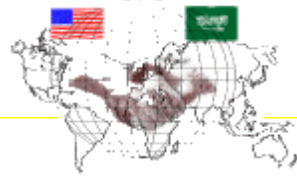


Saudi-American Forum



SAF Item of Interest

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The Story of the Saudi Government Railroad

By Frederick Haack

THE STORY OF THE SAUDI GOVERNMENT RAILROAD

By Frederick Haack, Chief Engineer of Saudi Government Railroad

In 1947, the Arabian American Oil Company (ARAMCO) was trying to expand at a very rapid rate. Crude oil production was over 100,000 barrels/day and was programmed to reach 200,000 barrels/day as soon as possible. The main obstacle to expansion was the problem of offloading required material and moving it to required sites. Cargo vessels were offloaded to barges, which were then towed to Ras Tanura or Al Khobar for handling. At the time, there were no roads in El Hasa province. There were only trails in the sand, which required specially equipped vehicles for moving cargo. The moving of material was therefore very slow, and cargo ships were required to remain at anchor for long periods of time. Not only did this result in high demurrage rates, but also ship owners were becoming reluctant to come to Arabia. Something had to be done, and Aramco decided to build a new port and a railroad. The port would be connected to shore with a railroad built on two miles of steel trestle and five miles of rock causeway. This distance from shore was required to obtain water deep enough to accommodate cargo vessels. There was also a small craft pier for work boats and barges. From the shore end, the railroad was to continue to Dhahran and Abqaiq.

When the King heard about the railroad, he informed Aramco that if there was to be a railroad built in Saudi Arabia, the government would build it, and instead of stopping at Abqaiq, it would continue to Hofuf and on to Riyadh as an important infrastructure project. Aramco had no desire to become involved in a program of this size, which might divert some of their efforts from their responsibility for the production of oil. An agreement was reached where Aramco would recruit people to form a new organization to construct and operate the railroad. Aramco would finance the operation and would be reimbursed by the government. They would oversee the operation, audit the expenditures and keep the government advised as to progress. Aramco would house and feed the expatriates of the organization and make the community facilities available to them. The railroad organization would be known as the Saudi Government Railroad (SGRR). It would purchase its own equipment and materials but was also able to rent equipment from Aramco.

Construction was started in 1947. Bectel and Fluor were the main contractors on the offshore portion of the project. This was a fairly conventional type of construction. However, the track was another matter.

The track was built largely with local Saudi contractors. The function of the contractors was basically to furnish labor. All the labor was unskilled. Most of the laborers were Bedouin, who had come right off the desert and whose entire livelihood at that time was based on livestock. They would work long enough to earn enough money to buy a camel or some sheep and then return to their families. In addition to the Saudi workers, expatriate workers, largely from the United States, were brought in to operate and maintain the heavy equipment. They also acted as straw bosses to lead the labor gangs. Conditions at the railhead were not ideal, and the heat and humidity were at times intense. This resulted in a high turnover of expatriate workers.

The construction phase of the project was filled with unusual problems. It started with the surveying. When laying out the line for the track, we would mark the center line and grade with wooden stakes. The next morning, the stakes would be gone. The local Bedouin had found a source for excellent firewood. We had to go to the local Emir who supplied us with a tracker who went around to all the surrounding camps and advised them that the sticks belonged to the King, and anyone who disturbed them would be subject to severe punishment. The Bedouin were well aware of what the Emir's severe punishment could be. The stakes were never touched again.

Safety was a real problem since we were working with unschooled people, who had come out of the desert to earn enough money to increase their herds and would leave once they obtained their objective. They had no concept of the hazards that they might be exposed to and had to be watched very closely. An example of the level of safety regulations was a poster in Arabic saying, "Do not sleep with your head on the rail." It was comparatively cool under the railroad cars, and the workmen found the rail a good pillow. Unfortunately at that time, most of the workers could not read, so written warning posters were of questionable value. It was really up to the straw boss to look after his people.

We were surprised by the rain we encountered. It did not rain very often, even during the rainy season, but when it rained, it rained hard. The hard, dried ground did not absorb much water, and we had flash floods, which washed out the track. We were forced to install culverts, which had not been anticipated. Once, going through the Dhahana sands, we were flooded for two days. The camp boss looked over the flooded area and said, "I'll be damned. We've had windstorms, sandstorms, and now, we're having a flood. The next thing you know, we'll have a forest fire."

As might have been expected, the major problem we encountered was moving sand. There was not much literature on the subject of building roads in an area of moving and blowing sand. Dunes are mobile, and they will move in the direction of the prevailing wind. It was not unusual to find the tracks completely covered with sand after a sandstorm or *shimaaal*, as it was called by the Arabs. At first, we tried snow fencing, which was only slightly effective. The moving sand was very much finer than most snow. For a long time, our only remedy was to clean the track with heavy equipment. It was just through trial and error and much experimenting that we found that by oiling a strip across the upwind side of the dune, it broke the aerodynamic patten of the dune and slowed it down or destroyed it. Progress depended upon the terrain. In flat areas, we could make as much as 5,000 feet of track in a day. In rough country, such as dunes, sometimes

we could only make 500 feet. It largely depended on how much sand we had to move.

The front-end work was done by a crew living on a work train. This train consisted of an office car, a kitchen care, a dining car, refrigerator car, a bath car, and several sleeping cars.

The work was hard – sometimes 12 hours a day, seven days a week to maintain schedules. The train would move with the progress so as to minimize the travel time from the train to the work site. The work conditions were noisy and dirty, but the food was very good, and the pay was excellent. We experienced some turnover in expatriate workers but no more than we had expected. In time, the Arab crews really became efficient. They formed a rail crew to unload the rail to move to the site and lay it on the ties. The tie crew stayed ahead of the rail crew so that the ties were in a position to lay the rails on. The crew that was remarkable was the ghandi dancers. These were the men who drove the spikes, and they were very good at it and very proud of themselves.

The project ran a supply train to the work site, which brought steel rails and ties every day. The train stayed overnight and returned the next day. If two trains were running, the train returning from the work was required to pull into a siding and allow the down-coming train to come through. One day, the engineer of the train returning to Dhahran tied the throttle of the locomotive in the run position and fell asleep. He evidently thought he would wake up before he reached the siding, but instead, he went past it. The engineer on the down-coming train blew his whistle and went in reverse to no avail. We had achieved a head-on collision with the only two locomotives in the country. This was difficult to explain to the King.

The locomotives for the railroad were diesel-electric and made by General Electric. These were for freight service. For passenger service, Budd cars were chosen. These were self-propelled units, also diesel-electric. They had stainless steel bodies and were fully air-conditioned.

When we approached Riyadh, anyone who had a car in the area would be driving and racing on our grade. It was difficult to get these people off the grade because at that time, anyone who owned a car had to be rich and influential. It took the King to clear the track.

The railroad and port were started in 1948. The port was completed in July of 1951 and started unloading cargo with service to Dhahran and Abqaiq.

The track to Riyadh was completed in January 1952. A ceremony was held with the King there to drive the last spike. It was gilded gold, and the King took the first blow.

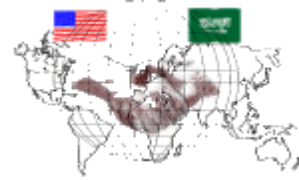
About the Author

Frederick Haack was the Chief Engineer of the Saudi Government Railroad. He arrived in Saudi Arabia to work for Aramco in 1948 and worked on the railroad from 1949 to 1952. Mr. Haack is retired and lives in New Orleans, Louisiana.

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