

The solution to these needs is as varied as the needs themselves. It is the enactment of S. 679 providing for:

- An amendatory repayment contract covering all lands of the Riverton Unit.
- The construction of drains.
- The rehabilitation of the irrigation system.
- The sale of Third Division lands.
- Land ownership limitation modified to 160 acres of Class 1 equivalent.

A new and modern irrigation system now existing for service to the 8,800 acres of good lands remaining on the Third Division.

Highlights of the problems of the Midvale District are as follows:

Many of the original concrete structures of the distribution system are of the *trapezoidal* type, and were constructed prior to the availability of alkali-resistant cements and other controls for the production of better concrete structures. Trapezoidal-type structures in this climate are especially subject to heaving and settling from frost action in wet materials. Gradual breakup of the structure results.

Proposed for repair and replacement are approximately 360 structures in canals and laterals, consisting of checks, drops and turnouts. About eighty per cent of these structures are on the laterals of the Wyoming Canal, Second Division. They are fast approaching a condition beyond repair. These structures were installed in the years 1924 to 1926 inclusive, and their deterioration can be traced largely to alkali in the soil. They should be repaired or replaced using alkali-resistant cement in the concrete.

The canals and main laterals are generally bedded in loamy sands, soft yellow sandstone, and shattered shales, all having high permeabilities. Lining of the canals and laterals will provide seepage protection, lower ground-water accretions from canal leakage, conserve water for future use, and permit larger terminal delivery volumes. It is proposed to line about 85 miles of the canal and lateral system which constitutes practically all the remaining unlined system traversing irrigable areas.

Areas where drains have been installed to complement canal and lateral lining have shown very good results, and the previous trend toward deterioration of land productivity has been reversed.

Detailed investigations and drain layouts needed to relieve and protect the lands have been made on twenty-two separate tracts, comprising a gross area of about 15,000 acres. Nine additional tracts comprising a gross area of 5,344 acres have partially completed plans. The gross area fully investigated represents about one-fifth of the Midvale Irrigation District. Detailed plans are developed for the construction of about 70 miles of closed drains and 4.5 miles of open drains to lower and control the water tables in the tracts investigated. The conversion of some open interceptor drains to pipe is planned. About 40 miles of existing open drains will be converted to closed drains.

Some rather interesting facts pertain to agriculture on the project.

Farmers on 42,457 acres of irrigated cropland in the Midvale Irrigation District produced crops valued at \$2,825,115 in 1966 bringing the cumulative crop value since the beginning of project operations in 1925 to \$58,883,281. Gross crop value of \$66.54 per irrigated acre in 1966 compares favorably to other reclamation projects in Region 6.

The Riverton Project is a vital segment of the Wind River Basin which comprises an area of 7,800 square miles, with a population of 27,600. It represents more than half the productive cropland in this arid basin and the livelihood of over 300 farm families.

The lands which have remained irrigable, having survived a rigorous testing period, are good lands and can be kept that way by the completion of a program of canal lining, drainage and structure replacement.

There is an ample supply of good quality water, and the irrigation works are constructed for a substantial portion of the Project.

Total expenditures to June 30, 1962, allocated to irrigation for the areas developed are about \$16,719,000 or \$292 per irrigable area. After completion of protective work for the areas developed, total expenditures would be approximately \$27,900,000 and \$488, respectively. These costs are by no means extreme when compared with new projects, those now under construction, or any project where planning is well advanced in the West generally, and in the Missouri River Basin particularly.