

STATE OF NEVADA

BIENNIAL REPORT

OF THE

STATE ENGINEER

For the Period
July 1, 1936, to June 30, 1938

ALFRED MERRITT SMITH
State Engineer of Nevada



CARSON CITY, NEVADA
STATE PRINTING OFFICE - - - JOE FARNSWORTH, SUPERINTENDENT
1938

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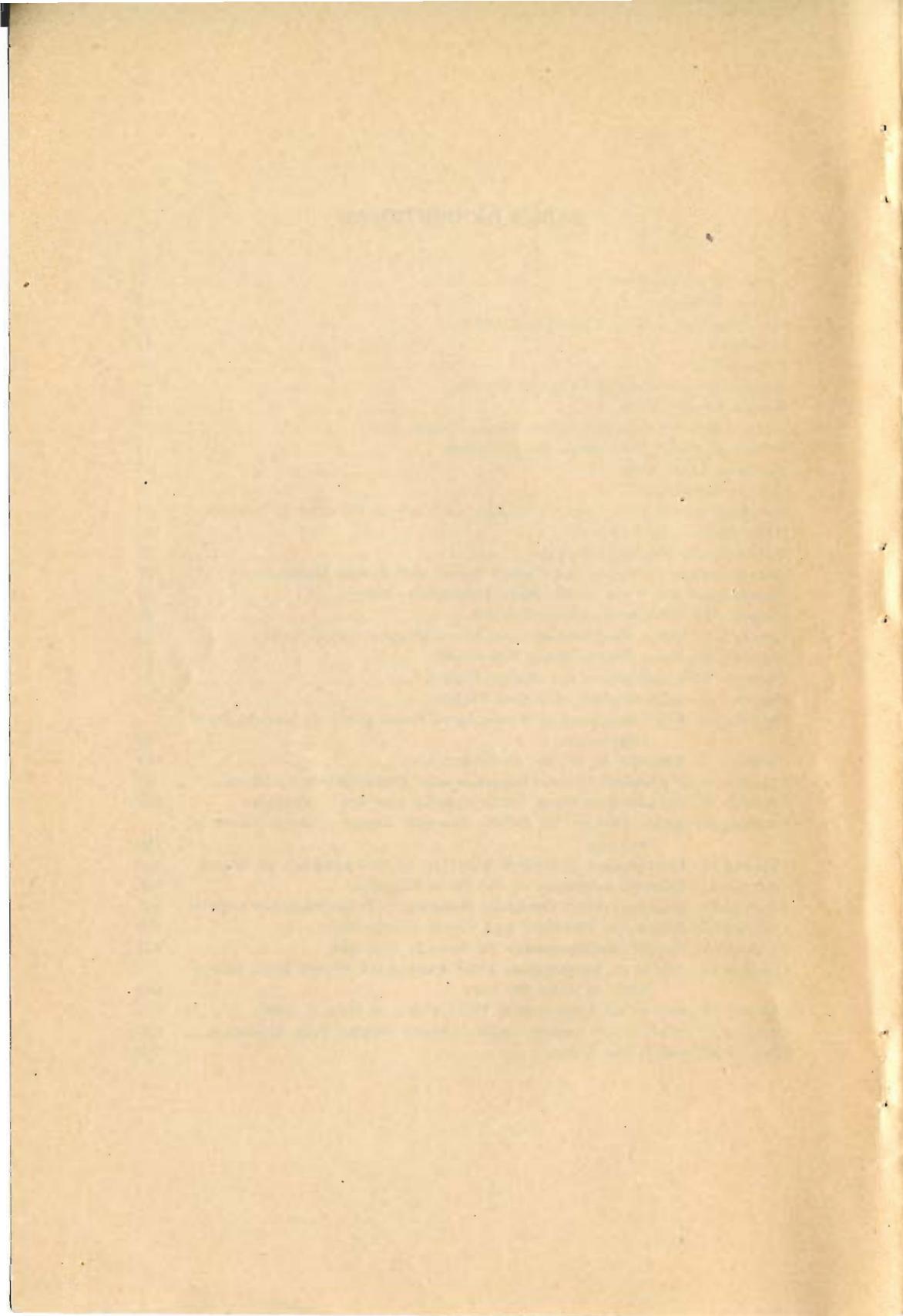


CARSON CITY, NEVADA
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LETTER OF TRANSMITTAL

STATE OF NEVADA
OFFICE OF STATE ENGINEER,
CARSON CITY, July 21, 1938.

*To His Excellency, HONORABLE RICHARD KIRMAN, SR., Governor of
Nevada, Carson City, Nevada.*

SIR: In compliance with the provisions of section 14, chapter 140, Nevada Statutes 1913, and section 1, chapter 171, Nevada Statutes 1931, I have the honor to transmit herewith the Biennial Report of the State Engineer for the period ending June 30, 1938.

Respectfully submitted,
ALFRED MERRITT SMITH,
State Engineer.

ACKNOWLEDGMENT

In submitting this report covering the second two years of work by my associates and myself in the department of the State Engineer, I wish especially to praise the splendid and unstinted service to the department and the State rendered by the staff. The preparation of this biennial report has proceeded at odd times—at intervals not too crowded with steadily increasing duties in the office. Each employee has submitted an outline of work performed in his own field. The work of all employees has had to be increased in order to take care of a greater volume of business, as may be shown by a comparison of this report with that of preceding years. The personnel and number of employees remains the same as it was two years ago.

Expenses have, by the care and vigilance of all, been kept within the State appropriation made for the department by the Legislature.

Special recognition is accorded Hugh A. Shamberger, Deputy State Engineer, who arranged and assembled the report, and wrote various parts thereof; and to H. W. Reppert, Assistant State Engineer, who checked the matter appearing herein, and who wrote the able chapter on the problems of water distribution and the complex litigation which has had its origin in the conflicting interests of two rival reservoir companies in the Lovelock District of the Humboldt River.

Acknowledgment and sincere thanks are extended to the following persons for the contribution of valuable data appearing under the given titles:

Cruz Venstrom, "Range Control Laws of Nevada."

H. W. Emery, "CCC Activities in the Truckee-Carson Irrigation District."

Edwin Marshall, "Flood Control in the Moapa Valley Area."

V. H. Bernard, "CCC Activities in the Walker River District."

F. M. Spencer, "The Truckee Storage Project."

H. P. Boardman, "Snow Surveys."

C. S. Hale, Construction Engineer, for photos and data on the Truckee Storage Projects.

A. B. Purton, District Engineer, Water Resources Branch, United States Geological Survey, "Stream Measurement Work."

S. R. Marean, Superintendent Humboldt River Project, for important miscellaneous data.

I wish here to repeat the statements made in my report of two years ago which was that the success and efficiency of the department are in no small measure due to the help of State officers in other departments. These officials, with whom we are in daily contact, and whose work is often related to our own, have, by full cooperation and helpful advice, greatly lightened and expedited our own tasks. Governor Richard Kirman, Attorney-General Gray Mashburn, and his able assistants Wm. T. Mathews and W. Howard Gray, have been, each of them, of so much assistance to me and my staff in dealing with many

difficult problems and situations that it is entirely beyond my ability to give them proper credit and thanks for what they have done.

I extend my thanks and appreciation to many county officers throughout our wide State. They were called upon many times in connection with our work. On every occasion they have rendered willing aid and the best of cooperation.

ALFRED MERRITT SMITH,
State Engineer.

STATE ENGINEERS SINCE CREATION OF OFFICE

A. E. CHANDLER.....	May 29, 1903, to May 1, 1905
HENRY THURTELL.....	May 1, 1905, to May 1, 1907
FRANK R. NICHOLAS.....	May 1, 1907, to March 3, 1910
EMMET D. BOYLE.....	March 8, 1910, to March 21, 1911
W. M. KEARNEY.....	March 21, 1911, to May 15, 1917
J. G. SCRUGHAM.....	May 16, 1917, to January 10, 1918
SEYMOUR CASE.....	January 25, 1918, to March 28, 1919
J. G. SCRUGHAM.....	March 28, 1919, to October 7, 1922
ROBERT A. ALLEN.....	October 7, 1922, to March 28, 1927
GEO. W. MALONE.....	March 29, 1927, to May 28, 1935
ALFRED MERRITT SMITH.....	May 28, 1935--

OFFICIAL ROSTER DEPARTMENT OF STATE ENGINEER

OFFICE PERSONNEL

Carson City, Nevada

July 1, 1936, to June 30, 1938

ALFRED MERRITT SMITH.....	State Engineer
H. W. REPERT.....	Assistant State Engineer
HUGH A. SHAMBERGER.....	Deputy State Engineer
F. N. DONDERO.....	Office Engineer
C. E. THIX.....	Chief Clerk
MARIE GRAHAM.....	Stenographer
RETA S. ARKELL.....	Secretary

WATER DISTRIBUTION PERSONNEL

Humboldt River, 1936

J. A. MILLAR, Supervising Water Commissioner.....	Entire River
JOHN RUNNER, Water Commissioner.....	Lovelock District
FRED BACKUS, Water Commissioner.....	Winnemucca District
JOHN BEATTY, Water Commissioner.....	North Fork District
MYRON R. CLARK, Water Commissioner.....	Battle Mountain District
GERALD TRES CARTES, Water Commissioner.....	Lamoille District
D. E. WINCHELL, Water Commissioner.....	Wells District
DONALD ODELL, Hydrographer.....	Midas
JACK ST. CLAIR, Hydrographer.....	Winnemucca

Humboldt River, 1937

J. A. MILLAR, Supervising Water Commissioner.....	Entire River
D. E. WINCHELL, Water Commissioner.....	Lovelock District
FRED BACKUS, Water Commissioner.....	Winnemucca District
JOHN ROBERTSON, Water Commissioner.....	North Fork District
MYRON R. CLARK, Water Commissioner.....	Battle Mountain District
ORVIS STOCK, Water Commissioner.....	Lamoille District
I. E. GRISWOLD, Water Commissioner.....	Star Valley and Wells District
GERALD TRES CARTES, Hydrographer.....	Elko
JACK ST. CLAIR, Hydrographer.....	Lovelock

Humboldt River, 1938

J. A. MILLAR, Supervising Water Commissioner.....	Entire River
D. E. WINCHELL, Water Commissioner.....	Lovelock District
F. E. BACKUS, Water Commissioner.....	Winnemucca District
JOHN ROBERTSON, Water Commissioner.....	North Fork District
M. R. CLARK, Water Commissioner.....	Battle Mountain District
G. R. TRES CARTES, Water Commissioner.....	Lamoille District
ORVIS STOCK, Water Commissioner.....	Wells District
JACK ST. CLAIR, Hydrographer.....	Elko
DONALD ODELL, Hydrographer.....	Willow Creek

Little Humboldt River, 1936-1937

MARSHALL WOODWARD, Water Commissioner.....	Entire District
--	-----------------

Little Humboldt River, 1938

LAWRENCE MATHEWS, Water Commissioner, March 15, 1938, to July 1, 1938.....Entire District

F. E. BACKUS, Water Commissioner, July 1, 1938.....Entire District

White River, 1936

M. E. HARRIS, Water Commissioner.....Entire District

White River, 1937

C. H. WAINWRIGHT, Water Commissioner.....Entire District
(No Water Commissioner 1938)

Muddy River, 1936-1937

RAYMOND MILLS,* Water Commissioner.....Entire District

Muddy River, 1938

DAVE MARSHALL, Water Commissioner.....Entire District

Currant Creek and Duckwater Creek, 1936

M. E. HARRIS, Water Commissioner.....Entire District

Currant Creek and Duckwater Creek, 1937-1938

C. H. WAINWRIGHT, Water Commissioner.....Entire District
(No water distribution for Currant Creek, 1936-1938)

Pahranagat Lake, 1936

GERALD TRES CARTES, Water Commissioner.....Entire District

Pahranagat Lake, 1937

ORVIS STOCK, Water Commissioner.....Entire District
(July 6 to September 3; November 16 to December 10)

*Resigned December 7, 1937

BIENNIAL REPORT OF STATE ENGINEER, 1936-1938

CHAPTER I

Introductory and General

The office of the State Engineer was created by an Act of the twenty-first session of the State Legislature, and approved by Governor John Sparks on February 16, 1903. The State Engineer is appointed by the Governor for a term of four years from and after his appointment, or until his successor shall have been appointed. The law requires that he shall have had training in hydraulic and general engineering, and such practical skill and experience as shall fit him for the position. The office of the State Engineer is, as required by law, located at the State Capital, and at the present time occupies the second floor of the Heroes Memorial Building above the Nevada State Highway offices.

The office of the State Engineer was created primarily for the purpose of providing a statutory method for the determination and regulation of existing water rights. In 1905 the Legislature provided a statutory method by which future water rights could be acquired and perfected by application to the State Engineer for permission to appropriate and apply water to beneficial use. In the Biennial Report of the State Engineer for the period of 1934-1936, under chapters 4 and 5, and also in the pamphlet containing the water laws of this State compiled by this office in 1937, will be found brief summaries of the statutory procedure of appropriating water and adjudication of old water rights that became vested prior to 1905.

The history of the development of our present water law is very interesting and dates back to the year 1866. It is frequently necessary to explain the reason why certain laws were enacted, and why the repeal of other laws was considered necessary. We have prepared a chronological résumé of all the laws affecting water resources enacted by successive Nevada Legislatures since 1866, which is given in Chapter 6.

This Biennial Report is prepared by the State Engineer for the years 1936-1938, to give an accounting to the Governor, the State Legislature and the taxpayers of his stewardship of the department; to benefit the water users or any persons interested in water rights by presenting in a condensed and concise form all data that have been recorded in connection with water rights during the two-year period; to familiarize water users and the public with the various duties and activities of the State Engineer's office; and to perpetuate for future reference and historical use a résumé of numerous activities of the department that may not be permanently recorded in any other manner.

The general work of the office includes the filing of applications to appropriate water, the field investigations of these applications and the holding of hearings where the issues are somewhat involved; the adjudication of the water rights on the stream systems of the State; the distribution of water on streams that have been adjudicated under

MISCELLANEOUS PUBLICATIONS

Colorado River Commission Report, January 1, 1927, to September 1, 1935.

Senate Document No. 186, 70th Congress, 2d Session, 1929.*

Cippoletti Weir Discharge Tables.

Colorado River Compact.*

Humboldt River Distribution, 1930.*

Nevada Drainage District Act.*

Nevada Improvement District Act.*

Nevada Irrigation District Act.

Public Domain Administration.

Regulations for Preparation of Maps.

Stock Watering Act.*

Synopsis of Water Law, No. 7.*

Water Laws of Nevada.

Humboldt River Distribution Report, 1927-1931.

Humboldt River Distribution Report, 1932-1934.*

TOPOGRAPHIC INFORMATION

INFORMATION CONCERNING CERTAIN LAKES IN NEVADA

Name of Lake	Approx. length miles	Approx. width miles	Area sq. mi.	Greatest depth feet	County	Elevation above sea level
Lake Tahoe ¹	20	13	193	1650	Washoe, Ormsby and Douglas	6,229.10
Lahonton Reservoir ²	18	2	16	120	Churchill	4,164.00
Carson Sink	10	10	100	5	Churchill	3,894.00
Carson Lake	6	2	11	3	Churchill	3,909.00
Pyramid Lake	30	6 to 11	235		Washoe	3,783.00
Winnemucca Lake [†]	26	3 to 5.5			Washoe and Pershing	3,771.00
Walker Lake	25	1.5 to 7	120		Mineral	4,028.00
Ruby Lake	15	2 to 4	37		Elko and White Pine	5,800.00
Snow Water Lake.....	6	1.5 to 3.5	12		Elko	6,000.00
Rye Patch Reservoir ²	20	$\frac{3}{4}$ to 2 $\frac{1}{4}$	14	60	Pershing	4,123.00
Pitt-Taylor Reservoir						
No. 1	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{2}$	19	Pershing	4,158.00
Pitt-Taylor Reservoir						
No. 2	4	1 $\frac{1}{2}$	3 $\frac{1}{2}$	29	Pershing	4,153.00
Mead Lake ⁴	115	$\frac{1}{2}$ to 3	227	584	Clark	1,229.00
Wild Horse Reservoir	4	$\frac{1}{2}$ to 1	3 $\frac{1}{2}$	70	Elko	6,173.00
Pahranagat Lake	3	1			Lincoln	3,400.00
Franklin Lake	12	3	13		Elko	6,000.00
Topaz Reservoir	3	1	5	50	Douglas	4,390.00
Washoe Lake	6 $\frac{1}{2}$	1 $\frac{1}{2}$			Washoe	5,046.00

General Remarks

Carson Lake and Carson Sink are subject to great fluctuation in area, dependent upon the runoff conditions.

Walker Lake—Soundings as shown by the Naval Ammunition Depot Hydrographic Map of the south end of Walker Lake covering a distance of 4,000 feet easterly from the west shore and 30,000 feet northerly from the southerly shore, show a depth of 180 feet below the water surface of March 8, 1930. No other data is available at this time as to its maximum depth. The water surface of Walker Lake is gradually falling, as much of the water from Walker River, the main source of supply, is being stored for irrigation. In September 1934 the elevation was 4,028.9 feet above sea level.

*Supply exhausted.

†Practically dry.

¹Includes portion in California.

²Reservoir at maximum capacity.

³High water line of maximum storage—not possible until after unification in Lovelock Valley due to location of Pitt-Taylor Reservoirs.

⁴Includes portion in Arizona and Utah.

Lake Tahoe—The elevation of the bottom of the outlet of Lake Tahoe to the Truckee River is 6,223 feet. The maximum elevation is to be 6,229.10 feet under the provisions of an agreement made in 1935. Elevation July 1, 1938, 6,228.71 feet.

Ruby Lake—According to data submitted by B. G. McBride of Elko, Nevada, this lake contains very little water except during the very wet years.

Franklin and Snow Lakes—These lakes have water early in the spring but dry up practically every summer as much of the water supply is used for irrigation.

Washoe Lake—Normally there are two lakes in this valley, Little Washoe Lake and Big Washoe Lake, separated for a distance of about three miles. In 1938, due to heavy snowfall, these lakes joined, the maximum elevation reached being 5,028.45 feet, the elevation of the spillway.

INDIAN RESERVATIONS

Name of Reservation	County
Fort Mohave.....	Clark County
Moapa River.....	Clark County
Walker River.....	Churchill, Mineral, Lyon Counties
Goshute.....	60 miles south of Wendover in Juab County, Utah
Pyramid Lake.....	Washoe County
Piute and Shoshone.....	Humboldt County
McDermitt.....	Humboldt County
Duck Valley.....	Elko County

Total number of acres, 760,320.

POWER LINES FROM BOULDER DAM POWER HOUSE

Name	Voltage in kilovolts	Frequency
City of Los Angeles*	287	60
Metropolitan Water District.....	230	60
Southern California Edison Company.....	230	50
Nevada-California Electric Corporation.....	138	60
Lincoln County Power District†	69	60
Needles Gas and Electric Company.....	69	60
Southern Nevada Power Company.....	33	63
Boulder City.....	33	60
Citizens Utilities Company.....	69	60

ELEVATION AND LOCATION OF SOME OF THE MOST PROMINENT MOUNTAIN PEAKS IN NEVADA

Peak	Elevation	Range	County
Boundary.....	13,145	White Mountain.....	Esmeralda
Wheeler.....	13,058	Snake.....	White Pine
Charleston.....	11,910	Spring Mountain.....	Clark
Arc Dome.....	11,775	Toyabe.....	Nye
Bunker Hill.....	11,477	Toyabe.....	Lander
Mount Grant.....	11,303	Wassuk.....	Mineral
White Pine.....	11,277	White Pine Mountain.....	Nye
Hole in the Mountain.....	11,276	East Humboldt.....	Elko
Mount Wilson.....	11,073	Wilson Creek.....	Lincoln
Verdi.....	11,051	Ruby Mountain.....	Elko
Liberty.....	11,036	Ruby Mountain.....	Elko
Mt. Grafton.....	10,964	Schell Creek.....	White Pine
Smith.....	10,872	Ruby Mountain.....	Elko
Pearl.....	10,844	Ruby Mountain.....	Elko
Mt. Rose.....	10,800	Sierra Nevada.....	Washoe
Green Mountain.....	10,650	Ruby Mountain.....	Elko
Wildcat.....	10,534	Toquima.....	Nye
Cory.....	10,516	Wassuk.....	Mineral
Summit Mountain.....	10,466	Monitor.....	Eureka
Sherman.....	10,319	Ruby Mountain.....	White Pine
Mt. Callahan.....	10,203	Toyabe.....	Lander
Roberts Creek Mountain.....	10,125	Roberts Mountain.....	Eureka
Big Indian Mountain.....	10,110	Wassuk.....	Mineral
Monument.....	10,085	Sierra Nevada.....	Douglas

*Two lines.

†Constructed for 138 kilovolts.

ELEVATIONS AND LOCATIONS OF MOUNTAIN PEAKS—Continued.

Peak	Elevation	Range	County
Star	9,835	Humboldt	Pershing
Slide	9,720	Sierra Nevada	Washoe
Rose	9,700	Santa Rosa	Humboldt
Sheep	9,706	Sheep	Clark
Black Mountain	9,724	White Mountain	Esmeralda
Brawley	9,557	Aurora	Mineral
Kawich	9,500	Kawich	Nye
Spring	9,500	Santa Rosa	Humboldt
Duffer	9,500	Pine Forest	Humboldt
Sonoma	9,421	Somona	Humboldt
Oreana	9,380	Pine Nut	Lyon
Snow Valley	9,274	Sierra Nevada	Ormsby
Genoa	9,173	Sierra Nevada	Douglas
Desert Creek	9,020	Sweetwater	Lyon
Reveille	8,910	Reveille	Nye
Job	8,806	Stillwater	Churchill

LAND AREAS OF COUNTIES IN THE STATE OF NEVADA

(From Surveyor-General's Report, 1932)

County	Land area square miles	Land area acres	Water area square miles
Churchill.....	5,050	3,232,000	41
Clark.....	8,045	5,148,800	
Douglas.....	733	469,120	30
Elko.....	17,059	10,917,760	69
Esmeralda.....	3,413	2,184,320	
Eureka.....	4,157	2,660,480	
Humboldt.....	9,804	6,274,560	
Lander.....	5,721	3,661,440	
Lincoln.....	10,511	6,727,040	4
Lyon.....	2,009	1,285,760	
Mineral*.....	3,519	2,252,160	125
Nye.....	18,294	11,708,160	
Ormsby.....	156	99,840	12
Pershing.....	6,053	3,873,920	60
Storey.....	251	160,640	
Washoe.....	6,251	4,000,640	516
White Pine.....	8,795	5,628,800	12
Total.....	109,821	70,285,400	869
Total area of State, 110,690 square miles.			

SEGREGATION IN ACRES AS TO OWNERSHIP OF LANDS (Approximate)

Privately owned land.....	4,282,687	
Railroad land	4,060,057	
Total privately owned land.....		8,342,744
National forests	4,987,265	
Unappropriated public domain	50,912,407	
Indian reservations	760,320	
Miscellaneous Federal lands.....	5,711,317	
Total Federal lands	62,371,309	
Total grant lands	102,966	
Miscellaneous State land	24,581	
Total State lands		127,547
Total publicly owned lands.....		62,498,856
Total for State		70,841,600

*Approximately correct to agree with change in county lines of Lyon and Mineral Counties.

**TABLE OF IRRIGATED LANDS IN ACRES IN NEVADA
BY YEARS TO 1905**

Compiled from Records in State Engineer's Office and Estimates

Priority	Acres	Cumulative Total	Priority	Acres	Cumulative Total
1849.....	194	194	1878.....	18,900	308,183
1850.....	.....	194	1879.....	19,938	328,121
1851.....	.....	194	1880.....	27,137	355,258
1852.....	472	666	1881.....	10,678	365,936
1853.....	60	726	1882.....	7,463	373,399
1854.....	543	1,269	1883.....	17,654	391,053
1855.....	363	1,632	1884.....	6,819	397,871
1856.....	37	1,669	1885.....	15,150	413,021
1857.....	1,370	3,039	1886.....	18,555	431,576
1858.....	5,236	8,275	1887.....	24,531	456,107
1859.....	2,771	11,046	1888.....	19,103	475,210
1860.....	2,907	13,953	1889.....	6,746	481,956
1861.....	5,133	19,086	1890.....	21,178	503,135
1862.....	14,550	33,636	1891.....	4,129	507,264
1863.....	11,205	44,841	1892.....	5,286	512,550
1864.....	16,295	61,136	1893.....	7,104	519,655
1865.....	13,545	74,681	1894.....	8,707	528,361
1866.....	6,467	81,148	1895.....	11,452	539,813
1867.....	10,231	91,379	1896.....	3,377	543,691
1868.....	7,239	98,618	1897.....	9,856	553,546
1869.....	11,835	110,453	1898.....	6,179	559,725
1870.....	21,586	132,039	1899.....	5,379	565,104
1871.....	12,091	144,130	1900.....	18,650	583,754
1872.....	22,972	167,102	1901.....	5,069	588,823
1873.....	28,592	195,694	1902.....	50,432	639,255
1874.....	28,045	223,739	1903.....	4,328	643,584
1875.....	23,679	247,418	1904.....	9,467	653,051
1876.....	25,189	272,607	1905.....	10,958	664,009
1877.....	16,676	289,283			

MAJOR DAMS AND RESERVOIRS IN NEVADA

Following is a condensed statement giving salient data in connection with the major dams and reservoirs in this State, in order of:

1. Name.
2. Location
3. Area of reservoir in acres.
4. Capacity of reservoir in acre-feet.
5. Use.
6. Ownership.
7. Height of dam.
8. Length of dam.
9. Type of construction.
10. Date of completion.
11. Cost.
12. Source of water supply.

BIG FIVE RESERVOIR

Eight miles south of Lovelock; 531 acres; 4,800 acre-feet; irrigation; Lovelock Land & Development Company; Humboldt River.

PITT-TAYLOR RESERVOIR

Two miles north of Humboldt; No. 1, 2,320 acres; No. 2, 2,354 acres; No. 1, 20,200 acre-feet; No. 2, 29,570 acre-feet; irrigation; Humboldt-Lovelock Irrigation Light & Power Company; No. 1, 22 feet; No. 2, 35 feet (length not known); earth fill; 1914; \$268,182; Humboldt River.

WILLOW CREEK RESERVOIR

Section 29, T. 39 N., R. 48 E., M. D. B. & M.; 900 acres; 18,064 acre-feet; irrigation; Ellison Ranching Co.; 63 feet; 505 feet; rock fill; 1924; \$32,000; Willow Creek.

METROPOLIS RESERVOIR

Sec. 24, T. 39 N., R. 62 E., M. D. B. & M.; 1,900 acres; 30,000 acre-feet; irrigation; Metropolis Land Co.; height, length and type not known; completed 1912; Bishop Creek.

TOPAZ LAKE

Sec. 28, T. 10 N., R. 22 E., M. D. B. & M.; area not known; 50,000 acre-feet; irrigation; Walker River Irrigation District; natural lake fed by a 3 mile canal and tapped by a tunnel; completed 1922; \$424,500; West Walker River.

LAHONTAN DAM

Fifteen miles west of Fallon; 10,240 acres; 294,400 acre feet; irrigation and power; Truckee-Carson Irrigation District; 124 feet; 1,400 feet; earth fill; 1915; \$1,384,000; Carson and Truckee Rivers.

BOULDER DAM AND MEAD RESERVOIR

Boulder Canyon in Clark County; 146,500 acres; 30,500,000 acre-feet; irrigation, power and flood control; Department of Interior, Bureau of Reclamation; 727 feet; 1,282 feet; concrete arch gravity; 1936; \$70,600,000; Colorado River.

RYE PATCH DAM

NE $\frac{1}{4}$ Sec. 18, T. 30 N., R. 33 E.; 9,000 acres; 179,000 acre-feet (this capacity not available due to controversy with the nearby Pitt-Taylor Reservoir. Present available area 4,000 acres and capacity 80,000 acre-feet); irrigation; Pershing County Water Conservation District; 80 feet high; 800 feet long; earth fill; completed 1936; \$600,000; Humboldt River.

DERBY DAM

NE $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 19, T. 20 N., R. 23 E.; no storage, diverts water to Lahontan reservoir through Truckee-Carson canal; capacity of canal, 800 c.f.s.; irrigation; Truckee-Carson Irrigation District; 22 feet high; 171 feet long; concrete; 1905; \$114,398; Truckee River.

WEBER DAM

Near Schurz, Nevada; area not known; 15,000 acre-feet; irrigation; U. S. Indian Service; 45 feet high; 900 feet long; earth fill; 1934; \$150,000; Walker River.

GARDNER RANCH COMPANY LOWER RESERVOIR

NE $\frac{1}{4}$ NE $\frac{1}{4}$, Sec. 3, T. 8 S., R. 61 E.; Pahranaagat Lake, Lincoln County, Nevada; 371 acres; 3,580 acre-feet; irrigation; Gardner Ranch Company; tributary to Pahranaagat Lake.

LITTLE WASHOE LAKE

Washoe County; area not known; 5,000 acre-feet; irrigation; Washoe Lake and Galena Creek Ditch Co.; Washoe Lake.

WILD HORSE DAM

Twelve miles south of Mountain City; 2,400 acres; 32,000 acre-feet; irrigation; U. S. Indian Service; 87 feet high; 270 feet long; variable radius concrete arch; 1937; \$320,000; East Fork Owyhee River.

HYDROELECTRIC PLANTS IN NEVADA**LAHONTAN**

This plant is located on the Carson River immediately below Lahontan Dam and is in the SE $\frac{1}{4}$ of Sec. 33, T. 19 N., R. 26 E. in Churchill County. The plant is operated by the commingled waters of the Carson and Truckee Rivers stored in the Lahontan Reservoir. The point of diversion of the water from the Truckee River is at the Derby Dam, being in the SW $\frac{1}{4}$ of Sec. 19, T. 20 N., R. 23 E. The plant is owned by the Truckee-Carson Irrigation District, being a publicly-owned utility and having an installed capacity of 2,400 horsepower. The water rights from both the Carson and Truckee Rivers are vested rights of a priority of May 26, 1903.

LAMOILLE

The Lamoille plant owned by the Elko Lamoille Power Company is located on Lamoille Creek in Elko County, being in the NE $\frac{1}{4}$ of Sec. 6, T. 32 N., R. 58 E. The point of diversion of the waters from Lamoille Creek is in the SE $\frac{1}{4}$ of Sec. 15, T. 32 N., R. 58 E. The plant is a private utility of 415 horsepower installed capacity. The water right was obtained under Permit No. 5919 issued to change the point of diversion of water under Permit No. 2090, of June 6, 1911, priority. The plant also operates under a Department of Agriculture permit.

FLEISCH

The water used to operate this plant is diverted from the Truckee River in California, being in the SE $\frac{1}{4}$ Sec. 6, T. 18 N., R. 18 E., and the plant is located near Verdi in the SE $\frac{1}{4}$ of Sec. 30, T. 19 N., R. 18 E., being in Washoe County. The plant is a private utility, being owned by the Sierra Pacific Power Company, and has an installed capacity of 3,000 horsepower. The water right is a vested right of priority of February 16, 1904.

VERDI

This plant is located near Verdi on the Truckee River, being in the SE $\frac{1}{4}$ of Sec. 8, T. 19 N., R. 18 E. The water is diverted from the river at a point in the SE $\frac{1}{4}$ of Sec. 19, T. 19 N., R. 18 E. The plant is a private utility, being owned by the Sierra Pacific Power Company, and has an installed capacity of 3,200 horsepower. The water right is held under Permit No. 1787, which was issued to change the point of diversion under Permit No. 1475, and has a priority of October 21, 1909.

WASHOE

This plant is located on the Truckee River near Verdi, and being in the SW $\frac{1}{4}$ Sec. 14, T. 19 N., R. 18 E. The point of diversion is in the NE $\frac{1}{4}$ of Sec. 16, T. 19 N., R. 18 E. The plant is owned by the Sierra Pacific Power Company, being a private utility, and has an installed capacity of 2,400 horsepower. The water right is held under vested rights with a priority of October 27, 1902.

RENO

The Reno plant is located near Reno, being in Lot 6, Sec. 10, T. 19 N., R. 19 E. Water is diverted from the Truckee River at a point in the NE $\frac{1}{4}$ of Sec. 16, T. 19 N., R. 19 E. The plant is owned by the Sierra Pacific Power Company, being a private utility, and has an installed capacity of 1,200 horsepower. The water is held under vested rights of priority of March 31, 1891, and in addition has a right for 47 c.f.s. with a priority of November 1, 1909.

YOUNG

This plant, which has not been operated for several years, is located in Pershing County in the NW $\frac{1}{4}$ of Sec. 28, T. 28 N., R. 32 E., a few miles northerly from Lovelock. Water was diverted from the Humboldt River at a point in the NE $\frac{1}{4}$ of Sec. 21, T. 28 N., R. 32 E. The plant was a private utility, being under the ownership of the Lovelock & Woolsey Power Company, having an installed capacity of 235 horsepower. Water was held under vested rights, being set forth on page 66 of the Humboldt River Decree, and having priorities of 1888 and 1909.

WELLS

The Wells power plant is located in the SE $\frac{1}{4}$ of Sec. 17, T. 37 N., R. 61 E., in Elko County near Wells, Nevada. Water to operate the power house is diverted from Trout Creek at a point in the SW $\frac{1}{4}$ of Sec. 21, T. 37 N., R. 61 E. The Wells Power Company, a private utility, owns the plant, which has an installed capacity of 200 horsepower. The water right is held under Permit No. 7058, with a priority of January 8, 1927. The company operates under a Federal Power Commission license.

ELY

Water is diverted from Murry Creek and Springs at a point in the NE $\frac{1}{4}$ of Sec. 29, T. 16 N., R. 63 E., and is conveyed to the power plant located in the SE $\frac{1}{4}$ of Sec. 16, T. 16 N., R. 63 E., which is near Ely in White Pine County. The plant is a private utility, being owned by the Ely Light & Power Company, sometimes called the Ely Water Company, and has an installed capacity of 45 horsepower. Water rights are held under Permit No. 3398 of May 4, 1907, priority.

WINNEMUCCA

This plant is located in Humboldt County and is in the SE $\frac{1}{4}$ of Sec. 29, T. 36 N., R. 38 E. Water is diverted from Water Canyon at a point in the NE $\frac{1}{4}$ of Sec. 11, T. 35 N., R. 38 E. The plant is owned by the Western States Utility Company, a private utility, and has an installed capacity of 100 k.w.

McGILL

The McGill power plant is located in Sec. 16, T. 18 N., R. 64 E., being in White Pine County near McGill. Water is diverted from Duck Creek at a point in the SE $\frac{1}{4}$ of Sec. 31, T. 19 N., R. 65 E. The Nevada Consolidated Copper Company owns the plant, which has an installed capacity of 640 k.w. The water right is held under Permit No. 534, which has a priority of September 9, 1908.

BIRD CREEK

The Nevada Consolidated Copper Company, a private utility and industrial company, also owns this power plant, which is located in the SE $\frac{1}{4}$ of Sec. 31, T. 19 N., R. 65 E. Water is diverted from Bird Creek at a point in the SW $\frac{1}{4}$ of Sec. 33, T. 19 N., R. 65 E., and is conveyed to the power plant, which has an installed capacity of 200 k.w. The right to appropriate this water is held under Permit No. 2482 of a priority of October 22, 1912.

LOGANDALE

The Logandale plant, which is owned by the Logandale Light & Power Company, a private utility, is located in Clark County near Logandale in the SE $\frac{1}{4}$ of Sec. 21, T. 15 S., R. 67 E. Water is obtained from the Muddy River to a point in the NE $\frac{1}{4}$ of Sec. 21, T. 15, S., R. 67 E. The plant has an installed capacity of 20 k.w.

BOULDER DAM

Boulder Dam is located on the Colorado River on the State line between Arizona and Nevada, in Clark County. In Nevada the plant is located in the SE $\frac{1}{4}$ of Sec. 29, T. 22 S., R. 65 E., M. D. B. & M., and in Arizona in the SW $\frac{1}{4}$ of Sec. 3, T. 30 N., R. 23 W., G. & S. R. M. The plant is owned by the U. S. Bureau of Reclamation and has an installed capacity of 525,000 horsepower.

MEASUREMENT OF WATER AND USEFUL EQUIVALENTS

Measuring water usually means measuring the amount of water that passes a given point in a given time. The present-day unit of measurement is cubic feet per second (c.f.s). Prior to recent times the unit of measurement in most western States was the miner's inch. The miner's inch is the quantity of water flowing in a certain time through an orifice of one inch square under a specified head. In Nevada the miner's inch has a head of about 6 $\frac{1}{4}$ inches. Both the dimensions and head vary in different States and it is therefore an arbitrary unit. The amount of water represented by a miner's inch in Nevada is 0.025 c.f.s. or 11.22 gallons per minute. Forty miner's inches are equivalent to a statutory cubic foot per second. The same unit is statutory in northern California, Arizona and Montana. The Utah statutory inch is the flow of water through an orifice with an area of one square inch with a head of four inches, approximately $\frac{1}{50}$ cubic foot per second. This unit is the statutory miner's inch in Idaho, New Mexico, Oregon, Washington, and southern California. Being so ambiguous the unit of measurement is not satisfactory and has been practically replaced by the cubic foot per second unit.

Water and Water Power Equivalents**WATER**

One acre foot of water is the quantity that will cover an area of one acre one foot deep—

- = one cubic foot per second of water flowing continuously for 12 hours and six minutes.
- = 43,560 cubic feet.
- = 325,851 gallons.

One second-foot of water is the quantity that will fill a space of one cubic foot in one second of time—

- = 40 miner's inches.
- = 7.4805 gallons per second.
- = 448.83 gallons per minute.
- = 1.983 acre feet per day.
- = 646,315.2 gallons per day.

One miner's inch of water is the approximate flow through an orifice with an area of one square inch under a head of $6\frac{1}{4}$ inches—

- = 0.025 ($\frac{1}{40}$) cubic foot or 0.186+ gallons per second.
- = 11.22 gallons per minute.
- = 673.20 gallons per hour.
- = 1 acre inch in 40 hours and 20 minutes.
- = 1 acre foot in 484 hours (approximately 20 days), or 0.0496 acre foot (approximately $\frac{1}{20}$) per day.
- = 16,156.80 gallons in 24 hours.

Million gallons per day—

- = 1.547 cubic feet per second (c.f.s.).
- = 694.4 gallons per minute.
- = 61.89 miner's inches.
- = 1 acre foot in 7 hours and 49 minutes, or 3.07 acre feet per day.

One gallon per minute—

- = 0.00223 ($\frac{1}{449}$) cubic foot per second.
- = 0.0891 (approximately $\frac{1}{11}$) statutory miner's inch.
- = 1 acre foot in 226.1 days or 0.00442 acre foot per day.

One miner's inch flowing 150 days (5 months of 30 days each) will cover an acre of land 7.4 feet deep.

One second-foot of water flowing 150 days equals 297.45 acre feet, or enough water to cover 100 acres of land 2.9745 feet deep.

One cubic foot—

- = 1,728 cubic inches.
- = 7.48 gallons of water, weighing approximately 62.5 pounds.

One gallon—

- = 231 cubic inches.
- = 0.13368 cubic foot, weighing approximately 8.34 pounds.

To find water pressure in pounds pressure per square inch, multiply height of head or column of water measured in feet by 0.434.

Pounds pressure per square inch multiplied by 2.31 gives head of water in feet.

WATER TABLES FOR MINING, MILLING, METALLURGICAL, OPERATIONS

- 1 miner's inch of water = 673.20 gallons per hour.
- = 5,614.5 pounds of water per hour.
- = 2.81 tons of water per hour.
- = 134,748 pounds of water per 24 hours.
- = 67.37 tons of water per 24 hours.

1 gallon per minute.....	= 8.34 pounds of water per minute.
	= 500.4 pounds of water per hour.
	= 0.25 tons of water per hour.
	= 12,010 pounds of water per 24 hours.
	= 6 tons of water per 24 hours.
1 second-foot of water..	= 7.48 gallons per second.
	= 62.4 pounds of water per second.
	= 448.83 gallons per minute.
	= 3,743.2 pounds of water per minute.
	= 1.87 tons of water per minute.
	= 26,930 gallons per hour.
	= 224,596 pounds of water per hour.
	= 112.3 tons of water per hour.
	= 646,315 gallons per 24 hours.
	= 5,390,267 pounds of water per 24 hours.
	= 2,695 tons of water per 24 hours.

To convert tons of water to—

Miner's inches, continuous flow for 24 hours, divide by 67.37.

Gallons per minute, continuous flow for 24 hours, divide by 6.

Cubic feet per second, continuous flow for 24 hours, divide by 2,695.

POWER

1 cubic foot of water	= 62.5 pounds.
1 horsepower	= 550 foot-pounds per second.
1 horsepower	= 33,000 foot-pounds per minute.
1 horsepower	= 746 watts or .746 kilowatts (kw.).
1 horsepower	= 1 second-foot of water falling 8.8 feet (100% efficiency).

Horsepower developed at water wheel at 80% efficiency =

$$\frac{\text{Second-feet} \times \text{fall in feet}}{11}$$

The horsepower required to lift any quantity of water any specified distance may be obtained from the following formula:

$$\text{Horsepower} = \frac{\text{g.p.m.} \times h}{4,000 \times E} \text{ (approximately).}$$

when g.p.m. = gallons pumped per minute.

h = total head in feet against which pump must work. This includes total material lift, plus frictional and other losses.

E = Efficiency of pump (expressed as a decimal fraction).

Theoretical horsepower developed by potential water source =

$$\frac{10 \times h \times \text{c.f.s.}}{88}$$

when h = head in feet; c.f.s = second feet of water discharge.

A kilowatt-hour is the quantity of energy resulting from the utilization of 1 kilowatt of power for one hour of time.

Electrical energy yearly in kilowatt-hours

$$= \text{horsepower} \times 0.746 \times 24 \times 365 = \text{horsepower} \times 6,534.96.$$

To reduce kilowatt-hours (kw.-hrs.) per year to continuous kilowatts divide by 8,760 (365 days \times 24 hrs.).

To reduce kilowatt-hours per year to continuous horsepower, divide by 6,534.96 (0.746 \times 24 \times 365).

Power is defined as the time rate of doing work. A kilowatt and a horsepower are both units of power. Power multiplied by time gives energy or work.

Thus 1 kw. of power acting for 1 hour of time yields the units of energy called 1 kw.-hour. Likewise 1 hp. of power acting for 1 hour of time yields 1 hp.-hour of energy.

Power should not be confounded with energy.

MAP SCALES

	Inches to one mile	Miles to one inch
1: 1,000,000	= 0.06336	= 15.78282
1: 500,000	= 0.12672	= 7.89141
1: 250,000	= 0.25344	= 3.94570
1: 126,720	= 0.50000	= 2.00000
1: 125,000	= 0.50688	= 1.97285
1: 90,000	= 0.70400	= 1.42046
1: 63,360	= 1.00000	= 1.00000
1: 62,500	= 1.01376	= .98642
1: 45,000	= 1.40800	= .71023
1: 31,680	= 2.00000	= .50000
1: 30,000	= 2.11200	= .47349
1: 24,000	= 2.64000	= .37879

SUMMARY OF THE WORK OF THE STATE ENGINEER

STATE COMMISSIONS AND BOARDS

The State Engineer upon taking office automatically becomes a member of the following Commissions:

1. The Nevada Public Service Commission.
2. The Nevada State Board of Irrigation.
3. The Nevada State Irrigation District Bond Commission.
4. The Bureau of Industry, Agriculture and Irrigation.
5. The State Range Commission.

By gubernatorial appointment the present State Engineer is also a member of the following:

6. The Colorado River Commission of Nevada.
7. The Nevada State Planning Board.
8. Regional Vice President National Association of State Aviation Officials—Utah, Arizona, California, Nevada.

RECLAMATION ORGANIZATIONS

1. The Association of Western State Engineers (seventeen western States).
2. The National Reclamation Association.

STATUS OF ADJUDICATION OF STREAM SYSTEMS

The work of adjudicating the waters of the Nevada stream systems

has proceeded since the inception of this office in 1903 to the present time:

1. Stream systems adjudicated, 1903 to date.....	24
2. Acres under adjudicated streams.....	383,826
3. Vested water users under adjudicated streams.....	608
4. Adjudicated stream systems supervised by this office during the past biennium.....	7
5. Adjudicated stream systems not supervised by this office during the past biennium.....	18
6. Streams in process of adjudication.....	26
7. Adjudications completed during past biennium.....	2
8. Stream systems on which decrees have been entered by civil suit not under supervision of this office.....	11
9. Stream systems adjudicated by United States District Court.....	3
10. Stream systems under process of adjudication by United States District Court.....	2

STATUS OF WATER APPLICATIONS AND PROOFS OF APPROPRIATION

1. Water applications filed, 1903 to June 30, 1938.....	10,254
2. Water applications acted upon, 1903 to June 30, 1938.....	9,362
3. Water applications on which no action has been taken.....	1,051
4. Water applications acted on, July 1, 1936, to June 30, 1938..	317
5. Water applications filed, July 1, 1936, to June 30, 1938....	261
6. Proofs of commencement of work filed, July 1, 1936, to June 30, 1938.....	170
7. Proofs of completion of work filed, July 1, 1936, to June 30, 1938	114
8. Proofs of beneficial use filed, July 1, 1936, to June 30, 1938..	147
9. Protests filed against the granting of applications, July 1, 1936, to June 30, 1938.....	61
10. Certificates of appropriation issued under permitted water rights, July 1, 1936, to June 30, 1938.....	140
11. Proofs of appropriation filed, 1903 to June 30, 1938.....	2,292
12. Proofs of appropriation filed, July 1, 1936, to June 30, 1938	6

COOPERATIVE WORK

The State Engineer also carries on cooperative work in the compilation of stream gaging and stream runoff observations through the medium of two State appropriations. The cooperating agencies are: The Water Resources Branch of the United States Geological Survey. The Nevada Cooperative Snow Surveys.

The activities of the State Engineer in each of the fields are briefly related under their proper headings elsewhere.

PUBLIC SERVICE COMMISSION

The Nevada Public Service Commission is composed of the following members:

- Harley A. Harmon, Chairman, Carson City.
- Hoyt R. Martin, Reno.
- Alfred Merritt Smith, Carson City.
- Lee S. Scott, Secretary, Carson City.

The work of this Commission is published by the Chairman in a biennial report. During the past biennium many hearings have been held in various parts of the State on matters concerning the rate schedules of public utilities, rail and motor vehicle carriers, complaints as to public service, and requests for certificates of convenience and necessity for the operation of public utilities.

THE NEVADA STATE BOARD OF IRRIGATION

The Board is composed of the following members:

Richard Kirman, Sr., Governor of Nevada, Carson City.

Ray G. Staley, Surveyor-General, Carson City.

Gray Mashburn, Attorney-General, Carson City.

Alfred Merritt Smith, State Engineer, Carson City.

This Board was created by the provisions of section 2, chapter 59, Nevada Statutes of 1901 (Nevada Compiled Laws 1929, section 8231), for the purpose of administering an appropriation of \$4,000 made by that Legislature to carry on hydrographic work, irrigation studies and stream measurements in cooperation with the United States Geological Survey and the United States Department of Agriculture, in association with the Nevada Agricultural Experiment Station. The State appropriation was contingent upon an equal amount of money being appropriated by the Government. The State Printing Office was authorized to publish additional copies of the Government reports. The Board was also authorized to have printed copies of or extracts from any United States report on irrigation or related matters which, in the opinion of the Board, would be of value to the people of Nevada.

The activities of the Board of Irrigation were continued by the last Legislature through an appropriation of \$1,500 for cooperative work with the United States Geological Survey, Water Resources Branch, and the State Engineer (section 19, chapter 216, 1937 Nevada Stats.). A report on this work prepared by Mr. A. B. Purton of the Water Resources Branch of the United States Geological Survey is printed on page 106. This work, which has been continuously carried on since 1916, is continually adding to the valuable information regarding Nevada's water resources and supply.

THE STATE IRRIGATION DISTRICT BOND COMMISSION

The State Irrigation District Bond Commission was created by an Act of the Legislature approved February 26, 1921, being sections 8217-8228 Nevada Compiled Laws 1929. The Commission consists of the following members:

Richard Kirman, Sr., Governor of Nevada.

D. G. LaRue, Bank Examiner.

Alfred Merritt Smith, State Engineer.

It is the duty of the Commission to pass upon the eligibility of bonds of irrigation districts as legal investments within Nevada. A résumé of the work of this Commission during the past biennium is set forth in chapter 12.

THE STATE RANGE COMMISSION

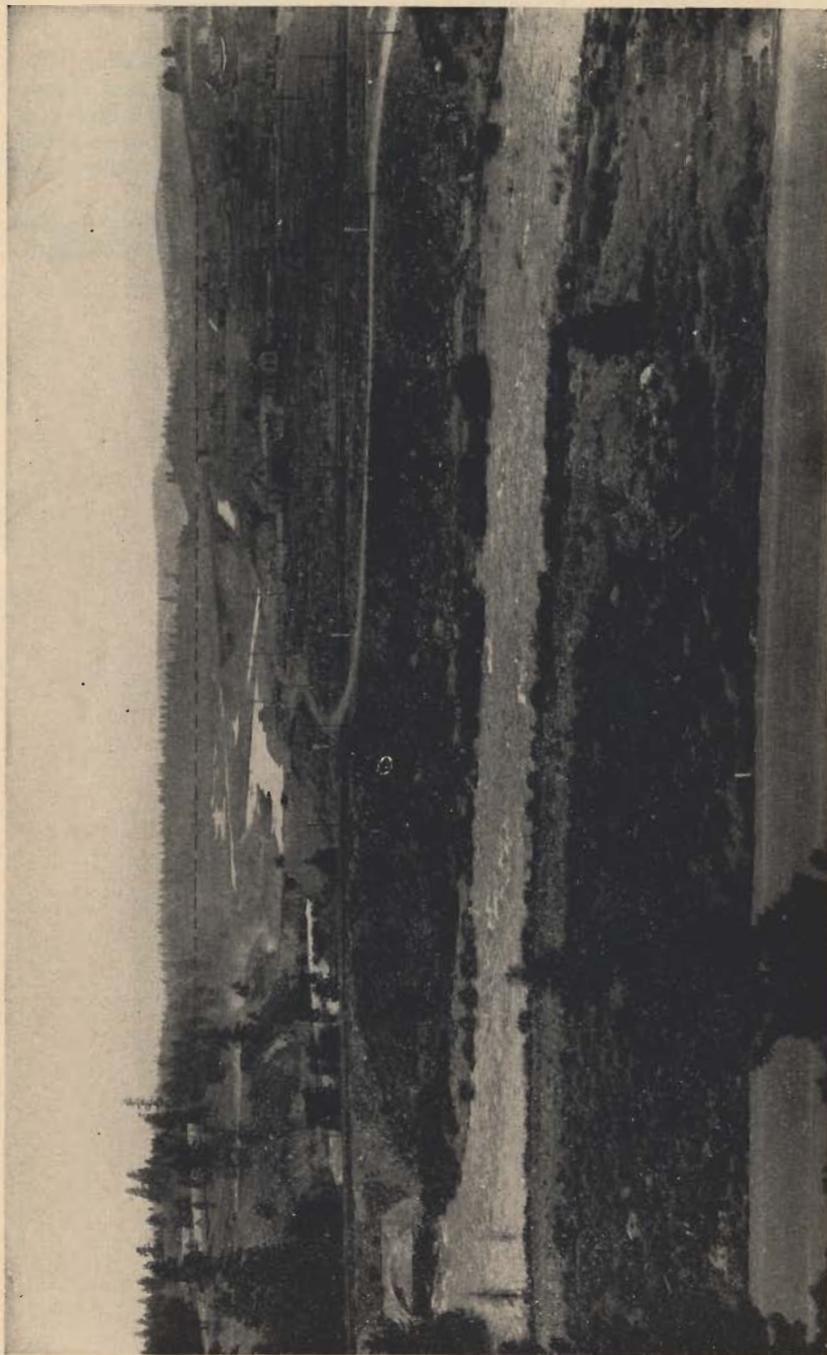
The Commission consists of the following members:

Richard Kirman, Sr., Governor of Nevada.

Harley A. Harmon, Chairman, Public Service Commission.
Alfred Merritt Smith, State Engineer.

The 1929 Legislature created the "State Range Commission" for the purpose of determining the principles, laws or policies that should apply to the grazing use of the natural range forage resources of publicly-owned lands within Nevada. A résumé of the report by this Commission is given in the 1931-1932 Biennial Report of the State Engineer.

The 1937 Legislature appropriated the sum of \$200 to carry on this work. No hearings were held during this biennium, and no expenditures were made from this fund.



Boca Dam Site on Little Truckee River, June 10, 1938. Future Dam Crest Indicated by Dotted Line. (Courtesy Bureau of Reclamation)

INFORMATIONAL DATA

LIST OF PUBLICATIONS PRINTED FOR DISTRIBUTION BY STATE ENGINEER'S OFFICE

ADJUDICATION PUBLICATIONS

Abstract of Claims—

Carson River, 1921.
Currant Creek, 1919.
Evans Creek, 1916.*
Humboldt River, 1909.
Humboldt River, 1912.
Humboldt River, 1922.
Little Humboldt River, 1913.*
Little Humboldt River, 1929.
Muddy River, 1906.
Salmon River, 1916.
Walker River, 1907.*

Preliminary Order of Determination—

Carson River, 1921.*
Humboldt River, 1922.
Little Humboldt River, 1929.
Pahranagat Lake, 1926.*

Objections to Preliminary Order of Determination—

Humboldt River, 1922.*
Little Humboldt River, 1930.

Order of Determination—

Carson River, 1927.
Humboldt River, 1922.
Pahranagat Lake, 1930.

Objections to Order of Determination—

Humboldt River, 1923.
Priority Index Chart Humboldt River, 1924.*

Decrees and Proposed Decrees—

Humboldt River, Proposed Findings of Fact, Conclusions of Law and Decree, 1931.
Little Humboldt River, Proposed Findings of Fact, Conclusions of Law and Decree, 1935.
Little Humboldt River, Findings of Fact, Conclusions of Law and Decree, 1935.

BIENNIAL REPORTS STATE ENGINEER

1903-1904;* 1905-1906; 1907-1908;* 1909-1910; 1911-1912;*
1913-1914; 1915-1916; 1917-1918; 1919-1920; 1921-1922; 1923-
1924; 1925-1926;* 1927-1928; 1929-1930; 1931-1932; 1933-1934;
1935-1936; 1936-1938.

*Supply exhausted.

the statutory procedure; issuing permits and certificates under applications to appropriate; the filing of various proofs required by law to file; the handling of much correspondence relating to water problems, and many additional sundry duties.

The duties of the State Engineer have gradually expanded to embrace many activities not originally contemplated when the office was created. He is a member of seven different State Commissions, which requires much extra work and time. For instance, his work as secretary of the Colorado River Commission has necessitated during the past biennium four trips to Washington, D .C., and the spending of more than three months there, several trips to Los Angeles, a trip to Santa Fe, New Mexico, and a trip to Phoenix, Arizona, in an effort to better Nevada's position in relation to the charge to the State for Boulder Dam power; the power withdrawal features, and obtaining the alternate privilege of the State receiving set annual payments from the Government instead of compensation under the original Act wherein the annual payments to the State in lieu of taxes were to be based on surplus earnings from the sale of power. A short résumé of the work of the Colorado River Commission will be found in Chapter 12.

During the past biennium improvements have been continued towards modernizing the State Engineer's offices. The floors, with the exception of the large filing room, have been covered with battle-ship linoleum. Modern desks and filing cabinets have been installed, replacing the old antiquated furnishings. This, together with the remodeling of the rooms during 1935 and 1936, has greatly improved the utility and appearance of the offices.

CHAPTER II

Office Engineering and Miscellaneous Office Work

In the two years covered by this report much has been done toward disposing of the current routine office duties, such as examining all new applications and checking and filing maps submitted in support thereof. With respect to this work, the aim of this office has been to eliminate all errors before filing and publishing the notices of proposed appropriations. All proofs of commencement of work and completion of work, and proofs of application of water to beneficial use, together with the maps in support thereof, are carefully examined for errors before filing. Proofs of appropriation of water and supporting maps covering vested water rights or rights initiated prior to March 1, 1905, are also given careful study before filing as a part of our routine office work in order to expedite the work of preparing data for adjudication proceedings.

Issuance of certificates of appropriation of water under both permits and decreed rights under statutory adjudication has occupied considerable time. In connection with this work it must be borne in mind that the certificate of appropriation of water is the final step in a perfected water right and, therefore, it is of vital importance that no errors exist, and for this reason they are examined at least three times before they are sent to the County Recorder in the county where the appropriation exists for recording.

Budgets covering the costs of water distribution prepared and submitted to the County Clerks are a part of our annual work.

Many deeds affecting the transfer of water rights of record are carefully examined in order to ascertain that there is no missing link in the chain of title from the owner of record to the new owner. In other words, the succession of title to the water right of record must be strictly adhered to so as to keep in close contact with the new owners, especially in cases of rights covering pending applications and permits where the attention of the holder of such application and permit is required to keep it in good standing, and also for the purpose of enabling this office to issue the certificate of appropriation of the perfected right to the legal owner or owners of record. In cases where the State Engineer's file numbers are omitted in the deeds, but the description of the lands and appurtenances are given, much time is devoted in searching through the records to determine with certainty that none of the water rights covered by such deeds are omitted.

As a result of the many new Federal and State agencies functioning under the New Deal toward the conservation of water and land utilization, and toward gathering much additional information, a great demand is constantly made upon the office of the State Engineer for information relative to existing and pending water rights, proposed irrigation developments, power and other information relative to this State and, therefore, much time is devoted to their assistance.

Many answers to inquiries are made to outside Federal agencies relative to water, power, and resources of the State. Some of the data submitted requires much careful searching of the records and the compilation of the requested data. Undivided attention is the policy of

this office to personal callers at the office, and in many instances unbiased advice is given on request.

Law suits involving the Humboldt River adjudication and that of the Humboldt-Lovelock Irrigation Light and Power Company, commonly known as the Pitt-Taylor reservoir, have been a trying factor to this office. All possible efforts are made to see that no injustice is done and our policy has been to avoid legal entanglements.

Much has also been done by the State Engineer's office in the way of clearing of the records of applications and permits which have for many years lain dormant in the files, thus paving the way for new appropriations.

Important articles, maps, plans, reports and other data relative to water and concerning this State have been received and indexed for our reference, and for the use of the general public, Federal and State agencies. This collection and indexed data have proven very valuable in many cases. During this biennium eighty-seven of such articles, reports, maps, etc., have been filed, and up to date seven hundred and eighty-four of them have been indexed.

Since the inception by the State Engineer early in 1927 of the policy of range protection, in that the users of the public domain are notified when new applications are filed to appropriate water within the limits of the range claimed by them, as shown by their range map indexed in this office, three hundred and thirty-nine of such range maps have been submitted and indexed under serial numbers since December 6, 1927. The boundaries of the range claimed as shown by the submitted maps have been placed on the State range map, which map gives a clear picture of the utilization of the stockmen of the public domain for grazing purposes. The submission of range maps by a majority of the stockmen of this State has about approached the limit. During this biennium only one range map has been submitted and accepted, on September 1, 1936. However, the stockmen are still showing their interest in this work, as many inquiries are made relative to their range maps, and they are extensively and constantly used by this office for assistance in acting on pending applications.

Our attention and time has been given both in the field and in the office toward the improvement of channels, diversion and headgates on the Little Humboldt River stream system. Maps and plans have been made and prepared from field investigations covering the actual conditions on the ground of the many obstacles which tend to retard and obstruct the flow and tend to make distribution inefficient. Under these plans actual construction of headgates has been completed on several diversions, as described elsewhere in this report.

Assistance both in the office and in the field has been given water commissioners in their perplexing problems relative to the distribution of water.

CHAPTER III**State Water Right Surveyors of Nevada**

Following is a complete list of licensed State Water Right Surveyors authorized to practice before the office of the State Engineer during the past biennium:

NEVADA

Alamo—W. F. Thorne.	Manhattan—Arthur E. Smith.
Caliente—Wayne Cox.	Mina—L. B. Spencer.
Carson City—H. M. Payne.	Minden—J. A. Millar.
E. H. Sweetland.	Mountain City—Walter S. Craven.
Robert A. Allen.	Edward C. Stephens.
W. T. Holcomb.	Palisade—W. S. Raine.
Albert Quill.	Paradise Valley—F. B. Stewart.
E. A. Metscher.	Pioche—Frank Walker.
Elko—W. H. Settelmeyer.	Reno—F. M. Spencer.
R. A. Kinne.	L. H. Taylor.
Chas. F. DeArmond.	D. H. Updike.
Ely—F. W. Millard.	Thos. R. King.
R. P. Arnold.	John V. Mueller.
C. R. Townsend.	M. A. Pray.
Geo. T. Saxton.	Walter G. Reid.
Neil A. McGill.	Carl Stoddard.
Fallon—L. W. Crehore.	Sparks—C. C. Taylor.
Hugh M. Wilson.	Sprucemont—J. L. Vandiver.
E. P. Osgood.	Tonopah—D. S. Johnson.
J. C. Coniff.	C. A. Liddell.
Fernley—W. A. Pray.	H. F. Bruce.
Gardnerville—O. L. Hussman.	Frank Rapp.
S. Krummes.	Tuscarora—Chester L. Woodward.
Goldfield—Ed. S. Giles.	John W. King.
Jungo—J. G. Huntington.	Winnemucca—F. R. O'Leary.
Las Vegas—J. F. Hesse.	Winthrop W. Fisk.
J. T. McWilliams.	H. H. Sheldon.
Arthur R. Thompson.	A. V. Tallman.
C. D. Baker.	Yerington—George Parker.
L. A. Harris.	

CALIFORNIA

Berkeley—R. E. Tilden, 2829 Benvenue Avenue.
San Francisco—H. M. McClymonds, 65 Market Street.
J. W. Williams, 983 Mills Building.
Canby—A. M. Green.
Sacramento—G. F. Engle, 1857 Forty-fourth Street.
Benton—Joseph Markert.

IDAHO

Twin Falls—Harold M. Merritt.

OREGON

Burns—Mott V. Dodge.

UTAH

St. George—Leo A. Snow.
Garrison—G. S. Quate.
Ogden—H. B. Way, Care of Utah Construction Company.
Louis H. Boukol, Care of Southern Pacific Company.
E. B. Coulsen, 719 First Security Building.
Salt Lake City—Norman Blye, 503 Scott Building.
E. A. Vail, Box 895.
George B. Clark, 1797 South 14th East.

CHAPTER IV

Application for Water Rights

During the biennial period dating from July 1, 1936, to June 30, 1938, there has been 261 applications filed with this office for permission to appropriate water. Of this number 19 applications were made to change either the point of diversion, place or manner of use of water already appropriated under an existing permit or claim of vested right. Under our water law such an application can be made to change the point of diversion, place and manner of use either collectively or singly. A segregation of the applications as to the manner of use is as follows:

Irrigation purposes	47
Mining and milling.....	110
Stockwatering	48
Domestic purposes	9
Migratory water fowl refuge.....	3
To change point of diversion, manner or place of use..	19
Municipal purposes	8
Bathing purposes	2
Gravel and sand washing.....	2
Power	6
Recreational purposes	6
Fish rearing purposes.....	1

Definite action has been taken on 317 applications during this biennium, representing action on 147 applications filed during this period and 170 applications filed prior to July 1, 1936. There have also been issued during the period 140 certificates of water right following the perfection of permits.

Due to amendatory Acts being added to our water law, the State Engineer considered it advisable, during this biennium, to republish a compiled edition of our water laws, and which was released from the press in October 1937. This contains, besides the general water law, Acts relating to the adjudication emergency fund; stockwatering Act; Nevada range law; and underground water law. Summaries on the adjudication procedure on vested rights, and the statutory procedure to appropriate water by filing an application with the State Engineer's office are also given, together with a list of State Water Right Surveyors, and tables relating to the measurement of water. The summaries mentioned above relating to adjudication procedure on vested rights and applications for water rights were also included in the Biennial Report for the period 1934 to 1936.

During the past biennium hearings have been held on protests against the granting of permits under 15 applications. In addition to these, rulings were made by the State Engineer on 35 other protested applications. Appeal from the findings of the State Engineer have been made under only one application and is now pending in the District Court.

Pertinent information regarding water applications filed in this

office since its creation will be found on page 25. The status of applications filed and certificates issued will be found as follows:

1. Status of applications filed during the biennium 1936-1938, Chapter 16.
2. Status of applications filed prior to July 1, 1936, upon which action has been taken during the past biennium, Chapter 17.
3. Certificates issued under permits during the past biennium, Chapter 18.

CHAPTER V

Adjudication of Water Rights

Section 1, chapter 4, Statutes of 1903, provided a law creating the office of State Engineer and furnishing a method for the determination of the relative rights in and to waters already appropriated. Several amendments were subsequently made with the result that our water law is now admirably adapted to conditions in Nevada, and has been declared constitutional in its entirety by decisions rendered by the Supreme Court of Nevada.

Amendatory Acts were passed during the 1907 and 1909 sessions of the Legislature. In 1913 a new water law was enacted and the old water law in its entirety was repealed. The new law was approved March 22, 1913. Under this Act the water law was greatly broadened, both as to the adjudication procedure on the determination of vested rights and the appropriation of water procedure by application to the State Engineer. Subsequent amendments to the laws relating to the adjudication procedure were enacted in the following sessions of the Legislature, viz, 1915, 1917, 1919, 1921, 1925, 1927, 1929, 1931, 1933, and 1937. A brief description of these various amendments may be found in Chapter 6 of this report, wherein a summary of the laws enacted by the Nevada Legislature relating to water and the office of the State Engineer is given. A summary of the statutory procedure to determine the relative rights in and to the waters of a stream system under a claim of vested right may be found in our 1934-1936 Biennial Report and also in the compiled edition of the water laws of this State published in 1937 by this office, both of which are available upon request.

PROOFS OF APPROPRIATION FILED DURING THE YEARS OF THE PRESENT BIENNIUM

During this period the following proofs of appropriation, which are claims of vested water rights, have been filed for future use in the determination of the relative rights and also to make of record such claims. A condensed statement giving the salient data is herewith given in the order of:

1. Proof serial number.
2. Date filed.
3. Name of claimant.
4. Source of water supply.
5. Location by county.
6. Use claimed.

02287.... 1- 6-37....Merickel Holding Corp., and Harold D. Cornell; Manse Spring and tributaries; Nye County; Irrigation.
 02288.... 2-20-37....V. E. Greenwald; South Spring; Nye County; Irrigation.
 02289.... 2-20-37....V. E. Greenwald; North Spring; Nye County; Irrigation.
 02290.... 3-18-37....Genevieve Stall; Golconda Hot Spring; Humboldt County; Stockwatering.
 02291.... 7-16-37....Earl Simpson; Indian Springs; Clark County; Irrigation.
 02292.... 7-23-37....Parman-Valerdi Co.; Parman Spring No. 1, Humboldt County; Stockwatering.

A résumé is herewith given to the progress made on adjudication proceedings during this biennium.

SHELL CREEK

Schell Creek (sometimes called and known as Shell Creek) and its tributaries is located about 50 miles northeasterly from Ely, Nevada, in township 22 north, ranges 64 and 65 east, M. D. B. & M.

There are two water users on the stream system and the total irrigated area is approximately 137.97 acres.

September 15, 1934—Jose Castillo, one of the water users on the stream system, petitioned the State Engineer for a determination of the relative rights in and to the waters thereof.

November 13, 1934—The report of the investigation on the stream system was filed in the office of the State Engineer.

November 14, 1934—The State Engineer entered notice of Order and Proceedings to Determine Water Rights.

January 25, 1936—The State Engineer entered Notice and Order for Taking Proofs.

June 11, 1936—The Abstract of Claims was prepared by the State Engineer and filed in his office.

June 12, 1936—The Preliminary Order of Determination was filed by the State Engineer in his office.

June 12, 1936—Notice and Order issued by State Engineer setting time and place of inspection.

August 18, 1936—Notice and Order extending time for filing objections to Preliminary Order of Determination to and including August 30, 1936.

September 2, 1936—Notice of fixing time for hearing objections to the Preliminary Order of Determination at Ely, Nevada, on October 7, 1936.

October 1, 1936—Notice and Order postponing time for hearing objections to the Preliminary Order of Determination and setting over to October 21, 1936.

October 21, 1936—Hearing on Objections to the State Engineer's Preliminary Order of Determination held at Ely, Nevada, on October 21, 22, and 23, before a representative of the State Engineer's office.

May 22, 1937—Order of Determination filed by State Engineer in his office.

May 24, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer's office, were filed with the Clerk of the Seventh Judicial District Court of the State of Nevada, in and for the county of White Pine.

May 24, 1937—Court entered an order setting July 12, 1937, as the date for hearing exceptions. The hearing was set over from time to time, the last order of the Court setting the time for hearing for October 18, 1937.

October 18, 1937—Hearing before Hon. L. O. Hawkins, Presiding Judge of the Seventh Judicial District Court of the State of Nevada, in and for the county of White Pine. Case submitted pending filing of briefs by respective counsel.

June 18, 1938—Decision entered by Hon. L. O. Hawkins, Presiding Judge of the Seventh Judicial District Court.

MANSE SPRINGS

The location of Manse springs and tributaries is in the southerly portion of Nye County about six miles southerly from Pahrump,

Nevada, and about 28 miles northeasterly from Shoshone, California. There are two claimants to the waters from this source, one by virtue of vested rights and the other under application to the State Engineer for permission to appropriate this water.

April 14, 1937—Petition filed with State Engineer by water users to initiate proceedings to determine relative rights in and to the waters of Manse Springs and tributaries.

May 17, 1937—Field investigation completed and report filed by the State Engineer in his office.

May 18, 1937—Order filed granting petition to determine relative rights in and to the waters of Manse Springs and tributaries. Copy of order and letter advising claimants that since the claimants had all signed waiver of notices the State Engineer would proceed under section 36B.

May 24, 1937—Abstract of claims prepared by the State Engineer and filed in his office.

June 8, 1937—Order of Determination filed by State Engineer in his office.

June 12, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer's office, were filed with the Clerk of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye.

June 15, 1937—Court entered an order setting July 29, 1937, as the date for hearing exceptions. This hearing was postponed and set over from time to time, the last order setting the time for November 5, 1937.

November 5, 1937—Hearing before Hon. William D. Hatton, Judge of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye. Case submitted pending filing of briefs by respective counsel.

NORTH AND SOUTH SPRINGS

The location of North and South Springs and tributaries is about seven miles northeasterly from Beatty, Nevada, lying about one mile easterly from State Highway No. 5. There is only one claimant on this source.

February 20, 1937—Petition filed with the State Engineer to initiate proceeding for the determination of the relative rights in and to the waters of North and South Springs and tributaries.

May 24, 1937—Field investigation completed and report filed by the State Engineer in his office.

May 24, 1937—Order filed by State Engineer granting petition to determine the relative rights in and to the waters of North and South Springs and tributaries.

May 29, 1937—Letter to claimant advising that the State Engineer would proceed under section 36B.

July 23, 1937—Abstract of Claims prepared by the State Engineer and filed in his office.

July 29, 1937—Order of Determination filed by State Engineer in his office.

August 4, 1937—Order of Determination, together with all original evidence and data as of record in the State Engineer's office, were

filed with the Clerk of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye.

August 4, 1937—Court entered an order setting September 17, 1937, as the date for hearing exceptions. This hearing was postponed and set over from time to time, the last order setting the time for November 4, 1937.

November 4, 1937—Hearing before Hon. William D. Hatton, Judge of the Fifth Judicial District Court of the State of Nevada, in and for the county of Nye.

February 21, 1938—Proposed Findings of Fact, Conclusions of Law and Decree filed. Acreage with decreed rights, 37.9.

ADJUDICATIONS BY DEPARTMENT OF STATE ENGINEER

Streams on Which Decrees Have Been Entered Under Civil Suits, Statutory Court Decrees, and Streams Adjudicated by United States District Court

The following table shows the status of all the streams in the State that have been or are the subject of adjudication proceedings, given in the order of:

1. Name of stream system.
2. Location.
3. Date adjudication proceedings initiated.
4. Status toward completion, etc.

Baker and Lehman Creeks (White Pine County)—May 22, 1925; both streams considered as one; Findings of Fact, Conclusions of Law and Decree entered October 1, 1934. Acreage land involved 2,191.7.

Barber Creek (Douglas County)—September 21, 1914; Court Decree entered May 27, 1921. Land involved 235.93 acres.

Bartlett Creek (Humboldt County)—Petition for Determination received December 20, 1929; Proofs of Appropriation voluntarily filed. Proofs submitted for 224.9 acres.

Battle Creek (Humboldt County)—Petition for Determination received December 20, 1929; report on investigation made May 22, 1930; Proofs of Appropriation voluntarily filed. Land involved approximately 606.80 acres.

Bishop Creek (Elko County)—Included in adjudication of Humboldt River system.

Buena Vista Creek (Pershing County)—Petition for Determination of Relative Rights—May, 1931.

Carrico Creek (Lander County)—July 29, 1927; Court Decree entered November 26, 1929; Certificates issued under Court Decree July 3, 1930. Decreed rights for 351.1 acres.

Carson River (Douglas, Ormsby, Lyon, and Churchill Counties)—May, 1903; Order of Determination filed November 21, 1928, with ex officio Clerk of the First Judicial District Court of the State of Nevada, in and for the County of Ormsby. Court duly proceeded with the determination, setting February 4, 1929, as time for hearing exceptions to the Order of Determination. On April 6, 1929, the Supreme Court of the State of Nevada issued Alternative Writ of Prohibition in the matter of the Mexican Dam and Ditch Company et al., Petitioners, v. District Court of the First Judicial District of the State of Nevada, in and for the County of Ormsby, and Hon. G. A. Ballard, Judge thereof, Defendants, prohibiting defendants from proceeding with the determination for such time as such Writ of Prohibition is effective and until the final determination for such matter in the Supreme Court. On July 1, 1930, the writ was made permanent on the ground that certain provisions of the law were not complied with and ordered that the matter be referred back to the State Engineer for full and complete determination of the water rights on the entire Carson River stream system. The status of this matter remains unchanged. On May 11,

- 1925, Bill of Complaint in Equity, D-183, was filed in the District Court of the United States for the District of Nevada in the matter of the United States of America, Plaintiff, v. Alpine Land and Reservoir Company, a Corporation, et al., Defendants. Issuance of subpoenas to all defendants began May 23, 1925. Restraining Order filed October 3, 1925, and thereafter motions to dismiss were filed by the various water users. August 17, 1926, motions to dismiss Bill of Complaint were denied, and 20 days thereafter were allowed to answer Bill of Complaint. Answers were filed November 27, 1928. Hearing on matter of setting time for trial and proposed appointment of a special master. April 16, 1929, beginning of trial before Hon. Frank H. Norcross, Judge of the United States District Court, District of Nevada. November 13, 1931, Miss Ada Torreyson was appointed special master in chancery for purpose of taking testimony, the transcript of which to be submitted to the Judge for his final action. From time of appointment of special master, hearings were held off and on in Fallon and Carson City, and are being continued in the same manner at the present time. All testimony is in and briefs are yet to be filed before case is submitted to the Court for decision.
- Chiatovich Creek** (Esmeralda County)—1914; Notice and Order for Taking Proofs, June 10, 1915.
- Clover Valley Creek** (Lincoln County)—November 4, 1919; Preliminary Order of Determination prepared prior to 1927, but not filed. Land involved approximately 467.23 acres.
- Clear Creek** (Pershing County)—June 10, 1918; Court decree rendered November 25, 1919, affirming Order of Determination; Certificates issued October 30, 1922, under Court decree. Land with decreed rights 1,933.20 acres.
- Clear Creek** (Ormsby County and Douglas County)—Decree July 22, 1872, civil suit; Notice and Order of Pendency of Proceeding, February 5, 1914.
- Crum and Wilson Creeks** (Lander County)—July 14, 1925; Court decree entered May 26, 1928; Certificates issued July 20, 1928, under Court decree. Decreed rights for 614.69 acres.
- Currant Creek** (Nye County)—1919; Notice for submission of proofs dated May 26, 1919; decree entered April 23, 1921; Certificates issued October 30, 1922, and February 13, 1923, under Court decree. Decreed rights for 600 acres.
- Deephole Springs, Clear Creek, Squaw Valley Creek, Lost Creek, Grass Valley Creek, Cottonwood Creek, Red Mountain Creek, and Hot Springs** (Washoe County)—1915; To abstract of proofs; Adjudication initiated under provision 88a, chapter 253, Statutes of 1915.
- Duck Creek** (White Pine County)—Decree entered November 24, 1886, civil suit.
- Duckwater Creek** (Nye County)—December 1, 1909; The first Court decree was rendered by Hon. M. R. Averill, adjudicating the various rights; June 20, 1910, another decree was entered by the above-mentioned Court. October 6, 1919, a stipulation was entered into by the various water users and endorsed by the Court requesting the State Engineer to make field investigation as to types of structures, etc., required for more economical and satisfactory method of distributing water; Investigation completed and report filed April 13, 1921; March 27, 1930, a stipulation was entered into by the various water users which brought to a conclusion the remaining questions involved in the litigation of the waters of this stream. Decreed rights for approximately 4,000 acres.
- Eden Creek** (Humboldt County)—1915; To abstract of proofs, adjudication initiated under provision 88a, chapter 253, Statutes of 1915.
- Edgewood Creek** (Douglas County)—Petition for Determination of Relative Rights April 29, 1929. Waiver of notices filed.
- Evans Creek and its Tributaries, Being Hufford, or Jake's Creek, and Warm Springs** (Humboldt and Elko Counties)—1915; To abstract of proofs; Adjudication initiated under provision 88a, chapter 253, Statutes of 1915. Lands involved approximately 6,819.49 acres.
- Franklin River** (Elko County)—October 14, 1927; To investigation of Facts and Conditions; Pending order granting petition.
- Genoa Creek** (Douglas County)—Decree entered July 23, 1881, civil suit.
- Goose Creek** (Elko County)—March 5, 1915; Decree entered March 3, 1923. Land involved 995.97 acres.

Humboldt River (Elko, Eureka, Lander, Humboldt and Pershing Counties)—1913; January 2, 1931, Opinion and Decision of the Court entered and filed; August 23, 1931, Proposed Findings of Fact, Conclusions of Law and Decree filed with the District Court at Winnemucca; December 14-17, 1931, Motion for new trials presented and argued; March 18, 1932, Decision on Motions for new trial filed; February 5-9, 1934, Hearings before the Hon. H. W. Edwards, presiding District Judge at Winnemucca, Nevada, on new trials. Amended, changed and corrected Findings of Fact, Conclusions of Law and Decree by H. W. Edwards, Judge Presiding, filed with Clerk of Court on December 26, 1934. Proposed Findings of Fact, Conclusions of Law and Decree by H. W. Edwards, former Judge Presiding, filed. Findings of Fact, Conclusions of Law and Decree by H. W. Edwards, Presiding Judge, entered October 7, 1935; filed with Clerk of Court October 8, 1935. Aggregate area with decreed water rights entire stream system:

Harvest crop.....	174,708.15 acres
Meadow pasture.....	32,342.61 acres
Diversified pasture.....	78,962.76 acres
Total	286,013.52 acres

Hall Creek (Tributary to Carrico Creek)—See Carrico Creek.

Iowa Creek (Tributary to Carrico Creek)—See Carrico Creek.

Indian or Chiatovich Creek (Esmeralda County)—1914; Notice and Order for taking Proofs, June 10, 1915.

Indian Springs Creek (Humboldt County)—Petition for Determination of Relative Rights, December 20, 1929.

Job's Canyon Creek (Douglas County)—Included in Barber Creek Decree, May 27, 1921.

K. C. Creek, Sometimes Known as Conway Creek or Renshaw Creek, (Clover Valley, Elko County)—July 1, 1927; Notice and Order for Taking Proofs, November 27, 1928; Suit filed in District Court requesting the Court to restrain State Engineer from proceedings with adjudication; Court dissolved injunction and dismissed restraining order; July 10, 1930, amended complaint filed requesting restraining order; No action to date by Court on amended restraining order.

Kings Canyon and Gregory Canyon Creeks (Ormsby County)—Decree November 14, 1885, civil suit.

Lehman Creek (White Pine County)—See Baker and Lehman Creeks.

Little Humboldt River (Humboldt and Elko Counties)—1910; Opinion and decision entered May 4, 1934. Decreed rights for 46,275.58 acres.

Long Spring (White Pine County)—1915; To abstract of proofs; Adjudication initiated under provision 88a, chapter 253, Statutes of 1915.

Luther (Fairview Creek) (Douglas County)—Decree entered May 27, 1874, civil suit.

Manse Spring and Tributaries (Nye County)—April 14, 1937; Hearing on exceptions to Order of Determination by Court, November 5, 1932. Case submitted pending filing of Briefs by respective counsel.

Muddy River (Clark County)—1905; Decree entered March 12, 1920; Certificates issued April 22, 1926, under Court decree.

McNett or Indian Creek (Esmeralda County)—1915; Notice and Order for Taking Proofs, June 10, 1915; To filing of proofs.

Nigger Creek (White Pine County)—Civil suit.

North and South Springs (Nye County)—February 20, 1937; Decree entered February 21, 1938. Decreed rights for 37.9 acres.

Overland Creek (Elko County)—October 16, 1919; Court decree filed October 5, 1925; Certificates issued December 31, 1926, under Court decree. Decreed rights for 1,718.82 acres.

Owyhee River (Elko County)—January 28, 1924; Order for Taking Proofs, January 24, 1925; June 17, 1924, suit filed in the United States District Court of Nevada by W. T. Smith as receiver for the Union Land and Cattle Company, Complainant, v. R. M. Woodward, et al., Defendants, for appropriating the waters of the Owyhee River belonging to the Union Land and Cattle Company; July 5, 1930, order made by the United States District Court of Nevada making all parties of the Tuscarora branch of

- the Owyhee River and its tributaries in Nevada, parties defendant in the suit of Ellison Ranching Company, successors to W. T. Smith, Receiver of the Union Land and Cattle Company, Plaintiff, v. R. W. Woodward, et al., Defendants; September 18, 1931, Geo. A. Bartlett appointed special master by the United States District Court to take evidence and to submit to the Court findings and form of proposed decree. Suit is now pending before the special master.
- Pahranaagat Lake** (Lincoln County)—November, 1919; Court decree entered October 4, 1929; Certificates issued on November 1, 1929, under Court decree. Decreed rights for 4,971.62 acres.
- Pass, Big and Boyd Basin Creeks** (Humboldt County)—Decree July 1, 1935, Civil Suit, U. S. District Court.
- Panaca Big Springs** (Lincoln County)—Petition for Determination of Relative Rights filed July 27, 1928.
- Peavine Creek** (Nye County)—June 2, 1928; Hearing of exceptions to the Order of Determination by Court, May 20, 1934. Lands involved 209.33 acres.
- Piute Creek** (Humboldt County)—December 20, 1929; To order granting petition to determine relative rights, dated May 9, 1930. Proofs submitted 541.0 acres.
- Quinn River** (Humboldt County)—Civil suit decree, Pacific Livestock Company v. Ellison Ranching Company and others, entered April 9, 1919; A petition for an alternative writ of mandate was filed in the Supreme Court on August 12, 1930, requesting the State Engineer to assume and take control and to regulate the waters of Quinn River; The Supreme Court on July 2, 1931, handed down a decision which failed to sustain the alternative writ and dismissed the proceedings. Decreed rights for 17,411.34 acres.
- Reese River** (Nye and Lander Counties)—1910; To Notice of Pendency of Proceedings.
- Rice Creek** (Elko County)—1919; Court decree entered June 20, 1922. Decreed rights for 833.73 acres.
- Robison Creek** (Esmeralda County)—1915; To abstract of proofs; Adjudication initiated under provision 88a, chapter 253, Statutes of 1915.
- Salmon River** (Elko County)—March 5, 1915; District Court decree entered March 1, 3, 1923; A separate decree was entered March 23, 1916, in the United States District Court for the District of Idaho, Southern Division, in the matter of Twin Falls Salmon River Land and Water Company v. Vineyard Land and Stock Company; Land involved approximately 13,000 acres.
- Schell Creek** (White Pine County)—September 15, 1934; Hearing on exceptions to Order of Determination October 18, 1937. Case submitted pending filing of briefs by respective counsel.
- Siegel Creek** (White Pine County)—1918; To proofs taken.
- Silver Creek** (Lander County)—March 17, 1927; Decree entered on February 13, 1925.
- Silver Creek** (White Pine County)—Decree entered July 6, 1911; Civil Suit.
- Simpson Creek** (Eureka County)—1910; To Notice of Pendency of Proceedings.
- Six Mile Creek** (Elko County)—July 22, 1919; Court decree filed and entered December 12, 1925; Certificates issued December 31, 1926, under Court decree. Decreed rights for 417.90 acres.
- South Spring** (Nye County)—See North and South Springs.
- Spanish Creek (Perry Aiken Creek)**—1915; Court decree entered on January 22, 1916. Decreed rights for 1,431.0 acres.
- Steele Creek** (Elko County)—To Notice and Order continuing hearings.
- Steptoe Creek** (White Pine County)—January 12, 1931; Decree entered November 6, 1935. Decreed rights for 1,958.05 acres.
- Thousand Springs Creek** (Elko County)—March 24, 1928; Court decree entered December 6, 1929; Certificates issued April 19, 1930, under Court decree. Decreed rights for 5,419.80 acres.
- Tony Creek** (Humboldt County)—1925; Court decree entered August 30, 1929. Decreed rights for 29.88 acres.
- Trout Creek** (Elko County)—1910; To Notice Pendency of Proceedings; Tributary to Humboldt River, adjudicated as part of Humboldt River stream system.

- Truckee River** (Washoe, Lyon, Churchill Counties)—1913; Temporary Order issued by United States Court, February 13, 1926.
- Virgin River** (Clark County)—1921; Court decree entered May 14, 1927. Decreed rights for 1,933.22 acres.
- Walker River** (Douglas, Lyon and Mineral Counties)—1902; March 3, 1919, final decree; July 3, 1924, Bill of Complaint filed by the United States against Walker River Irrigation District restraining the district from obstructing or hindering, etc., the natural flow of 150 cubic feet per second of water to the Walker Indian Reservation; March 12, 1928, B. F. Curler appointed special master by the United States District Court of Nevada; December 29, 1930, Order of United States District Court made and entered accepting resignation of B. F. Curler as special master; January 6, 1931, Robert M. Price appointed special master to succeed B. F. Curler, resigned; April 1932, tentative findings made; Decree entered in District Court of the United States of America in and for the District of Nevada, April 14, 1936. Petition for allowance of appeal filed June 20, 1936, by U. S. Government. Order showing appeal granted June 22, 1936. Appeal to the U. S. Circuit Court of Appeals, 9th Circuit, San Francisco, California, filed February 24, 1938, in Circuit Court of Appeals.
- Weaver Creek** (White Pine County)—Decree entered May 12, 1894; Civil Suit.
- Weeks (Steel) Creek** (Elko County)—1915; To Notice of Inspection served on claimants. Refer to K. C. Creek.
- White River** (White Pine and Nye Counties)—Certificates issued by State Engineer under sections 14 to 19, inclusive, of Statutes 1907, in 1912; December 4, 1922, case reopened under Statutes 1913; Order of Determination filed with Court October 7, 1922; Hearing on exceptions held December 4, 1922; Decree entered nunc pro tunc as of December 4, 1922, by Hon. H. W. Edwards, District Judge, Seventh Judicial District Court of Nevada in and for the county of White Pine. Decreed rights for 3,951.10 acres.
- Woods Gulch** (Elko County)—Petition for Determination of Relative Rights filed. Stipulation entered into December 27, 1929. Petition withdrawn January, 1930.

In addition to the foregoing, the following is a partial list of streams in each county of the State on which no statutory adjudication of relative rights has ever been made:

Churchill County

Augusta Canyon Creek, Cold Springs Creek, Cedar Creek, Cow Creek, Cherry Creek, East Gate Creek, Eagle Creek, Edwards Creek, Horse Creek, Headleys Creek, New Pass Creek, Pony Creek, Rocky Canyon Creek, Rock Creek, Shoshone Creek, Sage Hen Creek, Silver Hill Creek, Spring Creek, Shoshone Creek Canyon, Willow Creek.

Clark County

Cold Creek, Corn Creek, Indian Springs, Kyle Canyon Creek, Las Vegas Wash, Willow Creek.

Douglas County

Bryant Creek, Buck Ranch Creek, Brunswick Canyon, Cottonwood Creek, Glenbrook Creek, Leviathan Creek, McFaul Creek, North Logan Creek, Pinenut Creek, Red Canyon Creek, Willow Canyon Creek.

Elko County

Buck Creek, Bear Creek, Bruneau River, Chase Creek, Cave Creek, Conway or Renshaw Creek, Camp Creek, Crittenden Springs, Canyon Creek, Cole Creek, Dawley Creek, Deep Creek, Drival Swamp, Dolly Varden Springs, Egan Creek, Ferguson Creek, Fall Creek, Flannigan Gulch Creek, Fish Springs, Gordon and South Wiseman Creek, Gorse Creek, Hardy Creek, Hawkins Creek, Hydes Creek, Hanneman's Creek, Jarbidge River, Jasper Creek, Kelly Creek, Leach Creek, Latham Creek, Mayhugh Creek, Mill or Marsh Creek, Meadow Creek, Martin Creek, Nelson Creek, Pilot Creek, Phalen Creek, Renshaw or Conway Creek, Rock Creek, Spring Canyon Creek, Schmidt Springs and Creek, Spring Creek, Sheep Creek, Snow Canyon Creek, Signal and Dry Creeks, Shell Creek, Stratton Springs, Seventy-six Creek, Taylor Creek and Springs (in T. 27 N., R. 62 E.), Taylor Creek and Springs (in T. 28 N., R. 61-62 E.), Taylor Creek and Springs (in T. 29 N., R. 62 E.), Van Duzer Creek, Willow, Lime and Wilson Creeks,

Warm Springs, Woods Gulch, Wiseman Creek, Winchell Creek, Warm Creek, Williams Creek, Wilson Creek.

Eureka County

Allison Creek, Antelope Creek, Austin and Edwards Springs, Barley Springs, Big Pole Creek, Boulder Creek, Brock Canyon, Cedar Creek, Coils Creek, Copenhagen Creek, Cottonwood Creek, Cottonwood Canyon, Crooked Creek, Dagget Creek, Denay Creek, Devil's Gate Creek, Faulkner Creek, Ferguson Creek, Fish Creek, Garden Pass Creek, Garden Valley, Hansen or Shipley Creeks, Henderson Creek, Horse Creek, Horse Canyon Creek, Hot Springs, Indian Springs Creek, Jackass Creek, James Creek, Kelly Creek, Maggini Spring, McClosky Creek, Nine Mile Creek, Pathansen Creek, Pedriola Creek, Pine Creek, Pinto Creek, Reynolds Creek, Roberts Creek, Rock Canyon, Rodeo Creek, Rutabago Creek, Shipley, Garden Valley or Hansen Creeks, Sheep Creek, Simpson Creek, Taft Creek, Torre Creek, Underwood Creek, Willow Creek, Wallace Canyon.

Humboldt County

Alta Creek, Alder Creek, Antelope Creek, Big High Rock Creek, Buffalo Creek, Big Creek, Battle Creek, Boyd Creek, Cane Creek, Chimney Creek, Clunicy Creek, Cumberland Creek, Cow Creek, Craine Creek, Cottonwood Creek, Denio Creek, Donnelly Creek, Eden Creek, Fall Creek, Granite Creek, Gootch Canyon, Handys Creek, Horse Creek, Happy Creek, Harmony Canyon Creek, Jackson Creek, Jake's Creek, Jim Creek, Knott Creek, Leonard Creek, Lee Creek, Long Canyon Creek, McConnell Creek, Mary Sloan Creek, Mud Meadow Creek, Polkinghorne Creek, Pasquales Warm Springs, Pass Creek, Piute Creek, Ross Creek, Raven Creek, Sage Creek, Santa Rosa Creek, Soldier Meadow Creek, Thousand Creek, Trout Creek, Thomas Creek, Virgin Creek, Wilder Creek, Wood Canyon Creek, Water Canyon, Whites Stream.

Lander County

Antelope Creek, Ben's Creek, Big Creek, Boone Creek, Burton Creek, Birch Creek, Blakely Creek, Blackbird Creek, Blackbird Canyon, China Springs, Crooked Creek, Corsley Creek, Campbell Creek, Clear Creek, Cottonwood Creek, Coil Creek, Cooks Creek, Duck Creek, Elkhorne Creek, Elder Creek, Fish Creek, Frenchman Creek, Globe Creek, Gilbert Creek, Galena Creek, Harry Creek, Italian Canyon Creek, Iowa Creek, Indian Creek, Johnson Creek, Kingston Creek, Knox Creek, Lewis Creek, Lynch Creek, Murphy Creek, Mill Creek, Ox Corral Creek, Paek Creek, Peterson Creek, Porter Creek, Rock Creek and Tributaries, Spanish Creek, Sheep Creek, Shoshone Creek, Smith Creek, Schconhofer Creek, San Juan Creek, Stoneberger Creek, Silver Creek, Trout Creek, Tar Creek, Willow Creek, Wilson Creek, Woodward Creek, Washington Creek.

Lincoln County

Beaver Dam Creek, Craw Creek, Camp Valley Creek, Cottonwood Creek, Cave Creek, Cherry Creek, Dupont Creek, Edward Springs, Flat Nose Creek, Grapevine Canyon Creek, Meadow Valley, Mill Canyon Creek, Malloy Creek, Miller Creek, North Creek, Patterson's Wash, Pony Springs, Panaca North Spring, Page Basin Creek, Rosencrams Creek, Sheep Creek, Timber Creek, Winz Creek, Wilson Spring.

Lyon County

American Canyon Creek, American Flat Creek, Churchill Canyon Creek, Dalzel Canyon Creek, Eldorado Canyon Creek, Gold Canyon Creek, Nye Canyon Creek, Rough Creek, Sweetwater Creek, Scotts Canyon Creek.

Mineral County

Alum Creek, Big Squaw Creek, Bodie Creek, Cottonwood Creek, Cottonwood Canyon, Dutch Creek, Finger Rock Wash, Gobbs Creek, Mud Spring Canyon, Nye Creek, North Canyon, Powell Creek, Rose Creek, Rough Creek, Spearmint Canyon, Willow Canyon.

Nye County

Andrew Creek, Amargosa River, Ash Meadow Spring, Big Creek, Blue Springs Creek, Belcher Creek, Brood Creek, Barker Creek, Bull Creek, Big Springs Creek, Copenhagen Creek, Cloverdale Creek, Cherry Creek, Cove Creek, Carsley Creek, Cottonwood Creek, Clear Creek, Decker Creek, Deckerbob Summit Creek, Eden Creek, Forest Home Spring, Fish Creek, Grinnell Creek, Hunts Canyon

Creek, Hercules Creek, Hot Creek, Ione Creek, Indian Creek, Intermittent Creek, Jefferson Creek, Jett Creek, Last Chance Creek, Little Meadows Creek, Manhattan Canyon, Moores Creek, Moorman Channel, Mosquito Creek, Meadow Canyon Creek, Needles Creek, North Barker Creek, North and South Twin Creeks, North and South Moores Creeks, Ophir Creek, Pine Creek, Pablo Creek, Snowball Creek, Smith Creek, Stewart Creek, Shipley Creek, Troy Creek, Twin River, Wisconsin Creek, Willow Creek, Wilson Creek, Warm Springs.

Pershing County

Antelope Canyon Creek, Big Creek, Bushee Creek, Clear Creek, Coyote Creek, Cherry Creek, China Creek, Cow Creek, Cinnabar Creek, Dry Bed Cherry Creek, Elbow Creek, Eldorado Canyon Creek, Elder Creek, Golconda Creek, Indian Creek, Jim Creek, Limerick Canyon Creek, Lang Syne Canyon Creek, Morning View Canyon Creek, Miller Creek, Pleasant Valley Creek, Panther Creek, Perry Canyon Creek, Pollard Spring, Pole Creek, Peavine Creek, Rocky Canyon Creek, Rose Creek, Sonoma Creek, Spring Valley Creek, Star Creek, Trinity Canyon, Troy Canyon, Wrights Creek, Water Canyon Creek.

Storey County

Louistown Creek, Long Valley Creek, Six Mile Canyon.

Washoe County

Alkali Lake, Buffalo Creek, Bull Creek, Big Mouth Creek, Bardwell Creek, Boulder Lake, Cottonwood Creek, Clear Creek, Catnip Creek, Coyote Creek, Central Lake, Cedar Creek, Duck Lake Creek, Dry Valley Creek, East Creek, Fish Creek, Fox Creek, Granite Creek, High Rock Creek, Hardscrabble Creek, Hays Creek, Hog Ranch Creek, Jones Creek, Little High Rock Creek, Lost Creek, New Year Lake, Nigger Creek, Massacre Lake, Middle Lake, Peterson Creek, Poison Creek, Rye Patch Creek, Red Mountain Creek, Rock Creek, Rodeo Creek, Sand Creek, Smoke Creek, Squaw Valley Creek, Tuledad Creek, Washoe Lake and Tributaries, Wall Canyon Creek, West Lake, Yellow Rock Canyon Creek.

White Pine County

Antelope Springs, Bassett Creek, Bastion Creek, Big Spring, Bull Creek, Boston Creek, Cleveland Creek, Cold Creek Springs, Cave Valley or Sheep Creek, Chinn Creek, Connors Creek, Cherry Creek, Deadman Creek, Duck Creek, Deadmans Wash, Ellison Creek, Egan Canyon, Eph Creek, Frenchman Creek, Goshute Creek, Grass Valley Creek, Gleason Creek, Huntington Creek, Halstead Creek, Holt Creek, Indian Creek, Indian Springs, Kalamazoo Creek, Keeler Canyon, Lake Creek, Lusetti Spring, Lexington Creek, Muncey Creek, McCoy and Garden Creek, Middle Creek, Marble Canyon, Mosier Creek, Mill Creek, Mud Springs, North Garden Creek, North Creek, Nigger Abe Creek, Odgers Creek, Pleasant Valley Creek, Pinto Creek, Snake Creek, Stephens Creek, Spring Valley Creek, Spring Creek, Smith Springs, Siegel Creek, Snow Creek, Sheep and North Creeks, Schoolhouse Creek, Sawmill Creek, Silver Creek, Timber Creek, Willard Creek, Willow Creek, Weaver Creek, Worthington Springs, White Rock Creek, Water Canyon Creek.

CHAPTER VI**Brief Summary of Laws Enacted by the Nevada Legislature Relating to Water and the Office of the State Engineer**

1866

Chapter 100, Statutes of 1866, provided an Act to allow any person or persons to divert the waters of any river or stream, and run the same through any ditch or flume, and to provide for the right of way through lands of others.

1869

Chapter 77, Statutes of 1869, provided an amendment to the 1866 Act to allow any person or persons to divert the waters of any river or stream, etc.

1879

Chapter 82, Statutes of 1879, provided an Act to encourage the sinking of artesian wells, under which Act any persons thereafter sinking an artesian well or wells within the State shall be entitled, for sinking said artesian well or wells, after the first 500 feet shall have been sunk, to the sum of \$2 per foot, provided that said well or wells shall flow water to be used beneficially. The bounty of \$2 per foot after the first 500 feet was to be paid from the General Fund of the county in which said well was located.

1887

Chapter 127, Statutes of 1887, also provided an Act to encourage the sinking of artesian wells and repealing all Acts or parts of Acts in conflict with any of the provisions of this Act. This Act provided that anyone after the passage of this Act commencing the sinking of artesian wells shall be entitled for sinking such artesian well or wells where flowing water is obtained, to the sum of \$1.25 per foot, provided that no bounty shall be paid on any well which does not furnish 7,000 gallons of water every 24 hours flowing continuously for 30 days; and provided that bounties shall not be paid on more than three wells in each county; and provided further, that no two wells shall receive a bounty if located within 10 miles of each other. The bounty money was to be paid by the State of Nevada, and the sum of \$10,000 was appropriated for this purpose.

1889

Chapter 48, Statutes of 1889, provided an Act defining and prohibiting the unlawful diversion and waste of water, during the irrigation season, from any river, creek or stream.

Chapter 78, Statutes of 1889, provided an Act to prevent the owners, superintendents or managing agents of any water ditches, flumes or artificial water courses, to allow the water from same to run into or upon any public road, highway, street or alley in the State.

Chapter 104, Statutes of 1889, provided an Act to amend an Act entitled "An Act to allow any person or persons to divert the waters of any river or stream and run the same through any ditch or flume, and to provide the right of way through the lands of others," approved March 3, 1866. This Act was to the effect that any person constructing or maintaining a ditch or flume under the provisions of this Act

shall have the undisturbed right of flowing water through the same, provided that nothing in this Act contained shall be so construed as to interfere with any prior or existing claim or right.

Chapter 112, Statutes of 1889, contained an Act to provide for the storage of water, to encourage milling, mining and internal improvements and to reclaim the arable desert lands and develop the agricultural resources of the State of Nevada, and to provide funds for the payment of same. The State of Nevada had heretofore received from the Government a grant of 2,000,000 acres of land not confined in any particular location, and in order to make this land of some value the above Act was passed. Under this Act a board of reclamation commissioners was created, consisting of four members. The duties of the board were to procure statistics in regard to all public lands and waters subject to reclamation; to divide the State into districts, and to let bids for the construction of canals, dams, etc. For the purpose of carrying out construction work the sum of \$100,000 was appropriated from the State School Fund and replaced by bonds. For the payment of the interest and redemption of these bonds an ad valorem tax of two cents on each \$100 of all taxable property in the State was fixed.

Chapter 113, Statutes of 1889, provided an Act to regulate the use of water for irrigation and for other purposes; for settling the priority of rights thereto, and to prevent the unlawful interference with such rights; to provide for the condemnation of land for reservoirs; for recording claims to water rights, and the appointment and duties of water commissioners. Under this Act the State was divided into seven districts with one water commissioner for each district. The district court in each district was vested with the jurisdiction of hearing, adjudicating and settling all questions concerning priorities, etc. The Act provided that all persons claiming any interest in any ditch, canal or reservoir shall on or before September 1, 1889, file claim thereof with the County Recorder, and that thereafter any person building any ditches, etc., for the purpose of appropriating water shall first file a statement with the County Recorder showing source, point of diversion of water, etc. Section 13 of said Act was to the effect that the waters of every natural stream not heretofore appropriated within the State are hereby declared to be the property of the public, subject to appropriation as herein provided. The Act further provided a procedure for the determination of the priorities by the district court; for the issuance of certificates of appropriation by the County Clerk; for an appeal from the decree rendered by the District Court, and for the repeal of all Acts inconsistent with this Act.

1899

Chapter 97, Statutes of 1899, provided an Act to define and preserve existing water rights, provide for the storage of surplus waters, and regulate the mode of using and acquiring the use of water in the future. It provided that all natural water courses and natural lakes, and the waters thereof which are not held in private ownership, belong to the State, and are subject to regulation and control by the State; that all existing rights, whether acquired by appropriation or otherwise, shall be respected and preserved; that there is no absolute property

in the waters of a natural water course or natural lake and that only a usufructuary right can be acquired; that when the necessity for the use of water does not exist the right to divert it ceases; that change of point of diversion and place of use may be made provided that such change does not substantially injure others; that prior rights to the use of unappropriated waters may be acquired in the manner provided for in this Act; that a cubic foot of water per second of time shall be the standard of measurement; that a board of water commissioners in each county is hereby created consisting of the Board of County Commissioners and County Surveyor; that anyone desiring to appropriate water shall forward to the County Surveyor an application in duplicate for permission to make such appropriation; that the application shall set forth the name and post-office address, the source, the amount of water desired, the proposed construction works, and if for irrigation, a description by legal subdivisions; that permission to appropriate water be granted only if there is a surplus of water remaining in the source over and above the then existing vested and accrued rights; that if an application is refused the party making such application has the right to appeal therefrom in the District Court; that after an application has been perfected a certificate can be issued to the applicant and must be recorded in the office of the County Recorder; that anyone desiring to construct a dam more than ten feet in height shall submit plans to the board of water commissioners for their approval; that anyone violating any of the provisions of this Act shall be deemed guilty of a misdemeanor; that it is discretionary with the County Commissioners, severally, whether such county shall avail itself of the provisions of this Act, as to forming a board of water commissioners.

1901

Chapter 59, Statutes of 1901, provided an Act to provide for the measurement of streams, the survey of reservoir sites, the determination of the irrigation possibilities, and of the best methods of controlling and utilizing the water resources of the State in cooperation with the United States Geological Survey, the United States Department of Agriculture, and the Nevada Experiment Station. For the above purpose a sum of \$4,000 was appropriated. A State Board of Irrigation was created, consisting of the Governor, the Surveyor General, and the Attorney-General to direct the expenditure of the money appropriated.

1903

Chapter 4, Statutes of 1903, approved on February 16, 1903, provided an Act for the cooperation of the State of Nevada with the Secretary of the Interior of the United States in the construction and administration of irrigation works for the reclamation of arid lands in the State of Nevada. It provided for the conferring upon the Secretary of the Interior such rights and powers under the laws of Nevada as were necessary to enable him to carry out and execute an Act of the Congress of the United States, approved on June 17, 1902, entitled "An Act appropriating the receipts from the sale and disposal of public lands in certain States and Territories to the construction of irrigation works for the reclamation of arid lands," commonly known as the Reclamation Act. It provided that "all natural water courses and

natural lakes, and the waters thereof which are not held in private ownership, belong to the public, and are subject to appropriation for a beneficial use, and the right to the use of water so appropriated for irrigation shall be appurtenant to the land irrigated, and beneficial use shall be the basis, the measure, and the limit of the right; the use of all water now appropriated, or that may hereafter be appropriated, is hereby declared to be a public use." (Section 1, chapter 4, Statutes of 1903.)

The office of State Engineer was created, vesting in him the authority to collect and prepare for each stream in the State a list of the appropriations of water according to priority thereon, based on a hydrographic survey of such streams, a cultural survey of the lands irrigated therefrom, and upon the sworn statement of each appropriator of the facts upon which he based his claim to the use of such water and his priority. Following the preparation of such a list, it became the duty of the State Engineer to issue to each person represented in such list a certificate over his signature, setting forth the name and post-office address of the appropriator, the priority number of such appropriation, the amount of water appropriated and the amount of prior appropriation, and in cases where the water was used for irrigation, a description of the land to which the water was appurtenant. Proper provision was made for appeal to any court of competent jurisdiction from the determination of the State Engineer by any party or number of parties acting jointly, who might have felt themselves aggrieved by his action, making all other parties having interests adverse to the party or parties bringing the action codefendants therein. The Act also provided that "the State Engineer shall be a member of the State Board of Irrigation and shall act as secretary." This Act was the first step made by the State in providing a speedy and inexpensive method of adjudicating water rights.

1905

Chapter 46, Statutes of 1905. The Act of 1903, while providing for adjudication of all rights to the use of water which had become vested or were then in process of initiation by the physical act of appropriation, did not provide for rights thereafter to be initiated. Therefore an Act amendatory of and supplemental thereto was approved on March 1, 1905 (chapter 46, Statutes 1905) requiring any person, association or corporation thereafter desiring to appropriate any of the public waters of the State, or to change the place of use of water already appropriated, to file an application for permission to make such appropriation or change with the State Engineer, and making it the duty of the State Engineer to examine into the facts regarding water supply in the source applied for and to approve or deny the application in accordance with his findings as to the existence or non-existence of unappropriated water in such source. This amendatory Act provided for the publication of a proper notice of each application in some newspaper of general circulation within the boundaries of the water system, or water source from which the appropriation was to be made; for the filing of protests against the granting of such application; the hearing of pertinent testimony in connection therewith; the filing of maps by applicants whose applications had been approved,

and the filing of sworn statements within set periods setting forth the facts necessary to determine the nature and extent of the appropriation gained thereunder.

1907

Chapter 18, Statutes of 1907, contains "An Act to provide for the appropriation, distribution and use of water, and to define and preserve existing water rights, to provide for the appointment of a State Engineer, an Assistant State Engineer, and fixing their compensation, duties, etc." This Act, which was approved on February 26, 1907, repealed chapter 4, Statutes of 1903, and chapter 46, Statutes of 1905, together with all other Acts and parts of Acts in conflict therewith. The law as enacted under this Act did not differ in any essential particular from the Act of 1903, as amended in 1905, but contained additional provisions regarding applications to appropriate water. The principal additions were a method to change the point of diversion and place of use of water already appropriated; providing a method for aggrieved parties to bring action against a decision of the State Engineer, and providing a fine for anyone found guilty of a misdemeanor. The method of adjudicating vested rights remained the same as set out in the 1903 laws, briefly being as follows: Claimants to vested rights filed proofs of such claims on forms furnished by the State Engineer's office. Following the filing of such claims the State Engineer made an investigation of the stream system and prepared a list of priorities, following which certificates were issued to each appropriator. Any party aggrieved by the determination of the State Engineer had the privilege of bringing action in any court of proper jurisdiction.

1909

Chapter 31, Statutes of 1909, approved on February 20, 1909, provides an Act amendatory to the Act of 1907. The main amendatory provisions provided for the maximum quantity of water which may thereafter be appropriated for irrigation purposes; for the cancelation of an application to appropriate water if the application is not corrected and refiled within 60 days after being returned to applicant, and for the filing of proofs of commencement of work. New sections added provided for fees to be charged for filing applications, proofs, copying papers, etc., and the issuance of certified copies of papers, etc.

Chapter 81, Statutes of 1909, approved March 10, 1909, required that any person using any of the public waters of this State under any certificate or permit issued by the State Engineer must install and maintain at or near the point of diversion or use a substantial headgate and measuring weir. The water commissioner, acting under the instructions of the State Engineer, was given the right to enter in or over private property for the purpose of installing headgates.

Chapter 164, Statutes of 1909, contained an Act to provide for the reclamation and occupancy of lands subject to acceptance by the State of Nevada under the provisions of the Acts of Congress approved on August 18, 1894, June 11, 1896, and March 3, 1901, known as the Carey Act, and to repeal all Acts in conflict therewith. Under this Act anyone desiring to construct ditches, canals or artesian wells to reclaim land had to file with the State Land Register a list of the lands desired, together with proposed irrigation works and a certificate from

the State Engineer that the applicant had applied for a permit to appropriate water. The State Engineer then examined the land to determine the feasibility of the project and reported to the State Land Register. Following a favorable report the State Land Register entered into an agreement with the Secretary of the Interior to withdraw the land and also an agreement with the applicant. Any citizen may then make application to the State Land Register to enter any of said lands in any amount not exceeding 160 acres for any one person. Such application must contain, among other things, a certified copy of a contract for a perpetual water supply from the party who was authorized by the State to furnish water to the settlers for reclamation. When any of the said lands were irrigated, reclaimed and occupied as provided in the Acts of Congress, the settler made proof of compliance. The Government then issued patent to the State, which in turn issued a patent to the settler.

1911

Chapter 74, Statutes of 1911, provided an Act creating the Bureau of Industry, Agriculture and Irrigation, consisting of five members, four of whom shall be ex officio members, namely, the Governor, the Surveyor General, the Attorney-General and the State Engineer. The main purposes of this commission were to make a study of industrial, agricultural, irrigation and reclamation problems; to carry on explorations and experiments to determine the feasibility of reclaiming favorable portions of the State by utilizing the subsurface waters, and to have control of the selection, management and disposal of all lands granted to the State under the provisions of the Act of Congress approved in 1894 and known as the Carey Act.

Chapter 76, Statutes of 1911, provided an Act in relation to the Act of Congress known as the Carey Act, and governing the State Commission of Industry, Agriculture and Irrigation in the control of the selection, management and disposal of all lands granted the State under the provisions thereof. This Act repealed the Act of 1909 (chapter 164). The primary purpose of this Act was to aid the State in securing private capital to construct irrigation works and hence aid in the development and reclamation of its arid lands. Briefly, the essential provisions of this Act are as follows:

Any person, association, company or other agency that desires to operate under said laws must supply the required funds for constructing, under State supervision, such irrigation works as are necessary to store or develop and deliver water in sufficient quantity to irrigate such arid land as can be reclaimed under the project. An application must contain at least 1,280 acres of unappropriated public land, and the applicant is required to prepare a map showing the location and lay of the area to be reclaimed, the plan of the irrigation system, and the source of water supply, together with such other full and complete data as is necessary to show that the proposed scheme when fully developed will be sufficient to thoroughly irrigate and reclaim the land within the meaning of the law. It is very important that full and complete information be submitted to show that the water supply will be adequate for the purpose desired, and, also, the application must contain all necessary data and estimates to prove that the construction

and operation of the proposed project is feasible and practicable. This is a general idea of the exacting requirements to initiate, promote and construct an irrigation project under said laws.

After the irrigation system is completed and water is ready for delivery, then the land is subject to entry in tracts not exceeding 160 acres by any bona fide applicant, who must establish residence thereon by actually occupying, reclaiming and utilizing same. The price of the land is usually a very small consideration per acre and is fixed by State authority, a small portion of which is paid to the State when making the entry, and the balance in partial payments or when final proof of settlement and reclamation is submitted. The entryman purchases his water right from the person or agency that constructed and completed the irrigation system, and when fully paid has a permanent right with a proportionate interest or ownership in the irrigation works and canal system and all of the rights and franchises thereof. The cost of the water right per acre usually depends on the amount of capital invested in constructing and completing the enterprise in relation to the amount of land to be reclaimed; however, such right is usually obtained by annual payments extended over a period of several years. When the irrigation works are completed and water is available for reclaiming a specific amount of land, then the United States, through the Secretary of the Interior, will patent such tracts to the State without any charge therefor, after which the authorized State officials convey title to the occupants when the regulations and requirements governing such entries have been complied with.

1913

Chapter 54, Statutes of 1913, provided an Act to provide a law for the conservation of underground waters in the State of Nevada; providing for the casing and capping of artesian wells; and providing a penalty for the violation of the provisions of such Act. This Act applied only to artesian wells.

Chapter 140, Statutes of Nevada, approved on March 22, 1913, provided a new water law, sections 1 to 87, and repealed the water law of February 26, 1907, the amendatory Act of February 20, 1909, together with all other Acts in conflict with the new law. The water law for the first time takes cognizance of underground water, viz, "The waters of all sources of water supply within the boundaries of the State, whether above or beneath the surface of the ground, belong to the public." (Section 1, chapter 140.)

Under the Act of 1913 the water law was greatly broadened, both as to the adjudication procedure of vested rights and the appropriation of water procedure by application to the State Engineer. The major changes and additions to the 1907 Act in regard to the determination of vested rights are briefly as follows:

Vested water users of any stream had the privilege of petitioning the State Engineer for a determination of relative rights of the various claimants to the waters thereof. Should the State Engineer grant the petition notice thereof had to be published for a period of four consecutive weeks in a newspaper of general circulation within the boundaries of the stream system. Investigations were to be made by the State Engineer and maps caused to be prepared, and upon the filing

of maps, etc., the State Engineer prepared a notice setting forth the date when the State Engineer was to commence the taking of proofs, the date prior to which proofs must be filed, etc. Such notice was to be given the proper publication as noted above. Notices, together with blank forms, were sent to all claimants. The law provided that any claimant properly notified failing to file proof of his claim within the time limit would be guilty of a misdemeanor and punishable by a fine. Persons interested in the stream system being adjudicated upon whom no service of notice of pendency had been served and who had no knowledge of such proceeding were given additional time within which to intervene. Fees to accompany proofs were set, the minimum fee being \$5 for any claimant.

Following the expiration period for filing proofs the State Engineer prepared an abstract of claims and caused same to be printed and sent copies of same to all claimants, together with a notice stating the time when all of the evidence would be open to inspection. Any person claiming an interest in the stream system involved, whether under claim of vested right or under a permit from the State Engineer, had the privilege of contesting the proof of claims and statements by setting forth his objections in writing. The State Engineer then fixed a time for the hearing of said contest and sent notice of same by registered mail to the contesting parties. (NOTE—It is noticed here that only the contesting parties were brought into the hearing, and not all of the claimants.)

Following the above hearing the State Engineer filed his Order of Determination establishing the several rights to the waters of said stream, copies of which were to be sent by registered mail to all claimants. The Order of Determination was to be in full force and effect from and after the date of entry in the records of the State Engineer's office, unless stayed by a stay bond.

Anyone feeling aggrieved by the determination of the State Engineer may have an appeal from the order in the District Court. Notice of such appeal must be filed in the District Court within six months following the receipt of the Order of Determination. Following the entry of the judgment by the District Court the Clerk of the Court notified the State Engineer, who immediately entered the same upon his records. If no appeal was taken to the judgment the State Engineer issued a certificate of appropriation to all persons having a right under the final determination. (NOTE—Under this Act certificates of appropriation were based on the Order of Determination and no court hearing given unless the Order was appealed from.)

The procedure adopted under this Act to appropriate the public waters of the State is similar to the 1905 Act and amendatory Acts of 1907 and 1909 except that it is greatly enlarged. The main additions are as follows:

Following the approval of an application the State Engineer sets a time within which the permittee must commence work, complete work and place the water to beneficial use and file proofs thereof, together with map. The amount of fees to be paid for filing applications to appropriate water, filing of proofs, etc., were changed. A section was included to allow a person to secure a permit to store water in a reservoir and for secondary permits for parties placing the water from

reservoirs to beneficial use. The Attorney-General and District Attorney of the county in which legal questions arise were made the legal advisors of the State Engineer.

Section 84 of this Act is to the effect that nothing in said Act contained shall impair the vested right of any person to the use of the water, nor shall the right of any person to take and use water be impaired or affected by any of the provisions of this Act where appropriations have been initiated in accordance with law prior to the approval of this Act.

Chapter 174, Statutes of 1913, provided an Act relating to the issuance of permits for the appropriation of water, where the works or any part thereof to be constructed under such permits or the point of diversion or place of intended use, or any part thereof, are situated without the State of Nevada.

Chapter 181, Statutes of 1913, provided an Act providing for the investigation of the water resources of the State of Nevada in cooperation with the United States Geological Survey, and to make an appropriation for the expense of such investigations.

1915

Chapter 210, Statutes of 1915, provided an Act to provide a law for the conservation of underground waters, providing for the casing and capping of artesian wells, defining the underground waters which are governed by the laws relating to the appropriation of the public waters of the State, providing a penalty for the violation of the provisions of the Act, and prescribing the duties of the District Attorneys in relation thereto.

Under this Act all underground water, save and excepting percolating water, the course and boundaries of which are incapable of determination, were declared to be subject to appropriation under the laws of the State relating to the appropriation and use of water.

Chapter 253, Statutes of 1915, was an Act to amend certain sections of the general water law (chapter 140, Statutes 1913) to repeal certain other sections and to add new sections. Apparently in order to give the administrative findings a judicial effect the 1915 Legislature added numerous sections and amendments to the 1913 law.

The essential changes in the amendatory sections were: Upon neglect or refusal of any person to make proof of his claim or rights to the waters of a stream system, the State Engineer shall determine the right from such evidence as he may have and file same in court as provided in the 1915 Statutes. Under the 1913 Act anyone refusing to submit proof of his claim was guilty of a misdemeanor and subject to a fine. Following the hearing of contests on the State Engineer's abstract of proofs and the preparation of the Order of Determination and the transmittal to the various claimants a certified copy of the Order of Determination and all evidence is filed with the ex officio Clerk of the District Court, whereupon the Clerk of the Court furnishes the State Engineer with a copy of the order of the court setting a time for the hearing. Provisions were made for anyone aggrieved with the Order of Determination to file exceptions with the Clerk of the District Court. Following the hearing before the court, the court enters a decree affirming or modifying the Order of Determination. It

is noted that under the 1913 Act if no exceptions were taken to the Order of Determination the matter never went into court and the State Engineer issued certificates of appropriation based on said order. In case anyone made exception to the Order of Determination the court could modify said order as applying to the exceptor's claims.

Certain provisions were added relating to the appointment, duties and salaries of water commissioners and certain sections of the 1913 Act pertaining to appeals from the Order of Determination were repealed.

The section referring to fees was amended as was the section giving anyone dissatisfied with any order of the State Engineer the proper review before the court.

New sections added provided that all maps and other evidence relating to any Proof of Appropriation on file in the office of the State Engineer shall be admissible in court upon certain provisions, on the hearing of the Order of Determination; provisions were also made under a new section providing that when the State Engineer had already issued findings declaring the relative rights of appropriators in and to the waters of any stream system, the same may be submitted to the court under the provisions of sections 34 to 39, inclusive.

1917

Chapter 190, Statutes of 1917, provided only an amendment to section 8 of the 1913 general water law statutes. This section mainly concerns the regulations as to use and appropriation of water. The amended section provides that should the owner of any ditch, canal or reservoir fail to use the water therefrom for beneficial purposes for which water rights exist during any *five* successive years, the right to use same shall be considered as having been abandoned, and he shall forfeit all water rights, easements and privileges appurtenant thereto and the water formerly appropriated by said owner may again be appropriated for beneficial use, the same as if such ditch, canal or reservoir had never been constructed. Under the 1913 Act the limit for nonuse was *four* years.

1919

Chapter 59, Statutes of 1919, provided an amendment to section 59 of the 1913 Water Law Act. In the 1913 Act it provided "that any person desiring to appropriate * * *." The amended section reads: "Any corporation authorized to do business in the State, or any citizen of the United States, or any person who has legally declared his intention to become such, over the age of 21 years, desiring to appropriate * * * ; provided, that any person under the age of 21 years who has served or shall hereafter serve in the Army of the United States, during the present emergency, shall be entitled to the same rights as others over 21 years of age possess * * * ; provided further, that no assignment of any water permit or application shall be valid for any purpose unless made to one authorized hereunder to acquire the same in the first instance."

Chapter 209, Statutes of 1919, provided an amendment to section 52 of the 1915 Act relating to the appointment of water commissioners by the Governor and the method of assessment against the water users to pay the salaries of said water commissioners. Briefly, section 52 of

the 1913 Act provides that the water commissioners appointed by the Governor shall execute the laws prescribed in sections 53 to 58, inclusive, under the general direction of the State Engineer. That the salaries of said commissioners shall be paid by the water users in proportion to the acreage served as determined by the findings of the State Engineer or the court. That the State Engineer prepare a certified list of the land to be served and transmit same to the Board of County Commissioners, following which the said board transmits to each property holder being served by the water commissioner a statement showing the amount due; that if said amount is not paid within 30 days the amount so charged shall become a lien against the property; that upon the receipt of a statement from the State Engineer showing the land served by the commissioner and the number of days he was employed, the board is to draw a warrant against the General Fund of the county; that upon payment by said property owners said amount collected is to be placed to the credit of the General Fund of said county.

Under the 1915 amendment the Act is changed so that the water commissioners shall execute the laws prescribed in sections 53 to 88, inclusive, and provides a minimum charge of one dollar against each water user assessed under this Act.

The 1919 amendment provided that the Board of County Commissioners may establish a special fund for each water district within such county which shall be known as "..... Water District Salary Fund," and all moneys collected from the water users in any such district shall be placed in such fund. Upon receipt of a certified statement from the State Engineer showing the number of days the water commissioners were employed, payment for such service to be made from the said special fund.

1921

Chapter 106, Statutes of 1921, provided several amendments and new sections to the general water law. The sections relating to adjudications were amended so as to provide for contests being filed against findings made by the State Engineer rather than against the claims of the appropriators. In 1921 the Supreme Court ruled that sections 29, 31, and 32 of the 1913 Act and section 30, as amended by section 2, chapter 253, of the 1915 Act, were unconstitutional. During this Legislature the objectional features and wording of these sections were changed. The amendments were to the effect that following the filing of the Proof of Appropriation and the preparation of an abstract of claims the State Engineer shall prepare a Preliminary Order of Determination, copies of which are sent to all claimants, together with a notice fixing the time and place of inspection. Within certain specified periods objections may be made to any finding, part or portion of the Preliminary Order of Determination by filing such objections with the State Engineer, and a time for hearing of objections before the State Engineer is set. Following the hearing of objections to the Preliminary Order of Determination the State Engineer prepares an Order of Determination, a certified copy of which is filed with the Clerk of the District Court which has the legal effect of a complaint in a civil action. Certified copies are also sent to all claimants who have the opportunity of filing with the Clerk of the Court their objections to said order.

Section 36A is added, which provides that after the decree is entered a claimant may at any time within three years from entry thereof apply to the court for a modification of said decree, insofar only as said decree fixed the duty of water.

Section 36B is added which provides that whenever there are ten or less claimants on a stream system the claimants can waive in writing the provisions of this Act with reference to notices and the service and publication thereof, and the State Engineer may make an Order of Determination without the giving, serving, or publication of any notices required in this Act, and may file the same with the District Court in the manner provided in section 34 of this Act.

The sections relating to fees collected by the State Engineer were amended. Under this Act the fees for filing an application to appropriate water were increased to \$20, and for the issuance of permits were increased with a minimum of \$10. The fee for filing proofs of appropriation was increased, with the minimum being \$10.

This Act also provided that all maps and surveys and measurements of water required under the provisions of this Act shall be made by a State Water Right Surveyor. Provision for the appointment, fees and bond are also set forth in this Act.

Chapter 195, Statutes of 1921, repeals an Act approved on March 19, 1901, relating to the payment of a bounty to encourage the boring of wells in searching for oil, natural gas, and artesian water in the State of Nevada.

1925

Chapter 85, Statutes of 1925, provided an amendment to the section of the general water law applying to publication of applications to appropriate water. In this Act the publishing fee to be paid by the applicant is fixed at \$12.50. Under the 1913 Act the fee was \$10.

Chapter 201, Statutes of 1925, provided an Act relating to the use of water for watering livestock, generally known as the 1925 Stock Watering Act. This Act provides in part that whenever one or more persons shall have a subsisting right to water range livestock at a particular place and in sufficient number to utilize substantially all that portion of the public range readily available to livestock watering, no further appropriation shall be made; that any person, without the right to do so, watering more than fifty head of livestock at the watering place of another who has a subsisting right to water more than fifty head of stock, or within three miles thereof, shall be guilty of a misdemeanor.

Chapter 181, Statutes of 1925, provided an Act to authorize the payment of costs and expenses of the Humboldt River adjudication; for the purpose of paying for stenographic work and transcripts, etc., in the Humboldt River litigation, the sum of six thousand dollars was appropriated.

1927

Chapter 191, Statutes of 1927, amended section 35 relating to the filing of objections with the court to the State Engineer's Order of Determination and the hearing of same before the court. This Act provides for the service of proposed findings of fact and decree, in the following manner: All claimants who have filed exceptions shall be served with a copy of the proposed findings of fact and decree by serving the attorney who appeared for them. All claimants who have not

objected shall be served with a copy of the proposed findings of fact and decree by serving the Attorney-General of the State. The section provides also that the cost bill shall be prepared and filed only with the Clerk of the Court.

Chapter 192, Statutes of 1927, provided a new section to the general water law. This section, being 36½, is to the effect that following the filing of the Order of Determination in the District Court the distribution of water by the State Engineer shall at all times be under the supervision and control of the District Court, and said officers and each of them shall, at all times, be deemed to be officers of the court in distributing water under and pursuant to the Order of Determination or under and pursuant to the decree of the court.

Chapter 136, Statutes of 1927, provided for the creation of an "Adjudication Emergency Fund" for the purpose of advancing and paying for transcripts, witness fees, etc., incurred by or upon the authority of the Attorney-General and the State Engineer in any litigation affecting any Order of Determination adjudicating the waters of any stream system. For this purpose all of the money returned under the Act to authorize the payment of costs in the Humboldt River adjudication (chapter 181, Statutes 1925) until such returns shall aggregate the total sum of \$6,000 is to go into the fund and thereafter to be maintained as a revolving fund.

1929

Chapter 107, Statutes of 1929, provided an Act authorizing the establishment of a revolving fund for the State Engineer. Under this Act the State Engineer was authorized to establish out of the fees received from applications for permission to appropriate water and from proofs of appropriation a revolving fund in an amount of \$10,000. The money in this fund is to be used for the payment of emergency bills and expenses.

Chapter 128, Statutes of 1929, provided an Act creating a State Range Commission, the members of said commission to consist of the Governor, the State Engineer, and the third member to be a member of the Nevada Tax Commission.

Chapter 176, Statutes of 1929, provided an amendment to section 54 of the 1913 Water Law Act in re the distribution of the waters of an adjudicated stream system by the State Engineer, also as to the regulation of the distribution of water among the various users under any ditch or reservoir.

1931

Chapter 90, Statutes of 1931, provides an amendment to section 34 of the General Water Law. This amendment is to the effect that if the judge having jurisdiction over the proceedings in relation to the determination of the relative rights of a stream system retires from office, then the Judge of the District Court having jurisdiction of the proceedings shall act as the Judge on said matter or shall select the Judge to preside in such matter.

Chapter 128, Statutes of 1931, provides an amendment to section 72 of the general water law relating to the issuance of certificates under permits to appropriate water. The section is amended to the effect that no final certificate of appropriation or certificate granting a change in the place of diversion, manner of use or place of use of water already

appropriated shall be issued to an applicant who is not a citizen over the age of 21 or to a firm or company which is not a corporation authorized to do business in this State.

Chapter 209, Statutes of 1931, provides an amendment to section 52 of the water law relating to the preparation of a budget for the payment of the salaries of the water commissioners. Said budget shows the costs assessed against each water user in proportion to the aggregate rights in the stream system. When submitted to the Board of County Commissioners said board shall certify the respective charges contained therein to the Assessor of the county who in turn enters the amounts of such charges on the assessment roll against each claimant. Said taxes, when collected, shall be deposited with the State Treasurer of Nevada and placed in a fund known as "Water Distribution Fund," as hereinafter provided, to be paid out in payment of claims for salaries, etc. The section is amended to the effect that the water commissioners shall execute the laws prescribed in sections 52 to 58, inclusive.

Chapter 223, Statutes of 1931, provides amendments to section 36 of the water law relating to the assessing of court costs and the collection thereof; so when a judge who is about to retire from office and who has filed a written decision before retirement may hold hearings for the settlement of written findings of fact and conclusions of law and decree appertaining to such written decision so filed, and shall be entitled to \$100 per day for such services, total expenses not to exceed \$1,500.

Chapter 232, Statutes of 1931, provides an appropriation to create a revolving fund to be known as "The Water Distribution Fund." The sum of \$20,000 was set aside for the purposes as set forth in section 7937 of the Nevada Compiled Laws 1929, as amended by the 1931 session of the Legislature (section 52).

1933

Chapter 109, Statutes of 1933, provides for the insertion of a section to follow section 55 of the general water law and to be known as section 55A. This section provides for the employment of guards, when necessary, by the State Engineer to prevent unlawful diversions of water in any ditch or ditch system, the salaries of such guards to be charged against the owner or owners of the ditch or ditch system, and collected as provided for in section 77, chapter 253, Statutes of 1915.

1935

Chapter 184, Statutes of 1935, provides amendments to the underground water law (Chap. 210, Stats. 1915) and also adds a new section. The amendments concern the prevention of loss of water from artesian wells, both above and below the ground surface, and the administration of the Act by the State Engineer. The new sections pertain to the exercise of the police powers of the State to prevent the waste of underground waters.

1937

Chapter 46, Statutes of 1937, provides an amendment to section 72 of the water law as amended, Chap. 128, Stats. 1931. This section applies to the issuance of certificates under permits to appropriate water, and includes the issuance of certificates under permits to change the place of diversion, manner or place of use of water already appropriated.

Chapter 149, Statutes of 1937, provides amendments to the underground water law approved on March 24, 1915, and amended in 1935. The essential points of the amendments are the requiring of an application for a permit to appropriate water before any work is done towards the sinking of a well in an artesian basin; requiring the permittee to keep an accurate log of the well on forms furnished by the State Engineer's office, and which must be filed in the State Engineer's office within 30 days following the completion of the well; and providing that anyone violating the provisions of the Act shall be deemed guilty of a misdemeanor and on conviction thereof shall be fined in a sum not exceeding \$250 or by imprisonment in the county jail not exceeding six months, or by both fine and imprisonment.

Chapter 150, Statutes of 1937, provides an amendment to section 36 of the general water law as amended, Chap. 223, Stats. of 1931. In this Act certain additions were made to the manner of assessment of court costs by the court and the collection thereof. Also, under this amended Act whenever a Judge before whom a proceeding for the adjudication of a stream system is pending shall cease to be such Judge, his successor to whom such proceedings may be assigned may do all things in and about such adjudication that may be necessary and proper.

CHAPTER VII**Water Distribution—Humboldt River****PERTINENT FACTS AND HISTORY**

Pertinent facts relating to the Humboldt River Stream System are briefly as follows:

Length of main river channel, approximately 800 miles.

Width of river channel, 50 to 100 feet.

Area of watershed, 14,200 square miles.

Area of irrigated lands, 300,000 acres; decreed water rights, 642,913 acre feet.

Number of decreed water rights, approximately 450.

Earliest date of known diversion, about 1860.

Elevation, Lovelock, 3,977 feet.

Elevation, Winnemucca, 4,334 feet.

Elevation, Battle Mountain, 4,514 feet.

Elevation, Elko, 5,063 feet.

Elevation, Wells, 5,633 feet.

PERTINENT HISTORY

During the latter part of 1936 the Rye Patch Dam was completed on the Humboldt River. This structure is located about 23 miles north-east from Lovelock and was built by the Bureau of Reclamation under repayment contract dated October 1, 1934, with the Pershing County Water Conservation District. The history and description of this project was written by L. J. Foster, Construction Engineer, U. S. Bureau of Reclamation, and was included in the State Engineer's 1934-1936 Biennial Report.

The Pershing County Water Conservation District, incorporated in 1927, has about 30,200 acres of irrigable lands within its boundaries, of this amount 21,096 acres have decreed water rights. Land with decreed water rights not within the district amount to approximately 11,600 acres. In order to obtain water to irrigate the irrigable lands within the district not having decreed water rights and to supplement the decreed water rights the district purchased considerable land and water rights in the Battle Mountain area and made application to the State Engineer for permission to change the point of diversion and place of use of these waters. The applications in their order appear on the following page.

The amount of water transferred from the Battle Mountain area was 276.85 c.f.s. for the period from March 15 to April 28; approximately 102 c.f.s. for the period from April 28 to June 13; and approximately 69 c.f.s. for the final period from June 13 to September 15.

The reservoir caused by the construction of the Rye Patch Dam affects three water rights commonly called reservoir area rights. Two of these rights were purchased and permits granted by the State Engineer transferring them down to the Lovelock area. See page 62.

The other reservoir area right is owned by the Rogers Estate as set forth on page 80 of the decree, and amounts to 5.172 c.f.s. This right has never been transferred.

River losses have been assumed to be 10% from Battle Mountain to

BATTLE MOUNTAIN AREA

Serial number	From whom purchased	Number of acres of land heretofore irrigated	AMOUNT OF WATER TRANSFERRED		Formerly owned by
			c.f.s.	Acres feet	
9,729	Phillipui Ranching Co.	11,339.83	77.329	18,319.22	
9,730	Charles S. Aldous	2,453.44	19.993	4,154.06	Land Development Co.
9,731	John G. Taylor	4,805.61	37.638	6,084.06	
9,732	Ellison Ranching Co.	12,040.73	98.463	15,361.56	
9,733	Zabulon Silve	775.45	6.52	1,282.87	Golconda Cattle Co.
9,734	Louis G. Hammond	1,219.04	10.10	2,988.29	Clover Valley Land & Stock Co.
9,735	Leroy A. Bain	1,661.63	13.81	2,626.27	Clover Valley Land and Stock Co., also John G. Taylor.
9,928	Russell Land & Cattle Co.	444.69	3.61	562.18	
10,065	John G. Taylor	1,154.84	9.385	1,657.57	
LOVELOCK AREA					
9,388	(Reservoir Area Rights) J. A. Callahan	913	7.44	1,283	Purchased by Carlo and Luigi Arobio.
9,821	Russell and Chadwick	1,664	13.73	1,962	United States of America.

Mill City gaging station on the transferred water, 10% from Mill City to Rye Patch Reservoir, and 15% from the reservoir to places of use in Lovelock Valley.

Priorities are established in the Lovelock area by the amount of water passing the Mill City gaging station. Since the river loss is assumed to be 25% to the places of use in Lovelock Valley from the Mill City gaging station the decreed Lovelock Valley rights are increased 25%; the Battle Mountain transferred rights are decreased 10%, and the reservoir area rights remain the same.

To serve all priorities up to and including the 1921 rights in the Lovelock Valley the Mill City flow would be as follows:

FLOWS AT MILL CITY TO SERVE 1921 RIGHTS IN LOVELOCK VALLEY

Period	Lovelock Valley decreed rights	Reservoir area rights*	Battle Mountain transferred rights	Total at Mill City
First period—				
March 15 to April 28.....	347.69†	26.348	249.17	623.208
Second period—				
April 28 to June 13.....	347.69†	12.690	102.61	462.99
Third period—				
June 13 to Sept. 15.....	304.382	2.019	69.15	375.551

*This includes the Rogers Estate water amounting to 5.172 c.f.s. in the first period and 2.89 c.f.s. for the period from March 15 to June 13 that is not transferred.

†In the Lovelock Valley the first and second periods both run from March 15 to June 13.

Assuming the loss of 25% between the Mill City gaging station and Lovelock Valley, the amount of water reaching the valley when the 1921 rights are being served would be about 467 c.f.s. during the first period; 347 c.f.s. during the second period, and 284 c.f.s. during the third period.

The decree entered on October 20, 1931, by Judge George A. Bartlett in the matter of the determination of the relative rights in and to the waters of the Humboldt River and its tributaries divided the Humboldt stream system into two districts. District No. 1 covers the area below Palisade and District No. 2, known as the upper district, consists of all lands above Palisade. The length of the season and duty of water are as follows:

Class of land	Duty of water in acre feet per season	-----LENGTH OF IRRIGATION SEASON-----	
		District No. 2, Elko District	District No. 1, Lovelock, Winnemucca and Battle Mountain Districts
Class A.....	3.0	April 15 to August 15	March 15 to Sept. 15
Class B.....	1.5	April 15 to June 15	March 15 to June 13
Class C.....	0.75	April 15 to May 15	*March 15 to April 28

*In the Lovelock Valley the Irrigation Season for this class is March 15 to June 13.

The amount of water in continuous flow allowed for each acre of land is the same for all classes of culture in each district. The length of time allowed to irrigate the different classes varies as set forth in the table above. In arriving at the amount of water in continuous flow for a certain acreage the number of acres is multiplied by 0.00813 in District No. 1 and by 0.0123 in District 2, the Elko District.

A brief summary of the amounts of water decreed in each district is herewith given.

LOVELOCK DISTRICT			
Class of land	Irrigation season	Total acres	Percent
Class A.....	March 15 to September 15.....	28,049	86
Class B.....	March 15 to June 13.....	925	3
Class C.....	March 15 to June 13.....	3,744	11
Totals		32,718	88,342

- 10% of the Class A rights decreed are filled with 1875 priorities.
- 30% of the Class A rights decreed are filled with 1884 priorities.
- 40% of the Class A rights decreed are filled with 1887 priorities.
- 50% of the Class A rights decreed are filled with 1888 priorities.
- 80% of the Class A rights decreed are filled with 1900 priorities.

In the Lovelock Valley the land holdings are small, with but a few exceptions. The principal crops are alfalfa, wheat, barley and oats. In 1918 the hay production was 73,000 tons, while in 1929 only 9,000 tons were raised. It is very seldom that there is sufficient water to irrigate after July 1, and usually but two cuttings of hay are obtained.

WINNEMUCCA DISTRICT

Class of land	Irrigation season	Total acres	Percent	Total acre feet
Class A	March 15 to September 15	8,597	39	25,791
Class B	March 15 to June 13	3,918	18	5,877
Class C	March 15 to April 28	9,415	43	7,062
Totals		21,930		38,730

NOTE—3,505 acre feet on Little Rock and Pole Creeks are not included.

- 10% of the Class A rights decreed are filled with 1864 priorities.
- 30% of the Class A rights decreed are filled with 1871 priorities.
- 40% of the Class A rights decreed are filled with 1871 priorities.
- 50% of the Class A rights decreed are filled with 1872 priorities.
- 80% of the Class A rights decreed are filled with 1878 priorities.

BATTLE MOUNTAIN DISTRICT

Class of land	Irrigation season	Total acres	Percent	Total acre feet
Class A	March 15 to September 15	21,125	27	63,374
Class B	March 15 to June 13	19,309	24	28,963
Class C	March 15 to April 28	39,003	49	29,253
Totals		79,437		121,590

NOTE—18,421 acre feet of water on Rock Creek, Willow Creek, and Boulder Creek are not included.

- 30% of the Class A rights decreed are filled with 1873 priorities.
- 40% of the Class A rights decreed are filled with 1874 priorities.
- 50% of the Class A rights decreed are filled with 1877 priorities.
- 80% of the Class A rights decreed are filled with 1887 priorities.

In these two districts the land holdings are large. For instance, the Dunphy Estate has holdings of over 100,000 acres. The decreed water rights are appurtenant to 22 properties in the Battle Mountain District and 24 properties in the Winnemucca District.

The main crop is native hay, particularly rye and blue joint. Only one cutting is obtained, yielding about three-fourths of a ton per acre.

ELKO DISTRICT

Class of land	Irrigation season	Total acres	Percent	Total acre feet
Class A	April 15 to August 15	115,724	81	347,172
Class B	April 15 to June 15	5,311	4	8,717
Class C	April 15 to May 15	21,915	15	16,436
Totals		143,450		372,325

- 10% of Class A rights decreed are filled with 1870 priorities.
- 30% of Class A rights decreed are filled with 1876 priorities.
- 40% of Class A rights decreed are filled with 1880 priorities.
- 50% of Class A rights decreed are filled with 1884 priorities.
- 80% of Class A rights decreed are filled with 1896 priorities.

This district embraces a drainage area of 5,010 square miles above Palisade. The water supply in this area is furnished by 175 tributary streams, 55 of these tributaries being on the north side and 120 on the south side of the main river. The greater portion of the water of the Humboldt River is derived from this area. Decreed rights on the north tributaries are 101,274 acre feet; on the south tributaries are 243,789 acre feet, and on the Humboldt River proper, 27,263 acre feet.

1936 ORGANIZATION

J. A. MILLAR, Supervising Water Commissioner.....	Entire River
JOHN RUNNER, Water Commissioner.....	Lovelock District
FRED BACKUS, Water Commissioner.....	Winnemucca District
JOHN BEATTY, Water Commissioner.....	North Fork District
MYRON R. CLARK, Water Commissioner.....	Battle Mountain District
GERALD TRESCARTES, Water Commissioner.....	Lamoille District
D. E. WINCHELL, Water Commissioner.....	Wells District
DONALD ODELL, Hydrographer.....	Midas
JACK ST. CLAIR, Hydrographer.....	Winnemucca
VIRGINIA GRANDELL, Stenographer.....	Winnemucca

In the report of the State Engineer for the biennial period of 1934 to 1936 a report is given of the distribution of the waters of the Humboldt River up to July 1, 1936, the end of the biennium. At the beginning of the 1936 season distribution of water by continuous flow was adopted, the priorities to be served being determined from day to day by the flow passing a certain point or points.

Early fall and winter snow storms augmented by heavy rains during January and February created a flow of water in the Humboldt River and its tributaries very much above normal. The total flow of water passing Palisade from October 1, 1935, to September 30, 1936, was 270,160 acre feet. On March 15, the beginning of the irrigation season, there were 329 c.f.s., which was sufficient to serve all rights with priorities up to and including the year 1878. This priority was served until April 10, when due to warm weather the flow increased rapidly. From April 22 to about July 8, all priorities were served, the surplus water during May and June being diverted into the Humboldt Lovelock Irrigation Light and Power Company Reservoir.

The amount of water passing Palisade during the irrigation season from March 15 to September 15 was 245,896 acre feet. In addition to this amount, Rock, Boulder and Pine Creeks and other smaller tributaries delivered approximately 60,000 acre feet of water.

The peak flow at Palisade occurred on April 23, when the river flow was 2,268 c.f.s. However, the greatest monthly flow occurred in May, with a discharge of 80,736 acre feet.

On July 15 there were 17,000 acre feet of water stored in the Rye Patch Reservoir, and about 4,000 acre feet in the Humboldt Lovelock Irrigation, Light and Power Company Reservoir. At the end of the irrigation season there were nearly 10,000 acre feet of water stored in

the Rye Patch Reservoir and over 1,000 acre feet in the Humboldt Lovelock Irrigation, Light and Power Company Reservoir.

During this season 73,474 acre feet of water were delivered to the various ditches in Lovelock Valley. Some of the figures relating to releases from the reservoirs, etc., are missing due to the death of Mr. Runner, the Water Commissioner for the Lovelock District.

HUMBOLDT RIVER SYSTEM—1937

By J. A. MILLAR, *Supervising Water Commissioner*

ORGANIZATION

J. A. MILLAR, Supervising Water Commissioner.....	Entire River
D. E. WINCHELL, Water Commissioner.....	Lovelock District
F. E. BACKUS, Water Commissioner.....	Winnemucca District
R. M. CLARK, Water Commissioner.....	Battle Mountain District
JOHN ROBERTSON, Water Commissioner.....	North Fork District
ERWIN GRISWOLD, Water Commissioner.....	Starr Valley District
ORVIS STOCK, Water Commissioner.....	Lamoille and South Fork
GERALD TRESKARTES, Hydrographer.....	Elko District
JACK ST. CLAIRE, Hydrographer.....	Lovelock District

A hard cold winter with light frozen snow and one heavy storm in May created a flow of 173,000 acre feet of water through Palisade, fifty percent of which was delivered to the Lovelock area. Rock Creek and all of the other tributaries below Palisade did not contribute much water to the stream system.

A heavy snowstorm that occurred in the Lovelock District the last of February created a condition that made immediate irrigation after March 15 unnecessary. It was not until April 5 that any irrigation took place, which only called for a small release from Rye Patch Reservoir. During this period all of the water was cumulated in the Rye Patch Reservoir. On or about April 20 the releases from Rye Patch Reservoir were increased to meet the growing needs of the valley. On April 23 the H. L. I. L. & P. Co., dissatisfied with the method of cumulation of both decreed and transferred water accorded to the Pershing County Water Conservation District, took over the regulation of their own intake dam and headgate, and accordingly diverted a full canal of water and prevented the State Engineer from interfering by virtue of an injunctive decree obtained on or about the year 1918. This diversion was continued until July 2, when the State Engineer shut the intake headgate and opened the dam and released the water into Rye Patch Reservoir for beneficial use in the valley below.

In the Winnemucca district irrigation did not start until April 15. The total continuous flow allocated to this district with the exception of the Stall flow was rotated between the ten or more ranches. The Stall ranch received its water in terms of its continuous flow.

In the Battle Mountain district rotation was practiced wherever possible. The Russell Land & Cattle Company rotated the "25" ranch water with the "White House" ranch water. The Licking ranch received two irrigations by periodic turn. The Dunphy ranches received a continuous flow after April 15. The Humboldt Land and Cattle Company rotated among its several ditches. The rest of the smaller ranches secured their water by periodic turn.

In the Elko district irrigation of the river bottom lands started about April 1, but it was not until May 1 that any irrigation took

place on the tributaries. The first irrigation was just about completed when a big storm of several days duration occurred and as a result most of the alfalfa and grain turned yellow. A second storm occurred in about ten days and as a result very little irrigation was done during the month of June. During the months of July and August the discharge of the tributary creeks became very low, and considerable difficulty was experienced in irrigating second crops.

Daily measurements were taken of the flow of Marys River, Lamoille Creek, South Fork River and the main river in Moleen Canyon. This work was done in connection with the snow survey conducted by the State Meteorologist.

HUMBOLDT RIVER SYSTEM—1938

By J. A. MILLAR, *Supervising Water Commissioner*

ORGANIZATION

J. A. MILLAR, Supervising Water Commissioner.....	Entire River
D. E. WINCHELL, Water Commissioner.....	Lovelock District
F. E. BACKUS, Water Commissioner.....	Winnemucca District
R. M. CLARK, Water Commissioner.....	Battle Mountain District
ERWIN GRISWOLD, Water Commissioner.....	Starr Valley District
JOHN ROBERTSON, Water Commissioner.....	North Fork District
G. F. TRES CARTES, Water Commissioner.....	Lamoille District
ORVIS STOCK, Water Commissioner.....	South Fork District
JACK ST. CLAIR, Hydrographer.....	Elko District
DONALD ODELL, Hydrographer.....	Midas
PAULINE O'CARROL, Typist.....	Winnemucca

The irrigation season of 1938 followed a very mild warm winter. However, the rainfall was very much above normal, especially in that part of the watershed west of Palisade. In spite of numerous storms in the Elko district the snow cover was below normal until the month of March, when several heavy snowstorms brought the snow cover almost to normal. Many rain storms during the months of April, May, and June aided in creating a sustained flow through Palisade that increased steadily from 250 c.f.s. on March 15 to 1,650 c.f.s. on June 8. On the last of June the discharge at the above-named point dropped to 500 c.f.s. However, due to heavy rains throughout the entire upper watershed during the last week of June the discharge increased to nearly 1,000 c.f.s. on July 10, with over 500 c.f.s. reaching the Callahan gaging station.

Irrigation started in the Lovelock district immediately after March 15, due to the fact that all of the available purchased transferred water was by-passed through the Rye Patch Dam in order to comply with a provision of the permit that the transferred water could not be stored. However, all of the Pershing County Water Conservation District decreed water was cumulated and it was not until the middle of April that decreed water was released along with the transferred water for district use. It was nearly the first of May before sufficient water reached Lovelock to serve nondistrict users. Prior to this time they purchased H. L. I. L. & P. Company reservoir water for their needs. On or about June 15 practically all irrigation in the Lovelock Valley was completed, and due to the excessive flow at Callahan's over and above the required flow, it was decided to divert water into the H. L. I. L. & P. Company intake canal. This flow was limited to 233 c.f.s. until the said company assumed all responsibility of damage if

a greater head was diverted. On July 10 the combined storage of both reservoirs amounted to about 40,000 acre feet.

In the Winnemucca district irrigation started on April 12. The required amount of water in terms of cubic feet per second was rotated among ten ranches throughout the entire season. However, the Stall ranch received its water in a continuous flow. The Russell Land and Cattle Company in the Battle Mountain area rotated its water between its two ranches, while William Licking received two irrigations in periodic turn. In the Beowawe area the water users were delivered their water by continuous flow.

One water commissioner was successful in preventing any irrigation in the Elko district until April 15. After that date most of the river bottom ranches diverted water, and kept it on the land most of the time. However, very little irrigation on the tributaries took place until nearly the last of May. Due to the late start most of the water users were allowed to divert a double amount of water until their acreage was covered once, then they were cut to their continuous flow.

The Willow Creek Reservoir was regulated throughout the entire season. The Ellison Ranching Company did not use any water from either Willow or Rock Creeks until forty days after March 15. During this period they were allowed to cumulate their decreed flow. After they started irrigating their diversion at no time exceeded their continuous flow.

In addition to distribution duties the commissioner employed and directed the work of a hydrographer, whose duty it was to measure the discharge of several important tributary streams in Elko County and the acquired data compiled into a report and submitted to Mr. Carl Elges, State Meteorologist.

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1936 DISTRIBUTION

By MARSHALL WOODWARD, *Water Commissioner*

The Little Humboldt River stream system is made up of the Little Humboldt River and its twelve tributaries, located in Paradise Valley, forty-two miles north of Winnemucca, Nevada. There are thirty-six water users on the system.

The Carville Decree, which went into force in May 1935, fixes the irrigation season to commence on April 1, subject to the right, power and authority of the State Engineer to open it earlier or later according to seasonable variations in climatic and moisture conditions. This year on account of an early spring runoff the season was declared open on March 20. As this is the first full season of distribution under the Carville Decree there were necessarily some major changes from practices of past years.

The run-off this year was exceptionally early. Indeed, when he entered the valley about the middle of March the commissioner found that the whole upper and middle valley was in the process of being, and was then being, irrigated. Although there were some notable exceptions to this condition, on the whole it resulted in causing users on the lower portions of the streams to be unirrigated, and also in causing the channels that should convey the water to them to be unprimed.

The streams of Paradise Valley are clogged and filled with willow

growth, both dead and growing, debris, dirt retained due to plant growth, and rock, hay, etc., due to the type of dams used. In some cases an individual user who has cut wood along the banks and thrown tops and waste into the channels of the streams is deliberately to blame for the clogging and filling. Another cause of filling is the rock, willow and manure type of dam that is prevalent in Paradise Valley, for this type of dam must be put in before high water and it is impossible in many cases to regulate it, and once it is washed out it must remain out until the water recedes to a point low enough to permit reinstallation. Meanwhile it fills the channel with an accumulation of sand, debris, etc. A major step toward improved distribution methods would be the installation of a number of easily regulated dams, concrete or wood. Not only would this type of dam make distribution more satisfactory, but through their use it would be possible to flush the channels.

Because of these clogged channel conditions there are several very serious problems to be coped with in getting the water to the rightfully entitled users on the lower stream. To do this a large head of water must be diverted downstream in an attempt to force a sufficient quantity through. This year the upper users agreed not to irrigate, regardless of priorities, until after the 15th day of April, but to allow the water to remain in the channels so as to let it go downstream and become available to the users in the lower valley. Of course this caused a large head of water to be diverted downstream. With the aid of this agreement and an early run-off it was possible to irrigate some rights far down on the streams that no doubt otherwise would have received no water during the season. After the 15th of April under this agreement the upper valley was to irrigate, but no priority carrying a later date than the latest date irrigated in the lower valley was to be irrigated, and, furthermore, a continuous flow was to be left in the streams to continue to irrigate the lands of the lower valley that were already wet. In as far as possible an attempt was made to serve all users by the continuous flow method. However, in many cases this was impossible for many of the meadows, etc., that were to be irrigated were covered by water as the channels traversing them were overflowing and general flood conditions resulted. Some holdings that should have been irrigated were covered by as much as a foot of water nearly the whole season. Other land that should have no water was also flooded. Under these conditions it was thought that a process of rotation would prove more satisfactory.

A summary of the season's conditions follows:

1. There was practiced a general rotation, in which the valley was zoned into the upper valley and lower valley, the lower valley rotating with the upper and vice versa.

2. Also a general rotation among the individual users in both the upper and lower valleys.

3. Then there were certain users who did not participate in any rotation, or use decreed continuous flows, because their lands were continuously under water during the higher water period, and they were unable to drain their lands (under existing conditions), even though they might have wished to do so.

It is the opinion of this office that the rotation as practiced this year



**CONCRETE DIVERSION STRUCTURES ON MARTIN CREEK,
IN PARADISE VALLEY**

Upper—Muffer Slough structure at flood stage.

Lower—Samuel B. F. Pierce structure during high water.

was far more satisfactory than any other method that might have been used, without question, and more users produced successful crops under this practice than otherwise.

A very beneficial movement was started by Mr. Alfred Merritt Smith, State Engineer, in trying to get the Federal Government to use their CCC Camp, assigned to the Forest Reserve in Paradise Valley, to clean channels and to build dams on the Little Humboldt system as a winter work project. It is to be hoped that this movement becomes a reality, and thus it can be demonstrated that a clean channel and a good dam injures none and benefits all. Of course, the CCC Camp cannot clean all the channels in one winter. However, if the movement is once started, there is but little question but that it will be continued in years to come. Once the channels are cleaned properly, and all dams regulatory, the expense of maintenance will be low.

DISCHARGE IN ACRE FEET OF THE LITTLE HUMBOLDT RIVER AND TRIBUTARIES FOR PERIOD MARCH 20 TO AUGUST 31, 1936

	Acre feet
Little Humboldt River.....	8,954
Martin Creek.....	16,659
Cottonwood Creek.....	3,463
Indian Creek.....	3,805
Mullinax Creek.....	3,701
Little Cottonwood Creek.....	848
Lamance Creek.....	625
Handy Creek.....	1,335
Colony Creek.....	1,890
Beef Creek.....	604
Stone House Creek.....	2,706
Wash O'Neal Creek.....	1,708
Provo Creek.....	662
Total	46,960

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1937 DISTRIBUTION

By MARSHALL WOODWARD, *Water Commissioner*

This report is the result of the activities of the water commissioner on the Little Humboldt River and its tributaries for the irrigation season of 1937. The main purpose of the office was to distribute water to the recipients with the greatest benefit to the valley, and still conform with the court decree on the stream system, and, also, to gather data and keep suitable records to facilitate future distribution. The water commissioner, realizing he was the personal representative of the State Engineer, endeavored to create as friendly a feeling as possible between the users and the State Engineer's office.

In 1937 the irrigation season on the Little Humboldt River and its tributaries was opened on March 15. The peak flow on Martin Creek occurred on April 14, when 195 c.f.s. was reported. The flow on the Little Humboldt River reached its peak on May 19, when 57 c. f. s. was measured.

Owing to the character of the runoff this year so much time was consumed in regulating the many diversions of several users that little time was available for the measurement of stream discharge or the gathering of data. However, a record of all stream discharges was kept, and also a record of the amount of water used by many of the recipients. The office tried to conform in all cases to the court decree,

and to the axiom "first in time shall be first in right." In doing this, many obstacles were encountered. Of these, one of the most difficult is the clogged channel, as found in Paradise Valley, with its appalling lack of proper regulatory dams.

A form of rotation was practiced whereby the valley was zoned to the upper and lower valleys; these two groups rotated with each other and also the users in the upper valley rotated among themselves. Following the Carville Decree, page 9, article IX, the water allotted respective users was determined upon a continuous flow of .01 cubic feet per second for each acre irrigated. Priorities were served according to the day to day flow of the stream, for as stream discharge increased more water was available for distribution. As it decreased, the opposite was true. The thought always and ever was carried in mind that priority must govern. For example, if the discharge of a certain stream reached such a point that a user with a comparatively late priority, say 1876, on Martin Creek was entitled to water for just one week (as set forth in article IX, page 9, of the Carville Decree) every effort was made to see that this man got the water that he was justly entitled to, even though for a few days only.

Despite the utmost effort of the commissioner to serve every entitled user justly, certain obstacles were encountered that prevented certain users from participating in any rotation or using decreed continuous flows, as their lands were continuously under water during the high water period and they were unable to drain same under existing conditions, even though they might have wished to do so.

Channel conditions have been thoroughly covered in previous reports, and little can be added in this report, except to again emphasize that channel conditions in Paradise Valley are extremely bad. Clogged and filled channels result in the flooding of areas that carry no or very late priorities, and cause users with early priorities but unfavorable geographical locations to go without water. Until the channels are cleared by removal of willows and debris in some way and regulatory dams installed, no method of distribution will be satisfactory or fair to all users.

The work of the CCC boys, in cooperation with the U. S. Forest Service and the State Engineer's office, in regulatory dam construction and channel cleaning is described in Chapter 11.

DISCHARGE IN ACRE FEET OF THE LITTLE HUMBOLDT RIVER AND TRIBUTARIES FOR PERIOD MARCH 15 TO AUGUST 26, 1937

	Acre feet
Little Humboldt River.....	9,425
Martin Creek	13,974
Cottonwood Creek	2,826
Indian Creek	2,761
Mullinax Creek	4,125
Little Cottonwood Creek.....	659
Lamance Creek	190
Handy Creek	540
Colony Creek	924
Beef Creek	327
Stone House Creek.....	2,214
Wash O'Neal Creek.....	836
Provo Creek	410
Total	39,211

LITTLE HUMBOLDT RIVER AND TRIBUTARIES—1938 DISTRIBUTIONBy LAWRENCE E. MATHEWS, *Water Commissioner*

Lawrence E. Mathews served as water commissioner for the Little Humboldt River and tributaries from March 13 through June 27, 1938. On June 28 Mr. Fred Backus took over the position as water commissioner to serve for the remainder of the irrigating season.

The State Engineer declared the irrigating season open on March 18.

General conditions, amount of precipitation, snow depth and water content on March 1 indicated there would not be a very large supply of water for the 1938 season. However, during March a great deal of precipitation was experienced in the Paradise Valley area. The precipitation was 226% of the month of March's normal in the Little Humboldt Basin, and practically all this precipitation was in the form of very wet snow. The snow cover on the Upper Buckskin snow survey course increased from 57.6% of normal on March 1 to 140 % of the March 1 normal on April 1. The increase during March is shown in the following compilation of data on snow measurements on the Upper Buckskin course, as furnished by the Federal-State Cooperative Snow Surveys:

	Depth of snow, inches	Water content, inches
March 1	22.2	7.2
April 1	44.1	17.5

Elevation, 8,200 feet.

Although no measurements were taken on April 1, on other courses in the Little Humboldt Basin observers reported a great increase in snow cover on all areas throughout the basin, also the water content of the snow was away above the normal water content.

The precipitation in the valley itself was above normal which resulted in good ground conditions.

The first half of April was cool, with frequent rains and snow storms. April 17, Easter Sunday, was the first real warm day of the year, and this was followed by another warm day, the effect of which was to cause the lower snow to melt, resulting in floods on all streams entering the valley. Cooler weather during the next two weeks caused the streams to drop a bit, but they still continued to flow at high levels. On April 30 a two-day rain started, and on May 2 all streams reached flood stages. In fact, the maximum flow on this day exceeded any recorded maximum since 1922, the last year of extreme high water. Many acres of land were flooded by this high flow, due to poor channel conditions and the unexpectedly large amount of water.

The flow of all streams continued to be extra large until about the middle of June, which gave all users a sufficient amount of water to irrigate all decreed rights. In fact, there was an excess of irrigating water as evidenced by the fact the water reached the sand dunes in the southern part of Paradise Valley and formed a lake, known locally as Gum Boot Lake, about five miles long and from one-quarter to one-half mile wide, with a depth up to six feet in places (see picture). This was the first time since 1922 that water in Paradise Valley had reached the sand dunes.

In general, all decreed rights were served with all the water the owners needed, and very little trouble was experienced in water distribution. The only rights not served were in cases where no provision



Gum Boot Lake, May 27, 1938. This Lake is Formed at Rare Intervals by Flood Waters of the Little Humboldt Stream System.

had been made for irrigation, due to abandonment of ranches, or where the properties had been allowed to deteriorate due to neglect in maintaining irrigation systems (dams, canals, ditches, etc.).

Although some streams usually dry up in June, this was not true this season, as all streams were flowing at the end of June.

**DISCHARGE IN ACRE FEET OF THE LITTLE HUMBOLDT RIVER AND
TRIBUTARIES FOR PERIOD MARCH 13 TO JUNE 30, 1938**

	Acre feet
Little Humboldt River.....	21,237
Martin Creek	34,057
Cottonwood Creek	9,278
Indian Creek	8,836
Mullinax Creek	12,340
Little Cottonwood Creek.....	2,084
Lamance Creek	702
Handy Creek	1,565
Colony Creek	2,923
Beef Creek	1,257
Stone House Creek.....	4,969
Wash O'Neal Creek.....	2,429
Provo Creek	1,309
Total	102,986

In order to secure more complete flow data on the Little Humboldt River, a recording gage was installed near the Chimney, about one-half mile below where the North and South Forks meet. This recorder was installed April 14; high water on May 2 rendered it inoperative, due to flooding, and it had to be repaired, after which it was reinstalled (June 1). Records from this station should assist in the compilation of data on Little Humboldt River flow. This station was installed in cooperation with Mr. Carl Elges of the Nevada Agricultural Experiment Station, Mr. Alexander McQueen of the United States Forest Service, and the CCC camp at Paradise Valley.

The channel cleaning program has been a good thing, and in the places where it was put into effect excellent results have been secured. This work should be carried on to completion, as clean channels are a great aid in the distribution of water.

During the winter season of 1937-1938 three new concrete regulatory structures were installed on Martin Creek, under the State Engineer's supervision and through cooperation between that office, the CCC Camp at Paradise Valley, and the interested water users. These structures will assist materially in water distribution work. As proof that the design and construction of these structures is correct we may point to the fact that the heavy floods of April 19 and May 2 did not damage the structures in any observable manner. It must be remembered that these were no ordinary high water stages, but were higher than any year since 1922. All structures were under water during both floods, but no damage was noticed. This test, during the first year of service, greatly increased the water users' confidence in the design and construction of concrete structures, and several requests came in for investigations to be made regarding the installation of structures in other parts of Paradise Valley.



Carrol Diversion on Martin Creek, in Paradise Valley, Existing Before Construction Started.



Carrol Diversion on Martin Creek Showing Completed Concrete Structure During High Water Runoff, April 19, 1938.

PARADISE VALLEY UPSTREAM STORAGE

Results of Meetings Held in Paradise Valley, by Alfred Merritt Smith, State Engineer, on May 29 and June 12, 1938

By L. E. MATHEWS, *Water Commissioner*
(March 13 to June 27, 1938)

For several years the question of upstream storage in the Little Humboldt drainage basin on streams supplying Paradise Valley with water has been studied by members of the Nevada State Engineer's office and other interested parties.

Surveys indicate feasible reservoir sites are available on the Little Humboldt River and Martin Creek, and in 1934 the United States Geological Survey made a survey of three sites on the former stream and two on the latter.

The streams coming into Paradise Valley all have an early runoff. The bulk of the runoff usually occurs in April, although in some years it occurs in May, and a storage reservoir, to hold water back until later, would seem to be very desirable in this area.

In 1937 and 1938 work was done by the Nevada State Planning Board and WPA staff in collecting and compiling available data on water and allied subjects as it affects Paradise Valley.

In order to have this matter brought to the water users' attention and obtain their views on the matter, Mr. Alfred Merritt Smith, State Engineer, held two meetings in Paradise Valley with water users (May 29 and June 12).^{*} The question of upstream storage on the Little Humboldt River and Martin Creek were discussed at these meetings, and it was finally decided by most of those present that such a scheme is not feasible at present. After discussing this subject at these two meetings, the following points were brought out:

1. The present practice of ranching in Paradise Valley has been developed over a period of seventy years or more. The ranchers are used to this system and it would be difficult for them to change.

2. Nearly all ranchers are in the livestock business and raise feed for winter feeding of their livestock. Most of this feed consists of wild hay, which grows with early irrigation and only one crop is harvested.

3. A higher type of feed could be raised with late water.

4. However, the distance from market prevents the sale of agricultural products at a profit. So anything raised has to be consumed in the valley.

5. The raising of more feed would not benefit the ranchers as they are limited to the number of livestock they can raise by Forest Service regulations.

6. Cost appears prohibitive, as approximate figures by State Engineer's office showed a cost of from \$150,000 to \$200,000 for a suitable dam on Martin Creek which would store from 3,000 to 3,500 acre feet of water. This cost of \$50 or more per acre foot appears excessive.

7. Channel conditions being bad, the point was raised that it would not be possible to get the water when and where it was needed.

^{*}Both meetings were attended by Alfred Merritt Smith, State Engineer; Hugh A. Shamberger, Deputy State Engineer; Archie Millar, Supervising Water Commissioner, Humboldt River; Lawrence E. Mathews, Water Commissioner Little Humboldt River, and about thirty interested water users of Paradise Valley. The meeting held June 12, 1938, was also attended by Hon. Gray Mashburn, Attorney-General of Nevada, who gave valuable information concerning the formation and operation of an irrigation district.

8. Some lower users, of relatively late priorities, argued that storage would not do them any good, as the earlier rights upstream would have to be served ahead of them anyway. They prefer to depend on a large spring runoff to serve them by flooding.

9. A storage reservoir on Martin Creek would benefit only those users on Martin Creek and not the whole valley.

10. The same is true on the Little Humboldt.

11. Most of the ranchers have just been through some pretty lean years, financially, and do not feel as though they are able to go in debt any more even if a good plan was devised.

12. It was suggested that some of the larger holdings be broken up into smaller places, say 160 acres each, and a more intensive form of agriculture placed into effect. Some thought this to be the only way a water storage scheme could be worked out.

13. There is no legal organization in Paradise Valley to handle such matters. It was suggested that an irrigation district be formed, and Mr. Gray Mashburn, Attorney-General, explained the procedure necessary to form a district and the operation of such an organization after its formation. After this explanation, and a general discussion, it was decided that they would not attempt to form an irrigation district, as the disadvantages appeared to outweigh any possible advantages.

14. The present channel cleaning program was endorsed and requests made to have it continued.

15. The new regulatory structures were given general approval and several requests received for additional structures.

Mr. Smith advised, that although the upstream storage project appeared to be out of the picture at the present, his office would continue to collect data and study the matter. It is possible that the matter may come up in the future and receive more favorable consideration under different circumstances.

DUCKWATER CREEK—1937 SEASON

By C. H. WAINWRIGHT, *Water Commissioner*

Duckwater Creek is located in the northeastern part of Nye County, about fifty miles southwesterly from Ely, Nevada, and flows in a southerly direction into Railroad Valley. Approximately 3,000 acres are irrigated along this section for a distance of twelve miles. A large warm spring rises on the upper ranch and contributes a constant flow of between 12 and 14 c.f.s. of water.

Distribution of water to the various users began on May 9, 1937. The decreed rights amounting to 28.40 c.f.s. were all satisfied up until June 15. The water gradually decreased until the minimum flow of 19.65 c.f.s. was reached on September 20. The flow then increased during the remainder of the season, reaching 23.70 c.f.s. on October 31.

During this season two Lietz Horizontal Water Stage Recorders were installed, one on the main channel at Mendes No. 1 diversion and one at the Vanover and Irving diversion at the lower end of Duckwater Creek. These both operated on a ratio of 1 to 1, and a record of the season's flow was kept. The only trouble given by either recorder was caused by a sudden increase in water due to summer rains. The irrigation season was thirty days' late this year due to a late winter and cold spring. There was a warm fall, so various users continued to irrigate

until the 1st of November. The first and second alfalfa crops were poor, due to the late start. The wild hay was good and other crops fair.

A survey of the Plateau Lakes was made during the summer and the following conditions were found to exist:

The south lake is higher than the north lake, the average elevation of the bottom of the south lake being 5,609 feet and that of the north lake being 5,604 feet. A natural dyke of an elevation of 5,611 feet divides the two lakes. Before any improvements were made the water raised in the south lake and flowed over the dyke into the north lake. Two headgates have been constructed and the dyke between the lakes raised so that the flow into the lakes can be controlled. The method used this season is to divert all of the water into the north lake, keeping the south lake dry. Whether this is the proper method or not of handling the water in these lakes is not as yet decided.

The table on page 80 gives the monthly average diversions in second feet and the seasonal discharge in acre feet from 1930 up to the end of the biennial period.

**REPORT OF THE WATER COMMISSIONER OF WHITE RIVER,
WHITE PINE COUNTY, NEVADA**

(July 1 to September 15, 1937)

C. H. WAINWRIGHT, *Water Commissioner*

White River is located about 24 miles southwesterly from Ely, Nevada, in White Pine County. The stream flow is mainly derived from runoff from the mountains.

The channel is narrow and shallow in the cultivated areas, and the overflow caused by the runoff in the early spring and occasional summer storms causes considerable damage.

I was called to White River on June 26, 1937. On inspecting the new headgates that had been installed in 1936 I found that the Hermanson headgate was washed out by flood waters, the river headgate having been closed during the winter months. The lower Albert Williams headgate was about 25 feet from the river channel, as the river had formed a new channel. The upper Williams headgate was in good condition, also the Hayden and McQueen headgates. Two new diversions had been made by T. A. Windous approximately 1,000 feet below the Hayden diversion. No headgates or measuring devices had been installed, these diversions being used only during flood periods. No water was diverted from these diversions during the irrigation season.

On August 2, 1937, the headgate for the McQueen ranch was washed out, due to a flood.

A water commissioner was requested by Mr. J. A. Rosevear to settle a dispute between himself and Mr. T. A. Windous concerning the distribution of water for the Geo. Hayden ranch. It was decided to begin the 1st of July to rotate their decreed water according to a 21-day schedule:

J. A. Rosevear.....	38.65% of 21 days, 8,1165 days.
T. A. Windous.....	61.35% of 21 days, 12,8835 days.

This schedule has been used for several years previous.

Before this could be put into effect Mr. Dan Clark, present owner of the McQueen right, and Mr. Tom Rosevear, representing the Williams right, asked that they be allowed to enter into the rotation plan

AVERAGES OF TOTAL DIVERSIONS IN SECOND FEET, DUCKWATER CREEK, NYE COUNTY, NEVADA

Irrigation season	March	April	May	June	July	Aug.	Sept.	Oct.	Maximum total daily div. c.f.s.	Minimum total daily div. c.f.s.	Acres feet for the season
1930	36.44	33.51	22.68	19.60	21.68	22.75	.....	41.67	18.20	9,615.51
1931	27.95	26.45	21.17	19.72	19.49	18.96	.....	38.60	16.91	8,385.09
1932	32.18 ²	27.76	22.95	20.74	20.43	20.85	.....	38.83	18.99	8,307.59
1933	31.83 ¹	27.59	23.94	21.53	20.77	20.33	.....	37.56	19.09	8,445.55
1934	28.81 ⁴	27.57	23.14	20.78	20.92	21.34	22.50 ⁵	34.56	20.24	8,358.60
1935	29.09 ⁶	26.85	25.01	22.39	21.02	21.01	.....	30.10	20.30	7,484.40
1936	28.35 ⁷	25.93	22.75	22.18	23.34	22.86 ⁸	.....	31.94	20.40	8,477.34
1937	27.87 ⁹	27.47	23.43	22.82	21.87	.....	30.97	19.65	8,533.80
1938	32.26 ¹⁰	32.34	25.80	.....	.....	.....	.....	.....	.....	.....

¹Beginning April 7. ²Beginning April 8. ³Beginning March 28. ⁴April 17 to April 30, inclusive. ⁵October 1 to October 14, inclusive. ⁶April 24 to April 30, inclusive. ⁷April 10 to April 30, inclusive. ⁸To October 1, inclusive. ⁹Beginning May 9. ¹⁰Beginning April 14.

with their rights. This was agreeable to all parties and rotation between the four started on July 1, 1937. The water commissioner had complete charge of the handling of the schedule, and as the flow in White River dropped the various rights were dropped and adjustments made in the schedule. When all rights were satisfied the following schedule was used and found to be satisfactory:

Rosevear.....	24.08%	of 21 days, 5 days, 5 hours.
Windous.....	38.22%	of 21 days, 8 days, 5 hours.
McQueen.....	26.39%	of 21 days, 5 days, 17 hours.
Williams.....	11.31%	of 21 days, 2 days, 11 hours.

The water between the lower users, Mr. Gardiner and Mr. Barryman, was handled on a rotation schedule of their own, and there was no need of a water commissioner.

All water over the decreed rights on White River was prorated to the various users.

The first measurements were taken on June 26. At the McQueen diversion, measured through a free orifice, there were 7.00 c.f.s. in the river.

The only water being diverted was at the Williams upper gate, 3.00 c.f.s., and at the Barryman upper gate, 4.00 c.f.s.

The White River below the Gardiner Ranch was dry, and no water was flowing to Preston.

The various rights on White River since they were applied for have changed ownership and are known by different names.

These names and present owners are:

ORIGINAL NAME:	KNOWN AS:	PRESENT OWNER:
Andrew Lee.....	Andrew Lee.....	Mrs. Lizzie Lee
James T. McQueen.....	Wheeler Ranch.....	Dan Clark
Geo. R. Hayden.....	Hayden Ranch.....	T. A. Windous 0.828 c.f.s. J. A. Rosevear 0.522 c.f.s.
Stephen Williams.....	Albert Williams.....	Albert Williams
C. & K. Hermanson.....	Barryman & Gardiner.....	Edward Barryman upper 1/2 Tom Rosevear 1/4 lower 1/2 Gardiner 1/4 lower 1/2
Preston Irrigation Co.....	Same.....	Same

WHITE RIVER DISTRIBUTION—JULY 1937

July	White River* c.f.s	McQueen c.f.s	Hayden c.f.s	Williams c.f.s	Hermanson c.f.s	Daily total c.f.s.	Acre feet
2	6.15	3.00	.....	.....	3.50	6.50	13.00
7	5.30	.....	2.75	.....	3.00	5.75	11.50
12	4.61	.....	2.75	.....	3.00	5.76	11.52
15	4.22	.....	3.90	.....	2.50	6.40	12.80
19	4.28	.....	.....	3.65	2.50	6.15	12.30
23	4.00	2.50	.....	.....	2.50	5.00	10.00
29	4.00	.....	2.50	.....	2.25	4.75	9.50
Total	26.41	.....	.....	.....	.....	39.81	80.62
Daily average—	3.772	.....	.....	.....	.....	5.685	11.517

Total acre feet for July, 357,027. *Measurement taken above McQueen Ranch diversion.

All rights from 1869-1905, inclusive, fulfilled. Surplus water prorated according to percentages shown on priority chart.

Water rotated between McQueen, Williams, and Hayden rights.
Increased flows due to local rains.

WHITE RIVER DISTRIBUTION—AUGUST 1937

Sept.	McQueen c.f.s	Hayden c.f.s	Williams c.f.s	Hermanson c.f.s.	Daily total c.f.s.	Acre feet
6	1.90	.....	2.00	3.90	7.80
12	1.95	2.00	3.95	7.90
27	1.80	.....	1.20	3.00	6.00

Total 10.85 21.70
 Daily average 3.616 7.10

Total acre feet for August, 220.11. Rights filled 1869-1892, inclusive. Water rotated between McQueen, Williams, and Hayden rights.

WHITE RIVER DISTRIBUTION—SEPTEMBER 1937

Sept.	McQueen c.f.s	Hayden c.f.s	Williams c.f.s	Hermanson c.f.s.	Daily total c.f.s.	Acre feet
10	1.35	.....	0.50	1.85	3.70

Total acre feet, September 1-10, 37.00. Rights filled 1869.

July 357.03 acre feet

August 220.11 acre feet

September 37.00 acre feet

614.14 acre feet flow in

White River from July 1 to September 10, 1937.

I recommend in the future that any diversion dams that are built will be so constructed as to take care of 75 c.f.s. of water during the winter and the occasional summer storms. A dam with a spillway the full length of its crest appears to be the best suited for this stream. All headgates and diversion dams that have washed out were not equipped with spillways or devices to take care of flood waters.

All ranchers reported a good season, the first and second crops of alfalfa being good, also a good wild hay crop.

CHAPTER VIII

Distribution of Water from Humboldt River, and Litigation Connected Therewith

The Humboldt River, for a period extending over many years, has furnished a fruitful field for water-right litigation. In the aggregate a goodly portion of this litigation may be considered constructive, since it involved, more or less, the determination of priority of water rights and in the established order of events, the decisions rendered by the court in connection with such litigation have had a profound effect in the evolution of our present water law. However, litigation initiated during the irrigation season of 1937 and affecting the manner of distribution of the waters of the Humboldt River in the Lovelock Valley is apparently without parallel in the annals of water-right litigation within the State, and is of particular significance inasmuch as it involves the constitutionality of section 75 of our State water code* and the orderly distribution of water under the terms of any State court decree.

Preliminary to outlining the salient features of this litigation it would seem pertinent to briefly discuss some of the basic principles relating to the distribution of water after the rights to the use thereof have been determined by court decree.

The first appropriators of water from the Humboldt River were not concerned with any distribution problems since the flow of the stream was ample for their requirements. It was only after continued settlement of land with new diversions from the river for the irrigation of such land, which brought about a condition that taxed beyond limit the natural flow of the stream to meet these new irrigation requirements, that early appropriators became concerned with the problems of establishing their priority rights as against the later appropriators. The arrival of this period was responsible for more or less extensive litigation between appropriators of water along the Humboldt River and resulted in numerous court decrees now of record. However, even after the rights were determined as between certain individual users there remained the problem of enforcement of the District Court decrees. It was to remedy this situation that our present water law was enacted, which provided for a court determination of all the relative rights of all the water users of a stream system with provisions for enforcement of any decree entered, so that the prior users, or those first in time, regardless of their location on the stream system, would receive the water to which they were justly entitled. The statutory adjudication proceedings initiated in the year 1913 for a determination of the relative rights of claimants and appropriators of the Humboldt River stream system resulted in the so-called Bartlett decree of 1931, as modified by the Edwards decree. The process of

*Section 75, chapter 253, Statutes of 1915, of the Nevada water code provides that anyone aggrieved by order or decision of the State Engineer may initiate an appeal in the District Court of the county in which the matters affected are situated. Appeals may be taken to the Supreme Court of the State from the decision of the District Court.

determination of the relative rights of claimants and appropriators is in the main a more or less simple process. The court can determine with reasonable certainty the location and extent of the irrigated areas, the duty of water for irrigated lands, and the time of initiation of the right, commonly referred to as priority. However, at this point in the proceedings there always appears that intangible something which seems to challenge the court to define definitely. Weil, in his "Fifty Years of Water Law," in commenting upon this phase of water litigation in various appropriation States, quotes the following from an eminent water authority: "All indicate that there is something that should be reached and in every decision this something is just beyond the grasp of the court." In other words, the date of priority of an appropriation, the land to which the water is appurtenant under the priority, and the duty of water for such land can be as aforesaid determined with reasonable certainty, but the manner in which the appropriator who was first in time will be the first in right in receiving, under varying conditions, that amount of water which the court has said he is justly entitled to, cannot be definitely stated in any decree—it remains a problem of distribution.

In that portion of the decree defining the relative rights of claimants and appropriators of the Humboldt River stream system below Palisade, there is embodied in said decree the length of irrigation season for such class of culture, viz, March 15 to September 15 for harvest crops, March 15 to June 13 for meadow pasture, and March 15 to April 28 for diversified pasture, or an irrigation season of 184 days, 90 days, and 45 days, respectively, for the various classes of culture. On this section of the river and tributaries the decree provides a rate of flow of 0.00813 c.f.s. for each acre irrigated, which, during the period specified as the irrigation season, will yield the amount of water in acre feet allowed for each class of culture.

Obviously in the distribution of water to appropriators in accordance with the priority, if we adhere strictly to the provisions of the decree with respect to the rate of flow as specified therein, it will require that such continuous flow be maintained throughout the entire length of the irrigation season as fixed for the different classes of culture in order to yield the amount of water in acre feet allowed for said classes of culture. That is to say, restricting the deliveries of water under the various priorities upon a continuous flow basis as fixed by the decree for a full-time irrigation season, when such irrigation season is shortened as a result of failure in the water supply, the amount of water in acre feet actually delivered to the lands within the priority served will be in the proportion that the restricted season due to the limited water supply bears to the full length of the irrigation season as fixed by the decree.

In actual practice on that portion of the river below Palisade, river-flow water in any substantial quantity is seldom available for use on first-class culture land after the early part of July. Here, then, we have the anomaly of a decree which, in effect, based upon the continuous flow allowed will under ordinary river-flow conditions provide almost as much water for a second-class culture as can be obtained for the first-class culture.

From the foregoing it is readily seen that if water is available in

the stream system in sufficient amount to satisfy the continuous flow that each water user is allotted under the decree from the beginning to the end of the irrigation season, then each of such users during such period of time will receive that amount of water in acre feet for the various classes of culture as specified by the decree. As aforesaid, this condition we know seldom, if ever, exists; so it naturally follows that a practical view must be taken of all the surrounding conditions and situations in the enforcement of the decree, and if the stream becomes from natural conditions insufficient for all claimants, prior appropriators must be given their full amount at all times in order, in preference to junior appropriators. A practical method of distribution, therefore, not only on the Humboldt River, but on any stream system, when the right to the use of water of the stream system has been consummated by use, and such right has been defined by court decree, is to allow the appropriator without undue interference to others to continue the use he has customarily made and enjoyed in the past.

Any system of distribution adopted in connection with the distribution of the waters of the Humboldt River to accomplish the foregoing results must be with the understanding that in the very nature of things, beneficial use is not and cannot be considered a constant factor. That is to say, the rate of consumption of water by the irrigated crops along said river varies with the season, being very little or perhaps none at the beginning of the irrigation season, fixed by the decree as of March 15 for the lands situated below Palisade, and reaching a maximum rate at the peak of the growing season sometime in the months of May and June. It must also be kept in mind that the Humboldt River is what might be termed more or less of a flash stream, the runoff depending upon melting snows or precipitation in the form of rain during the early months of the irrigation season on the upper reaches of the drainage basin, with wide fluctuations in flow due to seasonal climatic conditions. Another important factor that has a direct influence on the delivery of water to water users is lagging or retardation of flow of the water in the main river as on account of its winding tortuous channel and low gradient it requires, under normal conditions, a period of approximately fourteen days for an increase in the river flow at Palisade to make itself manifest on the lower reaches of the river. Also, in normal years the flow in the stream rapidly diminishes during the early part of July, so, as aforesaid, water is seldom, if ever, available in any appreciable quantities for irrigation on the lower reaches of the river after July 15 of each year.

During the years from 1927 to 1935, inclusive, the waters of the Humboldt River were distributed upon an acre-footage basis. In this method the office followed a policy of estimating the runoff in acre feet for the season as derived from snow survey data, and setting priorities to conform with the total amount available, less transportation losses, and delivering the amount to which the user was entitled at the time it could be most beneficially used, or as near that as could be done considering the flow of the stream and the acreage of the land entitled to water. This method of distribution was used with varying degrees of success and conforms to the recommendations made by the Humboldt River Advisory Board in its report of February 22, 1929. It is no

doubt justified under the provisions of the decree when the use of the amount of water in acre feet delivered to land having a priority right is based upon actual beneficial use of the water. The main objectionable features to its exclusive use are:

1. Inability to determine at the present time with reasonable accuracy the amount of runoff in acre feet less transportation losses which will be available for irrigation, and thereby determine the priorities which can be served at the beginning of the irrigation season.

2. Impossibility of determining, on account of varying weather conditions, the time or times when the estimated probable maximum runoff will be available for distribution.

It is recognized that the only reliable method which can be used in making an estimate of the probable runoff from any watershed is based upon the principles advanced by Dr. J. E. Church, and as this work is carried on from year to year on the Humboldt River stream system, the data secured becomes more valuable and more accurate, and will play an important part in solving many of the vexing problems of distribution on said stream system. The time when the estimated quantities of water forecast by the snow survey will be discharged by the stream system is, of course, an unknown factor, and makes it imperative that some flexibility be maintained in determining the priorities which can be served by the river flow.

The measure of the allowance for irrigation use which will be most readily understood and most easily applied in connection with distribution under the court decree on the Humboldt River is, we believe, a continuous flow diversion expressed in terms of cubic feet per second. For the most practical results in conformity with the provisions of the decree, the rate of flow allowed should be based upon the period of anticipated availability of water which will yield, during such period of time, the amount of water in acre feet required for a beneficial use by the growing crops; provided, that the total amount diverted in acre feet for the various classes of culture shall not exceed the duty of water as specified in the decree for such culture. It must be understood that some flexibility in the rate of diversion is not only desirable but is necessary in order to take advantage of the peak flows in the stream system.

As aforesaid, beneficial use of water is not and cannot be in the very nature of things a constant factor. That is to say, the rate of consumption of water by irrigated crops varies with the season, being very little or perhaps none during the dormant season and reaching a maximum rate at the peak of the growing season. The discharge of the Humboldt River during years of normal precipitation is seldom, if ever, great enough to supply at one time throughout the entire length of the river the maximum requirements of the irrigated crops during the peak of the growing season. Downstream appropriators of water on the Humboldt River, being aware of this condition and that water, due to upstream diversions, would probably be available only in limited quantities during the peak of the growing season, have of necessity been required to divert and accumulate in ground storage the runoff made available to them at the beginning of the irrigation season, thus conserving and retaining same in such ground storage for later use by the growing crops. In conjunction with accumulation of

water in ground storage, the water users have generally found it economically desirable to employ a system of rotation in the use of water. By this method the appropriators enjoy an increased head of water, but only those whose order in the rotation comes within the period of maximum crop demand will receive the highest beneficial use of water. The most practical and more modern method to meet the variable demand for water by irrigated crops than by ground storage or rotation is the accumulation of water by means of regulatory storage. Although it may not always be economically feasible to provide such regulatory storage, it is believed where such facilities are available they should be used in the interest of conservation and highest beneficial use of water; provided, that by such accumulation there be no interference with any prior rights. By this means the user or users will divert from the stream at a uniform rate the quantity of water, measured by volume and time, that they are entitled to divert for direct irrigation, under the terms of the decree, within the priorities served and for use within the limits of the irrigation season as defined by such decree. Irrespective of whether the accumulation of decreed water in storage is strictly legal under the provisions of the decree on the Humboldt River, there can be no question but that such accumulation under the foregoing conditions is conducive to the highest beneficial use of said water with a minimum of waste, and reacts to the benefit of all appropriators on the Humboldt River stream system, for the reason that such accumulation affords a practical means for meeting the constantly changing factor of beneficial use with, as aforesaid, a minimum disturbance of the river flow during the peak demand of growing crops.

One of the greatest difficulties encountered by the supervising water commissioner in the distribution of the waters of the Humboldt River under the Order of Determination of the State Engineer defining the relative rights of claimants and appropriators of water of said stream system, and later under the court decree, was the transportation of water through what is termed the Battle Mountain Basin. This basin is approximately 75 miles in length and several miles in width. Adjacent to the river channel through the basin were several large ranches that diverted water from the Humboldt River for irrigation of lands classified as harvest crop, meadow pasture, and diversified pasture. The usual method of irrigation as practiced on this section of the river was the installation of dams in the river channel in such a manner as to not only divert water into constructed canals and ditches, but also to irrigate by overflow and serving as great an area as possible. This wasteful practice of irrigation had been carried on for a period of from 50 to 60 years and was considered by engineers as one of the greatest contributing factors in dissipating the water resources of the river at the expense of other appropriators. It was also the consensus of opinion of water commissioners that any water diverted from the river through this section was lost water, and no return flow to the river of any consequence as the result of any diversions was apparent. In what was commonly referred to as the Argenta Swamp alone, comprising a tule area of approximately 900 acres in extent in which the river channel had been entirely obliterated, it was conservatively estimated that there was an annual loss of water to the river of from 4,000 to 12,000 acre feet.

The following comment is made by the court upon the foregoing condition in the Findings of Fact No. 38 of Findings of Fact, Conclusions of Law and Decree: "In one place in the Argenta region above Battle Mountain the river channel is practically lost and the water flows out over enormous areas of land, causing in some places the growth of hay, pasture, and in other places tule areas. The evidence and observation show that the entire river must flow into this area for considerable time prior to the water finding its way through this area; the river from its source to the last cultivated area is but little more than three hundred miles."

During the year from 1931 to 1932 the Bureau of Reclamation made a survey of the needs of the water users and of the water resources of the Humboldt River, which included a detailed survey of the then existing conditions in the Battle Mountain section. As a result of these investigations the Pershing County Water Conservation District initiated a program covering three major undertakings, viz:

1. Construction of a dam in the main river channel at Rye Patch, approximately 25 miles northerly from the city of Lovelock.
2. Purchase of seven ranches and appurtenant water rights in the Battle Mountain section and transfer down stream of such purchased water to lands located within said irrigation district.
3. Removal of dams constructed across the river channel for irrigation and flooding of land on ranches purchased, and otherwise general channel improvement and drainage of such lands.

In the month of March 1934 the Pershing County Water Conservation District, with options to purchase water rights from seven different ranches located in the Battle Mountain section, filed with the State Engineer Applications Nos. 9729-9735, inclusive, for permission to transfer the decreed water appurtenant to the lands on said ranches to lands included within said irrigation district in the Lovelock Valley. These applications after being duly advertised in accordance with law, were formally protested by other appropriators of water in the Battle Mountain section, so it was only after extended hearings and conferences that these protests were disposed of by stipulation, and the way paved for the approval of the applications. These seven applications, involving the transfer of approximately 50,000 acre feet of the waters of the Humboldt River, as a supplemental supply for lands having decreed rights and on newly reclaimed land, were approved by the State Engineer on October 8, 1934, and said transfer of water was in effect during the irrigation season of 1935. These permits and the water rights involved were subsequently assigned by the Pershing County Water Conservation District to the United States.

The Rye Patch Dam, which, as aforesaid, is constructed across the channel of the Humboldt River about 25 miles northerly from the town of Lovelock, was commenced in 1934 and was sufficiently completed in the early months of the year 1936 to store water.

With the advent of the irrigation season of 1936, it was found that the construction of the Rye Patch Dam, coupled with the transfer of certain decreed waters from lands in the Battle Mountain section of the Humboldt River onto the lands included within the boundaries of the Pershing County Water Conservation District in Lovelock Valley, a goodly portion of which latter lands already had decreed rights from

the Humboldt River, had brought about certain complications with respect to the distribution of the waters of the Humboldt River, particularly in the Lovelock Valley district. These complications were induced more or less by the then existing reservoirs of the Humboldt Lovelock Irrigation Light & Power Company, which corporation had prior existing rights to the storage of the waters of the Humboldt River, thus making it essential that the State Engineer keep accurate account with respect to four classes of water, viz, individual decreed water, transferred purchased decreed water belonging to the Pershing County Water Conservation District or the United States, Humboldt Lovelock Irrigation Light & Power Company storage water, and storage water in the Rye Patch reservoir. After considerable detailed study of the situation it was decided to use the gaging station situated on the Humboldt River near Mill City, and a short distance below the intake of the feeder canal for the Humboldt Lovelock Irrigation Light & Power Company reservoirs, as the point for computing and segregating the river flow into its various classifications, as heretofore referred to, in accordance with priority and the provisions of the decree. It was also decided in the interest of conservation of water and its highest beneficial use that individual decreed water users of the Lovelock Valley should have the advantage of using their reservoirs for the purpose of accumulation in storage of the quantity of water, measured by volume and time, that they were entitled to receive for direct irrigation under the priorities being served, and for use within the limits of the irrigation season as fixed by the decree. The advantage of accumulation for purchased transferred water was also accorded to the irrigation district, it being understood that the total amount of accumulated individual decreed water and said purchased and transferred decreed water must not exceed the duty of water of three acre feet per acre as specified by the decree for lands entitled to receive said water. This method of distribution was in effect in the Lovelock Valley throughout the irrigation season of 1936, and apparently proved highly satisfactory to all water users concerned as no protests of any consequence were registered against the procedure.

The same procedure was decided upon in the distribution of waters of the Humboldt River for the Lovelock District during the 1937 irrigation season, and on March 15 the flow at Mill City, being insufficient to satisfy the continuous flow allowed for the decreed rights of the individual users and of the so-called purchased and transferred water, the headgates of the Humboldt Lovelock Irrigation Light & Power Company intake canal were closed and water allowed to flow downstream for accumulation in the Rye Patch Reservoir and for direct diversion on lands in the Lovelock District. On April 3, 1937, the Humboldt Lovelock Irrigation Light & Power Company, through its attorneys, Hawkins, Mayotte & Hawkins, served notice and demand on the State Engineer regarding the amount of water flowing in the Humboldt River at that time, and that such water be diverted to the Humboldt Lovelock Irrigation Light & Power Company reservoirs, until said reservoirs were supplied with 62,070 acre feet of water from said Humboldt River, and/or until there was proper and legal demand and necessity to by-pass water for immediate application in direct irrigation use upon lands, if any, entitled thereto. In answers to this

notice and demand the reservoir company, through its attorneys, was notified by the State Engineer by letter under date of April 6, 1937, that strict compliance with the terms of the demand would mean a complete change in the then administrative policy of the State Engineer with respect to the distribution of the waters of the Humboldt River and its tributaries, and that he preferred to make no change in such administrative policy.

On April 23, 1937, the Humboldt Lovelock Irrigation Light & Power Company caused the flash boards to be replaced in their diversion dam, and headgates of the feeder canal to be opened so that waters then flowing in the Humboldt River were diverted into their reservoirs for storage purposes. At the same time the company posted notices on the dam and headgates notifying the State Engineer, the Assistant State Engineer, and the Water Commissioner that they had no right or authority to interfere with or regulate the dam and headgates of the reservoir company because of a district court injunction entered in the Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, on November 27, 1918, in Case No. 2316, Humboldt Lovelock Irrigation Light & Power Company, a corporation, Plaintiff, v. W. M. Kearney as State Engineer, et al., Defendants. On the following day, April 24, 1937, the Humboldt Lovelock Irrigation Light & Power Company, through its attorneys, Hawkins, Mayotte & Hawkins, served on the State Engineer at Carson City, Nevada, a notice of Final Decree and Perpetual Injunction to which was attached a copy of the Court Decree in Case No. 2316, hereinabove referred to. No attempt was made by the State Engineer immediately following service of aforesaid notice to prevent the reservoir company from diverting and storing water.

**SUIT OF HUMBOLDT LOVELOCK IRRIGATION LIGHT & POWER
COMPANY v. STATE ENGINEER, ET AL.**

On April 27, 1937, the Humboldt Lovelock Irrigation Light & Power Company, as plaintiff, commenced action, No. 1006, in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, against the State Engineer, the Assistant State Engineer, the Supervising Water Commissioner of the Humboldt River, the Pershing County Water Conservation District, a corporation, its President and Secretary (all of the foregoing persons named being served in their official capacities and individually), and two employees of the Bureau of Reclamation, identified with the Rye Patch project, as defendants. Briefly the complaint alleged that the plaintiff had storage rights senior in priority to Rye Patch Reservoir; that from March 15, 1937, to April 23, 1937, the defendants, as the result of a conspiracy between them, wrongfully and unlawfully diverted 17,000 acre feet of water to which the plaintiff in the case was entitled, and had stored the same in the Rye Patch Reservoir, in which the irrigation district claimed an ownership without any right whatever; that by reason of such unlawful acts, the defendants would be unable to properly carry on its business during the 1937 season, to its damage in the total sum of \$60,000; that the defendants threaten to and will, unless enjoined, prevent the plaintiff from diverting water to which it is entitled. The prayer

asked an injunction enjoining defendants from (1) interfering with plaintiffs' diversion and storage of waters to the extent of 49,770 feet, subject to the rights of State officials to regulate diversion and storage by plaintiff when necessary to serve appropriators prior in time; (2) storing any water whatsoever in Rye Patch Reservoir; and (3) from storing any waters in Rye Patch Reservoir under the rights claimed to have been acquired by the irrigation district until plaintiff had stored all of its 49,770 acre feet of water. The prayer also asked exemplary, punitive, and compensatory damages in the total sum of \$60,000. An amended complaint in this matter was filed with the court on June 29, 1937, and a copy thereof served on the Attorney-General's office on June 30, 1937. To date no time has been fixed by the court for a hearing of this suit.

**SUIT OF OLD CHANNEL DITCH CO., A CORPORATION, v.
STATE ENGINEER, ET AL.**

On May 18, 1937, the Old Channel Ditch Company, a corporation, as plaintiff, through its attorneys, Hawkins, Mayotte & Hawkins, commenced an action in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, against the Pershing County Water Conservation District, the State Engineer, the Assistant State Engineer, and the Supervising Water Commissioner of the Humboldt River, as defendants. Briefly, the complaint alleged that the plaintiff owned, possessed, and was entitled to control of that certain irrigation dam, diversion works, canal and ditch commonly spoken of and known as the Old Channel Canal and Ditch; that the defendants, conspiring, confederating and agreeing among themselves, and each with the others, and with persons unknown to plaintiff, and without justifiable cause, and unlawfully, and with intent to harm and injure plaintiff, in collusion and agreement, wrongfully and illegally have used and are using the diverting dam and headgate of plaintiff, and by means thereof have diverted and turned, and are continuing to divert into plaintiff's said canal, large quantities of said so-called purchased and transferred waters and large quantities of said stored waters, all aggregating many hundred cubic feet per second of said waters. The prayer also asks for a writ of injunction, pendente lite, against said defendants, and each thereof, in the sum of \$5,000, also exemplary and punitive damages in the sum of \$1,000. An amended complaint in this suit was filed on June 29, 1937. This action is still pending before the District Court.

**SUIT OF THE UNITED STATES OF AMERICA, v. HUMBOLDT
LOVELOCK IRRIGATION LIGHT & POWER COMPANY**

On May 27, 1937, the United States of America, as plaintiff, filed an action in the district Court of the United States of America, in and for the District of Nevada, against the Humboldt Lovelock Irrigation Light & Power Company, a corporation, defendant. In brief, the plaintiff to the action asked that an injunction pendente lite, be issued enjoining the defendants from taking or in any manner interfering with the waters of the plaintiff; that upon final hearing a permanent writ of injunction be issued perpetually enjoining defendant from

taking or in any manner interfering with the waters of plaintiff, and that the court appoint a water master, enforcing the orders and decree of the court, including an order requiring the release of the water unlawfully diverted and stored by defendant in its reservoirs.

On June 3, 1937, the Pershing County Water Conservation District, Union Canal Company, a corporation, and W. W. Carpenter, on behalf of water users of lands within the Pershing County Water Conservation District of Nevada, each filed a petition for an order permitting the filing of a bill of intervention. Each petition was granted by orders made on the same date, and each filed a bill of intervention. Defendant filed its answer and counter claim on June 7, 1937.

Hearing of plaintiffs' motion was had in the Federal Court at Carson City on June 8 and 9, 1937. Defendant stated objections to the hearing, which the court considered as a motion to dismiss. Two of the objections were that the bill failed to state facts sufficient to constitute a cause of suit, and that the bill of complaint should be dismissed because of the pendency of the suit in the District Court. It was conceded that the plaintiff, United States of America, owned no land on which the water which could be obtained under the transferred water rights alleged to be owned by said plaintiff could be used.

On June 10, 1937, Hon. Frank H. Norcross, District Judge of the District Court of the United States of America, in and for the District of Nevada, rendered a decision on plaintiff's motion for injunction pendente lite and defendant's motion to dismiss. In this decision the court held that plaintiff's complaint failed "to set forth facts establishing ownership of property rights alleged to be invaded," and that "the rule of comity would make the State court the proper forum for determination of any rights which appear from the pleadings in this case to be in issue." The court denied the petition for injunction pendente lite, and granted defendant's motion to dismiss.

From the decision of the District Court of the United States for the District of Nevada the plaintiffs, United States, Irrigation District, the Union Canal Company and W. W. Carpenter then took an appeal to the United States Circuit Court of Appeals for the Ninth Circuit. In an opinion rendered on this appeal on May 31, 1938, the Circuit Court of Appeals held: "The Nevada Irrigation District Act (Act of March 19, 1919, Ch. 64, Stats. of Nevada 1919, p. 84) provides for the organization in that State of irrigation districts," and "we think that statute authorizes conveyance to, and ownership by, appellant of the water rights in question, regardless of whether it does or does not own land to be irrigated." With reference to defendant's contention that by the rule of comity the suit should await determination of the suit pending in the District Court of Nevada (termed the third State Court suit) the Circuit Court held: "The third State Court suit has not substantially the same parties or substantially the same interests involved, we think. Since appellant owns the water rights claimed by it, those rights are not and could not be involved in the third State Court suit, for appellant is not a party thereto." "Reversed and remanded with directions to dismiss and grant the injunction pendente lite."

ORDER AND NOTICE OF INJUNCTION TO STATE ENGINEER OF SIXTH JUDICIAL DISTRICT COURT OF STATE OF NEVADA IN AND FOR THE COUNTY OF HUMBOLDT, CASE NO. 2804, AND WRIT OF CERTIORARI OF SUPREME COURT OF NEVADA.

As aforesaid, the State Engineer, following the opening on April 23, 1937, by the H. L. I. L. & P. Company of its headgates to the intake feeder canal for diversion of water to its reservoirs, and serving on April 24, 1937, of notice of perpetual injunction issued by the District Court in 1918, made no attempt until the early part of July to prevent said reservoir company from diverting and storing the waters of the Humboldt River. During the interim the State Engineer continued to distribute the river-flow water over and above the amount being diverted to the H. L. I. L. & P. Company reservoirs, in accordance with the priorities it would serve, also to distribute water from the H. L. I. L. & P. Company reservoirs which was considered as legitimate storage. On June 19, 1937, the State Engineer notified the Humboldt Lovelock Irrigation Light & Power Company that "you are hereby notified that after June 19, 1937, we will not deliver or distribute any water released from your reservoirs as storage water for the reason that you have exhausted all of the undisputed legitimate storage impounded therein. This order shall be effective pending a classification of ownership of the water remaining in your reservoir."

On June 28, 1937, the State Engineer served upon officials of the H. L. I. L. & P. Company and its attorney written notice, demand, and order "that you, on or before 12 o'clock noon on the first day of July, 1937, open or cause to be opened the gates in your dam and close or cause to be closed the gates in your diversion canal so that no water shall be diverted into said reservoirs for storage purposes by you from the Humboldt River during the irrigation season of 1937 or until such time as the State Engineer shall determine that flood, surplus, and/or unappropriated waters are flowing in said Humboldt River which are subject to diversion for storage purposes by yourself and he notifies you thereof."

On July 2, 1937, in the absence of any effort of the H. L. I. L. & P. Company to comply with the foregoing notice and demand of the State Engineer, and due to an acute water shortage by growing crops in the Lovelock Valley, particularly those lands having junior priorities, the State Engineer removed the flash boards from said company's diversion dam and closed the headgates of the feeder canal so that all waters flowed down the river for immediate use for irrigation. In the meantime the State Engineer made or caused to be made a reclassification of the ownership of the waters which had been impounded in its reservoirs by the H. L. I. L. & P. Company during the period between April 23, 1937, and July 2, 1937, in accordance with the decree of the court in the Humboldt River adjudication and the permits as granted by the State Engineer. This classification of the waters of said reservoir was for the purpose of its distribution by the State Engineer to those entitled to receive same under their decreed rights.

During the period that the reclassification or segregation of the aforesaid waters impounded in the H. L. I. L. & P. Company reservoirs was being prepared, the State Engineer held a number of conferences

with representatives of the conflicting interests with the object in view of bringing about a conciliation of differences with respect to the distribution of the impounded water.

On July 17, 1937, the State Engineer served upon officials of the Humboldt Lovelock Irrigation Light & Power Company notice, order, and demand that on or before 12 o'clock noon on Monday, the 19th day of July 1937, they open or cause to be opened the outlet gates or works controlling the release of water from the reservoirs of the Humboldt Lovelock Irrigation Light & Power Company, a corporation, in the manner and to the extent to be directed from time to time by the State Engineer of the State of Nevada and his water commissioner employed for the distribution of water in the Lovelock Valley, for the purpose and to the end that the water so illegally impounded in said reservoirs may be distributed to claimants, appropriators, and permittees thereof in accordance with law and their decreed rights.

On July 16, 1937, based upon a petition filed by the Humboldt Lovelock Irrigation Light & Power Company, an order was issued by Hon. J. M. Lockhart, District Judge presiding in the Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, in the matter of the determination of the relative rights of claimants and appropriators of the waters of the Humboldt River stream system, Case No. 2804, wherein the State Engineer, and each and every one of his assistants and employees, were instructed, required, and ordered as follows:

1. That you forthwith and immediately cease and desist from in any manner and/or at all interfering with and/or attempting or seeking to control or manage the intake and diversion dam, canal and/or control works, or any part or portion thereof, of the reservoirs and/or reservoir system of petitioner, Humboldt Lovelock Irrigation Light & Power Company, situated in Pershing County, Nevada; and
2. That you forthwith and immediately cease and desist from any and all effort and/or plans, purpose and/or attempt to control, open or shut down the outlet gate and/or control works of said Humboldt Lovelock Irrigation Light & Power Company reservoir system, and any and all plans, purposes and/or attempts in any manner or at all, to discharge or release from said reservoir system waters, or any thereof, there stored and/or impounded; and
3. That you forthwith and immediately receive all water discharged or released by petitioners from its said reservoir system into said Humboldt River, and distribute all such water into the ditches, and each thereof, named and specified in requests, instruction and/or notices from time to time given by petitioner to said State Engineer, and/or to the Assistant State Engineer, or to the Water Commissioner, and cease and desist from failing or refusing to distribute to and for the benefit of the persons by said Humboldt Lovelock Irrigation Light & Power Company named as persons to whom said company desires and requests its water so released into the river bed of the Humboldt River, from said referred to reservoir system, to be delivered; to forthwith and immediately open and keep open any and all headgates into which water released from said reservoir system heretofore has been customarily received and carried, and to divert and turn into said respective ditches all water by said Humboldt Lovelock Irrigation Light &

Power Company released by its reservoir system into said river bed, in strict and true accord with requests, notices and instructions, and each and every thereof, given and/or made upon you, or either of you, by said Humboldt Lovelock Irrigation Light & Power Company; and

4. That you forthwith and immediately cease and desist from, in any and all forms and/or manner, stating, declaring, advising and/or holding out to any and all persons, and particularly stockholders in said Humboldt Lovelock Irrigation Light & Power Company, any and all opinions, statements, conclusions, decisions, declarations and/or advice in substance and/or effect that the water, and/or any thereof, now impounded and/or stored in said reservoir system of the said Humboldt Lovelock Irrigation Light & Power Company is illegally or wrongfully held or impounded, or is decreed water or is properly or improperly held in said reservoir system, and cease and desist from, in any and all form and/or manner, expressing judgment and/or opinion upon the character of said referred to waters, and/or attempting and/or seeking to determine, or announce, or pass upon any question and/or controversy as to title to said waters so impounded and stored in petitioners' reservoir system; and

5. That you at all times receive and accept from said Humboldt Lovelock Irrigation Light & Power Company and/or its officers, all notices, requests and instructions given you and in form and substance as is usual and heretofore customary in your dealing with said Humboldt Lovelock Irrigation Light & Power Company, and with all due and proper diligence and speed accede thereto and perform the same in and about all waters discharged and released from said reservoir system into the river bed of the Humboldt River, all in accordance with, and in performance of, section 77 of the water code of Nevada.

6. That the hour of 10 o'clock in the forenoon of the 28th day of July 1937, you personally appear before this court, in the District Courtroom in the county courthouse, in the city of Winnemucca, county of Humboldt, State of Nevada, and then and there make return to this order.

On July 23, 1937, upon petition of the State of Nevada Ex Rel Alfred Merritt Smith, State Engineer of the State of Nevada, Plaintiff and Relator, v. The Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, and Honorable J. M. Lockhart, Presiding Judge thereof, and Humboldt Lovelock Irrigation Light & Power Company, a corporation, Defendants and Respondents, Case No. 3209, a writ of certiorari was issued out of the Supreme Court of the State of Nevada, directing said defendants and respondents to certify and send to the Supreme Court of the State of Nevada before 10 a. m. on September 8, 1937, a transcript of the records of and in the action taken as aforesaid on July 16 in Case No. 2804; that "The Humboldt Lovelock Irrigation Light & Power Company, a corporation, and your officers, agents, representatives, attorneys and employees, and each of them, desist from further proceeding in any manner under or pursuant to said order of said Sixth Judicial District Court until further order of the court"; also, "And it is further ordered that said order issued out of the said Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, on the said 16th day of July 1937, in said Matter of Determination of the Relative Rights of

Claimants and Appropriators of the Waters of the Humboldt River and its Tributaries, No. 2804, be, and the same hereby is, stayed and made ineffective pending the determination of these proceedings on certiorari and until further order of this court, and that Alfred Merritt Smith, as State Engineer of the State of Nevada, be, and he hereby is, ordered and directed to forthwith distribute the waters of the Humboldt River in the Lovelock Valley District, Pershing County, Nevada, in accordance with that certain decree of the Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, Honorable Geo. A. Bartlett, District Judge presiding, entered and filed in said court the 20th day of October 1931, and to so distribute said waters until further order of this court."

On July 27, 1937, Alfred Merritt Smith, State Engineer, J. A. Millar, Supervising Water Commissioner, and D. E. Winchell, Commissioner, Lovelock District, proceeded to the outlet gate of the Humboldt Lovelock Irrigation Light & Power Company reservoirs for the purpose of releasing water therefrom and distribution to those entitled to receive same in accordance with the Bartlett decree. Upon refusal of officers and agents of the reservoir company, who were then and there present, to turn over the keys to the padlocks on the headgates, the State Engineer read to said officers and agents the order and writ of the Supreme Court. Following the reading of said writ, the State Engineer proceeded in an effort to release the stored waters from the reservoirs, but was prevented by agents and employees of the reservoir company from doing so. The State Engineer then proceeded to Lovelock and swore out criminal complaints against the persons interfering with him in the performance of his duties and had them arrested for interference with him as a State official in the performance of his duties. He then returned to the headgates and released therefrom a sufficient amount of the water impounded there to take care of immediate irrigation needs. Later in the day the officers and agents of the reservoir company swore out a criminal complaint against the State Engineer, charging him with trespass, and caused him to be arrested on the charge. Neither of the foregoing charges has been pressed or tried in court.

On July 27, 1937, the Supreme Court of Nevada entered an order to the petitioners in No. 3208, Andrew Jahn, Petitioner, v. The Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, and J. M. Lockhart, as Acting and Presiding Judge thereof, Respondents, and Case No. 3209, hereinbefore referred to, wherein "You and each of you are hereby notified that in open court on the 27th day of July 1937, the court made an order permitting the respondent court and Judge thereof and the Humboldt Lovelock Irrigation Light & Power Company to appear in court on Friday, July 30, 1937, at the hour of 10 o'clock a. m. and move for relief from the writ of certiorari issued on July 23, 1937, in the above-entitled matter."

On August 6, 1937, a hearing on the petition in Case No. 3209 was held in the Supreme Court before Hon. B. W. Coleman, C. J., Hon. E. J. L. Taber, J., and Hon. Wm. D. Hatton, District Judge, following which, on August 9, 1937, the court entered an order "that the method of obtaining relief contended for by the Humboldt Lovelock Irrigation Light & Power Company is exclusively provided for by section 75 of

the water law (section 7961 N. C. L.), and that the respondent court and the Honorable J. M. Lockhart, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein," and "that the order and proceedings had, made and entered by said respondent court, and said Presiding Judge, complained of by plaintiff and relator be, and the same are hereby, set aside, annulled, and held for naught, and said court and Judge hereby restrained from further action in said proceeding." A final opinion in this action was rendered and filed with the Clerk of the Supreme Court on November 18, 1937.

IN THE DISTRICT COURT OF THE UNITED STATES, IN AND FOR THE DISTRICT OF NEVADA. EQUITY NO. H-194. STATUTORY THREE-JUDGE COURT.

During the period from July 27, 1937, to September 3, 1937, the State Engineer operated the outlet gates of the Humboldt Lovelock Irrigation Light and Power Company reservoir system, and used the water released therefrom to augment river flow and serve the demands of water users in Lovelock Valley under all priorities.

On September 3, 1937, the Humboldt Lovelock Irrigation Light and Power Company, a corporation, filed a complaint in the District Court of the United States, in and for the District of Nevada, titled Humboldt Lovelock Irrigation Light and Power Company, a corporation, Plaintiff, v. Alfred Merritt Smith, as State Engineer of Nevada, Defendant, No. H-197, In Equity. In this complaint the plaintiff prayed for injunctive relief against the enforcement of certain decisions and orders of defendant respecting the diversion of waters from the Humboldt River into its reservoirs, and that as construed by the Supreme Court of the State of Nevada, section 75 of the State water code is void because it is in violation of the Constitution of the United States in that it permits impairment of contractual obligations and deprives plaintiff of valuable property rights without due process of law. On the same date, September 3, Hon. Frank H. Norcross, U. S. District Judge, entered a temporary restraining order and enjoined the State Engineer and any of his assistants or employees from in any manner controlling or regulating plaintiff's headgates, diversion works, or outlet canal, and from in any way or manner interfering with the plaintiff in the disposition and/or use of the water impounded and stored in plaintiff's reservoir system, and from trespassing and/or going upon the reservoir system of plaintiff; also that said defendant State Engineer show cause before the court, in the District Court in the Federal Building at Carson City, Nevada, on September 10, 1937, why an interlocutory or temporary injunction should not issue. To the plaintiff's bill of complaint the defendant, by his attorney, Hon. Gray Mashburn, Attorney-General of the State of Nevada, interposed a motion to dismiss. This motion was submitted upon oral argument and briefs filed. On December 28, 1937, the court rendered its Memorandum and Decision on motion to dismiss as follows: "This case appears clearly to fall within the rule announced by the Supreme Court in the case of Porter v. Inventors Syndicate, 286 U. S. 461; 75 L. Ed. 1226, in that the court is without jurisdiction to entertain the suit until it appears that the complainant has exhausted the administrative

remedy afforded by the statute." On December 30, 1937, the court filed its decree dismissing suit on defendant's motion to dismiss. From the court's decision granting defendant's motion to dismiss, the plaintiff, Humboldt Lovelock Irrigation Light and Power Company, a corporation, filed a petition for a rehearing, which request was granted. The petition was filed and submitted upon briefs by the respective parties in interest. The petition challenged jurisdiction otherwise than by a three-judge court, to terminate the case by dismissal. On March 30, 1938, the court entered an order granting a rehearing and vacating the order of dismissal on the ground, among other things: "The authorities cited in the brief for plaintiff are sufficient to raise a serious question respecting the authority of the Judge of this court to consider and dispose of the motion. The decision in the Porter case was rendered upon a review of a decision of a three-judge court, and hence the question here presented was not, in the case directly involved or considered," and "in granting the motion to dismiss, the ground specified in the motion, to the effect that the plaintiff's bill of complaint did not present a substantial question of constitutionality, was not considered. In view of the earnestness with which the constitutional question is presented and the fact that it deals with the important questions of water rights and the determination thereof, we do not feel justified in not holding that the constitutional question is so clearly without merit that it is not fairly open to debate." "It is clear that a plaintiff ought not to be compelled to apply for relief by mandamus to the Supreme Court in a case that is not manifestly free from any question of doubt." The defendant State Engineer then on April 14, 1938, by and through his attorneys, Gray Mashburn, Attorney-General, and W. T. Mathews and Alan Bible, Deputy Attorneys-General, filed Response to Order to Show Cause and Answer of Defendant, Alfred Merritt Smith, to plaintiff's complaint.

On May 6, 1938, in the Federal Court at Carson City, Nevada, the statutory three-judge court convened pursuant to section 266 of the Judicial Code, composed of Hon. Curtis D. Wilbur, Judge of the Circuit Court of Appeals for the Ninth Circuit, Hon. Harold Louderback, Judge of the District Court of the District of Northern California, and Hon. Frank H. Norcross, Judge of the District Court for the District of Nevada, and heard arguments on plaintiff's petition in equity, No. H-194. On the same date the Pershing County Water Conservation District of Nevada, Andrew Jahn, W. W. Carpenter, and the Intermountain Investment Company, a corporation, filed petitions for intervention in the proceedings, which motions were granted by the court. At the conclusion of the hearing the court allowed ten days for defendant to file counter affidavits in answer and opposition to affidavits of Geo. C. Stoker and others as filed in open court May 6, 1938, in behalf of plaintiff's petition for an interlocutory injunction. The court also enjoined both defendant and plaintiff from releasing 7,000 acre feet of water that remained in plaintiff's reservoir at the end of the 1937 irrigation season and classified by the State Engineer as accumulated decreed water. On June 17, 1938, by stipulation of respective counsel for plaintiff, defendant and intervenors, the outstanding restraining order entered on September 3, 1937, in No. H-194, In Equity, was modified "by vacating all provisions therein contained,

restraining the defendant State Engineer from regulating plaintiff's diversion dam, diversion works and/or the headgates in plaintiff's intake canal referred to in that certain 'Order to Show Cause Why Interlocutory or Temporary Injunction Should Not Issue and Restraining Order,' granted, issued and filed in the above-entitled Court and case on September 3, 1937." Following said modification of the restraining order the State Engineer again took over control of plaintiff's diversion works located on the Humboldt River and diverted into plaintiff's said reservoirs any flood or surplus unappropriated waters then flowing in said Humboldt River. At the end of this biennium, June 30, 1938, water in varying amounts over and above that necessary to serve the continuous flow of decreed rights for lands in the Lovelock Valley, and the continuous flow of United States purchased and transferred water, was being diverted into the H. L. I. L. & P. Company reservoirs.

SUIT OF YOUNG DITCH COMPANY, A CORPORATION, PLAINTIFF, v. STATE ENGINEER, ET AL., DEFENDANTS

On January 27, 1938, the Young Ditch Company, a corporation, by and through its attorneys, Hawkins, Mayotte and Hawkins, filed with the Clerk of the Court in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, an action, No. 1050, titled Young Ditch Company, a corporation, Plaintiff, v. Pershing County Water Conservation District, a corporation, Alfred Merritt Smith, as State Engineer of the State of Nevada, H. W. Reppert, as Assistant State Engineer of the State of Nevada, J. A. Millar, as Supervising Water Commissioner of the Humboldt River, including the Lovelock District in Pershing County, State of Nevada, Defendants. Briefly, the complaint alleged that plaintiff owned and was possessed of a certain irrigation dam, diversion works, canal or ditch, commonly known as the Young Canal or Ditch; that said works were used for carrying and transporting water from the Humboldt River for use by various appropriators thereof who were stockholders in plaintiff corporation; that defendants as a result of a conspiracy between them have unlawfully and with intent to harm and injure plaintiff, by use of plaintiff's dam and headgate, diverted into plaintiff's canal large quantities of so-called purchased and transferred water and large quantities of said stored waters, all aggregating during an irrigation season many hundred cubic feet per second of said waters. The prayer asked for an injunction pendente lite, judgment against the defendants and each thereof in the sum of \$5,000, and that plaintiff have judgment against defendants, and each thereof, in the sum of \$1,000 as exemplary and/or punitive damages.

In connection with this suit it must be borne in mind that the Young Ditch from where it diverts water from the Humboldt River, for a distance of approximately one and one-quarter miles, is owned jointly by S. R. Young and the Young Ditch Company. From this point the ditch conveys water across the Humboldt River by means of a flume and is owned by the Young Ditch Company. A spillway at the flume is used to by-pass excess water diverted into the ditch back into the river. Water is also released back to the river from the Young Ditch near the S. R. Young residence for the generation of power, with a

priority of 1888. No headgate has been installed at the intake of the Young Ditch, which requires that water diverted into said ditch be controlled by means of the Young diversion dam situated in the Humboldt River channel. The distance by river channel from the diversion dam to the point where the water released from the Young Ditch through the Young power plant back to the river is approximately five miles. Paradoxical as it may seem, in consideration of the foregoing suit, counsel for plaintiff, after the commencement of the irrigation season of 1938, requested that water flowing in the Humboldt River at the point of intake of the Young Ditch be diverted through said ditch and released back to the river through the S. R. Young power plant in order to save river losses that might be incurred by transportation of the water between the two points by way of the river channel. The total amount of water delivered through the Young Ditch during the 1937 irrigation season, including individual decreed water, H. L. I. L. & P. Company stored waters and so-called purchased and transferred waters was not in excess of 5,700 acre feet. No complaint was made to the State Engineer by the Young Ditch Company against the use of the ditch for transportation of purchased and transferred waters to water users having a right to the use of the water and who were also shareholders in said ditch company. Up to the present time no date has been set by the court for hearing this action.

CONDEMNATION SUITS

Pershing County Water Conservation District, a Corporation, v. Old Channel Ditch Company, No. 1071, and Young Ditch Company, No. 1072

On May 27, 1938, the Pershing County Water Conservation District of Nevada, a corporation, as plaintiff, filed a complaint in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, No. 1071, against the Old Channel Ditch Company, a corporation, Union Ditch Company, a corporation, Southwest Ditch Company, an association conducting business under said name, John Doe and John Doe Nos. 1 to 5, both inclusive, defendants. This action was initiated for the purpose of acquiring a right of way to conduct 210 c.f.s. of purchased and transferred decreed or stored water through the Old Channel Ditch from the intake on the Humboldt River to a point where the Southwest and Union Ditch takes out, thence conveyed through said ditches and laterals to lands irrigated and cultivated by district member water users; for conveyance of 30 c.f.s. of transferred decreed waters or stored waters through the Old Channel Ditch from its intake on the Humboldt River through the Old Channel Ditch proper for use by district members securing water exclusively through said Old Channel Ditch.

On the same date the Pershing County Water Conservation District, as plaintiff, filed a similar action in the Sixth Judicial District Court of the State of Nevada, in and for the county of Pershing, No. 1072, against the Young Ditch Company, a corporation, S. R. Young, John Doe, and Richard Roe, defendants. In this action the plaintiff sought a right for conducting 15 c.f.s. of so-called purchased and transferred or stored waters through said ditch for use in the irrigation of lands owned by district members.

Hearings on plaintiff's complaint were held before Hon. James Dysart, District Judge presiding, at the courthouse, Lovelock, Nevada, on June 7-11, 1938.

On June 14, 1938, the court entered an order, pending final determination of the action, or until further order of the court, granting plaintiff's motion in both suits conditioned upon plaintiff furnishing a good and sufficient surety bond in the sum of ten thousand (\$10,000) dollars in each case for the payment to defendants for any damages sustained by defendants by plaintiff's use of the ditches.



Snow Sampling on Mount Rose. The Snow is as Deep as the Sampler is Tall. (Courtesy Nevada Cooperative Snow Survey)

CHAPTER IX

Cooperative Work with Federal and State Agencies

SNOW SURVEYS

By H. P. BOARDMAN, *Chairman Forecast Committee, Nevada Cooperative Snow Surveys*

I. CENTRAL SIERRA

The actual runoff of the Truckee, exclusive of Tahoe, and the rise of Lake Tahoe for April-July 1936, was less than 5% of normal below the forecast, but the Carson and Walker Rivers fell considerably lower in proportion, the Carson runoff being 18% of normal lower than forecast.

1937

The cooperating agencies for financing the surveys in the Central Sierra for 1937 include the States of Nevada and California; the Truckee-Carson Irrigation District; the Washoe County Water Conservation District; the Sierra Pacific Power Company; the U. S. Bureau of Reclamation, and the U. S. Bureau of Agricultural Engineering. The Pacific Gas and Electric Company cooperates by having some of its employees make the surveys of several courses used by the Nevada Cooperative Snow Surveys at no expense to Nevada, viz, those in the Summit-Soda Springs region and the Carson Pass and Blue Lakes courses for the Carson River.

The snow survey measurements for 1937 for nearly all courses were considerably below those for 1936, and in many cases more than 20% of normal lower.

In April the temperature was low, retarding the runoff, and in May the precipitation was very deficient. There was also very little precipitation the previous fall. The combination of these factors and perhaps some others impossible to evaluate caused the runoff of the Truckee and the rise of Tahoe to fall much below the forecast which was based on the snow survey indications.

The Carson and Walker Rivers came much closer to checking the forecast.

1938

The year 1938 is demonstrating that precipitation and runoff can come back strong after a long period of deficient water.

For a brief review: In the Tahoe and Truckee region, after 1917 all years up to 1932 were low except 1922 and 1927, although 1919 was 94% of normal in Truckee runoff and the rise of Tahoe was 100% in 1925; 1932 and 1935 were a little above normal in rise of Tahoe, but under normal in Truckee runoff.

The rise of Tahoe was nearly 118% of normal in 1936, and Truckee runoff barely under 100%, but there was a slump in 1937, the very cold year in January and February, and Truckee, Tahoe and Carson were all under 75% of normal, though the Walker was much better. 1932 looked hopeful, but 1933 and 1934 were so very low as to be discouraging; however, a definite and more lasting improvement started with 1935, and this year, 1938, is good enough to make up for the temporary recession of 1937.

The flood-creating downpour of last December 10-12 helped much in raising Lake Tahoe, and helped this year's runoff from some watersheds by replenishing ground storage.

The heavy snowfall of February and March resulted in record-breaking snow surveys at some snow courses. It was particularly noticeable that most of the low-level courses were very high in depth and water content, ranging from 163% to 216% of normal in water content for the Truckee and Tahoe basins.

From present indications the rise of Tahoe, assuming the gates are kept closed, will check very closely with the forecast, perhaps exceeding it by an inch or so.

The West Walker discharge will check very closely with the forecast, which was 250,000 acre feet, but the Truckee, the Carson, and the East Walker will all far exceed the forecast.

The rise of Tahoe and runoff of these rivers, herein referred to, are all for the April-July period except for the East Walker where August is included, *i. e.*, the period during which the runoff is nearly all furnished by melting snow.

The runoff for the East Walker at Bridgeport may reach 220,000 acre feet, which will be the greatest since continuous record of measurements began in 1922. The January-June runoff at Schurz, into Walker Lake, was 289,700 acre feet, the April-June being 245,000 acre feet. Mr. Kronquist estimates the probable July runoff at 60,000, which would make the April-July runoff 305,000 acre feet, or more than Walker Lake has received from snow runoff for many a year.

The Carson runoff will probably be about 420,000 acre feet at Fort Churchill, exceeding all previous records since gaging was started in that vicinity in 1911.

The Truckee runoff at Floriston, exclusive of Tahoe, will come close to 600,000 acre feet, which has been exceeded in only two years since continuous records have been kept, *i. e.*, 1901 to date. In 1907 it was 603,400 and in 1911, 670,390 acre feet.

Three new snow courses on the Little Truckee have been surveyed for the past two years. These will aid in determining the runoff of that tributary and the control of the new Boca Reservoir now under construction.

II. HUMBOLDT BASIN

As in the past, the snow surveys in the Humboldt basin have been directed by Carl Elges through funds procured from cooperators of the Nevada Cooperative Snow Surveys. For the two years 1936-1937, 1937-1938, the following agencies gave financial support to the actual field work: Humboldt Water Users, through the distribution fund; United States Bureau of Agricultural Engineering, and the Nevada Agricultural Experiment Station. The United States Bureau of Reclamation, through the Owyhee and Lovelock projects, also aided for the year 1936-1937, but was unable to cooperate through the Lovelock project for 1937-1938. During both years, the United States Forest Service gave very valuable assistance without which the cost of the surveys would have been more than doubled.

Considerable progress has been made in procuring the snow survey measurements. The United States Forest Service constructed a fire lookout station at the 8,500-foot level in Lamoille Canyon which is available to the snow surveying parties and greatly assists them as to

comfort and safety. It has also been possible to construct a cabin at the head of Coon Creek for use of the party surveying the Marys River course.

Through cooperation with the State Engineer, a hydrographer has been assigned to secure measurements on the tributary streams of the Humboldt. Stream-gaging stations have been improved, enamel staff gages have been installed, and several weekly recording gages have been placed. It is hoped that it will be possible to compile a good record so that the snow course normals can be checked and the flow of the tributaries can be forecasted.

The snow cover on March 1, 1937, was 78% of normal for the Upper Humboldt Basin. The forecast was set at 130,000 acre feet at Palisade at that time. The snow cover increased over 15% during the month of March, and when the forecast was released it was stated that the expected yield would be at least the 130,000 acre feet arrived at from the March 1 snow measurements. The actual amount received was 171,000 acre feet. The precipitation during the runoff period was very close to normal, and there was no large deviation from normal in temperature.

On March 1, 1938, the snow cover averaged 63% of normal. From the March 1 measurements it appeared as though only about 100,000 acre feet could be expected. However, during the month of March conditions changed so that a forecast could not be based entirely upon the March 1 survey as is usually done. The snow cover increased to normal by April 1, and when the forecast was issued the figure set for the Humboldt at Palisade was 180,000 acre feet. Preliminary results indicate that the flow will not exceed this amount by more than about 15,000 acre feet.

The March 1 measurements for the Little Humboldt Basin indicated a near normal snow cover. The snow cover, as indicated by one station, measured April 1, increased to over 200% of the March 1 normal. The forecast for the streams was set at 130% of normal. The actual runoff, from reports so far received, is greatly exceeding this forecast.

III. FINANCES

The Humboldt report states the sources of income for snow surveys in the Humboldt Basin, where the contributing organizations comprise the water users, the Nevada Agricultural Experiment Station, and three United States Government organizations.

The State appropriation for snow surveys was for many years \$1,500 per biennium. One biennium during the depression no snow survey appropriation was made, and since then it has been \$1,000, or at the average rate of \$500 per year. This State appropriation has been in recent years all used for the Sierra snow surveys, viz, in the Truckee, Tahoe, Carson, and Walker Basins.

This year, 1938, the income for this Central Sierra region is as follows:

Balance on hand January 1, 1938, from cooperators.....	\$201.55
From State of Nevada.....	500.00
From Irrigation Districts and Sierra Pacific Power Company.....	750.00
From U. S. Bureau of Agricultural Engineering.....	40.00
From California Cooperative Snow Surveys (State of California)....	423.90
Total	\$1,915.45

As usual we are unable to pay all bills until the California check is received, and that is always late as the bill cannot be rendered to the California Cooperative Snow Surveys until all snow surveys are completed and then, after its approval, routine procedure consumes considerable time. It is usually some time in July before it is received and the last bills connected with the spring's snow surveys are paid. That is a long time to ask any of our snow surveyors to wait.

It will be noticed that the State of Nevada is paying less than 27% of the total, and only \$76.10 more than California.

After paying bills due there will not be enough left to pay for all of the work that should be done this fall, to say nothing of having a carry-over for next year. The work that should be done this fall includes clearing and remarking a number of snow courses and locating several needed new courses.

The value and importance of practical snow surveying is becoming widely recognized and its expense tends to increase, so it would seem that Nevada, the State where it originated, should pay a greater portion of the cost of the surveys that are of direct benefit to large numbers of its citizens.

In view of the widespread benefits of the snow surveys and the large portion of expense paid by other cooperators, we recommend that the Nevada State appropriation be increased to at least the \$1,500 per biennium which was formerly apportioned.

STREAM MEASUREMENT WORK

(In Cooperation with United States Geological Survey)

By A. B. PURTON, *District Engineer, Water Resources Branch,
United States Geological Survey.*

Such general stream gaging work in the State of Nevada as could be carried on with the limited funds available has been continued during the biennium under the usual form of cooperative agreement between the State Engineer and the United States Geological Survey.

The water resources of Nevada are an important element in the development and stability of several important industries. Irrigation, power generation, mining, stock raising, and the health and happiness of the people all depend to a large extent on the availability and wise use of the water supplies. As development proceeds the need for accurate knowledge of the location and extent of these supplies becomes increasingly apparent, and the lack of such knowledge is embarrassing and uneconomical.

In earlier years the State appropriated \$2,500 a year for the investigation of its water resources to be carried on in cooperation with the United States Geological Survey which supplied a like amount of funds. This sum was gradually reduced until for some time only \$750 a year has been appropriated for this work. It is apparent that no comprehensive program can be carried on for \$1,500 a year in a State the size of Nevada.

The floods of December 1937 in Western Nevada not only destroyed two important gaging stations, but emphasized the need for adequate stream-flow data in designing highway structures and planning flood-control measures.

There is urgent need for several first-class gaging stations in the upper Carson River and Walker River basins. These are necessary

for the protection and proper operation of existing projects as well as the investigation of possibilities for further development. The upper Humboldt River basin is inadequately supplied with all-year gaging stations, and such stations would not only be of great value in the general determination of Nevada water supplies but extremely useful in the forecasting work carried on in connection with snow surveying.

In earlier years some records were obtained on the smaller streams, but most of this work has been discontinued for lack of funds. A comprehensive stream measurement program should include a careful investigation of all sources of water supply.

The data obtained as a result of these cooperative investigations is published in the annual water supply papers of the Geological Survey. The United States has been divided into twelve primary drainage basins, and for convenience the annual progress reports on stream measurements are published in fourteen water supply papers. Each of these papers contain the data for one primary drainage basin, with the exception of the Columbia River basin, for which data is published in three water supply papers. Stream systems in Nevada are included in the Great Basin, Colorado River, and Columbia River primary drainage basins. The stream flow data for this State appears in the water supply papers for these basins. A set of these publications is available for consultation at the State Engineer's office, Carson City, Nevada, and at the District Office of the Geological Survey, 303 Federal Building, Salt Lake City, Utah. Data in advance of publication and that for previous years at individual stations can be furnished in blue-print form upon application to the District Engineer.

Acknowledgments are due to the water users, particularly in the Walker and Humboldt River basins, for invaluable assistance in maintaining stations in those basins, and to the United States Indian Irrigation Service for financial support and other cooperation. Records for the station Carson River at Fort Churchill have been furnished by the Newlands Project, and those for the Humboldt River near Imlay and near Oreana by the United States Bureau of Reclamation. Elevations of Walker Lake near Hawthorne have been furnished by the Navy Department.

On June 30, 1938, records were being obtained at the stations shown in the following list:

Colorado River Basin

Virgin River at Littlefield, Ariz., 1929-

Snake River Basin

Salmon Falls Creek near San Jacinto, Nevada, 1906-16; 1919-
Owyhee River at Mountain City, Nevada, 1927-
Owyhee River below Wild Horse Dam, 1937-

Great Basin and Minor Basins in Nevada

Walker Lake Basin—

Bridgeport Reservoir near Bridgeport, California, 1931-
East Walker River near Bridgeport, California, 1911-14; 1922-
Walker Lake Near Hawthorne, Nevada, 1928-
West Walker River near Coleville, California 1902-10; 1915-
Topaz Reservoir near Topaz, California, 1931-

Pyramid Lake Basin—

Pyramid Lake at Nixon, Nevada, 1867—

Carson-Humboldt Sink—

Carson River near Fort Churchill, Nevada, 1911—

Humboldt River at Palisade, Nevada, 1902-06; 1911—

Humboldt River near Imlay, Nevada, 1935—

Humboldt River near Oreana, Nevada, 1896-1922; 1924—

South Fork of Humboldt River near Elko, Nevada, 1896-1909;
1910—

Martin Creek near Paradise Valley, Nevada, 1925—

H. L. I. L. & P. Co.'s Feeder Canal near Mill City, Nevada, 1914—
1931; 1936—

H. L. I. L. & P. Co.'s Outlet Canal near Humboldt, Nevada, 1914—

CHAPTER X

Brief History of Public Domain Range Control Laws of Nevada

By CRUZ VENSTROM. *Land Use Planning Specialist, Nevada, Bureau of Agricultural Economics, U. S. D. A., in Cooperation with the University of Nevada.*

The following article is taken, with minor changes, from a progress report on the "Range Lands of Northeastern Nevada, Their Proper and Profitable Use," which will be issued soon by the Bureau of Agricultural Economics which is coordinating the activities of the several State and Federal agencies in this cooperative study of Nevada's range industry. The search of the Nevada Statutes was made with student assistance. The references to decisions of the State Supreme Court are taken from the Biennial Report of the State Engineer, July 1, 1934, to June 30, 1936, chapter 12, which is a digest of Supreme Court decisions relating to water:

The first law to control livestock running loose in Nevada was passed by the Territorial Legislature in 1861. This law referred to the disposition of stray stallions and Spanish bulls. The last law directly affecting the livestock industry was passed by the 1937 Legislature. This Act authorized a three-man commission to go to Washington to obtain more credit and lower interest rates for an ailing public land livestock industry. In this span of 75 years, the several Legislatures have passed nearly 40 laws relating directly to control or limitation of use of the public lands, and these laws have been clarified and confirmed by a half dozen or more important decisions of the State Supreme Court.

Through this 75-year period run three distinct, though overlapping, periods. From Territorial days until about 1900, the lawmakers were motivated by a "fair play" and "let alone" policy. Few laws were passed and these exempted trespass laws from application on the open range, made it a felony to kill the livestock of another on the open range, authorized the killing of wild horses, and provided for the castration or killing of undesirable bulls and stallions found running at large.

In the second period, from 1895 to 1915, the legislators were concerned principally with control of the rapidly growing sheep industry, which reached its maximum numbers by 1910, and had spread out over the public lands to the point where single bands in winter were herded 200 or more miles away from their summer grounds. E. O. Wooten of the United States Department of Agriculture, who made a study of the Nevada public domain in 1927, commented that Nevada Legislatures had passed more laws to control the sheep industry than were passed on all other phases of range control. (U. S. D. A. Technical Bulletin 301, page 35.) Unquestionably, this rise of a new livestock industry, on a range considered fully stocked, and in some areas reported seriously depleted as far back as 1880, had adverse effects on the cattle industry which, among agricultural interests, was dominant politically. Furthermore, the sheepmen, at that time, depended almost wholly on public lands for all-year forage and paid little direct taxes. In contrast, the cattlemen already had acquired large home ranches

with hay lands, and in many cases owned a large portion of their grazing lands.

The political ascendancy of the cattlemen, and the low taxes paid by the sheepmen, probably explain the graduated revenue tax of \$25 to \$50 per 1,000 sheep put on by the 1895 Legislature. Even though owners of two acres of land for each sheep were exempted from the tax, the counties as late as 1912 were collecting \$10,000 to \$15,000 annually.

The 1901 and 1903 Legislatures made it unlawful to graze sheep within three miles of towns and villages, or within one mile of a bona fide ranch house, but allowed sheep to be driven along highways and "herded closely together, steadily, quickly, and continuously by the most direct passable route from one range to another." This last provision was repealed by the 1907 Legislature, but the statutes do not give the reason.

Cattle as well as sheep were mentioned in the 1903 transient livestock law, which required a deposit or bond for taxes on all livestock in intercounty or interstate movement with intent to graze. Apparently the framers of this law were concerned with tax avoidance rather than control of grazing. In 1915 the sheep grazing license Act of 1895 was modified to (1) apply only to owners of real estate in Nevada; (2) to exempt owners of one acre of land for each three sheep; and (3) to levy a tax of 15 cents per head of sheep on nonresidents owning no land in Nevada.

In the third period, from 1917 to the present time, the laws reflect a full utilization of the range and an equal application of control laws to cattle as well as sheep. In general, the laws enacted were directed at giving control of the range to owners of water; to give legal standing to prior users; to provide means of limiting range use to grazing capacity, and to give preference to residents of Nevada and to owners of land.

The 1917 Legislature made the 1903 Act, declaring it unlawful to graze sheep within one mile of a bona fide ranch house, apply to both sheep and cattle. The sheep grazing license revenue law was again revised in 1919 by (1) making it apply to both sheep and cattle; and (2) removing graduated fees and substituting flat fees of 35 cents per head of sheep and \$1 per head of cattle; but (3) exempted citizens of Nevada from the payment of fees on 500 cattle and 1,000 sheep; and (4) also exempted owners of one acre for each five sheep and three cattle. Because of the high exemption to Nevada citizens and land owners, this law was apparently directed at relatively large numbers of alien sheep operators who owned no land. David Griffiths of the United States Department of Agriculture, who made a study of range forage conditions from Winnemucca, Nevada, to Ontario, Oregon, in 1901, commented on this problem. (U. S. D. A. Bureau of Plant Industry, Bulletin 15, page 23). This same Legislature evidently was disturbed over the increase in numbers of sheep from other States which entered Nevada to graze on the winter ranges, and passed an Act "to regulate the herding or grazing of livestock of nonresidents upon any unenclosed lands" by levying a license of 50 cents per head of sheep and \$2 per head of cattle. This law was aimed at transient

sheep from other States but, as worded, would have confiscated the values of many Nevada enterprises whose owner lived or had corporation offices located in another State. Therefore, at the same session, the law was amended to exempt nonresident owners of fees on five sheep or three cattle for each acre of owned land. The tax law was declared discriminatory and therefore unconstitutional by the State Supreme Court in 1932.

As isolated settlement extended into the range area and the ownership of key tracts became important in control, fence and trespass assumed more importance. As previously mentioned, the early trespass laws were exempted from application on the open ranges. The exemption was apparently not satisfactory to all, as the 1909 Legislature made the owners of livestock in Douglas County liable for trespass damages on any fenced or unfenced land in the county. In 1913 the Legislature passed another special law applying to counties casting 426 votes for representatives at the last general election. White Pine County had just 426 votes and the Act made it unlawful to run stock at large on the enclosed public roads or highways, "provided that such public roads or highways are enclosed on one or both sides by a fence of any kind or description."

In 1917 the State Legislature passed a law forbidding the award of damages for "trespass of livestock on cultivated land in the State if such land at the time of such trespass shall not have been enclosed by a legal fence as hereinafter defined." The distinction implied above between cultivated and range areas was clarified in part by the State Supreme Court which held, in 1922, that livestock on ranges may roam at will over the unfenced private land without owners being liable for trespass. The Supreme Court commented: "In fact, a herder of horses or cattle upon public and other unenclosed lands is unknown to the customs of stockmen in Nevada, except in special instances, and would be impracticable and often detrimental to the thrift of such stock."

In 1929 the Legislature raised the standards for a legal fence, but gave County Commissioners power to modify the standard to fit local conditions. This increase in the power given to local areas to regulate trespass has been interpreted to indicate a growth in the political power of the general farming areas.

The most important and most effective range control law developed in Nevada was the stock watering Act of 1925, which declared stock watering a beneficial use of water and limited water appropriation for stock watering purposes to the full utilization of the range. The ground work for this law was laid in 1913 in the water laws of Nevada, which declared that beneficial use "shall be the basis, the measure and the limit to the right and the use of such water." The State Supreme Court has fully upheld the application of the "beneficial use" provision to stock watering. This law also declared it a misdemeanor to water 50 or more head of livestock "with intent to graze" for two or more days at the watering place of another. This section obviously was aimed at the suppression of sheepmen with no land or water rights.

Certain administrative work in connection with the 1925 stock watering Act was given to the Nevada State Engineer and he was kept quite

busy for several years with new stock water right applications and with the filing of range-use maps to assist in judging the degree of utilization of the range. This Act carried the beginning of regulatory responsibility by the State of Nevada.

Grazing control by water control obviously is not effective in the winter range areas where stock depend on snow, so in 1931 an Act was passed making it unlawful to graze livestock where "customary" and "established" users have stocked the range to capacity. "Customary or established use as graziers" was deemed to include the continuous seasonal use of such range for five or more years previous to the enactment of the law.

This was the situation when the Taylor Grazing Law was passed in 1934, and five districts, in which are located most of the livestock of Nevada, have been organized under it. The allocation of grazing privileges, the determination of grazing capacity, and the enforcement of rules and regulations is now in the hands of the United States Department of the Interior, Division of Grazing.

The State Supreme Court (1927) and District Courts (1937) have both held that the United States Government, as owner of the public domain, had all the rights of any other owner to sell, lease or otherwise exercise control over it. The State, however, claims ownership of the water and has given stockmen priority property rights in its use. The State also has, in effect, granted priority grazing rights under the "customary use" law of 1931 to users of the winter ranges. The water, claimed by the State, cannot be used without the land, and the land, whose ownership by the United States is recognized by the State, cannot be used without water except in the winter range areas. The reconciliation of these several powers and controls into a workable, stable relationship to the livestock industry is the job facing the interests concerned.

Though not directed primarily at range control, the selection of State lands on streams and springs in areas of high grazing value and with irrigation possibilities gave an absolute control of many public domain areas through control of the watering places and commensurate property necessary for its use. Also the 1911 minimum assessment law of \$1.25 per acre was not directed at range control, but in making the tax cost per acre for most of the public domain lands greater than the forage value, private ownership of range was made unprofitable except for limited high forage producing areas and lands valuable for control purposes.

This brief excursion into the history of the legal attempts of Nevada to control the public domain has not yet been carried far enough to determine the effects of the several laws. The current problems, and the objectives of the laws, have been inferred only from the laws themselves and a general knowledge of their timing in relation to other developments. The next step will be to check the objectives and effects of the laws, where possible, with the lawmakers themselves and the stockmen affected.

CHAPTER XI

Government Activities Relative to Conservation of Water

THE TRUCKEE STORAGE PROJECT

By F. M. SPENCER, *Associate Engineer, United States Bureau of Reclamation*

The Bureau of Reclamation, under a repayment contract between the United States of America and the Washoe County Water Conservation District, executed December 18, 1936, has undertaken the construction of the Boca Dam and Reservoir as the improvement work of the Truckee Storage Project. That repayment contract, made in pursuance of the National Industrial Recovery Act (NIRA), the Emergency Relief Appropriation Act (ERAA) and the National Reclamation Law, and authorized by a special election in the Washoe County Water Conservation District on April 7, 1936, provides for the expenditure by the United States of not to exceed \$1,000,000 toward the purchase of land, easements, and rights of way and the construction of a storage dam near Boca, California. It further provides, among other things, for the repayment of construction and other costs in forty annual installments without interest charges, provided the annual payments do not become delinquent under the terms of the contract. The district as a whole is obligated to pay the enumerated costs by the levy and collection of the necessary assessments, but this burden has been very materially reduced by participation in construction costs, to the extent of \$500,000, by Washoe County under an Act of the Nevada State Legislature of 1935.

The Washoe County Water Conservation District is a public corporation organized and operating under the laws of the State of Nevada with its office at Reno, Nevada. There are approximately 28,200 acres of irrigable and 1,900 acres of nonirrigable land within the district boundaries, all located in the river valley adjacent to Reno and Sparks, but which does not include all of the land of that valley which is irrigated from the Truckee River. The allocation of project costs to the various district lands is based on the benefits to be derived by those lands, and such benefits are determined, according to water right priorities, by the need for supplemental or storage water.

An agreement titled and known as the Truckee River Agreement, made July 1, 1935, by and between the United States of America, the Truckee-Carson Irrigation District, the Washoe County Water Conservation District, the Sierra Pacific Power Company and certain other users of the waters of the Truckee River, is Exhibit "B" of, and was required to be executed as a provision of, the repayment contract. This agreement was reviewed in the State Engineer's Biennial Report issued in 1936.

Benefits to be derived from the construction work at Boca are not confined to the Washoe County Water Conservation District. Such work will result in a control unit of the Truckee River stream system directly influential to Lake Tahoe operations and be an aid to stream flow stabilization and water conservation throughout all areas affected by Lake Tahoe and Truckee River waters. Other than improved conditions for both irrigation districts concerned, which includes the

Truckee-Carson Irrigation District at Fallon, Nevada, a regulation of flows for power generation, flood control, scenic and aquatic life benefits, and sanitary improvements will be affected.

BOCA DAM AND RESERVOIR

Dam and reservoir site surveys were made on the upper reaches of the Truckee River stream system, by private interests, as early as 1889, and while records indicate the inaccuracy and insufficiency of this early work they also indicate the realization of the importance of storage in connection with Truckee River water use. From 1919 to 1927 several brief surveys were made which led to more detailed and careful investigations of all probable reservoir sites. The results of such investigations were covered by the Bureau of Reclamation Report on Truckee River Investigations, by E. B. Debler, April 1929. On April 13, 1934, detail surveys were resumed by the Bureau of Reclamation at a point about four miles up the Little Truckee River from Boca, California. On May 25, 1935, that work was abandoned and investigations commenced on two sites near Boca, one of these being the location selected for construction of the Boca Dam.*

Bids for construction, under Specifications No. 696, were opened at the Reno office of the Bureau of Reclamation on September 30, 1936, George W. Condon Company of Omaha, Nebraska, submitting the low bid of \$729,435. The contract, No. 12r-7029, was executed February 15, 1937, and work began March 30, 1937, although the official date for commencement of construction was fixed as April 24, 1937. The period of time specified for completion of the work was eight hundred calendar days.

The repayment contract provides for the construction of a dam of sufficient height to create a reservoir with a capacity of 40,000 acre feet. Subsequent to the execution of that contract the United States, the Sierra Pacific Power Company, and the Washoe County Water Conservation District executed a contract, dated January 15, 1937, providing for the joint use and operation of the Boca Dam by the Power Company and the Conservation District and an increase in reservoir capacity to 40,800 acre feet. The dam, as designed for the finally determined reservoir capacity, will have a crest elevation of 5,612 feet, the top of the spillway gates 5,605 feet, and the lowest point to which water may be drawn 5,521 feet, which allows for considerable impounded water to always remain in the reservoir for aquatic life protection. The reservoir water surface area at full stage will be approximately 985 acres.

Specifications No. 696, previously referred to, covers the construction of a dam of the earthfill type. It will have an approximate crest length of 1,650 feet, a height of about 110 feet, a rockfill down-stream face with a slope of $2\frac{1}{2}$:1, a rock riprap up-stream face with a slope of 3:1, and be provided with a concrete spillway with two 19 feet by 16 feet radial gates having a capacity of 8,000 c.f.s. A concrete-lined outlet tunnel approximately 740 feet long is provided, which will be used as a river diversion during construction in the river bottom. For the first 391 feet the tunnel is circular, with an inside diameter of 12 feet, the rest is semicircular, 10.5 feet by 14 feet inside diameters. After use as a diversion a concrete plug will be placed in the tunnel

*See frontispiece picture of Boca Dam Site.

at the end of the circular section, two 4-feet by 4-feet high pressure slide gates installed at that point, and two 50-inch steel pipes for the remaining length of the tunnel to conduct the water to a valve house where two 42-inch needle valve discharge controls will operate. The maximum discharge will be about 900 c.f.s. The dam crest will carry a roadway having a three-foot concrete parapet wall on the reservoir side and a concrete curb wall on the downstream side.

CONSTRUCTION PROGRESS

It should be realized that work cannot proceed at Boca during the stormy winter months. While temperatures are low, earth materials are made unworkable by becoming frozen, and concrete casts cannot be safely made. During the greater part of the winter snow conditions also create impossible working conditions, and during runoff periods high water flows cause considerable difficulty on account of the location and nature of the project work.

Construction work during 1937 and the forepart of 1938 has been principally confined to the spillway structures and outlet works. Concrete work for the spillway gate structure has been practically completed, a considerable portion of the spillway chute done, and some of the spillway intake structure cast. The outlet tunnel has been excavated and concrete-lined. Inlet and outlet channels for the tunnel have been excavated, and sufficient concrete placed in both to enable the contractor to divert the Little Truckee River from its channel to passage through the tunnel. This diversion was begun on June 4, 1938, and river bottom stripping and cutoff wall trench excavating was commenced as preparatory to the placing of dam embankment material. Although it is necessary, on account of specified requirements, to ship in all concrete aggregates, all embankment materials are available adjacent to the damsite, and it is expected that, when once underway, the placing of the dam embankment will proceed quite rapidly.

HUMBOLDT RIVER CHANNEL IMPROVEMENT WORK

In the Battle Mountain Valley, the United States Bureau of Reclamation has continued its program of river channel improvement, levee construction, and swamp drainage, which was started in the spring of 1935. The primary purpose of this work is the development and safeguarding of the water supply acquired by the Government in that area, for the benefit, and at the expense, of the Pershing County Water Conservation District at Lovelock, which will repay the cost of the Humboldt Project.

Water rights involved in this undertaking exceed 50,000 acre feet of the decreed water. These water rights were originally appurtenant to seven large river bottom ranches. These holdings were purchased by the Bureau of Reclamation and the water rights transferred to the Lovelock lands of the Humboldt Project. In order to speed the flow of the river through these properties, prevent overflow, drain sloughs and swamps, and reduce transit loss and waste, the project has spent many thousands of dollars to improve river channel conditions in these properties.

The vast Argenta Swamp above Battle Mountain, a section of the river bottom through which no channel previously existed, has yearly

valuable crops. By the construction of two large canals through this swamp, all overflow has been eliminated in this area, and the time previously required to fill this marsh so that the flow would continue down the river has advanced the arrival of the river runoff to its lower reaches by many days and probably weeks. It is estimated that the river channels above and below this swamp, for a distance in a straight line of more than ten miles, have been more than doubled in their capacity by widening and straightening operations, cutting out sharp bends, removing obstructions, blocking sloughs which filled and diverted during high water stages, building levees, and increasing the grade of the stream.

Drainage channels have been excavated along property boundaries to collect overflow from adjacent properties and return this water thus salvaged to the river channel. Levees or dykes have also been built to prevent overflow from other adjacent properties, thus preventing the improper use of water on these acquired lands.

The Humboldt River, especially in the Battle Mountain Valley, is renowned for its winding, meandering course. In it, nature has succeeded in producing one of the longest stream system to be found in an equal straight-line distance between its two extremities. Only an aerial photographic survey could accurately record its tortuous ramblings and the obstacles which man and nature have built to prevent its waters from reaching the end of its course.

The banks of the river itself are generally higher than the ground surface back some distance from the channel, a natural and not unusual characteristic of a flat grade, silt-laden stream like the Humboldt. Water overflowing its banks, or diverted or escaping from its channel, would rarely return in any appreciable amount for beneficial use downstream. In this respect, the properties acquired by the project were among the numerous offenders in improperly reducing the water supply available for legitimate irrigation, frequently, it is estimated, being responsible for diversions or overflow of water amounting to double the quantity these properties were entitled to use. By preventing such overflow and excessive diversions on all these seven properties, benefits to every water user on the river will inevitably result.

From reliable sources it is estimated that the work accomplished by the Bureau of Reclamation in this river channel improvement program to date is as follows:

More than 50 channel straightening cuts have thus far been excavated. Their total length exceeds eight miles and the material excavated is approximately 370,000 cubic yards.

Property boundaries levees 7.65 miles in length and containing 142,000 cubic yards have been completed. River channel widening and cleaning extends a total distance of 4.72 miles and involved 46,100 cubic yards of excavation. Incidental to this channel cleaning and widening, was an equal distance and yardage of levees to prevent river overflow.

The new channels through the Argenta Swamp have a total length of two miles and their excavation totaled 101,400 cubic yards of material.

Drains to intercept overflow from adjacent property and return

such overflow to the river have been constructed for a length of 1.10 miles, with excavation amounting to 41,100 cubic yards.

River dams, several of them noncontrollable or very effective chokes, together with numerous other flow-impeding obstructions, have been cleared from the channel.

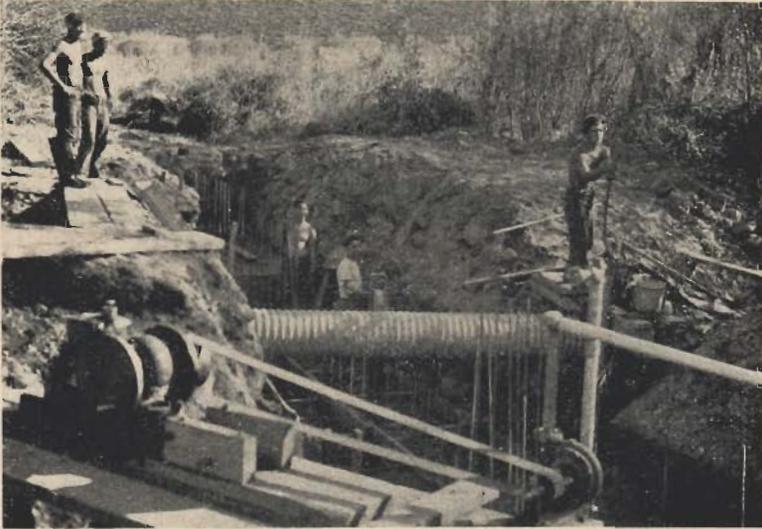
Channel improvement work in the Battle Mountain Valley, which has been one of the major developments of the Humboldt Project, is nearing completion. The beneficial results of this work are impossible to measure, and only the future improvement in water supply may partially impress upon Humboldt River water users the value of this undertaking to the entire stream system, as well as to the Humboldt Project.

THE WORK OF CIVILIAN CONSERVATION CAMP NO. F-5 (FOREST SERVICE, NEVADA), LOCATED AT PARADISE VALLEY, NEVADA, IN COOPERATION WITH THE STATE ENGINEER'S OFFICE.

A story of the work of the various civilian conservation camps in Nevada would be one of accomplishments. These camps, under the supervision of either the Forest Service, the Taylor Grazing Division, the Reclamation Service, or the Soil Conservation Service, did invaluable work in many lines such as road and trail building, flood control, rodent eradication, telephone line construction, channel cleaning, stream structures, underground water investigation and development, drift fences, soil conservation, and many other worth while activities. The value of this work to Nevada cannot be measured in dollars and cents, but suffice to say that the beneficial results therefrom will be long felt, and is to the everlasting credit of the administration which inaugurated the civilian conservation camp idea, to the men who so excellently supervised the activities of each camp, and to the boys themselves who took advantage of the opportunities presented to them in these camps, and thereby in many cases learned new trades and were given an added initiative to become better American citizens.

Nevada, the sixth largest State in the Union in area, is perhaps the most arid. Any new developments or help tending to conserve and control the State's limited water supply is of immeasurable value. The idea of obtaining the assistance of the CCC camp in Paradise Valley towards improving channel conditions and constructing diversion structures on the main stream was conceived by State Engineer Alfred Merritt Smith in 1936. In this article a brief description will be given of the work accomplished by the camp to date, and the urgent need of its continuance.

Paradise Valley is about 35 miles long and varies from 4 to 10 miles in width. The town of Paradise is located near the upper end of the valley and is about 35 miles northerly from Winnemucca, Nevada, and about 15 miles northeasterly from the I. O. N. Highway, a through route between Winnemucca and Boise, Idaho. The valley is surrounded on the east, north and west by mountain ranges, those on the north and west being in the Humboldt National Forest. There are about 40 ranches in the valley covering some 46,000 acres of harvest and meadow lands. The main crops grown are hay and grain. Hundreds of cattle are owned by these ranchers, who graze them in the nearby mountains during the spring and summer and bring them



MUFFER SLOUGH STRUCTURE ON MARTIN CREEK
Upper—Showing base slab form and reinforcing steel in place.
Lower—Completed structure.

down into the valley in the fall, where they are fattened for market.

There are numerous streams entering the valley, the main ones being Little Humboldt River, Martin Creek, Indian Creek, Cottonwood Creek, and Mullinax Creek. Numerous other smaller streams enter the valley from the westerly side and are tributary to Cottonwood Creek. The waters from Martin, Indian, Cottonwood and Mullinax Creeks and their tributaries flow down the length of the valley and are tributary to Little Humboldt River, which enters from the east, towards the lower end of the valley. Little Humboldt River then continues southward and only in times of extreme early spring floods does the water ever reach the Humboldt River near Winnemucca. The entire stream system in Paradise Valley is designated as the Little Humboldt River and its tributaries.

In 1935 the decree in the matter of the determination of the relative rights in and to the waters of the Little Humboldt River and its tributaries was filed, setting forth therein the water rights of the various claimants, together with the priority, class of culture, and description of place of use. Under the water law of this State the State Engineer has the task of distributing the waters on an adjudicated stream system in accordance with the decree.

The investigation carried on by the State Engineer and his assistants during the summer of 1936 on this stream system for the purpose of determining where conditions could be improved uncovered many deplorable facts. It was discovered that many miles of the winding channels of Little Humboldt River, Martin and Cottonwood Creeks were so choked up with willows and debris that the normal passage of water was greatly retarded. When it is remembered that these various streams must furnish water to many ranches scattered along their courses, each covering 20 to 30 miles, and that lower users oftentimes have earlier priorities, it is realized that a great handicap is imposed on the State Engineer in distributing the water. The investigation also disclosed many diversions over which control by the water commissioner was practically impossible. A few serviceable structures were noted, but in the main they consisted of disintegrated rock masonry and temporary brush or manure dams over which water control was impossible.

The matter of obtaining the assistance of CCC Camp No. F-5 in improving these conditions was taken up with Mr. Alex McQueen, Forest Supervisor of the Humboldt National Forest, and Paul Travis, Forest Ranger located at Paradise. These gentlemen immediately gave their ready assent to this work and agreed to place some men on it as soon as they were available from their other work, and as soon as the State Engineer was ready to start.

It was decided to start the work on Martin Creek first, and the State Engineer and his assistants immediately prepared a petition to be signed by the various interested parties requesting the work be done. Several structures were proposed and plans and specifications were prepared in the State Engineer's office. The understanding was that the parties interested in each structure would pay for the cost of the materials. The CCC boys would perform all labor, including the trucking of materials from Winnemucca to the place of use, and the hauling of sand and gravel. By the time the petition had been



Channel Cleaning Work on Martin Creek, Before and After.

signed and plans drawn up extremely cold weather had set in, and the work had to be abandoned until the following year.

In the summer of 1937 the matter was again brought up and through the efforts of Mr. George Miller, one of the progressive ranchers in the valley, the money to purchase the supplies for the first structure was collected. Construction work had to be retarded until the creek flow had diminished sufficiently so that the remaining flow could be handled. However, on about September 10 the work was started on the first structure. In the early part of October stream channel work was started on the Grayson field on the lower ranches of Martin Creek and progressed upstream.

In designing the structures to be constructed on Martin Creek they were designed as a reinforced concrete cantilever wall consisting of a vertical wall and a base slab. Reinforcement was provided in both members to give them sufficient resistance in bending and shear. Resistance to overturning was also included in the design, which also called for the base slab being deep enough under the ground surface to resist frost action.

The first structure designed and built was at the forks of Martin Creek in the upper Recanzone field. This structure, being angular in shape, is 62 feet long with a 14 foot opening for the East Fork and a 10 foot opening for the West Fork of Martin Creek. Both openings are 2.8 feet in height and accommodate all ordinary flows. The structure is so built that in extreme flood conditions, water can pass over the top of the structure. The base slab is 6 feet long and 1 foot thick with a cutoff wall, and the main wall stern is 6 feet in height with a thickness of 1 foot. Both openings are provided with flash boards, and on the 14-foot gate a center pier was installed and a foot bridge. During construction the water in the stream was by-passed by means of a diversion ditch. About 100 yards of structure excavation were performed. Twenty-seven cubic yards of concrete were poured, which required 170 sacks of cement, 1,000 pounds of deformed reinforcing steel, 24 cubic yards of gravel, 12 cubic yards of sand, about 1,000 board feet of form lumber, and other incidental items, including nails, wire, flash-board lumber, etc. The cost of the materials used in the structure amounted to \$261 and was paid by nine ranchers.

The construction of this and subsequent structures was under the direct supervision of W. A. Hardy, Superintendent, Harold Hansen, Engineer, and Virgil Pasquala, Concrete Foreman. During the pouring of the concrete, samples were taken in cardboard cartons prepared for that purpose, and through the cooperation of Robert A. Allen, State Highway Engineer, tests were made in the Highway Testing Laboratory, Carson City.

The second structure constructed was at the Carrol diversion from the East Fork of Martin Creek. The structure is about 63 feet long, being right-angular in shape, with three openings. The Martin Creek gate is 14 feet wide, the Stewart ditch gate is $2\frac{1}{2}$ feet wide and the Corral ditch gate is 7 feet wide, all being 5 feet in depth. The base slab is $7\frac{1}{2}$ feet long, 1 foot in thickness, with a 2-foot cutoff wall at the upstream side. The wall stern section is $7\frac{1}{2}$ feet in height and 1 foot in thickness. At least 100 cubic yards of structure excavation were

required here also. Thirty-six cubic yards of concrete were poured, requiring 226 sacks of cement, 32 yards of gravel, 16 yards of sand, 1,450 pounds of deformed reinforcing steel, and other incidentals, such as flash-board lumber, nails, wire, etc. The cost of the materials in this structure amounted to \$296 and was borne by one rancher, although all of the lower users on Martin Creek were indirectly benefited.

The third and final structure completed is located at the E. P. S. Pierce diversion on Martin Creek, on property owned by Humboldt County, and is the uppermost structure. This structure is straight and is 67 feet long with a 14-foot gate $1\frac{1}{2}$ feet deep, with center support for ordinary flows, and also a 50 Cippoletti-shaped weir $2\frac{1}{2}$ feet deep for flood conditions. The width of the base slab is 6 feet and it has a thickness of 1 foot, and the wall stern is $6\frac{1}{2}$ feet high with the same thickness. The structure took 22 cubic yards of concrete, requiring 140 sacks of cement, 20 yards of gravel, 10 yards of sand, 882 pounds of reinforcing steel, and incidental items. The cost amounted to \$200 and was paid by four ranchers.

A compilation of this data is as follows:

Structure	Str. Exc. cu. yds.	Concrete cu. yds.	Cement sacks	Steel pounds	Lumber b. f.	Incidentals dollars	Gravel cu. yds.	Sand cu. yds.	Total material cost
Forks of Martin Creek	100	27	170	1,000	1,000	\$29.80	24	12	\$261.00
Carrol diversion	100	36	226	1,450	500	16.80	32	16	296.00
Pierce diversion	80	22	140	882	500	19.81	20	10	200.00
Totals	280	85	536	3,332	2,000		76	38	\$757.00

The materials for the structures were all purchased through Winnemucca merchants at very reasonable prices, viz, cement at \$3.40 per barrel, steel at \$4.67 per hundred pounds, and lumber at about \$40 per 1,000 board feet.

The number of men working on the structures varied at different times, depending on their availability from other work, the average number being perhaps about 25 men.

Supervision over this work by the State Engineer and his assistants was carried on throughout the work, and no effort was spared to assist in this great work. Assistance by the Highway Department in preparing plans and specifications and testing materials was also immeasurably valuable.

The stream-channel work progressed very nicely, several miles of the Martin Creek channel being cleaned of all brush and debris.

With many miles of channel clearing and channel straightening remaining to be done on the various streams in Paradise Valley, and with at least 20 vitally important diversion structures needed, it is readily realized that the continuance of this work is vitally important in the valley. Drought and financial conditions during the past few years have worked a great hardship in the valley, as they have elsewhere, and where such conditions have prevailed in a community such as this, history has proven that it takes many years to bring prosperous conditions back. The work done there in the past year described herein has materially assisted in helping a very industrious community, and it is plainly obvious that it is a necessity to have this CCC camp remain in Paradise Valley to continue with this work.

CCC ACTIVITIES IN THE TRUCKEE-CARSON IRRIGATION DISTRICTBy H. W. EMERY, *Secretary*

Under the provisions assigning CCC camps to the Bureau of Reclamation, two camps were established on the Newlands Project, now operated by the Truckee-Carson Irrigation District. These camps were first manned in November 1935, and since that time have been engaged in the reconstruction and rehabilitation of the works and structures of the United States. Under the plan of operation the district is required to furnish most of the materials and considerable of the supervisory and engineering services necessary to carry on the extensive work programs:

The benefits received from these camps have greatly exceeded any expectations, and the work could not have been accomplished without undue and excessive levies on the farmers of the district.

The Truckee Canal, constructed with a capacity of 1,200 second feet, had become filled with silt and vegetation so that it was unsafe for flows exceeding 750 second feet. With the assistance of the camps the canal is being restored to the original capacity.

The Carson River below Lahontan Reservoir had grown up with trees and brush to such an extent that it was feared that large releases of water would damage adjoining farm lands. Seventeen miles of this channel were cleared by these boys, and the value of this work has been demonstrated.

A regulating reservoir having a capacity of 1,500 acre feet was constructed, which will prevent fluctuations in canal flows at the lower end of the irrigation system.

A pipe line consisting of 4,780 feet of 6-inch cast-iron pipe, together with five fire hydrants, was installed to replace a rotted wooden one serving the town of Fernley.

Tree and brush growths have been removed from most of the main canals.

A rodent control program under the jurisdiction of the Biological Survey has covered 55,000 acres of land, trapping gophers and poisoning squirrels.

An educational program of weed eradication has covered 871 acres of land, demonstrating the proper methods of eradication of "White Top" and other noxious weeds.

Other work accomplished is summarized below:

Concrete structures installed.....	475
Timber structures installed.....	432
Concrete canal lining.....	8,300 lin. ft.
Metal and pipe flumes.....	2,600 lin. ft.
Rock riprap	7,700 sq. yds.
Ditch rider roads constructed.....	23 miles
Canals and drains cleaned and reconditioned	30 miles

FLOOD CONTROL IN THE MOAPA VALLEY AREA

By EDWIN MARSHALL

Results of the 1910 and subsequent floods in 1912, 1914, 1922, 1923, and 1925 are quite commonly known and more fully realized by residents of Moapa Valley, the last of the foregoing coming late in September, whereas all previous floods came during early spring, serving

to impress upon residents the fact that there was nothing certain as to time of occurrence. Such uncertainties served well faithless hope of harnessing devastating floods on the one hand, and on the other hand encouraging an attitude of letting nature take its course rather than try to control floods of unknown volume, unknown time of occurrence, and unknown place of origin.

However, seeing the grave consequences of inactivity regarding the perplexing problem, the Muddy Valley Irrigation Company, through its directors, in cooperation with various local, county, State and Federal agencies proceeded with a series of investigations and surveys which were completed during the summer of 1928; and in October of that same year reduced to a definite program findings thereof, indicating a need for nearly \$252,000 with which to effect worth while protection. When presented to people concerned, the thought of raising such a sum or even such sum as might have been required for any one of the units thereof, was met with such consternation that all thought of an active program was for the time set aside.

Thus it remained until in 1933, when President Roosevelt's program of CCC camps became operative, and Nevada's Congressional representatives, with Cecil W. Creel, Director of Nevada Extension, seized the golden opportunity of directing all efforts possible toward extending man power and finances with which to proceed with a construction program in line with plans as recommended by surveys indicated heretofore.

The sum total of benefits that have since been derived from the efforts of the splendid cooperation of all local, county, State and Federal agencies might be enumerated as follows:

1. Materially reducing damages through structures that have definitely served their purpose of spreading peaks of floods and temporarily storing appreciable quantities of flood waters at:

The Meadow Valley Wash Flood Control works near Moapa.

Arrowhead Canyon Dam at the head of the Upper Moapa Valley.

The Wells Siding Diversion Dam—Flood Channel and Bowman Reservoir.

Two minor structures for dissipating flood waters in the vicinity of the Moapa Indian Reservation.

2. The organization, through legal procedure, of a Soil Conservation District Association, the purpose of which is to carry on with a definite program of soil conservation through flood and erosion control, and the encouragement of proper land use on both private and public lands.

3. A definitely outlined program of action which, with the cooperation of Lincoln County interests, State and Federal agencies, bids fair for the consumation of an action program that will serve all interests over the entire Meadow Valley Wash watershed area, with an indirect influence exerted in behalf of providing similar protection to the Virgin River watershed so far as Nevada's area is concerned.

CCC ACTIVITIES IN THE WALKER RIVER IRRIGATION DISTRICTBy V. H. BERNARD, *Secretary*

Completion of the Topaz levee in October 1937 increased the capacity of Topaz Lake to 62,000 acre feet. This levee is about one mile long, ranging from one to fifteen feet in height, with hand-placed riprap on the upstream face.

The Topaz Lake intake canal was straightened and riprap placed on the bad turns. This work, together with erosion caused by recent floods, has increased the capacity of this canal to approximately 1,500 c.f.s.

Nine miles of open drain canal was constructed in the north end of Mason Valley, with the necessary structures.

Existing structures of the drainage system in East Mason Valley were repaired and put in good shape.

CHAPTER XII**Related Activities of the State Engineer****AN OUTLINE OF THE WORK OF THE STATE IRRIGATION DISTRICT
BOND COMMISSION DURING THE BIENNIUM OF 1936-1938**

January 27, 1936

Meeting at Carson City, all members present, J. H. White, Secretary. Application of Walker River Irrigation District for validation of "Second Refunding Series" of bonds in the amount of \$518,500 considered.

The Walker River Irrigation District was authorized to issue said bonds by a resolution, here given in synopsis only, which was passed by unanimous vote:

WHEREAS, The Walker River Irrigation District had heretofore adopted a plan for refunding its outstanding bonds dated January 1, 1920, of which issue \$792,500 principal amount, maturing in the years 1932 to 1940, both inclusive, which plan was heretofore approved by the Irrigation District Bond Commission on May 3, 1935; and

WHEREAS, Pursuant to said plan the district had held an election to authorize refunding bonds in principal amount of \$518,500 to be designated "Second Refunding Series," all dated July 1, 1935, bearing four percent interest, and has entered into a contract with the Reconstruction Finance Corporation for sale of said bonds, etc.

Resolved, That the water, soil and irrigation system of the district are satisfactory; that the value of the water and land are in excess of the par value of the bonds; that the amount of the bonds and other outstanding indebtedness does not exceed fifty percent of the district property; that the dates, form, interest rates, etc., manner and conditions of payment, etc., are in order, and that the sale of the bonds to the Reconstruction Finance Corporation is confirmed and approved.

A copy of the contract of sale to Reconstruction Finance Corporation and also copies of all resolutions and election proceedings were made a part of the resolution.

A copy of a resolution passed by the Walker River Irrigation District giving the history and status of the "First Refunding Series" issued for refunding the first series is also included in brief as follows:

January 1, 1920. Walker River Irrigation District issued bonds, the principal being \$918,400. Only \$121,000 were issued and delivered and only \$7,000 were actually issued and outstanding. It was proposed to cancel the \$7,000 of said First Refunding Series and all of said proceedings for the issuance or sale of the First Refunding Series, so that none of them should become an obligation of the district or thereafter be issued or sold.

A special election had been held on June 1, 1935, and by a large majority authorized the issuing and sale to the Reconstruction Finance

Corporation of "Second Refunding Series" bonds in the amount of \$518,500, to bear interest at four percent.

January 27, 1936

Meeting at Carson City, all commissioners present, J. H. White, Secretary. Application of Walker River Irrigation District on behalf of Local Improvement District No. 4 of Walker River Irrigation District, for the validation of \$25,500 bonds of "First Refunding Series of Local Improvement District No. 4 of Walker River Irrigation District," was considered.

The Commission authorized Walker River Irrigation District, acting on behalf of its Local Improvement District No. 4, to issue said refunding bonds in exchange for the outstanding bonds. Following is an outline of the resolution of authorization:

The sale of said refunding bonds to Reconstruction Finance Corporation is hereby confirmed and approved and said district is hereby authorized and directed to deliver all of said refunding bonds of Local Improvement District No. 4 to the Reconstruction Finance Corporation in accordance with the terms of the contract entered into between said District and the Reconstruction Finance Corporation; that Walker River Irrigation District is further authorized, on behalf of Local Improvement District No. 4, to issue said refunding bonds in exchange for the outstanding bonds of said Local Improvement District No. 4 to be refunded thereby in the event the Reconstruction Finance Corporation should purchase said outstanding bonds from the holders thereof and tender the same to said district in exchange for said refunding bonds; provided, that the total amount of refunding bonds to be issued upon any such exchange shall not be in excess of the par value of the outstanding bonds of Local Improvement District No. 4, and such outstanding bonds when surrendered shall be canceled and not be an obligation of said Local Improvement District No. 4.

All acts and proceedings of said district and its directors and officers in connection with the issuance and sale of the First Refunding Series, dated July 1, 1935, in principal amount of \$25,500, are hereby ratified and approved.

October 30, 1936

Meeting at Carson City, all commissioners present, J. H. White, Secretary. Application of Local Improvement District No. 1 of Walker River Irrigation District for approval of a plan for refunding outstanding bonds and of exchanging said refunding bonds for outstanding bonds, was considered. The application requested the issuance of \$17,000 in refunding bonds for this purpose.

Frank W. Simpson was the owner and holder of all the outstanding bonds, being in the principal sum of \$17,000, dated October 5, 1928, and had entered into a contract dated July 7, 1936, with the Local Improvement District for the exchange of said outstanding bonds for the proposed refunding bonds. The contract had been approved by the State Irrigation District Bond Commission and all matters connected therewith had been submitted to the First Judicial District

Court, of Lyon County, Nevada, and approved by decree of Hon. Clark J. Guild, District Judge of said court. A special election in the matter was held on December 15, 1936, at which the proposal for refunding bonds carried.

December 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. The application of Walker River Irrigation District on behalf of Local Improvement District No. 1, for the validation of \$17,000 in bonds of the "Second Refunding Series of Local Improvement District No. 1 of Walker River Irrigation District," was again taken up.

After considering the matter, the commission was not satisfied with the form of the certification of said bonds to be made by the State Controller, and referred the matter to the Attorney-General for an opinion. Confirmation of the proposed certificate was thereby delayed. Under date of February 28, 1938, the Deputy Attorney-General, W. T. Mathews, rendered an opinion stating that the bonds were entitled to certification under sections 8220 and 8223, Nevada Compiled Laws, as modified by chapter 161, 1935 Nevada Statutes, and chapter 76, 1937 Nevada Statutes, and the desired certification was approved.

December 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. A petition was presented by the Walker River Irrigation District requesting authorization for the formation of Local Improvement District No. 2. A report on the status of the proposed Improvement District No. 2, as to desirability, assets, finances, and the engineering features had been submitted to Walker River Irrigation District and through that district to the commission. The report had been made by Mr. George Parker, Engineer for the Wabuska Drainage Association, and recommended the formation of Improvement District No. 2 in order to provide for drainage of the included lands, and that the benefits should be assessed upon a flat rate per acre on all included lands.

After consideration of all evidence presented the commission approved the application for the formation of Local Improvement District No. 2, and also approved the proposed method of financing the same, *i. e.*, by certificates of indebtedness in the aggregate of \$15,000, bearing interest at five percent, to be issued from time to time as said funds are needed for the project, and to retire same by assessments upon the lands within the said Local Improvement District No. 2, following approval of the plan by special election.

May 13, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. The meeting was called to act upon an application by Pershing County Water Conservation District requesting approval to issuance by Pershing County Water Conservation District of \$16,000 of interest-bearing warrants, to bear interest at six percent, and to mature not later than three years from date of issuance.

John A. Jurgenson, attorney for the district, presented an affidavit signed by the secretary of the district stating "that interest-bearing

warrants amounting to \$13,992.26 constituted all of the outstanding and unpaid interest-bearing warrants of said conservation district." The attorney stated that the district desired to issue the new warrants to enable it to carry on operations and pay outstanding debts and anticipated expense and maintenance during the remainder of 1937.

Chairman Kirman ordered that the affidavit of C. H. Jones, secretary of the district, and a certified copy of the resolution of Pershing County Water Conservation District requesting authority to issue the warrants be filed with the secretary of the commission. The matter was held for further consideration by the commission, and Attorney Jurgenson was requested to obtain from the Secretary of Pershing County Water Conservation District a sworn statement as to the assets and liabilities of the district, and to file it with the commission. Pending the receipt of such statement, permission to issue the warrants was deferred.

June 22, 1937

Meeting at Carson City, all commissioners present, J. H. White, Secretary. Chairman Kirman stated that the meeting had been called for consideration and final action on the application of Pershing County Water Conservation District for approval of its request for the issuance of \$16,000 interest-bearing warrants. A sworn statement by C. H. Jones, secretary of the conservation district, setting forth the assets and liabilities of the district had been received, and was as follows:

ASSETS	
Approved value of real property.....	\$2,226,125.55
Rye Patch Dam and purchased water rights, project not yet completed.....	1,100,000.00
Total	\$3,326,125.55
LIABILITIES	
Repayment construction to the United States (see asset above)....	\$1,100,000.00
Outstanding bonds.....	5,500.00
Outstanding warrants.....	13,992.60
Total	\$1,119,462.60

Secretary White read an opinion given by Deputy Attorney-General Wm. T. Mathews advising the commission that it had legal authority to authorize the issuance of interest-bearing warrants by the Directors of Pershing County Water Conservation District in the sum of \$16,000.

Commissioner LaRue then offered a resolution approving the issuance of the warrants, which was unanimously carried.

COLORADO RIVER COMMISSION

- Governor Richard Kirman, Carson City, Nevada, Chairman.
- Alfred Merritt Smith, State Engineer, Carson City, Nevada, Secretary.
- C. F. DeArmond, Las Vegas, Nevada, Member and Resident Engineer.
- Ed W. Clark, Las Vegas, Nevada, Member.
- A. J. Caton, Reno, Nevada, Member.

Much of the time of the State Engineer during the past biennium has been taken up by his work on this commission. It has required

a great amount of office work, correspondence, and several trips to Washington, D. C., Los Angeles, Santa Fe, and Phoenix, for conferences and discussion. Membership on the commission is through appointment by the Governor, and the duties are not directly related to the work of the State Engineer, who serves as a member and as its secretary without salary.

The safeguarding of the rights of the State of Nevada to electric power from Boulder Dam Project, and to revenue in lieu of taxes and other benefits lost to the State through the construction of the project by the Government instead of by private interests has been the principal concern and work of the commission.

Before the dam could be constructed, the City of Los Angeles, the Metropolitan Water District, and Southern California Edison Company, and Southern Sierras Power Company (now Nevada-California Electric Corporation), were required to enter into firm contracts with the Government for all the power to be generated. Nevada and Arizona were unable to join in these contracts because they had no immediate use of power. Nevada and Arizona former State officials and former congressional delegation by long and earnest work obtained for these two States a withdrawal privilege of 18% of the total firm power each, which withdrawals were to be subject to restrictions, because the States could not at once use the power, and therefore the other contractors were obliged by the Government to take the allocation made to the States as soon as such power became available from the dam. These restrictions and regulations imposed on Nevada in regard to power withdrawals were so drastic as to render the allocation well-nigh useless. Nevada and Arizona were no doubt impelled to assent to unsatisfactory power withdrawal terms in order to secure the passage of the Act enabling the construction of the project. The Nevada Colorado River Commission has steadily worked for more lenient withdrawal terms, and has now obtained the consent of the major contractors to proposed legislation in Congress, and also to supplemental contracts with the City of Los Angeles, which contracts have been worked out, and if put into effect should insure the State the great benefit of low-priced electric energy, and also revenue from the project in no way attached to the State's allocation of power.

The States of Nevada and Arizona were each to receive, under the terms of the Boulder Canyon Project Act, 18 $\frac{3}{4}$ % of all excess money earned from the sale of power. At the initial rate of 1.63 mills for firm and .5 mills for secondary power, this would bring to Nevada an average of about \$630,000 per year for the 50-year amortization period. However, this benefit is to come out of *excess revenue* earned, after paying all other charges, including amortization. It is also provided that the rates shall be *readjusted up or down*, first in 1945, and each ten years thereafter, the readjustment to be based on *competitive conditions*.

Before the completion of the dam, the major contractors were seeking a reduction in rates in order to compete with the new Government power projects at Bonneville, Grand Coulee, and T. V. A., and also on the ground that they can produce steam power with crude oil for fuel in the Los Angeles district at a substantially lower rate than they can buy and transmit Boulder Dam power to Los Angeles.

Recent figures by several eminent engineers indicate the truth of the last statement, and it would appear that rates for several uses at other government hydro plants will be lower than Boulder. In any event, the present rates seem certain to be revised downward, and a very small decrease would eliminate the surplus from which Nevada and Arizona are entitled to share revenue in lieu of taxes. All agencies, including the Government, desire lower rates if possible, in order to give the public the benefit.

In order to insure to Nevada a fair compensation, the commission asked for revenue payable as a direct charge to be added to power cost. This, of course, was denied, as under the Act it would probably develop that nothing would have to be paid to the States. The commission offered to take less money if it could be assured as fixed annual revenue. After many conferences, and study by various engineers, extending over three years, a fixed revenue of \$300,000 was agreed upon to Nevada, subject to approval by the State Legislature in lieu of the terms of the present Act. If the Legislature approves this plan it will be written into the proposed Boulder Canyon Adjustment Act, along with the other provisions therein.

The proposed legislation is desired by all of the Southern California contractors who by their agreements are the underwriters of the cost of the project, and by the Colorado River Commission, which hopes thereby to insure revenue to Nevada, as well as to obtain the advantages and benefits of lower-priced power. Briefly reviewed, it is designed to amend the Boulder Canyon Project Act in the following manner:

The first \$25,000,000 spent to be considered an interest-free advance for flood control, to be repaid commencing after all other charges against the project had been repaid.

Machinery and equipment advances to be repaid within 50 years instead of in the ten-year period now provided.

All other advances to be repaid with interest during a period of 50 years beginning June 1, 1937. Repayments to be made in equal annual installments except as they may be varied by the Secretary of the Interior in accordance with revenues received.

The interest rate to be for the period of construction is the actual cost of money to the Government. Interest for the period of repayment not to exceed $3\frac{1}{2}\%$ (present rate is 4%).

The States of Nevada and Arizona, or either of them, shall have the right to have their existing contracts modified or to enter into new contracts giving the said States, or either of them, the right to purchase each month unused firm energy at the rate for secondary energy then in effect, in conjunction with their regular purchases of firm energy, in the same ratio which the unused firm energy taken by the city at secondary rates during the same period bears to the firm energy taken by the city at firm rates.

Rates to be paid for falling water shall be uniform and such as will produce revenues that will aggregate the following amounts during the fifty-year period:

- A. Reasonable operation and maintenance expenses.
- B. Reasonable fund and reserve for replacements.
- C. Payment to the Treasury, with interest, of the advances other

than flood control and other than machinery and equipment advances (separately provided for by contract).

D. An added sum sufficient to pay to each of the States of Arizona and Nevada \$300,000 per year on June 30, of each year for a period of 50 years, the first payment to be made on June 30, 1938. (The State of Nevada may elect through its Legislature before June 1, 1939, to receive said annual payment, and if it should fail or refuse to so elect, then it shall continue to receive the payments as provided in section 4 (b) of the Boulder Canyon Project Act, and the contracts existing as of January 1, 1938, made pursuant to said Act, to be estimated by the Secretary of the Interior on the basis of rates as they would have been fixed from time to time as provided in said contracts. The same conditions are made for Arizona, with the difference that the said \$300,000 fixed revenue shall be paid to the State of Arizona annually unless that State shall reject the same before June 1, 1939.)

E. The balance of revenue up to \$400,000 (a lesser sum during the six-year load-building period proportionate to the income), to go into the "Separate Fund" to be expended for developments in the Seven State Colorado River Basin, as authorized by Congress.

NOTE—This is the controversial provision. At present the four upstream States desire that all of this money be expended in those four States, and that the fund be increased to \$1,000,000 annually.

F. Excess revenues, if any, to be credited proportionately to the power contractors during the following year.

G. Deficiencies in revenue, if any, necessary to meet payments as provided, to be determined by the Secretary of the Interior during the next year, and surcharges for power fixed in amount sufficient to cover same, said surcharges to be collected within a period of not more than five years following the deficiency.

Power rates shall be readjusted by the Secretary in 1945 and each five years thereafter, upward or downward, based on competitive conditions.

Various problems and difficulties are in the way of obtaining an average rate for Nevada, due to the rights of the several contractors to purchase secondary power under different conditions. As a result, Hon. Nathan R. Margold, Solicitor for the Department of the Interior, suggested the following average rate substitute in the proposed legislation:

"That Arizona and Nevada shall have a rate for falling water for firm power that they are entitled to, each up to 18 percent, by making it the same as the average rate paid by the City of Los Angeles for:

- (1) All its own firm power paid for by it at firm rates, plus
- (2) All the firm power which was allocated to another purchaser, and, if taken by that purchaser, would have been paid for by it at firm rates, but which, being unused by that purchaser, is taken by the city at less than firm rates."

During the Congress of 1937 the Nevada Senators and Congressman, the Colorado River Commission of Nevada and the Southern California municipalities endeavored to have this legislation introduced as an amendment to the "Bonneville Act," through the Rivers and Harbors Committee. Agreement on the terms of the proposed legislation was reached too late for it to be introduced at that session as a separate

Act. After much debate and a delay almost until the end of the session, the Rivers and Harbors Committee threw the Boulder project amendment out as being controversial, and, therefore, they thought it might jeopardize the Bonneville Act. It was then too late for hope of separate action as Congress was absorbed in the Supreme Court bill and other legislation deemed imperative before adjournment.

At the same time there developed active opposition to the provision setting out \$400,000 per year to the "Upstream States" (New Mexico, Wyoming, Utah, and Colorado), from excess revenues, for the "Separate Fund" for upstream development and surveys. These States stated they should have \$1,000,000 for that purpose, as great savings would be made by the proposed amending legislation, and the Los Angeles District, Nevada, and Arizona should not have all the benefits.

Numerous conferences were held during 1937 and 1938, mainly directed toward securing a unified program on the proposed legislation suitable to all seven Colorado Basin States. The matters were studied and debated by Department of Interior officials, the U. S. Bureau of Reclamation, representatives of the seven States and the southern California municipalities. The first of these was a hearing before Dr. Chas. E. Merriam, representing Secretary of the Interior Ickes, at Washington, D. C., on April 16, 1937, and was held before attempting to introduce the proposed legislation. The entire Colorado River Commission, excepting Governor Kirman, was present at the hearing, also Senators Key Pittman, P. A. McCarran and Congressman J. G. Scrugham. At this hearing the right of Nevada to power in a form it could use was established, and the right of the State to revenue in lieu of taxes was strongly reaffirmed. Senators Pittman and McCarran and Engineer Jay A. Carpenter, who had been employed by Nevada, strongly affirmed and upheld the rights of Nevada, and recognition of these rights was obtained from all power contractors and the Federal officials, and are now a part of the official record. Subsequent conferences upon unsettled problems were held with the Los Angeles Department of Water and Power, the Colorado River Commission of Arizona, and Solicitor Nathan Margold who represented Secretary Ickes, at Los Angeles, also at Santa Fe, New Mexico, where the Governors of several States were present and all seven States and the Government were well represented, also at Phoenix, Arizona, where water problems and the increasing use of Colorado River water by Mexico were considered; and a general conference at Yellowstone, Wyoming, on August 2, 1938. A majority of the members of the Nevada Commission was present at each of these meetings, which were also attended in Washington and elsewhere by the Attorney-General of Nevada, Gray Mashburn, or by Deputy Attorney-General Howard Gray. At the Yellowstone meeting an engineering report by Herbert S. Sands was introduced showing that the proposed amendments to the Act would effect a saving of \$73,000,000 during the 50-year period of amortization, which would therefore justify paying the four upstream States \$1,000,000 per year. Exception was taken to some points in Engineer Sands' report by the engineers from the Los Angeles municipalities, and committees were appointed to reconcile the data. A marked improvement in mutual confidence and respect among the several States and power users was observed at Yellowstone, and for

the first time a general seven-State committee was appointed to make recommendations.

STATE POWER CONTRACTS

SOUTHERN NEVADA POWER COMPANY

On February 21, 1936, the Southern Nevada Power Company entered into a contract with the State for withdrawal of power, providing a bond of \$15,000 requested by the commission. This company installed its own transformers and switching equipment at the dam, thereby decreasing the amount of bond required. The company completed its installation in March 1937, and began service to the city of Las Vegas. It is now using 1,073,000 kilowatt-hours per month (July 1938). This company claims that its rates to the public in the Las Vegas district are as low as any in the United States.

LINCOLN COUNTY POWER DISTRICT NO. 1

This power district was organized June 24, 1935, and covered the Pioche Mining District. On September 12, 1936, the commission authorized the construction of a power transmission line from Boulder Dam plant to Pioche, Nevada, and thereafter entered into the necessary contracts with Lincoln County Power District No. 1 for withdrawal of power and installation of transformers at the dam site by the State. The cost of the transformers, switching equipment, etc., amounting to approximately \$125,000, was guaranteed by the State. A bond partially covering said cost in the amount of \$50,000 was obtained from Lincoln County Power District No. 1. The line was completed by the district in September 1937. Power service from the State began in May 1938, and the present use (July 1938) is at the rate of 1,579,750 kilowatt-hours per month. Prior to power service by the State, and while awaiting the construction and installation of transformers by the United States Bureau of Reclamation, this district rented transformers and bought Boulder Dam power from the Nevada-California Electric Corporation, beginning in September 1937.

SEARCHLIGHT-NELSON POWER DISTRICT NO. 2

Searchlight-Nelson Power District No. 2 was organized by the Public Service Commission of Nevada April 22, 1936. Preliminary efforts to finance an independent power line from Boulder Dam into these adjacent districts were unsuccessful because of inability to secure a sufficient number of individual firm contracts to justify the expense. Subsequently permission was granted by the Public Service Commission to Needles Gas and Electric Company, a California corporation, to construct a transmission line from Boulder Dam to Needles, California, in order to use the power allocated by the Government to the Nevada-California Electric Corporation. By permission of the Public Service Commission of Nevada a tap was made on this line to serve the Eldorado or Nelson Mining District with Nevada power by means of the joint facilities of Lincoln County Power District No. 1 and the Needles Gas and Electric Company. Service to the Nelson District began the early part of July 1938. Present use by the Nelson District is 103,250 kilowatt-hours per month (July 1938). A similar connection will be made to this line to serve the Searchlight Mining District as soon as possible, arrangements having been made for that purpose.

OVERTON POWER DISTRICT NO. 5

Overton Power District No. 5, Clark County, was organized by the Public Service Commission October 28, 1935. It includes Moapa Valley and Virgin Valley, in which are located the towns of Overton, Bunkerville and Mesquite. The district has recently secured a loan from R. E. A. A transmission line will soon be under construction and a contract for withdrawal of Boulder Dam power has been presented to the commission for approval. The anticipated power use will be about 500,000 kilowatt-hours monthly.

EMPLOYMENT OF ENGINEERS

Jay A. Carpenter, Professor of Mining at the Mackay School of Mines, University of Nevada, was employed by the commission in January 1937. Permission to use Mr. Carpenter was obtained from Dr. Walter Clark, President of the University, with the approval of the Board of Regents. Prior to his connection with the University, Carpenter had wide experience in industrial engineering. The work of Mr. Carpenter took him to Phoenix, Los Angeles, and Washington, D. C. His several reports and his oral presentation of the position of Nevada at the hearing on Boulder Dam affairs held before Dr. Chas. E. Merriam were of great value, and by agreement and the consent of the University authorities he is subject to additional calls by the commission.

Mr. C. F. DeArmond, a member of the commission, was employed as Las Vegas resident engineer by the commission on January 1, 1938. He is stationed in Las Vegas for the purpose of serving that district and the State in promotion of the use of power from Boulder Dam in Nevada for all purposes, and use of Colorado River water under our allocations. Long engineering experience in Nevada eminently qualifies Mr. DeArmond for his diversified work, the results of which have been gratifying to the commission and to the important district in which he is located.

The proceedings of the commission during the past biennium will be presented in full in its annual report now being prepared by the Secretary.

NEVADA STATE PLANNING BOARD

August 1936-August 1938

PERSONNEL

Members ex officio—

- The Governor of Nevada, Hon. Richard Kirman.
- The State Engineer, Alfred Merritt Smith.
- The State Highway Engineer, Robert A. Allen, Chairman.

Members appointed—

- J. A. Fulton, Mining Engineer, Director Mackay School of Mines, University of Nevada, Reno, Nevada.
- Fred Dangberg, Stockman and Farmer, Minden, Nevada.
- J. H. Buehler, Mining Engineer, General Manager Bristol Silver Mines, Pioche, Nevada.
- A. C. Grant, Automobiles, Member Chamber Commerce, Las Vegas, Nevada.
- A. J. Caton, Brick and Tile Manufacturer, Member of Chamber of Commerce, Reno, Nevada.

George Russell, Stockman and Farmer, Elko, Nevada.

A. R. Thompson, Civil and Mining Engineer, Engineer-Examiner
PWA, Reno, Nevada.

Richard Sheehy, Civil Engineer, State Highway Department,
Carson City, Nevada.

Consultant—L. Deming Tilton, Counselor, National Resources Board,
Santa Barbara, California.

Secretary—B. C. Hartung, Superintendent Division of Safety, State
Highway Department, Carson City, Nevada.

HISTORICAL

The Nevada State Planning Board was formed in February 1935 by Governor Richard Kirman, who selected and appointed its members. The board met and organized on February 5, 1935, electing as chairman Mr. Robert A. Allen, at that time State Director of PWA.

During the 1937 session of the Nevada State Legislature an Act was passed (Chap. 102, Nevada Statutes 1937), whereby the board was given legal status as a State organization. An appropriation of \$1,000 was made to sustain it during the biennium. The Act provided that the board shall consist of eleven members, eight of whom shall be appointed by the Governor, and three shall be members ex officio. The Governor, the State Engineer and the State Highway Engineer shall be the members ex officio. Three members are appointed for one year, three for three years, and two for four years; their successors are to be appointed for four-year terms. Members serve without compensation, excepting necessary and actual expenses, same to be paid from money appropriated.

Section V provides that the function and duty of the Board is:

(a) To make a comprehensive State plan for the economic and social development of the State of Nevada. To this end, it shall conduct research and studies relating to natural resources and to other factors in the program of the State.

(b) To submit reports and to make recommendations relative to its findings to the Governor and the Legislature.

(c) To cooperate with other departments and agencies of the State in their planning efforts, and to advise and cooperate with municipal, county, and other local planning commissions within the State for the purpose of promoting coordination between the State and the local plans and developments.

Section VI provides:

The board is hereby authorized to participate in interstate, regional, and national planning projects for the purpose of conserving and promoting public health and the safety, convenience, and general welfare of the people; and through its members or its staff the board is hereby authorized to confer and cooperate with Federal officials and with the executive, legislative, or planning authorities of neighboring States and of the counties and municipalities of such States.

The board is hereby empowered to receive and accept, in the name of the State, grants of money or services to enable it to carry on its work under this Act. In general, the board

shall have such powers as may be necessary to enable it to fulfill its functions and to carry out the purposes of this Act.

The board is advisory in character and has neither executive nor administrative functions. It is nonpartisan and nonpolitical.

In order that a permanent record of the work of the board may be available for ready future reference, and also because of the necessity of economy of the board's limited appropriation, the State Engineer, ex officio member, offered to include an outline of activities during the years 1937-1938 in his biennial report, as he had done formerly for the years 1935-1936. A substantial part of the work of the board to date had to do with conservation of water resources, which is one of the functions of the State Engineer, and it is therefore fitting that it be included in this report.

Office space and continuous assistance have been supplied by both the Department of Highways and the Department of the State Engineer, without which it is doubtful if the board could have functioned, for it was without funds during 1935-1936, and the present appropriation of \$1,000 for 1937-1938 is too small for any serious investigation. Members have generously paid their own expenses, often traveling long distances to attend meetings.

ACTIVITIES, 1937-1938

At a meeting held on August 11, 1936, Alfred Merritt Smith, State Engineer, informed the board that it would be necessary to procure a project through the WPA in order to assure continued operation of planning work. L. Deming Tilton, Counselor, National Resources Board, affirmed this, and stated that every State is entitled to a WPA State Planning Allotment designated as Federal Project No. 3. Mr. Tilton went on further to advise the board that water conservation in this area appears to be one of the prime objectives, and that undoubtedly a planning project and commission should be required. He continued: "This planning commission, as set up under the WPA allotment, will be required to get facts together and information to be passed on by the State Planning Board. It is a theory now accepted in Washington that the States must do their own planning, or the Government will step in and proceed along such lines as it sees fit."

On August 24, 1936, the board met and was assured by Mr. Tilton that the WPA project creating an active planning commission would be approved. Office space, secretarial help and stationery were donated by the sponsors, who were the State Engineer, Alfred Merritt Smith, and the State Highway Engineer, Robert A. Allen, Chairman of the Board. Chairman Allen named the committees for the year as follows:

MUNICIPAL DEVELOPMENT—A. R. Thompson, Chairman; A. J. Caton, J. A. Fulton.

BUSINESS AND INDUSTRY—H. F. Dangberg, Chairman, George Russell, A. C. Grant.

PARKS AND RECREATION—A. J. Caton, Chairman; R. A. Allen, A. C. Grant.

WATER RESOURCES—Richard Sheehy, Chairman; A. C. Grant, Alfred Merritt Smith.

ECONOMIC SURVEY—A. C. Grant, Chairman; George Russell, R. A. Allen.

MINING INDUSTRY—J. A. Fulton, Chairman; J. H. Buehler, Alfred Merritt Smith.

HIGHWAYS—R. A. Allen, Chairman; A. J. Caton, A. R. Thompson.

LAND UTILIZATION—George Russell, Chairman; Richard Sheehy, H. F. Dangberg.

MINING IN CLARK, LINCOLN, AND WHITE PINE COUNTIES—J. H. Buehler, Chairman, Alfred Merritt Smith, A. C. Grant.

POWER—Richard Sheehy, Chairman; A. C. Grant, Alfred Merritt Smith.

At this meeting it was decided that all water resource studies should come through the State Planning Board and be submitted to the National Resources Committee for consideration. As a subdivisional study there should be complete analysis of the water supplies of all towns and municipalities. Mr. Tilton recommended procedure as follows:

(1) Spend no money for extensive plants or reservoirs until a site is acceptable with sufficient evidence shown that there will be no future disadvantage to its location. "President Roosevelt has steadfastly maintained that he wants a comprehensive report on the water conservation problems in every State. This covers such other matters as flood control, industrial usage, sewerage, etc. He is anxious to know what can be done in every drainage basin so that the country will not be confronted with droughts, floods, and other disasters." Mr. Tilton stated that the second important business before the board should be the compilation of a new PWA inventory. He was assured that due to the past experience of Mr. Hartung and Mr. Rounage in PWA work this new inventory would be promptly compiled.

Mr. Caton then stated that, if possible, he would like to have the board secure on a part-time basis an engineer familiar with recreation and parks. "It is a coincidence, but I have made a study during the past few years and feel that development along these lines would be practically self-sustaining." Mr. Tilton replied that he had requested two senior engineers, three junior engineers, and an appropriate number of clerks and stenographers to work on the WPA planning projects.

Mr. Allen submitted a partial list of men from whom an advisory committee on water conservation could be selected, as follows:

L. H. Taylor, Civil Engineer, Reno.
 William Settlemeyer, Engineer, Elko.
 Charles DeArmond, Engineer, Elko.
 George Sanford, Attorney, Carson City.
 George Thatcher, Attorney, Reno.
 Prince A. Hawkins, Attorney, Reno.
 George Hardman, Land Planning Specialist,
 University of Nevada, Reno.

Prof. Bixby, Reno.
 Fred Herz, Reno.
 Ed Millard, Ely.
 J. T. McWilliams, Las Vegas.

Roy Stoddard, Attorney, Reno.
A. V. Tallman, Engineer, Winnemucca.
E. P. Osgood, Engineer, Fallon.
H. Dukes, Water Administrator, Reno.
D. Barnes, Engineer, Goldfield.
L. Crehore, Engineer, Fallon.
T. Wallace, Project Engineer, Fallon.

The board met on November 9, 1936. Mr. Roumage advised that he had been in contact with the State Director of WPA and had received assurance that the planning project would be favorably considered.

Mr. Alfred Merritt Smith, State Engineer, submitted the information that in 1935 a grant of \$20,000 was secured from FERA to make a study of reclamation and irrigation from the Colorado River. "I do not believe that all of this fund was absorbed, and would like to know if some of it could not be procured for our present work. I have directed a letter to Mr. Porter J. Preston, of the Bureau of Reclamation, who was in charge of the work, regarding the money remaining in this fund, but have received no reply as yet." It was generally agreed by the Planning Board that flood and water conservation problems in the southern part of the State should be studied as extensively as possible, with the view in mind to improve conditions in such areas as Bunkerville and Mesquite. A. R. Thompson stated that Bunkerville was the only district immediately in need of flood control, and that information could be secured through the L. D. S. headquarters in Salt Lake City.

Mr. Allen discussed the possibility and need of creating a State Park at Lake Tahoe, and had been in communication with Mr. A. C. Greene, San Francisco attorney, and Mr. Bliss, owner of parts of the area, regarding the contribution or purchase of necessary lands.

Secretary Hartung was requested to send pictures of Nevada scenes to the Cunard Steamship Lines for advertising purposes.

Mr. Smith stated that the Las Vegas Chamber of Commerce had requested that an agency be established in that city by the Colorado River Commission of Nevada, and that the Colorado River Commission had resolved to do so as soon as an engineer had been decided upon in order to determine the industrial and reclamation possibilities of the Boulder Dam section. Mr. Allen replied that a letter had been directed to A. C. Grant on this matter, and that future action would be recommended. It was generally recognized by the board that an agricultural development was somewhat impractical, but that industrial improvements, manufacturing and metal refineries, and provision for adequate water from Mead Lake were feasible.

Senator McCarran requested an account of the recommendations made regarding the proposed Delmue Reservoir in Lincoln County, and was advised that this matter would also be part of the Planning Board investigations.

Mr. Tilton brought up the subject of legislation to insure the continuance of the Planning Board and giving it legal standing as a State organization. His recommendations were followed by the committee board members and resulted in creating a permanent board by the State Legislature.

At a meeting held December 14, 1936, J. A. Fulton, member, read a mapping plan he had prepared, outlined as follows:

(1) Need and value of topographic mapping in the State for mining, agriculture, including snow courses, and grazing.

(2) Progress of mapping the State. Reference made to National Resources Committee Report, December 1, 1934, page 452.

(3) Eastern portion of State needs topographic mapping for mineral surveys.

(4) The Planning Board to outline a mapping program for the State showing the areas to be mapped and a suggested order of priority.

(5) Advance of the mapping plan along a cooperative basis.

Mr. Tilton suggested the preparing of a complete report on mapping needs for submission to the National Resources Committee and the Congressman from Nevada, which suggestion was approved.

Mr. D. Nelson, of the United States Forest Service, presented ideas regarding Federal acquisition of recreational lands on Lake Tahoe. The matter was referred to the chairman for discussion with the Governor and Attorney-General.

Mr. Smith, reporting for the water resources committee, stated that work on channel cleaning programs and construction of regulatory concrete diversion dams at Paradise Valley was being carried on under the direction of his office and the United States Forest Service, with CCC labor.

Mr. Buehler then told of progress on the Boulder Dam-Pioche power line. The progress had been slow due to labor difficulties. He gave information concerning the financial set-up, and advised the board in detail regarding the contributions of the Combined Metals Reduction Company and other interested companies. He stated that Lincoln County Power District No. 1 may face difficulties in conforming to certain terms in its contract with the State. Mr. Smith made a short statement regarding the terms and conditions of withdrawal of power from Nevada's allotment of 18 percent of the total firm power.

In January 1937, a joint meeting of the board with the Colorado River Commission, which is an executive board on Colorado River power and water matters composed of the Governor and four members appointed by him, was held. The purpose of the joint meeting was to discuss matters which the Planning Board considered might be of interest to the commission.

Dr. B. M. Woods of the National Resources Committee inquired as to whether or not the Planning Board or the Colorado River Commission had thought of the possibilities of reopening the Colorado River Compact through the medium of the Mexican-American treaty on this river. Dr. Woods gave an analysis of the study which had been made by the National Resources Committee with respect to aiding those States which feared loss of water and water rights through the increasing use of Colorado River waters in Mexico. He had discussed the matter with representatives of all of the interested States, with the exception of Utah, and was to contact a representative group of that State in the near future. "The consensus of opinion of the Planning Boards with which I have discussed this subject is that the services of an experienced engineer such as Mr. J. C. Stevens, of the National

Resources Committee * * * should be continued. Planning Boards are advisory in character and their studies of questions are often exploratory without definite commitments, but if the Planning Boards could be used it would be very helpful. Through the interrelations of the Planning Boards we might sound out the situation and see what prospects there are of organizing a district agency of an appropriate type set up to deal with questions relating to Boulder Dam power situations, etc. Every one of the other Planning Commissions sets up an official administrative group. They have their administrative problems and must, of necessity, see them through. The Planning Board is in a free position to make studies, and that is the part in which it might be helpful." Mr. Allen asked Dr. Woods if it would not be preferable for the Planning Board to gather information required on the Boulder Dam power situation through its own survey and pay for it. Mr. Smith said that it was quite possible an engineer, selected more or less at random from some Federal bureau with which he would retain affiliation, might not be properly qualified, and his work and recommendations prove of little use, or might even be harmful, because of lack of sympathy and understanding of the State's needs and problems. He said that the man employed for the work should be highly specialized, familiar with irrigation, power, and the operation of public utilities, and with some knowledge of electrochemical and electrometallurgical operations, and with sufficient experience to personally know some of the leading operators. His entire time and energy should be devoted to the work wholly in the interests of Nevada, and with responsibility only to the Colorado River Commission of Nevada. In line with Mr. Smith's suggestion, Mr. Grant moved and it was carried that the board recommend to the Governor and Colorado River Commission that they proceed at as early a date as possible to secure a qualified engineer to be employed by the Colorado River Commission to carry on the work as outlined in the Act creating the Commission. The board was informed by the commission that they had some months previously taken steps to that end, and as soon as conditions justified and they had selected an engineer, he would be employed.

The next regular session of the State Planning Board was held September 14, 1937. Chairman Allen informed the members that the former unofficial Planning Board had been dissolved by legislative action and that a new board had been created, with official State standing.

The chairman read the Act (Chap. 102, Nevada Statutes 1937) which differed but little from the former, but carried an appropriation of \$1,000 to cover expenses.

Mr. Thompson stated that Lincoln County Power District No. 1 felt very kindly toward the board for aid rendered in securing WPA approval for the project.

Mr. Smith stated that the WPA planning project which had been sponsored by the board and directed by the department of the State Engineer was under the supervision of Engineer Lawrence E. Mathews, who was ready to report. The following is a brief outline of the material as submitted by Mr. Mathews:

I. Status of work as of June 30, 1937:

A. Reports Completed—

1. General report entitled "The Nevada State Planning Board," issued February 1937, 15 mimeo. pages, 14 maps.
2. Report entitled "Electric Power in Nevada," typed and presented to Mr. R. A. Allen, Chairman, June 1937.
3. Alamo-Hiko rural electrification report completed and data forwarded to REA, June 1937.

B. Work in Progress—

1. Paradise Valley Water Storage Survey, collection of data in progress.
2. Water Publications Index for Nevada, collection of data in progress.
3. Graphical Records of Nevada Streams, from United States Geological Survey Water Supply Papers, in progress and about 30% completed.
4. Population report on Nevada, data being compiled from United States Census records.
5. Cooperative work with Nevada Agricultural Experiment Station and Resettlement Administration being continued. This consists of preparation of maps, graphs, and charts on land studies.

II. Status of work as of September 14, 1937 (Studies in progress)—

1. Paradise Valley Water Storage Survey, collection of data, graphs of stream discharges, run-off charts, precipitation data, water rights, etc., being prepared for report form.
2. Water Publications Index for Nevada, collection of data in progress.
3. Graphical Records of Nevada Streams, from United States Geological Survey Water Supply Papers, in progress and about 50% completed.
4. Population Report on Nevada, data compiled and report ready for preparation. Awaiting conference with National Park Service representative to discuss this report, as they have prepared a report on population in Nevada and we desire to avoid duplication of effort.
5. Cooperative work with Nevada Agricultural Experiment Station and Resettlement Administration being continued.
6. Relief map of Nevada being revised.
7. Pictorial map of Nevada, showing points of interest in the State, being prepared.

Mr. Mathews stated that these water surveys would show the complete water resources of each district. Mr. Grant stated that emphasis should be placed on historical points of interest as a phase of Planning Board work. Mr. Floyd of the National Park Service, who was present, assured the members that his department would be glad to cooperate on all recreational and park developments. He had been in contact with Mr. Allen for several months in determining possible developments in certain districts and would soon publish a report.

Under the heading of new business, Mr. Thompson advised the board concerning the WPA projects which are now awaiting allotments in Washington, D. C., as follows: (1) Lund water and electric power system. (2) The Fallon courthouse. (3) The Clark County Educational District No. 1 school building. (4) Goldfield municipal water system. (5) Carson City public auditorium. (6) Improvement of Las Vegas streets. The board voiced approval of the energetic work of Chairman Allen in preparing and listing possible PWA projects, and was favorable to the sponsorship of a number of these projects.

At a meeting held on February 14, 1938, Mr. L. E. Mathews submitted a further report on water conservation in Paradise Valley, Humboldt County. He held the opinion that the board should recommend the regulation of water supplies in the early spring and summer in order that there would be a continuous and regular supply during the remainder of the year. Mr. Smith and Mr. Allen were of the opinion that storage on Martin Creek and the Little Humboldt River was the most likely prospect for a project at present. After these it would be necessary to go into the upper tributaries of the main Humboldt River. Mr. Mathews stated that he had not suggested plans for storage on the Little Humboldt, but would do so as soon as he secured the support of the ranchers along that stream.* When Mr. Russell asked Mr. Smith what the sentiment of the people in Paradise Valley was toward improvement of water resources, Smith replied that they favored channel cleaning and a continued construction of reinforced concrete regulatory diversion dams. Mr. Williams, of the National Resources Committee, suggested that an effort be made to put all findings or material in picture form so that the people in Paradise Valley could study it and see the benefits that could be derived. Mr. Venstrom of the State Agricultural Extension office stated that a land map is extremely important in order that classifications may be in evidence. Mr. Mathews stated that some of the channels had been cleaned in the upper regions through CCC and Forest Service labor, and several concrete diversion dams had been built from plans made by the department of the State Engineer. He stated that it would probably require about three months to complete channel cleaning. Mr. Smith advised Mr. Allen that he was not quite ready to begin a study of the situation on the Main Humboldt, as they have enough problems on that river at the present time. Mr. J. A. Millar, Supervising Water Commissioner, Humboldt River, suggested that if any work was to be started on the Main Humboldt River system it should be confined to the South Fork of the Humboldt in order to alleviate conditions existent in the Lovelock Valley. With respect to the Carson River, Mr. Smith stated that continued study should be made in that region. Mr. Dangberg was of the opinion that flood control was needed there, and that better irrigation possibilities would result. According to report, seventeen diversion dams had been washed out on the Carson River, a great monetary loss to the farmers, and erosion is evident along the entire stream. Flood control by reservoirs on the upper Carson River was advocated.

Mr. Venstrom submitted a few details concerning the Virgin River

*At a general meeting of the ranchers called at Paradise, Humboldt County, several weeks later, all proposals for storage were rejected.

and Virgin Valley question, and an economic and soil survey that had been made under his supervision. He stated that the full report would probably be available at the end of the fiscal year. "The big problem there is instability of the diversion dams from the Virgin River." Mr. Williams added to the statement made by Mr. Venstrom: "Mesquite and Bunkerville are anxious to get water diversions that they can depend upon. If you have an engineer available on the staff of the Planning Board, this work should be carried further. There is no question in my mind but what the acreage of farming land for the Bunkerville people could be doubled and also a thousand acres be added to the Mesquite area." Mr. Venstrom: "This matter needs considerable follow-up. The farms are too small for the farmers and something should be done, if at all possible, to increase the tillable lands."

A meeting was held on Tuesday, April 12, 1938. Mr. Allen stated that Mrs. Bovette, of the State Farm Bureau, advocated light and power development in the towns of Preston and Lund, White Pine County. Mrs. Bovette: "The project in that area is entirely feasible and the cost, after some investigation, does not appear too high." Mrs. Bovette stated that 90 families would be benefited by such a project. In concluding the discussion Mr. Williams of the REA advised the board that one dollar per month per family should amortize the proposed project at Lund and Preston.

Mr. Buehler informed the board that in Lincoln County there was a rural electrification project being contemplated for Pahranaagat Valley. Mr. Caton was of the opinion that the County Commissioners in this instance should take a portion of the responsibility for the welfare of the people in that county. If the county board would take the initiative on such a project it would probably be favorably considered by the other authoritative bodies. Mr. Joe Martin, District Attorney for Lincoln County, had previously taken up the matter with Attorney-General Gray Mashburn, but had been advised that it was not feasible.

Mr. Buehler: "From the standpoint of Lincoln County Power District, we have gone further than we intended to go with the power transmission into the Pahranaagat Valley district. We were willing to enter into an agreement to maintain the facilities from the Delmue substation into the Pahranaagat Valley for 18 miles."

Mr. Allen: "What other projects are on hand?"

Mr. Sheehy: "Other districts throughout the State are interested in Boulder Dam power, for example, the mining districts of Eureka and Austin."

Mr. Allen: "These matters are out of the question until the present law is amended by Congress and provisions are made to allow more favorable power withdrawal privileges."

Mr. Buehler: "If we do not get modifications in the present government contracts we are going to lose a lot of private industrial concessions."

The board agreed that the obtaining of such concessions was necessary and would make Nevada's power more attractive to private industries.

It was then stated by Mr. Allen that the board had succeeded in getting a continuous WPA planning project, and that a continuance of studies had been resumed on (1) Paradise Valley water storage, (2) water publications index for Nevada, (5) cooperative work with Nevada Agricultural Experiment Station and Resettlement Administration, (6) revised relief map of Nevada, and (7) pictorial map of Nevada. The board also studied a new program covering the geographic map of the Carson upstream storage possibilities.

On June 27, 1938, a meeting of the board was held at Carson City, Chairman Allen presiding.

The chairman advised Senator P. A. McCarran, who was present, that the board had directed communications to the Public Works Administration office in San Francisco regarding various PWA applications from this State. He made special mention of the remodeling of the Printing Office, the revamping of the State Capitol, the State Asylum, and a new addition to the State Highway Building.

Dr. B. M. Woods, of the National Resources Committee, was present and informed the board that a conference of planning agencies in Utah, California, Nevada, and Arizona would be held in Santa Barbara in September 1938, and urged representatives of the Nevada board to attend.

Mr. Allen reported that up to this date the State Planning Board had compiled a list of possible PWA projects in Nevada in the amount of \$4,625,000.

Senator McCarran called attention to a subject of State-wide importance, *i. e.*, the existence of white-top in all sections of Nevada, an increasing threat to crop production. His statement was substantiated by agriculturists from Churchill and Douglas Counties. It was agreed that a study of this weed menace should be made. Congressman Scrugham then told what had been done in Congress on this matter. It was agreed by both Senator McCarran and Congressman Scrugham that they would petition Congress to do something further in combating the white-top menace in Nevada. The board drew up a resolution of recommendations on this matter, and it was unanimously passed.

Dr. Atkinson of Reno appeared and presented details regarding the cost of establishing and operating tuberculosis hospitals, which he recommended.

Mr. P. Delmue spoke briefly upon the need of a flood control and irrigation reservoir about 12 miles north of the town of Panaca, Lincoln County, and his proposition was supported by Mr. Grant.

Mr. Smith reported that storage studies were being made on both the Little Humboldt and the Main Humboldt Rivers, but that at this time there was little hope for unified support of such project by the farmers in these districts.

With respect to the PWA projects, Mr. Grant advised that it would be necessary for the board to eliminate those that were not feasible or could not be undertaken in 1938. Chairman Allen stated that concerted action was necessary on the University of Nevada's application requesting the construction of three buildings on the campus in Reno if that project was to be approved by PWA, and he suggested a canvass be made of the State Legislature.

Senator McCarran stated that he wanted to again bring up the Carson River upstream storage project and to impress its great importance upon the members of the board. It was unanimously agreed by the board that this storage project should be given prompt consideration and definite action be taken as soon as possible.

CHAPTER XIII

Supreme Court Decisions Relating to State Engineer's Office

No. 3127—November 2, 1936.

In the Matter of the Determination of the Relative Rights in and to the Waters of Silver Creek and its Tributaries in Lander County, Nevada.

In water adjudication proceedings, failure to serve copy of notice of appeal from order denying motion for new trial on Attorney-General, in behalf of claimants who filed no exceptions or objections to final order of State Engineer, precluded Supreme Court from considering appeal.

Statutory requirements of service of notice of appeal from order denying new trial in water adjudication proceedings on Attorney-General, in behalf of claimants who filed no exceptions or objections to final order of State Engineer, is mandatory in form and jurisdictional in effect.

No. 3195—December 7, 1937.

W. W. Carpenter, John Fant and Andrew Jahn, Petitioners, v. Sixth Judicial District Court of Nevada, in and for the county of Humboldt and J. M. Lockhart, as Presiding Judge thereof, Respondents.

This is an original proceeding in prohibition to restrain the Honorable J. M. Lockhart, as Presiding Judge of the Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, or any other District Judge who may hereafter preside in said cause, from proceeding with the new trials granted by the said District Judge in the cause entitled "In the Matter of the Determination of the Relative Rights of Claimants and Appropriators of the Waters of the Humboldt River Stream System and its Tributaries."

The Order of Determination of the State Engineer, determining water rights on the Humboldt River system, was filed with the Clerk of the Sixth Judicial District Court, in and for Humboldt County, on January 17, 1923. A number of claimants on the stream system filed their exceptions to the said order. Hearings on these exceptions were had before the Honorable George A. Bartlett, Presiding District Judge, whose findings and decree were subsequently filed and entered. In the said findings and decree, some 191 claimants, who had not filed exceptions in that regard, were awarded earlier and better priorities with respect to their water rights than had been allotted to them in the Order of Determination of the State Engineer, such earlier and better priorities being based upon the application of the doctrine of relation in determining the dates of such priorities. The petitioners herein moved for and obtained an order, made by the Honorable H. W. Edwards, Presiding District Judge, setting aside the said Bartlett Findings and Decree, in part, and granting a new trial with respect to the application of the doctrine of relation to the 191 noncontest claimants above referred to. Upon such new trial Judge Edwards made Findings of Facts and Conclusions of Law reciting that the application of the doctrine of relation to the said noncontest claimants by Judge Bartlett was without authority of law and void, and entered his Decision and Decree with respect thereto. To the latter decision motions for new trial were interposed, and were granted by Judge Lockhart. The claimants who sought and were granted new trials by Judge Lockhart took the position that all of the claimants on the river system should have the benefit of an investigation of the facts bearing on the application of the doctrine of relation. With approval of the movents' attitude, Presiding Judge Lockhart granted new trials, the scope of which would open to consideration and adjudication the claims of all claimants on the river system which might now be presented, based on the doctrine of relation. The petitioners now seek to restrain the respondent court from proceeding with the new trials so granted by Judge Lockhart.

The petitioners contend that, because of the absence of exceptions to the order of determination of the State Engineer on the ground of failure to apply the doctrine of relation, there are no issues on that subject presented in the pleadings upon which a new trial could be based. In answer to this, the respondents maintain that such issues may be raised, in the absence of such exceptions. Section 35 of the water law (section 7922 N. C. L.), provides as follows: * * *

The exceptions, duly filed, perform functions of such importance that the necessity of filing them should not be dispensed with. It is the filed exception that gives notice to all other claimants as to the objections and demands of the exceptor. The purpose of the law is to limit the questions to be decided in the adjudication proceedings to issues raised by exceptions duly filed. In *Humboldt Land and Cattle Company v. Sixth Judicial District Court*, 47 Nev. 396, 224 P. 612, this court said:

"The section * * * requires all those aggrieved or dissatisfied to file notice of their exceptions with the Clerk, setting forth the grounds and prayer for relief, thus affording all parties in interest who are satisfied with the order of determination an opportunity to appear before the court and oppose any alteration or modification of the order as proposed by those excepting." * * *

As we view this matter, there was no jurisdiction as the basis for Judge Bartlett's order awarding the 191 noncontesting claimants an earlier and better priority than that fixed by the Order of Determination. If this is true, we fail to see how Judge Lockhart could have the jurisdiction to grant a new trial with a view of restoring to these noncontesting claimants, or any of them, priorities which Judge Bartlett awarded, or any priorities other than those fixed in the order of determination. * * *

For the reason given, it is hereby ordered that the demurrers to the petition for writ of prohibition, and the motions to quash the alternative writ, are overruled, and that said Presiding Judge, J. M. Lockhart, or any other District Judge who may hereafter preside in said cause, is prohibited, enjoined and restrained from proceeding with the new trials granted by said Presiding District Judge in said court and cause by orders dated December 3, 1936, and filed therein on December 5, 1936.

No. 3208—November 18, 1937

Andrew Jahn, Petitioner, v. The Sixth Judicial District Court of the State of Nevada, in and for the County of Humboldt, et al., Respondents.

These proceedings arise out of the claim of the Humboldt Lovelock Irrigation, Light and Power Company (hereinafter referred to as "the company") to a vested right to take and store annually a minimum of 49,770 acre feet of water of the Humboldt River, together with the right to control the distribution of such water, free from interference on the part of the State Engineer.

Pursuant to such claim of right, the company filed in the Sixth Judicial District Court, in case No. 2801, entitled: "In the Matter of the Determination of the Relative Rights of Claimants and Appropriators of Waters of the Humboldt River Stream System and its Tributaries," its petition, based primarily upon section 36½ (7926 N. C. L.) and section 77 (7963 N. C. L.) of the water law, praying that the State Engineer be ordered to desist from interfering with the intake and diversion dam, the canal, control works, reservoirs and outlet control works of said reservoirs of the petitioning company, and that he be ordered to receive all water released by the company from its reservoir system and distribute the same as directed by the company. On July 16, 1937, upon the petition referred to, and without notice to the State Engineer, an order was issued by the presiding District Judge, as prayed for.

On July 23, 1937, the petitioner, Andrew Jahn, filed in this court his application and affidavit for a writ of certiorari, and, likewise, on the same date, a similar application of the State of Nevada, upon the relation of Alfred Merritt Smith, State Engineer of the State of Nevada, was filed. Thereafter, a writ of certiorari was issued on each of the applications referred to, requiring the Presiding District Judge, pending the further order of this court, to desist from further proceedings in the matter referred to, staying his order, and ordering the State Engineer to distribute the waters of the Humboldt River, in the Lovelock Valley District, in accordance with the "Bartlett Decree" of October 20, 1931, until the further order of this court.

After a hearing, an order of this court was made on August 9, 1937, in each of the above-entitled proceedings, setting aside the order of the Presiding District Judge made on July 16, 1937, and restraining the said court and Judge from further action in the matter. The order in case No. 3209, which is substantially the same as the order in this case, reads as follows:

"This matter coming on for hearing upon the petition and return thereto, and counsel for plaintiff and relator and respondents being heard, and the

court being fully advised in the premises and being of the opinion that the method of obtaining relief contended for by the Humboldt-Lovelock Irrigation Light and Power Company, is exclusively provided for by section 75 of the water law (section 7961 N. C. L.), and that the respondent court and the Honorable J. M. Lockhart, Presiding Judge thereof, were without jurisdiction to entertain the proceeding complained of herein, and are without jurisdiction to further proceed therein.

"It Is Ordered, Adjudged and Decreed that the order and proceedings had, made and entered by said respondent court, and said Presiding Judge complained of by plaintiff and relator be, and the same are hereby set aside, annulled and held for naught, and said Court and Judge hereby restrained from further action in said proceeding." * * *

The company, however, has sought to invoke the powers of the District Court mentioned in section 36½ of the Act. That section reads as follows: * * *

In enacting that, from and after the filing of the Order of Determination, the distribution of water shall at all times be under the supervision and control of the District Court, the Legislature intended that the stream system, for the purpose of control and distribution, should be deemed to be in custodia legis. State v. District Court, 52 Nev. 270, 277. We do not believe, however, that the language referred to was intended as an attempt by the Legislature to clothe the court with administrative functions which, by other sections of the Act, devolve upon the State Engineer. The purpose of the Act is to clothe the State Engineer with the State administrative, and the courts with the judicial powers and duties essential to the control and distribution of the public waters of the State.

On behalf of the respondents, it is argued that the order of the lower court is supported by the court's inherent power to instruct and direct its officers. Contrary to this contention this court has held that the water law and all proceedings thereunder are special in their character and that the basis of jurisdiction of the court, in all matters pertaining to the adjudication and control of the public waters of the State must be found in the water law. Ruddell v. District Court, 54 Nev. 363. * * *

As the water law does not contemplate such a procedure in the District Court as was initiated by the company, the law does not confer the right of appeal from the order in question. In re Water Rights, 49 Nev. 357, 365.

No. 3209—November 18, 1937

State of Nevada, ex rel. Alfred Merritt Smith, State Engineer of the State of Nevada, Plaintiff and Relator, v. The Sixth Judicial District Court of the State of Nevada, in and for the county of Humboldt, and Honorable J. M. Lockhart, Presiding Judge Thereof, and the Humboldt Lovelock Irrigation Light and Power Company, a Corporation, Defendants and Respondents.

The above matter is a companion case to that of Andrew Jahn, Petitioner, v. The Sixth Judicial District Court of the State of Nevada, in and for the County of Humboldt, and J. M. Lockhart, as Acting and Presiding Judge thereof, Respondents, this day decided.

As the opinion in that matter establishes the law in this proceeding, it is unnecessary to do more than refer to it.

CHAPTER XIV

Irrigation Districts and Canal Companies

The information herewith presented has been gathered by the office of the State Engineer through the medium of questionnaires that have been mailed to the various districts in the State.

No new districts have been organized in Nevada during the past biennial period, and no material change in the status of the existing irrigation districts has occurred.

PERSHING COUNTY WATER CONSERVATION DISTRICT

Officers—Andrew Jahn, President; C. Arobio, Vice President; C. H. Jones, Secretary and Treasurer; W. W. Carpenter, C. C. Carpenter, and Frank Jones, Directors.

Office—Lovelock, Nevada.

Organized—February 1926.

This district has about 30,200 acres of irrigable lands within its boundaries. Of this amount 21,096 acres have decreed water rights. In the Lovelock Valley only about 11,600 acres of lands having decreed rights are not included in the district. During the latter part of 1936 the Rye Patch Dam was completed on the Humboldt River. This structure is located about 23 miles northeast of Lovelock, and was built by the Bureau of Reclamation under a repayment contract dated October 1, 1934, with the Pershing County Water Conservation District. The history and description of this project was fully described by L. J. Foster, Construction Engineer, in an article appearing in the 1934-1936 Biennial Report.

The repayment contract mentioned above between the Bureau and the District provides that the total cost of the project shall be returned to the United States in forty annual payments over a period of forty years without interest charges. If the annual payments are not made when due, such payments carry a six percent interest charge.

The project consists of two salient features, namely, the construction of Rye Patch Dam and the purchase of water rights and the making of river channel improvements in the Battle Mountain area. The latter feature is discussed in Chapter VII. Facts relating to the Rye Patch Dam are briefly given on page 18.

The annual cost of operation is 18 cents per acre per year.

Interest paid on account of indebtedness amounts to \$1,860 per year at this time.

LUND IRRIGATION COMPANY

Officers—G. W. Faucett, Jr., President; Lafe Carter, Vice President; H. R. Ivins, Secretary; A. N. Carter and Fernley Sinfield, Directors.

Office—Lund, Nevada.

Organized—1907.

This company delivers irrigation water to 1,500 acres of land in White Pine County through a gravity canal eight miles long. The source of the water is Preston Big Springs, Lund, Cold, Nicholas, and Horsley Springs.

The annual cost of operation averages \$1,000 and the annual expenditures for repairs and replacements averages \$200.

The company has no long-term indebtedness. Taxes amount to about \$100 per year.

PRESTON IRRIGATION COMPANY

Officers—Carl Madsen, President; Chris Hermansen, Vice President; Pharo Arnoldsen, Secretary and Treasurer; Randall Bradley and Lee Ruppe, Directors.

Office—Preston, Nevada.

Organized—1911.

This company delivers irrigation water to 1,100 acres of land lying adjacent to Preston. The source of the water is Preston Big Spring and Arnoldsen Spring.

The annual cost of operation is \$550, and the assessment is 50 cents per share on 1,100 shares of stock.

ALAMO IRRIGATION COMPANY

Officers—Karl C. Stewart, President; Harvey Frehner, Vice President; Dan Stewart, Secretary; George S. Cram and Byron A. Ercanbrack, Directors.

Office—Alamo, Nevada.

Organized—1922.

In the Decree in the Matter of the Determination of the Relative Rights in and to the Waters of Pahranaagat Lake and its Tributaries, signed by Judge William E. Orr on October 14, 1929, the Alamo Irrigation Company was given decreed water rights on 501.5 acres of land. Of this amount 435.1 acres was harvest crop lands, the balance being diversified pasture. The source of the water is Ash Springs Creek.

The annual cost of operation is about \$1,100. The costs of repairs and replacements are approximately \$640 per year. Taxes amount to about \$77 per year.

WASHOE COUNTY CONSERVATION DISTRICT

Officers—L. M. Christensen, President; Peter Thomsen, Vice President; George L. Ferris, Secretary; J. F. Kleppe, Treasurer; Silvo Questa, Art Peckham and Ernest Capurro, Directors; Robert M. Price, Attorney; Thos. R. King, Engineer.

Office—Reno, Nevada.

Organized—June 1929.

The district embraces 32,840 acres within the boundaries, of which approximately 26,000 acres are irrigated each year.

The source of water supply is the Truckee River. The distribution is through a system of thirty-three canals, varying in capacity from five to one hundred cubic feet per second, and from one to 37 miles in length.

The lands irrigated lie in close proximity to Reno and Sparks in Washoe County, in the territory generally known as Truckee Meadows.

Representatives of the Washoe County Water Conservation District, the Sierra Pacific Power Company and the Truckee-Carson Irrigation District operating the Newlands Project began in 1929 an exhaustive

study of water supply as a basis for storage developments. This resulted in the execution of a repayment contract under which the United States Bureau of Reclamation was to undertake construction of a reservoir dam on the Little Truckee River, using funds made available to the Bureau of Reclamation through the Public Works Administration. The 1934-1936 Biennial Report of the State Engineer contains a very complete article written by S. R. Marean of the Bureau of Reclamation on the Truckee River Agreement. The progress that has been made to date on the construction of the Boca Dam on Little Truckee River is described in an article written by F. M. Spencer, Associate Engineer, U. S. Bureau of Reclamation, given in Chapter XI.

IRRIGATION DISTRICT NO. 1, CARSON VALLEY UNIT TRUCKEE-CARSON PROJECT

Officers—H. F. Dangberg, President; W. F. Dressler, Vice President; Louis Stodieck, Treasurer; L. A. McInnis, Secretary.

Office—Minden, Nevada.

This district was organized on August 17, 1914, primarily for the purpose of creating a legal organization to be in a position to deal with the Government on matters pertaining to storage on the Carson River. The district has never initiated work on any project, nor has it controlled distribution of water; therefore, no detailed records are available. The boundaries of the district include practically all of the irrigable land in Carson Valley in Douglas County, Nevada, the total area of which is 53,773 acres.

NEWLANDS RECLAMATION PROJECT, NEVADA (Truckee-Carson Irrigation District)

Officers—Geo. G. Miller, President; C. B. Stark, Vice President; W. H. Wallace, Project Manager; H. W. Emery, Secretary and Treasurer; W. H. Alcorn, F. C. Erb, W. A. Harmon, C. J. Lehman and J. R. McCulloch, Directors.

Office—Fallon, Nevada.

Organized—November 25, 1918.

The Newlands Project, located in Western Nevada, embraces lands mainly in Churchill and Lyon Counties. This project was the first of the numerous Federal projects to be investigated, and upon which construction work was commenced by the United States Reclamation Service under the Act of Congress approved June 17, 1902, commonly known as the Reclamation Act. Actual construction work was commenced during September 1903, and water was delivered to project lands from the new system of works during 1905. The project was operated and maintained by the United States Bureau of Reclamation until December 31, 1926, on which date control was transferred to the Truckee-Carson Irrigation District under a contract dated December 18, 1926. The irrigation district was organized on November 25, 1918, under the laws of the State of Nevada.

The work accomplished by the CCC camps under the supervision of the Bureau of Reclamation is given in detail on page 123.

THE MUDDY RIVER IRRIGATION DISTRICT

Officers—Edwin Marshall, President; Elmer S. Bowman, Vice President; Thomas Anderson, Secretary and Treasurer; Clarence A. Lewis, Wallace Jones and Joseph Perkins, Directors.

Office—Overton, Nevada.

An interesting article on the work accomplished by the CCC camp on flood control work in this area, by Mr. Edwin Marshall, President of the Muddy River Irrigation Company, will be found on page 123.

WALKER RIVER IRRIGATION DISTRICT

Officers—George Parker, President; C. E. Kingsley, Vice President; Jas. H. Day, Treasurer; Fred M. Fulstone, John H. Wichman, Directors; V. H. Bernard, Secretary.

Office—Yerington, Nevada.

Organized—April 14, 1919.

Walker River Irrigation District comprises all the irrigable lands of the East, West and Main Walker Rivers and tributaries, in the State of Nevada, with the exception of the Walker River Indian Reservation. These rivers have their source in the eastern slopes of the Sierra Nevada Mountains, drawing from a water shed of some 3,000 square miles. The total area of the district is 260,000 acres, of which 160,000 acres are irrigable. At present 91,360 acres are held under private ownership. The irrigated area is approximately 82,000 acres.

A complete description of the operation and status of this district may be found in the 1934-1936 Biennial Report of the State Engineer.

Some of the work accomplished by the CCC camp located at Topaz Lake is set forth on page 125.

CHAPTER XV
Runoff Measurements of Nevada Streams
WALKER LAKE BASIN

West Walker River Near Coleville, California

Gaging Station in NE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 28, Township 8 N., Range 23 E., about six miles above Coleville. Drainage area about 245 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1902— (Miscellaneous measurements, see Water Supply Paper No. 85, page 108)				
1902.....	113	60	.....	¹ 13,139
1903.....	2,030	60	311	² 225,091
1904.....	2,100	60	389	² 282,900
1905.....	1,160	44	216	² 156,600
1906.....	3,300	50	582	² 423,000
1907.....	4,170	85	675	² 491,000
1908.....	1,050	85	.....	³ 146,000
1909.....	2,220	55	.....	⁴ 245,000
1910-1911.....	1,680	50	.....	⁵ 234,000
1915.....	1,170	42	.....	⁶ 87,500
1915-1916.....	1,560	19	344	250,000
1916-1917.....	2,200	.....	353	226,000
1917-1918.....	2,110	30	265	192,000
1918-1919.....	1,960	50	253	183,000
1919-1920.....	1,410	51	235	171,000
1920-1921.....	2,190	.....	311	225,000
1921-1922.....	2,290	.....	368	266,000
1922-1923.....	1,570	34	305	221,000
1923-1924.....	711	14	93.6	67,900
1924-1925.....	1,490	18	275	200,000
1925-1926.....	1,160	25	177	128,000
1926-1927.....	2,000	24	326	236,000
1927-1928.....	1,280	27	190	138,000
1928-1929.....	1,110	23	151	109,000
1929-1930.....	1,320	19	184	133,000
1930-1931.....	743	14	98.6	71,500
1931-1932.....	1,660	21	279	202,000
1932-1933.....	1,620	.....	166	120,000
1933-1934.....	595	24	131	94,970
1934-1935.....	1,590	29	268	193,900
1935-1936.....	1,270	27	280	203,300
1936-1937.....	1,800	.....	276	200,000

¹October 5 to December 31. ²January 1 to December 31. ³January 1 to July 31.
⁴March 1 to September 30. ⁵October 1 to August 31. ⁶June 18 to September 30.

Discharge of East Walker River Near Bridgeport, California

Gaging Station in SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 34, Township 6 N., Range 25 E., four and one-half miles north of Bridgeport. Drainage area about 362 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1921-1922	1,050	53	.....	¹ 133,900
1922-1923	648	54	157	114,000
1923-1924	231	4	59.2	43,000
1924-1925	246	2	.....	² 57,900
1925-1926	334	2	101	73,100
1926-1927	491	2	129	93,600
1927-1928	326	3	116	84,000
1928-1929	255	.....	72	52,000
1929-1930	304	2	74	53,600
1930-1931	169	6	37.5	27,200
1931-1932	363	6	108	78,600
1932-1933	408	.....	106	76,900
1933-1934	221	6	65	47,020
1934-1935	287	8	104	75,280
1935-1936	491	6	139	100,700
1936-1937	452	7	169	122,000

¹Missing December 1 to May 2.

²Missing October 23 to February 28; August 27 to September 11.

Walker River Near Wabuska, Nevada

Gaging Station in NE $\frac{1}{4}$ Section 20, Township 15 N., Range 26 E., about five miles east of Wabuska.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1902—(Miscellaneous measurements, see Water Supply Paper No. 85, page 107)				
1902	200	1	.....	¹ 12,977
1903	964	1	170	² 122,888
1904	1,522	40	443	³ 322,200
1905	578	30	.....	⁴ 30,297
1906	3,270	90	.....	⁵ 390,470
1907	2,810	135	.....	⁶ 233,700
1920	259	4	.....	⁷ 39,900
1920-1921	730	1	106	76,800
1921-1922	2,170	4	342	248,000
1922-1923	662	12	181	131,000
1923-1924	290	0	.....	52,600
1924-1925	301	0	.....	⁸ 19,600
1925-1926	119	6	40.3	29,200
1926-1927	1,520	8	138	100,000
1927-1928	408	8	64.5	46,900
1928-1929	76	2	25.3	18,300
1929-1930	82	4	20.0	14,500
1930-1931	40	0	12.9	9,340
1931-1932	1,250	0	82.4	59,800
1932-1933	.....	16	49.6	35,900
1933-1934	129	1	29.0	21,000

¹July 21 to December 31.

²January 1 to December 31.

³May, June and July.

⁴May 1 to September 30.

⁵June 1 to August 31.

⁶January 15 to September 30.

⁷Missing, October 11 to February 28.

Records of discharges on the Walker River at the following stations may be found tabulated in the State Engineer's Biennial Report for 1929-1930:

Source	Location measuring station	Period of Measurements
East Walker River	Near Yerington, Nevada	1902 to 1908
East Walker River	Near Mason, Nevada	1910 to 1924
Walker River	Mason, Nevada	1910 to 1923
West Walker River	Hudson, Nevada	1914 to 1925
West Walker River	Near Wellington, Nevada	1917 to 1932
Saroni Canal	Near Wellington, Nevada	1920 to 1923
Walker River	At Schurz, Nevada	1913 to 1933

WALKER RIVER DATA

Walker Lake, near Hawthorne, Nevada—Approximate length, 25 miles. Approximate width, $1\frac{1}{2}$ to 7 miles. Elevation, 4,028.9 feet, September 10, 1934. Extremes: Records on elevation of water surface available since about August 1928. Occasional readings prior to August 1928. On September 27, 1908, lake elevation was 4,078.0 feet. On March 13, 1928, elevation was 4,051.8 feet. On March 8, 1930, elevation was 4,044.0 feet.

Topaz Reservoir, near Topaz, California—Reservoir located in Section 28, Township 10 N., Range 22 E., about six miles north of Topaz on the Nevada-California line. Topaz Reservoir, formerly Alkali Lake, was formed by diverting water through a three mile canal from West Walker River. Since 1932 the maximum available storage in the reservoir was 51,850 acre feet on June 26, 1937. The Topaz Reservoir had a capacity of 50,000 acre feet, but in 1935 this capacity was increased by virtue of further construction. The original cost of the reservoir was \$380,352.50.

Bridgeport Reservoir—Bridgeport Reservoir is located in the SE $\frac{1}{4}$ Section 34, Township 6 N., Range 25 E., four and one-half miles north of Bridgeport. Capacity of the reservoir is 42,500 acre feet and it was constructed at a cost of \$380,993.51. The dam is an earth-fill type containing 132,000 cubic yards of material.

PYRAMID AND WINNEMUCCA LAKE BASINS

Truckee River at Tahoe, California

Gaging Station located in the NW $\frac{1}{4}$ Section 7, Township 15 N., Range 17 E. Drainage area 519 square miles including Lake Tahoe surface of 193 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1901.....	555	0	155	112,730
1902.....	445	25	204	148,298
1903.....	445	13	205	149,190
1904.....	931	13	629	457,400
1905.....	622	15	301	217,900
1906.....	838	229	589	428,000
1907.....	1,340	453	971	704,000
1908.....	775	19	369	267,000
1909.....	890	35	488	353,000
1910.....	898	108	441	319,000
1911.....	861	145	452	328,000
1911-1912.....	617	18	257	187,000
1912-1913.....	520	5	234	169,000
1913-1914.....	618	0	204	148,000
1914-1915.....	652	5	264	191,000
1915-1916.....	1,010	12	269	195,000
1916-1917.....	1,160	23	386	280,000
1917-1918.....	725	0	314	228,000
1918-1919.....	725	0	265	192,000
1919-1920.....	518	0	245	178,000
1920-1921.....	465	0	145	105,000
1921-1922.....	487	0	226	164,000
1922-1923.....	490	0	240	174,000
1923-1924.....	402	0	245	178,000
1924-1925.....	476	0	81.3	58,900
1925-1926.....	384	0	86.7	62,800
1926-1927.....	429	0	84.6	61,300
1927-1928.....	490	0	228	165,000
1928-1929.....	315	0	107	77,500
1929-1930.....	304	0	70	50,800
1930-1931.....	59	0	6.47	4,690
1931-1932.....	172	0	22.1	16,000
1932-1933.....	50	0	7.12	5,150
1933-1934.....	288	0	56.7	41,100
1934-1935.....	51	0	11.0	7,920
1935-1936.....	471	0	88.0	63,920
1936-1937.....	466	0	148.0	107,400

Discharge of Truckee River Near Iceland, California

Gaging Station now in Section 31, Township 18 N., Range 18 E. Prior to 1911 station was at Nevada-California line about three miles downstream. Drainage area, 937 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1901.....	4,370	230	938	677,521
1902.....	3,596	268	751	543,111
1903.....	3,211	280	753	545,263
1904.....	6,730	230	1,647	1,195,000
1905.....	2,090	300	756	547,200
1906.....	5,410	309	1,420	1,030,000
1907.....	15,300	645	2,090	1,520,000
1908.....	1,870	310	762	552,000
1909.....	8,110	385	1,530	1,110,000
1910.....	3,890	385	974	705,000
1911.....	5,830	385	1,550	1,130,000
1911-1912.....	2,230	330	.....	411,000
1916-1917.....	3,650	390	979	708,000
1917-1918.....	2,070	359	679	491,000
1920-1921.....	2,100	175	695	503,000
1921-1922.....	4,670	203	872	631,000
1923-1924.....	767	122	372	270,000
1924-1925.....	3,430	40	490	355,000
1925-1926.....	1,590	75	381	276,000
1928-1929.....	1,480	145	362	262,000
1929-1930.....	1,720	85	477	345,000
1930-1931.....	888	46	184	133,000
1931-1932.....	2,950	42	537	390,000
1932-1933.....	2,010	37	286	207,000
1933-1934.....	2,500	54	286	207,000
1934-1935.....	2,640	49	515	373,000
1935-1936.....	3,314	51	674	489,200
1936-1937.....	2,340	99	570	412,600

¹October 1 to August 31.

TRUCKEE RIVER DATA

Lake Tahoe—Length, 20 miles; width, 13 miles; area, 193 square miles; greatest depth, 1,500 feet; average depth, 1,000 feet; maximum high water elevation, 6,229.10. Drainage area 519 square miles, including surface of lake.

Pyramid Lake—Length, approximately 28 miles; width, approximately 5 to 10 miles; area, 235 square miles; elevation of lake in 1867 was 3,881 feet; in 1909 was 3,868 feet; in 1931 was 3,835 feet, and in 1935 was 3,821 feet.

Winnemucca Lake—Practically dry.

Boca Reservoir—(See page 114 of this report.)

CARSON-HUMBOLDT SINK

Carson River Near Fort Churchill, Nevada

Location of recorder since January 1, 1934, SE $\frac{1}{4}$ Section 32, Township 17 N., Range 24 E., two miles west of Fort Churchill. Drainage area, 1,450 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1911.....	4,470	43	.....	¹ 483,000
1911-1912.....	1,640	9	240	² 174,000
1912-1913.....	1,360	23	.....	² 143,000
1913-1914.....	6,150	26	853	617,000
1914-1915.....	2,220	8	411	297,000
1915-1916.....	3,950	12	756	550,000
1916-1917.....	3,050	27	660	478,000
1917-1918.....	1,500	4	308	223,000
1918-1919.....	3,140	2	354	256,000
1919-1920.....	1,680	2	200	145,000
1920-1921.....	1,850	9	.....	³ 286,866
1921-1922.....	3,900	9	635	460,000
1922-1923.....	2,170	.....	455	329,000
1923-1924.....	390	.....	126	91,200
1924-1925.....	1,960	.....	.....	⁴ 257,035
1925-1926.....	982	.....	158	114,000
1926-1927.....	2,430	.....	470	341,000
1927-1928.....	2,710	.....	234	170,000
1928-1929.....	746	.....	126	91,500
1929-1930.....	1,290	6	206	149,000
1930-1931.....	625	3	89.8	65,000
1931-1932.....	2,200	.....	423	307,000
1932-1933.....	1,370	13	168	122,000
1933-1934.....	694	0	105	76,300
1934-1935.....	1,900	0	290	210,100
1935-1936.....	2,040	0	378	274,700
1936-1937.....	2,110	0	362	⁵ 262,000
1937-1938.....	.....	.....	.....	⁵ 530,114

¹April 13 to December 31. ²Missing July 1 to September 30. ³Missing December 8 to December 31. ⁴Missing December 1 to December 31. ⁵From advance sheets.

⁶October 1 to June 30.

East Fork Carson River Near Gardnerville, Nevada

Staff gage in Section 25, Township 12 N., Range 20 E. Drainage area, 381 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1935-1936.....	2,290	23	347	251,700
1936-1937.....	1,680	30	314	227,600

Records of discharges on the Carson River at the following stations may be found tabulated in the State Engineer's Biennial Report for 1929-1930:

Source	Location measuring station	Period of Measurements
Carson River.....	Empire.....	1902-1923
West Carson River.....	Woodford's, California.....	1902-1920
East Carson River.....	Gardnerville.....	1902-1928

CARSON RIVER DATA

Maximum discharges measured as follows: January 26, 1914, 6,150 c.f.s. Some time between December 9-11, 1937, 6,500 c.f.s. at Moundhouse, estimated. December 13, 1937, estimated between 6,800 to 7,000 c.f.s., two miles above Fort Churchill.

Newlands Reclamation Project. Lahontan Dam and Reservoir—Construction started by the Bureau of Reclamation starting in 1903. Is located in Churchill and Lyon Counties on the Carson River. Water supply is derived from the Truckee and Carson Rivers. A diversion canal 31 miles in length

with a capacity of 1,500 c.f.s. delivers water from the Truckee River. Lahontan Dam is of earth-fill type, height 124 feet, crest length 1,400 feet, reservoir capacity 294,400 acre feet. In 1926 the Bureau of Reclamation transferred control, operation and maintenance to the Truckee-Carson Irrigation District.

Humboldt River Near Oreana, Nevada

Recorder in Section 2, Township 28 N., Range 32 E., two miles southwest of Oreana, below point of diversion of feeder canal for H. L. I. L. & P. Company reservoirs. Drainage area, 13,800 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1895.....	.....	.....	.....	135,914
1896.....	.....	.....	.....	204,000
1897.....	.....	.....	.....	456,480
1898.....	.....	.....	.....	92,538
1899.....	.....	.....	.....	477,747
1900.....	430	22	120	86,618
1901.....	.....	.....	.....	172,800
1902.....	511	19	88	63,593
1903.....	580	8	121	87,757
1904.....	950	3	289	210,400
1905.....	440	0	101	73,020
1906.....	1,010	16	303	221,000
1907.....	2,220	75	720	588,000
1908.....	670	16	164	119,000
1909.....	680	6	287	207,000
1910-1911.....	760	.....	165	119,000
1911-1912.....	1,240	.....	182	133,000
1912-1913.....	1,270	20	174	126,000
1913-1914.....	2,000	30	632	457,000
1914-1915.....	318	0	77.9	56,400
1915-1916.....	788	2.6	151	110,000
1916-1917.....	1,900	17	.....	190,161
1917-1918.....	291	0	91.7	66,400
1918-1919.....	585	0	79	57,200
1919-1920.....	120	0	8.57	6,220
1920-1921.....	1,960	0	432	312,000
1921-1922.....	2,260	6	442	319,000
1924-1925.....	573	.....	.....	50,827
1927.....	361	44	.....	63,080
1928.....	480	8	252	42,458
1929.....	70	2	28	4,052
1930.....	136	1	33	9,818
1931.....	113	0	.....	8,090
1932.....	.....	0	184	134,000
1933.....	.....	.....	.....	40,180
1934.....	568	0	107	77,730

¹King & Malone report on file State Engineers office. Balance of measurements from U. S. G. S. Water Supply Papers.

²In 1933 recording station was moved upstream about 20 miles near Humboldt and above the outlet of the H. L. I. L. & P. Co. reservoirs. Hence, to get a comparable river flow the runoff measured at Humboldt Station was added to the outlet flow from the reservoirs.

³Gaging station near Rye Patch.

Humboldt River Near Imlay, Nevada

The gaging recorder was moved upstream above high water line of Rye Patch Reservoir to the SW $\frac{1}{4}$ Section 25, Township 33 N., Range 33 E., about four miles northwest of Imlay and nine miles below H. L. I. L. & P. Company feder canal. Drainage area, 13,500 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1935.....	329	0	78	19,210
1936.....	564	1	135	97,670
1937.....	405	7	71	51,580

¹River flowed at this station only in June, July, August and September.

Humboldt Lovelock Irrigation Light & Power Company Inlet and Outlet CanalsPoint of diversion of inlet canal SW $\frac{1}{4}$ Section 29, Township 33 N., Range 35 E.Point of diversion of outlet canal SE $\frac{1}{4}$ Section 30, Township 32 N., Range 33 E.

Season	DIVERSIONS FROM RIVER			RELEASES FROM RESERVOIR		
	Total diversion for period A. F.	Maximum monthly diversion A. F.	Maximum daily diversion c.f.s.	Total releases for period A. F.	Maximum monthly releases A. F.	Maximum daily releases c.f.s.
1914.....	26,600	7,560	142	17,540	4,350	148
1914-15.....	.....	.....	.....	21,400	7,080	259
1915-16.....	21,100	9,650	226	12,300	6,950	153
1916-17.....	32,300	9,100	187	1,870	1,590	277
1917-18.....	5,540	1,850	50	25,600	10,600	258
1918-19.....	6,360	3,100	110	2,520	1,450	73
1919-20.....	5,900	3,250	72	1,520	1,520	112
1920-21.....	41,500	11,400	233	0	0	0
1921-22.....	22,500	6,460	124	2,690	2,690	131
1922-23.....	10,553	6,330	215	15,304	8,120	195
1923-24.....	.....	.....	.....	34,100	10,800	243
1924-25.....	16,100	7,260	220	1,210	530	21
1925-26.....	32,500	9,220	180	34,800	11,400	272
1926-27.....	6,260	2,250	216	2,940	1,880	61
1927-28.....	15,400	6,900	233	12,000	5,860	143
1928-29.....	5,390	1,380	34	1,350	1,090	107
1929-30.....	2,550	555	17	412	412	85
1930-31.....	8,720	2,010	42	1,680	1,680	80
1931-32.....	7,154	6,104	175	960	960	39
1932-33.....	5,236	4,912	180	9,980	3,270	100
1933-34.....	4,118	878	21	1,554	1,554	98
1934-35.....	.....	.....	.....	.....	.....	.....
1935-36.....	.....	.....	.....	6,980	2,036	125
1936-37.....	40,580	14,562	254	24,090	7,196	190

Humboldt River Near ComusGaging Station located in the NW $\frac{1}{4}$ Section 14, Township 36 N., Range 41 E.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1917-1918.....	312	1.0	68.7	49,700
1918-1919.....	1,250	0	141	102,000
1919-1920.....	234	0	36.8	26,700
1920-1921.....	2,700	0.1	709	514,000
1921-1922.....	2,070	14	506	367,000
1922-1923.....	910	8	.....	¹ 113,000
1925.....	1,180	28	.....	² 108,000
1925-1926.....	429	11	.....	³ 88,800
1926-1927.....	.....	.....	.....	⁴ 97,919
1927-1928.....	.....	.....	.....	⁵ 48,641
1929-1930.....	.....	.....	.....	⁶ 31,906
1932.....	1,142	35	.....	⁷ 192,112
1933.....	350	10	.....	⁸ 51,872
1934.....	64	0	.....	⁹ 4,888
1935.....	586	5	.....	¹⁰ 53,176
1936.....	1,804	107	.....	¹¹ 140,376
1937.....	665	115	.....	¹² 114,990

¹Missing, July 1 to September 30. ²May 23 to September 30. ³Missing, June 1 to September 30. ⁴Partial. ⁵March 11 to June 30. ⁶March 30 to July 31. ⁷Partial April 1 to September 1. ⁸March 1 to June 22. ⁹Partial March 18 to August 1. ¹⁰March 20 to July 20. No record for 1928-1929 and 1931.

Humboldt River at Palisade, Nevada

Gaging Station located in the SW $\frac{1}{4}$ Section 36, Township 32 N., Range 51 E.,
M. D. B. & M. Drainage area, 5,010 square miles.

Season	DISCHARGE IN SECOND FEET			Runoff in acre feet
	Maximum	Minimum	Mean	
1897.....	.....	.....	.....	485,000
1898.....	.....	.....	.....	188,600
1899.....	.....	.....	.....	514,000
1900.....	.....	.....	.....	259,000
1901.....	.....	.....	.....	263,000
1902.....	.....	.....	.....	280,060
1903.....	.....	.....	.....	238,441
1903-1904.....	1,835	57	.....	389,360
1904-1905.....	1,220	34	.....	214,950
1905-1906.....	2,620	20	.....	460,870
1906-1907.....	.....	.....	.....	785,900
1907-1908.....	.....	.....	.....	284,500
1908-1909.....	.....	.....	.....	336,100
1909-1910.....	.....	.....	.....	185,760
1910-1911.....	.....	.....	.....	280,620
1911-1912.....	2,650	65	417	302,000
1912-1913.....	1,270	60	359	260,000
1913-1914.....	2,780	38	742	537,000
1914-1915.....	382	12	133	96,600
1915-1916.....	1,780	17	333	242,000
1916-1917.....	3,170	32	635	459,000
1917-1918.....	595	13	129	93,600
1918-1919.....	1,440	9	245	178,000
1919-1920.....	803	14	177	128,000
1920-1921.....	4,210	20	862	624,000
1921-1922.....	3,350	27	613	444,000
1922-1923.....	1,450	27	325	235,000
1923-1924.....	537	9	161	117,000
1924-1925.....	2,220	15	435	315,000
1925-1926.....	459	6	126	90,900
1926-1927.....	1,820	14	339	245,000
1927-1928.....	.....	.....	.....	142,670
1928-1929.....	1,900	14	160	116,000
1929-1930.....	794	16	147	107,000
1930-1931.....	216	.....	51.1	37,000
1931-1932.....	2,580	7	429	311,000
1932-1933.....	1,330	11	182	132,000
1933-1934.....	162	3	34.8	25,170
1934-1935.....	1,890	13	221	159,900
1935-1936.....	2,290	11	372	270,160
1936-1937.....	1,880	11	262	189,700

January 1 to December 31 to 1903, inclusive; thereafter October 1 to September 30.

Lovelock Deliveries in Acre Feet

Season	March	April	May	June	July	Aug.	Sept.	Total
1932.....	.....	9,574	21,678	34,168	35,598	13,330	.....	114,348
1933.....	.....	9,067	7,975	5,184	3,215	1,361	391	27,193
1934.....	768	2,359	933	0	0	0	0	4,060
1935.....	.....	.....	2,754	1,370	13,210	3,092	.....	20,462
1936.....	.....	8,613	22,808	20,443	11,202	10,409	.....	73,475
1937.....	96	5,912	26,225	10,983	13,866	12,367	2,440	71,889

¹Includes deliveries from Pitt-Taylor Reservoir.

Secret Creek

Bridge above 71 Ranch about Section 28, Township 35 N., Range 59 E.

Season	March	April	May	June	July	August	Total
1932.....	426	2,160	718	62	3,366
1933.....	868	2,402	1,712	146	20	5,148
1934.....	334	354	120	62	62	932
1935.....	110	1,558	2,500	1,782	122	.....	6,072
1937.....	2,940	3,290	780	55	.....	7,070

Water in Acre Feet Delivered to all Ditches in Lovelock Valley

	Rogers	Irish American	Union and South-west	Old Channel	Young	Lower Valley	Total
1929.....	1,740	376	1,847	-----	-----	-----	3,963
1930.....	2,073	525	4,434	-----	-----	-----	7,032
1932.....	27,024	7,740	40,342	25,380	13,362	500	114,348
1933.....	9,488	3,171	11,250	2,008	1,276	-----	27,193
1934.....	1,112	232	2,361	218	137	-----	4,060
1936.....	17,937	4,038	30,820	14,694	5,384	603	73,475
1937.....	15,217	4,169	31,214	12,529	5,669	3,091	71,889

No data for 1931 and 1935.

Eye Patch Reservoir

On March 1, 1937, the elevation of the water was 4,101.34 feet, indicating a storage of 9,903 acre feet. Water was steadily accumulated in the reservoir until it reached its maximum yearly capacity on April 26 of 31,158 acre feet. The elevation of the water at this capacity was 4,112.37 feet. Thereafter releases were greater than the inflow and the accumulated storage was gradually decreased. On September 15 there was a total of 3,034 acre feet of water remaining in the reservoir. Between September 15 and December 31, 1937, 1,950 acre feet were released and 1,545 acre feet of storage water received, leaving 2,629 acre feet of water remaining in storage on December 31, 1937.

Star Creek, Near Death

Season	March	April	May	June	July	Aug.	Sept.	Total
1913.....	-----	-----	-----	-----	-----	-----	-----	10,600
1913-14.....	-----	-----	-----	-----	-----	-----	-----	32,500
1914-15.....	-----	-----	-----	-----	-----	-----	-----	7,760
1915-16.....	-----	-----	-----	-----	-----	-----	-----	13,400
1916-17.....	-----	-----	-----	-----	-----	-----	-----	29,500
1917-18.....	-----	-----	-----	-----	-----	-----	-----	7,390
1918-19.....	-----	-----	-----	-----	-----	-----	-----	10,100
1919-20.....	-----	-----	-----	-----	-----	-----	-----	15,000
1920-21.....	-----	-----	-----	-----	-----	-----	-----	38,700
1921-22.....	-----	-----	-----	-----	-----	-----	-----	24,400
1922-23.....	-----	-----	-----	-----	-----	-----	-----	18,900
1923-24.....	-----	-----	-----	-----	-----	-----	-----	9,930
1932.....	-----	1,220	3,982	12,948	3,564	774	-----	22,488
1933.....	-----	882	2,322	6,812	942	358	-----	11,316
1934.....	96	396	868	922	390	288	24	2,984
1935.....	386	590	2,832	8,200	1,448	-----	-----	13,456
1937.....	-----	1,490	4,590	2,740	787	-----	-----	9,610

¹June 4 to September 30.

Lamolle Creek at Power House

Season	March	April	May	June	July	Aug.	Sept.	Total
1915.....	-----	-----	-----	-----	-----	-----	-----	18,500
1915-16.....	-----	-----	-----	-----	-----	-----	-----	30,100
1916-17.....	-----	-----	-----	-----	-----	-----	-----	21,170
1917-18.....	-----	-----	-----	-----	-----	-----	-----	19,800
1918-19.....	-----	-----	-----	-----	-----	-----	-----	26,100
1919-20.....	-----	-----	-----	-----	-----	-----	-----	32,700
1920-21.....	-----	-----	-----	-----	-----	-----	-----	46,200
1921-22.....	-----	-----	-----	-----	-----	-----	-----	31,800
1922-23.....	-----	-----	-----	-----	-----	-----	-----	12,800
1931.....	-----	-----	5,064	2,528	540	254	134	8,520
1932.....	544	5,694	11,880	16,752	11,384	3,448	730	50,432
1933.....	-----	1,426	6,648	57,960	5,314	686	360	72,394
1934.....	558	2,994	5,998	3,112	834	304	186	13,986
1935.....	304	910	5,320	15,352	5,066	-----	-----	26,952
1937.....	-----	673	8,930	9,816	3,170	-----	-----	22,600

¹May 8 to September 30. ²Missing, March 1 to June 13 to September 30. ³Missing, March 1 to 31, June 9 to July 3. ⁴May 7 to September 20.

Lamoille Creek Near Halleck

Season	March	April	May	June	July	August	Total
1913.....							² 25,100
1913-14.....							84,600
1914-15.....							17,500
1915-16.....							25,600
1916-17.....							² 40,774
1917-18.....							13,400
1919.....							³ 14,400
1931.....			944	296	262		1,502
1932.....		5,184	7,970	14,598	11,660	548	39,960
1933.....		1,670	2,824	7,604	1,970	114	14,182
1934.....	400	408	494	896			2,198
1935.....	683	757	2,874	16,356	2,996		23,666
1937.....		3,100	6,940	11,800	642		22,500

Snow Survey Data, Little Humboldt Basin. Average Water Content in Inches

Year	Lamance Creek Course Elev. 7000	Martin Cr. Old Course Elev. 8600	Martin Cr. Ranger Station Elev. 7000	Granite Peak Course Elev. 8600	Buckskin Mt. Upper Course Elev. 8200	Buckskin Mt. Lower Course Elev. 6800	Average All Courses
1918-19.....		11.17					
1919-20.....		7.67					
1920-21.....		14.17					
1921-22.....		13.28					
1922-23.....		9.04					
1923-24.....		7.81					
1924-25.....		9.82					
1925-26.....		9.53					
1926-27.....		20.37					
1927-28.....		14.70					
1928-29.....		7.17					
1929-30.....		9.92					
1930-31.....		6.12					
1931-32.....	16.62	14.17	11.27	16.53	11.90	11.25	13.62
1932-33.....	11.75	7.44	5.84	7.96	6.61	8.19	7.97
1933-34.....	6.65	6.59	4.22	7.24	7.82	5.54	6.34
1934-35.....	7.20		5.87	11.85	7.04	7.80	7.95
1935-36.....	19.09		7.54	12.83	13.27	11.06	12.76
1936-37.....	11.02		6.04	7.89	6.75	8.31	8.00
1937-38.....	6.9		8.1	13.5	7.20	8.10	8.76
Average.....	11.32		6.98	11.11	8.66	8.61	

Above figures represent the main annual survey taken around March 1.
Source—Nevada Cooperative Snow Surveys.

Discharge of Little Humboldt River and Tributaries in Acre Feet
Data from Water Commissioners Report and U. S. G. S.

Year	Little Humboldt River	Martin Creek	Cotton-wood Creek	Indian Creek	Mullinax Creek	Little Cotton-wood Creek	Lamance Creek	Handy Creek	Colony Creek	Beef Creek	Stone-house Creek	Wash O'Neal Creek	Provo Creek	Total
1922	28,106	28,400												
1923	12,100	13,700												
1924	3,680	8,800												
1925	10,200	16,900	2,950											
1926	12,200	17,600	7,990											
1927	15,022	25,661	6,140											
1928		20,700	2,800											
1929		11,300	2,900											
1930		13,500	987		130									
1931	2,770	5,910	7,180	5,168	3,887		454	1,110	2,521		2,562	1,932	826	79,782
1932	20,942	33,200	2,335	2,178	1,906	606	163	424	831	194	792	564	203	28,005
1933	4,309	13,500	1,880	912	952	451	118	278	601	87	825	356	106	18,499
1934	3,293	8,640	4,445	4,782	4,023	1,266	310	787	1,933	3,524	1,750	391	962	54,544
1935	9,013	21,358	3,463	3,804	3,701	881	625	1,335	1,890	604	2,706	1,701	662	50,236
1936	8,954	19,910	2,761	2,761	4,125	659	190	540	924	327	2,214	886	410	41,827
1937	9,425	16,590	9,278	8,836	12,340	2,084	702	1,565	2,923	1,257	4,969	2,429	1,309	102,986
1938	21,237	34,057												

†Martin Creek—Discharges from October 1 to September 30 taken from U. S. G. A. data.
‡1938 discharges are from March 15 to June 30.

Snow Survey Data, Humboldt River. Average Water Content in Inches
Northern Feeders

Year	North Fork	Jack Cr. Upper	Jack Cr. Lower	Rodeo Flat	Fry Cr.	Gold Cr. Old	Big Bend Cr.	Gold Cr. R. S.	Bear Cr.	Fox Cr.	Taylor Canyon	Tremewan Canyon	Average
1931-32	7.56	7.80	7.40	7.00	6.80	6.80	6.80	6.60	8.10	6.90	5.200	5.600	9.20
1932-33	13.57	.....	7.40	.....	.....	9.60	11.07	7.67	15.22	10.73	.....	5.04	9.61
1933-34	12.18	.....	4.25	8.10	6.30	4.53	5.15	3.29	13.46	5.20	.....	7.00	6.25
1934-35	13.18	.....	4.00	10.38	9.32	7.86	9.39	7.23	14.26	7.40	6.59	2.81	8.40
1935-36	29.00	15.37	8.16	18.83	18.07	16.43	16.42	11.15	22.48	13.60	10.33	5.49	15.44
1936-37	11.35	7.30	4.45	8.59	10.00	8.14	9.38	7.75	15.65	9.13	7.77	4.89	8.70
1937-38	7.60	4.50	2.40	6.50	7.20	6.00	8.20	4.80	16.30	7.20	4.90	0.00	6.30
Average	13.49	9.96	5.27	10.48	10.18	8.79	10.00	7.11	15.77	8.91	7.40	3.60	

Southern Feeders

Year	Corral Canyon	Green Mt.	Harrison Pass	Lamoille Cr.	Lamoille Cr.	Lamoille Cr.	Lamoille Cr.	Lamoille Cr.	Dorsey Basin	Dry Cr.	Trout Cr.	Trout Cr.	Bryan Ranch	Average
1931-32	.....	.....	6.60	9.00	8.10	7.60	7.40	12.47	7.90	6.50	6.900	5.775	5.50	10.48
1932-33	.....	.....	10.57	.....	11.56	8.69	8.69	10.33	7.52	.....	.....	.....	3.50	6.48
1933-34	.....	.....	7.20	.....	8.97	8.69	8.69	10.88	0.90	.....	.....	.....	0.00	5.69
1934-35	10.54	13.29	5.08	18.67	8.57	7.50	7.58	9.88	4.25	15.41	5.32	0.00	0.00	8.84
1935-36	12.50	20.60	7.97	35.34	17.40	14.11	14.33	19.79	11.03	28.75	8.58	3.53	3.53	16.16
1936-37	6.96	11.85	5.38	19.86	12.93	10.46	10.33	9.97	9.58	22.67	8.60	4.81	4.81	11.12
1937-38	11.60	11.10	5.00	17.20	10.70	9.20	8.90	9.10	5.80	16.10	6.50	1.50	1.50	9.40
Average	10.40	14.21	6.56	22.77	12.40	9.99	10.15	11.75	6.51	20.74	7.25	2.69	2.69	

The above figures represent the main annual survey taken around March 1.
Source—Nevada Cooperative Snow Surveys.

CHAPTER XVI

Status of Applications Filed During the Period from July 1,
1936, to June 30, 1938

Following is a condensed statement giving the salient data in connection with applications filed during the period from July 1, 1936, to June 30, 1938, in the order of:

1. Application Serial Number.
2. Date of Filing.
3. Name of Applicant.
4. Source of Water Supply.
5. Purpose of Appropriation.
6. Action on Application.
7. Status of Permits as of June 30, 1938.

9994....	7- 2-36....	Lois Kellogg, II; Fish Lake Springs and Creek and Tributaries; Irrigation and domestic; Approved June 15, 1937.
9995....	7- 3-36....	Parman-Valerdi Company; Mud Meadow Creek and Tributaries; Irrigation and domestic; Approved October 2, 1936. G. S.
9996....	7- 7-36....	Charles Labbe; Willow Spring; Mining and milling; Approved February 18, 1937. G. S.
9997....	7- 7-36....	Henry Quill; Unnamed Spring; General domestic, including irrigation of lawns and gardens and fire protection; Approved July 8, 1937. G. S.
9998....	7- 8-36....	A. Olivia Estate, M. Aguerreberre, A. Raffetto and J. L. Raffetto; Truckee River; Irrigation, domestic and stockwatering; Canceled January 9, 1937.
9999....	7- 8-36....	Steve Capurro; Truckee River; Irrigation, stockwatering and domestic; Canceled January 9, 1937.
10000....	7- 8-36....	J. L. Raffetto; Truckee River; Irrigation, domestic and stockwatering; Canceled January 9, 1937.
10001....	7- 8-36....	I. O. F. Cemetery; Truckee River; Irrigation; Canceled January 9, 1937.
10002....	7- 9-36....	Frank McGregor; Gold Creek or Hope Gulch; Mining and domestic; Approved November 9, 1937.
10003....	7-14-36....	Elizabeth K. McNamara; McNamara Spring; Mining, milling and domestic; Approved February 23, 1937. G. S.
10004....	7-17-36....	H. C. Collins; Gorge Gulch; Milling and mining; Approved October 28, 1937. G. S.
10005....	7-31-36....	W. A. Hutts; Rabbit Hole Springs and Channel; Placer mining and domestic; Approved June 12, 1937.
10006....	8- 3-36....	Bert Jarvis; Van Duzer Creek; Power; Approved November 2, 1937. G. S.
10007....	8- 5-36....	Vern A. Hoar; Pilot Basin, Peterson Springs in Pilot Basin Canyon (sometimes known as Peterson's Mill Canyon); Mining, milling and domestic; Canceled January 2, 1937.
10008....	8- 6-36....	Hugh Wells; Dave Creek; Irrigation; Approved February 3, 1937.
10009....	8-10-36....	Fred Foss, Jr.; Gold Creek and its Tributaries; Mining;* No action.
10010....	8-10-36....	Earl Otteraaen; Kennedy Creek, also known as Cinnabar Creek and Tributaries; Mining, milling and domestic; Approved December 16, 1936. G. S.
10011....	8-12-36....	Caesar Regusci; Brown Station Spring; Irrigation and domestic; Approved February 3, 1937.
10012....	8-12-36....	The Marigold Mines Incorporated; Trout Creek and Tributaries; Mining, milling and domestic; Canceled January 2, 1937.
10013....	8-15-36....	John Stafford; An Artesian Well; Irrigation and domestic; Approved December 29, 1936. G. S.
10014....	8-15-36....	Geo. L. McCracken; Underground Source; Mining, milling and domestic;* No action.
10015....	8-17-36....	Thomas W. Miller; Belleville Springs Nos. 1, 2, and 3; Mining, milling and domestic; Canceled December 30, 1936.
10016....	8-18-36....	I. L. Davis; Whiskey Springs and Tributaries; Mining, milling and domestic; No action.
10017....	8-18-36....	I. L. Davis; Blue Point Springs and Tributaries; Mining, milling and domestic; No action.
10018....	8-27-36....	L. R. Smith; Underground Waters of Big Smoky Valley (Well No 1); Mining, milling and domestic; No action.
10019....	9- 2-36....	John Stafford and Burton F. Weller; An Artesian Well; Irrigation and domestic; Approved January 20, 1937. G. S.
10020....	9-12-36....	Edward W. Mollart; Underground Waters Through Wells; Irrigation and domestic; Canceled June 25, 1937.

*Protested application. G. S. Good standing.

- 10021.... 9-15-36....Henry L. Schrufer and William R. Freiler; Amargosa River Underground Flow to be Developed; Mining and milling; Approved October 25, 1937.
- 10022.... 9-18-36....Buckhorn Mining Company, a Corporation; A Well; Mining, milling and domestic; Withdrawn June 25, 1937.
- 10023.... 9-25-36....M. B. Sapp; Twin Springs; Irrigation and domestic; Approved October 16, 1937.
- 10024.... 9-29-36....Harry B. Wharton; Engle Spring; Mining and domestic; Approved November 24, 1937. G. S.
- 10025.... 9-29-36....Pardners Mines Corporation; Underground Water Through Well No. 7; Mining, milling and domestic; Approved February 10, 1937. G. S.
- 10026....10- 1-36....A. L. Simpson and Veda Simpson; A Well to be drilled; Irrigation and domestic; Canceled June 25, 1937.
- 10027....10- 1-36....F. J. DeLongchamps; Tiger Spring and Creek; Mining, milling and domestic; Canceled June 25, 1937.
- 10028....10- 1-36....Tom Williams; Garfield Springs; Stockwatering and domestic; Approved January 8, 1938. G. S.
- 10029....10- 2-36....David B. Penick; Tohoqua Springs; Mining; milling and domestic; Approved October 19, 1937. G. S.
- 10030....10- 2-36....David B. Penick; Leadville Spring; Mining, milling and domestic; Approved October 19, 1937. G. S.
- 10031....10- 2-36....David B. Penick; Buckhorn Spring; Mining, milling and domestic; Withdrawn May 24, 1937.
- 10032....10- 2-36....David B. Penick; King Spring; Mining, milling and domestic; Approved October 19, 1937. G. S.
- 10033....10- 7-36....William Sharpe; Sharpe Spring; Irrigation and domestic; Approved December 22, 1936. G. S.
- 10034....10- 8-36....D. H. Livingston; Muddy River; Power; No action.
- 10035....10- 9-36....Alfred W. and Isabelle Blackman; Underground Water (an Artesian Well); Irrigation and domestic; Approved January 4, 1937. G. S.
- 10036....10-10-36....Black Mammoth Consolidated Mining Company; Silver Peak Spring; Mining, milling and domestic; Approved October 27, 1937.
- 10037....10-13-36....John Van Daam; Colorado River; Milling of ore;* Approved June 24, 1937.
- 10038....10-13-36....E. T. Heggland; Larkin Spring; Mining, milling and domestic; Approved August 24, 1937.
- 10039....10-15-36....John Manzoni; Currant Creek; Power and domestic; Canceled June 25, 1937.
- 10040....10-15-36....The Nevada Company; Left Fork Spring; Mining, milling and domestic; Approved January 8, 1938. G. S.
- 10041....10-16-36....Department of Highways, State of Nevada; Surplus and unappropriated waters of Ferguson Springs; Highway and domestic; No action.
- 10042....10-16-36....Department of Highways, State of Nevada; Round Springs; Highway and domestic;* No action.
- 10043....10-20-36....W. J. Wadhams; Denio Creek, Massacre, Middle and West Lakes and Tributaries; Irrigation and domestic; Canceled June 25, 1937.
- 10044....10-26-36....Division of Grazing, Department of Interior, U. S. A.; Unnamed well on unoccupied land of public domain; Stockwatering; Withdrawn November 19, 1936.
- 10045....10-26-36....Division of Grazing, Department of Interior, U. S. A.; Underground water; Stockwatering; Withdrawn November 19, 1936.
- 10046....10-26-36....Division of Grazing, Department of Interior, U. S. A.; Underground water; Stockwatering; Withdrawn November 19, 1936.
- 10047....10-26-36....Division of Grazing, Department of Interior, U. S. A.; Underground water; Stockwatering; Withdrawn November 19, 1936.
- 10048....10-29-36....A. Odermatt; Unnamed Springs; Stockwatering and domestic;* Approved March 20, 1937. G. S.
- 10049....11- 4-36....Mark G. Bradshaw; Highland Shaft (Diamondfield Water Basin); Mining and milling; Approved October 26, 1937.
- 10050....11- 6-36....L. R. Smith; Underground waters, Big Smoky Valley; Mining, milling and domestic; No action.
- 10051....11- 6-36....L. R. Smith; Underground waters, Big Smoky Valley; Mining, milling and domestic; No action.
- 10052....11- 6-36....L. R. Smith; Underground waters, Big Smoky Valley; Mining, milling and domestic; No action.
- 10053....11-19-36....Grant Welch and Tom Adams; Underground water (Hubert Well); Stockwatering and domestic;* No action.
- 10054....11-21-36....W. C. Morgan; Point Spring; Stockwatering and domestic;* Approved February 1, 1938. G. S.
- 10055....11-23-36....Richard Kirman; Main North Fork of Marlette Creek; Irrigation and domestic; No action.
- 10056....12- 1-36....H. P. Christensen; Carson River; Irrigation and domestic;* No action.
- 10057....12- 4-36....George C. Glenn; Unnamed Creek; Mining, milling and domestic; Canceled June 25, 1937.
- 10058....12- 4-36....The Glenbrook Company; Unnamed Spring; General domestic, including irrigation of lawns and gardens, fire protection, etc.; Approved January 8, 1938. G. S.

*Protested application. G. S. Good standing.

- 10059....12- 4-36....The Glenbrook Company; Unnamed Springs; General domestic, including irrigation of lawns and gardens, fire protection, etc.; Approved January 8, 1938. G. S.
- 10060....12- 4-36....Raymond Borda; Unnamed Spring; Stockwatering and domestic; Canceled June 25, 1937.
- 10061....12- 4-36....Raymond Borda; Unnamed Spring; Stockwatering and domestic; Approved January 8, 1938. G. S.
- 10062....12- 9-36....R. J. Bradshaw; Mud Springs; Stockwatering; No action.
- 10063....12-11-36....City of Wells; Underground water (City Well No. 1); Municipal water supply; Approved October 6, 1937.
- 10064....12-14-36....I. L. Davis; Main Whiskey Springs and Tributaries; Mining, milling and domestic; Approved August 11, 1937. G. S.
- 10065....12-19-36....United States of America; Humboldt River; Irrigation and stockwatering; Approved June 1, 1937. G. S.
- 10066....12-28-36....William R. Smith; Underground water; Irrigation and domestic; Approved October 11, 1937.
- 10067....12-29-36....Charles Wheatley and L. A. Tope; Unnamed Spring; Mining, milling and domestic; Withdrawn June 25, 1937.
- 10068....12-30-36....Charles Wheatley and L. A. Tope; Underground water; Mining, milling and domestic; denied June 27, 1938.
- 10069.... 1- 7-37....James Ryan, one-half interest, Erastus L. Jones and William Jones, one-half interest; Flood waters of Pahrock Water Shed Stored in Ryan Jones Reservoir No. 2; Stockwatering;* No action.
- 10070.... 1- 7-37....James Ryan, one-half interest, Erastus L. Jones and William Jones, one-half interest; Flood waters of Pahrock Water Shed Stored in Ryan-Jones Reservoir No. 1; Stockwatering;* No action.
- 10071.... 1-11-37....Desert Placers Inc.; Underground (Drilled Well); Domestic and mining; Approved September 10, 1937.
- 10072.... 1-16-37....Technical Operators Inc.; Palmetto Wash; Placer Mining; Canceled June 25, 1937.
- 10073.... 1-19-37....Humboldt County; Martin Creek; Fish rearing;* No action.
- 10074.... 1-26-37....Raymond Borda; Unnamed Spring; Stockwatering and domestic; Approved January 8, 1938. G. S.
- 10075.... 2- 5-37....James C. Cummins; Pilot Creek; Irrigation and domestic; Approved July 8, 1937. G. S.
- 10076.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering;* No action.
- 10077.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10078.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10079.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10080.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10081.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10082.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10083.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering;* No action.
- 10084.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering;* No action.
- 10085.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10086.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10087.... 2- 6-37....The Utah Construction Company; Underground water; Stockwatering; No action.
- 10088.... 2-10-37....Karl C. Stewart; Eight Mile Spring; Stockwatering;* No action.
- 10089.... 2-11-37....John A. Houlahan; Brickyard Spring; Mining and milling; No action.
- 10090.... 2-13-37....C. W. Goodrich; Slaughter House Well; Mining, milling and domestic; Canceled July 27, 1937.
- 10091.... 2-13-37....C. W. Goodrich; Brewery Well; Mining, milling and domestic; Canceled July 27, 1937.
- 10092.... 2-16-37....U. S. Department of Agriculture; Rogers Spring; Migratory Water Fowl Refuge; Approved December 10, 1937. G. S.
- 10093.... 2-24-37....Ora Tahoma Mining Company; Birch Springs; Milling and domestic; No action.
- 10094.... 2-26-37....Edward R. Bacon; French Boy Canyon Spring; Mining, milling and domestic; Canceled July 27, 1937.
- 10095.... 3- 4-37....Tom Markovich; Red Canyon; Irrigation;* Denied May 25, 1938.
- 10096.... 3- 8-37....Fred Vollmar; Underground water; Mining, milling and domestic; Withdrawn July 14, 1937.
- 10097.... 3-10-37....Fred Vollmar; Unnamed Spring; Mining, milling and domestic;* No action.
- 10098.... 3-12-37....United States of America, Interior Department, National Park Service; Blue Point Spring; Recreational and domestic; Approved December 29, 1937. G. S.

*Protested application. G. S. Good standing.

- 10099.... 3-15-37....Harry W. Sommer, Howard F. Sommer, Clarence E. Sommer and Edward J. Kewley; Humboldt River; Irrigation;* No action.
- 10100.... 3-18-37....C. W. Goodrich; Indian Springs; Mining, milling and domestic; Withdrawn August 20, 1937.
- 10101.... 3-22-37....Town of Searchlight; Underground water; Municipal; Approved October 16, 1937. G. S.
- 10102.... 3-24-37....Fred Vollmar; Unnamed Spring; Mining, milling and domestic; No action.
- 10103.... 3-26-37....David B. Penick; South Willow Creek Spring; Mining, milling and domestic; Withdrawn April 21, 1937.
- 10104.... 3-27-37....D. H. Tandy; Underground water; Mining, milling and domestic; Canceled September 22, 1937.
- 10105.... 3-30-37....Marvin Countiss and Nellie N. Lee; Warm Springs; Irrigation and domestic; Approved January 15, 1938. G. S.
- 10106.... 3-31-37....Peacock Brothers; Rowe Creek; Irrigation; Canceled September 22, 1937.
- 10107.... 4-12-37....Lund Irrigation Company; Preston Big Springs, Cold and Nicholas Springs; Irrigation;* No action.
- 10108.... 4-12-37....Lund Irrigation Company; Lund Spring; Irrigation;* No action.
- 10109.... 4-12-37....Preston Irrigation Company; Arnoldsen Spring; Irrigation; Canceled September 22, 1937.
- 10110.... 4-12-37....Preston Irrigation Company; Preston Big Spring; Irrigation; Canceled September 22, 1937.
- 10111.... 4-13-37....The Town of Carlin, Nevada; Arthur Spring and underground waters adjacent; Municipal water supply;* Approved July 29, 1937.
- 10112.... 5- 4-37....The Marigold Mines Incorporated; Trout Creek and Tributaries; Mining, milling and domestic; Approved December 2, 1937.
- 10113.... 5- 5-37....A. E. Anderson; Flood and unappropriated water flowing in unnamed wash; Irrigation and domestic; Canceled September 22, 1937.
- 10114.... 5- 5-37....J. F. Duthie; 76 Creek; Milling and mining; Approved November 2, 1937.
- 10115.... 5-14-37....James Jensen; White River; Irrigation; Canceled October 7, 1937.
- 10116.... 5-14-37....Carl Madsen; White River; Irrigation; Canceled October 7, 1937.
- 10117.... 5-14-37....A. C. Van Galder; Willow Creek; Mining; Canceled August 7, 1937.
- 10118.... 5-17-37....Preston Irrigation Company; White River; Irrigation; No action.
- 10119.... 5-17-37....Irvin Bauer; Tex Spring; Stockwatering; Approved August 21, 1937. G. S.
- 10120.... 5-17-37....Irvin Bauer; Iron Tank Spring; Stockwatering; Approved August 21, 1937. G. S.
- 10121.... 5-18-37....David B. Penick; Chicken Spring; Mining, milling and domestic; No action.
- 10122.... 5-22-37....E. F. Johnson and L. P. Fisher; Underground water; Mining and domestic; Denied April 14, 1938.
- 10123.... 5-25-37....E. L. Mason; Tammarack Springs; Medicinal and bathing; Approved January 15, 1938. G. S.
- 10124.... 6- 1-37....The Technical Operators Inc.; Underground water; Mining and milling; No action.
- 10125.... 6- 9-37....B. F. Baker and August Galvin; Creek and Springs in Brewery Canyon; Stockwatering and domestic;* No action.
- 10126.... 6- 9-37....B. F. Baker and August Galvin; Milk Ranch Springs and Creek and Tributaries; Stockwatering and domestic;* No action.
- 10127.... 6-11-37....Las Vegas Land and Water Company; Las Vegas Valley Artesian Basin or Subterranean Channel; Municipal supply and domestic; Approved December 29, 1937. G. S.
- 10128.... 6-11-37....Las Vegas Land and Water Company; Las Vegas Valley Artesian Basin or Subterranean Channel; Irrigation and domestic; Approved December 29, 1937. G. S.
- 10129.... 6-17-37....W. J. Wadhams; Denio Creek, Massacre, Middle and West Lakes and Tributaries; Irrigation and domestic; Canceled October 22, 1937.
- 10130.... 6-23-37....Matthew Hickison; Sheep Springs; Irrigation and domestic; Approved June 14, 1938. G. S.
- 10131.... 6-23-37....F. R. Bechdolt and L. E. Gottfried; Bonita Creek; Mining and milling;* No action.
- 10132.... 6-23-37....Thomas Ormachea; Cherry Creek and Tributaries; Irrigation and domestic;* No action.
- 10133.... 6-23-37....Cecil D. Terwilliger; Unnamed Spring; Mining and domestic;* No action.
- 10134.... 6-30-37....The Jayansee Mining Company; Underground water; Mining and domestic; Approved December 29, 1937.
- 10135.... 7- 2-37....Mono Land and Livestock Company, a Corporation; Unnamed Spring; Stockwatering and domestic; No action.
- 10136.... 7- 2-37....MEB Mining Company, a Copartnership; Alkali Flat Underground Supply; Mining and domestic; Canceled December 14, 1937.
- 10137.... 7- 6-37....Maurice J. Waller and James R. Martin; Gap Spring, Fish Lake Valley; Mining and milling; Approved June 29, 1938. G. S.

*Protested application. G. S. Good standing.

- 10138.... 7- 6-37....Maurice J. Waller and James R. Martin; Underground water; Mining and milling; Approved June 29, 1938. G. S.
- 10139.... 7-10-37....Frank Trammell, W. V. Turner and Leon L. Peck; Unnamed Hot Spring; Bathing and domestic; No action.
- 10140.... 7-14-37....Buckhorn Mining Company; Cottonwood Creek; Mining, milling and domestic; Approved June 27, 1938. G. S.
- 10141.... 7-17-37....Echo Canyon Mining Company; Unnamed Spring; Mining, milling and domestic; Approved June 27, 1938. G. S.
- 10142.... 7-26-37....C. H. Jones; Unnamed Spring; Mining, milling and domestic; * No action.
- 10143.... 7-28-37....Charles F. Goss; Blind Spring; Mining, milling and domestic; Withdrawn September 3, 1937.
- 10144.... 7-28-37....R. D. Somerville; Queen Creek; Mining, milling and domestic; Canceled December 14, 1937.
- 10145.... 7-30-37....Saralegui Land and Livestock Company; Unnamed Spring; Stockwatering and domestic; Canceled January 14, 1937.
- 10146.... 7-30-37....U. S. Forest Service; Stanley B. Spring; Domestic and public campground; Approved May 23, 1938. G. S.
- 10147.... 8- 3-37....Fulton Quicksilver Mines, Inc.; A Spring; Mining; Canceled December 14, 1937.
- 10148.... 8- 4-37....Harold J. Stoker; Underground water; Washing sand and industrial uses; Approved December 15, 1937. G. S.
- 10149.... 8- 6-37....Mountain City Copper Company; Underground water from mine workings; Milling and domestic; Approved February 3, 1938. G. S.
- 10150.... 8-10-37....Citizens' Committee of Goldfield, Nevada; Underground water through Well No. 1; Municipal; No action.
- 10151.... 8-11-37....Stephen A. Bollinger; Gold Canyon; Mining; Canceled June 27, 1938.
- 10152.... 8-12-37....W. Ed. Duncan; Underground water of Las Vegas Valley Underground Basin; Irrigation and domestic; No action.
- 10153.... 8-16-37....George A. Nelson; Nelson Springs Nos. 1 and 2; Irrigation, stockwatering and domestic; Canceled June 27, 1938.
- 10154.... 8-18-37....Allied Land and Livestock Company; Unnamed Spring; Domestic; Approved June 18, 1938. G. S.
- 10155.... 8-20-37....Everest Hackett; Deerlodge Creek; Milling; Approved June 15, 1938. G. S.
- 10156.... 8-20-37....Mountain City Copper Company; Underground water through well in Owyhee River bottom; Milling and domestic; Approved February 3, 1938. G. S.
- 10157.... 8-20-37....Mountain City Copper Company; Warm Springs; Milling and domestic; Approved February 3, 1938. G. S.
- 10158.... 8-28-37....Charles Cecchini and Martin Duffy; Underground water; Mining, milling and domestic; Canceled June 27, 1938.
- 10159.... 8-28-37....Guy Saval and Felix Bernedo; Surplus and unappropriated waters of Rabbit Hole Springs; Mining, milling and domestic; Canceled June 27, 1938.
- 10160.... 8-30-37....Irving J. Smith, Trustee; Unknown spring or seepage waters of Galloon Canyon near Mina, Nevada; Mining, milling and domestic; Withdrawn June 1, 1938.
- 10161.... 9- 7-37....Clark C. Johnson; Johnson Spring; Irrigation and domestic; * No action.
- 10162.... 9- 7-37....George Whittell; North Fork of Marlette Creek and Springs; Power and domestic; Approved May 3, 1938. G. S.
- 10163.... 9- 7-37....George Whittell; Marlette Creek; Power and domestic; Approved May 3, 1938. G. S.
- 10164.... 9- 7-37....Elton I. Olinghouse; Eagle Spring; Stockwatering and domestic; No action.
- 10165.... 9- 7-37....U. S. Forest Service; Stanley B. Spring; Domestic and public; Approved June 6, 1938. G. S.
- 10166.... 9-10-37....George Whittell; South Fork of Marlette Creek; Power and domestic; Approved May 3, 1938. G. S.
- 10167.... 9-13-37....Mrs. Floyd Walch; Cottonwood Creek; Irrigation and domestic; No action.
- 10168.... 9-15-37....Edward S. Montgomery; Eastgate Water Channel commonly known as Eastgate Creek in Buffalo Canyon, Churchill County, Nevada; Ore milling; No action.
- 10169.... 9-18-37....Nevada Porphyry Gold Mines, Inc.; Jett Creek; Mining and milling; Canceled February 14, 1938.
- 10170.... 9-22-37....Leo F. Schmitt; Smith Creek; Irrigation and domestic; Approved April 26, 1938. G. S.
- 10171.... 9-28-37....Frank H. Ida M., Franklin H., and Florence M. Baker and Helen B. Currie; Aspen Springs; Domestic; * No action.
- 10172....10- 4-37....Lime Mountain Consolidated; Unnamed Spring; Mining and domestic; Canceled June 27, 1938.
- 10173....10- 4-37....Lime Mountain Consolidated; Underground water; Mining and domestic; Canceled June 27, 1938.
- 10174....10- 4-37....Peacock Brothers; Rowe Creek and its Tributaries; Irrigation; Approved April 27, 1938. G. S.
- 10175....10- 6-37....H. W. Parker; Wolframite Spring; Mining and milling; Canceled June 27, 1938.
- 10176....10-15-37....Preston Irrigation Company, Inc.; Arnoldson Spring; Irrigation; No action.

*Protested application. G. S. Good standing.

- 10177....10-15-37....Preston Irrigation Company, Inc.; Preston Big Spring; Irrigation; No action.
- 10178....10-19-37....W. J. Wadhams; Denio Creek, Massacre, Middle and West Lakes and Tributaries; Irrigation and domestic; Canceled June 27, 1938.
- 10179....10-21-37....Mackelprang Brothers; Gray Shale Spring; Stockwatering;* No action.
- 10180....10-21-37....Mackelprang Brothers; Chokeycherry Spring; Stockwatering;* No action.
- 10181....10-25-37....Board of County Commissioners of Clark County, Nevada, acting as a Town Board for the Town of North Las Vegas, Nevada; Las Vegas Valley Artesian Basin; Domestic and municipal; Approved May 10, 1938. G. S.
- 10182....10-29-37....City of Las Vegas; Underground water from Las Vegas Valley Artesian Basin or Subterranean Channel; Municipal; Approved May 6, 1938. G. S.
- 10183....10-29-37....City of Las Vegas; Underground water from Las Vegas Valley Artesian Basin or Subterranean Channel; Gravel washing and domestic; Approved May 6, 1938. G. S.
- 10184....10-30-37....Eddie Barry; Manse Spring and its Tributaries; Irrigation and domestic; No action.
- 10185....11- 2-37....City of Elko; Underground water through Well No. 12; Municipal; Approved May 13, 1938. G. S.
- 10186....11- 2-37....Rosa S. Dotta and David Dotta and the City of Elko; Elko Hot Spring; Bathing;* No action.
- 10187....11- 6-37....Chris Dahlstrom; West Spring; Stockwatering;* No action.
- 10188....12- 1-37....United States Department of Agriculture, Bureau of Biological Survey; Muddy Creek; Irrigation and propagation of migratory waterfowl;* No action.
- 10189....12- 3-37....James Ryan and John H. Conaway; Grassy Spring; Stockwatering; Approved June 18, 1938. G. S.
- 10190....12- 8-37....Copper Canyon Mining Company; Underground water; Mining, milling and domestic; Approved June 1, 1938. G. S.
- 10191....12-13-37....F. M. Lovell; Underground water; Mining, milling and domestic; Canceled June 27, 1938.
- 10192....12-14-37....Mary J. Averett; Meadow Valley Wash; Irrigation and domestic; Approved April 23, 1938. G. S.
- 10193....12-18-37....Trayco Placer, Inc.; Sheehan Springs and Tributaries; Placer mining and domestic; Canceled June 27, 1938.
- 10194....12-22-37....Beulah V. Stevens; Underground water through an Artesian well; Irrigation; Canceled June 27, 1938.
- 10195....12-23-37....Manhattan Gold Dredging Company; Peavine Creek, Surface and Underground; Mining, milling and domestic; Approved May 3, 1938. G. S.
- 10196.... 1- 4-38....C. E. Stark; Underground water; Stockwatering and domestic; No action.
- 10197.... 1-10-38....L. N. Massey; Underground water; Irrigation; No action.
- 10198.... 1-17-38....George F. Worts; Corn Creek Springs; Irrigation and domestic; Approved May 3, 1938. G. S.
- 10199.... 1-21-38....John A. Jordan and James F. Anderson; Colorado River; Quartz Mill and domestic; Approved May 10, 1938. G. S.
- 10200.... 1-26-38....L. F. Birdno; Troy Creek; Mining, milling and domestic; Approved May 25, 1938. G. S.
- 10201.... 1-26-38....Joe Alzugaray; Needle Well; Stockwatering; No action.
- 10202.... 2- 2-38....United States Department of Agriculture; Las Vegas Wash; Migratory waterfowl refuge; No action.
- 10203.... 2- 4-38....Mountain City Copper Company; East Fork of the Owyhee River; Milling and domestic; No action.
- 10204.... 2-10-38....Ellison Ranching Company; Jerret Creek; Irrigation; Approved April 23, 1938. G. S.
- 10205.... 2-10-38....Ellison Ranching Company; Hot Creek; Irrigation; Approved April 23, 1938. G. S.
- 10206.... 2-10-38....Ellison Ranching Company; South Fork of the Owyhee River (Spring Creek); Irrigation; Approved April 23, 1938. G. S.
- 10207.... 2-10-38....Ellison Ranching Company; Niagara Creek; Irrigation; Approved April 23, 1938. G. S.
- 10208.... 2-10-38....Ellison Ranching Company; Unappropriated waters of Willow Creek; Irrigation;* No action.
- 10209.... 2-10-38....Julia A. Russell; Las Vegas Valley Artesian Belt; Irrigation and domestic; No action.
- 10210.... 2-15-38....Lois Kellogg 2d; Unnamed Spring; Irrigation and domestic; No action.
- 10211.... 3- 3-38....The Utah Construction Company; Unnamed Spring; Stockwatering; No action.
- 10212.... 3- 3-38....The Utah Construction Company; Unnamed Spring; Stockwatering; No action.
- 10213.... 3- 3-38....Rio Grande Copper Company; Golden Copper Spring; Mining, milling and domestic; No action.
- 10214.... 3- 3-38....Billie Lamb; Badger Spring; Stockwatering; No action.
- 10215.... 3-16-38....Perry White; Pearl Springs; Mining and milling; No action.
- 10216.... 3-21-38....A. M. Thompson and Roy Waite; Juanetta Spring; Irrigation and domestic; No action.

*Protested application. G. S. Good standing.

- 10217... 3-22-38...Nevada Porphyry Gold Mines, Inc.; Jett Creek; Mining and milling; No action.
- 10218... 3-29-38...J. T. McWilliams; Three Springs forming one creek; Domestic and public use in camp grounds and for Ice Pond and Swimming Pool; Approved June 13, 1938. G. S.
- 10219... 4- 4-38...U. S. Forest Service; Easter Spring; Domestic; Approved July 2, 1938. G. S.
- 10220... 4- 4-38...U. S. Forest Service; Scout Spring; Public campground; Approved July 2, 1938. G. S.
- 10221... 4- 4-38...U. S. Forest Service; Clark Canyon Spring; Public campground; Approved July 2, 1938. G. S.
- 10222... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10223... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10224... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10225... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10226... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10227... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10228... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10229... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10230... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10231... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10232... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10233... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10234... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10235... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10236... 4- 5-38...Morgan Whitaker and Raymond I. Smith; Underground water; Placer mining and milling; No action.
- 10237... 4- 7-38...Mark Bradshaw; Driven well at Salt Lake R. R. Yards (abandoned); Mining and milling;* No action.
- 10238... 4- 8-38...South Comstock Tailings Disposal Company; Gold Canyon Creek; Tailings disposal;* No action.
- 10239... 4- 8-38...Zenas Walmsley; Gold Canyon Creek; Tailings disposal;* No action.
- 10240... 4-14-38...Anna Savery; Springs and Creek; Irrigation and domestic; No action.
- 10241... 4-20-38...W. D. Murray; Las Vegas Valley Artesian Basin or Subterranean Channel; Irrigation and domestic; No action.
- 10242... 4-25-38...Lode Development Company; Underground waters; Mining and domestic; No action.
- 10243... 4-26-38...Alpha Pearl Baker; Las Vegas Valley Artesian Basin or Subterranean Channel; Irrigation and domestic; No action.
- 10244... 5- 5-38...Placer Properties Company, Inc.; South American Canyon; Placer mining and domestic; No action.
- 10245... 5-16-38...Earl A. Honrath; Las Vegas Valley Artesian Basin or Subterranean Channel; Irrigation and domestic; No action.
- 10246... 5-21-38...Ben Fabian; Tiger Creek Springs; Mining, milling and domestic; No action.
- 10247... 6- 2-38...Joe Steele; White Rock Spring; Stockwatering and domestic; No action.
- 10248... 6-15-38...Albert Zimmerman and Drew Wilson; Deadwood Springs No. 1; Mining and milling; No action.
- 10249... 6-15-38...Albert Zimmerman and Drew Wilson; Deadwood Springs No. 2; Mining and milling; No action.
- 10250... 6-17-38...Charles McKellar; Erickson Spring; Stockwatering and domestic; No action.
- 10251... 6-17-38...Charles McKellar; Tommy Johns Spring or Tunnel; Stockwatering and domestic; No action.
- 10252... 6-17-38...Charles McKellar; Tunnel Spring; Stockwatering and domestic; No action.
- 10253... 6-25-38...Jose Castillo; Shell Creek; Irrigation and domestic; No action.
- 10254... 6-27-38...Combined Metals Reduction Company, a Corporation; Underground water; Mining and domestic; No action.

*Protested application. G. S. Good standing.

CHAPTER XVII

Status of Applications Filed Prior to July 1, 1936

Status of applications filed prior to July 1, 1936, upon which action has been taken during the present biennium.

Following is a condensed statement giving the salient data in connection with applications filed prior to July 1, 1936, upon which action has been taken during the years of the present biennium, in the order of:

1. Application Serial Number.
2. Date of Filing.
3. Name of Applicant.
4. Source of Water Supply.
5. Purpose of Appropriation.
6. Action on Application.
7. Status of Permits as of June 30, 1938.

4280....	1-15-17....	Joe Lockard; Buck Springs; Stockwatering and domestic; Withdrawn December 1, 1937.
4959....	3-12-18....	F. O. Norton, Mary A. Bidwell, L. B. Norton and Mary A. Bidwell as surviving widow of Calvin W. Bidwell, deceased; Mullens Creek; Irrigation and domestic; Denied April 13, 1938.
5533....	6- 9-19....	The San Antone Ranch and Cattle Company, a Copartnership; Peavine Creek Flood and Unappropriated Waters; Irrigation, stockwatering and domestic; Approved February 3, 1937.
5628....	7-21-19....	Samuel S. Arentz; Burbank Canyon or Creek; Irrigation and domestic; Approved November 17, 1936.
5653....	8- 4-19....	W. M. Pettit; Spring Branch Creek and Branch of Spring Branch Creek; Irrigation; Canceled November 26, 1937.
6043....	4- 2-20....	Kate Douglass Hirsh; Willow Canon Water Hole at the Foot of Pilot Peak; Mining and domestic; Canceled December 2, 1936.
6096....	5- 6-20....	Nevada and California Land and Livestock Company; Smoke Creek; Irrigation; Denied April 13, 1938.
6158....	6- 7-20....	Benjamin C. Grainger and Robert W. Tucker; Pahrangat Lake; Irrigation; Canceled October 8, 1936.
6297....	10-12-20....	William Vetter; Wheeler Spring; Stockwatering and domestic; Denied April 2, 1937.
6646....	3- 6-22....	Mrs. C. T. Martin; East Fork of Walker River; Irrigation and domestic; Approved October 17, 1936.
6719....	7-17-22....	George L. Sanford; Zephyr and North Zephyr Cove Creek; Irrigation, stockwatering and domestic; Approved November 9, 1936.
6858....	2- 3-23....	W. A. Marsh; Hunts Creek; Irrigation and stockwatering; Canceled July 9, 1936.
6947....	7-26-23....	Hugo Halter; Indlan Spring; Irrigation; Approved January 20, 1937.
6958....	8-14-23....	Bank of Nevada Savings and Trust Company; Dry Valley Creek; Irrigation and domestic; Approved February 10, 1937.
6976....	9-18-23....	Hugo Halter; Rock Springs; Irrigation; Denied December 30, 1936.
7080....	4- 9-24....	Jacob Steiner; Mammoth Spring; Irrigation; Approved October 28, 1936.
7203....	8-27-24....	Archie Daniels and Deforest Flint; Jeff Davis Spring; Stockwatering and domestic; Approved December 14, 1936.
7204....	8-27-24....	Archie Daniels and Deforest Flint; Valcalda Springs; Stockwatering and domestic; Approved December 14, 1936.
7244....	11- 4-24....	Juan Jaca; McDermitt Creek; Irrigation and stock; Denied October 14, 1936.
7470....	8- 6-25....	Cornell and Maestretti; Dalton Spring; Stockwatering; Approved September 7, 1937.
7471....	8- 6-25....	Cornell and Maestretti; White Rock Spring; Stockwatering; Approved September 7, 1937.
7624....	1-21-26....	Mesquite Irrigation Company; Virgin River; Irrigation and domestic; Approved October 21, 1937.
7625....	1-25-26....	James S. Morrison; Kelly Creek; Irrigation, stock and domestic; Withdrawn November 5, 1936.
7676....	3-29-26....	Margaret Sopp; Mogul Creek; Mining, irrigation and domestic; Denied November 6, 1936.
7762....	5-24-26....	H. O. Comstock; First Creek; Power and domestic; Approved December 22, 1936.

- 7763.... 5-24-26....Gilbert Milling Corporation; Wild Horse Spring; Mining, milling and domestic; Denied September 30, 1936.
- 8119.... 5- 2-27....Fred H. Jackson; Granite Springs; Mining and domestic; Denied November 18, 1936.
- 8120.... 5- 2-27....Fred H. Jackson; Granite Spring; Mining and domestic; Denied November 18, 1936.
- 8146.... 5-31-27....Jean Cazaurang; Wheeler Spring; Stockwatering and domestic; Denied April 13, 1938.
- 8199.... 6-26-27....W. T. Cunningham; Jerome Vidvich Spring; Stockwatering; Canceled November 24, 1937.
- 8259.... 8- 4-27....Elizabeth S. Barndt; Pott Holes Springs and Tributaries; Stock-and domestic; Approved February 8, 1937.
- 8260.... 8- 4-27....Elizabeth S. Barndt; Big Cow Canyon and Tributaries; Stock-and domestic; Approved February 8, 1937.
- 8350....10-20-27....Carson and Tahoe Lumber and Fluming Company, a Corporation; Marlette Creek (Main North Fork); Irrigation and domestic; Approved January 19, 1938.
- 8554.... 6- 3-28....John Krotzer, Russell Moyle and C. R. Townsend; Butte Spring; Mining, milling and domestic; Denied April 13, 1938.
- 8622.... 7-17-28....George H. and Inez M. Gilbert; A Spring; Irrigation and domestic; Canceled November 28, 1936.
- 8623.... 7-17-28....R. H. Cowles; Juniper Spring; Stockwatering; Approved January 15, 1938.
- 8624.... 7-17-28....R. H. Cowles; South Juniper Spring; Stockwatering; Withdrawn January 4, 1938.
- 8625.... 7-17-28....R. H. Cowles; North Juniper Spring; Stockwatering; Approved January 15, 1938.
- 8626.... 7-17-28....R. H. Cowles; Tunnel Springs; Stockwatering; Approved January 15, 1938.
- 8627.... 7-17-28....R. H. Cowles; Upper Stone House Spring; Stockwatering; Approved January 15, 1938.
- 8628.... 7-17-28....R. H. Cowles; Middle Stone House Springs; Stockwatering; Withdrawn January 4, 1938.
- 9141....11- 8-29....John G. Kirchen; Coyote Spring; Placer mining; Canceled November 18, 1936.
- 9183....12-16-29....Frank Walker; Bradshaw Spring; Stockwatering; Approved August 28, 1937.
- 9196.... 1- 4-30....Mathew Rees; Meadow Valley Wash; Irrigation and domestic; Approved September 25, 1936.
- 9219.... 1-24-30....J. L. Hylton; Red Rock Well No. 6; Stockwatering; Approved July 8, 1936.
- 9233.... 4- 3-30....Hubert H. Raycraft; Surface and underground waters from a bog hole located on land owned by applicant; Irrigation and domestic; Approved October 16, 1936.
- 9250.... 4-28-30....W. D. and M. E. Caton; Duffy Trough Springs; Stockwatering; Approved October 28, 1936.
- 9251.... 4-28-30....W. D. and M. E. Caton; Joe Jeal Spring; Stockwatering; Approved October 28, 1936.
- 9252.... 4-28-30....W. D. and M. E. Caton; Willow Creek Spring; Stockwatering; Approved October 28, 1936.
- 9285.... 6-28-30....C. R. Jones; Squaw Spring; Mining and milling; Denied October 8, 1937.
- 9286.... 6-28-30....C. R. Jones; Bullock Spring, one of a group of springs known as Cedar Springs; Mining and milling; Denied October 8, 1937.
- 9287.... 6-28-30....C. R. Jones; Nesbitt and Tunnel No. 3 Springs; Mining and milling; Denied October 8, 1937.
- 9288.... 6-28-30....C. R. Jones; Mona Springs; Mining and milling; Denied October 8, 1937.
- 9289.... 6-28-30....C. R. Jones; Underground flow of Cedar Wash; Mining and milling; Denied October 8, 1937.
- 9304.... 7-21-30....E. C. Johnson; Rock Spring; Stockwatering; Approved August 7, 1936.
- 9305.... 7-21-30....E. C. Johnson; Aspen Spring; Stockwatering; Approved August 7, 1936.
- 9307.... 7-25-30....Joe Ulrich; Underground water; Irrigation and domestic; Approved February 16, 1937.
- 9318.... 8-18-30....Walter F. McLallen; Oak Creek; Irrigation and domestic; Denied August 26, 1936.
- 9320.... 8-21-30....Skyland Camp Inc.; North Fork of Zephyr Cove Creek; Camp, fire protection and domestic; Approved November 5, 1936.
- 9324.... 8-27-30....Carson and Tahoe Lumber and Fluming Company; South Fork of Zephyr Cove Creek; Irrigation and domestic; Approved November 9, 1936.
- 9332.... 9-11-30....Leon Acorda; Acorda Well No. 2; Stockwatering; Approved August 7, 1936.
- 9355....10-18-30....Steve Bell, Jr.; A Well; Irrigation and domestic; Approved December 10, 1937.
- 9363....10-29-30....Don Maestretti; LeBeau Creek; Irrigation and domestic; Approved October 6, 1936.
- 9412.... 2-21-31....E. A. Ludwick and James J. Garnier; Scossa Well; Mining and domestic; Canceled January 8, 1937.
- 9431.... 3-23-31....R. E. Hartsif; Pidgeon Springs; Irrigation and domestic; Approved June 2, 1938.

- 9438.... 4-20-31....Mary C. G. Jewett; Mormon Green Springs No. 2; Irrigation and domestic; Denied August 26, 1936.
- 9473.... 6- 9-31....Ray W. LaForce and Jesse M. Short; Revue Springs; Mining, milling and domestic; Approved June 6, 1938.
- 9486.... 6-24-31....Theodore Belzarena Company; East Fork of Cove Creek; Stockwatering; Denied May 23, 1938.
- 9522.... 9- 1-31....Thomas L. Williams; Three Artesian Wells in the Las Vegas Valley Artesian Basin; Irrigation and domestic; Approved July 31, 1936.
- 9527.... 9-20-21....Theodore Belzarena Company; Bell Spring; Stockwatering; Denied May 23, 1938.
- 9531.... 9-23-31....C. R. Moorman; Divide Well; Stockwatering; Canceled November 26, 1937.
- 9537....10- 4-31....Theodore Belzarena Company; Gravel Spring; Stockwatering; Denied May 23, 1938.
- 9542....10-18-31....Earl Higgins; Two Artesian Wells in the Las Vegas Valley Artesian Basin; Irrigation and domestic; Denied September 30, 1937.
- 9556....11-16-31....Hylton Sheep Company; Burnt Station Well; Stockwatering; Denied May 23, 1938.
- 9589.... 4-18-32....W. F. Mendes; Wild Horse Spring; Stockwatering and domestic; Withdrawn October 16, 1936.
- 9597.... 6-13-32....Washoe County Title Guaranty Company; Underground water through Francis Well; Stock and domestic; Denied April 14, 1938.
- 9598.... 6-17-32....Tuscarora Consolidated Goldfields, Inc.; Ford Spring; Domestic and mining; Denied December 14, 1937.
- 9599.... 6-17-32....Tuscarora Consolidated Goldfields, Inc.; Summit Spring; Domestic and mining; Denied December 14, 1937.
- 9600.... 6-17-32....Tuscarora Consolidated Goldfields, Inc.; Upper Ford Spring; Domestic and mining; Denied December 14, 1937.
- 9605.... 6-29-32....G. B. Austin; Shaft on the August Lode Mining Claim; Mining and domestic; Canceled June 23, 1938.
- 9615.... 8- 2-32....J. M. Snow; Mill Creek, a tributary of the Owyhee River; Mining and domestic; Approved December 28, 1937.
- 9616.... 8- 4-32....The Ore-Neva Company, Inc.; Loveletter Well; Mining and domestic; Withdrawn July 14, 1936.
- 9617.... 8-10-32....J. M. Snow; Unnamed Springs in Konawha Gulch; Mining and domestic; Approved December 28, 1937.
- 9631....10- 3-32....J. M. Snow; Owyhee River; Mining and milling; Approved February 3, 1938.
- 9640....11-20-32....Roy J. Johnstone; Underground Flow in Box Canyon; Pershing County; Milling and domestic; Denied October 1, 1936.
- 9646.... 2-20-33....R. H. Cowles and H. Howes; Big Mouth Creek, White Horse Mining District, Washoe County; Mining, milling and domestic; Approved December 12, 1936.
- 9683.... 7-30-33....John Crosby, Jr.; Unnamed Spring; Mining, milling and domestic; Withdrawn May 27, 1938.
- 9684.... 7-30-33....John Crosby, Jr.; Unnamed Spring; Mining, milling and domestic; Withdrawn May 27, 1938.
- 9696.... 9-11-33....J. A. Bell, Jr.; Cloverdale Creek; Mining and domestic; Denied September 29, 1936.
- 9711....11-17-33....Charles McKenzie; Spring Valley Springs; Mining, milling and domestic; Canceled November 23, 1936.
- 9715....12-12-33....W. A. Hutts; Rabbit Hole Springs and Channel; Placer mining and domestic; Canceled November 21, 1936.
- 9742.... 4-23-34....Harold Wm. Merritt; Martin Creek, a tributary of the Owyhee River; Mining; Approved September 9, 1936.
- 9749.... 5-21-34....D. A. McLeod; A Spring on the Mahogany Mining Claim, now called Mahogany Spring; Mining, milling and domestic; Canceled January 8, 1937.
- 9760.... 6-23-34....Pastorino Brothers; Underground and Surface Waters through a Well; Stockwatering and domestic; Withdrawn July 20, 1936.
- 9768.... 7- 6-34....Frank McGregor; Martin Creek; Mining; Approved November 9, 1937.
- 9780.... 7-23-34....K. L. McKeough; Tammarack Springs; Mining and milling; Canceled March 23, 1937.
- 9788.... 8-17-34....The Hanchett Securities Company; Lower Coyote Spring; Mining and milling; Canceled May 19, 1938.
- 9789.... 8-17-34....The Hanchett Securities Company; Red Mountain Spring; Mining and milling; Canceled May 19, 1938.
- 9790.... 8-17-34....The Hanchett Securities Company; Upper Coyote Spring; Mining and milling; Canceled May 19, 1938.
- 9792.... 8-20-34....Aurora Consolidated Mines, Inc.; Prospectus Tunnel; Mining, milling and domestic; Canceled January 8, 1937.
- 9814....11-13-34....Parman-Valerdi Company; Underground waters through Wells; Irrigation and domestic; Approved August 21, 1936.
- 9815....11-13-34....Parman-Valerdi Company; Schultz Spring; Stockwatering and domestic; Approved August 21, 1936.
- 9816....11-13-34....Parman-Valerdi Company; Underground waters through wells; Irrigation and domestic; Approved August 21, 1936.
- 9819....11-24-34....C. R. Townsend; Woodman Springs; Mining, milling, power and domestic; Approved December 5, 1936.

- 9823....12-31-34....Natomas Company; Peavine Creek; Mining, milling and domestic; Withdrawn July 9, 1936.
- 9824.... 1- 2-35....Rene Engel; Underground water through a well in Alkaline Valley to be drilled; Mining and milling; Canceled June 23, 1938.
- 9832.... 1-26-35....State of Nevada Department of Highways; Underground source in Las Vegas Valley Artesian Basin through Highway Well; Irrigation and domestic; Approved August 24, 1936.
- 9835.... 2- 5-35....Golden Mile Mine, Incorporated; Bell Springs; Mining, milling and domestic; Canceled January 8, 1937.
- 9844.... 3-11-35....Tom Williams; Pepper Springs; Stockwatering and domestic; Denied September 29, 1936.
- 9845.... 3-13-35....Golden Mile Mine, Inc.; Earthquake Spring; Mining, milling and domestic; Canceled January 8, 1937.
- 9849.... 4- 6-35....H. A. Winkelman; Underground Water; Irrigation and domestic; Approved October 16, 1936.
- 9853.... 4-11-35....Nevada Standard Mining Corporation; Goodman Tunnel Creek; Mining and domestic; Approved December 9, 1936.
- 9855.... 4-18-35....Golden Mile Mine, Incorporated; Surprise Spring; Mining, milling and domestic; Denied October 3, 1936.
- 9858.... 5- 8-35....Dud R. Day; Storey Spring; Mining, milling and domestic; Canceled January 8, 1937.
- 9869.... 6-19-35....Ralph McNerny; Springs and Underground Water; Mining, milling and domestic; Approved March 19, 1937.
- 9870.... 6-19-35....Ralph McNerny; Underground Water; Mining, milling and domestic; Approved March 19, 1937.
- 9879.... 7-17-35....Jos. Flynn; Underground Water Through Bald Mountain Well; Stockwatering and domestic; Approved October 16, 1936.
- 9880.... 7-17-35....Jos. Flynn; Underground Water Through Rye Patch Well; Stockwatering; Approved October 16, 1936.
- 9884.... 7-29-35....C. W. Benton; Underground Flow of Tule Canyon; Mining and milling; Approved December 16, 1936.
- 9885.... 8- 2-35....Blanche Dennison; Artesian Well in Las Vegas Valley Artesian Basin; Irrigation and domestic; Approved July 21, 1936.
- 9889.... 8- 7-35....T. O. Boyd, Sr.; Unnamed Spring; Mining; Approved August 5, 1936.
- 9894.... 8-27-35....C. Shockley; Barrel or Mustang Spring; Mining, milling and domestic; Approved August 7, 1936.
- 9899.... 9-16-35....John Valente; Stark Spring in Deer Lodge Wash; Mining and milling; Approved October 24, 1936.
- 9900.... 9-16-35....Fred Vollmar; Cottonwood Creek and Springs; Mining, milling and domestic; Approved July 31, 1936.
- 9901.... 9-26-35....Lindgren and Swinnerton; Cold Spring; Mining, milling and domestic; Approved July 14, 1936.
- 9903....10- 5-35....George F. Elder; Underground Waters; Irrigation and domestic; Approved October 16, 1936.
- 9905....10-21-35....F. J. DeLongchamps; Tiger Spring and Creek; Mining, milling and domestic; Canceled August 10, 1936.
- 9906....10-24-35....Benjamin F. Casey; A Well; Stockwatering; Approved July 28, 1936.
- 9907....10-29-35....Don Maestretti; Underground Source in Smith Creek Valley; Stockwatering and domestic; Approved August 10, 1936.
- 9909....11- 1-35....V. E. Greenwald; South Spring; Irrigation and domestic; Withdrawn April 19, 1938.
- 9910....11- 1-35....V. E. Greenwald; North Spring; Irrigation and domestic; Withdrawn April 19, 1938.
- 9911....11- 2-35....Lindgren and Swinnerton; Antelope Creek; Mining, milling and domestic; Approved July 21, 1936.
- 9912....11- 2-35....California Lands Inc.; Underground Water (Long Canyon Well); Stockwatering; Approved February 10, 1937.
- 9918....12-16-35....The Persistent Mining Company; Squab Seep; Mining and milling; Approved October 28, 1936.
- 9919....12-16-35....The Persistent Mining Company; Stockade Seep; Mining and milling; Approved October 28, 1936.
- 9920....12-16-35....The Persistent Mining Company; Chimney Seep; Mining and milling; Approved October 28, 1936.
- 9921....12-16-35....Lindgren and Swinnerton; Eldorado Canyon; Mining; Withdrawn July 20, 1936.
- 9922....12-18-35....Grant Welch; Underground Source through Rye Grass Well; Stockwatering and domestic; Approved August 14, 1936.
- 9925.... 1-13-36....Last Chance Mining Syndicate; Barrett Creek and Tributaries; Mining, milling and domestic; Canceled August 10, 1936.
- 9928.... 1-14-36....United States of America; Humboldt River; Irrigation, stock and domestic; Approved January 4, 1937.
- 9930.... 1-20-36....W. J. Tobin, Receiver of the Reno National Bank; Antelope Canyon Creek; Irrigation and domestic; Canceled August 10, 1936.
- 9931.... 1-20-36....W. J. Tobin, Receiver of the Reno National Bank; Eldorado Canyon Creek; Irrigation and domestic; Canceled August 10, 1936.
- 9932.... 1-28-36....Pardners Mines Corporation; Underground Water Through Well No. 1; Mining, milling and domestic; Approved July 21, 1936; Canceled June 23, 1938.
- 9933.... 1-31-36....Harry McNamara; Underground Flow through Unnamed Seep; Mining and milling; Approved December 12, 1936.

- 9934.... 1-31-36....Western Mineral Exploration Company; Underground Water of Limerick Canyon; Mining, milling and domestic; Approved September 29, 1936.
- 9936.... 2- 1-36....The Glenbrook Company; An Unnamed Creek; General domestic purposes, including irrigation of lawns and gardens, fire protection, etc.; Approved August 21, 1936.
- 9937.... 2- 1-36....The Glenbrook Company; Bliss Spring; General domestic purposes, including the irrigation of lawns and gardens, fire protection, etc.; Approved August 21, 1936.
- 9939.... 2-10-36....City of Las Vegas; Las Vegas Valley Artesian Basin; Municipal; Approved September 9, 1936.
- 9940.... 2-10-36....City of Las Vegas; Las Vegas Valley Artesian Basin; Municipal, including storage and distribution; Approved October 16, 1936.
- 9943.... 2-25-36....Albert H. Krohn; North Fork of Cleve Creek; Power and domestic; Canceled January 9, 1937.
- 9944.... 2-27-36....Lester F. Scott, Jr.; Fitzpatrick Spring; Mining, milling and domestic; Denied January 21, 1937.
- 9945.... 2-27-36....D. D. Butler, I. L. Davis and E. C. Turner; Whiskey Springs and Tributaries; Mining, milling and domestic; Canceled August 10, 1936.
- 9946.... 2-27-36....D. D. Butler, I. L. Davis and E. C. Turner; Blue Point Spring and Tributaries; Mining, milling and domestic; Canceled August 10, 1936.
- 9947.... 2-28-36....Vern A. Hoar; Peterson Springs in Pilot Basin Canyon, Sometimes known as Peterson's Mill Canyon; Mining, milling and domestic; Canceled August 10, 1936.
- 9948.... 2-29-36....D. M. Findlay; Homestake Well; Mining and milling; Approved November 18, 1937.
- 9949.... 3- 2-36....Oregon Short Line Railroad Company, a Corporation; Underground Water; Railroad and domestic; Approved January 21, 1937.
- 9950.... 3- 2-36....Oregon Short Line Railroad Company, a Corporation; Underground Water; Locomotive and domestic; Approved January 21, 1937.
- 9951.... 3- 2-36....Oregon Short Line Railroad Company, a Corporation; Underground Water; Railroad and domestic; Approved January 21, 1937.
- 9952.... 3- 2-36....Oregon Short Line Railroad Company, a Corporation; Underground Water; Locomotive and domestic; Approved January 21, 1937.
- 9953.... 3- 2-36....Oregon Short Line Railroad Company, a Corporation; Underground Water; Railroad and domestic; Approved January 21, 1937.
- 9956.... 3- 2-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water Through an Unnamed Well on Unoccupied Land of the Public Domain; Stockwatering; Withdrawn October 28, 1936.
- 9957.... 3- 2-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water Through an Unnamed Well on Unoccupied Land of the Public Domain; Stockwatering; Withdrawn November 19, 1936.
- 9958.... 3- 2-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water Through an Unnamed Well on Unoccupied Land of the Public Domain; Stockwatering; Withdrawn November 19, 1936.
- 9959.... 3- 2-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water Through an Unnamed Well on Unoccupied Land of the Public Domain; Stockwatering; Withdrawn November 19, 1936.
- 9960.... 3- 6-36....Division of Grazing, Department of the Interior, U. S. A.; Harry Canyon Spring; Stockwatering; Withdrawn November 19, 1936.
- 9961.... 3- 6-36....Division of Grazing, Department of the Interior, U. S. A.; Mound Spring; Stockwatering; Withdrawn November 19, 1936.
- 9962.... 3- 6-36....Division of Grazing, Department of the Interior, U. S. A.; Unnamed Spring; Stockwatering; Withdrawn November 19, 1936.
- 9963.... 3- 6-36....Division of Grazing, Department of the Interior, U. S. A.; Unnamed Spring; Stockwatering; Withdrawn November 19, 1936.
- 9964.... 3- 6-36....Division of Grazing, Department of the Interior, U. S. A.; Unnamed Spring; Stockwatering; Withdrawn November 19, 1936.
- 9965.... 3- 6-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water; Stockwatering; Withdrawn October 28, 1936.
- 9966.... 3-14-36....The City of Winnemucca, Nevada; Underground Water Through Well No. 2; Municipal; Approved October 20, 1936.
- 9967.... 3-16-36....Estate of A. Dondero, Deceased; Cottonwood Creek and Tributaries; Irrigation and domestic; Withdrawn October 28, 1936.
- 9968.... 3-16-36....Estate of A. Dondero, Deceased; Hay Canyon Creek and Tributaries; Irrigation and domestic; Withdrawn October 28, 1936.
- 9969.... 3-21-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water Through an Unnamed Well; Stockwatering; Withdrawn November 19, 1936.
- 9970.... 3-21-36....Division of Grazing, Department of the Interior, U. S. A.; Underground Water Through an Unnamed Well; Stockwatering; Withdrawn October 28, 1936.

- 9971.... 3-21-36....Division of Grazing, Department of the Interior, U. S. A.; Under-
ground Water; Stockwatering; Withdrawn October 28, 1936.
- 9972.... 3-25-36....Division of Grazing, Department of the Interior, U. S. A.; Under-
ground Water Through an Unnamed Well; Stockwatering;
Withdrawn October 28, 1936.
- 9973.... 3-27-36....D. M. Wheeler; Sutro Springs; Stockwatering and domestic;
Approved March 20, 1937.
- 9974.... 4- 2-36....Pardners Mines Corporation; Underground Water Through Well
No. 2; Mining, milling and domestic; Approved July 21, 1936;
Canceled June 23, 1938.
- 9975.... 4- 3-36....W. J. Wadhams; Denio Creek; Irrigation and domestic; Canceled
October 27, 1936.
- 9976.... 4- 3-36....W. J. Wadhams; Massacre, Middle and West Lakes and Tribu-
taries; Irrigation and domestic; Canceled October 27, 1936.
- 9977.... 4- 6-36....William C. Morgan; Point Spring; Stockwatering; Canceled
October 21, 1936.
- 9978.... 4- 8-36....L. W. Berrum; Underground Water; Greenhouse and domestic;
Approved October 2, 1936.
- 9979.... 4- 8-36....H. F. Dangberg Land and Livestock Company; Underground and
Surface Water; Stockwatering and domestic; Approved Feb-
ruary 26, 1937.
- 9982.... 4-18-36....Allen Nay; Pussy Willow Spring; Stockwatering; Approved
December 5, 1936.
- 9984.... 4-27-36....Wayne H. Smith; Underground Source formerly known as Welch
Spring; Mining, milling and domestic; Approved October 24,
1936.
- 9985.... 4-30-36....Muddy Valley Irrigation Company, Inc.; Flood and Unappropriated
Waters of Arrowhead Canyon; Irrigation and domestic;
Approved May 24, 1937.
- 9986.... 5- 2-36....W. W. Hughes, President of Farm Bureau Community Center
Organization of Mesquite, Nevada; Mica Notch Spring; Cul-
inary or domestic; Approved January 29, 1937.
- 9988.... 5-11-36....Caliente Cyaniding Company; Willow Creek; Milling; Approved
September 25, 1936.
- 9990.... 6- 2-36....Austin Silver Mining Company; Underground Water; Milling and
domestic; Approved December 21, 1936.
- 9992.... 6-19-36....G. B. Humphreys; Las Vegas Valley Artesian Basin; Domestic
and irrigation; Approved October 24, 1936.
- 9993.... 6-27-36....Richard Kirman; Unnamed Spring; Irrigation, domestic and fire
protection; Approved January 19, 1938.

CHAPTER XVIII

Certificates Issued Under Permits, 1936-1938

Following is a condensed statement giving the salient data in connection with Certificates Issued Under Permits during the biennium for the period July 1, 1936, to June 30, 1938, in the order of:

1. Certificate Number.
2. Book Number.
3. Permit Number.
4. Name of Appropriator.
5. Source of Water Supply.
6. Purpose of Appropriation.
7. Amount of water in cubic feet per second, unless otherwise noted.
8. Date of Certificate Issued.

2260	7	2621	Buffalo Valley Mines Company; Mill Creek; Mining, milling and domestic.....	0.16	7-24-36
2261	7	7677	Rimmer J. Oppedyk; Colorado River; Irrigation and domestic	0.381	8-5-36
2262	7	8516	Harold, Floyd and Emma Schaefer; Evans Spring; Stockwatering and domestic.....	0.0086	8-5-36
2263	7	8547	Eugene A. Henriod; Mud Spring; Stockwatering	0.009	8-5-36
2264	7	9551	U. S. Forest Service; Unnamed Spring; Irrigation and domestic.....	0.025	9-16-36
2265	7	5786	Grant Welch; Pine Creek; Irrigation.....	0.17	9-21-36
2266	7	9182	Lee F. Streeter; Unnamed Springs; Fish rearing	1.5	9-21-36
2267	7	9557	James Wilker and Associates, E. A. Scott, T. S. Dalton and J. M. Dalton; Underground source (a well); mining and domestic.....	0.05	9-21-36
2268	7	9671	James C. Riordan; Robinson Spring; Stockwatering	0.0125	9-30-36
2269	7	9720	James C. Riordan; Cabbin Spring; Stockwatering	0.025	9-30-36
2270	7	9721	James C. Riordan; Wall Spring; Stockwatering	0.025	9-30-36
2271	7	4428	H. F. Dangberg Land & Livestock Company; Ellison-Doberry Spring; Stockwatering.....	0.015	10-5-36
2272	7	1946	Alfred Chartz; Carson River; Irrigation and domestic	0.6202	10-5-36
2273	7	8611	W. E. Rinehart; Unnamed Canyon and South Lake; Stockwatering and domestic.....	0.024	10-5-36
2274	7	8609	W. E. Rinehart; Cottonwood Spring; Stockwatering and domestic.....	0.024	10-5-36
2275	7	8610	W. E. Rinehart; Half Moon Lake; Stockwatering and domestic.....	0.024	10-5-36
2276	7	8757	W. E. Rinehart; Unnamed Creek; Stockwatering and domestic.....	0.024	10-5-36
2277	7	8608	W. E. Rinehart; Bald Mountain Spring; Stockwatering and domestic.....	0.024	10-5-36
2278	7	8607	W. E. Rinehart; Round Lake; Stockwatering and domestic	0.024	10-5-36
2279	7	6572	West End Consolidated Mining Company; Pepper Spring; Mining and domestic.....	0.008	10-9-36
2280	7	9336	Snow Creek Livestock Company; Underground source (Highway Well); Stockwatering.....	0.03	10-9-36
2281	7	9521	Town of Battle Mountain Unincorporated; Underground source (a well); Municipal.....	1.00	10-9-36
2282	7	9063	F. J. Powers and Son; Yellow Hill Creek; Stockwatering	0.0065	10-17-36
2283	7	9065	F. J. Powers and Son; Yellow Rock Creek; Stockwatering	0.0065	10-17-36
2284	7	9257	F. J. Powers and Son; Powers Spring; Stockwatering and domestic.....	0.0065	10-17-36
2285	7	9274	Jerome Noel Coleman; La Madre Spring; Irrigation and domestic.....	0.15	10-21-36
2286	7	9043	Willard H. George; Lone Grape Vine Spring; Stockwatering	0.0016	10-24-36
2287	7	9044	Willard H. George; Mud Spring No. 1; Stockwatering	0.0016	10-24-36

2288	7	9045	Willard H. George; Mud Spring No. 2; Stockwatering	0.0016	10-24-36
2289	7	9046	Willard H. George; Fig Spring; Stockwatering and domestic	0.0016	10-24-36
2290	7	9006	H. Moffat & Company; McConnel Spring; Stockwatering and domestic	0.066	11- 2-36
2291	7	9523	J. E. Renfro and May Renfro; Renfro's Spring; General traveling public, garden and domestic	0.0000433	11- 5-36
2292	7	9528	May Renfro; Willow Creek; Irrigation and domestic	0.001412	11- 5-36
2293	7	9660	Robert Thorley; Porphyry Spring; Stockwatering	0.00111	11- 9-36
2294	7	9068	Fred Wallace and James O'Brien; Unnamed Spring; Mining and domestic	0.0011	11-17-36
2295	7	9606	V. E. Greenwald; Underground source (Stagers Well); Stockwatering and domestic	0.002	11-17-36
2296	7	9344	F. A. Pecetti and Anthony Paul Gardella; Thomas Creek and Tributaries; Power	5.00	11-17-36
2297	7	9922	Grant Welch; Underground water (Rye Grass Well); Stockwatering and domestic	0.00334	41-23-36
2298	7	8321	Los Angeles & Salt Lake Railroad Company; Muddy River; Irrigation and domestic, 1/70 c.f.s. May 1 to September 30, incl.		11-24-36
2299	7	9883	George J. Meyers; Buren Springs; Irrigation and domestic	2.00	11-24-36
2300	7	9607	Jean Pierre Eyheralt; Fitzhugh Creek; Irrigation and domestic	0.1282	12- 2-36
2301	7	7540	Walter D. Parker and Samuel F. Parker; Underground water (artesian wells); Irrigation and domestic	1.0557	12- 7-36
2302	7	8465	H. S. Morgan; Rattlesnake Canyon Spring and Creek; Stockwatering and domestic	0.03125	12- 7-36
2303	7	8466	H. S. Morgan; Aldridge Canyon Spring and Creek; Stockwatering and domestic	0.03125	12- 7-36
2304	7	9366	Ohio Mines Corporation; Unnamed Underground Seepage (Lida Canyon); Mining, milling and domestic	0.038	12- 7-36
2305	7	7680	Harry L. Wilson; Cottonwood Spring; Stockwatering	0.00156	12- 8-36
2306	7	7684	Harry L. Wilson; Mud Spring; Stockwatering	0.00156	12- 8-36
2307	7	7875	Harry L. Wilson; Willow Spring; Stockwatering	0.00078	12- 8-36
2308	7	7876	Harry L. Wilson; Elder Spring; Stockwatering	0.00078	12- 8-36
2309	7	7877	Harry L. Wilson; Cherry Springs; Stockwatering	0.00125	12- 8-36
2310	7	7878	Harry L. Wilson; Boulder Spring; Stockwatering	0.00125	12- 8-36
2311*	7	9829	Dudley Henry Leavitt; Cabin Springs Creek; Irrigation and domestic	0.07	12- 8-36
2312	7	9814	Parman - Valerdi Company; Underground water; Irrigation and domestic	0.1078	12-14-36
2313	7	9816	Parman - Valerdi Company; Underground waters; Irrigation and domestic	0.0589	12-14-36
2314†	7	9995	Parman - Valerdi Company; Mud Meadows Creek and Tributaries; Irrigation and domestic, 292.38 acre feet per annum January 1 to December 31		2-10-37
2315	7	8412	Mrs. Kate P. Smith; Spring Valley Spring; Stockwatering	0.008	12-18-36
2316	7	9840	John Uhart; Bickel Spring; Stockwatering and domestic	0.032	12-28-36
2317	7	9841	John Uhart; Wiggins Spring; Stockwatering and domestic	0.032	12-28-36
2318	7	8212	Leo F. Schmitt, Receiver of the United Nevada Bank; Little Weimer Spring; Stockwatering	0.0125	1- 4-37
2319	7	8953	Fernando Segura; Nine Mile Canyon Creek; Stockwatering and domestic	0.023	1- 4-37
2320	7	3291	R. E. Warburton, Jr., and Thos. D. Warburton; Indian Spring; Irrigation and domestic	0.0253	2- 1-37
2321	7	8909	Como Mines Company; Boyle Tunnel; Mining, milling and domestic	0.067	2- 1-37
2322	7	8926	Como Mines Company; Alta Tunnel Spring; Mining and domestic	0.125	2- 1-37
2323	7	8927	Como Mines Company; Willow Tunnel; Mining and domestic	0.12	2- 1-37
2324	7	5514	Clayton C. Belcher; Chicken Creek; Irrigation and domestic	0.453	2- 9-37

†To change point of diversion and place of use. This amended certificate was issued to correct an error in the original Certificate No. 2314. *Assigned.

2325	7	10013	John Stafford; Underground (artesian well); Irrigation and domestic	0.05	2- 9-37
2326	7	10019	John Stafford and Burton F. Weller; Underground; Irrigation and domestic	0.0445	2-16-37
2327	7	8990	J. A. Ralph; Underground source (Pequop Well); Stockwatering	0.034	2-19-37
2328	7	3818	L. M. Jacobsen; Pine Nut Creek; Irrigation and domestic	0.283	2-26-37
2329	7	8495	John Uhalde; Butte Spring; Stockwatering	0.025	3- 9-37
2330	7	8595	John Uhalde; Cabin Spring; Stockwatering	0.025	3- 9-37
2331	7	3853	Merl F. Schofeld; Reed Spring; Stockwatering and domestic	0.001	3- 9-37
2332	7	5552	Bank of Pioche, Inc.; Crescent Spring; Stocking and domestic	0.0034	3-11-37
2333	7	3141	Robert Reid; Unnamed Spring; Stockwatering	0.005	3-30-37
2334	7	3142	Robert Reid; Unnamed Spring; Stockwatering	0.0047	3-30-37
2335	7	9619	Charles Allen Roberts; Narrows Springs; Irrigation and domestic	0.062	5-27-37
2336	8	7435	Henderson Banking Company Mortgage Corporation; South Gate Spring; Stockwatering	0.025	6-25-37
2337	8	7437	Henderson Banking Company Mortgage Corporation; 21 Spring; Stockwatering	0.034	6-25-37
2338	8	7439	Henderson Banking Company Mortgage Corporation; 25 Spring; Stockwatering	0.0125	6-25-37
2339	8	7788	Henderson Banking Company Mortgage Corporation; Mule Canyon Spring; Stockwatering	0.034	6-25-37
2340	8	7858	Henderson Banking Company Mortgage Corporation; Eighteen Spring in Cave Canyon; Stockwatering	0.033	6-25-37
2341	8	7859	Henderson Banking Company Mortgage Corporation; Eighteen No. 1 in Cave Canyon; Stockwatering	0.034	6-25-37
2342	8	9857	Parley Black, Sr.; Meadow Valley Creek; Irrigation	0.4334	7- 7-37
2343	8	9765	Chango and Aldax; Churchill Canyon Springs and Creek; Stockwatering	0.0188	7-30-37
2344	8	9901	Lindgren and Swinnerton; Cold Springs; Mining camp supply	0.10	8-19-37
2345	8	9196	Wright McKnight or Rosena McKnight; Meadow Valley Wash; Irrigation and domestic	0.28	9- 8-37
2346	8	10075	James C. Cummins; Pilot Creek; Irrigation and domestic	1.38	9-11-37
2347	8	3898	Nevada Porphyry Gold Mines, Inc.; Jett Creek; Mining, 1,000 acre feet storage per annum		9-16-37
2348	8	4655	Naoma W. Bullock (now Naoma Warden); Willow Spring; Stockwatering	0.0063	9-21-37
2349	8	8202	Garat and Company; Unnamed Spring; Stockwatering	0.0313	10-21-37
2350	8	8115	California Lands Inc.; Poco Camp Spring; Stockwatering and domestic	0.01	12-13-37
2351	8	8127	California Lands Inc.; Buckbrush Spring; Stockwatering	0.01	12-13-37
2352	8	8128	California Lands Inc.; Long Canyon Spring; Stockwatering	0.01	12-13-37
2353	8	8141	California Lands Inc.; High Rock Spring; Stockwatering	0.01	12-13-37
2354	8	8142	California Lands Inc.; North Branch Spring, Long Canyon; Stockwatering	0.01	12-13-37
2355	8	10119	Irvin Bauer; Tex Spring; Stockwatering	0.015	12-14-37
2356	8	10120	Irvin Bauer; Iron Tank Spring; Stockwatering	0.015	12-14-37
2357	8	9140	Riverview Cumberland Mining Corporation; Underground (a well); Mining and milling	0.005	12-28-37
2358	8	10074	Raymond Borda; Unnamed Spring; Stockwatering and domestic	0.02	1-12-38
2359	8	7646	James C. Riordan; Reef Spring; Mining, milling and domestic	0.10	1-15-38
2360	8	6800	Dewey Dan; Hand Me Down Creek; Irrigation	0.504	1-22-38
2361	8	7095	Dewey Dan; Unnamed Creek, now known as Dewey Dan Creek; Irrigation and domestic	0.155	1-22-38
2362	8	7042	Hans P. Christensen; Carson River; Irrigation	0.1966	2- 2-38
2363	8	10061	Raymond Borda; Unnamed Spring (sometimes known as Corral Springs); Stockwatering	0.019	2- 2-38
2364	8	7940	Carson and Tahoe Lumber and Fluming Company; South Zephyr Cove Creek; Irrigation, domestic and resort	2.0	2- 4-38
2365	8	8327	Carson and Tahoe Lumber and Fluming Company; Unnamed Spring; Irrigation, domestic and resort	0.1	2- 4-38

2366	8	9151	The Western Pacific Railroad Company; Garden Springs; Locomotive and domestic.	0.20	2-4-38
2367	8	6358	John Chevallier; Mason Creek; Irrigation and domestic	0.2145	2-16-38
2368	8	2554	The Ellison Ranching Company; Owyhee River (South Fork); Irrigation	1.552	3-4-38
2369	8	8171	Town of Minden (Unincorporated); Underground source (drilled wells); Municipal	3.35	3-22-38
2370	8	10101	The Town of Searchlight, Unincorporated; Underground source (drilled well); Municipal	0.014	3-22-38
2371	8	4014	The Ellison Ranching Company; Jerrett Creek; Irrigation	2.979	3-22-38
2372	8	4015	The Ellison Ranching Company; Niagara Creek; Irrigation	1.875	3-22-38
2373	8	4132	The Ellison Ranching Company; Spring Creek (Sometimes called South Fork of Owyhee River); Irrigation	1.324	3-22-38
2374	8	9580	Alex Duffurena; Rock Spring; Stockwatering	0.028	3-30-38
2375	8	3845	James A. Ralph; Cedar Pass Spring; Stockwatering	0.005	4-19-38
2376	8	5201	Adam Patterson Company; Spanish or Perry Aiken Creek; Irrigation	0.9339	4-22-38
2377	8	3793	John Yelland; Choke Cherry Spring; Irrigation	0.1022	4-26-38
2378	8	3942	A. M. Johnson, Bessie M. Johnson and Walter Scott; Monte Cristo Spring; Stockwatering	0.0027	5-2-38
2379	8	9657	Imperial Development Company, Ltd.; Rail Road Springs; Mining and milling	0.025	5-2-38
2380	8	3798	Charles W. Guthrie; Water Canyon Creek, also known as North Cinnabar Creek; Irrigation and domestic	0.05	5-13-38
2381	8	5497	Clayton C. Belcher; Warm Creek; Irrigation and domestic	0.5058	5-19-38
2382	8	9610	Mountain City Copper Company; Mill Creek; Irrigation and domestic	0.7507	5-20-38
2383	8	10192	Mary J. Averett; Meadow Valley Wash; Irrigation and domestic	0.461	5-26-38
2384	8	9744	Theodore H. Drummond; Big Spring; Stockwatering and domestic	0.013	6-4-38
2385	8	4176	Ellison Ranching Company; Hot Creek; Irrigation	1.081	6-14-38
2386	8	10181	Town of North Las Vegas; Underground Source; Municipal and domestic	1.00	6-21-38
2387	8	8942	Fernando Segura; John Blair Spring; Irrigation	0.4305	6-27-38
2388	8	8943	Fernando Segura; Segura No. 1 Spring and Creek; Stockwatering and domestic	0.019	6-27-38
2389	8	8944	Fernando Segura; Segura No. 2 Spring and Creek; Stockwatering and domestic	0.019	6-27-38
2390	8	8945	Fernando Segura; Segura No. 3 Creek and Springs; Stockwatering and domestic	0.019	6-27-38
2391	8	8946	Fernando Segura; Segura No. 4 Spring and Creek; Stockwatering and domestic	0.019	6-27-38
2392	8	8947	Fernando Segura; Segura No. 5 Spring, Creek and Lake; Stockwatering and domestic	0.019	6-27-38
2393	8	8948	Fernando Segura; Segura No. 6 Springs and Creek; Stockwatering and domestic	0.019	6-27-38
2394	8	8949	Fernando Segura; Segura No. 7 Springs and Creek; Stockwatering and domestic	0.019	6-27-38
2395	8	8950	Fernando Segura; Segura No. 8 Spring and Creek; Stockwatering and domestic	0.019	6-27-38
2396	8	8954	Fernando Segura; Chas. Allison Spring; Stockwatering and domestic	0.004	6-27-38
2397	8	9040	Fernando Segura; Meadow Canyon Creek and Springs; Irrigation and domestic	0.1851	6-27-38
2398	8	9041	Fernando Segura; Antelope Valley Springs and Tributaries; Stockwatering and domestic	0.038	6-27-38
2399	8	6721	Mary Larson; Unnamed Spring (Worden Spring); Stockwatering and domestic	0.0005	6-27-38

CHAPTER XIX**Office Finances**

Showing receipts and disbursements of State Engineer's office accounts, and other accounts controlled by this office, for the period July 1, 1936, to June 30, 1938.

REPORT OF STATE ENGINEER

SEGREGATED EXPENDITURES FROM APPROPRIATION FOR SUPPORT OF STATE ENGINEER'S OFFICE DURING THE PERIOD JULY 1, 1936, TO JUNE 30, 1938

Month and Year	Appropriation by	Salaries	Traveling expenses	Office expense	Equipment	Total	Balance
1936							
July.....	Legislature	\$640.00	\$62.45	\$61.18	\$18.25	\$781.88	
August.....	\$13,259.70	640.00	207.11	118.33	.....	965.44	
September.....	640.00	168.66	69.68	.....	878.34	
October.....	640.00	108.72	100.02	733.00	1,581.74	
November.....	640.00	194.53	71.11	.....	905.64	
December.....	640.00	347.84	96.32	.....	1,084.16	
Totals.....	\$7,875.00	\$1,960.23	\$1,424.05	\$1,978.66	\$13,237.94	*\$21.76
1937							
January.....	640.00	166.58	5.67	.....	812.25	
February.....	640.00	220.18	338.08	.....	1,298.26	
March.....	640.00	99.53	88.88	.....	828.41	
April.....	640.00	136.00	142.71	213.50	1,132.21	
May.....	640.00	68.92	90.11	65.50	864.53	
June.....	735.00	179.71	241.96	948.41	2,105.08	
Totals.....	\$7,875.00	\$1,960.23	\$1,424.05	\$1,978.66	\$13,237.94	*\$21.76
1938							
July.....	\$655.00	\$70.99	\$65.25	\$126.64	\$791.24	
August.....	†\$24,490.00	655.00	150.54	88.93	.....	1,021.11	
September.....	655.00	24.94	105.96	85.75	871.65	
October.....	655.00	208.99	102.21	54.73	1,020.93	
November.....	655.00	437.06	61.75	.....	1,153.81	
December.....	655.00	227.11	114.93	.....	997.04	
Totals.....	\$7,880.00	\$1,861.72	\$1,021.73	\$568.12	\$11,331.57	\$13,158.43

*Reverted June 30, 1937. †Appropriation for support State Engineer's Office, exclusive of statutory salary appropriation.

SEGREGATED STATEMENT OF FEES COLLECTED BY STATE ENGINEER FROM JULY 1, 1936, TO JUNE 30, 1938

Month and year	Fees received	Proofs of appropriation	Applications— Publications	Record- ing permits	Proof of completion of work	Proof of benefit to work	Protests	Clerical	Blue prints	Excess collections	Advance for certificates
1936											
July.....	\$438.00		\$137.50	\$107.50	\$16.00	\$8.00	\$2.00	\$37.00	\$6.00	\$15.00	\$4.00
August.....	480.00		175.00	105.00	8.00	3.00	.....	21.00	10.00	32.00	7.00
September.....	268.00		87.50	52.50	2.00	1.00	.....	27.00	3.00	10.00	10.00
October.....	823.00		275.00	165.00	16.00	11.00	3.00	52.00	9.00	13.00	12.00
November.....	281.40		75.00	45.00	11.00	7.00	2.00	41.00	2.00	1.00	14.00
December.....	803.80		187.50	127.50	14.00	15.00	7.00	46.00	13.80	1.00	15.00
Totals.....	\$3,094.20		\$937.50	\$602.50	\$67.00	\$49.00	\$14.00	\$224.00	\$43.80	\$72.00	\$52.00
1937											
January.....	\$330.25	\$10.00	\$75.00	\$45.00	\$16.00	\$6.00	\$4.00	\$28.00	.....	\$1.00	\$6.00
February.....	540.00	20.00	237.50	142.50	2.00	3.00	3.00	18.00	.....	2.00	5.00
March.....	340.00	10.00	150.00	95.00	1.00	1.00	5.00	21.00	7.00	4.00	6.00
April.....	161.50	.....	75.00	45.00	.....	.....	2.00	30.00	6.00	50	.....
May.....	313.90	.....	137.50	82.50	6.00	8.00	1.00	25.10	16.80	4.00	1.00
June.....	316.00	.....	125.00	75.00	12.00	7.00	3.00	38.00	6.50	.....	6.00
July.....	303.25	10.00	137.50	82.50	2.00	9.00	2.00	6.00	7.25	10.00	2.00
August.....	424.50	.....	200.00	120.00	1.00	4.00	3.00	27.00	17.60	.....	1.00
September.....	283.00	.....	137.50	82.50	5.00	1.00	4.00	15.00	3.00	1.00	4.00
October.....	494.00	10.00	150.00	90.00	2.00	4.00	5.00	55.00	2.00	.....	1.00
November.....	206.00	.....	50.00	40.00	7.00	2.00	3.00	16.00	.....	.....	.....
December.....	486.00	.....	100.00	65.00	13.00	4.00	6.00	42.00	5.00	21.00	8.00
Totals.....	\$4,198.50	\$60.00	\$1,575.00	\$965.00	\$68.00	\$47.00	\$41.00	\$319.10	\$73.15	\$43.50	\$40.00
1938											
January.....	\$353.00	.....	\$75.00	\$50.00	\$11.00	\$1.00	\$1.00	\$23.00	\$3.00	.....	\$6.00
February.....	283.00	.....	112.50	67.50	7.00	3.00	2.00	6.00	2.00	\$2.00	5.00
March.....	216.00	.....	100.00	60.00	4.00	3.00	1.00	26.00	10.00	7.00	7.00
April.....	632.50	.....	312.50	192.50	5.00	2.00	1.00	12.00	4.00	21.50	5.00
May.....	272.00	.....	130.00	82.00	4.00	3.00	.....	50.00	4.00	.....	4.00
June.....	354.50	.....	100.00	60.00	3.00	3.00	1.00	19.00	7.50	.....	16.00
Totals.....	\$2,116.00	.....	\$737.50	\$482.50	\$34.00	\$19.00	\$6.00	\$136.00	\$27.50	\$25.50	\$43.00

REPORT OF STATE ENGINEER

SEGREGATED STATEMENT OF DISBURSEMENTS BY STATE ENGINEER FROM JULY 1, 1936, TO JUNE 30, 1938

Month and Year	Total disbursements	Deposited with State Treasurer	Paid for publications	Refunds	Recording certificates	Blue prints
1936						
July.....	\$334.50	\$268.50	\$50.00	\$15.00	\$1.00	
August.....	598.00	288.00	19.50	14.50	3.00	
September.....	298.00	181.00	12.50	7.00	7.00	
October.....	737.00	538.50	75.00	174.50	19.00	
November.....	436.10	159.40	56.00	176.00	11.00	\$8.70
December.....	787.40	533.40	162.50	13.50	18.00	
Totals.....	\$3,051.00	\$1,999.80	\$500.00	\$483.50	\$59.00	\$8.70
1937						
January.....	\$454.75	\$239.25	\$125.00	\$88.50	\$3.00	
February.....	336.50	273.50	50.00	2.00	9.00	
March.....	307.80	166.50	112.50	3.00	6.00	\$19.80
April.....	37.00	83.00		14.00		
May.....	218.00	163.00	37.50	16.50	1.00	
June.....	337.75	131.75	25.00	125.00	6.00	
July.....	436.44	140.13	225.00	50.00	2.00	
August.....	488.30	214.80	237.50	35.00	1.00	19.31
September.....	406.50	139.00	187.50	76.00	4.00	
October.....	458.00	322.00	87.50	37.50	1.00	
November.....	217.50	155.00	62.50			
December.....	521.50	355.00	100.00	58.50	8.00	
Totals.....	\$4,280.04	\$2,443.93	\$1,250.00	\$506.00	\$41.00	\$39.11
1938						
January.....	\$479.50	\$275.50	\$187.50	\$12.50	\$4.00	
February.....	240.00	162.50	50.00	21.50	6.00	
March.....	262.00	102.00	150.00	2.00	8.00	
April.....	378.50	291.50	62.50	21.50	3.00	
May.....	251.00	230.00	25.00		6.00	
June.....	475.05	234.25	62.00	150.00	16.00	\$12.30
Totals.....	\$2,096.05	\$1,295.75	\$537.50	\$207.50	\$43.00	\$12.30

**STATEMENT OF RECEIPTS AND DISBURSEMENTS, JULY 1, 1936, TO
JUNE 30, 1938**

Balance July 1, 1936.....	\$11,372.44	Disbursements July 1, 1936, to June 30, 1938.....	\$9,618.42
Receipts July 1, 1936, to June 30, 1938.....	9,838.52	Balance June 30, 1938.....	9,917.18
	<u>\$21,210.96</u>		
Less amount lost in Carson Valley Bank	1,675.36		
Total	\$19,535.60	Total	\$19,535.60

CASH RECONCILEMENT

Balance Carson Branch First National Bank of Nevada.....	\$3,838.45		
Less outstanding checks.....	386.25		
	<u>\$3,452.20</u>	\$3,452.20	\$3,452.20
Outstanding reimbursements Humboldt River Adjudication.....		5,214.98	5,214.98
Revolving Fund		1,250.00	1,250.00
Balance June 30, 1938.....		<u>\$9,917.18</u>	\$9,917.18

COLORADO RIVER COMMISSION, STATEMENT OF EXPENDITURES, JULY 1, 1936, TO JUNE 30, 1938

Month and year	Total disbursements	Commen- sations	Traveling expense and telegraph	Telephone and telegraph equipment	Supps and equipment	Publications and printing	Miscel- laneous	Balances
1936								
Balances July 1, 1936	\$2,741.11	\$475.08	\$675.05	\$182.06	\$173.27	\$941.15	\$294.50	\$22,258.89
July	\$142.74	\$50.00	\$64.52	\$15.62	.....	\$12.60	.....	.....
August	116.02	116.02	.....	.....	.....	.....	.....	.....
September	67.35	.....	52.00	2.85	.....	.....	12.50	.....
October	305.38	35.00	220.70	46.03	3.65	.....	.....	.....
November	95.09	.....	22.10	18.88	54.11	.....	.....	.....
December	141.40	30.00	57.50	53.90	.....	.....	.....	.....
Totals	\$867.98	\$231.02	\$416.82	\$137.28	\$57.76	\$12.60	\$12.50	\$21,390.91
1937								
February	\$299.54	\$566.64	\$124.65	\$15.69	\$76.70	\$1.50	\$11.00	.....
March	861.27	.....	180.74	59.11	7.18	29.40	38.50	.....
April	280.08	50.00	214.56	12.54	2.88	.....	.....	.....
May	3,090.48	1,016.00	1,909.41	36.07	67.50	.....	62.50	.....
June	1,243.85	15.00	1,157.83	71.02	.....	.....	.....	.....
July	31.87	.....	6.18	10.69	.....	.....	15.00	.....
August	57.03	20.00	26.23	10.80	.....	.....	.....	.....
September	91.15	.....	53.65	.....	15.00	22.50	.....	.....
October	180.73	.....	12.21	19.26	149.26	.....	.....	.....
November	106.79	.....	47.75	47.94	4.75	6.35	3.73	.....
December	1,552.27	250.00	1,281.12	11.88	5.54	.....	.....	.....
Totals	\$7,745.06	\$1,916.64	\$5,014.03	\$295.00	\$328.91	\$59.75	\$130.73	\$13,645.85
1938								
January	\$604.50	\$40.00	\$492.75	\$38.75	.....	.....	\$33.00	.....
February	394.20	212.50	158.96	18.53	4.21	.....	.....	.....
March	612.92	90.00	387.99	51.19	35.60	1.75	46.39	.....
April	1,449.55	236.66	1,122.46	17.80	18.83	.....	53.80	.....
May	630.09	220.00	377.59	29.55	.....	2.95	.....	.....
June	290.99	45.89	.....	15.03	216.67	.....	13.40	.....
Totals	\$3,982.25	\$845.05	\$2,539.75	\$170.85	\$273.31	\$4.70	\$277.32	\$9,663.60
							Plus	\$9,714.20

*Reimbursement.

**HUMBOLDT RIVER DISTRIBUTION, STATEMENT OF EXPENDITURES
FROM JULY 1, 1936, TO JUNE 30, 1938**

Month and year	Total	Salaries	Traveling expense	Misc. expense
<i>1936</i>				
July.....	\$2,474.14	\$1,655.00	\$281.67	\$537.47
August.....	1,615.81	1,405.34	83.87	126.60
September.....	1,281.61	815.20	365.26	101.15
October.....	688.87	441.00	118.74	129.13
November.....	503.38	315.00	103.89	84.49
December.....	396.07	305.00	22.01	69.06
Totals.....	\$6,959.88	\$4,936.54	\$975.44	\$1,047.90
<i>1937</i>				
January.....	\$219.99	\$160.00	\$45.39	\$14.60
February.....	236.95	210.00	19.33	7.62
March.....	296.74	280.00	10.44	6.30
April.....	1,748.51	640.20	757.25	351.06
May.....	1,689.41	1,285.00	257.81	146.60
June.....	2,029.76	1,830.00	11.40	188.36
July.....	2,752.96	2,105.00	414.80	233.16
August.....	1,862.56	1,268.25	451.55	142.76
September.....	1,617.94	901.00	333.20	383.74
October.....	900.42	564.00	211.99	124.43
November.....	570.98	320.00	156.16	94.82
December.....	527.33	315.00	135.87	76.46
Totals.....	\$14,453.55	\$9,878.45	\$2,805.19	\$1,769.91
<i>1938</i>				
January.....	\$416.13	\$315.00	\$45.64	\$55.49
February.....	421.05	355.00	18.52	47.53
March.....	168.71	165.00	.....	3.71
April.....	1,140.16	937.00	98.55	104.61
May.....	2,420.44	1,709.00	331.45	379.99
June.....	2,663.80	2,421.75	46.26	195.79
Totals.....	\$7,230.29	\$5,902.75	\$540.42	\$787.12

**LITTLE HUMBOLDT RIVER DISTRIBUTION, STATEMENT OF
EXPENDITURES FROM JULY 1, 1936, TO JUNE 30, 1938**

Month and year	Total	Salaries	Traveling expense	Misc. expense
<i>1936</i>				
July.....	\$330.03	\$240.00	\$84.63	\$5.40
August.....	333.82	248.00	75.74	10.08
September.....	337.65	248.00	84.07	5.58
October.....	105.44	96.00	7.28	2.16
November.....	5.00	5.00	.....	.....
December.....	45.00	5.00	40.00	.....
Totals.....	\$1,156.94	\$842.00	\$291.72	\$23.22
<i>1937</i>				
January.....	\$158.49	\$155.00	.....	\$3.49
April.....	200.14	159.00	\$37.56	3.58
May.....	314.35	240.00	68.95	5.40
June.....	324.07	253.00	65.38	5.69
July.....	315.96	240.00	70.56	5.40
August.....	320.90	248.00	67.32	5.58
September.....	277.48	224.00	48.44	5.04
October.....	5.00	5.00	.....	.....
November.....	5.00	5.00	.....	.....
December.....	5.00	5.00	.....	.....
Totals.....	\$1,926.39	\$1,534.00	\$358.21	\$34.18
<i>1938</i>				
January.....	\$5.00	\$5.00	.....	.....
February.....	101.43	101.00	.....	\$0.43
March.....	127.81	125.00	.....	2.81
April.....	168.30	114.50	\$42.42	11.38
May.....	335.34	240.00	86.24	9.10
June.....	373.95	276.00	82.04	15.91
Totals.....	\$1,111.83	\$861.50	\$210.70	\$39.63

CURRENT AND DUCKWATER CREEKS, STATEMENT OF EXPENDITURES FROM JULY 1, 1936, TO JUNE 30, 1938

Month and year	Total	Salaries	Traveling expense	Misc. expense
<i>1936</i>				
July	\$280.50	\$191.25	\$84.95	\$4.30
August	290.78	210.00	76.05	4.73
September	293.73	232.50	56.00	5.23
October	192.53	138.26	51.40	2.93
December	29.55	.....	29.55	.....
Totals	\$1,087.09	\$771.95	\$297.95	\$17.19
<i>1937</i>				
June	\$139.97	\$132.00	.....	\$7.97
July	176.31	165.00	\$7.60	3.71
August	182.77	178.75	.....	4.02
September	196.06	191.75	.....	4.31
October	196.06	191.75	.....	4.31
November	206.03	201.50	.....	4.53
Totals	\$1,097.20	\$1,060.75	\$7.60	\$28.85
<i>1938</i>				
May	\$112.98	\$110.50	.....	\$2.48
June	206.03	201.50	.....	4.53
Totals	\$319.01	\$312.00	.....	\$7.01

PAHRANAGAT LAKE DISTRIBUTION, STATEMENT OF EXPENDITURES FROM JULY 1, 1936, TO JUNE 30, 1938

Month and year	Total	Salaries	Traveling expense	Misc. expense
<i>1936</i>				
September	\$261.93	\$217.00	\$40.05	\$4.88
October	148.89	105.00	41.53	2.36
Totals	\$410.82	\$322.00	\$81.58	\$7.24
<i>1937</i>				
August	\$220.56	\$182.00	\$34.46	\$4.10
September	293.91	238.00	50.56	5.35
December	225.55	175.00	46.61	3.94
Totals	\$740.02	\$595.00	\$131.63	\$13.39
<i>1938</i>				
March	\$88.83	\$70.00	\$17.25	\$1.58
May	8.80	.....	.....	8.80
June	6.00	.....	6.00	.....
Totals	\$103.63	\$70.00	\$23.25	\$10.38

MUDDY RIVER DISTRIBUTION, STATEMENT OF EXPENDITURES FROM JULY 1, 1936, TO JUNE 30, 1938

Month and year	Total	Salaries	Misc. expense
<i>1936</i>			
July	\$46.01	\$45.00	\$1.01
August	47.55	46.50	1.05
September	47.55	46.50	1.05
October	46.01	45.00	1.01
November	15.85	15.50	.35
December	15.34	15.00	.34
Totals	\$218.31	\$213.50	\$4.81
<i>1937</i>			
January	\$15.85	\$15.50	\$0.35
February	15.85	15.50	.35
March	14.32	14.00	.32
April	15.85	15.50	.35
May	15.34	15.00	.34
June	47.55	46.50	1.05
July	46.01	45.00	1.01
August	47.55	46.50	1.05
September	47.55	46.50	1.05
October	46.01	45.00	1.01
November	15.85	15.50	.35
Totals	\$327.73	\$320.50	\$7.23
<i>1938</i>			
June	\$62.88	\$61.50	\$1.38

**WHITE RIVER DISTRIBUTION, STATEMENT OF EXPENDITURES
FROM JULY 1, 1936, TO JUNE 30, 1938**

Month and year	Total	Salaries	Traveling expense	Misc. expense
<i>1936</i>				
July	\$52.01	\$33.75	\$17.50	\$0.76
August	35.26	22.50	12.25	.51
October	13.29	13.00	.....	.29
Totals	\$100.56	\$69.25	\$29.75	\$1.56
<i>1937</i>				
August	\$33.95	\$24.50	\$8.90	\$0.55
September	17.82	10.50	7.32	.....
October	8.90	3.50	5.40	.....
Totals	\$60.67	\$38.50	\$21.62	\$0.55

NEVADA COOPERATIVE SNOW SURVEYS, STATEMENT OF DISBURSEMENTS FROM JULY 1, 1936, TO JUNE 30, 1938, INCLUSIVE

Month and year	Appropriation by Legislature	Total	Wages	Traveling expense	Supplies	Balance
<i>1937</i>						
Bal. July 1, 1936.....	\$240.56	.....	.....	.....	.....	.....
May .....	.....	\$237.50	\$237.00	.....	.....	.....
June .....	.....	3.56	.....	.....	\$3.50	.....
Totals .....	.....	\$240.50	\$237.00	.....	\$3.50	*\$0.06
<i>1938</i>						
July 1, 1937.....	\$1,000.00	.....	.....	.....	.....	.....
March .....	.....	\$292.85	\$240.00	\$27.75	\$25.10	.....
April .....	.....	18.11	.....	.....	18.11	.....
June .....	.....	189.89	134.50	51.00	4.39	.....
Totals .....	.....	\$500.85	\$374.50	\$78.75	\$47.60	\$499.15

*Reverted June 30, 1937.

NEVADA COOPERATIVE STREAM MEASUREMENT, STATEMENT OF DISBURSEMENTS FROM JULY 1, 1936, TO JUNE 30, 1938, INCLUSIVE

Month and year	Appropriation by Legislature	Total	Wages	Traveling expense	Supplies	Balance
<i>1936-1937</i>						
Bal. July 1, 1936.....	\$1,051.74	.....	.....	.....	.....	.....
July	\$119.30	\$50.00	\$33.35	\$35.95	.....
August	21.00	21.00	.....	.....	.....
September	92.35	55.00	32.95	4.40	.....
October	21.00	21.00	.....	.....	.....
December	131.10	115.00	16.10	.....	.....
Totals	\$384.75	\$262.00	\$82.40	\$40.35	.....
February	\$28.00	\$21.00	.....	\$7.00	.....
April	130.00	126.00	4.00	.....	.....
May	240.00	240.00	.....	.....	.....
June	123.58	123.58	.....	.....	.....
Totals	\$521.58	\$510.58	\$4.00	\$7.00	*\$145.41
<i>1937-1938</i>						
July 1, 1937.....	\$1,500.00	.....	.....	.....	.....	.....
August	\$70.10	\$35.00	\$35.10	.....	.....
October	21.00	21.00	.....	.....	.....
November	133.20	133.20	.....	.....	.....
Totals	\$224.30	\$189.20	\$35.10	.....	.....
January	\$17.50	\$17.50	.....	.....	.....
February	36.14	.....	\$36.14	.....	.....
May	260.34	166.66	41.68	52.00	.....
Totals	\$313.98	\$184.16	\$77.82	\$52.00	\$961.72

*Reverted June 30, 1937.

**ADJUDICATION EMERGENCY FUND, STATEMENT OF EXPENDITURES
FROM JULY 1, 1936, TO JUNE 30, 1938, INCLUSIVE**

	Month and year	Amount in fund	Total	Transcripts	Balance
July	1936	\$6,935.86			
July	1938		\$220.50	\$220.50	
April			57.53	57.53	
Totals			\$278.03	\$278.03	\$6,657.83

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