To be prepared June 30 and December 31 each year.

5—163 d

Summary Irrigation Data.

DISTRICT No. 5

DEPARTMENT OF THE INTERIOR,

November 1st, 1920

UNITED STATES INDIAN IRRIGATION SERVICE.

Reservation _____ State New Mexico Project Well Drilling

Total area reservation _____ Tribes Navajo & Hopi Total census in 19 , _____

LOCATION AND CLIMATIC CONDITIONS.

County _____
Townships and ranges _____
Railroads on and adjacent _____
Railroad stations _____
Market for products _____
Average elevation irrigable area _____
Average elevation watershed _____
Average rainfall on irrigable area _____
Average rainfall on watershed _____
Range of temperature on irrigable area _____

WATER SUPPLY.

Source of water supply _____
Area of drainage basins in square miles _____
Annual run-off in acre feet _____

SUMMARY OF RESULTS.

Present available reservoir capacity _____
_____ Reservoir _____ acre feet.
_____ Reservoir _____ acre feet.

Canal miles, with capacities in second-feet,
- More than 500 _____
- From 250 to 500 _____
- From 50 to 250 _____
- From 15 to 50 _____
- Less than 15 _____

Tunnels
- Number _____
- Total length _____
- Size _____

Waste ditches
- Miles _____ capacity _____ sec. feet.
- Miles _____ capacity _____ sec. feet.

Storage dams, volume, cubic yards
- Masonry _____
- Earth _____
- Rockfill _____

Diversion dams, volume, cubic yards
- Masonry _____
- Earth _____
- Rockfill _____
- Crib _____

Dikes or levees
- Total length, feet _____
- Volume cubic yards _____

Number of canal structures (exclusive of dams and tunnels, but including bridges, culverts, pipes, flumes),
- Costing over $2,000 each,
  - Masonry _____
  - Concrete _____
  - Wood _____
- Costing from $500 to $2,000 each,
  - Masonry _____
  - Concrete _____
  - Wood _____
- Costing from $100 to $500 each,
  - Masonry _____
  - Concrete _____
  - Wood _____
- Costing less than $100 each,
  - Masonry _____
  - Concrete _____
  - Wood _____

Bridges—

		Steel.	Combination.	Wood.	Concrete.
Number,	Length 50 feet or more				
	Length less than 50 feet				
Total length, feet					

Culverts
- Concrete _____ number _____ length _____
- Wood _____ number _____ length _____
- Metal _____ number _____ length _____

Pipe—
- Concrete feet laid _____ cost _____
- Metal feet laid _____ cost _____
- Terra cotta feet laid _____ cost _____
- Wood feet laid _____ cost _____

Flumes—
- Concrete, number _____ size _____
  - length _____ cost _____
- Steel, number _____ size _____
  - length _____ cost _____
- Wood, number _____ size _____
  - length _____ cost _____

Buildings—
- Number of offices _____ cost _____
- Number of residences _____ cost _____
- Number of power plants _____ cost _____
- Number of pumping stations _____ cost _____
- Number of barns _____ cost _____
- Number of warehouses _____ cost _____

Wells—
- Number _____
  - Aggregate depth _____
  - Aggregate cost _____

Roads—
- Miles constructed _____ Aggregate cost _____

Telephone Lines—
- No. stations _____ aggregate cost _____ miles _____

Transmission lines—
- Miles constructed _____ aggregate cost _____

Water power
- H. P. developed _____
- Development cost per H. P. _____

Material excavated, Class
- 1. Cubic yards _____ cost _____
- 2. Cubic yards _____ cost _____
- 3. Cubic yards _____ cost _____

Riprap, cubic yards _____ cost _____
Masonry, cubic yards _____ cost _____
Dry wall, cubic yards _____ cost _____
Concrete, cubic yards _____ cost _____
Cement, bbls. used _____ cost _____

SEE OVER

The estimated cost of completed project _____
Estimated area for completed project in acres _____
Area which can be supplied from constructed works without additional construction _____

Irrigated at present time by
- Indians, acres _____
- Whites
  - Owned, acres _____
  - Leased, acres _____

Total cost of project to date $188,624.20

Total amount paid for labor
- Indian _____
- White _____

Average value of irrigated lands _____

Approved: H. F. ROBINSON

_____, *Project Engineer.* _____, *Supt of Irrigation.*

6—4419

USPRI001130

The first well drilling was done in the fall of 1910. Since that time some well drilling has been going on most of the time. In the Navajo Hopi country there has been drilled 122 dry holes, with a aggregate depth of 13,380 feet and 115 good wells with an aggregate depth of 15,962 feet.

In the Zuni Reservation 5 good wells were put down with an aggregate depth of 442 feet and three dry holes, depth 184 feet.

Seven of these wells were 6" holes, 5 were 12" holes, 6 were 12" at the surface and reduced to 4", one from 10" to 6" and one from 8" to 4".

Nine of the wells have developed an artesian flow.

All of the non-flowing wells have been equipped with a pump, windmill, usually an 8 foot aermotor, auto-oiled mill, on a 30 to 40 foot tower, a tank with a capacity of 2300 gallons and troughs for cattle.

For further details see full list of the wells submitted the Office in October 1920.

Costs of the individual wells have not been kept for all of the wells, but of 28 dry wells, 3½" casing, with a total depth of 3687 feet and a total cost of $11,565.48, the average cost per foot was $3.14.

Fifty good wells of the same size with a total depth of 7566 feet, cost $41,777.53 or a cost per foot of $5.52, including full equipment.

The average cost per foot of all of the above wells was $4.74.

The cost for the individual wells varied greatly as the cost of moving is included with each well and sometimes a long move which was expensive on account of bad roads etc. would run up the cost and at times tools were lost in the hole, involving extra costs. One shallow well, on account of long move etc. cost $18.73 per foot; and at one place where a number of dry holes without any casing were put down with only a short move the cost of the actual drilling went down to as low as 47¢ in one case.

USPRI001131