

HAER No. OR-95

Southern Pacific Railroad Natron Cutoff, Tunnel 23
Milepost 584.5
Westfir Vicinity
Lane County
Oregon

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California

HISTORIC AMERICAN ENGINEERING RECORD
SOUTHERN PACIFIC RAILROAD NATRON CUTOFF, TUNNEL 23

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Location: Milepost 584.5, Oakridge, Lane County, Oregon
UTM: 10-536735-4848820
Quad: Westfir West, Oreg. 7.5', Provisional Editon 1986
(west portal)
UTM: 10-536605-4848810
Quad: Westfir West, Oreg., 7.5', Provisional Editon 1986
(east portal)

Date of Construction: 1910.

Engineer: Southern Pacific Railroad Engineering Department.

Present Owner: Union Pacific Railroad, 1416 Dodge Street, Omaha NE.

Present Use: Railroad Tunnel.

Significance:

The Southern Pacific Railroad Cascade Route, built as the Natron Cutoff between Black Butte, California and Natron, Oregon was one of a series of major rebuildings and realignments of the original Central Pacific Railroad. Begun in 1905 under railroad magnate E.H. Harriman to replace the original Central Pacific route over the Siskiyou Mountains into Oregon, the Natron Cutoff had to overcome both natural and political obstacles. Stalled by government anti-trust lawsuits against Harriman, by World War I and the ensuing federal takeover of the nation's railroads, the Natron Cutoff finally overcame the rugged Cascade Mountains of Oregon to reach completion in 1927, at an ultimate cost of nearly \$40 million. For the purpose of the current project, the Natron Cutoff was found likely to be eligible for the National Register of Historic Places at the state level of significance under Criterion A for its significance in engineering, transportation history, and the economic history of central Oregon, and in the development of the West, and under criterion B for its association with E.H. Harriman. The Natron Cutoff's period of significance is 1905 to 1945, from the beginning of construction in 1905, through the years of its role in the economic development of the central Oregon, to the conclusion of the railroad's achievements in World War II. Built in 1910, Tunnel 23 is a contributive element of this property.

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I. DESCRIPTION

Tunnel 23 is a 654-foot, single track railroad tunnel with concrete portal faces and wingwalls. The semi-circular arched opening is framed in dressed stone masonry voussoirs, the portal has a concrete parapet atop a stone masonry belt course topped by dressed stone masonry coping. A coping of dressed stone masonry blocks tops the stepped wingwalls. As-built, the tunnel was concrete-lined for the first fifty feet in from each portal, with the remainder unlined; because of continual creel of the slope which the tunnel pierced, the railroad subsequently lined the bore with timber bents in 1931, 1951, and 1953, and has since covered the timbering with shotcrete. The tunnel is on a tangent (no curve) alignment, and carried the tracks of the Union Pacific Railroad's (formerly Southern Pacific) Cascade Route line until its recent abandonment.

II. HISTORICAL INFORMATION

Contractors, Utah Construction Company of Ogden built Tunnel 23 (originally numbered Tunnel 2) in 1910 as an element of the Oregon Eastern Railroad. [For a full history of this line and of this undertaking, see the documentation set for the Southern Pacific Railroad Natron Cutoff (Southern Pacific Natron Extension) (Southern Pacific Cascade Route), Southern Pacific Cascade Route Tunnels, HAER No..] After assuming control of the Southern Pacific/Central Pacific and merging them with the Union Pacific in 1901, Edward H. Harriman had embarked on a series of huge reconstruction projects system-wide. One of these was the construction of a new main line through central Oregon to eliminate the original Central Pacific main line that reached Oregon by a torturous climb through the Siskiyou Mountains. Work began on the south end of the project first, with the acquisition and extension of the California Northeastern Railroad in 1905. In 1906 Harriman initiated work on the north end of the project, by beginning construction of the Oregon Eastern Railroad south from Natron, Oregon toward a meeting with the California Northeastern.

Two contracting firms divided the work, with Erickson & Petterson of San Francisco handling the work on the California Northeastern, and Utah Construction Company of Ogden building the Oregon Eastern. All the tunnels on the Natron Cutoff conformed to Southern Pacific Common Standard plans.

Using a combination of horse-drawn and mechanized equipment, Utah Construction built south from Natron along the Willamette River. Utah Construction crews reached the Westfir/Oakridge area in 1910, driving Tunnel 23 and then Tunnel 22 (HAER OR-) to arrive at Oakridge. Working from both ends, Utah Construction Company built their tunnels by driving two drifts (small pilot tunnels) at the spring line of the final arch. They then drove a third drift at grade level and centered, roofing it with loose timbers. Workers finally blasted the "bench", the material between the floor of the upper drifts and the ceiling of the lower drift, then removed some of the lower drift's roof timbers to drop the loose material down into dump cars for removal.

In 1911, with the tunnels having opened the line through to Oakridge, the railroad began construction of a terminal facility with depot, roundhouse and turntable, and a 65,000-gallon water tank. Train service from Eugene to Oakridge began in 1912, and Utah

Construction crews pushed grading six or more miles beyond the town that year before larger litigation issues shut the project down until 1923. Though it was to be the end-of-track for a number of years, Oakridge would ultimately evolve into a busy railroad town stabling the helper locomotives necessary to boost trains along the long climb to Cascade Summit. (After diesel locomotives replaced steam power, the railroad removed most of its facilities and Oakridge today serves mostly as a storage facility for snow-fighting equipment needed to keep the line open in winter.)

III. SOURCES

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IV. PROJECT INFORMATION

As a result of the 1996 merger of the Union Pacific and Southern Pacific Railroads, a federal undertaking under the jurisdiction of the Surface Transportation Board of the U.S. Department of Transportation, and in order to accommodate freight trains utilizing longer and taller cars and loads--tri-level auto rack cars and cars carrying double-stacked containers--the Union Pacific will need to increase tunnel clearances on the former Southern Pacific Natron Cutoff. The tunnels, built between 1905 and 1927, are contributing elements of the National Register-eligible Southern Pacific Cascade Route Tunnels Historic District. The railroad has laser-measured all tunnels and will determine clearance needs on a tunnel-by-tunnel basis. Some, because of curved alignment, will require interior work to allow for longer cars such as tri-level auto rack cars; others will require both interior and portal work to provide sufficient vertical clearance for "double-stack" container cars. The latter work may impact the character-defining tunnel portals if crown mining of the tunnels (as opposed to lowering the tunnel floors) is selected. Inasmuch as this would cause an adverse effect to the tunnels, Union Pacific, in consultation with the Oregon SHPO, has elected to record the tunnels for the Historic American Engineering Record. A field review with Oregon SHPO staff resulted in the guidance to document representative examples of tunnels from the early and late periods of construction. Documentation was carried out by P.S. Preservation Services, John Snyder Field Director and Historian, and Ed Andersen, Photographer. Photos were made in November 1997, and research was carried in June 1997, and from November 1997 through April 1998.