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CHAPTER 6

Building the Dream with Ditches and Canals



In the first years of development, NID acquired about 400 miles of ditches and canals constructed by hand during the Gold Rush to support mining efforts. These conduits were the lifelines that would bring water to farmers and ranchers in the foothills. Construction was started in the mountain regions, and existing distribution systems were purchased following the approval of the water rights applications by state and federal commissions. This included the approval by the Bond Certification Commission for the sale of the 1925 bond issue for \$7.5 million. Ditch by ditch, NID built the backbone of its infrastructure.

The community rallied around the newly formed District. In Chicago Park, community members pitched in to build their own ditch.

Ditches required intensive physical labor. For example, during the construction of the Tarr Ditch, which NID purchased for \$37,500 in 1926, The Sacramento Union newspaper described the efforts in its April 10, 1910, edition: "Superintendent (E.H.) Tarr of the Blue Point Mining Company has moved his camp of twenty men from the Penn Valley district to the vicinity of the lime kiln in Nevada County, where they will be stationed for the next few weeks. The men have been at work for months cutting a trench six feet across on the bottom and four feet high, large enough to carry all the water that would

NID canals show early engineering skills

One of the remarkable things about NID is a canal system that is entirely supplied by gravity-flow and dates back to the Gold Rush. Today's engineers marvel over the engineering skills exhibited 150 years ago.

The earliest canals from the high mountains down into the Sierra foothills were many miles long and were precisely planned and constructed. Some say that a drop of 10 feet per mile was the goal of early canal builders.

"They would visualize a path and create a general map," said Gary King, former NID chief engineer. "They had no aerial views or electronic survey devices to help them.

They used chains and grade. They would shoot the path, walk down it and walk back up. It was open land, rough terrain. There were no property lines. They would figure the contours and follow the natural contours.

They were very good at it; people don't realize how creative they were." Many of the flumes along the old canals were built by craftsmen who also worked in the mines. "They were bridge builders," he said.

King said that Fred H. Tibbetts, NID's founding engineer, had excellent skills that came into play in connecting the earlier Gold Rush era canals into the fledgling NID water system. "We have 475 miles of canals and all the major movement of water is by gravity flow," said King.

flow through Wolf creek, from which the supply will come, at any time of the year. The object of the company is to get a supply of water to operate the old Blue Point gravel mine, which was in the courts for so many years on account of the owner, Patrick Campbell, working it by the hydraulic process. Tarr offers no explanation why the ditch is so large, and pays no attention to the scoffing of the farmers through whose places the ditch passes. The latter hope they will be

able to irrigate their places during the summer, but they have been given no encouragement along this line and the general opinion is that Tarr will need all water he can get for his mine. The work was started two years ago, at which time Tarr brought in two hundred Greeks and started them at work on the ditch. The miners' union of Grass Valley went down and caused a strike among the men and within a week all the Greeks left and Tarr was obliged to abandon the work."

Examples of the major ditches purchased in 1925-26 include:

Rough and Ready Ditch, purchased by NID on December 1, 1925, from Excelsior Water and Mining Company, diverted water from Deer Creek through about 13 miles of earth ditch for irrigation, domestic, and stockwatering uses in the Deer Creek area. This ditch was constructed in 1850 and originally put into use in 1854 for mining purposes around Rough and Ready.

Newtown Ditch was also included in the 1925 purchase from the Excelsior Water and Mining Company. The ditch, originally dug and put into use in 1881, diverted water from Deer Creek through an earth ditch and wood flume to supply water for irrigation, stockwatering and domestic uses in the Deer Creek and French Corral areas. Excess water in Pleasant Valley Ditch is spilled into the Excelsior Ditch in the vicinity of Pleasant Valley.

Excelsior Ditch, also part of the 1925 purchase from the Excelsior Water and Mining Company, diverted from the South Yuba River through 19 miles of earth ditch and wood flume, including its principal extensions, the Union, China and Keystone ditches that provided water for irrigation, stockwatering and domestic uses in the French Corral, French Dry Creek and Deer Creek areas.

Construction of the Excelsior Ditch began in 1856, and water was first delivered to the Smartsville area in the fall of 1859. At this time, the canal was known as the South Yuba Ditch, and the water diverted was used entirely for mining purposes. Shortly after the ditch was constructed it was decided to abandon that

portion of the ditch from its crossing of Deer Creek to its terminus and to carry the water to the mines by a different route. In 1860, China Ditch was constructed for this purpose. NID used China Ditch to divert water from the Excelsior Ditch to better serve customers.

Cascade Canal was purchased from PG&E on January 1, 1927. This ditch, dug in 1857 and first used in 1860, diverted water from Deer Creek about one-fourth mile downstream from the Deer Creek Powerhouse through 19 miles of earth ditch, wood flume and pipeline. From its diversion point, the ditch carried water to the Empire Reservoir, located about 3 miles east of Grass Valley near today's Nevada County Air Park. The reservoir regulated the flow, then released into the Big Chicago Park Ditch, which divided to form the Rattlesnake and Chicago Park ditches. Rattlesnake Ditch served the area between Wolf Creek and South Wolf Creek with its laterals, the Cunningham, Kyler, Union Hill, White, Forest Springs and Stockton Hill ditches. Chicago Park Ditch followed the ridge between Wolf Creek and Greenhorn Creek and terminated near Mt. Olive.

Ditch tenders keep the water flowing year-round

To keep the water flowing, tireless workers – called ditch tenders – were charged with around-the-clock monitoring and maintenance. Answering an emergency call in the middle of the night to remove a bundle of sticks and leaves from a ditch by hand was exhausting, relentless and necessary work. But without ditch tenders to clear the District's open irrigation canals and ditches, water wouldn't make it to farms and the system would fail.

In the early days, ditch tenders and lake tenders were stationed every five to six miles along the ditches of many hydraulic mining operations. Some lived in housing provided by the mines at the mountain lakes. Because they had to be on duty 24 hours a day to patrol and regulate the water, an innovative device was employed at night to monitor the ditches. A large float was thrown into the ditch and was attached to a rope that went through a pulley strung into the tender's cabin. The rope was tied to a shelf, and

The headgate of the Drescher Flume was part of the Chicago Park system.



tinware or other noisy objects were placed on the shelf. If the level of the ditch dropped, the float would also drop, pulling on the rope which pulled down the shelf with a crash. The loud noise would wake the ditch tender and he would rush to find the problem.

Later, ditch tenders began to patrol the domestic water systems, using soft pine to whittle plugs to fix leaking pipelines and sometimes throwing bales of straw into siphons to stop a large leak. The men also used what they called ditch walkers, which were whittled manzanita sticks. When they patrolled the ditches, they would throw a ditch walker into the water, and if it didn't end up on a trash rack several miles downstream in a reasonable amount of time, the ditch tender would hike upstream to find the problem and retrieve his trusty ditch walker.

Ditch tenders were paid between \$90 and \$115 per month. Other perks included housing and transportation, if the Board of Directors deemed it necessary. Also, if a ditch tender needed a

The Drescher Flume in Chicago Park was replaced in 1926.

NID reservoirs and canals carry some unusual titles

NID has some colorful and unusual names of its water storage and distribution facilities. Unfortunately, the origin of many of them has been lost through the years. For example, was the Fiddler Green Canal titled after an early-day musician?

How Scotts Flat was named remains unclear, but many local residents feel it was because of Scottish miners who lived and worked there back in the 1850s and 1860s. Schools once stood near what is now the campground on the lake's north shore and at the site where the Cascade Shores General Store is now located. The area was a maze of mining claims when the potential reservoir site was first identified in 1913. A 140-foot tall dam was built in 1947, and it was raised to 175 feet in 1964.

Many NID facilities are named for people. For example, Rollins Reservoir was named for J.L. Rollins, manager of the Bear River Water and Power Co., the organization from which NID obtained the land to build the reservoir. In the high country, Faucherie Reservoir was named after a French engineer who worked for the Eureka Lake & Yuba Canal Co.

Other facilities are named for the geographic area they serve, such as the Bald Hill or Pet Hill canals.

What is the meaning of the initials in D-S Canal? It means Deer Creek South. NID built the D-S Canal in 1927-28. It follows the south side of the Deer Creek canyon from Lower Scotts Flat Reservoir toward Nevada City. If NID had followed through on an initial plan to build a canal on the north slope, we would be familiar today with the D-N Canal.



Nick Nicholson
on patrol at
Norton's Ditch
Camp in 1937.

horse to perform his duties, an additional allowance of \$10 per month for feed was provided. A ditch tender received one day off every three weeks, and could accumulate no more than two days of vacation a year.

Besides the daunting task of keeping the ditches and canals clear and flowing, the ditch tenders were also expected to file applications for water often having hundreds of dollars on them that they carried in small metal boxes.

Orville L. (Nick) Nicholson became one of NID's ditch tenders when he was 26 years old in 1936. Prior to working for the District, he worked for PG&E as a laborer. However, he resigned from PG&E because they wouldn't give him deer season off.



D-S Canal

Starting with NID as a temporary laborer in 1932, Nicholson was hired as a permanent employee in 1935 in the maintenance department. A year later, he became a ditch tender, ultimately in charge of the Grass Valley area. For his crucial work, he earned \$110 a month, plus three cents a mile to cover expenses of driving his Model A Ford on patrol.

At that time, the ditch tenders were assigned to maintenance duties in the winter to help repair or replace the pipelines, canals and flumes. Nicholson's son, Les, recalled his father would leave the house in late October, with his 12-foot skis and pike pole, to walk or ski along the Cascade Canal. He stayed at the ditch camps along the canal, including at Norton's Camp located about one mile from Scotts Flat. On a daily basis, he would patrol the canal, using his

pike pole to break the ice and snow in the canal in order to keep the water flowing.

Even today, NID employs skilled workers to patrol and maintain the vital ditches. The ditch tenders have evolved into multi-tasked Water Distribution Operators. Yet ensuring the District's conduits are clear and flowing is as vital today as in the early days.

The District's system began to be referred to as two categories: the Upper, or Mountain, Division and the Lower Division. The Upper Division was the source of the District's water supply, as well as the associated facilities for diverting and storing water upstream of Spaulding Reservoir. The Lower Division referred to water rights with sources and associated facilities downstream of Spaulding Reservoir. ■