	1.6	41.1	31.0	17.2	8.6	16.1	0.9	132.1	368.9
61	22.1	7.0	39.0	1.8	47.2	34.3	17.3	8.0	16.3	1.0	133.4	368.9
62	18.2	5.4	45.1	1.9	41.4	37.9	20.1	7.8	18.7	0.7	134.8	368.9
63	18.9	7.2	51.0	2.9	37.6	38.2	18.9	5.6	17.8	1.1	136.1	368.9
64	15.6	7.5	47.0	2.7	36.8	37.5	17.5	7.1	15.2	0.9	137.5	368.9
65	12.3	6.4	42.4	2.8	42.6	36.8	16.7	6.6	15.6	0.5	138.8	368.9
66	13.9	8.5	42.3	2.6	35.8	36.3	15.8	6.4	13.7	0.5	140.1	368.9
67	17.8	10.3	45.5	2.4	42.9	30.5	15.9	7.1	13.5	0.8	141.5	368.9
68	18.4	10.7	37.5	1.6	38.3	37.0	15.1	6.5	12.7	0.6	142.8	368.9
69	22.5	13.2	36.4	1.8	36.6	37.0	16.4	6.8	13.8	0.6	145.5	368.9
70	23.5	14.2	37.4	1.8	35.2	36.0	14.8	6.8	12.7	0.7	145.5	368.9
71	24.1	15.9	47.3	2.3	33.0	39.0	14.1	8.0	12.0	0.6	145.5	368.9
72	23.5	14.9	36.9	1.5	31.1	38.1	13.5	7.3	11.1	0.6	145.5	368.9
73	28.1	16.1	48.7	2.3	37.1	27.8	15.7	8.0	13.2	0.7	145.5	368.9
74	26.9	15.6	43.6	2.9	42.6	25.0	12.9	8.7	10.1	0.8	145.5	368.9
75	30.7	19.6	40.5	3.6	40.3	24.4	14.2	10.5	10.0	1.0	145.5	368.9
76	29.5	23.1	49.1	3.4	37.3	27.7	13.0	10.0	9.4	0.9	145.5	368.9
77	34.6	28.2	45.2	3.9	47.0	31.4	13.7	9.1	10.1	0.8	145.5	368.9
78	33.9	30.5	42.7	3.5	41.0	35.0	13.3	8.5	9.7	1.3	145.5	368.9
79	35.9	32.1	41.1	2.7	40.1	38.7	13.6	10.4	11.2	1.7	145.5	368.9
80	36.3	33.9	49.0	3.8	47.4	26.4	13.9	10.1	11.0	2.2	145.5	368.9
81	35.8	33.3	47.7	5.1	52.7	26.4	11.8	12.2	9.3	2.0	145.5	368.9

[1] Source: Nebraska Conservation Needs Committee, 1969.

Table 13.--Water-level measurements at water-use sites in the study area

Water-use site	Well number	Land surface datum (feet)	Water-level altitude, in feet											
			Spring 1981		Fall 1981		Spring 1982		Fall 1982		Spring 1983		Fall 1983	
			Date	Altitude	Date	Altitude	Date	Altitude	Date	Altitude	Date	Altitude	Date	Altitude
1	4N-11W-1ABBB	1,928	05-12	1845.1	10-22	1849.3	03-25	1851.7	10-27	1851.6	03-24	1851.5	10-21	1851.4
2	5N-11W-34DO	1,943	05-12	1856.6	10-22	1856.6	03-25	1856.7	10-27	1856.6	03-24	1857.6	10-21	1856.8
1/3	5N-10W-32CBDD	1,951												
4	8N-13W-36BO	2,085	05-15	2012.6	10-19	2011.1	03-23	2012.4	10-25	2011.7	03-21	2012.6	10-18	2012.6
5	2N-16W-10CABB	2,142	05-13	1966.4	10-22	1966.4	03-25	1967.0	10-27	1966.8	03-23	1967.1	10-21	1966.3
6	2N-16W-15BABA	2,118	05-13	1967.5	10-22	1968.1	03-25	1967.5	10-27	1967.7	03-23	1968.1	10-21	1966.9
7	4N-16W-30BO	2,230	05-04	2043.9	10-22	2043.0	03-28	2043.9	10-26	2043.0	03-23	2043.9	10-21	2042.8
8	8N-22W-31DBDA	2,657	05-13	2471.4	10-20	2476.1	03-23	2479.6	10-25	2478.5	03-21	2480.7	10-18	2481.7
9	7N-23W-19CADD	2,590	05-05	2398.2	10-20	2397.9	03-23	2398.8	10-25	2398.5	03-21	2399.1	10-18	2399.7
10	5N-21W-35CDCD	2,300	05-15	2196.4	10-08	2195.4	03-23	2196.9	10-25	2195.2	03-21	2196.0	10-18	2195.3
11	4N-16W-25DDBB	2,215	05-04	2007.2	10-22	2007.3	03-25	2008.7	10-27	2008.0	03-23	2008.5	10-21	2007.8
12	1N-21W-9ABBB	2,065	05-07	2056.0	10-20	2051.3	03-24	2057.9	10-26	2051.5	03-22	2055.9	10-19	2050.6
13	3N-16W-24BBDC	2,192	05-13	1980.9	10-22	1979.8	03-23	1981.5	2/					
14	3N-16W-9CCD	2,217												
15	3N-15W-8DDDA	2,162	05-06	1974.9	10-22	1974.1	03-25	1975.2	10-27	1974.6	03-23	1975.4	10-21	1974.6
16	5N-18W-31CBBA	2,342	3/				03-31	2143.7	10-26	2142.4	03-22	2143.4	10-19	2142.2
17	3N-19W-17ABAB	2,211	3/				03-31	2081.2	10-26	2079.7	03-22	2082.2	10-19	2081.1
18	3N-19W-10CBAA	2,210												
19	4N-19W-25CO	2,255	3/				03-31	2103.9	10-26	2102.1	03-22	2104.2	10-19	2099.9
20	3N-19W-21AAAA	2,161	4/						10-26	2065.2	03-22	2066.4	10-19	2065.6

1/ Water levels are not measurable.
2/ Water-use site discontinued.
3/ Water-use site added in 1982.
4/ Water-use site added in 1982 and new well drilled in spring of 1982.

The predominant soil associations and the percent of the various soil series within each soil association are listed in table 14 for 12 of the 18 water-use sites. Only sites with at least one complete season of pumpage and precipitation data were selected for this table. All soils information was obtained from U.S. Department of Agriculture county soil surveys.

Precipitation and pumpage data for all 18 water-use sites are listed in table 15. Precipitation was recorded in monthly amounts and totaled for the April through October period. Pumpage was converted to acre-inches applied in monthly amounts and totaled for the period. The first and last dates of irrigation application, when available, are shown.

Table 14.--Soil association and soil series data for water-use sites with complete precipitation and pumpage records

Water use site	Predominant soil association	Soil series and percentage
4	Kenesaw-Hersh	Kenesaw, 34.6; Hersh, 22.6 Gates-Kenesaw, 22.4; Valentine, 14.2; Gates, 4.5; Rusco, 1.7
5	Holdrege-Coly-Nuckolls	Holdrege, 99.3; Coly-Uly, 0.7
6	Holdrege-Coly-Nuckolls	Holdrege, 100
7	Holdrege	Holdrege, 91.6; Coly-Uly, 6.6; Fillmore, 1.8
8	Holdrege-Hall	Holdrege, 85.2; Hall, 13.6; Coly-Hobbs, 1.2
9	Holdrege-Uly	Holdrege-Uly, 100
10	Holdrege-Coly-Uly	Holdrege, 90.8; Holdrege-Uly, 9.2
11	Holdrege	Holdrege, 73.6; Hall, 26.4
13	Holdrege	Holdrege, 67.9; Detroit, 29.9; Fillmore, 2.2
15	Holdrege	Holdrege, 95.2; Butler, 3.3; Coly-Uly, 1.5
16	Holdrege-Coly-Uly	Holdrege, 100
18	Holdrege-Coly-Uly	Holdrege, 95.5; Uly-Coly, 4.5

Source: U.S. Department of Agriculture, County Soil Surveys.

Table 15.--Precipitation and pumpage data, in inches, for water-use sites in the study area

[Blanks indicate that data were not available or that pumpage did not occur]

Water use site	Year	Irrigation type	Crop	Acreage	April		May		June		July		August		September		October		Start pumping	End pumping	Total	
					Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.			Prec.	Pump.
1	1981	Gated	Corn	110					1.70		5.00		7.25								13.95	
	1982	pipe	Corn	110	3.58		10.53		5.99		3.55		.40								24.05	
	1983		Corn	110					5.30		2.25		2.50		7.10						17.15	
2	1981	Gated	Corn	65					1.70		4.85		7.70								14.25	
	1982	pipe	Corn	65	3.58		8.83		5.24		4.10		.40								22.15	
	1983		Corn	65					5.13		1.95		3.05		7.10						17.23	
3	1981	Pivot	Corn	120					1.70		7.25		7.10								16.05	
	1982		Corn	120	3.58		10.51		5.14		3.25		.40								22.88	
	1983		Corn	120					5.13		1.75		2.50		7.10						16.48	
4	1981	Pivot	Corn	133			4.50		.40	2.66	3.60	2.00	5.20	0.41					06-17	08-27	13.70	5.07
	1982		Corn	133			8.55		2.35		2.45		2.30		1.10						16.75 1/	9.90
5	1981	Gated	Corn	73			9.49		1.82	2.58	6.04	5.46	5.83	4.42	3.14	1.96			06-29	09-03	26.32	14.42
	1982	pipe	Corn	73	1.75		8.03		4.39		1.80	7.27	2.07	7.40	1.26	4.15	1.57		07-14	09-02	20.87	18.82
	1983		Corn	73	.50		4.70		3.91		.63	14.09	1.85	14.89	7.15	3.02	.56		07-03	09-04	19.30	32.00
6	1981	Gated	Corn	70			9.49		1.82	3.04	6.04	5.46	5.83	4.67	3.14	1.41			06-29	09-03	26.32	14.58
	1982	pipe	Corn	70	1.75		8.03		4.39		1.80	7.27	2.07	7.64	1.26	4.26	1.57		07-14	09-02	20.87	19.17
	1983		Corn	70	1.09		4.70		3.91		.63	13.95	1.85	15.29	7.15	1.15	.56		07-04	09-02	19.89	30.39
7	1981	Pivot	Corn	130			5.73		1.49	2.47	5.85	2.61	5.76	1.37	2.46	.10	1.60				22.89	6.55
	1982		Corn	130	2.40		8.00		5.00		3.09	4.01	4.84	1.62	.90	1.65					24.23	7.28
	1983		PIK	130	1.20		5.62		3.96		.54		1.72		6.25						19.29	
8	1981	Gated	Corn	200			5.17		3.00		5.90	3.46	.89	2.97	1.25		.57		07-07	08-27	16.78	6.43
	1982	pipe	Corn	200	2.55		6.86		2.95		1.37	2.41	3.57 2/	.69	1.57		2.81		07-12	08-29	21.68 2/	3.10
	1983		Corn	200	1.91		5.03		2.28		1.28	7.12	2.74	10.63	1.54	2.53			07-09	09-07	14.78	20.28

Table 15.--Precipitation and pumpage data for water-use sites in the study area--Continued

Water use site	Year	Irrigation type	Crop	Acreage	April		May		June		July		August		September		October		Start pumping	End pumping	Total	
					Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.	Prec.	Pump.			Prec.	Pump.
9	1981	Gated	Milo	92			5.80		1.75		5.44	1.24	.50	1.31	.44	.78	.46				14.39	3.33
	1982	pipe	Milo	92	1.70		5.11		4.76		1.65	3.41	4.76	3.75	1.65		3.35				22.98	7.16
	1983		Milo	92	1.00		4.95		5.72		.66	8.17	3.25	7.79	1.88	1.78			07-09	09-06	17.46	17.74
10	1981	Gated	Milo	100	3.50		3.11		2.01		9.83		3.16		1.89		.36				23.86	(3)
	1982	pipe	Milo	100	1.65		6.10		3.51		1.60	.77	2.24	1.71	1.90	.97	1.45		07-28	09-11	18.45	3.45
	1983		PIK	100	2.69		3.58		5.68		1.13		1.60								14.68	(4)
11	1981	Pivot	Milo	125			7.01		1.60	1.74	4.58	1.10									13.19	2.84
	1982		Milo	125	2.12		6.38		3.61		1.38		2.50	3.14							15.99	3.14
12	1981	Pivot	Corn	100	2.25		4.20		3.32		4.10		2.80		0.50		0.85				18.02	
	1982		Corn	100	1.65		6.95		3.67												2/ 12.27	
	1983		Corn	100					3.88		2.00		.89		2.40						2/ 9.17	
13	1981	Gated	Corn	100			8.40		1.94	9.84	5.45	2.96	2.25	4.32	1.90		.55		06-29	08-23	20.49	17.12
	1982	pipe	Corn	100	2.60		6.96		5.50		.85	6.81	4.66	3.16	2.15	1.25	1.40		07-17	09-08	24.12	11.22
14	1981	Gated pipe	Corn	120			5.15		1.85		6.75		4.15		4.50		.85				23.25	
15	1982	Gated	Milo	100					5.09		.61	6.04	3.47	3.10	1.77				07-19	08-08	10.94	9.14
16	1982	Gated	Corn	110					4.88		.70	8.88	3.68	4.81							9.26	13.69
	1983	pipe	Corn	110	1.58		3.75															
17	1982	Gated	Corn	125	1.50		5.57		4.13		1.04		2.13									
	1983	pipe	Corn	125	.35		5.60		2.74		.84											
18	1982	Pivot	Corn	125	1.60		5.90		3.25		1.55		1.90									

1 Total pumpage determined from flowmeter readings.
2 Incomplete pumpage data were provided.
3 Irrigation system was not used.
4 Farmer participated in Payment-in-Kind (PIK) program.

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