

Monte Vista, Colo.
October, 21, 1943.

1943

Mr. M. C. Hinderlider,
State Engineer,
Denver, Colorado.

Dear Mr. Hinderlider.--

Following is a brief report covering some things that have been done the past season in Irrigation Div. 3, District 20, and some things that should be done.

Any summary of happenings relating to Irrigation in the San Luis Valley the past season should begin by first paying tribute to our beloved late Division Engineer, Walter Carroll, who quietly passed away on April 21; "To have known him was to have loved him."

The irrigation season in District 20 got off to a very bad start this last spring, notwithstanding our April 1st snow report showed a greater water content than for April 1st 1942, but the month of April changed the picture completely. On April 1st 1942, on Wolf Creek Pass we had 29.1" water content and on the same date this year 30" of water. On May 1st 1942 on the same course we had 32.9" water content and on May 1st this year we had 14.92; a change almost beyond conception, due to a very hot and dry April this year. Added to these conditions, the mountains were saturated in the fall of 1941 and this last fall they were abnormally dry.

Thus, when our hot and dry April came along we experienced little or no run-off, although, as the records show our snow supply was more than 50% gone by May 1st. This meant no spring flood heads and thus in the west country farmers in District 20 did not get their much desired "sub". So, with the water shed 50% depleted of snow by May 1st and with the main reservoirs not more than 35% filled, farmers were much discouraged, but urged by the war need about an average acreage was seeded and much to the surprise of all a normal or above normal crop has been harvested.

Three things contributed to this success, showers at an opportune time, some pumping and last but not least, a very careful and economical use of such water as was available.

The rain-fall, in the Valley, during the growing season was almost double over that of last year. Records at Del Norte showing 3.3" of rain-fall from April 1st to Oct. 1st 1942 and for the same period in 1943, 6.12"; 3.41" falling in the month of August this year.

The third factor mentioned, and more worthy of our consideration here, for it tends toward progress in irrigation; that is the careful and economical application of the small amount of water we had. Following for comparison, is the approximate discharge of the six larger canals in District 20, for the period ending Oct. 1st this year and a corresponding period last year.

Year	River Acre Feet	Reservoirs Acre Feet	Total Acre Feet
1942	405,025	70,171	475,196
1943	288,977	31,358	320,335

The extreme scarcity of water and a very erratic river flow made the administration a bit difficult, for every conceivable source of supply was used, even the small fish ponds in the surrounding mountains were put to use which, I am told, never or seldom have been used for irrigation purposes.

The greatest development or, might I say, taking advantage of the thing at hand, was on the Weminuche Trans-mountain Diversion by improving the head-works or diversion dams on each ditch and by placing a care-taker on the job for a great part of the season there was delivered to District 20, 3049 acre feet of water this year against 1358 acre feet last season. So it may be said, a farmer can make a little water go a long way and still raise a very good crop when it has to be done.

Even though labor and materials were difficult to secure, some rather important and extensive improvements were made; the largest being the new rubble masonry Spill-way at the Terrace reservoir, having a designed capacity of 5000 cu.ft. per sec. with the intake structure 100 ft. wide at the wier crest and maximum wall height of 12.2 feet. The length of the spillway below the intake is about 200 feet and is built in seven sections of 28.8 ft. each separated with a bell and spigot type slip joint. There was about 600 cubic yards of stone imbeded in a rich cement and sand mortar, requiring about 2000 sacks of portland cement. The total cost, including very difficult excavation and back-fill was about \$ 10,000.00 with little or no skilled labor used or obtainable.

The other major improvement was made at the out-let end of the 84" pipe-line at the Santa Maria reservoir. ^{to overcome} ~~Having experien~~ considerable difficulty in the past with ice forming at the point of delivery from the pipe to the open ditch, ^{which} at times, completely closing ~~off~~ the tube. It seemed something ^{had to} be done to eliminate this difficulty. About 200' down the open canal from the end of the 84" tube, is a covered concrete 4 ft square section conduit which leads almost to the reservoir. It was thought ^{that} by making a direct connection with the large pipe to this concrete ~~or~~ conduit, the ice condition might be largely eliminated. Another feature entering into the proposed repairs was that ^{the location of the end of the} the large pipe ~~terminated~~ at a point not well back in the hill-side, requiring a very heavy back fill on a very steep slope; thus a very hazardous condition existed which is well proven by the fact that a few years ago during a heavy run, ice formed at this point, the ditch overflowed and before the mess was cleaned up and repairs made, the Company had spent some \$ 35,000.00 and very much valuable water had been lost, ~~due to tie up in storing.~~

A contract was let this fall to extend the 84" pipe-line down the ditch some 100 ft and another extension of a 48" pipe-line about the same length to tie direct to the old concrete conduit, the latter to take care of the winter storage flow. Concrete wing walls and a small concrete transition structure was placed at the opening or portal of the large tube. It is a very nice piece of work and I feel will prove to be a very valuable improvement. My only criticism is, that the floor of the canal from the small concrete transition structure to ^{the} a concrete check about 100 ft. down the canal, should have been paved to take care of possible scouring due to excessive velocities in this section.

While the numerous small lakes and reservoirs have required much time in administering, they proved of much value. Some repairs were made on Archuleta and lower Spruce lake dams and spill-ways but bad weather and high altitude prevented, this fall, the much needed repairs on the dam of Upper Spruce ^{reservoir} which will require ^{the placing of} some 400 or 500 cu.yds. of material ~~to be placed~~. The old dam was never more than 50 % completed.

The trash-racks, as you know, both at the Terrace reservoirs and the Farmers Union are in very poor condition and should be reinforced or rebuilt in the near future, and some consideration has been given by the owners ~~toward~~ making repairs this fall, but it seems at this time nothing will be done.

out (Complaints of water being wasted at different places and on different ditches has come to my attention but just how far water officials are to go in such matters I am not well informed.)

In general, we have had a good year, crops are above the average, nothing serious has arisen in the way of administrative problems, ^{and} the best of co-operation has existed amongst the personnel; so all in all we have come through in good shape from what seemed to be a very poor beginning.

Respectfully submitted,

D. Mathias

Special Deputy State Engineer.