

Department of the Interior
U. S. Indian Irrigation Service

ANNUAL PROGRESS REPORT

Fiscal Year 1933

District No. 1

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Albuquerque, N. Mex.



39388-1933



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Canado Project

Employee in Charge: Neil Campbell, Foreman.

Precipitation occurred on the project during the months of July, August, September, April, and June, supplying moisture which greatly assisted in the maturing of crops. One rain during June assumed cloudburst proportions on the lower part of the project and the resulting flood caused damage to the canal and some of the structures.

Operation

Diversion was made from the Rio Pueblo Colorado into the reservoir during the months of July, August, October, March, April, and June. The run-off was far below normal for the seasons of 1932 and 1933, permitting only limited delivery during July and August, returning to normal for the month of September with no further demand for the rest of the season.

Beginning the season of 1933, water was turned into the canal May 8 but only a limited delivery was made on account of the low stage of the reservoir. This was continued throughout June but only gardens were irrigated.

Maintenance

Repairs to the diversion dam, reservoir, and distribution system during the year were of only a minor nature. Some work was done on the diversion dam during July and August, and to canal structures in March when the spring cleaning of the canal was done. Sixteen hundred feet of rock bank protection and brush

riprap to canal banks were placed during April.

Major repairs were made to the project cottage, garage, and warehouse. This is the first work done on these buildings for many years, and these repairs were necessary, not only for general appearances, but also for the comfort of the man in charge.

In all this work the Indians farming on the project were given the first opportunity in order that they might earn sufficient money to pay their water charges which amount to \$1.00 an acre.

During the irrigation season of 1932 there were under cultivation 437.13 acres, of which 115.5 were non-Indian, and 321.63, Indian. It is estimated that the acreage for the 1933 season will be approximately the same.

Miscellaneous Navajo Projects

Employee in Charge: C. A. Burns, Engineer.

Choiska

The sum of \$2,000 was allotted for the completion of the distribution system on this project. This involved some additional excavation on the main canal, the excavation of the main lateral, and the construction of two concrete checks and drops. With the exception of these structures, the balance was to be expended for labor for the excavation of the canals.

Kinlechee

The 1932 operation and maintenance program carried the amount of \$500 for the replacement of the diversion dam, and the 1933 program, \$1,600 for the improvement of the distribution system. The original diversion dam was a log crib, rock-filled structure constructed in 1923. Continual maintenance was necessary on this structure and it was decided that a diversion dam of a more substantial type would be necessary, and that serious damage to crops might result if the failure of the old dam occurred before replacement was undertaken. The new dam is located upstream from the old structure where a projecting ledge provided a spillway through the rock and the construction of an earth embankment across the stream channel diverted its course to this spillway. The removal of the rock from the spillway after drilling and blasting, and the construction of the earth embankment,

was contracted to the Indians on this project for a nominal sum. An additional payment was made to the Indians when difficulties were encountered in the work. There were 900 cubic yards of earth moved to construct the embankment, and 305 square yards of rock placed on the upstream face of the embankment to prevent erosion.

To better the distribution system, two flumes were replaced with siphons. One flume on the main lateral crossed the Rio Pueblo Colorado 30 feet above the stream bed. This flume was 220 feet long and required continual maintenance. The other flume, on the main canal, crossed a deep arroyo 25 feet above the bottom, in a single span. This structure also caused much trouble and its replacement with a siphon will eliminate all the trouble experienced heretofore. Some assistance was rendered the Indians in the placing of these two siphons and all the work done was supervised by Foreman Campbell of the Ganado Project.

Moencopi Wash

There was \$4,500 allotted for the improvement of the main canal, the construction of two sand traps and sluice gates, and one water bridge to carry flood water over the canal. Work on the canal was done in August under the supervision of Instrumentman Mutz. All of the damaged canal lining was removed, the overburden through the deep cut was carried back from the canal banks, and the canal regraded for several hundred feet. The Agency

assisted in this work by loaning a tractor for the excavation. On November 21, Foreman R. E. Frost commenced work on the canal structures. Two sand traps with sluice gates were constructed, one at station 17-00, and the other near the dairy barn several thousand feet below. At the location of the first structure a flume was built over the canal to carry flood water, this being a replacement of an old timber structure. Work was stopped in December on account of cold weather, and resumed in March and completed during that month.

Rock Point

There was allotted \$2,200 in the 1933 program for the improvement and betterment to the diversion dam of this Indian-built project located on a tributary of Chinle Creek on the Southern Navajo Jurisdiction. Work was started on March 24 and completed the first week in June. The site of the diversion dam is an exposed sandstone ledge. On this ledge was constructed a low concrete weir 60 feet long, and protecting wing walls. To divert the flow of the stream over this spillway an earth embankment was constructed across the channel and faced with a rock blanket to prevent erosion. The Indians farming on this project moved all of the earth to construct the embankment. The concrete work was under the supervision of General Foreman Bentley.

Water Supply ProjectsNavajo and HopiMaintenance

At the close of the fiscal year 1933 there was a total of 749 developments consisting of springs, dug wells, drilled wells, and artesian wells. These developments are divided among the jurisdictions as follows: Northern Navajo, 211; Eastern Navajo, 44; Southern Navajo, 174; Western Navajo, 129; Leupp, 51; and Hopi, 140.

Regular maintenance of these developments is necessary throughout the year, with particular attention paid to the wells equipped with windmills. For many years two crews have been doing this work, one operating from Polacca, and the other from Chinle, in Arizona. In addition to the regular work, it has been the practice for the past few years to have the spring development crews make a visit to those in their jurisdiction each year.

Construction

Four construction crews operated in the various jurisdictions during the entire fiscal year with the exception of a period of forty to sixty days during December, January, and February, when the cold weather was unfavorable for concrete work and the roads unsuitable for the movement of supplies and equipment, and during the months of May and June when all

construction activities were suspended for the remainder of the year. A table showing the number of developments by jurisdictions is placed at the end of this statement.

Northern Navajo

It had been planned to drill three or four wells in that section south of Farmington and near the east boundary of the reservation. Little or no work had been done in this district because of the lack of surface indications of water. The first well was drilled to a depth of 441 feet but was filled up to the 300-foot level as unsuitable water was encountered at the lower depth. A windmill was erected over the well and a tank and trough constructed. At the second site the driller went to 915 feet without encountering any water and this was abandoned. At the third site, operations were carried on to a depth of 400 feet without encountering water in sufficient quantities to warrant development. It was then decided to suspend drilling in this section for the rest of the year. The rig was moved to the Eastern Navajo jurisdiction. In addition to this activity there were developed three dug wells with concrete stock troughs. This brings the total number of developments in this jurisdiction to 211.

Eastern Navajo

After completing the program of drilling in Northern Navajo jurisdiction, the well rig was moved to the Church Rock Well, No. 553, early in November. The contractor of this development had

defaulted. To proceed with the operations it was first necessary to pull the casing and clear the hole before drilling could be continued. This was completed by January. A casing of smaller diameter was set and drilling continued to a depth of 1,675 feet where an artesian flow was encountered. At present this well is developing 330 gallons per minute.

Other activities were the construction of three stock water reservoirs and the development of one spring with concrete stock trough. The average capacity of two of the reservoirs is 15 acre feet for the movement of 2,945 cubic yards of earth, but on the third reservoir a 345-acre-foot capacity was secured and the earth embankment contains only 2,406 cubic yards. This brings the total number of developments in this jurisdiction to 44.

Southern Navajo

The total number of developments for the year was sixteen, three of which were stock water reservoirs constructed by Indian contractors, four were springs, and nine were dug wells. Of the nine wells, seven were equipped with windmills. Two of these developments were located at Chapter houses and will supply water for the laundry and bath house. The total number of developments is 174.

Western Navajo

There were three developments of reservoirs for stock water in this jurisdiction, two of which were constructed by Indian

contractors and the other by the tractor crew. Shortage of water in the vicinity of this third development made it necessary for the tractor crew to do the work. Other types developed were three springs and one dug well. This brings the total number of developments in this jurisdiction to 129.

Leupp

Only two new developments were completed, both dug wells. In addition, twelve concrete stock water troughs and four concrete storage tanks were constructed at the wells drilled during the previous year. The total number of developments on this jurisdiction is 51 which does not include the troughs and tanks.

Hopi

There were nine developments during the year, bringing the total on the jurisdiction to 140. Of the new developments, four were stock water reservoirs and five were springs. One of the springs was equipped with a windmill, concrete tank, and stock water troughs. The four reservoirs were constructed by Indian contractors.

Developments Completed During
the Fiscal Year 1933

	No. Nav.	East. Nav.	So. Nav.	West. Nav.	Leupp	Hopi	Totals
Reservoirs		3	3	3		4	13
Springs, with troughs		1	2	2		2	7
without troughs			2	1		2	5
with windmills						1	1
Dug Wells, with windmills			2	1			3
without windmills	3		7		2		12
Drilled wells, with windmills	1						1
without windmills		1					1
Troughs					12		12
Concrete storage tanks					4		4
Totals	4	5	16	7	18	9	59

Developments Completed to Date

	No. Nav.	East. Nav.	So. Nav.	West. Nav.	Leupp	Hopi	Totals
Reservoirs	6	21	10	39	4	10	90
Springs, with troughs	102	9	46	37	22	40	256
without troughs	6		9	18	3	40	76
with windmills			1			1	2
Dug wells, with windmills			3	5	5	1	14
without windmills	83	4	66	26	12	17	208
Drilled wells, with windmills	7		31	3	5	27	73
without windmills		1	1				2
Artesian wells, flowing	7	9	6	1		4	27
with windmills			1				1
Troughs	6	13			13		32
Concrete storage tanks					4		4
Totals	217	57	174	129	68	140	785

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