



OCTOBER, 1957

Sacramento Northern recently purchased three EMD diesel-electric locomotives from the defunct New York, Ontario & Western Railroad, at a cost averaging about \$45,000 each.

Two of the engines, renumbered SN-301 and SN-302, are in service between South Sacramento and Nicholas. The third, renumbered WP 801-D, has been leased to WP.

To bring the locomotives up to SN and WP standards, an additional \$2,287 was spent on each for repainting and work at WP shops in Sacramento. Improvements include "dead man controls," windshield washers, awnings, rear-view mirrors, water coolers, first-aid kits, brake pipe flow indicators and jump seats for brakemen. Also, additional grab irons and hand holds, dimming switches, coat hooks, fire extinguishers, ash trays, sun visor extensions, and low-level marker brackets. Fusee and torpedo holders, toilet seat



NEW POWER FOR S.N.

No Loss in Scenery When New Line Opens

WESTERN PACIFIC *Mileposts*

SEPTEMBER 1957

Work already under way in relocation of railroad

covers, spark arresters, and radios were also installed. Front and rear couplers and sanding arrangements were modified.

SN now has six 44-ton, two 70-ton, and three 120-ton diesel-electrics, and three 62-ton electric locomotives.

THE relocation of Western Pacific's main line prior to the construction of the proposed Oroville Dam will not deprive *California Zephyr* passengers of the type of natural and rugged scenery that can now be seen. Although about four miles shorter in length than the present line, all indications are that the new portion of the railroad between Oroville and Intake will be just as spectacular as the present lower portion of the Feather River Canyon.

These pictures, taken at random from points along the center line of the already staked out line, are examples of views to be seen from the vista domes. Because of preparatory work now being done by the Department of Highways for the relocation of U. S. Highway 40-A between Oroville and Jarbo Gap, county and construction roads made access to these viewpoints possible without too much difficulty.

Access work has been completed for driving the 4,412-foot Tunnel 4 and the 8,830-foot Tunnel 5. Both tunnels will be driven each way from Dark Canyon. As the tunnels are being dug, it is necessary to create a means of access across the canyon from one portal of a tunnel to the other. A temporary 16-foot culvert will encase the stream of water flowing through the canyon, and will be in use for at least two years.

The canyon between the two tunnels will ultimately be spanned by a concrete arch bridge, the culvert will be removed, and the stream will flow normally below the span.

It is expected that tunnel driving will begin this month. Three shifts will work around the clock on the project, being done by Peter Kiewit Sons' Co.

FRRS's new crane is being put to good use lifting the roof panels from F7-B, 1507, where in the US is a B-unit being rebt?



Vital railroad developments are being created by California's mammoth \$2.5 billion Central California Water Project, of which the Oroville Dam project is a segment. The Western Pacific line change, required by the Oroville Dam project, involves the latest techniques in high-level bridge and tunnel designs, soils and foundation developments, track laying, and other construction. The Oroville Dam, now under construction northeast of Sacramento, will divert waters of the fabulous Feather River to Southern California. The earthen-fill dam, measuring 3600 ft wide at its base, will rest on, and cover, a massive concrete core anchoring the dam to the river bottom.

Though railroaders are used to major engineering projects, few face projects the magnitude of Western Pacific's Oroville line change. Even so, this \$40 million project, representing the cost of relocating the railroad, is but a small segment of the over-all Oroville project. It has involved the relocation of Western Pacific's main line between Oroville (MP 205.47) and Intake, California (MP 232.43), replacing the road's original main line which will be inundated by the reservoir behind the dam. The dam is scheduled for completion on November 15, 1967. The relocation cost will be borne by the State of California.

Oroville Dam itself will consist of 77 million cubic yards (154 million tons) of earth or 1.4 million railroad carloads of cobble and impervious clay materials. Its 750-ft height will make it the highest earth-filled dam ever constructed. It will create an immense lake storing up to 3.65 million acre feet of water, will con-

trol the Feather River flood waters, and will provide water for irrigation and industrial use in many parts of the state, especially along the San Joaquin Valley and as far south as San Diego, California. Its waters will generate vast amounts of hydro-electric power.

To construct the dam, the contractors built their own railroad. The earthmoving chore, it is said, based on the weight of material and the distance moved, will be three-and-a-half times that of famed Gatun Dam in Panama. Three operating trains utilizing four sets of cars, 42 cars in each set, operate 21 hours per day, five days each week on the Oro Dam Constructors' railroad.

By the construction of the earthmoving railroad and by the use of special excavators, Oro Dam Constructors are said to be doing the job at \$10 million under the state's estimated cost. And, the contractors are ahead of schedule. Onan Construction Company, Inc. of Tennessee is the sponsor for the joint venture group along with seven other prominent contracting concerns which form the Oro Dam Constructors. The dam contract for \$121.0 million makes it the largest non-defense construction contract ever awarded competitively in the United States.

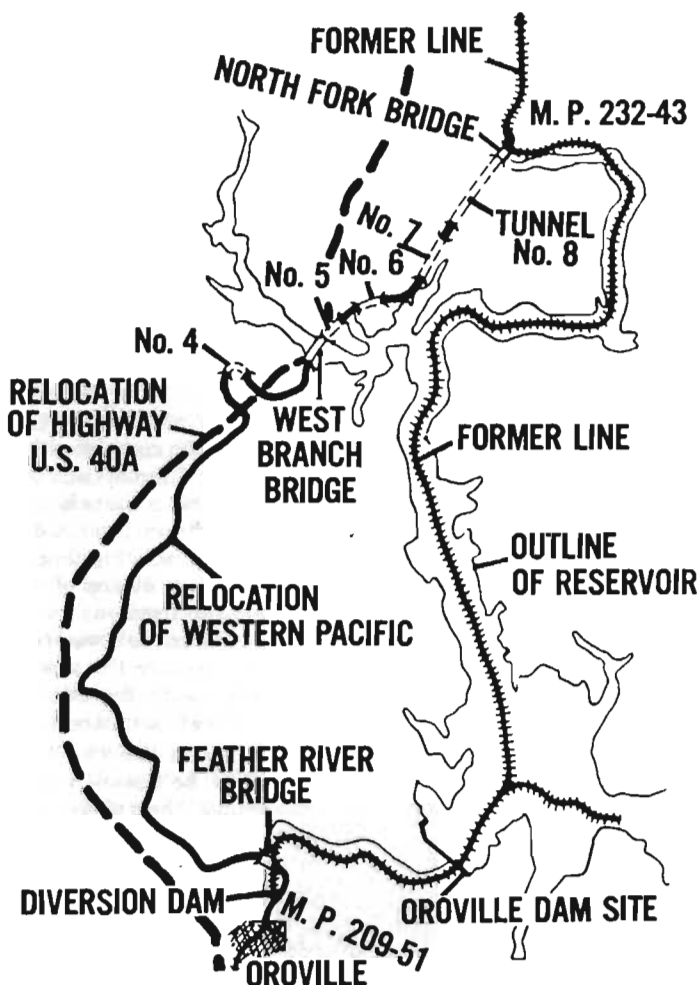
The work involving the Western Pacific was quite extensive. Some 27 miles of old line were replaced by 23 miles of new main track, four miles less than the old. Four major bridges were built—one being a notable 943-foot concrete arch structure; another a single arch 66-foot; a 1079-ft deck plate girder structure on single circular piers; and a joint highway through truss railroad

WP Makes a Mountain Line Change

by Edward T. Myers

MODERN RAILROADS, NOVEMBER 1964

MAP OF NEW AND OLD LINES



bridge 1879 ft in length. Five concrete-lined tunnels and considerable earthmoving were required to hold the railroad's maximum gradient at one percent compensated.

On October 22, 1962, Western Pacific started operating trains over its new line. Final work on the new alignment was essentially completed January 29, 1963. Immediately thereafter, Western Pacific's old alignment was parted at the dam site at which time dam construction officially got underway.

Oroville Railroad — A Heavy-Duty Line

This heavy-duty railroad was built by the contractor and extends for some twelve miles from the most remote borrow area to the dam. Segments of this haul line are double track. Gauntlet track is used in between the double track segments for purely economic reasons. Thus, the three crossings of the Feather River are by gauntlet. The only tunnel was formerly on the old Western Pacific line. Gauntlet operation was utilized only to avoid the expense of daylighting or of by-passing this tunnel with a second track. Also, in making the upper crossing of the Feather River near Thermalito, a single-track crossing was made. This bridge had originally been planned for double track, but the cost of the bridge, problems of curvature, and other engineering considerations caused the contractor to stay with single track.

Track on the contractor's railroad is 136-lb CF&I section rail, welded in 78-ft lengths for ease of construction. Operating speeds are relatively easy, with a maximum of 30 mph applicable for loaded trains and 40 mph for empty return moves. Loads, however, are relatively heavy, each car carrying 110-ton payloads. Each train consists of 40 loaded cars pulled by two General Electric U25C's, 2500-hp diesels with two empty cars on the rear. The two rear cars are essential for efficient operation of the hydraulic pusher, a part of the automatic car dumper near the dam site. Cars, as well as locomotives, are new. All this sounds rather amazing for a railroad which is temporary and will be removed once its job has been performed; here rail haul proved to be the only practical mode for moving materials with high efficiency.