

Friends of the **SALINE VALLEY SALT TRAM**

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Welcome to a walking history tour of the Saline Valley Salt Tram.

The attraction of harvesting Saline Valley salt, and the main reason for the construction of the tramway, was that this salt had been formed over the millennia in naturally occurring mounds of mostly pure crystalline sodium chloride adjacent to and several meters above the Saline Valley lake surface. Unlike sea salt, which must be evaporated and then purified, Mother Nature had already evaporated and purified the Saline Valley salt. The salt was ripe to be harvested, but impractical to transport overland, either by horse, mule, or early and unreliable motor trucks. The solution would be to design, engineer, and construct a clever and profitable cable tramway to transport the salt.

Actual construction of the Saline Valley salt tram began in April, 1911. By October, 1913 the tramway began operation. Given the rugged terrain and the steep grades on both sides of the Inyo mountains, a 2½ year project timeline of this magnitude, and at that time in history must have been quite a grueling endeavor. See elevation chart below:

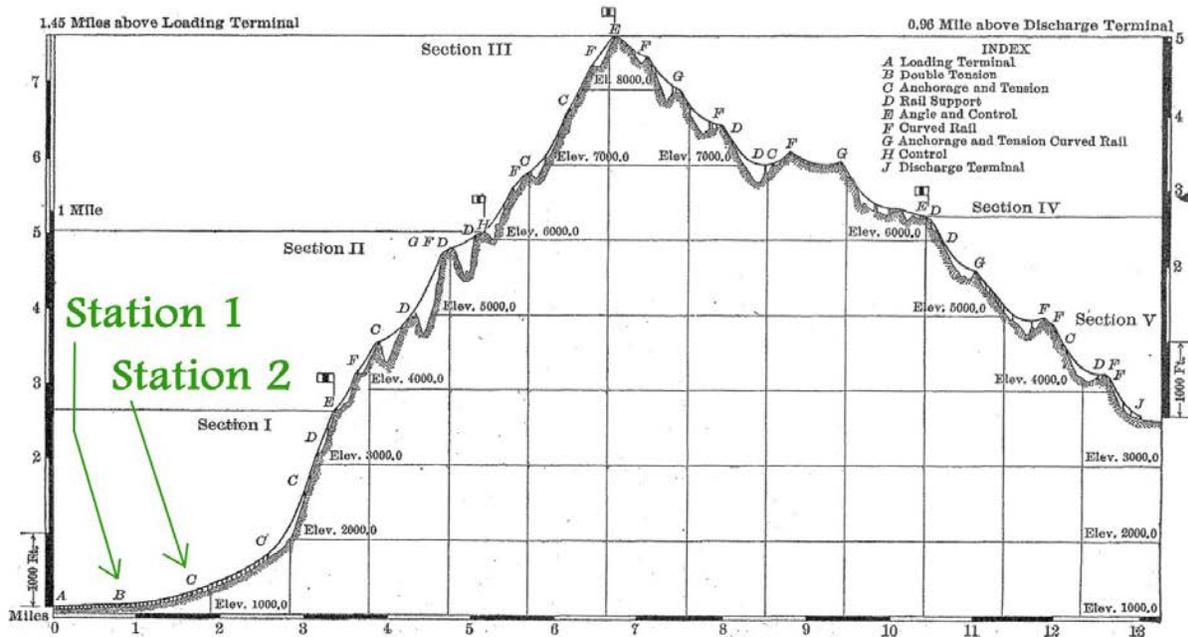


FIG. 1.—PROFILE, AERIAL TRAMWAY, SALINE VALLEY SALT COMPANY, TRAMWAY, CAL.

The tram cars were suspended by a stationary suspension cable, which carried the weight of both the loaded and unloaded cars. A traction cable, wound around and driven by way of large cast iron bull wheels powered by electric motors, pulled the cars up, and a flywheel brake system regulated the speed of the loaded cars going down. There were five such sections making up the length of the line, each with its own electric motor and regulator. The cars were engaged to the traction cable by way of a mechanical clutch, and could be disengaged to allow for loading, unloading, maintenance, or to take cars out of service. The line speed was approximately 500 feet per minute, or 6 mph.

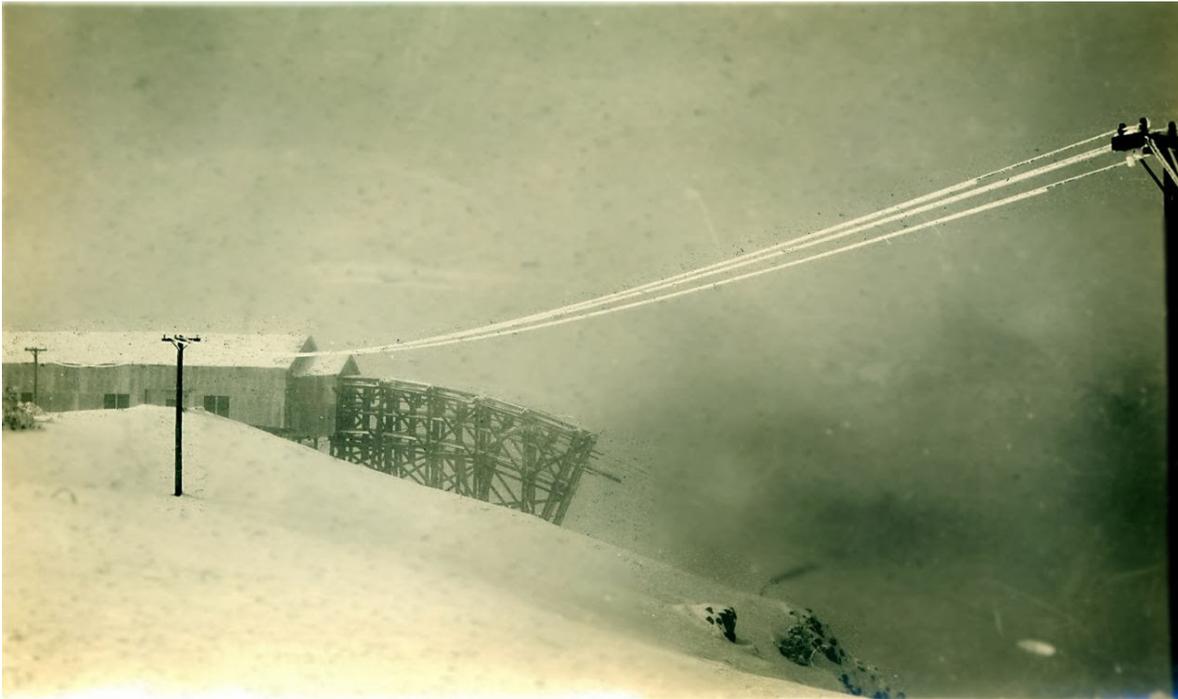
The movement of salt by way of aerial tram cars proved so efficient that by November 1913, soon after operations began, the traction cable motors were shut down due to a 5,000 ton pile of salt waiting to be hauled away by railway to Los Angeles.

Station #1, in the Saline Valley. The empty car in the foreground is arriving, and the loaded car in the background is departing. The suspension cable above, and the traction cable below can be seen in the photo.



Tram station #2, on the Saline Valley side. Some technical details about the cables: the traction cables were $\frac{7}{8}$ inch, and ran at $5\frac{1}{2}$ mph. The outbound (loaded bucket) suspension cables were $1\frac{1}{8}$ inch, while the return (empty bucket) suspension cables were $\frac{7}{8}$ inch (this was to save money where possible). The tram was able to transport 20 tons of salt per hour. A most ambitious project for its time!

Continuing westward from the Saline Valley, we come to tram station #3, the summit station. Below is an undated photograph of this station, looking to the north along the Inyo crest. Saline Valley is to the right, Owens Valley to the left. As can be seen, winter can come early and spring can arrive late at the 8,600 foot elevation. Note the rime ice on the power lines:



The summit station, in addition to routing both suspension and traction cables up and over the Inyo crest, also served as a tram car maintenance station. As the suspension cables entered the summit station from either direction and assumed a level attitude, the suspension cables transitioned to steel rails while the traction cables continued to run through the station. Inside the enclosed station, the steel rails had switches, similar to a railroad track switch, to allow for switching the salt cars to tramway sidings. Once level, cars could be disengaged from the traction cable and switched to a siding for maintenance, without interfering with the continuous traffic of other inbound or outbound cars. Once on the siding, cars could be moved about by hand for maintenance. Badly damaged cars could be removed from service, and repaired cars placed back into service by making use of the station rail switch.

At the Keeler (Owens Valley) terminus, the Saline Valley salt reached the end of the line. The inbound tram car clutch was disengaged, and the car temporarily halted to allow for the dumping of their salty contents onto waiting conveyor belts below. Once a car had been emptied, the clutch was engaged again, and off the car went to begin their trip back to the Saline Valley to be filled again with salt. Inside the terminus building was a salt drying machine to remove moisture content, making the salt lighter and less expensive and easier to transport to its final destination. Below is a photograph of the terminus, looking east to the Inyo foothills. Not very clear in the photograph is the large horizontal return bull wheel, on which the traction cable runs around and reverses direction. I shall leave it to the reader to discover its location.



From here, the dried salt was weighed and bagged, and then loaded into waiting rail cars on the Carson and Colorado narrow gauge railway 3 miles north of Keeler. The photograph below was taken from inside the terminus building, and is likely a publicity shot, showing various bags of bulk salt, and some boxes of salt to be sold to retailers:



Photo No. 77. Sacking salt at plant of Owens Valley Salt Co.

The narrow gauge Carson and Colorado railway had a transloading facility with the standard gauge Southern Pacific railway at Owenyo station, north of Lone Pine. In the transloading of loose salt, narrow gauge hopper cars would pull ahead of Owenyo station, then back up onto an elevated trestle. Under the trestle, standard gauge gondola or hopper cars waited to receive the loose salt from the narrow gauge hoppers. For already bagged

or boxed packages of salt, the product transfers were done manually from narrow gauge box or flatcars to standard gauge box cars. The narrow gauge transport was thus essentially a very short short line rail operation, the distance from Keeler to Owenyo being around 15 miles.

The narrow gauge line extended as far south as Keeler, and as far north as Moundhouse, Nevada. According to rail history, the line was originally intended to go as far south as Mojave, but finances ran short. The mines were able to switch to trucks as the local highways improved. The line closed permanently in April, 1960.

The tramway system had been plagued with mechanical problems from the beginning, and by 1920, the line was closed and the system repossessed by the Trenton Iron Company, the company that built it. In 1928 the Salt Tramway started up again, and was used for five more years until falling prices during the Great Depression made it unprofitable once again. It shut down for the last time in 1933.

As for the tramway, vandalism has taken its toll. Anything removable has disappeared. Few of the sturdy towers are left, except in the most inaccessible places, such as Daisy Canyon (see elevation map on page 2; Daisy is on the Saline Valley side to the left). The entire route is now on BLM (Bureau of Land Management) land. There are heavy penalties for vandalism, but it may be too late to save more than mere tokens of this remarkable achievement.



Many thanks to the Eastern Sierra Museum, Independence, California, and the Maturango Museum, Ridgecrest, California, and to the Waag brothers for photographs included in this 2017 Owens Lake Bird Festival handout covering the Saline Valley Salt Tram guided tour. Your tour guide was Max Rosan, of Keeler, CA. He can be contacted at max_rosan@yahoo.com.



For further reading, here is a list of books that cover the salt tram history in one way or another:

Waag Brothers. The Diary of Henry Clifton Patterson (2010). Published by E. Clampus Waagus Press. The Waag Brothers did extensive research on the entire length of the tram system. They also located the daily diary pages of the tram construction, and photocopied construction chief Patterson's hand-written diary entries which are shown in the book. Contact information is shown on the cover page of this handout.

Mary DeDecker. White Smith's Fabulous Salt Tram. Sagebrush Press, Morongo Valley CA (1993). Historical summary of the

construction and operation of the Saline Valley salt tramway. Published by Sagebrush Press to commemorate the 44th Annual Death Valley '49ers Encampment in 1993 (copyright 1993, The Death Valley '49ers, Inc., Death Valley, California, 92328. Out of print).

Roger Mitchell. Inyo-Mono SUV Trails: A Guide to 40 Interesting and Scenic Four-Wheeling Excursions in Inyo & Mono (2003). The author describes the entire Swansea Grade point by point, rock by rock, tree by tree, historical item by historical item, view by view. Available in the entire eastern Sierra and online.